Trevor Basin Area Site Arrival and Car Park

Transport Assessment Report

Document Ref: 10054502-AUK-XX-XX-RP-HE-0006
Revision: P01

JANUARY 2024

Trevor Basin Area Site Arrival and Car Park

Transport Assessment Report

Author	ND/PJ
Checker	JC
Reviewer	AJ
Approver	AJ
Document Ref.	10054502-AUK-XX-XX-RP-HE-0006
Date	JANUARY 2024

Version Control

Version	Date	Author	Reviewer	Changes
01	17.01.2024	ND/PJ	AJ	First Draft

CONTENTS

Figures

Tables

Appendices

Appendix A

Email correspondence with WCBC

Appendix B

Development Plan

Appendix C

TRICS Data Output

Appendix D

Junctions9 Outputs

1 Introduction

1.1 Background

1.1.1 Arcadis Consulting (UK) Limited (Arcadis) has been appointed by Wrexham County Borough Council (WCBC) to provide Transport services to support the planning application for the development of a primary arrival area, car and coach park at Trevor Basin, Wrexham County Borough, Wales.

1.1.2 This Transport Assessment (TA) has been developed to assess the potential transport impacts of the proposed Trevor Basin Area Site Arrival and Car Park, known as proposed site/development hereafter. The assessment has involved analysing the existing transport conditions of the site area, future baseline conditions including the trip generation and distribution, traffic surveys undertaken, and carrying out junction modelling to assess the performance of junctions on the surrounding highway network.

1.2 Consultation

1.2.1 Arcadis shared a TA scoping note with WCBC in October 2022 to confirm the approach and content of the TA; this was agreed in principle on 28 November 2022. The comments provided by WCBC regarding surveys have been addressed as part of this TA. The email correspondence with WCBC is shown in Appendix A.

1.3 Report Structure

1.3.1 The following Chapters of this report describe the work that has been undertaken as part of the TA and the resulting conclusions. The report is structured as follows.

- **Chapter 1: Introduction** - This chapter contains information related to the scope and objectives of the report.
- **Chapter 2: Policy Review** - A review of the local, regional, and national policies and relevant guidance related to the development site.
- **Chapter 3: Site Context** - This section includes contextual background information including a description of the application site in terms of its location, access arrangements and site operations.
- **Chapter 4: Existing Transport Conditions** - This section provides a desktop review of the local highway network, on-street and off-street parking conditions and personal injury collision data for the most recent 5 years. In addition, a review is provided of the current baseline transport conditions within the vicinity of the site including pedestrian, cycling and public transport accessibility.
- **Chapter 5: Development Proposals** - The section includes a description of the proposed development and details of the access strategy.
- **Chapter 6: Future Baseline Conditions** –This section details the background traffic growth based on TEMPro, and committed developments that have been agreed with the Local Highway Authority (LHA) that were included for the highway assessment, and any assumptions/ criteria considered for the analysis.
- **Chapter 7: Trip Generation and Distribution** -This section describes the potential trip generation and distribution from the proposed site and methodology adopted.
- **Chapter 8: Junction Capacity Assessment -**This section presents the junction modelling undertaken to determine the impact of the vehicle trips that will be generated by the proposed site on the local highway network.
- **Chapter 9: Summary and Conclusion** - This section provides a summary of the assessment and present a conclusion of the impacts on the wider highway network, as a result of the proposed development.

2 Policy Review

2.1.1 This section provides a summary of national, regional, and local policies and guidance generally applicable to the consideration of transport and tourism.

2.2 National Policy Context

Future Wales: The National Plan 2040

2.2.1 The Future Wales (FW) national development framework, published in 2019 and updated in 2021, sets out the Welsh Government's planning policies for Wales.

2.2.2 Under Policy 2 (Shaping Urban Growth and Regeneration), the FW framework states:

"The growth and regeneration of towns and cities should positively contribute towards building sustainable places that support active and healthy lives, with urban neighbourhoods that are compact and walkable, organised around mixed-use centres and public, transport and integrated with green infrastructure."

2.2.3 Under Policy 12 (Regional Connectivity), the FW framework states:

"The Welsh Government will support and invest in improving regional connectivity. In urban areas, to support sustainable growth and regeneration, our priorities are improving and integrating active travel and public transport. In rural areas our priorities are supporting the uptake of ultra-low emission vehicles and diversifying and sustaining local bus services. The Welsh Government will work with Transport for Wales, local authorities, operators and partners to deliver the following measures to improve regional connectivity:

- Active Travel – Prioritising walking and cycling for all local travel. We will support the implementation of the Active Travel Act to create comprehensive networks of local walking and cycling routes that connect places that people need to get to for everyday purposes.

Planning Policy Wales (Edition 11: 2021)

2.2.4 Planning Policy Wales sets out the land use planning policies of the Welsh Government and provides procedural advice underpinned by a commitment to the delivery of sustainable development. Planning applications for developments, including changes of use, falling into the categories identified in TAN 18: Transport must be accompanied by a Transport Assessment. Transport Assessments provide the basis for negotiation on scheme details, including the level of parking, and measures to improve walking, cycling, and public transport access, as well as measures to limit or reduce levels of air and noise pollution. They should cover the transport impacts during the construction phase of the development, as well as when built and in use.

2.2.5 Transport Assessments also provide an important basis for the preparation of Travel Plans. Development proposals must seek to maximise accessibility by walking, cycling and public transport, by prioritising the provision of appropriate on-site infrastructure and, where necessary, mitigating transport impacts through the provision of off-site measures, such as the development of active travel routes, bus priority infrastructure and financial support for public transport services. It is Welsh Government policy to require the use of a sustainable transport hierarchy in relation to new development, which prioritises walking, cycling and public transport ahead of the private motor vehicles.

Planning Policy Wales, Technical Advice Note (TAN) 18: Transport (2007)

2.2.6 Welsh Government Planning Policy Wales; TAN 18: Transport (2007) sets out Welsh Government Planning Policy for Wales; TAN 18: Transport (2007) sets out how to integrate land use and transport planning and provides a framework for the assessment and mitigation of transport impacts. The note includes advice for transport related issues when planning for new developments, encompassing advice on location of the development, parking and design of development, and walking, cycling and sustainable transport infrastructure. It also suggests to further follow the national guidance on inclusive parking for Disabled People.[1]

2.2.7 Local Authorities require developers to submit Transport Assessments to accompany planning applications for developments likely to result in significant trip generation, whereby a Transport Assessment should clearly demonstrate the likely impact of a proposed development. The aims of undertaking the Transport Assessment and establishing a Transport Implementation Strategy are to:

- Understand the transport impacts of the development
- Clearly communicate the impacts to assist the decision-making process
- Demonstrate that the development is situated in a location that will produce a desired and predicted output
- Mitigate negative transport impacts through the design process and (where applicable) secured through planning conditions or obligations
- Maximise the accessibility of the development including by non-car modes
- Contribute to relevant development plan and Regional Transport Plan objectives relating to accessibility of services and modal share.

Llwybr Newydd: the new Wales Transport Strategy 2021

2.2.8 The main vision of the Wales Transport Strategy 2021 is to provide *"an accessible, sustainable and efficient transport system"* where one of the priorities is to *"design new developments to be walk and cycle- friendly from the outset".*

2.2.9 Llwybr Newydd: the Wales Transport Strategy 2021 sets a target of 45% of journeys to be made by public transport, walking and cycling by 2040, against a baseline of 32% (according to the Strategy dated 2021).

2.2.10 It also aims that "*By 2040 active travel will have delivered significant well-being benefits*". One of the reasons being:

- *more people can use walking and cycling to enjoy Wales' historic sites and monuments, national parks and landscapes and coastal areas.*

2.3 Regional Policy Context

North Wales Joint Local Transport Plan 2015

2.3.1 The North Wales Joint Local Transport Plan 2015, a collaborative effort by six North Wales Local Authorities, embodies the vision ""*to remove barriers to economic growth, prosperity and well-being by delivering safe, sustainable, affordable and effective transport networks."*

2.3.2 The outcome of the local transport plan centers on promoting increased levels of walking and cycling, both for transportation purposes and recreational activities. Furthermore, the higher-level intervention plans encompass initiatives to foster sustainable travel, achieved through infrastructural enhancements and promotional campaigns targeting leisure and public transport sectors.

[1] Parking For Disabled People, Department for Transport, Traffic Advisory Leaflet 5/95

North - East Wales Area Statement, Natural Resources Wales

2.3.3 The North East Wales Area Statement has five themes, one of which focuses on the – "Develop and improve urban/rural green" [2] that discussed the wide range of natural and semi-natural features (spaces, rivers and lakes including parks, fields, allotments, hedgerows, roadside verges and gardens) to develop infrastructure that helps to improve connectivity, link nature and habitats, and establish recreational facilities in these regions.

2.4 Local Policy Context

Wrexham Unitary Development Plan (1996-2011)

2.4.1 The Wrexham Unitary Development Plan reflects the Council's corporate vision for the County Borough's future based on - aspiring to city status with Wrexham centre as its civic hub, developing a vibrant commercial center, attracting visitors from North Wales and its borders future base. It discusses the strategic policies for the different developments. Wrexham Local Development Plan 2 (2013 to 2028) is currently under preparation and it will further replace the current Unitary Development Plan.

2.4.2 For the broad location of development, Policy PS8 for Transport states that – "The transport network will be developed by providing an integrated range of travel options to and from principal residential, commercial, employment and education centers 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 encouraging public transport, cycling and walking."

2.4.3 Policy T8 for Parking states that,

- Development granted planning permission will be required to provide vehicle parking spaces either on site or nearby, in accordance with the Council's current parking standards.
- Special regard will be paid to the following factors, as appropriate - availability of public transport nearby, proximity to public car parking, proximity to local services and facilities, road safety hazards and amenity considerations arising from on-street parking in the vicinity of the site.

Wrexham Local Development Plan 2013 to 2028 [3]

2.4.4 The Wrexham Local Development Plan (LDP) was adopted by the Council on the 20th December 2023 and supersedes the Wrexham Unitary Development Plan (UDP) 1996–2011 as the current development plan. The following are transport related policies relevant to the proposed development.

Policy SP11: Transport and Accessibility (Strategic LDP policy)

2.4.5 The policy states that the development of Wrexham's transport network will be safe, efficient and sustainable.

2.4.6 The policy states that in meeting this measure, development should promote the increased use of walking and cycling across Wrexham, thereby contributing to national and regional ambitions of a creating a well-connected, safe, viable and sustainable Active Travel Network.

2.4.7 The policy, whilst promoting alternative uses to cars, also requires adequate levels of car parking when considering the location and accessibility of new development. This process should also consider the location and accessibility of existing public transport facilities and walk and cycle networks.

[2] North - East Wales Area Statement
[3] TP03 Transport (Feb 2016)

Policy T1: Managing Transport Impacts (Non-strategic LDP policy)

2.4.8 This policy states that proposals for new development will be supported where in part they provide appropriate levels of parking and access to allow for safe manoeuvring and make provisions for people with restricted movement including those with characteristics as defined by the Equality Act 2010.

2.4.9 The policy states that if the proposal expects to generate significant amounts of movement, it should be accompanied by a Transport Assessment and Travel Plan.

Policy T2: Active Travel (Non-strategic LDP policy)

2.4.10 This policy requires development to make walking and cycling infrastructure an integral part of its overall design. This includes encouraging active travel through appropriate signage, lighting and convenient cycle parking and giving priority to pedestrian and cycle movements over vehicle traffic.

Local Planning Guidance Note 33 - Pontcysyllte Aqueduct & Canal World Heritage Site [4]

2.4.11 The Local Planning Guidance Note 33, adopted in June 2012 as a Supplementary Planning Document for Wrexham and Denbighshire, is a material consideration in determining planning applications that affect Pontcysyllte Aqueduct and its setting as it is a WHS.

2.4.12 This document mentions that the parking needs to relate to the design principles of the proposal.

Wrexham Local Planning Guidance Note No: 15, Adopted 2000 [5]

2.4.13 For new developments, this guideline provides minimum cycling parking standards. However, the type of uses reported are not directly applicable to the proposed development, with Leisure use criteria based on gross floor area in relation to uses such as libraries, cinemas and leisure centres.

2.4.14 The criteria for the location of cycling parking facilities have been set as the following:

- in a convenient and prominent position, usually adjacent to the entrance to the building or use which they serve and be lit or positioned close to sources of light;
- so that they can be monitored by closed circuit television or be visible to on-site security staff and be sited; and
- away from trees, to minimise damage to root structures and to prevent damage to bicycles from sap and bird droppings.

Wrexham Local Planning Guidance Note No: 16, 2018 [6]

2.4.15 For new developments, this guideline for parking standards indicates that a minimum of 10% of all car parking spaces must be provided to mobility standard (minimum width 3.6 metres) in order to meet the needs of people with mobility difficulties.

2.4.16 The proposed development does not fall into the uses of the mentioned developments in Fig A – D of the document, and therefore the parking requirements will be determined on the basis of local circumstances and the potential demand for parking associated with that use.

[4] Local Planning Guidance Note 33, Pontcysyllte Aqueduct & Canal WHS
[5] Local Planning Guidance Note No 15 - Cycling (wrexham.gov.uk)
[6] Local Planning Guidance Note No 16, 2018

2.5 Policy Summary

2.5.1 This TA is in compliance with the relevant National, Regional, and Local policies. Design elements and measures associated with the development proposals outlined in this TA enable the application site to appropriately support the expected traffic demand.

2.5.2 The identified policies summarised above include a requirement to facilitate the connectivity, infrastructure, and accessibility of new developments and to consider all modes of transport including active travel. The proposed development has been designed in accordance with these policies.

3 Site Context

3.1.1 This chapter provides the details about the Application Site location, existing land use, and its role in the wider masterplan. This chapter also includes the existing site background information and access arrangements. The application site is referred to as "the site" hereafter.

3.2 Site Location

3.2.1 The site is located at the southern edge of Solutia (UK) Ltd land, just off The Oaks, Trevor Basin, Wrexham County Borough. The proposed development forms a part of the wider Trevor Basin and Surrounding Area Masterplan, set out in a document of the same name dated January 2021. Figure 1 and Figure 2 show respectively the Application site location scope areas and Illustrative Development Proposals of the site respectively. As shown in the Figure 1: below, the temporary Pontcysyllte Aqueduct Car Park near to the site is currently in operation. Going forward the proposed arrival car park will be a permanent replacement to this facility.

Figure 1: Red line boundary for the Proposed Site

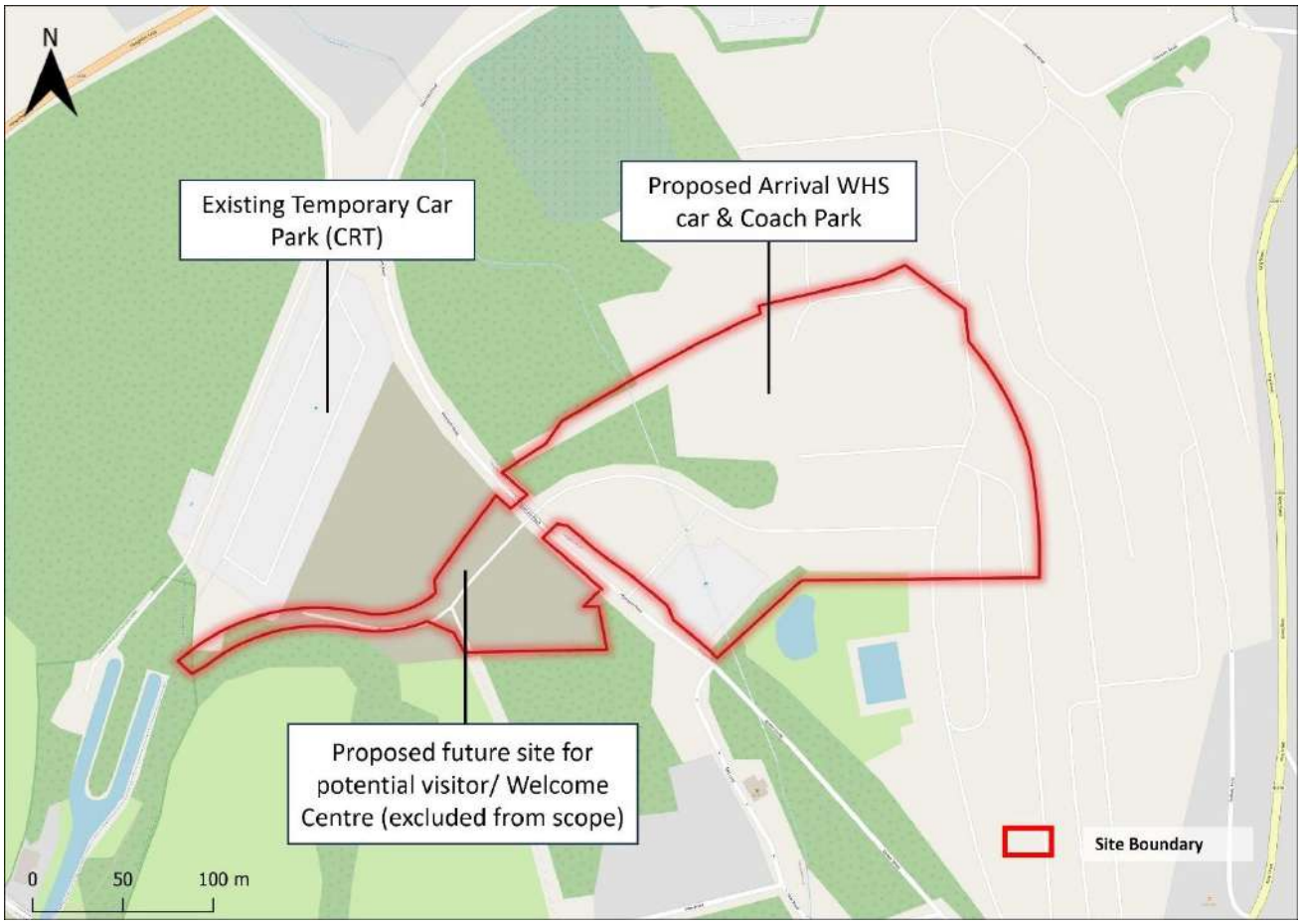


Figure 2: Illustrative Development Proposals (masterplan base plan extract)

3.3 Existing Access Arrangements

3.3.1 The existing access and egress for the site is from Queen Street, which connects to the A539 Llangollen Road to the north via Tower Hill. The A539 Llangollen Road can also be reached from the site via Queen Street and an unnamed Road which connects to the A539 at a three-arm priority junction to the east of Tower Hill. Please refer Figure 3 for the detail understanding if the surrounding Highway / Road network.

3.4 Site Use / Operation

3.4.1 The area of the site subject to this transport study is currently partially vacant. A part of the site is used as an overflow car park and coach parking. The parking information is explained in detail in the next chapter.

4 Existing Transport Conditions

4.1.1 This chapter reviews the existing baseline conditions surrounding the site including sustainable and active modes of transport.

4.2 Surrounding Highway Network

4.2.1 The site is well connected in terms of highway links, providing access to the nearby towns that includes Ruabon, Wrexham, Oswestry, and Llangollen. Figure 3: represents the highway network connectivity around the site.

Queen Street

4.2.2 The main access to the site is proposed through the existing access at Queen Street, providing direct access to the proposed visitor car park. A two-way single carriageway road, Queen Street connects to the A539 Llangollen Road in the north through Tower Hill and Hill Street in the south, which further connects to the B5096 Rhosymedre .

Tower Hill

4.2.3 Queen street meets Tower Hill, a two-way single carriageway road, at a three arm priority junction. Tower Hill provides direct access to the temporary Pontcysyllte Aqueduct Car Park and coach drop off.

Unnamed Road

4.2.4 Queen Street continues north-eastwards to meet an unnamed road at a three-arm priority junction to the north-east. This unnamed road is a short link connecting to the A539 Llangollen Road to the north and Queen Street/The Oaks in the south.

A539 Llangollen Road

4.2.5 The A539 Llangollen Road, which can be accessed from the site via Tower Hill at a four-arm priority junction or the unnamed road at a three-arm priority junction, is a two-way single carriageway road running north of the site. Streetlights and footways are present on both sides of the road. The A539 Llangollen Road connects to Ruabon Village to the east, and Llangollen in the west. It further connects to the A483 Swansea to Manchester Trunk Road at Ruabon interchange roundabout in the east. A483 provides access to major cities and towns including Wrexham, Chester, and Oswestry.

