

**ALDI FOOD STORES
STRAIGHT MILE, LLAY**

TRANSPORT ASSESSMENT

**PREPARED ON BEHALF OF:
ALDI STORES LIMITED**



10 King Street
Newcastle under Lyme
ST5 1EL

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1.0 INTRODUCTION

1.1 Background

- 1.1.1 This Transport Assessment has been prepared by Cameron Rose Associates on behalf of Aldi Stores Limited in order to examine the highway and transportation issues associated with the proposed development on land to the north east of Llay, bounded by the B5102 (The Straight Mile) to the north and the B5373 (Gresford Road) to the south west. .
- 1.1.2 The site area comprises 11,278 sqm (2.79 acres) and falls within the red line boundary of the approved, on appeal, planning application P/2014/0905 – mixed use development of up to 365 residential houses and 300 sqm A1 retail use. The application for approval of the reserved matters to this outline planning permission (P/2017/1054), revised the red line boundary to exclude the development site and reduce the number of dwellings to 362.
- 1.1.3 The proposed scheme is for full planning permission for a new Aldi food store, associated parking, access, servicing and landscaping at Land at Home Farm, Gresford Road, Llay, Wrexham, LL12 0NW.
- 1.1.4 The development proposals include the provision of an Aldi food store with a Gross External Area (GEA) of 1,921 sqm. The proposed parking provision for the development is 117 spaces, including eight disabled, five motorcycle and nine parent and child parking spaces.
- 1.1.5 This Transport Assessment has been prepared to support the planning application for the proposed development and includes an analysis of the existing transport provision within the vicinity of the site, including sustainable transport facilities, traffic flows and the operation of the existing highway network. This Assessment considers the adequacy of this existing and consented provision to accommodate the future demands associated with the application proposals.
- 1.1.6 Details of the pedestrian and vehicular access arrangements, quantum of car and cycle parking and servicing arrangements are set out in this report, together with a detailed assessment of the potential traffic impact of the development proposals on the surrounding local highway network.

1.1.7 Pre-application discussions have been held with highway officers at Wrexham Council, who have agreed the proposed study area.

1.1.8 This report concludes that the proposed development can be accommodated without detriment to the operational capacity or safety of the local highway network and that it can be readily accessed by sustainable modes.

1.2 Policy Context

1.2.1 The development proposals have been considered in the context of the following national policies and guidance:

Planning Policy Wales (PPW) Edition 10 2018

1.2.2 In relation to Transport PPW states in Paragraph 4.1.1 that:

‘The planning system should enable people to access jobs and services through shorter, more efficient and sustainable journeys, by walking, cycling and public transport’:

1.2.3 The delivery of this objective could be supported through a modal shift to walking, cycling and public transport. Paragraph 4.1.9 of the PPW states that sustainable transport can be supported by facilitating developments which:

- *‘are sited in the right locations, where they can be easily accessed by sustainable modes of travel and without the need for a car;*
- *are designed in a way which integrates them with existing land uses and neighbourhoods; and*
- *make it possible for all short journeys within and beyond the development to be easily made by walking and cycling’.*

1.2.4 It is considered that the site is situated in a sustainable location, which is evident by the recent planning approval for residential development on the neighbouring site. The proximity of a number of existing and proposed residential developments will enable the development to be easily accessed by sustainable modes of travel and without the need for a car. It is therefore considered that the development proposals accord with the transport policies outlined within PPW.

Planning Policy Wales, Technical Advice Note 18: Transport

1.2.5 Technical Advisory Note (TAN) 18 provides detailed guidance on implementing the transport objectives contained in PPW.

1.2.6 Paragraph 2.3 of TAN 18 focuses on integrating land use planning and transport and suggests that integration can help in achieving wider sustainable objectives by:

- *'Promoting resource and travel efficient settlement patterns;*
- *Ensuring new development is located where there is, or will be, good access by public transport, walking and cycling thereby minimising the need for travel and fostering social inclusion;*
- *Managing parking provision;*
- *Ensuring that new development and major alterations to existing developments include appropriate provision for pedestrians (including those with special access and mobility requirements), cycling, public transport, and traffic management and parking/ servicing;*
- *Encouraging the location of development near other related uses to encourage multi-purpose trips;*
- *Promoting cycling and walking;*
- *Supporting the provision of high quality, inclusive public transport;*
- *Supporting provision of a reliable and efficient freight network;*
- *Promoting the location of warehousing and manufacturing developments to facilitate the use of rail and sea transport for freight;*
- *Encouraging good quality design of streets that provide a safe public realm and a distinct sense of place; and*
- *Ensuring that transport infrastructure or service improvements necessary to serve new development allow existing transport networks to continue to perform their identified functions'.*

1.2.7 Chapter 9 and Annex D of TAN 18 refer to the preparation of Transport Assessments in relation to development and paragraph D.2 outlines the following aims of producing a Transport Assessment:

- *Understand the transport impacts of the development;*
- *Clearly communicate the impacts to assist the decision making process;*
- *Demonstrate the development is sited in a location that will produce a desired and predicted output (for example in terms of target modal split);*
- *Mitigate negative transport impacts through the design process and secure through planning conditions or obligations; and*
- *Maximise the accessibility of the development by non-car modes'.*

1.2.8 The remainder of this report will outline how the development proposals meet the objectives of TAN 18. A Framework Travel Plan is also included as an Appendix to this report, which outlines mitigation measures and initiatives to encourage sustainable travel.

Wrexham Unitary Development Plan

1.2.9 The Wrexham UDP 1996 – 2011 was adopted by Wrexham County Borough Council in February 2005. The two relevant transport policies contained in the UDP comprise Policy T8 and Policy T9.

1.2.10 UDP Policy T8 states:

'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. Special regard will be paid to the following factors, as appropriate:

- The availability of public transport nearby;
- Proximity to public car parking;

- Proximity to local services and facilities;
- Road safety hazards and amenity considerations arising from on-street parking in the vicinity of the site.

Where implementation difficulties arise in making parking provision on-site or nearby, the Council will require a developer to make financial contributions for measures to assist public transport, or walking and cycling as appropriate’.

1.2.11 UDP Policy T9 states:

‘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’.

1.2.12 UDP Policy GDP1 also refers to traffic and transportation:

- *D) ensuring safe and convenient pedestrian and vehicular access to and from development sites, both on site and in the nearby locality.*
- *E) ensure that built development is located where it has convenient access to public transport facilities, and is well related to pedestrian and cycle routes wherever possible.’*

1.2.13 As part of the development proposals and the wider approved residential scheme, pedestrian route and links to Gresford Road are provided. Pedestrian crossings are also proposed on Gresford Road. Cycle parking is also incorporated into the development proposals, along with lockers and changing facilities for staff. Access to public transport services is available along Gresford Road and Llay Road.

1.3 Structure

1.3.1 The structure of the report herein is set out as follows:

- **Section 2.0** considers the location of the development site, the local highway network and the existing infrastructure provision for sustainable modes of transport;

- **Section 3.0** sets out the details of the development proposals, site access, parking provision and servicing arrangements;
- **Section 4.0** presents the baseline conditions of the local highway network;
- **Section 5.0** deals with the potential trip attraction of the proposed development considering the various trip types;
- **Section 6.0** considers the impact of Junction 7 of the A483 and operational performance of the local highway network for a future assessment year, with and without the development in operations; and
- **Section 7.0** provides a summary and conclusion to the report derived from the analysis presented in the above chapters.

1.3.2 The report has been prepared solely in connection with the proposed development as stated above. As such, no responsibility is accepted to any third party for all or any part of this report, or in connection with any other development.

2.0 THE DEVELOPMENT SITE

2.1 Site Location and Surrounding Area

- 2.1.1 The site area comprises 11,278 sqm (2.79 acres) and falls within the red line boundary of the approved, on appeal, planning application P/2014/0905 – mixed use development of up to 365 residential houses and 300 sqm A1 retail use. The application for approval of the reserved matters to this outline planning permission (P/2017/1054), revised the red line boundary to exclude the development site and reduce the number of dwellings to 362.
- 2.1.2 The site is located to the north east of Llay, bounded by the B1502 Straight Mile to the north and the B5373 Gresford Road to the south west. Residential properties are located to the south. To the east is land with permission to develop a mixed-use residential led scheme.
- 2.1.3 The junction where the B5373 Gresford Road and the B5102 Straight Mile meet is known as the Crown Crossroads and bounds the north western boundary of the site.
- 2.1.4 The wider site (including P/2017/1054) currently comprises agricultural land, including cattle sheds and areas of hard standing used to park farm vehicles. The site also comprises a series of fields with hedgerows and in some instances, walls on their boundaries.
- 2.1.5 The location of the site in relation to the local highway network is illustrated in **Figure 2-1**.

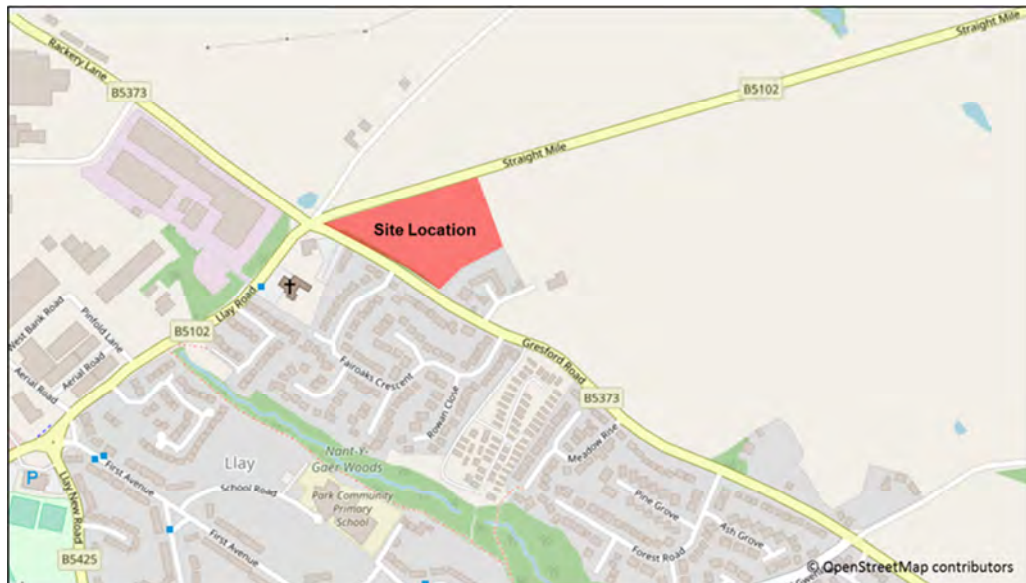


Figure 2-1: Site Location

2.2 Local Highway Network

2.2.1 As confirmed by the local Highway Authority during pre-application discussions, the Transport Assessment will consider the following junctions.

- B5373 Gresford Road/ Proposed Site Access – priority controlled junction; and
- Crown Crossroads - B5102 Llay Road/ B5102 Straight Mile/ B5373 Gresford Road - signalised crossroads junction.

2.2.2 The locations of these junctions are illustrated in **Figure 2-2**.

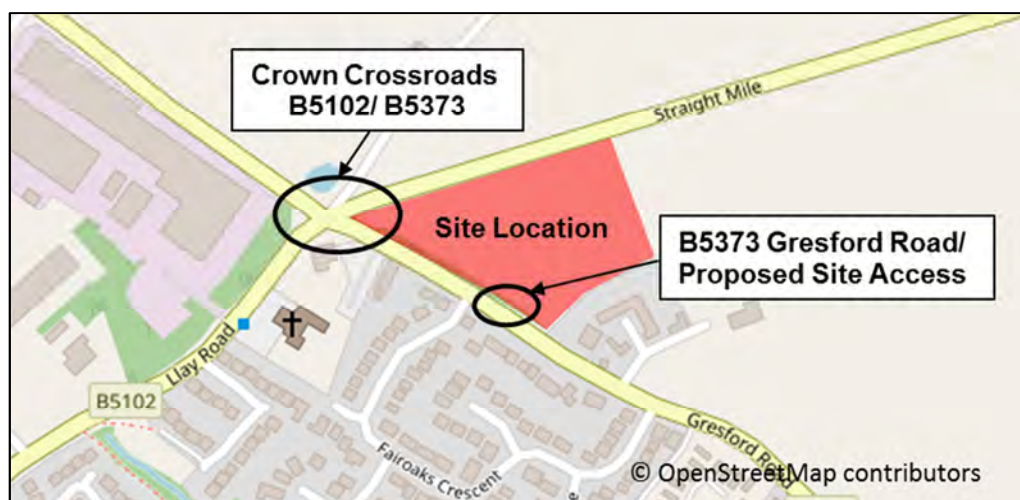


Figure 2-2: Local Highway Network

- 2.2.3 The B5102 Straight Mile runs eastwards from a signalised junction to the North West corner of the site, for approximately 1.5 kilometres, until the carriageway continues as Croeshowell Hill.
- 2.2.4 In the vicinity of the site, the Straight Mile forms a single lane, two-way carriageway approximately seven metres in width. There is a footway on the northern side of the road which is less than one metre wide. The carriageway has a speed limit of 50 mph/ 30 mph and there is no street lighting present.
- 2.2.5 The B5373 Gresford Road runs southwards from its signal controlled junction with the B5102 Straight Mile, for approximately 2.5 kilometres, until it forms a priority controlled junction with the B5445 Chester Road. A pedestrian refuge is provided on Gresford Road in the vicinity of the signal junction.
- 2.2.6 In the vicinity of the development site, Gresford Road forms a single lane, two-way carriageway, with an approximate width of six metres. The footway on the southern side of the carriageway is approximately two metres in width. Gresford Road has a speed limit of 30 mph and street lighting is provided along its length.
- 2.2.7 Llay Road runs south west from the signal controlled junction with Gresford Road/ Straight Mile, for approximately 2.5 kilometres, until it forms a priority controlled junction with the A541 Wrexham Road at Cefn-y-bedd. Pedestrian crossing facilities are provided at the signal junction in the form of a pedestrian refuge.
- 2.2.8 Approximately 450 metres south west of the signal junction with Gresford Road/ Straight Mile, Llay Road forms a roundabout junction with Llay New Road and First Avenue.
- 2.2.9 The B5102 Llay Road forms a single lane, two-way carriageway approximately seven metres in width, in the vicinity of the development site. Footways are present on both sides of the carriageway, with an approximate width of between 1.5 metres and 2.0 metres. The carriageway has a speed limit of 40 mph within Llay, although increases to 60 mph west of the Llay New Road/ First Avenue roundabout junction. Street lighting is present along the section of the carriageway subject to a 40 mph speed limit.

2.2.10 The B5373 Rackery Lane runs in a North West direction from the signal junction with Gresford Road/ Straight Mile for approximately 1.5 kilometres, until the B5373 continues as Gresford Road at Caer-Estyn. A pedestrian refuge is present at the signal junction.

2.2.11 In the vicinity of the development, the B5373 Rackery Lane forms a single lane, two-way carriageway. The road is approximately eight metres in width, with widening at some junctions. There is a footway on the southern side of the carriageway and an intermittent footway on the northern side. The footway widths are between 1.5 metres and 2.0 metres. Rackery Lane is subject to a 40 mph speed limit. Street lighting is provided along its length.

2.2.12 Chapel Lane runs north east from the signal junction with Gresford Road/ Straight Mile for approximately 900 metres until a priority controlled junction with Dark Lane and Lon Uchaf.

2.2.13 In the vicinity of the site, Chapel Lane forms a single lane, two-way carriageway, approximately 5.5 metres in width. There is no footway provision. Chapel Lane is subject to a 30 mph speed limit. Street lighting is provided intermittently along its length.

2.2.14 Planning application P/2017/1054 is subject to a number of transport planning conditions that will impact on the local highway network. These include:

- The means of vehicular access, namely a right turn ghost island junction onto the B5102 Straight Mile and a priority T-junction on the B5373 Gresford Road;
- Speed amendments to the B5102 Straight Mile;
- Traffic calming measures along the B5102 Straight Mile and the B5373 Gresford Road;
- Pedestrian crossing points along the B5373 Gresford Road; and

- The Crown Crossroads mitigation. Mitigation included the installation of Microprocessor Optimised Vehicle Actuation (MOVA) technology at the junction, widening on Straight Mile to create an additional waiting lane, rationalisation of the existing road markings and extending Llay Road arm splitter island. The widening scheme will create an additional lane of Straight Mile, for a length of approximately 40 metres. These proposals include marking the nearside lane for ahead and left turning movements with the offside lane exclusively for right turning vehicles. (PA: P/2018/1021).

2.3 Accessibility by Sustainable Modes

2.3.1 This section provides an appraisal of the existing sustainable transport networks surrounding the proposed site, with due regard to the following:

- walking and cycling network; and
- public transport network.

Walking and Cycling

2.3.2 The Institution of Highway and Transportation (IHT) document entitled 'Guidance for Journeys on Foot' (2000) suggests 'acceptable' walking distances for different journey purposes. They suggest that walking distances for pedestrians without mobility impairment, for commuting and education, are up to 500 metres as a desirable distance, up to 1,000 metres as an acceptable distance and 2,000 metres as the preferred maximum. The document recognises that:

'... that it is not always possible to achieve ideal results in all situations due to site constraints, costs or other practicalities and that compromises must sometimes, rightly, be made' (Para 1.10).

2.3.3 The document goes on to advise that some 80% of walking journeys in urban areas are less than 1.0 mile long and that the average length is 1.0 kilometres (0.6 miles) and that this differs little by age or sex. (Source: IHT document, Providing for Journeys on Foot, Para. 3.30).

- 2.3.4 An acceptable cycle distance is considered to be up to five kilometres. Although now superseded PPG13 notes that:

'Cycling also has the potential to substitute for short car trips, particularly those under 5km and to form part of a longer journey by public transport.'
(Para. 77)

- 2.3.5 The Department for Transport (DfT) Local Transport Note 2/08 also states that many utility cycle journeys are under three miles, although for commuters, a trip distance of over five miles is not uncommon. (Para. 1.5.1)

- 2.3.6 In the vicinity of the development site Straight Mile has a footway on the northern side of the road which is less than one metre wide. A footway is present on the southern side of Gresford Road and is approximately two metres in width. As part of the development proposals a footway will be implemented on the northern side of Gresford Road, along the site frontage.

- 2.3.7 Pedestrian refuges are provided on Gresford Road and the B5102 (w), at the Crown Crossroads. In addition to the existing pedestrian crossing facilities provided at the Crown Crossroads, planning application P/2014/0905 also includes the provision of two zebra crossings on Gresford Road. The first zebra crossing point is located approximately 70 metres from The Crown Crossroads and the second is to be incorporated into the northern arm of the access into the residential site on Gresford Road. The first crossing will enhance the accessibility of the proposed store on foot and a pedestrian access point has been incorporated into the site layout design at this location.

- 2.3.8 As part of planning application P/2017/1054, the second crossing, has been relocated to the south of Fairoaks Crescent and the north of the proposed residential access. The crossing has also been upgraded to a Puffin facility. Planning application P/2017/1054 also states that the other zebra crossing will be delivered as part of the proposed future retail development i.e. this application.

- 2.3.9 Generally, the topography of the local area is conducive to cycling. Wrexham County Borough Council has established a network of cycle routes throughout the borough to encourage this mode of travel.

- 2.3.10 With regards to formal cycle facilities, there is a designated local cycle route along Llay New Road which links Llay Road and First Avenue with New Rhosrobin. The cycle route is formed almost entirely of a designated off-road cycle provision, with a short section of approximately 180 metres in Llay being on-road.
- 2.3.11 The walking catchment encompasses a large residential area, including Llay Industrial Estate and the proposed neighbouring residential development. A five kilometre cycle catchment of the site incorporates the surrounding areas of Rossett, Marford, Gresford, Cefn-y-bedd, Caergwrle and Hope. The cycle catchment also includes the northern areas of Wrexham town centre.
- 2.3.12 This catchment indicates that cycling could be seen as a viable form of commutable transport for those working on-site and living in the surrounding residential areas. Thus the location of the proposed development would provide the opportunity for employees and visitors/ customers to access the site by bicycle. Walking and cycling links in the vicinity enhance the viability of such trips.
- 2.3.13 A suitable level of street lighting is present throughout the area. Generally, the pedestrian/ cycle facilities encourage movement on foot/ cycle within the vicinity of the development site and provide adequate links to the nearest bus stops and neighbouring residential developments (both existing and future developments), thus encouraging sustainable travel to the store.

Public Transport

Bus Services

- 2.3.14 Guidance published by the Institute of Highways and Transportation 'Planning for Public Transport in Developments' (1999) recommends that the maximum walking distance to a bus stop should be 400 metres, equating to an approximate five minute walk.
- 2.3.15 The site is well located adjacent to existing bus stops on Gresford Road and Llay Road. The site is within 400 metres of these stops ensuring adequate access to public transport. .

2.3.16 These stops are served by bus service 34 which routes between Wrexham – Trevalyn, via Pandy, Llay and Burton. The service offers three services between 1000 – 1600 on Wednesday, Friday and Saturday.

Rail Services

2.3.17 The closest railway station to the development is Cefn-y-bedd, located approximately 2.9 kilometres to the North West of the site. It offers hourly services to Wrexham Central and Bidston railway station. Although outside of a typical walking catchment, it is considered that Cefn-y-bedd could be utilised as part of a multi-modal trip.

2.4 Summary

2.4.1 The Travel Plan for the Aldi foodstore would include measures to encourage staff and customers to use public transport. A Framework Travel Plan is included in **Appendix C**.

2.4.2 Overall it is evident that the site is accessible to pedestrians, cyclists and users of public transport. The proposed development will include measures to promote the use of such sustainable modes of transport.

3.0 THE PROPOSED DEVELOPMENT

3.1 Overview

3.1.1 The development proposals include the provision of an Aldi food store with a Gross External Area (GEA) of 1,921 sqm. The proposed parking provision for the development is 117 spaces, including eight disabled, five motorcycle and nine parent and child parking spaces. The development will also be accompanied by 14 cycle parking spaces in the form of seven Sheffield type stands.

3.1.2 The development proposals will also include:

- the provision of a 2.0 metre footway connection around the boundary of the site;
- the provision of a zebra crossing facility on Gresford Road, approximately 70 metres to the south east of the Crown Crossroads'
- upgrade of bus stop and formation of a bus layby on Gresford Road to Quality Bus Standard.

3.1.3 The proposed site layout for the development is attached in **Appendix A**.

3.2 Proposed Means of Access

Vehicular Access

3.2.1 Customer and service vehicle access to the development site is proposed via a newly formed priority controlled junction off the B5373 Gresford Road, approximately 135 metres south of the Crown Crossroads. The new bell mouth will be constructed with nine metre radii and tactile paving.

3.2.2 An additional left in only access is also proposed from the B5102 Straight Mile, approximately 100 metres back from the stop line at the Crown Crossroads.

3.2.3 The site access locations are illustrated in drawing 423-01/GA-01 attached in **Appendix B**.

- 3.2.4 Based on a 30 mph speed limit, applying visibility splay criteria detailed in the Manual for Streets, a design standard visibility splay of 2.4 metres by 43 metres has been calculated (including bonnet length adjustment).
- 3.2.5 Based on site observations and measurements taken from topographical survey data, the proposed access arrangement can achieve the required visibility splays. This is illustrated in drawing 423-01/GA-02 attached in **Appendix B**.

Pedestrian Access

- 3.2.6 In addition to pedestrian access via the main vehicular access, a dedicated pedestrian access is also proposed off the B5373 Gresford Road, approximately 80 metres to the south of the Crown Crossroads, providing a direct route to the store.
- 3.2.7 A pedestrian link to the consented residential development to the east of the development site has also been incorporated into the design, on the north eastern boundary of the site.
- 3.2.8 Designated pedestrian routes within the application site will provide safe routes for pedestrians to move through the car park. This is illustrated in drawing 486-01/GA-01 attached in **Appendix B**.

3.3 Car and Cycle Parking Provision

- 3.3.1 The proposed Aldi foodstore will also provide 117 spaces, including eight disabled, five motorcycle and nine parent and child parking spaces.
- 3.3.2 Wrexham's Local Plan Guidance Note No. 16 states that for food retail, one car parking space per 14 sqm gross floor space should be provided. The car parking standards set out in the guidance is maximum standards for the land use category. The guidance goes on to state that '*In cases where the amount of parking provided is below the maximum the Council will need to be satisfied that this is appropriate for the likely level of demand, without undermining requirements for inclusive access*'.

- 3.3.3 Based on the car parking standards detailed, the proposed food store should have a maximum parking provision of 137 car parking spaces. As the provision of 117 car parking is below the maximum standards, a car park accumulation assessment has been undertaken to demonstrate the sufficient capacity is provided to accommodate demand. This is detailed in **Section 3.4.**
- 3.3.4 In order to meet the needs of people with mobility difficulties and those with young children, according to standards a minimum of 10% of all car spaces must be provided to 'mobility standard' (minimum width 3.6 metres). No less than 60% of these spaces shall be signed as being for the exclusive use of disabled persons. This equates to a total provision of 12 'mobility standard' spaces of which seven should be allocated for the exclusive use of disabled persons. The development proposals exceed this requirement with the provision of 17 mobility standard spaces, of which eight are allocated as disabled spaces and nine parent and child parking spaces.
- 3.3.5 Wrexham's Local Plan Guidance Note No. 16 also states that one cycle parking space per 140 sqm gross floor space should be provided. This equates to a total provision of 14 cycle parking spaces. It is proposed that covered cycle parking (under the building canopy) for up to 14 bicycles, in the form of seven "Sheffield" type bicycle stands will be provided at the redevelopment site adjacent to the store entrances to encourage their use. It is anticipated that this will increase the attractiveness of cycling as a mode of transport by customers and employees of the site. Secure staff lockers will also be provided.
- 3.3.6 The site layout has been designed in a cycle friendly way; ensuring permeability for pedestrians and cyclists. The design of the stores car park will encourage low traffic speeds, enhancing safety for pedestrians and cyclists.
- 3.3.7 A framework Travel Plan accompanies this planning application and includes cycle specific measures, including: on-site infrastructure, connecting with the existing off-site infrastructure, sustainable travel initiatives and monitoring and targets.

3.3.8 The level of cycle parking proposed is anticipated to increase the attractiveness of cycling as a mode of transport to customers and employees of the site. Secure staff lockers will also be provided. The location of cycle parking is illustrated in the site layout plan contained in **Appendix A**.

3.4 Car Park Accumulation Assessment

3.4.1 The proposed foodstore has 117 car parking spaces including eight disabled, five motorcycle and nine parent and child spaces. In order to calculate the potential parking accumulation of the development proposals, the potential trip attraction of the proposed store has been calculated adopting the methodology outlined in Section 5.0, adopting the average of the four stores detailed. The results of the parking accumulation assessments are presented in **Table 3-1** and **Table 3-2** for a Weekday and Saturday period. Full analysis of the parking accumulation is presented in **Appendix D**.

3.4.2 The analysis demonstrates that the maximum accumulation within the car park is as follows:

- Thursday – 86 (73%);and
- Saturday – 93 (79%).

Table 3-1: Proposed Car Park Accumulation – Thursday

Time Period	In	Out	Accumulation	% Occupancy
08:00	55	34	32	27%
09:00	120	94	59	50%
10:00	127	119	67	57%
11:00	143	124	86	73%
12:00	114	142	58	50%
13:00	136	126	68	58%
14:00	133	139	62	53%
15:00	140	141	61	52%
16:00	131	136	55	47%
17:00	103	127	31	26%
18:00	73	84	19	17%
19:00	52	55	16	13%
20:00	19	29	6	5%
21:00	15	19	2	2%
22:00	1	3	0	0%
Maximum No. of Cars Parked at any Time			86	73%

Table 3-2: Proposed Car Park Accumulation – Saturday

Time Period	In	Out	Accumulation	% Occupancy
08:00	63	47	29	24%
09:00	107	83	52	45%
10:00	151	127	75	65%
11:00	172	162	86	74%
12:00	177	170	93	79%
13:00	164	172	84	72%
14:00	163	169	78	67%
15:00	150	164	64	54%
16:00	130	145	48	41%
17:00	90	114	24	20%
18:00	47	56	15	12%
19:00	31	35	10	9%
20:00	18	23	5	4%
21:00	5	7	3	3%
22:00	2	5	0	0%
Maximum No. of Cars Parked at any Time			93	79%

3.4.3 Based on the robust parameters adopted, it can be demonstrated that the proposed 117 car parking spaces is sufficient to accommodate anticipated demand, without displacement of parking onto the local highway network. The provision of parking below the maximum policy standard is therefore justified.

3.5 Servicing

3.5.1 As is common practice in Aldi food stores, service vehicles would access the store via the customer access off the B5373 Gresford Road, before entering a service yard area on the southern boundary of the site.

3.5.2 Approximately four 16.5 metre articulated service vehicles would access the site per day, in association with the proposed discount food store. In addition to a daily milk delivery and bin collection via rigid vehicle.

3.5.3 A track plot analysis of a 16.5 metre refrigerated articulated vehicle has been undertaken using AutoTrack, a specialist computer package that allows designers to assess the swept path of different vehicles as they negotiate path alignments. The swept path of these vehicles to and from the site service ramp is satisfactory, as demonstrated in drawing 486-01/ATR-01 attached in **Appendix B**.

4.0 BASELINE TRAFFIC CONDITIONS

4.1 Introduction

4.1.1 This section provides an appraisal of the transport network surrounding the proposed development site, including the baseline traffic flows on the study area network and an analysis of accident records for the local highway network.

4.1.2 The study area, which was agreed with the local Highway Authority during pre-application discussions, includes the following junction surrounding the site:

- B5373 Gresford Road/ Proposed Site Access – priority controlled junction; and
- Crown Crossroads - B5102 Llay Road/ B5102 Straight Mile/ B5373 Gresford Road - signalised crossroads junction.

4.1.3 The following sections therefore present the methodology adopted to establish baseline conditions within the agreed study area.

4.2 Baseline Traffic Flows

4.2.1 Peak hour traffic flows have been derived from independent manual turning counts undertaken by PCC Traffic Information Consultancy Ltd on Friday 8 March and Saturday 9 March 2019 at the junctions of:

- Crown Crossroads - B5102 Llay Road/ B5102 Straight Mile/ B5373 Gresford Road - signalised crossroads junction.

Surveys were undertaken for a Weekday AM (0730 – 1000), PM (1600 – 1830) and Saturday (1000 – 1600) peak periods.

4.2.2 Analysis of the data has determined that the peak hours are 0745 – 0845 during the Weekday AM peak, 1630 – 1730 during the Weekday PM peak and 1200 – 1300 during the Saturday peak. The full survey results are attached in **Appendix E**. The resulting turning flows at the junction are illustrated in **Figure 4-1**.

4.3 Assessment Years

- 4.3.1 The 2019 survey traffic flows will be growthed to a design year five years after application registration, 2024.
- 4.3.2 Growth factors will be applied to the surveyed traffic flows to calculate 2024 base traffic flows. This will be undertaken using TEMPRO 7 NTM AF15 Dataset with adjusted local growth for the Wrexham 020 super output area (E02000420), which encompasses the development site. The growth factors are presented in **Table 4-1**

Table 4-1 – Proposed Growth Factors (Wrexham 020)

Growth Period	AM Weekday Peak Periods	PM Weekday Peak Period	Saturday Peak Period
2019 – 2024	1.0469	1.0467	1.0507

- 4.3.3 The resulting 2024 (design year) baseline traffic flows is illustrated in **Figure 4-2**.

