TRANSPORT ASSESSMENT

The Bridgeway Centre,
Site 1 Wrexham Industrial Estate,
Wrexham, Clwyd

Client: FI Real Estate Management

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APPENDICES

1 INTRODUCTION

1.1 Purpose of Report

1.1.1 This Transport Assessment (TA) considers the highways and transportation implications associated with the redevelopment of the Bridgeway Centre, also known as Site 1, in Wrexham Industrial Estate (WIE). The redevelopment will involve the replacement of the majority of the existing industrial units on the site with more modern, fit-for-purpose industrial units along with several food and non-food retail units to serve the wider industrial estate. Several of the units will be retained following refurbishment. Tenants of the units that will be demolished will relocate to Site 4.

1.1.2 Wrexham County Borough Council (WCBC) is the Local Highway Authority (LHA) and the Local Planning Authority (LPA). Prime Transport Planning ('Prime) has produced this TA on behalf of the applicant, FI Real Estate Management ('FI Real Estate').

1.1.3 The document has been prepared in accordance with *Planning Policy Wales* and *Technical Advice Note 18: Transport* as well as a number of local policy documents. It considers the accessibility of the site and safety for all modes of travel with an emphasis on walking, cycling and public transport, while assessing the potential impact on the highway network.

1.1.4 The conclusions and recommendations contained herein have been drawn based on information available and obtained in advance of the planning submission to which this report relates.

1.1.5 Reasonable checks have been carried out on any third-party information used in the preparation of this report but, nonetheless, Prime Transport Planning accepts no liability for the accuracy or otherwise of this data.

1.1.6 Third-party rights are excluded for the use of information contained within this report.

1.2 Scope of Report

1.2.1 Prime prepared a series of Transport Statements and a Technical Note to support the development of Sites 2-5 in WIE in November 2018. These sites have now received planning permission and will be detailed later in this TA.

1.2.2 Prime met with WCBC for and initial pre-application meeting on the 4th May 2018 to discuss the above sites. At that time, Site 1 was also being considered as part of the proposals, however the development was delayed until now. An email based scoping exercise has been undertaken with WCBC, and an initial scoping note highlighting the proposed methodology was submitted to the Highway Officer at WCBC on 22nd May 2020. An email response was received from WCBC on 11th June 2020, with their consultant, Mott MacDonald (MM), providing the comments. The full scoping correspondence is provided in Appendix A.

1.2.3 It is however important to note that the scheme has evolved since the scoping response was received so some of the comments are no longer applicable, such as those relating to new accesses.

1.2.4 The remainder of this report is structured as follows:

- Section 2 describes the relevant local and national transport policy and guidance;
- Section 3 describes the existing situation in terms of the site, local highway network and traffic conditions whilst also reviewing recent accident records for the local highway network;
- Section 4 details the development proposal including the access strategy and parking arrangements;
- Section 5 details access to the site by sustainable modes of travel which includes walking, cycling and public transport and provides a summary of the Travel Plan;
- Section 6 discusses the forecasting methodology and trip generation of the site;
- Section 7 provides the traffic impact assessment which includes the results of a junction capacity assessment of the site accesses and a number of key off-site junctions; and
- Section 8 concludes the findings of the Transport Assessment.

2 TRANSPORT POLICY AND GUIDANCE

2.1 Introduction

2.1.1 It is important that any new developments conform to and complement national and local planning policy. This section details the policies that are relevant to this development.

2.2 Planning Policy Wales

2.2.1 The document *Planning Policy Wales* (PPW) sets out the land use planning policies of the Welsh Government and is supported by a series of Technical Advice Notes (TANs). The most recent version of PPW is Edition 11, published in February 2021.

2.2.2 Transport is considered in Chapter 3, Chapter 4 and Chapter 5 of PPW. The document sets out a primary objective, *'to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales'.*

2.2.3 Chapter 3 outlines the importance of strategic placemaking, with early decisions having the greatest impact on contributing towards a sustainable development. The chapter continues to state:

> *'Good design is about avoiding the creation of car-based developments. It contributes to minimising the need to travel and reliance on the car, whilst maximising opportunities for people to make sustainable and healthy travel choices for their daily journeys.'*

2.2.4 The chapter addresses place-making within rural areas, with it being acknowledged that for rural areas, *'opportunities for reducing car use and increasing walking, cycling and use of public transport are more limited than in urban areas'*.

2.2.5 Chapter 4 highlights the importance of cohesive communities, with such considerations through placemaking contributing towards a '*prosperous'*, '*resilient'* and *'healthier'* Wales. The chapter discusses transport in detail, with the need for the people to access jobs and services through *'shorter, more efficient and sustainable journeys, by walking, cycling and public transport'.*

2.2.6 Chapter 4 also addresses the following:

- Integrated planning and transport strategies;
- Sustainable transport and reduction in private car reliance;
- Active/social streets designed to be publicly orientated;
- Active travel and the encouragement of walking/cycling;
- Public transport and its availability;
- The encouragement of ultra-low emission vehicles;
- Traffic management and improved forecasting;
- The availability of car parking; and

- Transport Assessments as an important mechanism for considering traffic impact.

2.2.7 Chapter 5 discusses the economic components of placemaking and the creation of *'productive and enterprising places*'. The chapter continues to state that such enterprising places are *'designed and sited to promote healthy lifestyles'* with this being done by making them *'easy to walk and cycle to and around',* and easy to access by public transport.

2.2.8 Transport infrastructure is discussed in detail, with the importance of such infrastructure towards sustainable development stated below:

> *'The provision of sustainable transport infrastructure is essential in order to build prosperity, tackle the climate emergency, reduce airborne pollution and to improve the social, economic, environmental and cultural well-being of Wales. The planning system should facilitate the delivery, decarbonisation and improvement of transport infrastructure in a way which reduces the need to travel, particularly by private vehicles, and facilitates and increases the use of active and sustainable transport.'*

2.2.9 Accordingly, this TA has been structured to include an assessment of accessibility by sustainable modes including walking, cycling and public transport, road safety and the impacts of the development on the local highway network.

2.3 Technical Advice Note 18: Transport

2.3.1 TAN 18 (2007) outlines the need for, and the required content of TAs, for some classifications and scales of development in Wales. The document outlines the following aims to be considered when producing a TA:

- 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 mode

2.3.2 TAN 18 provides detailed guidance on visibility standards, and essentially provides for visibility to be based upon the standards in the *Design Manual for Roads and Bridges* (DMRB) for roads where actual road speeds are unknown or where the speed limit is >60kph (37mph), and the standards in Manual for Streets (MfS) where speeds are known and are <60kph (37mph).

2.3.3 In relation to accessibility, TAN 18 emphasises the utility of using '*accessibility profiles'*, which consider whether a site has the potential to minimise travel by the private car. In accordance with this, GIS software has been utilised to generate accessibility isochrones for walking and cycling trips, while the

site's accessibility by public transport has been considered in the context of timetabled services in the area.

2.3.4 TAN 18 goes on to outline the requirement for a *'Transport Implementation Strategy'* (TIS) to be produced as an output of the TP. The document summarises the requirements of the TIS as follows:

> *'[The TIS] should set objectives and targets relating to managing travel demand for the development and set out the infrastructure, demand management measures and financial contributions necessary to achieve them. The TIS should set a framework for monitoring the objectives and targets, including the future modal split of transport to development sites.'*

2.3.5 In relation to how a TIS interfaces with the production of a TA and TP, the guidance states that:

> *'TISs resulting from the TA process are intended to incorporate all the components of a travel plan and ensure these are integrated with design elements of the new development.'*

2.3.6 In the light of the above, a TIS is included within the contents of the Framework TP which has been produced to accompany this TA, and draws upon the findings and conclusions of this TA, in addition to the potential sustainable travel measures described within the TP.

2.4 North Wales Joint Local Transport Plan 2015

2.4.1 The North Wales Joint Local Transport Plan (LTP) was prepared by the North Wales Local Authorities in response to the Welsh Government requirement for LTPs to be submitted by the end of January 2015. The LTP's stated 'vision' is to '*remove barriers by delivering safe, sustainable, affordable and effective transport networks'.*

2.4.2 The LTP aims to address the following key issues for North Wales:

- The ability of the strategic road and rail corridors to provide the necessary good connectivity, for people and freight, within North Wales, to the ports and to the rest of the UK to support the economy and jobs, including tourism;
- The lack of resilience of the road and rail networks to planned and unplanned events including extreme weather;
- The need for good access to and between the three Enterprise Zones in North Wales;
- The lack of viable and affordable alternatives to the car to access key employment sites and other services; and
- The need for good road links to / from the trunk road network into the rural areas to help retain the viability of local businesses and support the Welsh language and culture.

2.4.3 This Plan therefore provides the strategic baseline for considering developments that have a transportation element within the wider area. In terms of the proposed/refurbished industrial and retail units within this application, consideration will be made of the wider integration within the highways network and access by sustainable modes.

2.5 Wrexham Unitary Development Plan (1996-2011)

2.5.1 The Unitary Development Plan (UDP) 1996 - 2011 was adopted by WCBC in February 2005. The document reflects the council's corporate vision for the County Borough's future based on:

- Aspiring city status, with Wrexham centre as its civic hub;
- Rural revitalised distinct towns and villages and attractive viable hinterland;
- Modern robust economy across all sectors;
- Improve quality of life for residents with an emphasis on supporting access to a variety of education and employment opportunities; and
- Institutions of growing stature: for example, the Council itself.

2.5.2 Part 1 of the strategic polices within this document outlines policies PS1, PS2, PS3, PS4. These policies outline the broad locations of where developments should be sought as follows:

- **Policy PS1:** New development for housing, employment, and community services will be directed to within defined settlement limits/employment areas;
- **Policy PS2:** Development must not materially detrimentally affect countryside, landscape/townscape character, open space, or the quality of the natural environment;
- **Policy PS3:** Development should use previously developed brownfield land comprising vacant, derelict or underused land in preference to the use of greenfield land, wherever possible, particularly so where greenfield land is of ecological, landscape or amenity value, or comprises agricultural land of grades 1, 2 or 3a quality; and
- **Policy PS4:** Development should maintain the existing settlement pattern and character and be integrated with the existing transport network to help reduce the overall need to travel and encourage the use of alternatives to the car.

2.5.3 In addition to these, Policy PS8 outlines the development targets for transportation:

- **Policy PS8:** The transport network will be developed by providing an integrated range of travel options to and from principal residential, commercial, employment and education centres by making the best use of the existing road and rail network, including, where necessary, the provision of facilities for both passenger and freight interchange and by the encouragement of public transport, cycling and walking.

2.5.4 It is noted that the Unitary Development Plan (1996-2011) is currently outdated, however, the Wrexham Local Development Plan 2 (2013-2028) is still undergoing consultation and is yet to be

released. As such, the Unitary Development Plan (1996-2011), as the only document available, shall be used for reference when completing this TA.

2.6 Wrexham Local Development Plan 2 (2013-2028)

2.6.1 WCBC is preparing the Local Development Plan (LDP) which will replace the current adopted Unitary Development Plan. The LDP will be a long-term land use and development strategy focused on achieving sustainable development and will:

- Guide development for housing, employment, retail and other uses;
- Set out policies that will be used to decide planning applications; and
- Safeguard areas of land requiring protection or enhancement.

2.7 Local Planning Guidance Note 16 - Parking Standards

2.7.1 This guidance note explains the parking standards the Council applies to new development. It amplifies Unitary Development Plan (UDP 1996-2011) policies and will be a material consideration in the determination of planning applications. This guidance note was revised by the Council in July 2011, subject to external consultation in September 2011 and was formally adopted for use by the Executive Board in November 2011.

2.7.2 Through a review of this document, the parking standards required for the B1 (now use class 'E'), B2 and B8 land uses proposed for the development are noted. Given that this application is for outline planning permission and the final mix of development is not known and subject to future submissions, meaning that calculations relating to parking provision are liable to change.

2.7.3 Reserved Matters applications will be expected to provide sufficient parking to comply with the relevant standards at the time of submission. These standards can be seen below within Table 2.1 The expected final mix of parking provision is further discussed within Section 4 of this report and is also included with any site plans submitted for this application.

Table 2.1 Parking Standards

Type of Development		Parking Standard	Cycle Parking Standard
B1 Business and light industry		1 car space per 30m² gross floor space	1 cycle space per 300m² gross floor space
B2 General Industry		1 car space per 50m² gross floor space	1 cycle space per 500m² gross floor space
B8 Storage and Distribution		1 car space per 100m² gross floor space	1 cycle space per 1000m² gross floor space
An area suitable for HGVs to load/unload and turn within the site will normally be required for B2 and B8 uses, particularly for sites accessed from a classified road. Any extensions to industrial or warehouse premises should not result in the loss of HGV loading/unloading/turning spaces unless an adequate alternative can be provided within the site.			
Type of Development		**Parking Standard**	**Cycle Parking Standard**
A1 Shops	Small shops of up to 300 m² gross floor space	1 car space per 15m² gross floor space	1 cycle space per 150m² gross floor space
	Food retail in excess of 300 m² floor space.	1 car space per 14m² gross floor space	1 cycle space per 140m² gross floor space
	Non Food Retail in excess of 300 m² floor space.	1 car space per 20m² gross floor space	1 cycle space per 200m² gross floor space
Retail developments should provide an adequate area for delivery vehicles to unload and to turn within the site, particularly those accessed from a classified road. Extensions to retail premises should not result in the loss of this space unless an adequate alternative can be provided within the site.			
A2 Financial & Professional Services		1 car space per 20m² gross floor space	1 cycle space per 200m² gross floor space
A3 Pubs, restaurants and cafes and hot food takeaways		1 car space per 4m² public floor space	1 cycle space per 40m² public floor space
For hot food takeaways and restaurants offering takeaway services, there will need to be short stay parking on site or a short distance of the premises. Rear services yards are unlikely to be suitable to meet the parking requirements for this type of business.			

2.8 Wrexham Connected: Our Sustainable Urban Mobility Plan 2016

2.8.1 The *Wrexham Connected* document sets a clear vision for the future of transport for the area. It brings together the Council's overall direction of transport planning.

2.8.2 The document outlines the importance of the council's *Sustainable Urban Mobility Plan* (SUMP). This is discussed in specific reference to WIE, and the Council's concern for the public's ability to connect in and around the town centre, as well as corridors outside of the town.

2.8.3 Stated within the document are the *Wrexham Connected* objectives, which are set to maximise how the Council can contribute to the national well-being goals contained within the *Future Generations Act*, being that they support a cohesive Wales and more resilient Wales. The objectives are as follows:

- **Safer Places** – working with partners to create safer environments for people to live, work and play;
- **Sustainable Places** – will embrace a 'sustainable', transport-first approach to new development;
- **Healthy Places –** reduce the impacts of air and noise pollution;

- **Affordable Places** – stimulate inward investment and regeneration that leads to job creation; and
- **Well Connected Places** – enhance connectivity to, from and within Wrexham to improve the attractiveness and quality of the area.

2.9 Summary

2.9.1 This section has outlined national and local transport policies and guidance which are applicable to the development site. The production of this TA is consistent with the requirement for TAs set out in PPW, TAN 18 and the UDP for Wrexham. How the site conforms to and complements the other policies and guidance described above is discussed in the following sections of this report, where relevant.

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3 EXISTING SITUATION

3.1 Site Description

3.1.1 The site is located on the corner of Bridge Road to the east and Coed Aben Road to the north. To the west the site is bounded by existing industrial units and open land. The site can be accessed from two points on Bridge Road, with a third access being taken from Coed Aben Road. All three accesses are simple priority controlled junctions. The frontage to Bridge Road is approximately 270m long.

3.1.2 Wrexham Industrial Estate is circa 3.5km east of Wrexham town centre, circa 4km north of Bangor-on-Dee and approximately 6km south-west of Farndon. The location of the site in the context of WIE and the local highway network is illustrated in Image 3.1.

Image 3.1: Site Location Plan

3.2 Existing Use

3.2.1 The application site is currently in use by a mixture of light industrial and manufacturing businesses along with some small retailers, a diner (Unit 26 & 27), a café (Unit 29) and a Greggs hot and cold food takeaway (Unit 28). A summary of the existing units and their associated gross floor area (GFA) is provided in Table 3.1.

Table 3.1: Summary of Existing Units

Property	Use	Gross Floor Area	
		m²	ft²
Unit 1	B1-B8	187	2,017
Unit 2	B1-B8	223	2,403
Unit 3	B1-B8	224	2,409
Unit 4	B1-B8	56	606
Unit 5	B1-B8	56	608
Unit 6	B1-B8	81	870
Unit 7	B1-B8	70	755
Unit 8	B1-B8	56	600
Unit 9	B1-B8	83	890
Unit 13	B1-B8	230	2,472
Unit 14	B1-B8	222	2,393
Unit 15 & 16	B1-B8	453	4,874
Unit 17	B1-B8	499	5,368
Unit 19	B1-B8	239	2,576
Unit 20	B1-B8	239	2,576
Unit 21	B1-B8	246	2,651
Unit 22	B1-B8	316	3,402
Unit 23	A2 (IT repair)	27	290
Unit 24	A2 (farm veterinarian)	52	565
Unit 25	A1 (vape shop)	55	597
Unit 26 & 27	A3 (diner)	143	1,540
Unit 28	A3 (Greggs takeaway)	84	902
Unit 29	A3 (café)	170	1,830
Unit 30	B1-B8	527	5,669
Total		**4,538**	**48,863**

3.2.2 The light industrial/manufacturing units total a GFA of 4,007m² while the retail units total 531m².

3.3 Local Highway Network

Bridge Road

3.3.1 Bridge Road is two-way single carriageway local distributor, running in a generally north-east to south-west alignment along the frontage of the site, with a circa 12m width. The site takes access approximately 60m south from the from the Coed Aben Road/Redwither Road priority junction to Bridge Road, with this point serving the local 'Gourmet Café' and other local shops. The second access from Bridge road is then taken approximately 150m further south from the first, with this point serving the main hub of the site and the current industrial units. The road is subject to a 40mph speed limit enforcement with two 3-arm roundabouts in proximity to the site. One roundabout exists circa 320m south of the second site access, connecting to Bridge Road South, Clywedog Road East and HMP Berwyn (which opened in 2017). The second roundabout exists to the north, circa 60m south of the first site access, providing access to Spectrum Business Park and a continuation of Bridge Road to the priority junction mentioned previously.

3.3.2 Bridge road is circa 530m in length, with an approximate 2m wide footway along its southern verge. A similar width footway exists along the northern verge, separated from the carriageway by a section of grass verge, this being approximately 3m in width. Street lighting is present.

3.3.3 A large industrial building, occupied by Hydro Aluminium Deeside Ltd, to the south of the proposed site, also takes access via Bridge Road.

3.3.4 Two pairs of bus stops exist along the length of Bridge Road. A northbound and southbound stop exists to the south of Coed Aben Road, circa 60m from the junction, known as 'Barclays Bank' bus stops. The second pair exists to the south of the proposed site, circa 50m north from the southern roundabout. These stops are known as 'Bridge Road'.

Coed Aben Road/Abenbury Way/Redwither Road

3.3.5 Coed Aben Road runs through the centre of WIE. The road is approximately 670m in length, with Bridge Road meeting at its south-eastern tip in a priority junction, and Clywedog Road North meeting at its north-western tip in a similar manner. To the east of the Bridge Road junction, Coed Aben Road becomes Redwither Road, while north of the Clywedog Road North junction the road becomes Abenbury Way.

3.3.6 The road is approximately 9m in width, with street lighting present. Footway exists along both sides of the carriageway for the length of the road, at an approximate width of 2m. Numerous industrial/business/manufacturing units take access from the road.

3.3.7 Abenbury Way is slightly narrower, with an approximate 7m carriageway and footway only existing within its southern verge, though the footway maintains its width from Coed Aben Road of circa 2m. Both Coed Aben Road and Abenbury Way have the same speed limit of 40mph with street lighting present.

3.4 Existing Traffic Conditions

3.4.1 A series of site visits to WIE have been undertaken by Prime since late 2017 with the most recent visit being on 2nd September 2021. During the site visits, traffic was observed to move freely throughout the estate with no issues noted at the majority of the key junctions. Both the Cefn Road route and the A525 towards Wrexham (via Marchwiel) were also observed and both routes appeared to be relatively lightly trafficked, with slightly more traffic on the more localised Cefn Road at the time of the site visits. From the site visits there would appear to be spare capacity for additional demand should further development, or improved attraction of existing uses be proposed. No safety concerns with the operation of the existing highway network were noted during the site visit.

3.4.2 As part of the aforementioned Transport Statements and Technical Note prepared in support of the other recent planning applications by FIREM, traffic surveys were undertaken at 11 key junctions following a trip distribution exercise based on 2011 Census Method of Travel to Work (MTW) data.

3.4.3 Classified turning counts were undertaken at a number of junctions and used in the 2018 Technical Note prepared in support of the redevelopment of a number of FIREM's other assets in WIE. The traffic surveys were undertaken by external traffic data collection specialist 360TSL Traffic Data Collection, on behalf of Prime.

3.4.4 The manual classified turning counts were undertaken on Tuesday 10th July 2018, between the hours of 07:00 and 10:00 and 16:00 and 19:00 to ensure that the commuter peaks were surveyed allowing the morning (AM) and evening (PM) peak hours to be determined. A survey of queue lengths on the various approaches to these junctions was also undertaken as part of the surveys, though no notably long queues were recorded.

3.4.5 The utilisation of the results of these surveys, in ascertaining the capacity of the site accesses and a number of junctions key to this development site is detailed in Sections 6 and 7. The raw survey data can be provided on request.

3.5 Road Safety

3.5.1 It was agreed with WCBC during scoping discussions that the accident study area should comprise Bridge Road from Clywedog Road East to Coed Aben Road/Bridge Road North junction, then Coed Aben Road west to new link road through to Clywedog Road East. Internal estate roads are also included.

3.5.2 Crashmap data has been reviewed for the study area which shows that, for the five-year period between the start of 2016 and the end of 2020, only a single accident occurred.

3.5.3 The accident took place on the western arm of the Coed Aben Road/Bridge Road North junction on 1st March 2016. The accident was classified as 'slight' and involved two cars and a single casualty.

3.5.4 Based on the above and from our site visit observations, there do not appear to be any highway safety issues that would be exacerbated by the development proposals.

3.6 Summary

3.6.1 The above shows that within the agreed study area, there has been 1 'slight' injury accident during the latest 5-year period from 2016 to 2020. Furthermore, no observations were made during the site visit that suggested highway condition or layout was unsafe.

3.6.2 From a review of the data provided, it is therefore concluded that there are no deficiencies in the existing highway network, or existing safety issues within the vicinity of the site, that would be exacerbated by the development proposals.

4 DEVELOPMENT PROPOSAL

4.1 Development Description

4.1.1 The planning application is a hybrid application with FIREM seeking a mix of outline and detailed/full planning permission for the redevelopment of The Bridgeway Centre in Wrexham Industrial Estate. The details of the plots seeking either detailed or outline planning permissions are discussed in more detail below.

4.1.2 Whilst the site is active and well-occupied by tenants predominantly engaged in light industrial use with some retail, many of the units are no longer fit-for-purpose and will be demolished to enable their replacement with more modern premises. The retail units (23-29 totalling 531m²) are to be retained and refurbished but with no increase in floor area.

4.1.3 For planning purposes, FIREM are seeking permission for use classes E (formerly B1), B2 and B8 to allow for a degree of commercial flexibility, however it is important to note that the units will be predominantly light industrial as per the existing use, and therefore B2 and B8 in nature; any E/B1 elements will simply be ancillary to the main B2 and B8 uses and be the traditional B1 'light industrial' rather than 'office'.

4.1.4 The proposed layout can be seen in the Proposed Site Plan produced by MCAU which highlights the areas seeking outline and full planning permissions. A summary of the proposed units and associated floor areas is shown in Table 4.1.

Table 4.1: Floor Area Summary

Block	Planning Permission	Units	Use	Ground Floor Area (m²)
Block A	Outline	1	Retail	181
Block B	Detailed	5	Retail	674
Block C	Detailed	13	E, B2, B8	1525
Black D	Detailed	7	E, B2, B8	694
Block E	Detailed	13	E, B2, B8	1192
Block F	Outline	7	E, B2, B8	3042
Block G	Outline	4	E, B2, B8	540
Block H	Outline	2	E, B2, B8	808
Block I	Outline	5	E, B2, B8	1726
Block J	Outline	1	E, B2, B8	780
			Total	**11,162**

4.1.5 The total unit floor area for the site is 11,162m², however 674m² (Block B) will be retained and refurbished. The existing total unit floor area of the site, minus the 674m² to be retained, is 3,864m². The development proposals therefore equate to an increase of 6,624m², with 6,443m² of this being

B1-B8 (but predominantly B2 and B8 as explained above), with 181m² (Block A) being a proposed as A3 (café and hot food takeaway).

4.2 Access Arrangement

4.2.1 The site has two existing access points from Bridge Road, hereon referred to as the central and southern accesses, with a third, referred to as the northern access, adjoining to Coed Aben Road. These three accesses will be retained to serve the development however the site will be split into two main parcels, with the more northern parcel afforded access via Coed Aben Road and the central Bridge Road access, with the southern parcel afforded access via the southern Bridge Road access point. The two main parcels will no longer have an internal vehicular access between them. The site plan and access points are shown on Drawing P20030-001 in Appendix B.

Blocks A-E

4.2.2 The existing central access to the north of the Bridge Road/Spectrum Business Park roundabout and the existing access off Coed Aben Road will serve Blocks A, B, C, D and E. The majority of the internal layout for this section will form part of the detailed planning application, other than Block A which will be outline.

4.2.3 Whilst both of these access points currently serve a number of units, there is likely be in increase in larger vehicles such as transit vans and service vehicles which will require access to this part of the site. It is therefore proposed that the northern Bridge Road access will be modified to comprise a circa 7.0m wide access with 10m radii to assist with these vehicle movements, while the existing access dimensions off Coed Aben Road will be retained. The footways and existing tapers at Coed Aben Road afford the existing site access with a good level of visibility, as does the existing footway and verges at the Bridge Road access. Any vegetation will be cut back to ensure adequate visibility can be maintained as per the existing arrangements.

4.2.4 The two northern parcel accesses will be connected internally, so it will be down to the visitors and employees to choose what is the most appropriate access for them, however it is anticipated that HGV access from Coed Aben Road will be restricted. Welcome signage will also likely have a bearing on this and will indicate the most appropriate access for employees/ visitors to use. The internal connection will provide direct access to Block A located towards the north of the site, as well as a loop style arrangement to the south which will provide access to the rear of Block B, as well as Blocks C, D and E. The internal roads will measure at least 6.0m wide between parking spaces and footpaths measuring circa 1.8m - 2.0m wide will traverse each building throughout.

4.2.5 Blocks C-E will all have loading bays capable of accommodating Transit size vans and Block A indicatively will have a service bay located at its internal egress which can accommodate a refuse vehicle.

4.2.6 To demonstrate that the access points for the northern parcel will be safe and suitable to serve the site, a swept path analysis using the industry approved AutoTrack software package has been undertaken. Drawing P20030-002 in Appendix B shows a refuse vehicle, the largest vehicle expected to regularly access the part of the site, entering and leaving via the northern Bridge Road access as well as the vehicle reversing into the service bay located at the drive-through egress before pulling out in again forward gear. Drawing P20030-003 also in Appendix B shows the refuse vehicle traveling through this part of the site.

Blocks F-J

4.2.7 The existing access to the south of the Bridge Road/Spectrum Business Park roundabout will serve Blocks F, G, H, I, and J, as well as the existing units to the rear of the site, with the two existing internal accesses to these units maintained. The internal layout for this section of the site will be outline with all matters reserved except for the main vehicular access.

4.2.8 The existing access off Bridge Road will be upgraded to consist of a circa 7.3m wide access with 15m radii, with these geometric parameters being suitable for the largest vehicles expected to access the site, specifically 16.5m long HGVs. Whilst the access can clearly already accommodate HGVs, larger radii will assist with the intensification of use on the site. The footways and wide grass verge along this section of Bridge Road afford the existing site access with a good level of visibility

4.2.9 The internal access road for Blocks F – J will travel through 2 x 90° bends, providing access to parking and loading bays associated with each unit, as well as a dedicated service yard and turning area associated with Block J. The access road will be 7.3m wide with localised widening on the bends to enable cars and HGVs to pass. Blocks C-I will all have loading bays capable of accommodating Transit size vans while Block J will be capable of accommodating a 16.5m long articulated lorry in the service yard with an adequate turning area.

4.2.10 To demonstrate that such an access will be safe and suitable to serve the site for larger vehicles, a swept path analysis has been undertaken for a 16.5m articulated HGV, the largest vehicle expected to access the site. The swept path analysis has been illustrated in Drawing P20030-004 in Appendix B. Drawing P20030-005 also in Appendix B demonstrates that the vehicle can safely travel through the site whilst still enabling a car to pass, turning within the turning area associated with Block J and egressing the site in forward gear.

4.3 Parking Provision

4.3.1 The level of parking proposed has been carefully considered by the applicant using their detailed knowledge and experience as one of the largest industrial and commercial property, asset and facilities management companies in the UK. Providing a sufficient level of parking is important to them and their future tenants.

4.3.2 As stated above, whilst planning permission for the employment elements is being sought for open E/B1-B8 use; any E/B1 will be 'light industrial' and ancillary to the main B2 and B8 use rather than dedicated B1 'office' use.

4.3.3 A summary of the proposed parking provision is as follows:

- Total car parking spaces = 246;
- Total standard car parking spaces = 220;
- Total accessible/disabled parking spaces = 26;
- Total electric vehicle (EV) charging spaces = 6; and
- 2 x cycle stores 40 bicycles in total).

4.3.4 It is not envisaged at this stage that parking will be allocated to particular units, but the site layout provides 52 car spaces for the retail element (northernmost aisles) and whilst outline, it is envisaged that a couple of cycle spaces will be provided at Block A with the remainder of the cycle spaces located in the vicinity of Block B. We believe these number to be sufficient for the retail element based on the calculated provided in Table 4.2 below, which is the total requirement based on WCBC's parking standards.

Table 4.2: Retail Use Parking Calculation

Block/Unit	GFA (m^2)	Public FA (m^2)	Land Use	Space Requirement	
				Car	Cycle
Block A	181	54.3	A3 (café/hot food takeaway)	14	1
B: Unit 23	35	-	A2 (IT repair)	2	0
B: Unit 24	61	-	A2 (farm veterinarian)	3	0
B: Unit 25	48	-	A1 (vape shop)	3	0
B: Unit 26 & 27	166	49.8	A3 (diner)	12	1
B: Unit 28	90	18.0	A3 (Greggs takeaway)	5	0
B: Unit 29	273	81.9	A3 (café)	20	2
Total				**59**	**6**

4.3.5 The assumptions have been made that 30% of the floor area of the A3 units will be publicly accessible with the exception of the Greggs takeaway where the figure will be 20%. It is important to note that there may be some cross-visitation between the retail units, plus the duration of stay for many of the A3 unit customers will be short as they will involve takeaway dining and the peak times of some of the units will differ to that of their neighbours. We therefore believe that the shortfall of just 7 spaces is reasonable.

4.3.6 It is also worth noting that there will be an overprovision of 30 spaces for Blocks C, D and E combined (discussed in further detail below), meaning any additional parking associated with Blocks A and B should be able to find a space within this section of the site.

4.3.7 FIREM envisage their tenants engaging in around 60% B2 use and 40% B8 for the light industrial uses on the site, which would equate to 166 spaces required for Blocks C-J in accordance with WCBC's parking standards for B2 (1 space per 50m²) and B8 (1 space per 100m²) use. As mentioned previously, it is not envisaged at this stage that parking will be allocated to particular units, but the site layout provides 85 spaces for Units C, D and E, and 109 spaces for Units F, G, H, I and J, making an overall total of 194 for the industrial units on site, which is clearly sufficient for the proposed quantum of B2/B8 development as well as offering a degree of flexibility with the end use.

4.3.8 A summary of the required parking for the retail units and industrial units split between the detailed and outline boundaries are summarised in Table 4.3 below, with the required parking standards based on WCBC's parking standards and Table 4.2 above.

Table 4.3: Comparison of Required Spaces and Proposed Spaces

Area	Blocks	Spaces Req	Spaces Shown	Difference
Retail	A-B	59	52	-7
Detailed boundary Employment	C-E	55	85	30
Outline Boundary -Employment	F-J	111	109	-2
Total	**All**	**225**	**246**	**21**

4.3.9 As table 4.3 shows, there will be an overprovision of 21 spaces in total, therefore there will clearly be sufficient parking for all propose uses on site.

4.3.10 28 cycle parking spaces will be provided for this B2/B8 mix, but the extra provision proposed will help to encourage a greater number of staff to travel by bicycle.

4.4 Summary

4.4.1 The development is proposed to be split into two main parcels, with the more northern parcel utilising the existing accesses off Coed Aben Road and Bridge Road (northern access), and the southern parcel utilising the existing access off Bridge Road (southern access).

4.4.2 All existing accesses will be upgraded, and it has been demonstrated that the site is able to accommodate all likely vehicle types which will regularly access the development.

4.4.3 The suggested car and cycle parking provision to be delivered as part of the scheme has been shown to slightly exceed WCB's parking requirements and is considered appropriate for the size and layout of the proposed development.

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5 ACCESS BY SUSTAINABLE MODES

5.1 Introduction

5.1.1 National and local transport planning policy centres on the importance of sustainable development, meaning that new developments should be located in areas where there is access to sustainable modes of travel, or where sustainable modes of travel can be introduced. The *National Design Guide* (2021) defines sustainable transport modes as:

> *'Any efficient, safe and accessible means of transport with overall low impact on the environment, including walking and cycling, low and ultra low emission vehicles, car sharing and public transport.'*

5.1.2 Walking, cycling and public transport are commonly regarded to be the most sustainable modes of transportation. This section of the report will describe how the site can be accessed by these modes.

5.2 Access by Foot

5.2.1 As described in **Section 3** above, the site takes access approximately 60m south from the from the Coed Aben Road/Redwither Road priority junction to Bridge Road, with this point serving the local 'Gourmet Café' and other local shops. The second access from Bridge road is then taken approximately 150m further south from the first, with this point serving the main hub of the site and the current industrial units. A third access is taken from Coed Aben Road, allowing an alternative access to the main site, as well as the local shops to the north east portion of the site. Footway provision and street lighting exist along the site frontage of Bridge Road and Coed Aben Road, with some footway extending within the site, though this ceases circa 35m from the main access point along Bridge Road.

5.2.2 Research has indicated that acceptable walking distances depend on several factors, including the quality of the street environment, the type of amenity offered, the surrounding area, and other local facilities. The Chartered Institution of Highways and Transportation (CIHT) document entitled *Providing for Journeys on Foot* (2000) suggests walking distances which are relevant to this application. These distances are shown in **Table 5.1**.

Table 5.1: Suggested Acceptable Walking Distances

Criteria	Commuting (m)	Local Services (m)
Desirable	500	400
Acceptable	1000	800
Preferred Maximum	2000	1200

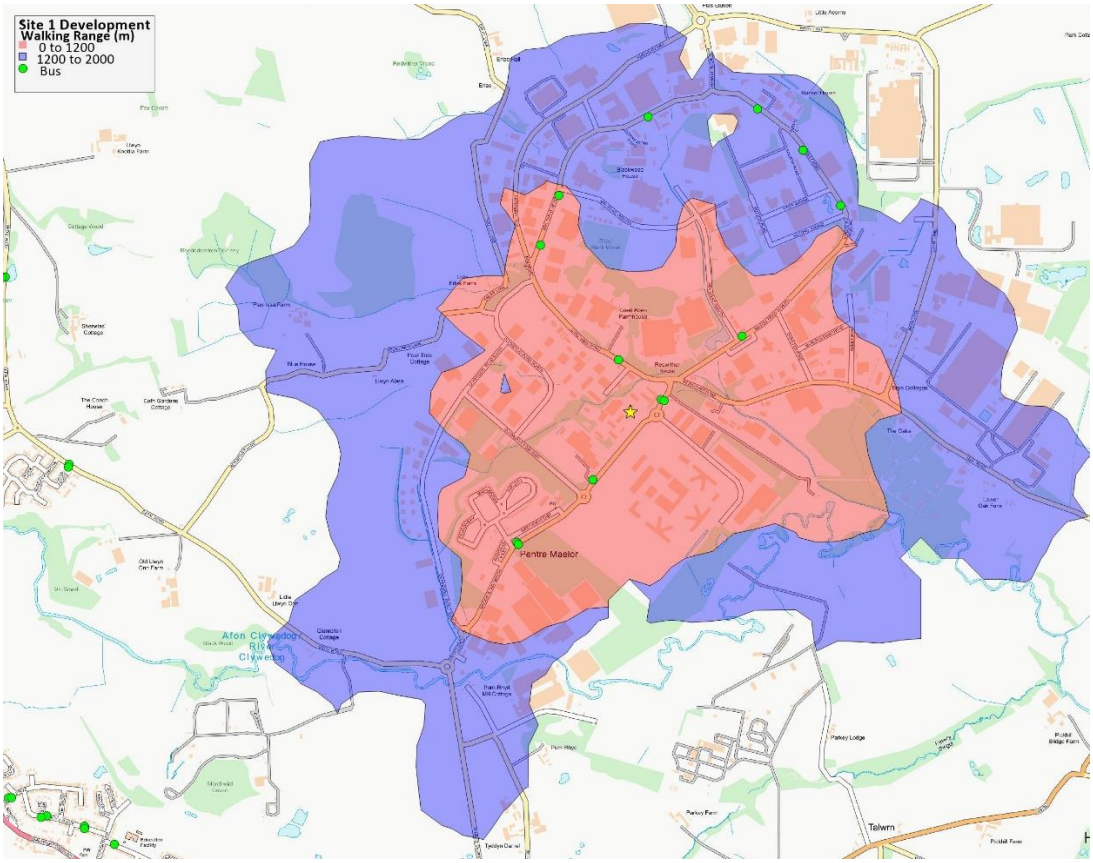
Source: CIHT Document 'Providing for Journeys on Foot' (2000)

5.2.3 Whilst **Table 5.1** provides useful guidance on walking distances, Manual for Streets provides a context for interpreting them. Manual for Streets states that:

> *'The propensity to walk is influenced not only by distance, but also by the quality of the walking experience. A 20-minute walk alongside a busy highway can seem endless, yet in a rich and stimulating street… it can pass without noticing.'*

5.2.4 The accessibility for pedestrians to and from the site, in relation to WIE, has been considered in the above context. In order to highlight the site's accessibility on foot, an indicative walking isochrone has been produced using the Geographic Information System (GIS) software Visography TRACC. Figure 5.1 represents the site's walking catchment with the CIHT's 'Preferred Maximum' distances of 1200m and 2000m for local service and commuting trips respectively illustrated**.**

Figure 5.1: Walking Isochrone – 1200m and 2000m ranges



5.2.5 Seen within Figure 5.1, the site is accessible by the vast majority of WIE, with only a handful of units falling outside of the 2000m walking range, this being the preferred CIHT maximum distance.

5.2.6 The proposed and refurbished retail units on the site are particularly important in serving the employment elements, not only of the site, but of the wider estate. Having such local amenities reduces the trip numbers and distances for ancillary retail use, such as lunchtime meals, tea/coffee breaks and convenience shopping, leading to higher levels of trip containment within the site, which

is more sustainable than staff and visitors having to travel further distances, particularly by car, for such trip types.

5.2.7 The local bus stops are highlighted within Figure 5.1, with the nearest pairs of stops located on Bridge Road adjacent to the northern site access and with additional stops to the south and on Coed Aben Road, all of which are a 400m walk of the site which is the CIHT's recommend distance as per its document *Planning for Public Transport in Development*. The services provided by these bus stops are further detailed in **Section 5.3** below.

5.2.8 All footways, as seen within **Section 3**, are of reasonable width and quality. Pedestrian dropped kerbs exist at the majority of junctions to aid in pedestrian movements.

5.2.9 Given the evidence presented above, walking can be considered a realistic method of travel to/from the site to access the surrounding area of WIE and vice versa.