4.2.6 The A539 Llangollen Road, which can be accessed from the site via Tower Hill at a four-arm priority junction or the unnamed road at a three-arm priority junction, is a two-way single carriageway running north of the site. Streetlights and footways are present on both sides of the road. The A539 Llangollen Road connects to Ruabon Village in the east, and Llangollen in the west. It further connects to the A483 Swansea to Manchester Trunk Road at Ruabon interchange roundabout in the east. The A483 provides access to major cities and towns including Wrexham, Chester, and Oswestry .

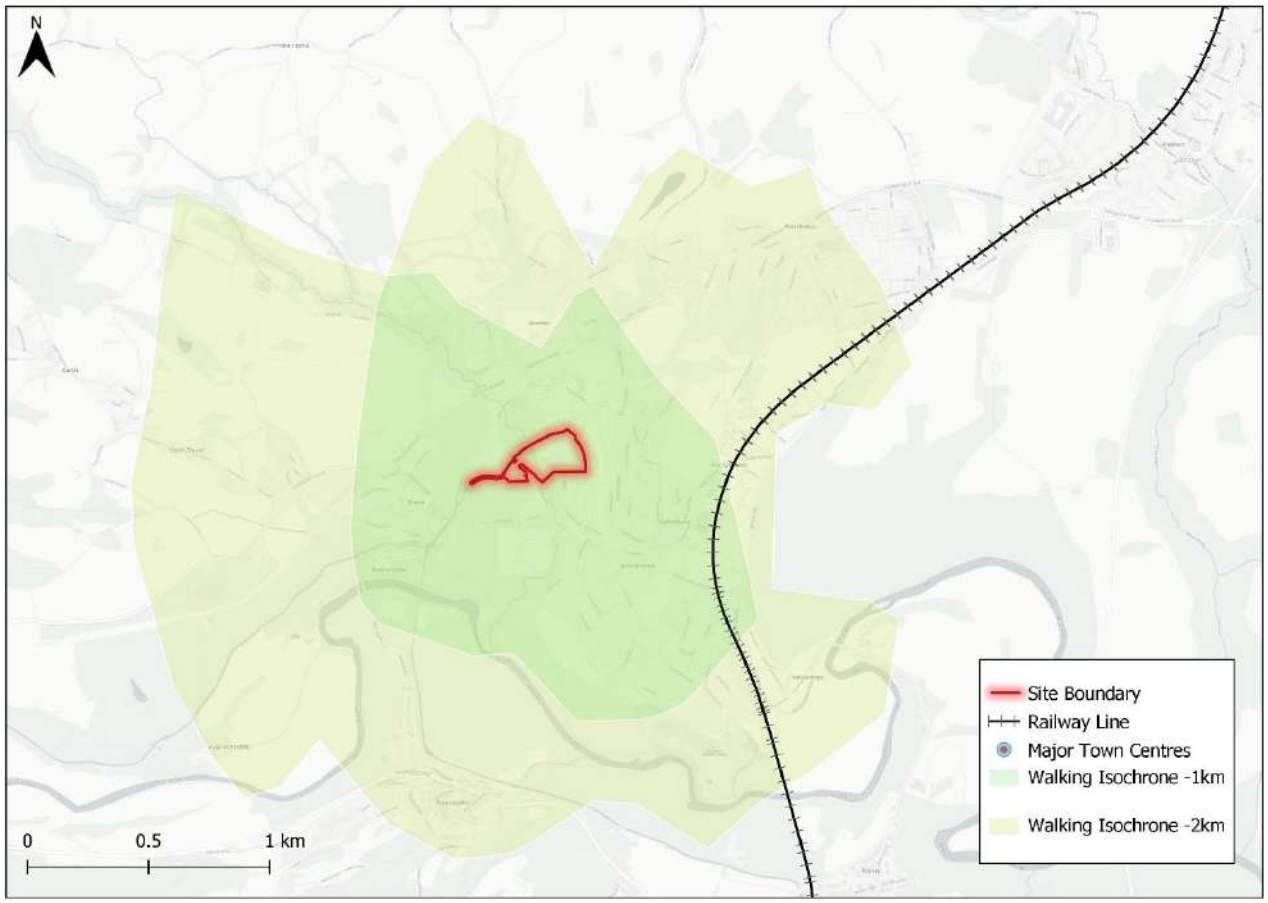
Figure 3: Existing Surrounding Highway / Road Network (Background Source -Google)

4.3 Pedestrian Accessibility

4.3.1 Queen Street, which provides access to the site, has footways on both sides of the carriageway, which are in good condition. Streetlights are present on the eastern side of the road. The majority of the A539 Llangollen Road has a wide footway on one side of the road, apart from a few locations.

4.3.2 Figure 4: represents the walking Isochrones in terms of pedestrian accessibility from the site up to 1km and 2km based on a walking speed of 4.8km/h, where 1km is equivalent to a 12.5-minute walk.

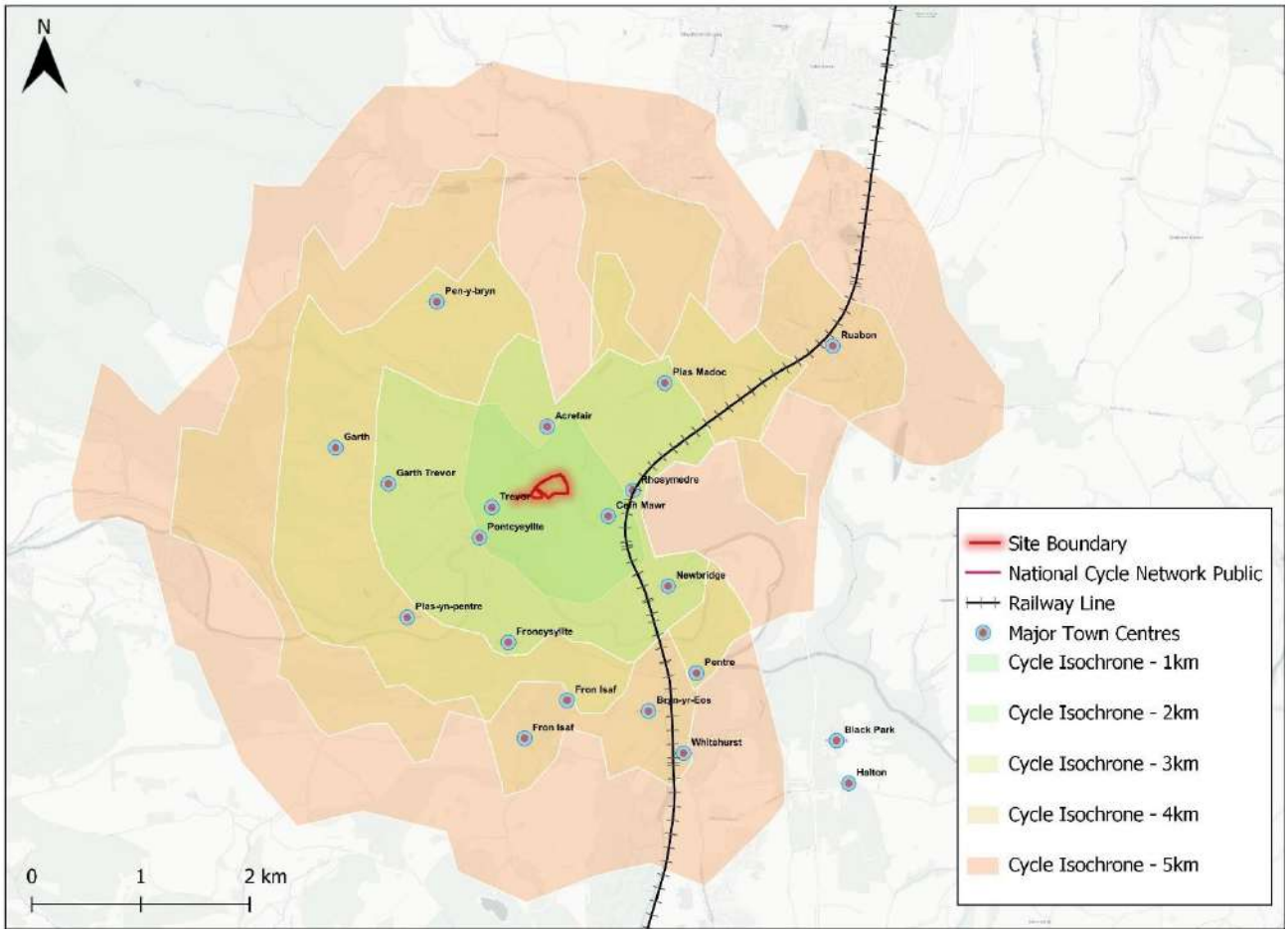
Figure 4: 2km Walking Distance Isochrones



4.4 Cycle Accessibility

4.4.1 Cycling connectivity to the site is good as it is directly connected to National Cycle Route 85. This cycle route connects to the surrounding area including Llangollen to the south-west and Chirk to the south. The cycling infrastructure on the east side of the scheme exhibits deficiencies in terms of providing direct access to the site. Figure 5: presents the cycling isochrones up to a distance of 5km, approximately a 20 minute journey based on a cycle speed of 15km/h.

Figure 5: 5km Cycling Distance Isochrones



4.5 Public Transport Accessibility

Bus Services

4.5.1 The nearest bus stop from the site is the Duke of Wellington Hotel on the A539 Llangollen Road, which is approximately at a walking distance of 300m. Table 1 below provides details about the service routes and bus frequencies, encompassing both directions which are available weekdays and weekends .

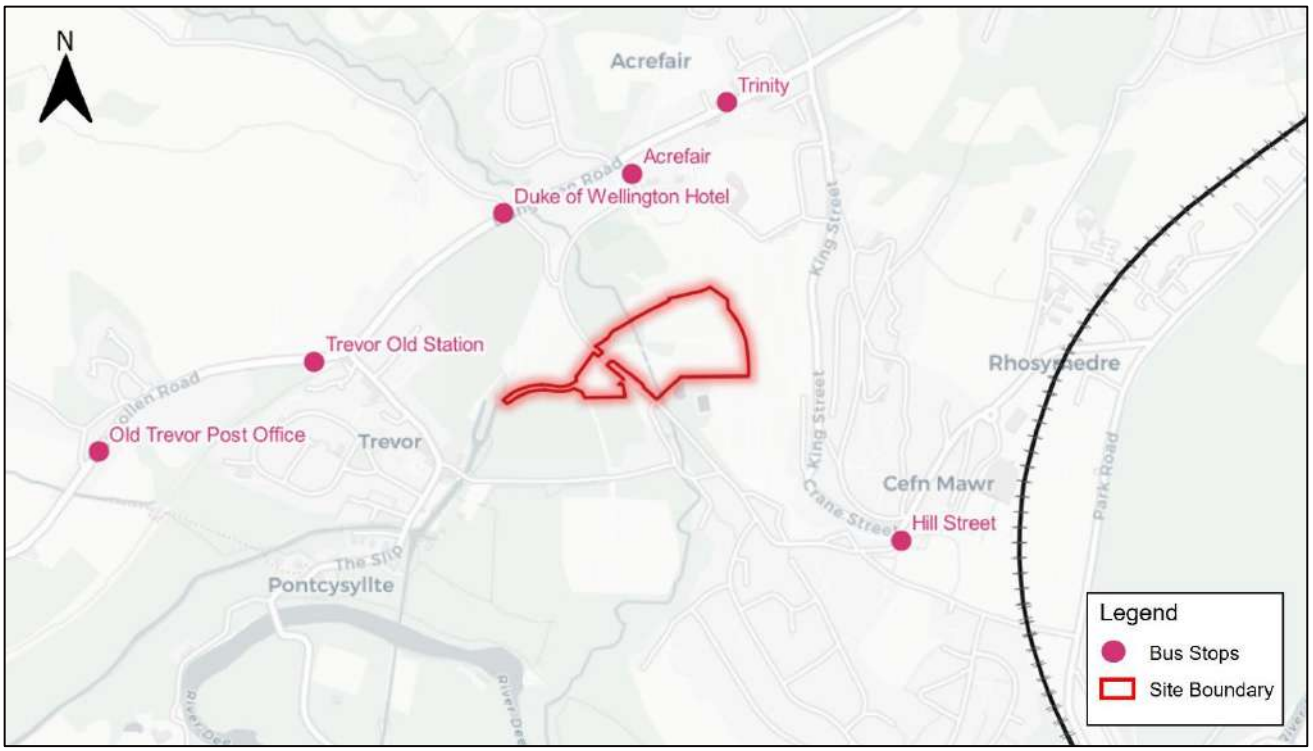
4.5.2 Another bus stop, Acrefair, located on the unnamed road at a walking distance of 500m from the site, provides a stop for bus service 5C. Figure 6: Bus Stops represents the bus stops in the vicinity of the site.

Table 1: Bus Services

Bus Service	Route	Bus Frequency	Operational Days
5	Wrexham Bus Station, Trinity Street to Llangollen, Parade Street	Approximately every 30 mins in both directions Monday to Saturday Approximately every 40 minutes in both directions on Sunday	Monday to Sunday
5C (Term time only)	Wrexham Bus Station, Trinity Street to Llangollen, Parade Street	Only 5 buses per day 07:00 and 07:32 from Wrexham Bus Station and at 14:45 from Llangollen, and 15:22 and 15:49 from Geufron Eisteddfod Pavilion	Monday to Friday
T3 and T3C*	Barmouth Jubilee Road - Wrexham Bus Station	First bus operates at 08:00, then at 10:29 and approximately every 2 hours Last bus at 20:29 (Monday to Saturday) Sunday first bus at 10:29 then every 2 hours until 20:29	Monday to Sunday
	Wrexham Bus Station - Barmouth Jubilee Road	First bus operates at 06:58 (Monday to Friday) to Dolgellau only, and at 07:28 on Saturday, then at 09:28 and approximately every 2 hours Last bus at 21:28 (Monday to Saturday) to Dolgellau only Sunday first bus at 09:28 then every 2 hours until 19:28. Last bus to Dolgellau only	Monday to Sunday

**Source: T3 - Barmouth - Wrexham | Transport for Wales (traws.cymru), accessed January 2024*

Figure 6: Bus Stops



Rail Services

4.5.3 The nearest rail station from the site is Ruabon Railway Station located approximately 3.5 km east of the Site, which can be accessed via a short bus ride via T3 Traws Cymru bus services from Duke of Wellington Hotel bus stop or private car. Ruabon railway station is situated on the Shrewsbury to Chester Line and is one of the busiest stations serving Wrexham. It is also serves as a bus interchange.

4.6 Existing On-Street & Off-Street Parking Conditions

4.6.1 Currently, no on-street parking is observed in the vicinity of the Site. The area near the Acrefair bus stop on the unnamed Road has restrictions on parking and waiting on the road. There are currently three car parks serving the site. Figure 7 shows the locations of all the available parking facilities near to the site.

Pontcysyllte Aqueduct Car Park

4.6.2 This car park on Queen Street currently serves as the main car park for the site. Based on information provided by the Canal & River Trust, the capacity of this car park is 105 cars, operating on a pay and display basis. The charge for car parking at this location is a flat fee of £3.00 per day (no charge before 10:00 am).

Wimborne Gate Car Park

4.6.3 The second parking facility, which is a part of the proposed site, is located at Queens Street, Cefn Mawr (LL14 3NP). It provides overspill car parking and parking for motor homes, coaches and caravans.

Pontcysyllte Aqueduct Blue Badge Holders Car Park

4.6.4 The third car park is located near to Station Road west of the site and is for disabled blue badge and permit holders only. The charge for car parking at this location is a flat fee of £3.00 per day. There are 16 disabled parking spaces and 16 for permit parking.

Table 2: Existing Parking Capacity in the Area

Car Park	Type / Location	No of Bays	Permit Bays / Disabled Bays
Pontcysyllte Aqueduct Car Park	Main Car Park- Pay+ Display	105	6 Disabled Bays
Wimborne Gate Car Park	Queen Street – Free Parking	46	3 Coach Bays
Pontcysyllte Aqueduct Blue Badge Holders Car Park	Blue Badge Holders + Permit	33	16 Permitted Bays + 17 Disabled Bays

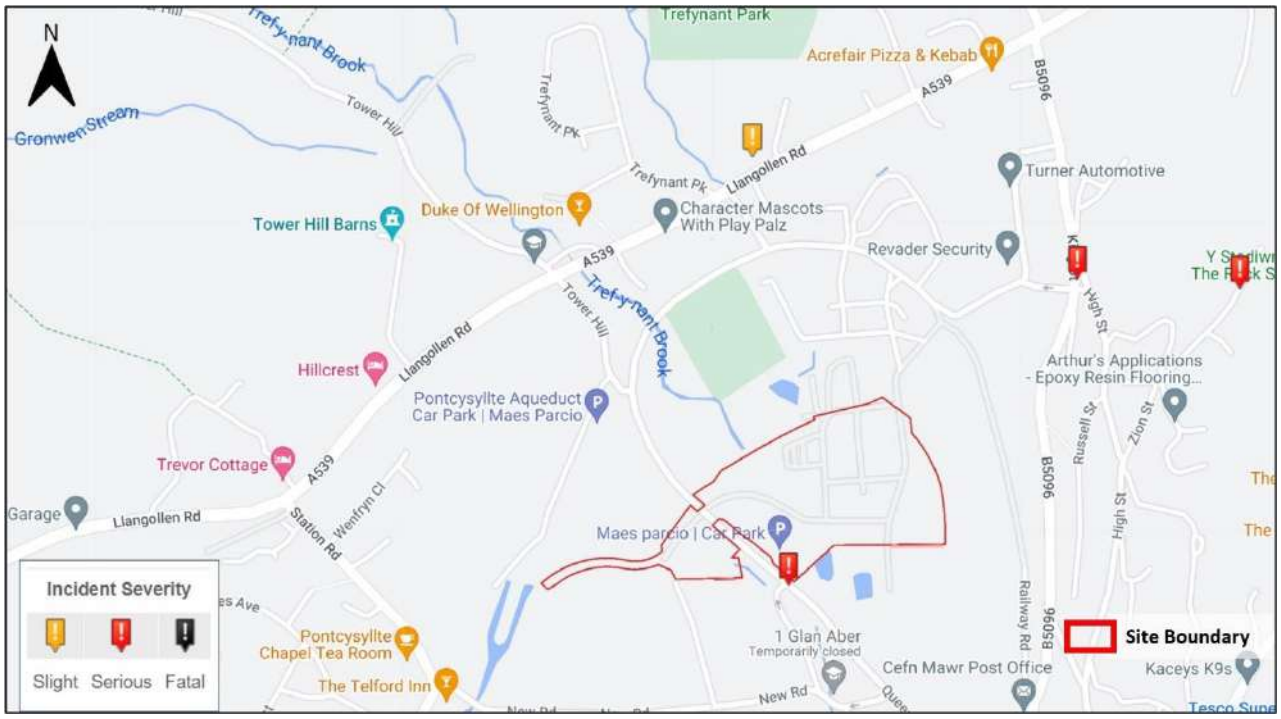
Figure 7: Parking Facility Near the site (Background Source -Google)

4.7 Collision Data Analysis

4.7.1 In order to establish whether there are any inherent safety concerns on the highway network in the vicinity of the site, Personal Injury Collision (PIC) data for the area has been extracted and reviewed from CrashMap (https://www.crashmap.co.uk/Search). The period covered for the review includes the available data for the past five years, from 2017 to 2021.

4.7.2 Figure 8 shows the locations of the recorded incidents. Within the study area one serious collision was reported on Queen Street and one slight on the A539 Llangollen Road. None of the collision incidents that occurred near to the site involved pedestrians or cyclists.

Figure 8: Collision Study Area (www.crashmap.co.uk)



5 Development Proposals

5.1.1 This chapter describes the development proposals.

5.2 Proposed Development

5.2.1 The proposed development of the site includes the creation of a 5.06 ha primary arrival area, car and coach park. The proposed car park has three distinct areas: an area of accessible parking bays close to the site entrance and the coach park; the primary parking area to the north-east of the coach park; and an overflow area, to be brought into use during peak visitor times.

5.2.2 Proposed landscaping and signage will bring a new sense of arrival. From here visitors will be directed around the site through improved signage and footpaths with wayfinding features. Active travel users will be able to access the site either by the pedestrian entrances either side of the main vehicle access on Queen Street or from the public footpath that abuts the site's far western boundary closest to the Aqueduct.

5.2.3 The Trevor Basin Masterplan (2020) also includes a Multi-Use Welcome Hub/Event Space, which will form the 'welcome centre' for the site. Note that the Welcome Hub is not part of the planning application that this TA has been prepared for.

5.2.4 A total of 261 parking spaces are proposed, which includes 252 car parking spaces and 9 coach parking spaces. The breakdown of the proposed parking capacity is summarised in Table 3 below.

