

**ALDI FOOD STORES
STRAIGHT MILE, LLAY**

TRANSPORT ASSESSMENT

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




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CONTENTS

1.0	INTRODUCTION	1
2.0	THE DEVELOPMENT SITE	7
3.0	THE PROPOSED DEVELOPMENT	15
4.0	BASELINE TRAFFIC CONDITIONS	23
5.0	DEVELOPMENT TRIP ATTRACTION, ASSIGNMENT AND DISTRIBUTION	26
6.0	IMPACT OF DEVELOPMENT PROPOSALS ON THE OPERATIONAL PERFORMANCE OF THE LOCAL HIGHWAY NETWORK	34
7.0	SUMMARY AND CONCLUSIONS	41

FIGURES

2-1	SITE LOCATION PLAN (IN TEXT)
2-2	LOCAL HIGHWAY NETWORK (IN TEXT)
3-1	LOW BRIDGE PREVENTING ACCESS ALONG GRESFORD ROAD
3-2	DEFINED ACTIVE TRAVEL ROUTES IN LLAY
3-3	ACTIVE TRAVEL ROUTES THROUGH NANT Y GAER WOODS
4-1	2019 SURVEY TRAFFIC FLOWS
4-2	2025 BASE TRAFFIC FLOWS
4-3	COMMITTED DEVELOPMENT TRAFFIC FLOWS – PLANNING APPLICATION P/2014/0905
4-4	2025 BASE PLUS COMMITTED DEVELOPMENT TRAFFIC FLOWS
5-1	NEW/ TRANSFERRED DEVELOPMENT TRIP DISTRIBUTION
5-2	NEW/ TRANSFERRED DEVELOPMENT TRIP ASSIGNMENT
5-3	PASS BY DEVELOPMENT TRIP DISTRIBUTION
5-4	PASS BY DEVELOPMENT TRIP ASSIGNMENT
5-5	DIVERTED DEVELOPMENT TRIP DISTRIBUTION
5-6	DIVERTED DEVELOPMENT TRIP ASSIGNMENT
5-7	TOTAL DEVELOPMENT TRIP ASSIGNMENT
5-8	2025 BASE PLUS DEVELOPMENT TRAFFIC FLOWS

TABLES

4-1	PROPOSED GROWTH FACTORS (WREXHAM 020)
4-2	SUMMARY OF PERSONAL INJURY COLLISIONS
5-1	AVERAGE TRIP RATES
5-2	PROPOSED FOOD STORE VEHICULAR TRIP ATTRACTION
5-3	FOOD STORE TRIP TYPES
5-4	INCREASE IN VEHICLE TRIP ATTRACTION BY TRIP TYPE
6-1	IMPACT ON JUNCTION 7 OF THE A483
6-2	A53/ SITE ACCESS – PICADY RESULTS
6-3	CROWN CROSSROADS – LINSIG RESULTS

APPENDICES

A	SITE LAYOUT
B	GENERAL ACCESS ARRANGEMENT AND SWEEP PATH AUTOTRACK ANALYSIS
C	FRAMEWORK TRAVEL PLAN
D	PARKING ACCUMULATION CALCULATIONS
E	ACTIVE TRAVEL ASSESSMENT
F	TRAFFIC COUNT DATA
G	ALDI STORES TRIP DATA
H	GRAVITY MODEL – NEW AND TRANSFERRED TRIP DISTRIBUTION
I	GRESFORD ROAD/ SITE ACCESS – MODEL OUTPUTS
J	DRAWING 065665-CUR-ZZ-XX-DR-R-9561-C01 – PLANNING APPLICATION P/2014/0905
K	CROWN CROSSROADS – MODEL OUTPUTS

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 1,941 sqm. The proposed parking provision for the development is 116 spaces, including eight disabled, five motorcycle, four electric vehicle charge points 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 Discussions have been held with highway officers at Wrexham Council, who have agreed the parameters of the report including study area, traffic counts, trip rates, trip proportions, trip distribution and modelling methodology. The off-site highway works proposed as part of the development proposals have also been discussed in detail and agreed with the local highway authority.
- 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, off site highway works proposed, 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 B5102 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**.

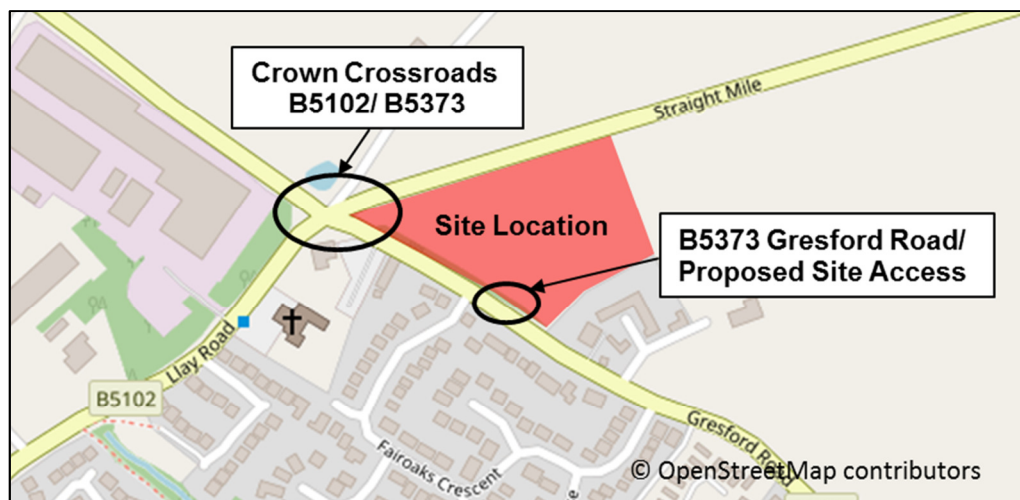


Figure 2-2: Local Highway Network

- 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. These are outlined in **Section 3.0** along with an Active Travel Assessment of the development proposals.

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 1,941 sqm. The proposed parking provision for the development is 116 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. In addition four electric vehicle charge spaces of which two are designed to accessible standards.

3.1.2 The development proposals will also include:

- 50 metre extension to the new left turn provision on the Straight Mile (B5102) approach to the Crown crossroads. This extension augments the approved works associated with the Home Farm residential development;
- the provision of a 2.0 metre footway connection around the boundary of the site from Straight Mile to Gresford Road. This footway will become a public right of way and formalised footpath following construction under the s.278 agreement;
- the provision of a zebra crossing facility on Gresford Road, approximately 70 metres to the south east of the Crown Crossroads;
- bus stop provision on Gresford Road to include bus boarding kerbs and safe pedestrian connections to the store and surrounding residential areas; and
- Informal dropped kerb crossing on Gresford Road approximately 10 metres from the proposed site access.

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-11 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-12 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 Pedestrians from the south east are accommodated via the informal dropped crossing proposed on Gresford Road approximately 10 metres from the proposed site access.

- 3.2.9 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-11 attached in **Appendix B**.

3.3 Car and Cycle Parking Provision

- 3.3.1 3.3.1 The proposed Aldi foodstore will also provide 116 spaces, including eight disabled, five motorcycle and nine parent and child parking spaces and four electric vehicle charging spaces of which two have been designed to accessible standards will be provided.
- 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 116 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 116 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 – 87 (75%);and
- Saturday – 94 (81%).

Table 3-1: Proposed Car Park Accumulation – Thursday

Time Period	In	Out	Accumulation	% Occupancy
08:00	56	35	33	28%
09:00	122	95	59	51%
10:00	129	120	67	58%
11:00	145	126	87	75%
12:00	116	143	59	51%
13:00	137	127	69	59%
14:00	134	141	62	54%
15:00	141	143	61	53%
16:00	132	138	56	48%
17:00	104	129	31	27%
18:00	73	85	20	17%
19:00	52	56	16	14%
20:00	19	30	6	5%
21:00	15	19	2	2%
22:00	1	3	0	0%
Maximum No. of Cars Parked at any Time			87	75%

Table 3-2: Proposed Car Park Accumulation – Saturday

Time Period	In	Out	Accumulation	% Occupancy
08:00	64	48	29	25%
09:00	108	84	53	46%
10:00	152	129	76	66%
11:00	174	163	87	75%
12:00	179	172	94	81%
13:00	166	174	85	73%
14:00	164	171	79	68%
15:00	151	166	64	55%
16:00	132	147	49	42%
17:00	90	115	24	21%
18:00	47	57	15	13%
19:00	32	36	10	9%
20:00	18	24	5	4%
21:00	5	7	3	3%
22:00	2	5	0	0%
Maximum No. of Cars Parked at any Time			94	81%

3.4.3 Based on the robust parameters adopted, it can be demonstrated that the proposed 116 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-04 attached in **Appendix B**.
- 3.5.4 It should be noted that the left turn out manoeuvre for service vehicles has not been presented as a low bridge (as illustrated in **Figure 3-1** below) 1,700 metres to the southeast prevents this travel direction. The height of the Aldi service vehicles is 4.5 metres (15 feet).