4.4 Committed Development Traffic Flows

- 4.4.1 The following committed developments have been taken into consideration in the assessment:
- P/2014/0905 - Outline Application For 365 Dwellings And Erection Of 300 Square Metre Retail Unit - All Detailed Matters Reserved.
- 4.4.2 The development traffic flows associated with each of the schemes has been taken from the Transport Assessments that accompanied the application. The committed development is summarised in **Figure 4-3**. The 2024 Base plus Committed Development traffic flows are summarised in **Figure 4-4**.

4.4.3 Consideration was also given to planning application P/2018/0933 - Mixed Use Hybrid Development Comprising Residential Development (Outline), A 4,000 Sq Ft Retail Unit (Outline), A Boxing Club (Outline), A Car Park (Full), Details Of Access (All Other Matters Reserved) And Associated Works. However, based on the information contained in the Transport Statement (ref: VC0085 R1.0) it is apparent that any increase in traffic, during the peak hours, on the study area network, associated with this application will be minimal and therefore accounted for in background traffic growth.

4.5 Personal Injury Accident Data

4.5.1 Personal Injury Accident data has been obtained from the Crash Map website (www.crashmap.co.uk) for the proposed study area for the most recent five year period for which data is complete (from the time of reviewing). The collisions have been reviewed in **Table 4-2**.

Table 4-2: Summary of Personal Injury Collisions

Location	Slight	Serious	Fatal
Crown Crossroads	2	0	0
Gresford Road	0	0	0
Total	2	0	0

- 4.5.2 In total for the study area under consideration two personal injury accidents were recorded. Both were recorded as slight in severity.
- 4.5.3 Both slight accident that recorded at the Crown Crossroad, occurred as a result of a collision between two cars. At the time of the collisions one vehicle was travelling ahead and one was turning right. The accidents both occurred in the daytime during wet/ damp conditions.
- 4.5.4 The personal injury accident data would suggest that there is no particular trend or pattern of road accidents in the vicinity of the site resulting from any deficiencies in the local road network, or the operation of the site.

5.0 DEVELOPMENT TRIP ATTRACTION, ASSIGNMENT AND DISTRIBUTION

5.1 Proposed Development Trip Attraction

5.1.1 In order to determine the potential trip attraction of the store, trip rates have been derived from existing Aldi stores, these include:

- Ruthin Road, Wrexham;
- Garth Rd, Bangor;
- Abergele Rd, Old Colwyn, Colwyn Bay; and
- Meliden Rd, Prestatyn.

5.1.2 Data was obtained for the week commencing 04 February 2019. The raw data is included in **Appendix F**.

5.1.3 As is standard practice, trip rates have been based on the Gross External Area of each store. The resulting trip rates are detailed in **Table 5-1**.

Table 5-1: Trip Rates per 100 sqm

Store	Peak Period	Arrivals	Departures	Two-Way
Ruthin Road, Wrexham	AM Peak (0800 – 0900)	4.396	2.857	7.253
	PM Peak (1600 – 1700)	9.505	9.780	19.286
	Saturday Peak (1200 – 1300)	11.044	10.495	21.538
	AADT	72.590	72.590	145.181
Garth Rd, Bangor	AM Peak (0800 – 0900)	2.688	2.134	4.822
	PM Peak (1600 – 1700)	8.379	9.328	17.708
	Saturday Peak (1200 – 1300)	10.435	10.909	21.344
	AADT	73.134	73.134	146.268
Abergele Rd, Old Colwyn, Colwyn Bay	AM Peak (0800 – 0900)	3.838	2.488	6.326
	PM Peak (1600 – 1700)	9.879	10.732	20.611
	Saturday Peak (1200 – 1300)	8.244	7.321	15.565
	AADT	74.799	74.799	149.599
Meliden Rd, Prestatyn	AM Peak (0800 – 0900)	2.158	1.308	3.466
	PM Peak (1600 – 1700)	7.260	7.129	14.388
	Saturday Peak (1200 – 1300)	7.129	6.736	13.865
	AADT	54.237	54.237	108.474

- 5.1.4 The average trip rates of the four sites have been adopted in the assessment. The proposed store has a Gross External Area of 1,921 sqm and would result in the level of trip attraction detailed in **Table 5-2**.

Table 5-2: Proposed Food Store Vehicular Trip Rates and Attraction

	Peak Period	Arrivals	Departures	Two-Way
Average Trip Rates	AM Peak (0800 – 0900)	3.270	2.197	5.467
	PM Peak (1700 – 1800)	8.756	9.242	17.998
	Saturday Peak (1100 – 1200)	9.213	8.865	18.078
	AADT	68.690	68.690	137.380
Trip Attraction	AM Peak (0800 – 0900)	63	42	105
	PM Peak (1700 – 1800)	168	178	346
	Saturday Peak (1100 – 1200)	177	170	347
	AADT	1,320	1,320	2,639

- 5.1.5 Adopting the above trip rates results in a potential trip attraction to the store of 105 two-way trips during the AM peak, 346 two-way trips during the PM peak and 347 two-way trips during the Saturday peak.

5.2 Trips Types

- 5.2.1 It is widely accepted that, the total number of trips attracted to a new retail development are not comprised wholly of new trips to the local highway network. Many of the trips may in fact already exist on the network, albeit at another location, or where a visit to the store will be incorporated into an existing pattern of travel behaviour. The following vehicular trip types have been identified in association with new retail developments (Guidance on Transport Assessment, DfT, 2007):

- **New Trips:** Trips that do not appear anywhere on the road network prior to the opening of the development.
- **Pass-by Trips:** Trips which are already present on the road network directly adjacent to the point of access to the site, which will turn into the site.

- Linked Trips: Trips that will have multiple destinations either within the proposed development site, between both the development site and existing adjacent sites, or between the development site and an established town centre.
- Diverted Trips: Trips which are already present on the local road network but not the road from which the site access is taken and will divert from their existing use to access the site.
- Transferred Trips: Trips which are already present on the local road network, accessing similar sites in close proximity to the proposed development. Slightly different from diverted trips, these wholly transfer from using an existing development to a new one, i.e. shoppers switching to a new food store that is more conveniently located for them.

5.2.2 The importance of non-primary trips, i.e. Pass-by, Linked, Diverted and Transferred trips are emphasised by retailers who suggest that they rely heavily on these trip types in order to survive.

5.2.3 The premise of non-primary trips is one that is particularly true in locations where the highway network experiences peak hour congestion as customers are unlikely to embark on a single purpose home based trip to undertake food shopping at these times. During the hours of peak traffic demand on the local highway network, it is likely that the majority of customers to the proposed food store, who travel by car, would have already been present on the local highway network.

5.2.4 The TRICS Research Report 14/1: Pass-By & Diverted Trips presents updated research on the proportion of trip types. Those relevant to the proposed Aldi food store include:

- Commercial research carried out by Somerfield and Tesco and reiterated in the TRICS research paper 14-1, have presented a correlation between the proximity of a store to a town centre and the propensity for store customers to visit other shops within a town centre;

- TRICS research paper 14-1 also states that as a store's proximity to a town centre increases, the potential percentage of pass-by trips also increases; and
- Stores with a GFA of 4,000 sqm or less are more likely to act as convenience stores, whilst those with a GFA higher than 4,000 sqm are more likely to act as comparison stores. Convenience stores are more likely to produce pass-by trips.

5.2.5 The research goes on to state that having given due consideration to these parameters, the development should develop an appropriate percentage of pass-by and diverted trips, following usual best practice.

5.2.6 Best practice research presented within TRICS Report 95/2 suggests the following peak hour proportions of retail trip types.

Table 5-3: Food store Trip Types

Trip Type	Weekday Peak Hour Proportions	Saturday Peak Hour Proportions
New/ Transferred Trips	25 - 60%	50 – 90%
Pass-By Trips	5 – 30%	5 – 10%
Diverted Trips	20 – 45%	5 - 40%

5.2.7 In terms of the TRICS Research Report 14/1, the proposed store is classed as a convenience store which will offer an opportunity for Pass-By trips to be made to the food store. Its proximity to the Crown Crossroads is also likely to result in a proportion of diverted trips.

5.2.8 The proportion of pass-by and diverted trips is influenced by the local network and thus for the purpose of this analysis, pass-by trips are considered to be those trips which are already travelling on Gresford Road (past the site access) and diverted trips are those approaching the Crown Crossroads from the B5102 Llay Road, B5102 Straight Miles or the B5373 Rackery Lane.

5.2.9 The premise of non-primary trips is one that is particularly true in locations where the highway network experiences peak hour congestion as customers are unlikely to embark on a single purpose home based trip to undertake food shopping at these times. During the hours of peak traffic demand on the local highway network, it is likely that the majority of customers to the proposed food store, who travel by car, would have already been present on the local highway network.

5.2.10 As outlined above, not all of the traffic generated by the Aldi foodstore proposals will be traffic that is 'new' to the network. For the purpose of this assessment, it is assumed that the following pass-by and transferred trip proportions will apply:

- Weekday AM and PM peak:
 - 20% new trips;
 - 40% transferred trips (although assumed to be entirely new to the study area network).
 - 20% pass-by trips. This equates to less than 3% of the total traffic travelling along Gresford Road during the AM peak and 8% of total traffic during the PM peak; and
 - 20% diverted trips. This equates to the diversion of 1% of total traffic on B5102 Llay Road, B5102 Straight Miles and B5373 Rackery Lane during the AM peak and 3% of total traffic during the PM peak.
- Saturday peak:
 - 20% new trips;
 - 45% transferred trips (although assumed to be entirely new to the study area network).
 - 10% pass-by trips. This equates to less than 7% of the total traffic travelling along Gresford Road during the Saturday peak; and

- 25% diverted trips. This equates to the diversion of 7% of total traffic on B5102 Llay Road, B5102 Straight Miles and B5373 Rackery Lane during the Saturday peak

5.2.11 These proportions have been applied to the total traffic attraction levels outlined above to derive the total number of new trips that will be generated by the Aldi foodstore proposals on the adjacent network. These are set out in **Table 5-4** for a Weekday and Saturday peak period.

Table 5-4: Increase in Vehicle Trip Attraction by Trip Type

Peak	Trip Type	Proportion	Trip Attraction		
			Arrivals	Departures	Two-Way
AM Peak	New	20%	13	8	21
	Transferred*	40%	25	17	42
	Pass-by	20%	13	8	21
	Diverted	20%	13	8	21
	Total	100%	63	42	105
PM Peak	New	20%	34	36	69
	Transferred*	40%	67	71	138
	Pass-by	20%	34	36	69
	Diverted	20%	34	36	69
	Total	100%	168	178	346
Saturday Peak	New	20%	35	34	69
	Transferred*	45%	80	77	156
	Pass-by	10%	18	17	35
	Diverted	25%	44	43	87
	Total	100%	177	170	347

* Assumed to be New trips for assessment purposes.

5.2.12 In terms of new trips on the network, the analysis has demonstrated that the proposed Aldi food store will generate an additional 21 two-way trips during the Weekday AM peak, 69 two-way trips during the PM peak and 69 two-way trips during the Saturday peak. Combined with the Transferred trips, which are assumed to be entirely new to the study area network for robustness, the proposed Aldi foodstore will generate an additional 63 two-way trips during the AM peak, 207 two-way trips during the Weekday PM peak and 226 two-way trips during the Saturday peak.

5.3 Trip Distribution and Assignment

5.3.1 As detailed in **Table 5-4**, the trips generated by the Aldi are split into New, Transferred, Pass-by and Linked Trips. The distribution associated with each trip type is detailed below.

New/ Transferred Retail Trips Distribution

- 5.3.2 In order to calculate the potential distribution of New and Transferred Retail trips on the network, a simple gravity model, based upon population and journey time to the proposed development has been produced.
- 5.3.3 The catchment area of the proposed store has been determined by the work included in Retail Impact Assessment and incorporates the postcode areas of LL11 4, LL12 0, LL12 8 and LL12 9. The catchment map and calculations are included in **Appendix G** and summarised in **Table 5-5**.

Table 5-5: Gravity Model Distribution Summary

Postcode	Origin/ Destination			
	Straight Mile (e)	Gresford Road (s)	B5102 (w)	Rackery Lane (n)
LL11 4	0%	3%	24%	0%
LL12 0	15%	5%	8%	3%
LL12 8	12%	8%	0%	0%
LL12 9	0%	0%	0%	24%
Total	27%	15%	31%	27%

- 5.3.4 The distribution of New/ Transferred trips is shown in **Figure 5-1**. The assignment of the proposed development traffic in these proportions is illustrated in **Figure 5-2**.

Pass by Retail Trip Distribution

- 5.3.5 Given that the anticipated catchment of the proposed development will be local, it is likely that a proportion of trips to the development, in the peak hours, will be Pass-by Trips made by people already travelling along Gresford Road. These trips effectively comprise trips which will turn into the proposed development on their way to/ from other destinations. This would therefore represent a discount to traffic downstream of the site access for the duration of the Pass-by Trip to the development, but the trip is subsequently added back to the network once the visit has ended. Thus no reduction will be made to the traffic on the local highway network outside of the site access junction. Albeit that the possible trip timeline is extended beyond the highway network peak hours.

- 5.3.6 The distribution of Pass-by trips is shown in **Figure 5-3**. The assignment of the proposed development traffic in these proportions is illustrated in **Figure 5-4**.

Diverted Retail Trips Distribution

- 5.3.7 It is likely that an element of car borne trips to the proposed food store, in the network peak hours, will be diverted trips from other routes. Given the location of the development, it is likely that an element of car borne trips to the food store will be diverted from these routes.
- 5.3.8 The distribution of diverted trips at the Crown Crossroads from the B5102 Llay Road, B5102 Straight Miles or the B5373 Rackery Lane will be based on existing turning proportions.
- 5.3.9 The distribution of Diverted trips is shown in **Figure 5-5**. The assignment of the proposed development traffic in these proportions is illustrated in **Figure 5-6**.

Summary

- 5.3.10 The total proposed development traffic is illustrated in **Figure 5-7** and the 2024 Base plus Committed plus Development traffic flows are illustrated in **Figure 5-8**.

6.0 IMPACT OF DEVELOPMENT PROPOSALS ON THE OPERATIONAL PERFORMANCE OF THE LOCAL HIGHWAY NETWORK

6.1 Introduction

6.1.1 The following capacity assessments will demonstrate that the impact of this level of traffic would not be material on the operational performance of the local highway network.

6.1.2 As requested by Welsh Ministers (North & Mid Wales Trunk Road Agency) an assessment has also been undertaken to demonstrate the effect the traffic associated with the proposed food store will have on Junction 7 of the A483. As requested, these figures are presented as annual average daily traffic (AADT) and AM and PM peak flows.

6.2 Impact on Junction 7 of the A483

6.2.1 Based on the distribution presented in the previous section, it can be seen that traffic to the store from the postcode areas LL12 0 and LL12 8, could route through Junction 7 of the A483.

6.2.2 Further analysis of the catchment map included in **Appendix G** demonstrates that 100% of New trips from LL12 8 assigned to Straight Mill (e) would travel through Junction 7 of the A483 and 60% of New trips from LL12 0 assigned to Straight Mill (e) would travel through Junction 7 of the A483.

6.2.3 The resulting number of trips that would travel through Junction 7 of the A483 is presented in **Table 6-1** as annual average daily traffic (AADT) and AM and PM peak flows. As per the analysis presented above, during the AM and PM peaks 20% of trips are assumed to be New to the network. For the purpose of the AADT assessment it has been assumed that 50% of trips are New to the network, this is considered to be robust.

Table 6-1: Impact on Junction 7 of the A483

Peak Period	Arrivals	Departures	Two-Way
AM Peak (0800 – 0900)	3	2	4
PM Peak (1700 – 1800)	7	7	15
AADT	139	139	277

6.3 Junction Capacity Assessments

6.3.1 Capacity assessments have been undertaken for a Weekday PM and Saturday peak period (unless otherwise stated). Assessments have been undertaken for the following junction, as agreed with Wrexham County Borough Council, using the software noted:

- B5373 Gresford Road/ Proposed Site Access – PICADY; and
- Crown Crossroads - B5102 Llay Road/ B5102 Straight Mile/ B5373 Gresford Road - LINSIG.

6.3.2 PICADY presents results as Ratio of Flow to Capacity (RFC) and corresponding likely traffic queues. RFC values between 0.00 and 0.85 are generally accepted as representing stable and acceptable operating conditions. Values between 0.85 and unity represent variable operation (i.e. possible queues building up at the junction during the period under consideration and increases in vehicular delay moving through the junction).

6.3.3 LINSIG presents results as a percentage Degree of Saturation (DoS) and corresponding likely traffic queues for each modelled link at the junction. For Traffic Signals it is generally accepted that a Degrees of Saturation (DoS) of 90% or less on individual links represent satisfactory signal operation.

B5373 Gresford Road/ Proposed Site Access

6.3.4 The results of the PICADY assessment are set out in **Appendix H** and summarised in **Table 6-2**.

Table 6-2: A53/ Site Access – PICADY Results

Scenario	Arm	AM Peak Peak		PM Peak Hour		Saturday Peak Hour	
		RFC	Q	RFC	Q	RFC	Q
2024 Base + Committed + Development	Site Access	0.11	0	0.47	1	0.41	1
	Gresford Road (s)	0.03	0	0.07	0	0.05	0

6.3.5 The operational capacity assessments demonstrate that the site access is sufficient to accommodate development traffic, for a future assessment year. The maximum Ratio of Flow to Capacity (RFC) occurs on the site access arm during the PM peak period of 0.47 with one pcu associated queue.

6.3.6 It is therefore considered that the proposed site access is sufficient to accommodate the development proposals.

Crown Crossroads - B5102 Llay Road/ B5102 Straight Mile/ B5373 Gresford Road

6.3.7 In association with planning application P/2014/0905 - Outline Application for 365 Dwellings and Erection of 300 Square Metre Retail Unit, Condition 13 related to mitigation at the Crown Crossroads. It was concluded at appeal that the application should install Microprocessor Optimised Vehicle Actuation (MOVA) technology at the junction and physical improvements in the form of:

- Improving the width of Straight Mile, for a length of approximately 40 metres. These proposals involve marking the nearside lane for ahead and left turning movements, with the offside lane exclusively for right turning vehicles.

6.3.8 The existing and proposed layouts are modelled below. It has been assumed that the mitigation works in association with planning application P/2014/0905 at the Crown Crossroads, will be in place when the Aldi store opens.

6.3.9 The results of the LINSIG assessment are set out in **Appendix I** and summarised in **Table 6-3**.

Table 6-3: Crown Crossroads – LINSIG Results

Scenario	Arm	AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		DoS	MMQ	DoS	MMQ	DoS	MMQ
2019 Survey*	B5102 Straight Mile	83.1%	15	65.1%	6	24.3%	3
	B5373 Gresford Road	83.6%	13	66.0%	6	44.3%	3
	Llay Road	70.4%	19	67.1%	10	44.8%	6
	Rackery Lane	84.3%	14	66.7%	7	44.5%	4
	Chapel Lane	64.6%	4	25.1%	1	21.2%	1
2024 Base plus Committed **	B5102 Straight Mile	85.9%	11	62.1%	4	17.9%	1
	B5373 Gresford Road	85.6%	13	67.7%	7	40.5%	3
	Llay Road	75.2%	20	67.3%	12	41.0%	7
	Rackery Lane	86.4%	13	67.3%	8	40.9%	4
	Chapel Lane	67.8%	4	26.1%	1	21.8%	1
2024 Base plus Committed + Development**	B5102 Straight Mile	87.6%	12	76.7%	6	20.7%	1
	B5373 Gresford Road	87.4%	15	78.0%	11	51.6%	6
	Llay Road	85.3%	24	78.8%	15	51.7%	8
	Rackery Lane	88.3%	15	78.3%	9	52.0%	5
	Chapel Lane	66.2%	4	26.1%	1	21.8%	1

*Existing Layout **Physical Improvements and MOVA

6.3.10 The results of the 2019 Base scenario demonstrate that the junction currently operates well within capacity during all peaks. A review of the queue length data collected during the survey also demonstrates that the model validates well with the observed average queue lengths during the peak hours.

6.3.11 The proposed improvements to the junction for a 2024 assessment year demonstrate that the junction will operate within capacity. With the addition of development traffic flows, the junction will continue to operate within acceptable capacity limits with a maximum degree of saturation recorded during the AM peak on Rackery Lane of 88.3%, with an associated queue of 15 pcus. A review of the queue graph for this arm demonstrates that the queue clears during the green period.

6.3.12 It is therefore considered that the development proposals would not have a material impact on the operational performance of the junction.

6.4 Summary

- 6.4.1 The results of the operational capacity assessments presented above, demonstrate that the proposed development will have a minimal impact on the operational performance of the highway network. The assessments are considered robust due to the assumptions made regarding the application of both committed development flows and background traffic growth and the assumption that all Transferred trips are New to the study area network. It is therefore considered that the results presented above represent a worst case assessment of the potential operation of the local highway network, with the proposed development in place.
- 6.4.2 It is therefore considered that in operational capacity terms, the proposed development will not have a material impact on the operational performance of the local highway network.

7.0 SUMMARY AND CONCLUSIONS

7.1 Summary

- 7.1.1 This report has examined the highway and transportation matters associated with the proposed development on land to the north east of Llay, bounded by the B5102 (The Straight Mile) to the north and the B5373 (Gresford Road) to the south west. .
- 7.1.2 The site area comprises 11,278 sqm (2.79 acres) and falls within the red line boundary of the approved, on appeal, planning application P/2014/0905 – mixed use development of up to 365 residential houses and 300 sqm A1 retail use. The application for approval of the reserved matters to this outline planning permission (P/2017/1054), revised the red line boundary to exclude the development site and reduce the number of dwellings to 362.
- 7.1.3 The development proposals include the provision of an Aldi food store with a Gross External Area (GEA) of 1,921 sqm. The proposed parking provision for the development is 117 spaces, including eight disabled, five motorcycle and nine parent and child parking spaces.
- 7.1.4 Customer and service vehicle access to the development site is proposed via a newly formed priority controlled junction off the B5373 Gresford Road, approximately 135 metres south of the Crown Crossroads.
- 7.1.5 In addition to pedestrian access via the main vehicular access, a dedicated pedestrian access is also proposed off the B5373 Gresford Road, approximately 80 metres to the south of the Crown Crossroads, providing a direct route to the store.
- 7.1.6 The proposed Aldi store will provide local residents with a discount food retail store, enhancing the community's existing food retail choices and reducing the need to travel for food shopping. The proposed development will reduce the need to travel, especially by car, by providing retail opportunities within a reasonable walking and cycling distance of residential areas.

- 7.1.7 The proposed scheme would influence travel behaviour by incorporating facilities to encourage sustainable trip movements, including on site cycle parking and changing and locker facilities for staff. A Framework Travel Plan has been developed for the site which describes the strategy through which initiatives will be adopted in order to encourage the use of sustainable modes of transport to the site.
- 7.1.8 The majority of car trips to the development will not be new to the network, but rather pass-by, diverted or transferred trips, there is likely to be an overall vehicle kilometre saving given the more convenient location of the stores to the catchment. Such a reduction in travel distance will effectively improve upstream and downstream capacity dependent on travel direction.
- 7.1.9 The impacts of the proposals have been assessed across an agreed study area network which includes the junction of:
- B5373 Gresford Road/ Proposed Site Access; and
 - Crown Crossroads - B5102 Llay Road/ B5102 Straight Mile/ B5373 Gresford Road.
- 7.1.10 In association with planning application P/2014/0905 - Outline Application for 365 Dwellings and Erection of 300 Square Metre Retail Unit, Condition 13 related to mitigation at the Crown Crossroads. It was concluded at appeal that the application should install Microprocessor Optimised Vehicle Actuation (MOVA) technology at the junction and physical improvements in the form of:
- Improving the width of Straight Mile, for a length of approximately 40 metres. These proposals involve marking the nearside lane for ahead and left turning movements, with the offside lane exclusively for right turning vehicles.
- 7.1.11 The existing and proposed layouts are modelled below. It has been assumed that the mitigation works in association with planning application P/2014/0905 at the Crown Crossroads, will be in place when the Aldi store opens.

7.1.12 The report includes an assessment of the operational performance of the highway network, with the addition of development traffic. The junction capacity assessments undertaken indicate that the junction concerned, will operate within acceptable limits for the future assessment years, following the development of the site.

7.2 Conclusions

7.2.1 This report has demonstrated how the proposed development promotes accessibility by all modes of travel, in particular public transport, cycling and walking by virtue of its sustainable location and the physical infrastructure that would be put in place i.e. cycle parking at the front of the store, as well as the Travel Plan which would be used to influence travel behaviour.

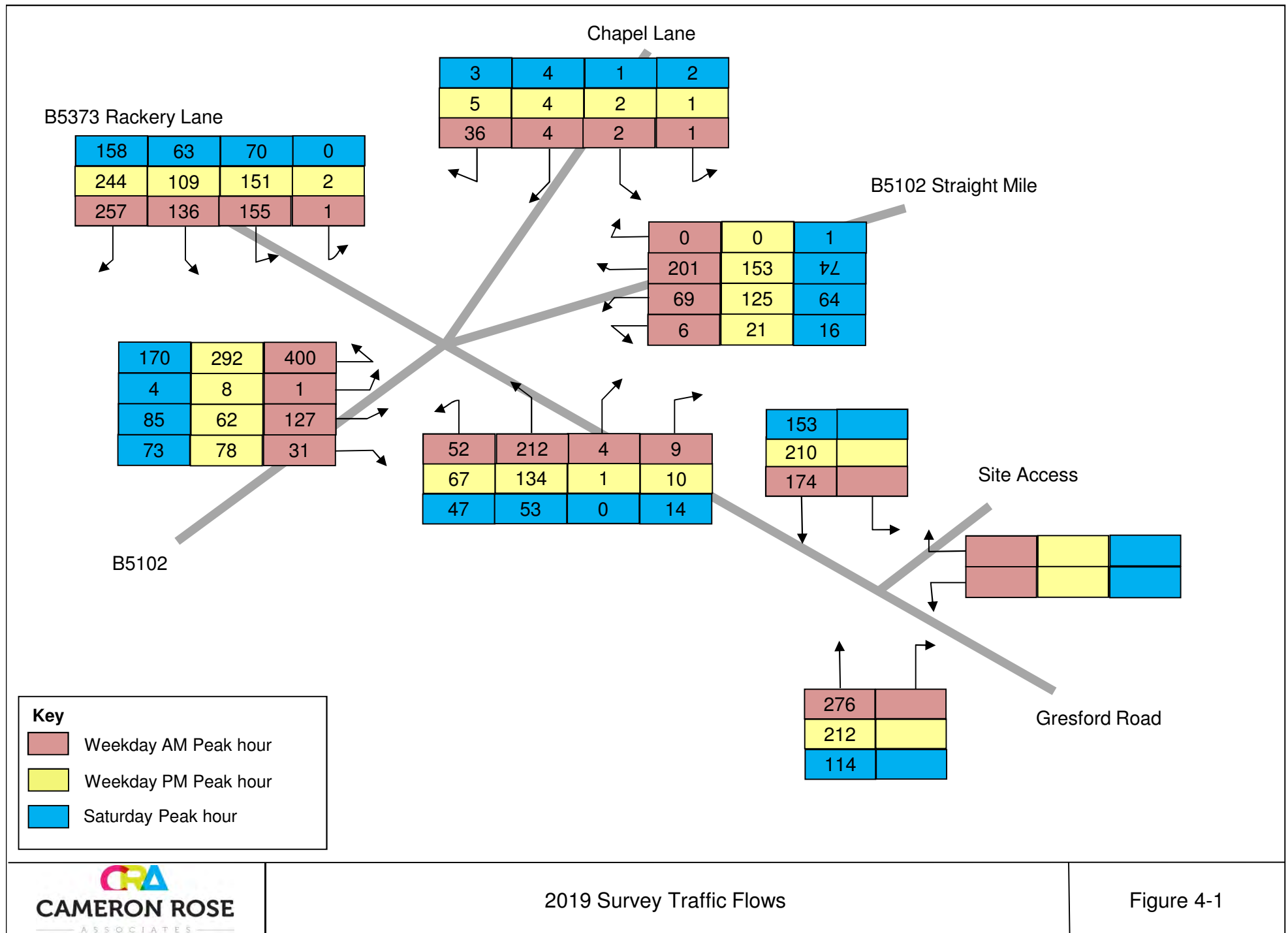
7.2.2 It has also been demonstrated how the development would reduce the need to travel, especially by car with regard to the element of pass-by, diverted and transferred trips – i.e. the majority of vehicular trips to the proposed development would not be new trips on the network and may well be shorter given the more convenient location of the store to the catchment.

7.2.3 The impacts of residual trips from the proposed development have been assessed and it is evident that these would not have a material impact on the operational performance and safety of the local highway network.

7.2.4 It is concluded that there are no overriding reasons preventing the Local Planning Authority from recognising that the proposal is acceptable with regard to the local highway network.



