Rhydycar West, Merthyr Tydfil

Transport Assessment

784-B023905-00001

Final for Submission

Marvel Ltd.

February 2023

Prepared on by Tetra Tech Environment Planning Transport Limited.
Registered in England number: 03050297

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

Document Control

Document:	**Transport Assessment**
Project:	Rhydycar West, Merthyr Tydfil
Client:	Marvel Ltd.
Job Number:	784-B023905
File Origin:	\\CARDIFF31\Data\data\B023000-B023999\B023905 Rhydycar West Restart\B023905 Transport\40 Reports

Revision:	00002	**Status:**	Final for Pre-Application Consultation
Date:	April 2022		
Prepared by: BM	**Checked by:** BM	**Approved by:** AP	
Description of revision: Final for Pre-Application Consultation			

Revision:	00003	**Status:**	Final for Pre-Application Consultation
Date:	August 2022		
Prepared by: BM	**Checked by:** BM	**Approved by:** AP	
Description of revision: Minor updates			

Revision:	00004	**Status:**	Final for Submission
Date:	February 2023		
Prepared by: BM	**Checked by:** BM	**Approved by:** AP	
Description of revision: Updates following pre-application consultation			

CONTENTS

EXECUTIVE SUMMARY **7**

1 INTRODUCTION **9**

Brief 9

Background 9

Report Structure 10

2 POLICY REVIEW **11**

Introduction 11

National Policy 11

Future Wales – The National Plan 2040 11

Planning Policy Wales 11

Technical Advice Note 18: Transport 12

Active Travel Wales Act 2013 13

Llwybr Newydd: The Wales Transport Strategy 2021 13

Well-being of Future Generations 14

Net Zero Strategy: Build Back Greener 14

Decarbonising Transport: A Better, Greener, Britain 14

Net Zero Wales Carbon Budget 14

Regional Policy 14

South East Wales Valleys Local Transport Plan (2015) 14

Local Policy 15

Merthyr Tydfil County Borough Council's Local Development Plan, 2016-2031 15

County Surveyors' Society Wales Parking Standards (2014) 16

Additional Policy Information Requested by MTCBC 17

Summary 18

3 FUTURE TRANSPORT SCHEMES **19**

Introduction 19

Transport Schemes 19

South Wales Metro 19

A465 Heads of the Valley Road 19

South East Wales Valleys Local Transport Plan Schemes 20

Hoover Site 20

Abernant to Merthyr Tydfil Tunnel 22

Summary 22
4 EXISTING CONDITIONS 23
Introduction 23
Site Location 23
Local Highway Network 24
Baseline Traffic Data 24
Highway Safety Audit 26
5 SUSTAINABLE TRAVEL AUDIT 29
Accessibility Guidance 29
Welsh Government Guidance 29
Best Practice Guidance 29
Access by Walking 29
Access by Cycling 32
Access by Bus 35
Access by Rail 37
GIS Public Transport Assessment 37
Summary 39
6 DEVELOPMENT PROPOSAL 40
Proposed Development 40
Proposed Sustainable Access Strategy 41
Pedestrian and Cycle Strategy 42
Public Transport Strategy 42
Site Shuttle Bus Service 43
Potential Shuttle Bus Route 43
Potential Service Pattern 45
Potential Shuttle Bus Capacity Assessment 46
Potential Shuttle Bus Ticketing 47
Framework Travel Plan 47
Booking System 47
Vehicular Access Strategy 48
Parking Provision 48
Car Parking 48
Cycle Parking 49
Refuse and Servicing Strategy 50

Compliance with Future Wales, PPW and Llwybr Newydd: The Wales Transport Strategy 50
Future Wales – The National Plan 2040 50
Planning Policy Wales 51
Llwybr Newydd: The Wales Transport Strategy 2021 51
Strategic Benefit of Development 52
7 TRIP RATE, GENERATION AND ASSIGNMENT 53
Introduction 53
Trip Generation Assessment Methodology 53
Land Use Methodology 53
Visitor Forecasts 54
Trip Profiles 54
Mode Share 55
Development Proposal Trip Assessment 56
Snow Centre Trip Assessment 56
Water Park Trip Assessment 62
Indoor / Outdoor Activity Centre Trip Assessment 66
Assessment 1: Snow Centre, Water Park, and Activity Centre Total Visitor Generation 71
Assessment 2: Snow Centre, Water Park, and Activity Centre Total Visitor Generation 71
Accommodation Trip Assessment 72
Assessment 1: Site-wide People Trip Assessment 75
Assessment 2: Site-wide People Trip Assessment 77
Development Traffic Assignment 79
8 TRAFFIC IMPACT ASSESSMENT 81
Introduction 81
Background Traffic Growth 81
Committed Development 82
Assessment Scenarios 83
Junction Capacity Assessment Methodology 83
Interpretation of Results 84
Junction Capacity Assessment Study Area 84
A470 / A4102 / Site Access Roundabout 84
A470 / A4060 / Bike Park Wales Roundabout 86
A470 / A4102 / Swansea Road Roundabout 89
Summary 91

9 SENSITIVITY ASSESSMENT 1: END OF LOCAL PLAN PERIOD 92
Introduction 92
Assessment Scenarios 92
Junction Capacity Assessment 93
A470 / A4102 / Site Access 93
A470 / A4060 / Bike Park Wales Roundabout 94
A470 / A4102 / Swansea Road Roundabout 96
Summary 98
10 SENSITIVITY ASSESSMENT 2: ASSESSMENT 2 DATASET 99
Introduction 99
Assessment Scenarios 99
Junction Capacity Assessment 100
A470 / A4102 / Site Access 100
A470 / A4060 / Bike Park Wales Roundabout 101
A470 / A4102 / Swansea Road Roundabout 102
Summary 104
11 SUMMARY AND CONCLUSION 106
Summary 106
Conclusion 107
FIGURES 108
DRAWINGS 109
APPENDIX A – EIA SCOPING RESPONSES 110
APPENDIX B – BASELINE TRAFFIC SURVEYS 111
APPENDIX C – ILLUSTRATIVE SITE MASTERPLAN 112
APPENDIX D – TRICS OUTPUT: HOTEL 113
APPENDIX E – TRICS OUTPUT: FOREST LODGES 114
APPENDIX F – A470 / A4102 / SITE ACCESS JUNCTIONS 9 OUTPUT 115
APPENDIX G – A470 / A4060 / BIKE PARK WALES JUNCTIONS 9 OUTPUT 116
APPENDIX H – A470 / A4102 / SWANSEA ROAD JUNCTIONS 9 OUTPUT 117

EXECUTIVE SUMMARY

Tetra Tech has been commissioned by Marvel Ltd to prepare a Transport Assessment (TA) in support of a planning application for the development of land at Rhydycar West, located west of the A470 and to the south of the village of Heolgerrig in Merthyr Tydfil County Borough Council (MTCBC).

The development scheme comprises a, 39,200 sqm Indoor Snowdome, 9,000 sqm Water Park, 27,400 sqm Hotel (418 beds), 24,000 sqm Indoor / Outdoor Activity Centre and 30 Forest Lodges (up to 2,000 sqm).

The application site is highly accessible and strategically located on the A470, which links the site to Cardiff (south) and Brecon Beacons National Park (north). The A465 dualling project will further improve the overall highways connectivity of the application site.

Regular train services currently operate out of Merthyr Tydfil railway station along the Merthyr Line to Cardiff, with the existing station benefitting from Core Valleys Lines infrastructure investment. The recently completed replacement bus station serving both local and more strategic destinations being positioned closer to the train station has improved overall connectivity between travel modes. An existing bus stop is located 1.2 km from the application site within the grounds of the Merthyr Tydfil Leisure Village. Merthyr Tydfil town centre and the high-quality supplementary retail and leisure provision at Trago Mills and Cyfarthfa Retail Park, collectively provide an extensive range of shops, services and facilities to residents and visitors. In terms of accessibility by foot and cycle, the application site is well connected to the wider cycle network within and around Merthyr Tydfil and to National Cycle Route 8 / The Taff Trail. Proposals to improve, surface and light pedestrian and cycle links to the Leisure Centre are included in the application.

A highway safety audit has been undertaken and concludes that the current alignment of the local highway network within the study area does not result in any undue highway safety implications for road users, with the resultant factor for incidents wholly attributed to driver error.

The site is well located to integrate and enhance the local pedestrian, cycle, and public transport networks. Given the location of the development it is well located to accommodate access by sustainable transport modes.

The development scheme will provide a net benefit to the local area with regards to transport and accessibility. It will provide new employment which will offer local jobs within an appropriate walking and cycling catchment of Merthyr Tydfil, thereby providing opportunities for staff commute trips to be made by non-car modes.

The development will provide a significant attraction for the local and wider area, enhancing local tourism and subsequently providing a net benefit to local businesses and economic viability of the area.

The development provides significant infrastructure to promote and support the uptake of Electric Vehicles, with at least 10% of vehicle parking spaces provided as EV Charging Points (83 EV Charging Points).

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

The development provides a Framework Travel Plan, which has been designed to encourage sustainable travel behaviour amongst new staff and visitors via a variety of measures.

The development also includes a shuttle bus service, routing from the site to Merthyr Tydfil railway station and bus station, to help facilitate visitors to the site by bus and rail from both local and more strategic destinations. The proposed shuttle bus will synchronise with the arrivals/departures from Merthyr Tydfil rail station to minimise layover time for visitors to the site. It is considered that the shuttle bus provides a very attractive offering to visitors and will encourage site users to access the site by public transport.

Traffic assessments outline that the development of the site will have a negligible impact on highway operation and will not be detrimental to road user safety. All junctions are forecast to operate within capacity in a forecast year of 2026 with Committed Development and Development traffic on the network.

Sensitivity traffic assessments have been completed to advise on network viability and its operation in a forecast year of 2031, the Local Plan period end. Assessments evidence that junctions will operate within capacity.

An additional overly robust Sensitivity Assessment has been completed, which provides a worst-case scenario where each land use's peak season is assumed to occur simultaneously (which is unrealistic). This Sensitivity Assessment evidences that all junctions are forecast to operate within the limits of capacity in this scenario.

Traffic assessments detail the operation of the site post opening, as this will be the period where the site operates with the largest volume of traffic; construction traffic levels are forecast to be significantly lower than operational traffic levels.

It should be noted that no discount has been provided to the total level of traffic forecast to be generated by the development, such as a discount for the implementation of a Travel Plan, a discount to reflect shifting travel habits towards non-car modes, or a discount to reflect that the site trip assessments are based on the peak periods for all land uses occurring at the same time of year.

The development provides a policy compliant access strategy, with technical assessments demonstrating that the site is well positioned within the network to provide a bespoke facility that will not be detrimental to the operation or safety of existing transport users.

1 INTRODUCTION

BRIEF

1.1 Tetra Tech has been commissioned by Marvel Ltd to prepare a Transport Assessment (TA) in support of a planning application for the development of land at Rhydycar West, located west of the A470 and to the south of the village of Heolgerrig in Merthyr Tydfil County Borough Council (MTCBC).

1.2 This Transport Assessment considers the development of:

- 39,200 sqm Indoor Snowdome.
- 9,000 sqm Water Park.
- 27,400 sqm Hotel (418 beds).
- 24,000 sqm Indoor / Outdoor Activity Centre; and,
- 30 Forest Lodges (up to 2,000 sqm).

1.3 The report considers the accessibility to and from the site by all modes of transport regarding the proposed development. This TA has been prepared in accordance with Welsh Government and Local Guidance and will examine the sustainable modes of walking, cycling and public transport and then consider the impact of the residual vehicular traffic on the local highway network.

1.4 A Framework Travel Plan (FTP) has also been prepared in support of the planning application for proposed development and should be read in conjunction with this TA.

BACKGROUND

SCOPE AND METHODOLOGY

1.5 Tetra Tech submitted an EIA Scoping opinion to Merthyr Tydfil Borough Council (MTCBC) for the proposed development. The key Transport comments raised are detailed below, and provided at **Appendix A**.

1.6 The Brecon Beacons National Park Authority were also consulted and advised that they offer no objection to the development and provided no comment on the Scoping Opinion.

1.7 Merthyr Tydfil County Borough Council Highways (MTCBC) advised that proposals should consider the residual impact to the highway network managed by MTCBC and that the A470 falls under the management of the South Wales Trunk Road Agent (SWTRA). SWTRA manages, maintains, and delivers improvements on the strategic road network in South Wales on behalf of the Welsh Government

1.8 The Welsh Government were consulted and advised that junctions should be modelled specifically within the immediate vicinity of the site and that consideration should be given to consented highway improvement schemes that may impact wider transport movements, such as, the improvement scheme to

the A465. Proposals should also consider the impact of wider development schemes, with Welsh Government advising the undertaking of a sensitivity test on the impact of / to future developments.

1.9 The Welsh Government also advised that vehicle access proposals should be compliant with the Design Manual for Roads and Bridges, given that access will be gained from the A470 dual carriageway. Consideration should also be given to active travel connectivity and the site's appropriateness to overcome the segregation caused by the A470 dual carriageway.

1.10 Following the pre-application consultation, the Welsh Government advised that the Cyfartha Roundabout (A470 / A4102 / Swansea Road) should be modelled to assess the impact of Rhydycar West on this roundabout.

1.11 This Transport Assessment has been prepared against the key comments provided by the scoping exercise.

REPORT STRUCTURE

1.12 The structure of this report is summarised below:

- Chapter 2 summarises Welsh Government and Local Authority Policy with regards to transport and highways.
- Chapter 3 details future transport schemes which are consented or currently being considered by Merthyr Tydfil County Borough Council (MTCBC).
- Chapter 4 provides a description of the site location and the local highway network.
- Chapter 5 details the accessibility of the site by sustainable modes of transport.
- Chapter 6 outlines the development proposal.
- Chapter 7 considers the trip rates, trip generation and traffic assignment on the local highway network.
- Chapter 8 reviews the traffic impact assessment.
- Chapter 9 presents a sensitivity assessment in a 2031 'End of Local Plan' scenario.
- Chapter 10 summarises a sensitivity assessment where all land use visitor peak periods occur simultaneously; and,
- Chapter 11 summarises and concludes the report.

2 POLICY REVIEW

INTRODUCTION

2.1 This chapter of the TA reviews and analyses the relevant current and emerging integrated land use and transport planning policy and policy guidance in the context of the site and the proposals on a national and local level.

NATIONAL POLICY

Future Wales – The National Plan 2040

2.2 Future Wales – The National Plan 2040 sets out the national development framework and the direction for development in Wales, covering the period up to 2040. This document was prepared by the Welsh Government and was adopted in February 2021.

2.3 The Future Wales document will have influence over future decisions and policy documents progressed at national, regional, and local levels, such as the emerging Wales Transport Strategy discussed below. It is part of the statutory development plan.

2.4 Eleven outcomes are set by Future Wales to achieve by 2040. Outcome 1 refers to increasing the physical and digital connectivity of cities, towns, and villages within Wales. Outcome 7 states that all methods of travel will increasingly have low environmental impact and low emissions, with increased use of public transport and ultra-low emission vehicles.

2.5 Policy 6 of Future Wales sets out that significant new leisure facilities must be located within town and city centres. They should have good access by public transport to and from the whole town/city and, if appropriate, the wider region. It also requires that a sequential approach must be used to inform the identification of the best location for these developments. This policy applies to developments of a significant scale, which can broadly be defined as where the facility will serve a town, city, or region wide catchment.

2.6 The Valleys area, including Merthyr Tydfil, is a priority area for the Welsh Government. The area has seen significant investment in the A465, benefitted from EU funding programmes and, in the future, it will be better connected because of the South Wales Metro. It has the potential to build on its tourism offer.

2.7 Policy 12 also sets a requirement for new non-residential developments to provide a minimum of 10% of the total car park capacity to have electric vehicle charging points.

Planning Policy Wales

2.8 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government, with Edition 11 published in February 2021. PPW sets out a strategic framework to guide development across the country.

The document promotes a transport hierarchy to give priority to sustainable transport first, then by private motor vehicle.

2.9 PPW promotes development that reduces the need to travel, promotes sustainable travel and ensures as far as possible, that transport infrastructure does not contribute to land take, urban sprawl, or neighbourhood severance.

2.10 Section 4.1 of Chapter 4 of the PPW addresses the need for transport planning within the planning system to ensure new developments can improve choice in transport and secure accessibility in a way which supports sustainable development.

2.11 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.

2.12 PPW requires the use of a sustainable transport hierarchy in relation to new developments, which prioritises walking, cycling and public transport ahead of the private motor vehicles. The transport hierarchy recognises that ultra-low emission vehicles have an important role to play in the decarbonisation of transport, particularly in rural areas with limited public transport services.

2.13 Section 5.1 of Chapter 5 refers to transportation infrastructure covering topics such as public transport and the strategic road network. This states that new developments should identify and support appropriate public transport routes, as well as where additional public transport infrastructure is required to support new development.

Technical Advice Note 18: Transport

2.14 Technical Advice Note 18 (TAN 18): Transport provides national advice on transport related issues when planning for new developments and was adopted by the Welsh Government in March 2007. The document includes integration between land use planning and transport, location of development, parking, and design of developments.

2.15 The document promotes inclusive developments which cater for all travel users. It prioritises movements by sustainable modes, improving the attractiveness of urban areas by helping to manage congestion by encouraging movements by active travel and public transport over car travel.

2.16 The document advises that Transport Assessments should provide the following information:

- The transport impacts of the development.
- The impacts to assist the decision-making process.
- Demonstrate the development is sited in a location that will produce a desired and predicted output (for example in terms of target modal split).
- Mitigate negative transport impacts through the design process and secured through planning conditions or obligations; and

- Maximise the accessibility of the development by non-car modes.

2.17 TAN 18: Transport provides thresholds where Transport Assessments are required to be submitted with planning applications. The Transport Assessment threshold for residential land uses is developments greater than 100 dwellings and for hospitals is greater than 2,500sqm GFA.

2.18 TAN 18: Transport provides advice to all areas of transport planning for new developments, this includes advice to Local Authorities for setting parking standards. It is stated that maximum parking standards should be used for car parking, however this may not be suitable in every case and specialist cases should therefore be assessed on an individual basis.

2.19 There are contributing factors which impact the implementation of maximum standards, including the accessibility to and proposals for public transport, opportunities for walking and cycling, local availability.

Active Travel Wales Act 2013

2.20 The Welsh Government enacted the Active Travel Wales Act in 2013, which requires Local Authorities to continuously improve facilities and routes for pedestrians and cyclists and to prepare maps identifying current and potential future routes for use. The Act should also be considered at the design stage for new road schemes to consider the needs of pedestrians and cyclists.

Active Travel Act Guidance

2.21 The Active Travel Act Guidance was formally adopted in July 2021 to give guidance to several sections of the Active Travel Wales Act and provide a vision for walking and cycling to be a choice for short everyday journeys, or as part of a longer journey with other sustainable modes. The guidance sets out a 15-year ambition for a comprehensive, safe, direct, comfortable, and attractive walking and cycling routes to connect key settlements within Wales.

Llwybr Newydd: The Wales Transport Strategy 2021

2.22 The Welsh Government's Llwybr Newydd: The Wales Transport Strategy sets out how the transport system in Wales will change over the next 20-year period and was adopted in March 2021.

2.23 The document sets out the Welsh Government's priorities for Transport in Wales over the next five years, one of the priorities being to bring services to people to reduce the need for people to use their cars daily. To achieve this, new workplaces and homes will be built close to public transport interchanges and new developments will be designed to be walk and cycle friendly from the outset.

2.24 The Wales Transport Strategy proposes a modal shift change to achieve their aim of reducing carbon emissions from surface transport by half between 2020 and 2030, from 6 to 3 million tonnes CO_2. The strategy has set a target that 45% of journeys will be made by public transport, walking, and cycling by 2040, an increase from the current mode share of 32%. This will be achieved through various infrastructure improvement schemes, data reviews and other measures to incentivise sustainable travel.

Well-being of Future Generations

2.25 The Well-being of Future Generations (Wales) Act 2015 requires public bodies in Wales to think about the long-term impact of their decisions, to work better with people, communities, and each other, and to prevent persistent problems such as poverty, health inequalities and climate change. Objectives are required to support the delivery of the seven well-being goals which are creating a more prosperous; resilient; healthier; equal; cohesive; vibrant and globally responsible Wales.

2.26 Public bodies need to make sure that when making their decisions they consider the impact they could have on people living their lives in Wales in the future. This must balance short- and long-term needs; prevent problems occurring; integrate aims in wider objectives; collaborate on supporting well-being goals and ensure that those people reflect the diversity of the area which the body serves.

Net Zero Strategy: Build Back Greener

2.27 The Net Zero Strategy: Build Back Greener was published in October 2021 and sets out policies and proposals for decarbonising all sectors of the UK economy to meet the net zero target by 2050.

2.28 Regarding transport, it details the commitment to end the sale of new internal combustion engine cars by 2030 and the 2035 commitment that all cars must be zero emissions capable. It also details several investments to fund EV infrastructure, active travel infrastructure, improvements to bus networks, and an aspiration to invest significantly in rail electrification, removing all diesel only trains by 2040.

Decarbonising Transport: A Better, Greener, Britain

2.29 This plan sets out the government's commitments and the actions needed to decarbonise the entire transport system in the UK. It includes the pathway to net zero transport in the UK, the wider benefits net zero transport can deliver and the principles that underpin the government's approach to delivering net zero transport.

Net Zero Wales Carbon Budget

2.30 The Net Zero Wales Carbon Budget sets out how Wales aims to meet its second Carbon Budget for the period 2021-2025.

2.31 Regarding transport, it sets out an aim to reduce emissions from passenger transport by 22% in 2025 (from 2019) and 98% in 2050 through demand reduction, modal shift, and the uptake of low carbon technologies.

REGIONAL POLICY

South East Wales Valleys Local Transport Plan (2015)

2.32 The South East Wales Valleys Local Transport Plan (LTP) was adopted in January 2015 for use in the administrative areas of Blaenau Gwent County Borough Council, Caerphilly County Borough Council, Merthyr Tydfil County Borough Council, Rhondda Cynon Taf County Borough Council and Torfaen County Borough Council. The LTP covers the period up to 2020 in the short-term and up to 2030 in the longer-term.

2.33 The LTP aims to reach a "low carbon future, which has a transport network and mobility culture that positively contributes to a thriving economy and the health and wellbeing of its citizens, and where sustainable travel is the option of choice".

2.34 To achieve this, the LTP details transport improvement schemes over the short, medium, and long term for each area within the region. The LTP seeks to address several key areas as follows:

- "Providing new transport capacity to cope with future demand.
- Improving accessibility and connectivity, and reducing journey times between key settlements within South East Wales.
- Improving access to a wider range of job opportunities by increasing the coverage of public transport, particularly for cross-valley journeys.
- Expanding the effective labour market catchment for businesses, enabling local companies to recruit from a wider skills base.
- Supporting the growth of business clusters in the larger urban centres (for example, around the designated Enterprise Zones), helping to stimulate competition and innovation.
- Ensuring that additional travel demand does not impose costs on businesses through increased congestion and crowding; and
- Enhancing facilities that support our key airport, ports, and freight terminals".

LOCAL POLICY

Merthyr Tydfil County Borough Council's Local Development Plan, 2016-2031

2.35 The replacement LDP underwent examination in public in 2019 and was adopted by the council on the 29th of January 2020. The Replacement LDP supersedes the previous adopted LDP and forms the basis for land use planning decisions in the County Borough, excluding the Brecon Beacons National Park.

2.36 The key policies applicable to transport includes:

- Policy SW11: Sustainable Design and Placemaking – "allow access for the widest range of people possible and demonstrate that any traffic movements will not have an unacceptable impact on the local amenity or highway safety and satisfy the Council's parking standards."; and
- Policy SW12: Improving the Transport Network – "development that encourages a modal shift towards sustainable transport will be supported, including the enhancement of pedestrian, cycle, rail and bus facilities, in addition to any necessary road improvements."

2.37 Policy SW12 proposes the following schemes which will support the County Borough's local transport network:

- "Walking and cycling – Existing and proposed Active Travel Routes.

- Bus and rail – New Merthyr Tydfil Central Bus Station.
- Bus and rail – South East Wales Metro (Merthyr Tydfil Valley line) improvements.
- Bus and rail – Safeguarding of land for a new metro station at the Hoover Strategic Regeneration Area.
- Bus and rail – Pentrebach Rail Station Park and Ride.
- Bus and rail – Safeguarding of the Cwm Bargoed rail line and rail head.
- Bus and rail – Safeguarding of land for the future rail line extension (Cwm Bargoed to Dowlais Top); and
- Highways – Safeguarding land for the duelling of the A465 (T) Heads of the Valleys Road."

2.38 Policy EcW7: Tourism, Leisure, and Recreation Development – "Tourism, leisure and recreation development within settlement boundaries is generally supported, particularly where they aid the revitalisation and regeneration of the Town and Local Centres. Low-impact tourism, leisure and recreation development outside settlement boundaries will be favoured provided the need for a 'countryside location' is fully justified, it minimises environmental impacts and is of an appropriate scale to its surroundings."

County Surveyors' Society Wales Parking Standards (2014)

2.39 'Wales Parking Standards' supports the relevant local planning documents in each region, including Regional and Local Transport Plans. The document sets out policies for parking throughout Wales and explains the quantity of parking new developments need to provide and how this should be designated and managed.

2.40 New developments are required to follow this guidance to provide an appropriate quantity and type of parking, for the scale and specific land use of the development.

2.41 The applicable car parking guidance in MTCBC is set out in the CSS Wales Parking Standards 2014. A review of the site's location has identified that the site is located within Zone 4 – Suburban or Near Urban, given the site's proximity to Merthyr Tydfil, local amenities, and public transport facilities.

2.42 **Table 2.1** summarises the vehicle parking provision for Zone 4 for relevant land uses.

Table 2.1 Zone 4 Vehicle Parking Standards

Land Use	Operational	Non-operational
Hotels	1 commercial vehicle space	1 space per 3 non-resident staff and 1 space per bedroom
Fitness Clubs, Leisure Clubs and Sports Clubs	1 commercial vehicle space	1 space per 2 facility users
Disabled Parking – For car parks associated with leisure or recreational facilities	A minimum of one space for each employee who is a disabled motorist plus 6% of the total car park capacity for visiting disabled motorists	

2.43 **Table 2.2** summarises the cycle parking standards for relevant land uses.

Table 2.2 Cycle Parking Standards

Land Use	Long-stay	Short stay
Hotels & Public Houses	1 stand per 5 bedrooms	1 stand per 40m^2 of public floor space
Fitness Clubs, Leisure Clubs and Sports Clubs	1 stand per 10 staff	1 stand per 10 facility users

2.44 The County Surveyors' Society Wales's Wales Parking Standards also sets out the motorcycle parking standards, which details that for all classes of development 5% of the total car parking provision should be made for motorcycle parking.

ADDITIONAL POLICY INFORMATION REQUESTED BY MTCBC

2.45 In their pre-application consultation response, MTCBC requested explicit detail on how the requirements of the Well-being of Future Generations Act (2015) can be met should plans for the Rhydycar West site be approved, in particular:

- Decisions on transport must reflect the climate emergency.
- Achieving modal shift and reduce reliance on cars.
- Embracing technology.
- Consider mobility as a route to wider well-being.