Figure 3-1: Low Bridge Preventing Access along Gresford Road

3.6 Active Travel Assessment

- 3.6.1 In addition to the site specific Active Travel measures identified in **Section 3.2** above; a detailed audit has been conducted of Active Travel routes identified by Wrexham County Borough Council.
- 3.6.2 **Figure 3-2** below illustrates the designated Active Travel routes within Llay. **Figure 3-3** represents the routes of interest as identified by Wrexham County Borough Council as being of interest to this development proposal.

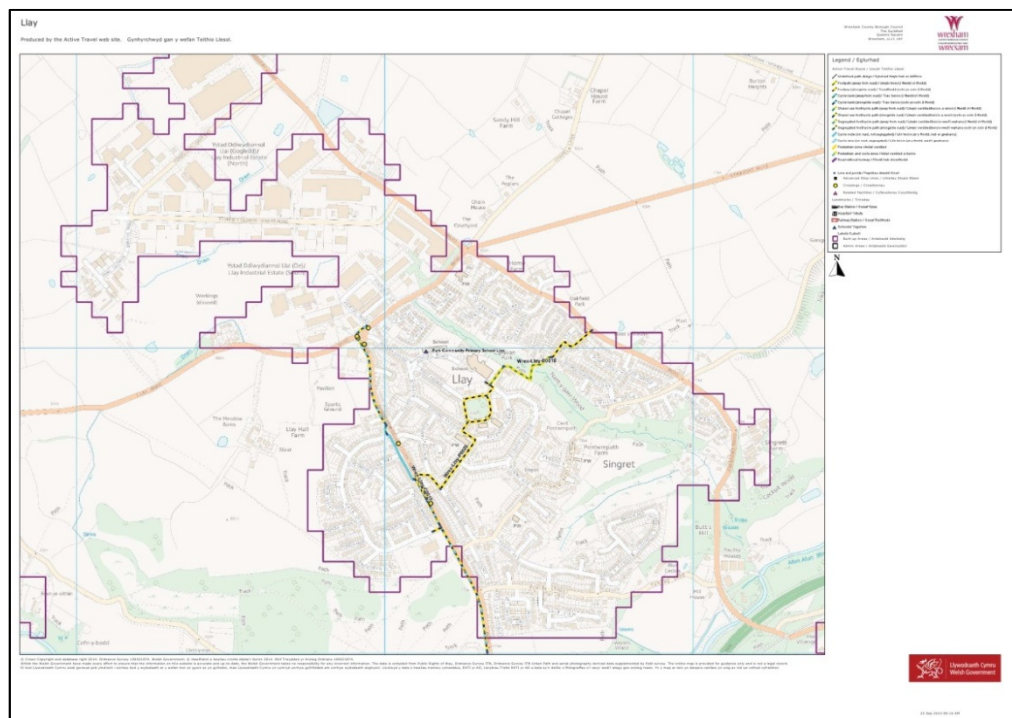


Figure 3-2: Defined Active Travel Routes in Llay



Figure 3-3: Active Travel Routes through Nant Y Gaer Woods (taken from Wrexham Council's email dated 30th July)

3.6.3 An assessment of the routes highlighted in Figure 3-3 has been undertaken and the findings are presented in full at **Appendix E**.

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 F**. 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, 2025.
- 4.3.2 Growth factors will be applied to the surveyed traffic flows to calculate 2025 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 – 2025	1.0567	1.0564	1.0615

- 4.3.3 The resulting 2025 (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 2025 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 –October 2020). 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 G**.

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 1,941 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	43	106
	PM Peak (1700 – 1800)	170	179	349
	Saturday Peak (1100 – 1200)	179	172	351
	AADT	1,333	1,333	2,667

- 5.1.5 Adopting the above trip rates results in a potential trip attraction to the store of 106 two-way trips during the AM peak, 349 two-way trips during the PM peak and 351 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	9	21
	Transferred*	40%	25	17	42
	Pass-by	20%	13	9	21
	Diverted	20%	13	9	21
	Total	100%	63	43	106
PM Peak	New	20%	34	36	70
	Transferred*	40%	68	72	140
	Pass-by	20%	34	36	70
	Diverted	20%	34	36	70
	Total	100%	170	179	349
Saturday Peak	New	20%	36	34	70
	Transferred*	45%	80	77	158
	Pass-by	10%	18	17	35
	Diverted	25%	45	43	88
	Total	100%	179	172	351

* 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, 70 two-way trips during the PM peak and 70 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, 210 two-way trips during the Weekday PM peak and 228 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 H** 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 2025 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 H** 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)	5	4	8
PM Peak (1700 – 1800)	13	14	27
AADT	257	257	515

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 I** and summarised in **Table 6-2**.

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

Scenario	Arm	AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		RFC	Q	RFC	Q	RFC	Q
2025 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.

The proposals outlined in planning application P/2014/0905 have been refined through the s. 278 process and are illustrated in drawing 065665-CUR-ZZ-XX-DR-R-9561-C01, contained in **Appendix J**. The existing and proposed layouts are modelled below.

6.3.8 The results of 2019 Survey and 2025 Base plus Committed Development LINSIG assessment are set out in **Appendix K** and summarised in **Table 6-3**. The models are based on 8% MOVA capacity benefit as approved by the local highway authority.

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
	PRC	6.7		34.1		7.82	
2025 Base plus Committed **	B5102 Straight Mile	94.9%	13	77.4%	7	45.7%	3
	B5373 Gresford Road	93.2%	16	78.7%	9	46.3%	4
	Llay Road	94.6%	26	78.2%	16	46.5%	9
	Rackery Lane	94.5%	17	78.4%	10	46.7%	5
	Chapel Lane	66.9%	4	33.0%	2	30.3%	2
	PRC	-5.4%		14.4%		92.6	

*Existing Layout **Physical Improvements and MOVA – proposed under Planning application P/2014/0905

6.3.9 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.

6.3.10 The proposed improvements to the junction, in association with planning application P/2014/0905, for a 2025 assessment year show a maximum DoS of 94.9% on the B5102 Straight Mile.

6.3.11 In order to mitigate against the impact of the Aldi foodstore it is proposed that the development will implement a 50 metre extension to the new left turn provision on the Straight Mile (B5102) approach to the Crown crossroads. This extension augments the approved works associated with the Home Farm residential development. Changes to the staging arrangement are also proposed to minimise lost green times. These improvement works have been accepted by the local highway authority and modelled in LINSIG. The LINSIG assessment are set out in **Appendix K** and summarised in **Table 6-4**.

Table 6-4: Crown Crossroads Proposed Mitigation – LINSIG Results

Scenario	Arm	AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
		DoS	MMQ	DoS	MMQ	DoS	MMQ
2025 Base + Committed + Development	B5102 Straight Mile	93.3%	13	87.0%	8	50.2%	3
	B5373 Gresford Road	96.4%	19	87.8%	15	54.8%	8
	Llay Road	96.2%	28	87.9%	19	55.3%	10
	Rackery Lane	96.9%	21	88.1%	14	54.8%	6
	Chapel Lane	66.9%	4	33.0%	2	27.5%	1
	PRC	-7.6		2.1		62.9	

6.3.12 These results demonstrate that the proposed development will have a minimal impact on the junctions operational performance. It is accepted that the proposed Aldi food store will reduce the PRC of the junction when compared to the Curtins Do Something scheme, however it is not considered necessary to mitigate further particularly given the robust parameters adopted in the Transport Assessment and noted by Mott MacDonald in their review of the junction modelling.

6.3.13 It should also be noted that the research submitted on MOVA in relation to the residential planning, inquiry, indicated improvement on junction throughput as a result of the introduction of MOVA in the range of 8% to 13%. The conservative 8% figure is presented in the above analysis.

Summary

6.3.14 The results of the operational capacity assessments with the proposed mitigation in place, 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.

6.3.15 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.