5.3 Access by Cycle

5.3.1 It is widely recognised that cycling can offer an attractive alternative to short car trips, particularly those under 5km, but also as part of longer journeys by public transport.

5.3.2 The CIHT document Cycle Friendly Infrastructure (2004) states in paragraph 2.3 that:

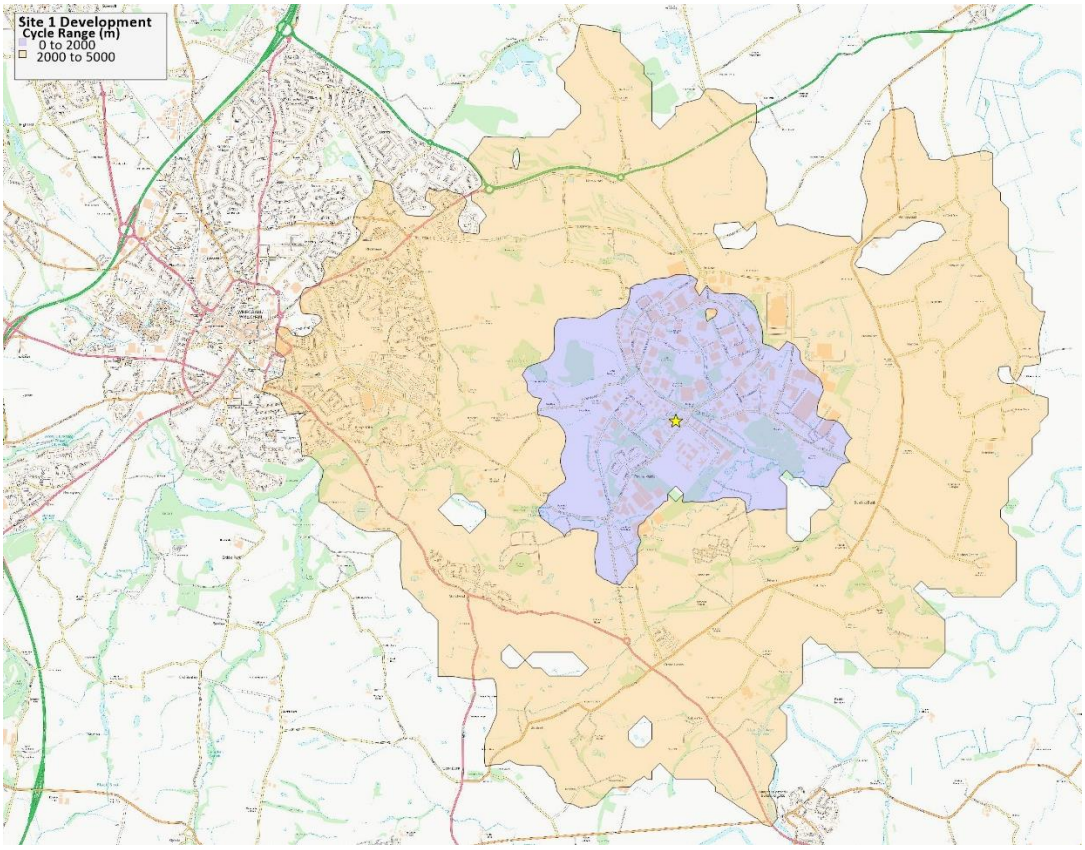
> *'Three quarters of journeys by all modes of travel are less than five miles (8km) and half under two miles (3.2km) (DoT 1993, table 2a). These are distances that can be cycled comfortably by a reasonably fit person.'*

5.3.3 *Local Transport Note 1/20 Cycle Infrastructure Design* states similar, that *'Two out of every three personal trips are less than five miles [8km] in length – an achievable distance to cycle for most people'*.

5.3.4 It is noted that although no physical cycling infrastructure exists around WIE, the roads are wide, with the majority being a minimum 8m in width.

5.3.5 A cycling isochrone showing the site's catchment has also been produced using TRACC and is shown as **Figure 5.2**. The figure illustrates 2000m and 5000m catchment ranges, which equate to 10-minute and 25-minute journey times respectively which are based on the somewhat conservative cycle speed of 12kph. Commuting cyclists are in fact more typically considered to travel at speeds between 15-20kph so a greater catchment may be more realistic.

Figure 5.2: Cycling Isochrone – 2000m and 5000m ranges



5.3.6 It is clear that the whole of WIE, eastern parts of Wrexham, Marchwiel and smaller residential areas such as Nant Clwyd Park are within the 5000m catchment. Whilst parts of Wrexham are outside of the 5000m distance, the site may still be within a reasonable cycling distances for many staff who live there given the CIHT and DfT advice.

5.3.7 It is considered that commuting to the site via cycling is a viable option for future employees. Appropriate levels of cycle parking will be provided in line with local standards.

5.4 Access by Public Transport

5.4.1 The nearest bus stops are known as the 'Barclays Bank' stops and provide services both northbound and southbound towards Wrexham and around the industrial estate. They are located on Bridge Road within the vicinity of Barclays Bank and circa 200m north from the centre of the site. It is acknowledged that these are within of the recommended CIHT distance, with the route between the stops and the site conducive to walking.

5.4.2 The southbound stop provides a shelter, seating and timetable information, with the northbound stop being informal with no infrastructure provided. Dropped kerbs along the footways to the stops help to facilitate pedestrian movements.

5.4.3 A summary of the bus service available from these stops is provided in Table 5.2 with a copy of the timetable referenced at the time of writing provided in Appendix C.

Table 5.2: Summary of Bus Services from 'Barclays Bank' stop

Bus Service	Route	Weekday Period	Weekend Saturday
41a	Redwither Tower - Wrexham	***06:08 – 18:15*** Approx. 1 service/hr	***06:08 – 18:15*** Approx. 1 service/hr
	Wrexham – Redwither Tower	***05:46 – 17:57*** *Approx. 1 service/hr*	***05:46 – 17:42*** *Approx. 1 service/hr*

5.4.4 The 41a bus route shown in Table 5.2 above provides services to and from Wrexham with a frequent service of approximately one every hour on both weekdays and Saturdays and would be a viable option for commuters and visitors. Wrexham town centre can be reached in circa 20 minutes from the 'Barclays Bank' stop, with a similar journey time from the town to Wrexham Industrial Estate.

5.4.5 In light of existing service times and frequencies, it is considered that existing bus services provide a realistic travel option for staff at the proposed development to travel to work during typical weekday working hours and also on a Saturday if it's a requirement for the continual operation.

5.4.6 In respect of rail travel, Wrexham General train station can be reached via the abovementioned services with a short, circa 7-minute, walk from Wrexham bus station. The train station provides access to a wider range of locations, with Cardiff Central, Holyhead, Bidston, Birmingham International, Shrewsbury, Chester and Manchester all having services from this station. The station provides 20 bicycle storage spaces with 68 car parking spaces also provided[1].

5.4.7 The North Wales Metro project intends to enhance rail service frequencies across North Wales, with significant improvements to Wrexham's stations being part of the plans, which should further encourage travel by rail in the area.

5.4.8 In summary, both bus and rail services, combined with walking/cycling as part of a multimodal commute are likely to provide a realistic travel options for commuters and visitors to the site at peak times and throughout the day.

5.5 Travel Plan

5.5.1 A Travel Plan has been prepared alongside this TA which outlines the applicant's commitment to encouraging sustainable travel. Various potential measures to help achieve this are suggested in the Travel Plan with perhaps the most important one being the provision of Staff Travel Information Packs containing details of the sustainable travel options available to future employees. These packs will

[1] https://www.nationalrail.co.uk/stations/WRX/details.html accessed 10/09/21

contain walking, cycling and public transport maps detailing the location of key supporting amenities and neighbouring residential areas as well as the travel time to/from them.

5.6 Summary

5.6.1 This section of the report has demonstrated that the site is in a reasonably sustainable location where access to public transport is available and where local amenities fall within reasonable walking and cycling distances. The vast majority of WIE falls within a reasonable walking distance, indicating that the proposed amenities for this site will be accessible by the majority of workers on the estate rather than having to travel further afield by car for hot/cold food and convenience shopping.

5.6.2 The site is accessible via bicycle from the wider WIE and surrounding residential areas including Wrexham and Marchwiel.

5.6.3 The local bus service provide connections both locally around the site and towards Wrexham town centre at traditional working times and throughout the day, making bus travel a viable option to and from the proposed development. As such, the development proposals accord with the context and thinking as outlined in *Wrexham Connected: Our Sustainable Urban Mobility Plan* (2016) and the *Wrexham Unitary Development Plan* (1996-2011)

5.6.4 In light of the location of the site and the existing walking, cycling and public transport infrastructure, it is considered that there are opportunities to access to the site by sustainable modes of travel.

6 TRAFFIC IMPACT ASSESSMENT

6.1 Introduction

6.1.1 This section of the report details the methodology used to predict the demand associated with the development. It then provides an assessment of the impact of the development on the highway network.

6.1.2 The suggested scope of the assessment was provided to WCBC, this being largely based on the agreed assessment methodology of the recently consented FIREM developments on WIE. WCBC's consultant, Mott MacDonald, who have had no involvement in the previous schemes, raised a number of issues and requests. We have endeavoured to address such requests where appropriate but we do not feel that all elements are required, noting that 'worst-case' assessments are not always appropriate particularly where an agreeable precedent has been set.

6.2 Vehicular Trip Generation

Industrial Use

6.2.1 The proposed trip rates and associated trip generation were derived from a recent TRICS interrogation in line with best-practice advice, and were presented to WCBC during scoping discussions. We feel that the use of mixed industrial estate trip rates are the most appropriate for the employment elements given the clear industrial estate nature of the development i.e. a collection of generally small scale light industrial units, with some trade counter use, some B8 distribution and probably some interaction between neighbouring units, unlike the existing which is largely B2 use. The proposed industrial estate trip rates and resultant trip generation is shown in Table 6.1 with the TRICS report output included in Appendix D.

Table 6.1: Vehicular Trip Rates & Generation – Proposed Employment Use

Time	Trip Rates			Trip Generation		
	Arrivals	Departures	Totals	Arrivals	Departures	Totals
07:00-08:00	0.502	0.137	0.639	52	14	66
08:00-09:00	**0.606**	**0.376**	**0.982**	**62**	**39**	**101**
09:00-10:00	0.539	0.403	0.942	56	42	98
10:00-11:00	0.498	0.468	0.966	51	48	99
11:00-12:00	0.493	0.520	1.013	51	54	105
12:00-13:00	0.485	0.531	1.016	50	55	105
13:00-14:00	0.502	0.501	1.003	52	52	104
14:00-15:00	0.448	0.478	0.926	46	49	95
15:00-16:00	0.389	0.478	0.867	40	49	89
16:00-17:00	**0.451**	**0.624**	**1.075**	**46**	**64**	**110**
17:00-18:00	0.271	0.543	0.814	28	56	84
18:00-19:00	0.091	0.235	0.326	9	24	33
Daily (12hr)	**5.275**	**5.294**	**10.569**	**543**	**546**	**1089**
HGVs included in the above						
08:00-09:00	0.031	0.039	0.070	3	4	7
16:00-17:00	0.013	0.014	0.027	1	1	2

6.2.2 The industrial uses are therefore likely to generate in the order of 101 and 110 two-way trips in the network peak hours, which are equivalent to just under two trips per minute.

6.2.3 It is important to note that the site has existing extant permission for industrial estate use, however the existing tenants are to transfer to Site 4 (Clywedog Rd N) which has planning permission for 35,015ft² (3,253m²) B2. Therefore all employment based trips to the redeveloped Bridgeway Centre will be new trips, with the existing trips remaining on the network but continuing to Site 4. The retail units and their tenants will remain in place as will their associated trips.

Retail Use

6.2.4 The existing retail units which will be refurbished with no increase in floor area include a diner, café, Greggs takeaway, vape retailer, farm veterinarian and IT repair shop. Clearly the three A3 uses and vape shop are likely to be well-visited by employees and visitors to the site and wider WIE, most likely as part of a linked trip to their place of work or visit to an industrial unit, or an impulse related pass-by trip; it is very unlikely that such uses will attract dedicated trips from outside of WIE. The other two occupiers are more specialist and are likely to attract dedicated trips from the Wrexham area, though these associated trip numbers are likely to be relatively very few. It is expected that these characteristics and level of trip generation will remain the same, or at least in line with their extant permission. As these trips are already on the local highway network, there is no need to provide additional trip generation calculations.

6.2.5 Block A, the proposed A3 retail unit forms part of the outline element of the application. At the moment, there is not specific end-user identified, however the unit may lend itself to a drive-through

coffee shop, with such shops becoming increasingly popular across the UK. Such a use, or indeed a more traditional café, will likely share the trip characteristics of the existing A3 units i.e. predominantly linked and pass-by trips with trade-draw elements from other similar shops/cafes on WIE. Appropriate TRICS based trip rates have been derived and used in the capacity assessment of the site access.

6.2.6 The TRICS database is however somewhat limited for drive-through coffee shops, with only one site in the database was surveyed prior to the Covid-19 pandemic, so we have therefore devised a sample for fast-food drive-through and used this for the drive-through coffee shop, although in reality, the coffee shop should generate fewer trips than the fast-food use. A summary of the trip rates and resultant trip generation for the proposed drive-through coffee shop is shown in Table 6.2 with the TRICS report output included in Appendix D.

Table 6.2: Vehicular Trip Rates & Generation – Proposed Drive-through Coffee Shop

	Trip Rates			Trip Generation		
Time	Arrivals	Departures	Totals	Arrivals	Departures	Totals
07:00-08:00	5.538	4.677	10.215	10	8	18
08:00-09:00	**8.062**	**7.754**	**15.816**	**15**	**14**	**29**
09:00-10:00	7.508	7.262	14.770	14	13	27
10:00-11:00	6.368	6.316	12.684	12	11	23
11:00-12:00	9.579	8.526	18.105	17	15	32
12:00-13:00	16.789	15.579	32.368	30	28	58
13:00-14:00	13.526	15.842	29.368	24	29	53
14:00-15:00	10.000	11.053	21.053	18	20	38
15:00-16:00	8.158	8.158	16.316	15	15	30
16:00-17:00	**10.368**	**9.737**	**20.105**	**19**	**18**	**37**
17:00-18:00	10.000	10.000	20.000	18	18	36
18:00-19:00	11.789	11.316	23.105	21	20	41
Daily (12hr)	**117.685**	**116.220**	**233.905**	**213**	**209**	**422**

6.2.7 Based on the figures above, a fast-food drive-through restaurant is likely to generate in the order of 29 and 37 two-way trips in the respective peak hours, though it is important to remember that very few, if any of these trips will be new to the local highway network, with the associated trips likely to be a mixture of pass-by, diverted and linked trips, however for assessment purposes, we have treated all of the trips as being 'new'.

6.3 Multimodal Trip Generation

6.3.1 The number of non-car trips has been forecast using 2011 census Method of Trave to Work (MTW) data for the local mid layer super output (MSOA) area Wrexham 020 (W02000420) as a workplace destination. Factors have been derived by diving the TRICS car/van trips (total vehicles minus HGVs) by the census equivalent, with these factors (0.0087 AM and 0.0100 PM) applied to the other census travel modes to forecast the site's likely modal split. As HGV (OGV) trips were calculated using TRICS

and do not appear in the census data, the TRICS values have been shown, as have the TRICS values for cars/vans. A summary of these multimodal trips is shown in Table 6.3.

Table 6.3: Forecast Multimodal Person Trips

Method	Census Trips	Modal Split	AM Trips	PM Trips
Driving a car or van	10760	79.1%	94	108
Passenger in a car or van	1406	10.3%	12	14
Bus, minibus or coach	478	3.5%	4	5
On foot	414	3.0%	4	4
Bicycle	307	2.3%	3	3
Motorcycle/ scooter/ moped	142	1.0%	1	1
Taxi	58	0.4%	1	1
Train	44	0.3%	0	0
Total travel to work	**13609**	**100.0%**	**119**	**136**
		Factors	*0.0087*	*0.0100*
HGVs	-	-	7	2
Total Trips	**-**	**-**	**126**	**138**

6.3.2 The above suggests that the proposed development will generate 126 and 138 total person trips in the respective AM and PM peak hours. Following driving as being the most popular mode, 12 and 14 trips will be as car/van passengers, 7 and 2 will be HGV drivers, 4 and 5 will be bus passengers, 4 will travel on foot, 3 via bicycle, 1 via motorcycle/scooter and 1 via taxi. It is hoped that the Travel Plan, produced alongside this TA, will help to increase the use of the non-car driver modes.

6.4 Traffic Growth

6.4.1 The 2018 observed flows (Traffic Flow Diagrams 1 and 2 in Appendix E) used in the capacity assessments in support of other recently consented FIREM developments on the wider WIE have been growthed to 2036 using TEMPro factors for the local MSOA in order to align with these assessments. 2036 aligns with MM's request during pre-application discussions to consider the year of opening plus 10 years. We assume that much of the development will be complete by 2026 hence 2036 being 10 years after this.

6.4.2 As TEMPro is not strictly applicable to heavy vehicles, the DfT's Regional Traffic Forecasts (RTF) have been used to derive factors to consider HGV growth. As the level of growth for HGVs in Wales is negative with a factor of 0.9971, a factor of 1.00 has been applied instead.

6.4.3 It should however be noted that the current TEMPro and RTF datasets at the time of the assessment, were forecast by the DfT prior to Brexit, the 2020 recession and the Covid-19 pandemic, therefore the level of growth calculated is likely to be notably higher than what will likely occur, which further adds to the robustness of the assessment.

6.5 Committed Developments

6.5.1 Before applying traffic growth, the traffic generated by committed developments have been considered. We have treated the following recent consents on WIE by FIREM as being committed developments:

- Site 2 – 25,069 sqft B2/B8 (Clywedog Rd N);
- Site 3 – 45,079 sqft B2/B8 (Clywedog Rd E);
- Site 4 – 35,015 sqft B2 (Clywedog Rd N);
- Site 5a –69,986 sqft B2/B8 (Clywedog Rd S); and
- Site 5b – 27,071 sqft B2 (Clywedog Rd S).

6.5.2 We have also included traffic likely to be generated the pending application for 17,100m² of E (B1), B2 and B8 at The Oaks off Oak Road as we believe that it is close to receiving planning consent. As Prime worked on this application and the other FIREM application, we have access to the forecast traffic flows for each with the respective assessment methodologies agreed with WCBC Highways.

6.5.3 At MM's request, we have considered the addition of a pending application for 194 additional car parking spaces at HMP Berwyn, however this application is for the formalisation of an overspill car park that is already in place and an additional car park adjacent to it. These additional parking spaces will not generate new trips, furthermore, from our onsite observations and from viewing of recent aerial photography on Google Earth, many cars park on the existing internal prison roads, and the provision of new or formalised parking areas, will simply allow such drivers to park in a parking space rather than along the internal roads rather than generating more traffic. In addition to this, many of the people who will park here will be visitors to the prison, and from viewing the prison's website, many such visiting times to not align with the peak hours of our assessment. We have therefore chosen not to include this application as a committed development.

6.5.4 When considering the traffic impact of developments, it is important not to double-count trips. The TEMPro database includes job based planning growth. As the committed development and the development site itself, sits within an allocated employment area, it is logical to assume that the job growth in TEMPro somewhat aligns with the number of jobs that the committed developments and the proposed development will generate.

6.5.5 In line with our assessments for the other FIREM and The Oaks applications, we have used the calculations in the Employment Densities Guide (3rd edition 2015). It was forecast that Sites 2-5 would generate in the order of 277 jobs, and from updating the calculations for The Oaks based on the latest unit floor areas totalling 17,100m² it is forecast to generate 241 jobs. We have calculated that the development proposals will generate in the order of 282 jobs, with the three figures totalling 800 jobs. The local MSOA in TEMPro forecasts 784 jobs, but rather than apply negative growth, we have

set the 2036 job totals to the 2018 levels, with the explicit modelling of the development trips accounting for the job growth without double-counting.

6.5.6 A summary of the TEMPro and RTF growth factors applied is shown in Table 6.4.

Table 6.4: Forecast Traffic Growth

Source	TEMPro		RTF
Peak	AM	PM	Both
Factor	1.1375	1.1372	1.0000

6.5.7 The above factors have been applied to the 2018 observed flows forming the 2036 Base flows as shown in Traffic Flow Diagrams 3 and 4 in Appendix E. We are aware that the traffic flows for the Industrial Estate Road/Abenbury Way/Ash Road North/Bryn Lane roundabout were surveyed in 2019, however for robustness and simplicity, the 2018 to 2036 growth factors have been applied.

6.5.8 The traffic associated with the committed developments is shown in Traffic Flow Diagrams 5-14, with the total committed development traffic shown in Traffic Flow Diagrams 15 and 16 added to the 2036 Base flows forming the 2036 Without Development flows shown in Traffic Flow Diagrams 17 and 18, all of which are provided in Appendix E. An adjustment to the Site 4 traffic is shown in Traffic Flow Diagrams 9 and 10 as this traffic will be reassigning from Site 1.

6.6 Trip Distribution

6.6.1 Employment based development trips have been distributed across the local highway network using census MTW data for the local MSOA and web-based route planning software (Google Maps) as per the previous FIREM developments on WIE. This distribution is shown in Traffic Flow Diagram 19 with the distributed employment development traffic shown in Traffic Flow Diagrams 20 and 21 in Appendix E. This traffic has been split 33%/67% between the northern and southern halves of the site respectively, based on the total floor areas proposed in each half.

6.6.2 The traffic associated with the proposed A3 retail unit has been distributed based on a combination of observed turning proportions and assumptions. As stated previously, the vast majority, if not all, of the traffic associated with this unit is likely to be a combination of pass-by, diverted and linked trips, however in order to provide a robust assessment, we have treated them as new trips as shown in Traffic Flow Diagrams 22 and 23. The development trips have been added to the 2036 Without Development flows forming the 2036 With Development flows shown in Traffic Flow Diagrams 24 and 25 in Appendix E. The impact of the development traffic on the local highway network is considered in detail in the following section.

7 TRAFFIC IMPACT ASSESSMENT

7.1 Preamble

7.1.1 This section considers the likely impact that the development traffic will have on the local highway network. Having derived estimated traffic flows for the forecast year in the With Development and Without Development scenarios it is possible to compare expected traffic flows within the study area.

7.2 Absolute and Percentage Assessment

7.2.1 The impact assessment has been undertaken for the weekday network peak hours. During scoping discussions MM requested that weekday lunchtime and Saturday lunchtime assessments should be undertaken give the presence of the A3 units. We disagree with this as the relatively small scale of the A3 units will not generate a significant number of trips that would cause an impact, and also WIE is much quieter at weekends than during weekdays so the Saturday peak request is unnecessary. Furthermore, lunchtime and Saturday data is not currently available and any new surveys at this moment in time will unlikely be valid given the influence of the Covid-19 pandemic on travel patterns.

7.2.2 The number of trips that the development is forecast to add to key local junctions is summarised in absolute and percentage terms in Table 7.1, noting that these figures are based on 100% new trips at the A3 retail unit.

Table 7.1: Summary of Development Trips

Junction	2036 AM Peak				2036 PM Peak			
	Without Dev	With Dev	Abs Diff	% Diff	Without Dev	With Dev	Abs Diff	% Diff
1.Northern Access/ Coed Aben Rd	437	506	69	15.8%	421	502	81	19.2%
2.Bridge Rd/ Redwither Rd/ Coed Aben Rd	962	999	37	3.8%	1053	1099	46	4.4%
3.Central Access/ Bridge Rd	797	852	55	6.9%	891	946	55	6.2%
4.Bridge Rd/ Spectrum Business Park	897	949	52	5.8%	1010	1063	53	5.2%
5.Southern Access/ Bridge Rd	707	797	90	12.7%	890	987	97	10.9%
6.Bridge Rd/ Clywedog Rd E/ HMP	839	900	61	7.3%	978	1045	67	6.9%
7.Bridge Rd S/ Clywedog Rd S	1277	1338	61	4.8%	1411	1478	67	4.7%
8.Sesswick Way/ Bridge Rd S/ Cefn Rd	1403	1464	61	4.3%	1517	1584	67	4.4%
9.Abenbury Way/ Coed Aben Rd/ Clywedog Rd N/ Ash Rd	1072	1136	64	6.0%	965	1031	66	6.8%
10. Ind Est Rd/ Abenbury Way/ Ash Rd N/ Bryn Ln	2639	2703	64	2.4%	2451	2517	66	2.7%

7.2.3 As expected, the greatest increase in traffic as a result of the development is shown to be at the three site accesses. At the other junctions listed, the absolute impact ranges between 37 and 67 trips with the higher number equivalent to slightly more than one new trip per minute which is unlikely to result in a significant impact. The percentage increases range from 2.4% to 7.3%.

7.2.4 During scoping discussions we suggested that a capacity assessment will be undertaken at the Bridge Road/Coed Aben Road junction given the proximity to the site. MM requested that capacity assessments be undertaken at five additional junctions and at any other junctions where the increase is greater than 5%. For completeness, we have undertaken capacity assessments at all 10 junctions listed above which includes the five MM requested.

7.3 Junction Capacity Assessment

7.3.1 In order to convert the traffic flows into PCUs, which is the requisite input flow unit required in the modelling software, a factor of 2.0 has been applied to the heavy vehicle user class which includes HGVs and buses/coaches. Cars effectively have a factor of 1.0. These factors are commonly accepted in transport modelling.

7.3.2 Junction geometry has been coded into the models based on a mixture of on-site measurements, OS mapping and aerial photography. The same models used in the assessments of the other recent FIREM consented developments and The Oaks have been used, albeit with updated traffic flows.

7.3.3 Industry standard software has been used to model the junctions with the ARCADY module of Junctions 9 used for the roundabouts and the PICADY module of the same software used for the priority controlled junctions. For two of the priority junctions which are closely spaced but greater than 20m apart, they have been modelled as separate junctions in line with the software manual, but presented as section 'a' or 'b' of the junctions for display purposes.

7.3.4 When interpreting the Junctions results, the capacity of each arm or movement is calculated as the Ratio of Flow to Capacity (RFC) with 0.85 representing the practical capacity threshold of the arm and 1.00 representing the theoretical capacity threshold. It is above the practical capacity threshold where capacity problems begin to occur while exceeding the theoretical capacity means that arms are over capacity. Traffic flows have been input based on the 'ONE HOUR' (ODTAB) option which synthesises a 'peak within a peak' at the middle of the time period modelled and is generally seen as being the worst-case form of assessment in terms of impact.

7.3.5 It is well-known in the industry that the correct input of geometric measurements and traffic flows do not always result in models accurately representing the existing operation of junctions, therefore adjustments have been made where required so that modelled queue lengths reflect observed queue lengths. It should be noted that it is not always possible to fully reflect the observed queue lengths given the differences in how observed queues are measured and how the modelling software calculates the values with local driver behaviour also being a variable factor.

7.3.6 This section of the report provides the results of the capacity assessments with result summaries provided in Tables 7.2 to 7.11 with the junctions presented in the order they are listed in Table 7.1. The full results are available in the model report outputs which are included in Appendix F.

Table 7.2: Northern Access/ Coed Aben Rd

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2018 Observed				
Northern Access	0.02	0.0	0.07	0.1
Coed Aben Road (Western Arm)	0.06	0.1	0.01	0.0
2036 Without Development				
Northern Access	0.02	0.0	0.08	0.1
Coed Aben Road (Western Arm)	0.07	0.1	0.01	0.0
2036 With Development				
Northern Access	0.05	0.1	0.13	0.2
Coed Aben Road (Western Arm)	0.12	0.2	0.03	0.0

Table 7.3a: Bridge Rd/ Redwither Rd/ Coed Aben Rd (Bridge Road North)

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2018 Observed				
Bridge Road N (Left Turn)	0.02	0.0	0.04	0.1
Bridge Road N (Right Turn)	0.15	0.2	0.51	1.0
Redwither Road (Eastern Arm)	0.02	0.0	0.01	0.0
2036 Without Development				
Bridge Road N (Left Turn)	0.02	0.0	0.05	0.1
Bridge Road N (Right Turn)	0.17	0.2	0.59	1.4
Redwither Road (Eastern Arm)	0.03	0.0	0.02	0.0
2036 With Development				
Bridge Road N (Left Turn)	0.02	0.0	0.06	0.1
Bridge Road N (Right Turn)	0.17	0.2	0.60	1.5
Redwither Road (Eastern Arm)	0.03	0.0	0.02	0.0

Table 7.3b: Bridge Rd/ Redwither Rd/ Coed Aben Rd (Bridge Road Southwestern Arm)

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2018 Observed				
Bridge Road Left	0.16	0.2	0.28	0.4
Bridge Road Right	0.73	2.8	0.44	0.9
Coed Aben Road	0.31	0.5	0.14	0.2
2036 Without Development				
Bridge Road Left	0.94	3.7	0.33	0.5
Bridge Road Right	0.96	11.7	0.54	1.3
Coed Aben Road	0.35	0.6	0.16	0.2
2036 With Development				
Bridge Road Left	1.00	5.2	0.37	0.6
Bridge Road Right	0.99	14.3	0.56	1.4
Coed Aben Road	0.39	0.7	0.19	0.3

Table 7.4: Central Access/ Bridge Rd

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2018 Observed				
Barclays Bank Access (former)	0.00	0.0	0.00	0.0
Bridge Road (Northern Arm)	0.01	0.0	0.00	0.0
Central Access	0.00	0.0	0.00	0.0
Bridge Road (Southern Arm)	0.00	0.0	0.00	0.0
2036 Without Development				
Barclays Bank Access (former)	0.00	0.0	0.00	0.0
Bridge Road (Northern Arm)	0.01	0.0	0.00	0.0
Central Access	0.00	0.0	0.00	0.0
Bridge Road (Southern Arm)	0.00	0.0	0.00	0.0
2036 With Development				
Barclays Bank Access (former)	0.00	0.0	0.00	0.0
Bridge Road (Northern Arm)	0.02	0.0	0.01	0.0
Central Access	0.05	0.1	0.05	0.1
Bridge Road (Southern Arm)	0.00	0.0	0.00	0.0

Table 7.5: Bridge Rd/ Spectrum Business Park

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2018 Observed				
1 - Bridge Road (Northern Arm)	0.22	0.3	0.28	0.4
2 - Spectrum Business Park	0.03	0.0	0.16	0.2
3 - Bridge Road (Southern Arm)	0.27	0.4	0.16	0.2
2036 Without Development				
1 - Bridge Road (Northern Arm)	0.26	0.4	0.34	0.5
2 - Spectrum Business Park	0.03	0.0	0.19	0.2
3 - Bridge Road (Southern Arm)	0.33	0.5	0.19	0.3
2036 With Development				
1 - Bridge Road (Northern Arm)	0.28	0.4	0.35	0.6
2 - Spectrum Business Park	0.03	0.0	0.20	0.2
3 - Bridge Road (Southern Arm)	0.34	0.6	0.21	0.3

Table 7.6: Southern Access/ Bridge Rd

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2018 Observed				
Southern Access	0.04	0.0	0.13	0.1
Bridge Road (Northern Arm)	0.04	0.1	0.02	0.0
2036 Without Development				
Southern Access	0.03	0.0	0.13	0.1
Bridge Road (Northern Arm)	0.05	0.1	0.02	0.0
2036 With Development				
Southern Access	0.10	0.1	0.24	0.3
Bridge Road (Northern Arm)	0.10	0.2	0.06	0.1

Table 7.7: Bridge Rd/ Clywedog Rd E/ HMP

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2018 Observed				
1 - Bridge Road (Northern Arm)	0.14	0.2	0.34	0.5
2 - HMP	0.01	0.0	0.08	0.1
3 - Bridge Road (Southern Arm)	0.29	0.4	0.11	0.1
4 - Clywedog Road E	0.03	0.0	0.04	0.0
2036 Without Development				
1 - Bridge Road (Northern Arm)	0.16	0.2	0.41	0.7
2 - HMP	0.01	0.0	0.10	0.1
3 - Bridge Road (Southern Arm)	0.36	0.6	0.14	0.2
4 - Clywedog Road E	0.05	0.1	0.07	0.1
2036 With Development				
1 - Bridge Road (Northern Arm)	0.18	0.3	0.43	0.8
2 - HMP	0.01	0.0	0.11	0.1
3 - Bridge Road (Southern Arm)	0.38	0.7	0.15	0.2
4 - Clywedog Road E	0.05	0.1	0.07	0.1

Table 7.8: Bridge Rd S/ Clywedog Rd S

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2018 Observed				
1 - Bridge Road S (Northern Arm)	0.15	0.2	0.47	0.9
2 - Bridge Road S (Southern Arm)	0.40	0.7	0.12	0.2
3 - Clywedog Road S	0.06	0.1	0.25	0.3
2036 Without Development				
1 - Bridge Road S (Northern Arm)	0.19	0.3	0.60	1.5
2 - Bridge Road S (Southern Arm)	0.49	1.0	0.15	0.2
3 - Clywedog Road S	0.08	0.1	0.30	0.4
2036 With Development				
1 - Bridge Road S (Northern Arm)	0.21	0.3	0.63	1.7
2 - Bridge Road S (Southern Arm)	0.51	1.1	0.17	0.2
3 - Clywedog Road S	0.08	0.1	0.31	0.5

Table 7.9: Sesswick Way/ Bridge Rd S/ Cefn Rd

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2018 Observed				
1 - Bridge Road S	0.14	0.2	0.49	1.0
2 - Sesswick Way	0.31	0.5	0.13	0.2
3 - Cefn Road	0.35	0.6	0.12	0.1
2036 Without Development				
1 - Bridge Road S	0.19	0.3	0.6	1.6
2 - Sesswick Way	0.37	0.6	0.15	0.2
3 - Cefn Road	0.48	0.9	0.16	0.2
2036 With Development				
1 - Bridge Road S	0.20	0.3	0.62	1.7
2 - Sesswick Way	0.38	0.6	0.16	0.2
3 - Cefn Road	0.50	1.0	0.18	0.2

Table 7.10a: Abenbury Way/ Coed Aben Rd/ Clywedog Rd N/ Ash Rd (Clywedog N)

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2018 Observed				
Clywedog Road N	0.40	0.7	0.39	0.7
Abenbury Way	0.38	0.7	0.26	0.4
2036 Without Development				
Clywedog Road N	0.50	1.1	0.49	1.0
Abenbury Way	0.49	1.0	0.31	0.5
2036 With Development				
Clywedog Road N	0.50	1.1	0.50	1.1
Abenbury Way	0.49	1.0	0.32	0.5

Table 7.10b: Abenbury Way/ Coed Aben Rd/ Clywedog Rd N/ Ash Rd N (Ash Rd N)

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2018 Observed				
Ash Road N	0.15	0.2	0.24	0.3
Abenbury Way (Southern Arm)	0.04	0.0	0.07	0.1
2036 Without Development				
Ash Road N	0.17	0.3	0.27	0.4
Abenbury Way (Southern Arm)	0.05	0.1	0.07	0.1
2036 With Development				
Ash Road N	0.17	0.3	0.27	0.4
Abenbury Way (Southern Arm)	0.05	0.1	0.08	0.1

Table 7.11: Industrial Estate Rd/ Abenbury Way/ Ash Rd N/ Bryn Ln

Arm	AM		PM	
	RFC	Q (PCU)	RFC	Q (PCU)
2019 Observed				
1 - Bryn Lane	0.28	0.4	0.29	0.4
2 - Ash Road North	0.12	0.2	0.64	1.8
3 - Abenbury Road	0.14	0.2	0.50	1.0
4 - Industrial Estate Road	0.72	2.7	0.17	0.2
2036 Without Development				
1 - Bryn Lane	0.45	0.9	0.35	0.6
2 - Ash Road North	0.15	0.2	0.76	3.1
3 - Abenbury Road	0.17	0.3	0.66	2.0
4 - Industrial Estate Road	0.84	5.4	0.19	0.3
2036 With Development				
1 - Bryn Lane	0.48	1.0	0.36	0.6
2 - Ash Road North	0.15	0.2	0.77	3.3
3 - Abenbury Road	0.19	0.3	0.71	2.4
4 - Industrial Estate Road	0.86	6.1	0.20	0.3

7.3.7 The results show that 8 of the 10 junctions will continue to operate below the practical capacity threshold of 0.85 RFC in 2036 with the development in place. One of the junctions, Industrial Estate Rd/ Abenbury Way/ Ash Rd N/ Bryn Ln, is forecast to operate just 0.01 RFC (0.86) above the practical capacity threshold but 0.14 RFC below the theoretical capacity threshold of 1.00 RFC, with the development traffic increasing the value by just 0.02 RFC.

7.3.8 The other junction that exceeds the practical capacity threshold and meets but does not exceed the theoretical capacity threshold, is the southwestern junction of Bridge Rd/ Redwither Rd/ Coed Aben Rd. The development traffic increases the RFC on the Bridge Road approach by just 0.06 on the left turn and 0.03 on the right turn in the AM peak, however any increase on a baseline RFC greater than 0.85 can lead to exaggerated results due to limitations in the modelling software.

7.3.9 It is also important to remember that the ONE HOUR flow input method used, which synthesises a peak within the peak, is often greater than the true profile. Examination of the observed AM profile shows that it is closer to that of a FLAT profile i.e. equal flows in each 15-minute period, with a profile range of 22%-28%.

7.3.10 It is also important to note that the traffic growth results in a far more notable increase in RFC of 0.78 on the left turn and 0.23 on the right turn. We believe that the impact of the development traffic on this junction is minor and mitigation is not required with the current method of control and layout being the most appropriate for the level of traffic.

7.4 Summary

7.4.1 It has been demonstrated that there is sufficient capacity on the local highway network to accommodate the level of traffic forecast by the development using a robust methodology. The impact can be best described as being negligible to minor.

8 SUMMARY AND CONCLUSION

8.1 Summary

8.1.1 This TA has been produced by Prime to consider the highways and transportation implications associated with a proposal by FIREM for the redevelopment of The Bridgeway Centre (Site 1), which is on the corner of Bridge Road and Coed Aben Road, in Wrexham Industrial Estate.

8.1.2 This document has been prepared in accordance with *Planning Policy Wales* and *Technical Advice Note 18: Transport* as well as a number of local policy documents. It considers the accessibility of the site and safety for all modes of travel from the private car to more sustainable modes such as walking, cycling and public transport.

8.1.3 This is a hybrid application with FIREM seeking a mixture of full and outline planning permission for: the demolition of the existing light industrial and manufacturing units; refurbishment of the existing retail units; and the construction of 10 new blocks consisting of multiple units totalling a proposed E, B2 and B8 GFA of 10,307m² and A1-A3 retail totalling 855m². The industrial units will be predominantly light industrial as per the existing use, and therefore B2 and B8 in nature; any E/B1 elements will simply be ancillary to the main B2 and B8 uses and be the traditional B1 'light industrial' rather than 'office'.

8.1.4 Many of the light industrial units on the site (totalling 4,007m²) are no longer fit-for-purpose and will be demolished to make way for more modern industrial accommodation. The current tenants of these units will be relocated to Site 4 (Clywedog Rd N) which benefits from recent planning consent. The retail units (totalling 531m²) are to be retained and refurbished but with no increase in floor area.

8.1.5 Several of the retail units are not only important to the proposed light industrial units by providing ancillary food takeaway and convenience shopping (breakfast, lunch, tea/coffee breaks etc.), but they are also important to the wider Industrial Estate for the same reason, which helps to contain trips within the Estate which is more sustainable than existing staff and visitors having to travel a greater distance by car/van for these trip purposes. The retail units are accessible on foot and bicycle for the from the majority of the Industrial Estate.

8.1.6 The three existing vehicular accesses will be retained but modified to better accommodate the larger rigid and articulated vehicles that already access the site, though are primarily related to the larger units to the west of the site boundary, access to which will be retained. The site will be split into two main parcels, with the more northern parcel afforded access via Coed Aben Road and the northern Bridge Road access, with the southern parcel afforded access via the southern Bridge Road access point. The two main parcels will not have an internal vehicular access between them. The site plan and access points are shown on Drawing P20030-001 in Appendix B.