FIGURES



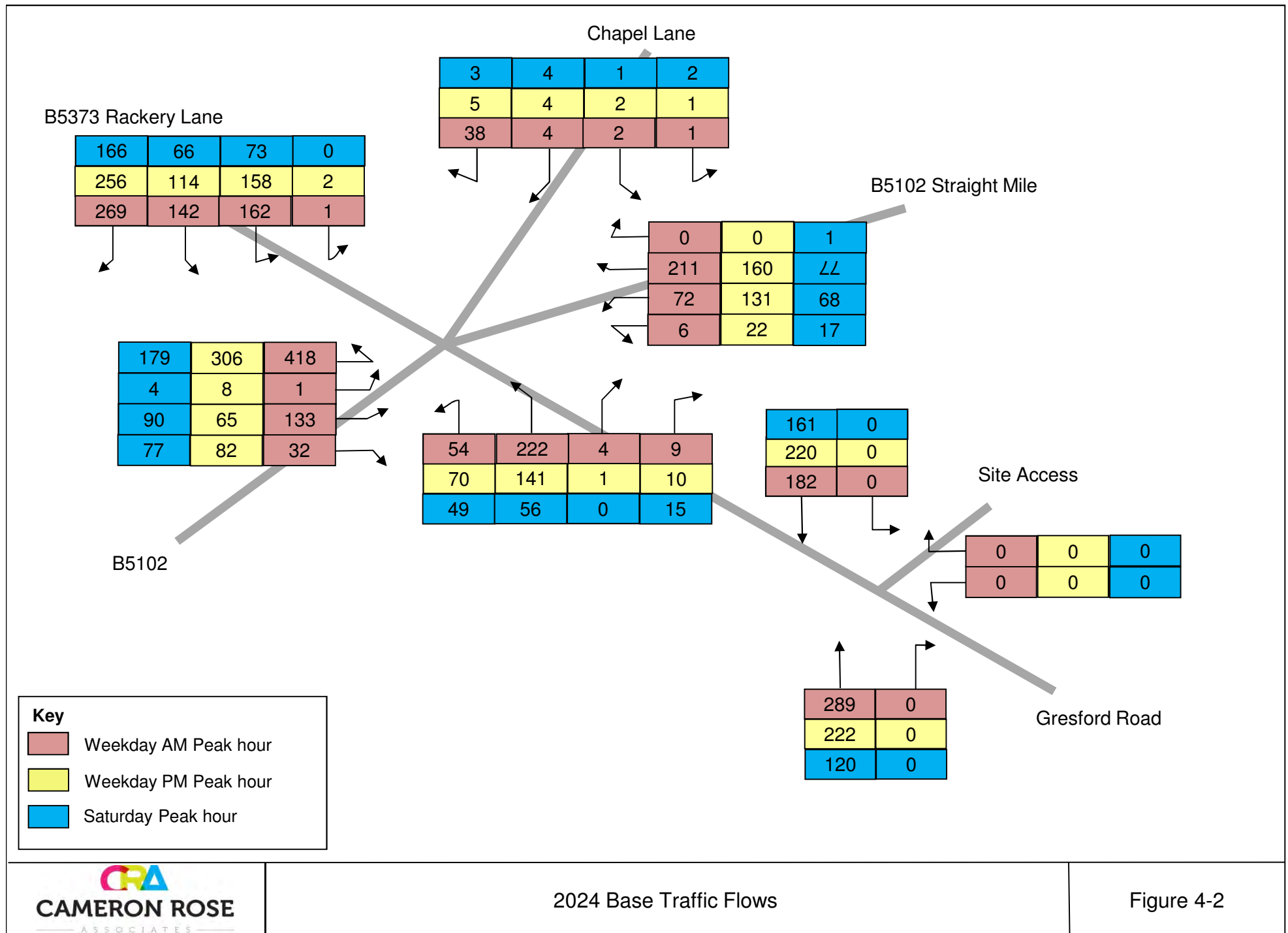
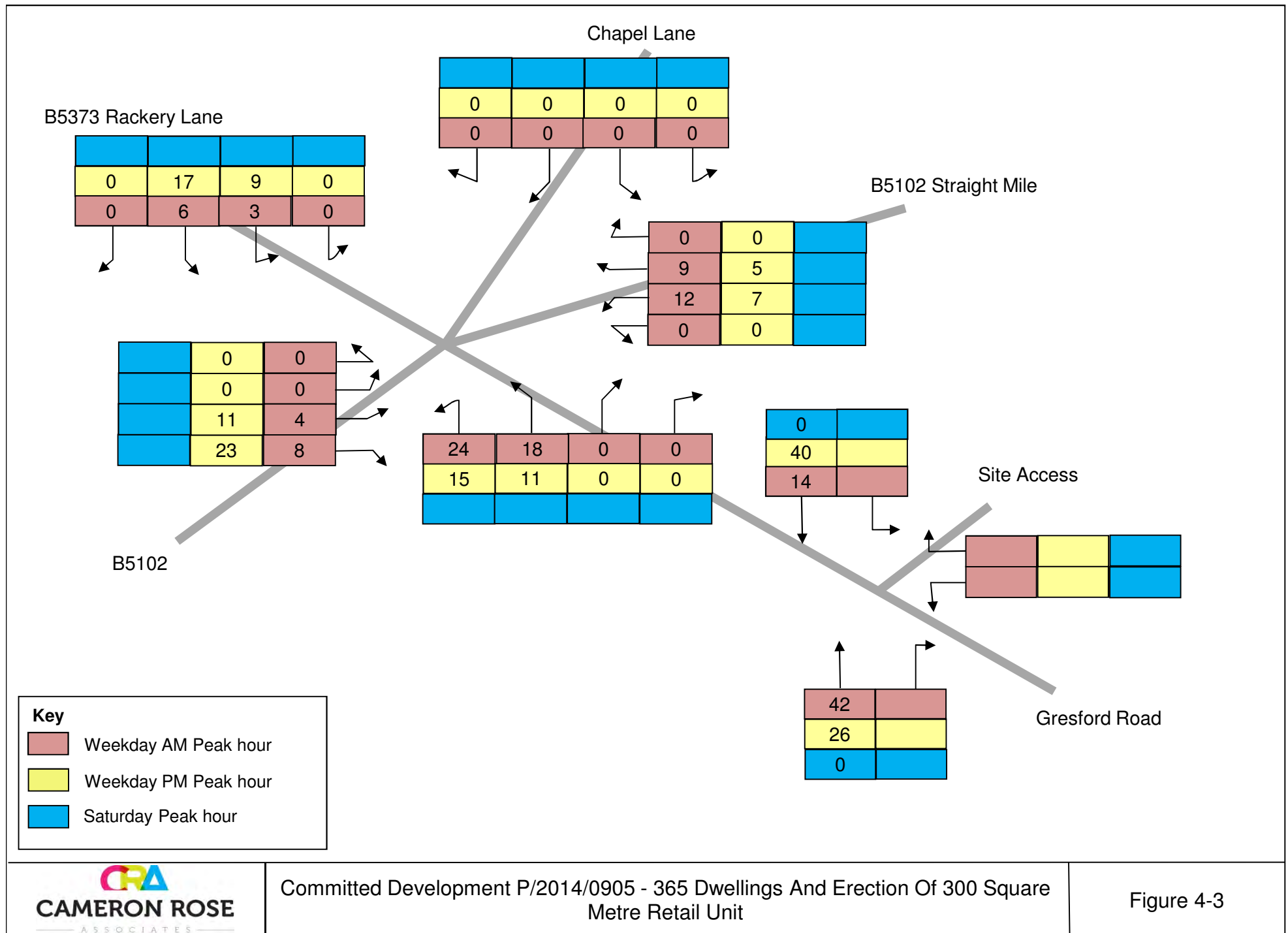
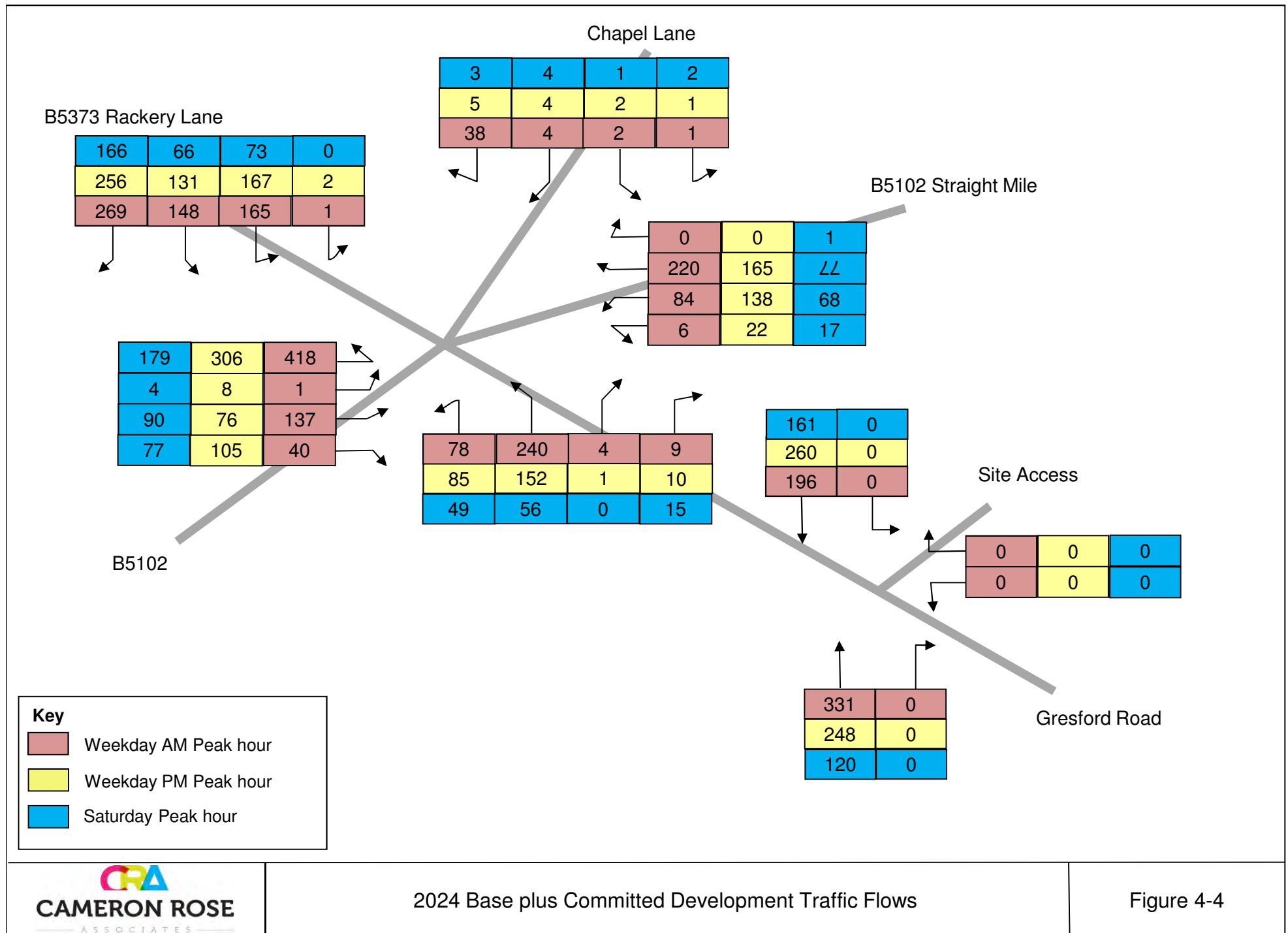
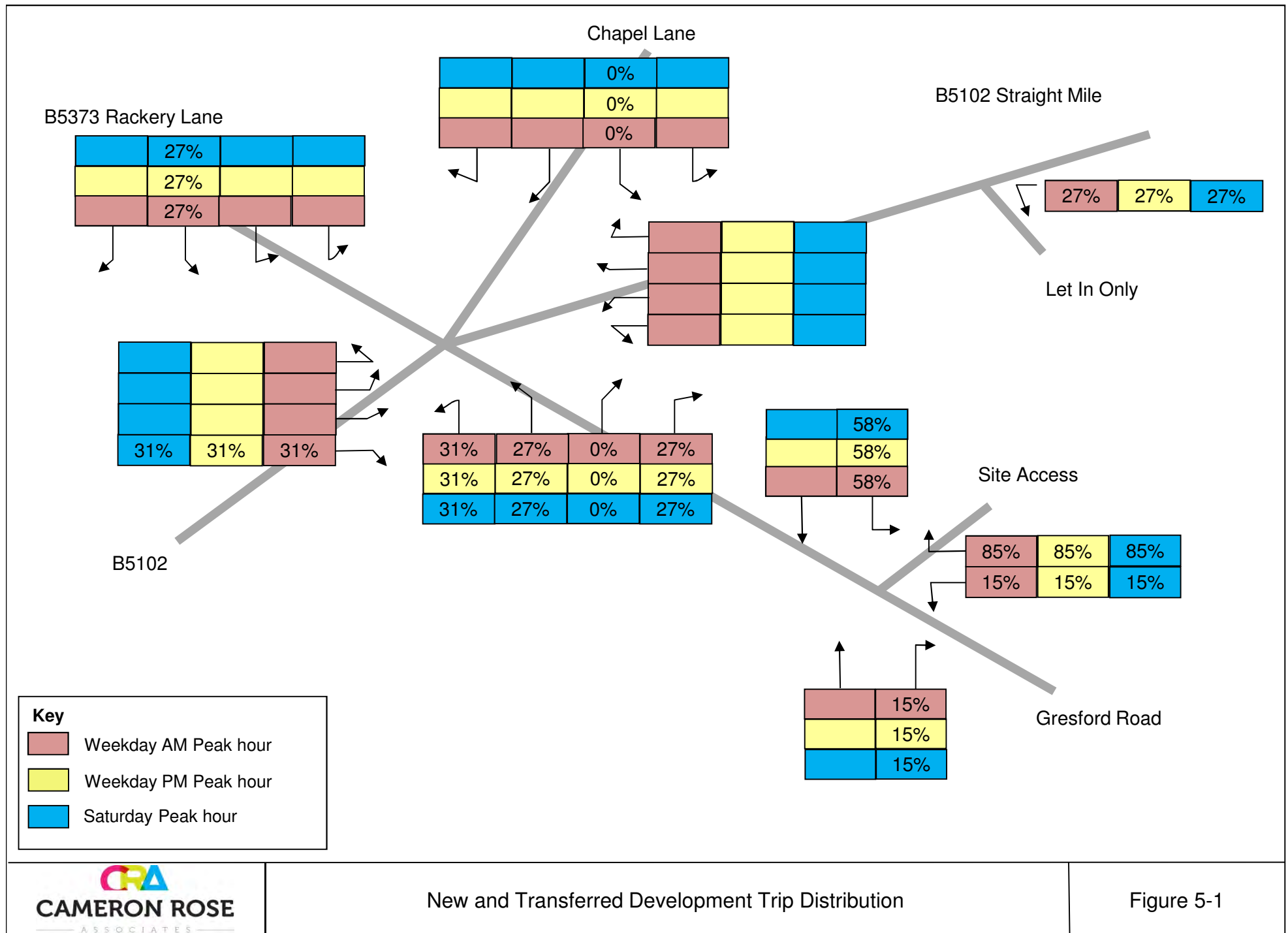
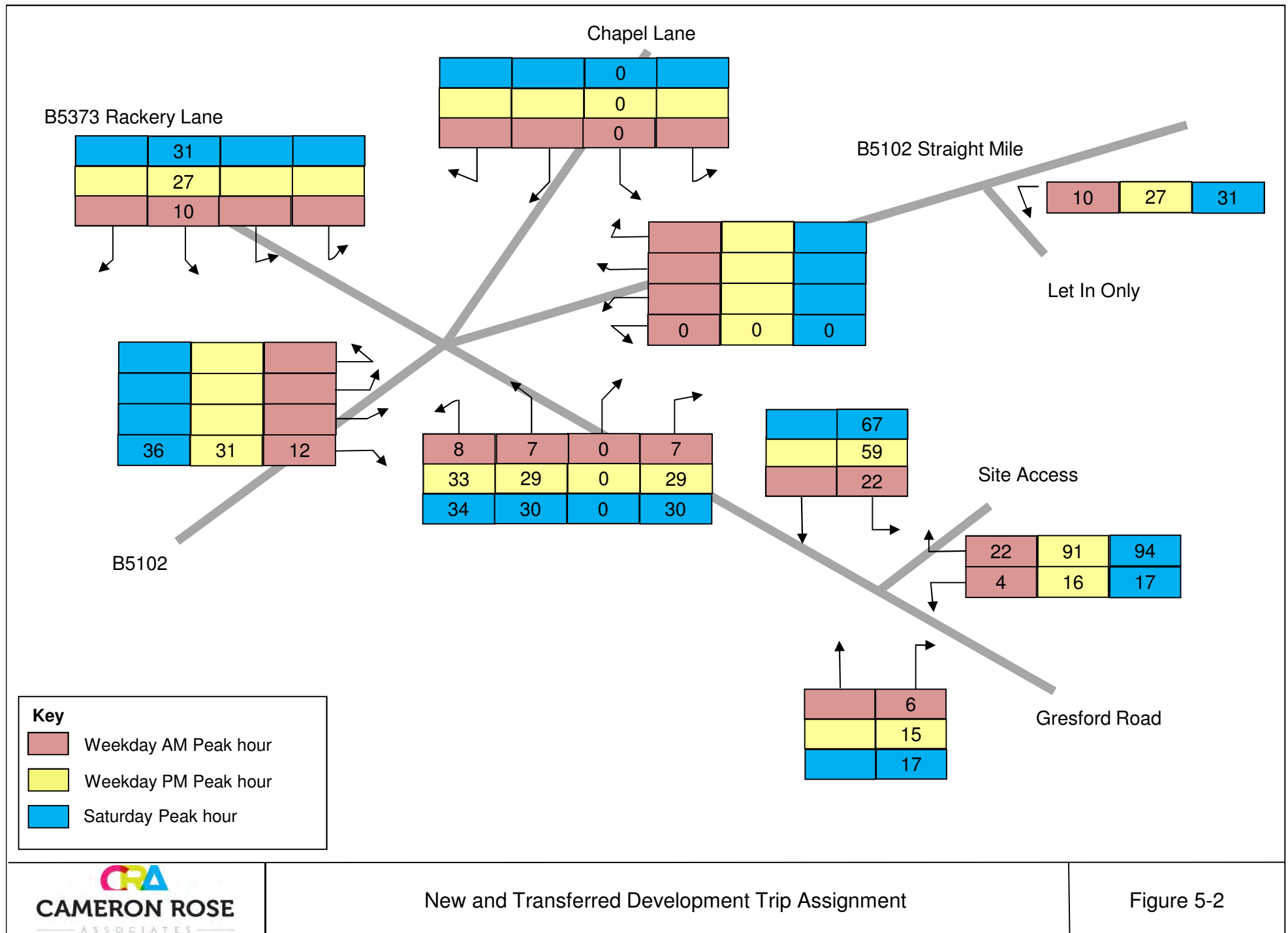