6.4 Carbon Footprint Analysis

- 6.4.1 Through public consultation and a review of the retail strategy for the town; it is evident that there is significant leakage of expenditure to surrounding towns associated with food shopping trips.
- 6.4.2 This shopping leakage results in an increase in food miles as customers travel out of Llay to access stores in Gwersyllt, Plas Coch Retail Park and Wrexham. Such trips are not considered to be representative of sustainable travel and sustainable land use planning. Therefore the delivery of a new discount food store in Llay will provide significant betterment to the sustainable nature of a food shop for residents.
- 6.4.3 In order to understand the benefits of reduced food mileage it is necessary to convert the mileage savings into tonnes of Carbon Dioxide (CO₂) emissions for an average car. For the purposes of this assessment (which is considered to be a robust assessment) the chosen car is an EU 2016 FORD All New C-Max, Model Year Pre 2016¼ 1.5 TDCi Stop-Start (120PS). As this a modern car it benefits from the modern in-car carbon reduction functions and is therefore considered to be better than the majority of existing cars on the public highway.
- 6.4.4 The distance travelled from the centre of Llay (latitude/ longitude reference: 53°05'37.5"N 3°00'14.6"W) to the discount food store in Gwersyllt (latitude/ longitude reference: 53°04'21.6"N 3°01'09.1"W) is 2.3 miles.
- 6.4.5 The distance travelled from the centre of Llay (latitude/ longitude reference: 53°05'37.5"N 3°00'14.6"W) to the discount food store in Plas Coch Retail Park (latitude/ longitude reference: 53°03'29.9"N 3°00'24.2"W) is 4.1 miles.
- 6.4.6 The distance travelled from the centre of Llay (latitude/ longitude reference: 53°05'57.4"N 2°59'46.5"W) to the proposed discount food store in Llay (latitude/ longitude reference: 54°33'02.9"N 1°54'34.1"W) is 0.7 miles. Therefore shoppers travelling to Gwersyllt or Plas Coch Retail Park could reduce their food mileage by 1.6 miles and 3.4 miles respectively.
- 6.4.7 Using the online carbon footprint calculator at www.calculator.carbonfootprint.com it is possible to determine CO₂ emissions if they did not have to travel to either Gwersyllt or Plas Coch Retail Park.

- 6.4.8 Based on the Parking Eye data used in the Transport Assessment it is estimated that a foodstore would experience approximately 2,639 two way trips per day. On the premise that Llay residents shop for food at the aforementioned locations, it is considered that 70% of trips to the proposed discount food store during an average day travel to Gwersyllt or Plas Coch Retail Park.
- 6.4.9 On the basis of the above parameters it can be concluded that the proposed discount food store would save an estimated 1.09 tonnes of CO₂ emissions per day or 396 tonnes of CO₂ emissions per year.
- 6.4.10 This significant reduction in CO₂ emissions demonstrates that the proposed development provides significant betterment to sustainable travel improving the air quality and helping towards achieving CO₂ emission reduction targets within the County of Wrexham.

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 1,941 sqm. The proposed parking provision for the development is 116 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. In addition four electric vehicle charge spaces of which two are designed to accessible standards.
- 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 development proposals will also include:
- 50 metre extension to the new left turn provision on the Straight Mile (5102) approach to the Crown crossroads. This extension augments the approved works associated with the Home Farm residential development;

- the provision of a 2.0 metre footway connection around the boundary of the site from Straight Mile to Gresford Road. This footway will become a public right of way and formalised footpath following construction under the s.278 agreement;
- the provision of a zebra crossing facility on Gresford Road, approximately 70 metres to the south east of the Crown Crossroads;
- bus stop provision on Gresford Road to include bus boarding kerbs and safe pedestrian connections to the store and surrounding residential areas; and
- Informal dropped kerb crossing on Gresford Road approximately 10 metres from the proposed site access.

7.1.7 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.

7.1.8 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.

7.1.9 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.

7.1.10 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.

7.1.11 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.

7.1.12 The report includes an assessment of the operational performance of the highway network, with the addition of development traffic. In order to accommodate the development proposals, it is proposed to extend by 50 metres the new left turn provision on the Straight Mile (B5102) approach to the Crown crossroads. This extension augments the approved works associated with the Home Farm residential development;

7.1.13 The junction capacity assessments undertaken indicate that the junctions concerned, will operate within acceptable limits for the future assessment years, following the development of the site, with the mitigation measures proposed.