8.1.7 An appropriate level of car and cycle parking will be provided in line with WCBC's standards, based on FRIEM's aspirations for the end uses, this being an indicative 60/40 split between B2/B8 with use class E being ancillary to these uses.

8.1.8 A review of personal injury accidents that have occurred on the local highway network has been undertaken for the most recent five-year period. Just one accident occurred in the study area, which was classified as 'slight'. There does not appear to be an existing highway safety issue that would be exacerbated by the development proposals.

8.1.9 An assessment has been undertaken of the site's level of accessibility by sustainable modes, from which it can be concluded that realistic options exist for access to local residential areas and local amenities on foot, by cycle and by public transport.

8.1.10 Occupiers of the proposed development will be made aware of the options available for sustainable modes of travel through the site's Travel Plan and Staff Travel Information Packs provided to employees at the development. Theses Packs would not only highlight the location of nearby services and how these are accessible on foot, cycle or public transport but also the distance and likely travel time to such destinations.

8.1.11 An assessment of the capacity of the site accesses has been undertaken, this confirming that the accesses will have ample capacity to accommodate the predicted traffic flows in 2026 and 2033 with the development in place.

8.1.12 The development traffic will also have a negligible to minor impact on the surrounding highway network, in particular the junctions mentioned within Section 3.

8.2 Conclusion

8.2.1 This report and the associated appendices conclude that that there are no highway safety concerns that would preclude the delivery of the development proposals, the site is accessible by a variety of modes of transport, an appropriate level of car and cycle parking will be provided, and that the development would have a negligible impact on the operation of the surrounding highway network.

8.2.2 As the proposal complies with local and national planning policy and guidance with respect to sustainable accessibility, safety and impact on the highway network, there are no highways or transportation related reasons why planning permission should not be granted. Should the highway authority have any concerns, we are happy to consult further with them.

APPENDIX A

SCOPING DISCUSSIONS WITH WCBC

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SCOPING CHECKLIST FOR: Wrexham Industrial Estate Site 1 – The Bridgeway Centre

HIGHWAY AUTHORITY: Wrexham County Borough Council

DATE PREPARED: 22/05/20

Ref	Item	Intention	LHA Comments
1	Level of planning approval sought? e.g. outline, full.	Full	Noted.
2	Size and description of development proposals	Redevelopment of Site 1 – The Bridgeway Centre off Clywedog Road at Wrexham Industrial Estate (WIE). The site will comprise of 10 new groups of units in total. 8 will be light industrial/warehousing, some with trade counter, 1 will be food and/or retail units and 1 will be a drive-thru coffee shop or fast-food outlet, totalling 8,052sqm (86,646sqft). 7,604sqm will be B1/B2/B8 and A1/A3/A5 will be 448sqm. An existing industrial unit totalling 1,145sqm will be refurbished and will remain on site with no change to the floor area. Please see attached Proposed Site Plan for location and schedule of accommodation which is subject to change. Any comments on this layout are welcome.	Noted.
3	Description of existing land uses, existing trip distribution	Established industrial estate totalling 4,229sqm (45,522sqft) B1/B2/B8 and 397sqm (4,272sqft) A3/A5.	Noted.
4	Does the development involve the relocation of an existing use?	Excluding units 23-30 which are to remain, a total of 3,481sqm (37,470sqft) is to be demolished with these tenants to relocate to Site 4. Net increase in floor area is therefore 4,571sqm (49,176sqft).	Noted.
5	What transport based supporting documents will be produced?	Transport Assessment and Travel Plan	Accepted.
6	Are traffic surveys of the existing conditions available or required?	Traffic surveys were undertaken within WIE in 2018 for a series of planning applications submitted by FI Real Estate Management. It is proposed that some of this data be reused, and capacity assessment completed for Bridge Road/Coed Aben Road (3 arm priority junction).	Noted. We would request additionally that traffic impact assessments are likely to be required at the following junctions: • Bridge Rd / Clywedog Rd E Roundabout • Bridge Rd S / Clywedog Rd S Roundabout • Cefn Rd / Bridge Rd / Bedwell

			Rd Roundabout • Industrial Estate Rd / Bryn Ln / Asj Rd N/ Abenbury Way Roundabout • Abenbury Way / Coed Aben Rd / Clywedog Rd N junction If the impact of the proposed development (Wrexham Industrial Estate Site 1 – The Bridgeway Centre) is greater than 5% for a particular junction then a capacity assessment should be completed for than junction.
7	Details of any other developments to be taken into account.	It is noted that a number of planning applications have been recently consented for B2/B8 uses on WIE by FI Real Estate Management. These development proposals are located at: • Site 2 – 25,069 sqft B2/B8 (Clywedog Rd N) • Site 3 – 45,079 sqft B2/B8 (Clywedog Rd E) • Site 4 – 35,015 sqft B2 (Clywedog Rd N) • Site 5a –69,986 sqft B2/B8 (Clywedog Rd S) • Site 5b – 27,071 sqft B2 (Clywedog Rd S) We have also been advising on ET/DC/2019/0877 'The Oaks' which is pending consideration. <u>Please confirm if any other developments should be considered</u>	HMP Berwyn has a pending planning application for an extension of 194 additional car parking spaces which currently form an overspill car park for the prison. This should be considered in the application.
8	Details of any adjacent highway improvement proposals by others	Please advise if there are any highway improvement schemes that need to be taken account of.	Not aware of any relevant schemes.
9	When are the critical periods for assessments?	Weekday AM and PM peaks derived from surveys mentioned above.	Since there is likely to be a restaurant and a fast food/coffee drive through which could have an

<table>
<tr><td></td><td></td><td></td><td>impact on the WIE at lunchtime and potentially Saturday lunchtime these should be included in the TA.</td></tr>
<tr><td>10</td><td>When would the site be fully operational?</td><td>2025 (assumed)</td><td>Noted.</td></tr>
<tr><td>11</td><td>What are the assessment years?</td><td>Transport Assessment to be submitted. Previously undertaken surveys are proposed to be used. These will have 2018 (base flows only) and 2025 (with and without development inclusive of committed development) as the assessment years.</td><td>An assessment year 10 years beyond opening will need to be included in the TA.</td></tr>
<tr><td>12</td><td>Traffic growth factors?</td><td>This Transport Assessment will use TEMPRO growth will be used and manually adjusted with committed development (referenced in Point 7) removed from planning assumptions to remove double counting, with NTM adjustment applied (2018-2025).</td><td>An assessment year 10 years beyond opening will need to be included in the TA.</td></tr>
<tr><td>13</td><td>How will vehicular trip generation be derived for the proposal?</td><td>Propose to use TRICS based industrial estate rates given the mix of employment uses.

As the trips from the existing units are included in the traffic flows, it is the net increase associated with the proposals that will be assessed.

Indicative vehicular trip rates and generation are represented in the table below, based upon indicative combined plot sizes assuming all will be B2:

Industrial Estate Units – 4,123sqm (B1/B2/B8)

<table>
<tr><th rowspan="2">Time</th><th colspan="3">Trip Rates</th><th colspan="3">Trip Generation</th></tr>
<tr><th>Arrivals</th><th>Departures</th><th>Totals</th><th>Arrivals</th><th>Departures</th><th>Totals</th></tr>
<tr><td>08:00-09:00</td><td>0.606</td><td>0.376</td><td>0.982</td><td>25</td><td>16</td><td>41</td></tr>
<tr><td>16:00-17:00</td><td>0.451</td><td>0.624</td><td>1.075</td><td>19</td><td>26</td><td>45</td></tr>
</table>

For the 448sqm of retail, this will be ancillary to the industrial uses on this site and the rest of WIE, therefore all trips will be linked and pass-by trips rather than new trips. Also assumed all retail staff trips will take place outside of peak hours.
The TRICS output is attached for reference.

<u>Please confirm acceptance of the above trip rates.</u></td><td>New TRICS if required for each unit type in the TA. This should include:
• Industrial Estate Units
• Retail Unit
• Food Unit
• Fast Food Outlet
• Drive Thru Coffee Shop

WCBC will review full output in TA and if necessary, will comment on methodology applied including its robustness.

For the 448sqm retail/food for the purposes of robustness all associated trips should be considered as ‘new’ or diverted</td></tr>
</table>

			trips or a reasonable assumption should be stated between diverted/new/linked trips. It should be noted that the retail/food units are very likely to attract additional trips (including those from other areas of WIC which should be considered as 'new' trips if these don't pass by already). WCBC is aware that 'drive thru' coffee shops are on the latest version of TRICS so these should be compared to fast food units and the 'worst case' considered for the 'critical period'.
14	How will non-car mode trip generation be derived for the proposal?	Method of Travel to Work information is to be used from 2011 Census data, alongside the TRICS derived trips, to determine the likely number of non-car movements generated by the development.	Accepted.
15	Would traffic from adjacent sites be attracted to the site? Pass-by traffic?	100% newly generated trips for net increase in industrial use. All retail trips will be linked/pass-by.	Fast food / drive thru coffee shop likely to attract additional trips. TRICS data for similar facilities on an out of town retail park would be comparable. WCBC is aware that 'drive thru' coffee shops are on the latest version of TRICS so these should be compared to fast food units and

			the 'worst case' considered for the 'critical period'.
16	What is the assumed trip distribution?	The Transport Assessment will distribute trips generated by the site in accordance with Method of Travel to Work information derived from 2011 Census data.	Accepted.
17	What is the extent of the accident study area to be considered?	See suggested study area attached. Includes Bridge Road from Clwedog Rd East to Coed Aben Rd/Bridge Rd North junction, then Coed Aben Rd west to new link road through to Clewdog Rd East. Internal estate roads also included.	Accepted.
18	Capacity tests required for the proposed and following existing junctions	A capacity assessment will be undertaken as part of this application. The junctions proposed for assessment are the four site accesses (3 existing, 1 proposed) and Bridge Road/Coed Aben Road.	Noted. We would request additionally that traffic impact assessments are likely to required at the following junctions: • Bridge Rd / Clywedog Rd E Roundabout • Bridge Rd S / Clywedog Rd S Roundabout • Cefn Rd / Bridge Rd / Bedwell Rd Roundabout • Industrial Estate Rd / Bryn Ln / Asj Rd N/ Abenbury Way Roundabout • Abenbury Way / Coed Aben Rd / Clywedog Rd N junction If the impact of the proposed development (Wrexham Industrial Estate Site 1 – The Bridgeway Centre) is greater than 5% for a particular junction then a capacity assessment should be completed for than junction.
19	Are adjacent junctions or links likely to become overloaded?	To be determined through capacity assessment	We would request additionally that traffic impact assessments are likely to required at the following

			junctions: • Bridge Rd / Clywedog Rd E Roundabout • Bridge Rd S / Clywedog Rd S Roundabout • Cefn Rd / Bridge Rd / Bedwell Rd Roundabout • Industrial Estate Rd / Bryn Ln / Ash Rd N/ Abenbury Way Roundabout • Abenbury Way / Coed Aben Rd / Clywedog Rd N junction If the impact of the proposed development (Wrexham Industrial Estate Site 1 – The Bridgeway Centre) is greater than 5% for a particular junction then a capacity assessment should be completed for than junction.
20	Is a new or modified highway access likely?	Three existing site accesses to be retained. New fourth access to be provided onto Bridge Road adjacent to Unit 84 (see attached plan). This access is likely to require the relocation of the bus stop but appears to avoid the signal controlled crossing – TBC. <u>Comments welcome on suggested access arrangements at an early stage</u>	**Access Widths and Radii.** Should be a minimum of 4.8m width with a minimum 6m kerb radii if only cars using. For vans a minimum of 5.5m width with a minimum 6m kerb radii is required. If HGVs are likely to use then a 7.3m width and 15m minimum kerb width is required. **Distances Between Accesses**

			Should be 30m centre line to centre line on the same side of the carriageway or 25m centreline to centreline on opposite sides. **Swept Path Analysis** Swept path analysis should be carried out for each vehicular site access for the largest vehicle that would be using each access.
21	What are the visibility requirements? Are those requirements met?	For the proposed access 2.4m x 120m as per TAN18 for 40mph speed limit. Speed surveys to be undertaken should this not be achievable.	40 mph - Accepted. 30mph – Splays of 2.4m x 56m in accordance with Manual for Streets are acceptable.
22	What level of car parking is required?	332 car parking spaces are proposed but may be subject to change. Based on the standards in LPGN16 we calculate a requirement of around 280 spaces based on indicative final land use classes but the final classes are TBC.	Noted. We will review parking proposals in the TA.
23	Are special provisions required for cyclists, pedestrians, those with a disability or public transport?	To be reviewed as part of the Transport Assessment	Accepted. See LPGN16 for cycle and disabled parking requirements.
24	What planning policy should the development comply with?	• Planning Policy Wales (Edition 7, July 2014); • North Wales Joint Local Transport Plan 2015; • Wrexham Local Development Plan 2 (2013-2028); • Wrexham Unitary Development Plan (1996-2011); • WCBC LPGN16; and • Wrexham connected: Urban Mobility Plan 2016. <u>Please advise if any more documents should be taken into account.</u>	For Transport also see: • Welsh Gov - TAN 18: Transport • Welsh Gov - Active Travel Design Guidance For other planning policy eg Environmental/air quality etc please discuss with planning

			officer.
25	Are there any other special circumstances relevant to this proposal?	Please advise	If the consultant disagrees with some of the requirements stipulated within this scoping checklist they should demonstrate reasons for not providing within the TA.

APPENDIX B

TECHNICAL DRAWINGS

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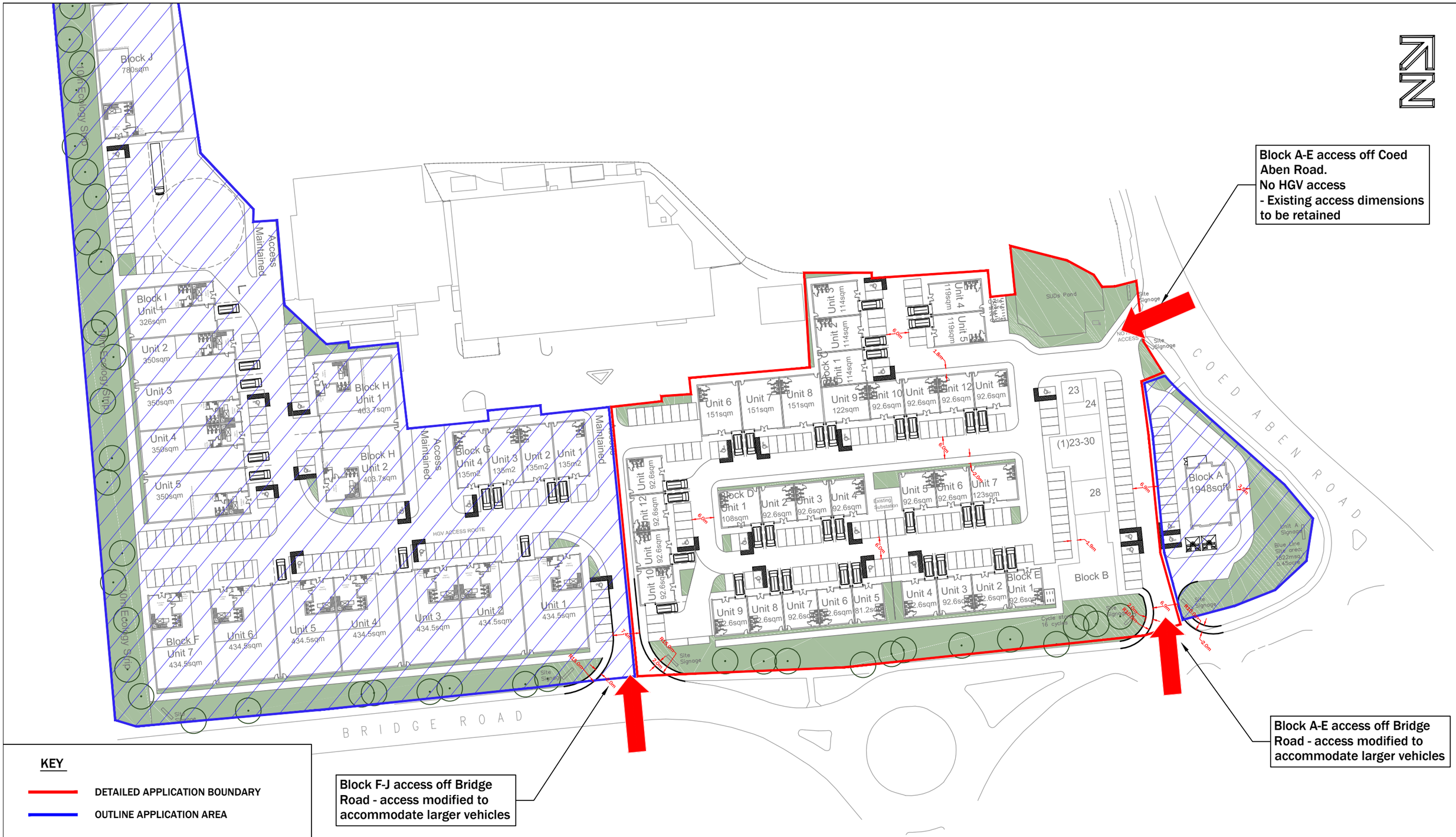

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Rev	Date	By	Revision notes
*	*	*	*

Status: FINAL

Project: THE BRIDGEWAY CENTRE, SITE 1
WREXHAM INDUSTRIAL ESTATE, WREXHAM, CLWYD

Title: PROPOSED ACCESS STRATEGY

Drawn by: VB

Issue date: 20 SEPT 2021

Scale(s): 1:1000 @A3

Drawing No: P20030-001

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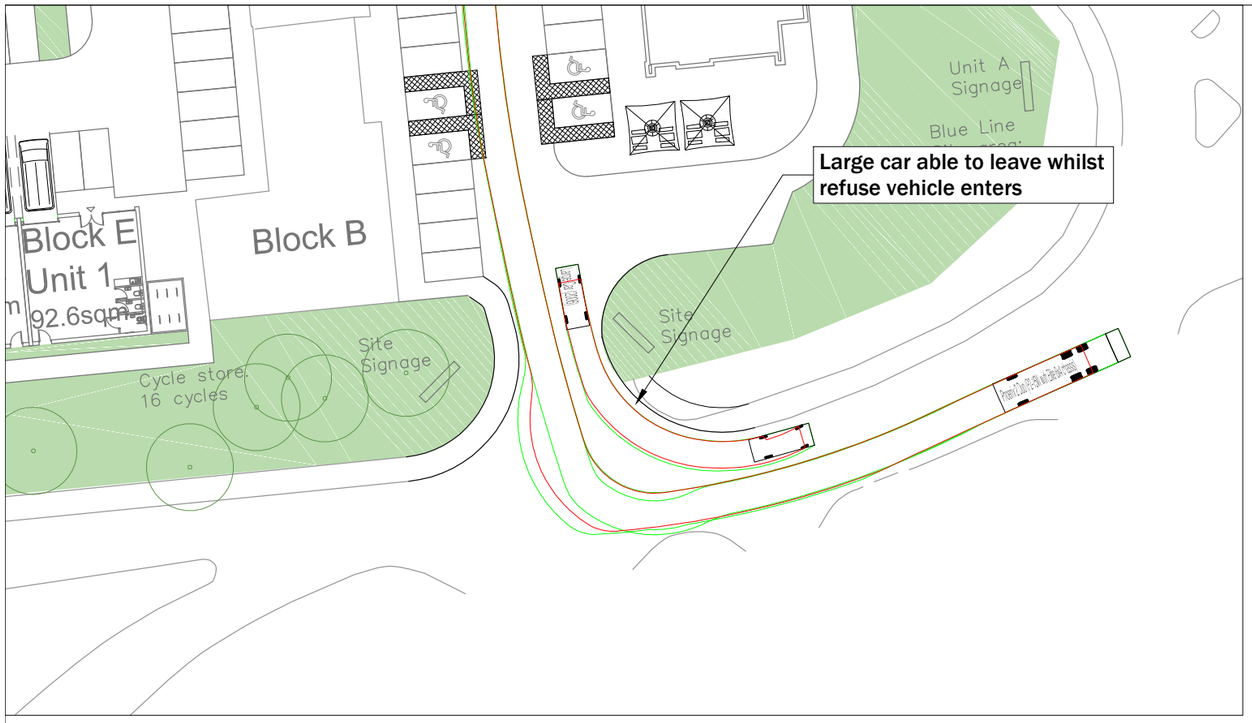

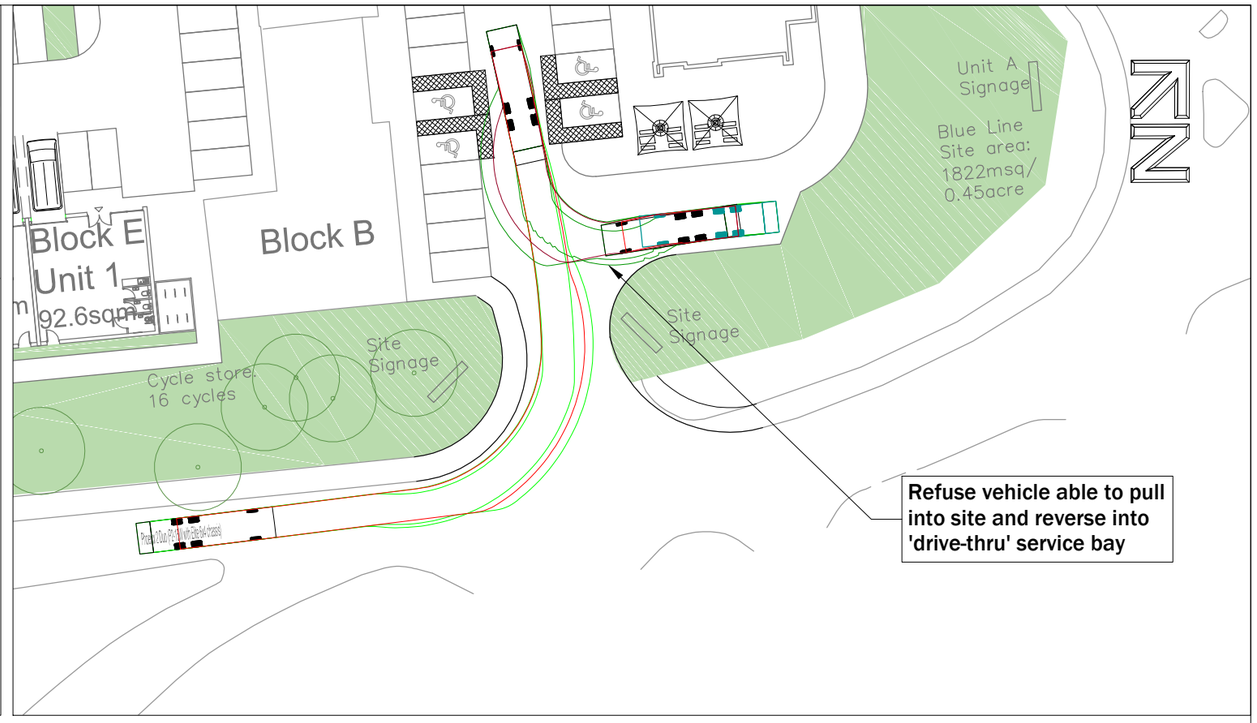

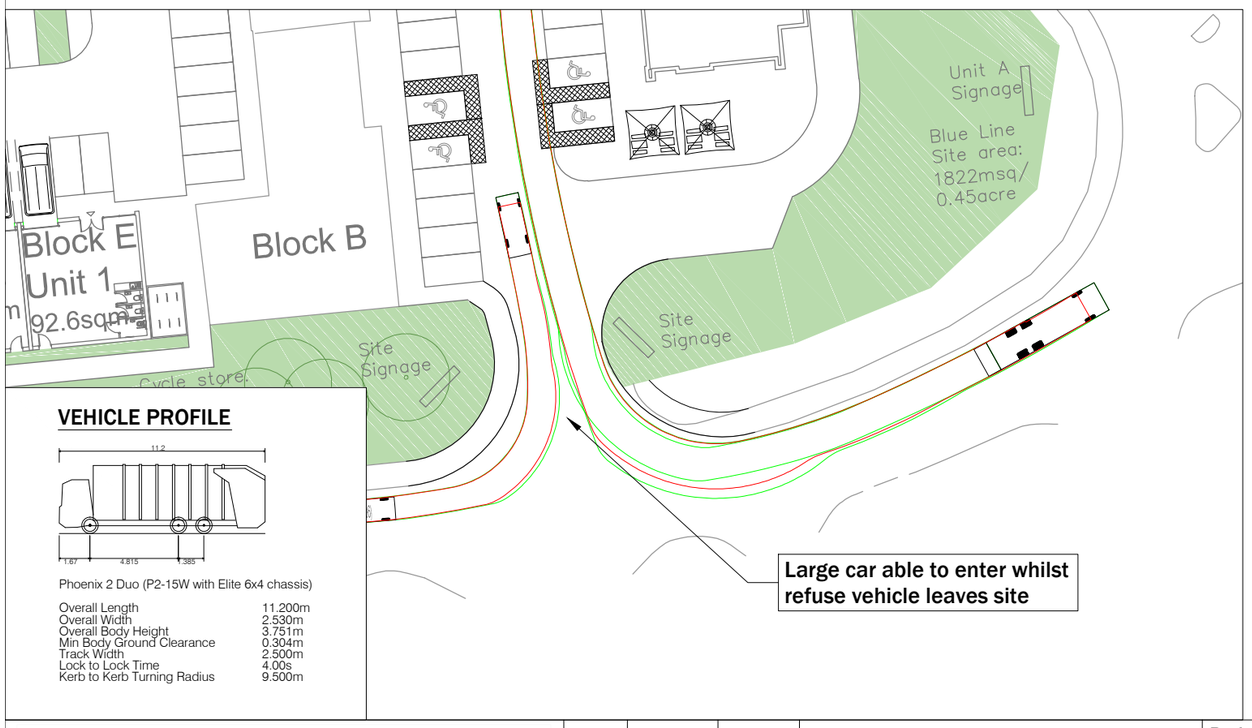

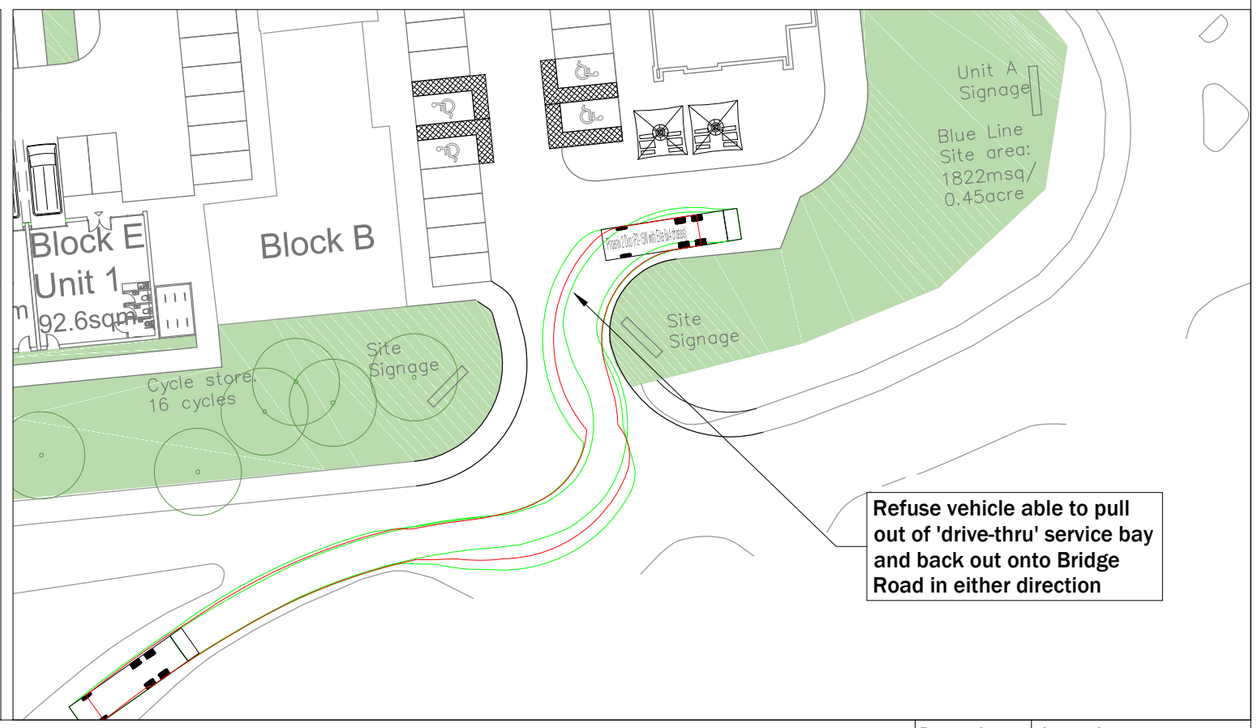

VEHICLE PROFILE

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

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

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Rev	Date	By	Revision notes
*	*	*	*

Status

INFORMATION

Project

THE BRIDGEWAY CENTRE, SITE 1
WREXHAM INDUSTRIAL ESTATE, WREXHAM, CLWYD

Title

BLOCK A-E BRIDGE ROAD ACCESS
SWEPT PATH ANALYSIS
- REFUSE VEHICLE

Drawn by	Issue date
VB	20 SEPT 2021

Scale(s)

1:500 @A3

Drawing No

P20030-002

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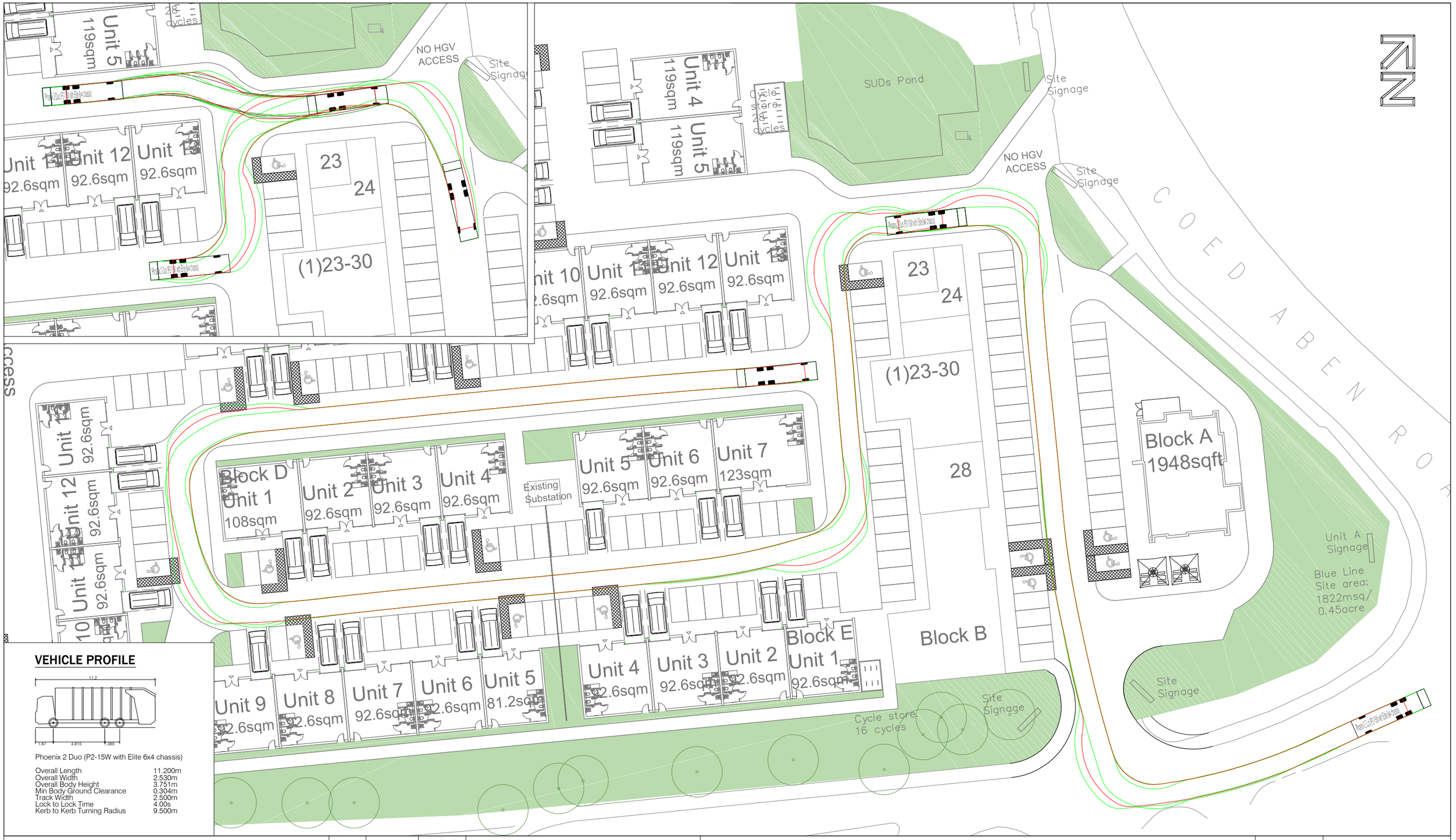

VEHICLE PROFILE

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

Overall Length	11.200m
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Rev	Date	By	Revision notes
*	*	*	*

Status

INFORMATION

Project

THE BRIDGEWAY CENTRE, SITE 1
WREXHAM INDUSTRIAL ESTATE, WREXHAM, CLWYD

Title

BLOCK A-E INTERNAL SWEPT PATH ANALYSIS
- REFUSE VEHICLE

Drawn by	Issue date
VB	20 SEPT 2021

Scale(s)

1:500 @A3

Drawing No

P20030-003

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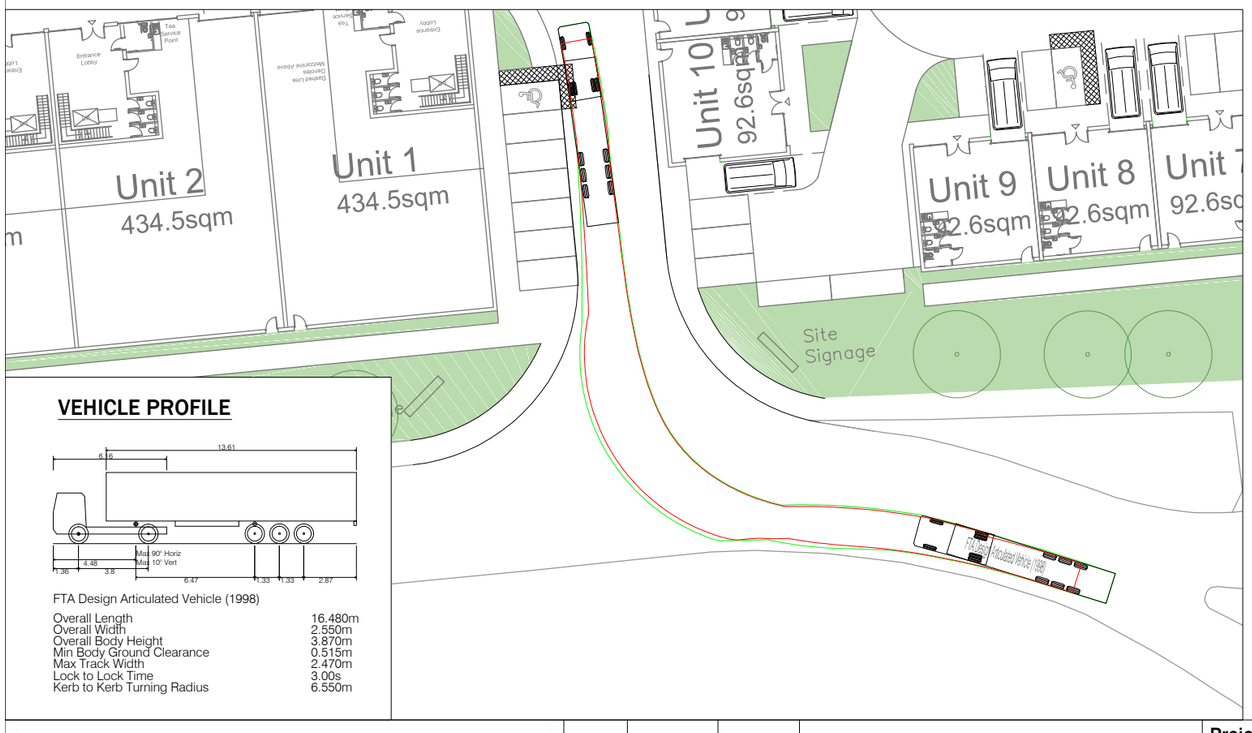
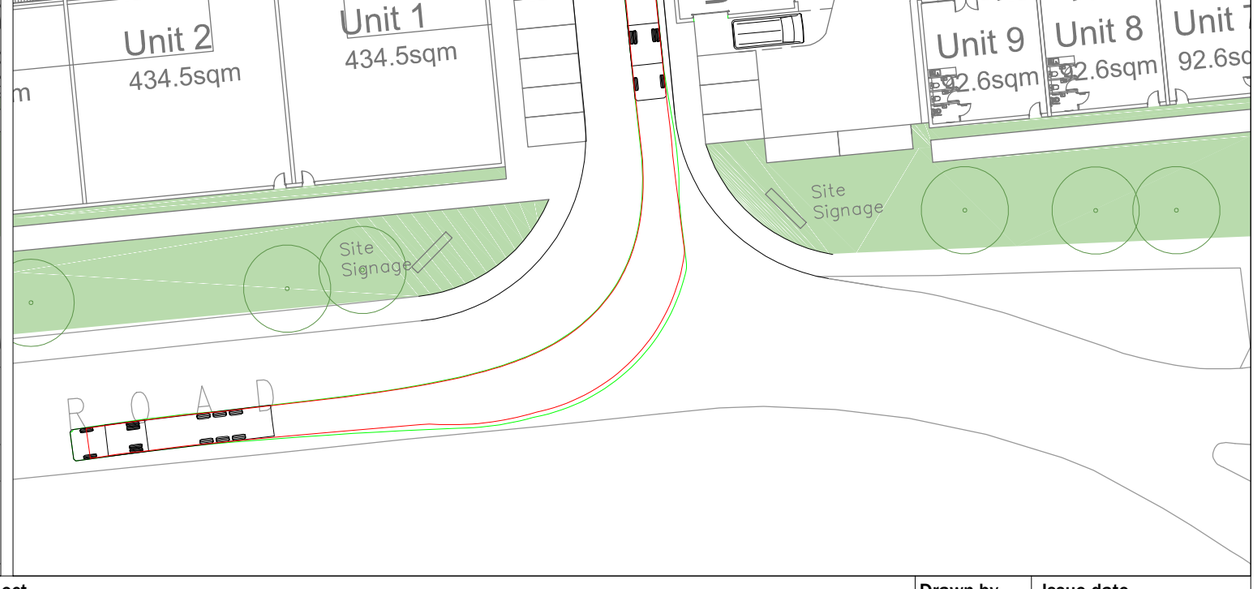


VEHICLE PROFILE

FTA Design Articulated Vehicle (1998)

Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to Lock Time	3.00s
Kerb to Kerb Turning Radius	6.550m



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Rev	Date	By	Revision notes
*	*	*	*

Status

INFORMATION

Project

THE BRIDGEWAY CENTRE, SITE 1
WREXHAM INDUSTRIAL ESTATE, WREXHAM, CLWYD

Title

BLOCK F-J BRIDGE ROAD ACCESS
SWEPT PATH ANALYSIS
- 16.5m ARTICULATED LORRY

Drawn by	Issue date
VB	20 SEPT 2021

Scale(s)

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Drawing No

P20030-004

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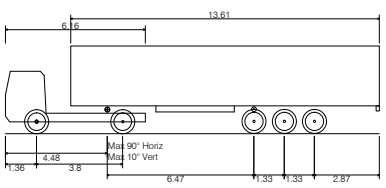
VEHICLE PROFILE



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Rev	Date	By	Revision notes
*	*	*	*

Status: **INFORMATION**

Project: **THE BRIDGEWAY CENTRE, SITE 1 WREXHAM INDUSTRIAL ESTATE, WREXHAM, CLWYD**

Title: **BLOCK F-J INTERNAL SWEPT PATH ANALYSIS - 16.5m ARTICULATED LORRY**

Drawn by	Issue date
VB	20 SEPT 2021

Scale(s): 1:1000 @A3

Drawing No: P20030-005

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APPENDIX C

BUS TIMETABLE

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41A Redwither Tower - Wrexham

Arriva Wales

Mondays to Fridays

Redwither Tower, Abbey Road, Ridley View	*dep*	**06:05**	**07:00**	**07:50**	**08:50**	**09:50**	**10:50**	**11:50**	**12:50**	**13:50**	**14:50**	**15:50**	**17:10**	**18:10**
Abbey Road, Abbey Road, Ridley View		06:05	07:00	07:50	08:50	09:50	10:50	11:50	12:50	13:50	14:50	15:50	17:10	18:10
Hoya Lens, Abbey Road, Ridley View		06:05	07:00	07:51	08:51	09:51	10:51	11:51	12:51	13:51	14:51	15:51	17:11	18:11
Wrexham Industrial Estate, Ash Road North, Pentre Maelo		06:06	07:01	07:52	08:52	09:52	10:52	11:52	12:52	13:52	14:52	15:52	17:12	18:12
Wrexham Industrial Estate, Ash Road North, Pentre Maelo		06:07	07:02	07:53	08:53	09:53	10:53	11:53	12:53	13:53	14:53	15:53	17:13	18:13
Pentre Maelor, Tenax, Ash Road (North)		06:07	07:02	07:53	08:53	09:53	10:53	11:53	12:53	13:53	14:53	15:53	17:13	18:13
Pentre Maelor, opp Stadex		06:08	07:03	07:54	08:54	09:54	10:54	11:54	12:54	13:54	14:54	15:54	17:14	18:14
Barclays Bank, Bridge Road, Pentre Maelor		06:08	07:03	07:55	08:55	09:55	10:55	11:55	12:55	13:55	14:55	15:55	17:15	18:15
Pentre Maelor, o/s Bridge Road SW		06:09	07:04	07:56	08:56	09:56	10:56	11:56	12:56	13:56	14:56	15:56	17:16	18:16
Pentre Maelor, Bridge Road South, Pentre Maelor		**06:10**	**07:05**	**07:57**	**08:57**	**09:57**	**10:57**	**11:57**	**12:57**	**13:57**	**14:57**	**15:57**	**17:17**	**18:17**
Llwyn Onn Estate, Cefn Road, Llwyn-onn		06:14	07:09	08:01	09:01	10:01	11:01	12:01	13:01	14:01	15:01	16:01	17:21	18:21
Coed-y-Bryn, Queensway, The Dunks		**06:15**	**07:10**	**08:02**	**09:02**	**10:02**	**11:02**	**12:02**	**13:02**	**14:02**	**15:02**	**16:02**	**17:22**	**18:22**
Bryn Hafod, Queensway, The Dunks		06:16	07:11	08:03	09:03	10:03	11:03	12:03	13:03	14:03	15:03	16:03	17:23	18:23
The Dunks, o/s Queensway Industrial Est		06:17	07:12	08:04	09:04	10:04	11:04	12:04	13:04	14:04	15:04	16:04	17:24	18:24
Queensway West, Queensway, The Dunks		06:18	07:13	08:05	09:05	10:05	11:05	12:05	13:05	14:05	15:05	16:05	17:25	18:25
Queensway Sports Complex, Queensway, Smithfield Road		06:19	07:14	08:06	09:06	10:06	11:06	12:06	13:06	14:06	15:06	16:06	17:26	18:26
Eagles Meadow, Grounds, Smithfield Road		06:20	07:15	08:07	09:07	10:07	11:07	12:07	13:07	14:07	15:07	16:07	17:27	18:27
Wrexham, Market Street (Stop C)		06:21	07:16	08:08	09:08	10:08	11:08	12:08	13:08	14:08	15:08	16:08	17:28	18:28
Rhosddu, o/s Yale College		06:23	07:18	08:10	09:10	10:10	11:10	12:10	13:10	14:10	15:10	16:10	17:30	18:30
Yale College Flyover, A5152, Rhosddu		06:23	07:18	08:10	09:10	10:10	11:10	12:10	13:10	14:10	15:10	16:10	17:30	18:30
Wrexham, Bus Station (Bay 2)	*arr*	**06:25**	**07:20**	**08:12**	**09:12**	**10:12**	**11:12**	**12:12**	**13:12**	**14:12**	**15:12**	**16:12**	**17:32**	**18:32**

Compiled from data for the period Thu 09-Sep-2021 to Wed 15-Sep-2021. Times not in bold are estimated by using the distance between the stops.