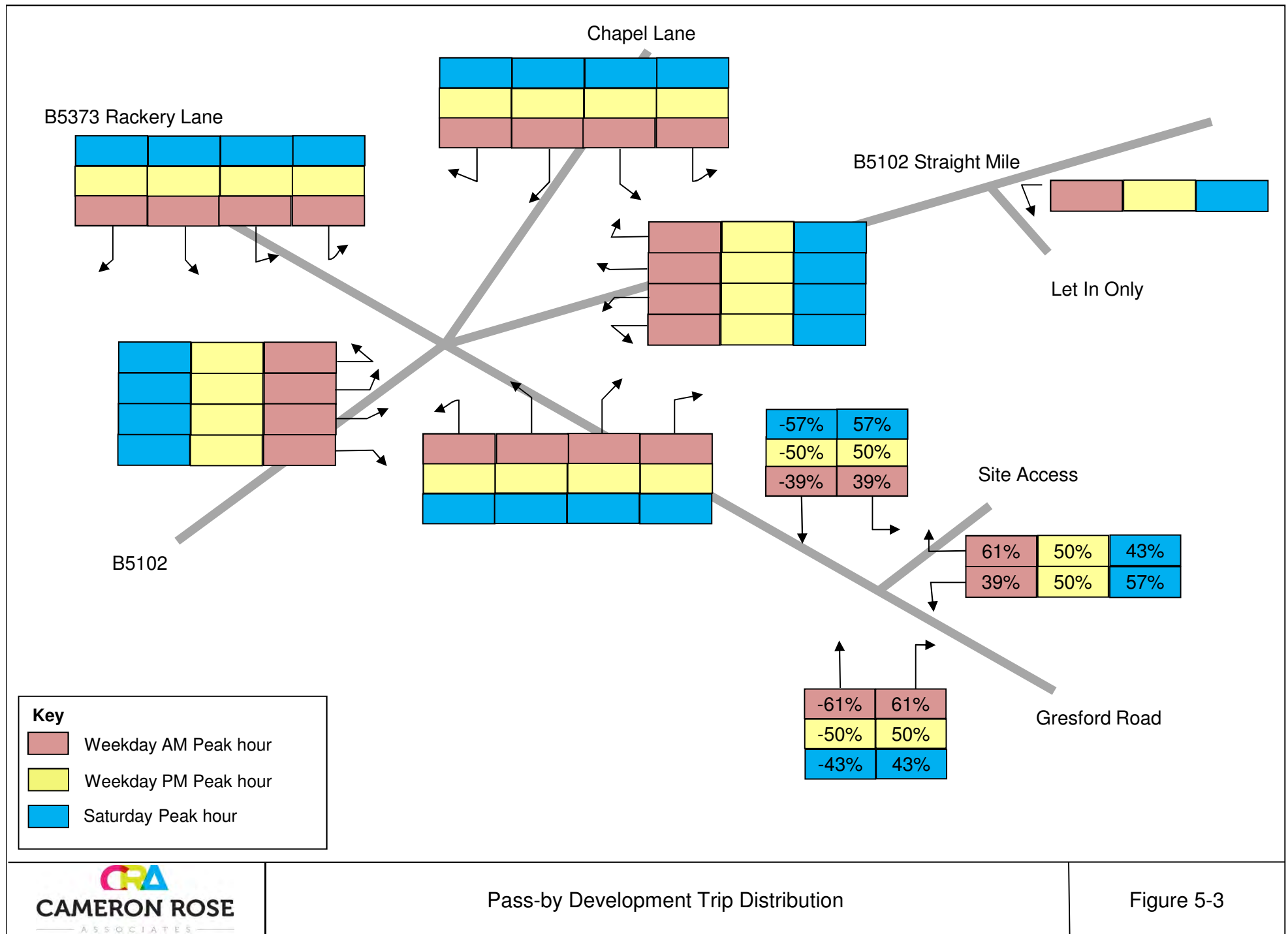
Figure 4-2

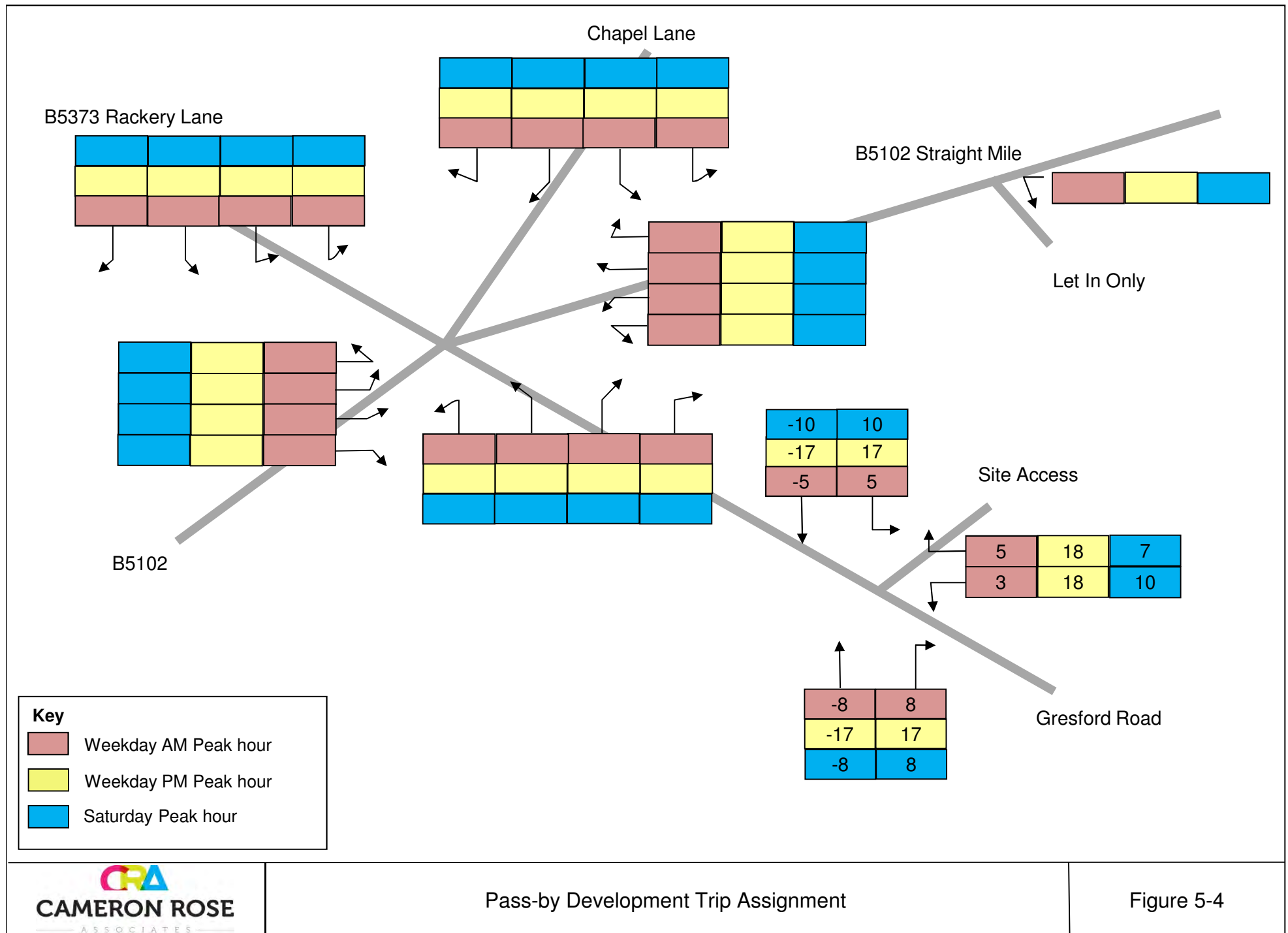


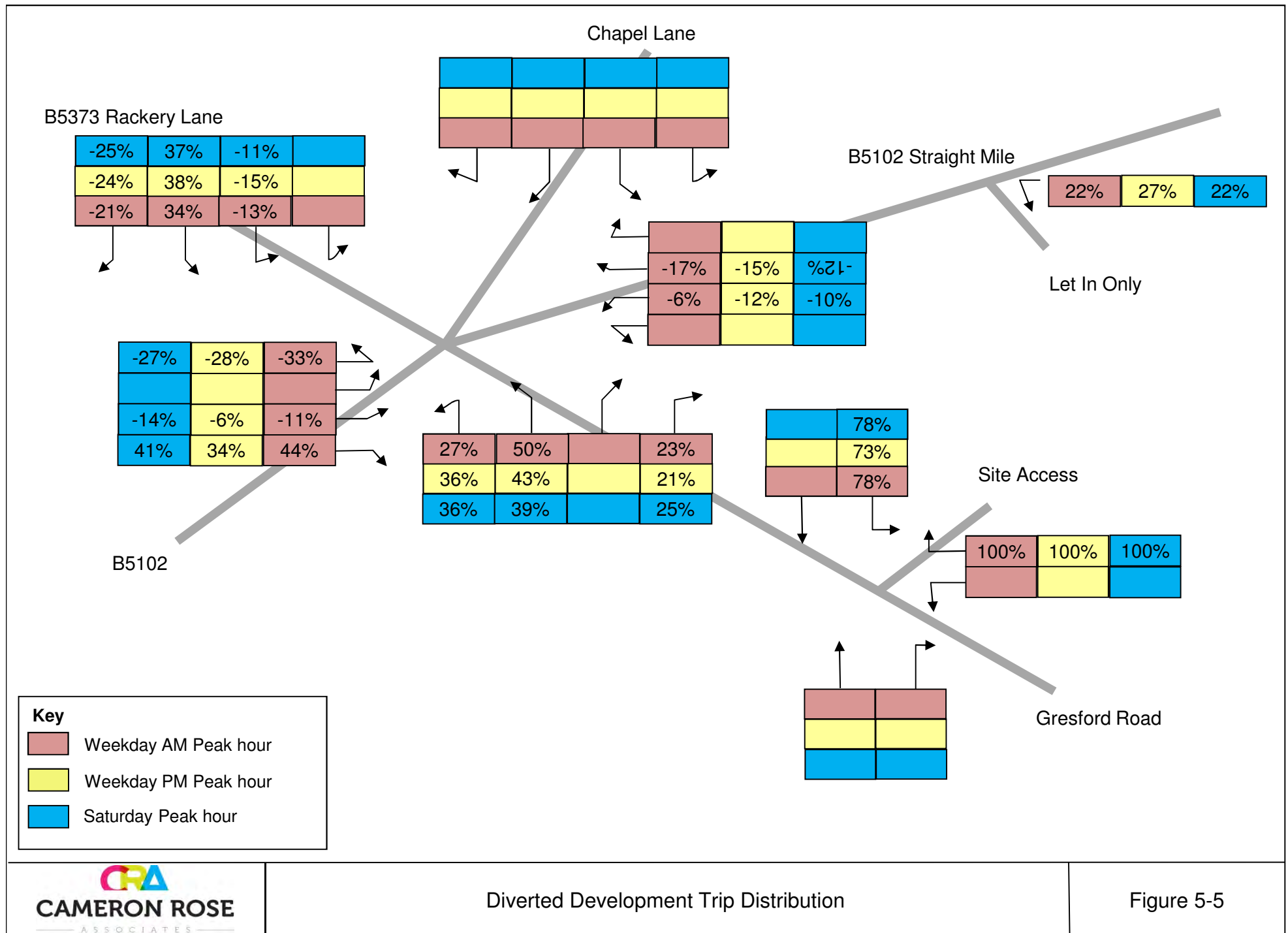


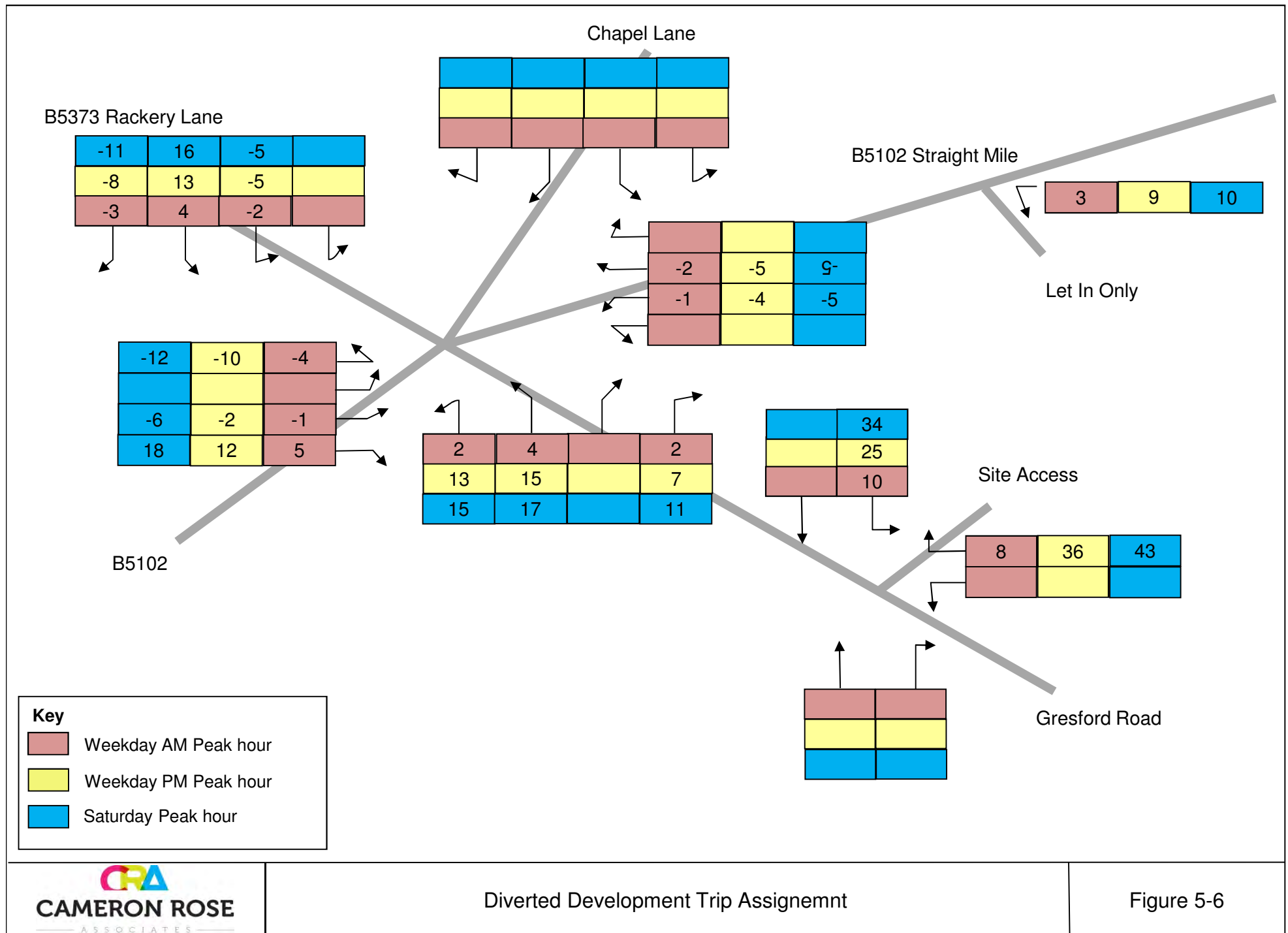


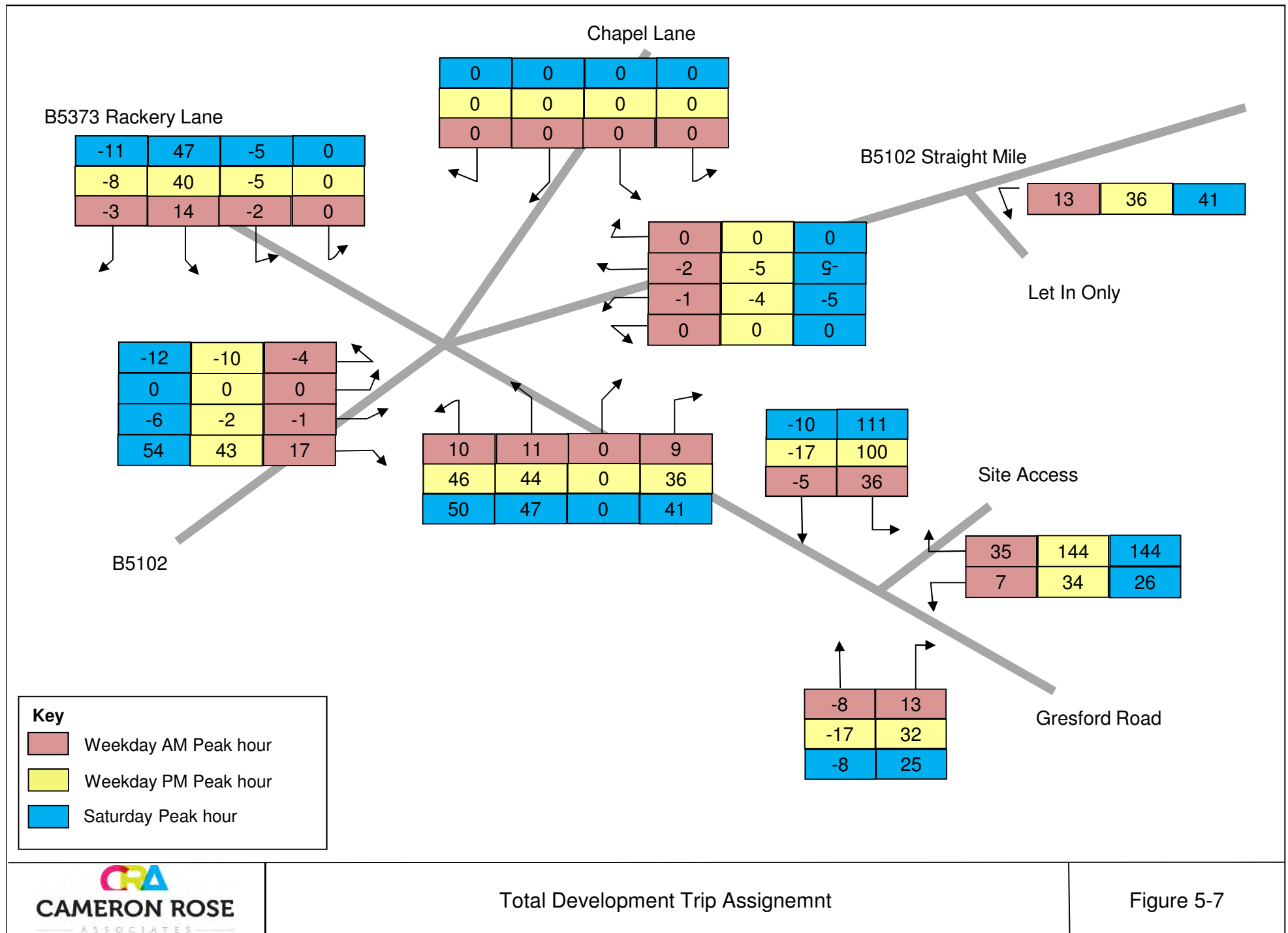


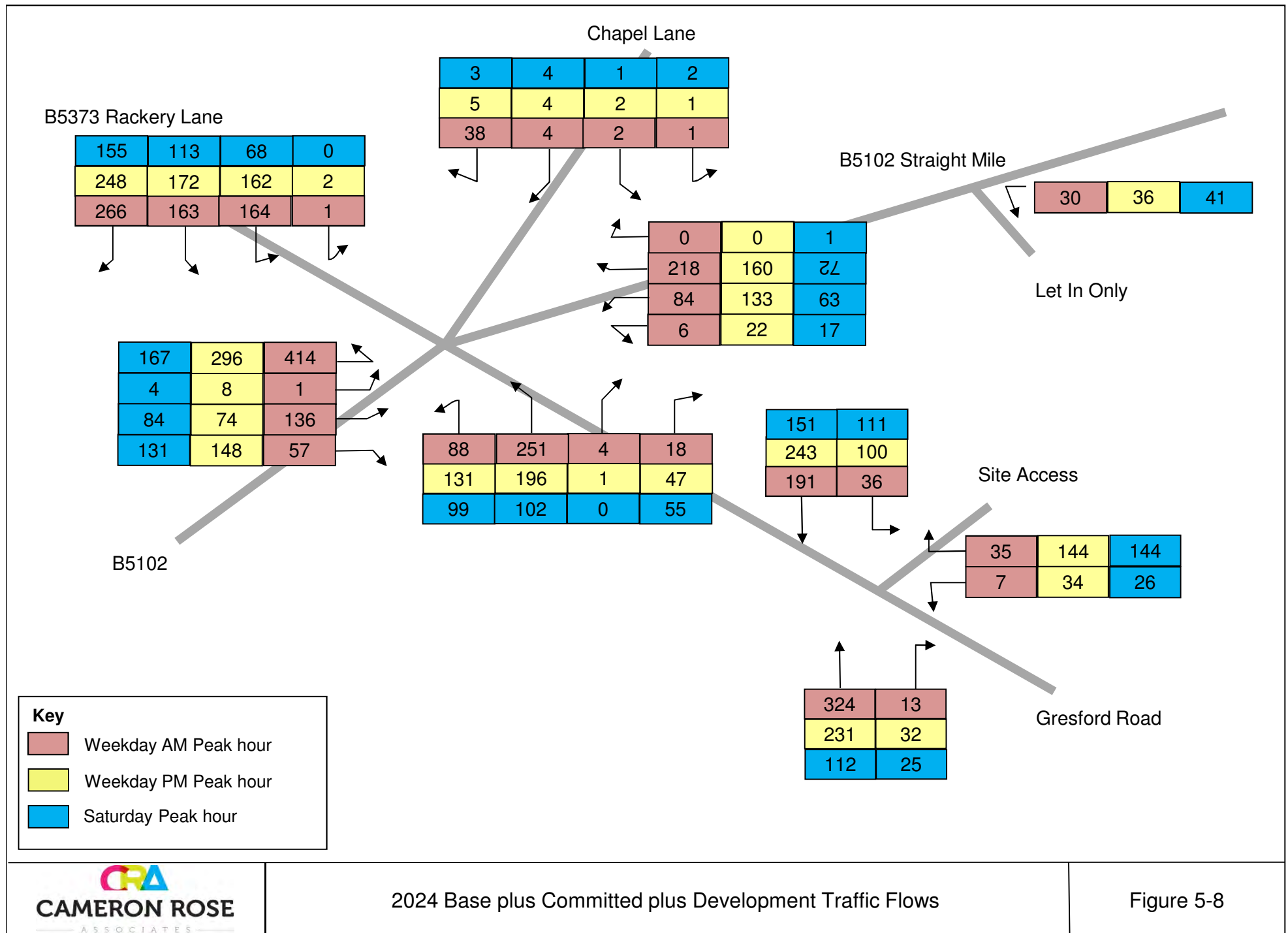












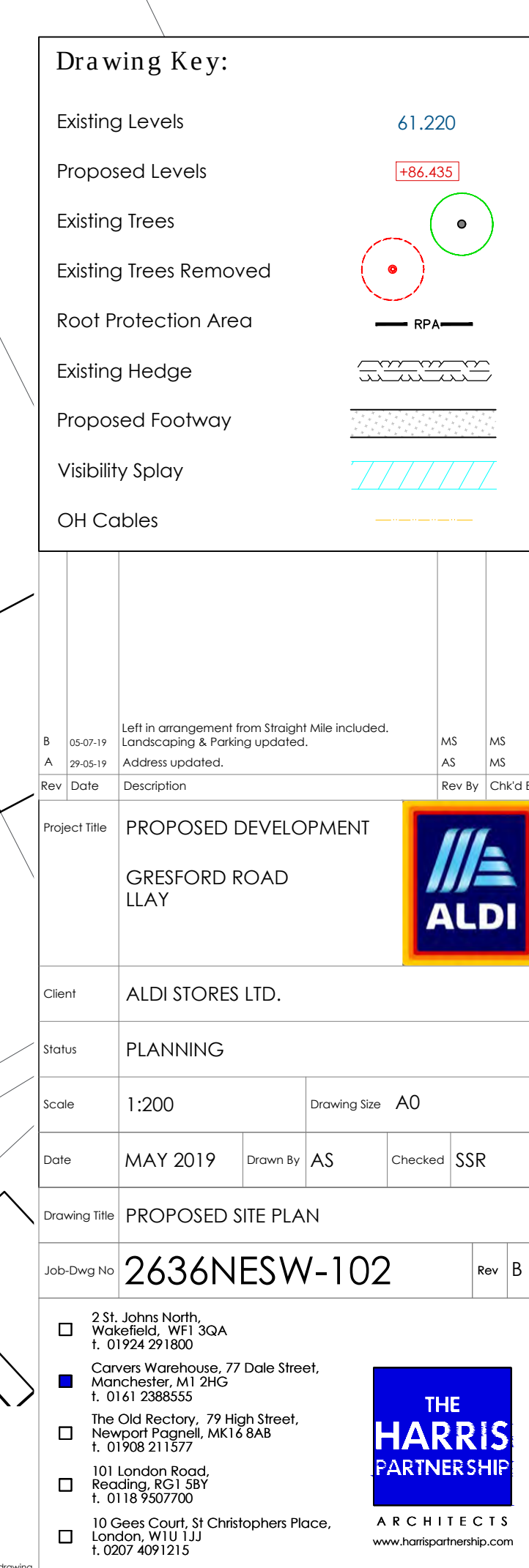


APPENDICES



APPENDIX A

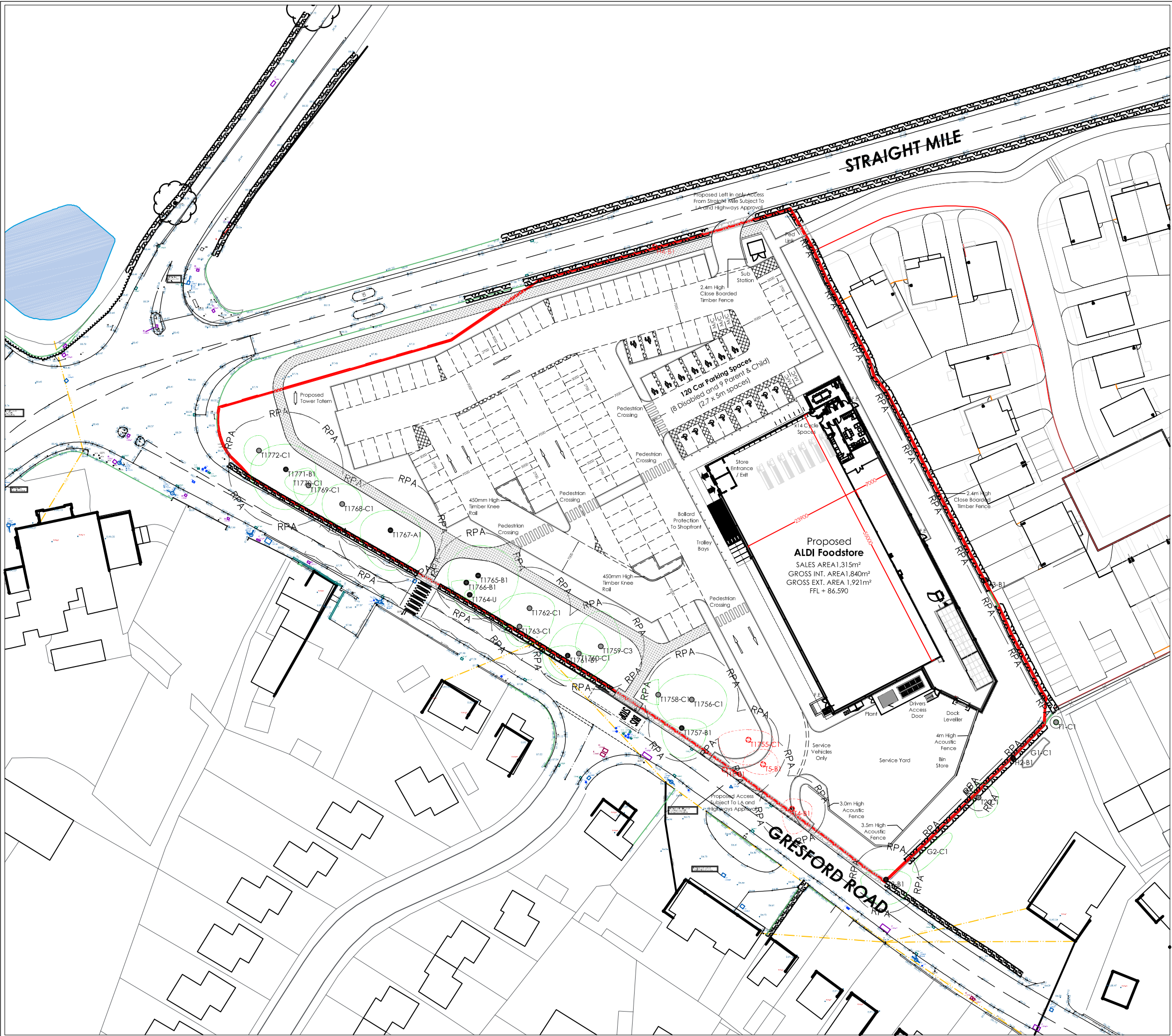
SITE LAYOUT





APPENDIX B

GENERAL ACCESS ARRANGEMENT AND SWEEP PATH AUTOTRACK ANALYSIS



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This drawing has been prepared for feasibility purposes and does not represent a construction plan. All design aspects to be confirmed at the appropriate detailed design stage.

Revision History		Date
A	Updated Site Layout	04/07/19
B	desc	date b
C	desc	date c
D	desc	date d
E	desc	date e
F	desc	date f
G	desc	date g
H	desc	date h
I	desc	date i
J	desc	date j

10 King Street
Newcastle-under-Lyme
Staffordshire
ST5 1EL
01782 627029

CRA

CAMERON ROSE

ASSOCIATES

client:

Aldi Stores Limited

project:

Gresford Road
Huyton

drawing title:

Site Access Arrangement with Left In
& Off-site Highway Works
Preliminary Design

scale(s): 1/750

date: 27/06/19

drawn by: IJM

checked: CAB

drawing number: 486-01/GA-04

xrefs:

status:

Information

rev:

A

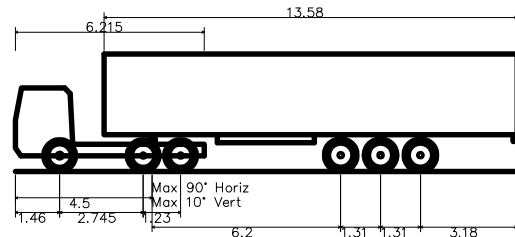
DATE PRINTED:



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Follow any figured dimensions - do not scale. IF IN DOUBT ASK.

This drawing has been prepared for feasibility purposes and does not represent a construction plan. All design aspects to be confirmed at the appropriate detailed design stage.



Aldi Articulated Vehicle (16.5m)
Overall Length 16.500m
Overall Width 2.600m
Overall Body Height 3.863m
Min Body Ground Clearance 0.511m
Max Track Width 2.500m
Lock to Lock Time 8.00s
Wall to Wall Turning Radius 8.250m

Revision History		Date
A	desc	date a
B	desc	date b
C	desc	date c
D	desc	date d
E	desc	date e
F	desc	date f
G	desc	date g
H	desc	date h
I	desc	date i
J	desc	date j

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CAMERON ROSE
ASSOCIATES

client: Aldi Stores Limited

project: Gresford Road Huyton

drawing title: Site Access Arrangement with Left In Visibility Splays Preliminary Design

scale(s): 1/250	date: 04/07/19	drawn by: IJM	checked: CAB
drawing number: 486-01/GA-05			
xrefs:		status: Information	
		rev: -	

DATE PRINTED:



APPENDIX C

FRAMEWORK TRAVEL PLAN



APPENDIX D

PARKING ACCUMULATION DATA

Vehicles In and Out by Hour by Day



ALDI Bangor

1,265 GFA

Week Commencing 04/02/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	1	0	0	0	0	0	5
02:00	0	0	0	0	0	2	2
03:00	0	0	0	0	1	2	0
04:00	4	4	4	4	4	1	0
05:00	1	1	2	3	3	4	0
06:00	0	1	2	0	1	0	5
07:00	4	3	5	11	7	4	1
08:00	32	29	25	56	34	39	1
09:00	73	61	73	83	82	85	18
10:00	77	80	84	85	99	104	97
11:00	97	93	77	98	102	140	116
12:00	103	84	96	92	116	132	106
13:00	113	103	80	106	111	123	114
14:00	94	86	90	91	97	113	115
15:00	81	82	85	85	119	99	72
16:00	71	76	73	85	106	74	7
17:00	83	63	78	77	72	55	2
18:00	51	38	43	56	45	29	2
19:00	37	29	42	38	32	25	2
20:00	20	19	16	17	25	13	1
21:00	10	9	4	11	8	2	2
22:00	1	0	1	3	1	0	0
23:00	0	1	0	0	0	1	0
	953	862	880	1001	1065	1047	668

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	1	0	0	0	0	0	5
02:00	0	0	0	0	0	1	2
03:00	0	0	0	0	0	3	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0
06:00	0	1	2	0	0	0	0
07:00	1	1	0	0	2	0	0
08:00	23	19	21	28	27	25	1
09:00	50	47	54	79	54	60	2
10:00	64	68	61	67	89	94	67
11:00	97	80	86	90	102	117	100
12:00	96	91	87	109	105	138	113
13:00	122	98	84	90	112	119	113
14:00	95	99	96	113	111	125	112
15:00	87	77	84	82	114	112	109
16:00	81	85	90	101	118	90	22
17:00	88	79	83	82	90	68	5
18:00	65	43	57	73	55	45	6
19:00	45	36	43	42	43	26	3
20:00	22	22	25	27	27	14	2
21:00	12	11	5	12	13	5	5
22:00	4	4	2	5	3	4	0
23:00	0	1	0	1	0	1	1
	953	862	880	1001	1065	1047	668

Trip Rates



ALDI Bangor

Week Commencing 04/02/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
01:00	0.079	0.000	0.000	0.000	0.000	0.000	0.395
02:00	0.000	0.000	0.000	0.000	0.000	0.158	0.158
03:00	0.000	0.000	0.000	0.000	0.079	0.158	0.000
04:00	0.316	0.316	0.316	0.316	0.316	0.079	0.000
05:00	0.079	0.079	0.158	0.237	0.237	0.316	0.000
06:00	0.000	0.079	0.158	0.000	0.079	0.000	0.395
07:00	0.316	0.237	0.395	0.870	0.553	0.316	0.079
08:00	2.530	2.292	1.976	4.427	2.688	3.083	0.079
09:00	5.771	4.822	5.771	6.561	6.482	6.719	1.423
10:00	6.087	6.324	6.640	6.719	7.826	8.221	7.668
11:00	7.668	7.352	6.087	7.747	8.063	11.067	9.170
12:00	8.142	6.640	7.589	7.273	9.170	10.435	8.379
13:00	8.933	8.142	6.324	8.379	8.775	9.723	9.012
14:00	7.431	6.798	7.115	7.194	7.668	8.933	9.091
15:00	6.403	6.482	6.719	6.719	9.407	7.826	5.692
16:00	5.613	6.008	5.771	6.719	8.379	5.850	0.553
17:00	6.561	4.980	6.166	6.087	5.692	4.348	0.158
18:00	4.032	3.004	3.399	4.427	3.557	2.292	0.158
19:00	2.925	2.292	3.320	3.004	2.530	1.976	0.158
20:00	1.581	1.502	1.265	1.344	1.976	1.028	0.079
21:00	0.791	0.711	0.316	0.870	0.632	0.158	0.158
22:00	0.079	0.000	0.079	0.237	0.079	0.000	0.000
23:00	0.000	0.079	0.000	0.000	0.000	0.079	0.000

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
01:00	0.079	0.000	0.000	0.000	0.000	0.000	0.395
02:00	0.000	0.000	0.000	0.000	0.000	0.079	0.158
03:00	0.000	0.000	0.000	0.000	0.000	0.237	0.000
04:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
05:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
06:00	0.000	0.079	0.158	0.000	0.000	0.000	0.000
07:00	0.079	0.079	0.000	0.000	0.158	0.000	0.000
08:00	1.818	1.502	1.660	2.213	2.134	1.976	0.079
09:00	3.953	3.715	4.269	6.245	4.269	4.743	0.158
10:00	5.059	5.375	4.822	5.296	7.036	7.431	5.296
11:00	7.668	6.324	6.798	7.115	8.063	9.249	7.905
12:00	7.589	7.194	6.877	8.617	8.300	10.909	8.933
13:00	9.644	7.747	6.640	7.115	8.854	9.407	8.933
14:00	7.510	7.826	7.589	8.933	8.775	9.881	8.854
15:00	6.877	6.087	6.640	6.482	9.012	8.854	8.617
16:00	6.403	6.719	7.115	7.984	9.328	7.115	1.739
17:00	6.957	6.245	6.561	6.482	7.115	5.375	0.395
18:00	5.138	3.399	4.506	5.771	4.348	3.557	0.474
19:00	3.557	2.846	3.399	3.320	3.399	2.055	0.237
20:00	1.739	1.739	1.976	2.134	2.134	1.107	0.158
21:00	0.949	0.870	0.395	0.949	1.028	0.395	0.395
22:00	0.316	0.316	0.158	0.395	0.237	0.316	0.000
23:00	0.000	0.079	0.000	0.079	0.000	0.079	0.079

Vehicles In and Out by Hour by Day



ALDI Old Colwyn

1,407 GFA

Week Commencing 04/02/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	1	0	0	0
01:00	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0
04:00	0	0	0	1	0	0	0
05:00	2	2	1	1	3	2	0
06:00	2	0	1	1	1	2	1
07:00	8	8	4	3	7	6	2
08:00	44	40	41	33	54	31	2
09:00	73	63	53	86	68	70	20
10:00	78	88	79	85	85	102	131
11:00	108	87	95	106	99	108	124
12:00	116	103	82	56	90	116	129
13:00	87	99	80	106	117	111	125
14:00	110	90	118	101	127	135	136
15:00	104	93	106	128	128	130	126
16:00	115	84	107	115	139	106	2
17:00	86	90	83	108	135	85	1
18:00	55	69	55	88	98	52	0
19:00	45	42	41	59	44	37	2
20:00	25	28	18	26	32	23	2
21:00	13	13	12	26	23	9	2
22:00	1	2	0	1	0	3	0
23:00	0	0	0	0	2	1	0
	1072	1001	976	1131	1252	1129	806

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	1	0	0	1
01:00	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	1	0	0
06:00	0	0	0	0	0	1	0
07:00	3	5	0	1	2	0	1
08:00	30	29	26	22	35	23	1
09:00	67	60	59	66	61	60	5
10:00	71	69	58	90	83	84	91
11:00	90	93	93	90	91	102	133
12:00	126	95	91	82	93	103	123
13:00	87	101	75	78	108	122	129
14:00	113	94	99	106	118	129	142
15:00	110	96	122	132	126	135	145
16:00	105	89	107	119	151	129	24
17:00	106	91	94	118	140	93	5
18:00	58	71	66	88	105	59	0
19:00	49	60	46	63	73	38	2
20:00	34	27	24	39	34	32	2
21:00	16	18	14	34	27	10	2
22:00	6	4	2	2	2	8	0
23:00	0	0	0	0	2	0	0
	1071	1002	976	1131	###	1128	807

ALDI Old Colwyn

Week Commencing 04/02/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0.000	0.000	0.000	0.071	0.000	0.000	0.000
01:00	0.000	0.000	0.000	0.000	0.000	0.000	0.071
02:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
03:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
04:00	0.000	0.000	0.000	0.071	0.000	0.000	0.000
05:00	0.142	0.142	0.071	0.071	0.213	0.142	0.000
06:00	0.142	0.000	0.071	0.071	0.071	0.142	0.071
07:00	0.569	0.569	0.284	0.213	0.498	0.426	0.142
08:00	3.127	2.843	2.914	2.345	3.838	2.203	0.142
09:00	5.188	4.478	3.767	6.112	4.833	4.975	1.421
10:00	5.544	6.254	5.615	6.041	6.041	7.249	9.311
11:00	7.676	6.183	6.752	7.534	7.036	7.676	8.813
12:00	8.244	7.321	5.828	3.980	6.397	8.244	9.168
13:00	6.183	7.036	5.686	7.534	8.316	7.889	8.884
14:00	7.818	6.397	8.387	7.178	9.026	9.595	9.666
15:00	7.392	6.610	7.534	9.097	9.097	9.240	8.955
16:00	8.173	5.970	7.605	8.173	9.879	7.534	0.142
17:00	6.112	6.397	5.899	7.676	9.595	6.041	0.071
18:00	3.909	4.904	3.909	6.254	6.965	3.696	0.000
19:00	3.198	2.985	2.914	4.193	3.127	2.630	0.142
20:00	1.777	1.990	1.279	1.848	2.274	1.635	0.142
21:00	0.924	0.924	0.853	1.848	1.635	0.640	0.142
22:00	0.071	0.142	0.000	0.071	0.000	0.213	0.000
23:00	0.000	0.000	0.000	0.000	0.142	0.071	0.000

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0.000	0.000	0.000	0.071	0.000	0.000	0.071
01:00	0.000	0.000	0.000	0.000	0.000	0.000	0.071
02:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
03:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
04:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
05:00	0.000	0.000	0.000	0.000	0.071	0.000	0.000
06:00	0.000	0.000	0.000	0.000	0.000	0.071	0.000
07:00	0.213	0.355	0.000	0.071	0.142	0.000	0.071
08:00	2.132	2.061	1.848	1.564	2.488	1.635	0.071
09:00	4.762	4.264	4.193	4.691	4.335	4.264	0.355
10:00	5.046	4.904	4.122	6.397	5.899	5.970	6.468
11:00	6.397	6.610	6.610	6.397	6.468	7.249	9.453
12:00	8.955	6.752	6.468	5.828	6.610	7.321	8.742
13:00	6.183	7.178	5.330	5.544	7.676	8.671	9.168
14:00	8.031	6.681	7.036	7.534	8.387	9.168	10.092
15:00	7.818	6.823	8.671	9.382	8.955	9.595	10.306
16:00	7.463	6.326	7.605	8.458	10.732	9.168	1.706
17:00	7.534	6.468	6.681	8.387	9.950	6.610	0.355
18:00	4.122	5.046	4.691	6.254	7.463	4.193	0.000
19:00	3.483	4.264	3.269	4.478	5.188	2.701	0.142
20:00	2.416	1.919	1.706	2.772	2.416	2.274	0.142
21:00	1.137	1.279	0.995	2.416	1.919	0.711	0.142
22:00	0.426	0.284	0.142	0.142	0.142	0.569	0.000
23:00	0.000	0.000	0.000	0.000	0.142	0.000	0.000

Vehicles In and Out by Hour by Day



ALDI Prestatyn

1,529 GFA

Week Commencing 04/02/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0
03:00	0	0	0	1	0	0	0
04:00	0	0	0	0	0	0	0
05:00	1	1	1	1	2	1	0
06:00	1	0	0	1	0	1	2
07:00	0	3	2	3	4	2	1
08:00	37	34	26	37	33	35	0
09:00	69	54	40	63	70	55	19
10:00	79	67	62	78	68	92	86
11:00	78	79	74	98	86	101	89
12:00	71	64	66	71	89	109	100
13:00	61	59	62	64	93	92	90
14:00	70	76	108	90	88	82	112
15:00	102	78	88	99	100	96	72
16:00	95	85	85	74	111	80	3
17:00	84	64	82	66	102	75	1
18:00	45	49	53	68	64	56	2
19:00	41	41	37	54	35	29	1
20:00	11	11	15	12	22	17	1
21:00	2	8	9	7	10	5	1
22:00	0	0	0	0	0	2	0
23:00	0	0	0	0	0	1	0
	847	773	810	887	977	931	580

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0
03:00	0	0	0	1	0	0	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0
06:00	1	0	0	0	0	0	0
07:00	0	2	0	1	0	0	0
08:00	22	24	15	25	20	26	0
09:00	61	45	41	51	53	47	6
10:00	74	55	46	76	75	69	68
11:00	78	90	66	73	72	100	83
12:00	66	61	72	98	104	103	107
13:00	75	60	58	64	85	106	87
14:00	54	67	102	83	83	89	101
15:00	107	93	89	100	106	92	103
16:00	91	72	101	89	109	89	19
17:00	99	79	82	63	108	86	1
18:00	54	50	60	78	81	52	2
19:00	45	50	43	57	45	40	1
20:00	16	14	24	18	22	23	1
21:00	3	10	8	9	12	6	1
22:00	1	1	3	1	2	2	0
23:00	0	0	0	0	0	1	0
	847	773	810	887	977	931	580