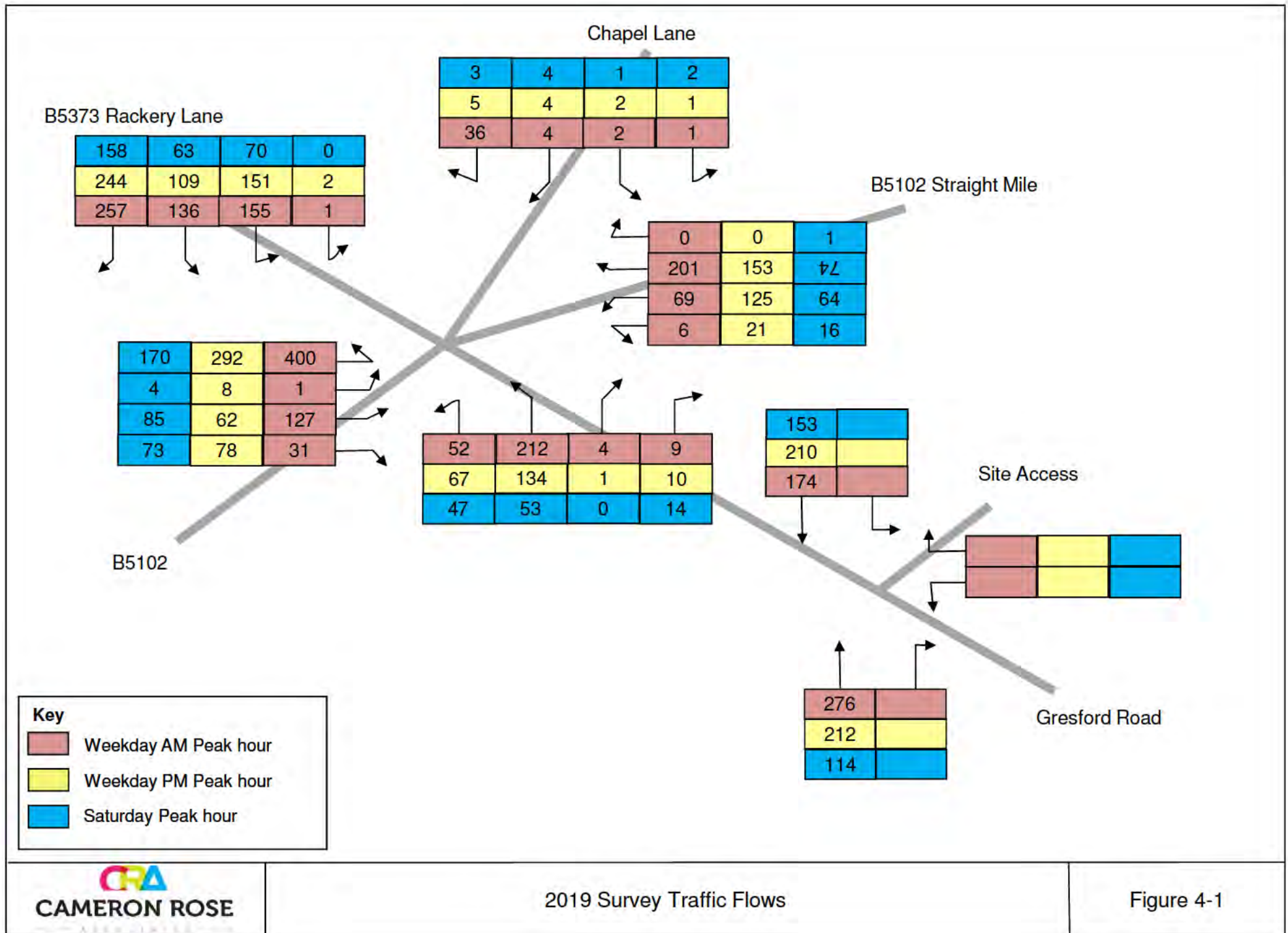
7.2 Conclusions

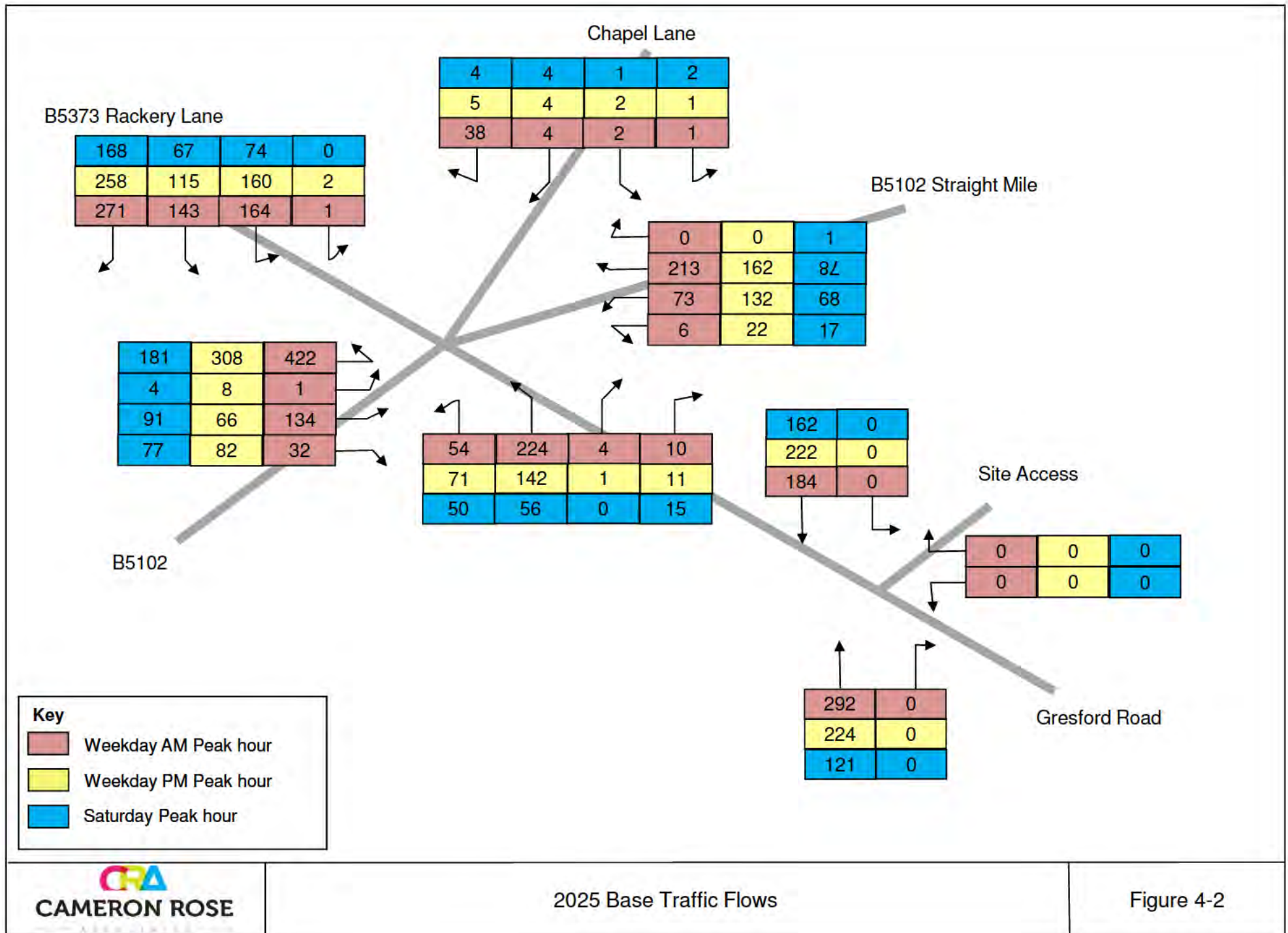
7.2.1 This report has demonstrated how the proposed development promotes accessibility by all modes of travel, in particular public transport, cycling and walking by virtue of its sustainable location and the physical infrastructure that would be put in place i.e. cycle parking at the front of the store,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

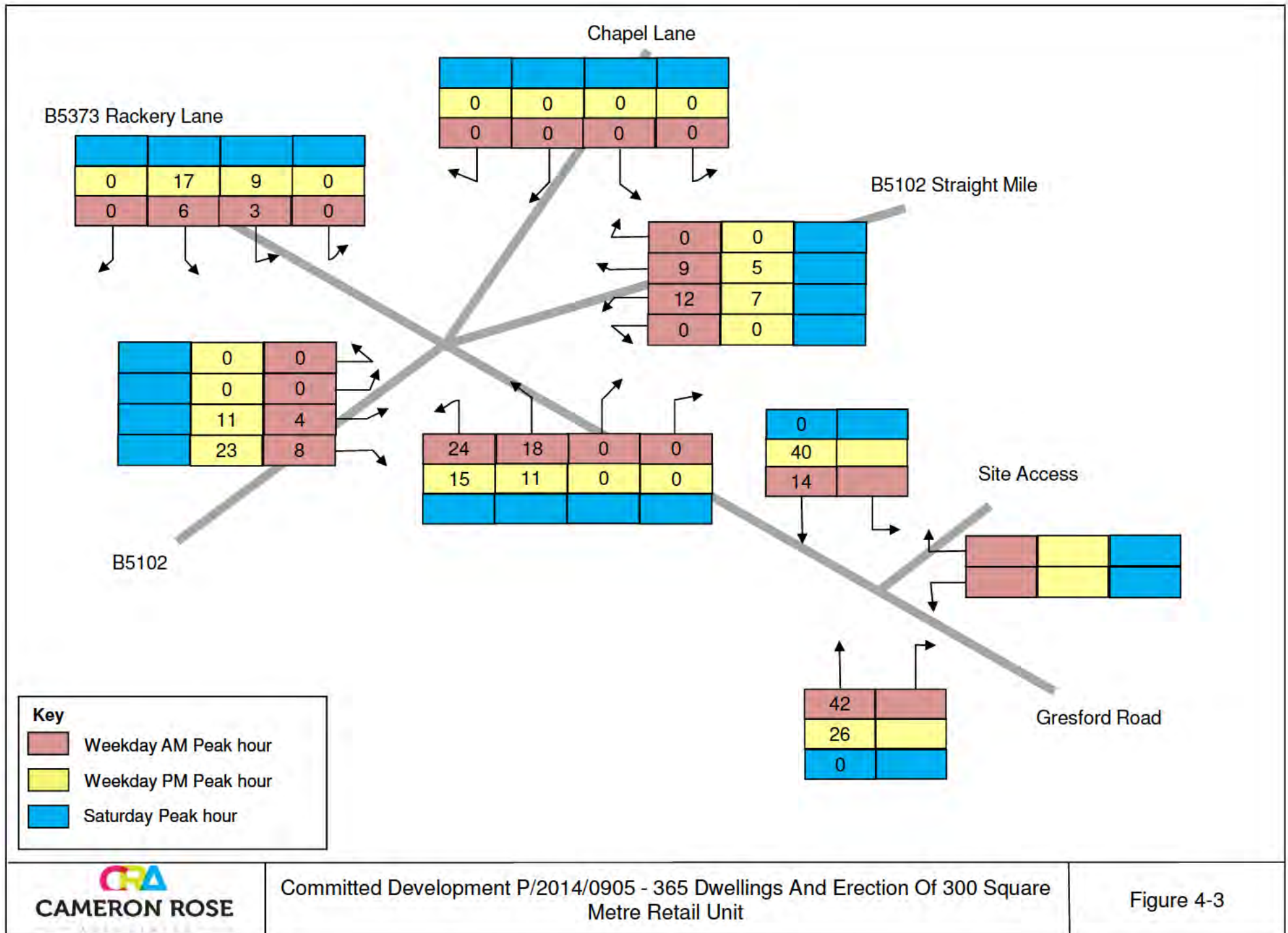
- 7.2.2 It has also been demonstrated how the development would reduce the need to travel, especially by car with regard to the element of pass-by, diverted and transferred trips – i.e. the majority of vehicular trips to the proposed development would not be new trips on the network and may well be shorter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