41A Redwither Tower - Wrexham

Arriva Wales

Saturdays

Redwither Tower, Abbey Road, Ridley View	*dep*	**06:05**	**07:00**	**07:50**	**08:50**	**09:50**	**10:50**	**11:50**	**12:50**	**13:50**	**14:50**	**15:50**	**16:50**	**18:10**
Abbey Road, Abbey Road, Ridley View		06:05	07:00	07:50	08:50	09:50	10:50	11:50	12:50	13:50	14:50	15:50	16:50	18:10
Hoya Lens, Abbey Road, Ridley View		06:05	07:00	07:51	08:51	09:51	10:51	11:51	12:51	13:51	14:51	15:51	16:51	18:11
Wrexham Industrial Estate, Ash Road North, Pentre Maelo		06:06	07:01	07:52	08:52	09:52	10:52	11:52	12:52	13:52	14:52	15:52	16:52	18:12
Wrexham Industrial Estate, Ash Road North, Pentre Maelo		06:07	07:02	07:53	08:53	09:53	10:53	11:53	12:53	13:53	14:53	15:53	16:53	18:13
Pentre Maelor, Tenax, Ash Road (North)		06:07	07:02	07:53	08:53	09:53	10:53	11:53	12:53	13:53	14:53	15:53	16:53	18:13
Pentre Maelor, opp Stadex		06:08	07:03	07:54	08:54	09:54	10:54	11:54	12:54	13:54	14:54	15:54	16:54	18:14
Barclays Bank, Bridge Road, Pentre Maelor		06:08	07:03	07:55	08:55	09:55	10:55	11:55	12:55	13:55	14:55	15:55	16:55	18:15
Pentre Maelor, o/s Bridge Road SW		06:09	07:04	07:56	08:56	09:56	10:56	11:56	12:56	13:56	14:56	15:56	16:56	18:16
Pentre Maelor, Bridge Road South, Pentre Maelor		**06:10**	**07:05**	**07:57**	**08:57**	**09:57**	**10:57**	**11:57**	**12:57**	**13:57**	**14:57**	**15:57**	**16:57**	**18:17**
Llwyn Onn Estate, Cefn Road, Llwyn-onn		06:14	07:09	08:01	09:01	10:01	11:01	12:01	13:01	14:01	15:01	16:01	17:01	18:21
Coed-y-Bryn, Queensway, The Dunks		**06:15**	**07:10**	**08:02**	**09:02**	**10:02**	**11:02**	**12:02**	**13:02**	**14:02**	**15:02**	**16:02**	**17:02**	**18:22**
Bryn Hafod, Queensway, The Dunks		06:16	07:11	08:03	09:03	10:03	11:03	12:03	13:03	14:03	15:03	16:03	17:03	18:23
The Dunks, o/s Queensway Industrial Est		06:17	07:12	08:04	09:04	10:04	11:04	12:04	13:04	14:04	15:04	16:04	17:04	18:24
Queensway West, Queensway, The Dunks		06:18	07:13	08:05	09:05	10:05	11:05	12:05	13:05	14:05	15:05	16:05	17:05	18:25
Queensway Sports Complex, Queensway, Smithfield Road		06:19	07:14	08:06	09:06	10:06	11:06	12:06	13:06	14:06	15:06	16:06	17:06	18:26
Eagles Meadow, Grounds, Smithfield Road		06:20	07:15	08:07	09:07	10:07	11:07	12:07	13:07	14:07	15:07	16:07	17:07	18:27
Wrexham, Market Street (Stop C)		06:21	07:16	08:08	09:08	10:08	11:08	12:08	13:08	14:08	15:08	16:08	17:08	18:28
Rhosddu, o/s Yale College		06:23	07:18	08:10	09:10	10:10	11:10	12:10	13:10	14:10	15:10	16:10	17:10	18:30
Yale College Flyover, A5152, Rhosddu		06:23	07:18	08:10	09:10	10:10	11:10	12:10	13:10	14:10	15:10	16:10	17:10	18:30
Wrexham, Bus Station (Bay 2)	*arr*	**06:25**	**07:20**	**08:12**	**09:12**	**10:12**	**11:12**	**12:12**	**13:12**	**14:12**	**15:12**	**16:12**	**17:12**	**18:32**

Compiled from data for the period Thu 09-Sep-2021 to Wed 15-Sep-2021. Times not in bold are estimated by using the distance between the stops.

41A Wrexham - Redwither Tower

Arriva Wales

Mondays to Fridays

Wrexham, Bus Station (Bay 2)	*dep*	**05:30**	**06:30**	**07:25**	**08:25**	**09:25**	**10:25**	**11:25**	**12:25**	**13:25**	**14:25**	**15:25**	**16:45**	**17:40**
Yale College Flyover, A5152, Rhosddu		05:31	06:31	07:26	08:26	09:26	10:26	11:26	12:26	13:26	14:26	15:26	16:46	17:41
Rhosddu, opp Yale College		05:32	06:32	07:27	08:27	09:27	10:27	11:27	12:27	13:27	14:27	15:27	16:47	17:42
Wrexham, Market Street (Stop B)		05:33	06:33	07:28	08:28	09:28	10:28	11:28	12:28	13:28	14:28	15:28	16:48	17:43
Tesco, St Georges Crescent, Wrexham		05:34	06:34	07:29	08:29	09:29	10:29	11:29	12:29	13:29	14:29	15:29	16:49	17:44
Queensway West, Queensway, The Dunks		05:36	06:36	07:31	08:31	09:31	10:31	11:31	12:31	13:31	14:31	15:31	16:51	17:46
The Dunks, opp Queensway Industrial Est		05:37	06:37	07:32	08:32	09:32	10:32	11:32	12:32	13:32	14:32	15:32	16:52	17:47
Bryn Hafod, Queensway, The Dunks		05:38	06:38	07:33	08:33	09:33	10:33	11:33	12:33	13:33	14:33	15:33	16:53	17:48
Coed-y-Bryn, Queensway, The Dunks		**05:40**	**06:40**	**07:35**	**08:35**	**09:35**	**10:35**	**11:35**	**12:35**	**13:35**	**14:35**	**15:35**	**16:55**	**17:50**
Llwyn Onn Estate, Cefn Road, Llwyn-onn		05:40	06:40	07:35	08:35	09:35	10:35	11:35	12:35	13:35	14:35	15:35	16:55	17:50
Pentre Maelor, Bridge Road South, Pentre Maelor		**05:45**	**06:45**	**07:40**	**08:40**	**09:40**	**10:40**	**11:40**	**12:40**	**13:40**	**14:40**	**15:40**	**17:00**	**17:55**
Bridge Road, Bridge Road, Pentre Maelor		05:45	06:45	07:41	08:41	09:41	10:41	11:41	12:41	13:41	14:41	15:41	17:01	17:56
Pentre Maelor, o/s Bridge Road NE		05:46	06:46	07:41	08:41	09:41	10:41	11:41	12:41	13:41	14:41	15:41	17:01	17:56
Barclays Bank, Bridge Road, Ridley View		05:46	06:46	07:42	08:42	09:42	10:42	11:42	12:42	13:42	14:42	15:42	17:02	17:57
Bridge Road North, Bridge Road North, Redwither		05:48	06:48	07:44	08:44	09:44	10:44	11:44	12:44	13:44	14:44	15:44	17:04	17:59
Redwither Tower, Abbey Road, Ridley View	*arr*	**05:50**	**06:50**	**07:47**	**08:47**	**09:47**	**10:47**	**11:47**	**12:47**	**13:47**	**14:47**	**15:47**	**17:07**	**18:02**

Compiled from data for the period Thu 09-Sep-2021 to Wed 15-Sep-2021. Times not in bold are estimated by using the distance between the stops.

41A Wrexham - Redwither Tower

Arriva Wales

Saturdays

Wrexham, Bus Station (Bay 2)	*dep*	**05:30**	**06:30**	**07:25**	**08:25**	**09:25**	**10:25**	**11:25**	**12:25**	**13:25**	**14:25**	**15:25**	**16:25**	**17:25**
Yale College Flyover, A5152, Rhosddu		05:31	06:31	07:26	08:26	09:26	10:26	11:26	12:26	13:26	14:26	15:26	16:26	17:26
Rhosddu, opp Yale College		05:32	06:32	07:27	08:27	09:27	10:27	11:27	12:27	13:27	14:27	15:27	16:27	17:27
Wrexham, Market Street (Stop B)		05:33	06:33	07:28	08:28	09:28	10:28	11:28	12:28	13:28	14:28	15:28	16:28	17:28
Tesco, St Georges Crescent, Wrexham		05:34	06:34	07:29	08:29	09:29	10:29	11:29	12:29	13:29	14:29	15:29	16:29	17:29
Queensway West, Queensway, The Dunks		05:36	06:36	07:31	08:31	09:31	10:31	11:31	12:31	13:31	14:31	15:31	16:31	17:31
The Dunks, opp Queensway Industrial Est		05:37	06:37	07:32	08:32	09:32	10:32	11:32	12:32	13:32	14:32	15:32	16:32	17:32
Bryn Hafod, Queensway, The Dunks		05:38	06:38	07:33	08:33	09:33	10:33	11:33	12:33	13:33	14:33	15:33	16:33	17:33
Coed-y-Bryn, Queensway, The Dunks		**05:40**	**06:40**	**07:35**	**08:35**	**09:35**	**10:35**	**11:35**	**12:35**	**13:35**	**14:35**	**15:35**	**16:35**	**17:35**
Llwyn Onn Estate, Cefn Road, Llwyn-onn		05:40	06:40	07:35	08:35	09:35	10:35	11:35	12:35	13:35	14:35	15:35	16:35	17:35
Pentre Maelor, Bridge Road South, Pentre Maelor		**05:45**	**06:45**	**07:40**	**08:40**	**09:40**	**10:40**	**11:40**	**12:40**	**13:40**	**14:40**	**15:40**	**16:40**	**17:40**
Bridge Road, Bridge Road, Pentre Maelor		05:45	06:45	07:41	08:41	09:41	10:41	11:41	12:41	13:41	14:41	15:41	16:41	17:41
Pentre Maelor, o/s Bridge Road NE		05:46	06:46	07:41	08:41	09:41	10:41	11:41	12:41	13:41	14:41	15:41	16:41	17:41
Barclays Bank, Bridge Road, Ridley View		05:46	06:46	07:42	08:42	09:42	10:42	11:42	12:42	13:42	14:42	15:42	16:42	17:42
Bridge Road North, Bridge Road North, Redwither		05:48	06:48	07:44	08:44	09:44	10:44	11:44	12:44	13:44	14:44	15:44	16:44	17:44
Redwither Tower, Abbey Road, Ridley View	*arr*	**05:50**	**06:50**	**07:47**	**08:47**	**09:47**	**10:47**	**11:47**	**12:47**	**13:47**	**14:47**	**15:47**	**16:47**	**17:47**

Compiled from data for the period Thu 09-Sep-2021 to Wed 15-Sep-2021. Times not in bold are estimated by using the distance between the stops.

APPENDIX D

TRICS REPORT OUTPUTS

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Calculation Reference: AUDIT-753001-200522-0544

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : D - INDUSTRIAL ESTATE
VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	2 days
03	SOUTH WEST		
	DV	DEVON	2 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	1 days
	NR	NORTHAMPTONSHIRE	1 days
06	WEST MIDLANDS		
	WO	WORCESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORKSHIRE	4 days
08	NORTH WEST		
	LC	LANCASHIRE	2 days
10	WALES		
	SW	SWANSEA	2 days
	VG	VALE OF GLAMORGAN	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
Actual Range: 1775 to 13091 (units: sqm)
Range Selected by User: 552 to 16000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 11/10/09 to 10/10/19

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

Selected survey days:

Monday	5 days
Tuesday	3 days
Wednesday	2 days
Thursday	2 days
Friday	5 days

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

Selected survey types:

Manual count	17 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	17

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

Selected Location Sub Categories:

Industrial Zone	12
Commercial Zone	1
Development Zone	1
No Sub Category	3

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

Secondary Filtering selection:

Use Class:

n/a	1 days
Not Known	2 days
B1	4 days
B2	5 days
B8	5 days

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

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	1 days
10,001 to 15,000	5 days
15,001 to 20,000	2 days
20,001 to 25,000	4 days
25,001 to 50,000	4 days

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

Population within 5 miles:

75,001 to 100,000	1 days
100,001 to 125,000	2 days
125,001 to 250,000	12 days
250,001 to 500,000	2 days

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

Car ownership within 5 miles:

0.6 to 1.0	6 days
1.1 to 1.5	10 days
1.6 to 2.0	1 days

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

Travel Plan:

No	17 days

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

PTAL Rating:

No PTAL Present	17 days

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

LIST OF SITES relevant to selection parameters

1 CA-02-D-02 IND. ESTATE CAMBRIDGESHIRE
COLDHAM'S ROAD
CAMBRIDGE
COLDHAM'S COMMON
Edge of Town
Industrial Zone
Total Gross floor area: 2063 sqm
Survey date: MONDAY 19/10/09 Survey Type: MANUAL

2 DV-02-D-06 INDUSTRIAL ESTATE DEVON
ST MODWEN ROAD
PLYMOUTH

Edge of Town
Industrial Zone
Total Gross floor area: 1775 sqm
Survey date: TUESDAY 17/07/12 Survey Type: MANUAL

3 DV-02-D-07 INDUSTRIAL ESTATE DEVON
BITTERN ROAD
EXETER
SOWTON IND. ESTATE
Edge of Town
Industrial Zone
Total Gross floor area: 3600 sqm
Survey date: MONDAY 03/07/17 Survey Type: MANUAL

4 EX-02-D-03 INDUSTRIAL ESTATE ESSEX
WYNCOLLS ROAD
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 4876 sqm
Survey date: FRIDAY 18/05/18 Survey Type: MANUAL

5 EX-02-D-05 INDUSTRIAL ESTATE ESSEX
HECKWORTH CLOSE
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 7280 sqm
Survey date: FRIDAY 18/05/18 Survey Type: MANUAL

6 LC-02-D-07 INDUSTRIAL ESTATE LANCASHIRE
CHAIN CAUL WAY
PRESTON
ASHTON-ON-RIBBLE
Edge of Town
Industrial Zone
Total Gross floor area: 4700 sqm
Survey date: FRIDAY 17/11/17 Survey Type: MANUAL

7 LC-02-D-08 INDUSTRIAL ESTATE LANCASHIRE
NOOK LANE
BAMBER BRIDGE

Edge of Town
Industrial Zone
Total Gross floor area: 4000 sqm
Survey date: TUESDAY 06/11/18 Survey Type: MANUAL

8 LN-02-D-03 INDUSTRIAL ESTATE LINCOLNSHIRE
DEACON ROAD
LINCOLN

Edge of Town
Industrial Zone
Total Gross floor area: 11265 sqm
Survey date: FRIDAY 28/06/19 Survey Type: MANUAL

9 NR-02-D-01 INDUSTRIAL ESTATE NORTHAMPTONSHIRE
ROBINSON WAY
KETTERING

Edge of Town
Industrial Zone
Total Gross floor area: 12900 sqm
Survey date: THURSDAY 23/10/14 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

10 SW-02-D-01 INDUSTRIAL ESTATE SWANSEA
UPPER FOREST WAY
SWANSEA
SWANSEA ENTERPRISE PK
Edge of Town
Industrial Zone
Total Gross floor area: 6822 sqm
Survey date: WEDNESDAY 09/10/19 Survey Type: MANUAL

11 SW-02-D-02 INDUSTRIAL ESTATE SWANSEA
CLARION COURT
SWANSEA
SWANSEA ENTERPRISE PK
Edge of Town
Industrial Zone
Total Gross floor area: 5280 sqm
Survey date: THURSDAY 10/10/19 Survey Type: MANUAL

12 VG-02-D-01 INDUSTRIAL ESTATE VALE OF GLAMORGAN
ARTHUR STREET
BARRY

Edge of Town
No Sub Category
Total Gross floor area: 13091 sqm
Survey date: MONDAY 08/05/17 Survey Type: MANUAL

13 WO-02-D-01 INDUSTRIAL ESTATE WORCESTERSHIRE
SANDY LANE
STOURPORT-ON-SEVERN

Edge of Town
Commercial Zone
Total Gross floor area: 2758 sqm
Survey date: FRIDAY 23/05/14 Survey Type: MANUAL

14 WY-02-D-05 INDUSTRIAL ESTATE WEST YORKSHIRE
CARR WOOD ROAD
CASTLEFORD

Edge of Town
Development Zone
Total Gross floor area: 1776 sqm
Survey date: MONDAY 22/05/17 Survey Type: MANUAL

15 WY-02-D-06 INDUSTRIAL ESTATE (PART) WEST YORKSHIRE
PIONEER WAY
CASTLEFORD

Edge of Town
Industrial Zone
Total Gross floor area: 4328 sqm
Survey date: TUESDAY 23/05/17 Survey Type: MANUAL

16 WY-02-D-07 INDUSTRIAL ESTATE WEST YORKSHIRE
THUNDERHEAD RIDGE RD
CASTLEFORD
GLASSHOUGHTON
Edge of Town
No Sub Category
Total Gross floor area: 3191 sqm
Survey date: MONDAY 15/05/17 Survey Type: MANUAL

17 WY-02-D-08 INDUSTRIAL ESTATE WEST YORKSHIRE
MILL LANE
HALIFAX

Edge of Town
No Sub Category
Total Gross floor area: 11305 sqm
Survey date: WEDNESDAY 17/10/18 Survey Type: MANUAL

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.074	2	6051	0.008	2	6051	0.082
06:00 - 07:00	3	7789	0.128	3	7789	0.021	3	7789	0.149
07:00 - 08:00	17	5942	0.502	17	5942	0.137	17	5942	0.639
08:00 - 09:00	17	5942	0.606	17	5942	0.376	17	5942	0.982
09:00 - 10:00	17	5942	0.539	17	5942	0.403	17	5942	0.942
10:00 - 11:00	17	5942	0.498	17	5942	0.468	17	5942	0.966
11:00 - 12:00	17	5942	0.493	17	5942	0.520	17	5942	1.013
12:00 - 13:00	17	5942	0.485	17	5942	0.531	17	5942	1.016
13:00 - 14:00	17	5942	0.502	17	5942	0.501	17	5942	1.003
14:00 - 15:00	17	5942	0.448	17	5942	0.478	17	5942	0.926
15:00 - 16:00	17	5942	0.389	17	5942	0.478	17	5942	0.867
16:00 - 17:00	17	5942	0.451	17	5942	0.624	17	5942	1.075
17:00 - 18:00	17	5942	0.271	17	5942	0.543	17	5942	0.814
18:00 - 19:00	17	5942	0.091	17	5942	0.235	17	5942	0.326
19:00 - 20:00	3	7789	0.009	3	7789	0.158	3	7789	0.167
20:00 - 21:00	3	7789	0.000	3	7789	0.047	3	7789	0.047
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			5.486			5.528			11.014

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

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

Parameter summary

Trip rate parameter range selected:	1775 - 13091 (units: sqm)
Survey date date range:	11/10/09 - 10/10/19
Number of weekdays (Monday-Friday):	17
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
TAXIS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
07:00 - 08:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
08:00 - 09:00	17	5942	0.003	17	5942	0.002	17	5942	0.005
09:00 - 10:00	17	5942	0.002	17	5942	0.001	17	5942	0.003
10:00 - 11:00	17	5942	0.001	17	5942	0.002	17	5942	0.003
11:00 - 12:00	17	5942	0.001	17	5942	0.001	17	5942	0.002
12:00 - 13:00	17	5942	0.001	17	5942	0.001	17	5942	0.002
13:00 - 14:00	17	5942	0.001	17	5942	0.001	17	5942	0.002
14:00 - 15:00	17	5942	0.002	17	5942	0.002	17	5942	0.004
15:00 - 16:00	17	5942	0.001	17	5942	0.000	17	5942	0.001
16:00 - 17:00	17	5942	0.002	17	5942	0.002	17	5942	0.004
17:00 - 18:00	17	5942	0.001	17	5942	0.002	17	5942	0.003
18:00 - 19:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.015			0.014			0.029

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.004	3	7789	0.000	3	7789	0.004
07:00 - 08:00	17	5942	0.018	17	5942	0.006	17	5942	0.024
08:00 - 09:00	17	5942	0.031	17	5942	0.039	17	5942	0.070
09:00 - 10:00	17	5942	0.040	17	5942	0.035	17	5942	0.075
10:00 - 11:00	17	5942	0.039	17	5942	0.041	17	5942	0.080
11:00 - 12:00	17	5942	0.030	17	5942	0.040	17	5942	0.070
12:00 - 13:00	17	5942	0.032	17	5942	0.027	17	5942	0.059
13:00 - 14:00	17	5942	0.039	17	5942	0.021	17	5942	0.060
14:00 - 15:00	17	5942	0.025	17	5942	0.031	17	5942	0.056
15:00 - 16:00	17	5942	0.019	17	5942	0.021	17	5942	0.040
16:00 - 17:00	17	5942	0.013	17	5942	0.014	17	5942	0.027
17:00 - 18:00	17	5942	0.005	17	5942	0.011	17	5942	0.016
18:00 - 19:00	17	5942	0.000	17	5942	0.003	17	5942	0.003
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.295			0.289			0.584

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
PSVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
07:00 - 08:00	17	5942	0.000	17	5942	0.006	17	5942	0.006
08:00 - 09:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
09:00 - 10:00	17	5942	0.003	17	5942	0.001	17	5942	0.004
10:00 - 11:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
11:00 - 12:00	17	5942	0.001	17	5942	0.000	17	5942	0.001
12:00 - 13:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
13:00 - 14:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
14:00 - 15:00	17	5942	0.000	17	5942	0.004	17	5942	0.004
15:00 - 16:00	17	5942	0.001	17	5942	0.000	17	5942	0.001
16:00 - 17:00	17	5942	0.002	17	5942	0.000	17	5942	0.002
17:00 - 18:00	17	5942	0.001	17	5942	0.000	17	5942	0.001
18:00 - 19:00	17	5942	0.003	17	5942	0.000	17	5942	0.003
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.011			0.011			0.022

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
CYCLISTS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
07:00 - 08:00	17	5942	0.010	17	5942	0.001	17	5942	0.011
08:00 - 09:00	17	5942	0.008	17	5942	0.004	17	5942	0.012
09:00 - 10:00	17	5942	0.003	17	5942	0.002	17	5942	0.005
10:00 - 11:00	17	5942	0.000	17	5942	0.003	17	5942	0.003
11:00 - 12:00	17	5942	0.005	17	5942	0.005	17	5942	0.010
12:00 - 13:00	17	5942	0.001	17	5942	0.001	17	5942	0.002
13:00 - 14:00	17	5942	0.003	17	5942	0.002	17	5942	0.005
14:00 - 15:00	17	5942	0.002	17	5942	0.006	17	5942	0.008
15:00 - 16:00	17	5942	0.003	17	5942	0.006	17	5942	0.009
16:00 - 17:00	17	5942	0.004	17	5942	0.003	17	5942	0.007
17:00 - 18:00	17	5942	0.004	17	5942	0.010	17	5942	0.014
18:00 - 19:00	17	5942	0.000	17	5942	0.002	17	5942	0.002
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.043			0.045			0.088

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
Light Vehicles (LV)
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
07:00 - 08:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
08:00 - 09:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
09:00 - 10:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
10:00 - 11:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
11:00 - 12:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
12:00 - 13:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
13:00 - 14:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
14:00 - 15:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
15:00 - 16:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
16:00 - 17:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
17:00 - 18:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
18:00 - 19:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
Rigid Trucks - No Trailer (OGV1)
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
07:00 - 08:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
08:00 - 09:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
09:00 - 10:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
10:00 - 11:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
11:00 - 12:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
12:00 - 13:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
13:00 - 14:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
14:00 - 15:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
15:00 - 16:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
16:00 - 17:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
17:00 - 18:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
18:00 - 19:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
Trucks Towing Trailers (OGV2)
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
07:00 - 08:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
08:00 - 09:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
09:00 - 10:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
10:00 - 11:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
11:00 - 12:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
12:00 - 13:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
13:00 - 14:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
14:00 - 15:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
15:00 - 16:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
16:00 - 17:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
17:00 - 18:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
18:00 - 19:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
Buses
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
07:00 - 08:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
08:00 - 09:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
09:00 - 10:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
10:00 - 11:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
11:00 - 12:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
12:00 - 13:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
13:00 - 14:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
14:00 - 15:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
15:00 - 16:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
16:00 - 17:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
17:00 - 18:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
18:00 - 19:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
Non-Motorised Vehicles (NMV)
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
07:00 - 08:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
08:00 - 09:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
09:00 - 10:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
10:00 - 11:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
11:00 - 12:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
12:00 - 13:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
13:00 - 14:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
14:00 - 15:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
15:00 - 16:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
16:00 - 17:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
17:00 - 18:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
18:00 - 19:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
Cycles
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
07:00 - 08:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
08:00 - 09:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
09:00 - 10:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
10:00 - 11:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
11:00 - 12:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
12:00 - 13:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
13:00 - 14:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
14:00 - 15:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
15:00 - 16:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
16:00 - 17:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
17:00 - 18:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
18:00 - 19:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
Scooters
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
07:00 - 08:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
08:00 - 09:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
09:00 - 10:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
10:00 - 11:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
11:00 - 12:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
12:00 - 13:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
13:00 - 14:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
14:00 - 15:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
15:00 - 16:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
16:00 - 17:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
17:00 - 18:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
18:00 - 19:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
Non-Vehicular People Movements (NVPM)
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	2	6051	0.000	2	6051	0.000	2	6051	0.000
06:00 - 07:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
07:00 - 08:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
08:00 - 09:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
09:00 - 10:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
10:00 - 11:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
11:00 - 12:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
12:00 - 13:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
13:00 - 14:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
14:00 - 15:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
15:00 - 16:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
16:00 - 17:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
17:00 - 18:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
18:00 - 19:00	17	5942	0.000	17	5942	0.000	17	5942	0.000
19:00 - 20:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
20:00 - 21:00	3	7789	0.000	3	7789	0.000	3	7789	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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

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

Calculation Reference: AUDIT-753001-210917-0928

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	SO	SLOUGH	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
10	WALES		
	CO	CONWY	1 days
11	SCOTLAND		
	AD	ABERDEEN CITY	1 days
	FI	FIFE	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
Actual Range: 275 to 480 (units: sqm)
Range Selected by User: 182 to 800 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 03/10/10 to 02/10/20

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

Selected survey days:

Tuesday	2 days
Wednesday	1 days
Friday	2 days

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

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	4

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

Selected Location Sub Categories:

Development Zone	1
Residential Zone	2
Out of Town	1
No Sub Category	1

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

Secondary Filtering selection:

Use Class:

Not Known	5 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000	2 days
10,001 to 15,000	1 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days

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

Population within 5 miles:

25,001 to 50,000	1 days
100,001 to 125,000	2 days
125,001 to 250,000	2 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	3 days

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

Travel Plan:

No	5 days

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

PTAL Rating:

No PTAL Present	5 days

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

LIST OF SITES relevant to selection parameters

1 AD-06-D-02 BURGER KING ABERDEEN CITY
WELLINGTON ROAD
ABERDEEN
ALTENS
Edge of Town
No Sub Category
Total Gross floor area: 300 sqm
Survey date: FRIDAY *22/11/19* *Survey Type: MANUAL*

2 CA-06-D-02 MCDONALD'S CAMBRIDGESHIRE
NEWMARKET ROAD
CAMBRIDGE

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 435 sqm
Survey date: TUESDAY *19/09/17* *Survey Type: MANUAL*

3 CO-06-D-01 MCDONALD'S CONWY
RHUDDLAN ROAD
ABERGELE

Edge of Town
Out of Town
Total Gross floor area: 410 sqm
Survey date: FRIDAY *21/10/11* *Survey Type: MANUAL*

4 FI-06-D-02 KFC FIFE
WHIMBREL PLACE
DUNFERMLINE
HALBEATH
Edge of Town
Development Zone
Total Gross floor area: 275 sqm
Survey date: TUESDAY *22/03/16* *Survey Type: MANUAL*

5 SO-06-D-01 MCDONALD'S SLOUGH
WINDSOR ROAD
SLOUGH

Edge of Town
Residential Zone
Total Gross floor area: 480 sqm
Survey date: WEDNESDAY *21/11/12* *Survey Type: MANUAL*

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
VG-06-D-01	covid surveys
WO-06-D-01	covid surveys

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/D - FAST FOOD - DRIVE THROUGH
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	480	0.417	1	480	0.000	1	480	0.417
06:00 - 07:00	2	445	3.708	2	445	2.921	2	445	6.629
07:00 - 08:00	4	406	5.538	4	406	4.677	4	406	10.215
08:00 - 09:00	4	406	8.062	4	406	7.754	4	406	15.816
09:00 - 10:00	4	406	7.508	4	406	7.262	4	406	14.770
10:00 - 11:00	5	380	6.368	5	380	6.316	5	380	12.684
11:00 - 12:00	5	380	9.579	5	380	8.526	5	380	18.105
12:00 - 13:00	5	380	16.789	5	380	15.579	5	380	32.368
13:00 - 14:00	5	380	13.526	5	380	15.842	5	380	29.368
14:00 - 15:00	5	380	10.000	5	380	11.053	5	380	21.053
15:00 - 16:00	5	380	8.158	5	380	8.158	5	380	16.316
16:00 - 17:00	5	380	10.368	5	380	9.737	5	380	20.105
17:00 - 18:00	5	380	10.000	5	380	10.000	5	380	20.000
18:00 - 19:00	5	380	11.789	5	380	11.316	5	380	23.105
19:00 - 20:00	5	380	9.947	5	380	10.737	5	380	20.684
20:00 - 21:00	5	380	6.211	5	380	7.053	5	380	13.264
21:00 - 22:00	5	380	5.053	5	380	4.895	5	380	9.948
22:00 - 23:00	4	366	2.662	4	366	3.413	4	366	6.075
23:00 - 24:00	1	480	0.000	1	480	0.417	1	480	0.417
Total Rates:			145.683			145.656			291.339

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

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

Parameter summary

Trip rate parameter range selected:	275 - 480 (units: sqm)
Survey date date range:	03/10/10 - 02/10/20
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	2

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

APPENDIX E

TRAFFIC FLOW DIAGRAMS

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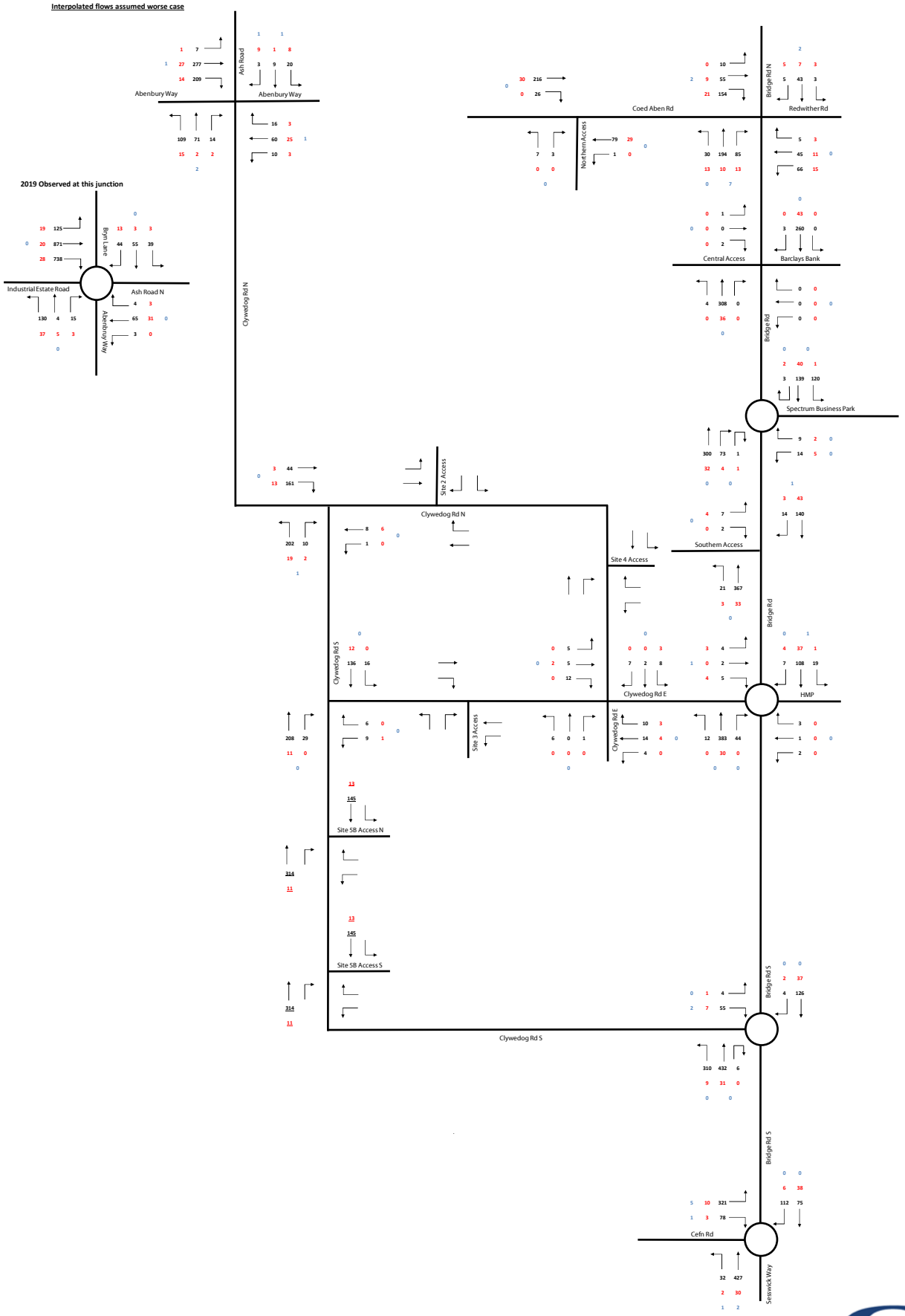
Traffic Flow Diagrams			
Reference	**Scenario**	**Peak**	**Derivation**
1	Traffic Flow Diagram 1 - 2018 Observed Flows	AM (0745-0845)	Raw Data
2	Traffic Flow Diagram 2 - 2018 Observed Flows	PM (1615-1715)	Raw Data
3	Traffic Flow Diagram 3 - 2036 Base	AM (0745-0845)	1*TEMPro
4	Traffic Flow Diagram 4 - 2036 Base	PM (1615-1715)	2*TEMPro
5	Traffic Flow Diagram 5 - Site 2 Generated Traffic	AM (0745-0845)	Consented app
6	Traffic Flow Diagram 6 - Site 2 Generated Traffic	PM (1615-1715)	Consented app
7	Traffic Flow Diagram 7 - Site 3 Generated Traffic	AM (0745-0845)	Consented app
8	Traffic Flow Diagram 8 - Site 3 Generated Traffic	PM (1615-1715)	Consented app
9	Traffic Flow Diagram 9 - Site 4 Generated Traffic	AM (0745-0845)	Consented app
10	Traffic Flow Diagram 10 - Site 4 Generated Traffic	PM (1615-1715)	Consented app
11	Traffic Flow Diagram 11 - Site 5 Generated Traffic	AM (0745-0845)	Consented app
12	Traffic Flow Diagram 12 - Site 5 Generated Traffic	PM (1615-1715)	Consented app
13	Traffic Flow Diagram 13 - The Oaks Generated Traffic	AM (0745-0845)	Pending app
14	Traffic Flow Diagram 14 - The Oaks Generated Traffic	PM (1615-1715)	Pending app
15	Traffic Flow Diagram 15 - Total Committed Development	AM (0745-0845)	5+7+9+11+13
16	Traffic Flow Diagram 16 - Total Committed Development	PM (1615-1715)	6+8+10+12+14
17	Traffic Flow Diagram 17 - 2036 Without Development	AM (0745-0845)	3+15
18	Traffic Flow Diagram 18 - 2036 Without Development	PM (1615-1715)	4+16
19	Traffic Flow Diagram 19 - Distribution: Employment Trips	Both	Census MTW
20	Traffic Flow Diagram 20 - Development Traffic: Employment Trips	AM (0745-0845)	TRICS * 19
21	Traffic Flow Diagram 21 - Development Traffic: Employment Trips	PM (1615-1715)	TRICS * 19
22	Traffic Flow Diagram 22 - Development Traffic: New Retail	AM (0745-0845)	TRICS * 17
23	Traffic Flow Diagram 23 - Development Traffic: New Retail	PM (1615-1715)	TRICS * 18
24	Traffic Flow Diagram 24 - 2036 With Development	AM (0745-0845)	17+20+22
25	Traffic Flow Diagram 25 - 2036 With Development	PM (1615-1715)	18+21+23