ALDI Prestatyn

Week Commencing 04/02/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
01:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
02:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
03:00	0.000	0.000	0.000	0.065	0.000	0.000	0.000
04:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
05:00	0.065	0.065	0.065	0.065	0.131	0.065	0.000
06:00	0.065	0.000	0.000	0.065	0.000	0.065	0.131
07:00	0.000	0.196	0.131	0.196	0.262	0.131	0.065
08:00	2.420	2.224	1.700	2.420	2.158	2.289	0.000
09:00	4.513	3.532	2.616	4.120	4.578	3.597	1.243
10:00	5.167	4.382	4.055	5.101	4.447	6.017	5.625
11:00	5.101	5.167	4.840	6.409	5.625	6.606	5.821
12:00	4.644	4.186	4.317	4.644	5.821	7.129	6.540
13:00	3.990	3.859	4.055	4.186	6.082	6.017	5.886
14:00	4.578	4.971	7.063	5.886	5.755	5.363	7.325
15:00	6.671	5.101	5.755	6.475	6.540	6.279	4.709
16:00	6.213	5.559	5.559	4.840	7.260	5.232	0.196
17:00	5.494	4.186	5.363	4.317	6.671	4.905	0.065
18:00	2.943	3.205	3.466	4.447	4.186	3.663	0.131
19:00	2.681	2.681	2.420	3.532	2.289	1.897	0.065
20:00	0.719	0.719	0.981	0.785	1.439	1.112	0.065
21:00	0.131	0.523	0.589	0.458	0.654	0.327	0.065
22:00	0.000	0.000	0.000	0.000	0.000	0.131	0.000
23:00	0.000	0.000	0.000	0.000	0.000	0.065	0.000

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
01:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
02:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
03:00	0.000	0.000	0.000	0.065	0.000	0.000	0.000
04:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
05:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
06:00	0.065	0.000	0.000	0.000	0.000	0.000	0.000
07:00	0.000	0.131	0.000	0.065	0.000	0.000	0.000
08:00	1.439	1.570	0.981	1.635	1.308	1.700	0.000
09:00	3.990	2.943	2.681	3.336	3.466	3.074	0.392
10:00	4.840	3.597	3.009	4.971	4.905	4.513	4.447
11:00	5.101	5.886	4.317	4.774	4.709	6.540	5.428
12:00	4.317	3.990	4.709	6.409	6.802	6.736	6.998
13:00	4.905	3.924	3.793	4.186	5.559	6.933	5.690
14:00	3.532	4.382	6.671	5.428	5.428	5.821	6.606
15:00	6.998	6.082	5.821	6.540	6.933	6.017	6.736
16:00	5.952	4.709	6.606	5.821	7.129	5.821	1.243
17:00	6.475	5.167	5.363	4.120	7.063	5.625	0.065
18:00	3.532	3.270	3.924	5.101	5.298	3.401	0.131
19:00	2.943	3.270	2.812	3.728	2.943	2.616	0.065
20:00	1.046	0.916	1.570	1.177	1.439	1.504	0.065
21:00	0.196	0.654	0.523	0.589	0.785	0.392	0.065
22:00	0.065	0.065	0.196	0.065	0.131	0.131	0.000
23:00	0.000	0.000	0.000	0.000	0.000	0.065	0.000

Vehicles In and Out by Hour by Day



ALDI Ruthin Road, Wrexham

1,820 GFA

Week Commencing 04/03/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0
07:00	9	8	7	7	20	21	0
08:00	68	38	37	41	80	101	4
09:00	112	107	96	151	169	127	57
10:00	147	113	100	157	183	180	243
11:00	159	140	129	149	171	191	207
12:00	185	141	143	144	174	201	211
13:00	159	151	142	148	172	191	215
14:00	156	142	121	135	187	182	213
15:00	156	134	132	125	183	142	143
16:00	138	110	117	136	173	155	7
17:00	65	25	64	61	75	61	2
18:00	0	0	1	0	0	1	0
19:00	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0
	1354	1109	1089	1254	1587	1553	1302

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0
07:00	2	0	1	0	5	1	0
08:00	48	27	20	32	52	83	2
09:00	91	79	73	97	127	96	4
10:00	124	115	99	148	180	157	186
11:00	152	117	107	138	178	193	217
12:00	174	149	155	158	168	191	219
13:00	186	137	136	171	171	198	221
14:00	161	176	141	129	183	187	202
15:00	151	125	113	127	194	177	219
16:00	141	124	130	111	178	149	25
17:00	121	60	108	137	148	112	6
18:00	3	0	6	6	3	9	1
19:00	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0
	1354	1109	1089	1254	1587	1553	1302

ALDI Ruthin Road, Wrexham

Week Commencing 04/02/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
01:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
02:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
03:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
04:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
05:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
06:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
07:00	0.495	0.440	0.385	0.385	1.099	1.154	0.000
08:00	3.736	2.088	2.033	2.253	4.396	5.549	0.220
09:00	6.154	5.879	5.275	8.297	9.286	6.978	3.132
10:00	8.077	6.209	5.495	8.626	10.055	9.890	13.352
11:00	8.736	7.692	7.088	8.187	9.396	10.495	11.374
12:00	10.165	7.747	7.857	7.912	9.560	11.044	11.593
13:00	8.736	8.297	7.802	8.132	9.451	10.495	11.813
14:00	8.571	7.802	6.648	7.418	10.275	10.000	11.703
15:00	8.571	7.363	7.253	6.868	10.055	7.802	7.857
16:00	7.582	6.044	6.429	7.473	9.505	8.516	0.385
17:00	3.571	1.374	3.516	3.352	4.121	3.352	0.110
18:00	0.000	0.000	0.055	0.000	0.000	0.055	0.000
19:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
01:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
02:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
03:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
04:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
05:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
06:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
07:00	0.110	0.000	0.055	0.000	0.275	0.055	0.000
08:00	2.637	1.484	1.099	1.758	2.857	4.560	0.110
09:00	5.000	4.341	4.011	5.330	6.978	5.275	0.220
10:00	6.813	6.319	5.440	8.132	9.890	8.626	10.220
11:00	8.352	6.429	5.879	7.582	9.780	10.604	11.923
12:00	9.560	8.187	8.516	8.681	9.231	10.495	12.033
13:00	10.220	7.527	7.473	9.396	9.396	10.879	12.143
14:00	8.846	9.670	7.747	7.088	10.055	10.275	11.099
15:00	8.297	6.868	6.209	6.978	10.659	9.725	12.033
16:00	7.747	6.813	7.143	6.099	9.780	8.187	1.374
17:00	6.648	3.297	5.934	7.527	8.132	6.154	0.330
18:00	0.165	0.000	0.330	0.330	0.165	0.495	0.055
19:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Vehicles In and Out by Hour by Day

ALDI Average (Bangor, Old Colwyn, Prestatyn and Wrexham)

Week Commencing 04/03/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0.000	0.000	0.000	0.018	0.000	0.000	0.000
01:00	0.020	0.000	0.000	0.000	0.000	0.000	0.117
02:00	0.000	0.000	0.000	0.000	0.000	0.040	0.040
03:00	0.000	0.000	0.000	0.016	0.020	0.040	0.000
04:00	0.079	0.079	0.079	0.097	0.079	0.020	0.000
05:00	0.072	0.072	0.074	0.093	0.145	0.131	0.000
06:00	0.052	0.020	0.057	0.034	0.038	0.052	0.149
07:00	0.345	0.360	0.299	0.416	0.603	0.507	0.072
08:00	2.953	2.362	2.156	2.861	3.270	3.281	0.110
09:00	5.406	4.678	4.357	6.273	6.295	5.567	1.805
10:00	6.219	5.792	5.451	6.622	7.092	7.844	8.989
11:00	7.295	6.599	6.192	7.469	7.530	8.961	8.794
12:00	7.799	6.473	6.398	5.952	7.737	9.213	8.920
13:00	6.960	6.833	5.967	7.058	8.156	8.531	8.899
14:00	7.100	6.492	7.303	6.919	8.181	8.473	9.446
15:00	7.259	6.389	6.815	7.290	8.775	7.787	6.803
16:00	6.895	5.895	6.341	6.801	8.756	6.783	0.319
17:00	5.435	4.234	5.236	5.358	6.520	4.661	0.101
18:00	2.721	2.778	2.707	3.782	3.677	2.426	0.072
19:00	2.201	1.990	2.164	2.682	1.986	1.626	0.091
20:00	1.019	1.053	0.881	0.994	1.422	0.944	0.072
21:00	0.461	0.540	0.439	0.794	0.730	0.281	0.091
22:00	0.038	0.036	0.020	0.077	0.020	0.086	0.000
23:00	0.000	0.020	0.000	0.000	0.036	0.054	0.000

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0.000	0.000	0.000	0.018	0.000	0.000	0.018
01:00	0.020	0.000	0.000	0.000	0.000	0.000	0.117
02:00	0.000	0.000	0.000	0.000	0.000	0.020	0.040
03:00	0.000	0.000	0.000	0.016	0.000	0.059	0.000
04:00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
05:00	0.000	0.000	0.000	0.000	0.018	0.000	0.000
06:00	0.016	0.020	0.040	0.000	0.000	0.018	0.000
07:00	0.101	0.141	0.014	0.034	0.144	0.014	0.018
08:00	2.007	1.654	1.397	1.793	2.197	2.468	0.065
09:00	4.426	3.816	3.789	4.900	4.762	4.339	0.281
10:00	5.440	5.049	4.348	6.199	6.932	6.635	6.608
11:00	6.879	6.312	5.901	6.467	7.255	8.411	8.677
12:00	7.605	6.530	6.643	7.384	7.736	8.865	9.176
13:00	7.738	6.594	5.809	6.560	7.871	8.972	8.984
14:00	6.980	7.140	7.261	7.246	8.161	8.786	9.163
15:00	7.498	6.465	6.835	7.346	8.890	8.548	9.423
16:00	6.891	6.142	7.117	7.090	9.242	7.573	1.515
17:00	6.903	5.294	6.135	6.629	8.065	5.941	0.286
18:00	3.239	2.929	3.363	4.364	4.318	2.912	0.165
19:00	2.496	2.595	2.370	2.881	2.883	1.843	0.111
20:00	1.301	1.143	1.313	1.521	1.497	1.221	0.091
21:00	0.570	0.701	0.478	0.988	0.933	0.375	0.151
22:00	0.202	0.166	0.124	0.151	0.128	0.254	0.000
23:00	0.000	0.020	0.000	0.020	0.036	0.036	0.020

Proposed ALDI, Llay

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	2
02:00	0	0	0	0	0	1	1
03:00	0	0	0	0	0	1	0
04:00	2	2	2	2	2	0	0
05:00	1	1	1	2	3	3	0
06:00	1	0	1	1	1	1	3
07:00	7	7	6	8	12	10	1
08:00	57	45	41	55	63	63	2
09:00	104	90	84	120	121	107	35
10:00	119	111	105	127	136	151	173
11:00	140	127	119	143	145	172	169
12:00	150	124	123	114	149	177	171
13:00	134	131	115	136	157	164	171
14:00	136	125	140	133	157	163	181
15:00	139	123	131	140	169	150	131
16:00	132	113	122	131	168	130	6
17:00	104	81	101	103	125	90	2
18:00	52	53	52	73	71	47	1
19:00	42	38	42	52	38	31	2
20:00	20	20	17	19	27	18	1
21:00	9	10	8	15	14	5	2
22:00	1	1	0	1	0	2	0
23:00	0	0	0	0	1	1	0
	1351	1204	1209	1376	1557	1485	1054

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	1
03:00	0	0	0	0	0	1	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0
06:00	0	0	1	0	0	0	0
07:00	2	3	0	1	3	0	0
08:00	39	32	27	34	42	47	1
09:00	85	73	73	94	91	83	5
10:00	104	97	84	119	133	127	127
11:00	132	121	113	124	139	162	167
12:00	146	125	128	142	149	170	176
13:00	149	127	112	126	151	172	173
14:00	134	137	139	139	157	169	176
15:00	144	124	131	141	171	164	181
16:00	132	118	137	136	178	145	29
17:00	133	102	118	127	155	114	6
18:00	62	56	65	84	83	56	3
19:00	48	50	46	55	55	35	2
20:00	25	22	25	29	29	23	2
21:00	11	13	9	19	18	7	3
22:00	4	3	2	3	2	5	0
23:00	0	0	0	0	1	1	0
	1351	1205	1209	1376	1557	1485	1055

Proposed ALDI, Llay

Accumulation

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0
04:00	2	2	2	2	2	0	0
05:00	3	3	3	4	4	3	0
06:00	4	3	3	4	5	4	3
07:00	8	7	9	12	14	13	4
08:00	26	21	23	32	35	29	5
09:00	45	38	34	59	64	52	34
10:00	60	52	55	67	67	75	80
11:00	68	57	61	86	72	86	82
12:00	72	56	56	58	72	93	77
13:00	57	61	59	68	78	84	75
14:00	59	48	60	62	78	78	81
15:00	55	47	60	61	76	64	31
16:00	55	42	45	55	67	48	8
17:00	27	22	28	31	37	24	4
18:00	17	19	15	19	25	15	2
19:00	11	7	11	16	7	10	2
20:00	6	6	3	6	6	5	2
21:00	4	3	2	2	2	3	0
22:00	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0
Max	72	61	61	86	78	93	82

% Accumulation

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0%	0%	0%	0%	0%	0%	0%
01:00	0%	0%	0%	0%	0%	0%	0%
02:00	0%	0%	0%	0%	0%	0%	0%
03:00	0%	0%	0%	0%	0%	0%	0%
04:00	1%	2%	1%	2%	2%	0%	0%
05:00	2%	3%	3%	3%	4%	2%	0%
06:00	3%	3%	3%	4%	4%	3%	2%
07:00	7%	6%	7%	10%	12%	11%	3%
08:00	23%	18%	20%	27%	29%	24%	4%
09:00	39%	32%	29%	50%	55%	45%	29%
10:00	51%	44%	47%	57%	57%	65%	68%
11:00	58%	49%	52%	73%	62%	74%	70%
12:00	62%	48%	48%	50%	62%	79%	66%
13:00	49%	52%	51%	58%	66%	72%	65%
14:00	51%	41%	51%	53%	67%	67%	69%
15:00	47%	40%	51%	52%	65%	54%	26%
16:00	47%	36%	38%	47%	57%	41%	7%
17:00	23%	19%	24%	26%	32%	20%	3%
18:00	14%	16%	13%	17%	21%	12%	2%
19:00	9%	6%	9%	13%	6%	9%	2%
20:00	5%	5%	2%	5%	5%	4%	1%
21:00	3%	2%	2%	2%	2%	3%	0%
22:00	0%	0%	0%	0%	0%	0%	0%
23:00	0%	0%	0%	0%	0%	0%	0%
Max	62%	52%	52%	73%	67%	79%	70%



APPENDIX E

TRAFFIC COUNT DATA



Llay - Manual Traffic Survey, Friday 8th March 2019

Junction: B5373 / Chapel Lane / B51102

Approach: B5373 (North)

TIME	First Left to Chapel Lane								Second Left to B51102 (East)								Ahead to B5373 (South)								Right to B51102 (West)							
	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
0730 - 0745	0	0	0	0	0	0	0	0	0	0	16	3	0	2	0	21	0	0	32	5	0	0	0	37	0	0	31	5	0	0	0	36
0745 - 0800	0	0	1	0	0	0	0	1	0	0	27	5	1	2	0	35	0	0	28	4	0	0	0	32	0	0	43	13	1	1	1	59
Hourly Total	0	0	1	0	0	0	0	1	0	0	43	8	1	4	0	56	0	0	60	9	0	0	0	69	0	0	74	18	1	1	1	95
0800 - 0815	0	0	0	0	0	0	0	0	0	0	19	6	0	1	0	26	0	0	31	4	1	2	0	38	0	0	38	4	1	5	1	49
0815 - 0830	0	0	0	0	0	0	0	0	0	0	37	7	0	7	0	51	0	1	27	5	0	1	0	34	0	0	51	13	2	2	1	69
0830 - 0845	0	0	0	0	0	0	0	0	0	0	19	2	1	3	0	25	0	0	25	3	0	0	0	28	0	0	48	11	1	0	2	62
0845 - 0900	0	0	0	0	0	0	0	0	0	1	13	10	2	7	0	33	0	0	24	0	0	1	0	25	0	0	54	9	2	1	0	66
Hourly Total	0	0	0	0	0	0	0	0	0	1	88	25	3	18	0	135	0	1	107	12	1	4	0	125	0	0	191	37	6	8	4	246
0900 - 0915	0	0	0	0	0	0	0	0	0	0	9	9	2	0	0	20	0	0	11	1	0	0	0	12	0	0	29	15	2	1	0	47
0915 - 0930	0	0	0	0	0	0	0	0	0	0	20	4	0	1	0	25	0	0	12	4	0	3	0	19	0	0	25	14	1	1	0	41
0930 - 0945	0	0	0	0	0	0	0	0	1	2	9	5	4	3	0	24	0	0	3	2	0	1	0	6	0	1	21	9	3	2	0	36
0945 - 1000	0	0	0	0	0	0	0	0	0	0	1	1	1	2	0	5	0	0	3	3	0	0	0	6	0	0	6	6	0	0	0	12
Hourly Total	0	0	0	0	0	0	0	0	1	2	39	19	7	6	0	74	0	0	29	10	0	4	0	43	0	1	81	44	6	4	0	136
Session Total	0	0	1	0	0	0	0	1	1	3	170	52	11	28	0	265	0	1	196	31	1	8	0	237	0	1	346	99	13	13	5	477
1600 - 1615	1	0	1	0	0	0	0	2	0	0	19	6	0	2	0	27	0	0	23	7	0	1	0	31	0	0	50	10	0	1	0	61
1615 - 1630	0	0	1	0	0	0	0	1	0	0	28	2	0	2	0	32	0	0	17	5	0	5	0	27	0	0	40	8	0	0	0	48
1630 - 1645	0	0	0	0	0	0	0	0	0	0	37	2	0	1	0	40	0	0	27	4	0	1	0	32	0	0	50	7	0	0	0	57
1645 - 1700	0	0	0	0	0	0	0	0	0	0	23	1	1	0	0	25	0	0	19	5	0	0	0	24	0	1	53	10	0	0	1	65
Hourly Total	1	0	2	0	0	0	0	3	0	0	107	11	1	5	0	124	0	0	86	21	0	7	0	114	0	1	193	35	0	1	1	231
1700 - 1715	0	0	0	0	0	0	0	0	0	1	41	4	0	1	0	47	0	0	22	1	0	0	0	23	0	0	59	5	0	0	0	64
1715 - 1730	0	0	2	0	0	0	0	2	0	0	29	3	0	2	0	34	0	0	26	3	0	0	0	29	0	0	55	3	0	0	0	58
1730 - 1745	0	0	2	0	0	0	0	2	0	0	31	4	0	2	0	37	0	0	19	2	0	0	0	21	0	0	50	7	1	0	0	58
1745 - 1800	0	0	0	0	0	0	0	0	0	0	20	2	1	2	0	25	0	0	15	1	0	0	0	16	0	0	35	8	0	0	0	43
Hourly Total	0	0	4	0	0	0	0	4	0	1	121	13	1	7	0	143	0	0	82	7	0	0	0	89	0	0	199	23	1	0	0	223
1800 - 1815	0	0	0	0	0	0	0	0	0	0	26	3	0	0	0	29	0	0	18	0	0	0	0	18	1	2	65	5	0	0	0	73
1815 - 1830	0	0	0	0	0	0	0	0	0	0	10	0	0	4	0	14	0	0	11	1	0	0	0	12	0	0	32	5	0	0	0	37
Hourly Total	0	0	0	0	0	0	0	0	0	0	36	3	0	4	0	43	0	0	29	1	0	0	0	30	1	2	97	10	0	0	0	110
Session Total	1	0	6	0	0	0	0	7	0	1	264	27	2	16	0	310	0	0	197	29	0	7	0	233	1	3	489	68	1	1	1	564



Llay - Manual Traffic Survey, Friday 8th March 2019

Junction: B5373 / Chapel Lane / B51102

Approach: Chapel Lane

TIME	First Left to B51102 (East)								Second Left to B5373 (South)								Right to B51102 (West)								Last Right to B5373 (North)							
	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
0730 - 0745	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
0745 - 0800	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	17	1	0	0	0	18
Hourly Total	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	17	1	0	0	0	18
0800 - 0815	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	8	1	0	0	0	9
0815 - 0830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	4	1	0	0	0	5
0830 - 0845	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	4	0	0	0	0	4
0845 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	4	0	0	0	0	4	0	0	16	2	0	0	0	18
0900 - 0915	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1
0915 - 0930	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
0930 - 0945	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0945 - 1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	2	0	0	0	0	2	0	0	1	0	0	0	0	1
Session Total	0	0	2	0	0	0	0	2	0	0	2	1	1	0	0	4	0	0	9	0	0	0	0	9	0	0	34	3	0	0	0	37
1600 - 1615	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0
1615 - 1630	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
1630 - 1645	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1
1645 - 1700	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	1
Hourly Total	0	0	1	0	0	0	0	1	0	0	5	0	0	0	0	5	0	0	7	0	0	0	0	7	0	0	1	1	0	0	0	2
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	1
1715 - 1730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2	0	0	0	0	2
1730 - 1745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
1745 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	4	0	0	2	1	0	0	0	3
1800 - 1815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
1815 - 1830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0
Session Total	0	0	1	0	0	0	0	1	0	0	5	0	0	0	0	5	0	0	12	1	0	0	0	13	0	0	3	2	0	0	0	5



Llay - Manual Traffic Survey, Friday 8th March 2019

Junction: B5373 / Chapel Lane / B51102

Approach: B51102 (East)

TIME	Left to B5373 (South)								Ahead to B51102 (West)								Right to B5373 (North)								Last Right to Chapel Lane							
	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
0730 - 0745	0	0	0	0	0	0	0	0	1	0	5	2	1	0	0	9	0	0	22	4	2	3	0	31	0	0	0	0	0	0	0	0
0745 - 0800	0	0	1	1	0	0	0	2	0	0	13	2	0	0	0	15	0	0	36	4	3	1	0	44	0	0	0	0	0	0	0	0
Hourly Total	0	0	1	1	0	0	0	2	1	0	18	4	1	0	0	24	0	0	58	8	5	4	0	75	0	0	0	0	0	0	0	0
0800 - 0815	0	0	0	0	0	0	0	0	0	0	8	3	0	0	0	11	0	0	36	6	2	5	0	49	0	0	0	0	0	0	0	0
0815 - 0830	0	0	0	2	1	0	0	3	0	0	12	3	0	0	2	17	0	0	31	5	0	4	0	40	0	0	0	0	0	0	0	0
0830 - 0845	0	0	0	0	0	0	0	0	0	0	19	2	2	0	0	23	0	0	32	8	4	3	0	47	0	0	0	0	0	0	0	0
0845 - 0900	0	0	2	0	0	0	0	2	1	0	12	2	1	1	0	17	0	0	28	8	2	2	0	40	0	0	1	0	0	0	0	1
Hourly Total	0	0	2	2	1	0	0	5	1	0	51	10	3	1	2	68	0	0	127	27	8	14	0	176	0	0	1	0	0	0	0	1
0900 - 0915	0	0	1	0	0	0	0	1	0	1	13	4	0	0	0	18	0	0	32	7	0	0	1	40	0	0	0	0	0	0	0	0
0915 - 0930	0	0	1	0	0	0	0	1	0	0	12	2	0	0	0	14	0	0	12	7	3	6	0	28	0	0	0	0	0	0	0	0
0930 - 0945	0	0	1	1	0	0	0	2	0	0	10	5	0	0	0	15	0	1	14	7	0	5	0	27	0	0	0	0	0	0	0	0
0945 - 1000	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	4	0	0	3	0	0	3	0	6	0	0	0	0	0	0	0	0
Hourly Total	0	0	3	1	0	0	0	4	0	1	37	11	0	2	0	51	0	1	61	21	3	14	1	101	0	0	0	0	0	0	0	0
Session Total	0	0	6	4	1	0	0	11	2	1	106	25	4	3	2	143	0	1	246	56	16	32	1	352	0	0	1	0	0	0	0	1
1600 - 1615	0	0	5	0	0	0	0	5	0	0	18	9	0	3	0	30	0	1	22	4	4	4	0	35	0	0	1	0	0	0	0	1
1615 - 1630	0	0	7	0	0	0	0	7	0	0	21	2	1	0	1	25	0	0	18	10	1	4	0	33	0	0	0	0	0	0	0	0
1630 - 1645	0	0	5	0	0	0	0	5	0	0	18	2	0	0	0	20	0	0	25	9	0	4	0	38	0	0	0	0	0	0	0	0
1645 - 1700	0	0	7	0	0	0	0	7	0	1	22	4	1	0	0	28	0	0	29	8	2	2	0	41	0	0	0	0	0	0	0	0
Hourly Total	0	0	24	0	0	0	0	24	0	1	79	17	2	3	1	103	0	1	94	31	7	14	0	147	0	0	1	0	0	0	0	1
1700 - 1715	0	0	4	0	0	0	0	4	0	3	29	3	2	1	0	38	0	0	21	9	2	2	0	34	0	0	0	0	0	0	0	0
1715 - 1730	0	0	5	0	0	0	0	5	0	0	29	7	0	1	0	37	0	0	20	4	1	1	0	26	0	0	0	0	0	0	0	0
1730 - 1745	0	0	8	0	0	0	0	8	0	0	19	7	0	1	0	27	0	0	18	6	2	3	0	29	0	0	0	0	0	0	0	0
1745 - 1800	0	0	11	1	0	0	0	12	1	0	16	1	0	0	0	18	0	0	37	3	0	7	0	47	0	0	0	0	0	0	0	0
Hourly Total	0	0	28	1	0	0	0	29	1	3	93	18	2	3	0	120	0	0	96	22	5	13	0	136	0	0	0	0	0	0	0	0
1800 - 1815	0	0	2	0	0	0	0	2	0	0	22	1	0	0	0	23	0	0	19	3	0	1	0	23	0	0	0	0	0	0	0	0
1815 - 1830	0	0	4	1	0	0	0	5	0	0	22	1	0	0	0	23	0	0	23	2	0	1	0	26	0	0	0	0	0	0	0	0
Hourly Total	0	0	6	1	0	0	0	7	0	0	44	2	0	0	0	46	0	0	42	5	0	2	0	49	0	0	0	0	0	0	0	0
Session Total	0	0	58	2	0	0	0	60	1	4	216	37	4	6	1	269	0	1	232	58	12	29	0	332	0	0	1	0	0	0	0	1



Play - Manual Traffic Survey, Friday 8th March 2019

Junction: B5373 / Chapel Lane / B51102

Approach: B5373 (South)

TIME	Left to B51102 (West)								Ahead to B5373 (North)								Right to Chapel Lane								Last Right to B51102 (East)							
	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
0730 - 0745	4	0	1	0	1	0	0	6	0	1	30	6	0	0	0	37	0	0	0	0	1	0	0	1	0	0	5	0	0	0	0	5
0745 - 0800	0	0	7	1	0	0	0	8	0	0	57	5	0	0	0	62	0	0	1	0	0	0	0	1	0	0	4	0	0	0	0	4
Hourly Total	4	0	8	1	1	0	0	14	0	1	87	11	0	0	0	99	0	0	1	0	1	0	0	2	0	0	9	0	0	0	0	9
0800 - 0815	0	0	9	0	0	0	0	9	0	0	52	1	0	1	0	54	0	0	1	0	0	0	0	1	0	0	2	2	0	0	0	4
0815 - 0830	0	0	14	1	1	0	0	16	0	0	46	4	0	2	1	53	0	0	2	0	0	0	0	2	0	0	1	0	0	0	0	1
0830 - 0845	0	0	18	0	0	0	0	18	0	0	36	2	0	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0845 - 0900	0	0	8	0	1	0	0	9	0	1	23	3	0	0	0	27	0	0	0	0	0	0	0	0	0	0	7	1	0	0	1	9
Hourly Total	0	0	49	1	2	0	0	52	0	1	157	10	0	3	1	172	0	0	3	0	0	0	0	3	0	0	10	3	0	0	1	14
0900 - 0915	0	0	14	0	0	0	0	14	0	0	19	2	0	1	0	22	0	0	0	0	1	0	0	1	0	0	3	0	0	0	0	3
0915 - 0930	0	0	11	3	0	0	0	14	0	0	13	2	0	1	0	16	0	0	0	1	0	0	0	1	0	0	6	0	0	0	0	6
0930 - 0945	0	0	14	1	0	0	0	15	0	0	10	2	0	1	0	13	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
0945 - 1000	0	0	1	0	0	0	0	1	0	0	4	0	0	1	0	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Hourly Total	0	0	40	4	0	0	0	44	0	0	46	6	0	4	0	56	0	0	0	1	1	0	0	2	0	0	13	0	0	0	0	13
Session Total	4	0	97	6	3	0	0	110	0	2	290	27	0	7	1	327	0	0	4	1	2	0	0	7	0	0	32	3	0	0	1	36
1600 - 1615	0	0	12	1	0	0	0	13	0	1	23	2	0	1	0	27	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5
1615 - 1630	0	0	11	2	0	0	0	13	0	1	33	1	0	4	0	39	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
1630 - 1645	0	0	15	2	0	0	0	17	0	0	30	6	0	1	0	37	0	0	0	0	0	0	0	0	0	4	2	0	0	0	0	6
1645 - 1700	0	0	19	1	0	0	0	20	0	0	35	4	0	2	0	41	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Hourly Total	0	0	57	6	0	0	0	63	0	2	121	13	0	8	0	144	0	0	0	0	0	0	0	0	0	0	12	2	0	0	0	14
1700 - 1715	0	0	22	1	0	0	0	23	0	0	25	1	1	0	0	27	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
1715 - 1730	0	0	7	0	0	0	0	7	0	0	24	1	0	0	0	25	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
1730 - 1745	0	0	15	1	1	0	0	17	0	0	15	2	0	0	0	17	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4
1745 - 1800	0	0	10	1	0	0	0	11	0	0	23	2	0	0	0	25	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4
Hourly Total	0	0	54	3	1	0	0	58	0	0	87	6	1	0	0	94	0	0	1	0	0	0	0	1	0	0	11	0	0	0	0	11
1800 - 1815	0	0	17	0	0	0	0	17	0	0	14	0	0	0	0	14	0	0	0	1	0	0	0	1	0	0	5	0	0	0	0	5
1815 - 1830	0	0	6	2	0	0	0	8	0	0	15	0	1	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	23	2	0	0	0	25	0	0	29	0	1	0	0	30	0	0	0	1	0	0	0	1	0	0	5	0	0	0	0	5
Session Total	0	0	134	11	1	0	0	146	0	2	237	19	2	8	0	268	0	0	1	1	0	0	0	2	0	0	28	2	0	0	0	30



Llay - Manual Traffic Survey, Friday 8th March 2019

Junction: B5373 / Chapel Lane / B51102

Approach: B51102 (West)