Table 3: Total Parking Spaces

Type of Parking Spaces	No of Bays
Accessible Parking	25
General Car Parking	170
Overflow Parking	57
Total Car Parking	**252**
Coach Parking	9
Total Parking	**261**

5.2.5 The Site is also proposed to have 10 Sheffield stands providing 20 cycle parking spaces, located near to the site entrance on Queen Street and the 12 accessible parking spaces opposite the coach parking.

5.2.6 The proposed development layout is shown in Figure 9.

5.3 Access

5.3.1 A detailed proposed development plan has been set out and is shown in Appendix B.

5.3.2 Existing access and egress to the car park via Queen Street will continue to act as the primary access/ egress for the proposed development. There are footpaths, cycle paths and recreational routes being proposed for the site.

Figure 9: Design Development Layout of Proposed Development

6 Future Baseline Conditions

6.1.1 This section sets out the future baseline conditions, which have been used in the assessment of the traffic impact of the development proposals. It includes a review of committed developments and planned infrastructure improvements around the site. It also sets out the traffic growth factors used in the traffic impact assessment.

6.2 Committed Developments

6.2.1 Based on the liaison with officers at WCBC (the LHA), a total of four committed developments have been included as part of the cumulative highway impact assessment; these are summarised in Table 4. The email correspondence with WCBC is included in Appendix A.

Figure 10: Committed Developments (Background Source -Google)

Table 4: List of Committed Developments

Number	Development Name	Planning Reference	Notes
Committed Development :1	Proposed Residential and Mixed-Use Development Air Product Acrefair	P-2016-0505	Residential and Mixed used development consisting of around 200 dwellings, a 50-bed budget hotel, a convenience store and a non-food retail store.
Committed Development :2	Bethania Road, Acrefair Wrexham	P/2022/0469	33 Residential dwellings
Committed Development :3	Proposed Residential Development Ruabon, Wrexham	P/2019/0805	43 dwellings
Committed Development:4	Bethania Road, Acrefair Wrexham	P/2022/0469	51 units

Vehicular Trips

6.2.2 The estimated committed development traffic flows at the junctions assessed for the site were determined from information taken from the respective planning applications for the four committed developments. The two junctions assessed for the site are set out below, and it is expected that the traffic will only impact on the A539 Llangollen Road (see Figure 13):

- **Junction 1**: A539 Llangollen Road priority crossroads junction with Tower Hill
- **Junction 2**: A539 Llangollen Road priority junction with side road leading to The Oaks.

Committed development: 1

6.2.3 The traffic flows for mixed use development (Housing and Commercial) were available directly for the two junctions being assessed. Hence the numbers reported in the planning application documents are used for this assessment.

Committed development: 2,3 and 4

6.2.4 For all other committed developments, trips for the morning and evening peaks were distributed in accordance to the existing westbound and eastbound split on the A539 Llangollen Road, which is shown in Table 5. Derivation of this information is explained in section 7.4, and the percentage of total traffic flow distribution in a westbound or eastbound direction was calculated based on the baseline Classified Turning Count (CTC data) (refer to section 8.1.1).

6.2.5 Table 6 below shows the percentage distribution for west and eastbound traffic considered for the traffic flows for committed developments passing through the analysed junctions.

Table 5: Percentage Distribution for Westbound and Eastbound Traffic on the A539 Llangollen Road

Peak Period	Westbound	Eastbound
AM Peak Hour	44%	56%
PM Peak Hour	60%	40%

Table 6: Committed Development Traffic Flows on the 17A539 Llangollen Road

Committed Development	AM Peak		PM Peak	
	Westbound	Eastbound	Westbound	Eastbound
Committed Development :1	52	49	56	55
Committed Development :2	7	10	10	7
Committed Development :3	14	17	19	12
Committed Development :4	11	14	15	10
Total	**84**	**90**	**56**	**55**

6.3 Traffic Growth

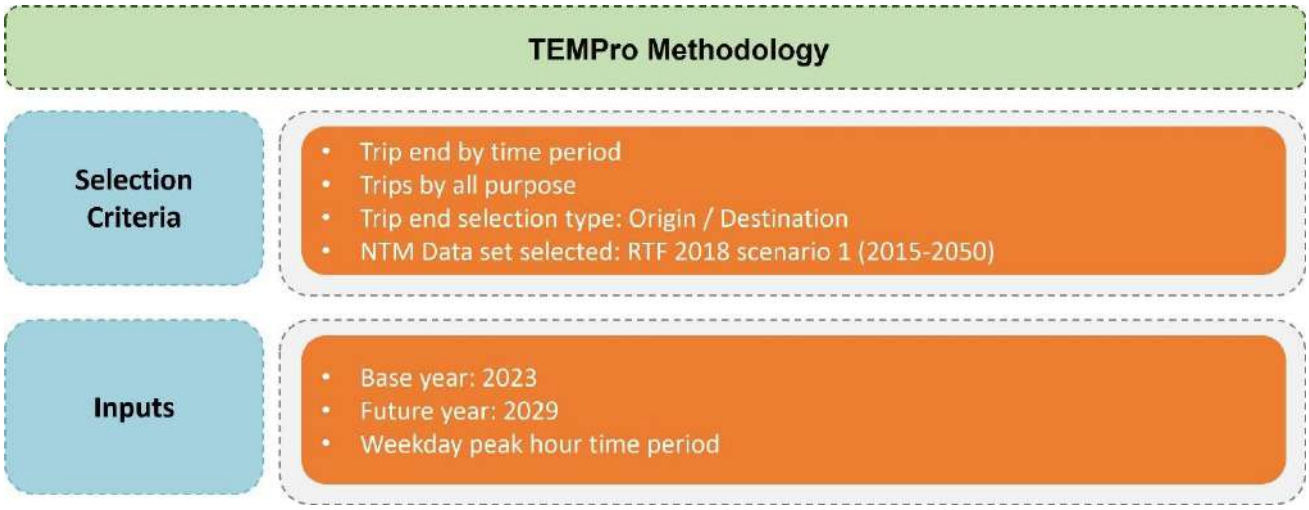
6.3.1 In the Department for Transport's TAG Unit M4 Forecasting and Uncertainty, the National Trip End Model (NTEM) datasets used to forecast the impact of transport projects are made available through the TEMPro software. TEMPro software (Version: 7.2C) was used to calculate the future background traffic growth factors for the AM and PM peak hours.

6.3.2 Table 7 represents the TEMPro AM and PM peak growth factors for the future year 2029. These growth factors were applied to the baseline CTC data to obtain the future trip generation scenario for the Junction assessment. Figure 11 represents the methodology and inputs considered to produce the growth factors. The year 2029 was chosen as it represents five years after the proposed completion of the development.

Table 7: TEMPro Growth Factors

Year	AM Peak	PM Peak
2029	1.0663	1.0707

Figure 11: TEMPro Methodology



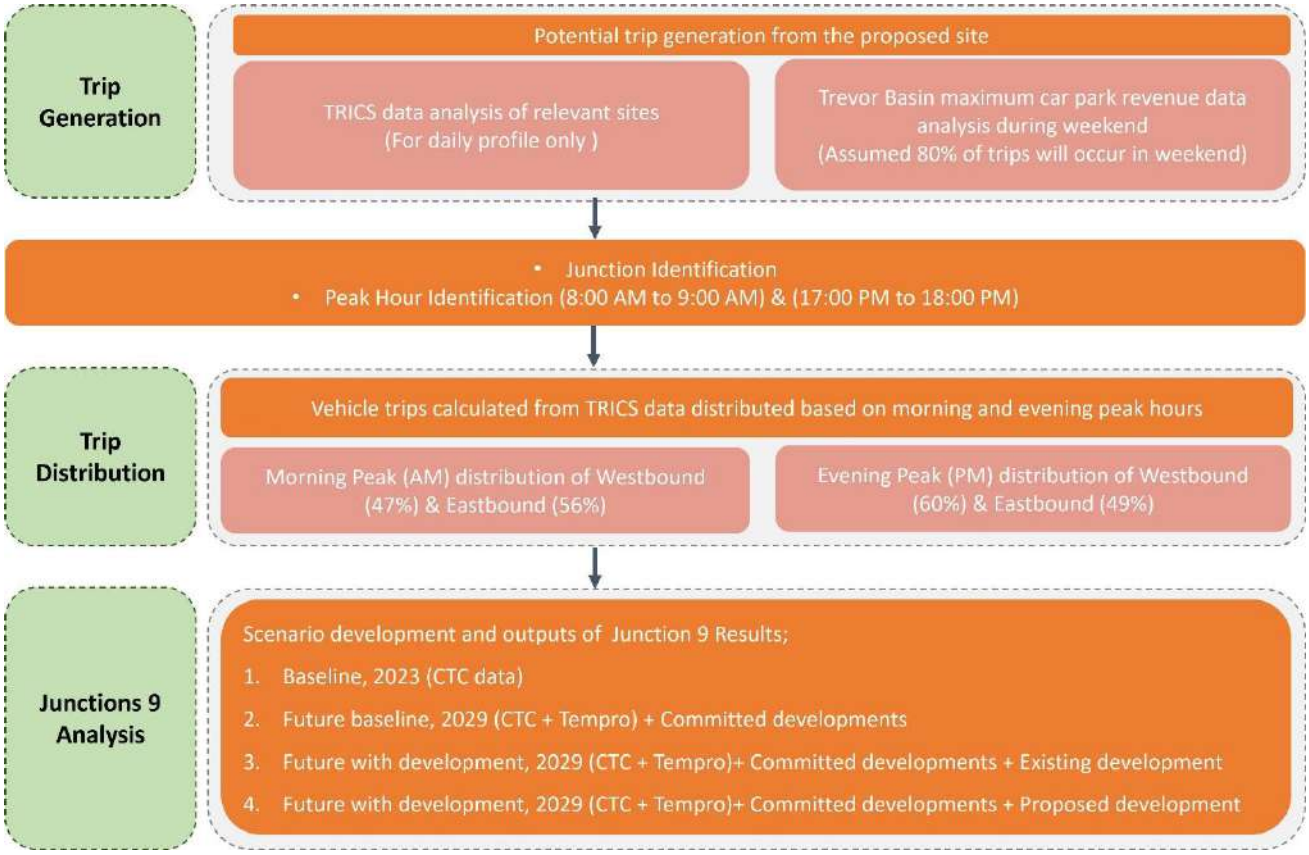
7 Trip Generation and Distribution

7.1.1 This section covers the detailed analysis and procedure that was undertaken to derive the trip generation and distribution for the proposed site.

7.2 Methodology

7.2.1 Figure 12 below explains the comprehensive approach taken to determine the resulting trip generation of the site during the peak hours to allow a junction assessment to be undertaken at the two agreed locations.

Figure 12: Methodology: Trip Generation and Distribution



7.3 Trip Generation

Existing Development Vehicular Trips

7.3.1 Car park revenue data for the years 2021 and 2022 was provided by the client. This data covers the three existing car parks shown in Figure 7 and the revenue was provided for each month. This data allowed the likely existing trips generated by the site and its surroundings to be determined. To obtain a maximum worst case car parking scenario, the highest monthly revenue from the two years of data was used to estimate the maximum visitor numbers per month considering the flat rate parking charge. It was assumed that 80% of the total trips would occur during the weekend and this resulted in a total of 496 cars per weekend day at the car park. This value could be underestimated as it is acknowledged

that the existing car park on Queen Street (Wimborne Gate) is free, and hence would not be captured in the revenue data.

7.3.2 To determine what this means in terms of vehicles generated during the peak hours for the junction analysis and also the vehicle accumulation in relation to the car parking capacity, a daily vehicular trip profile was established.

7.3.3 The TRICS (version 7.10.1) database, an industry recognised source of trip rate data, provides hourly trip rates throughout a day based on land use.

7.3.4 Vehicular trip rates were obtained from selecting appropriate sites within the Leisure/Country Parks land use. The sites selected for the TRICS assessment were filtered based on the characteristics of the Trevor Basin wider masterplan proposals. The detailed output of TRICS is provided in Appendix C. Table 8 lists the criteria that were used to filter the sites.

Table 8: TRICS Parameters Considered for Site Selection

Parameter	Methodology	Criteria / Assumption
Land Use	Proposed site land use and activities as per the master plan considered	• Consider as a Leisure/Country Parks
Trip Rate	Per Hectare	• Total site area of 58.11 ha was considered for the calculation of the trips (this parameter considered for trip distribution)
	Per Parking Space	• Total of 214 parking spaces (Maximum number) were considered as per the proposed parking space (for sense check)
Site selection	Based on the proposed interventions and activities sites filtered out	• Relevant sites were selected considering different parameters and information including public transport, site accessibility, walking, and cycling infrastructure
Time period	Weekend peak hour data was considered based on the characteristics of the proposed site	• N/A

7.3.5 The sites filtered out using TRICS were the most relevant sites that replicated the proposed site aspirations. A manual filtering process was implemented to ensure that the sites used were representative of the proposed uses of the wider site Masterplan.

7.3.6 The vehicle accumulation profile was created based on the arrival and departure trip rates obtained. The total number of arrivals was then uplifted to reflect 496 cars, the total estimated using the existing revenue data.

7.3.7 Based on the daily trip profile and the resulting accumulation profile, the maximum number of vehicles at the existing car parks is 134 and occurs between 14:00 and 15:00. This number roughly aligns with the existing number of publicly available car parking spaces in the area of 168 (shown in Table 2) and

suggests that the existing maximum overall car parking occupancy is 80%. The associated number of existing vehicle arrivals and departures during the peak hours is summarised in Table 9.

Table 9: Estimated Vehicle Trips generated by the Existing Site during the Peak Hour Periods

Peak Period	Arrive	Depart	Total Two-Way Trips
AM Peak Hour (08:00-09:00)	27	8	35
PM Peak Hour (17:00-18:00)	24	57	81

Proposed Development Vehicular Trips

7.3.8 At the time of analysis, the design of the development had not been finalised, and the previous design iteration had a maximum car parking capacity of 237 vehicles, this value was used for the junction capacity analysis, with this value as the maximum accumulation based on the TRICs daily profile. However, as set out in Chapter 5, the proposed site will provide up to 252 car parking spaces. The analysis undertaken in this TA therefore represents 94% of the proposed car parking capacity of the site. However, according to the Chartered Institution of Highways and Transportation (CIHT), anything over 85% occupancy of a car park is deemed as over-capacity (as this is the level at which it becomes difficult for drivers to find remaining spaces according to). Taking the CIHT guidance into account, it is considered that the analysis based on 237 car parking spaces as the maximum capacity would still provide a fair representation of the impacts of the site on the operation of the surrounding highway junctions.

7.3.9 Table 10 shows the proposed trips during peak hours for the proposed development.

Table 10: Estimated Vehicle Trips generated by the Proposed Development during the Peak Hour Periods

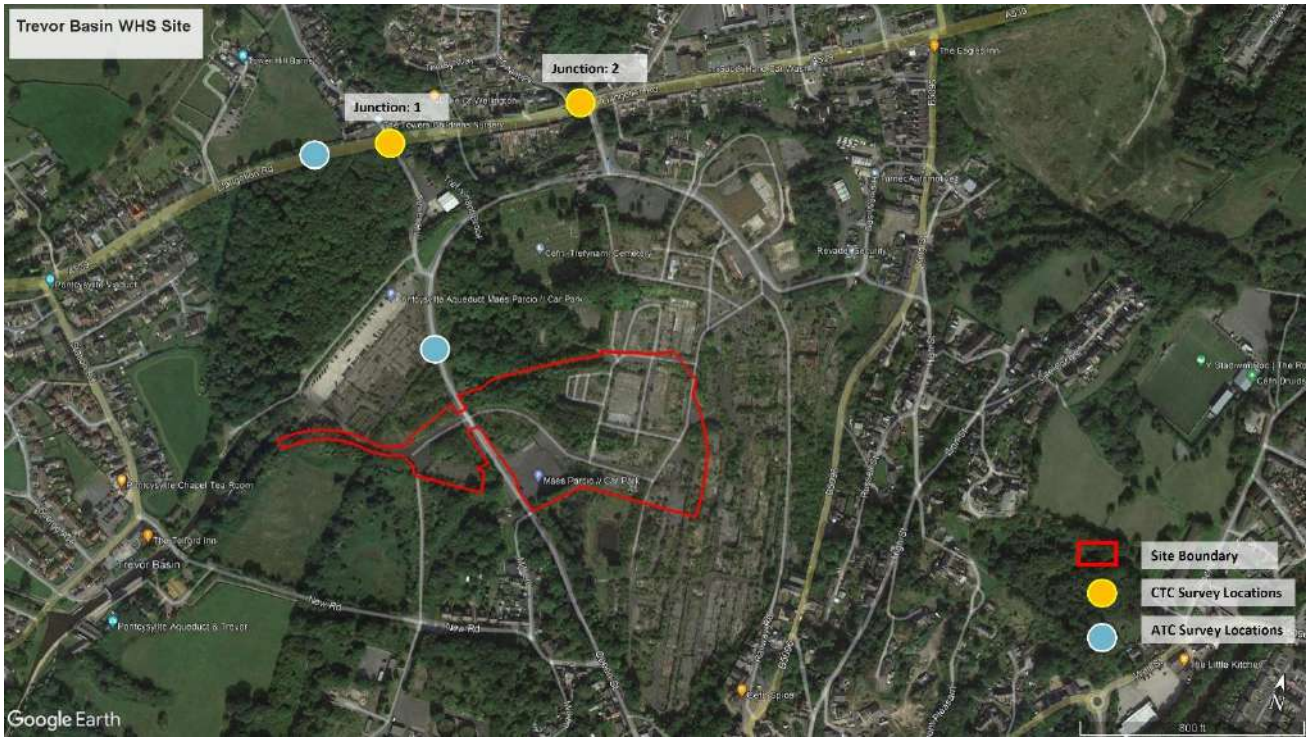
Peak Period	Arrive	Depart	Total Two-Way Trips
AM Peak Hour (08:00-09:00)	49	15	64
PM Peak Hour (17:00-18:00)	45	105	150

7.4 Junctions

7.4.1 Following consultation with the LHA (WCBC), the traffic impact of the proposed site was assessed at the following two junctions:

- **Junction: 1** A539 Llangollen Road priority crossroads junction with Tower Hill
- **Junction: 2** A539 Llangollen Road priority junction with side road leading to The Oaks.

Figure 13: Junction Locations (Background Source -Google)



7.5 Trip Distribution

7.5.1 The trip distribution used for vehicle trips generated by the site are based on the percentage distribution values reported in Table 5. The trip distribution is presented in Table 11 and Table 12 respectively for the estimated vehicle trips for the existing site and the proposed site.

7.5.2 For clarity, Figure 14 and Figure 15 show the number of vehicle trips by direction for the existing and proposed site respectively.

Figure 14: Estimated Existing Vehicle Trips generated by the Site (Background Source -Google)

Table 11: Vehicle Trip Distribution for the Existing Site

Arrival				
Total Trips	**Morning Peak AM**		**Evening PM**	
	Westbound	Eastbound	Westbound	Eastbound
	15	12	10	15
Departure				
Total Trips	**Morning Peak AM**		**Evening PM**	
	Westbound	Eastbound	Westbound	Eastbound
	4	4	34	23

Figure 15: Estimated Proposed Vehicle Trips generated by the Proposed Site (Background Source -Google)

Table 12: Vehicle Trip Distribution for the Proposed Site

Arrival				
Total Trips	**Morning Peak AM**		**Evening PM**	
	Westbound	Eastbound	Westbound	Eastbound
	27	22	18	27
Departure				
Total Trips	**Morning Peak AM**		**Evening PM**	
	Westbound	Eastbound	Westbound	Eastbound
	7	8	63	42

8 Junction Capacity Assessment

8.1.1 The industry-standard software package Junctions 9 was used to assess the capacity of the following two junctions:

- **Junction 1**: A539 Llangollen Road priority crossroads junction with Tower Hill
- **Junction 2**: A539 Llangollen Road priority junction with the side road leading to The Oaks.

8.2 Baseline Traffic Data

8.2.1 The peak hour periods were agreed with the client and the LHA, to prepare the traffic flow matrix for both the junctions. Details of both the data are presented in Table 13 below.

8.2.2 Review of the ATC and CTC data concluded that these were consistent with each other and that there was no evidence to suggest that the traffic on 8th March 2023 for the CTC did not represent typical traffic flows. The CTC survey traffic flows were therefore used for the baseline scenario of the junction modelling assessment.