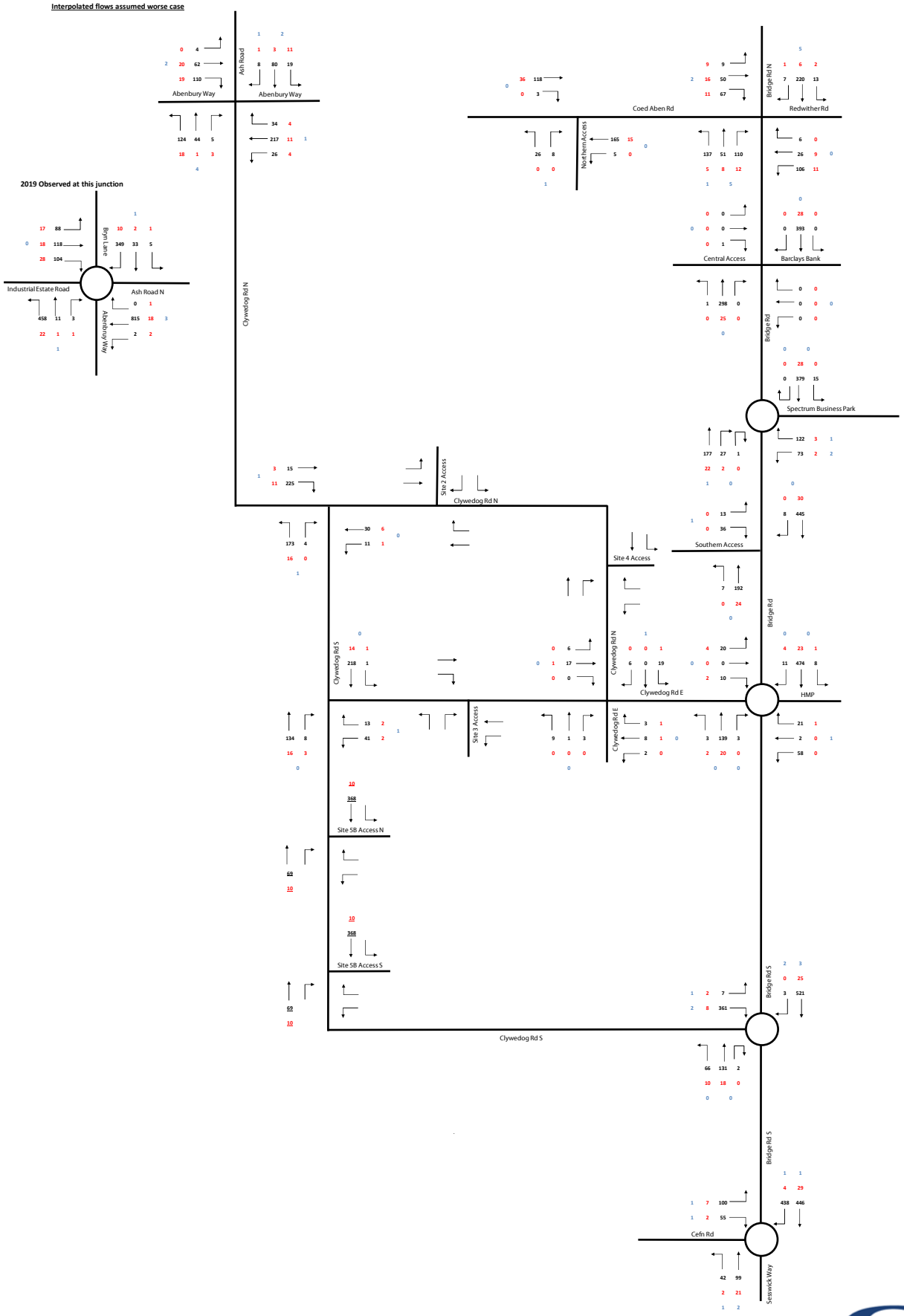
Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 1 - 2018 Observed Flows
Peak AM (0745-0845)

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
Observed queues in blue
Interpolated flows assumed worse case

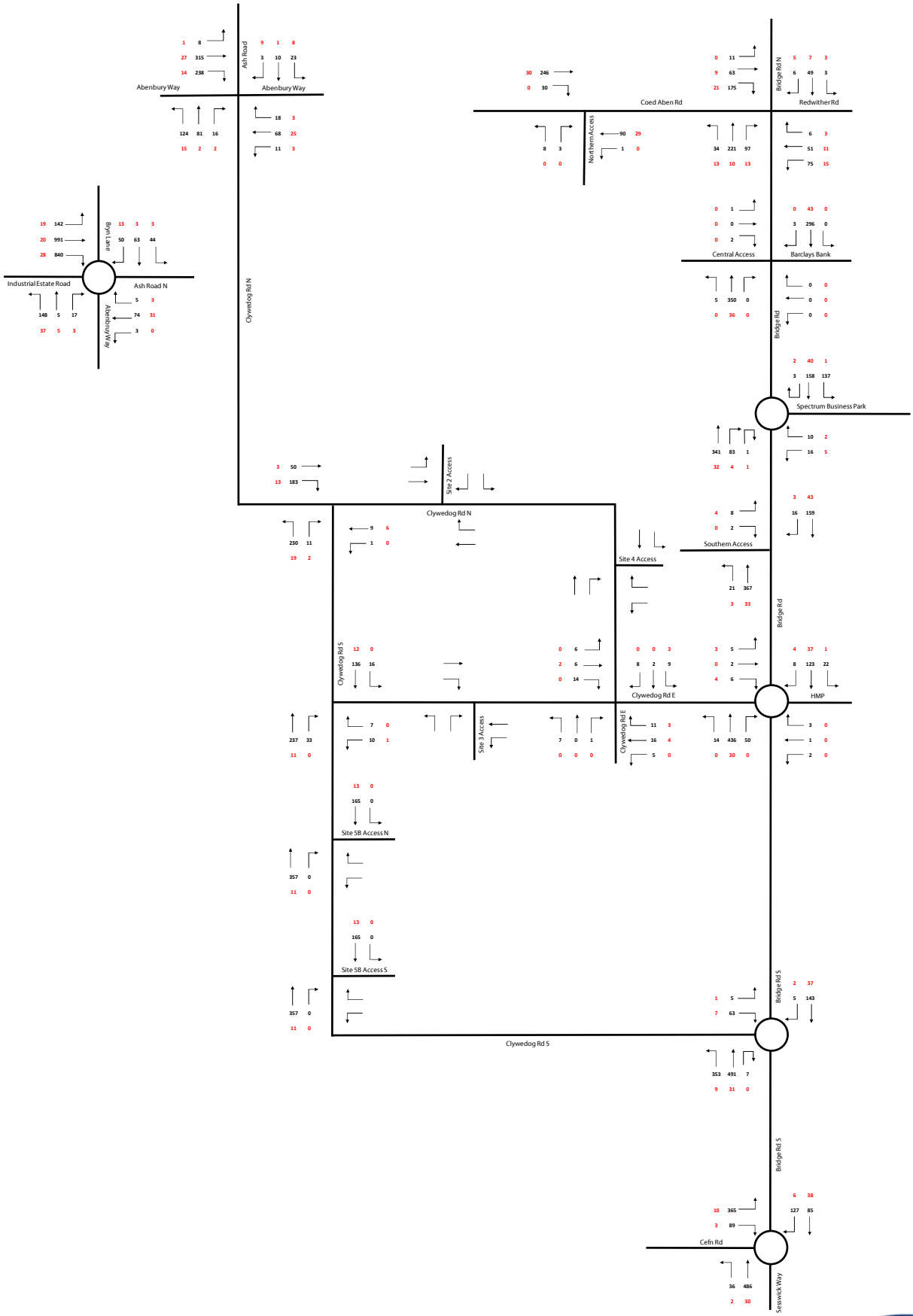


Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 2 - 2018 Observed Flows
Peak PM (1615-1715)

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
Observed queues in blue
Interpolated flows assumed worse case

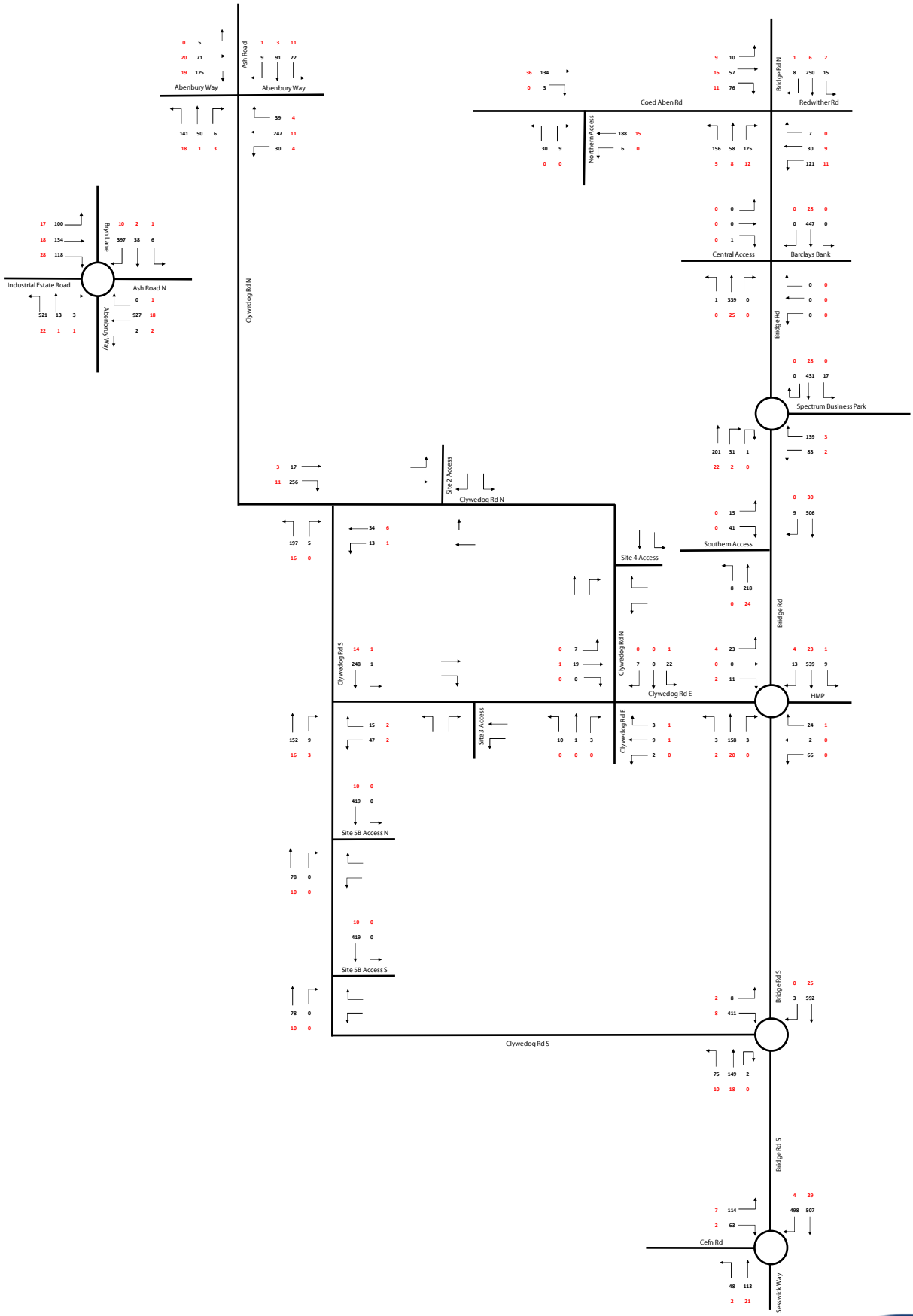


Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 3 - 2036 Base
Peak AM (0745-0845)
Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red

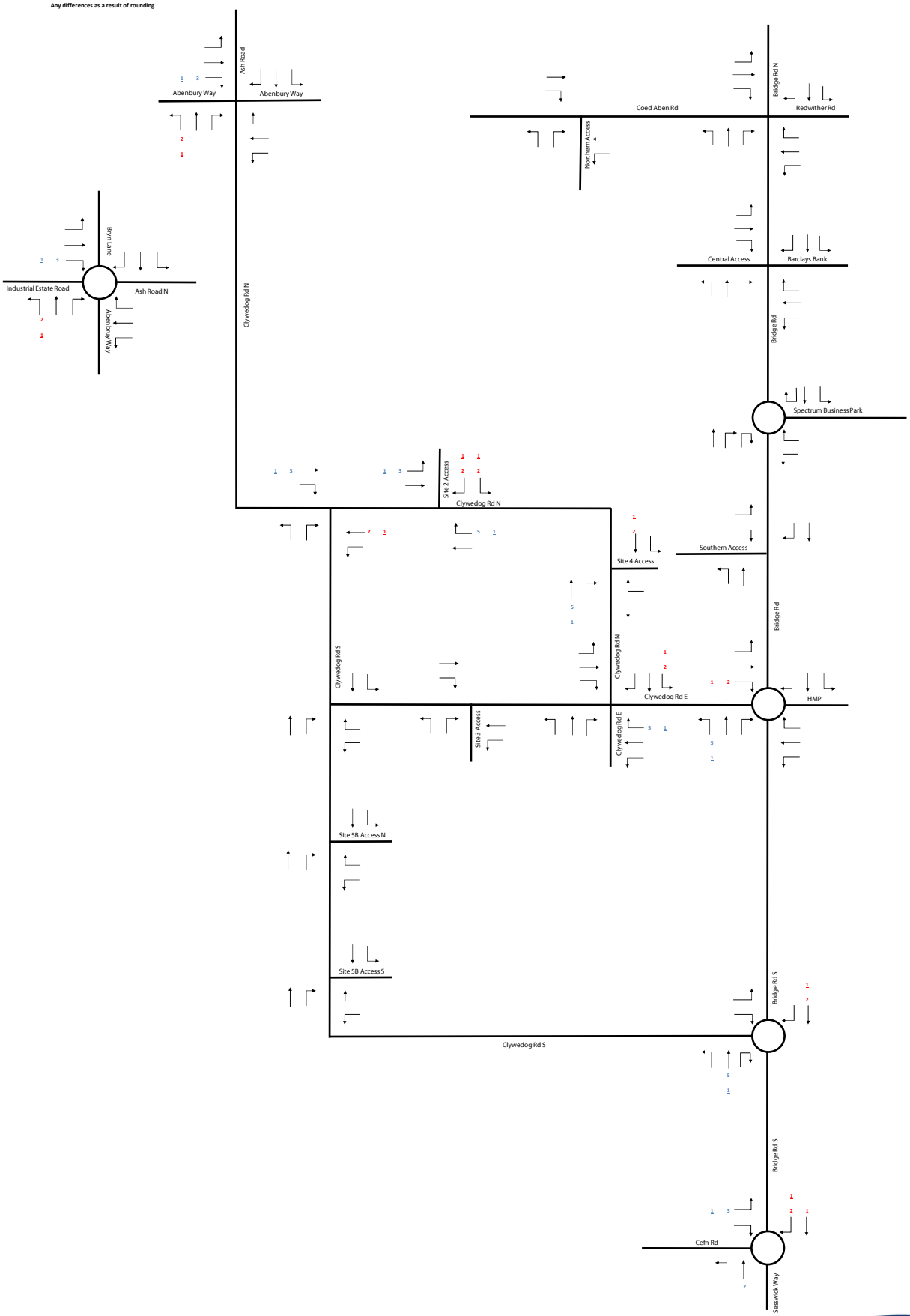


Prime Transport Planning

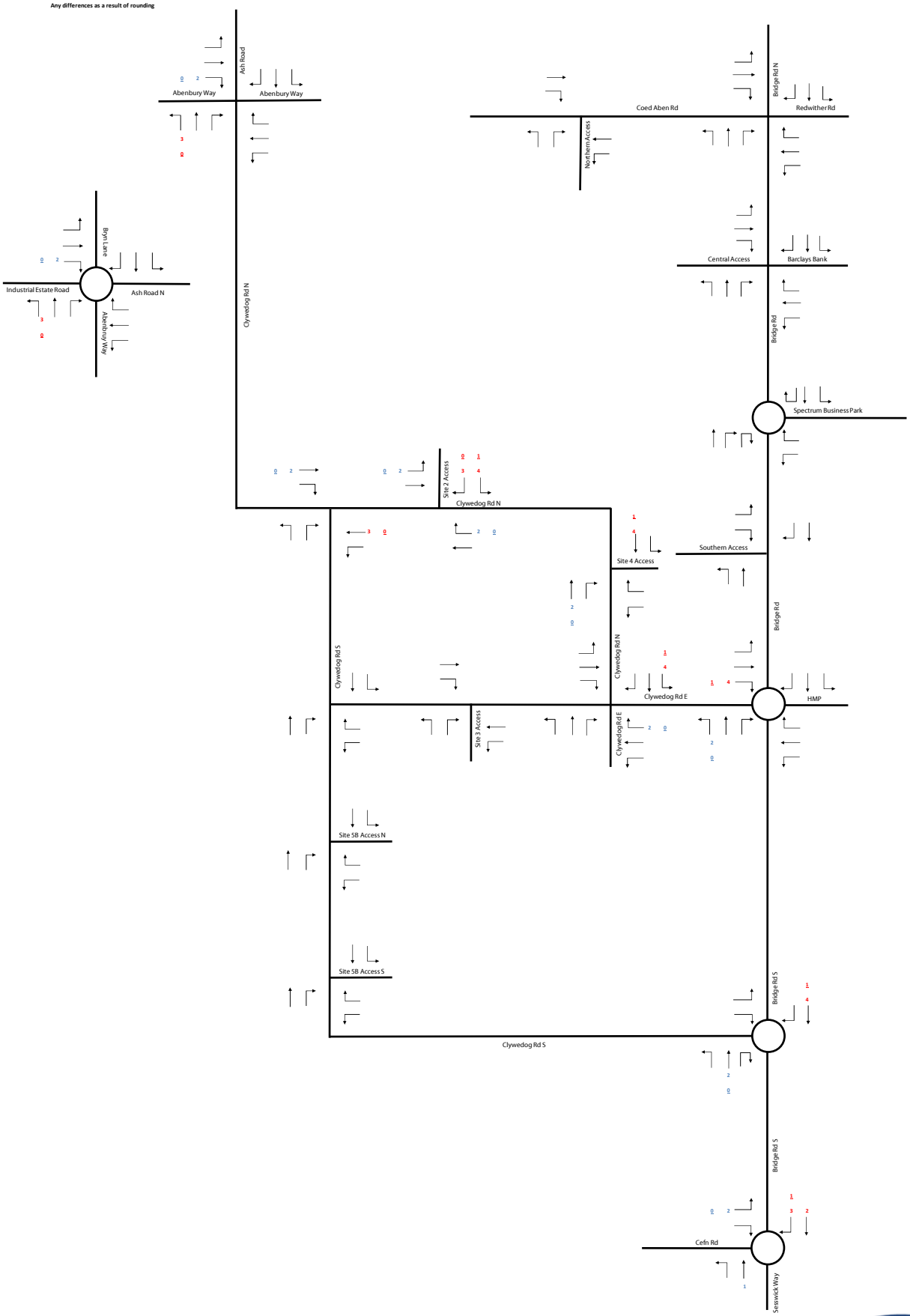
Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 4 - 2036 Base
Peak PM (1615-1715)
Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red



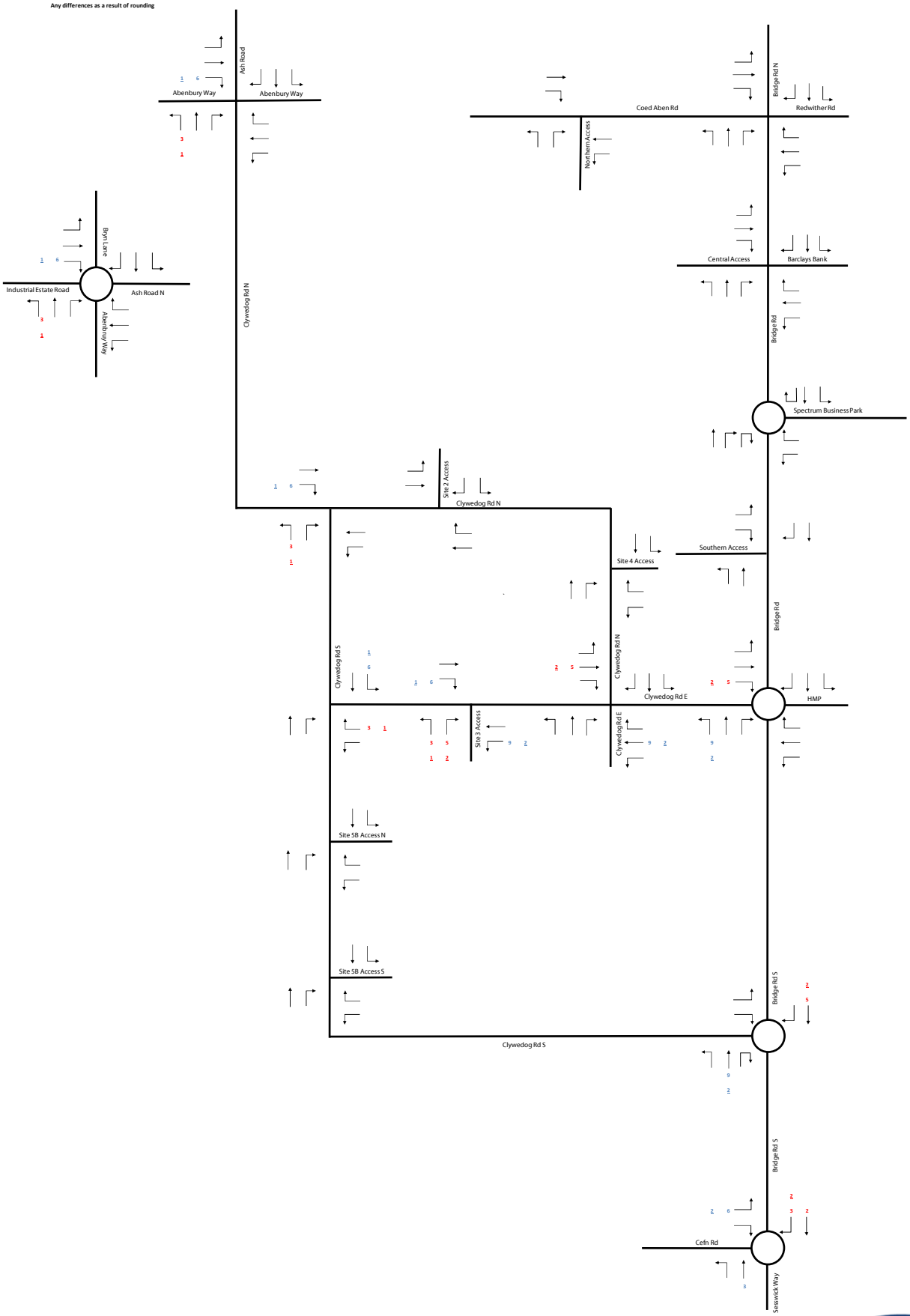
Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 5 - Site 2 Generated Traffic
Peak AM (0745-0845)
Notes: Normal = Light Vehs
Underline = Heavy Vehs
Arrivals 8 2
Departures 4 2
Any differences as a result of rounding



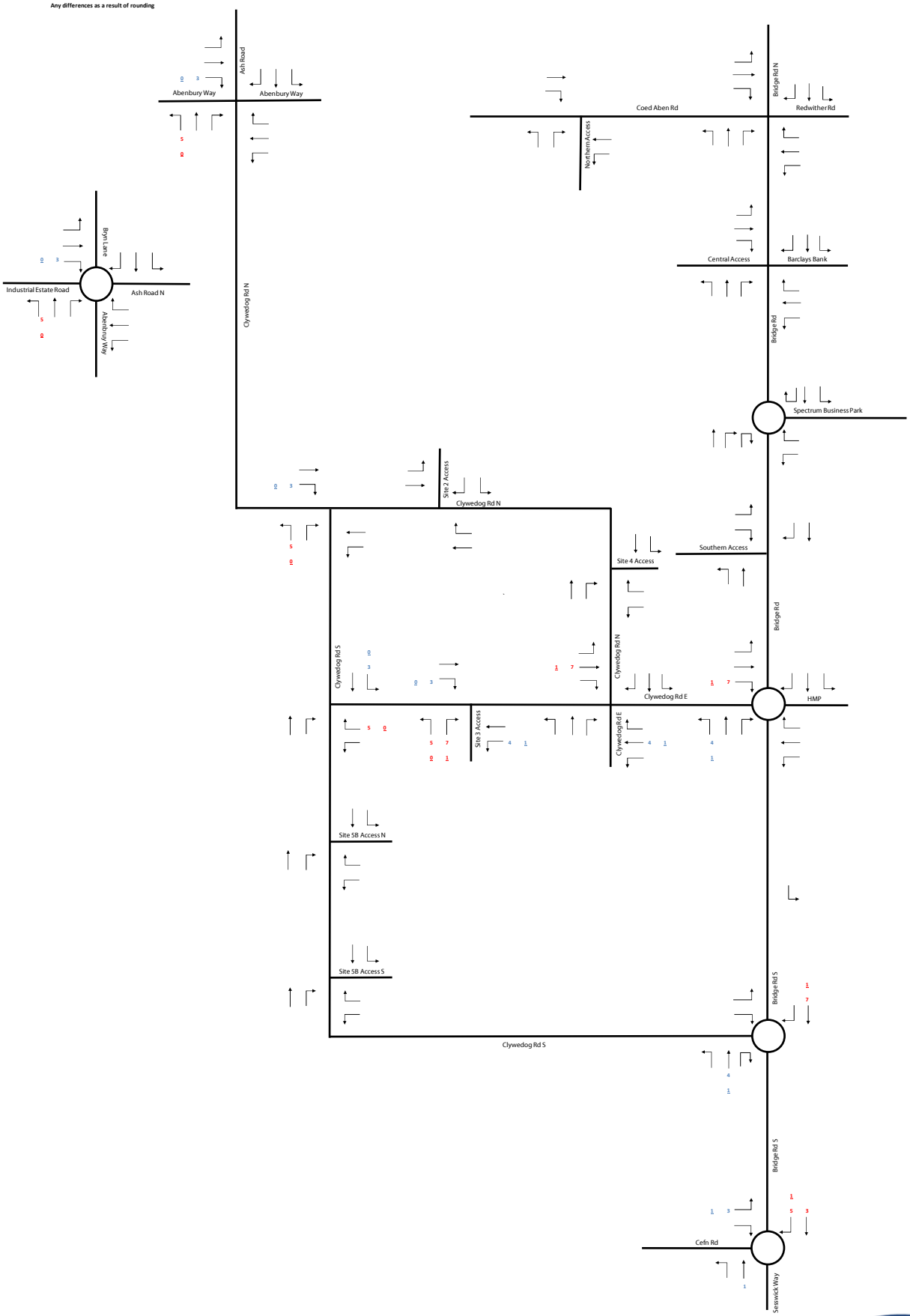
Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 6 - Site 2 Generated Traffic
Peak PM (1615-1715)
Notes: Normal = Light Vehs
Underline = Heavy Vehs
Arrivals 4 0
Departures 7 1
Any differences as a result of rounding



Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 7 - Site 3 Generated Traffic
Peak AM (0745-0845)
Notes: Normal = Light Vehs
Underline = Heavy Vehs
Arrivals 15 3
Departures 8 3
Any differences as a result of rounding



Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 8 - Site 3 Generated Traffic
Peak PM (1615-1715)
Notes: Normal = Light Vehs
Underline = Heavy Vehs
Arrivals 7 1
Departures 12 1
Any differences as a result of rounding



Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 9 - Site 4 Generated Traffic
Peak AM (0745-0845)

Notes: Normal = Light Vehs

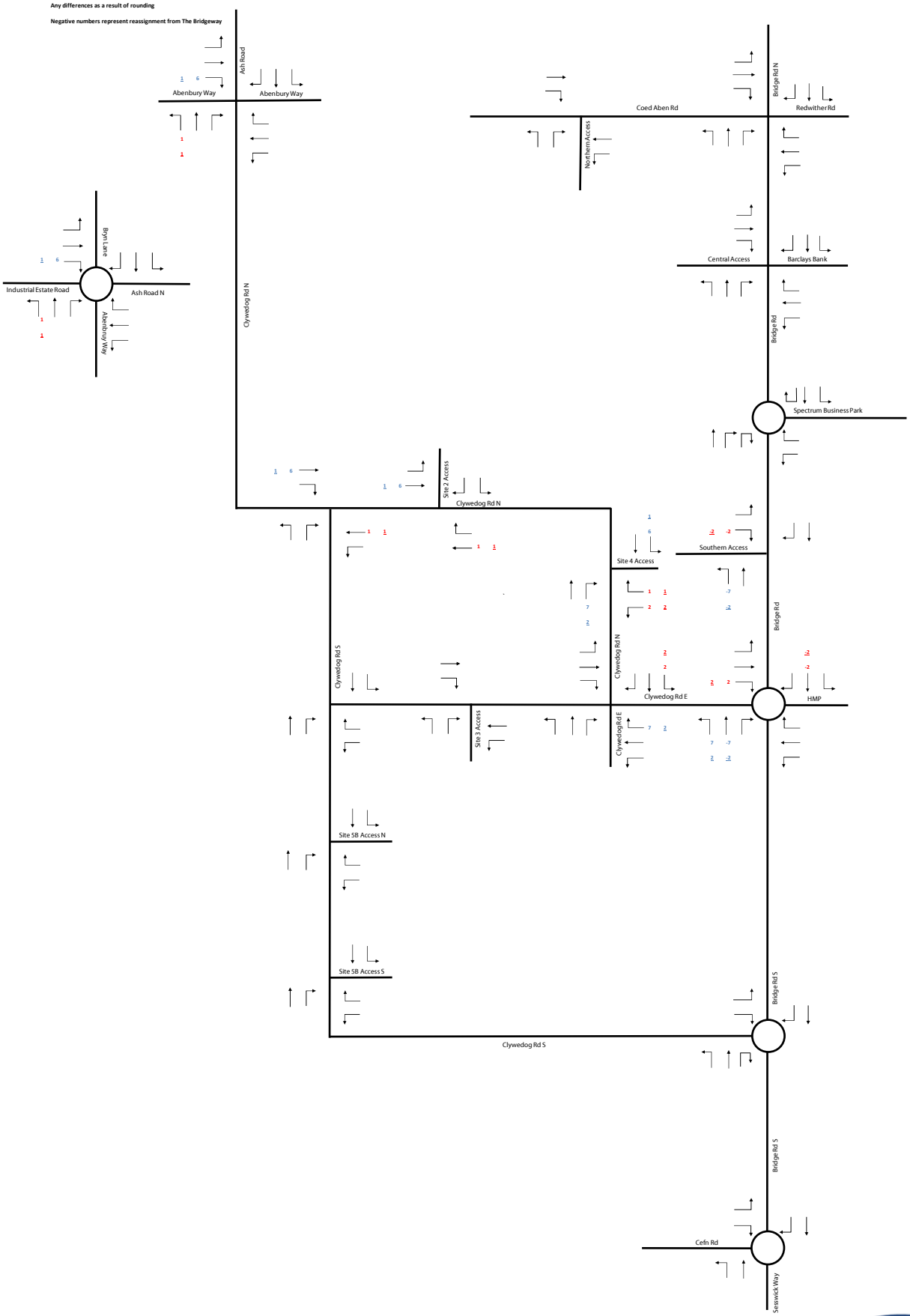
Underline = Heavy Vehs

Arrivals 13 3

Departures 3 3

Any differences as a result of rounding

Negative numbers represent reassignment from The Bridgeway



Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 10 - Site 4 Generated Traffic
Peak PM (1615-1715)

Notes: Normal = Light Vehs

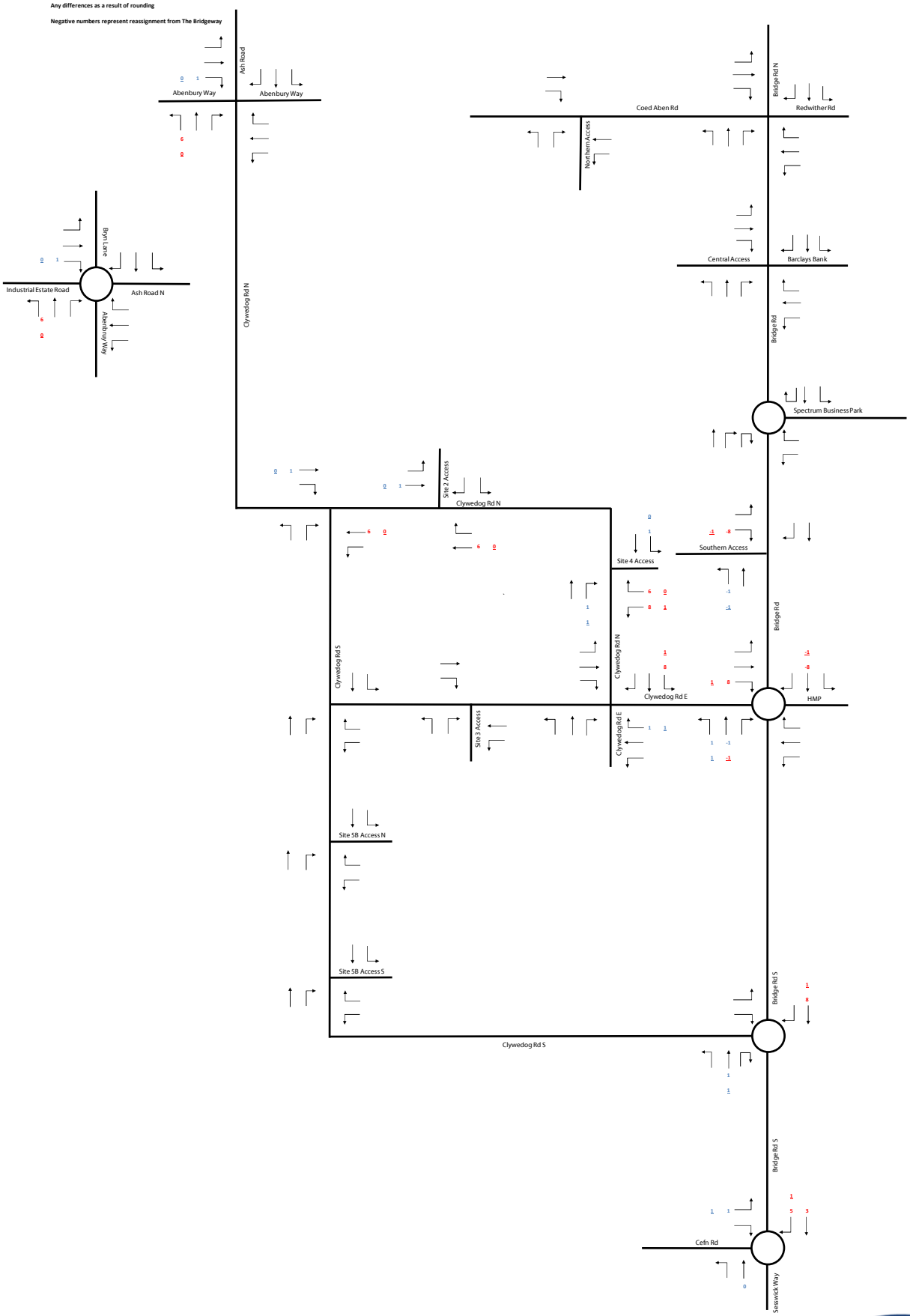
Underline = Heavy Vehs

Arrivals 2 1

Departures 14 1

Any differences as a result of rounding

Negative numbers represent reassignment from The Bridgeway

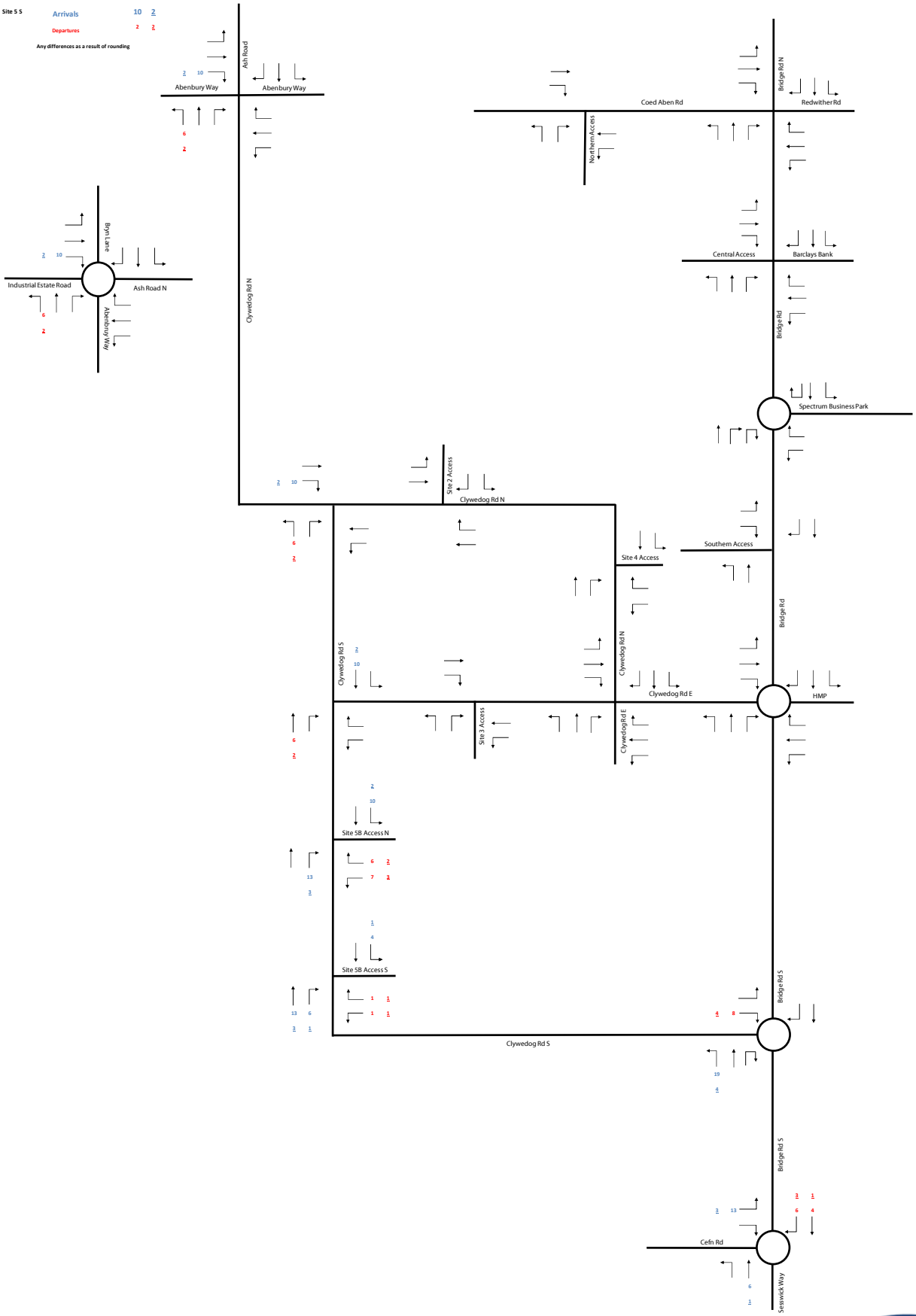


Prime Transport Planning

Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 11 - Site 5 Generated Traffic
Peak AM (0745-0845)
Notes: Normal = Light Vehs
Underline = Heavy Vehs