TIME	First Left to B5373 (North)								Second Left to Chapel Lane								Ahead to B51102 (East)								Right to B5373 (South)							
	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
0730 - 0745	0	0	88	18	4	1	1	112	0	0	0	0	0	0	0	0	0	0	16	4	0	0	0	20	0	0	3	1	0	0	0	4
0745 - 0800	0	0	105	14	2	1	0	122	0	0	0	0	0	0	0	0	0	1	21	4	2	0	0	28	0	0	3	0	0	0	0	3
Hourly Total	0	0	193	32	6	2	1	234	0	0	0	0	0	0	0	0	0	1	37	8	2	0	0	48	0	0	6	1	0	0	0	7
0800 - 0815	0	0	70	15	1	1	0	87	0	0	1	0	0	0	0	1	0	0	27	3	3	0	0	33	0	0	6	1	0	0	0	7
0815 - 0830	0	0	73	6	0	2	2	83	0	0	0	0	0	0	0	0	0	0	21	0	1	1	1	24	0	0	9	0	0	0	1	10
0830 - 0845	0	0	78	12	3	1	1	95	0	0	0	0	0	0	0	0	0	0	29	6	0	1	0	36	0	0	6	2	1	0	0	9
0845 - 0900	0	0	53	9	0	1	1	64	0	0	0	0	0	0	0	0	0	0	18	1	0	0	0	19	0	0	17	0	0	0	1	18
Hourly Total	0	0	274	42	4	5	4	329	0	0	1	0	0	0	0	1	0	0	95	10	4	2	1	112	0	0	38	3	1	0	2	44
0900 - 0915	0	0	44	9	1	1	0	55	0	0	0	1	0	0	0	1	0	0	17	3	0	1	0	21	0	0	16	1	0	0	0	17
0915 - 0930	0	0	22	9	1	2	0	34	0	0	2	0	0	0	0	2	0	0	14	4	3	1	0	22	0	0	6	1	0	0	0	7
0930 - 0945	0	0	29	9	4	1	0	43	0	0	1	0	0	0	0	1	0	0	12	6	1	0	0	19	0	0	5	3	0	0	0	8
0945 - 1000	0	2	13	3	0	1	0	19	0	0	0	0	0	0	0	0	0	0	4	2	0	0	1	7	0	0	2	0	0	0	0	2
Hourly Total	0	2	108	30	6	5	0	151	0	0	3	1	0	0	0	4	0	0	47	15	4	2	1	69	0	0	29	5	0	0	0	34
Session Total	0	2	575	104	16	12	5	714	0	0	4	1	0	0	0	5	0	1	179	33	10	4	2	229	0	0	73	9	1	0	2	85
1600 - 1615	0	0	48	6	1	0	0	55	0	0	0	0	0	0	0	0	0	0	13	2	0	0	0	15	0	0	18	3	0	0	0	21
1615 - 1630	0	0	43	5	0	2	1	51	0	0	1	0	0	0	0	1	0	0	24	1	0	0	1	26	0	0	16	1	0	0	0	17
1630 - 1645	0	1	43	9	0	2	1	56	0	0	2	0	0	0	0	2	0	0	17	2	0	0	0	19	0	0	15	0	0	0	0	15
1645 - 1700	0	0	58	9	1	0	2	70	0	0	0	0	0	0	0	0	0	0	12	3	0	1	0	16	0	0	20	1	0	0	0	21
Hourly Total	0	1	192	29	2	4	4	232	0	0	3	0	0	0	0	3	0	0	66	8	0	1	1	76	0	0	69	5	0	0	0	74
1700 - 1715	0	0	61	8	0	0	0	69	0	0	3	0	0	0	0	3	0	0	11	2	0	0	0	13	0	0	12	0	0	0	0	12
1715 - 1730	0	0	79	11	1	0	0	91	0	0	3	0	0	0	0	3	0	0	10	3	0	0	0	13	0	0	28	2	0	0	0	30
1730 - 1745	0	0	42	2	1	0	0	45	0	0	1	0	0	0	0	1	0	0	17	0	0	0	0	17	0	0	11	3	0	0	0	14
1745 - 1800	0	0	47	3	0	1	0	51	0	0	2	0	0	0	0	2	0	0	16	2	0	0	0	18	0	0	13	1	0	0	0	14
Hourly Total	0	0	229	24	2	1	0	256	0	0	9	0	0	0	0	9	0	0	54	7	0	0	0	61	0	0	64	6	0	0	0	70
1800 - 1815	0	0	55	3	0	0	0	58	0	0	2	0	0	0	0	2	0	0	16	3	0	0	0	19	0	0	12	0	1	0	0	13
1815 - 1830	0	0	34	3	0	1	0	38	0	0	2	0	0	0	0	2	0	0	12	0	0	0	0	12	0	0	17	0	0	0	0	17
Hourly Total	0	0	89	6	0	1	0	96	0	0	4	0	0	0	0	4	0	0	28	3	0	0	0	31	0	0	29	0	1	0	0	30
Session Total	0	1	510	59	4	6	4	584	0	0	16	0	0	0	0	16	0	0	148	18	0	1	1	168	0	0	162	11	1	0	0	174



Llay - Manual Traffic Survey, Saturday 9th March 2019

Junction: B5373 / Chapel Lane / B51102

Approach: B5373 (North)

TIME	First Left to Chapel Lane								Second Left to B51102 (East)								Ahead to B5373 (South)								Right to B51102 (West)							
	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
1000 - 1015	0	0	0	2	0	0	0	2	0	0	8	3	0	4	0	15	0	0	10	1	0	0	0	11	0	1	24	6	0	1	0	32
1015 - 1030	0	0	0	0	0	0	0	0	0	0	12	3	0	2	0	17	0	0	15	0	0	0	0	15	0	0	30	5	0	0	0	35
1030 - 1045	0	0	0	0	0	0	0	0	0	0	8	1	0	1	0	10	2	0	9	0	0	0	0	11	0	0	27	4	0	1	0	32
1045 - 1100	0	0	0	0	0	0	0	0	0	0	10	2	0	3	0	15	0	0	19	0	0	0	0	19	0	0	26	1	0	0	0	27
Hourly Total	0	0	0	2	0	0	0	2	0	0	38	9	0	10	0	57	2	0	53	1	0	0	0	56	0	1	107	16	0	2	0	126
1100 - 1115	0	0	0	0	0	0	0	0	0	0	14	4	0	1	0	19	0	0	14	4	0	0	0	18	0	0	30	2	0	0	0	32
1115 - 1130	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	7	0	0	8	0	0	0	0	8	0	0	26	5	1	1	0	33
1130 - 1145	0	0	0	0	0	0	0	0	0	0	14	1	0	1	0	16	0	0	10	3	0	0	0	13	0	0	31	4	0	0	0	35
1145 - 1200	0	0	0	0	0	0	0	0	0	0	10	2	0	0	0	12	0	0	13	3	0	0	0	16	0	0	30	3	0	0	0	33
Hourly Total	0	0	0	0	0	0	0	0	0	0	44	8	0	2	0	54	0	0	45	10	0	0	0	55	0	0	117	14	1	1	0	133
1200 - 1215	0	0	0	0	0	0	0	0	0	0	9	3	0	1	0	13	0	0	17	1	0	0	0	18	0	0	47	5	0	0	0	52
1215 - 1230	0	0	0	0	0	0	0	0	0	0	15	1	0	1	0	17	0	0	17	0	0	0	0	17	0	0	32	3	0	0	0	35
1230 - 1245	0	0	0	0	0	0	0	0	0	0	13	3	0	0	0	16	0	0	14	1	0	0	0	15	0	0	23	2	0	0	0	25
1245 - 1300	0	0	0	0	0	0	0	0	0	0	19	2	0	0	0	21	0	0	13	9	4	0	0	13	0	0	42	2	0	1	0	45
Hourly Total	0	0	0	0	0	0	0	0	0	0	56	9	0	2	0	67	0	0	57	6	0	0	0	63	0	0	144	12	0	1	0	157
1300 - 1315	0	0	1	0	0	0	0	1	0	0	15	2	0	0	0	17	0	0	8	0	0	0	0	8	0	0	35	2	0	0	0	37
1315 - 1330	0	0	1	0	0	1	0	2	0	0	12	3	0	1	0	16	0	0	10	0	0	0	0	10	0	0	26	3	0	0	0	29
1330 - 1345	0	0	2	1	0	0	0	3	0	0	12	1	1	1	0	15	0	0	10	2	0	0	0	12	0	0	29	3	0	0	0	32
1345 - 1400	0	0	0	0	0	0	0	0	0	1	11	2	0	0	0	14	0	0	18	0	0	0	0	18	0	1	26	3	0	0	0	30
Hourly Total	0	0	4	1	0	1	0	6	0	1	50	8	1	2	0	62	0	0	46	2	0	0	0	48	0	1	116	11	0	0	0	128
1400 - 1415	0	0	0	0	0	0	0	0	0	0	11	2	0	1	0	14	0	0	11	1	0	0	0	12	0	1	17	3	0	0	0	21
1415 - 1430	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0	6	0	0	8	2	0	0	0	10	0	1	22	2	0	0	0	25
1430 - 1445	0	0	0	0	0	1	0	1	0	0	8	0	0	0	0	8	0	0	13	1	0	0	0	14	0	1	29	4	0	1	0	35
1445 - 1500	0	0	0	0	0	0	0	0	0	0	6	3	2	0	0	11	0	0	5	0	0	0	0	5	0	1	21	1	0	0	0	23
Hourly Total	0	0	0	0	0	1	0	1	0	1	30	5	2	1	0	39	0	0	37	4	0	0	0	41	0	4	89	10	0	1	0	104
1500 - 1515	0	0	1	0	0	0	0	1	0	0	9	0	0	0	0	9	0	0	5	0	0	0	0	5	0	1	26	1	0	0	0	28
1515 - 1530	0	0	0	0	0	0	0	0	0	0	7	2	0	0	0	9	0	0	7	1	0	0	0	8	0	0	22	0	0	0	0	22
1530 - 1545	0	0	0	0	0	0	0	0	0	0	5	2	0	0	0	7	0	0	11	6	0	0	0	17	0	0	25	1	0	0	0	26
1545 - 1600	0	0	0	0	1	0	0	1	0	0	12	2	0	0	0	14	0	0	15	1	0	0	0	16	0	0	27	2	0	0	0	29
Hourly Total	0	0	1	0	1	0	0	2	0	0	33	6	0	0	0	39	0	0	38	8	0	0	0	46	0	1	100	4	0	0	0	105
TOTAL	0	0	5	3	1	2	0	11	0	2	251	45	3	17	0	318	2	0	276	31	0	0	0	309	0	7	673	67	1	5	0	753



Play - Manual Traffic Survey, Saturday 9th March 2019

Junction: B5373 / Chapel Lane / B51102

Approach: Chapel Lane

TIME	First Left to B51102 (East)								Second Left to B5373 (South)								Right to B51102 (West)								Last Right to B5373 (North)							
	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
1000 - 1015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
1015 - 1030	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1030 - 1045	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1045 - 1100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2	0	0	2	0	0	0	0	2
1100 - 1115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1115 - 1130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1130 - 1145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
1145 - 1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	1	0	0	0	0	1
1200 - 1215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
1215 - 1230	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1
1230 - 1245	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
1245 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	1
Hourly Total	0	0	0	2	0	0	0	2	0	0	1	0	0	0	0	1	0	0	4	0	0	0	0	4	0	0	1	0	0	1	0	2
1300 - 1315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	1
1315 - 1330	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1330 - 1345	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
1345 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Hourly Total	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	2	0	0	1	1	0	0	0	2	0	0	2	0	0	0	0	2
1400 - 1415	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
1415 - 1430	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0	0	0	1	0	1
1430 - 1445	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1445 - 1500	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0
Hourly Total	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	5	0	0	0	0	0	1	0	1
1500 - 1515	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
1515 - 1530	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1530 - 1545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	1	
1545 - 1600	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	1	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	1	0	3	0	0	0	4	0	0	0	0	0	2	0	2	0
TOTAL	0	0	1	4	0	0	0	5	1	0	3	1	0	0	0	5	2	0	14	3	0	0	19	0	0	6	0	0	4	0	10	



Llay - Manual Traffic Survey, Saturday 9th March 2019

Junction: B5373 / Chapel Lane / B51102

Approach: B51102 (East)

TIME	Left to B5373 (South)								Ahead to B51102 (West)								Right to B5373 (North)								Last Right to Chapel Lane							
	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
1000 - 1015	0	0	3	0	0	0	0	3	0	1	15	0	0	0	0	16	0	0	9	6	3	0	0	18	0	0	0	0	0	0	0	0
1015 - 1030	0	0	1	0	0	0	0	1	0	0	6	0	0	0	0	6	3	0	14	2	1	3	0	23	0	0	0	0	0	0	0	0
1030 - 1045	0	0	3	0	0	0	0	3	0	0	15	2	0	0	0	17	0	0	8	1	0	0	0	9	0	0	0	0	0	0	0	0
1045 - 1100	0	0	2	0	0	0	0	2	0	0	12	1	1	0	0	14	0	0	17	1	0	1	0	19	0	0	0	0	0	0	0	0
Hourly Total	0	0	9	0	0	0	0	9	0	1	48	3	1	0	0	53	3	0	48	10	4	4	0	69	0	0	0	0	0	0	0	0
1100 - 1115	0	0	2	0	0	0	0	2	0	0	12	2	0	0	0	14	0	0	6	4	0	1	0	11	0	0	0	0	0	0	0	0
1115 - 1130	0	0	2	0	0	0	0	2	0	0	16	2	0	0	0	18	0	0	11	1	1	1	0	14	0	0	0	0	0	0	0	0
1130 - 1145	0	0	3	0	0	0	0	3	0	1	14	1	1	0	0	17	0	0	9	3	0	1	0	13	0	0	0	0	0	0	0	0
1145 - 1200	0	0	2	0	0	0	0	2	0	0	17	2	0	0	0	19	0	0	11	3	0	2	0	16	0	0	0	0	0	0	0	0
Hourly Total	0	0	9	0	0	0	0	9	0	1	59	7	1	0	0	68	0	0	37	11	1	5	0	54	0	0	0	0	0	0	0	0
1200 - 1215	0	0	4	0	0	0	0	4	0	0	12	3	0	0	0	15	0	1	19	3	0	0	0	23	0	0	0	0	0	0	0	0
1215 - 1230	0	0	4	0	0	0	0	4	0	1	18	1	1	0	0	21	0	0	13	3	0	0	0	16	0	0	0	0	0	0	0	0
1230 - 1245	0	0	3	0	0	0	0	3	0	0	10	4	0	0	0	14	0	0	9	3	0	0	0	12	0	0	0	0	0	0	0	0
1245 - 1300	0	0	5	0	0	0	0	5	0	1	14	0	0	0	0	15	0	0	11	3	0	4	0	18	0	0	1	0	0	0	0	1
Hourly Total	0	0	16	0	0	0	0	16	0	2	54	8	1	0	0	65	0	1	52	12	0	4	0	69	0	0	1	0	0	0	0	1
1300 - 1315	0	0	6	0	0	0	0	6	0	0	12	0	0	0	0	12	0	0	12	3	1	0	0	16	0	0	0	0	0	0	0	0
1315 - 1330	0	0	4	0	0	0	0	4	2	0	14	1	0	0	0	17	0	0	18	0	1	1	0	20	0	0	0	0	0	0	0	0
1330 - 1345	0	0	4	0	0	0	0	4	0	0	10	0	0	0	0	10	0	0	17	1	1	0	0	19	0	0	0	0	0	0	0	0
1345 - 1400	0	0	4	0	0	0	0	4	0	0	11	1	0	0	0	12	0	0	6	1	0	0	0	7	0	0	0	0	0	0	0	0
Hourly Total	0	0	18	0	0	0	0	18	2	0	47	2	0	0	0	51	0	0	53	5	3	1	0	62	0	0	0	0	0	0	0	0
1400 - 1415	0	0	2	0	0	0	0	2	0	0	20	3	0	0	0	23	0	0	10	1	0	0	0	11	0	0	0	0	0	0	0	0
1415 - 1430	0	0	3	0	0	0	0	3	1	0	14	1	1	0	0	17	0	0	8	3	0	1	0	12	0	0	0	0	0	0	0	0
1430 - 1445	0	0	3	0	0	0	0	3	0	2	15	1	0	0	0	18	0	0	7	2	0	0	0	9	0	0	1	0	0	0	0	1
1445 - 1500	0	0	2	0	0	0	0	2	0	0	12	2	0	0	0	14	0	0	10	3	0	0	0	13	0	0	0	0	0	0	0	0
Hourly Total	0	0	10	0	0	0	0	10	1	2	61	7	1	0	0	72	0	0	35	9	0	1	0	45	0	0	1	0	0	0	0	1
1500 - 1515	0	0	5	0	0	0	0	5	1	0	17	0	0	0	0	18	0	0	16	2	0	1	0	19	0	0	0	0	0	0	0	0
1515 - 1530	0	0	4	0	0	0	0	4	0	0	15	1	0	0	0	16	0	0	8	1	0	1	0	10	0	0	0	0	0	0	0	0
1530 - 1545	0	0	3	0	0	0	0	3	0	0	17	2	0	0	0	19	0	0	8	1	0	0	0	9	0	0	0	0	0	0	0	0
1545 - 1600	0	0	6	0	0	0	0	6	0	0	7	0	0	0	0	7	0	0	15	1	0	0	0	16	0	0	0	0	0	0	0	0
Hourly Total	0	0	18	0	0	0	0	18	1	0	56	3	0	0	0	60	0	0	47	5	0	2	0	54	0	0	0	0	0	0	0	0
TOTAL	0	0	80	0	0	0	0	80	4	6	325	30	4	0	0	369	3	1	272	52	8	17	0	353	0	0	2	0	0	0	0	2



Clay - Manual Traffic Survey, Saturday 9th March 2019

Junction: B5373 / Chapel Lane / B51102

Approach: B5373 (South)

TIME	Left to B51102 (West)								Ahead to B5373 (North)								Right to Chapel Lane								Last Right to B51102 (East)							
	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
1000 - 1015	0	0	11	1	0	0	0	12	0	0	12	0	0	0	0	12	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	7
1015 - 1030	0	0	15	1	0	0	0	16	0	0	11	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
1030 - 1045	0	0	15	0	0	0	0	15	0	0	16	2	0	0	0	18	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
1045 - 1100	0	0	16	0	0	0	0	16	0	1	12	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5
Hourly Total	0	0	57	2	0	0	0	59	0	1	51	2	0	0	0	54	0	0	0	0	0	0	0	0	1	0	15	0	0	0	0	16
1100 - 1115	0	0	12	1	0	0	0	13	0	0	11	3	0	0	0	14	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6
1115 - 1130	0	0	17	1	1	0	0	19	0	0	13	1	0	0	0	14	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0	6
1130 - 1145	0	0	9	2	0	0	0	11	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4
1145 - 1200	0	0	15	2	0	0	0	17	0	0	13	0	1	0	0	14	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5
Hourly Total	0	0	53	6	1	0	0	60	0	0	47	4	1	0	0	52	0	0	0	0	0	0	0	0	0	0	20	1	0	0	0	21
1200 - 1215	0	0	10	3	0	0	0	13	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
1215 - 1230	0	0	10	1	0	0	0	11	0	0	9	1	0	0	0	10	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
1230 - 1245	0	0	12	1	0	0	0	13	0	0	12	6	0	0	0	18	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	7
1245 - 1300	0	0	10	0	0	0	0	10	0	0	14	4	0	0	0	18	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
Hourly Total	0	0	42	5	0	0	0	47	0	0	42	11	0	0	0	53	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	14
1300 - 1315	0	0	10	2	0	0	0	12	0	0	10	3	0	0	0	13	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
1315 - 1330	1	0	9	1	0	0	0	11	0	0	7	2	0	0	0	9	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
1330 - 1345	0	0	12	1	0	0	0	13	0	0	10	2	0	0	0	12	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	4
1345 - 1400	0	0	17	0	0	0	0	17	0	0	7	0	0	0	0	7	0	0	1	0	0	0	0	0	1	0	5	0	0	0	0	5
Hourly Total	1	0	48	4	0	0	0	53	0	0	34	7	0	0	0	41	0	0	1	0	0	0	0	1	0	0	11	2	0	0	0	13
1400 - 1415	0	0	8	0	0	0	0	8	1	0	15	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5
1415 - 1430	0	0	11	0	0	0	0	11	0	0	8	1	0	0	0	9	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
1430 - 1445	0	0	9	0	0	0	0	9	0	0	8	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
1445 - 1500	0	0	5	0	0	0	0	5	0	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	33	0	0	0	0	33	1	0	36	1	0	0	0	38	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	9
1500 - 1515	0	0	16	1	0	0	0	17	0	0	10	1	0	0	0	11	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4
1515 - 1530	0	0	17	0	0	0	0	17	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
1530 - 1545	0	0	4	0	0	0	0	4	0	0	9	1	0	0	0	10	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
1545 - 1600	0	0	8	0	0	0	0	8	3	0	7	2	0	0	0	12	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	5
Hourly Total	0	0	45	1	0	0	0	46	3	0	33	4	0	0	0	40	0	0	1	0	0	0	0	0	1	0	10	1	0	0	0	11
TOTAL	1	0	278	18	1	0	0	298	4	1	243	29	1	0	0	278	0	0	2	0	0	0	0	2	1	0	79	4	0	0	0	84



Llay - Manual Traffic Survey, Saturday 9th March 2019

Junction: B5373 / Chapel Lane / B51102

Approach: B51102 (West)

TIME	First Left to B5373 (North)								Second Left to Chapel Lane								Ahead to B51102 (East)								Right to B5373 (South)							
	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
1000 - 1015	0	0	25	2	0	1	0	28	0	0	0	0	0	0	0	0	0	0	18	1	0	0	0	19	0	0	12	3	0	0	0	15
1015 - 1030	0	0	26	5	0	0	0	31	0	0	1	1	0	0	0	2	0	0	14	3	0	1	0	18	0	0	10	0	0	0	0	10
1030 - 1045	0	0	33	5	0	0	0	38	0	0	0	0	0	0	0	0	0	0	18	1	1	1	0	21	0	0	14	1	0	0	0	15
1045 - 1100	0	0	40	2	0	0	0	42	0	0	1	0	0	0	0	1	0	0	21	1	0	0	0	22	0	0	9	1	0	0	0	10
Hourly Total	0	0	124	14	0	1	0	139	0	0	2	1	0	0	0	3	0	0	71	6	1	2	0	80	0	0	45	5	0	0	0	50
1100 - 1115	0	0	30	4	0	0	0	34	0	0	0	0	0	0	0	0	0	1	9	1	0	0	0	11	0	0	6	0	0	0	0	6
1115 - 1130	0	0	18	4	0	1	0	23	1	0	0	0	0	0	0	1	0	0	22	1	0	0	0	23	0	0	13	2	1	0	0	16
1130 - 1145	0	0	45	7	0	1	0	53	0	0	0	0	0	0	0	0	0	0	23	0	1	0	0	24	0	1	20	0	0	0	0	21
1145 - 1200	0	0	25	2	1	0	0	28	0	0	0	0	0	0	0	0	0	0	17	0	1	0	0	18	0	0	10	0	0	0	0	10
Hourly Total	0	0	118	17	1	2	0	138	1	0	0	0	0	0	0	1	0	1	71	2	2	0	0	76	0	1	49	2	1	0	0	53
1200 - 1215	0	0	37	3	0	1	0	41	0	0	1	0	0	0	0	1	0	0	24	3	0	0	0	27	0	0	19	0	0	0	0	19
1215 - 1230	0	0	40	2	0	0	0	42	0	0	2	0	0	0	0	2	0	0	23	1	0	0	0	24	0	0	18	2	0	0	0	20
1230 - 1245	0	0	45	1	0	0	0	46	0	0	1	0	0	0	0	1	0	0	15	1	0	0	0	16	0	0	17	0	0	0	0	17
1245 - 1300	0	0	37	3	0	0	0	40	0	0	0	0	0	0	0	0	0	1	16	2	0	0	0	19	0	0	15	2	0	0	0	17
Hourly Total	0	0	159	9	0	1	0	169	0	0	4	0	0	0	0	4	0	1	78	7	0	0	0	86	0	0	69	4	0	0	0	73
1300 - 1315	0	0	41	3	1	0	0	45	0	0	0	0	0	0	0	0	0	0	16	3	0	0	0	19	0	0	14	1	0	0	0	15
1315 - 1330	0	0	35	2	0	0	0	37	0	0	0	0	0	0	0	0	0	0	16	2	0	0	0	18	0	0	11	0	0	0	0	11
1330 - 1345	0	0	31	1	0	0	0	32	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	25	0	0	10	0	0	0	0	10
1345 - 1400	0	1	26	3	0	0	0	30	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	15	0	0	13	0	0	0	0	13
Hourly Total	0	1	133	9	1	0	0	144	0	0	0	0	0	0	0	0	0	0	72	5	0	0	0	77	0	0	48	1	0	0	0	49
1400 - 1415	0	0	32	1	0	0	0	33	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	16	0	0	13	0	0	0	0	13
1415 - 1430	0	0	14	2	0	0	0	16	0	0	1	0	0	0	0	1	0	0	10	2	0	0	0	12	0	0	13	0	0	0	0	13
1430 - 1445	0	0	22	2	0	0	0	24	0	0	2	0	0	0	0	2	0	3	13	3	0	0	0	19	0	0	14	0	0	0	0	14
1445 - 1500	0	0	22	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	18	0	0	19	1	0	0	0	20
Hourly Total	0	0	90	5	0	0	0	95	0	0	3	0	0	0	0	3	0	3	57	5	0	0	0	65	0	0	59	1	0	0	0	60
1500 - 1515	1	0	27	4	0	0	0	32	0	0	1	0	0	0	0	1	0	0	13	0	0	0	0	13	0	0	13	0	0	0	0	13
1515 - 1530	0	0	22	3	0	0	0	25	0	0	1	1	0	0	0	2	0	1	10	1	0	0	0	12	0	0	10	1	0	0	0	11
1530 - 1545	0	0	21	1	0	0	0	22	0	0	0	0	0	0	0	0	0	1	11	1	0	0	0	13	0	0	9	0	0	0	0	9
1545 - 1600	0	0	33	1	0	0	0	34	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	7	0	0	16	0	0	0	0	16
Hourly Total	1	0	103	9	0	0	0	113	0	0	2	1	0	0	0	3	0	2	41	2	0	0	0	45	0	0	48	1	0	0	0	49
TOTAL	1	1	727	63	2	4	0	798	1	0	11	2	0	0	0	14	0	7	390	27	3	2	0	429	0	1	318	14	1	0	0	334



APPENDIX F

ALDI STORE TRIP DATA

Vehicles In and Out by Hour by Day

ALDI Bangor

Week Commencing 04/02/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	1	0	0	0	0	0	5
02:00	0	0	0	0	0	2	2
03:00	0	0	0	0	1	2	0
04:00	4	4	4	4	4	1	0
05:00	1	1	2	3	3	4	0
06:00	0	1	2	0	1	0	5
07:00	4	3	5	11	7	4	1
08:00	32	29	25	56	34	39	1
09:00	73	61	73	83	82	85	18
10:00	77	80	84	85	99	104	97
11:00	97	93	77	98	102	140	116
12:00	103	84	96	92	116	132	106
13:00	113	103	80	106	111	123	114
14:00	94	86	90	91	97	113	115
15:00	81	82	85	85	119	99	72
16:00	71	76	73	85	106	74	7
17:00	83	63	78	77	72	55	2
18:00	51	38	43	56	45	29	2
19:00	37	29	42	38	32	25	2
20:00	20	19	16	17	25	13	1
21:00	10	9	4	11	8	2	2
22:00	1	0	1	3	1	0	0
23:00	0	1	0	0	0	1	0
	953	862	880	1001	1065	1047	668

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	1	0	0	0	0	0	5
02:00	0	0	0	0	0	1	2
03:00	0	0	0	0	0	3	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0
06:00	0	1	2	0	0	0	0
07:00	1	1	0	0	2	0	0
08:00	23	19	21	28	27	25	1
09:00	50	47	54	79	54	60	2
10:00	64	68	61	67	89	94	67
11:00	97	80	86	90	102	117	100
12:00	96	91	87	109	105	138	113
13:00	122	98	84	90	112	119	113
14:00	95	99	96	113	111	125	112
15:00	87	77	84	82	114	112	109
16:00	81	85	90	101	118	90	22
17:00	88	79	83	82	90	68	5
18:00	65	43	57	73	55	45	6
19:00	45	36	43	42	43	26	3
20:00	22	22	25	27	27	14	2
21:00	12	11	5	12	13	5	5
22:00	4	4	2	5	3	4	0
23:00	0	1	0	1	0	1	1
	953	862	880	1001	1065	1047	668

Vehicles In and Out by Hour by Day

ALDI Old Colwyn

Week Commencing 04/02/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	1	0	0	0
01:00	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0
04:00	0	0	0	1	0	0	0
05:00	2	2	1	1	3	2	0
06:00	2	0	1	1	1	2	1
07:00	8	8	4	3	7	6	2
08:00	44	40	41	33	54	31	2
09:00	73	63	53	86	68	70	20
10:00	78	88	79	85	85	102	131
11:00	108	87	95	106	99	108	124
12:00	116	103	82	56	90	116	129
13:00	87	99	80	106	117	111	125
14:00	110	90	118	101	127	135	136
15:00	104	93	106	128	128	130	126
16:00	115	84	107	115	139	106	2
17:00	86	90	83	108	135	85	1
18:00	55	69	55	88	98	52	0
19:00	45	42	41	59	44	37	2
20:00	25	28	18	26	32	23	2
21:00	13	13	12	26	23	9	2
22:00	1	2	0	1	0	3	0
23:00	0	0	0	0	2	1	0
	1072	1001	976	1131	1252	1129	806

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	1	0	0	1
01:00	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	1	0	0
06:00	0	0	0	0	0	1	0
07:00	3	5	0	1	2	0	1
08:00	30	29	26	22	35	23	1
09:00	67	60	59	66	61	60	5
10:00	71	69	58	90	83	84	91
11:00	90	93	93	90	91	102	133
12:00	126	95	91	82	93	103	123
13:00	87	101	75	78	108	122	129
14:00	113	94	99	106	118	129	142
15:00	110	96	122	132	126	135	145
16:00	105	89	107	119	151	129	24
17:00	106	91	94	118	140	93	5
18:00	58	71	66	88	105	59	0
19:00	49	60	46	63	73	38	2
20:00	34	27	24	39	34	32	2
21:00	16	18	14	34	27	10	2
22:00	6	4	2	2	2	8	0
23:00	0	0	0	0	2	0	0
	1071	1002	976	1131	1252	1128	807

Vehicles In and Out by Hour by Day

ALDI Prestatyn

Week Commencing 04/02/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0
03:00	0	0	0	1	0	0	0
04:00	0	0	0	0	0	0	0
05:00	1	1	1	1	2	1	0
06:00	1	0	0	1	0	1	2
07:00	0	3	2	3	4	2	1
08:00	37	34	26	37	33	35	0
09:00	69	54	40	63	70	55	19
10:00	79	67	62	78	68	92	86
11:00	78	79	74	98	86	101	89
12:00	71	64	66	71	89	109	100
13:00	61	59	62	64	93	92	90
14:00	70	76	108	90	88	82	112
15:00	102	78	88	99	100	96	72
16:00	95	85	85	74	111	80	3
17:00	84	64	82	66	102	75	1
18:00	45	49	53	68	64	56	2
19:00	41	41	37	54	35	29	1
20:00	11	11	15	12	22	17	1
21:00	2	8	9	7	10	5	1
22:00	0	0	0	0	0	2	0
23:00	0	0	0	0	0	1	0
	847	773	810	887	977	931	580