Table 13: Traffic Data

Type of Data	Day(s)	Time Period
ATC	Weekend & Weekday (4-9 March & 16-21 March 2023)	24 Hours
CTC	Weekday (8th March 2023)	Morning: 07:00 to 10:00
		Evening: 16:00 to 19:00

Scenarios

8.2.3 The following modelling scenarios have been undertaken to establish the implications on the junctions:

1. Baseline 2023: CTC data
2. Future baseline 2029: CTC data +TEMPro + Committed Developments
3. Future baseline with development 2029: CTC data +TEMPro + Committed Developments + Existing Site[7]
4. Future baseline with development 2029: CTC data +TEMPro + Committed developments + Proposed Development

Baseline, 2023

8.2.4 Under this scenario the data from the 2023 CTC survey was used to assess the existing junction capacities.

[7] See paragraph 8.2.6 for an explanation of why existing development flows were also included.

Future baseline, 2029

8.2.5 This scenario applies the appropriate TEMPro factor to growth the 2023 baseline traffic to the estimated 2029 levels and includes the traffic generated by the agreed committed development as set out in section 6.2.

Future with existing site, 2029

8.2.6 This scenario uses the future baseline 2029 and adds the estimated existing trips generated from the existing site based on the existing car park usage data and TRICS accumulation profile, as described in Chapter 7. As the existing site was operational during the CTC survey, the survey should capture some associated existing traffic for the site. However, as March is not considered a peak period for the site, the estimated existing (peak) trips were added - this provides the worst case scenario for 2029 if the proposed development is not implemented.

Future with proposed development, 2029

8.2.7 This scenario uses the future baseline 2029 and adds the estimated trips to be generated from the proposed development, based on the design proposal where the maximum car parking capacity is considered at 237.

Results of Junction Capacity Assessment

8.2.8 Table 14 and Table 15 present the output of the Junctions 9 modelling for both junctions assessed; detailed Junctions 9 outputs are provided in Appendix D.

8.2.9 For the A539 Llangollen Road priority crossroads junction with Tower Hill (Table 14), the level of service is A or B for all scenarios, demonstrating that the junction is performing within capacity. The longest delay occurs in the AM Peak on the Tower Hill southern arm at just less than 11 seconds, and is comparable for all scenarios for 2029, both with and without the existing site or proposed development.

8.2.10 For the A539 Llangollen Road priority junction with the side road (Unnamed Road) leading to The Oaks (Table 15), the baseline 2023 scenario has a level of service A for the A539 Llangollen Road and B for the unnamed road. For all the future 2029 scenarios, the level of service remains at A for the A539, whilst for the unnamed road, this changes to C in the PM peak. The maximum delay in the PM peak for the future with proposed development scenario is 20 seconds for the unnamed road, however, this is only an increase of 2 seconds compared to the future with existing site scenario, a negligible change. Furthermore, the maximum Ratio of Flow to Capacity (RFC) in the PM peak is 0.5 for the future with proposed development scenario, which demonstrates that the junction will be operating well within its capacity.

8.2.11 Overall, the traffic modelling assessment shows that in all scenarios, even for the worst-case, the future with proposed development scenario which assumes a car park utilisation of 94%, the two junctions assessed both operate well within capacity. Furthermore, the differences between the future with proposed development scenario and the future with existing site scenario is limited.

Table 14: Junctions 9 Results for A539 Llangollen Road: All Scenarios AM & PM Peak (Four Arm Junction)

Arm	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
Baseline CTC 2023								
Tower Hill (S)	0.1	9.17	0.09	A	0.1	8.05	0.11	A
A539 Llangollen Road (E)	0	5.01	0.02	A	0	5.29	0.02	A
Tower Hill (N)	0	8.38	0.04	A	0	6.88	0.03	A
A539 Llangollen Road (W)	0.2	4.98	0.08	A	0.1	5.28	0.07	A
Future Baseline, 2029								
Tower Hill (S)	0.1	10.32	0.1	B	0.1	8.91	0.13	A
A539 Llangollen Road (E)	0	4.77	0.02	A	0	5	0.02	A
Tower Hill (N)	0.1	9.67	0.05	A	0	7.54	0.03	A
A539 Llangollen Road (W)	0.2	4.73	0.1	A	0.2	5.09	0.08	A
Future with Existing Site, 2029								
Tower Hill (S)	0.1	10.22	0.11	B	0.2	9.03	0.2	A
A539 Llangollen Road (E)	0	4.79	0.02	A	0	5.03	0.02	A
Tower Hill (N)	0.1	9.78	0.05	A	0	7.69	0.03	A
A539 Llangollen Road (W)	0.4	4.82	0.14	A	0.2	5.22	0.12	A
Future with Proposed Development, 2029								
Tower Hill (S)	0.1	10.18	0.12	B	0.3	9.46	0.25	A
A539 Llangollen Road (E)	0	4.8	0.02	A	0	5.04	0.02	A
Tower Hill (N)	0.1	9.87	0.05	A	0	7.82	0.03	A
A539 Llangollen Road (W)	0.5	4.89	0.17	A	0.3	5.34	0.15	A

Table 15: Junctions 9 Results for A539 Llangollen Road: All Scenarios AM & PM Peak (T- Junction)

Arm	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
Baseline CTC 2023								
Unnamed Road	0.1	11.19	0.11	B	0.1	10	0.09	B
A539 Llangollen Road	0	4.74	0.03	A	0	5.4	0.01	A
Future Baseline, 2029								
Unnamed Road	0.2	12.87	0.13	B	0.6	15.84	0.37	C
A539 Llangollen Road	0.1	4.52	0.04	A	0	5.51	0.01	A
Future with Existing Site, 2029								
Unnamed Road	0.2	13.23	0.15	B	0.8	17.87	0.44	C
A539 Llangollen Road	0.1	4.53	0.04	A	0	5.53	0.01	A
Future with Proposed Development, 2029								
Unnamed Road	0.2	13.59	0.16	B	1	19.98	0.5	C
A539 Llangollen Road	0.1	4.54	0.04	A	0	5.54	0.01	A

9 Summary and Conclusion

9.1.1 Arcadis Consulting UK has been appointed by WCBC to provide transport services to support the planning application for the creation of a primary arrival area, car and coach park at Trevor Basin, Wrexham, Wales.

9.1.2 This TA has been developed in accordance with the Trevor Basin Masterplan (2020) to assess the transport impacts of the proposed development of the Trevor Basin Area Site Arrival and Car Park. The existing site conditions, and surrounding transport network were analysed, including: active travel infrastructure (cycle and pedestrian network), public transport services, existing parking conditions and collision data for roads around the proposed site. The predicted traffic impacts of the proposed development were assessed on the following two junctions :

a. A539 Llangollen Road priority crossroads junction with Tower Hill (four arm junction)
b. A539 Llangollen Road priority junction with side road leading to The Oaks (T junction).

9.1.3 The scenarios considered for the junction assessments include:

1. Baseline
2. Future baseline
3. Future with the existing site (permitted development)
4. Future with the proposed development.

9.1.4 The trip generation for the existing development was established using an accumulation profile derived from appropriate sites from TRICS and cross referencing this with existing Trevor Basin car park revenue data. The morning peak hour of 08:00 to 09:00 and evening peak hour of 17:00 to 18:00 were considered for the traffic flow analysis. The proposed development trip generation was determined by assuming 94% of the proposed car park to be utilised and deriving the equivalent vehicles during the peak hours using the accumulation profile established for the existing development. The value of 237 car parking spaces was used as this was the maximum considered for the design at the time of analysis.

9.1.5 However, in accordance with the Chartered Institution of Highways and Transportation (CIHT), any occupancy above 85% should be considered as over-capacity as this is the level at which it becomes difficult for drivers to find remaining spaces. Hence, it is deemed that the use of 94% occupancy would be acceptable, and that the analysis results indicate that the junctions assessed operate well within capacity in the worst case scenario considered.

9.1.6 Committed Developments have been included as part of the cumulative highway impact assessment as agreed during the consultation with WCBC (April 2023).

9.1.7 The results of the junction capacity assessment show that there would be a limited increase in traffic on the highway network in the future with the proposed development scenario and as such it can be accommodated without any significant impacts.

Conclusion

9.1.8 This Transport Assessment demonstrates that the vehicle trips generated by the proposed development can be accommodated at the two junctions assessed, and that these would still be operating well within their capacities. The proposed development will also encourage active travel through convenient cycle parking and creation of dedicated footpaths within the development.

9.1.9 The Proposed Development will not result in any significant impacts on the local transport network. It is therefore considered that there are no transport reasons why planning permission should not be granted for the proposed development.

Appendix A

Email correspondence with WCBC

Chiu, Joly

From: Matthew Phillips <Matthew.Phillips@wrexham.gov.uk>
Sent: 06 April 2023 08:58
To: Chiu, Joly
Cc: Cardwell, Ed; James, Anthony
Subject: RE: Trevor Basin - WHS Arrival scheme - Transport Scoping Note

Joly,

I think it would be appropriate to include the commitments.

Matthew Phillips
Pennaeth Gwasanaeth, Cynllunio, Rheoli Datblygu/Head of Service, Planning Development Management
Economi a Chynllunio/Economy and Planning

01978 298780
Cyngor Bwrdeistref Sirol Wrecsam, Neuadd y Dref, Wrecsam, LL11 1AY
Wrexham County Borough Council, Guildhall, Wrexham, LL11 1AY
wrexham.gov.uk | wrecsam.gov.uk
twitter.com/wrexhamcbc | twitter.com/cbswrecsam
facebook.com/wrexhamcouncil | facebook.com/cyngorwrecsam

From: Chiu, Joly <joly.chiu@arcadis.com>
Sent: 05 April 2023 17:51
To: Matthew Phillips <Matthew.Phillips@wrexham.gov.uk>
Cc: Cardwell, Ed <ed.cardwell@arcadis.com>; James, Anthony <Anthony.James@arcadis.com>
Subject: RE: Trevor Basin - WHS Arrival scheme - Transport Scoping Note

Hi Matthew,

Thank you for the prompt response. Further to the information provided, we have the following queries:

1. We understand that P/2019/0805 is part of the consent of P/2016/0735. Regarding the proposed trip generation of this site, the planning documents submitted for this site refers to the Transport Statement, is this document available? This item does not appear to be on the planning portal (for P/2016/0735).
2. In assessing the highway network in the future year scenario (year 2029), we are proposing to uplift 2023 traffic survey data using TEMPRO to 2029 for the future base case. Please can you advise if this would be appropriate should we include all the committed developments you have provided. Or should the TEMPRO factor be adjusted to account for these developments?

Kind regards and thank you in advance,

Joly

Joly Chiu | Principal Consultant | Transport and Development Planning | joly.chiu@arcadis.com
Arcadis Consulting (UK) Ltd | 80 Fenchurch Street | London | EC3M 4BY | United Kingdom

T. 0203 882 8947

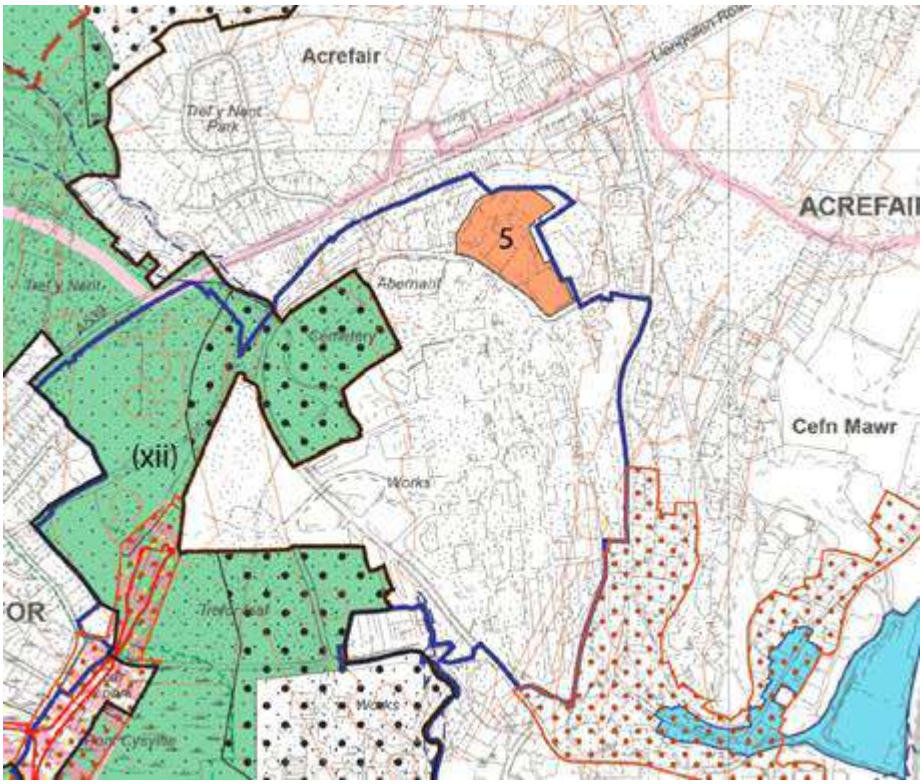
ARCADIS
www.arcadis.com

From: Matthew Phillips <Matthew.Phillips@wrexham.gov.uk>
Sent: 04 April 2023 13:44
To: Chiu, Joly <joly.chiu@arcadis.com>
Cc: Cardwell, Ed <ed.cardwell@arcadis.com>; James, Anthony <Anthony.James@arcadis.com>
Subject: RE: Trevor Basin - WHS Arrival scheme - Transport Scoping Note

Joly,

We do have another pending application on Bethania Road (P/2022/0469). Not sure if this is slightly too far away, but P/2019/0805 is a residential development just over a mile or so away.

One other thing, there is a proposed allocation of housing, the orange land on the map below:



The allocation is for 51 units. The wider blue line is subject to LDP policy BE2:

The Trevor Basin Masterplan Area, as shown on the proposals map, is identified for mixed use tourism led regeneration including land which is allocated for housing development (see policy H1). Development proposals which contribute to the delivery of the Trevor Basin Masterplan, and which ~~do not impact~~ have no adverse impact upon the outstanding universal value of the World Heritage Site or its setting, will be supported.

The Masterplan area includes land which is designated as a part of the River Dee and Bala Lake Special Area of Conservation. All proposals under this policy will therefore need to demonstrate compliance with NE1.

Regards

Matthew Phillips
Pennaeth Gwasanaeth, Cynllunio, Rheoli Datblygu/Head of Service, Planning Development Management
Economi a Chynllunio/Economy and Planning

01978 298780
Cyngor Bwrdeistref Sirol Wrecsam, Neuadd y Dref, Wrecsam, LL11 1AY
Wrexham County Borough Council, Guildhall, Wrexham, LL11 1AY
wrexham.gov.uk | wrecsam.gov.uk
twitter.com/wrexhamcbc | twitter.com/cbswrecsam
facebook.com/wrexhamcouncil | facebook.com/cyngorwrecsam

From: Chiu, Joly <joly.chiu@arcadis.com>
Sent: 04 April 2023 13:23
To: Matthew Phillips <Matthew.Phillips@wrexham.gov.uk>
Cc: Cardwell, Ed <ed.cardwell@arcadis.com>; James, Anthony <Anthony.James@arcadis.com>
Subject: FW: Trevor Basin - WHS Arrival scheme - Transport Scoping Note

Good Afternoon Matthew,

Hope you are well. Please are you able to advise on our transport query below?

Many thanks,

Joly

Joly Chiu | Principal Consultant | Transport and Development Planning | joly.chiu@arcadis.com
Arcadis Consulting (UK) Ltd | 80 Fenchurch Street | London | EC3M 4BY | United Kingdom
T. 0203 882 8947

ARCADIS
www.arcadis.com

From: Chiu, Joly
Sent: 07 February 2023 10:11
To: Matthew.Phillips@wrexham.gov.uk
Cc: Cardwell, Ed <ed.cardwell@arcadis.com>; James, Anthony <Anthony.James@arcadis.com>
Subject: RE: Trevor Basin - WHS Arrival scheme - Transport Scoping Note

Good Morning Matthew,

Hope this email finds you well. We are working on the Transport elements of the Trevor Basin – WHS Arrival Scheme. We have been scoping the transport requirements with your colleagues (see email below), and have been directed to yourself regarding committed development in the surrounding area that we may need to consider for our transport assessment.

For context, the site is on Queen Street. By the existing car park, post code LL14 3NP, approximately 400m south east of A539 Llangollen Road. For the transport assessment, we will be undertaking a junction capacity assessment at two A539 Llangollen Road priority junctions, shown below. Although yet to be confirmed, we are likely to be undertaking our assessment for the year 2023 and future year circa 2029.

We are aware of the two potential development sites nearby off the Former Air Products Site (ie/ P/2016/0505 – 254 Dwellings & P/2021/0793 – 21 Dwellings). Please are you able to advise on any other potential developments/sites that we would need to consider for our transport assessment?

Many thanks and please let us know any queries,

Joly

Joly Chiu | Principal Consultant | Transport and Development Planning | joly.chiu@arcadis.com
Arcadis Consulting (UK) Ltd | 80 Fenchurch Street | London | EC3M 4BY | United Kingdom
T. 0203 882 8947

From: Pope, Ben <Ben.Pope@arcadis.com>
Sent: 28 November 2022 14:50
To: Cardwell, Ed <ed.cardwell@arcadis.com>; Chiu, Joly <joly.chiu@arcadis.com>
Subject: FW: Trevor Basin - WHS Arrival scheme - Transport Scoping Note
Importance: High

Hi Both,

See email from Mike at Wrexham below FYI

Regards,

Ben Pope CMLI, MADip, BA (*Hons*)
Associate Technical Director – Landscape. Masterplanning. Urbanism
Business Manager – Environmental Planning
Arcadis Consulting (UK) Ltd

From: Mike Bather <Mike.Bather@wrexham.gov.uk>
Sent: 28 November 2022 14:49
To: Pope, Ben <Ben.Pope@arcadis.com>
Cc: Andrew Harradine <Andrew.Harradine@wrexham.gov.uk>
Subject: FW: Trevor Basin - WHS Arrival scheme - Transport Scoping Note

Hi Ben

Had this back from highways in relation to the scoping note you needed input on.
Hope this helps and allows you to progress with study/design work.

Thanks
Mike.

From: Phil Palmer <Phil.Palmer@wrexham.gov.uk>
Date: Monday, 28 Nov 2022, 11:05 am
To: Rachel Penman <Rachel.Penman@wrexham.gov.uk>
Subject: RE: Trevor Basin - WHS Arrival scheme - Transport Scoping Note

Hi Rachel

The Scoping Note appears ok in principle.

The suggested 2 no. (1 & 2) junctions proposed for PICADY capacity assessments appear appropriate.

They may wish to carry out a traffic count on the classified road (Queen Street ?) between the proposed car park and the Tower Hill / Queen Street junction.

They should take any committed development in the area into account as part of their assessment. As far as I am aware, there are two potential development sites nearby off the Former Air Products Site (ie/ P/2016/0505 – 254 Dwellings & P/2021/0793 – 21 Dwellings). I would recommend that ARCADIS confirm the status of these sites and any other relevant sites with our Planning Dept. (Matthew Phillips).

Regards, Phil

Phil Palmer

Peiriannydd (Rheoli Datblygiad)
Gwasanaethau Amgylchedd a Thechnegol

Engineer (Development Control)
Environment and Technical Services

01978 729688

Cyngor Bwrdeistref Sirol Wrecsam, Neuadd y Dref, Wrecsam LL11 1AY
Wrexham County Borough Council, Guildhall, Wrexham LL11 1AY
wrecsam.gov.uk | wrexham.gov.uk
twitter.com/cbswrecsam | twitter.com/wrexhamcbc
facebook.com**From:** Rachel Penman <Rachel.Penman@wrexham.gov.uk>

Sent: 25

Rydym yn croesawu gohebiaeth yn Gymraeg. Byddwn yn ymateb i unrhyw ohebiaeth yn Gymraeg ac ni fydd hyn yn arwain at unrhyw oedi.

Ewch i weld - mi fedrwch chi dalu, rhoi gwybod, gwneud cais, dweud eich dweud, a dod o hyd i wybodaeth ar-lein yn www.wrecsam.gov.uk. Arbedwch bapur - meddyliwch cyn argraffu!

Mae'r neges e-bost hon ac unrhyw atodiadau wedi eu bwriadu ar gyfer yr unigolyn neu'r sefydliad y'i cyfeirir atynt yn unig. Am yr amodau llawn ynglŷn â chynnwys a defnyddio'r neges e-bost hon, ac unrhyw atodiadau, cyfeiriwch at www.wrecsam.gov.uk/top_navigation/disclaimersw.htm

We welcome correspondence in Welsh. We will respond to any correspondence in Welsh and this will not lead to any delay.

Take a look - you can pay, report, request, have your say and find information online at www.wrexham.gov.uk. Save paper - think before you print!