Decisions on transport must reflect the climate emergency

2.46 The proposals for the Rhydycar West site reflect the climate emergency through the sustainable transport proposals put forward as part of the development. The development proposes a shuttle bus connecting the Site to Merthyr Tydfil station and the new bus station, supporting visitors accessing the Site by public transport. It also commits to the implementation of a Travel Plan, which sets out to monitor and reduce car usage at the Site. Furthermore, the car park proposals provide extensive provision for EV charging, offering 83 EV charging points.

Achieving modal shift and reduce reliance on cars

2.47 The development helps reduce the reliance on car usage by offering a shuttle bus connection to Merthyr Tydfil station and the new bus station. This will enable visitors to access the Site by public transport, with a direct rail connection from Merthyr Tydfil to Cardiff, and onward links to the national rail network. The Site is therefore well placed to help meet the transport ambitions of the Net Zero Wales Carbon Budget 2021-2025. It also commits to the implementation of a Travel Plan, which sets out to monitor and reduce car usage at the Site.

Embracing technology

2.48 A key element of the Travel Plan is the booking system, which links booking a visit to Rhydycar West to the mode of travel used. This allows the development to monitor the real travel habits of visitors and incentivise the use of sustainable modes through travel-mode dependent pricing.

Consider mobility as a route to wider well-being

2.49 The development site is accessible by a variety of travel options, offering flexible journey planning for site users. This will support visitors in using the mode of transport that is most appropriate in supporting active and healthy lifestyles, reducing the stress of journey planning, and providing access to a facility that supports mental health wellbeing through recreational activities.

SUMMARY

2.50 A review has been undertaken of the National and Local Policy applicable to the proposed development with regards to transport.

2.51 National and Local Policy promotes development that provides for sustainable transport. Development should maximise sustainable travel opportunities, providing for active travel users, and offering safe and suitable access for all people. These policies and principles informed the design of the proposed development. It is considered that the proposed development generally accords with these policies.

2.52 The site is well located in relation to public transport provision, with the site shuttle bus facilitating direct access to key transport hubs. Walking and cycling infrastructure will be an integral part of the development, with site design providing a permeable network that allows easy access by active travel modes. Traffic and parking management schemes will be introduced to reduce the number of single occupancy vehicle trips and a Framework Travel Plan will be implemented sitewide in perpetuity, promoting healthy lifestyles and sustainable transport modes.

3 FUTURE TRANSPORT SCHEMES

INTRODUCTION

3.1 This section provides a summary of transport schemes which are consented or currently being considered by Merthyr Tydfil Borough Council (MTCBC) and the Welsh Government. It also considers the highway improvement schemes associated with the other Applications.

TRANSPORT SCHEMES

South Wales Metro

3.2 The South Wales Metro is an integrated heavy rail, light rail and bus-based public transport services and systems in South East Wales around the hub of Cardiff Central. The metro also includes the electrification of the core Valley Lines, construction of at least new stations, and the construction of a new South Wales Metro Control Centre and rolling stock depot at Taff's Well.

3.3 The first phase was approved for development in October 2013, which included the refurbishment of Merthyr Tydfil Railway Station, which was completed in in 2016. The refurbishment comprised an upgrade to the facilities at the station, which included the platform, new shelters, additional cycle parking, new disabled parking, and the provision of a bus stop.

3.4 Proposals also included plans to construct a new Merthyr Tydfil bus station, closer to the Railway Station. The new £12m state-of-the-art bus station opened in June 2021 and is located within a 4-minute walk from the railway station. The award-winning facility is the first in Wales that allows for the charging of electric vehicles on site and has no gas or other fossil fuel supplies. The buses using it will initially be diesel-powered, but the aim is to eventually make them all electrified, with charging stations for electric taxis ready for use now.

3.5 Phase 2 comprises of enhancements to the Core Valley Lines, including Merthyr Tydfil, to enable more frequent and faster services. This includes electrifying the line to accommodate the new Class 398 tram-train rolling stock, as well as frequency upgrades to two trains per hour serving Merthyr (Monday to Saturday) and an hourly service on Sunday. Weekday frequency upgrades have been completed, with electrification works ongoing. Phase 2 improvements will create additional capacity and journey time reduction.

3.6 It is considered that following the delivery of Phase 2, the increased frequency of services towards Cardiff and the local area will increase the opportunities for rail travel.

A465 Heads of the Valley Road

3.7 The A465 Heads of the Valleys Road has been subject to major improvement works across 6 sections, ongoing since 2002. The A465 Heads of the Valleys Road provides a principal road link between southwest Wales and the Midlands and forms part of the Trans-European Road Network. The works mainly consist of widening the

existing highway to dual carriageway standard and the provision of several grade-separated junctions. As of January 2023, Sections 1 to 4 are complete, Sections 5 and 6 Dowlais Top to Hirwaun expected to open by mid-2025.

3.8 Sections 5 and 6 cover upgrading a 15km length between Dowlais Top and Hirwaun to dual carriageway standard and provide several grade-separated junctions. For Section 5 and 6, the road will primarily be dualled by widening the existing A465 except for a 2km length at the western end between Trewaun roundabout and Rhigos roundabout where a new length of A465 will be built to the south of the existing road. The improvements will contribute to social and economic regeneration of the Heads of the Valleys area.

South East Wales Valleys Local Transport Plan Schemes

3.9 The South East Wales Valleys Local Transport Plan (LTP) was adopted in January 2015 and covers the period up to 2020 in the short-term and up to 2030 in the longer-term.

3.10 The following schemes are deliverable during the lifespan of the LTP, which are forecast to be funded via the Community Infrastructure Levy, Welsh Government Local Transport Fund and European Regional Development Fund as funding mechanisms:

- A4059 Aberdare bypass extension to Cynon Gateway. The development of a new road scheme, in parallel with the dualling of the A465 Heads of the Valleys Road between Hirwaun and Merthyr Tydfil. The Scheme will involve the construction of new junction layouts to maintain existing access between communities situated to the north of Aberdare and the A465. This scheme is currently ongoing.

Hoover Site

3.11 The Hoover Strategic Regeneration Area is a 59-ha site, comprising the former Hoover factory site, the former Ardagh site, the Triumph Furniture site (and surrounding industrial units), the development parcel to the north of Triangle Business Park, and the former Gethin Tip site. The site is allocated under Policy SW6 in the Replacement Local Plan for 440 new homes, 1.5ha of employment, 400sqm of retail, a park and ride facility, safeguarded land for a new Metro station and associated development.

3.12 The site is shown at **Figure 3.1** and is located east of the A470 and west of the A4060.

Figure 3.1 Hoover Strategic Regeneration Area



Source: Hoover Strategic Regeneration Area Framework Masterplan Document June 2018

3.13 The following improvement schemes are proposed to be included as part of a forthcoming Application:

- Integrate a park and ride close to Pentrebach Metro station.
- Integrate the existing railway via a green landscape corridor.
- Provide flexibility for a Metro station in the north of the strategic regeneration area.
- Create a legible environment through a clear hierarchy of streets that is reinforced by landscaping and the built form.
- Create a new footbridge across the river that links the two residential parts of the site and creates a connection with the existing settlement at Abercanaid.
- Upgrade the existing Metro station so that it is prominent; and,
- Create a network of pedestrian and cycle routes within the development that connect to the existing strategic recreational routes (Taff and Trevithick Trail).

3.14 As part of any application for the Hoover SRA site, it will be required to mitigate its own off-site transport impacts, in accordance with TAN 18.

3.15 The Rhydycar West site is well positioned to offer a very significant and attractive employment and leisure destination for future residents of the Hoover site, particularly, given that users will be able to access the site

by walking and cycling. The site in combination with Hoover offers a sustainable addition to Merthyr Tydfil, in terms of providing housing and employment that is not reliant on car travel.

Abernant to Merthyr Tydfil Tunnel

3.16 Given the site's position in relation to the cycle network, it is well placed to play a part in delivering enhancements that may be made in future years. For example, Merthyr Tydfil, Rhondda Cynon Taf County Borough Councils and Welsh Government are working together with the aim of making the journey easier for people who travel between Aberdare and Merthyr Tydfil for reasons including work, education, shopping, and entertainment. One strategy in the process of being implemented is the reopening of the Abernant Tunnel (which is on land owned by Marvel (the site owner)), which would provide a traffic-free and direct cycling and walking route of around four miles between the two town centres, reducing the current journey by around three miles. Marvel have been working closely with Merthyr Tydfil County Borough Council to achieve this objective and a Public Path Creation Order was made on 26 October 2020 to establish a bridleway and create a route across the site to the Merthyr-Abernant Tunnel representing a significant milestone for the full realisation of this project.

SUMMARY

3.17 A review has been undertaken of consented transport schemes alongside schemes that are currently being considered by Merthyr Tydfil Borough Council (MTCBC) and the Welsh Government. This review outlines future transport schemes in the vicinity of Rhydycar West and advises that there are number of strategic improvement schemes that will improve highway operation and other large-scale development schemes that through their delivery will mitigate their own off site transport impacts.

3.18 The delivery of these schemes will bolster the sustainable transport network in the vicinity of Rhydycar West, though as discussed at **Chapter 4**, the existing high level of accessibility of the site is not reliant on the delivery of these schemes. Similarly, the development of Rhydycar West will not frustrate the delivery of these future transport schemes.

4 EXISTING CONDITIONS

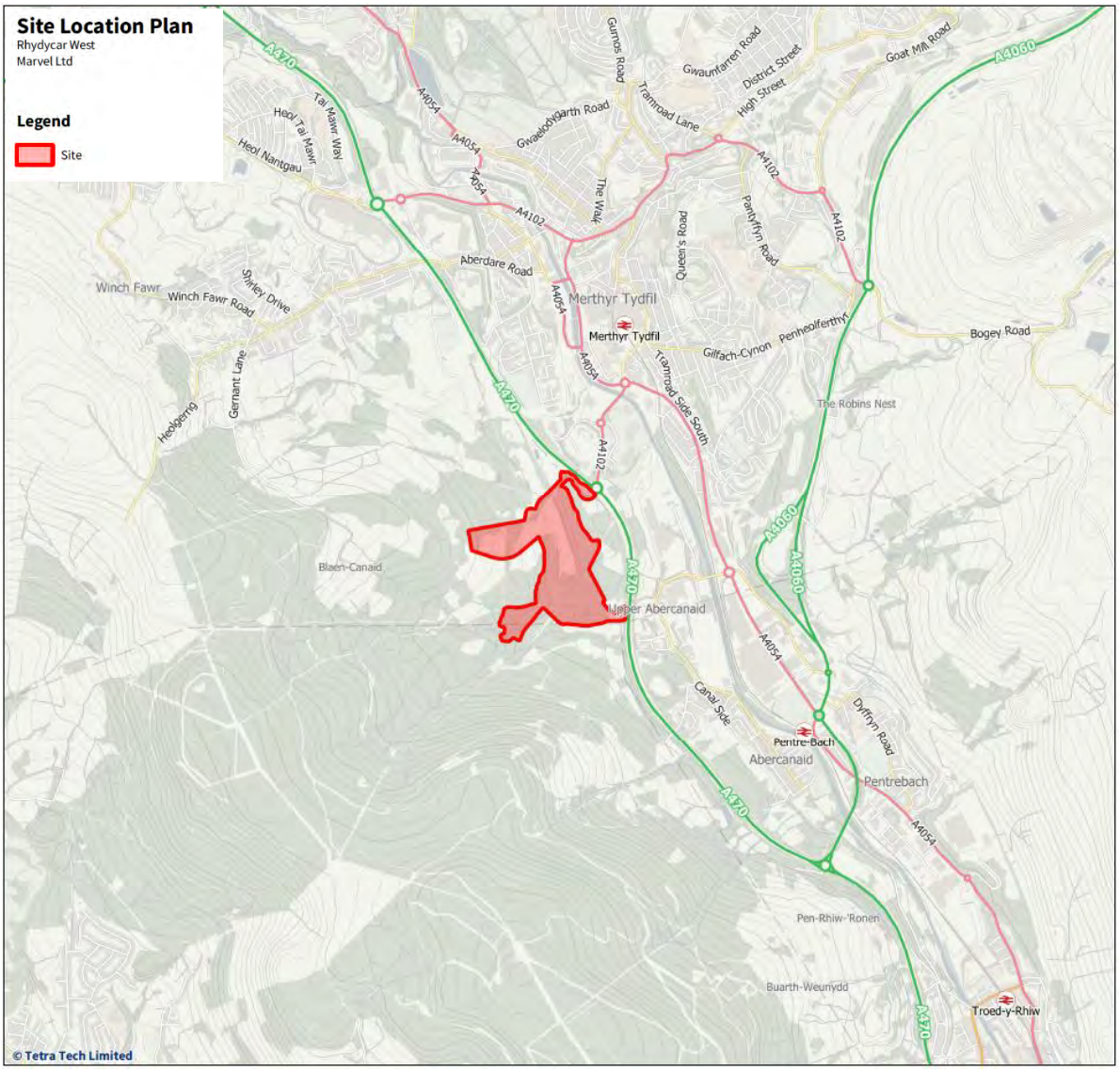
INTRODUCTION

4.1 This chapter describes the site location and the existing highway network around the site, alongside a highway safety audit using information obtained from the Welsh Government.

SITE LOCATION

4.2 The site is located west of the town of Merthyr Tydfil, within the county borough of Merthyr Tydfil. The village of Heolgerrig is located to the north, Abercanaid to the southeast, whilst the town of Aberdare is located approximately 4.9 kilometres south-west of the site. The site is bordered to east by the A470 and to the north, south and west by existing open hillside and forest. The location of the site is illustrated in **Figure 4.1**.

Figure 4.1 Site Location and Local Highway Network



Contains OS data © Crown copyright and database right (2023). OS OpenData is free to use under the Open Government Licence (OGL).

LOCAL HIGHWAY NETWORK

4.3 The local road network is illustrated in **Figure 4.1**.

4.4 The site will be accessed from the A470 / A4102 four arm roundabout, via an extension and improvement to the existing stub provided at the southwestern arm.

4.5 The A4102 provides a link from the site access roundabout eastbound into Merthyr Tydfil Town Centre. The A4102 is subject to a 30mph speed limit, is street lit and benefits from footways on both sides of the carriageway between the A4102 / High Street / Lower High Street / A4054 roundabout and the A4102 / Merthyr Leisure Village Access / Rhydycar Business Park Access roundabout.

4.6 As a part of the Welsh Trunk Road Network, the A470 provides a key route to/from the site, connecting to the A465 Heads of the Valleys Road and continuing onwards from/to Brecon in the North, and linking to the M4 at Junction 32 to the south. Near the site, the A470 is subject to the national speed limit.

4.7 The A465 Heads of the Valleys Road routes east-west and provides a connection between Neath and Abergavenny, providing a principal road link between southwest Wales and the Midlands. As detailed fully at **Paragraph 3.6**, the Heads of the Valley Road is subject to major ongoing construction works, upgrading from a single carriageway road to a dual carriageway, with an expected completion in 2025.

4.8 The A470 links to the M4 Motorway. The M4 is part of the Welsh Strategic Road Network (SRN) and the English SRN), linking between London and Pont Abraham and provides connections to the M5 and several other strategic links. The M4 is located approximately 29km southeast of the site. This assists in the strategic movement of traffic from south-east Wales and provides key connections to the wider parts of the UK.

4.9 An emergency access is located to the south of the site and will gain access from Dragon Parc, taking the form of a link under the A470 into the site. For vehicles, this will provide an emergency point of access only, with the access primarily serving as a walking and cycling access and provides a link to the potential Abernant to Merthyr Tydfil Tunnel.

BASELINE TRAFFIC DATA

4.10 Due to the exceptional circumstances generated by COVID-19 it has not been feasible to survey the local highway network during 2020/2021 as traffic levels have not been representative of 'normal' conditions, as travel behaviour was significantly impacted in 2020/2021 by measures implemented by the Welsh Government to manage the COVID-19 pandemic. Tetra Tech have therefore obtained historic Manual Classified Counts (MCC), which are considered representative of 'normal conditions', for the following junctions:

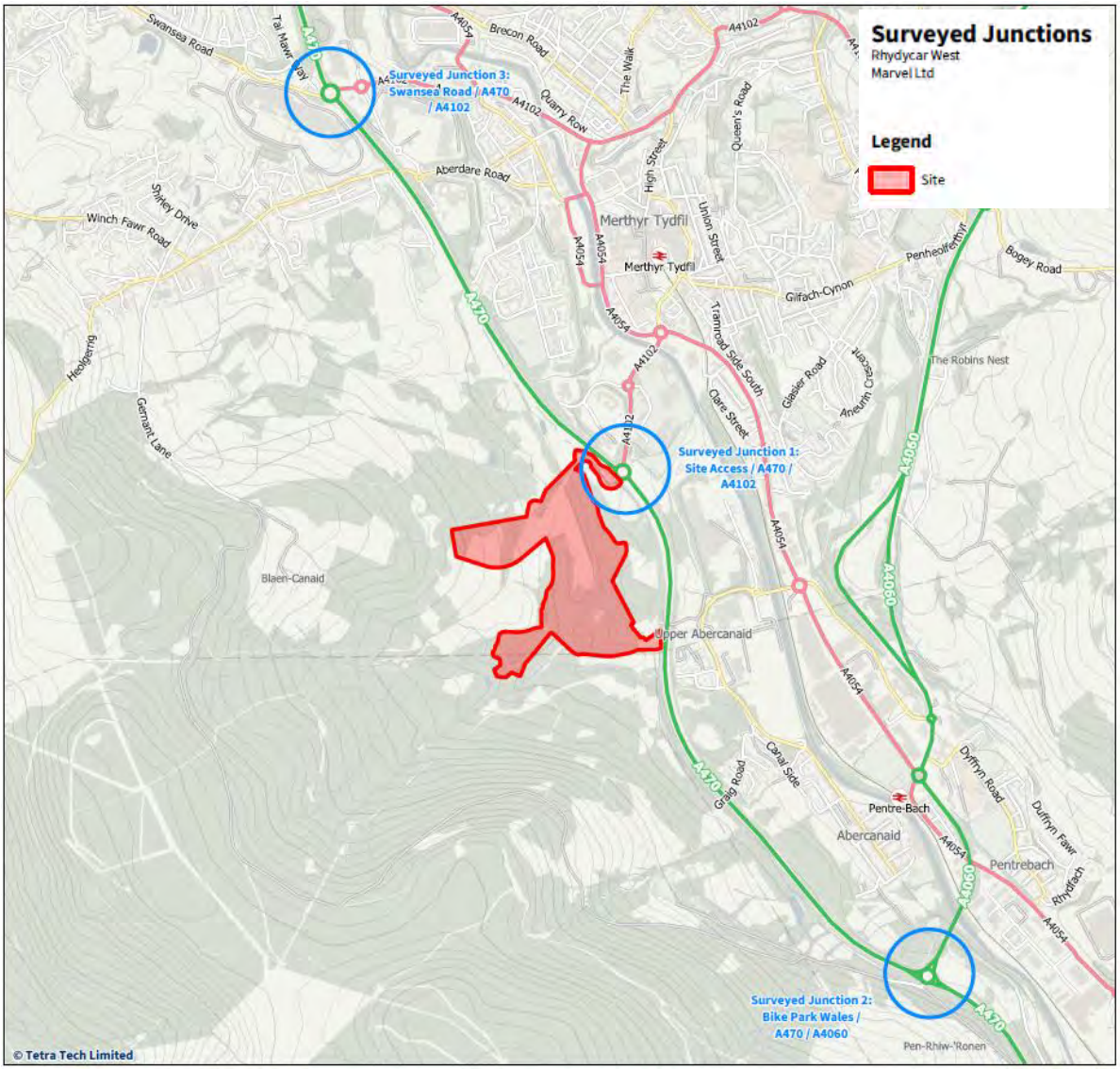
- Site Access / A470 Roundabout (July 2017, weekdays 0700-1000 and 1600-1900, Saturdays 1000-1300; and,
- Bike Park Wales / A470 Roundabout (September 2018, obtained from Application P/19/0073: Expansion to Bike Park Wales), weekdays 0700-1000 and 1600-1900.

4.11 Following feedback from MTCBC, additional traffic surveys have been undertaken in June 2022 for the following junction:

- A470 / A4102 / Swansea Road Roundabout (June 2022, weekday 0700-1900 and Saturday 0700-1900).

4.12 The above MCC surveys are contained within **Appendix B** whilst the recorded AM, PM, and Saturday peak hour flows at each of the junctions are illustrated in **Figures 4.3-4.5**, which is provided in the **Figures** section of the report.

Figure 4.2 Surveyed Junctions



4.13 As detailed at **Paragraph 4.11**, historic survey information was unavailable for the Saturday peak period at the A470 / A4060 / Bike Park Wales roundabout. The flows for this junction during the Saturday peak period have thus been factored from:

- Flows going to the A470 Northern arm (heading north onto the A470 northbound carriageway): Flows are growthed from the 2017 flows recorded entering the A470 / A4102 / Site Access

roundabout from the A470 southern arm. Turning proportions onto the A470 Northbound arm are taken from recorded survey data for the Weekday AM peak.

- Flows coming from the A470 Northern arm (heading southbound onto the A470 / A4060 / Bike Park Wales roundabout): growthed from the 2017 flows recorded exiting the A470 / A4102 / Site Access and heading south along the A470. Turning proportions at the A470 / A4060 / Bike Park Wales roundabout are taken from recorded survey data for the Weekday AM peak.
- All other movements: Survey data at the A470 / A4102 / Site Access roundabout recorded that the traffic levels going to/from the A470 southern arm are approximately 91% of the Weekday AM peak flows during the Saturday peak period. Traffic flows for all other movements have therefore been factored by 91% to estimate the Saturday peak period.

4.14 There are no junctions or access points onto the A470 between the A470 / A4060 / Bike Park Wales roundabout and the A470 / A4102 / Site Access roundabout. The traffic flows recorded on the A470 at the northern end of this link (A470 / A4102 / Site Access roundabout) are thus representative of flows on the A470 at the southern end of this link (A470 / A4060 / Bike Park Wales roundabout). Flows have been growthed from 2017 to 2018 to reflect background traffic growth, factored based on the known local factor between Weekday AM peak traffic flows and Saturday Peak traffic flows and distributed based on existing turning proportions. It is considered that the traffic flows for the Saturday Peak at the A470 / A4060 / Bike Park Wales roundabout are realistic and provide a robust basis for traffic impact assessments, particularly given that Saturday Peak flows are lower than the Weekday Peak traffic flows.

4.15 **Table 4.1** provides a summary of the traffic recorded at the junctions during the AM and PM peak periods.

Table 4.1 AM and PM Two-way Traffic for Surveyed Junctions

Junction	AM Peak (0800 – 0900)	PM Peak (1700 – 1800)	Saturday Peak
Roundabout 1: Site Access (2017 surveyed flows)	2,605	2,883	2,561
Roundabout 2: Bike Park Wales (2018 surveyed flows)	3,786	3,751	3,241
Roundabout 3: A470 / A4102 / Swansea Road	2,855	3,305	3,750

Highway Safety Audit

4.16 The accident data contained within this section has been obtained from Welsh Government for the most recent 5-year period available, between 2016-2020.The study area for this assessment comprises of A470 between the Cyfarthfa Retail Park roundabout and the Bike Park Wales roundabout, the A4102 and the emergency access road to Dragon Parc. In total 20 incidents were recorded within the study area with 16 classified as ‘slight’ and the remaining 4 as ‘serious’.

4.17 **Table 4.2** provides a summary of the recorded incidents.

Table 4.2 Incident Location Summary

Severity	2016	2017	2018	2019	2020	Total
A470 Cyfarthfa Retail Park Roundabout						
Slight	1	2	1	1	0	5
Serious	0	0	1	0	0	1
Fatal	0	0	0	0	0	0
Total	**1**	**2**	**2**	**1**	**0**	**6**
A470 between Cyfartha Retail Park Roundabout and Site Access Roundabout						
Slight	0	0	2	0	0	2
Serious	0	0	0	2	0	2
Fatal	0	0	0	0	0	0
Total	**0**	**0**	**2**	**2**	**0**	**4**
A470 between Site Access Roundabout and Bike Park Wales Roundabout						
Slight	0	0	0	0	0	0
Serious	0	0	0	0	0	0
Fatal	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**
A470 Bike Park Wales Roundabout						
Slight	1	1	3	0	0	5
Serious	1	0	0	0	0	1
Fatal	0	0	0	0	0	0
Total	**2**	**1**	**3**	**0**	**0**	**6**
Emergency Access						
Slight	0	0	0	0	0	0
Serious	0	0	0	0	0	0
Fatal	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**

4.18 **Table 4.2** shows that, on average, 5 incidents occurred annually within the study area, with 80% classified as 'slight' in severity and the remaining 20% classified as 'serious'. No fatal accidents were recorded within the study area.

4.19 DfT Count point 99659 is located on the A470 between the Cyfarthfa Retail Park roundabout and the Site Access roundabout and recorded that the A470 experiences an AADF of 27,112 vehicles in 2019, or circa 9.90 million vehicles per annum. Given the average 5 incidents per year, this equates to one incident per 1.98 million vehicles. Given the high volume of traffic operating on the local highway network, the incidents recorded over a five-year period do not indicate any inherent highway design fault that will be exacerbated by this development and cannot be attributed to the layout or geometry of the highway network.

4.20 This highway safety audit indicates that that the current alignment of the local highway network within the study area does not result in any undue highway safety implications for road users, with the resultant factor for incidents likely to be wholly attributable to driver error.

5 SUSTAINABLE TRAVEL AUDIT

ACCESSIBILITY GUIDANCE

5.1 When considering the sustainability audit within the TA, Tetra Tech have reviewed the nationally available accessibility guidance prepared by central government and professional transport institutions for walking, cycling and public transport.

WELSH GOVERNMENT GUIDANCE

5.2 The Welsh Government Active Travel: Walking and Cycling in Wales document (2019) recorded that for Merthyr Tydfil, approximately 2% of residents would use cycling as a regular mode of transport and approximately 40% walking daily or several times a week.

5.3 The Welsh Government Active Travel Act Guidance (2021) sets out that the vision of the Active Travel (Wales) Act is for walking and cycling to be the natural mode of choice for short everyday journeys, or as part of a longer journey in combination with other sustainable modes. The document sets out that many users are likely to walk up to 3.2km (2 miles), with some likely to walk up to 4.8km (3 miles), while many cyclists would cycle up to 8km (5 miles) with some willing to cycle up to 12km (7.5 miles).

5.4 The Welsh Government Personal Travel in Wales document (2013) recorded that a typical walking trip (for any purpose) was up to 1.6km and up to 14.5km for travel by bus. No data was assessed for cycling at the time of release. The study also recorded that on average, regular commuters travelling to work are prepared to walk for 12 minutes (960m), cycle for 21 minutes (5.6km) and travel 33 minutes by bus.

BEST PRACTICE GUIDANCE

5.5 The Institution of Highways and Transport (IHT) guidance document 'Planning for Walking' (April 2015) states that 80% of journeys shorter than 1.6km are made wholly on foot with 20% for journeys that are 1.6km to 3.2km long also being undertaken on foot.