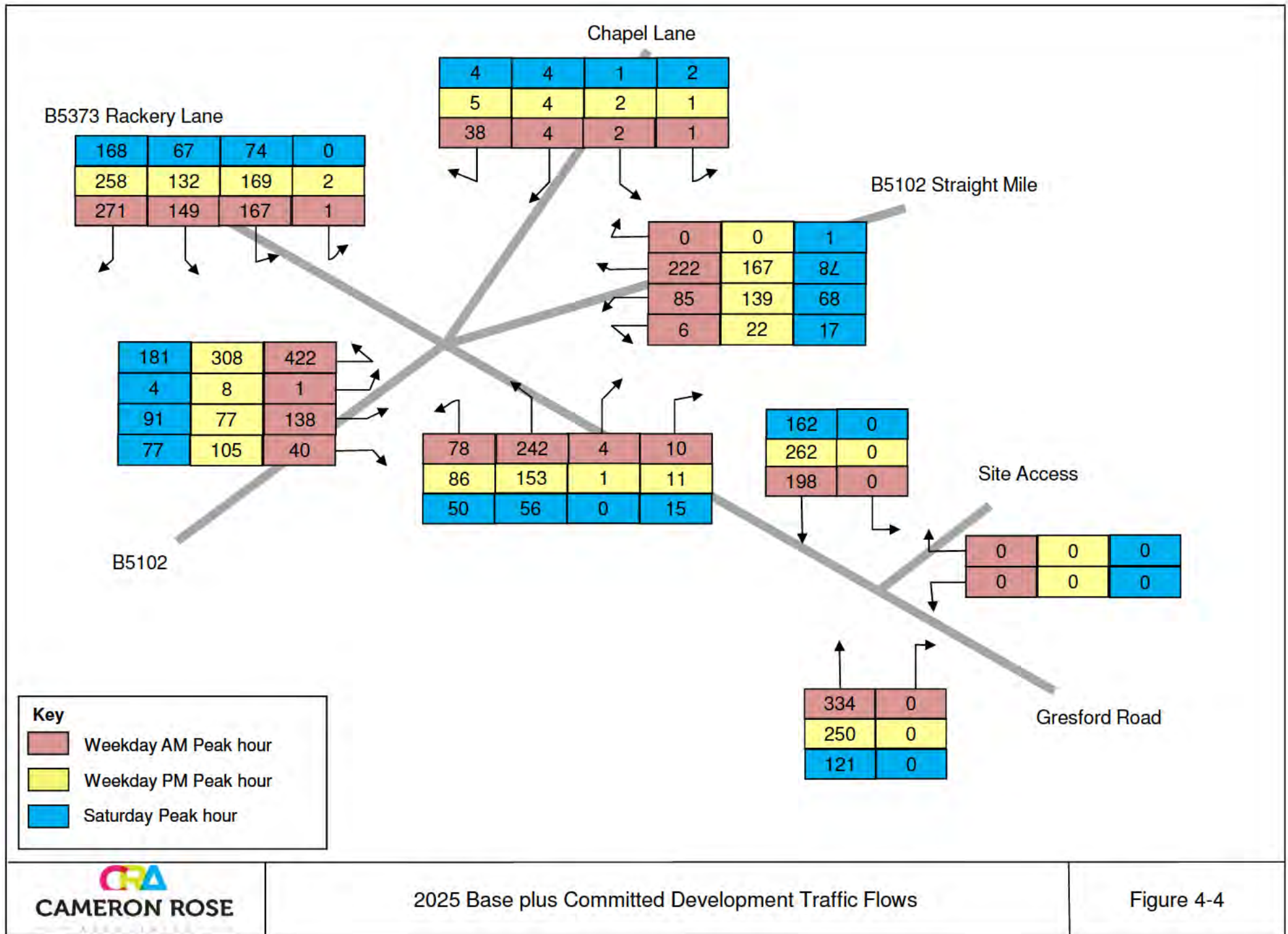


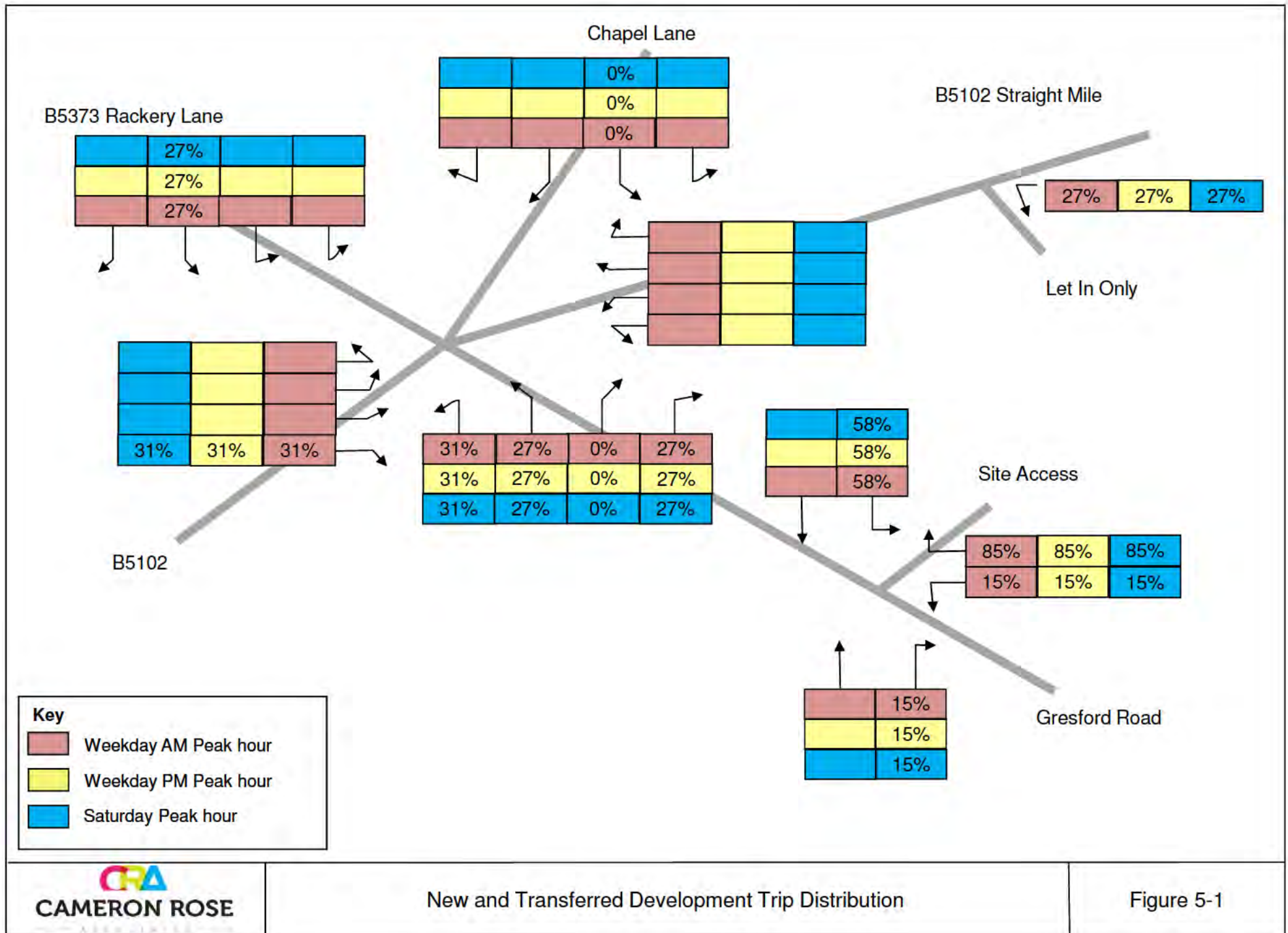
FIGURES