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0
03:00	0	0	0	1	0	0	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0
06:00	1	0	0	0	0	0	0
07:00	0	2	0	1	0	0	0
08:00	22	24	15	25	20	26	0
09:00	61	45	41	51	53	47	6
10:00	74	55	46	76	75	69	68
11:00	78	90	66	73	72	100	83
12:00	66	61	72	98	104	103	107
13:00	75	60	58	64	85	106	87
14:00	54	67	102	83	83	89	101
15:00	107	93	89	100	106	92	103
16:00	91	72	101	89	109	89	19
17:00	99	79	82	63	108	86	1
18:00	54	50	60	78	81	52	2
19:00	45	50	43	57	45	40	1
20:00	16	14	24	18	22	23	1
21:00	3	10	8	9	12	6	1
22:00	1	1	3	1	2	2	0
23:00	0	0	0	0	0	1	0
	847	773	810	887	977	931	580

Vehicles In and Out by Hour by Day

ALDI Ruthin Road, Wrexham

Week Commencing 04/02/2019

Vehicles In

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0
07:00	10	4	8	0	3	18	0
08:00	64	30	42	35	72	80	0
09:00	142	110	83	154	171	142	24
10:00	152	129	113	166	158	175	216
11:00	161	123	131	150	194	206	221
12:00	155	128	113	145	190	197	244
13:00	147	125	119	144	180	181	226
14:00	164	141	140	133	170	179	177
15:00	136	111	126	131	154	163	147
16:00	75	15	62	83	114	119	4
17:00	0	0	0	0	5	0	0
18:00	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0
	1206	916	937	1141	1411	1460	1259

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0
07:00	1	1	1	0	0	0	0
08:00	39	18	33	17	43	68	0
09:00	112	75	63	88	120	94	4
10:00	134	116	92	159	164	167	137
11:00	172	124	121	159	174	204	214
12:00	149	132	133	159	185	182	234
13:00	143	135	109	141	187	193	259
14:00	183	136	136	148	191	192	176
15:00	137	129	136	129	156	161	208
16:00	128	50	104	117	162	173	26
17:00	8	0	9	24	29	26	1
18:00	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0
	1206	916	937	1141	1411	1460	1259



APPENDIX G

GRAVITY MODEL – NEW AND TRANSFERRED TRIP DISTRIBUTION

Gravity Model

Trip Distribution

Postcode	Population	Proportion of Total Catchment	Average Travel Distance (km)	Average Travel Time (minute)	Average Travel Time (minute) + 5 minutes	Factor Weighted Population	Proportion of Total Weighted Population
Calculation	A	$B = A/\sum A$	C	D	E	$F = A/(E^{1.5})$	$G = F/\sum F$
LL11 4	9,276	30.74%	5	6	11	254.26	26.35%
LL12 0	8,045	26.66%	3.2	4	9	297.96	30.88%
LL12 8	7,707	25.54%	3.3	7	12	185.40	19.21%
LL12 9	5,146	17.05%	3.3	3	8	227.42	23.57%
Total	30,174	100%				965	100%

Postcode Calculation	Distribution				Weighted Distribution			
	Straight Mile (e)	Gresford Road (s)	B5102 (w)	Rackery Lane (n)	Straight Mile (e)	Gresford Road (s)	B5102 (w)	Rackery Lane (n)
LL11 4		10%	90%		0%	3%	24%	0%
LL12 0	50%	15%	25%	10%	15%	5%	8%	3%
LL12 8	60%	40%			12%	8%	0%	0%
LL12 9				100%	0%	0%	0%	24%
Total					27%	15%	31%	27%



APPENDIX H

GRESFORD ROAD/ SITE ACCESS – MODEL OUTPUTS

Junctions 8
PICADY 8 - Priority Intersection Module
Version: 8.0.2.316 [14 Feb 2013] © Copyright TRL Limited, 2019
For sales and distribution information, program advice and maintenance, contact TRL: Tel: +44 (0)1344 770758 E-mail: software@trl.co.uk Web: http://www.trlsoftware.co.uk
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Report generation date: 04/07/2019 13:49:04

	AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2024 Base plus Committed plus Development			
Stream B-AC	0.12	9.37	0.11	A
Stream C-AB	0.04	4.79	0.03	A
Stream C-A	-	-	-	-
Stream A-B	-	-	-	-
Stream A-C	-	-	-	-

"D1 - 2024 Base plus Committed plus Development, AM " model duration: 08:00 - 09:30
 "D2 - 2024 Base plus Committed plus Development, PM" model duration: 08:00 - 09:30
 "D3 - 2024 Base plus Committed plus Development, Saturday" model duration: 08:00 - 09:30

Title	Gresford Road/ Site Access
Location	Llay
Site Number	
Date	11/02/2019
Version	
Status	
Identifier	
Client	Aldi
Jobnumber	486
Enumerator	Cameron Rose Associates
Description	

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
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**(Default Analysis Set) - 2024 Base plus
Committed plus Development, AM**

Name	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)			100.000	

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2024 Base plus Committed plus Development, AM	2024 Base plus Committed plus Development	AM		ONE HOUR	08:00	09:30	90	15		

Name	Junction Type	Major Road Direction	Arm Order	Junction Delay (s)	Junction LOS
(untitled)	T-Junction	Two-way	A,B,C	7.88	A

Driving Side	Lighting
Left	Normal/unknown

Arm	Name	Description	Arm Type
A	Gresford Road (n)		Major
B	Site Access		Minor
C	Gresford Road (s)		Major

[illegible]

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	514.740	0.091	0.230	0.144	0.328
1	B-C	665.086	0.099	0.250	-	-
1	C-B	649.248	0.244	0.244	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	227.00	100.000
B	ONE HOUR	✓	42.00	100.000
C	ONE HOUR	✓	337.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

	To			
		A	B	C
	A	0.000	36.000	191.000
	B	35.000	0.000	7.000
	C	324.000	13.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

	To			
From		A	B	C
	A	0.00	0.16	0.84
	B	0.83	0.00	0.17
	C	0.96	0.04	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To			
		A	B	C
	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		A	B	C
	A	0.000	0.000	0.000
	B	0.000	0.000	0.000
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.11	9.37	0.12	A
C-AB	0.03	4.79	0.04	A
C-A	-	-	-	-
A-B	-	-	-	-
A-C	-	-	-	-

Main Results for each time segment

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	31.62	31.33	0.00	463.71	0.068	0.07	8.321	A
C-AB	14.02	13.94	0.00	766.60	0.018	0.02	4.783	A
C-A	239.69	239.69	0.00	-	-	-	-	-
A-B	27.10	27.10	0.00	-	-	-	-	-
A-C	143.79	143.79	0.00	-	-	-	-	-

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	37.76	37.68	0.00	449.75	0.084	0.09	8.736	A
C-AB	17.91	17.89	0.00	789.49	0.023	0.03	4.665	A
C-A	285.04	285.04	0.00	-	-	-	-	-
A-B	32.36	32.36	0.00	-	-	-	-	-
A-C	171.71	171.71	0.00	-	-	-	-	-

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
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B-AC	46.24	46.13	0.00	430.39	0.107	0.12	9.365	A
C-AB	23.98	23.94	0.00	820.86	0.029	0.04	4.517	A
C-A	347.07	347.07	0.00	-	-	-	-	-
A-B	39.64	39.64	0.00	-	-	-	-	-
A-C	210.29	210.29	0.00	-	-	-	-	-

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	46.24	46.24	0.00	430.39	0.107	0.12	9.371	A
C-AB	23.99	23.99	0.00	820.87	0.029	0.04	4.519	A
C-A	347.06	347.06	0.00	-	-	-	-	-
A-B	39.64	39.64	0.00	-	-	-	-	-
A-C	210.29	210.29	0.00	-	-	-	-	-

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	37.76	37.87	0.00	449.73	0.084	0.09	8.742	A
C-AB	17.93	17.97	0.00	789.52	0.023	0.03	4.667	A
C-A	285.03	285.03	0.00	-	-	-	-	-
A-B	32.36	32.36	0.00	-	-	-	-	-
A-C	171.71	171.71	0.00	-	-	-	-	-

Main results: (09:15-09:30)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	31.62	31.69	0.00	463.68	0.068	0.07	8.336	A
C-AB	14.05	14.08	0.00	766.63	0.018	0.02	4.785	A
C-A	239.66	239.66	0.00	-	-	-	-	-
A-B	27.10	27.10	0.00	-	-	-	-	-
A-C	143.79	143.79	0.00	-	-	-	-	-

(Default Analysis Set) - 2024 Base plus Committed plus Development, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2024 Base plus Committed plus Development, PM	2024 Base plus Committed plus Development	PM		ONE HOUR	08:00	09:30	90	15		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Junction Delay (s)	Junction LOS
(untitled)	T-Junction	Two-way	A,B,C	13.82	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm Type
A	Gresford Road (n)		Major
B	Site Access		Minor
C	Gresford Road (s)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	6.71		0.00		2.20	130.00	✓	0.00

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

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.50										16	15

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	514.740	0.091	0.230	0.144	0.328
1	B-C	665.086	0.099	0.250	-	-
1	C-B	649.248	0.244	0.244	-	-

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

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

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
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		✓	✓	HV Percentages	2.00			✓	✓
--	--	---	---	----------------	------	--	--	---	---

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	343.00	100.000
B	ONE HOUR	✓	178.00	100.000
C	ONE HOUR	✓	263.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

From	To			
		A	B	C
	A	0.000	100.000	243.000
	B	144.000	0.000	34.000
	C	231.000	32.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

From	To			
		A	B	C
	A	0.00	0.29	0.71
	B	0.81	0.00	0.19
	C	0.88	0.12	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

From	To			
		A	B	C
	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

From	To			
		A	B	C
	A	0.000	0.000	0.000
	B	0.000	0.000	0.000
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.47	15.97	0.86	C
C-AB	0.07	5.37	0.13	A

C-A	-	-	-	-
A-B	-	-	-	-
A-C	-	-	-	-

Main Results for each time segment

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	134.01	132.38	0.00	458.49	0.292	0.41	10.987	B
C-AB	31.66	31.40	0.00	702.57	0.045	0.07	5.363	A
C-A	166.34	166.34	0.00	-	-	-	-	-
A-B	75.29	75.29	0.00	-	-	-	-	-
A-C	182.94	182.94	0.00	-	-	-	-	-

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	160.02	159.43	0.00	442.87	0.361	0.55	12.670	B
C-AB	39.98	39.89	0.00	713.88	0.056	0.09	5.343	A
C-A	196.46	196.46	0.00	-	-	-	-	-
A-B	89.90	89.90	0.00	-	-	-	-	-
A-C	218.45	218.45	0.00	-	-	-	-	-

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	195.98	194.82	0.00	421.26	0.465	0.84	15.814	C
C-AB	52.79	52.64	0.00	729.84	0.072	0.13	5.319	A
C-A	236.78	236.78	0.00	-	-	-	-	-
A-B	110.10	110.10	0.00	-	-	-	-	-
A-C	267.55	267.55	0.00	-	-	-	-	-

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	195.98	195.93	0.00	421.23	0.465	0.86	15.968	C
C-AB	52.83	52.83	0.00	729.88	0.072	0.13	5.319	A
C-A	236.73	236.73	0.00	-	-	-	-	-
A-B	110.10	110.10	0.00	-	-	-	-	-
A-C	267.55	267.55	0.00	-	-	-	-	-

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	160.02	161.13	0.00	442.81	0.361	0.58	12.832	B
C-AB	40.03	40.18	0.00	713.96	0.056	0.09	5.345	A
C-A	196.40	196.40	0.00	-	-	-	-	-
A-B	89.90	89.90	0.00	-	-	-	-	-
A-C	218.45	218.45	0.00	-	-	-	-	-

Main results: (09:15-09:30)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	134.01	134.64	0.00	458.40	0.292	0.42	11.143	B
C-AB	31.74	31.83	0.00	702.64	0.045	0.07	5.368	A
C-A	166.26	166.26	0.00	-	-	-	-	-
A-B	75.29	75.29	0.00	-	-	-	-	-
A-C	182.94	182.94	0.00	-	-	-	-	-

(Default Analysis Set) - 2024 Base plus Committed plus Development, Saturday

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2024 Base plus Committed plus Development, Saturday	2024 Base plus Committed plus Development	Saturday		ONE HOUR	08:00	09:30	90	15		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Junction Delay (s)	Junction LOS
(untitled)	T-Junction	Two-way	A,B,C	12.15	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm Type
A	Gresford Road (n)		Major
B	Site Access		Minor
C	Gresford Road (s)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	6.71		0.00		2.20	130.00	✓	0.00

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

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.50										16	15

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	514.740	0.091	0.230	0.144	0.328
1	B-C	665.086	0.099	0.250	-	-
1	C-B	649.248	0.244	0.244	-	-

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

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

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	262.00	100.000
B	ONE HOUR	✓	170.00	100.000
C	ONE HOUR	✓	137.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

	To		
	A	B	C
	A	0.000	111.000
	B	144.000	0.000
From	C	112.000	25.000

Turning Proportions (PCU) - Junction 1 (for whole period)

From	To			
		A	B	C
	A	0.00	0.42	0.58
	B	0.85	0.00	0.15
	C	0.82	0.18	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

From	To			
		A	B	C
	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

From	To			
		A	B	C
	A	0.000	0.000	0.000
	B	0.000	0.000	0.000
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.41	13.27	0.68	B
C-AB	0.05	5.73	0.07	A
C-A	-	-	-	-
A-B	-	-	-	-
A-C	-	-	-	-

Main Results for each time segment

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	127.98	126.56	0.00	482.13	0.265	0.36	10.085	B
C-AB	21.54	21.37	0.00	657.20	0.033	0.04	5.660	A
C-A	81.60	81.60	0.00	-	-	-	-	-
A-B	83.57	83.57	0.00	-	-	-	-	-
A-C	113.68	113.68	0.00	-	-	-	-	-

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	152.83	152.37	0.00	472.15	0.324	0.47	11.240	B
C-AB	26.46	26.41	0.00	659.22	0.040	0.05	5.690	A

C-A	96.70	96.70	0.00	-	-	-	-	-
A-B	99.79	99.79	0.00	-	-	-	-	-
A-C	135.75	135.75	0.00	-	-	-	-	-

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	187.17	186.36	0.00	458.37	0.408	0.67	13.193	B
C-AB	33.68	33.61	0.00	662.23	0.051	0.07	5.726	A
C-A	117.16	117.16	0.00	-	-	-	-	-
A-B	122.21	122.21	0.00	-	-	-	-	-
A-C	166.25	166.25	0.00	-	-	-	-	-

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	187.17	187.14	0.00	458.35	0.408	0.68	13.269	B
C-AB	33.69	33.69	0.00	662.25	0.051	0.07	5.728	A
C-A	117.15	117.15	0.00	-	-	-	-	-
A-B	122.21	122.21	0.00	-	-	-	-	-
A-C	166.25	166.25	0.00	-	-	-	-	-

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	152.83	153.61	0.00	472.12	0.324	0.49	11.332	B
C-AB	26.47	26.54	0.00	659.25	0.040	0.05	5.690	A
C-A	96.69	96.69	0.00	-	-	-	-	-
A-B	99.79	99.79	0.00	-	-	-	-	-
A-C	135.75	135.75	0.00	-	-	-	-	-

Main results: (09:15-09:30)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-AC	127.98	128.47	0.00	482.07	0.265	0.37	10.196	B
C-AB	21.57	21.61	0.00	657.23	0.033	0.04	5.664	A
C-A	81.57	81.57	0.00	-	-	-	-	-
A-B	83.57	83.57	0.00	-	-	-	-	-
A-C	113.68	113.68	0.00	-	-	-	-	-



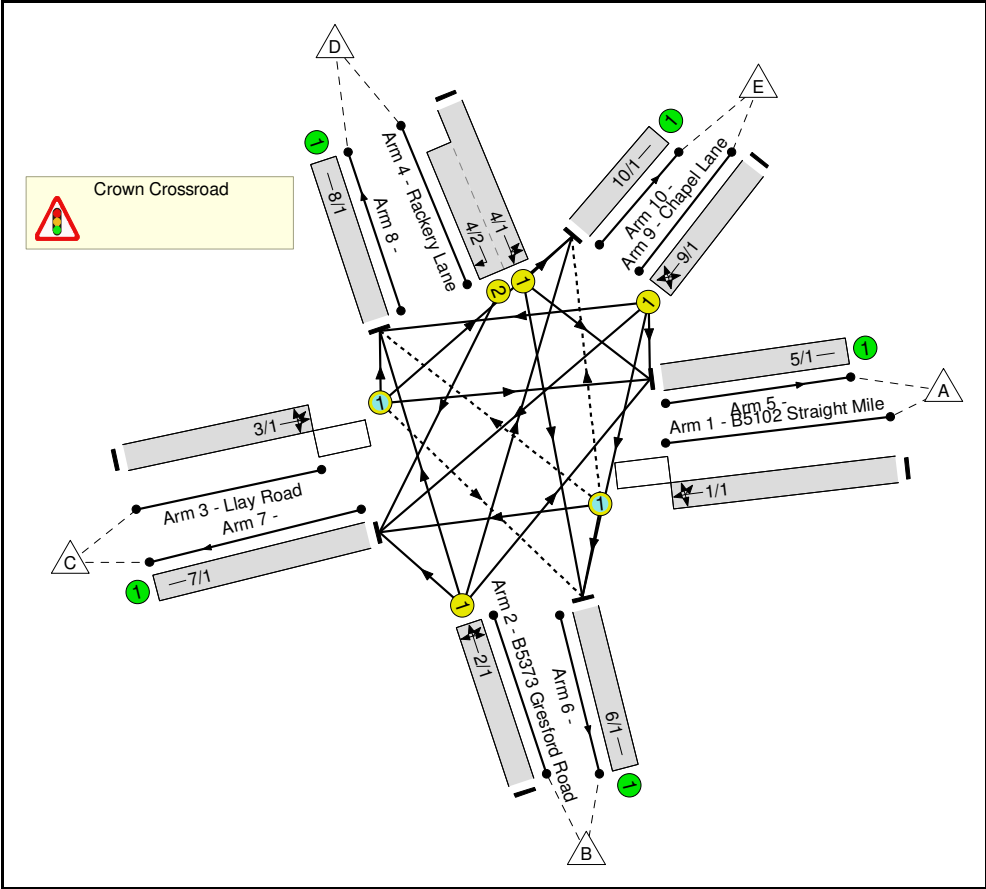
APPENDIX I

CROWN CROSSROADS – MODEL OUTPUTS

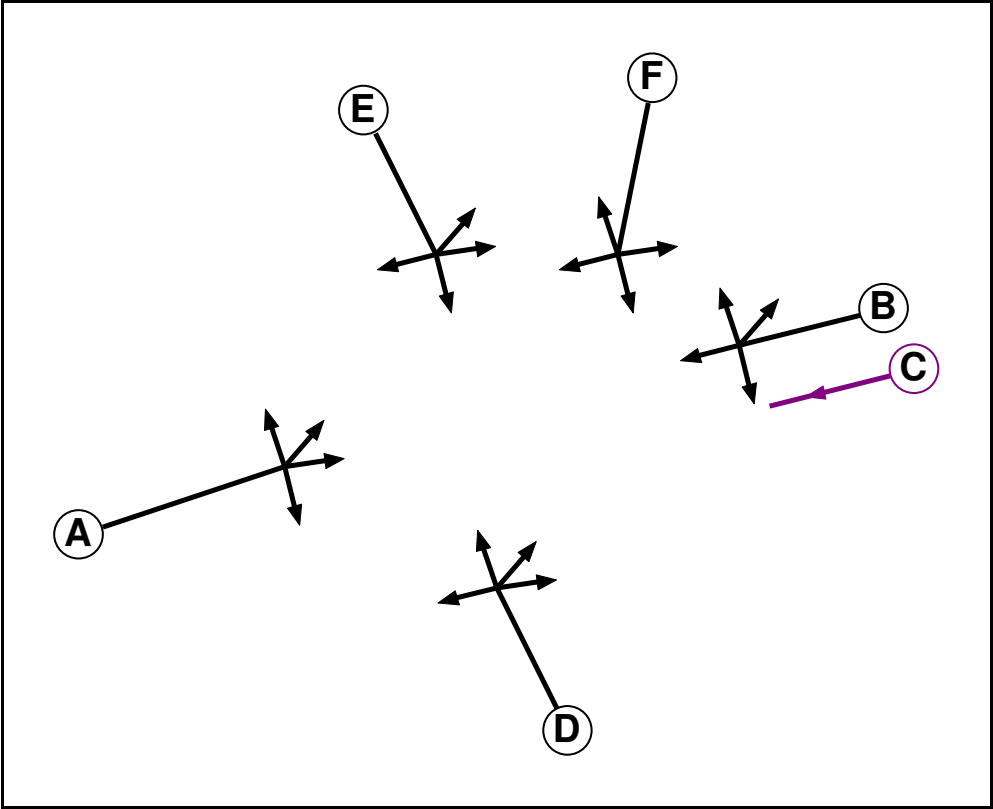
User and Project Details

Project:	Aldi, Llay
Title:	Crown Crossroads
Location:	
File name:	Crown Crossroads_Existing.lsg3x
Author:	
Company:	Cameron Rose Associates
Address:	
Notes:	Existing Layout

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Ind. Arrow	B	4	4
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7

Full Input Data And Results

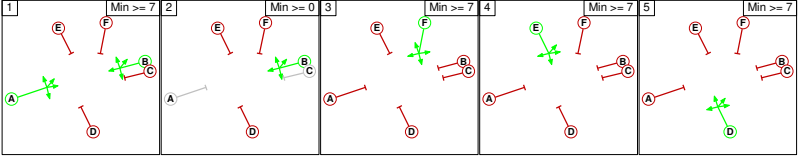
Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
	A	-	4	5	5	9
	B	-	-	7	10	5
	C	2	-	5	10	5
	D	7	6	5	6	9
	E	6	5	5	9	
	F	9	5	5	7	8

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	B
3	F
4	E
5	D

Stage Diagram



Phase Delays

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

Prohibited Stage Change

From Stage	To Stage				
	1	2	3	4	5
1		0	9	10	7
2			5	10	7
3	9	5		8	7
4	6	5	9		5
5	7	6	9	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Crown Crossroad											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/1 (B5102 Straight Mile)	8/1 (Right)	1439	0	3/1	1.09	To 5/1 (Ahead) To 8/1 (Left) To 10/1 (Ahead)	3.00	3.00	0.50	3	3.00
	10/1 (U-Turn)	1439	0	3/1	1.09	To 5/1 (Ahead) To 8/1 (Left) To 10/1 (Ahead)					
3/1 (Llay Road)	6/1 (Right)	1439	0	1/1	1.09	To 6/1 (Left) To 7/1 (Ahead)	3.00	3.00	0.50	3	3.00

Full Input Data And Results

Lane Input Data

Junction: Crown Crossroad												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (B5102 Straight Mile)	O	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Left	9.00
											Arm 7 Ahead	Inf
											Arm 8 Right	11.00
											Arm 10 U-Turn	7.00
2/1 (B5373 Gresford Road)	U	D	2	3	60.0	Geom	-	3.40	0.00	Y	Arm 5 Right	7.00
											Arm 7 Left	9.00
											Arm 8 Ahead	Inf
											Arm 10 Right	8.00
3/1 (Llay Road)	O	A	2	3	60.0	Geom	-	5.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	20.00
											Arm 8 Left	18.00
											Arm 10 Ahead	Inf
4/1 (Rackery Lane)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	22.00
											Arm 6 Ahead	Inf
											Arm 10 Left	11.00
4/2 (Rackery Lane)	U	E	2	3	10.0	Geom	-	3.00	0.00	Y	Arm 7 Right	12.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (Chapel Lane)	U	F	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 5 U-Turn	7.00
											Arm 6 Left	20.00
											Arm 7 Ahead	40.00
											Arm 8 Right	40.00
10/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2019 AM Peak Survey Flows'	07:45	08:45	01:00	
2: '2019 PM Peak Survey Flows'	16:30	17:30	01:00	
3: '2019 Saturday Peak Survey Flows'	12:00	13:00	01:00	

Scenario 1: '2019 Survey - AM Peak' (FG1: '2019 AM Peak Survey Flows', Plan 1: 'AM Peak (CT 238)')

Traffic Flows, Desired

Desired Flow :

Origin	Destination						
		A	B	C	D	E	Tot.
	A	0	6	69	201	0	276
	B	9	0	52	212	4	277
	C	127	31	0	400	1	559
	D	155	136	257	0	1	549
	E	1	2	4	36	0	43
	Tot.	292	175	382	849	6	1704

Traffic Lane Flows

Lane	Scenario 1: 2019 Survey - AM Peak
Junction: Crown Crossroad	
1/1	276
2/1	277
3/1	559
4/1 (with short)	549(In) 292(Out)
4/2 (short)	257
5/1	292
6/1	175
7/1	382
8/1	849
9/1	43
10/1	6

Lane Saturation Flows

Junction: Crown Crossroad										
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)		
1/1 (B5102 Straight Mile)	3.50	0.00	Y	Arm 6 Left	9.00	2.2 %	1782	1782		
2/1 (B5373 Gresford Road)	3.40	0.00	Y	Arm 7 Ahead	Inf	25.0 %				
				Arm 8 Right	11.00	72.8 %				
				Arm 10 U-Turn	7.00	0.0 %				
				Arm 5 Right	7.00	3.2 %				
				Arm 7 Left	9.00	18.8 %				
				Arm 8 Ahead	Inf	76.5 %				
3/1 (Llay Road)	5.00	0.00	Y	Arm 10 Right	8.00	1.4 %	1878	1878		
				Arm 5 Ahead	Inf	22.7 %				
				Arm 6 Right	20.00	5.5 %			1988	1988
				Arm 8 Left	18.00	71.6 %				
4/1 (Rackery Lane)	3.00	0.00	Y	Arm 10 Ahead	Inf	0.2 %	1988	1988		
				Arm 6 Right	20.00	5.5 %			1988	1988
				Arm 8 Left	18.00	71.6 %				
4/2 (Rackery Lane)	3.00	0.00	Y	Arm 10 Ahead	Inf	0.2 %	1988	1988		
4/1 (Rackery Lane)	3.00	0.00	Y	Arm 5 Left	22.00	53.1 %			1847	1847
				Arm 6 Ahead	Inf	46.6 %				
				Arm 10 Left	11.00	0.3 %				
4/2 (Rackery Lane)	3.00	0.00	Y	Arm 7 Right	12.00	100.0 %	1702	1702		
5/1	Infinite Saturation Flow						Inf	Inf		
6/1	Infinite Saturation Flow						Inf	Inf		
7/1	Infinite Saturation Flow						Inf	Inf		
8/1	Infinite Saturation Flow						Inf	Inf		
9/1 (Chapel Lane)	4.50	0.00	Y	Arm 5 U-Turn	7.00	2.3 %	1979	1979		
				Arm 6 Left	20.00	4.7 %				
				Arm 7 Ahead	40.00	9.3 %				
				Arm 8 Right	40.00	83.7 %				
10/1	Infinite Saturation Flow						Inf	Inf		

Scenario 2: '2019 Survey - PM Peak' (FG2: '2019 PM Peak Survey Flows', Plan 2: 'PM Peak (CT 326)')

Traffic Flows, Desired

Desired Flow :

	Destination						
		A	B	C	D	E	Tot.
Origin	A	0	21	125	153	0	299
	B	10	0	67	134	1	212
	C	62	78	0	292	8	440
	D	151	109	244	0	2	506
	E	1	2	4	5	0	12
	Tot.	224	210	440	584	11	1469

Traffic Lane Flows

Lane	Scenario 2: 2019 Survey - PM Peak
Junction: Crown Crossroad	
1/1	299
2/1	212
3/1	440
4/1 (with short)	506(In) 262(Out)
4/2 (short)	244
5/1	224
6/1	210
7/1	440
8/1	584
9/1	12
10/1	11

Lane Saturation Flows

Junction: Crown Crossroad								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (B5102 Straight Mile)	3.50	0.00	Y	Arm 6 Left	9.00	7.0 %	1817	1817
				Arm 7 Ahead	Inf	41.8 %		
				Arm 8 Right	11.00	51.2 %		
2/1 (B5373 Gresford Road)	3.40	0.00	Y	Arm 10 U-Turn	7.00	0.0 %	1838	1838
				Arm 5 Right	7.00	4.7 %		
				Arm 7 Left	9.00	31.6 %		
				Arm 8 Ahead	Inf	63.2 %		
				Arm 10 Right	8.00	0.5 %		
3/1 (Llay Road)	5.00	0.00	Y	Arm 5 Ahead	Inf	14.1 %	1979	1979
				Arm 6 Right	20.00	17.7 %		
				Arm 8 Left	18.00	66.4 %		
				Arm 10 Ahead	Inf	1.8 %		
4/1 (Rackery Lane)	3.00	0.00	Y	Arm 5 Left	22.00	57.6 %	1841	1841
4/2 (Rackery Lane)	3.00	0.00	Y	Arm 6 Ahead	Inf	41.6 %		
				Arm 10 Left	11.00	0.8 %		
5/1 6/1 7/1 8/1				Arm 7 Right	12.00	100.0 %	1702	1702
				Infinite Saturation Flow			Inf	Inf
9/1 (Chapel Lane)	4.50	0.00	Y	Infinite Saturation Flow			Inf	Inf
				Infinite Saturation Flow			Inf	Inf
				Infinite Saturation Flow			Inf	Inf
				Infinite Saturation Flow			Inf	Inf
				Arm 5 U-Turn	7.00	8.3 %	1951	1951
10/1				Arm 6 Left	20.00	16.7 %		
				Arm 7 Ahead	40.00	33.3 %		
				Arm 8 Right	40.00	41.7 %		
				Infinite Saturation Flow			Inf	Inf

Scenario 3: '2019 Survey - Saturday Peak' (FG3: '2019 Saturday Peak Survey Flows', Plan 2: 'PM Peak (CT 326)')

Traffic Flows, Desired

Desired Flow :

	Destination						
		A	B	C	D	E	Tot.
Origin	A	0	16	64	74	1	155
	B	14	0	47	53	0	114
	C	85	73	0	170	4	332
	D	70	63	158	0	0	291
	E	2	1	4	3	0	10
	Tot.	171	153	273	300	5	902

Traffic Lane Flows

Lane	Scenario 3: 2019 Survey - Saturday Peak
Junction: Crown Crossroad	
1/1	155
2/1	114
3/1	332
4/1 (with short)	291(In) 133(Out)
4/2 (short)	158
5/1	171
6/1	153
7/1	273
8/1	300
9/1	10
10/1	5