5.6 The Chartered Institution of Highways and Transport (IHT) guidance document 'Buses in Urban Developments' (January 2018) recommends a maximum walking distance to bus stops of 500 metres when accessing a core bus corridor with two or more high frequency services. The National Travel Survey (NTS) 2014 (September 2015), recorded that pedestrians will walk on average 624m to bus stops, when using a local bus as the main part of a local trip.

ACCESS BY WALKING

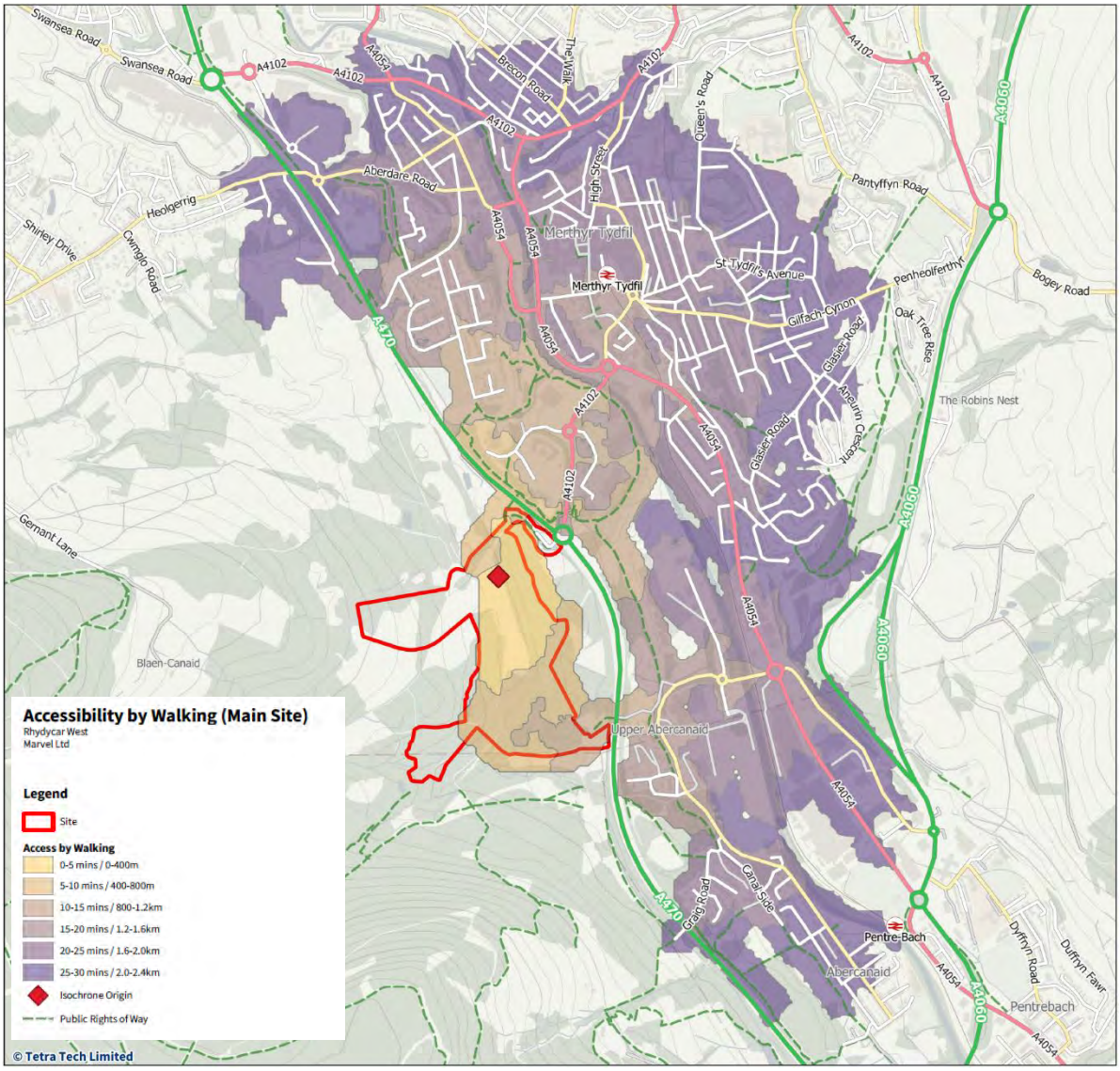
5.7 Pedestrian access to the site is gained via an existing bridleway bridge over the A470 carriageway (MT|101|9). The bridge provides a connection from the site over the A470 to the bridleway bridge over the A4102 which connects to the Taff Trail and provides access to the local pedestrian network within Merthyr Tydfil. The bridges benefit from ramps which accommodates both pedestrian and cycle movements to and from the

site and are both circa 3.0m wide providing appropriate active travel connections to the site. The route forms part of the existing Public Right of Way (PROW) network within Merthyr Tydfil.

5.8 A secondary pedestrian and cycle access is provided to the south of the site, via the emergency access where a link is provided under the A470 to Dragon Parc.

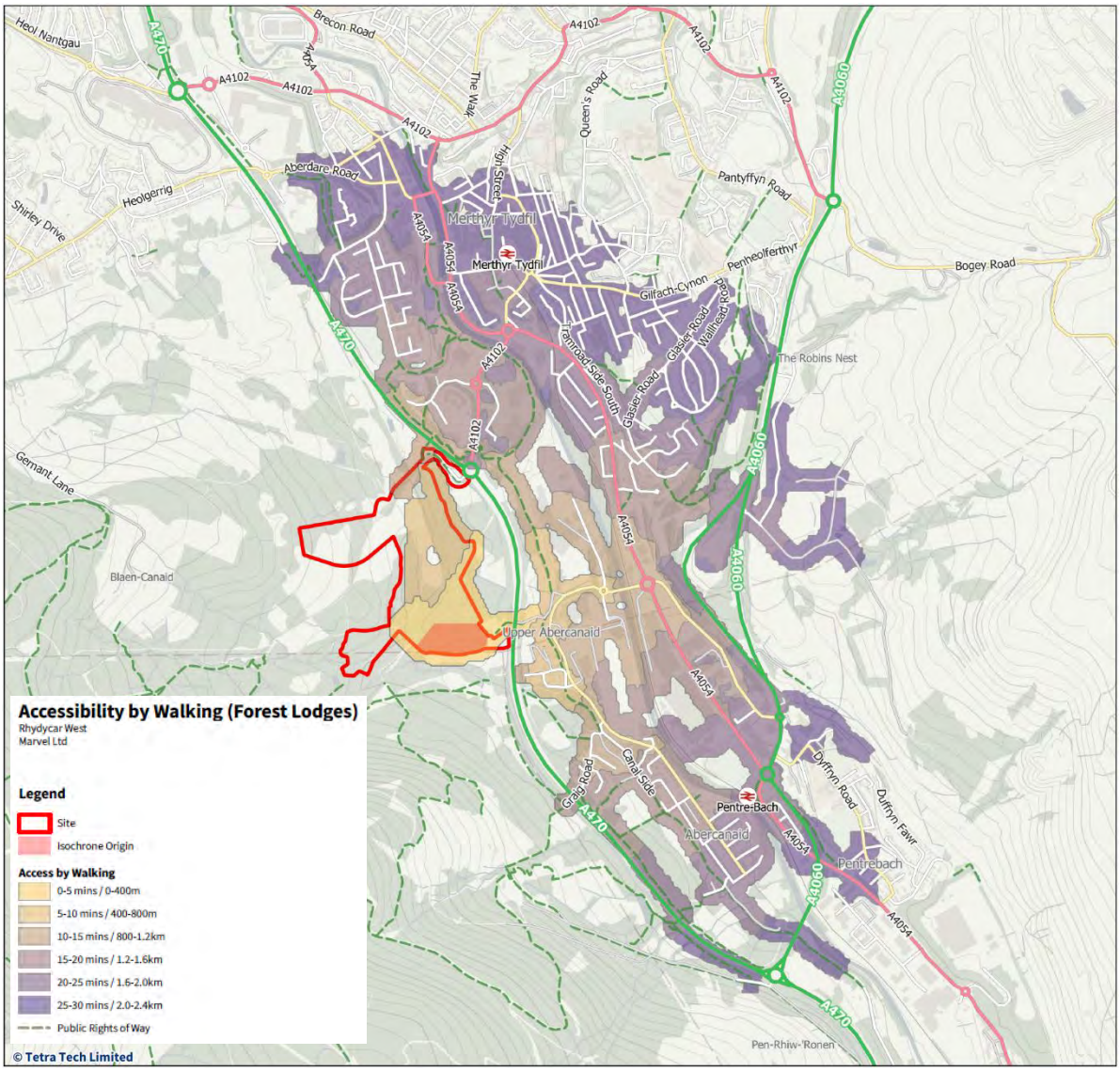
5.9 A GIS network analysis has been carried out to assess pedestrian accessibility from the site. **Figure 5.1** shows a 30-minute walking isochrone (2.4km) from the main site, with **Figure 5.2** showing a 30-minute walking catchment from the Forest Lodges. Both assessments have been calculated based upon a walk speed of 4.8 km/hr.

Figure 5.1 Main Site - Access by Walking



Contains OS data © Crown copyright and database right (2023). OS OpenData is free to use under the Open Government Licence (OGL). Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.

Figure 5.2 Forest Lodges - Access by Walking



Contains OS data © Crown copyright and database right (2023). OS OpenData is free to use under the Open Government Licence (OGL). Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.

5.10 **Figures 5.1** and **5.2** shows that the urban core of Merthyr Tydfil is accessible within a 30-minute walk from the site, with bus stops at Merthyr Tydfil Leisure Village accessible within a 15-minute walk, and Merthyr Tydfil Railway Station and Bus Station accessible within a 25-minute walk. Pentrebach is accessible within a 30-minute walk, with Pentre-Bach Railway Station accessible within a 25-minute walk.

5.11 **Figures 5.1** and **5.2** illustrate that the site is well located to provide opportunities for future sites users to access the site from local settlements and transport interchanges by foot, thereby reducing the reliance on travel by car. The figures demonstrate that the site can connect to the existing pedestrian network, which is appropriate to accommodate the safe and suitable movement of pedestrians throughout Merthyr Tydfil. The development will extend these connections into the site, providing attractive and coherent pedestrian facilities that will facilitate the safe movement of pedestrians within, to, and from the site. As part of the development, the link to the Leisure Centre will be paved and lit.

ACCESS BY CYCLING

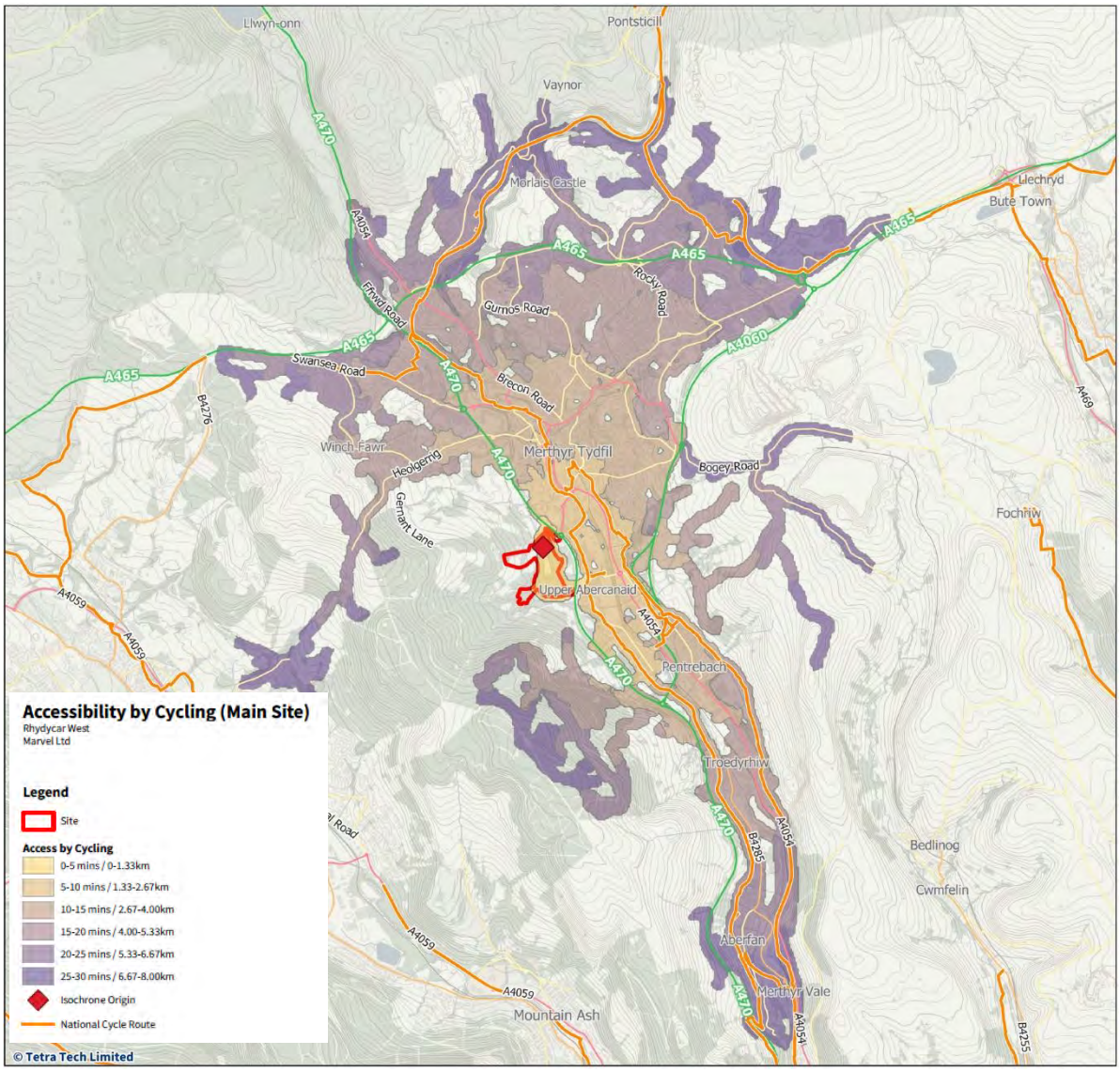
5.12 The development will gain cycle access from the existing bridleway bridge over the A470, which provides a connection into the wider cycle network within Merthyr Tydfil and connects to National Cycle Route 8 / The Taff Trail. The bridge is 3.0m wide and has ramps. It is accordingly appropriate to use as a shared pedestrian/cycle route. Additionally, cyclists and pedestrians can gain access to the site via the emergency access under the A470 to the south of the site.

5.13 National Cycle Route 8 is known as Lôn Las Cymru and forms part of the Taff Trail. Route 8 runs from Cardiff through Brecon to terminate in Holyhead (Anglesey). It connects locally to the Local Route 477 providing cycle access between Merthyr Tydfil and Abercynon, including Merthyr Tydfil and Pentre-Bach Rail Stations.

5.14 The Taff Trail is a 55-mile cycleway / footway which runs between Cardiff Bay and Brecon. The Taff Trail follows the River Taff along most of its route and joins NCN Route 8. The Taff Trail makes use of the abandoned branch of the Taff Vale Railway and the Glamorganshire Canal which provides a mostly traffic free route.

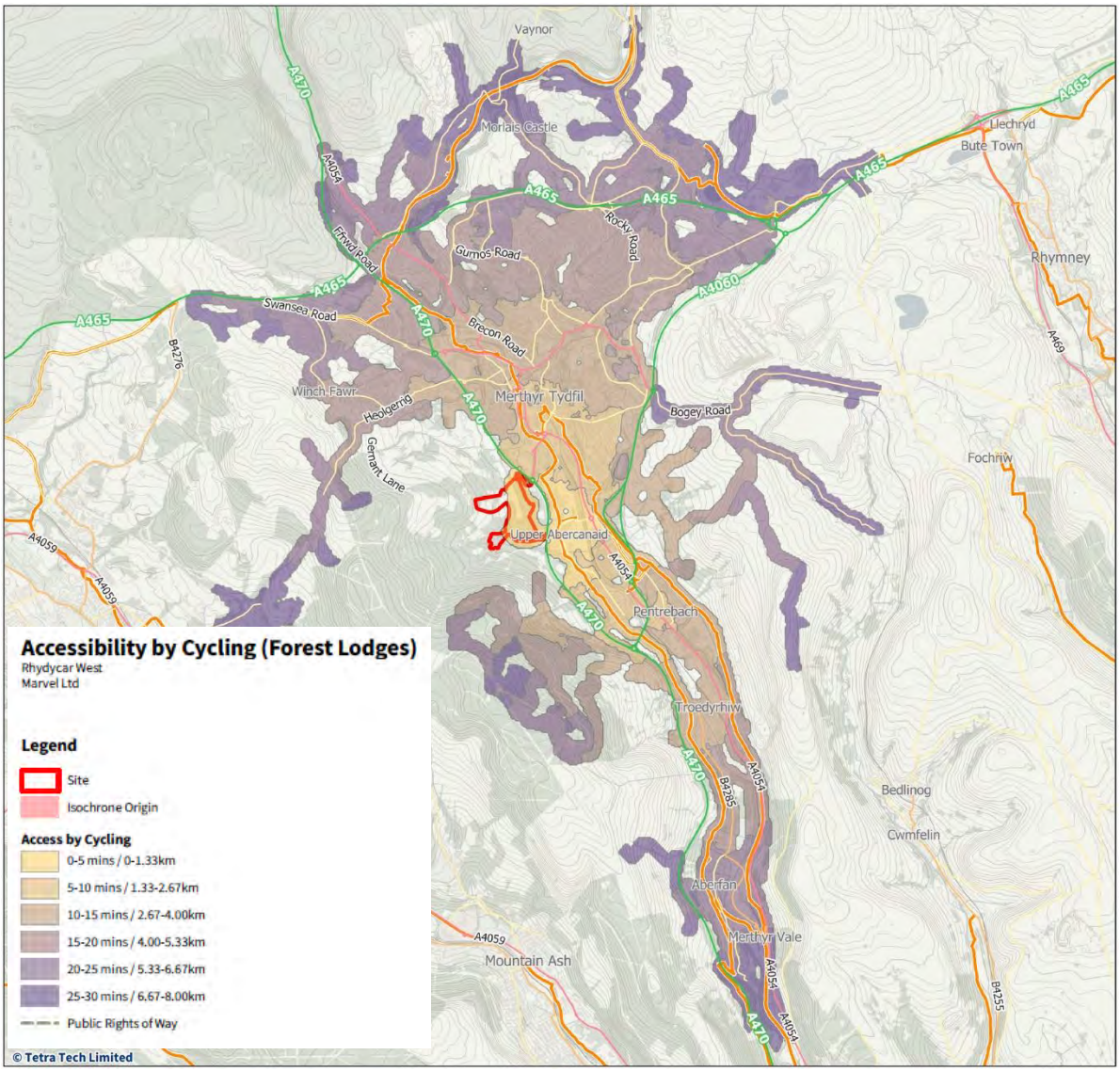
5.15 A GIS network analysis has been carried out to assess cyclist accessibility from the development site. **Figure 5.3** shows a 30-minute cycling isochrone (8.0km) from the main site, with **Figure 5.4** showing a 30-minute cycling catchment from the Forest Lodges, which have both been calculated based upon a cycle speed of 16km/hr. It should be noted that A470 carriageway, other strategic roads or the potential reopening of the Abernant Tunnel do not form part of this cycle journey assessment.

Figure 5.3 Main Site: Access by Cycling



Contains OS data © Crown copyright and database right (2023). OS OpenData is free to use under the Open Government Licence (OGL). Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.

Figure 5.4 Forest Lodges: Access by Cycling



Contains OS data © Crown copyright and database right (2023). OS OpenData is free to use under the Open Government Licence (OGL). Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.

5.16 **Figures 5.3** and **5.4** shows that the majority of Merthyr Tydfil can be accessed within a 30-minute cycle, as well as the surrounding areas including Abercanaid, Pentrebach and Aberfan. Merthyr Tydfil station is accessible within a 10-minute cycle ride.

5.17 **Figures 5.3** and **5.4** illustrate that the site is well located to accommodate cycle movements to and from the local area. The figures demonstrate that appropriate connections can be made to accommodate the safe and suitable movement of cyclists, which will facilitate the safe movement of cyclists within, to, and from the site. Given the sites proximity to the transport network, and with Merthyr Tydfil being within a 20-minute bike ride, the site offers coherent connections that will likely be attractive for use by cyclists.

ACCESS BY BUS

5.18 The nearest bus stop is located 1.2km from the site within the grounds of the Merthyr Tydfil Leisure Village. This bus stop is marked and benefits from a layby, shelter, and timetabling information.

5.19 The stop benefits from a regular level of services which operate Monday to Sunday, providing connections to the town centre and wider parts of Merthyr Tydfil. A summary of these services is presented in **Table 5.1**.

Table 5.1 Bus Service Summary

Bus Service	Route	Frequency		
		Mon-Fri	Saturday	Sunday
Merthyr Tydfil Leisure Centre				
81 (Stagecoach South Wales)	Aberfan - Merthyr Tydfil	07:17 – 19:17 30 mins	07:17 – 19:17 30 mins	No Service
	Merthyr Tydfil - Aberfan	06:29 – 18:29 30 mins	06:29 – 18:29 30 mins	No Service
89 (New Adventure Travel)	Merthyr Tydfil - Aberdare	No Service		15:10 – 18:10 Every 90 mins
	Aberdare - Merthyr Tydfil	No Service		14:20 – 18:20 Every 2 hours
E79 (New Adventure Travel)	Bedlinog - Merthyr Tydfil	18:53 – 19:57 2 Daily	18:53 – 19:57 2 Daily	No Service
	Merthyr Tydfil - Treharris	17:34 – 20:13 3 Daily	17:34 – 20:13 3 Daily	No Service
S79 (New Adventure Travel)	Bedlinog - Merthyr Tydfil	No Service	No Service	10:57 – 21:05 5 Daily
	Merthyr Tydfil - Bedlinog	No Service	No Service	11:05 – 21:18 5 Daily

Service pattern as of January 20th 2023

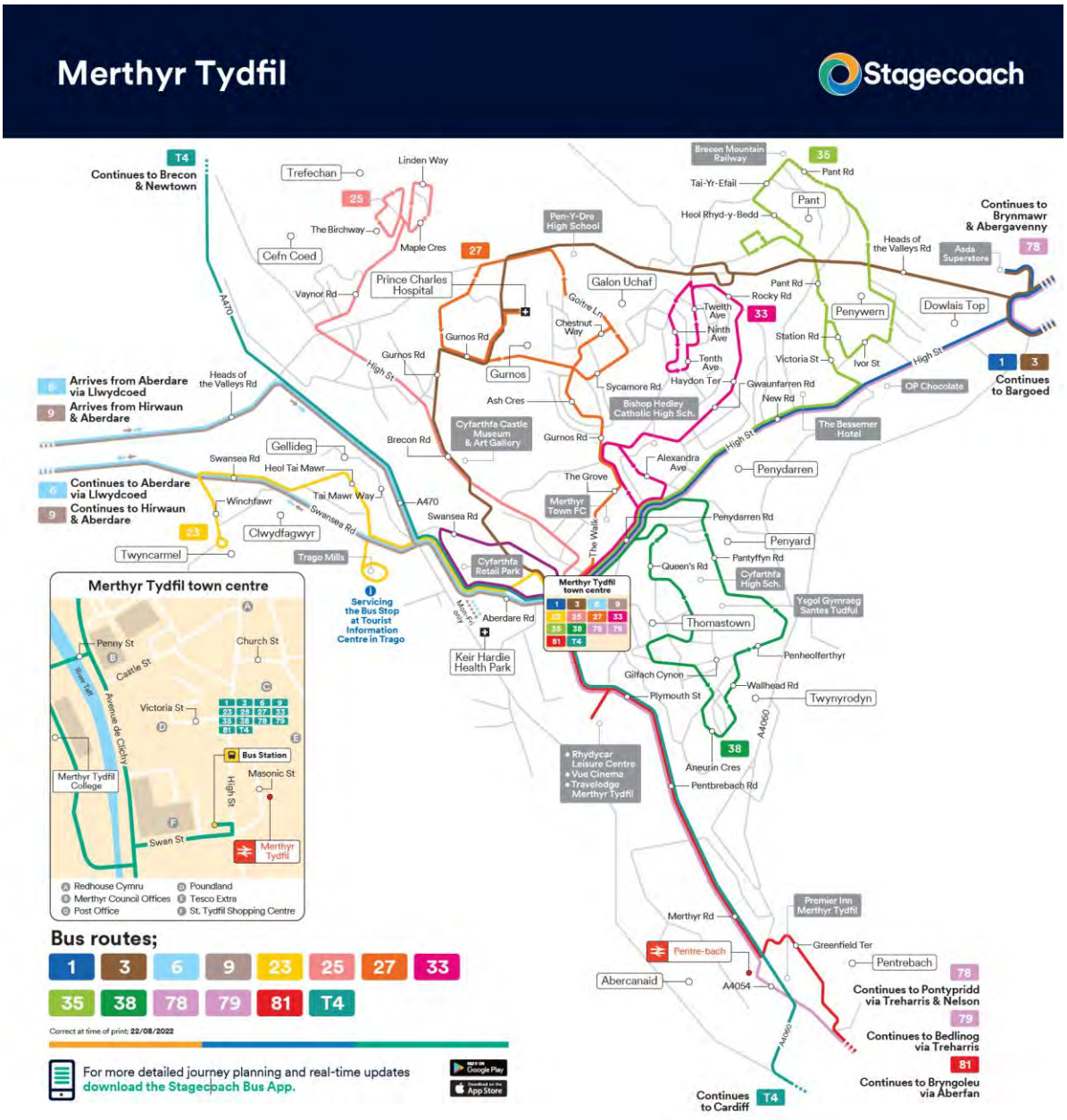
5.20 **Table 5.1** demonstrates above there are opportunities for staff and visitors to reach the site via bus from several local towns, including regular services from/to Merthyr Tydfil, Aberfan and Treharris, with Sunday only services from/to Bedlinog, and Aberdare.

5.21 Given the local provision of bus services, it is considered that there are several opportunities to accommodate public transport trips.

5.22 The nearest bus station to the site is Merthyr Tydfil Bus Station, approximately 2km north, located to the north of Swan Street. Merthyr Tydfil Bus Station offers many services that provide regular access to the wider parts of Merthyr Tydfil and surrounding settlements as well as several more strategic destinations. The 81-bus service as detailed in **Table 5.1**, is within proximity of the site and provides a connection to the bus station. There are therefore opportunities to use the 81-bus service as part of a multi modal journey to access the site, therefore increasing bus accessibility to and from Trefechan, Pant, Dowlais Top, Twynyrodyn,

Clwydfagwyr, Bargoed, Aberdare, Hirwaun, Brecon, Newtown and Llwydcoed, Brecon, Builth Wells, Llandrindod Wells, Newton, Brynmair and Abergavenny A summary of these services and their routing is illustrated at **Figure 5.5**.

Figure 5.5 Local Bus Network Map



5.23 **Figure 5.5** demonstrates that the Bus Station benefits from connections to wider Merthyr Tydfil. The bus station presents an opportunity to encourage site users to access the site by public transport. However, any enhancements that could be provided to improve site connectivity to the bus station would increase the attractiveness of using bus travel to access the site.