This e-mail message and any attachments are intended solely for the individual or organisation to whom it is addressed. For full conditions in relation to content and use of this e-mail message and any attachments, please refer to www.wrexham.gov.uk/top_navigation/disclaimers.htm

This email and any files transmitted with it are the property of Arcadis and its affiliates. All rights, including without limitation copyright, are reserved. This email contains information that may be confidential and may also be privileged. It is for the exclusive use of the intended recipient(s). If you are not an intended recipient, please note that any form of distribution, copying or use of this communication or the information in it is strictly prohibited and may be unlawful. If you have received this communication in error, please return it to the sender and then delete the email and destroy any copies of it. While reasonable precautions have been taken to ensure that no software or viruses are present in our emails, we cannot guarantee that this email or any attachment is virus free or has not been intercepted or changed. Any opinions or other information in this email that do not relate to the official business of Arcadis are neither given nor endorsed by it.

Rydym yn croesawu gohebiaeth yn Gymraeg. Byddwn yn ymateb i unrhyw ohebiaeth yn Gymraeg ac ni fydd hyn yn arwain at unrhyw oedi.

Ewch i weld - mi fedrwch chi dalu, rhoi gwybod, gwneud cais, dweud eich dweud, a dod o hyd i wybodaeth ar-lein yn www.wrecsam.gov.uk. Arbedwch bapur - meddyliwch cyn argraffu!

Mae'r neges e-bost hon ac unrhyw atodiadau wedi eu bwriadu ar gyfer yr unigolyn neu'r sefydliad y'i cyfeirir atynt yn unig. Am yr amodau llawn ynglŷn â chynnwys a defnyddio'r neges e-bost hon, ac unrhyw atodiadau, cyfeiriwch at www.wrecsam.gov.uk/top_navigation/disclaimersw.htm

We welcome correspondence in Welsh. We will respond to any correspondence in Welsh and this will not lead to any delay.

Take a look - you can pay, report, request, have your say and find information online at www.wrexham.gov.uk. Save paper - think before you print!

Appendix B

Development Plan

LEGEND

Site Boundary

Existing Features

- Existing Boundary Railings
- Existing Asphalt Footpath
- Existing Trees to be retained
- Existing Trees and Vegetation to be retained, thinned and managed
- Existing Embankment

Proposed Hard Landscape Details

- Proposed 1.8m High Decorative Vertical Bar Railings
- Proposed 1.8m High Weld Mesh Fencing
- Proposed 1.8m High Weld Mesh Gate
- Proposed Wayfinding Features
- Proposed Welcome Signage
- Proposed Vehicular Barrier
- Proposed Bollard
- Proposed Seating
- Proposed Cycle Parking
- Proposed Asphalt Road
- Proposed Reinforced Gravel Vehicular Routes - Dark Grey
- Proposed Reinforced Gravel Car Parking Bays - Buff
- Proposed Reinforced Grass Overflow Car Parking
- Proposed Hoggin Footpath

Proposed Soft Landscape Details

- **Proposed Car Park and Public Frontag**
- Proposed Native Trees
- Proposed Native Woodland Planting
- Proposed Native Shrubs, Herbaceous, Grasses and Fern Planting
- Proposed Wildflower Meadow Seeding
- Proposed Attenuation Planting to SUDS Ponds
- Proposed Attenuation SUDS Ponds

57 Overflow Parking Spaces

Vehicular Barrier Vehicular Barrier for Overflow Car Park

Vehicular Barrier for Overflow Car Park

12 Accessible Parking Spaces

170 Car Parking Spaces

Existing Bridge

POND 1

POND 2

QUEEN STREET

9 Coach Parking Spaces

Welcome Signage

Vehicular Barrier

13 Accessible Parking Spaces

Service Access For Adjacent Land

Location for Future Kiosk + Toilet Block

REFER TO INSERT

MILL LANE

INSERT

REFER TO MAIN PLAN

SCALE 1:500 (A1)
SCALE 1:1000 (A3)

0 10 20 30 40 50 METRES

NOTES:

- This layout is indicative and fundamentally for ongoing design coordination & development post planning
- All dimensions are in millimeters
- Do not scale from drawing

Please refer to this drawing in conjunction with the following drawings for a comprehensive understanding of the landscape design:

- 10054502-ARC-XX-300-DR-LA-00003 - Softworks General Arrangement
- 10054502-ARC-XX-300-DR-LA-00004 - Hardworks General Arrangement
- 10054502-ARC-XX-300-DR-LA-00005 - Proposed Prime Levels
- 10054502-ARC-XX-300-DR-LA-00006 - Illustrative Cross Sections
- 10054502-ARC-XX-300-DR-LA-00007 - Existing Topographic Survey

These drawings are intended to be read together to ensure a complete overview of the project.

Rev	Date	Description	Prod.	Chk.	Rev.	App.
P04	18JAN24	Pond 1 Updated	PS	PS	PS	AZ
P03	10JAN24	Updated Key	PS	PS	PS	AZ
P02	03JAN24	Planning Issue	IDG	PS	PS	AZ
P01	18DEC23	First Issue	IDG	PS	PS	EC

Project:

Trevor Basin Car Park And Access Project

Site

Queen Street, Cefn-mawr, Wrexham LL14 3NP

Client

Wrexham Boroug Council
Library
Rhosddu Road
Wrexham, LL11 1AU
Hydburnbc.gov.uk

ARCADIS

Registered office:
80 Fenchurch Street
London
EC3M 4BY

Coordinating office:
5th Floor 401 Faraday Street
Birchwood Park
Warrington, WA3 6GA
Tel: 44 (0)1925 800700

www.arcadis.com

Drawing Title:

GENERAL ARRANGEMENT

Designed: A.Arnott	Signed	Date 15/12/2023
Produced: I.De Gaston	Signed	Date 15/12/2023
Checked: P.Silcock	Signed	Date 15/12/2023
Reviewed: P.Silcock	Signed	Date 15/12/2023
Approved: E.Cardwell	Signed	Date 15/12/2023
Design Stage: Preliminary Design		
Original Size: A1	Grid: OS	Datum: ODN
Suitability Code: S1	Scale: 1:500	Project Number: 10054502
Suitability Description: PRELIMINARY		

Drawing Number: 10054502 - ARC - XX 300 - DR - LA - 00002

Revision: P04

Appendix C

TRICS Data Output

Filtering Summary

Land Use	07/M	LEISURE/COUNTRY PARKS
Selected Trip Rate Calculation Parameter Range	3.20-560.00 hect AREA	
Actual Trip Rate Calculation Parameter Range	17.00-560.00 hect AREA	
Date Range	Minimum: 01/01/00	Maximum: 16/10/21
Parking Spaces Range	All Surveys Included	
Days of the week selected	Saturday	7
	Sunday	5
Main Location Types selected	Edge of Town	1
	Free Standing (PPS6 Out of Town)	11
Inclusion of Servicing Vehicles Counts	Servicing vehicles Included	X - Selected
	Servicing vehicles Excluded	21 - Selected
Population within 500m	All Surveys Included	
Population <1 Mile ranges selected	1,000 or Less	6
	1,001 to 5,000	4
	5,001 to 10,000	1
Population <5 Mile ranges selected	5,000 or Less	2
	5,001 to 25,000	2
	50,001 to 75,000	2
	75,001 to 100,000	1
	125,001 to 250,000	3
	250,001 to 500,000	1
Car Ownership <5 Mile ranges selected	0.6 to 1.0	6
	1.1 to 1.5	5
PTAL Rating	No PTAL Present	12

Calculation Reference: AUDIT-111301-230420-0426

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : M - COUNTRY PARKS
TOTAL VEHICLES

Selected regions and areas:

01	GREATER LONDON		
	BN	BARNET	1 days
02	SOUTH EAST		
	HC	HAMPSHIRE	2 days
03	SOUTH WEST		
	GS	GLOUCESTERSHIRE	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
	PB	PETERBOROUGH	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORKSHIRE	1 days
08	NORTH WEST		
	LC	LANCASHIRE	1 days
09	NORTH		
	DH	DURHAM	1 days
11	SCOTLAND		
	LO	WEST LOTHIAN	1 days
12	CONNAUGHT		
	GA	GALWAY	1 days
	RO	ROSCOMMON	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: Site area
Actual Range: 17.00 to 560.00 (units: hect)
Range Selected by User: 3.20 to 560.00 (units: hect)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/00 to 16/10/21

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

Selected survey days:

Saturday	7 days
Sunday	5 days

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

Selected survey types:

Manual count	12 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	1
Free Standing (PPS6 Out of Town)	11

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:

Out of Town	11
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.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	X days - Selected
Servicing vehicles Excluded	21 days - Selected

Secondary Filtering selection:

Use Class:

F2(c)	12 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 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:

1,000 or Less	6 days
1,001 to 5,000	4 days
5,001 to 10,000	1 days

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

Population within 5 miles:

5,000 or Less	2 days
5,001 to 25,000	2 days
50,001 to 75,000	2 days
75,001 to 100,000	1 days
125,001 to 250,000	3 days
250,001 to 500,000	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	6 days
1.1 to 1.5	5 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	12 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	12 days

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

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions

LIST OF SITES relevant to selection parameters

Site(1):	BN-07-M-01	Site area:	70.00 hect
Development Name:	COUNTRY PARK		
Location:	ELSTREE	Parking spaces:	131
Postcode:	WD6 3AT	No of Employees:	5
Main Location Type:	Free Standing (PPS6 Out of Town)	Survey Date:	26/10/03
Sub-Location Type:	Out of Town	Survey Day:	Sunday
PTAL:	n/a		
Site(2):	CA-07-M-02	Site area:	48.00 hect
Development Name:	COUNTRY PARK		
Location:	NEAR CAMBRIDGE	Parking spaces:	130
Postcode:	CB22 3AE	No of Employees:	11
Main Location Type:	Free Standing (PPS6 Out of Town)	Survey Date:	27/06/21
Sub-Location Type:	Out of Town	Survey Day:	Sunday
PTAL:	n/a		
Site(3):	DH-07-M-01	Site area:	17.00 hect
Development Name:	COUNTRY PARK		
Location:	SEDGEFIELD	Parking spaces:	75
Postcode:		No of Employees:	
Main Location Type:	Free Standing (PPS6 Out of Town)	Survey Date:	07/06/03
Sub-Location Type:	Out of Town	Survey Day:	Saturday
PTAL:	n/a		
Site(4):	GA-07-M-01	Site area:	62.00 hect
Development Name:	COUNTRY PARK		
Location:	NEAR GALWAY	Parking spaces:	58
Postcode:		No of Employees:	19
Main Location Type:	Free Standing (PPS6 Out of Town)	Survey Date:	06/08/11
Sub-Location Type:	Out of Town	Survey Day:	Saturday
PTAL:	n/a		
Site(5):	GS-07-M-01	Site area:	60.80 hect
Development Name:	COUNTRY PARK		
Location:	NEAR GLOUCESTER	Parking spaces:	77
Postcode:	GL4 8JY	No of Employees:	3
Main Location Type:	Free Standing (PPS6 Out of Town)	Survey Date:	25/04/10
Sub-Location Type:	Out of Town	Survey Day:	Sunday
PTAL:	n/a		
Site(6):	HC-07-M-01	Site area:	560.00 hect
Development Name:	COUNTRY PARK		
Location:	NEAR PETERSFIELD	Parking spaces:	396
Postcode:		No of Employees:	16
Main Location Type:	Free Standing (PPS6 Out of Town)	Survey Date:	07/06/03
Sub-Location Type:	Out of Town	Survey Day:	Saturday
PTAL:	n/a		
Site(7):	HC-07-M-02	Site area:	350.00 hect
Development Name:	COUNTRY PARK		
Location:	NEAR WATERLOOVILLE	Parking spaces:	304
Postcode:	PO8 0QE	No of Employees:	25
Main Location Type:	Free Standing (PPS6 Out of Town)	Survey Date:	16/10/21
Sub-Location Type:	Out of Town	Survey Day:	Saturday
PTAL:	n/a		
Site(8):	LC-07-M-02	Site area:	130.00 hect
Development Name:	NATURE RESERVE		
Location:	NEAR LANCASTER	Parking spaces:	92
Postcode:	LA5 0SW	No of Employees:	22
Main Location Type:	Free Standing (PPS6 Out of Town)	Survey Date:	23/06/07
Sub-Location Type:	Out of Town	Survey Day:	Saturday
PTAL:	n/a		
Site(9):	LO-07-M-01	Site area:	68.90 hect
Development Name:	COUNTRY PARK		
Location:	NEAR FALKIRK	Parking spaces:	134
Postcode:	EH49 6LN	No of Employees:	4
Main Location Type:	Free Standing (PPS6 Out of Town)	Survey Date:	29/04/07
Sub-Location Type:	Out of Town	Survey Day:	Sunday
PTAL:	n/a		

LIST OF SITES relevant to selection parameters (Cont.)

Site(10):	PB-07-M-01	Site area:	203.00 hect
Development Name:	COUNTRY PARK		
Location:	PETERBOROUGH	Parking spaces:	540
Postcode:		No of Employees:	41
Main Location Type:	Free Standing (PPS6 Out of Town)	Survey Date:	13/07/03
Sub-Location Type:	Out of Town	Survey Day:	Sunday
PTAL:	n/a		

Site(11):	RO-07-M-01	Site area:	323.00 hect
Development Name:	COUNTRY PARK		
Location:	BOYLE	Parking spaces:	450
Postcode:		No of Employees:	42
Main Location Type:	Free Standing (PPS6 Out of Town)	Survey Date:	16/07/11
Sub-Location Type:	Out of Town	Survey Day:	Saturday
PTAL:	n/a		

Site(12):	WY-07-M-01	Site area:	95.00 hect
Development Name:	COUNTRY PARK		
Location:	WAKEFIELD	Parking spaces:	150
Postcode:	WF2 6QP	No of Employees:	10
Main Location Type:	Edge of Town	Survey Date:	15/09/07
Sub-Location Type:	No Sub Category	Survey Day:	Saturday
PTAL:	n/a		

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
DS-07-M-01	No Relevance
LC-07-M-03	No Relevance
LI-07-M-01	No Relevance
SY-07-M-01	No Relevance
WM-07-M-01	No Relevance

TRIP RATE for Land Use 07 - LEISURE/M - COUNTRY PARKS
TOTAL VEHICLES
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	9	194.87	0.044	9	194.87	0.016	9	194.87	0.060
08:00 - 09:00	12	165.64	0.159	12	165.64	0.048	12	165.64	0.207
09:00 - 10:00	12	165.64	0.188	12	165.64	0.106	12	165.64	0.294
10:00 - 11:00	12	165.64	0.276	12	165.64	0.164	12	165.64	0.440
11:00 - 12:00	12	165.64	0.338	12	165.64	0.234	12	165.64	0.572
12:00 - 13:00	12	165.64	0.359	12	165.64	0.260	12	165.64	0.619
13:00 - 14:00	12	165.64	0.411	12	165.64	0.252	12	165.64	0.663
14:00 - 15:00	12	165.64	0.387	12	165.64	0.331	12	165.64	0.718
15:00 - 16:00	12	165.64	0.315	12	165.64	0.460	12	165.64	0.775
16:00 - 17:00	12	165.64	0.199	12	165.64	0.459	12	165.64	0.658
17:00 - 18:00	12	165.64	0.146	12	165.64	0.340	12	165.64	0.486
18:00 - 19:00	12	165.64	0.098	12	165.64	0.200	12	165.64	0.298
19:00 - 20:00	6	157.82	0.055	6	157.82	0.123	6	157.82	0.178
20:00 - 21:00	2	195.95	0.008	2	195.95	0.048	2	195.95	0.056
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.983			3.041			6.024

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:	17.00 to 560.00 (units: hect)
Survey date date range:	01/01/00 - 16/10/21
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	9
Number of Sundays:	5
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	5

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 07 - LEISURE/M - COUNTRY PARKS
TAXIS
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	9	194.87	0.000	9	194.87	0.000	9	194.87	0.000
08:00 - 09:00	12	165.64	0.000	12	165.64	0.000	12	165.64	0.000
09:00 - 10:00	12	165.64	0.000	12	165.64	0.000	12	165.64	0.000
10:00 - 11:00	12	165.64	0.001	12	165.64	0.001	12	165.64	0.002
11:00 - 12:00	12	165.64	0.000	12	165.64	0.000	12	165.64	0.000
12:00 - 13:00	12	165.64	0.001	12	165.64	0.001	12	165.64	0.002
13:00 - 14:00	12	165.64	0.000	12	165.64	0.000	12	165.64	0.000
14:00 - 15:00	12	165.64	0.000	12	165.64	0.000	12	165.64	0.000
15:00 - 16:00	12	165.64	0.001	12	165.64	0.001	12	165.64	0.002
16:00 - 17:00	12	165.64	0.000	12	165.64	0.001	12	165.64	0.001
17:00 - 18:00	12	165.64	0.000	12	165.64	0.000	12	165.64	0.000
18:00 - 19:00	12	165.64	0.000	12	165.64	0.000	12	165.64	0.000
19:00 - 20:00	6	157.82	0.000	6	157.82	0.000	6	157.82	0.000
20:00 - 21:00	2	195.95	0.000	2	195.95	0.000	2	195.95	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.003			0.004			0.007

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 07 - LEISURE/M - COUNTRY PARKS
OGVS
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	9	194.87	0.000	9	194.87	0.000	9	194.87	0.000
08:00 - 09:00	12	165.64	0.001	12	165.64	0.000	12	165.64	0.001
09:00 - 10:00	12	165.64	0.000	12	165.64	0.000	12	165.64	0.000
10:00 - 11:00	12	165.64	0.000	12	165.64	0.001	12	165.64	0.001
11:00 - 12:00	12	165.64	0.001	12	165.64	0.001	12	165.64	0.002
12:00 - 13:00	12	165.64	0.001	12	165.64	0.000	12	165.64	0.001
13:00 - 14:00	12	165.64	0.001	12	165.64	0.002	12	165.64	0.003
14:00 - 15:00	12	165.64	0.001	12	165.64	0.001	12	165.64	0.002
15:00 - 16:00	12	165.64	0.001	12	165.64	0.001	12	165.64	0.002
16:00 - 17:00	12	165.64	0.001	12	165.64	0.001	12	165.64	0.002
17:00 - 18:00	12	165.64	0.001	12	165.64	0.000	12	165.64	0.001
18:00 - 19:00	12	165.64	0.000	12	165.64	0.001	12	165.64	0.001
19:00 - 20:00	6	157.82	0.000	6	157.82	0.000	6	157.82	0.000
20:00 - 21:00	2	195.95	0.000	2	195.95	0.000	2	195.95	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.008			0.008			0.016

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 07 - LEISURE/M - COUNTRY PARKS
PSVS
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	9	194.87	0.000	9	194.87	0.000	9	194.87	0.000
08:00 - 09:00	12	165.64	0.000	12	165.64	0.000	12	165.64	0.000
09:00 - 10:00	12	165.64	0.000	12	165.64	0.000	12	165.64	0.000
10:00 - 11:00	12	165.64	0.001	12	165.64	0.001	12	165.64	0.002
11:00 - 12:00	12	165.64	0.001	12	165.64	0.001	12	165.64	0.002
12:00 - 13:00	12	165.64	0.002	12	165.64	0.000	12	165.64	0.002
13:00 - 14:00	12	165.64	0.001	12	165.64	0.001	12	165.64	0.002
14:00 - 15:00	12	165.64	0.001	12	165.64	0.002	12	165.64	0.003
15:00 - 16:00	12	165.64	0.001	12	165.64	0.000	12	165.64	0.001
16:00 - 17:00	12	165.64	0.001	12	165.64	0.002	12	165.64	0.003
17:00 - 18:00	12	165.64	0.001	12	165.64	0.002	12	165.64	0.003
18:00 - 19:00	12	165.64	0.001	12	165.64	0.001	12	165.64	0.002
19:00 - 20:00	6	157.82	0.000	6	157.82	0.000	6	157.82	0.000
20:00 - 21:00	2	195.95	0.000	2	195.95	0.000	2	195.95	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.010			0.010			0.020