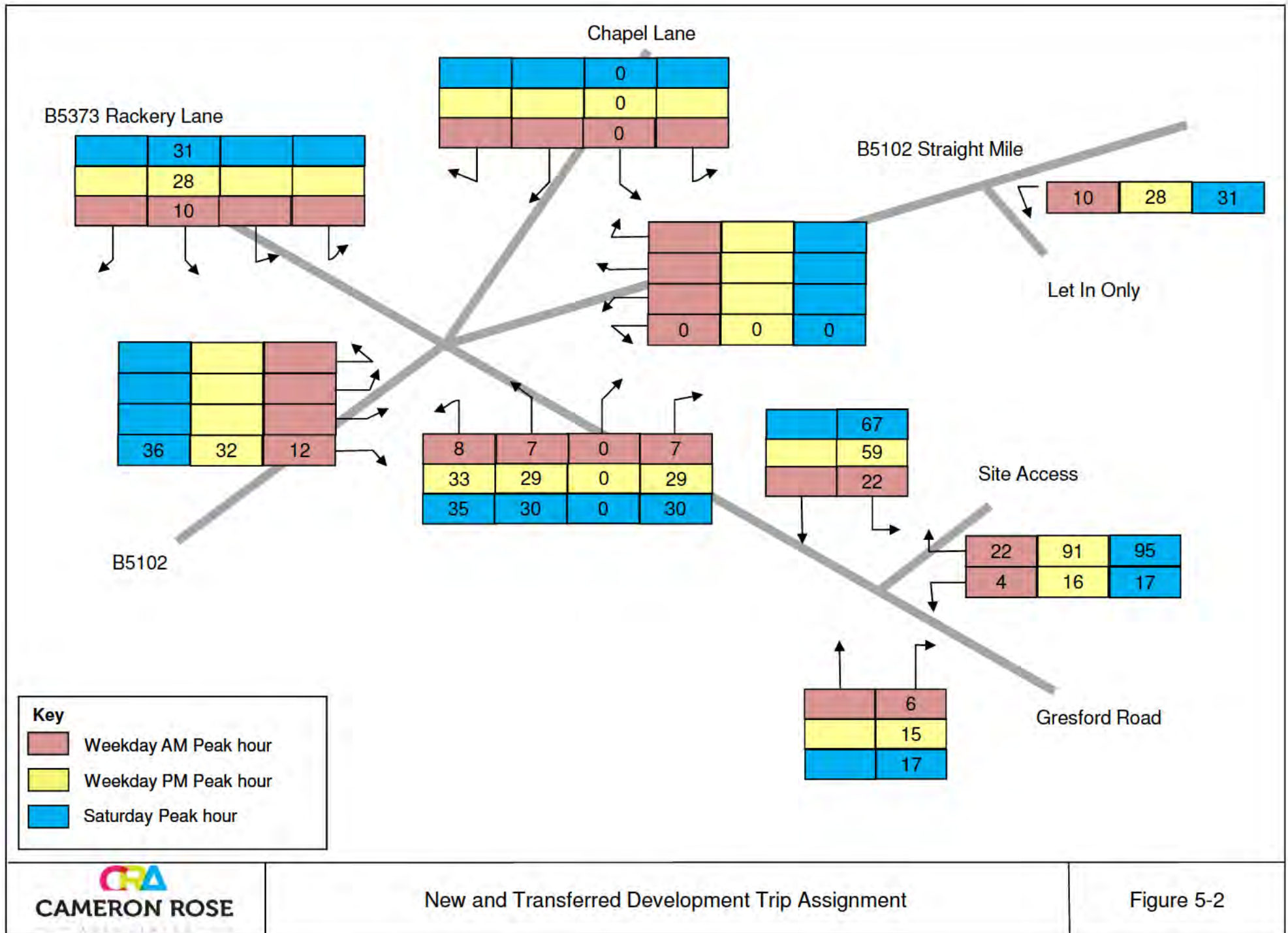


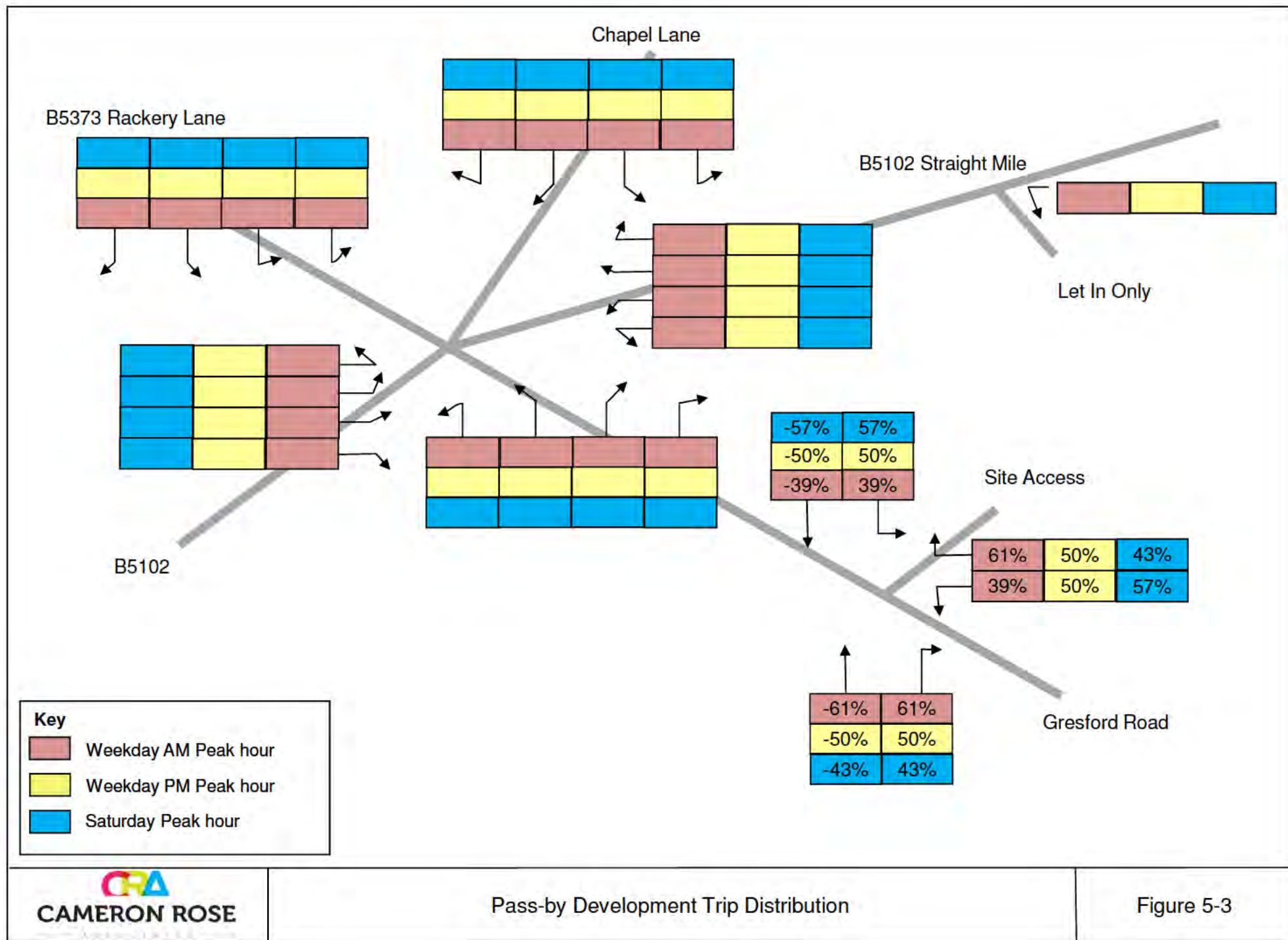


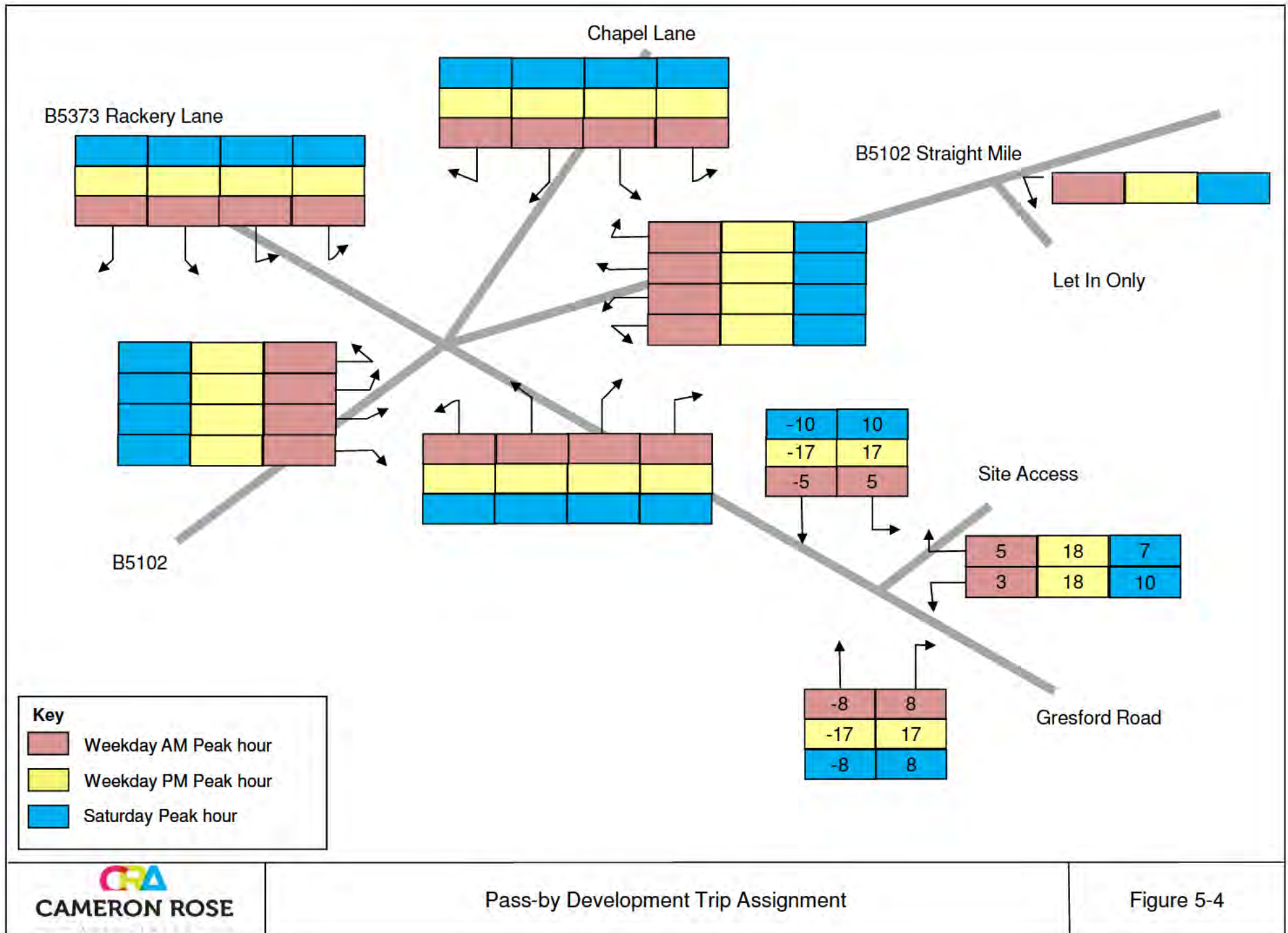