ACCESS BY RAIL

5.24 The nearest railway station to the site is Merthyr Tydfil Rail Station, which is located approximately 1.7km northeast of the site (22-minute walk). Pentre-Bach Rail Station is located approximately 2.7km south-east of the site (37-minute walk).

5.25 Both stations are located on the Merthyr branch line and are operated by Transport for Wales and provide a half-hourly service Monday to Saturday to and from Cardiff Central, with services continuing onwards to Barry, Barry Island and Bridgend. On Sundays, a service every two hours is provided, though it is noted that this is due to increase to hourly as part of the South Wales Metro proposals.

5.26 From Cardiff Central, connecting services are available providing direct links to the wider parts of Great Britain, including Swansea, Manchester, Bristol, Reading, London, Exeter, and Birmingham.

5.27 Merthyr Tydfil station benefits from:

- 10 cycle racks.
- Ticket office; and,
- Step free access, from the car park.

5.28 Pentre-Bach station benefits from:

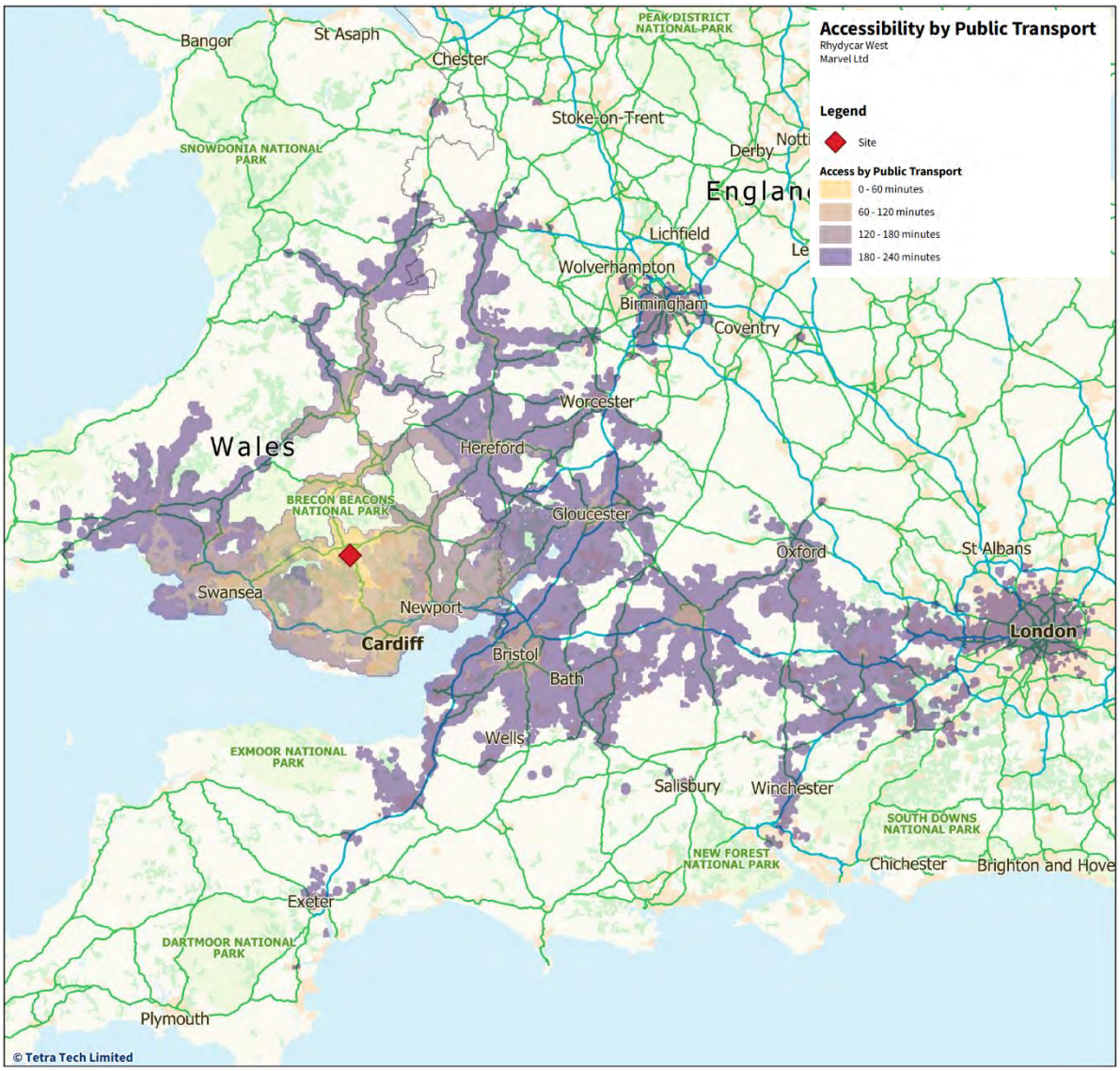
- Bus stops adjacent to the station entrance.
- Ticket machine; and,
- Step free access to the platform from the main road.

5.29 The site is within proximity of two railways station that benefit from regular connections to several settlements and rail interchanges. These connections provide opportunities for those originating from wider Wales and Great Britain to use the railway, as part of a multi modal journey, when travelling to and from the site. However, any enhancements that could be provided to improve site connectivity to the railway station would increase the attractiveness of using rail travel to access the site.

GIS PUBLIC TRANSPORT ASSESSMENT

5.30 A multi-modal transport accessibility exercise has been undertaken within GIS, using the industry standard TRACC software to assess access to the site via public transport within a 240-minute travel time (four hours). The assessment considers the use of multi-modal public transport trips to access the development. The assessment has been modelled to take into consideration the site shuttle bus, and the walk time from the development site to public transport interchanges and transfers (e.g., bus stops), calculated at a walking speed of 4.8km/hr. The results of the assessment are shown at **Figure 5.6.**

Figure 5.6 Access by Public Transport



Contains OS data © Crown copyright and database right (2023). OS OpenData is free to use under the Open Government Licence (OGL). Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.

5.31 **Figure 5.6** demonstrates that the site is well suited to accommodate multi-modal public transport trips. Future site users can use public transport to access the site from across the southern United Kingdom, including settlements such as Cardiff, Swansea, Newport, Bristol, Bath, Birmingham, Oxford, London, Exeter, and Southampton within a four-hour journey. Future site users from mid Wales can also use public transport to access the Site from Abergavenny in the east to Newton in the north.

5.32 The site is within proximity of two railway stations that benefit from regular connections to several settlements and rail interchanges as well as a bus station with local and more strategic connections. These connections provide opportunities for those originating from wider Wales and Great Britain to make multi modal journeys, to and from the site. There is however scope for enhancements that could be provided to improve site connectivity.

5.33 The assessment evidences that the site is well located to encourage future site users to use multi-modal public transport journeys, when travelling to and from the site, with scope for enhancements that could be provided to improve site connectivity.

SUMMARY

5.34 The site is well located to offer a variety of sustainable journey choices to future site users, given its proximity to the pedestrian, cycle and public transport network. There is however scope for enhancements that could be provided to improve site connectivity.

5.35 It offers an opportunity for the local community to obtain employment, given its proximity to local neighbourhoods and being within cycling distance of a large proportion of Merthyr Tydfil. The site represents a sustainable extension to the employment opportunities provided by Merthyr Tydfil, increasing the attractiveness of visiting and working within the local area.

5.36 The site is within proximity of several public transport services, which provide connections to the town centre, railway stations, bus station and wider parts of Merthyr Tydfil. Given the trip attraction of the site, it offers opportunities for a shuttle bus service to better integrate the site into the network. This is discussed further within **Chapter 6**.

5.37 The site will provide a bespoke tourism facility that will generate travel from outside the county. Given its proximity to local rail stations, a significant number of customers / visitors will use rail travel as part of a multi-modal journey to travel to and from the site. The site is well placed within the rail network, with local railway stations benefitting from regular connections to the wider rail network.

5.38 Technical assessments show that several cities within Great Britain are within a one-to-four-hour commute of the site (times inclusive of non-rail travel e.g., shuttle bus connection, walking etc.). Given the bespoke facilities provided by the site and options for overnight stays, rail travel will be an attractive option for visitors / customers travelling outside of the county, when compared with travelling along the strategic road network by car.

5.39 On this basis, it is considered that the proposed development complies with the requirements of Welsh Government and local planning policy and is not solely reliant on private vehicles for travel to / from the local and wider area.

6 DEVELOPMENT PROPOSAL

PROPOSED DEVELOPMENT

6.1 This proposal comprises the development of a mixed tourism / leisure led development on land at Rhydycar West. This comprises the creation of an Indoor Snow Centre with a circa 400m piste, an Indoor Water Park, a total of 418 hotel bedrooms, an Indoor/Outdoor Activity Centre and up to 30 Forest Lodges. This will be accompanied by a policy compliant car parking provision.

6.2 The masterplan is illustrated in **Figure 6.1**, which is outlined at **Appendix C**.

Figure 6.1 Illustrative Site Masterplan



RHDR-HMA-LE-ZZ-DR-A-PL-020-Illustrative Masterplan-S0-P3

6.3 At over 400 metres long, the Snow Centre will host one largest indoor ski slopes in Europe and the world. The piste will be significantly longer than other indoor facilities in the UK, with existing UK facilities offering pistes in the range of 150-200m. The piste at Rhydycar West will be more than double the length of the next longest piste. The centre will be a game-changer for British Winter Sport and will become a centre of excellence for

Britain's Olympic Ski Team. As the signature attraction this element will attract visitors from around the UK, Europe and beyond.

PROPOSED SUSTAINABLE ACCESS STRATEGY

6.4 One of the key aims of the proposed development is to seek to ensure that alternatives to private car use are available from the outset and that the integration of active travel modes have been considered, in accordance with the key principles of policy at all levels.

6.5 A sustainable transport strategy can be delivered in association with the development, and this has been considered, developed, and is described in this section of the TA. The strategy is intended to assist in mitigating any potential impact of the development on the local highway network and to provide wider sustainable travel benefits to the local area.

6.6 Consequently, the illustrative masterplan provides a comprehensive network of footways/cycleways within the site linking to the existing network to the east and south which will provide good connectivity for pedestrians and cyclists accessing the site. This will help to provide a cycle network for local trips, which will help to integrate the development within the wider active travel network.

6.7 The illustrative masterplan proposals have been developed with high quality active travel provision integral to the proposals. It has therefore been designed against the following principles:

- To ensure that cycling and walking are recognised as important travel modes and therefore part of the transport mix.
- To ensure the safe and efficient movement of all transport users.
- To support economic development by facilitating travel to work (staff) and for leisure (visitors) without a car; and,
- To reduce congestion and pollution by encouraging and enabling people to travel without a car.

6.8 Furthermore, to bolster the provision of alternatives to private car use, the development proposals include the provision of a shuttle bus service, to directly connect the site to Merthyr Tydfil Railway Station, Bus Station, and town centre. This will help provide a comprehensive strategy to access the site by public strategy, encouraging trips to the site by rail and bus, with visitors connecting at Merthyr Tydfil railway and bus stations onto the shuttle bus. The proposals are designed against the following principles:

- To ensure the safe and efficient movement of all transport users.
- To support economic development by facilitating travel to work (staff) and for leisure (visitors) without a car; and,
- To reduce congestion and pollution by encouraging and enabling people to travel without a car.

PEDESTRIAN AND CYCLE STRATEGY

6.9 Pedestrian and cycle access will be gained from the existing bridleway (MT|101|9) access into the Rhydycar West, which provides a ramped 3.0m wide bridge over the A470. The bridge provides both pedestrian and cycle access at appropriate width and gradient to provide a good level of active travel connection. The proposed access strategy for the development, is shown on the masterplan at **Appendix C**.

6.10 As part of the development, the bridleway connection between the A470 bridge and the Leisure Centre will be paved and lit.

6.11 The development will be based on the principle of achieving walkable streets with a hierarchy of easy to navigate routes connecting buildings to the local area. Green corridors and open spaces are included in the masterplan which will provide informal spaces and high-quality connecting routes, creating a healthy environment, and providing separation between different units and uses where appropriate.

6.12 The internal layout of the site will be conducive to walking while providing a permeable network that allows uninterrupted access to the wider areas of the site and the on-site units.

6.13 The site will be conducive towards cycling, providing a permeable network that allows uninterrupted access to the wider areas of the site accommodating cycle trips to and from the site.

6.14 A further pedestrian/cyclist link will be provided at the emergency access to the southeast of the site, connecting to the Taff Trail / NCR8 at Upper Abercanaid. This connection boosts pedestrian and cyclist accessibility to the southeast, facilitating Active Travel trips from Abercanaid, Pentrebach and Aberfan.

6.15 The site is well positioned to offer a very significant and attractive employment opportunities and leisure facilities for future residents of the Hoover site, particularly, given that future site users will be able to access the site by walking and cycling. The site in combination with Hoover offers a sustainable addition to Merthyr Tydfil, in terms of providing housing and employment that is not reliant on car travel.

PUBLIC TRANSPORT STRATEGY

6.16 Chapter 4 provides a review of the local public transport network within proximity of the site, identifying several public transport services available within a short walk from the site. The location of the site provides an opportunity for future site users to access existing services. This will be enhanced via the provision of a shuttle bus service to the bus station and railway station.

6.17 The vehicular access strategy for the site has been designed to accommodate the movements of buses and coaches, with the site well placed to be served by a public transport service, should an operator wish to do so, in addition to the proposed shuttle bus service to the Merthyr Tydfil railway station and bus station. This would provide a net benefit to the local area by helping to maintain the local public transport network, increasing the economic viability of service(s).

6.18 Drawing **B023905-TTE-00-ZZ-DR-CH-SK002-P03** illustrates that the layout of the site access roundabout is appropriate to accommodate a bus, with drawing **B023905-TTE-00-ZZ-DR-CH-SK005-P02** illustrating that the layout of the site access roundabout is appropriate to accommodate a 15m coach. These assessments indicate that both vehicles can safely access and egress the site, confirming the appropriateness of the junction for access by the site shuttle bus, public buses, and coach services.

SITE SHUTTLE BUS SERVICE

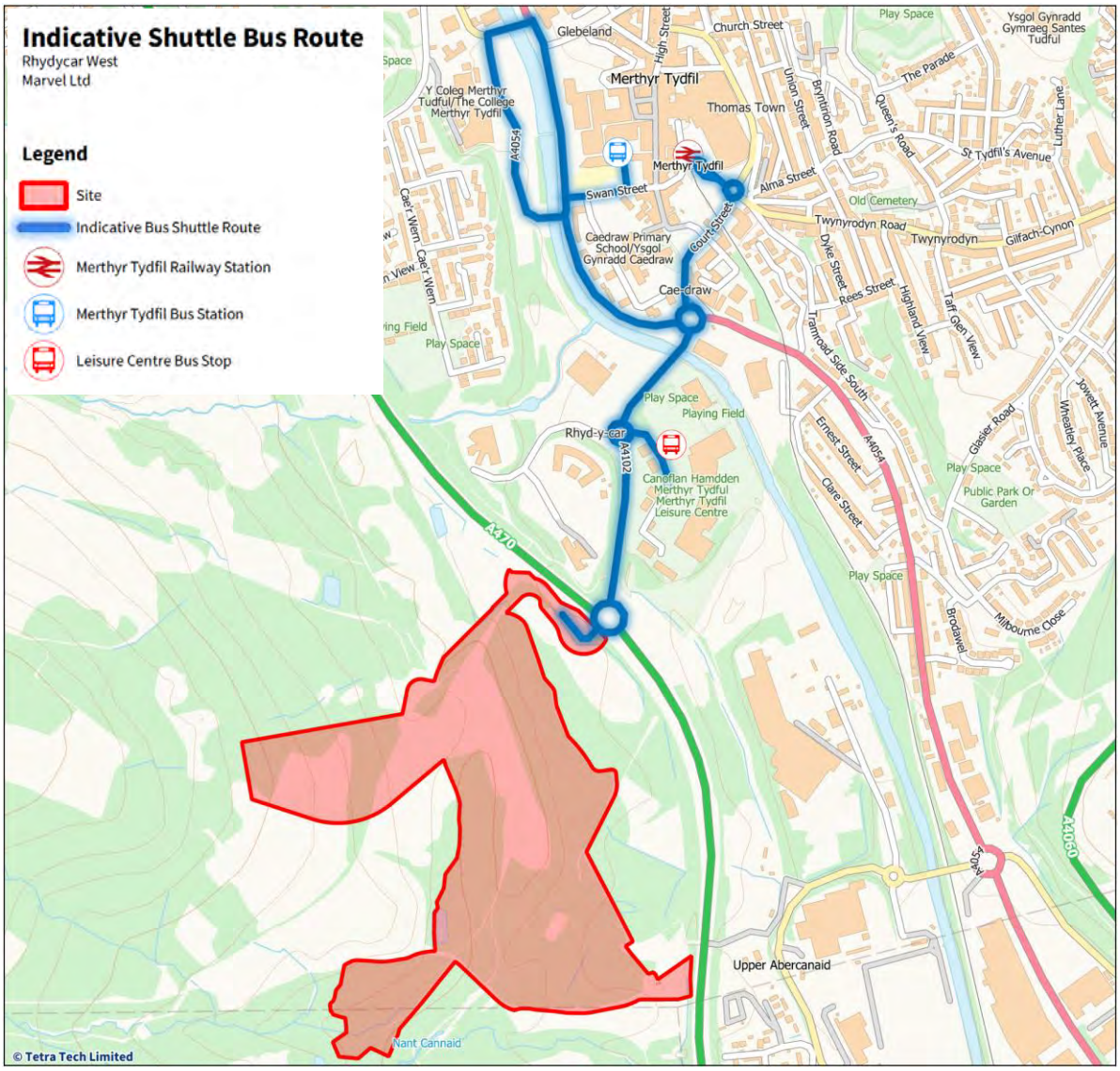
6.19 The site is within proximity of existing public transport services, including key transport interchanges such as Merthyr Tydfil railway station and bus station.

6.20 Public transport connectivity for the site will be improved through the implementation of a site-specific shuttle bus service. This will connect to Merthyr Tydfil railway station, the town centre bus station, the town centre, leisure centre and other key destinations. The railway and bus stations are key generators for public transport trips given their location within the public transport network. Merthyr Tydfil railway station operates as the primary hub for interchanging between rail and bus.

Potential Shuttle Bus Route

6.21 The shuttle bus will route from the site on a circa 4.2km route to Merthyr Tydfil bus station, calling at the “Leisure Centre” stops and Merthyr Tydfil Railway station, with a request stop offered at the College. On the return journey, the shuttle bus would route to the railway station and “Leisure Centre” stops. The proposed route is illustrated in **Figure 6.2**.

Figure 6.2 Potential Shuttle Bus Route



Contains OS data © Crown copyright and database right (2023). OS OpenData is free to use under the Open Government Licence (OGL).

6.22 Typical traffic data indicates that the route shown in **Figure 6.2** would have a typical journey time of around 21 minutes. For a complete round trip from Rhydycar West, the anticipated travel times are shown in **Table 6.1**.

6.23 Facilitating easy access to the Railway Station will help to encourage visitors to travel to the site by train, an option which will be particularly attractive to those travelling from further afield. Facilitating access to the Bus Station will help encourage more local visitors from Merthyr Tydfil and surrounding communities to travel to the site by public transport. The link to the bus station also provides access to bus services that connect to the local and wider region.

Table 6.1 Potential Shuttle Bus Journey Times

Stop	Elapsed Journey Time
Depart Rhydycar West	0 mins
Arrive at Leisure Centre stop	5 mins
Depart Leisure Centre Stop	6 mins
Arrive at Merthyr Tydfil Railway Station	11 mins
Depart Merthyr Tydfil Railway Station	13 mins
Arrive Merthyr Tydfil Bus Station	21 mins
Depart Merthyr Tydfil Bus Station	23 mins
Arrive at Merthyr Tydfil Railway Station	28 mins
Depart Merthyr Tydfil Railway Station	33 mins
Arrive at Leisure Centre stop	38 mins
Depart Leisure Centre Stop	39 mins
Arrive at Rhydycar West	44 mins

6.24 **Table 6.1** indicates a potential journey time of around 44 minutes for a roundtrip journey, 11 minutes for a one-way journey between Rhydycar West and the Train Station and 21 minutes to and from the Bus Station.

Potential Service Pattern

6.25 As detailed in Chapter 5, Merthyr Tydfil railway station experiences a half-hourly service Monday-Saturday, with services on a Sunday due to increase to hourly following implementation of the South Wales Metro. One of the key aims of the potential shuttle bus is to facilitate access to the Rhydycar West site by rail, so that visitors can benefit from the national public transport catchment the site offers, as illustrated in **Figure 5.5**. Given this, it would be beneficial to synchronise shuttle bus services to rail arrivals and departures, so that guests have a minimal layover time at the station on arrival and departure from Rhydycar West.

6.26 It is noted that potential shuttle bus timings would need to be reviewed as the site approaches opening; however, a review has nonetheless been undertaken on the feasibility to synchronise with rail services, based upon 2022 timetable information.

6.27 As of December 2022, services typically arrive at Merthyr Tydfil at hh:01 and hh:31, Monday to Saturday, e.g., arrive at 13:01 and at 13:31. Services typically depart for Cardiff Central at hh:08 and hh:38, e.g., depart at 13:08 and 13:38.

6.28 Based on the provision of two shuttle bus vehicles, and using the travel times shown in **Table 6.1**, **Table 6.2** indicates a potential timetable that could be implemented. This example details the timetable to catch the 13:01/08 and 13:31/38 rail services and can be repeated for other hours of the day as these follow the same rail service pattern.

6.29 It should be noted that the indicative timetable shown in **Table 6.2** allows for arriving at the station 15-minutes before train departures and departs from the station 10-minutes after train arrivals. This will provide

visitors with confidence and 'peace-of-mind' that they will have appropriate time to interchange from bus to train, and vice-versa.

Table 6.2 Potential Shuttle Bus Journey Times, based on Monday to Saturday

Stop	Time	Time
Depart Rhydycar West	12:42	00:24
Arrive at Leisure Centre stop	12:47	00:29
Depart Leisure Centre Stop	12:48	00:30
Arrive at Merthyr Tydfil Railway Station	12:53	13:23
Depart Merthyr Tydfil Railway Station	12:55	13:25
Train arrives at Merthyr Tydfil	**13:01**	**13:31**
Arrive Merthyr Tydfil Bus Station	13:03	13:33
Depart Merthyr Tydfil Bus Station	13:05	13:35
Train departs Merthyr Tydfil	**13:08**	**13:38**
Arrive at Merthyr Tydfil Railway Station	13:10	13:40
Depart Merthyr Tydfil Railway Station	13:15	13:41
Arrive at Leisure Centre stop	13:20	13:46
Depart Leisure Centre Stop	13:21	13:47
Arrive at Rhydycar West	13:26	13:52

6.30 **Table 6.2** indicates that visitors could be on-site at Rhydycar West within 25-minutes of arriving at Merthyr Tydfil by train, and that visitors could depart Rhydycar West 30-minutes before their train departs. Given the minimal additional time involved, it is considered that the shuttle bus provides a very attractive offering to visitors and will encourage site users to access the site by public transport.

6.31 It is also important to facilitate access to Merthyr Tydfil Bus Station given the range of services that connect at the Bus Station. The proposed timetable shown in **Table 6.2** facilitates the shuttle bus routing to the bus station during the period between delivering passengers at Merthyr Tydfil Railway Station and collecting passengers who have just arrived at Merthyr Tydfil Railway Station.

6.32 The frequency and routing of the service will be reviewed regularly to accord to local transport characteristics and user needs.

Potential Shuttle Bus Capacity Assessment

6.33 The likely trip generation for Rhydycar West is detailed in full in **Chapter 7**. Two scenarios are considered:

- Assessment 1 – Average Period
- Assessment 2 – Peak Period: Each Land Use's Peak Season Occurs Simultaneously

6.34 It is noted in **Chapter 7** that Assessment 2 is unlikely to occur in reality, and is particularly unlikely to happen during the early period of site operation. Given this, an assessment on shuttle bus capacity has been undertaken for Assessment 1, on the basis that additional capacity can be added if demand necessitates.

6.35 **Table 7.26** illustrates the multi-modal trip generation for Assessment 1, indicating that the Saturday Peak hour will be the busiest period. For this peak hour period, it is forecast that 45 visitors will arrive by train, with 36 departing.

6.36 Given the current two train per hour service at Merthyr Tydfil, it is likely that a maximum of 23 visitors would be looking to use the shuttle bus during any one 30-minute period.

6.37 A typical single-decker bus, for example the Alexander Dennis Enviro 200 series provides a range of capacity options, catering for 32-46 passengers. Given a reduction in space caused by baggage requirements, it is nonetheless considered that a typical single-decker bus would provide appropriate capacity for the site shuttle bus.

Potential Shuttle Bus Ticketing

6.38 Tickets for the shuttle bus could be sold through the site booking system, with visitors able to add shuttle bus tickets when they book tickets for the site. It could also be possible to include a "tap-and-go" feature to allow visitors/staff who haven't pre-booked to use the shuttle bus. This could operate with a flat fare for any one-way journey, with payment taken via contactless payment.

6.39 Given that the application is at an outline stage, with specific details will be confirmed through the reserved matters process.

FRAMEWORK TRAVEL PLAN

6.40 A comprehensive Framework Travel Plan is provided as part of the application that outlines a package of measures with the aim of reducing the number of single occupancy car trips generated by staff and visitors by promoting travel by sustainable travel modes.

6.41 The Framework Travel Plan will be upgraded to a Full Travel Plan following approval of the planning application, with the Travel Plan Measures subsequently implemented in accordance with conditions that are proposed which require approval and implementation of the Full Travel Plan. The Travel Plan is a live strategy, being reviewed and updated regularly.

6.42 The developer is committed to the delivery of a sustainable development at Rhydycar West. They have therefore chosen to commit to implementing Travel Plan measurers in perpetuity, rather than for the required typical five-year lifespan of a Travel Plan. This will help ensure that the site maximises opportunities to access the development by sustainable and active travel modes throughout its lifespan.

Booking System

6.43 A key element of the Travel Plan will be the booking system for the Site. When booking a visit to Rhydycar West, the customer will be required to provide information on how their party intend on travelling. This will offer customers the option to book onto the shuttle bus to Merthyr Tydfil Station or the bus station, book a vehicle parking space, book an EV charging space, or book cycle parking.

6.44 The booking system will be a key part of the Travel Plan as it will enable the development to offer variable pricing based upon the mode of travel selected, for example, by offering reduced rates for those who access the site by sustainable modes of travel. The system will also act to control car parking levels, by limiting sale of parking passes if capacity is approached.

6.45 It is recognised that a limited pool of parking will be left unallocated, including accessible bays, for any unplanned visits.

VEHICULAR ACCESS STRATEGY

6.46 It is proposed that vehicular access for all facilities at the site be taken from the A470 / A4102 roundabout, via an extension and improvement to the existing stub provided at the south-west arm.

6.47 The existing stub will be enhanced to provide two 3.65m wide lanes, increasing to two 4.5m wide lanes on entry to the roundabout, alongside a 90m centreline radius reducing to 24m to tie into the existing roundabout. The proposed layout of the site access arm has been designed to include a 43.0m forward visibility.