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 07 - LEISURE/M - COUNTRY PARKS
CYCLISTS
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	9	194.87	0.001	9	194.87	0.002	9	194.87	0.003
08:00 - 09:00	12	165.64	0.004	12	165.64	0.004	12	165.64	0.008
09:00 - 10:00	12	165.64	0.019	12	165.64	0.010	12	165.64	0.029
10:00 - 11:00	12	165.64	0.017	12	165.64	0.015	12	165.64	0.032
11:00 - 12:00	12	165.64	0.018	12	165.64	0.021	12	165.64	0.039
12:00 - 13:00	12	165.64	0.037	12	165.64	0.011	12	165.64	0.048
13:00 - 14:00	12	165.64	0.025	12	165.64	0.022	12	165.64	0.047
14:00 - 15:00	12	165.64	0.011	12	165.64	0.027	12	165.64	0.038
15:00 - 16:00	12	165.64	0.022	12	165.64	0.026	12	165.64	0.048
16:00 - 17:00	12	165.64	0.012	12	165.64	0.024	12	165.64	0.036
17:00 - 18:00	12	165.64	0.015	12	165.64	0.033	12	165.64	0.048
18:00 - 19:00	12	165.64	0.013	12	165.64	0.012	12	165.64	0.025
19:00 - 20:00	6	157.82	0.001	6	157.82	0.001	6	157.82	0.002
20:00 - 21:00	2	195.95	0.000	2	195.95	0.000	2	195.95	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.195			0.208			0.403

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.*

Appendix D

Junctions 9 Outputs

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.2.1013

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

Filename: Trevor_Basin MG.j9
Path: C:\Users\tiruttan7370\OneDrive - ARCADIS\Nandini\OneDrive_Nandini_1_1-11-2024
Report generation date: 11-01-2024 18:13:08

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Baseline CTC 2023									
Stream B-ACD	D1	0.1	9.17	0.09	A	D2	0.1	8.05	0.11	A
Stream A-BCD		0.0	5.01	0.02	A		0.0	5.29	0.02	A
Stream D-ABC		0.0	8.38	0.04	A		0.0	6.88	0.03	A
Stream C-ABD		0.2	4.98	0.08	A		0.1	5.28	0.07	A
	Future Baseline, 2029									
Stream B-ACD	D3	0.1	10.32	0.10	B	D4	0.1	8.91	0.13	A
Stream A-BCD		0.0	4.77	0.02	A		0.0	5.00	0.02	A
Stream D-ABC		0.1	9.67	0.05	A		0.0	7.54	0.03	A
Stream C-ABD		0.2	4.73	0.10	A		0.2	5.09	0.08	A
	Future with Existing Development, 2029									
Stream B-ACD	D5	0.1	10.22	0.11	B	D6	0.2	9.03	0.20	A
Stream A-BCD		0.0	4.79	0.02	A		0.0	5.03	0.02	A
Stream D-ABC		0.1	9.78	0.05	A		0.0	7.69	0.03	A
Stream C-ABD		0.4	4.82	0.14	A		0.2	5.22	0.12	A
	Future with Proposed Development, 2029									
Stream B-ACD	D7	0.1	10.18	0.12	B	D8	0.3	9.46	0.25	A
Stream A-BCD		0.0	4.80	0.02	A		0.0	5.04	0.02	A
Stream D-ABC		0.1	9.87	0.05	A		0.0	7.82	0.03	A
Stream C-ABD		0.5	4.89	0.17	A		0.3	5.34	0.15	A

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

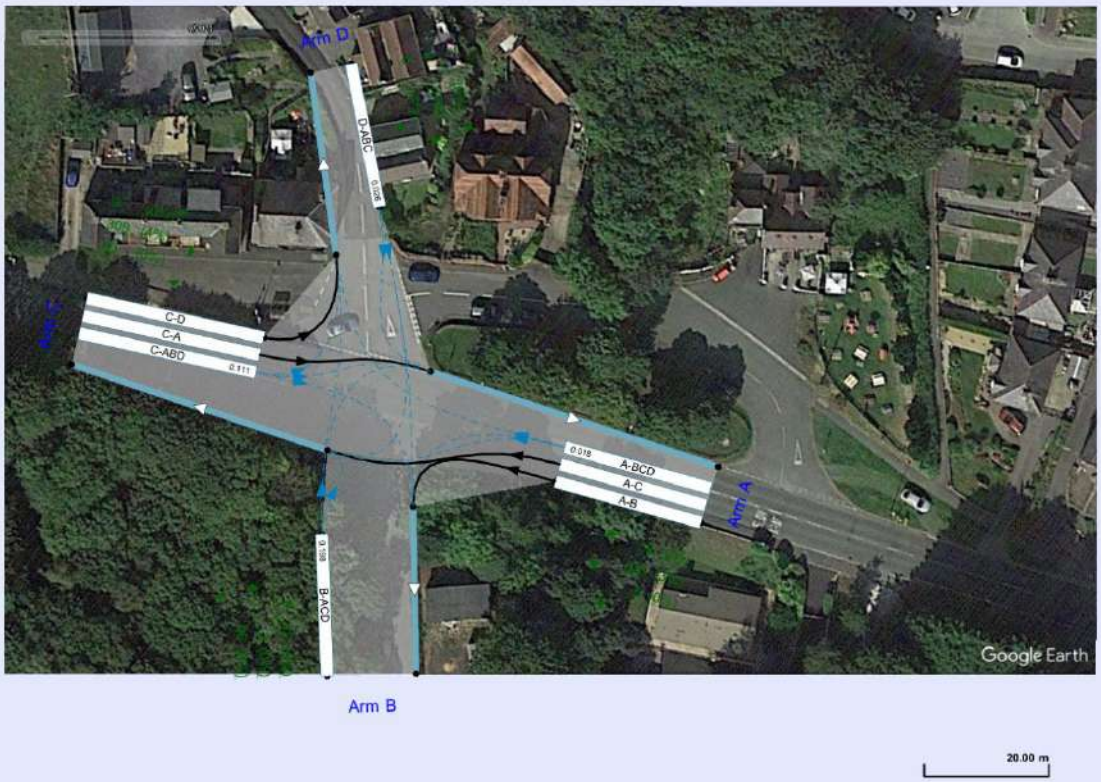
File summary

File Description

Title	
Location	
Site number	
Date	24-04-2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ARCADIS\derasarn9646
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



The junction diagram reflects the last run of Junctions.

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	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Baseline CTC 2023	AM	Baseline AM CTC	ONE HOUR	08:00	09:30	15	✓
D2	Baseline CTC 2023	PM		ONE HOUR	17:00	18:30	15	✓
D3	Future Baseline, 2029	AM	CTC+Tempro, Committed Developments	ONE HOUR	08:00	09:30	15	✓
D4	Future Baseline, 2029	PM	CTC+Tempro, Committed Developments	ONE HOUR	17:00	18:30	15	✓
D5	Future with Existing Development, 2029	AM	(CTC+Tempro)+ Committed Developments+ Proposed Bevelopment	ONE HOUR	08:00	09:30	15	✓
D6	Future with Existing Development, 2029	PM	(CTC+Tempro)+ Committed Developments+ Proposed Bevelopment	ONE HOUR	17:00	18:30	15	✓
D7	Future with Proposed Development, 2029	AM	(CTC+Tempro)+ Committed Developments+ Proposed Bevelopment (sensitivity)	ONE HOUR	08:00	09:30	15	✓
D8	Future with Proposed Development, 2029	PM	(CTC+Tempro)+ Committed Developments+ Proposed Bevelopment (sensitivity)	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

Baseline CTC 2023, 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	Tower Hill Tower Hill Tower Hill Junction_Site1	Crossroads	Two-way		0.98	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A539 Llaglollen Road (WB)		Major
B	Tower Hill (NB)		Minor
C	A539 Llaglollen Road (EB)		Major
D	Tower Hill (SB)		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	7.02			100.0	✓	0.00
C	7.02			140.0	✓	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	One lane	3.25	23	18
D	One lane	4.30	60	50

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	632	-	-	-	-	-	-	0.234	0.334	0.234	-	-	-
B-A	506	0.088	0.223	0.223	-	-	-	0.140	0.318	-	0.223	0.223	0.111
B-C	651	0.095	0.241	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	506	0.088	0.223	0.223	-	-	-	0.140	0.318	0.140	-	-	-
B-D, offside lane	506	0.088	0.223	0.223	-	-	-	0.140	0.318	0.140	-	-	-
C-B	655	0.243	0.243	0.346	-	-	-	-	-	-	-	-	-
D-A	741	-	-	-	-	-	-	0.274	-	0.109	-	-	-
D-B, nearside lane	590	0.163	0.163	0.371	-	-	-	0.259	0.259	0.103	-	-	-
D-B, offside lane	590	0.163	0.163	0.371	-	-	-	0.259	0.259	0.103	-	-	-
D-C	590	-	0.163	0.371	0.130	0.259	0.259	0.259	0.259	0.103	-	-	-

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	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Baseline CTC 2023	AM	Baseline AM CTC	ONE HOUR	08:00	09:30	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		ONE HOUR	✓	353	100.000

B		ONE HOUR	✓	36	100.000
C		ONE HOUR	✓	441	100.000
D		ONE HOUR	✓	18	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	**B**	**C**	**D**
From	**A**	0	10	336	7
	B	13	0	22	1
	C	400	31	0	10
	D	6	3	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	**B**	**C**	**D**
From	**A**	0	0	2	0
	B	15	0	0	0
	C	4	6	0	0
	D	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	0.09	9.17	0.1	A	33	50
A-BCD	0.02	5.01	0.0	A	11	17
A-B					9	14
A-C					304	455
D-ABC	0.04	8.38	0.0	A	17	25
C-ABD	0.08	4.98	0.2	A	53	80
C-D					9	13
C-A					343	514

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	27	7	496	0.055	27	0.0	0.1	8.055	A
A-BCD	8	2	732	0.011	8	0.0	0.0	5.003	A

A-B	7	2			7				
A-C	250	63			250				
D-ABC	14	3	509	0.027	13	0.0	0.0	7.268	A
C-ABD	38	10	798	0.048	38	0.0	0.1	4.983	A
C-D	7	2			7				
C-A	287	72			287				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	32	8	477	0.068	32	0.1	0.1	8.489	A
A-BCD	11	3	755	0.014	11	0.0	0.0	4.874	A
A-B	9	2			9				
A-C	298	74			298				
D-ABC	16	4	484	0.033	16	0.0	0.0	7.697	A
C-ABD	50	13	828	0.061	50	0.1	0.1	4.868	A
C-D	8	2			8				
C-A	338	84			338				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	40	10	451	0.088	40	0.1	0.1	9.170	A
A-BCD	15	4	787	0.019	15	0.0	0.0	4.704	A
A-B	11	3			11				
A-C	363	91			363				
D-ABC	20	5	449	0.044	20	0.0	0.0	8.378	A
C-ABD	71	18	871	0.082	71	0.1	0.2	4.725	A
C-D	10	3			10				
C-A	404	101			404				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	40	10	451	0.088	40	0.1	0.1	9.175	A
A-BCD	15	4	787	0.019	15	0.0	0.0	4.709	A
A-B	11	3			11				
A-C	363	91			363				
D-ABC	20	5	449	0.044	20	0.0	0.0	8.382	A
C-ABD	71	18	871	0.082	71	0.2	0.2	4.725	A
C-D	10	3			10				
C-A	404	101			404				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	32	8	477	0.068	32	0.1	0.1	8.496	A
A-BCD	11	3	755	0.014	11	0.0	0.0	4.884	A
A-B	9	2			9				
A-C	298	74			298				
D-ABC	16	4	484	0.033	16	0.0	0.0	7.701	A
C-ABD	50	13	828	0.061	51	0.2	0.1	4.863	A
C-D	8	2			8				
C-A	338	84			338				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	27	7	496	0.055	27	0.1	0.1	8.066	A
A-BCD	8	2	732	0.011	8	0.0	0.0	5.009	A
A-B	7	2			7				
A-C	250	63			250				
D-ABC	14	3	508	0.027	14	0.0	0.0	7.274	A
C-ABD	38	10	798	0.048	38	0.1	0.1	4.984	A
C-D	7	2			7				
C-A	287	72			287				

Baseline CTC 2023, 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	Tower Hill Tower Hill Tower Hill Junction_Site1	Crossroads	Two-way		1.49	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
D2	Baseline CTC 2023	PM	ONE HOUR	17:00	18:30	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		ONE HOUR	✓	223	100.000
B		ONE HOUR	✓	51	100.000
C		ONE HOUR	✓	249	100.000
D		ONE HOUR	✓	15	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	5	210	8
	B	17	0	31	3
	C	210	31	0	8
	D	7	2	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	4	0
	B	0	0	0	0
	C	6	0	0	0
	D	0	0	4	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	0.11	8.05	0.1	A	47	70
A-BCD	0.02	5.29	0.0	A	10	15
A-B					5	7
A-C					190	285
D-ABC	0.03	6.88	0.0	A	14	21
C-ABD	0.07	5.28	0.1	A	39	59
C-D					7	10
C-A					182	273

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	38	10	530	0.072	38	0.0	0.1	7.314	A
A-BCD	8	2	695	0.011	8	0.0	0.0	5.285	A
A-B	4	0.93			4				
A-C	156	39			156				
D-ABC	11	3	581	0.019	11	0.0	0.0	6.414	A
C-ABD	30	8	722	0.042	30	0.0	0.1	5.267	A
C-D	6	1			6				
C-A	151	38			151				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	46	11	519	0.088	46	0.1	0.1	7.610	A
A-BCD	10	2	708	0.014	10	0.0	0.0	5.206	A
A-B	4	1			4				
A-C	186	47			186				
D-ABC	13	3	567	0.024	13	0.0	0.0	6.602	A
C-ABD	38	10	736	0.052	38	0.1	0.1	5.232	A
C-D	7	2			7				
C-A	179	45			179				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	56	14	503	0.112	56	0.1	0.1	8.046	A
A-BCD	13	3	727	0.018	13	0.0	0.0	5.102	A
A-B	5	1			5				
A-C	227	57			227				
D-ABC	17	4	548	0.030	16	0.0	0.0	6.883	A
C-ABD	50	13	755	0.066	50	0.1	0.1	5.188	A
C-D	8	2			8				
C-A	216	54			216				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	56	14	503	0.112	56	0.1	0.1	8.050	A
A-BCD	13	3	727	0.018	13	0.0	0.0	5.107	A
A-B	5	1			5				
A-C	227	57			227				
D-ABC	17	4	548	0.030	17	0.0	0.0	6.884	A
C-ABD	50	13	755	0.066	50	0.1	0.1	5.197	A
C-D	8	2			8				
C-A	216	54			216				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	46	11	519	0.088	46	0.1	0.1	7.617	A
A-BCD	10	2	708	0.014	10	0.0	0.0	5.216	A
A-B	4	1			4				
A-C	186	47			186				
D-ABC	13	3	567	0.024	14	0.0	0.0	6.604	A
C-ABD	38	10	736	0.052	38	0.1	0.1	5.248	A
C-D	7	2			7				
C-A	179	45			179				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	38	10	530	0.072	38	0.1	0.1	7.326	A
A-BCD	8	2	695	0.011	8	0.0	0.0	5.293	A
A-B	4	0.93			4				

A-C	156	39			156				
D-ABC	11	3	581	0.019	11	0.0	0.0	6.418	A
C-ABD	30	8	722	0.042	30	0.1	0.1	5.281	A
C-D	6	1			6				
C-A	151	38			151				

Future Baseline, 2029 , 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	Tower Hill Tower Hill Tower Hill Junction_Site1	Crossroads	Two-way		0.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Future Baseline, 2029	AM	CTC+Tempro, Committed Developments	ONE HOUR	08:00	09:30	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		ONE HOUR	✓	460	100.000
B		ONE HOUR	✓	38	100.000
C		ONE HOUR	✓	560	100.000
D		ONE HOUR	✓	19	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	11	442	7
	B	14	0	23	1
	C	516	33	0	11
	D	6	3	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	15	0	0	0
	C	3	6	0	0
	D	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	0.10	10.32	0.1	B	35	52
A-BCD	0.02	4.77	0.0	A	14	21
A-B					10	15
A-C					399	598
D-ABC	0.05	9.67	0.1	A	17	26
C-ABD	0.10	4.73	0.2	A	69	103
C-D					9	14
C-A					436	653

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	29	7	467	0.061	28	0.0	0.1	8.613	A
A-BCD	9	2	771	0.012	9	0.0	0.0	4.765	A
A-B	8	2			8				
A-C	329	82			329				
D-ABC	14	4	470	0.030	14	0.0	0.0	7.890	A
C-ABD	47	12	842	0.056	47	0.0	0.1	4.734	A
C-D	8	2			8				
C-A	367	92			367				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	34	9	443	0.077	34	0.1	0.1	9.253	A
A-BCD	13	3	803	0.016	13	0.0	0.0	4.599	A
A-B	10	2			10				
A-C	391	98			391				
D-ABC	17	4	438	0.039	17	0.0	0.0	8.547	A
C-ABD	64	16	882	0.073	64	0.1	0.1	4.598	A
C-D	9	2			9				
C-A	430	107			430				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	42	10	408	0.102	42	0.1	0.1	10.315	B
A-BCD	19	5	849	0.022	19	0.0	0.0	4.384	A
A-B	12	3			12				
A-C	476	119			476				
D-ABC	21	5	393	0.053	21	0.0	0.1	9.665	A
C-ABD	95	24	941	0.101	95	0.1	0.2	4.439	A
C-D	11	3			11				
C-A	510	128			510				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	42	10	408	0.103	42	0.1	0.1	10.322	B
A-BCD	19	5	849	0.022	19	0.0	0.0	4.389	A
A-B	12	3			12				
A-C	476	119			476				
D-ABC	21	5	393	0.053	21	0.1	0.1	9.670	A
C-ABD	95	24	941	0.101	95	0.2	0.2	4.438	A
C-D	11	3			11				
C-A	510	128			510				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	34	9	443	0.077	34	0.1	0.1	9.261	A
A-BCD	13	3	803	0.016	13	0.0	0.0	4.609	A
A-B	10	2			10				
A-C	391	98			391				
D-ABC	17	4	438	0.039	17	0.1	0.0	8.555	A
C-ABD	65	16	882	0.073	65	0.2	0.1	4.592	A
C-D	9	2			9				
C-A	430	107			430				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	29	7	467	0.061	29	0.1	0.1	8.628	A
A-BCD	9	2	771	0.012	9	0.0	0.0	4.770	A
A-B	8	2			8				

A-C	329	82			329				
D-ABC	14	4	470	0.030	14	0.0	0.0	7.898	A
C-ABD	47	12	842	0.056	47	0.1	0.1	4.734	A
C-D	8	2			8				
C-A	367	92			367				

Future Baseline, 2029 , 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	Tower Hill Tower Hill Tower Hill Junction_Site1	Crossroads	Two-way		1.24	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Future Baseline, 2029	PM	CTC+Tempro, Committed Developments	ONE HOUR	17:00	18:30	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		ONE HOUR	✓	339	100.000
B		ONE HOUR	✓	54	100.000
C		ONE HOUR	✓	351	100.000
D		ONE HOUR	✓	15	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	5	325	9
	B	18	0	33	3
	C	309	33	0	9
	D	7	2	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	3	0
	B	0	0	0	0
	C	4	0	0	0
	D	0	0	4	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	0.13	8.91	0.1	A	50	74
A-BCD	0.02	5.00	0.0	A	14	21
A-B					5	7
A-C					293	439
D-ABC	0.03	7.54	0.0	A	14	21
C-ABD	0.08	5.09	0.2	A	49	74
C-D					8	12
C-A					265	397

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	41	10	503	0.081	40	0.0	0.1	7.768	A
A-BCD	10	3	738	0.014	10	0.0	0.0	4.996	A
A-B	4	0.93			4				
A-C	241	60			241				
D-ABC	11	3	550	0.021	11	0.0	0.0	6.784	A
C-ABD	36	9	753	0.048	36	0.0	0.1	5.081	A
C-D	6	2			6				
C-A	221	55			221				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	49	12	487	0.100	48	0.1	0.1	8.210	A
A-BCD	13	3	760	0.017	13	0.0	0.0	4.870	A
A-B	4	1			4				
A-C	287	72			287				
D-ABC	13	3	530	0.025	13	0.0	0.0	7.081	A
C-ABD	47	12	774	0.061	47	0.1	0.1	5.019	A
C-D	8	2			8				
C-A	261	65			261				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	59	15	464	0.128	59	0.1	0.1	8.903	A
A-BCD	18	5	793	0.023	18	0.0	0.0	4.707	A
A-B	5	1			5				
A-C	350	87			350				
D-ABC	17	4	501	0.033	16	0.0	0.0	7.543	A
C-ABD	65	16	804	0.080	64	0.1	0.2	4.943	A
C-D	9	2			9				
C-A	313	78			313				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	59	15	464	0.128	59	0.1	0.1	8.909	A
A-BCD	18	5	792	0.023	18	0.0	0.0	4.712	A
A-B	5	1			5				
A-C	350	87			350				
D-ABC	17	4	501	0.033	17	0.0	0.0	7.544	A
C-ABD	65	16	804	0.080	65	0.2	0.2	4.951	A
C-D	9	2			9				
C-A	313	78			313				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	49	12	487	0.100	49	0.1	0.1	8.221	A
A-BCD	13	3	760	0.018	13	0.0	0.0	4.882	A
A-B	4	1			4				
A-C	287	72			287				
D-ABC	13	3	530	0.025	14	0.0	0.0	7.084	A
C-ABD	47	12	774	0.061	47	0.2	0.1	5.034	A
C-D	8	2			8				
C-A	261	65			261				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	41	10	503	0.081	41	0.1	0.1	7.784	A
A-BCD	10	3	738	0.014	10	0.0	0.0	5.004	A
A-B	4	0.93			4				