Site 5 N	Arrivals	23	5
	Departures	13	5
Site 5 S	Arrivals	10	2
	Departures	2	2

Any differences as a result of rounding

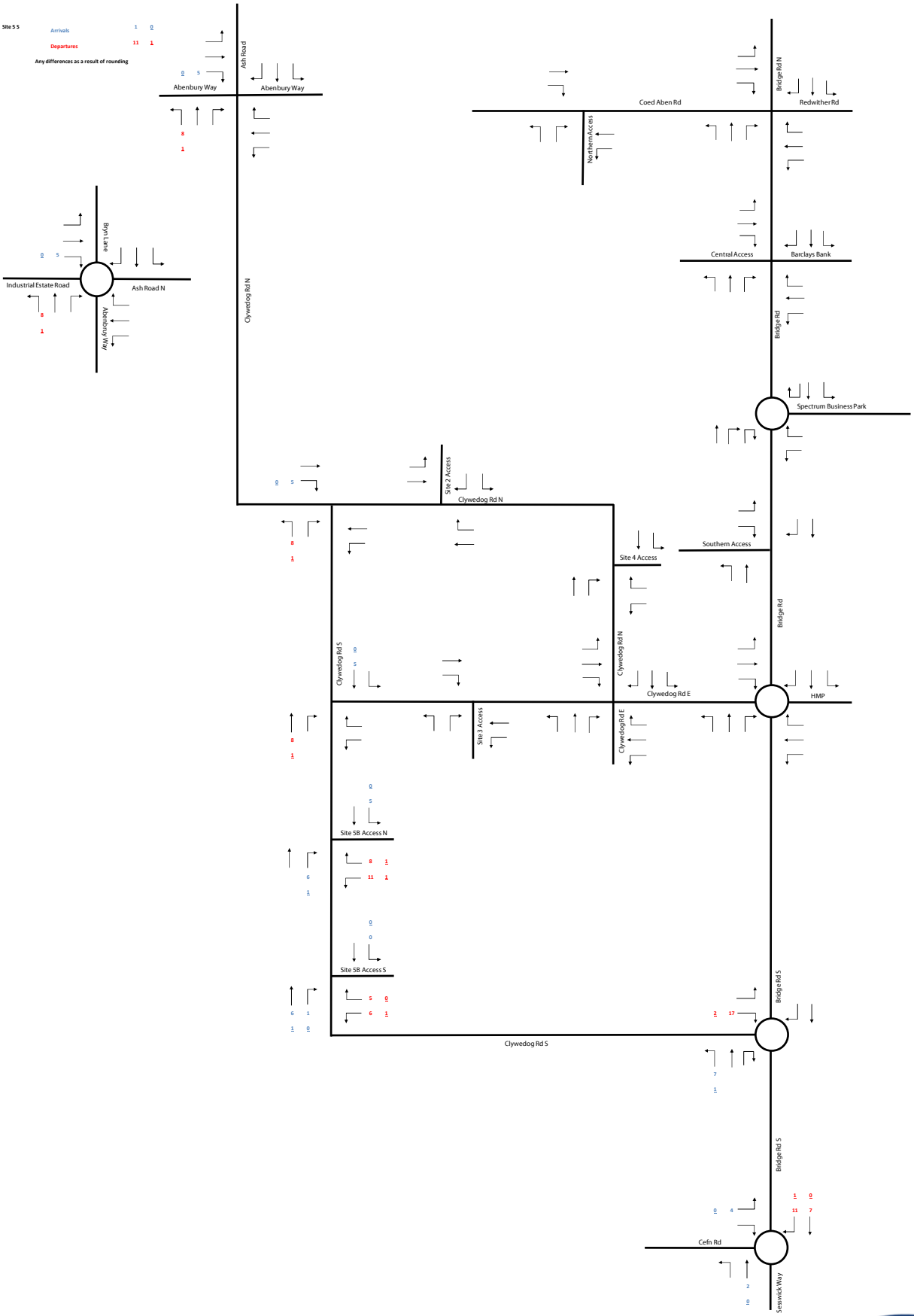


Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 12 - Site 5 Generated Traffic
Peak PM (1615-1715)
Notes: Normal = Light Vehs
Underline = Heavy Vehs

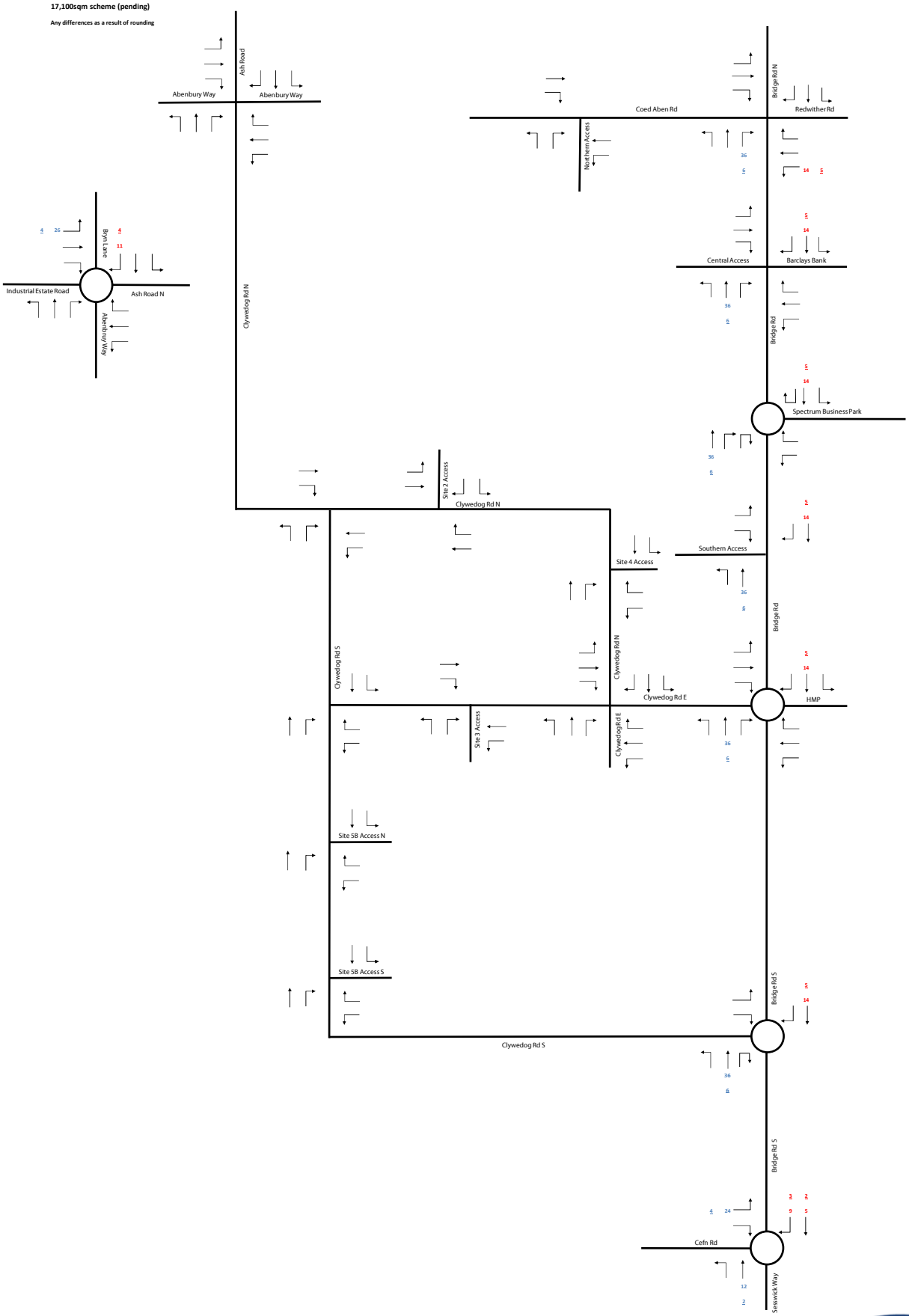
Site 5 N
Arrivals 11 1
Departures 19 2

Site 5 S
Arrivals 1 0
Departures 11 1

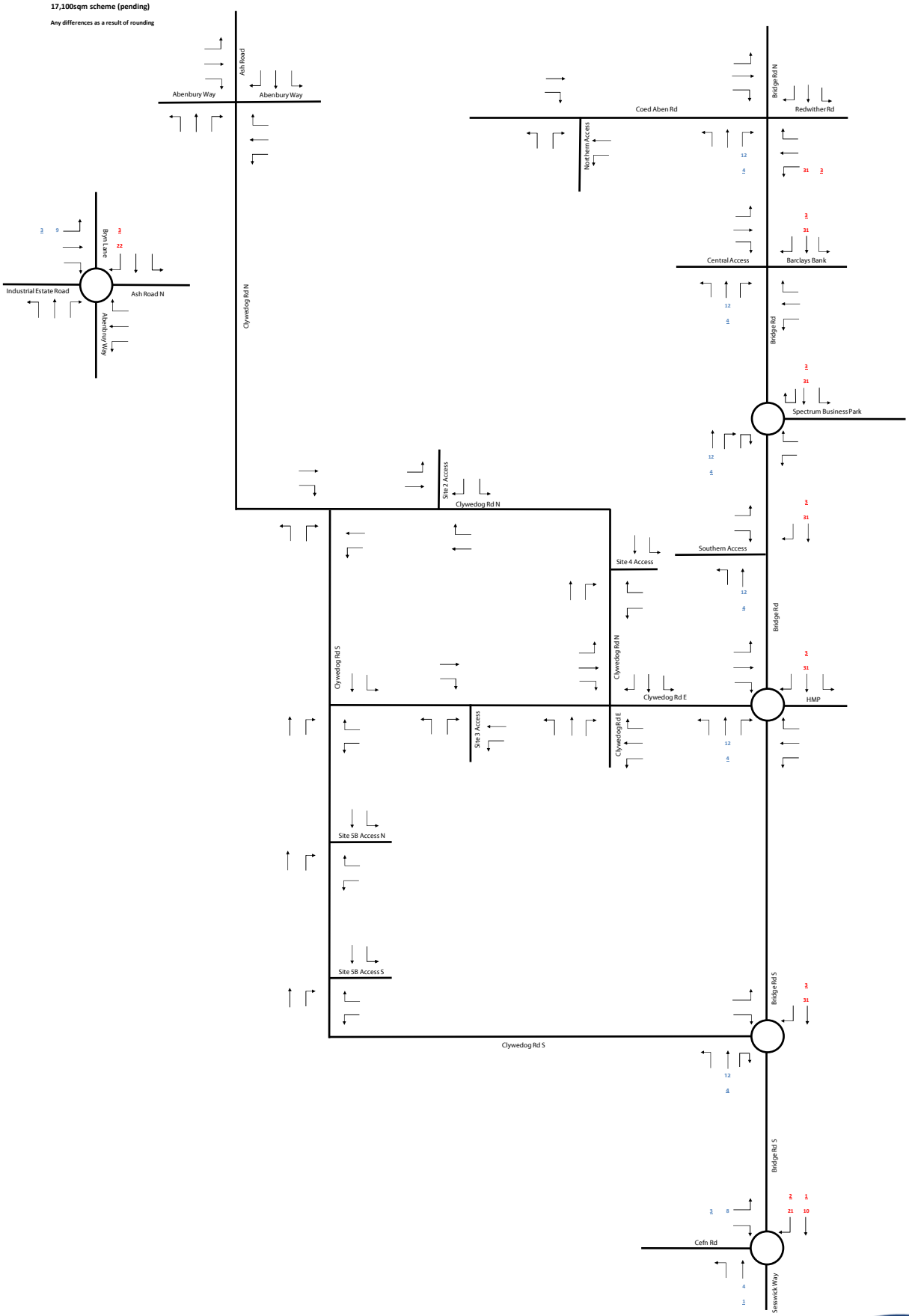
Any differences as a result of rounding



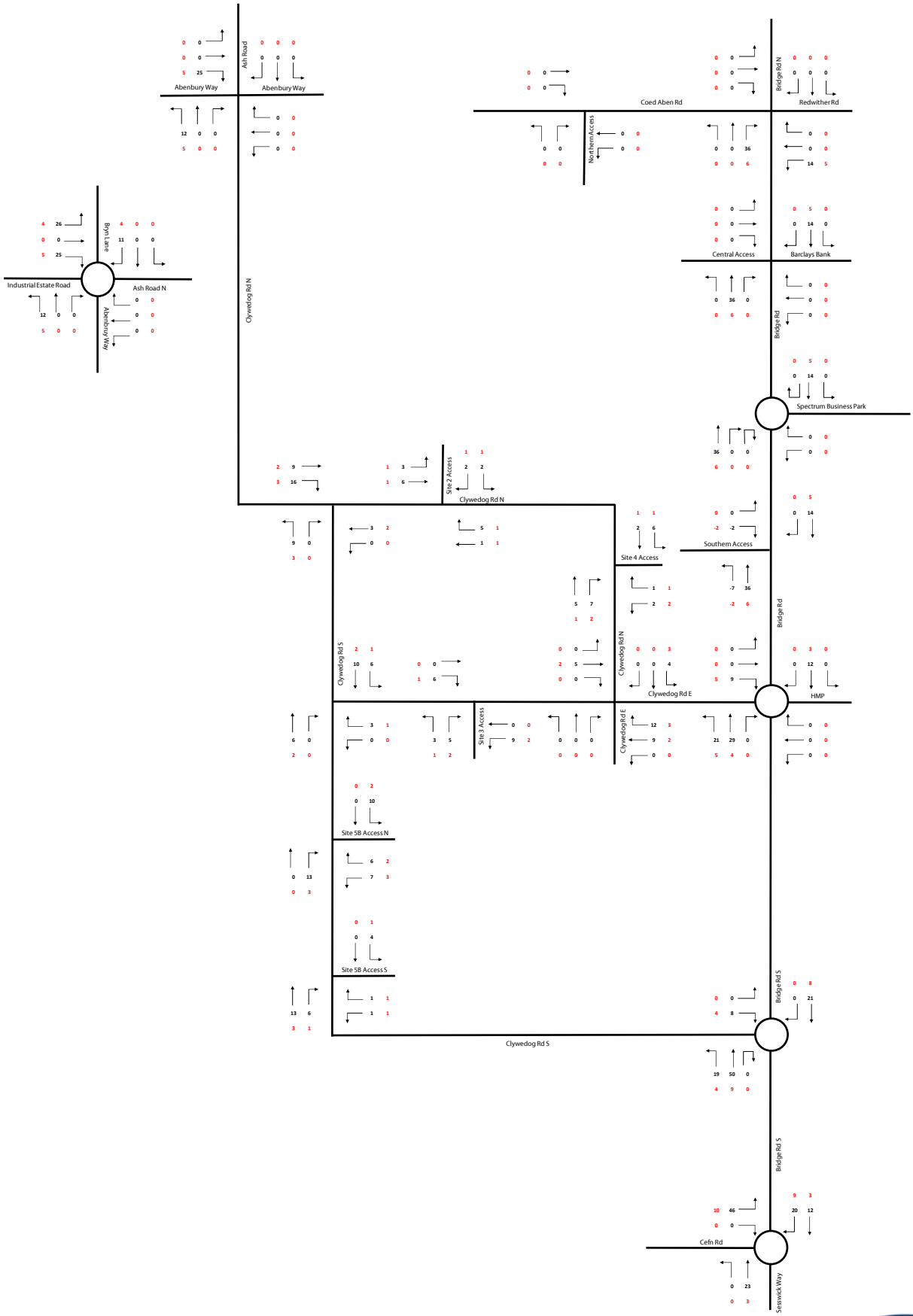
Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 13 - The Oaks Generated Traffic
Peak AM (0745-0845)
Notes: Normal = Light Vehs
Underline = Heavy Vehs
Arrivals
Departures
17,100sqm scheme (pending)
Any differences as a result of rounding



Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 14 - The Oaks Generated Traffic
Peak PM (1615-1715)
Notes: Normal = Light Vehs
Underline = Heavy Vehs
Arrivals
Departures
17,100sqm scheme (pending)
Any differences as a result of rounding

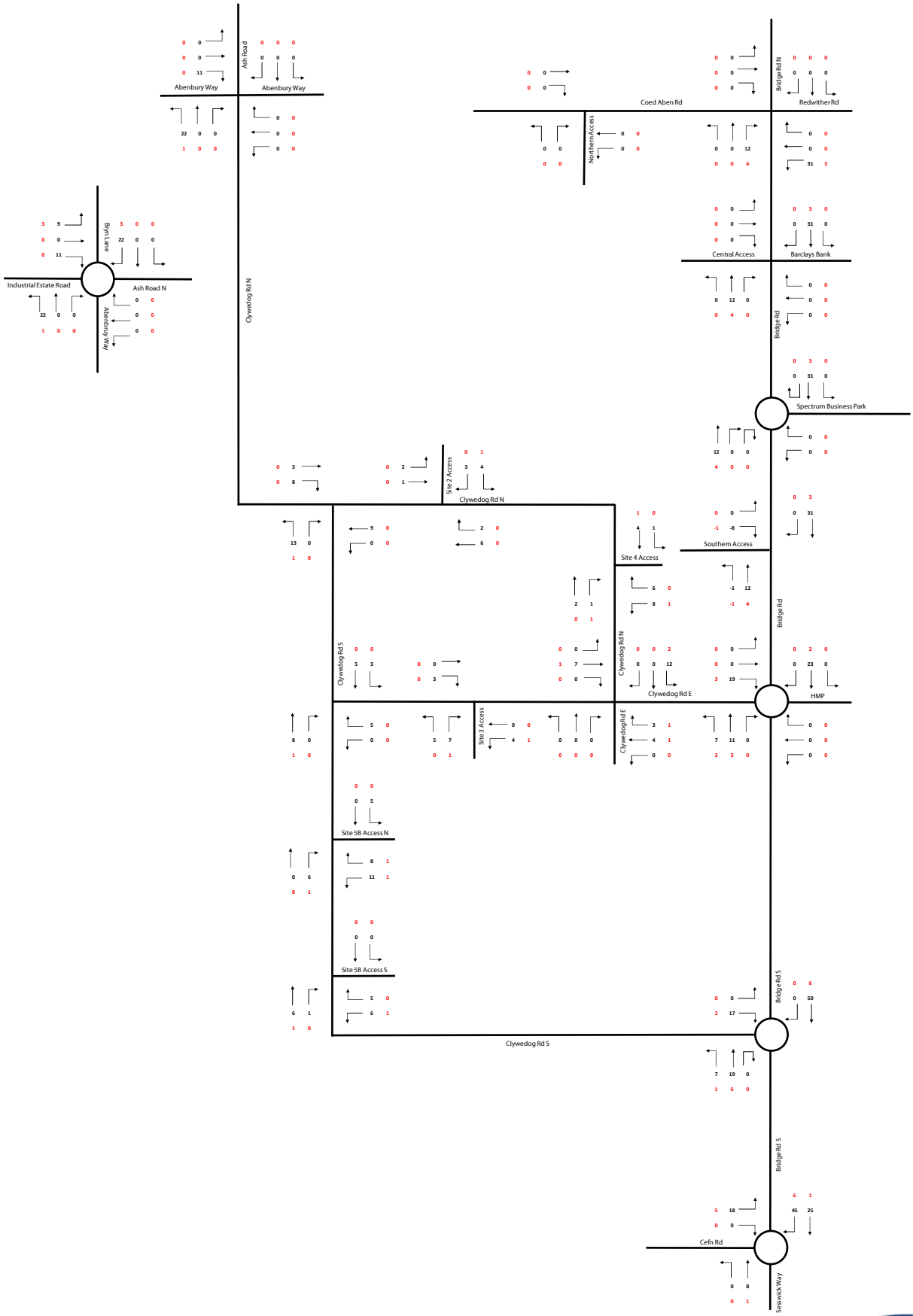


Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 15 - Total Committed Development
Peak AM (0745-0845)
Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
Any differences as a result of rounding

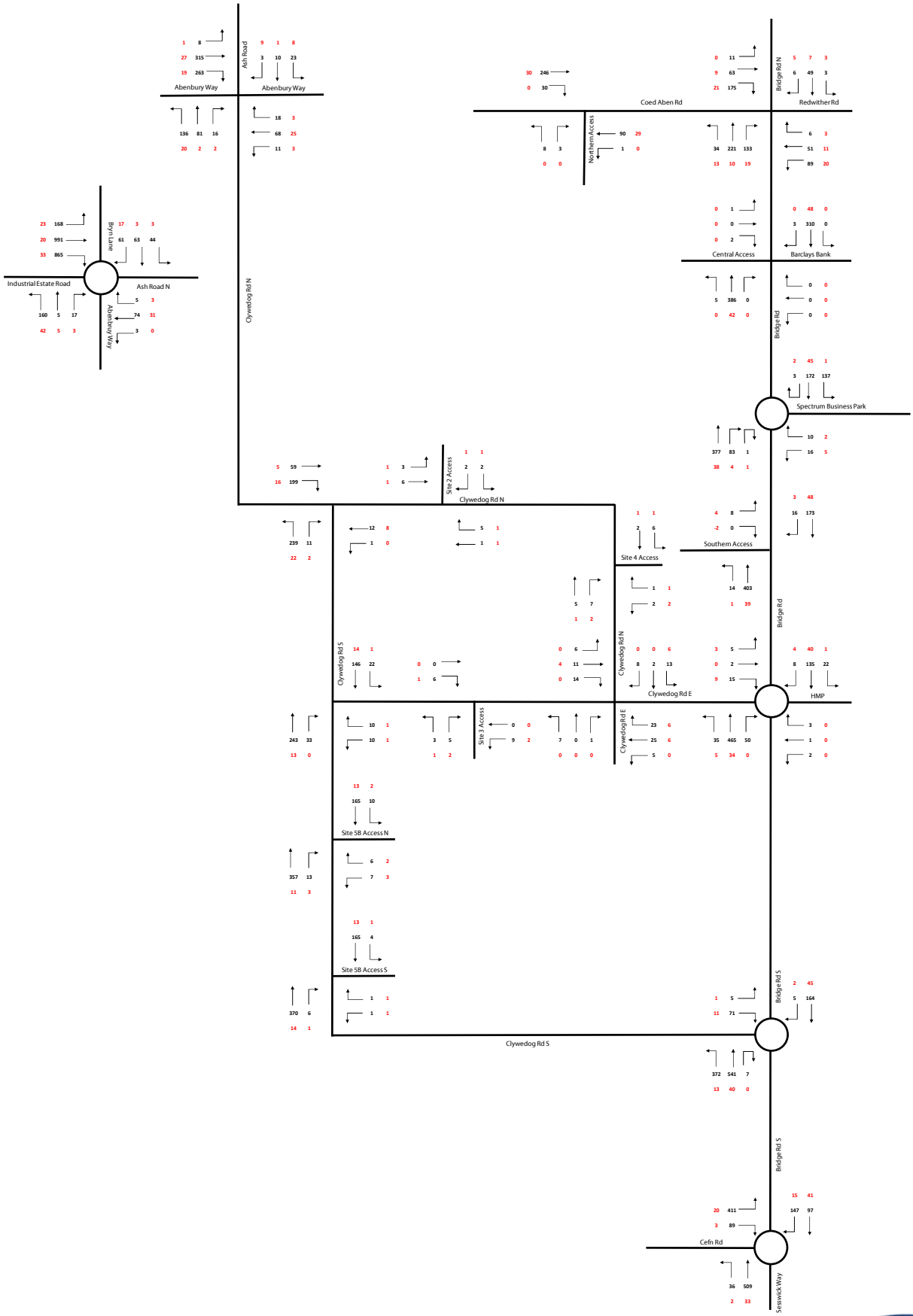


Prime Transport Planning

Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 16 - Total Committed Development
Peak PM (1615-1715)
Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
Any differences as a result of rounding

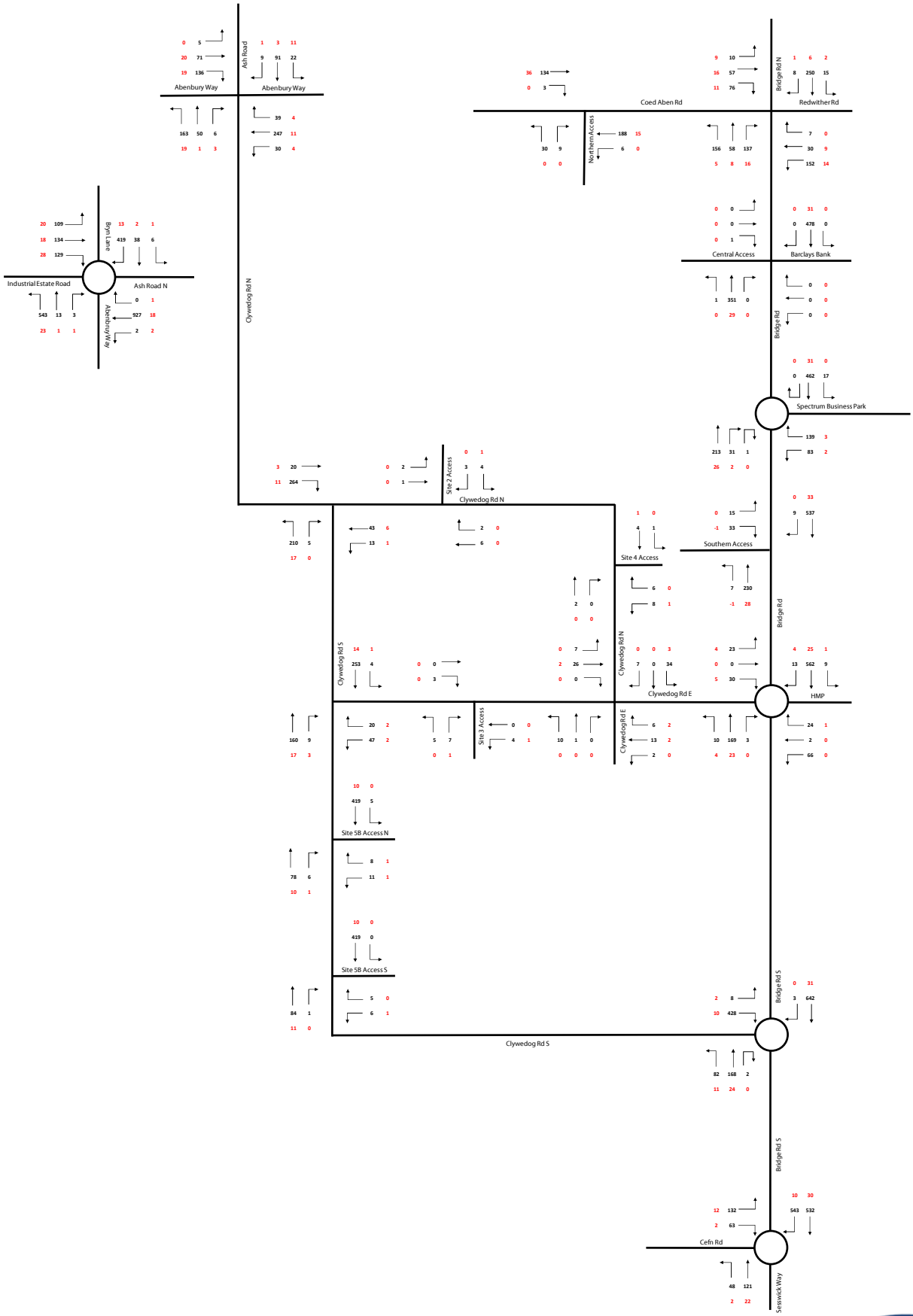


Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 17 - 2036 Without Development
Peak AM (0745-0845)
Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
Any differences as a result of rounding



Prime Transport Planning

Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 18 - 2036 Without Development
Peak PM (1615-1715)
Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
Any differences as a result of rounding

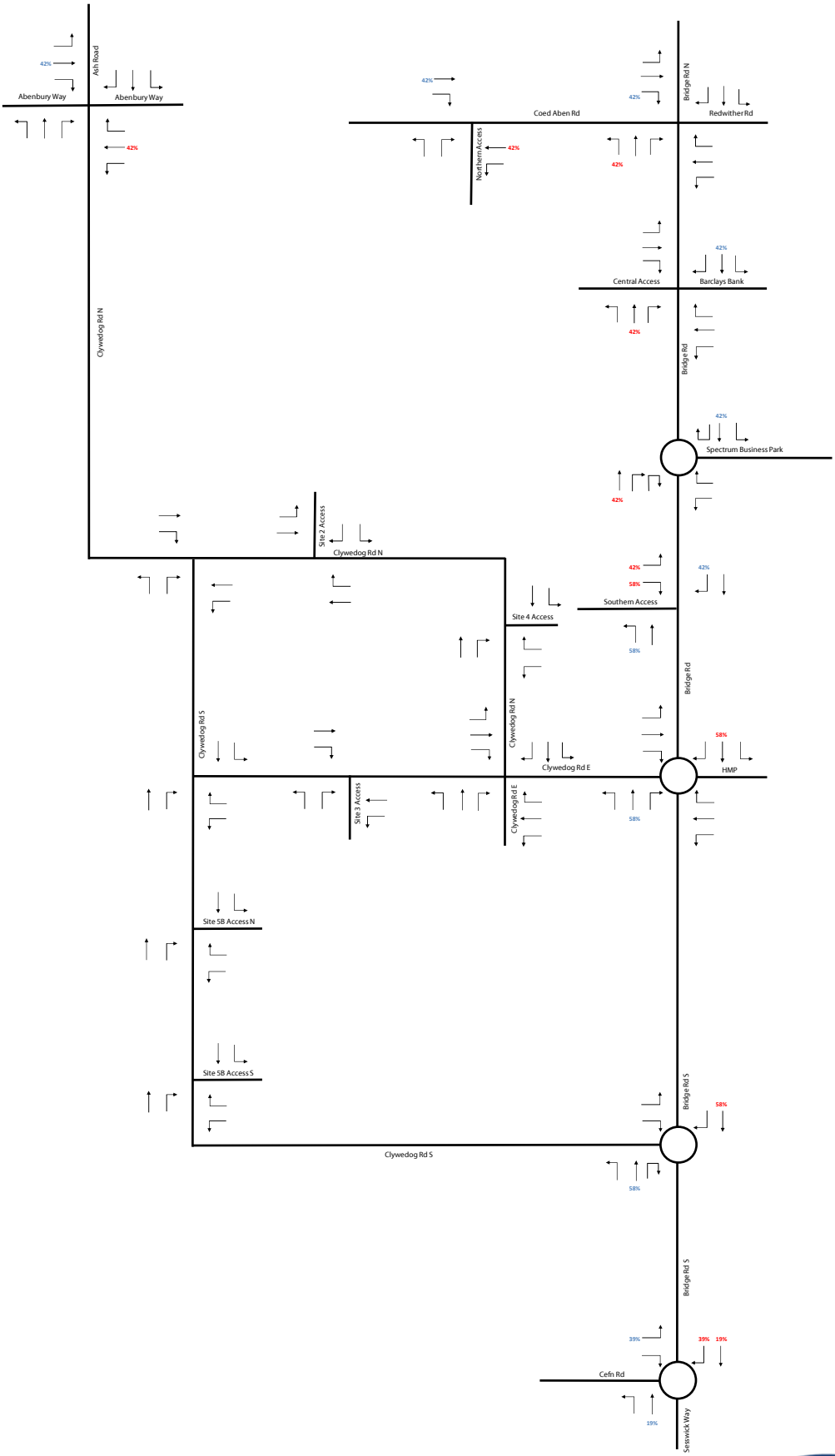


Prime Transport Planning

Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 19 - Distribution: Employment Trips
Peak Both
Notes: Distribution shown is for southern access - trips will be split across the 3 accesses in the development flow diagrams

Arrivals

Departures



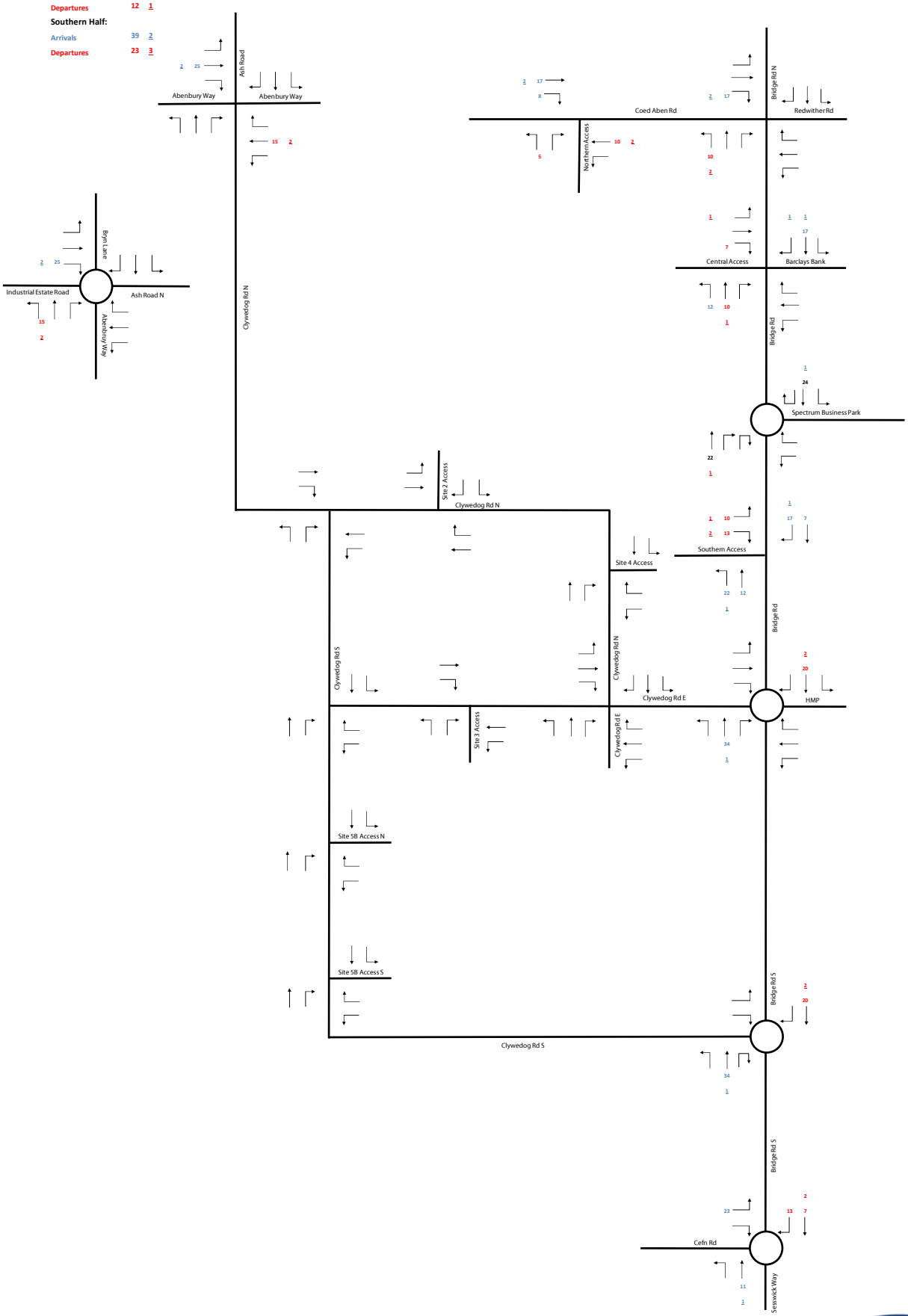
Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 20 - Development Traffic: Employment Trips
Peak AM (0745-0845)
Notes: Normal = Light Vehs
Underline = Heavy Vehs

Northern Half:

Arrivals	20	1
Departures	12	1

Southern Half:

Arrivals	39	2
Departures	23	3



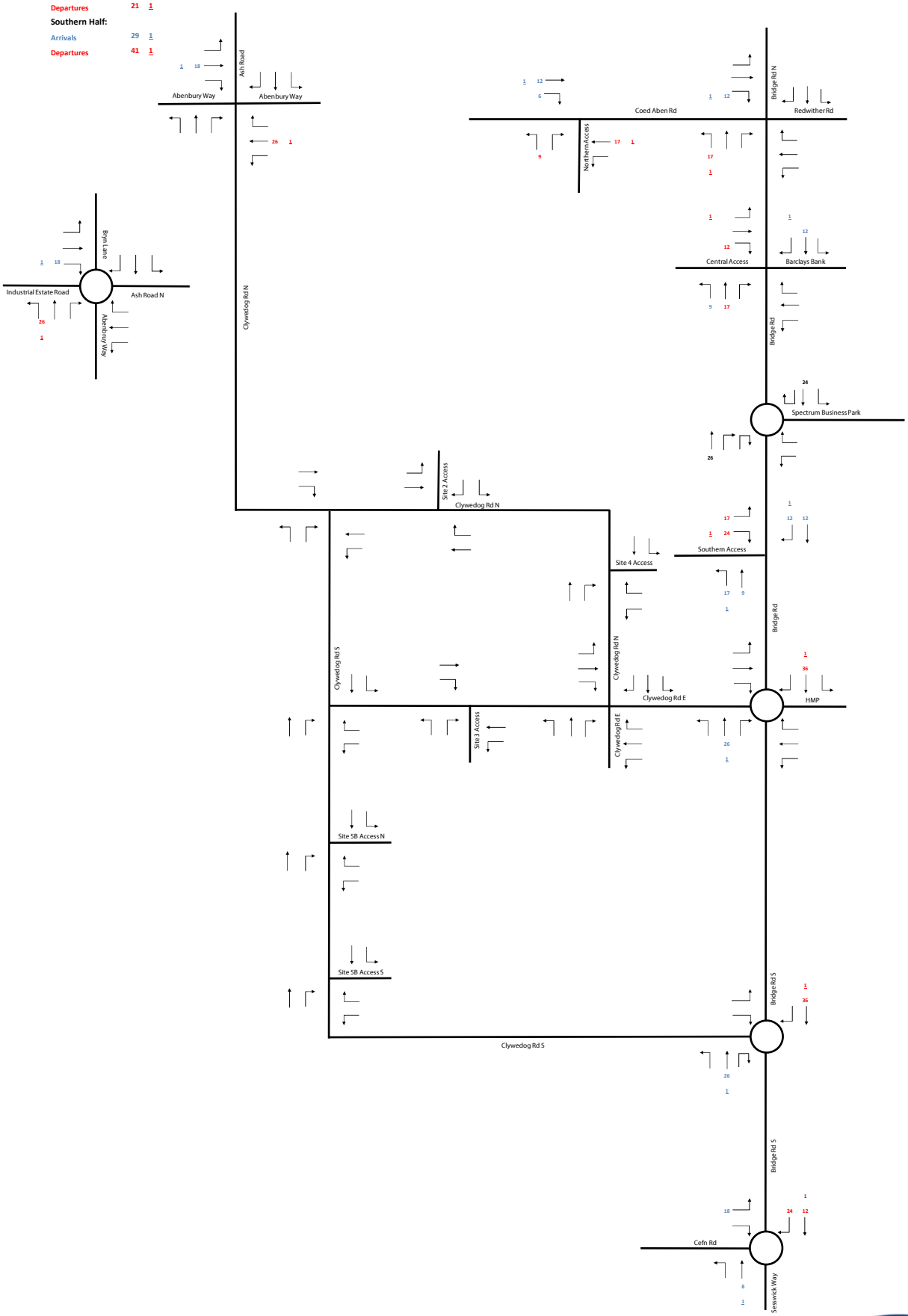
Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 21 - Development Traffic: Employment Trips
Peak PM (1615-1715)
Notes: Normal = Light Vehs
Underline = Heavy Vehs