6.48 The proposed site access is illustrated in **Drawing 784-B023905-TTE-00-ZZ-DR-CH-SK001-P03**, with drawings **784-B023905-TTE-00-ZZ-DR-CH-SK002-P03**, **784-B023905-TTE-00-ZZ-DR-CH-SK003-P03**, **784-B023905-TTE-00-ZZ-DR-CH-SK004-P03** and **B023905-TTE-00-ZZ-DR-CH-SK005-P02** illustrating that 12.0m bus, 11.2m refuse collection vehicle and 16.5m articulated vehicle can safely access and egress the site.

6.49 An emergency access is provided to the southeast of the site. This will be gained from Dragon Parc, with **Drawing 784-B023905-TTE-00-00-SK-O-00007-P01-S1** illustrating that suitable visibility is provided in this location, with a X-distance of 2.4m and a Y-distance of 43.0m achievable. This is in accordance with Manual for Streets for a 30mph road.

6.50 Internally, carriageways are designed to a 7.2m width to enable the safe and suitable movement of all vehicles around the site.

PARKING PROVISION

Car Parking

6.51 Car parking will be provided in accordance with the County Surveyors' Society Wales Parking Standards, which sets out parking standards for hotels, and fitness/leisure/sport clubs.

6.52 Under these standards, the maximum parking the development could provide is set out in **Table 6.3**.

Table 6.3 Maximum Parking Provision

Land Use	Maximum Standard	Development Quantum	Maximum Parking Provision
Hotels	1 space per 3 non-resident staff and 1 space per bedroom	418 beds (hotels) plus 30 Forest Lodges (assumed 15 x2 bed and 15 x1 bed)	463 spaces
Fitness Clubs, Leisure Clubs and Sports Clubs	1 space per 2 facility users	Peak leisure facility visitor accumulation is 3,408	1,704 spaces
Disabled Parking – For car parks associated with leisure or recreational facilities	A minimum of one space for each employee who is a disabled motorist plus 6% of the total car park capacity for visiting disabled motorists	6% of 2,178 spaces	130 spaces
Total			**2,297 spaces**

6.53 As set out in **Table 6.3**, the development would be permitted to provide a maximum of up to 2,297 car parking spaces.

6.54 In accordance with Future Wales, at least 10% of the total car parking spaces will provide electric vehicle charging facilities (83 EV charging spaces). Further passive provision will be provided.

6.55 The development proposes 830 car parking spaces which will be managed through the booking system to ensure that the Site cannot be "oversold". This is within the maximum standards set by the County Surveyors' Society Wales Parking Standards, meaning that the level of parking proposed is policy compliant. The Travel Plan will include a booking system, encouraging users to travel by sustainable modes of transport. A variety of travel options is provided for site users to travel to and from the Site, with appropriate parking provided not to penalise car users, but to meet the principles and aspirations of the Well-being of Future Generations Act and the Net Zero Wales Carbon Budget.

6.56 The location of the car park is shown by the Masterplan at **Appendix C**, which shows that the car park is located within the internal road network of the Site. Queuing onto the public highway will be very unlikely given the distance of the car park from the public highway. For example, the car park is located approximately 890m from the A470 roundabout, providing queuing space for circa 155 vehicles. Any delays generated by vehicles accessing / egressing the car park will be immaterial to the performance of the surrounding road network given the volume of internal carriageway.

Cycle Parking

6.57 Cycle parking will be provided in accordance with the County Surveyors' Society Wales Parking Standards, which sets out cycle parking standards for hotels, and leisure/sport clubs. The standards are set out in **Table 2.2**.

6.58

REFUSE AND SERVICING STRATEGY

6.59 The proposed vehicular access strategy will be conducive towards the movements of emergency and service vehicles, allowing vehicles to enter / exit the site in a forward gear. Drawing **784-B023905-TTE-00-ZZ-DR-CH-SK003-P02** illustrates that a 11.2m refuse vehicle can safely and suitably access/egress the site from all arms at the A470 roundabout.

COMPLIANCE WITH FUTURE WALES, PPW AND LLWYBR NEWYDD: THE WALES TRANSPORT STRATEGY

Future Wales – The National Plan 2040

6.60 As set out in **Chapter 2**, Future Wales – The National Plan 2040 sets out the national development framework and the direction for development in Wales. It notes that:

- Significant new leisure facilities must be located within town and city centres. They should have good access by public transport to and from the whole town/city and, if appropriate, the wider region.
    - As detailed in **Chapter 6**, the site shuttle bus provides a regular connection directly from the site to the railway station, bus station and town centre. This high-quality link ensures that the site has good access by public transport to and from the whole town and wider region, by connecting with the town's two key transport hubs.
    - As set out in **Chapter 5**, access to the wider region is facilitated through connecting to Merthyr Tydfil Railway Station and the bus station. The railway station provides a regular service from Merthyr Tydfil to and from Cardiff Central, with services continuing onwards to Barry, Barry Island and Bridgend. From Cardiff Central, connecting services are available providing direct links to the wider parts of Great Britain, including Swansea, Manchester, Bristol, Reading, London, Exeter, and Birmingham. The bus station provides links to local areas and more strategic services to mid Wales, including Newtown to the north and Abergavenny to the east.
- That a sequential approach must be used to inform the identification of the best location for these developments.
    - The Applicant confirms that a sequential approach has been used to inform the identification of the best location for the development, detailed in full in the submitted Planning Statement and in the Alternatives chapter of the ES.
- The Valleys area, including Merthyr Tydfil, will be better connected because of the South Wales Metro and A465 investments, highlighting that the area has the potential to build on its tourism offer.
    - Improvements to local transport infrastructure are detailed in **Chapter 3**, with this development offering the opportunity for the area to build on its tourism offer.

- New non-residential developments are required to provide a minimum of 10% of the total car park capacity to have electric vehicle charging points.
    - As detailed at **Paragraph 6.49**, the development will provide at least 10% of the total car parking spaces as EV charging facilities (83 EV charging spaces).

Planning Policy Wales

6.61 As detailed in **Chapter 2**, PPW sets out a strategic framework to guide development across the country. It sets out that:

- PPW promotes development that can improve choice in transport and secure accessibility in a way which supports sustainable development.
    - As detailed in **Chapters 5** and **6**, through the provision of a high-quality shuttle bus link to connections in Merthyr Tydfil, including the railway station and bus station the development offers a genuine choice in transport accessibility. Options are provided for site visitors to travel by rail or bus to Merthyr Tydfil before connecting onto the dedicated shuttle bus, facilitating extensive access from local areas, Wales, and the wider UK.
- Development proposals must seek to maximise accessibility by walking, cycling and public transport.
    - As detailed in **Chapter 6**, the site provides active travel connections to key off-site links, accommodating active travel trips to and from the site, with enhancements including surfacing and lighting of the route to the Leisure Centre. Furthermore, as detailed in **Chapter 6**, a high-quality shuttle bus link will be provided to maximise accessibility by public transport.
- New developments should identify and support appropriate public transport routes, as well as where additional public transport infrastructure is required to support new development.
    - As detailed in **Chapter 6**, it has been identified that additional public transport infrastructure would support this development. Therefore, a high-quality shuttle bus link to the bus station, railway station and town centre will be provided to maximise accessibility by public transport.

Llwybr Newydd: The Wales Transport Strategy 2021

6.62 **Chapter 2** summarises the requirements of Llwybr Newydd: The Wales Transport Strategy 2021, highlighting that:

- The Wales Transport Strategy proposes a modal shift change to achieve their aim of reducing carbon emissions from surface transport by half, with significant growth in journeys made by public transport, walking and cycling.

- As detailed in **Chapter 6**, the site provides active travel connections to key off-site links, accommodating active travel trips to and from the site with enhancements including surfacing and lighting of the route to the Leisure Centre. A high-quality shuttle bus link will also be provided to maximise accessibility by public transport. This will ensure that the site has good access by public transport to and from the whole town and wider region, by connecting with the town's two key transport hubs.

- This modal shift change will be achieved through various infrastructure improvement schemes, data reviews and other measures to incentivise sustainable travel.
    - The Application provides a **Travel Plan**, referenced in **Chapter 6,** and submitted alongside the Transport Assessment, with a commitment by the developer to implement the Travel Plan as a permanent requirement of the development, rather than for the typical five-year period. The Travel Plan provides a package of targeted measures to incentivise sustainable travel when accessing the site, such as through the offering of variable pricing based upon the mode of travel the visitor takes when accessing the site.

STRATEGIC BENEFIT OF DEVELOPMENT

6.63 It is considered that the development will provide a benefit to the local area with regards to transport and accessibility. The reasons for this are as follows:

- The development will provide new employment which will offer local jobs within an appropriate walking and cycling catchment of Merthyr Tydfil, thereby providing opportunities for staff commute trips to be made by non-car modes.
- The development will provide a significant attraction for the local and wider area, enhancing local tourism and subsequently providing a net benefit to local businesses.
- The development provides a Framework Travel Plan, which has been designed to encourage sustainable travel behaviour amongst new staff and visitors via a variety of measures; and,
- The development will improve the viability of rail services serving Merthyr Tydfil station, delivering a net benefit to the Merthyr Line and wider South Wales Metro. It will also improve the viability of local bus services, by encouraging site visitors to travel on public bus services to Merthyr Tydfil bus station, before connecting onto the site shuttle bus.

7 TRIP RATE, GENERATION AND ASSIGNMENT

INTRODUCTION

7.1 The purpose of this chapter is to set out the methodology and results of the trip generation assessments. This has been undertaken to assess the potential impact of the proposed development, in terms of trips generated on the surrounding highway network, according to the proposed land use as set out in the previous chapter.

7.2 **The trip generation for the proposals has been undertaken on a first principles basis and outlines the trips that will be generated for two assessment scenarios:**

- **Assessment 1:** This approach has been undertaken to provide a realistic assessment of typical day-to-day visitor patterns at Rhydycar West.
- **Assessment 2: Worst case scenario** assessment where each land use's peak season is assumed to occur simultaneously (which is unrealistic). This is to provide a worst-case scenario, and will not occur in practice because, for example, the peak season for the outdoor activity centre will be the summer period, whereas the Snow Centre peak season will be winter. **This approach has been undertaken to provide a robust sensitivity assessment to advise on the viability of the local network to accommodate any increased traffic well above what is considered to be likely to be experienced in reality.**

TRIP GENERATION ASSESSMENT METHODOLOGY

7.3 The trip generation for the proposed development has been undertaken on a first principles basis, putting the tourist attraction elements of the development at the centre of the trip generation forecast.

7.4 The peak hours of 08:00-09:00 in the AM peak, 16:00-17:00 in the PM peak and 12:00-13:00 on a Saturday will be used to calculate the peak hour trip generation for the development.

Land Use Methodology

7.5 The methodology used to forecast the trip generation of each element of the proposed development is set out below:

- Snow Centre – Based on annual visitor forecasts provided by Marvel Ltd.
- Water Park – Based on annual visitor forecasts provided by Marvel Ltd.
- Indoor / Outdoor Activity Centre – Based on annual visitor forecasts provided by Marvel Ltd.
- Hotels – Based on TRICS trip rates; and,
- Forest Lodges – Based on TRICS trip rates.

Visitor Forecasts

7.6 Marvel Ltd have provided visitor forecasts for the development, with the following visit numbers expected:

- Snow Centre – 750,000 visitors per annum.
- Water Park – 560,000 visitors per annum.
- Indoor / Outdoor Activity Centre – 270,000 visitors per annum.

Double Counting of Visitors

7.7 It should be noted that the trip generation exercise for the Hotel and Forest Lodge elements are undertaken using TRICS trip rates and assume that all trips associated with the Hotel and Forest Lodge elements are unique visitors, visiting these elements only. In reality, visitors to the Hotel and Forest Lodge elements will likely visit other elements too during their stay (e.g., the snow centre, the water park, and the other attractions within the development), so the trip assessment undertaken for those elements of the development provides a worst-case assessment, over-estimating the total number of visitors forecast at Rhydycar West. This means that all highway capacity assessments provided in this TA are a worst-case assessment, with development traffic levels that are higher than will be experienced in reality. This has been undertaken to provide a robust worst-case assessment.

Trip Profiles

7.8 Trip profiles for the Snow Centre, Water Park and Indoor/Outdoor Activity centre have been derived from methodologies and customer forecasts consented under Application S/OUT/15/0943 for the construction of Snow Centre Swindon (Land at North Star), which forecast trips based on information obtained from Snozone Milton Keynes and Snozone Castleford.

7.9 Trip profiles have been prepared to examine the operational capacity of the road network, and include the movements of staff, visitors, and servicing.

7.10 For land uses which use customer forecasts, the level of visitor trips far outweighs the number of staff trips, and so the ancillary level of staff trips has not been separated out.

7.11 Where TRICS data has been used, the trip generation for the relevant element has used survey sites identified and selected as sharing similar characteristics to the site in terms of size of the respective land uses, location, and accessibility.

7.12 For land uses which use TRICS data, TRICS trip rates include all trips associated with a land use, meaning that staff trips are included within these trip rates. Given that the level of visitor trips far outweighs the number of staff trips, they have not been separated out.

7.13 Furthermore, the Rhydycar West development is not, generally speaking, an “office-hours” destination, meaning that a substantial proportion of staff trips will likely occur outside of traditional highway peak periods. During the off-peak periods traffic levels are significantly lower, with the network operating with an enhanced level of residual capacity, meaning that the impact of any staff trips will be negligible.

Mode Share

7.14 Development trip mode share data has been obtained from the 2012 National Travel Survey (NTS) dataset 'Average distance travelled by purpose and main mode: Great Britain, 2012'. The 2012 National Travel Survey is the most recent survey which reported this dataset for the whole of Great Britain, with later surveys recording data for residents of England only. It is therefore considered that this dataset provides the most recent relevant dataset. This 'leisure' journey mode share recorded by 2012 National Travel Survey is shown in **Table 7.1**.

Table 7.1 Forecast Mode Share (National Travel Survey, 2012)

Mode of Travel	Mode Share
Walk	1%
Bicycle	1%
Car / van driver	41%
Car / van passenger	43%
Motorcycle	1%
Local bus	3%
Rail	10%
All modes	**100%**

7.15 The 2012 NTS recorded a typical rail 'leisure-trip' mode share of 10%. As discussed at **Paragraph 7.3**, Marvel Ltd expect more than 1.59 million visitors per year to the Rhydycar West development. The use of the nationally derived rail mode share is therefore considered inappropriate; at a 10% mode share, the development would generate 318,000 two-way rail journeys per year. Merthyr Tydfil station receives around 459,000 passengers per year (2019/20, pre-pandemic), which would result in the development increasing rail passenger levels at the station by circa 69%.

7.16 As detailed in **Chapter 3**, it is noted that Merthyr Tydfil station will benefit from the South Wales Metro scheme, which will likely enhance the passenger volumes at the station. However, this is set against the context that as of July-September 2022, TfW services are still operating at only 71.7% of their pre-pandemic passenger levels. The likelihood of Rhydycar West increasing passenger levels at Merthyr Tydfil Station by 69% against the 2019 baseline is thus considered unrealistic.

7.17 Therefore, the forecast rail mode share has been decreased to 5%, with trips factored to other modes. **The reason for reducing to a 5% rail mode share is to provide a realistic rail passenger mode share, which also presents a robust worst-case assessment for vehicular trip generation as it increases the vehicular mode share.** In the event that rail patronage is higher than forecast, this will likely lead to a reduction in vehicle mode share. The amended mode share used in subsequent assessments is shown in **Table 7.2**.

Table 7.2 Proposed Mode Share (Amended National Travel Survey, 2012)

Mode of Travel	Mode Share
Walk	1%
Bicycle	1%
Car / van driver	44%
Car / van passenger	45%
Motorcycle	1%
Local bus	3%
Rail	5%
All modes	**100%**

7.18 **Table 7.2** details the proposed mode share for Rhydycar West. This highlights that **56% of visitors will access the Site by more sustainable means**, with 45% of visitors car sharing, 5% travelling by train, 3% travelling by bus and the remaining 3% travelling by motorcycle, bicycle, or walking. Only 44% of visitors to the Site are forecast to travel by single occupancy vehicle.

7.19 Given the bespoke nature of the Rhydycar West development, unlike anything else in Wales, there is a lack of similar facilities to compare the mode share with. The assessments therefore utilise the 2012 National Travel Survey data as a worst case.

7.20 The use of the 2012 National Travel Survey data as a worst case is highlighted by the Great Britain Day Visits Survey undertaken by Visit Britain. These surveys illustrate that UK car mode share for tourist day-visits has reduced by approximately 3% between 2012 and 2019, meaning that the mode shares used and detailed in **Table 7.2** are likely more car reliant than reality.

DEVELOPMENT PROPOSAL TRIP ASSESSMENT

Snow Centre Trip Assessment

7.21 The Snow Centre element is likely to operate in a similar manner to existing indoor Snow Centre facilities elsewhere in the United Kingdom. The trip profiles for the Snow Centre have therefore been derived from information obtained from other indoor Snow Centres and is based on methodologies and customer forecasts consented under Application S/OUT/15/0943 for the construction of Snow Centre Swindon (Land at North Star). Application S/OUT/15/0943 used customer data obtained from Snozone Milton Keynes and Snozone Castleford.

7.22 This approach is considered credible as both Rhydycar West and Application S/OUT/15/0943 will provide a bespoke tourist facility. While they may provide different facilities, they both appeal to the same tourist audience and would therefore have similar arrival and departure patterns.

7.23 Trips associated with staff shifts are likely to occur outside of the local highway networks peak periods and therefore the trip assessment focuses on visitors to Rhydycar West.

Assessment 1

7.24 As set out at **Paragraph 7.2**, it is assumed that 8.33% of the total annual visitors will visit each month, which equates to 62,500 visitors per month.

7.25 A daily profile of visitor levels has been derived from information consented under Application S/OUT/15/0943, which indicates a weekday peak (Friday) visitor level of 13.3%, with a Saturday peak visitor level of 25.4% of the weekly total. This equates to 1,920 visitors on a Friday and 3,658 visitors on a Saturday, as summarised in **Table 7.3**. The data indicates 50.5% of weekly visitors are forecast on weekdays, with 49.5% of weekly visitors forecast at the weekend.

Table 7.3 Snow Centre: Weekly Profile of Visitors

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Total
Weekly profile consented under Application S/OUT/15/0943	10.9%	6.5%	12.8%	7.1%	13.3%	25.4%	24.1%	100.0%
Rhydycar West Daily Visitors	**1,574**	**934**	**1,845**	**1,024**	**1,920**	**3,658**	**3,469**	**14,423**

7.26 The hourly profile obtained from Application S/OUT/15/0943 is summarised at **Table 7.4** and indicates that 2% of the daily arrivals are expected in the Weekday AM peak period (0800-0900). In the weekday PM peak period (1630-1730), 11% of arrivals are forecast alongside 7% of departures, based on the highest number forecast in the 1600-1700 and 1700-1800 periods. During the Saturday Peak (1200-1300), 9% of arrivals are expected, alongside 7% of departures at 13.8% of the total annual visitors.

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

Table 7.4 Snow Centre: Hourly Profile of Arrivals and Departures

Time of Day	Friday		Saturday	
	Arrivals	Departures	Arrivals	Departures
08:00	2%	0%	2%	0%
09:00	6%	0%	2%	0%
10:00	4%	2%	7%	2%
11:00	12%	6%	6%	2%
12:00	4%	4%	9%	7%
13:00	6%	12%	10%	6%
14:00	7%	4%	11%	9%
15:00	3%	6%	13%	10%
16:00	11%	7%	11%	11%
17:00	7%	3%	9%	13%
18:00	0%	11%	0%	11%
19:00	25%	7%	14%	9%
20:00	12%	0%	4%	0%
21:00	3%	25%	2%	14%
22:00	0%	12%	0%	4%
23:00	0%	3%	0%	2%
Total	**100%**	**100%**	**100%**	**100%**

7.27 The arrival and departure profile set out at **Table 7.4** has been used to determine the proportion of visitors arriving and departing the Snow Centre in each hour, based on the Friday and Saturday forecasts set out at **Table 7.3**. The resultant hourly visitor generation is summarised in **Table 7.5**.

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

Table 7.5 Snow Centre: Hourly Visitor Generation

Time of Day	Friday		Saturday	
	Arrivals	Departures	Arrivals	Departures
08:00	**29**	**0**	58	0
09:00	111	0	68	0
10:00	68	29	252	58
11:00	237	111	237	68
12:00	77	68	**319**	**252**
13:00	116	237	382	237
14:00	131	77	416	319
15:00	58	116	489	382
16:00	**203**	**131**	397	416
17:00	140	58	324	489
18:00	0	203	0	397
19:00	479	140	523	324
20:00	237	0	140	0
21:00	48	479	58	523
22:00	0	227	0	140
23:00	0	48	0	58
Total	**1,920**	**1,920**	**3,658**	**3,658**

7.28 **Table 7.5** illustrates the Snow Centre element is forecasting 29 visitor arrivals alongside 0 visitor departures in the weekday AM peak period (0800-0900). In the weekday PM peak period, it is forecast that 203 visitors will arrive, alongside 131 visitor departures (1600-1700). In the Saturday Peak it is forecast that 319 visitors will arrive, alongside 252 visitor departures.

Assessment 2

7.29 Information obtained from Application S/OUT/15/0943 provides a monthly, daily, and hourly breakdown of visitor numbers, which indicate that the February peak month will see 13.8% of the annual number of visitors visit the Snow Centre. It is therefore reasonable to assume that this will also be the peak period for the Rhydycar West facility. The monthly breakdown is summarised at **Table 7.6**.

7.30 Based on a peak month at 13.8% of the total annual visitors, it is expected that 103,167 visitors will visit in February. From the February forecast, a weekly profile has been derived, based on the assumption that visitor numbers are evenly distributed throughout the month. This forecasts a peak of 25,792 visitors per week.

Table 7.6 Snow Centre Monthly Profile of Visitors

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monthly profile consented under Application S/OUT/15/0943	13.2%	13.8%	9.9%	6.7%	5.4%	4.2%	4.4%	7.4%	5.3%	8.2%	9.2%	12.2%	100.0%
Forecast Monthly Visitors	**99159**	**103167**	**74336**	**50473**	**40742**	**31836**	**33278**	**55306**	**39870**	**61298**	**68759**	**91775**	**750000**

Table 7.7 Snow Centre Weekly Profile of Visitors

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Total
Weekly profile consented under Application S/OUT/15/0943	10.9%	6.5%	12.8%	7.1%	13.3%	25.4%	24.1%	100.0%
Rhydycar West Daily Visitors	**2814**	**1671**	**3299**	**1831**	**3433**	**6541**	**6203**	**25792**

7.31 The arrival and departure profile set out at **Table 7.4** has been used to determine the proportion of visitors arriving and departing the Snow Centre in each hour, based on the forecast Friday and Saturday visitor forecasts set out at **Table 7.7**. The resultant hourly visitor generation is summarised in **Table 7.8**.

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

Table 7.8 Snow Centre: Peak Period Hourly Visitor Generation

Time of Day	Friday		Saturday	
	Arrivals	Departures	Arrivals	Departures
08:00	**52**	**0**	104	0
09:00	199	0	121	0
10:00	121	52	450	104
11:00	424	199	424	121
12:00	138	121	**571**	**450**
13:00	208	424	684	424
14:00	233	138	744	571
15:00	104	208	874	684
16:00	**363**	**233**	709	744
17:00	251	104	580	874
18:00	0	363	0	709
19:00	856	251	934	580
20:00	424	0	251	0
21:00	86	856	104	934
22:00	0	406	0	251
23:00	0	86	0	104
Total	**3,433**	**3,433**	**6,541**	**6,541**

7.32 **Table 7.8** illustrates the Snow Centre element is forecasting 52 visitor arrivals alongside 0 visitor departures in the weekday AM peak period (0800-0900). In the weekday PM peak period, it is forecast that 363 visitors will arrive, alongside 233 visitor departures (1600-1700). In the Saturday Peak it is forecast that 571 visitors will arrive, alongside 450 visitor departures.

Water Park Trip Assessment

7.33 Marvel Limited have advised that circa 560,000 visitors per annum are expected at the Water Park. To derive a daily visitor forecast, the annual, monthly, and daily profiles set out at **Table 7.3**, **7.4** and **7.6** have been used.

7.34 Trips associated with staff shifts are likely to occur outside of the local highway networks peak periods and therefore the trip assessment focuses on visitors to the Water Park element.

Assessment 1

7.35 As set out at **Paragraph 7.2**, it is assumed that 8.33% of the total annual visitors will visit each month. It is expected that 46,667 visitors per month will therefore visit.

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

7.36 Based on the figures and the daily profile of visitor levels set out in **Table 7.3**, forecast visitor levels expected associated with the Water Park are set out at **Table 7.9**.

Table 7.9 Water Park Profile of Visitors

Period	Visitors
Annual Visitors	560,000
Average Month Share	8.33%
Forecast Monthly Visitors	46,667
Forecast Weekly Visitors	10,769
Busiest Weekday Share	13.0%
Forecast Weekday Visitors	1,433
Busiest Saturday Share	25.0%
Forecast Saturday Visitors	2,731

7.37 **Table 7.9** indicates that the Water Park is likely to generate 1,433 visitors on a weekday, alongside 2,731 visitors on a Saturday.

7.38 The arrival and departure profile obtained from Application S/OUT/15/0943 and set out at **Table 7.4** has been used to determine the proportion of visitors arriving and departing the Water Park in each hour, based on the Friday and Saturday visitor forecasts set out at **Table 7.9**. The resultant hourly visitor generation is summarised in **Table 7.10**.

Table 7.10 Water Park: Hourly Visitor Generation

Time of Day	Friday		Saturday	
	Arrivals	Departures	Arrivals	Departures
08:00	**22**	**0**	43	0
09:00	83	0	51	0
10:00	51	22	188	43
11:00	177	83	177	51
12:00	58	51	**238**	**188**
13:00	87	177	285	177
14:00	97	58	311	238
15:00	43	87	365	285
16:00	**152**	**97**	296	311
17:00	105	43	242	365
18:00	0	152	0	296
19:00	357	105	390	242
20:00	177	0	105	0
21:00	36	357	43	390
22:00	0	170	0	105
23:00	0	36	0	43
Total	**1,433**	**1,433**	**2,731**	**2,731**

7.39 **Table 7.10** illustrates that the Water Park element is forecasting 22 visitor arrivals alongside 0 visitor departures in the weekday AM peak period (0800-0900). In the weekday PM peak period, it is forecast that 152 visitors will arrive, alongside 97 visitor departures (1600-1700). In the Saturday Peak it is forecast that 238 visitors will arrive, alongside 188 visitor departures.

Assessment 2

7.40 Based on the peak month and daily profile of visitor levels set out in **Tables 7.6** and **7.7**, the forecast peak period visitor levels expected associated with the Water Park are set out at **Table 7.11**.

Table 7.11 Water Park: Peak Period Profile of Visitors

Period	Visitors
Annual Visitors	560,000
Peak Month Share	13.8%
Forecast Monthly Visitors	77,031
Forecast Weekly Visitors	19,258
Peak Weekday Share	13.0%
Forecast Weekday Visitors	2,563
Peak Saturday Share	25.0%
Forecast Saturday Visitors	4,884

7.41 **Table 7.11** indicates that the Water Park is likely to generate 2,563 visitors on a peak weekday, alongside 4,884 visitors on a peak Saturday.