A-C	241	60			241				
D-ABC	11	3	550	0.021	11	0.0	0.0	6.789	A
C-ABD	37	9	753	0.049	37	0.1	0.1	5.095	A
C-D	6	2			6				
C-A	221	55			221				

Future with Existing Development, 2029 , 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	Tower Hill Tower Hill Tower Hill Junction_Site1	Crossroads	Two-way		1.08	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	Future with Existing Development, 2029	AM	(CTC+Tempro)+ Committed Developments+ Proposed Bevelopment	ONE HOUR	08:00	09:30	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		ONE HOUR	✓	460	100.000
B		ONE HOUR	✓	42	100.000
C		ONE HOUR	✓	572	100.000
D		ONE HOUR	✓	19	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	11	442	7
	B	14	0	27	1
	C	516	45	0	11
	D	6	3	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	15	0	0	0
	C	3	5	0	0
	D	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	0.11	10.22	0.1	B	39	58
A-BCD	0.02	4.79	0.0	A	14	21
A-B					10	15
A-C					398	598
D-ABC	0.05	9.78	0.1	A	17	26
C-ABD	0.14	4.82	0.4	A	94	141
C-D					9	13
C-A					422	633

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	32	8	474	0.067	31	0.0	0.1	8.505	A
A-BCD	9	2	769	0.012	9	0.0	0.0	4.781	A
A-B	8	2			8				
A-C	329	82			329				
D-ABC	14	4	468	0.031	14	0.0	0.0	7.934	A
C-ABD	64	16	842	0.076	64	0.0	0.1	4.812	A
C-D	8	2			8				
C-A	359	90			359				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	38	9	449	0.084	38	0.1	0.1	9.142	A
A-BCD	13	3	800	0.016	13	0.0	0.0	4.616	A
A-B	10	2			10				
A-C	391	98			391				
D-ABC	17	4	435	0.039	17	0.0	0.0	8.612	A
C-ABD	88	22	882	0.099	87	0.1	0.2	4.712	A
C-D	9	2			9				
C-A	418	104			418				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	46	12	415	0.112	46	0.1	0.1	10.215	B
A-BCD	19	5	845	0.022	19	0.0	0.0	4.402	A
A-B	12	3			12				
A-C	476	119			476				
D-ABC	21	5	389	0.054	21	0.0	0.1	9.770	A
C-ABD	130	33	941	0.138	129	0.2	0.4	4.612	A
C-D	10	3			10				
C-A	489	122			489				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	46	12	414	0.112	46	0.1	0.1	10.220	B
A-BCD	19	5	845	0.022	19	0.0	0.0	4.406	A
A-B	12	3			12				
A-C	476	119			476				
D-ABC	21	5	389	0.054	21	0.1	0.1	9.777	A
C-ABD	130	33	941	0.139	130	0.4	0.4	4.614	A
C-D	10	3			10				
C-A	489	122			489				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	38	9	449	0.084	38	0.1	0.1	9.156	A
A-BCD	13	3	800	0.016	13	0.0	0.0	4.626	A
A-B	10	2			10				
A-C	391	98			391				
D-ABC	17	4	435	0.039	17	0.1	0.0	8.620	A
C-ABD	88	22	883	0.100	89	0.4	0.2	4.714	A
C-D	9	2			9				
C-A	417	104			417				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	32	8	473	0.067	32	0.1	0.1	8.521	A
A-BCD	10	2	769	0.012	10	0.0	0.0	4.786	A
A-B	8	2			8				

A-C	329	82			329				
D-ABC	14	4	468	0.031	14	0.0	0.0	7.944	A
C-ABD	64	16	842	0.077	65	0.2	0.1	4.821	A
C-D	8	2			8				
C-A	359	90			359				

Future with Existing Development, 2029, 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	Tower Hill Tower Hill Tower Hill Junction_Site1	Crossroads	Two-way		1.73	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	Future with Existing Development, 2029	PM	(CTC+Tempro)+ Committed Developments+ Proposed Bevelopment	ONE HOUR	17:00	18:30	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		ONE HOUR	✓	339	100.000
B		ONE HOUR	✓	88	100.000
C		ONE HOUR	✓	366	100.000
D		ONE HOUR	✓	15	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	5	325	9
	B	18	0	67	3
	C	309	48	0	9
	D	7	2	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	3	0
	B	0	0	0	0
	C	4	0	0	0
	D	0	0	4	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	0.20	9.03	0.2	A	81	121
A-BCD	0.02	5.03	0.0	A	14	21
A-B					5	7
A-C					293	439
D-ABC	0.03	7.69	0.0	A	14	21
C-ABD	0.12	5.22	0.2	A	72	108
C-D					7	11
C-A					256	385

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	66	17	533	0.124	66	0.0	0.1	7.697	A
A-BCD	10	3	734	0.014	10	0.0	0.0	5.019	A
A-B	4	0.93			4				
A-C	241	60			241				
D-ABC	11	3	544	0.021	11	0.0	0.0	6.857	A
C-ABD	53	13	753	0.070	52	0.0	0.1	5.199	A
C-D	6	2			6				
C-A	216	54			216				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	79	20	517	0.153	79	0.1	0.2	8.210	A
A-BCD	13	3	756	0.018	13	0.0	0.0	4.896	A
A-B	4	1			4				
A-C	287	72			287				
D-ABC	13	3	523	0.026	13	0.0	0.0	7.181	A
C-ABD	69	17	774	0.089	68	0.1	0.2	5.172	A
C-D	7	2			7				
C-A	253	63			253				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	97	24	496	0.196	97	0.2	0.2	9.019	A
A-BCD	18	5	788	0.023	18	0.0	0.0	4.735	A
A-B	5	1			5				
A-C	349	87			349				
D-ABC	17	4	492	0.034	16	0.0	0.0	7.689	A
C-ABD	94	23	804	0.117	94	0.2	0.2	5.148	A
C-D	9	2			9				
C-A	300	75			300				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	97	24	495	0.196	97	0.2	0.2	9.031	A
A-BCD	18	5	788	0.023	18	0.0	0.0	4.742	A
A-B	5	1			5				
A-C	349	87			349				
D-ABC	17	4	492	0.034	17	0.0	0.0	7.691	A
C-ABD	94	24	804	0.117	94	0.2	0.2	5.158	A
C-D	9	2			9				
C-A	300	75			300				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	79	20	517	0.153	79	0.2	0.2	8.225	A
A-BCD	13	3	756	0.018	13	0.0	0.0	4.906	A
A-B	4	1			4				
A-C	287	72			287				
D-ABC	13	3	522	0.026	14	0.0	0.0	7.187	A
C-ABD	69	17	774	0.089	69	0.2	0.2	5.190	A
C-D	7	2			7				
C-A	253	63			253				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	66	17	533	0.124	66	0.2	0.1	7.722	A
A-BCD	10	3	734	0.014	10	0.0	0.0	5.027	A
A-B	4	0.93			4				

A-C	241	60			241				
D-ABC	11	3	544	0.021	11	0.0	0.0	6.861	A
C-ABD	53	13	753	0.071	53	0.2	0.1	5.216	A
C-D	6	2			6				
C-A	216	54			216				

Future with Proposed Development, 2029 , 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	Tower Hill Tower Hill Tower Hill Junction_Site1	Crossroads	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	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	Future with Proposed Development, 2029	AM	(CTC+Tempro)+ Committed Developments+ Proposed Bevelopment (sensitivity)	ONE HOUR	08:00	09:30	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		ONE HOUR	✓	460	100.000
B		ONE HOUR	✓	45	100.000
C		ONE HOUR	✓	582	100.000
D		ONE HOUR	✓	19	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	11	442	7
	B	14	0	30	1
	C	516	55	0	11
	D	6	3	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	15	0	0	0
	C	3	4	0	0
	D	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	0.12	10.18	0.1	B	41	62
A-BCD	0.02	4.80	0.0	A	14	21
A-B					10	15
A-C					398	598
D-ABC	0.05	9.87	0.1	A	17	26
C-ABD	0.17	4.89	0.5	A	115	173
C-D					9	13
C-A					410	615

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	34	8	478	0.071	34	0.0	0.1	8.444	A
A-BCD	9	2	767	0.012	9	0.0	0.0	4.794	A
A-B	8	2			8				
A-C	329	82			329				
D-ABC	14	4	466	0.031	14	0.0	0.0	7.971	A
C-ABD	78	20	842	0.093	78	0.0	0.2	4.877	A
C-D	8	2			8				
C-A	352	88			352				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	40	10	453	0.089	40	0.1	0.1	9.086	A
A-BCD	13	3	797	0.016	13	0.0	0.0	4.630	A
A-B	10	2			10				
A-C	391	98			391				
D-ABC	17	4	432	0.039	17	0.0	0.0	8.665	A
C-ABD	107	27	882	0.122	107	0.2	0.3	4.809	A
C-D	9	2			9				
C-A	407	102			407				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	50	12	418	0.118	49	0.1	0.1	10.165	B
A-BCD	19	5	843	0.022	19	0.0	0.0	4.417	A
A-B	12	3			12				
A-C	476	119			476				
D-ABC	21	5	386	0.054	21	0.0	0.1	9.858	A
C-ABD	159	40	941	0.169	158	0.3	0.5	4.764	A
C-D	10	3			10				
C-A	472	118			472				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	50	12	418	0.118	50	0.1	0.1	10.175	B
A-BCD	19	5	842	0.023	19	0.0	0.0	4.423	A
A-B	12	3			12				
A-C	476	119			476				
D-ABC	21	5	386	0.054	21	0.1	0.1	9.866	A
C-ABD	159	40	941	0.169	159	0.5	0.5	4.770	A
C-D	10	3			10				
C-A	471	118			471				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	40	10	453	0.089	41	0.1	0.1	9.100	A
A-BCD	13	3	797	0.016	13	0.0	0.0	4.639	A
A-B	10	2			10				
A-C	391	98			391				
D-ABC	17	4	432	0.040	17	0.1	0.0	8.676	A
C-ABD	108	27	883	0.122	108	0.5	0.3	4.817	A
C-D	9	2			9				
C-A	407	102			407				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	34	8	477	0.071	34	0.1	0.1	8.463	A
A-BCD	10	2	766	0.012	10	0.0	0.0	4.800	A
A-B	8	2			8				

A-C	329	82			329				
D-ABC	14	4	465	0.031	14	0.0	0.0	7.982	A
C-ABD	79	20	842	0.094	79	0.3	0.2	4.891	A
C-D	7	2			7				
C-A	352	88			352				

Future with Proposed Development, 2029, 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	Tower Hill Tower Hill Tower Hill Junction_Site1	Crossroads	Two-way		2.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	Future with Proposed Development, 2029	PM	(CTC+Tempro)+ Committed Developments+ Proposed Bevelopment (sensitivity)	ONE HOUR	17:00	18:30	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		ONE HOUR	✓	339	100.000
B		ONE HOUR	✓	117	100.000
C		ONE HOUR	✓	378	100.000
D		ONE HOUR	✓	15	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	5	325	9
	B	18	0	96	3
	C	309	60	0	9
	D	7	2	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	3	0
	B	0	0	0	0
	C	4	0	0	0
	D	0	0	4	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	0.25	9.46	0.3	A	107	161
A-BCD	0.02	5.04	0.0	A	14	21
A-B					5	7
A-C					293	439
D-ABC	0.03	7.82	0.0	A	14	21
C-ABD	0.15	5.34	0.3	A	90	135
C-D					7	11
C-A					250	375

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	88	22	545	0.162	87	0.0	0.2	7.847	A
A-BCD	10	3	732	0.014	10	0.0	0.0	5.037	A
A-B	4	0.93			4				
A-C	241	60			241				
D-ABC	11	3	539	0.021	11	0.0	0.0	6.921	A
C-ABD	66	17	753	0.088	66	0.0	0.1	5.299	A
C-D	6	2			6				
C-A	212	53			212				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	105	26	530	0.198	105	0.2	0.2	8.457	A
A-BCD	13	3	753	0.018	13	0.0	0.0	4.916	A
A-B	4	1			4				
A-C	287	72			287				
D-ABC	13	3	516	0.026	13	0.0	0.0	7.268	A
C-ABD	86	21	774	0.111	86	0.1	0.2	5.299	A
C-D	7	2			7				
C-A	247	62			247				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	129	32	509	0.253	128	0.2	0.3	9.441	A
A-BCD	19	5	784	0.024	18	0.0	0.0	4.758	A
A-B	5	1			5				
A-C	349	87			349				
D-ABC	17	4	484	0.034	16	0.0	0.0	7.817	A
C-ABD	117	29	804	0.146	117	0.2	0.3	5.323	A
C-D	8	2			8				
C-A	290	73			290				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	129	32	509	0.253	129	0.3	0.3	9.459	A
A-BCD	19	5	784	0.024	19	0.0	0.0	4.763	A
A-B	5	1			5				
A-C	349	87			349				
D-ABC	17	4	484	0.034	17	0.0	0.0	7.820	A
C-ABD	118	29	804	0.146	118	0.3	0.3	5.337	A
C-D	8	2			8				
C-A	290	73			290				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	105	26	530	0.198	106	0.3	0.3	8.481	A
A-BCD	13	3	753	0.018	13	0.0	0.0	4.929	A
A-B	4	1			4				
A-C	287	72			287				
D-ABC	13	3	516	0.026	14	0.0	0.0	7.275	A
C-ABD	86	21	774	0.111	86	0.3	0.2	5.323	A
C-D	7	2			7				
C-A	247	62			247				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	88	22	545	0.162	88	0.3	0.2	7.880	A
A-BCD	10	3	732	0.014	10	0.0	0.0	5.044	A
A-B	4	0.93			4				

A-C	241	60			241				
D-ABC	11	3	539	0.021	11	0.0	0.0	6.929	A
C-ABD	66	17	753	0.088	67	0.2	0.2	5.320	A
C-D	6	2			6				
C-A	212	53			212				

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Trevor_Basin_T Junction MG.j9
Path: C:\Users\tiruttan7370\OneDrive - ARCADIS\Nandini\OneDrive_Nandini_1_1-11-2024
Report generation date: 11-01-2024 18:16:34

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Basline CTC 2023									
Stream B-AC	D1	0.1	11.19	0.11	B	D2	0.1	10.00	0.09	B
Stream C-AB		0.0	4.74	0.03	A		0.0	5.40	0.01	A
	Future Baseline, 2029									
Stream B-AC	D3	0.2	12.87	0.13	B	D4	0.6	15.84	0.37	C
Stream C-AB		0.1	4.52	0.04	A		0.0	5.51	0.01	A
	Future with Existing Development,2029									
Stream B-AC	D5	0.2	13.23	0.15	B	D6	0.8	17.87	0.44	C
Stream C-AB		0.1	4.53	0.04	A		0.0	5.53	0.01	A
	Future with Proposed Development,2029									
Stream B-AC	D7	0.2	13.59	0.16	B	D8	1.0	19.98	0.50	C
Stream C-AB		0.1	4.54	0.04	A		0.0	5.54	0.01	A

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

File summary

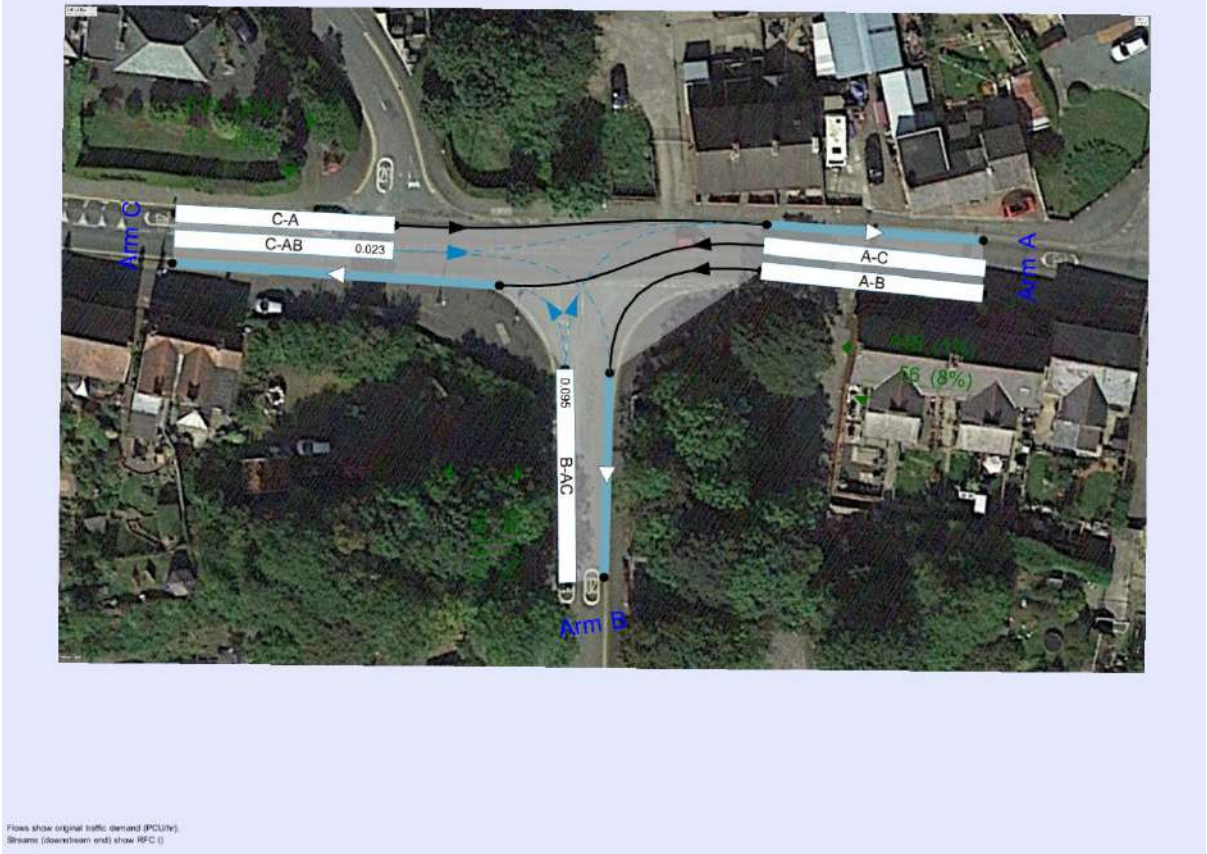
File Description

Title	
Location	

Site number	
Date	26-04-2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ARCADIS\derasarn9646
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



The junction diagram reflects the last run of Junctions.