Northern Half:

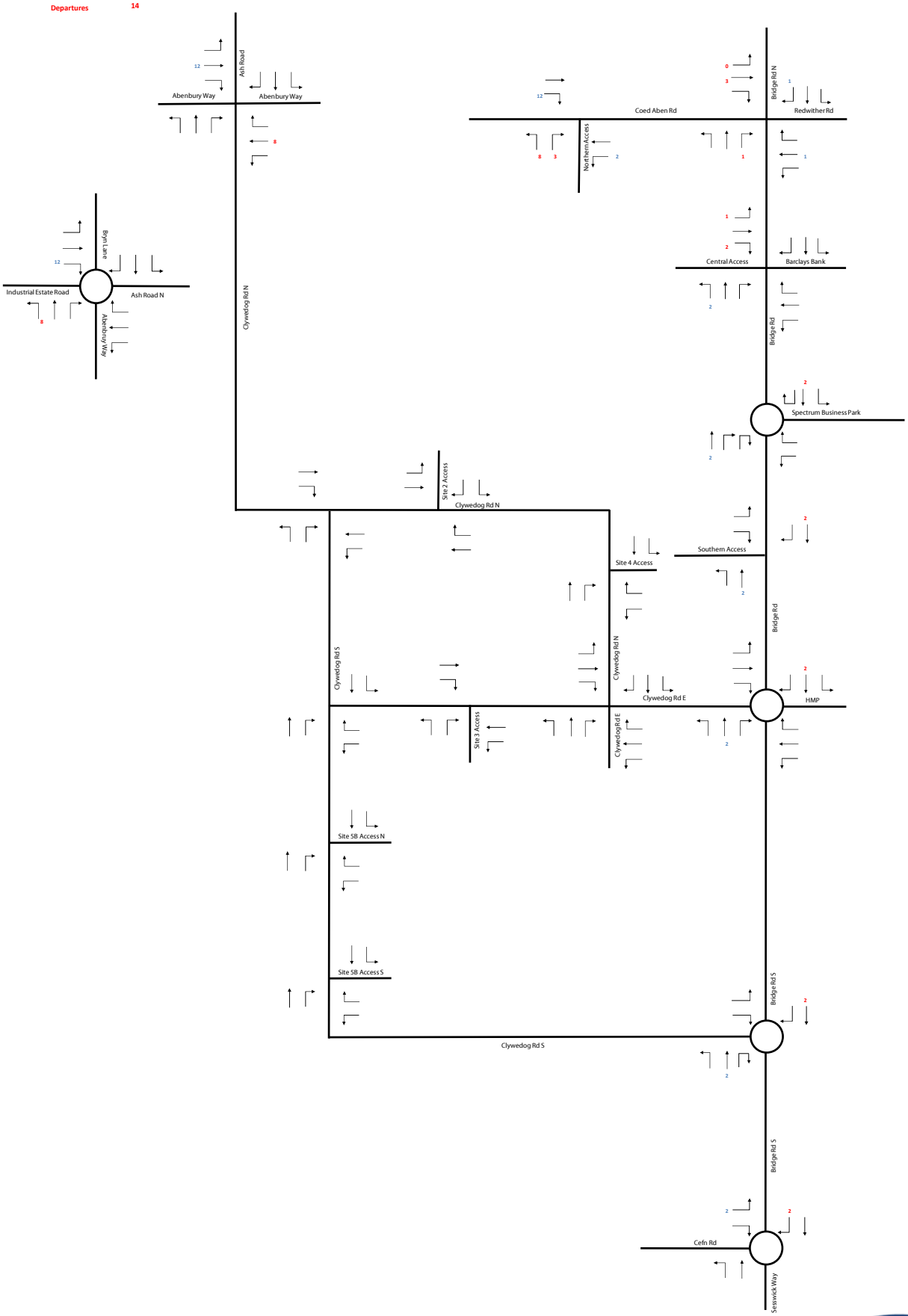
Arrivals	15	1
Departures	21	1

Southern Half:

Arrivals	29	1
Departures	41	1



Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 22 - Development Traffic: New Retail
Peak AM (0745-0845)
Notes: Normal = Light Vehs
Modelled as 100% new trips but likley to be a mix of pass-by, diverted and linked trips
Distribution based on observed at northen and central accesses i.e. existing retail
Arrivals 15
Departures 14



Project: The Bridgeway Centre, Wrexham Industrial Estate

Scenario: Traffic Flow Diagram 23 - Development Traffic: New Retail

Peak PM (1615-1715)

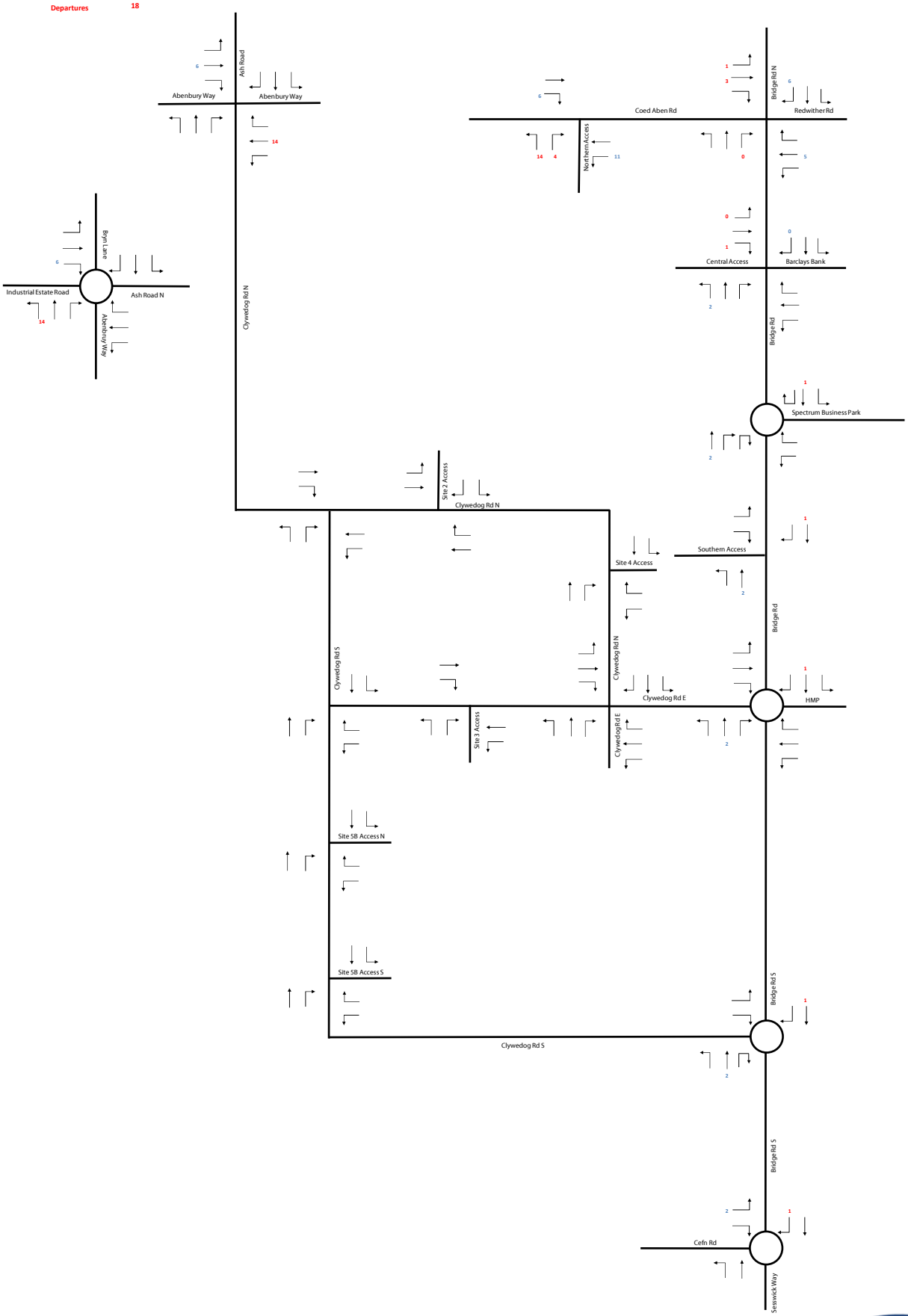
Notes: Normal = Light Vehs

Modelled as 100% new trips but likley to be a mix of pass-by, diverted and linked trips

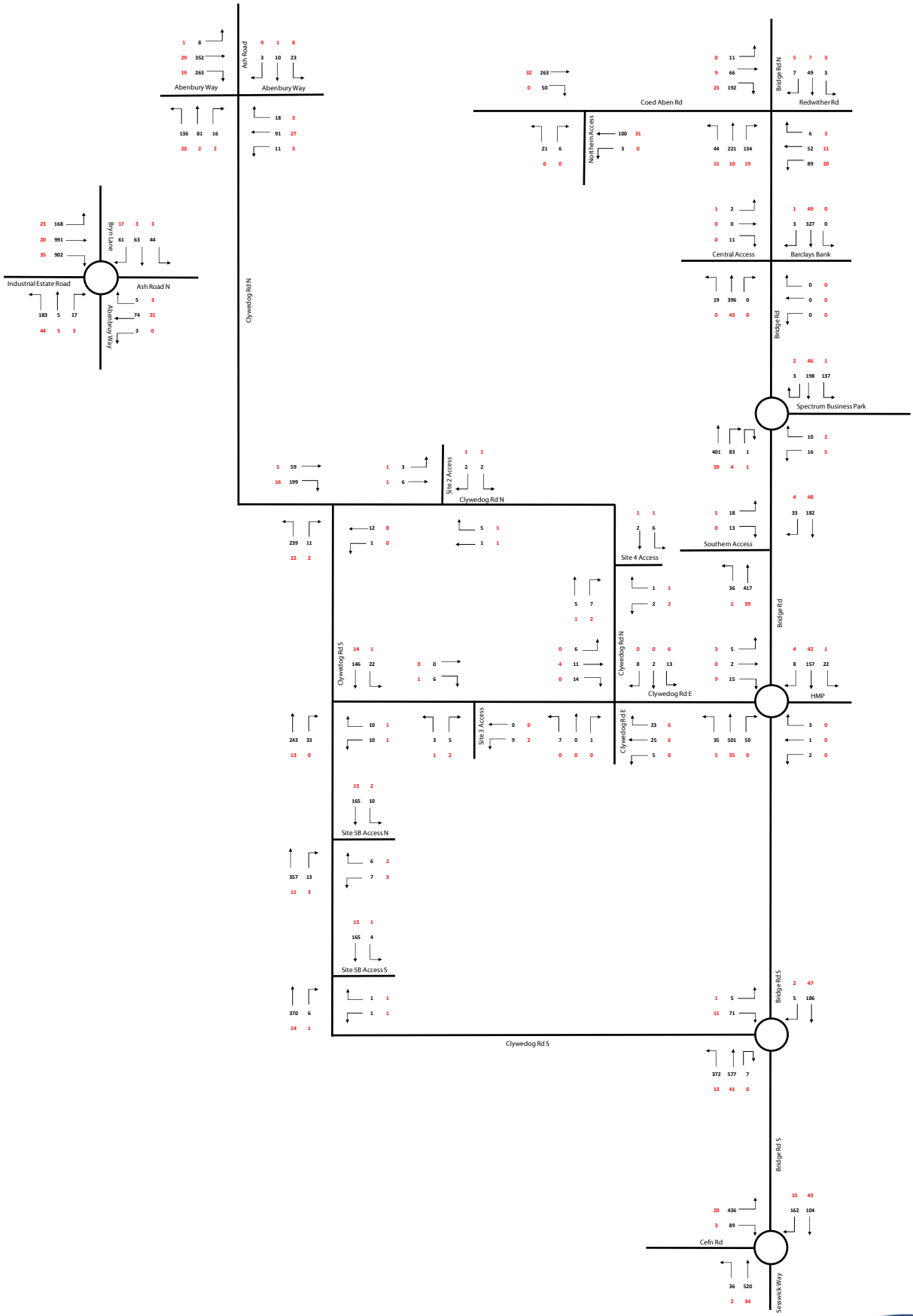
Distribution based on observed at northen and central accesses i.e. existing retail

Arrivals 19

Departures 18

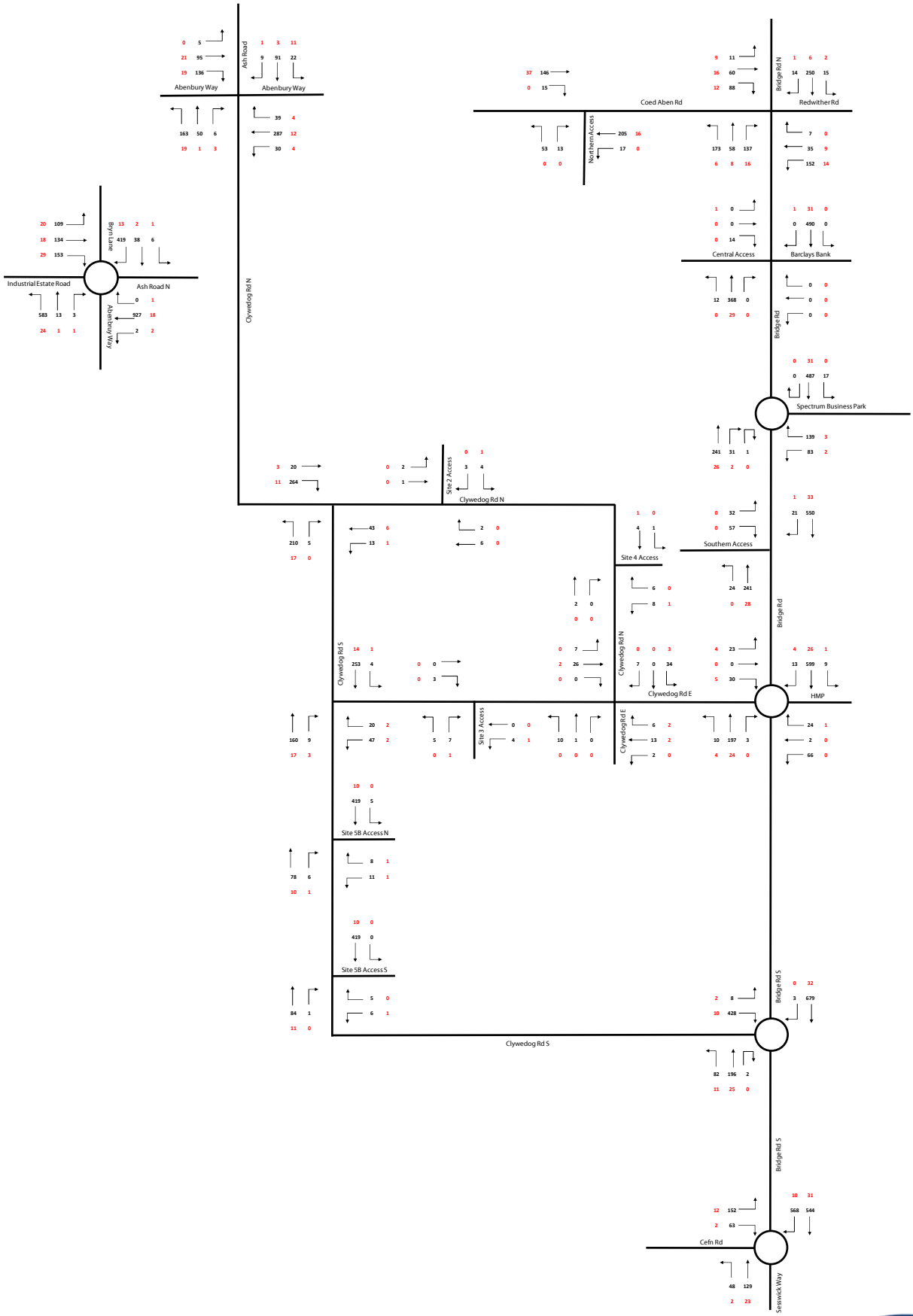


Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 24 - 2036 With Development
Peak AM (0745-0845)
Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
Any differences as a result of rounding



Prime Transport Planning

Project: The Bridgeway Centre, Wrexham Industrial Estate
Scenario: Traffic Flow Diagram 25 - 2036 With Development
Peak PM (1615-1715)
Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
Any differences as a result of rounding



Prime Transport Planning

APPENDIX F

CAPACITY ASSESSMENT REPORT OUTPUTS

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Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: J1-N Access-Coed Aben Rd.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 13:09:59

File summary

File Description

Title	Northern Access/Coed Aben Road
Location	Wrexham
Site number	1
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D. Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Northern Access/Coed Aben Road	T-Junction	Two-way		0.61	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Coed Aben Road (Eastern Arm)		Major
B	Northern Access		Minor
C	Coed Aben Road (Western Arm)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Coed Aben Road (Western Arm)	7.00			85.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Northern Access	One lane	3.20	30	35

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	515	0.090	0.227	0.143	0.324
B-C	659	0.097	0.244	-	-
C-B	623	0.231	0.231	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road (Eastern Arm)		ONE HOUR	✓	138	100.000
B - Northern Access		ONE HOUR	✓	10	100.000
C - Coed Aben Road (Western Arm)		ONE HOUR	✓	302	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	1	137
	B - Northern Access	3	0	7
	C - Coed Aben Road (Western Arm)	276	26	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	0	27
	B - Northern Access	0	0	0
	C - Coed Aben Road (Western Arm)	12	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.02	6.71	0.0	A	9	14
C-AB	0.06	5.25	0.1	A	36	54
C-A					241	361
A-B					0.92	1
A-C					126	189

Observed 2018, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Northern Access/Coed Aben Road	T-Junction	Two-way		0.61	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road (Eastern Arm)		ONE HOUR	✓	200	100.000
B - Northern Access		ONE HOUR	✓	34	100.000
C - Coed Aben Road (Western Arm)		ONE HOUR	✓	193	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	5	195
	B - Northern Access	8	0	26
	C - Coed Aben Road (Western Arm)	190	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	0	8
	B - Northern Access	0	0	0
	C - Coed Aben Road (Western Arm)	23	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.07	6.96	0.1	A	31	47
C-AB	0.01	5.52	0.0	A	4	6
C-A					173	260
A-B					5	7
A-C					179	268

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Northern Access/Coed Aben Road	T-Junction	Two-way		0.65	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road (Eastern Arm)		ONE HOUR	✓	149	100.000
B - Northern Access		ONE HOUR	✓	11	100.000
C - Coed Aben Road (Western Arm)		ONE HOUR	✓	336	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	1	148
	B - Northern Access	3	0	8
	C - Coed Aben Road (Western Arm)	306	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	0	24
	B - Northern Access	0	0	0
	C - Coed Aben Road (Western Arm)	11	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.02	6.72	0.0	A	10	15
C-AB	0.07	5.18	0.1	A	44	66
C-A					265	397
A-B					0.92	1
A-C					136	204

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Northern Access/Coed Aben Road	T-Junction	Two-way		0.64	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road (Eastern Arm)		ONE HOUR	✓	224	100.000
B - Northern Access		ONE HOUR	✓	39	100.000
C - Coed Aben Road (Western Arm)		ONE HOUR	✓	209	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	6	218
	B - Northern Access	9	0	30
	C - Coed Aben Road (Western Arm)	206	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	0	7
	B - Northern Access	0	0	0
	C - Coed Aben Road (Western Arm)	21	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.08	7.12	0.1	A	36	54
C-AB	0.01	5.48	0.0	A	4	6
C-A					188	282
A-B					6	8
A-C					200	300

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Northern Access/Coed Aben Road	T-Junction	Two-way		1.09	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road (Eastern Arm)		ONE HOUR	✓	165	100.000
B - Northern Access		ONE HOUR	✓	27	100.000
C - Coed Aben Road (Western Arm)		ONE HOUR	✓	377	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	3	162
	B - Northern Access	6	0	21
	C - Coed Aben Road (Western Arm)	327	50	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	0	26
	B - Northern Access	0	0	0
	C - Coed Aben Road (Western Arm)	12	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.05	6.90	0.1	A	25	37
C-AB	0.12	5.32	0.2	A	75	113
C-A					271	406
A-B					3	4
A-C					149	223

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Northern Access/Coed Aben Road	T-Junction	Two-way		1.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road (Eastern Arm)		ONE HOUR	✓	254	100.000
B - Northern Access		ONE HOUR	✓	66	100.000
C - Coed Aben Road (Western Arm)		ONE HOUR	✓	235	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	17	237
	B - Northern Access	13	0	53
	C - Coed Aben Road (Western Arm)	220	15	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road (Eastern Arm)	B - Northern Access	C - Coed Aben Road (Western Arm)
From	A - Coed Aben Road (Eastern Arm)	0	0	7
	B - Northern Access	0	0	0
	C - Coed Aben Road (Western Arm)	20	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.13	7.59	0.2	A	61	91
C-AB	0.03	5.57	0.0	A	19	29
C-A					196	294
A-B					16	23
A-C					217	326

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

Filename: J2a-Bridge Rd N-Redwither Rd.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 13:53:10

File summary

File Description

Title	Bridge Road N/Redwither Road
Location	Wrexham
Site number	2a
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D. Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2a	Bridge Road N/Redwither Road	T-Junction	Two-way		2.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Redwither Road (Western Arm)		Major
B	Bridge Road N		Minor
C	Redwither Road (Eastern Arm)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Redwither Road (Eastern Arm)	6.80			90.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Bridge Road N	One lane plus flare	10.00	5.70	4.40	3.20	3.20	✓	1.00	25	80

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	581	0.102	0.258	0.162	0.369
B-C	611	0.090	0.229	-	-
C-B	626	0.234	0.234	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road (Western Arm)		ONE HOUR	✓	83	100.000
B - Bridge Road N		ONE HOUR	✓	81	100.000
C - Redwither Road (Eastern Arm)		ONE HOUR	✓	174	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	10	73
	B - Bridge Road N	72	0	9
	C - Redwither Road (Eastern Arm)	163	11	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	0	14
	B - Bridge Road N	20	0	50
	C - Redwither Road (Eastern Arm)	19	38	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.02	9.72	0.0	A	8	12
B-A	0.15	9.69	0.2	A	66	99
C-AB	0.02	7.06	0.0	A	13	19
C-A					147	220
A-B					9	14
A-C					67	100

Observed 2018, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2a	Bridge Road N/Redwither Road	T-Junction	Two-way		6.75	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road (Western Arm)		ONE HOUR	✓	109	100.000
B - Bridge Road N		ONE HOUR	✓	258	100.000
C - Redwither Road (Eastern Arm)		ONE HOUR	✓	178	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	27	82
	B - Bridge Road N	241	0	17
	C - Redwither Road (Eastern Arm)	172	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	50	24
	B - Bridge Road N	3	0	13
	C - Redwither Road (Eastern Arm)	13	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.04	9.75	0.1	A	16	23
B-A	0.51	14.40	1.0	B	221	332
C-AB	0.01	5.37	0.0	A	7	11
C-A					156	234
A-B					25	37
A-C					75	113

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2a	Bridge Road N/Redwither Road	T-Junction	Two-way		2.49	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road (Western Arm)		ONE HOUR	✓	92	100.000
B - Bridge Road N		ONE HOUR	✓	88	100.000
C - Redwither Road (Eastern Arm)		ONE HOUR	✓	214	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	11	81
	B - Bridge Road N	79	0	9
	C - Redwither Road (Eastern Arm)	202	12	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	0	13
	B - Bridge Road N	18	0	50
	C - Redwither Road (Eastern Arm)	18	33	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.02	9.84	0.0	A	8	12
B-A	0.17	9.90	0.2	A	72	109
C-AB	0.03	6.68	0.0	A	15	22
C-A					181	272
A-B					10	15
A-C					74	111

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2a	Bridge Road N/Redwither Road	T-Junction	Two-way		7.82	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road (Western Arm)		ONE HOUR	✓	117	100.000
B - Bridge Road N		ONE HOUR	✓	291	100.000
C - Redwither Road (Eastern Arm)		ONE HOUR	✓	235	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	28	89
	B - Bridge Road N	272	0	19
	C - Redwither Road (Eastern Arm)	228	7	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	47	22
	B - Bridge Road N	3	0	12
	C - Redwither Road (Eastern Arm)	11	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.05	10.92	0.1	B	17	26
B-A	0.59	17.53	1.4	C	250	374
C-AB	0.02	5.19	0.0	A	9	14
C-A					207	310
A-B					26	39
A-C					82	123

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2a	Bridge Road N/Redwither Road	T-Junction	Two-way		2.49	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road (Western Arm)		ONE HOUR	✓	95	100.000
B - Bridge Road N		ONE HOUR	✓	89	100.000
C - Redwither Road (Eastern Arm)		ONE HOUR	✓	215	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	11	84
	B - Bridge Road N	80	0	9
	C - Redwither Road (Eastern Arm)	203	12	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	0	12
	B - Bridge Road N	18	0	50
	C - Redwither Road (Eastern Arm)	18	33	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.02	9.86	0.0	A	8	12
B-A	0.17	9.93	0.2	A	73	110
C-AB	0.03	6.68	0.0	A	15	22
C-A					182	274
A-B					10	15
A-C					77	116

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2a	Bridge Road N/Redwither Road	T-Junction	Two-way		8.11	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road (Western Arm)		ONE HOUR	✓	121	100.000
B - Bridge Road N		ONE HOUR	✓	297	100.000
C - Redwither Road (Eastern Arm)		ONE HOUR	✓	240	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	29	92
	B - Bridge Road N	278	0	19
	C - Redwither Road (Eastern Arm)	233	7	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road (Western Arm)	B - Bridge Road N	C - Redwither Road (Eastern Arm)
From	A - Redwither Road (Western Arm)	0	45	21
	B - Bridge Road N	3	0	12
	C - Redwither Road (Eastern Arm)	11	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.06	11.25	0.1	B	17	26
B-A	0.60	18.24	1.5	C	255	383
C-AB	0.02	5.18	0.0	A	9	14
C-A					211	317
A-B					27	40
A-C					84	127

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: J2b-Bridge Rd-Redwither Rd-Coed Aben Rd.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 13:50:49

File summary

File Description

Title	Bridge Road/Redwither Road/Coed Aben Road
Location	Wrexham
Site number	2b
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2b	Bridge Road/Redwither Road/Coed Aben Road	T-Junction	Two-way		14.62	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Redwither Road		Major
B	Bridge Road		Minor
C	Coed Aben Road		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Coed Aben Road	6.80		✓	3.50	120.0	✓	7.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Bridge Road	One lane plus flare	10.00	10.00	7.50	6.00	4.50	✓	3.00	66	60

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	622	0.109	0.277	0.174	0.395
B-C	651	0.096	0.243	-	-
C-B	734	0.275	0.275	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road		ONE HOUR	✓	163	100.000
B - Bridge Road		ONE HOUR	✓	381	100.000
C - Coed Aben Road		ONE HOUR	✓	279	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	96	67
	B - Bridge Road	325	0	56
	C - Coed Aben Road	83	196	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	19	20
	B - Bridge Road	8	0	30
	C - Coed Aben Road	12	12	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.16	14.79	0.2	B	51	77
B-A	0.73	29.29	2.8	D	298	447
C-AB	0.31	8.59	0.5	A	180	270
C-A					76	114
A-B					88	132
A-C					61	92

Observed 2018, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2b	Bridge Road/Redwither Road/Coed Aben Road	T-Junction	Two-way		6.65	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road		ONE HOUR	✓	172	100.000
B - Bridge Road		ONE HOUR	✓	348	100.000
C - Coed Aben Road		ONE HOUR	✓	198	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	128	44
	B - Bridge Road	201	0	147
	C - Coed Aben Road	109	89	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	9	26
	B - Bridge Road	11	0	4
	C - Coed Aben Road	30	14	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.28	8.76	0.4	A	135	202
B-A	0.44	14.24	0.9	B	184	277
C-AB	0.14	7.03	0.2	A	82	123
C-A					100	150
A-B					117	176
A-C					40	61

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2b	Bridge Road/Redwither Road/Coed Aben Road	T-Junction	Two-way		55.07	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road		ONE HOUR	✓	202	100.000
B - Bridge Road		ONE HOUR	✓	472	100.000
C - Coed Aben Road		ONE HOUR	✓	309	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	129	73
	B - Bridge Road	412	0	60
	C - Coed Aben Road	92	217	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	8	23
	B - Bridge Road	11	0	3
	C - Coed Aben Road	27	13	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.94	194.80	3.7	F	55	83
B-A	0.96	98.12	11.7	F	378	567
C-AB	0.35	9.33	0.6	A	199	299
C-A					84	127
A-B					118	178
A-C					67	100

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2b	Bridge Road/Redwither Road/Coed Aben Road	T-Junction	Two-way		7.90	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road		ONE HOUR	✓	228	100.000
B - Bridge Road		ONE HOUR	✓	409	100.000
C - Coed Aben Road		ONE HOUR	✓	215	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	180	48
	B - Bridge Road	243	0	166
	C - Coed Aben Road	117	98	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	8	23
	B - Bridge Road	11	0	3
	C - Coed Aben Road	27	13	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.33	10.14	0.5	B	152	228
B-A	0.54	17.83	1.3	C	223	334
C-AB	0.16	7.27	0.2	A	90	135
C-A					107	161
A-B					165	248
A-C					44	66

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2b	Bridge Road/Redwither Road/Coed Aben Road	T-Junction	Two-way		66.41	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road		ONE HOUR	✓	203	100.000
B - Bridge Road		ONE HOUR	✓	487	100.000
C - Coed Aben Road		ONE HOUR	✓	333	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	129	74
	B - Bridge Road	413	0	74
	C - Coed Aben Road	95	238	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	18	17
	B - Bridge Road	8	0	25
	C - Coed Aben Road	10	11	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	1.00	235.06	5.2	F	68	102
B-A	0.99	116.80	14.3	F	379	568
C-AB	0.39	9.69	0.7	A	218	328
C-A					87	131
A-B					118	178
A-C					68	102

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
2b	Bridge Road/Redwither Road/Coed Aben Road	T-Junction	Two-way		8.32	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Redwither Road		ONE HOUR	✓	233	100.000
B - Bridge Road		ONE HOUR	✓	428	100.000
C - Coed Aben Road		ONE HOUR	✓	233	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	180	53
	B - Bridge Road	243	0	185
	C - Coed Aben Road	121	112	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Redwither Road	B - Bridge Road	C - Coed Aben Road
From	A - Redwither Road	0	8	20
	B - Bridge Road	11	0	3
	C - Coed Aben Road	26	12	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.37	10.81	0.6	B	170	255
B-A	0.56	18.94	1.4	C	223	334
C-AB	0.19	7.46	0.3	A	103	154
C-A					111	167
A-B					165	248
A-C					49	73

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

Filename: J3-Central Access-Bridge Rd.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 15:04:26

File summary

File Description

Title	Bridge Road/Central Access/Barclays Access
Location	Wrexham
Site number	3
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
3	Bridge Road/Central Access/Barclays Access	Crossroads	Two-way		0.04	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Bridge Road (Northern Arm)		Major
B	Barclays Bank Access		Minor
C	Bridge Road (Southern Arm)		Major
D	Central Access		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - Bridge Road (Northern Arm)	6.00			80.0	✓	0.00
C - Bridge Road (Southern Arm)	6.00			60.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Barclays Bank Access	One lane	3.20	18	20
D - Central Access	One lane	3.20	19	18

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	620	-	-	-	-	-	-	0.240	0.343	0.240	-	-	-
B-A	503	0.092	0.232	0.232	-	-	-	0.146	0.331	-	0.232	0.232	0.116
B-C	649	0.100	0.252	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	503	0.092	0.232	0.232	-	-	-	0.146	0.331	0.146	-	-	-
B-D, offside lane	503	0.092	0.232	0.232	-	-	-	0.146	0.331	0.146	-	-	-
C-B	609	0.236	0.236	0.337	-	-	-	-	-	-	-	-	-
D-A	648	-	-	-	-	-	-	0.251	-	0.099	-	-	-
D-B, nearside lane	502	0.146	0.146	0.330	-	-	-	0.231	0.231	0.092	-	-	-
D-B, offside lane	502	0.146	0.146	0.330	-	-	-	0.231	0.231	0.092	-	-	-
D-C	502	-	0.146	0.330	0.116	0.231	0.231	0.231	0.231	0.092	-	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Northern Arm)		ONE HOUR	✓	349	100.000
B - Barclays Bank Access		ONE HOUR	✓	0	100.000
C - Bridge Road (Southern Arm)		ONE HOUR	✓	384	100.000
D - Central Access		ONE HOUR	✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	346	3
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	380	0	0	4
	D - Central Access	1	0	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	14	0
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	10	0	0	0
	D - Central Access	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.00	0.00	0.0	A	0	0
A-BCD	0.01	5.20	0.0	A	5	7
A-B					0	0
A-C					315	473
D-ABC	0.00	0.00	0.0	A	0	0
C-ABD	0.00	0.00	0.0	A	0	0
C-D					4	6
C-A					349	523

Observed 2018, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
3	Bridge Road/Central Access/Barclays Access	Crossroads	Two-way		0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Northern Arm)		ONE HOUR	✓	449	100.000
B - Barclays Bank Access		ONE HOUR	✓	0	100.000
C - Bridge Road (Southern Arm)		ONE HOUR	✓	349	100.000
D - Central Access		ONE HOUR	✓	1	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	449	0
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	348	0	0	1
	D - Central Access	0	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	7	0
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	8	0	0	0
	D - Central Access	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.00	0.00	0.0	A	0	0
A-BCD	0.00	0.00	0.0	A	0	0
A-B					0	0
A-C					412	618
D-ABC	0.00	0.00	0.0	A	0	0
C-ABD	0.00	0.00	0.0	A	0	0
C-D					0.92	1
C-A					319	479

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
3	Bridge Road/Central Access/Barclays Access	Crossroads	Two-way		0.03	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Northern Arm)		ONE HOUR	✓	409	100.000
B - Barclays Bank Access		ONE HOUR	✓	0	100.000
C - Bridge Road (Southern Arm)		ONE HOUR	✓	475	100.000
D - Central Access		ONE HOUR	✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	406	3
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	470	0	0	5
	D - Central Access	1	0	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	13	0
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	10	0	0	0
	D - Central Access	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.00	0.00	0.0	A	0	0
A-BCD	0.01	5.10	0.0	A	5	8
A-B					0	0
A-C					370	555
D-ABC	0.00	0.00	0.0	A	0	0
C-ABD	0.00	0.00	0.0	A	0	0
C-D					5	7
C-A					431	647

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
3	Bridge Road/Central Access/Barclays Access	Crossroads	Two-way		0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Northern Arm)		ONE HOUR	✓	540	100.000
B - Barclays Bank Access		ONE HOUR	✓	0	100.000
C - Bridge Road (Southern Arm)		ONE HOUR	✓	410	100.000
D - Central Access		ONE HOUR	✓	1	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	540	0
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	409	0	0	1
	D - Central Access	0	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	6	0
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	8	0	0	0
	D - Central Access	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.00	0.00	0.0	A	0	0
A-BCD	0.00	0.00	0.0	A	0	0
A-B					0	0
A-C					496	743
D-ABC	0.00	0.00	0.0	A	0	0
C-ABD	0.00	0.00	0.0	A	0	0
C-D					0.92	1
C-A					375	563

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
3	Bridge Road/Central Access/Barclays Access	Crossroads	Two-way		0.25	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Northern Arm)		ONE HOUR	✓	430	100.000
B - Barclays Bank Access		ONE HOUR	✓	0	100.000
C - Bridge Road (Southern Arm)		ONE HOUR	✓	501	100.000
D - Central Access		ONE HOUR	✓	15	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	425	5
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	482	0	0	19
	D - Central Access	4	0	11	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	13	25
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	10	0	0	0
	D - Central Access	33	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.00	0.00	0.0	A	0	0
A-BCD	0.02	5.75	0.0	A	9	14
A-B					0	0
A-C					385	578
D-ABC	0.05	11.76	0.1	B	14	21
C-ABD	0.00	0.00	0.0	A	0	0
C-D					17	26
C-A					442	663

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
3	Bridge Road/Central Access/Barclays Access	Crossroads	Two-way		0.23	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Northern Arm)		ONE HOUR	✓	554	100.000
B - Barclays Bank Access		ONE HOUR	✓	0	100.000
C - Bridge Road (Southern Arm)		ONE HOUR	✓	438	100.000
D - Central Access		ONE HOUR	✓	16	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	552	2
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	426	0	0	12
	D - Central Access	2	0	14	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Bridge Road (Northern Arm)	B - Barclays Bank Access	C - Bridge Road (Southern Arm)	D - Central Access
From	A - Bridge Road (Northern Arm)	0	0	6	100
	B - Barclays Bank Access	0	0	0	0
	C - Bridge Road (Southern Arm)	7	0	0	0
	D - Central Access	100	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.00	0.00	0.0	A	0	0
A-BCD	0.01	6.02	0.0	A	4	7
A-B					0	0
A-C					504	756
D-ABC	0.05	12.67	0.1	B	15	22
C-ABD	0.00	0.00	0.0	A	0	0
C-D					11	17
C-A					391	586

Junctions 9

ARCADY 9 - Roundabout Module

Filename: J4-Spectrum BP-Bridge Rd.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 15:09:46

File summary

File Description

Title	Bridge Road/Spectrum Business Park
Location	Wrexham
Site number	4
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Spectrum Business Park	Standard Roundabout		1, 2, 3	2.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Bridge Road (Northern Arm)	
2	Spectrum Business Park	
3	Bridge Road (Southern Arm)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Bridge Road (Northern Arm)	3.90	6.79	19.5	27.1	40.0	31.2	
2 - Spectrum Business Park	3.88	6.90	11.0	27.6	40.0	29.7	
3 - Bridge Road (Southern Arm)	4.83	7.39	7.2	32.6	40.0	28.8	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Bridge Road (Northern Arm)	0.663	1791
2 - Spectrum Business Park	0.644	1687
3 - Bridge Road (Southern Arm)	0.683	1868

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	348	100.000
2 - Spectrum Business Park		ONE HOUR	✓	37	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	448	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	7	122	219
	2 - Spectrum Business Park	13	0	24
	3 - Bridge Road (Southern Arm)	364	81	3

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	40	1	22
	2 - Spectrum Business Park	18	0	26
	3 - Bridge Road (Southern Arm)	10	5	50

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.22	3.05	0.3	A	319	479
2 - Spectrum Business Park	0.03	2.99	0.0	A	34	51
3 - Bridge Road (Southern Arm)	0.27	2.88	0.4	A	411	617

Observed 2018, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Spectrum Business Park	Standard Roundabout		1, 2, 3	2.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	450	100.000
2 - Spectrum Business Park		ONE HOUR	✓	205	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	253	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	0	15	435
	2 - Spectrum Business Park	128	0	77
	3 - Bridge Road (Southern Arm)	221	31	1

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	0	0	7
	2 - Spectrum Business Park	2	0	3
	3 - Bridge Road (Southern Arm)	11	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.28	3.02	0.4	A	413	619
2 - Spectrum Business Park	0.16	3.20	0.2	A	188	282
3 - Bridge Road (Southern Arm)	0.16	2.66	0.2	A	232	348

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Spectrum Business Park	Standard Roundabout		1, 2, 3	3.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	408	100.000
2 - Spectrum Business Park		ONE HOUR	✓	40	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	547	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	7	139	262
	2 - Spectrum Business Park	14	0	26
	3 - Bridge Road (Southern Arm)	453	91	3

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	40	1	21
	2 - Spectrum Business Park	17	0	24
	3 - Bridge Road (Southern Arm)	9	5	50

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.26	3.20	0.4	A	374	562
2 - Spectrum Business Park	0.03	3.01	0.0	A	37	55
3 - Bridge Road (Southern Arm)	0.33	3.12	0.5	A	502	753