7.42 While it is noted that the peak visitor period for the Water Park is unlikely to coincide with the peak visitor period for the Snow Centre and Indoor / Outdoor Activity Centre, assessing all three land uses with a simultaneous peak allows for consideration of an absolute worst-case scenario, providing confidence that suitable capacity is available in the local highway network.

7.43 The arrival and departure profile set out at **Table 7.4** has been used to determine the proportion of visitors arriving and departing the Water Park in each hour, based on the forecast Friday and Saturday peak period visitor forecasts set out at **Table 7.11**. The resultant hourly visitor generation is summarised in **Table 7.12**.

Table 7.12 Water Park: Peak Period Hourly Visitor Generation

Time of Day	Friday		Saturday	
	Arrivals	Departures	Arrivals	Departures
08:00	**39**	**0**	78	0
09:00	148	0	90	0
10:00	90	39	336	78
11:00	316	148	317	90
12:00	103	90	**426**	**336**
13:00	155	316	510	317
14:00	174	103	556	426
15:00	77	155	652	510
16:00	**271**	**174**	530	556
17:00	187	77	433	652
18:00	0	271	0	530
19:00	639	187	698	433
20:00	316	0	187	0
21:00	65	639	78	698
22:00	0	303	0	187
23:00	0	65	0	78
Total	**2,563**	**2,563**	**4,884**	**4,884**

7.44 **Table 7.12** illustrates the Water Park element during a peak period is forecasting 39 visitor arrivals alongside 0 visitor departures in the weekday AM peak period (0800-0900). In the weekday PM peak period, it is forecast that 271 visitors will arrive, alongside 174 visitor departures (1600-1700). In the Saturday Peak it is forecast that 426 visitors will arrive, alongside 336 visitor departures.

Indoor / Outdoor Activity Centre Trip Assessment

7.45 Marvel Limited have advised that circa 270,000 visitors per annum are expected at the Indoor / Outdoor Activity Centre. To derive a daily visitor forecast, the annual, monthly, and daily profiles set out at **Table 7.3**, **7.4** and **7.6** have been used.

7.46 Trips associated with staff shifts are likely to occur outside of the local highway networks peak periods and therefore the trip assessment focuses on visitors to the Indoor/Outdoor Activity element.

Assessment 1

7.47 As set out at **Paragraph 7.2**, it is assumed that 8.33% of the total annual visitors will visit, which equates to 22,500 visitors per month.

7.48 Based on the visitor figures and the daily profile of visitor levels set out in **Table 7.3**, the forecast visitor levels expected associated with the Indoor / Outdoor Activity Centre are set out at **Table 7.13**.

Table 7.13 Indoor / Outdoor Activity Centre: Profile of Visitors

Period	Visitors
Annual Visitors	270,000
Average Month Share	8.33%
Forecast Monthly Visitors	22,500
Forecast Weekly Visitors	5,192
Busiest Weekday Share	13.0%
Forecast Weekday Visitors	691
Busiest Saturday Share	25.0%
Forecast Saturday Visitors	1,317

7.49 **Table 7.13** indicates that the Indoor / Outdoor Activity Centre is likely to generate 691 visitors on a weekday, alongside 1,317 visitors on a Saturday.

7.50 The arrival and departure profile obtained from Application S/OUT/15/0943 and set out at **Table 7.4** has been used to determine the proportion of visitors arriving and departing the Indoor / Outdoor Activity Centre in each hour, based on the forecast Friday and Saturday visitor forecasts set out at **Table 7.13**. The resultant hourly visitor generation is summarised in **Table 7.14**.

Table 7.14 Indoor / Outdoor Activity Centre: Hourly Visitor Generation

Time of Day	Friday		Saturday	
	Arrivals	Departures	Arrivals	Departures
08:00	**10**	**0**	21	0
09:00	40	0	24	0
10:00	24	10	91	21
11:00	85	40	85	24
12:00	28	24	**115**	**91**
13:00	42	85	138	85
14:00	47	28	150	115
15:00	21	42	176	138
16:00	**73**	**47**	143	150
17:00	50	21	117	176
18:00	0	73	0	143
19:00	172	50	188	117
20:00	85	0	51	0
21:00	17	172	21	188
22:00	0	82	0	51
23:00	0	17	0	21
Total	**691**	**691**	**1,317**	**1,317**

7.51 **Table 7.14** illustrates that the Indoor / Outdoor Activity Centre element is forecasting 10 visitor arrivals alongside 0 visitor departures in the weekday AM peak period (0800-0900). In the weekday PM peak period, it is forecast that 73 visitors will arrive, alongside 47 visitor departures (1600-1700). In the Saturday Peak it is forecast that 115 visitors will arrive, alongside 91 visitor departures.

Assessment 2

7.52 Based on the peak month and daily profile of visitor levels set out in **Tables 7.6** and **7.7**, the forecast peak period visitor levels expected associated with the Indoor / Outdoor Activity Centre are set out at **Table 7.15**.

Table 7.15 Indoor / Outdoor Activity Centre: Peak Period Profile of Visitors

Period	Visitors
Annual Visitors	270,000
Peak Month Share	13.8%
Forecast Monthly Visitors	37,140
Forecast Weekly Visitors	9,285
Peak Weekday Share	13.0%
Forecast Weekday Visitors	1,236
Peak Saturday Share	25.0%
Forecast Saturday Visitors	2,355

7.53 **Table 7.15** indicates that the Indoor / Outdoor Activity Centre is likely to generate 1,236 visitors on a weekday, alongside 2,355 visitors on a Saturday.

7.54 While it is noted that the peak visitor period for the Indoor / Outdoor Activity Centre is unlikely to coincide with the peak visitor period for the Snow Centre and Water Park, assessing all three land uses with a simultaneous peak allows for consideration of an absolute worst-case scenario, providing confidence that suitable capacity is available in the local highway network.

7.55 The arrival and departure profile set out at **Table 7.4** has been used to determine the proportion of visitors arriving and departing the Indoor / Outdoor Activity Centre in each hour, based on the forecast Friday and Saturday peak period visitor forecasts set out at **Table 7.15**. The resultant hourly visitor generation is summarised in **Table 7.16**.

Table 7.16 Indoor / Outdoor Activity Centre Hourly Visitor Generation

Time of Day	Friday		Saturday	
	Arrivals	Departures	Arrivals	Departures
08:00	**19**	**0**	37	0
09:00	72	0	44	0
10:00	44	19	162	37
11:00	153	72	153	44
12:00	50	44	**206**	**162**
13:00	75	153	246	153
14:00	84	50	268	206
15:00	37	75	315	246
16:00	**131**	**84**	255	268
17:00	90	37	209	315
18:00	0	131	0	255
19:00	308	90	336	209
20:00	153	0	90	0
21:00	31	308	37	336
22:00	0	146	0	90
23:00	0	31	0	37
Total	**1,236**	**1,236**	**2,355**	**2,355**

7.56 **Table 7.16** illustrates the Indoor / Outdoor Activity Centre element during a peak period is forecasting 19 visitor arrivals alongside 0 visitor departures in the weekday AM peak period (0800-0900). In the weekday PM peak period, it is forecast that 131 visitors will arrive, alongside 84 visitor departures (1600-1700). In the Saturday Peak it is forecast that 206 visitors will arrive, alongside 162 visitor departures.

Assessment 1: Snow Centre, Water Park, and Activity Centre Total Visitor Generation

7.57 **Table 7.17** summarises total visitor generation forecast for the three 'attraction' elements of the Snow Centre, Water Park, and Activity Centre at Rhydycar West during an average period.

Table 7.17 Total Visitor Generation for Snow Centre, Water Park, and Activity Centre Elements

Period	Element	Arrivals	Departures	Total Visitors
Weekday AM Busiest Hour	Snow Centre	29	0	29
	Water Park	22	0	22
	Activity Centre	10	0	10
	Total	**61**	**0**	**61**
Weekday PM Busiest Hour	Snow Centre	203	131	334
	Water Park	152	97	249
	Activity Centre	73	47	120
	Total	**428**	**275**	**703**
Saturday Busiest Hour	Snow Centre	319	252	571
	Water Park	238	188	426
	Activity Centre	115	91	206
	Total	**673**	**530**	**1,203**
Annual	Snow Centre	750,000	750,000	750,000
	Water Park	560,000	560,000	560,000
	Activity Centre	270,000	270,000	270,000
	Total	**1,580,000**	**1,580,000**	**1,580,000**

7.58 **Table 7.17** illustrates that the Snow Centre, Water Park, and Activity Centre elements at Rhydycar West are forecast to generate circa 1.58 million visitors per annum. During the weekday AM peak, 61 arrivals are expected, alongside 0 departures. During the weekday PM peak, assessments forecast that 428 visitors will arrive, with 275 departing. For the Saturday peak period, it is forecast that 673 visitors will arrive, alongside 530 departures.

Assessment 2: Snow Centre, Water Park, and Activity Centre Total Visitor Generation

7.59 **Table 7.18** summarises total visitor generation forecast for the three 'attraction' elements of the Snow Centre, Water Park, and Activity Centre at Rhydycar West. This assessment considers a peak period.

Table 7.18 Total Visitor Generation for Snow Centre, Water Park, and Activity Centre Elements

Period	Element	Arrivals	Departures	Total Visitors
Weekday AM Peak	Snow Centre	52	0	52
	Water Park	39	0	39
	Activity Centre	19	0	19
	Total	**109**	**0**	**109**
Weekday PM Peak	Snow Centre	363	233	597
	Water Park	271	174	445
	Activity Centre	131	84	215
	Total	**765**	**492**	**1,257**
Saturday Peak	Snow Centre	571	450	1,021
	Water Park	426	336	762
	Activity Centre	206	162	368
	Total	**1,203**	**948**	**2,151**

7.60 **Table 7.18** illustrates that the during a peak weekday AM period, the Snow Centre, Water Park, and Activity Centre elements at Rhydycar West are forecast to generate 109 arrivals are expected, alongside 0 departures. In a peak weekday PM period, assessments forecast that 765 visitors will arrive, with 492 departing. For a peak Saturday period, it is forecast that 1,203 visitors will arrive, alongside 948 departures.

Accommodation Trip Assessment

7.61 The development proposes 418 hotel rooms alongside 30 forest lodges. Assuming 1 bed per hotel room, and a 50:50 split in 1 and 2 beds for the forest lodges, the accommodation elements at Rhydycar West are expected to provide 463 beds. The forecast trip generation for the accommodation elements has been calculated using trip rates obtained from the TRICS database,

Hotel Trip Assessment

7.62 Vehicle trip rates for the Hotel elements of the proposed development have been taken from the TRICS v7.8.1 database. The assessment is based on the AM (08:00 to 09:00) and PM (17:00 to 18:00) peak hours.

7.63 Sites have been selected from the "06 - Hotel, Food & Drink / A – Hotels" category within TRICS. The following TRICS search criteria were applied:

- Greater London and Ireland removed.
- Only Free Standing or sites in Edge of Town areas. The use of Free Standing and Edge of Town is appropriate to the Rhydycar site, given its edge of town location at the periphery of the built area of Merthyr Tydfil. Free Standing has also been included as Free-Standing sites typically have a higher vehicular trip rate. This has the effect of increasing the forecast trip generation of the Rhydycar West site, ensuring robustness in survey outputs; and,
- Only weekday surveys selected (for weekday trip rates), only weekend surveys selected (for weekend trip rates).

7.64 The resultant TRICS output is provided in **Appendix D** with the person trip rates being summarised in **Table 7.19**.

Table 7.19 Hotel Vehicle Trip Rate

Time Period	Arrivals	Departures	Two Way
AM Peak (08:00 – 09:00)	0.134	0.290	0.424
PM Peak (16:00 – 17:00)	0.297	0.163	0.460
Saturday Peak (12:00 – 13:00)	0.210	0.167	0.377

7.65 **Table 7.20** outlines the number of vehicle trips forecast to be generated by the hotel element of the development, derived from the trip rates set out in **Table 7.19**.

Table 7.20 Hotel Vehicle Trip Generation

Time Period	Arrivals	Departures	Two Way
Hotels (418 bedrooms)			
AM Peak (08:00 – 09:00)	56	121	177
PM Peak (16:00 – 17:00)	85	56	141
Saturday Peak (12:00 – 13:00)	88	70	158

7.66 **Table 7.20** shows that the hotel element is forecast to generate 177 two-way vehicle trips in the AM peak with 56 arriving and 121 departing. In the PM peak, it is forecast that circa 141 two-way vehicle trips would be generated with 85 persons arriving and 56 departing. For the Saturday peak, it is forecast that circa 158 two-way vehicle trips would be generated with 88 persons arriving and 70 departing.

7.67 **Table 7.21** sets out the total people trip generation forecasted to be generated by the hotel element of the development, based on the car driver mode share shown in **Table 7.1**.

Table 7.21 Hotel Total People Trip Generation

Time Period	Arrivals	Departures	Two Way
Hotels (418 bedrooms)			
AM Peak (08:00 – 09:00)	129	278	407
PM Peak (16:00 – 17:00)	196	129	325
Saturday Peak (12:00 – 13:00)	202	160	362

7.68 **Table 7.21** shows that the hotel element is forecast to generate 407 two-way person trips in the AM peak with 129 arriving and 278 departing. In the PM peak, it is forecast that circa 325 two-way person trips would be generated with 196 persons arriving and 129 departing. For the Saturday peak, it is forecast that circa 362 two-way person trips would be generated with 202 persons arriving and 160 departing.

Forest Lodges Trip Assessment

7.69 Vehicle trip rates for the Forest Lodge elements of the proposed development have been taken from the TRICS v7.8.1 database. The assessment is based on the AM (08:00 to 09:00) and PM (17:00 to 18:00) peak hours.

7.70 Sites have been selected from the '03 - Residential / J – Holiday Accommodation' category within TRICS. The following TRICS search criteria were applied:

- Greater London and Ireland removed; and,
- Only weekday surveys selected (for weekday trip rates), only weekend surveys selected (for weekend trip rates).

7.71 The resultant TRICS output is provided in **Appendix E** with the person trip rates being summarised in **Table 7.22**.

Table 7.22 Forest Lodge Vehicle Trip Rate (per Lodge)

Time Period	Arrivals	Departures	Two Way
AM Peak (08:00 – 09:00)	0.030	0.041	0.071
PM Peak (16:00 – 17:00)	0.136	0.074	0.210
Saturday Peak (12:00 – 13:00)	0.126	0.091	0.217

7.72 **Table 7.23** outlines the number of vehicle trips forecast to be generated by the forest lodge element of the development, derived from the trip rates set out in **Table 7.22**.

Table 7.23 Forest Lodge Vehicle Trip Generation

Time Period	Arrivals	Departures	Two Way
Forest Lodges (30 lodges)			
AM Peak (08:00 – 09:00)	1	1	2
PM Peak (16:00 – 17:00)	3	2	5
Saturday Peak (12:00 – 13:00)	4	3	7

7.73 **Table 7.23** shows that Forest Lodge element is forecast to generate 2 two-way vehicle trips in the AM peak with 1 arriving and 1 departing. In the PM peak, it is forecast that circa 5 two-way vehicle trips would be generated with 3 persons arriving and 2 departing. For the Saturday peak, it is forecast that circa 7 two-way vehicle trips would be generated with 4 persons arriving and 3 departing.

7.74 **Table 7.24** sets out the total people trip generation forecasted to be generated by the Forest Lodge element of the development, based on the car driver mode share shown in **Table 7.1**.

Table 7.24 Forest Lodge Total People Trip Generation

Time Period	Arrivals	Departures	Two Way
Forest Lodges (30 lodges)			
AM Peak (08:00 – 09:00)	2	3	5
PM Peak (16:00 – 17:00)	7	5	12
Saturday Peak (12:00 – 13:00)	9	6	15

7.75 **Table 7.24** shows that the forest lodge element is forecast to generate 5 two-way person trips in the AM peak with 2 arriving and 3 departing. In the PM peak, it is forecast that circa 12 two-way person trips would be generated with 7 persons arriving and 5 departing. For the Saturday peak, it is forecast that circa 15 two-way person trips would be generated with 9 persons arriving and 6 departing.

Assessment 1: Site-wide People Trip Assessment

7.76 Based on the forecasts detailed in the preceding sections for individual elements, **Table 7.25** details the total person trip forecasts for the whole Rhydycar West site.

Table 7.25 Assessment 1 Hourly Total People Trip Generation

Time of Day	Friday		Saturday	
	Arrivals	Departures	Arrivals	Departures
08:00	**192**	**281**	343	277
09:00	428	194	390	242
10:00	280	204	769	422
11:00	586	383	739	458
12:00	253	250	**883**	**697**
13:00	361	626	1,089	656
14:00	421	301	1,046	880
15:00	260	378	1,198	991
16:00	**631**	**409**	1,139	1,110
17:00	590	284	971	1,189
18:00	232	563	305	1,064
19:00	1,182	433	1,374	875
20:00	630	78	508	209
21:00	227	1,133	227	1,218
22:00	1	480	1	296
23:00	0	102	0	122
Total	**6,243**	**6,089**	**10,972**	**10,695**

7.77 **Table 7.25** illustrates that the whole Rhydycar West site forecasts 192 person arrivals alongside 281 person departures in the weekday AM peak period (0800-0900). In the weekday PM peak period, it is forecast that 631 people will arrive, alongside 409 departures (1600-1700). In the Saturday Peak it is forecast that 883 people will arrive, alongside 697 departures.

7.78 Using the visitor mode share detailed at **Table 7.1**, **Table 7.26** details the forecast multi modal trip generation of the Rhydycar West site for the Weekday AM, Weekday PM, and Saturday Peak periods.

Table 7.26 Assessment 1 Multi Modal Trip Generation

Mode	Mode Share	AM			PM			Saturday Peak		
		In	Out	Two Way	In	Out	Two Way	In	Out	Two Way
Car Driver	44%	84	122	206	275	178	453	384	303	688
Car Passenger	45%	87	128	215	287	186	472	401	316	717
Bicycle	1%	2	3	5	7	4	11	9	7	16
Walking	1%	2	3	6	7	5	12	10	8	19
Motorcycle	1%	1	2	3	4	2	6	5	4	9
Bus / Minibus	3%	5	8	13	18	12	30	25	20	45
Rail	5%	10	14	24	32	21	53	45	36	81
Total	**100%**	**192**	**281**	**473**	**631**	**409**	**1039**	**883**	**697**	**1580**

7.79 **Table 7.26** shows that the development is forecast to produce 206 two-way vehicle trips during the AM peak, with 84 arriving and 122 departing. In the PM peak, it is expected to produce 453 two-way vehicle trips, with 275 arriving and 178 departing. In the Saturday peak, Rhydycar West is expected to produce 688 two-way vehicle trips, with 384 arriving and 303 departing.

Assessment 2: Site-wide People Trip Assessment

7.80 Based on the forecasts detailed in the preceding sections for individual elements, **Table 7.27** details the total person trip forecasts for the whole Rhydycar West site during a peak month. It should be noted that this assessment considers each land use's peak season occurring simultaneously to provide a worst-case scenario, which is very unlikely to occur.

Table 7.27 Assessment 2 Hourly Total People Trip Generation

Time of Day	Friday		Saturday	
	Arrivals	Departures	Arrivals	Departures
08:00	**240**	**281**	439	277
09:00	613	194	503	242
10:00	392	252	1,187	518
11:00	980	568	1,133	570
12:00	381	363	**1,413**	**1,114**
13:00	554	1,019	1,724	1,049
14:00	638	430	1,737	1,410
15:00	357	571	2,009	1,626
16:00	**968**	**625**	1,798	1,801
17:00	823	380	1,509	2,001
18:00	232	900	305	1,723
19:00	1,977	666	2,242	1,413
20:00	1,024	78	741	209
21:00	307	1,928	324	2,085
22:00	1	857	1	529
23:00	0	182	0	219
Total	**9,431**	**9,276**	**17,046**	**16,769**

7.81 **It should be noted that Table 7.27 outlines the trips that will be generated by each land use's peak season weekday and Saturday, occurring simultaneously.**

7.82 **Table 7.27** illustrates that during a peak month, the whole Rhydycar West site forecasts 240 person arrivals alongside 281 person departures in the weekday AM peak period (0800-0900). In the weekday PM peak period, it is forecast that 968 people will arrive, alongside 625 departures (1600-1700). In the Saturday Peak it is forecast that 1,413 people will arrive, alongside 1,114 departures.

7.83 Using the visitor mode share detailed at **Table 7.1**, **Table 7.28** details the forecast peak month multi modal trip generation of the Rhydycar West site for the Weekday AM, Weekday PM, and Saturday Peak periods.

Table 7.28 Assessment 2 Multi Modal Trip Generation

Mode	Mode Share	AM			PM			Saturday Peak		
		In	Out	Two Way	In	Out	Two Way	In	Out	Two Way
Car Driver	44%	104	122	227	421	272	694	615	485	1,101
Car Passenger	45%	109	128	237	440	284	724	642	506	1,148
Bicycle	1%	2	3	5	10	6	16	15	12	26
Walking	1%	3	3	6	11	7	19	17	13	30
Motorcycle	1%	1	2	3	6	4	9	8	7	15
Bus / Minibus	3%	7	8	15	28	18	45	40	32	72
Rail	5%	12	14	27	50	32	82	72	57	130
Total	**100%**	**240**	**281**	**521**	**968**	**625**	**1,593**	**1,413**	**1,114**	**2,528**

7.84 **It should be noted that Table 7.28 outlines the trips that will be generated by all land use's peak season weekday and Saturday.**

7.85 **Table 7.28** shows that the development is forecast to produce 227 two-way vehicle trips during the AM peak, with 104 arriving and 122 departing. In the PM peak, it is expected to produce 694 two-way vehicle trips, with 421 arriving and 272 departing. In the Saturday peak, Rhydycar West is expected to produce 1,101 two-way vehicle trips, with 615 arriving and 485 departing.

DEVELOPMENT TRAFFIC ASSIGNMENT

7.86 Information obtained from the 2011 Census has been interrogated within GIS to assist in determining the assignment of development traffic onto the local highway network. Population information for Local Authority Districts within a 200km radius of the Site has been obtained, with the nearby Local Authority Districts of Caerphilly, Merthyr Tydfil, and Rhondda Cynon Taf broken into their subdivisions and analysed an MLSOA scale.

7.87 The information derived from GIS has been further assessed using Journey Route Planning Software, to determine the principal routes that vehicles are likely to use, when travelling from their origin to destination. This analysis also determined a likely travel distance from each origin point.

7.88 The 2011 Census Population data and likely travel distance has been used to build a gravity model to estimate the visitor attraction to Rhydycar West from each origin point. This gravity model has been used to estimate the likely demand on principal routes that vehicles are likely to use when travelling to and from the site, with the distribution summarised in **Table 7.29** and illustrated in **Figure 7.1**.

Table 7.29 Rhydycar West Hourly Visitor Generation

	Site Access / A470 Roundabout			Bike Park Wales Roundabout	
	A470 NW	A4102 N	A470 SE to Bike Park Wales Roundabout	A4060 N	A470 SE
Distribution Percentage	38.6%	4.1%	57.3%	10.8%	46.6%

7.89 Development Traffic has been assigned to the network, which is illustrated at **Figures 7.2** and **7.3** and **7.4**, showing the AM Peak, PM peak and Saturday peak hour development traffic assignment.

7.90 It should be noted that no discount has been provided to the total level of traffic forecast to be generated by the development, such as a discount for the implementation of a Travel Plan, a discount to reflect shifting travel habits towards non-car modes, or a discount to reflect that the site trip assessments are based on the peak periods for all land uses occurring at the same time of year.

8 TRAFFIC IMPACT ASSESSMENT

INTRODUCTION

8.1 This section summarises the results obtained from the modelling undertaken in terms of junction performance. The modelling of the local road network has been undertaken using the Transport Research Laboratory (TRL) computer modelling package Junctions 9.

8.2 The trip generation for the proposals has been undertaken on a first principles basis and outlines the resultant trips that will be generated by each land use on a weekday and Saturday.

8.3 Modelling assessments within this Chapter use the dataset outlined as Assessment 1 in Chapter 7, which provides a realistic assessment of forecast trip levels at Rhydycar West.

8.4 These assessments detail the operation of the site post opening, as this will be the period where the site operates with the largest volume of traffic; construction traffic levels are forecast to be significantly lower than operational traffic levels.

BACKGROUND TRAFFIC GROWTH

8.5 To calculate the 2021, 2026 and 2031 forecast background traffic flows growth factors have been calculated and applied to the surveyed flows using the most recent DfT guidance 'Use of TEMPRO data: WebTAG Unit 3.15.2' published April 2009.

8.6 The calculation of traffic growth is undertaken using the DfT TEMPro v7.2b computer software. Growth factors have been calculated based on data for Merthyr Tydfil, for roads serving the region, using the RTF2018 dataset.

8.7 TEMPro includes traffic forecasts that have been provided to the DfT by Local Planning Authorities, which include LPA forecasts on demography change, employment and housing levels, and the impact of allocated/consented applications.

8.8 **Table 8.1** provides a summary of the resultant growth rates outputted by TEMPro v7.2b.

Table 8.1 TEMPro Growth Rates

Time Period	AM Peak	PM Peak	Saturday Peak
2017-2021	1.057715456	1.056705367	1.058119492
2017-2026	1.107934949	1.106299846	1.111205153
2017-2031	1.156465986	1.155328088	1.163138203
2018-2021	1.041833894	1.041078942	1.042085544
2018-2026	1.091227349	1.089903414	1.094384423
2018-2031	1.139020749	1.138196044	1.145515302
2022-2026	1.037456486	1.037052826	1.039575701
2022-2031	1.082899325	1.083001476	1.08821116

8.9 **Figure 8.1**, **8.2** and **8.3** shows the derived 2021 AM, PM, and Saturday peak hour baseline traffic flows on the local road network, taking account of the background traffic growth. For the purposes of a robust assessment, the 2022 observed flows have been treated as 2021 flows, with no TEMPRO regression factor applied to factor down the flows to 2021.

8.10 **Figure 8.4**, **8.5** and **8.6** shows the derived 2026 AM, PM, and Saturday peak hour baseline traffic flows on the local road network, taking account of the background traffic growth.

8.11 **Figure 8.7**, **8.8** and **8.9** shows the derived 2031 AM, PM, and Saturday peak hour baseline traffic flows on the local road network, taking account of the background traffic growth.

COMMITTED DEVELOPMENT

8.12 The following sites will be used within assessments, to factor appropriate flows for the forecast year. These are:

- Application P/19/0073: Expansion to Bike Park Wales to provide 36 camping pods, 5 chalets, a shower/toilet block creation of a new play/picnic area, alongside a new 150 space car park with 46 space overflow car park.

8.13 General committed development is also included within the TEMPRO growth factors used and detailed at **Table 8.1**.

8.14 **Figures 8.10** and **8.11** illustrate the volume of traffic generated by the Bike Park Wales extension, consented under Application P/19/0073. No information was submitted on forecast Saturday trip generation under Application P/19/0073, therefore for the purposes of a robust assessment, flows for the AM peak period at Bike Park Wales have been used in the Saturday Peak assessments for the Rhydycar West Application as this form the period with the highest trip generation for Bike Park Wales.