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	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Basline CTC 2023	AM		ONE HOUR	08:00	09:30	15	✓
D2	Basline CTC 2023	PM		ONE HOUR	17:00	18:30	15	✓
D3	Future Baseline, 2029	AM	(CTC+Tempro)+ Committed Developments	ONE HOUR	08:00	09:30	15	✓
D4	Future Baseline, 2029	PM	(CTC+Tempro)+ Committed Developments	ONE HOUR	17:00	18:30	15	✓
D5	Future with Existing development,2029	AM	(CTC+Tempro) + Committed Developments + Proposed Development	ONE HOUR	08:00	09:30	15	✓
D6	Future with Existing development,2029	PM	(CTC+Tempro) + Committed Developments + Proposed Development	ONE HOUR	17:00	18:30	15	✓
D7	Future with Proposed Development,2029	AM	(CTC+Tempro) + Committed Developments + Proposed Development (sensitivity)	ONE HOUR	08:00	09:30	15	✓
D8	Future with Proposed Development,2029	PM	(CTC+Tempro) + Committed Developments + Proposed Development (sensitivity)	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

Basline CTC 2023, 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	untitled	T-Junction	Two-way		0.71	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A539 Llangollen Road (WB)		Major
B	Unnamed Road	Southern Arm	Minor
C	A539 Llangollen Road (EB)	A539 Llangollen Road (EB)	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	6.50			110.0	✓	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	One lane	3.87	27	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	545	0.097	0.245	0.154	0.350
B-C	699	0.105	0.265	-	-
C-B	638	0.242	0.242	-	-

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	Basline CTC 2023	AM	ONE HOUR	08:00	09:30	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		ONE HOUR	✓	366	100.000
B		ONE HOUR	✓	44	100.000
C		ONE HOUR	✓	433	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	27	339
	B	29	0	15
	C	421	12	0

Proportions

		To		
		A	B	C
From	A	0.00	0.07	0.93
	B	0.66	0.00	0.34
	C	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	15	1
	B	21	0	13
	C	4	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.150	1.010
	B	1.210	1.000	1.130
	C	1.040	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	A	276	276
	B	33	33
	C	326	326
08:15-08:30	A	329	329
	B	40	40
	C	389	389
08:30-08:45	A	403	403
	B	48	48
	C	477	477
08:45-09:00	A	403	403
	B	48	48
	C	477	477
09:00-09:15	A	329	329
	B	40	40
	C	389	389
09:15-09:30	A	276	276
	B	33	33
	C	326	326

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	0.11	11.19	0.1	B	40	61
C-AB	0.03	4.74	0.0	A	21	32
C-A					376	564
A-B					25	37
A-C					311	467

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	33	8	480	0.069	33	0.0	0.1	9.496	A
C-AB	15	4	787	0.019	15	0.0	0.0	4.734	A
C-A	311	78			311				
A-B	20	5			20				
A-C	255	64			255				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	10	459	0.086	39	0.1	0.1	10.141	B
C-AB	20	5	819	0.025	20	0.0	0.0	4.581	A
C-A	369	92			369				
A-B	24	6			24				
A-C	305	76			305				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	48	12	429	0.113	48	0.1	0.1	11.178	B
C-AB	29	7	865	0.033	29	0.0	0.0	4.390	A
C-A	448	112			448				
A-B	30	7			30				
A-C	373	93			373				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	48	12	429	0.113	48	0.1	0.1	11.187	B
C-AB	29	7	865	0.033	29	0.0	0.0	4.398	A
C-A	448	112			448				
A-B	30	7			30				
A-C	373	93			373				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	10	459	0.086	40	0.1	0.1	10.154	B
C-AB	20	5	819	0.025	20	0.0	0.0	4.596	A
C-A	369	92			369				
A-B	24	6			24				
A-C	305	76			305				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	33	8	480	0.069	33	0.1	0.1	9.515	A
C-AB	15	4	788	0.019	15	0.0	0.0	4.743	A
C-A	311	78			311				
A-B	20	5			20				
A-C	255	64			255				

Basline CTC 2023, 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	untitled	T-Junction	Two-way		0.59	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
D2	Basline CTC 2023	PM	ONE HOUR	17:00	18:30	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		ONE HOUR	✓	412	100.000
B		ONE HOUR	✓	36	100.000
C		ONE HOUR	✓	233	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	32	380
	B	30	0	6
	C	228	5	0

Proportions

		To		
		A	B	C
From	A	0.00	0.08	0.92
	B	0.83	0.00	0.17
	C	0.98	0.02	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	13	3
	B	7	0	0
	C	5	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.130	1.030
	B	1.070	1.000	1.000
	C	1.050	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	A	310	310
	B	27	27
	C	175	175
17:15-17:30	A	370	370
	B	32	32
	C	209	209
17:30-17:45	A	454	454
	B	40	40
	C	257	257
17:45-18:00	A	454	454
	B	40	40
	C	257	257
18:00-18:15	A	370	370
	B	32	32
	C	209	209
18:15-18:30	A	310	310
	B	27	27
	C	175	175

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	0.09	10.00	0.1	B	33	50
C-AB	0.01	5.40	0.0	A	7	10
C-A					207	311
A-B					29	44
A-C					349	523

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	7	466	0.058	27	0.0	0.1	8.658	A
C-AB	5	1	681	0.007	5	0.0	0.0	5.392	A
C-A	170	43			170				
A-B	24	6			24				
A-C	286	72			286				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	8	447	0.072	32	0.1	0.1	9.178	A

C-AB	6	2	691	0.009	6	0.0	0.0	5.330	A
C-A	203	51			203				
A-B	29	7			29				
A-C	342	85			342				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	10	420	0.094	40	0.1	0.1	9.997	A
C-AB	9	2	705	0.012	9	0.0	0.0	5.248	A
C-A	248	62			248				
A-B	35	9			35				
A-C	418	105			418				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	10	420	0.094	40	0.1	0.1	10.001	B
C-AB	9	2	705	0.012	9	0.0	0.0	5.256	A
C-A	248	62			248				
A-B	35	9			35				
A-C	418	105			418				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	8	447	0.072	32	0.1	0.1	9.184	A
C-AB	6	2	691	0.009	6	0.0	0.0	5.345	A
C-A	203	51			203				
A-B	29	7			29				
A-C	342	85			342				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	7	466	0.058	27	0.1	0.1	8.670	A
C-AB	5	1	681	0.007	5	0.0	0.0	5.399	A
C-A	170	43			170				
A-B	24	6			24				
A-C	286	72			286				

Future Baseline, 2029 , 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	untitled	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	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Future Baseline, 2029	AM	(CTC+Tempro)+ Committed Developments	ONE HOUR	08:00	09:30	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		ONE HOUR	✓	475	100.000
B		ONE HOUR	✓	46	100.000
C		ONE HOUR	✓	552	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	29	446
	B	30	0	16
	C	539	13	0

Proportions

		To		
		A	B	C
From	A	0.00	0.06	0.94
	B	0.65	0.00	0.35
	C	0.98	0.02	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	15	1
	B	21	0	13
	C	4	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.150	1.010
	B	1.210	1.000	1.130
	C	1.040	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	A	358	358
	B	35	35
	C	416	416
08:15-08:30	A	427	427
	B	41	41

	C	496	496
08:30-08:45	A	523	523
	B	51	51
	C	608	608
08:45-09:00	A	523	523
	B	51	51
	C	608	608
09:00-09:15	A	427	427
	B	41	41
	C	496	496
09:15-09:30	A	358	358
	B	35	35
	C	416	416

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	12.87	0.2	B	42	63
C-AB	0.04	4.52	0.1	A	28	42
C-A					478	717
A-B					27	40
A-C					409	614

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	9	449	0.077	34	0.0	0.1	10.240	B
C-AB	19	5	833	0.023	19	0.0	0.0	4.508	A
C-A	396	99			396				
A-B	22	5			22				
A-C	336	84			336				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	41	10	421	0.098	41	0.1	0.1	11.198	B
C-AB	26	7	875	0.030	26	0.0	0.0	4.327	A
C-A	470	117			470				
A-B	26	7			26				
A-C	401	100			401				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	13	381	0.133	50	0.1	0.2	12.854	B

C-AB	39	10	936	0.042	39	0.0	0.1	4.108	A
C-A	569	142			569				
A-B	32	8			32				
A-C	491	123			491				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	13	381	0.133	51	0.2	0.2	12.869	B
C-AB	39	10	936	0.042	39	0.1	0.1	4.114	A
C-A	569	142			569				
A-B	32	8			32				
A-C	491	123			491				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	41	10	421	0.098	42	0.2	0.1	11.217	B
C-AB	26	7	875	0.030	26	0.1	0.0	4.344	A
C-A	470	117			470				
A-B	26	7			26				
A-C	401	100			401				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	9	449	0.077	35	0.1	0.1	10.267	B
C-AB	19	5	833	0.023	19	0.0	0.0	4.516	A
C-A	396	99			396				
A-B	22	5			22				
A-C	336	84			336				

Future Baseline, 2029 , 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	untitled	T-Junction	Two-way		2.18	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Future Baseline, 2029	PM	(CTC+Tempro)+ Committed Developments	ONE HOUR	17:00	18:30	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		ONE HOUR	✓	541	100.000
B		ONE HOUR	✓	123	100.000
C		ONE HOUR	✓	249	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	34	507
	B	117	0	6
	C	244	5	0

Proportions

		To		
		A	B	C
From	A	0.00	0.06	0.94
	B	0.95	0.00	0.05
	C	0.98	0.02	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	13	3
	B	2	0	0
	C	5	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.130	1.030
	B	1.020	1.000	1.000
	C	1.050	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	A	407	407
	B	93	93
	C	187	187
17:15-17:30	A	486	486
	B	111	111
	C	224	224
17:30-17:45	A	596	596
	B	135	135
	C	274	274
17:45-18:00	A	596	596
	B	135	135
	C	274	274
18:00-18:15	A	486	486

	B	111	111
	C	224	224
18:15-18:30	A	407	407
	B	93	93
	C	187	187

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	0.37	15.84	0.6	C	113	169
C-AB	0.01	5.51	0.0	A	7	10
C-A					222	332
A-B					31	47
A-C					465	698

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	93	23	425	0.218	91	0.0	0.3	10.962	B
C-AB	5	1	668	0.008	5	0.0	0.0	5.503	A
C-A	182	46			182				
A-B	26	6			26				
A-C	382	95			382				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	111	28	401	0.276	110	0.3	0.4	12.611	B
C-AB	7	2	676	0.010	7	0.0	0.0	5.455	A
C-A	217	54			217				
A-B	31	8			31				
A-C	456	114			456				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	135	34	367	0.369	135	0.4	0.6	15.741	C
C-AB	9	2	689	0.013	9	0.0	0.0	5.389	A
C-A	265	66			265				
A-B	37	9			37				
A-C	558	140			558				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	135	34	367	0.369	135	0.6	0.6	15.844	C
C-AB	9	2	689	0.013	9	0.0	0.0	5.397	A
C-A	265	66			265				
A-B	37	9			37				
A-C	558	140			558				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	111	28	401	0.276	111	0.6	0.4	12.713	B
C-AB	7	2	676	0.010	7	0.0	0.0	5.474	A
C-A	217	54			217				
A-B	31	8			31				
A-C	456	114			456				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	93	23	425	0.218	93	0.4	0.3	11.064	B
C-AB	5	1	668	0.008	5	0.0	0.0	5.514	A
C-A	182	46			182				
A-B	26	6			26				
A-C	382	95			382				

Future with Existing development,2029 , 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	untitled	T-Junction	Two-way		0.75	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically

D5	Future with Existing development,2029	AM	(CTC+Tempro) + Committed Developments + Proposed Development	ONE HOUR	08:00	09:30	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		ONE HOUR	✓	490	100.000
B		ONE HOUR	✓	51	100.000
C		ONE HOUR	✓	552	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	**B**	**C**
From	**A**	0	44	446
	B	35	0	16
	C	539	13	0

Proportions

		To		
		A	**B**	**C**
From	**A**	0.00	0.09	0.91
	B	0.69	0.00	0.31
	C	0.98	0.02	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	**B**	**C**
From	**A**	0	10	1
	B	18	0	13
	C	4	0	0

Average PCU Per Veh

		To		
		A	**B**	**C**
From	**A**	1.000	1.100	1.010
	B	1.180	1.000	1.130
	C	1.040	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	**A**	369	369
	B	38	38
	C	416	416
08:15-08:30	**A**	440	440
	B	46	46
	C	496	496
08:30-08:45	**A**	540	540
	B	56	56
	C	608	608
08:45-09:00	**A**	540	540
	B	56	56
	C	608	608
09:00-09:15	**A**	440	440
	B	46	46

	C	496	496
09:15-09:30	A	369	369
	B	38	38
	C	416	416

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	13.23	0.2	B	47	70
C-AB	0.04	4.53	0.1	A	28	42
C-A					478	717
A-B					40	61
A-C					409	614

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	38	10	442	0.087	38	0.0	0.1	10.364	B
C-AB	19	5	831	0.023	19	0.0	0.0	4.520	A
C-A	396	99			396				
A-B	33	8			33				
A-C	336	84			336				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	46	11	413	0.111	46	0.1	0.1	11.399	B
C-AB	26	7	873	0.030	26	0.0	0.0	4.340	A
C-A	470	117			470				
A-B	40	10			40				
A-C	401	100			401				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	56	14	373	0.151	56	0.1	0.2	13.209	B
C-AB	39	10	934	0.042	39	0.0	0.1	4.121	A
C-A	568	142			568				
A-B	48	12			48				
A-C	491	123			491				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service

B-AC	56	14	373	0.151	56	0.2	0.2	13.228	B
C-AB	39	10	934	0.042	39	0.1	0.1	4.127	A
C-A	568	142			568				
A-B	48	12			48				
A-C	491	123			491				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	46	11	413	0.111	46	0.2	0.1	11.423	B
C-AB	26	7	873	0.030	26	0.1	0.0	4.355	A
C-A	470	117			470				
A-B	40	10			40				
A-C	401	100			401				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	38	10	442	0.087	39	0.1	0.1	10.394	B
C-AB	19	5	831	0.023	19	0.0	0.0	4.528	A
C-A	396	99			396				
A-B	33	8			33				
A-C	336	84			336				

Future with Existing development,2029, 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	untitled	T-Junction	Two-way		2.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	Future with Existing development,2029	PM	(CTC+Tempro) + Committed Developments + Proposed Development	ONE HOUR	17:00	18:30	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		ONE HOUR	✓	551	100.000
B		ONE HOUR	✓	145	100.000
C		ONE HOUR	✓	249	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	44	507
	B	139	0	6
	C	244	5	0

Proportions

		To		
		A	B	C
From	A	0.00	0.08	0.92
	B	0.96	0.00	0.04
	C	0.98	0.02	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	10	3
	B	2	0	0
	C	5	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.100	1.030
	B	1.020	1.000	1.000
	C	1.050	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	A	415	415
	B	109	109
	C	187	187
17:15-17:30	A	495	495
	B	130	130
	C	224	224
17:30-17:45	A	607	607
	B	160	160
	C	274	274
17:45-18:00	A	607	607
	B	160	160
	C	274	274
18:00-18:15	A	495	495
	B	130	130
	C	224	224
18:15-18:30	A	415	415
	B	109	109
	C	187	187

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	0.44	17.87	0.8	C	133	200
C-AB	0.01	5.53	0.0	A	7	10
C-A					222	332
A-B					40	61
A-C					465	698

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	109	27	423	0.258	108	0.0	0.3	11.575	B
C-AB	5	1	666	0.008	5	0.0	0.0	5.517	A
C-A	182	46			182				
A-B	33	8			33				
A-C	382	95			382				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	130	33	399	0.327	130	0.3	0.5	13.609	B
C-AB	7	2	674	0.010	7	0.0	0.0	5.471	A
C-A	217	54			217				
A-B	40	10			40				
A-C	456	114			456				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	160	40	365	0.438	159	0.5	0.8	17.684	C
C-AB	9	2	686	0.013	9	0.0	0.0	5.408	A
C-A	265	66			265				
A-B	48	12			48				
A-C	558	140			558				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	160	40	365	0.438	160	0.8	0.8	17.866	C
C-AB	9	2	686	0.013	9	0.0	0.0	5.415	A
C-A	265	66			265				
A-B	48	12			48				
A-C	558	140			558				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	130	33	399	0.327	131	0.8	0.5	13.780	B
C-AB	7	2	674	0.010	7	0.0	0.0	5.488	A
C-A	217	54			217				
A-B	40	10			40				
A-C	456	114			456				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	109	27	423	0.258	110	0.5	0.4	11.721	B
C-AB	5	1	666	0.008	5	0.0	0.0	5.527	A
C-A	182	46			182				
A-B	33	8			33				
A-C	382	95			382				

Future with Proposed Development,2029, 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	untitled	T-Junction	Two-way		0.80	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	Future with Proposed Development,2029	AM	(CTC+Tempro) + Committed Developments + Proposed Development (sensitivity)	ONE HOUR	08:00	09:30	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		ONE HOUR	✓	502	100.000
B		ONE HOUR	✓	55	100.000
C		ONE HOUR	✓	552	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	56	446
	B	39	0	16
	C	539	13	0

Proportions

		To		
		A	B	C
From	A	0.00	0.11	0.89
	B	0.71	0.00	0.29
	C	0.98	0.02	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	8	1
	B	17	0	13
	C	4	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.080	1.010
	B	1.170	1.000	1.130
	C	1.040	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	A	378	378
	B	41	41
	C	416	416
08:15-08:30	A	451	451
	B	49	49
	C	496	496
08:30-08:45	A	553	553
	B	61	61
	C	608	608
08:45-09:00	A	553	553
	B	61	61
	C	608	608
09:00-09:15	A	451	451
	B	49	49
	C	496	496
09:15-09:30	A	378	378
	B	41	41
	C	416	416

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	0.16	13.59	0.2	B	50	76
C-AB	0.04	4.54	0.1	A	28	43
C-A					478	717
A-B					51	77
A-C					409	614

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	41	10	437	0.095	41	0.0	0.1	10.514	B
C-AB	19	5	829	0.023	19	0.0	0.0	4.530	A
C-A	396	99			396				
A-B	42	11			42				
A-C	336	84			336				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	49	12	408	0.121	49	0.1	0.2	11.617	B
C-AB	26	7	871	0.030	26	0.0	0.0	4.351	A
C-A	470	117			470				
A-B	50	13			50				
A-C	401	100			401				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	15	367	0.165	60	0.2	0.2	13.563	B
C-AB	40	10	931	0.042	39	0.0	0.1	4.132	A
C-A	568	142			568				
A-B	62	15			62				
A-C	491	123			491				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	61	15	367	0.165	61	0.2	0.2	13.588	B
C-AB	40	10	931	0.043	40	0.1	0.1	4.140	A
C-A	568	142			568				
A-B	62	15			62				
A-C	491	123			491				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service

B-AC	49	12	408	0.121	50	0.2	0.2	11.646	B
C-AB	26	7	871	0.030	27	0.1	0.0	4.367	A
C-A	470	117			470				
A-B	50	13			50				
A-C	401	100			401				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	41	10	437	0.095	42	0.2	0.1	10.550	B
C-AB	19	5	829	0.023	19	0.0	0.0	4.538	A
C-A	396	99			396				
A-B	42	11			42				
A-C	336	84			336				

Future with Proposed Development,2029, 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	untitled	T-Junction	Two-way		3.43	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	Future with Proposed Development,2029	PM	(CTC+Tempro) + Committed Developments + Proposed Development (sensitivity)	ONE HOUR	17:00	18:30	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		ONE HOUR	✓	559	100.000
B		ONE HOUR	✓	165	100.000

C		ONE HOUR	✓	249	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	52	507
	B	159	0	6
	C	244	5	0

Proportions

		To		
		A	B	C
From	A	0.00	0.09	0.91
	B	0.96	0.00	0.04
	C	0.98	0.02	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	8	3
	B	1	0	0
	C	5	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.080	1.030
	B	1.010	1.000	1.000
	C	1.050	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	A	421	421
	B	124	124
	C	187	187
17:15-17:30	A	503	503
	B	148	148
	C	224	224
17:30-17:45	A	615	615
	B	182	182
	C	274	274
17:45-18:00	A	615	615
	B	182	182
	C	274	274
18:00-18:15	A	503	503
	B	148	148
	C	224	224
18:15-18:30	A	421	421
	B	124	124
	C	187	187

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	19.98	1.0	C	151	227

C-AB	0.01	5.54	0.0	A	7	10
C-A					221	332
A-B					48	72
A-C					465	698

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	124	31	422	0.294	123	0.0	0.4	12.067	B
C-AB	5	1	665	0.008	5	0.0	0.0	5.528	A
C-A	182	46			182				
A-B	39	10			39				
A-C	382	95			382				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	148	37	397	0.373	148	0.4	0.6	14.504	B
C-AB	7	2	673	0.010	7	0.0	0.0	5.484	A
C-A	217	54			217				
A-B	47	12			47				
A-C	456	114			456				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	182	45	363	0.500	180	0.6	1.0	19.670	C
C-AB	9	2	685	0.013	9	0.0	0.0	5.422	A
C-A	265	66			265				
A-B	57	14			57				
A-C	558	140			558				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	182	45	363	0.500	182	1.0	1.0	19.976	C
C-AB	9	2	685	0.013	9	0.0	0.0	5.430	A
C-A	265	66			265				
A-B	57	14			57				
A-C	558	140			558				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	148	37	397	0.373	150	1.0	0.6	14.762	B
C-AB	7	2	673	0.010	7	0.0	0.0	5.503	A
C-A	217	54			217				
A-B	47	12			47				

A-C	456	114			456				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	124	31	422	0.294	125	0.6	0.4	12.263	B
C-AB	5	1	665	0.008	5	0.0	0.0	5.539	A
C-A	182	46			182				
A-B	39	10			39				
A-C	382	95			382				

Arcadis Consulting (UK) Limited

Arcadis Cymru House
St Mellons Business Park
Fortran Road
Cardiff
CF3 0EY
United Kingdom

T: +44 (0)29 2092 6700

arcadis.com