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Spectrum Business Park	Standard Roundabout		1, 2, 3	3.17	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	541	100.000
2 - Spectrum Business Park		ONE HOUR	✓	232	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	301	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	0	17	524
	2 - Spectrum Business Park	145	0	87
	3 - Bridge Road (Southern Arm)	265	35	1

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	0	0	6
	2 - Spectrum Business Park	2	0	2
	3 - Bridge Road (Southern Arm)	11	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.34	3.27	0.5	A	496	745
2 - Spectrum Business Park	0.19	3.47	0.2	A	213	319
3 - Bridge Road (Southern Arm)	0.19	2.78	0.3	A	276	414

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Spectrum Business Park	Standard Roundabout		1, 2, 3	3.22	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	436	100.000
2 - Spectrum Business Park		ONE HOUR	✓	40	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	573	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	7	139	290
	2 - Spectrum Business Park	14	0	26
	3 - Bridge Road (Southern Arm)	479	91	3

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	40	1	19
	2 - Spectrum Business Park	17	0	24
	3 - Bridge Road (Southern Arm)	9	5	50

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.28	3.26	0.4	A	400	600
2 - Spectrum Business Park	0.03	3.05	0.0	A	37	55
3 - Bridge Road (Southern Arm)	0.34	3.19	0.6	A	526	789

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Spectrum Business Park	Standard Roundabout		1, 2, 3	3.22	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	566	100.000
2 - Spectrum Business Park		ONE HOUR	✓	232	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	329	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	0	17	549
	2 - Spectrum Business Park	145	0	87
	3 - Bridge Road (Southern Arm)	293	35	1

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road (Northern Arm)	2 - Spectrum Business Park	3 - Bridge Road (Southern Arm)
From	1 - Bridge Road (Northern Arm)	0	0	6
	2 - Spectrum Business Park	2	0	2
	3 - Bridge Road (Southern Arm)	10	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.35	3.33	0.6	A	519	779
2 - Spectrum Business Park	0.20	3.53	0.2	A	213	319
3 - Bridge Road (Southern Arm)	0.21	2.82	0.3	A	302	453

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: J5-Southern Access-Bridge Rd.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 15:21:12

File summary

File Description

Title	Southern Access/Bridge Road
Location	Wrexham
Site number	6
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Southern Access/Bridge Road	T-Junction	Two-way		0.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Bridge Road (Southern Arm)		Major
B	Southern Access		Minor
C	Bridge Road (Northern Arm)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Bridge Road (Northern Arm)	8.60			250.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Southern Access	One lane	3.20	21	30

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	509	0.082	0.208	0.131	0.297
B-C	656	0.089	0.225	-	-
C-B	719	0.247	0.247	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Southern Arm)		ONE HOUR	✓	460	100.000
B - Southern Access		ONE HOUR	✓	17	100.000
C - Bridge Road (Northern Arm)		ONE HOUR	✓	246	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	27	433
	B - Southern Access	2	0	15
	C - Bridge Road (Northern Arm)	226	20	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	13	8
	B - Southern Access	0	0	36
	C - Bridge Road (Northern Arm)	24	18	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.04	9.46	0.0	A	16	23
C-AB	0.04	5.93	0.1	A	26	39
C-A					200	300
A-B					25	37
A-C					397	596

Observed 2018, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Southern Access/Bridge Road	T-Junction	Two-way		0.68	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Southern Arm)		ONE HOUR	✓	247	100.000
B - Southern Access		ONE HOUR	✓	49	100.000
C - Bridge Road (Northern Arm)		ONE HOUR	✓	513	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	7	240
	B - Southern Access	36	0	13
	C - Bridge Road (Northern Arm)	505	8	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	0	11
	B - Southern Access	0	0	0
	C - Bridge Road (Northern Arm)	6	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.13	9.87	0.1	A	45	67
C-AB	0.02	4.11	0.0	A	15	22
C-A					456	684
A-B					6	10
A-C					220	330

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Southern Access/Bridge Road	T-Junction	Two-way		0.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Southern Arm)		ONE HOUR	✓	497	100.000
B - Southern Access		ONE HOUR	✓	16	100.000
C - Bridge Road (Northern Arm)		ONE HOUR	✓	291	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	16	481
	B - Southern Access	0	0	16
	C - Bridge Road (Northern Arm)	269	22	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	7	9
	B - Southern Access	100	0	33
	C - Bridge Road (Northern Arm)	22	16	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.03	9.28	0.0	A	15	22
C-AB	0.05	5.75	0.1	A	30	45
C-A					237	355
A-B					15	22
A-C					441	662

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Southern Access/Bridge Road	T-Junction	Two-way		0.60	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Southern Arm)		ONE HOUR	✓	293	100.000
B - Southern Access		ONE HOUR	✓	48	100.000
C - Bridge Road (Northern Arm)		ONE HOUR	✓	612	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	7	286
	B - Southern Access	33	0	15
	C - Bridge Road (Northern Arm)	603	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	0	11
	B - Southern Access	0	0	0
	C - Bridge Road (Northern Arm)	6	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.13	10.28	0.1	B	44	66
C-AB	0.02	3.95	0.0	A	19	29
C-A					543	814
A-B					6	10
A-C					262	394

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Southern Access/Bridge Road	T-Junction	Two-way		0.87	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Southern Arm)		ONE HOUR	✓	535	100.000
B - Southern Access		ONE HOUR	✓	41	100.000
C - Bridge Road (Northern Arm)		ONE HOUR	✓	319	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	40	495
	B - Southern Access	13	0	28
	C - Bridge Road (Northern Arm)	278	41	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	5	9
	B - Southern Access	0	0	22
	C - Bridge Road (Northern Arm)	21	11	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.10	10.15	0.1	B	38	56
C-AB	0.10	5.84	0.2	A	57	86
C-A					235	353
A-B					37	55
A-C					454	681

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Southern Access/Bridge Road	T-Junction	Two-way		1.22	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bridge Road (Southern Arm)		ONE HOUR	✓	321	100.000
B - Southern Access		ONE HOUR	✓	89	100.000
C - Bridge Road (Northern Arm)		ONE HOUR	✓	639	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	24	297
	B - Southern Access	57	0	32
	C - Bridge Road (Northern Arm)	616	23	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bridge Road (Southern Arm)	B - Southern Access	C - Bridge Road (Northern Arm)
From	A - Bridge Road (Southern Arm)	0	0	10
	B - Southern Access	0	0	0
	C - Bridge Road (Northern Arm)	6	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.24	11.85	0.3	B	82	123
C-AB	0.06	4.12	0.1	A	50	75
C-A					537	805
A-B					22	33
A-C					273	409

Junctions 9

ARCADY 9 - Roundabout Module

Filename: J6-Bridge Rd-Clywedog E-HMP.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 15:25:54

File summary

File Description

Title	Bridge Road/Clywedog Road E/HMP
Location	Wrexham
Site number	6
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Clywedog Road E/HMP	Standard Roundabout		1, 2, 3, 4	2.92	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Bridge Road (Northern Arm)	
2	HMP	
3	Bridge Road (Southern Arm)	
4	Clywedog Road E	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Bridge Road (Northern Arm)	4.50	8.35	6.2	26.5	44.0	29.9	
2 - HMP	2.61	6.30	14.2	26.7	44.0	26.9	
3 - Bridge Road (Southern Arm)	4.32	7.44	18.5	22.0	44.0	28.9	
4 - Clywedog Road E	3.94	6.18	2.5	17.2	44.0	36.2	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Bridge Road (Northern Arm)	0.650	1775
2 - HMP	0.586	1434
3 - Bridge Road (Southern Arm)	0.680	1939
4 - Clywedog Road E	0.549	1329

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	218	100.000
2 - HMP		ONE HOUR	✓	6	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	499	100.000
4 - Clywedog Road E		ONE HOUR	✓	25	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	21	182	15
	2 - HMP	3	0	2	1
	3 - Bridge Road (Southern Arm)	443	44	0	12
	4 - Clywedog Road E	10	2	13	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	5	26	36
	2 - HMP	0	0	0	0
	3 - Bridge Road (Southern Arm)	7	0	0	0
	4 - Clywedog Road E	43	0	44	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.14	2.99	0.2	A	200	300
2 - HMP	0.01	2.78	0.0	A	6	8
3 - Bridge Road (Southern Arm)	0.29	2.78	0.4	A	458	687
4 - Clywedog Road E	0.03	4.98	0.0	A	23	34

Observed 2018, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Clywedog Road E/HMP	Standard Roundabout		1, 2, 3, 4	3.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	549	100.000
2 - HMP		ONE HOUR	✓	83	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	189	100.000
4 - Clywedog Road E		ONE HOUR	✓	42	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	10	520	19
	2 - HMP	23	0	58	2
	3 - Bridge Road (Southern Arm)	179	3	0	7
	4 - Clywedog Road E	28	0	14	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	11	5	27
	2 - HMP	5	0	0	0
	3 - Bridge Road (Southern Arm)	13	0	0	40
	4 - Clywedog Road E	17	0	17	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.34	3.27	0.5	A	504	756
2 - HMP	0.08	3.69	0.1	A	76	114
3 - Bridge Road (Southern Arm)	0.11	2.40	0.1	A	173	260
4 - Clywedog Road E	0.04	3.62	0.0	A	39	58

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Clywedog Road E/HMP	Standard Roundabout		1, 2, 3, 4	3.20	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	255	100.000
2 - HMP		ONE HOUR	✓	6	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	628	100.000
4 - Clywedog Road E		ONE HOUR	✓	46	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	24	215	16
	2 - HMP	3	0	2	1
	3 - Bridge Road (Southern Arm)	533	50	0	45
	4 - Clywedog Road E	11	2	33	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	4	23	33
	2 - HMP	0	0	0	0
	3 - Bridge Road (Southern Arm)	7	0	0	13
	4 - Clywedog Road E	38	0	38	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.16	3.05	0.2	A	234	351
2 - HMP	0.01	2.86	0.0	A	6	8
3 - Bridge Road (Southern Arm)	0.36	3.11	0.6	A	576	864
4 - Clywedog Road E	0.05	5.27	0.1	A	42	63

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Clywedog Road E/HMP	Standard Roundabout		1, 2, 3, 4	3.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	644	100.000
2 - HMP		ONE HOUR	✓	94	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	236	100.000
4 - Clywedog Road E		ONE HOUR	✓	71	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	11	612	21
	2 - HMP	26	0	66	2
	3 - Bridge Road (Southern Arm)	215	3	0	18
	4 - Clywedog Road E	31	0	40	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	10	4	24
	2 - HMP	4	0	0	0
	3 - Bridge Road (Southern Arm)	12	0	0	29
	4 - Clywedog Road E	15	0	14	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.41	3.64	0.7	A	591	886
2 - HMP	0.10	4.06	0.1	A	86	129
3 - Bridge Road (Southern Arm)	0.14	2.47	0.2	A	217	325
4 - Clywedog Road E	0.07	3.74	0.1	A	65	98

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Clywedog Road E/HMP	Standard Roundabout		1, 2, 3, 4	3.28	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	281	100.000
2 - HMP		ONE HOUR	✓	6	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	666	100.000
4 - Clywedog Road E		ONE HOUR	✓	46	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	24	241	16
	2 - HMP	3	0	2	1
	3 - Bridge Road (Southern Arm)	571	50	0	45
	4 - Clywedog Road E	11	2	33	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	4	21	33
	2 - HMP	0	0	0	0
	3 - Bridge Road (Southern Arm)	7	0	0	13
	4 - Clywedog Road E	38	0	38	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.18	3.08	0.3	A	258	387
2 - HMP	0.01	2.90	0.0	A	6	8
3 - Bridge Road (Southern Arm)	0.38	3.22	0.7	A	611	917
4 - Clywedog Road E	0.05	5.41	0.1	A	42	63

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road/Clywedog Road E/HMP	Standard Roundabout		1, 2, 3, 4	3.52	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road (Northern Arm)		ONE HOUR	✓	683	100.000
2 - HMP		ONE HOUR	✓	94	100.000
3 - Bridge Road (Southern Arm)		ONE HOUR	✓	266	100.000
4 - Clywedog Road E		ONE HOUR	✓	71	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	11	651	21
	2 - HMP	26	0	66	2
	3 - Bridge Road (Southern Arm)	245	3	0	18
	4 - Clywedog Road E	31	0	40	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bridge Road (Northern Arm)	2 - HMP	3 - Bridge Road (Southern Arm)	4 - Clywedog Road E
From	1 - Bridge Road (Northern Arm)	0	10	4	24
	2 - HMP	4	0	0	0
	3 - Bridge Road (Southern Arm)	11	0	0	29
	4 - Clywedog Road E	15	0	14	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road (Northern Arm)	0.43	3.80	0.8	A	627	940
2 - HMP	0.11	4.17	0.1	A	86	129
3 - Bridge Road (Southern Arm)	0.15	2.50	0.2	A	244	366
4 - Clywedog Road E	0.07	3.80	0.1	A	65	98

Junctions 9

ARCADY 9 - Roundabout Module

Filename: J7-Bridge Rd-Clywedog Rd S.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 15:34:57

File summary

File Description

Title	Bridge Road S/Clywedog Road S
Location	Wrexham
Site number	7
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road S/Clywedog Road S	Standard Roundabout		1, 2, 3	2.85	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Bridge Road S (Northern Arm)	
2	Bridge Road S (Southern Arm)	
3	Clywedog Road S	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Bridge Road S (Northern Arm)	3.53	6.32	15.3	29.9	40.0	31.9	
2 - Bridge Road S (Southern Arm)	7.38	7.98	2.6	20.5	40.0	34.8	
3 - Clywedog Road S	4.41	7.34	12.0	22.0	40.0	31.9	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Bridge Road S (Northern Arm)	0.629	1619
2 - Bridge Road S (Southern Arm)	0.758	2304
3 - Clywedog Road S	0.667	1830

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S (Northern Arm)		ONE HOUR	✓	208	100.000
2 - Bridge Road S (Southern Arm)		ONE HOUR	✓	828	100.000
3 - Clywedog Road S		ONE HOUR	✓	75	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	200	8
	2 - Bridge Road S (Southern Arm)	494	6	328
	3 - Clywedog Road S	6	69	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	23	33
	2 - Bridge Road S (Southern Arm)	7	0	3
	3 - Clywedog Road S	20	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S (Northern Arm)	0.15	3.31	0.2	A	191	286
2 - Bridge Road S (Southern Arm)	0.40	2.73	0.7	A	760	1140
3 - Clywedog Road S	0.06	2.92	0.1	A	69	103

Observed 2018, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road S/Clywedog Road S	Standard Roundabout		1, 2, 3	3.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S (Northern Arm)		ONE HOUR	✓	574	100.000
2 - Bridge Road S (Southern Arm)		ONE HOUR	✓	255	100.000
3 - Clywedog Road S		ONE HOUR	✓	388	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	571	3
	2 - Bridge Road S (Southern Arm)	167	2	86
	3 - Clywedog Road S	11	377	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	5	0
	2 - Bridge Road S (Southern Arm)	12	0	13
	3 - Clywedog Road S	22	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S (Northern Arm)	0.47	5.20	0.9	A	527	790
2 - Bridge Road S (Southern Arm)	0.12	2.00	0.2	A	234	351
3 - Clywedog Road S	0.25	2.89	0.3	A	356	534

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road S/Clywedog Road S	Standard Roundabout		1, 2, 3	3.29	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S (Northern Arm)		ONE HOUR	✓	263	100.000
2 - Bridge Road S (Southern Arm)		ONE HOUR	✓	1026	100.000
3 - Clywedog Road S		ONE HOUR	✓	100	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	254	9
	2 - Bridge Road S (Southern Arm)	621	7	398
	3 - Clywedog Road S	7	93	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	22	29
	2 - Bridge Road S (Southern Arm)	7	0	3
	3 - Clywedog Road S	17	13	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S (Northern Arm)	0.19	3.48	0.3	A	241	362
2 - Bridge Road S (Southern Arm)	0.49	3.25	1.0	A	941	1412
3 - Clywedog Road S	0.08	3.25	0.1	A	92	138

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road S/Clywedog Road S	Standard Roundabout		1, 2, 3	4.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S (Northern Arm)		ONE HOUR	✓	707	100.000
2 - Bridge Road S (Southern Arm)		ONE HOUR	✓	322	100.000
3 - Clywedog Road S		ONE HOUR	✓	460	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	704	3
	2 - Bridge Road S (Southern Arm)	216	2	104
	3 - Clywedog Road S	12	448	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	5	0
	2 - Bridge Road S (Southern Arm)	13	0	12
	3 - Clywedog Road S	20	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S (Northern Arm)	0.60	7.12	1.5	A	649	973
2 - Bridge Road S (Southern Arm)	0.15	2.07	0.2	A	295	443
3 - Clywedog Road S	0.30	3.17	0.4	A	422	633

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road S/Clywedog Road S	Standard Roundabout		1, 2, 3	3.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S (Northern Arm)		ONE HOUR	✓	289	100.000
2 - Bridge Road S (Southern Arm)		ONE HOUR	✓	1064	100.000
3 - Clywedog Road S		ONE HOUR	✓	100	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	280	9
	2 - Bridge Road S (Southern Arm)	659	7	398
	3 - Clywedog Road S	7	93	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	20	29
	2 - Bridge Road S (Southern Arm)	7	0	3
	3 - Clywedog Road S	17	13	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S (Northern Arm)	0.21	3.52	0.3	A	265	398
2 - Bridge Road S (Southern Arm)	0.51	3.37	1.1	A	976	1465
3 - Clywedog Road S	0.08	3.32	0.1	A	92	138

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Bridge Road S/Clywedog Road S	Standard Roundabout		1, 2, 3	5.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S (Northern Arm)		ONE HOUR	✓	746	100.000
2 - Bridge Road S (Southern Arm)		ONE HOUR	✓	352	100.000
3 - Clywedog Road S		ONE HOUR	✓	460	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	743	3
	2 - Bridge Road S (Southern Arm)	246	2	104
	3 - Clywedog Road S	12	448	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S (Northern Arm)	2 - Bridge Road S (Southern Arm)	3 - Clywedog Road S
From	1 - Bridge Road S (Northern Arm)	0	5	0
	2 - Bridge Road S (Southern Arm)	11	0	12
	3 - Clywedog Road S	20	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S (Northern Arm)	0.63	7.74	1.7	A	685	1027
2 - Bridge Road S (Southern Arm)	0.17	2.09	0.2	A	323	485
3 - Clywedog Road S	0.31	3.24	0.5	A	422	633

Junctions 9

ARCADY 9 - Roundabout Module

Filename: J8-Sesswick Wy-Bridge Rd-Cefn Rd.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 15:40:03

File summary

File Description

Title	Sesswick Way/Bridge Road S/Cefn Road
Location	Wrexham
Site number	8
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Sesswick Way/Bridge Road S/Cefn Road	Standard Roundabout		1, 2, 3	3.31	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Bridge Road S	
2	Sesswick Way	
3	Cefn Road	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Bridge Road S	6.96	6.96	0.0	36.2	50.0	28.9	
2 - Sesswick Way	4.68	8.53	10.3	30.5	50.0	32.8	
3 - Cefn Road	3.65	7.72	9.4	29.8	50.0	31.1	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Bridge Road S	0.704	2163
2 - Sesswick Way	0.661	1964
3 - Cefn Road	0.601	1644

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S		ONE HOUR	✓	275	100.000
2 - Sesswick Way		ONE HOUR	✓	523	100.000
3 - Cefn Road		ONE HOUR	✓	425	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	151	124
	2 - Sesswick Way	487	0	36
	3 - Cefn Road	341	84	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	34	5
	2 - Sesswick Way	7	0	6
	3 - Cefn Road	3	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S	0.14	2.39	0.2	A	252	379
2 - Sesswick Way	0.31	2.95	0.5	A	480	720
3 - Cefn Road	0.35	4.35	0.6	A	390	585

Observed 2018, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Sesswick Way/Bridge Road S/Cefn Road	Standard Roundabout		1, 2, 3	3.30	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S		ONE HOUR	✓	950	100.000
2 - Sesswick Way		ONE HOUR	✓	187	100.000
3 - Cefn Road		ONE HOUR	✓	173	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	504	446
	2 - Sesswick Way	141	0	46
	3 - Cefn Road	114	59	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	6	1
	2 - Sesswick Way	18	0	5
	3 - Cefn Road	7	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S	0.49	3.48	1.0	A	872	1308
2 - Sesswick Way	0.13	2.86	0.2	A	172	257
3 - Cefn Road	0.12	2.79	0.1	A	159	238

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Sesswick Way/Bridge Road S/Cefn Road	Standard Roundabout		1, 2, 3	3.97	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S		ONE HOUR	✓	356	100.000
2 - Sesswick Way		ONE HOUR	✓	615	100.000
3 - Cefn Road		ONE HOUR	✓	546	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	179	177
	2 - Sesswick Way	575	0	40
	3 - Cefn Road	451	95	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	30	9
	2 - Sesswick Way	6	0	5
	3 - Cefn Road	5	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S	0.19	2.52	0.3	A	327	490
2 - Sesswick Way	0.37	3.29	0.6	A	564	847
3 - Cefn Road	0.48	5.68	0.9	A	501	752

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Sesswick Way/Bridge Road S/Cefn Road	Standard Roundabout		1, 2, 3	4.05	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S		ONE HOUR	✓	1155	100.000
2 - Sesswick Way		ONE HOUR	✓	217	100.000
3 - Cefn Road		ONE HOUR	✓	223	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	592	563
	2 - Sesswick Way	165	0	52
	3 - Cefn Road	156	67	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	5	2
	2 - Sesswick Way	15	0	4
	3 - Cefn Road	8	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S	0.60	4.44	1.6	A	1060	1590
2 - Sesswick Way	0.15	3.07	0.2	A	199	299
3 - Cefn Road	0.16	2.98	0.2	A	205	307

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Sesswick Way/Bridge Road S/Cefn Road	Standard Roundabout		1, 2, 3	4.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S		ONE HOUR	✓	382	100.000
2 - Sesswick Way		ONE HOUR	✓	628	100.000
3 - Cefn Road		ONE HOUR	✓	571	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	190	192
	2 - Sesswick Way	588	0	40
	3 - Cefn Road	476	95	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	29	8
	2 - Sesswick Way	6	0	5
	3 - Cefn Road	4	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S	0.20	2.54	0.3	A	351	526
2 - Sesswick Way	0.38	3.37	0.6	A	576	864
3 - Cefn Road	0.50	5.99	1.0	A	524	786

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Sesswick Way/Bridge Road S/Cefn Road	Standard Roundabout		1, 2, 3	4.23	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bridge Road S		ONE HOUR	✓	1194	100.000
2 - Sesswick Way		ONE HOUR	✓	227	100.000
3 - Cefn Road		ONE HOUR	✓	243	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	606	588
	2 - Sesswick Way	175	0	52
	3 - Cefn Road	176	67	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Bridge Road S	2 - Sesswick Way	3 - Cefn Road
From	1 - Bridge Road S	0	5	2
	2 - Sesswick Way	15	0	4
	3 - Cefn Road	7	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bridge Road S	0.62	4.68	1.7	A	1096	1643
2 - Sesswick Way	0.16	3.14	0.2	A	208	312
3 - Cefn Road	0.18	3.03	0.2	A	223	334

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: J9a-Abenbury Wy-Coed Aben Rd-Clywedog Rd N.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 15:47:01

File summary

File Description

Title	Abenbury Way/Coed Aben Road/Clywedog Road N
Location	Wrexham
Site number	9a
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Coed Aben Road/Clywedog Road N	T-Junction	Two-way		4.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Coed Aben Road		Major
B	Clywedog Road N		Minor
C	Abenbury Way		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Abenbury Way	6.50		✓	3.50	110.0	✓	7.00

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)	Visibility to left (m)	Visibility to right (m)
B - Clywedog Road N	One lane	4.00	37	39

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	560	0.100	0.252	0.159	0.360
B-C	713	0.107	0.270	-	-
C-B	728	0.276	0.276	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road		ONE HOUR	✓	148	100.000
B - Clywedog Road N		ONE HOUR	✓	232	100.000
C - Abenbury Way		ONE HOUR	✓	568	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	16	132
	B - Clywedog Road N	18	0	214
	C - Abenbury Way	331	237	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	23	27
	B - Clywedog Road N	13	0	9
	C - Abenbury Way	9	6	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.40	10.41	0.7	B	213	319
C-AB	0.38	9.06	0.7	A	218	326
C-A					304	455
A-B					15	22
A-C					121	182

Observed 2018, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Coed Aben Road/Clywedog Road N	T-Junction	Two-way		4.67	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road		ONE HOUR	✓	315	100.000
B - Clywedog Road N		ONE HOUR	✓	217	100.000
C - Abenbury Way		ONE HOUR	✓	250	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	34	281
	B - Clywedog Road N	11	0	206
	C - Abenbury Way	102	148	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	13	6
	B - Clywedog Road N	38	0	10
	C - Abenbury Way	24	15	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.39	10.84	0.7	B	199	299
C-AB	0.26	8.80	0.4	A	136	204
C-A					94	140
A-B					31	47
A-C					258	387

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Coed Aben Road/Clywedog Road N	T-Junction	Two-way		6.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road		ONE HOUR	✓	159	100.000
B - Clywedog Road N		ONE HOUR	✓	281	100.000
C - Abenbury Way		ONE HOUR	✓	670	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	17	142
	B - Clywedog Road N	20	0	261
	C - Abenbury Way	369	301	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	21	25
	B - Clywedog Road N	11	0	9
	C - Abenbury Way	8	7	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.50	12.49	1.1	B	258	387
C-AB	0.49	10.98	1.0	B	277	415
C-A					338	507
A-B					16	23
A-C					130	195

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Coed Aben Road/Clywedog Road N	T-Junction	Two-way		5.59	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road		ONE HOUR	✓	354	100.000
B - Clywedog Road N		ONE HOUR	✓	265	100.000
C - Abenbury Way		ONE HOUR	✓	285	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	38	316
	B - Clywedog Road N	12	0	253
	C - Abenbury Way	111	174	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	12	5
	B - Clywedog Road N	33	0	9
	C - Abenbury Way	22	12	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.49	12.86	1.0	B	243	365
C-AB	0.31	9.42	0.5	A	160	240
C-A					102	153
A-B					35	52
A-C					290	435

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Coed Aben Road/Clywedog Road N	T-Junction	Two-way		5.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road		ONE HOUR	✓	186	100.000
B - Clywedog Road N		ONE HOUR	✓	281	100.000
C - Abenbury Way		ONE HOUR	✓	711	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	17	169
	B - Clywedog Road N	20	0	261
	C - Abenbury Way	410	301	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	21	22
	B - Clywedog Road N	11	0	9
	C - Abenbury Way	8	7	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.50	12.91	1.1	B	258	387
C-AB	0.49	11.22	1.0	B	277	416
C-A					375	563
A-B					16	23
A-C					155	233

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Coed Aben Road/Clywedog Road N	T-Junction	Two-way		5.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Coed Aben Road		ONE HOUR	✓	396	100.000
B - Clywedog Road N		ONE HOUR	✓	265	100.000
C - Abenbury Way		ONE HOUR	✓	311	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	38	358
	B - Clywedog Road N	12	0	253
	C - Abenbury Way	137	174	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Coed Aben Road	B - Clywedog Road N	C - Abenbury Way
From	A - Coed Aben Road	0	12	5
	B - Clywedog Road N	33	0	9
	C - Abenbury Way	18	12	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.50	13.45	1.1	B	243	365
C-AB	0.32	9.71	0.5	A	160	240
C-A					126	189
A-B					35	52
A-C					329	493

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

Filename: J9b-Abenbury Wy-Ash Rd N.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 17:37:16

File summary

File Description

Title	Abenbury Way/Ash Road N
Location	Wrexham
Site number	9b
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Ash Road N	T-Junction	Two-way		1.22	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Abenbury Way (Northern Arm)		Major
B	Ash Road N		Minor
C	Abenbury Way (Southern Arm)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Abenbury Way (Southern Arm)	7.00		✓	3.50	200.0	✓	7.00

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)	Visibility to left (m)	Visibility to right (m)
B - Ash Road N	One lane	4.50	60	24

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	585	0.102	0.258	0.162	0.368
B-C	735	0.108	0.272	-	-
C-B	787	0.292	0.292	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2018	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abenbury Way (Northern Arm)		ONE HOUR	✓	577	100.000
B - Ash Road N		ONE HOUR	✓	68	100.000
C - Abenbury Way (Southern Arm)		ONE HOUR	✓	132	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	9	568
	B - Ash Road N	21	0	47
	C - Abenbury Way (Southern Arm)	110	22	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	13	8
	B - Ash Road N	75	0	24
	C - Abenbury Way (Southern Arm)	29	16	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.15	11.58	0.2	B	62	94
C-AB	0.04	7.21	0.0	A	20	30
C-A					101	151
A-B					8	12
A-C					521	782

Observed 2018, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Ash Road N	T-Junction	Two-way		2.07	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2018	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abenbury Way (Northern Arm)		ONE HOUR	✓	254	100.000
B - Ash Road N		ONE HOUR	✓	137	100.000
C - Abenbury Way (Southern Arm)		ONE HOUR	✓	281	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	4	250
	B - Ash Road N	10	0	127
	C - Abenbury Way (Southern Arm)	239	42	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	0	18
	B - Ash Road N	11	0	12
	C - Abenbury Way (Southern Arm)	5	11	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.24	8.29	0.3	A	126	189
C-AB	0.07	6.03	0.1	A	39	58
C-A					219	329
A-B					4	6
A-C					229	344

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Ash Road N	T-Junction	Two-way		1.20	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abenbury Way (Northern Arm)		ONE HOUR	✓	680	100.000
B - Ash Road N		ONE HOUR	✓	72	100.000
C - Abenbury Way (Southern Arm)		ONE HOUR	✓	142	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	10	670
	B - Ash Road N	21	0	51
	C - Abenbury Way (Southern Arm)	118	24	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	11	7
	B - Ash Road N	75	0	21
	C - Abenbury Way (Southern Arm)	27	14	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.17	12.32	0.3	B	66	99
C-AB	0.05	7.58	0.1	A	22	33
C-A					108	162
A-B					9	14
A-C					615	922

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Ash Road N	T-Junction	Two-way		2.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abenbury Way (Northern Arm)		ONE HOUR	✓	290	100.000
B - Ash Road N		ONE HOUR	✓	152	100.000
C - Abenbury Way (Southern Arm)		ONE HOUR	✓	316	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	5	285
	B - Ash Road N	11	0	141
	C - Abenbury Way (Southern Arm)	269	47	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	0	16
	B - Ash Road N	10	0	11
	C - Abenbury Way (Southern Arm)	4	9	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.27	8.69	0.4	A	139	209
C-AB	0.07	6.12	0.1	A	43	65
C-A					247	370
A-B					5	7
A-C					262	392

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Ash Road N	T-Junction	Two-way		1.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:30	09:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abenbury Way (Northern Arm)		ONE HOUR	✓	721	100.000
B - Ash Road N		ONE HOUR	✓	72	100.000
C - Abenbury Way (Southern Arm)		ONE HOUR	✓	169	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	10	711
	B - Ash Road N	21	0	51
	C - Abenbury Way (Southern Arm)	145	24	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	11	7
	B - Ash Road N	75	0	21
	C - Abenbury Way (Southern Arm)	23	14	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.17	12.80	0.3	B	66	99
C-AB	0.05	7.77	0.1	A	22	33
C-A					133	200
A-B					9	14
A-C					652	979

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Abenbury Way/Ash Road N	T-Junction	Two-way		1.98	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abenbury Way (Northern Arm)		ONE HOUR	✓	316	100.000
B - Ash Road N		ONE HOUR	✓	152	100.000
C - Abenbury Way (Southern Arm)		ONE HOUR	✓	358	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	5	311
	B - Ash Road N	11	0	141
	C - Abenbury Way (Southern Arm)	311	47	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abenbury Way (Northern Arm)	B - Ash Road N	C - Abenbury Way (Southern Arm)
From	A - Abenbury Way (Northern Arm)	0	0	15
	B - Ash Road N	10	0	11
	C - Abenbury Way (Southern Arm)	4	9	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.27	8.86	0.4	A	139	209
C-AB	0.08	6.20	0.1	A	43	65
C-A					285	428
A-B					5	7
A-C					285	428

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: J10-Bryn-Ash-Aben-Ind Est.j9
Path: N:\Projects 2020\P20030 - Bridgeway Centre, Wrexham Industrial Estate\6.Technical\Models
Report generation date: 20/09/2021 16:03:50

File summary

File Description

Title	Industrial Estate Road/Bryn Lane/Ash Road North/Abenbury Way
Location	Wrexham
Site number	10
Date	20/09/2021
Version	
Status	Final
Identifier	
Client	FI Real Estate
Jobnumber	P20030
Enumerator	D Stoddart
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2019	AM	ONE HOUR	07:15	08:45	15	✓
D2	Observed 2019	PM	ONE HOUR	16:00	17:30	15	✓
D3	Without Development 2036	AM	ONE HOUR	07:15	08:45	15	✓
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓
D5	With Development 2036	AM	ONE HOUR	07:15	08:45	15	✓
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

Observed 2019 , AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Industrial Estate Road/Bryn Lane/Ash Road North/Abenbury Way	Standard Roundabout		1, 2, 3, 4	4.78	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Bryn Lane	
2	Ash Road North	
3	Abenbury Road	
4	Industrial Estate Road	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Bryn Lane	3.59	7.19	18.1	41.4	60.0	35.8	
2 - Ash Road North	3.59	7.54	20.6	37.3	60.0	34.9	
3 - Abenbury Road	3.65	8.25	20.8	62.7	60.0	34.6	
4 - Industrial Estate Road	8.57	9.91	8.3	37.1	60.0	34.7	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Bryn Lane	0.569	1763
2 - Ash Road North	0.583	1840
3 - Abenbury Road	0.606	1954
4 - Industrial Estate Road	0.764	2883

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Observed 2019	AM	ONE HOUR	07:15	08:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bryn Lane		ONE HOUR	✓	176	100.000
2 - Ash Road North		ONE HOUR	✓	140	100.000
3 - Abenbury Road		ONE HOUR	✓	239	100.000
4 - Industrial Estate Road		ONE HOUR	✓	1868	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	45	61	70
	2 - Ash Road North	10	0	3	127
	3 - Abenbury Road	14	21	0	204
	4 - Industrial Estate Road	163	911	794	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	7	5	23
	2 - Ash Road North	43	0	0	32
	3 - Abenbury Road	56	17	0	22
	4 - Industrial Estate Road	13	2	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bryn Lane	0.28	8.28	0.4	A	162	242
2 - Ash Road North	0.12	4.35	0.2	A	128	193
3 - Abenbury Road	0.14	2.85	0.2	A	219	329
4 - Industrial Estate Road	0.72	4.73	2.7	A	1714	2571

Observed 2019, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Industrial Estate Road/Bryn Lane/Ash Road North/Abenbury Way	Standard Roundabout		1, 2, 3, 4	5.20	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Observed 2019	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bryn Lane		ONE HOUR	✓	413	100.000
2 - Ash Road North		ONE HOUR	✓	859	100.000
3 - Abenbury Road		ONE HOUR	✓	520	100.000
4 - Industrial Estate Road		ONE HOUR	✓	436	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	7	37	369
	2 - Ash Road North	2	0	6	851
	3 - Abenbury Road	13	5	0	502
	4 - Industrial Estate Road	122	154	160	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	17	6	3
	2 - Ash Road North	100	0	50	2
	3 - Abenbury Road	8	25	0	5
	4 - Industrial Estate Road	16	13	21	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bryn Lane	0.29	3.35	0.4	A	379	568
2 - Ash Road North	0.64	6.94	1.8	A	788	1182
3 - Abenbury Road	0.50	6.65	1.0	A	477	716
4 - Industrial Estate Road	0.17	1.76	0.2	A	400	600

Without Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Industrial Estate Road/Bryn Lane/Ash Road North/Abenbury Way	Standard Roundabout		1, 2, 3, 4	8.05	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Without Development 2036	AM	ONE HOUR	07:15	08:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bryn Lane		ONE HOUR	✓	214	100.000
2 - Ash Road North		ONE HOUR	✓	150	100.000
3 - Abenbury Road		ONE HOUR	✓	282	100.000
4 - Industrial Estate Road		ONE HOUR	✓	2176	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	50	69	95
	2 - Ash Road North	11	0	3	136
	3 - Abenbury Road	15	23	0	244
	4 - Industrial Estate Road	214	1031	931	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	6	5	22
	2 - Ash Road North	38	0	0	30
	3 - Abenbury Road	50	15	0	21
	4 - Industrial Estate Road	12	2	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bryn Lane	0.45	14.22	0.9	B	196	295
2 - Ash Road North	0.15	4.79	0.2	A	138	206
3 - Abenbury Road	0.17	2.95	0.3	A	259	388
4 - Industrial Estate Road	0.84	8.33	5.4	A	1997	2995

Without Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Industrial Estate Road/Bryn Lane/Ash Road North/Abenbury Way	Standard Roundabout		1, 2, 3, 4	7.71	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Without Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bryn Lane		ONE HOUR	✓	495	100.000
2 - Ash Road North		ONE HOUR	✓	971	100.000
3 - Abenbury Road		ONE HOUR	✓	609	100.000
4 - Industrial Estate Road		ONE HOUR	✓	504	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	8	42	445
	2 - Ash Road North	2	0	6	963
	3 - Abenbury Road	15	5	0	589
	4 - Industrial Estate Road	149	170	185	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	14	5	3
	2 - Ash Road North	100	0	50	2
	3 - Abenbury Road	7	25	0	4
	4 - Industrial Estate Road	16	12	18	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bryn Lane	0.35	3.75	0.6	A	454	681
2 - Ash Road North	0.76	10.79	3.1	B	891	1337
3 - Abenbury Road	0.66	10.90	2.0	B	559	838
4 - Industrial Estate Road	0.19	1.79	0.3	A	462	694

With Development 2036, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Industrial Estate Road/Bryn Lane/Ash Road North/Abenbury Way	Standard Roundabout		1, 2, 3, 4	8.82	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	With Development 2036	AM	ONE HOUR	07:15	08:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bryn Lane		ONE HOUR	✓	214	100.000
2 - Ash Road North		ONE HOUR	✓	150	100.000
3 - Abenbury Road		ONE HOUR	✓	309	100.000
4 - Industrial Estate Road		ONE HOUR	✓	2217	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	50	69	95
	2 - Ash Road North	11	0	3	136
	3 - Abenbury Road	15	23	0	271
	4 - Industrial Estate Road	214	1031	972	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	6	5	22
	2 - Ash Road North	38	0	0	30
	3 - Abenbury Road	50	15	0	19
	4 - Industrial Estate Road	12	2	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bryn Lane	0.48	15.63	1.0	C	196	295
2 - Ash Road North	0.15	4.92	0.2	A	138	206
3 - Abenbury Road	0.19	2.98	0.3	A	284	425
4 - Industrial Estate Road	0.86	9.25	6.1	A	2034	3052

With Development 2036, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Industrial Estate Road/Bryn Lane/Ash Road North/Abenbury Way	Standard Roundabout		1, 2, 3, 4	8.32	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	With Development 2036	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Bryn Lane		ONE HOUR	✓	495	100.000
2 - Ash Road North		ONE HOUR	✓	971	100.000
3 - Abenbury Road		ONE HOUR	✓	651	100.000
4 - Industrial Estate Road		ONE HOUR	✓	530	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	8	42	445
	2 - Ash Road North	2	0	6	963
	3 - Abenbury Road	15	5	0	631
	4 - Industrial Estate Road	149	170	211	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Bryn Lane	2 - Ash Road North	3 - Abenbury Road	4 - Industrial Estate Road
From	1 - Bryn Lane	0	14	5	3
	2 - Ash Road North	100	0	50	2
	3 - Abenbury Road	7	25	0	4
	4 - Industrial Estate Road	16	12	16	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Bryn Lane	0.36	3.81	0.6	A	454	681
2 - Ash Road North	0.77	11.35	3.3	B	891	1337
3 - Abenbury Road	0.71	12.56	2.4	B	597	896
4 - Industrial Estate Road	0.20	1.81	0.3	A	486	730

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