ASSESSMENT SCENARIOS

8.15 The assessment years for the traffic impact generated by the proposed development are as follows:

- **Scenario 1:** 2021 Baseline Year.
- **Scenario 2:** 2026 Forecast Year.
- **Scenario 3:** 2026 Forecast Year with the presence of committed development traffic; and,
- **Scenario 4:** 2026 Forecast Year with the presence of committed and proposed development traffic.

8.16 **Figure 8.1**, **8.2** and **8.3** shows the derived 2021 AM, PM, and Saturday peak hour baseline traffic flows on the local road network, taking account of the background traffic growth. These have fed into the Scenario 1 2021 Forecast Year junction models.

8.17 **Figure 8.4**, **8.5** and **8.6** shows the derived 2026 AM, PM, and Saturday peak hour baseline traffic flows on the local road network, taking account of the background traffic growth. These have fed into the Scenario 2 2026 Forecast Year junction models.

8.18 **Figure 8.12**, **8.13** and **8.14** shows the derived 2026 AM, PM, and Saturday peak hour baseline traffic flows on the local road network, taking account of the background traffic growth and committed development traffic. These have fed into the Scenario 3 2026 Forecast Year with Committed Development junction models.

8.19 **Figures 8.15**, **8.16** and **8.17** show the derived 2026 AM, PM, and Saturday peak hour traffic flows on the local road network, taking account of the background traffic growth, committed development traffic and development traffic. These have fed into the Scenario 4 2026 Forecast Year with the presence of development traffic junction models.

8.20 It should be noted that the development traffic forecasts for the Hotel and Forest Lodge elements assume that all trips associated with the Hotel and Forest Lodge elements are unique visitors, visiting these elements only. In reality, visitors to the Hotel and Forest Lodge elements will likely visit other elements too during their stay (e.g., the snow centre), so the assessments undertaken provides a worst-case assessment, over-estimating the total level of development traffic at Rhydycar West.

8.21 Junction modelling gives no consideration towards mitigation provided by the implementation of a Travel Plan. The local highway network will therefore operate with improved capacity to the figures set out within this report.

JUNCTION CAPACITY ASSESSMENT METHODOLOGY

8.22 Transport Research Laboratory's (TRL) ARCADY 9 computer modelling software, within the Junctions 9 package, has been used to assess the operational capacity of the priority junctions within the study area. The results of the modelling are expressed in RFC (Ratio of Flow to Capacity), Delays and Queue Lengths (vehicles).

8.23 Assessments for the site access junction have been undertaken for the AM (08:00-09:00), PM (16:00-17:00) and Saturday (12:00-13:00) peak periods using the 'One Hour' method for inputting traffic flows, in accordance with the peak periods identified with the surveyed flows.

INTERPRETATION OF RESULTS

8.24 Transport Research Laboratory's (TRL) ARCADY 9 computer modelling software, within the Junctions 9 package forecasts the overall available capacity at junctions by outputting the junction's Ratio of Flow to Capacity (RFC). The model outputs an RFC for each arm / traffic movement to consider how the junction may operate.

8.25 This figure ranges from 0.00 to 1.00, with 1.00 identifying that the traffic movement along the junction's arm is forecast to operate at capacity. The theoretical capacity for a junction's arm is identified as an RFC of 0.85, where queuing and delay will likely be low. In instances where RFCs are between 0.86 and 0.99, queuing and delay are likely to be exhibited at the junction but will still operate within capacity and appropriately accommodate traffic movements.

JUNCTION CAPACITY ASSESSMENT STUDY AREA

8.26 Full junction capacity assessments have been carried out on the following junctions:

- A470 / A4102 / Site Access Roundabout.
- A470 / A4060 / Bike Park Wales Roundabout; and,
- A470 / A4102 / Swansea Road Roundabout.

A470 / A4102 / SITE ACCESS ROUNDABOUT

8.27 The assessments for the AM, PM and Saturday peak period have been undertaken using Junctions 9, with the output results contained in **Appendix F**.

Scenario 1: 2021 Baseline Year

8.28 **Table 8.2** summarises the results of the junction capacity assessment for the junction with Scenario 1 flows, using the existing layout of the junction.

Table 8.2 A470 / A4102 / Site Access Roundabout: Scenario 1 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 (South-east)	0.9	2.44	0.48	1.0	2.67	0.51	0.8	2.34	0.44
Site Access	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
A470 (North-west)	1.1	3.46	0.52	1.0	3.21	0.51	0.8	2.84	0.46
A4102	0.5	4.26	0.35	1.4	6.66	0.58	0.9	5.06	0.49

8.29 **Table 8.2** shows that the junction is forecast to operate within capacity during the AM, PM, and Saturday peak periods in the 2021 Baseline scenario, exhibiting a maximum RFC of 0.58 during peak periods. It is forecast to generate minimal queuing and delays in the region of 2 to 7 seconds.

Scenario 2: 2026 Forecast Year

8.30 **Table 8.3** summarises the results of the junction capacity assessment for the junction with Scenario 2 flows, using the existing layout of the junction.

Table 8.3 A470 / A4102 / Site Access Roundabout: Scenario 2 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 (South-east)	1.0	2.57	0.50	1.1	2.84	0.53	0.9	2.47	0.47
Site Access	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
A470 (North-west)	1.2	3.69	0.55	1.2	3.41	0.54	0.9	2.99	0.48
A4102	0.6	4.47	0.37	1.6	7.42	0.62	1.1	5.45	0.52

8.31 **Table 8.3** shows that the junction is forecast to operate within capacity during the AM, PM, and Saturday peak periods in the 2026 Forecast scenario, exhibiting a maximum RFC of 0.62 during peak periods. It is forecast to generate minimal queuing and delays in the region of 2 to 8 seconds.

Scenario 3: 2026 with Committed Development

8.32 **Table 8.4** summarises the results of the junction capacity assessment for the junction with Scenario 3 flows, using the existing layout of the junction.

Table 8.4 A470 / A4102 / Site Access Roundabout: Scenario 3 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 (South-east)	1.0	2.57	0.50	1.2	2.85	0.54	0.9	2.47	0.47
Site Access	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
A470 (North-west)	1.2	3.71	0.55	1.2	3.41	0.54	0.9	3.01	0.49
A4102	0.6	4.52	0.37	1.6	7.42	0.62	1.1	5.53	0.52

8.33 **Table 8.4** shows that the junction is forecast to operate within capacity during the AM, PM, and Saturday peak periods in the 2026 with Committed Development scenario, exhibiting a maximum RFC of 0.62 during peak periods. It is forecast to generate minimal queuing and delays in the region of 2 to 8 seconds.

Scenario 4: 2026 with Committed Development and Rhydycar West

8.34 **Table 8.5** summarises the results of the junction capacity assessment for the junction with Scenario 4 flows, using the proposed layout of the junction, with the upgraded western arm forming the site access.

Table 8.5 A470 / A4102 / Site Access Roundabout: Scenario 4 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 (South-east)	1.1	2.74	0.53	1.7	3.69	0.63	1.4	3.42	0.59
Site Access	0.1	3.24	0.11	0.2	3.97	0.18	0.4	4.05	0.27
A470 (North-west)	1.4	4.10	0.58	1.6	4.23	0.61	1.5	4.08	0.60
A4102	0.6	4.90	0.40	2.2	10.25	0.70	1.6	8.08	0.62

8.35 **Table 8.5** shows that the junction is forecast to operate within capacity during the AM, PM, and Saturday peak periods in the 2026 with Committed Development and Rhydycar West scenario, exhibiting a maximum RFC of 0.70 during peak periods. It is forecast to generate minimal queuing and delays in the region of 2 to 11 seconds.

8.36 The results of this assessment indicate that the A470 / A4102 / Site Access Roundabout is forecast to operate within capacity within all scenarios, exhibiting a peak RFC of 0.70.

A470 / A4060 / BIKE PARK WALES ROUNDABOUT

8.37 The assessments for the AM, PM and Saturday peak period have been undertaken using Junctions 9, with the output results contained in **Appendix G**.

Scenario 1: 2021 Baseline Year

8.38 **Table 8.6** summarises the results of the junction capacity assessment for the junction with Scenario 1 flows.

Table 8.6 A470 / A4060 / Bike Park Wales Roundabout: Scenario 1 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A4060	1.4	5.16	0.59	1.5	5.70	0.60	1.0	4.06	0.51
A470 (E)	4.7	8.36	0.83	2.8	5.37	0.74	2.8	5.40	0.74
BikePark Wales Access	0.1	18.14	0.05	0.1	12.36	0.13	0.0	12.00	0.03
A470 (W)	1.0	3.40	0.50	1.5	4.14	0.60	0.7	2.70	0.40

8.39 **Table 8.6** shows that the junction is forecast to operate within capacity during the AM, PM, and Saturday peak periods in the 2021 Baseline scenario, exhibiting a maximum RFC of 0.83 during peak periods. It is forecast to generate minimal queuing and delays in the region of 3 to 18 seconds.

Scenario 2: 2026 Forecast Year

8.40 **Table 8.7** summarises the results of the junction capacity assessment for the junction with Scenario 2 flows.

Table 8.7 A470 / A4060 / Bike Park Wales Roundabout: Scenario 2 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A4060	1.7	5.77	0.63	1.8	6.51	0.64	1.2	4.40	0.54
A470 (E)	6.3	10.87	0.87	3.4	6.23	0.77	3.4	6.33	0.78
BikePark Wales Access	0.1	22.12	0.06	0.2	14.38	0.15	0.0	13.66	0.04
A470 (W)	1.1	3.67	0.53	1.8	4.61	0.64	0.8	2.86	0.43

8.41 **Table 8.7** shows that the junction is forecast to operate within the realms of capacity in the 2026 Forecast Scenario during the AM peak period, exhibiting a maximum RFC of 0.87, alongside minimal queuing and delays in the region of 3 to 22 seconds.

8.42 During the PM and Saturday peak periods in the 2026 Forecast scenario, the junction is forecast to operate within capacity, exhibiting a maximum RFC of 0.78, alongside minimal queuing and delays in the region of 3 to 14 seconds.

Scenario 3: 2026 with Committed Development

8.43 **Table 8.8** summarises the results of the junction capacity assessment for the junction with Scenario 3 flows.

Table 8.8 A470 / A4060 / Bike Park Wales Roundabout: Scenario 3 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A4060	1.7	5.87	0.63	1.8	6.55	0.65	1.2	4.46	0.55
A470 (E)	6.6	11.35	0.87	3.4	6.28	0.78	3.5	6.49	0.78
BikePark Wales Access	0.1	21.42	0.08	0.3	15.32	0.21	0.1	13.37	0.05
A470 (W)	1.1	3.70	0.53	1.8	4.65	0.64	0.8	2.88	0.43

8.44 **Table 8.8** shows that the junction is forecast to operate within the realms of capacity in the 2026 with Committed Development Scenario during the AM peak period, exhibiting a maximum RFC of 0.87, alongside minimal queuing and delays in the region of 3 to 21 seconds.

8.45 During the PM and Saturday peak periods in the 2026 Forecast scenario, the junction is forecast to operate within capacity, exhibiting a maximum RFC of 0.78, alongside minimal queuing and delays in the region of 3 to 15 seconds.

Scenario 4: 2026 with Committed Development and Rhydycar West

8.46 **Table 8.9** summarises the results of the junction capacity assessment for the junction with Scenario 4 flows.

Table 8.9 A470 / A4060 / Bike Park Wales Roundabout: Scenario 4 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A4060	1.9	6.37	0.66	2.2	7.83	0.69	1.5	5.40	0.60
A470 (E)	7.8	13.35	0.89	5.1	8.87	0.84	6.5	11.10	0.87
BikePark Wales Access	0.1	24.17	0.09	0.4	22.25	0.27	0.1	20.51	0.08
A470 (W)	1.3	4.02	0.57	2.2	5.48	0.69	1.1	3.46	0.52

8.47 **Table 8.9** shows that the junction is forecast to operate within the realms of capacity in the 2026 with Committed Development and Rhydycar West Scenario during the AM peak period, exhibiting a maximum RFC of 0.89, alongside minimal queuing and delays in the region of 4 to 24 seconds.

8.48 During the PM peak period, the junction is forecast to operate within capacity, exhibiting a maximum RFC of 0.84, alongside minimal queuing and delays in the region of 5 to 22 seconds. In the Saturday peak period the junction is forecast to operate within the realms of capacity, exhibiting a maximum RFC of 0.87, alongside minimal queuing and delays in the region of 3 to 20 seconds.

8.49 In the Saturday peak, the junction operates within the realms of capacity. It should be noted that the largest delay is forecasted to be exhibited on the Bike Park Wales Access arm, with the circulating flow on the carriageway causing delays to vehicles entering from the Bike Park Wales arm. Given the low volume of traffic

proposed by consented forecasts for Bike Park Wales - a peak of 14 vehicles an hour – it is considered that this does not cause any undue concerns regarding delay.

8.50 The traffic impact assessment for the A470 / A4060 / Bike Park Wales indicates that the junction will operate within the realms of capacity with Scenario 4 traffic but is approaching the limits of capacity. It should be noted that the Rhydycar West development in isolation has a minimal impact on the performance of the junction in the weekday peak periods, reducing the available residual capacity at the junction by just 2% in the AM peak, 6% in the PM peak and 9% in the Saturday peak.

A470 / A4102 / SWANSEA ROAD ROUNDABOUT

8.51 The assessments for the AM, PM and Saturday peak period have been undertaken using Junctions 9, with the output results contained in **Appendix H**.

Scenario 1: 2021 Baseline Year

8.52 **Table 8.10** summarises the results of the junction capacity assessment for the junction with Scenario 1 flows.

Table 8.10 A470 / A4102 / Swansea Road Roundabout: Scenario 1 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 S	0.8	2.59	0.43	0.9	3.04	0.48	1.2	3.48	0.54
Swansea Road	0.6	3.91	0.37	0.5	3.48	0.31	0.7	4.57	0.42
A470 N	0.5	2.39	0.34	0.5	2.15	0.33	0.9	2.81	0.48
A4102	0.4	2.37	0.28	1.1	3.45	0.53	1.2	3.79	0.54

8.53 **Table 8.10** shows that the junction is forecast to operate within capacity during the AM, PM, and Saturday peak periods in the 2021 Baseline scenario, exhibiting a maximum RFC of 0.54 during peak periods. It is forecast to generate minimal queuing and delays in the region of 2 to 5 seconds.

Scenario 2: 2026 Forecast Year

8.54 **Table 8.11** summarises the results of the junction capacity assessment for the junction with Scenario 2 flows.

Table 8.11 A470 / A4102 / Swansea Road Roundabout: Scenario 2 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 S	0.8	2.69	0.45	1.0	3.21	0.50	1.3	3.75	0.57
Swansea Road	0.6	4.11	0.39	0.5	3.62	0.33	0.8	4.89	0.45
A470 N	0.6	2.47	0.36	0.5	2.22	0.34	1.0	2.97	0.50
A4102	0.4	2.43	0.29	1.3	3.66	0.56	1.3	4.08	0.57

8.55 **Table 8.11** shows that the junction is forecast to operate within capacity in the 2026 Forecast Scenario, exhibiting a maximum RFC of 0.57, alongside minimal queuing and delays in the region of 2 to 5 seconds.

Scenario 3: 2026 with Committed Development

8.56 **Table 8.12** summarises the results of the junction capacity assessment for the junction with Scenario 3 flows.

Table 8.12 A470 / A4102 / Swansea Road Roundabout: Scenario 3 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 S	0.8	2.69	0.45	1.0	3.22	0.50	1.3	3.76	0.57
Swansea Road	0.6	4.11	0.39	0.5	3.63	0.33	0.8	4.90	0.45
A470 N	0.6	2.48	0.36	0.5	2.22	0.34	1.0	2.98	0.50
A4102	0.4	2.43	0.30	1.3	3.66	0.56	1.3	4.10	0.57

8.57 **Table 8.12** shows that the junction is forecast to operate within capacity in the 2026 with Committed Development Scenario, exhibiting a maximum RFC of 0.57, alongside minimal queuing and delays in the region of 2 to 5 seconds.

Scenario 4: 2026 with Committed Development and Rhydycar West

8.58 **Table 8.13** summarises the results of the junction capacity assessment for the junction with Scenario 4 flows.

Table 8.13 A470 / A4102 / Swansea Road Roundabout: Scenario 4 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 S	0.9	2.81	0.47	1.2	3.48	0.54	1.7	4.39	0.63
Swansea Road	0.7	4.26	0.40	0.5	3.79	0.34	0.9	5.45	0.48
A470 N	0.6	2.54	0.38	0.6	2.40	0.39	1.3	3.49	0.57
A4102	0.4	2.47	0.30	1.4	3.97	0.58	1.5	4.68	0.60

8.59 **Table 8.13** shows that the junction is forecast to operate within capacity in the 2026 with Committed Development and Rhydycar West Development, exhibiting a maximum RFC of 0.60, alongside minimal queuing and delays in the region of 2 to 6 seconds.

SUMMARY

8.60 **Table 8.10** provides a summary of the traffic impact assessments.

Table 8.14 Traffic Impact Assessment Summary

Junction		Scenario 1: 2021 Baseline			Scenario 2: 2026 Forecast			Scenario 3: 2026 with Committed Development			Scenario 4: 2026 with Committed Development and Rhydycar West		
		AM	PM	Saturday	AM	PM	Saturday	AM	PM	Saturday	AM	PM	Saturday
A470 / A4102 / Site Access	RFC	0.48	0.58	0.49	0.55	0.62	0.52	0.55	0.62	0.52	0.58	0.70	0.62
	Delay	4.26	6.66	5.06	4.47	7.42	5.45	4.52	7.42	5.53	4.90	10.25	8.08
	Queue	1.1	1.4	0.9	1.2	1.6	1.1	1.2	1.6	1.1	1.4	2.2	1.6
A470 / A4060 / Bike Park Wales	RFC	0.83	0.74	0.74	0.87	0.77	0.78	0.87	0.78	0.78	0.89	0.84	0.87
	Delay	18.14	12.36	12.00	22.12	14.38	13.66	21.42	15.32	13.37	24.17	22.25	20.51
	Queue	4.7	2.8	2.8	6.3	3.4	3.4	6.6	3.4	3.5	7.8	5.1	6.5
A470 / A4102 / Swansea Road	RFC	0.43	0.53	0.54	0.45	0.56	0.57	0.45	0.56	0.57	0.47	0.58	0.63
	Delay	3.91	3.48	4.57	3.50	3.66	4.89	4.11	3.66	4.90	4.26	3.97	5.45
	Queue	0.8	1.1	1.2	1.2	1.3	1.3	0.8	1.3	1.30	0.9	1.4	1.7

Green – Operates well within capacity Orange – Operate close to capacity Red – Operates above capacity

8.61 The summary of the technical assessments shown at **Table 8.10** evidence that the development will have an immaterial impact to the operation of the A470 / A4102 / Site Access roundabout operation, with a worst-case RFC of 0.70. The development will also have an immaterial impact to the operation of the A470 / A4102 / Swansea Road roundabout, with a worst-case RFC of 0.68. The A470 / A4060 / Bike Park Wales is forecast to be approaching capacity in Scenarios 2, 3 and 4, but will operate within capacity in all scenarios, with a maximum RFC of 0.89. The A470 / A4102 / Swansea Road roundabout is forecast to operate within capacity in Scenarios 2,3 and 4, with a maximum RFC of 0.63.

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

9 SENSITIVITY ASSESSMENT 1: END OF LOCAL PLAN PERIOD

INTRODUCTION

9.1 This chapter sets out the resultant impact of junction operation in a Sensitivity Assessment forecast year of 2031 to reflect the end of the current Local Plan.

9.2 Modelling assessments within this Chapter use the dataset outlined as Assessment 1 in Chapter 7, which provides a realistic assessment of forecast trip levels at Rhydycar West.

ASSESSMENT SCENARIOS

9.3 The assessment years for the traffic impact generated by the proposed development following operation of the link road are as follows:

- **Scenario 5:** 2031 Forecast Year.
- **Scenario 6:** 2031 Forecast Year with the presence of committed development traffic.
- **Scenario 7:** 2031 Forecast Year with the presence of committed and proposed development traffic.

9.4 **Figures 8.7**, **8.8** and **8.9** show the derived 2031 AM, PM, and Saturday peak hour traffic flows on the local road network, taking account of background traffic growth. These have fed into the Scenario 5 2031 Forecast Year junction models.

9.5 **Figures 9.1**, **9.2** and **9.3** show the derived 2031 with Committed Development AM, PM, and Saturday peak hour traffic flows on the local road network, taking account of background traffic growth and committed development traffic. These have fed into the Scenario 6 2031 Forecast Year with the presence of committed development traffic junction models.

9.6 **Figures 9.4**, **9.5** and **9.6** show the derived 2031 with Committed Development and Rhydycar West AM, PM, and Saturday peak hour traffic flows on the local road network, taking account of the background traffic growth, committed development traffic, development traffic. These have fed into the Scenario 7 2031 Forecast Year with the presence of development traffic junction models and link road operation.

9.7 It should be noted that the development traffic forecasts for the Hotel and Forest Lodge elements assume that all trips associated with the Hotel and Forest Lodge elements are unique visitors, visiting these elements only. In reality, visitors to the Hotel and Forest Lodge elements will likely visit other elements too during their stay (e.g., the snow centre), so the assessments undertaken provides a worst-case assessment, over-estimating the total level of development traffic at Rhydycar West.

9.8 Junction modelling gives no consideration towards mitigation provided by the implementation of a Travel Plan. The local highway network will therefore operate within capacity to the worst-case figures set out within this report.

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

JUNCTION CAPACITY ASSESSMENT

A470 / A4102 / Site Access

9.9 The assessments for the AM, PM and Saturday peak period have been undertaken using Junctions 9, with the output results contained in **Appendix F**.

Scenario 5: 2031 Forecast Year

9.10 **Table 9.1** summarises the results of the junction capacity assessment for the junction with Scenario 5 flows, using the proposed layout of the junction, with the upgraded western arm forming the site access.

Table 9.1 A470 / A4102 / Site Access Roundabout: Scenario 5 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 (South-east)	1.1	2.70	0.52	1.3	3.03	0.56	1.0	2.61	0.49
Site Access	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
A470 (North-west)	1.3	3.95	0.57	1.3	3.63	0.56	1.0	3.15	0.51
A4102	0.6	4.70	0.39	1.9	8.38	0.66	1.2	5.90	0.55

9.11 **Table 9.1** shows that the junction is forecast to operate within capacity during the AM, PM, and Saturday peak periods in the 2031 Forecast scenario, exhibiting a maximum RFC of 0.66 during peak periods. It is forecast to generate minimal queuing and delays in the region of 2 to 9 seconds.

Scenario 6: 2031 with Committed Development

9.12 **Table 9.2** summarises the results of the junction capacity assessment for the junction with Scenario 6 flows, using the proposed layout of the junction, with the upgraded western arm forming the site access.

Table 9.2 A470 / A4102 / Site Access Roundabout: Scenario 6 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 (South-east)	1.1	2.71	0.53	1.3	3.04	0.56	1.0	2.61	0.49
Site Access	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
A470 (North-west)	1.4	3.98	0.58	1.3	3.63	0.56	1.0	3.17	0.51
A4102	0.7	4.75	0.40	1.9	8.38	0.66	1.2	5.99	0.55

9.13 **Table 9.2** shows that the junction is forecast to operate within capacity during the AM, PM, and Saturday peak periods in the 2031 with Committed Development scenario, exhibiting a maximum RFC of 0.66 during peak periods. It is forecast to generate minimal queuing and delays in the region of 2 to 9 seconds.

Scenario 7: 2031 with Committed Development and Rhydycar West

9.14 **Table 9.3** summarises the results of the junction capacity assessment for the junction with Scenario 7 flows, using the proposed layout of the junction, with the upgraded western arm forming the site access.

Table 9.3 A470 / A4102 / Site Access Roundabout: Scenario 7 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 (South-east)	1.2	2.89	0.55	1.9	4.02	0.65	1.6	3.68	0.62
Site Access	0.1	3.37	0.11	0.2	4.20	0.18	0.4	4.29	0.28
A470 (North-west)	1.5	4.42	0.61	1.8	4.56	0.64	1.6	4.38	0.62
A4102	0.7	5.17	0.42	2.8	12.15	0.74	1.9	9.09	0.66

9.15 **Table 9.3** shows that the junction is forecast to operate within capacity during the AM, PM, and Saturday peak periods in the 2031 with Committed Development and Rhydycar West scenario, exhibiting a maximum RFC of 0.74 during peak periods. It is forecast to generate minimal queuing and delays in the region of 3 to 13 seconds.

A470 / A4060 / Bike Park Wales Roundabout

9.16 The assessments for the AM, PM and Saturday peak period have been undertaken using Junctions 9, with the output results contained in **Appendix G**.

Scenario 5: 2031 Forecast Year

9.17 **Table 9.4** summarises the results of the junction capacity assessment for the junction with Scenario 5 flows.

Table 9.4 A470 / A4060 / Bike Park Wales Roundabout: Scenario 5 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A4060	2.0	6.51	0.67	2.2	7.57	0.69	1.3	4.79	0.57
A470 (E)	9.0	15.18	0.91	4.2	7.39	0.81	4.3	7.60	0.81
BikePark Wales Access	0.1	28.01	0.08	0.2	17.16	0.19	0.0	15.81	0.04
A470 (W)	1.3	3.98	0.56	2.1	5.19	0.67	0.8	3.03	0.46

9.18 **Table 9.4** shows that the junction is forecast to operate within the realms of capacity in the 2031 Forecast Scenario during the AM peak period, exhibiting a maximum RFC of 0.91, alongside minimal queuing and delays in the region of 4 to 28 seconds.

9.19 During the PM peak period, the junction is forecast to operate within capacity, exhibiting a maximum RFC of 0.81, alongside minimal queuing and delays in the region of 5 to 17 seconds.

9.20 In the Saturday peak period the junction is forecast to operate within capacity, exhibiting a maximum RFC of 0.81, alongside minimal queuing and delays in the region of 3 to 16 seconds.

Scenario 6: 2031 with Committed Development

9.21 **Table 9.5** summarises the results of the junction capacity assessment for the junction with Scenario 6 flows.

Table 9.5 A470 / A4060 / Bike Park Wales Roundabout: Scenario 6 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A4060	2.0	6.64	0.67	2.2	7.63	0.69	1.4	4.86	0.58
A470 (E)	9.5	16.07	0.91	4.2	7.48	0.81	4.4	7.84	0.82
BikePark Wales Access	0.1	27.32	0.11	0.3	18.52	0.24	0.1	15.52	0.06
A470 (W)	1.3	4.01	0.56	2.1	5.24	0.68	0.8	3.05	0.46

9.22 **Table 9.5** shows that the junction is forecast to operate within the realms of capacity in the 2031 with Committed Development Scenario during the AM peak period, exhibiting a maximum RFC of 0.91, alongside minimal queuing and delays in the region of 4 to 27 seconds.

9.23 During the PM peak period, the junction is forecast to operate within capacity, exhibiting a maximum RFC of 0.81, alongside minimal queuing and delays in the region of 5 to 18 seconds. In the Saturday peak period the junction is forecast to operate within capacity, exhibiting a maximum RFC of 0.82, alongside minimal queuing and delays in the region of 3 to 15 seconds.