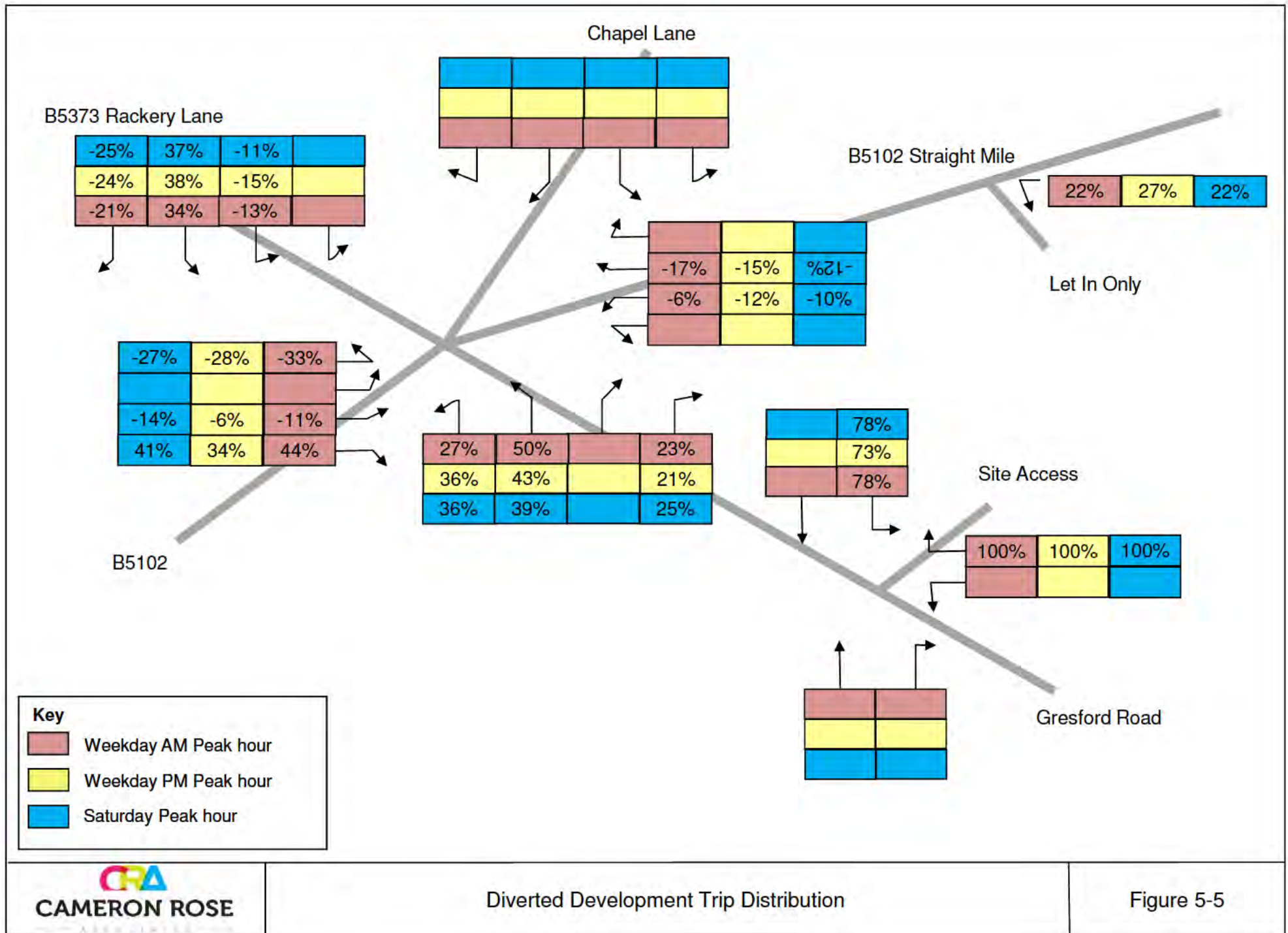


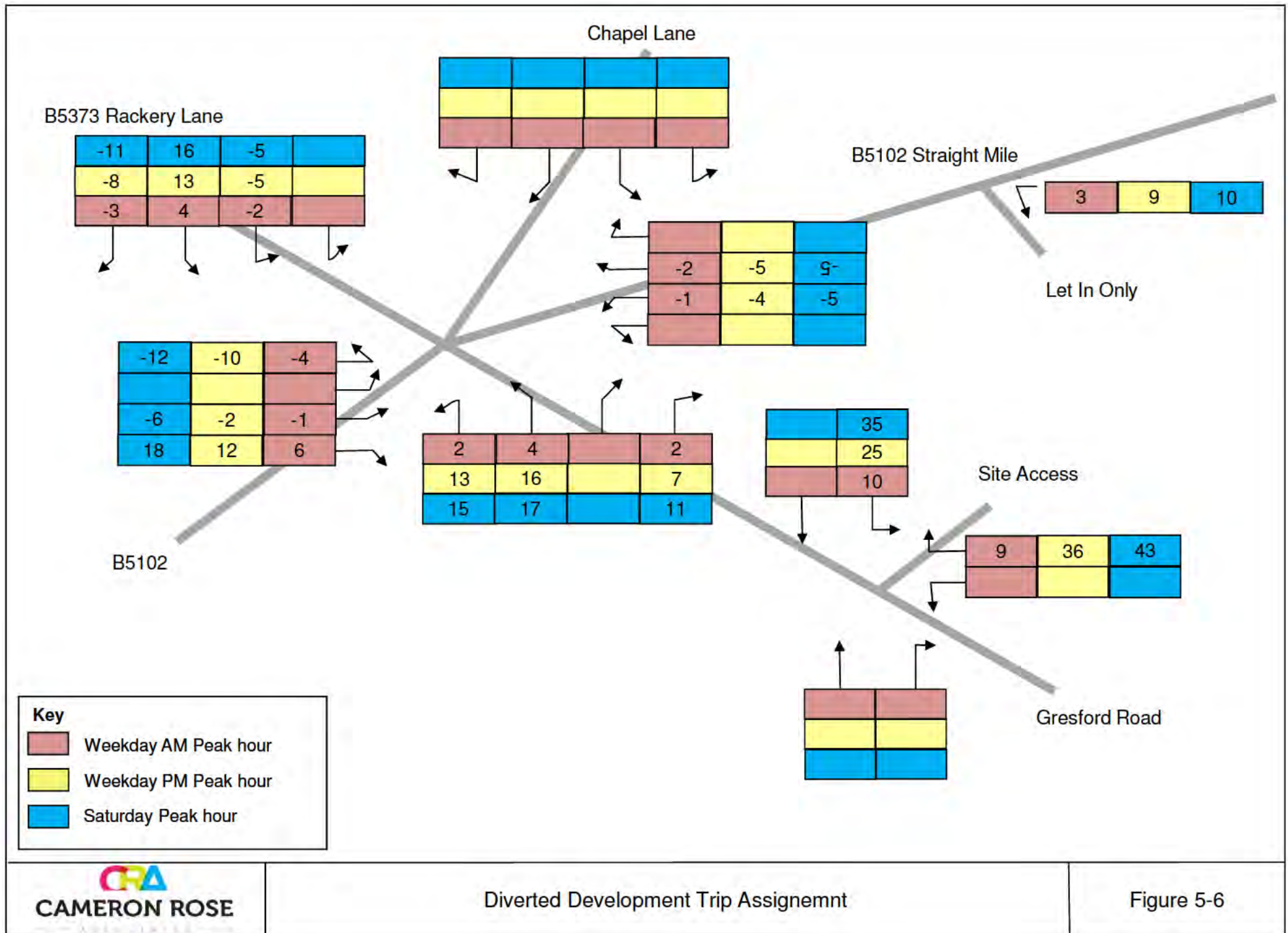