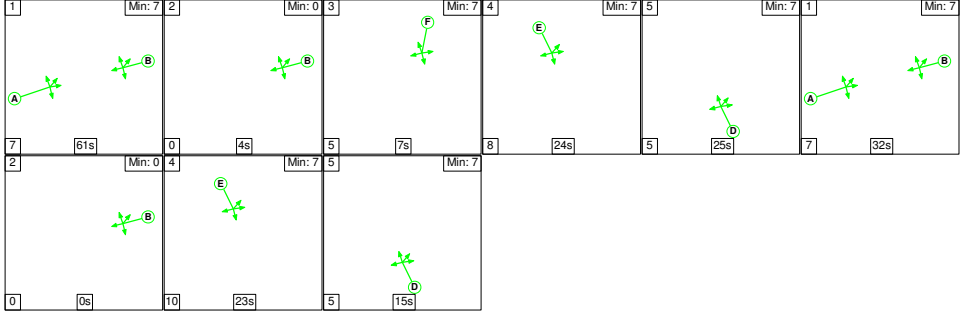
Full Input Data And Results

Lane Saturation Flows

Junction: Crown Crossroad								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (B5102 Straight Mile)	3.50	0.00	Y	Arm 6 Left	9.00	10.3 %	1813	1813
				Arm 7 Ahead	Inf	41.3 %		
				Arm 8 Right	11.00	47.7 %		
2/1 (B5373 Gresford Road)	3.40	0.00	Y	Arm 10 U-Turn	7.00	0.6 %	1785	1785
				Arm 5 Right	7.00	12.3 %		
				Arm 7 Left	9.00	41.2 %		
				Arm 8 Ahead	Inf	46.5 %		
				Arm 10 Right	8.00	0.0 %		
				Arm 5 Ahead	Inf	25.6 %		
3/1 (Llay Road)	5.00	0.00	Y	Arm 6 Right	20.00	22.0 %	1997	1997
				Arm 8 Left	18.00	51.2 %		
				Arm 10 Ahead	Inf	1.2 %		
4/1 (Rackery Lane)	3.00	0.00	Y	Arm 5 Left	22.00	52.6 %	1849	1849
				Arm 6 Ahead	Inf	47.4 %		
				Arm 10 Left	11.00	0.0 %		
4/2 (Rackery Lane)	3.00	0.00	Y	Arm 7 Right	12.00	100.0 %	1702	1702
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
9/1 (Chapel Lane)	4.50	0.00	Y	Arm 5 U-Turn	7.00	20.0 %	1918	1918
				Arm 6 Left	20.00	10.0 %		
				Arm 7 Ahead	40.00	40.0 %		
				Arm 8 Right	40.00	30.0 %		
10/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2019 Survey - AM Peak' (FG1: '2019 AM Peak Survey Flows', Plan 1: 'AM Peak (CT 238)')

Stage Sequence Diagram

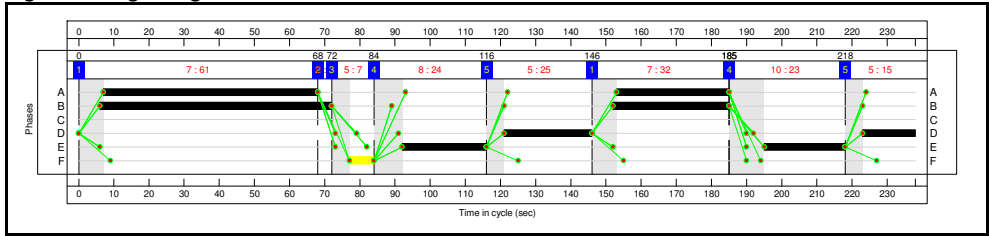


Full Input Data And Results

Stage Timings

Stage	1	2	3	4	5	1	2	4	5
Duration	61	4	7	24	25	32	0	23	15
Change Point	0	68	72	84	116	146	185	185	218

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Crown Crossroads	-	-	N/A	-	-		-	-	-	-	-	-	84.3%
Crown Crossroad	-	-	N/A	-	-		-	-	-	-	-	-	84.3%
1/1	B5102 Straight Mile Left Ahead Right U-Turn	O	N/A	N/A	B		2	99	-	276	1782	332	83.1%
2/1	B5373 Gresford Road Right Left Ahead Right2	U	N/A	N/A	D		2	40	-	277	1878	331	83.6%
3/1	L1ay Road Ahead Right Left Ahead2	O	N/A	N/A	A		2	93	-	559	1988	794	70.4%
4/1+4/2	Rackery Lane Left Ahead Right Left2	U	N/A	N/A	E		2	47	-	549	1847:1702	346+305	84.3 : 84.3%
5/1		U	N/A	N/A	-		-	-	-	292	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	175	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	382	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	849	Inf	Inf	0.0%
9/1	Chapel Lane U-Turn Left Ahead Right	U	N/A	N/A	F		1	7	-	43	1979	67	64.6%
10/1		U	N/A	N/A	-		-	-		6	Inf	Inf	0.0%

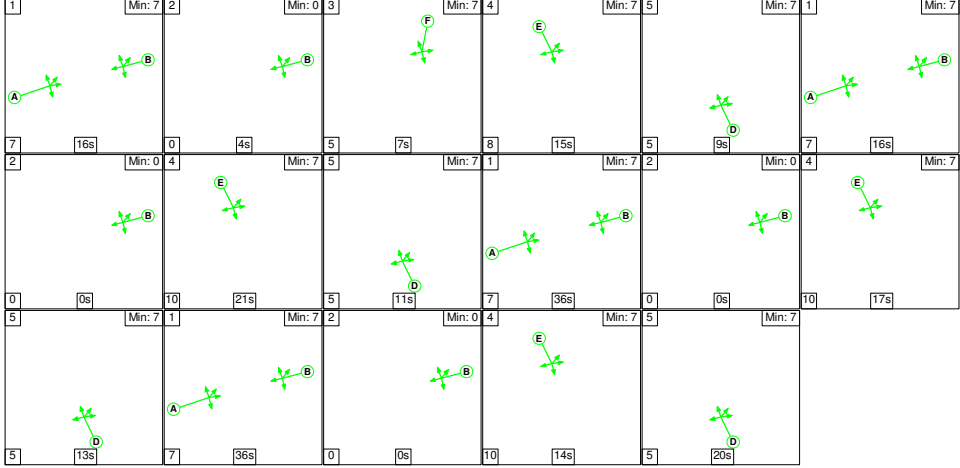
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcu/Hr)	Rand + Oversat Delay (pcu/Hr)	Storage Area Uniform Delay (pcu/Hr)	Total Delay (pcu/Hr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Crown Crossroads	-	-	172	12	48	21.3	9.2	1.0	31.5	-	-	-	-
Crown Crossroad	-	-	172	12	48	21.3	9.2	1.0	31.5	-	-	-	-
1/1	276	276	141	12	48	4.3	2.3	1.0	7.6	98.8	13.1	2.3	15.3
2/1	277	277	-	-	-	3.8	2.3	-	6.2	80.2	10.8	2.3	13.1
3/1	559	559	31	0	0	4.8	1.2	0.0	6.0	38.4	18.0	1.2	19.2
4/1+4/2	549	549	-	-	-	7.0	2.6	-	9.5	62.6	11.5	2.6	14.1
5/1	292	292	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	175	175	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	382	382	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	849	849	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	43	43	-	-	-	1.4	0.9	-	2.2	185.0	2.8	0.9	3.7
10/1	6	6	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1		PRC for Signalled Lanes (%):			6.7	Total Delay for Signalled Lanes (pcu/Hr):			31.46	Cycle Time (s): 238			
PRC Over All Lanes (%):					6.7	Total Delay Over All Lanes (pcu/Hr):			31.46				

Full Input Data And Results

Scenario 2: '2019 Survey - PM Peak' (FG2: '2019 PM Peak Survey Flows', Plan 2: 'PM Peak (CT 326)')

Stage Sequence Diagram

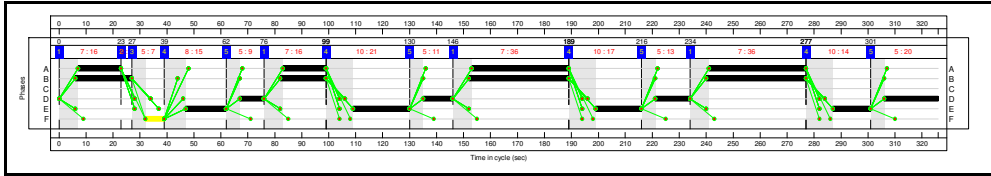


Stage Timings

Stage	1	2	3	4	5	1	2	4	5	1
Duration	16	4	7	15	9	16	0	21	11	36
Change Point	0	23	27	39	62	76	99	99	130	146

Stage	2	4	5	1	2	4	5			
Duration	0	17	13	36	0	14	20			
Change Point	189	189	216	234	277	277	301			

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Crown Crossroads	-	-	N/A	-	-		-	-	-	-	-	-	67.1%
Crown Crossroad	-	-	N/A	-	-		-	-	-	-	-	-	67.1%
1/1	B5102 Straight Mile Left Ahead Right U-Turn	O	N/A	N/A	B		4	112	-	299	1817	460	65.1%
2/1	B5373 Gresford Road Right Left Ahead Right2	U	N/A	N/A	D		4	53	-	212	1838	321	66.0%
3/1	Llay Road Ahead Right Left Ahead2	O	N/A	N/A	A		4	104	-	440	1979	656	67.1%
4/1,4/2	Rackery Lane Left Ahead Right Left2	U	N/A	N/A	E		4	67	-	506	1841:1702	393+366	66.7 : 66.7%
5/1		U	N/A	N/A	-		-	-	-	224	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	210	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	440	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	584	Inf	Inf	0.0%
9/1	Chapel Lane U-Turn Left Ahead Right	U	N/A	N/A	F		1	7	-	12	1951	48	25.1%
10/1		U	N/A	N/A	-		-	-	-	11	Inf	Inf	0.0%

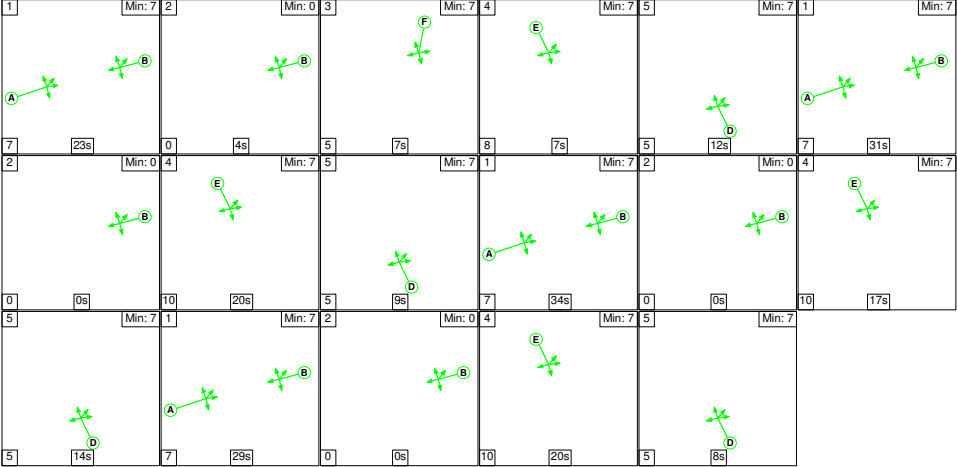
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Crown Crossroads	-	-	163	11	57	11.2	4.0	0.5	15.7	-	-	-	-
Crown Crossroad	-	-	163	11	57	11.2	4.0	0.5	15.7	-	-	-	-
1/1	299	299	87	11	55	1.7	0.9	0.5	3.1	37.9	5.3	0.9	6.2
2/1	212	212	-	-	-	1.9	1.0	-	2.8	47.8	4.9	1.0	5.8
3/1	440	440	77	0	1	2.9	1.0	0.0	3.9	31.8	9.2	1.0	10.2
4/1+4/2	506	506	-	-	-	4.2	1.0	-	5.2	36.9	6.0	1.0	7.0
5/1	224	224	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	210	210	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	440	440	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	584	584	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	12	12	-	-	-	0.5	0.2	-	0.7	205.8	1.1	0.2	1.2
10/1	11	11	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1PRC for Signalled Lanes (%):34.1PRC Over All Lanes (%):34.1Total Delay for Signalled Lanes (pcuHr):15.72Total Delay Over All Lanes(pcuHr):15.72Cycle Time (s):326													

Full Input Data And Results

Scenario 3: '2019 Survey - Saturday Peak' (FG3: '2019 Saturday Peak Survey Flows', Plan 2: 'PM Peak (CT 326)')

Stage Sequence Diagram

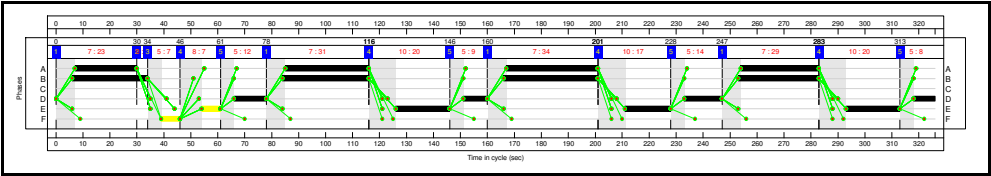


Stage Timings

Stage	1	2	3	4	5	1	2	4	5	1
Duration	23	4	7	7	12	31	0	20	9	34
Change Point	0	30	34	46	61	78	116	116	146	160

Stage	2	4	5	1	2	4	5			
Duration	0	17	14	29	0	20	8			
Change Point	201	201	228	247	283	283	313			

Signal Timings Diagram



Network Results

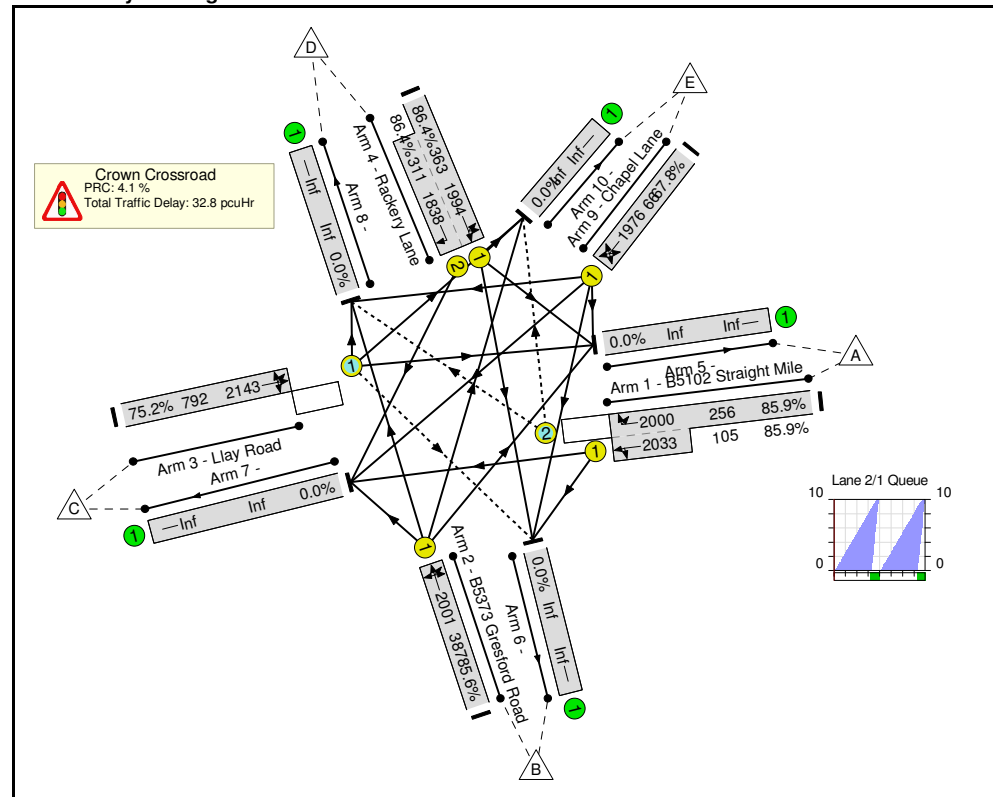
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User and Project Details

Project:	Aldi, Llay
Title:	Crown Crossroads
Location:	
File name:	Crown Crossroads_Proposed MOVA.lsg3x
Author:	
Company:	Cameron Rose Associates
Address:	
Notes:	Junction Improvements in association with Committed Development P/2014/0905

Scenario 1: '2024 B+C- AM (FG1: '2024 Base plus Committed Development AM Peak Flows', Plan 1: 'AM Peak (CT 238)')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcu/Hr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Crown Crossroads	-	-	-		-	-	-	-	-	-	86.4%	105	106	49	32.8	-	-
Crown Crossroad	-	-	-		-	-	-	-	-	-	86.4%	105	106	49	32.8	-	-
1/2+1/1	B5102 Straight Mile Left Ahead Right U-Turn	O+U	B		2	98	-	310	2000:2033	256+105	85.9 : 85.9%	105	67	48	6.4	74.3	10.5
2/1	B5373 Gresford Road Right Left Ahead Right2	U	C		2	44	-	331	2001	387	85.6%	-	-	-	7.0	75.8	13.4
3/1	Llay Road Ahead Right Left Ahead2	O	A		2	86	-	596	2143	792	75.2%	0	39	1	7.0	42.1	20.4
4/1+4/2	Rackery Lane Left Ahead Right Left2	U	D		2	48	-	583	1994:1838	363+311	86.4 : 86.4%	-	-	-	10.1	62.3	13.3
9/1	Chapel Lane U-Turn Left Ahead Right	U	E		1	7	-	45	1976	66	67.8%	-	-	-	2.4	190.8	3.9
		C1		PRC for Signalled Lanes (%):			4.1	Total Delay for Signalled Lanes (pcu/Hr):			32.83	Cycle Time (s): 238					
				PRC Over All Lanes (%):			4.1	Total Delay Over All Lanes (pcu/Hr):			32.83						

Scenario 2: '2024 B+C- PM' (FG2: '2024 Base plus Committed Development PM Peak Flows', Plan 2: 'PM Peak (CT 326)')

Crown Crossroad
 PRC: 33.0 %
 Total Traffic Delay: 17.2 pcuHr

The diagram illustrates the traffic flow and lane configurations for the Crown Crossroad intersection. The intersection is a five-way roundabout with five arms, each labeled with a number (1-5) and a color-coded circle (green, yellow, or red). The arms and their lane configurations are as follows:

- Arm 1 (Green):** B5102 Straight Mile. Lane 1: 0.0% Inf. Lane 2: 266 62.1%. Lane 3: 258 62.1%.
- Arm 2 (Yellow):** B5373 Garspold Road. Lane 1: 0.0% Inf. Lane 2: 2000 62.1%. Lane 3: 2033 62.1%.
- Arm 3 (Yellow):** Llay Road. Lane 1: 67.3% 735 2143. Lane 2: Inf. Lane 3: 0.0%.
- Arm 4 (Red):** Packery Lane. Lane 1: 67.3% 560 1838. Lane 2: 67.3% 446 1994. Lane 3: Inf. Lane 4: 0.0%.
- Arm 5 (Green):** Chapel Lane. Lane 1: 0.0% Inf. Lane 2: 1976 4626 1%. Lane 3: Inf. Lane 4: 0.0%.

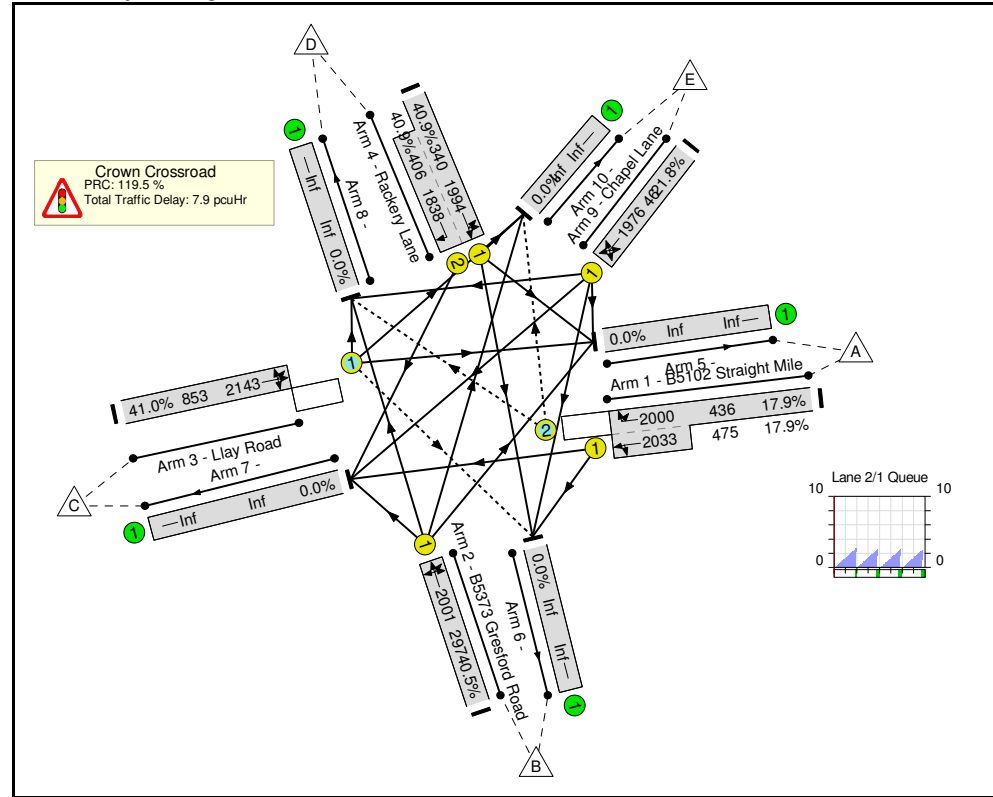
The diagram also shows the traffic flow between the arms, with arrows indicating the direction of travel. A legend in the top left corner provides the intersection name, PRC, and total traffic delay. A graph in the bottom right corner shows the Lane 2/1 Queue length over time, with a y-axis ranging from 0 to 10 and an x-axis showing time intervals.

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcu/Hr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Crown Crossroads	-	-	-		-	-	-	-	-	-	67.7%	115	113	42	17.2	-	-
Crown Crossroad	-	-	-		-	-	-	-	-	-	67.7%	115	113	42	17.2	-	-
1/2+1/1	B5102 Straight Mile Left Ahead Right U-Turn	O+U	B		4	122	-	325	2000-2033	266+258	62.1 : 62.1%	115	12	39	3.3	36.3	3.7
2/1	B5373 Gresford Road Right Left Ahead Right2	U	C		4	59	-	248	2001	366	67.7%	-	-	-	3.3	48.3	7.3
3/1	Llay Road Ahead Right Left Ahead2	O	A		4	114	-	495	2143	735	67.3%	0	101	4	4.4	31.6	11.7
4/1+4/2	Rackery Lane Left Ahead Right Left2	U	D		4	79	-	556	1994-1838	446+380	67.3 : 67.3%	-	-	-	5.5	35.7	7.8
9/1	Chapel Lane U-Turn Left Ahead Right	U	E		1	7	-	12	1976	46	26.1%	-	-	-	0.7	217.6	1.3
	C1		PRC for Signalled Lanes (%):		33.0		33.0	Total Delay for Signalled Lanes (pcuH):		17.19		17.19	Cycle Time (s):		344		
								Total Delay Over All Lanes (pcu/Hr):									

Scenario 3: '2024 B+C- SAT' (FG3: '2024 Base plus Committed Development Saturday Peak Flows', Plan 2: 'PM Peak (CT 326)')

Network Layout Diagram



Basic Results Summary

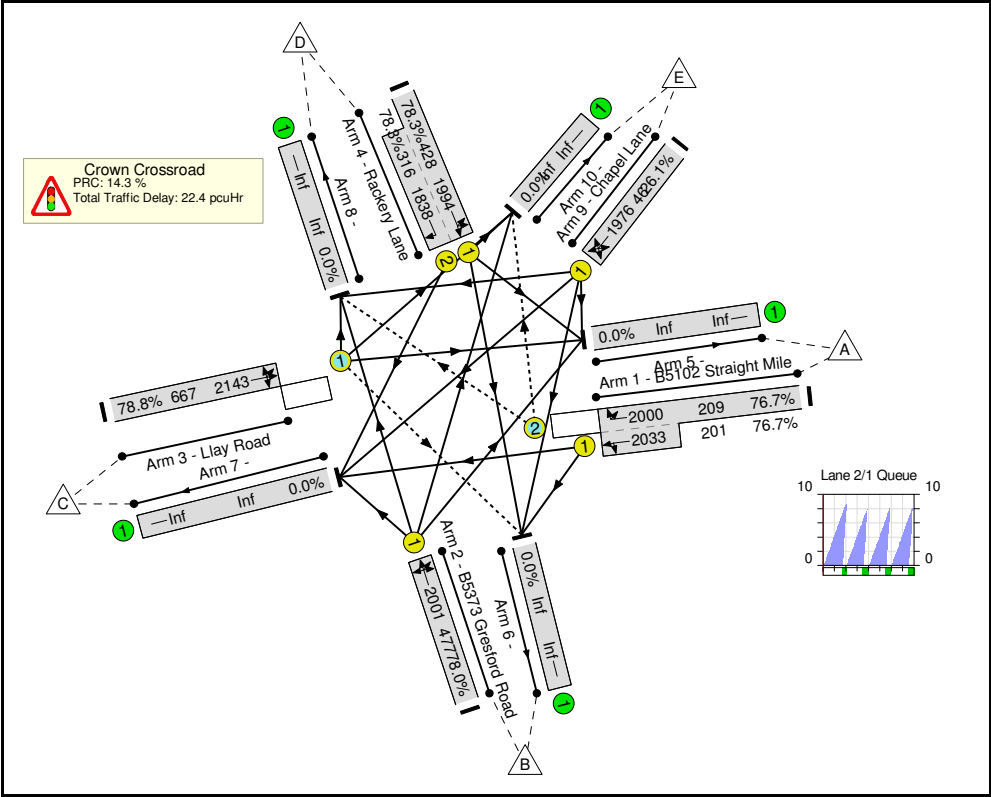
Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcu/Hr)	Av. Delay Per FCU (s/pcu)	Mean Max Queue (pcu)
Network: Crown Crossroads	-	-	-		-	-	-	-	-	-	41.0%	76	75	4	7.9	-	-
Crown Crossroad	-	-	-		-	-	-	-	-	-	41.0%	76	75	4	7.9	-	-
1/2+1/1	B5102 Straight Mile Left Ahead Right U-Turn	O+U	B		4	141	-	163	2000:2033	436+475	17.9 : 17.9%	76	0	1	1.0	21.1	1.4
2/1	B5373 Gresford Road Right Left Ahead Right2	U	C		4	47	-	120	2001	297	40.5%	-	-	-	1.4	43.4	3.0
3/1	L1ay Road Ahead Right Left Ahead2	O	A		4	133	-	350	2143	853	41.0%	0	74	3	2.2	22.3	7.2
4/1+4/2	Rackery Lane Left Ahead Right Left2	U	D		4	72	-	305	1994:1838	340+406	40.9 : 40.9%	-	-	-	2.8	32.5	3.8
9/1	Chapel Lane U-Turn Left Ahead Right	U	E		1	7	-	10	1976	46	21.8%	-	-	-	0.6	214.7	1.1
		C1	PRC for Signalled Lanes (%): PRC Over All Lanes (%):				119.5 119.5	Total Delay for Signalled Lanes (pcu/Hr): Total Delay Over All Lanes(pcu/Hr):				7.92 7.92	Cycle Time (s): 344				

Basic Results Summary

Scenario 5: '2024 B+C+D - PM' (FG5: '2024 Base plus Committed plus Development PM Peak Flows', Plan 2: 'PM Peak (CT 326)')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Crown Crossroads	-	-	-	-	-	-	-	-	-	-	78.8%	89	152	66	22.4	-	-
Crown Crossroad	-	-	-	-	-	-	-	-	-	-	78.8%	89	152	66	22.4	-	-
1/2+1/1	BS102 Straight Mile Left Ahead Right U-Turn	O+U	B		4	111	-	314	2000:2033	209+201	76.7 : 76.7%	89	12	59	4.2	48.6	5.6
2/1	BS373 Gresford Road Right Left Ahead Right2	U	C		4	78	-	372	2001	477	78.0%	-	-	-	4.9	47.3	10.5
3/1	Llay Road Ahead Right Left Ahead2	O	A		4	103	-	525	2143	667	78.8%	0	140	7	5.8	39.6	14.9
4/1+4/2	Rackery Lane Left Ahead Right Left2	U	D		4	71	-	582	1994:1838	426+316	78.3 : 78.3%	-	-	-	6.8	42.0	9.4
9/1	Chapel Lane U-Turn Left Ahead Right	U	E		1	7	-	12	1976	46	26.1%	-	-	-	0.7	217.6	1.3
C1		PRC for Signalled Lanes (%):		14.3		Total Delay for Signalled Lanes (pcuHr):		22.42		Cycle Time (s):		344					
		PRC Over All Lanes (%):		14.3		Total Delay Over All Lanes (pcuHr):		22.42									

Scenario 6: '2024 B+C+D - SAT' (FG6: '2024 Base plus Committed plus Development Saturday Peak Flows', Plan 2: 'PM Peak (CT 326)')

Crown Crossroad
 PRC: 72.9 %
 Total Traffic Delay: 10.6 pcuHr

The diagram illustrates the traffic flow and lane configurations for the Crown Crossroad intersection. The intersection is a four-way crossroad with a central roundabout. The arms are labeled as follows:

- Arm 1 - B5102 Straight Mile:** 0.0% Inf, Inf, Inf (1 lane)
- Arm 2 - B5313 Grosjean Road:** 0.0% Inf, Inf (1 lane)
- Arm 3 - Llay Road:** 51.7% 741, 2143 (2 lanes)
- Arm 4 - Backery Lane:** 52.0% 3948, 1994 (2 lanes)
- Arm 5 - Chapel Lane:** 0.0% Inf, Inf (1 lane)
- Arm 6 - Chapel Lane:** 19% 4621, 8% (2 lanes)
- Arm 7 - Llay Road:** Inf, Inf, 0.0% (1 lane)
- Arm 8 - Backery Lane:** Inf, Inf, 0.0% (1 lane)
- Arm 9 - Chapel Lane:** 2000 353, 20.7% (1 lane)
- Arm 10 - Chapel Lane:** 2033 377, 20.7% (1 lane)

The diagram also shows a queue length graph for Lane 2/1 Queue, with a scale from 0 to 10. The graph displays the queue length over time, with peaks corresponding to the arrival of vehicles from the various arms.

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcu/Hr)	Av. Delay Per FCU (s/pcu)	Mean Max Queue (pcu)
Network: Crown Crossroads	-	-	-		-	-	-	-	-	-	52.0%	71	126	6	10.6	-	-
Crown Crossroad	-	-	-		-	-	-	-	-	-	52.0%	71	126	6	10.6	-	-
1/2+1/1	B5102 Straight Mile Left Ahead Right U-Turn	O+U	B		4	123	-	151	2000:2033	353+377	20.7 : 20.7%	71	0	1	1.1	25.6	1.4
2/1	B5373 Gresford Road Right Left Ahead Right2	U	C		4	81	-	255	2001	494	51.6%	-	-	-	2.5	35.5	6.0
3/1	Llay Road Ahead Right Left Ahead2	O	A		4	115	-	383	2143	741	51.7%	0	125	5	2.9	27.4	8.1
4/1+4/2	Rackery Lane Left Ahead Right Left2	U	D		4	56	-	336	1994:1838	348+298	52.0 : 52.0%	-	-	-	3.5	38.0	4.6
9/1	Chapel Lane U-Turn Left Ahead Right	U	E		1	7	-	10	1976	46	21.8%	-	-	-	0.6	214.7	1.1
		C1	PRC for Signalled Lanes (%): PRC Over All Lanes (%):					72.9 72.9	Total Delay for Signalled Lanes (pcu/Hr): Total Delay Over All Lanes(pcu/Hr):			10.64 10.64	Cycle Time (s): 344				