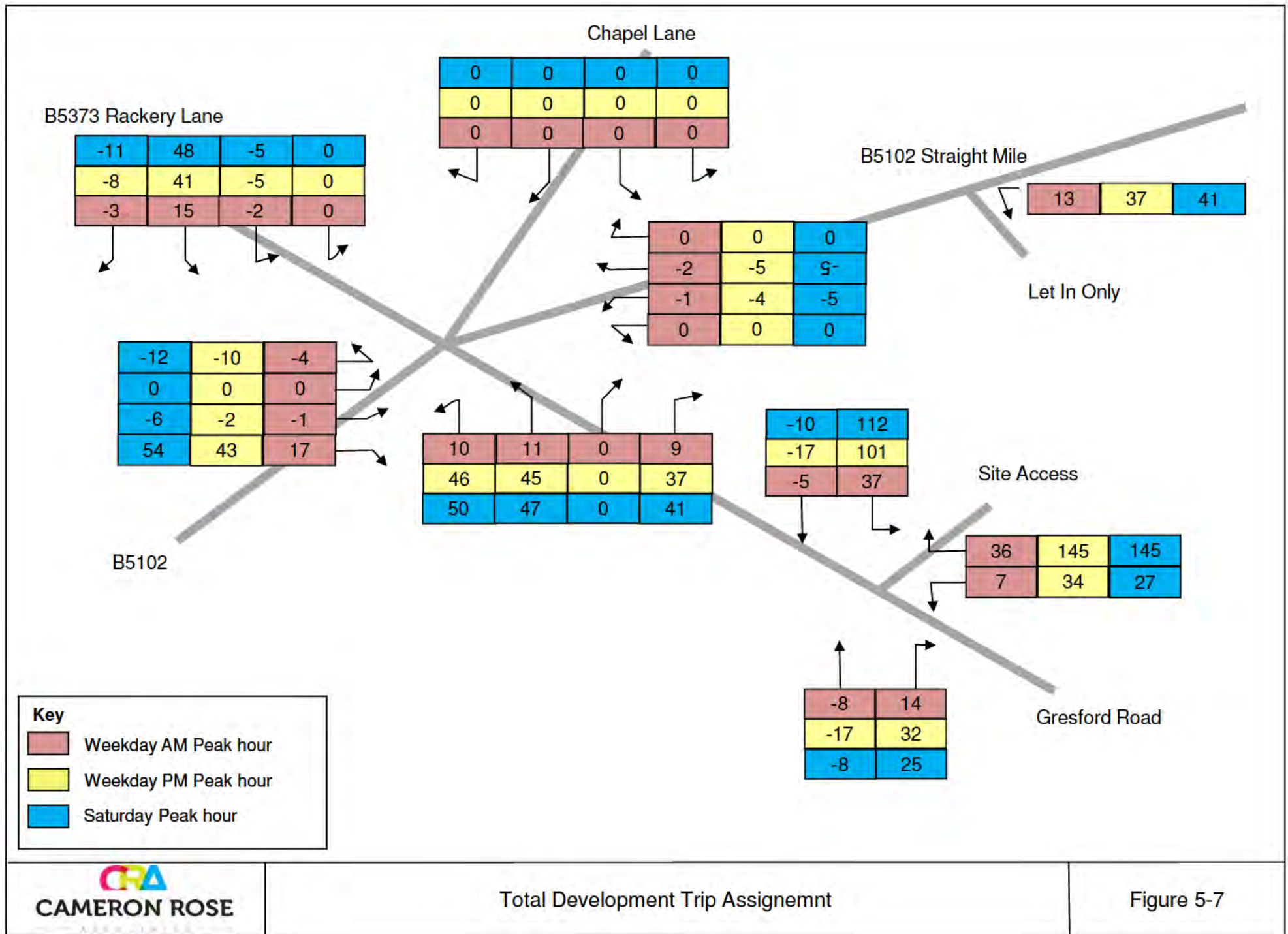


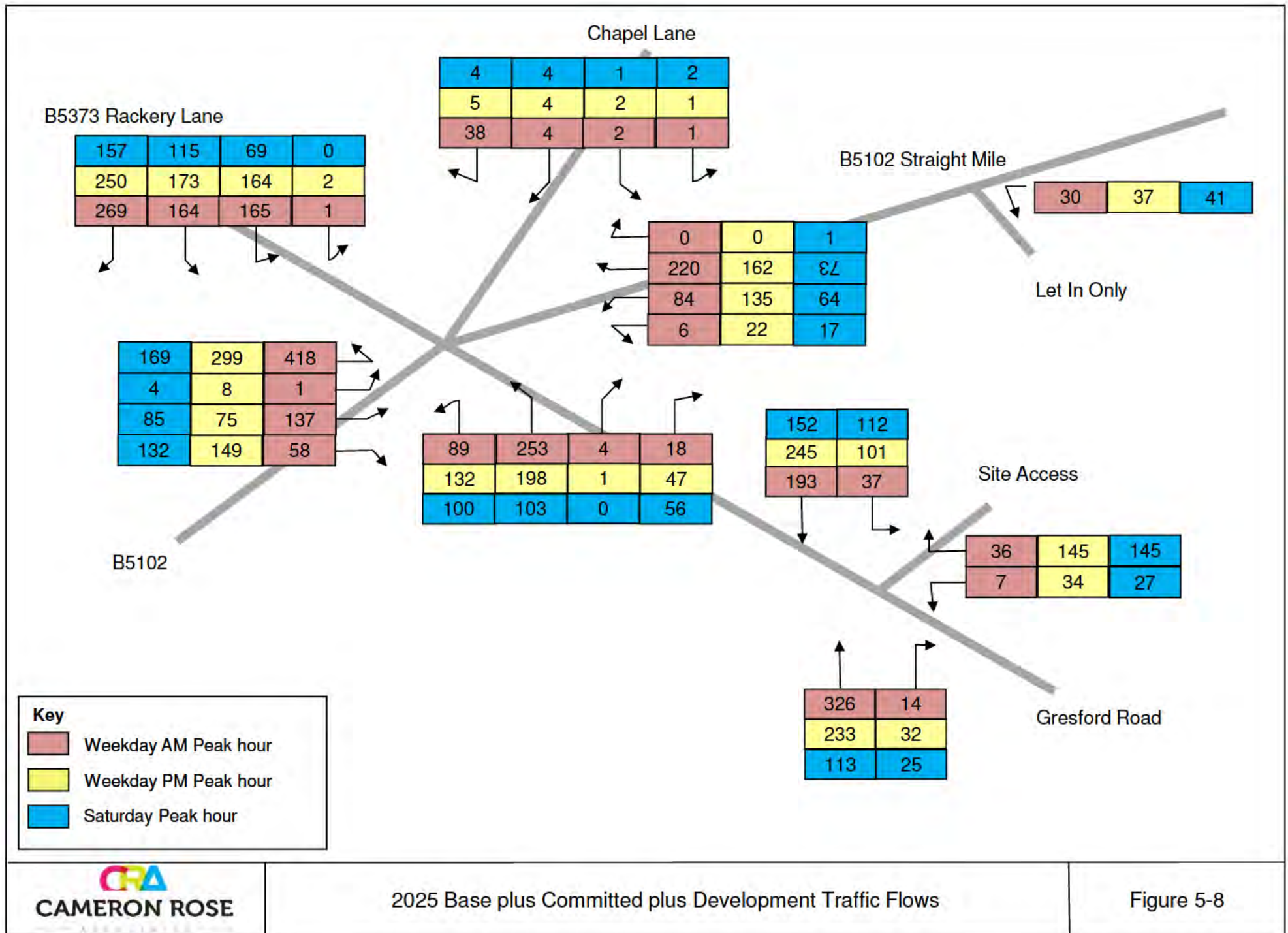














APPENDICES