Scenario 7: 2031 with Committed Development and Rhydycar West

9.24 **Table 9.6** summarises the results of the junction capacity assessment for the junction with Scenario 7 flows.

Table 9.6 A470 / A4060 / Bike Park Wales Roundabout: Scenario 7 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A4060	2.2	7.28	0.69	2.8	9.42	0.74	1.8	6.00	0.64
A470 (E)	12.0	19.99	0.93	6.7	11.38	0.88	9.2	15.43	0.91
BikePark Wales Access	0.1	31.77	0.12	0.5	29.61	0.34	0.1	25.94	0.10
A470 (W)	1.5	4.39	0.60	2.7	6.32	0.73	1.2	3.71	0.55

9.25 **Table 9.6** shows that the junction is forecast to operate within the realms of capacity in the 2031 with Committed Development and Rhydycar West Scenario during the AM peak period, exhibiting a maximum RFC of 0.93, alongside minimal queuing and delays in the region of 4 to 32 seconds.

9.26 During the PM peak period, the junction is forecast to operate within the realms of capacity, exhibiting a maximum RFC of 0.88, alongside minimal queuing and delays in the region of 6 to 30 seconds. In the Saturday

peak period the junction is forecast to operate within the realms of capacity, exhibiting a maximum RFC of 0.91, alongside a maximum queue of 9 vehicles and delays in the region of 3 to 25 seconds.

9.27 It should be noted that the largest delay is forecasted to be exhibited on the Bike Park Wales Access arm, with the circulating flow on the carriageway causing delays to vehicles entering from the Bike Park Wales arm. Given the low volume of traffic proposed by consented forecasts for Bike Park Wales - a peak of 14 vehicles an hour – it is considered that this does not cause any undue concerns regarding delay.

A470 / A4102 / Swansea Road Roundabout

Scenario 5: 2031 Forecast Year

9.28 **Table 9.7** summarises the results of the junction capacity assessment for the junction with Scenario 5 flows.

Table 9.7 A470 / A4102 / Swansea Road Roundabout: Scenario 5 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 S	0.9	2.82	0.47	1.1	3.44	0.53	1.5	4.13	0.61
Swansea Road	0.7	4.37	0.41	0.5	3.81	0.35	0.9	5.36	0.48
A470 N	0.6	2.58	0.38	0.6	2.30	0.36	1.1	3.19	0.53
A4102	0.4	2.51	0.31	1.4	3.96	0.59	1.5	4.51	0.60

9.29 **Table 9.7** shows that the junction is forecast to operate within capacity in the 2031 Forecast Year, exhibiting a maximum RFC of 0.60, alongside minimal queuing and delays in the region of 2 to 6 seconds.

Scenario 6: 2031 with Committed Development

9.30 **Table 9.8** summarises the results of the junction capacity assessment for the junction with Scenario 6 flows.

Table 9.8 A470 / A4102 / Swansea Road Roundabout: Scenario 7 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 S	0.9	2.79	0.47	1.1	3.46	0.53	1.5	4.14	0.61
Swansea Road	0.7	4.38	0.41	0.5	3.82	0.35	0.9	5.37	0.48
A470 N	0.6	2.59	0.38	0.6	2.30	0.36	1.1	3.21	0.53
A4102	0.5	2.51	0.31	1.4	3.96	0.59	1.5	4.53	0.60

9.31 **Table 9.8** shows that the junction is forecast to operate within capacity in the 2031 with Committed Development, exhibiting a maximum RFC of 0.61, alongside minimal queuing and delays in the region of 2 to 6 seconds.

Scenario 7: 2031 with Committed Development and Rhydycar West

9.32 **Table 9.9** summarises the results of the junction capacity assessment for the junction with Scenario 7 flows.

Table 9.9 A470 / A4102 / Swansea Road Roundabout: Scenario 8 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 S	1.0	2.95	0.50	1.3	3.75	0.57	2.0	4.92	0.67
Swansea Road	0.7	4.54	0.42	0.6	4.00	0.36	1.0	6.04	0.51
A470 N	0.7	2.66	0.40	0.7	2.49	0.41	1.5	3.80	0.60
A4102	0.5	2.56	0.31	1.5	4.33	0.61	1.8	5.24	0.64

9.33 **Table 9.9** shows that the junction is forecast to operate within capacity in the 2031 with Committed Development and Rhydycar West, exhibiting a maximum RFC of 0.67, alongside minimal queuing and delays in the region of 2 to 7 seconds.

SUMMARY

9.34 **Table 9.7** provides a summary of the traffic impact assessments.

Table 9.10 Traffic Impact Assessment Summary

Junction		Scenario 5: 2031 Forecast			Scenario 6: 2031 with Committed Development			Scenario 7: 2031 with Committed Development and Rhydycar West		
		AM	PM	Saturday	AM	PM	Saturday	AM	PM	Saturday
A470 / A4102 / Site Access	RFC	0.57	0.66	0.55	0.58	0.66	0.55	0.61	0.74	0.66
	Delay	4.70	8.38	5.90	4.75	8.38	5.99	5.17	12.15	9.09
	Queue	1.3	1.9	1.2	1.4	1.9	1.2	1.5	2.8	1.9
A470 / A4060 / Bike Park Wales	RFC	0.91	0.81	0.81	0.91	0.81	0.82	0.93	0.88	0.91
	Delay	28.01	17.16	15.81	27.32	18.52	15.52	31.77	29.61	25.94
	Queue	9.0	4.2	4.3	9.5	4.2	4.4	12.0	6.7	9.2
A470 / A4102 / Swansea Road Roundabout	RFC	0.47	0.59	0.61	0.47	0.59	0.60	0.50	0.61	0.67
	Delay	4.37	3.96	5.36	4.38	3.96	5.37	4.54	4.33	6.04
	Queue	0.9	1.1	1.5	0.9	1.4	1.5	1.0	1.5	2.0

Green – Operates well within capacity Orange – Operate close to capacity Red – Operates above capacity

9.35 The summary of the technical assessments shown at **Table 9.7** evidence that the development will have an immaterial impact to the operation of the A470 / A4102 / Site Access roundabout operation, with a worst-case RFC of 0.74. The development will also have an immaterial impact to the operation of the A470 / A4102 / Swansea Road roundabout, with a worst-case RFC of 0.67. The A470 / A4060 / Bike Park Wales is forecast to be approaching capacity in Scenarios 5, 6 and 7, but will operate within capacity in all scenarios, with a maximum RFC of 0.93.

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

10 SENSITIVITY ASSESSMENT 2: ASSESSMENT 2 DATASET

INTRODUCTION

10.1 Modelling assessments within this Chapter use the dataset outlined as Assessment 2 in Chapter 7.

10.2 The Assessment 2 dataset provides a worst-case scenario where each land use's peak season is assumed to occur simultaneously (which is unrealistic). This is to provide a **worst-case scenario and will not be likely to occur in practice because**, for example, the peak season for the outdoor activity centre will be the summer period, whereas the Snow Centre peak season will be winter.

10.3 The assessment 2 dataset has been considered for a forecast year of 2026 and 2031.

10.4 **This approach has been undertaken to provide a robust sensitivity assessment to advise on the viability of the local network to accommodate increased traffic well above what is considered realistic.** The results outlined within this section are unrealistic and have been undertaken to identify any sensitive parts of the strategic highway network.

ASSESSMENT SCENARIOS

10.5 The assessment years for the traffic impact generated by the proposed development following operation of the link road are as follows:

- **Scenario 8:** 2026 Forecast Year with the presence of committed development and peak month development traffic; and,
- **Scenario 9:** 2031 Forecast Year with the presence of committed development and peak month development traffic.

10.6 **Figures 10.1**, **10.2** and **10.3** show the derived 2026 with Committed Development and Peak Month Rhydycar West AM, PM, and Saturday peak hour traffic flows on the local road network, taking account of the background traffic growth, committed development traffic, peak month development traffic. These have fed into the Scenario 8 2026 Forecast Year with the presence of peak month development traffic junction models.

10.7 **Figures 10.4**, **10.5** and **10.6** show the derived 2031 with Committed Development and Peak Month Rhydycar West AM, PM, and Saturday peak hour traffic flows on the local road network, taking account of the background traffic growth, committed development traffic, peak month development traffic. These have fed into the Scenario 9 2031 Forecast Year with the presence of peak month development traffic junction models.

10.8 It should be noted that the development traffic forecasts for the Hotel and Forest Lodge elements assume that all trips associated with the Hotel and Forest Lodge elements are unique visitors, visiting these elements only. In reality, visitors to the Hotel and Forest Lodge elements will likely visit other elements too during their

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

stay (e.g., the snow centre), so the assessments undertaken provides a worst-case assessment, over-estimating the total level of development traffic at Rhydycar West.

10.9 Junction modelling gives no consideration towards mitigation provided by the implementation of a Travel Plan. The local highway network will therefore operate within capacity to the worst-case figures set out within this report.

JUNCTION CAPACITY ASSESSMENT

A470 / A4102 / Site Access

10.10 The assessments for the AM, PM and Saturday peak period have been undertaken using Junctions 9, with the output results contained in **Appendix F**.

Scenario 8: 2026 with Committed Development and Peak Month Rhydycar West

10.11 **Table 10.1** summarises the results of the junction capacity assessment for the junction with Scenario 8 flows, using the proposed layout of the junction, with the upgraded western arm forming the site access.

Table 10.1 A470 / A4102 / Site Access Roundabout: Scenario 8 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 (South-east)	1.1	2.78	0.53	2.1	4.39	0.68	2.3	4.93	0.70
Site Access	0.1	3.24	0.11	0.4	4.49	0.27	1.2	6.65	0.56
A470 (North-west)	1.4	4.15	0.59	1.9	4.86	0.66	2.4	6.03	0.71
A4102	0.7	4.95	0.40	2.8	12.95	0.75	2.8	14.09	0.74

10.12 **Table 10.1** shows that the junction is forecast to operate within capacity during the AM, PM, and Saturday peak periods in the 2026 Forecast Year with the presence of committed and peak month development traffic scenario, exhibiting a maximum RFC of 0.75 during peak periods. It is forecast to generate minimal queuing and delays in the region of 3 to 15 seconds.

Scenario 9: 2026 with Committed Development and Peak Month Rhydycar West

10.13 **Table 10.2** summarises the results of the junction capacity assessment for the junction with Scenario 9 flows, using the proposed layout of the junction, with the upgraded western arm forming the site access.

Table 10.2 A470 / A4102 / Site Access Roundabout: Scenario 9 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 (South-east)	1.3	2.94	0.56	2.4	4.86	0.71	2.7	5.49	0.73
Site Access	0.1	3.37	0.11	0.4	4.79	0.29	1.4	7.29	0.58
A470 (North-west)	1.6	4.47	0.61	2.1	5.30	0.68	2.7	6.69	0.73
A4102	0.7	5.22	0.42	3.7	16.09	0.79	3.6	17.40	0.79

10.14 **Table 10.2** shows that the junction is forecast to operate within capacity during the AM, PM, and Saturday peak periods in the 2031 Forecast Year with the presence of committed and peak month development traffic scenario, exhibiting a maximum RFC of 0.79 during peak periods. It is forecast to generate minimal queuing and delays in the region of 3 to 18 seconds.

A470 / A4060 / Bike Park Wales Roundabout

10.15 The assessments for the AM, PM and Saturday peak period have been undertaken using Junctions 9, with the output results contained in **Appendix G**.

Scenario 8: 2026 with Committed Development and Peak Month Rhydycar West

10.16 **Table 10.3** summarises the results of the junction capacity assessment for the junction with Scenario 8 flows.

Table 10.3 A470 / A4060 / Bike Park Wales Roundabout: Scenario 8 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A4060	1.9	6.40	0.66	2.5	8.77	0.72	1.5	5.40	0.60
A470 (E)	8.2	14.00	0.90	6.7	11.42	0.88	6.5	11.10	0.87
BikePark Wales Access	0.1	25.00	0.10	0.5	29.58	0.33	0.1	20.51	0.08
A470 (W)	1.3	4.03	0.57	2.6	6.07	0.72	1.1	3.46	0.52

10.17 **Table 10.3** shows that the junction is forecast to operate within the realms of capacity in the 2031 Forecast Scenario during the AM peak period, exhibiting a maximum RFC of 0.90, alongside minimal queuing and delays in the region of 4 to 25 seconds.

10.18 During the PM peak period, the junction is forecast to operate within the realms of capacity, exhibiting a maximum RFC of 0.88, alongside minimal queuing and delays in the region of 6 to 30 seconds.

10.19 In the Saturday peak period the junction is forecast to operate within the realms of capacity, exhibiting a maximum RFC of 0.87, alongside minimal queuing and delays in the region of 3 to 21 seconds.

Scenario 9: 2031 with Committed Development and Peak Month Rhydycar West

10.20 **Table 10.4** summarises the results of the junction capacity assessment for the junction with Scenario 9 flows.

Table 10.4 A470 / A4060 / Bike Park Wales Roundabout: Scenario 9 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A4060	2.3	7.33	0.70	3.2	10.80	0.77	2.3	7.76	0.70
A470 (E)	12.8	21.30	0.94	9.5	15.73	0.91	27.0	41.15	0.99
BikePark Wales Access	0.1	33.17	0.13	0.7	43.78	0.44	0.2	50.90	0.17
A470 (W)	1.5	4.39	0.60	3.1	7.11	0.76	1.8	4.71	0.65

10.21 **Table 10.4** shows that the junction is forecast to operate within the realms of capacity in the 2031 with Committed Development and Rhydycar West Scenario during the AM peak period, exhibiting a maximum RFC of 0.94, alongside minimal queuing and delays in the region of 4 to 33 seconds.

10.22 During the PM peak period, the junction is forecast to operate within the realms of capacity, exhibiting a maximum RFC of 0.91, alongside minimal queuing and delays in the region of 7 to 44 seconds. In the Saturday peak period the junction is forecast to operate within the realms of capacity, exhibiting a maximum RFC of 0.99, alongside a maximum queue of 27 vehicles and delays in the region of 4 to 50 seconds.

10.23 It should be noted that the largest delay is forecasted to be exhibited on the Bike Park Wales Access arm, with the circulating flow on the carriageway causing delays to vehicles entering from the Bike Park Wales arm. Given the low volume of traffic proposed by consented forecasts for Bike Park Wales - a peak of 14 vehicles an hour – it is considered that this does not cause any undue concerns regarding delay.

A470 / A4102 / Swansea Road Roundabout

10.24 The assessments for the AM, PM and Saturday peak period have been undertaken using Junctions 9, with the output results contained in **Appendix G**.

Scenario 5: 2026 with Committed Development and Peak Month Rhydycar West

10.25 **Table 10.5** summarises the results of the junction capacity assessment for the junction with Scenario 5 flows.

Table 10.5 A470 / A4102 / Swansea Road Roundabout: Scenario 5 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 S	0.9	2.81	0.48	1.2	3.63	0.56	2.3	5.32	0.70
Swansea Road	0.7	4.26	0.40	0.5	3.89	0.34	1.0	6.18	0.51
A470 N	0.6	2.56	0.38	0.7	2.51	0.42	1.7	4.05	0.63
A4102	0.4	2.48	0.30	1.4	4.17	0.59	1.7	5.29	0.63

10.26 **10.5** shows that the junction is forecast to operate within capacity in 2031 with Committed Development and Peak Month Rhydycar West, exhibiting a maximum RFC of 0.70, alongside minimal queuing and delays in the region of 2 to 7 seconds.

Scenario 9: 2031 with Committed Development and Peak Month Rhydycar West

10.27 **Table 10.6** summarises the results of the junction capacity assessment for the junction with Scenario 9 flows.

Table 10.6 A470 / A4102 / Swansea Road Roundabout: Scenario 9 Junction Capacity Assessment

Arm	AM Peak			PM Peak			Saturday Peak		
	Queue	Delay	RFC	Queue	Delay	RFC	Queue	Delay	RFC
A470 S	1.0	2.95	0.50	1.4	3.93	0.59	2.7	6.11	0.73
Swansea Road	0.7	4.54	0.42	0.6	4.11	0.37	1.2	6.95	0.55
A470 N	0.7	2.67	0.40	0.8	2.61	0.43	1.9	4.47	0.66
A4102	0.5	2.57	0.32	1.6	4.56	0.62	2.0	6.03	0.67

10.28 **Table 10.6** shows that the junction is forecast to operate within capacity in 2031 with Committed Development and Peak Month Rhydycar West, exhibiting a maximum RFC of 0.73, alongside minimal queuing and delays in the region of 2 to 7 seconds.

SUMMARY

10.29 **Table 10.7** provides a summary of the traffic impact assessments.

Table 10.7 Traffic Impact Assessment Summary

Junction		Scenario 8: 2026 with Committed Development and Peak Month Rhydycar West			Scenario 9: 2031 with Committed Development and Peak Month Rhydycar West		
		AM	PM	Saturday	AM	PM	Saturday
A470 / A4102 / Site Access	RFC	0.59	0.75	0.74	0.61	0.79	0.79
	Delay	4.95	12.95	14.09	5.22	16.09	17.40
	Queue	1.4	2.8	2.8	1.6	3.7	3.6
A470 / A4060 / Bike Park Wales	RFC	0.90	0.88	0.87	0.94	0.91	0.99
	Delay	25.00	29.58	20.51	33.17	43.78	50.90
	Queue	8.2	6.7	6.5	12.8	9.5	27.0
A470 / A4102 / Swansea Road Roundabout	RFC	0.48	0.59	0.70	0.50	0.62	0.73
	Delay	4.26	4.17	6.18	4.54	4.56	6.95
	Queue	0.9	1.4	2.3	1.0	1.6	2.7

Green – Operates well within capacity Orange – Operate close to capacity Red – Operates above capacity

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

10.30 The summary of the technical assessments shown at **Table 10.7** evidence that the development will have an immaterial impact to the operation of the A470 / A4102 / Site Access roundabout operation, with a worst-case RFC of 0.79. The A470 / A4060 / Bike Park Wales is forecast to be approaching capacity in Scenarios 8 and 9 but will operate within the realms of capacity in all scenarios, with a maximum RFC of 0.99. The A470 / A4102 / Swansea Road roundabout is forecast to be operating within capacity in Scenarios 8 and 9, with a maximum RFC of 0.73.

10.31 The assessments presented at **Table 10.7** are worst case, with the volume of development traffic added to the network associated with each land uses' peak season period occurring simultaneously. In reality, the land uses will experience peak seasons at different times of year, therefore junctions within the study area will operate with a level of residual capacity that is higher than the figures outlined at **Table 10.5**. Nonetheless, the results of the traffic impact assessment indicate that the local highway network has sufficient capacity to accommodate this unlikely simultaneous peak season assessment.

10.32 **Assessments within this chapter have been undertaken to confirm the viability of the strategic highway network to accommodate significantly large traffic volumes, well above what is considered realistic. Results identified no areas of the strategic highway network that are sensitive to excess traffic volumes, advising on the robustness of the traffic modelling outlined within Chapter 8.**

10.33 Development proposals will therefore have a negligible impact to network operation, as shown in **Table 8.10**.

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

11 SUMMARY AND CONCLUSION

SUMMARY

11.1 Tetra Tech has been commissioned by Marvel Ltd to prepare a Transport Assessment (TA) in support of a planning application for land west of the A470 and to the south of the village of Heolgerrig in Glamorgan. The land represents an urban extension to the town of Merthyr Tydfil.

11.2 The development scheme comprises a, 39,200 sqm Indoor Snowdome, 9,000 sqm Water Park, 27,400 sqm Hotel (418 beds), 24,000 sqm Indoor / Outdoor Activity Centre and 30 Forest Lodges (up to 2,000 sqm).

11.3 The proposed development site is well located to integrate into the local pedestrian, cycle, and public transport network, with scope of improvements to connectivity. Given the location of the development, it is well located to maximise access by sustainable transport modes, with scope for improvements. A commitment to providing a regular shuttle bus service during key periods is made at this outline planning stage, along with enhancement including surfacing and lighting of pedestrian and cycle routes the Rhydycar Leisure Centre.

11.4 The development scheme will provide a net benefit to the local area with regards to transport and accessibility. It will provide new employment which will offer local jobs within an appropriate walking and cycling catchment of Merthyr Tydfil, and accessible from Merthyr Tydfil rail and bus stations; thereby providing opportunities for staff commute trips to be made by non-car modes. It will also provide a significant attraction for the local and wider area, enhancing tourism and subsequently providing a net benefit to local businesses and economic viability of the area.

11.5 An audit of personal injury accident data has been undertaken and has found no cause for concern that the arrangement of the local highway network is not seen as a contributing factor to the recorded accidents.

11.6 It is proposed that vehicular access into the site be taken from the A470 / A4102 roundabout, via an extension and improvement to the existing stub provided at the south-west arm. The existing stub will be enhanced to provide 3.65m wide lanes, increasing to two 4.5m wide lanes on entry to the roundabout, alongside a 90m centreline radius reducing to 24m to tie into the existing roundabout.

11.7 Traffic assessments outline that the development of the site will have a negligible impact on highway operation and will not be detrimental to road user safety. All junctions are forecast to operate within capacity in a forecast year of 2026 with Committed Development and Development traffic on the network.

11.8 Sensitivity traffic assessments have been completed to advise on network viability and its operation in a forecast year of 2031, the Local Plan period end. Assessments evidence that junctions will operate within capacity.

Tetra Tech Cardiff, 47 Newport Road, Cardiff, CF24 0AD
Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

11.9 Sensitivity assessments have also been conducted for cumulative season impacts, where each land use's peak season is assumed to occur simultaneously. This is to provide a worst-case scenario and will not be likely to occur in practice. This assessment evidences that junctions will operate within capacity.

11.10 The development provides a Framework Travel Plan, which has been designed to encourage sustainable travel behaviour amongst new staff and visitors via a variety of measures.

11.11 The development also includes a shuttle bus service, routing from the site to Merthyr Tydfil railway station and bus station, to help facilitate visitors to the site by bus and rail. The proposed shuttle bus could synchronise with the arrivals/departures from Merthyr Tydfil rail station to minimise layover time for visitors to the site. It is considered that the shuttle bus provides a very attractive offering to visitors and will encourage site users to access the site by public transport.

11.12 Junction modelling gives no consideration towards mitigation provided by the implementation of a Travel Plan. The local highway network will therefore operate with improved capacity to the figures set out within this report.

CONCLUSION

11.13 Evidence presented in this Transport Assessment demonstrates that there are no significant transport impacts associated with the proposed development of the site that cannot be adequately mitigated. The residual cumulative impacts of the development are immaterial, with safe and suitable provision provided to accommodate future transport users.

11.14 Development proposals will have a negligible impact to network operation.

FIGURES

Site Location Plan

Rhydycar West
Marvel Ltd

Legend

Site

Drawn by: BM
Checked by: AP
Office: Cardiff

Drawing No.: 784-B023905-003
Revision No.: 0001

0 100 200 300 400 m

Scale at A3:15,000

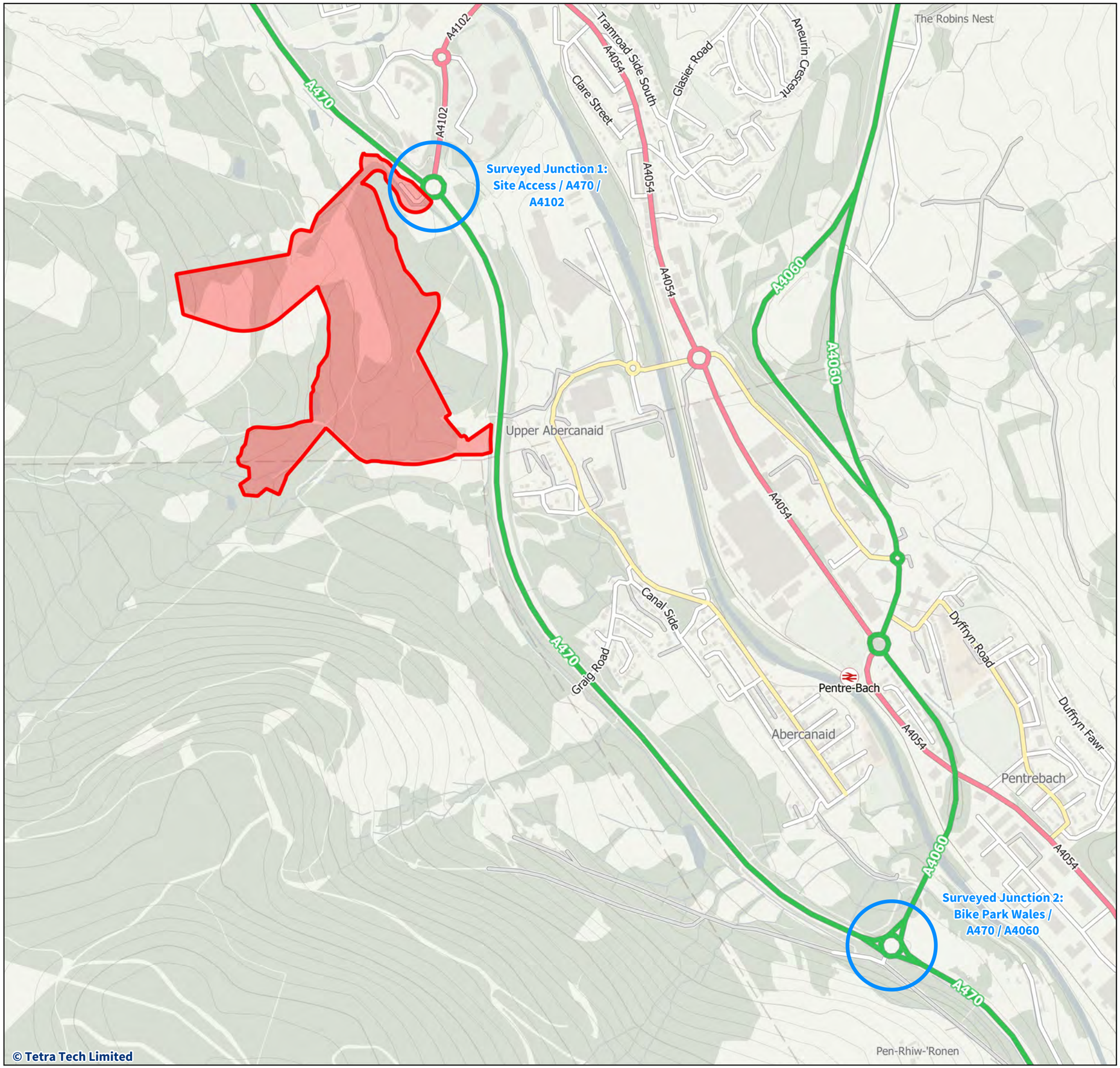
19 January 2022

© Crown Copyright All rights reserved. Licence number: 100019980
Open Government Data reproduced contains public sector information licensed under the Open Government Licence v3.0
Other Credits: Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.



TETRA TECH

© Tetra Tech Limited



Surveyed Junctions

Rhydycar West
Marvel Ltd

Legend

Site

Drawn by: BM
Checked by: AP
Office: Cardiff

Drawing No.: 784-B023905-0004.2
Revision No.: 0001

0 100 200 300 400 m

Scale at A3:15,000

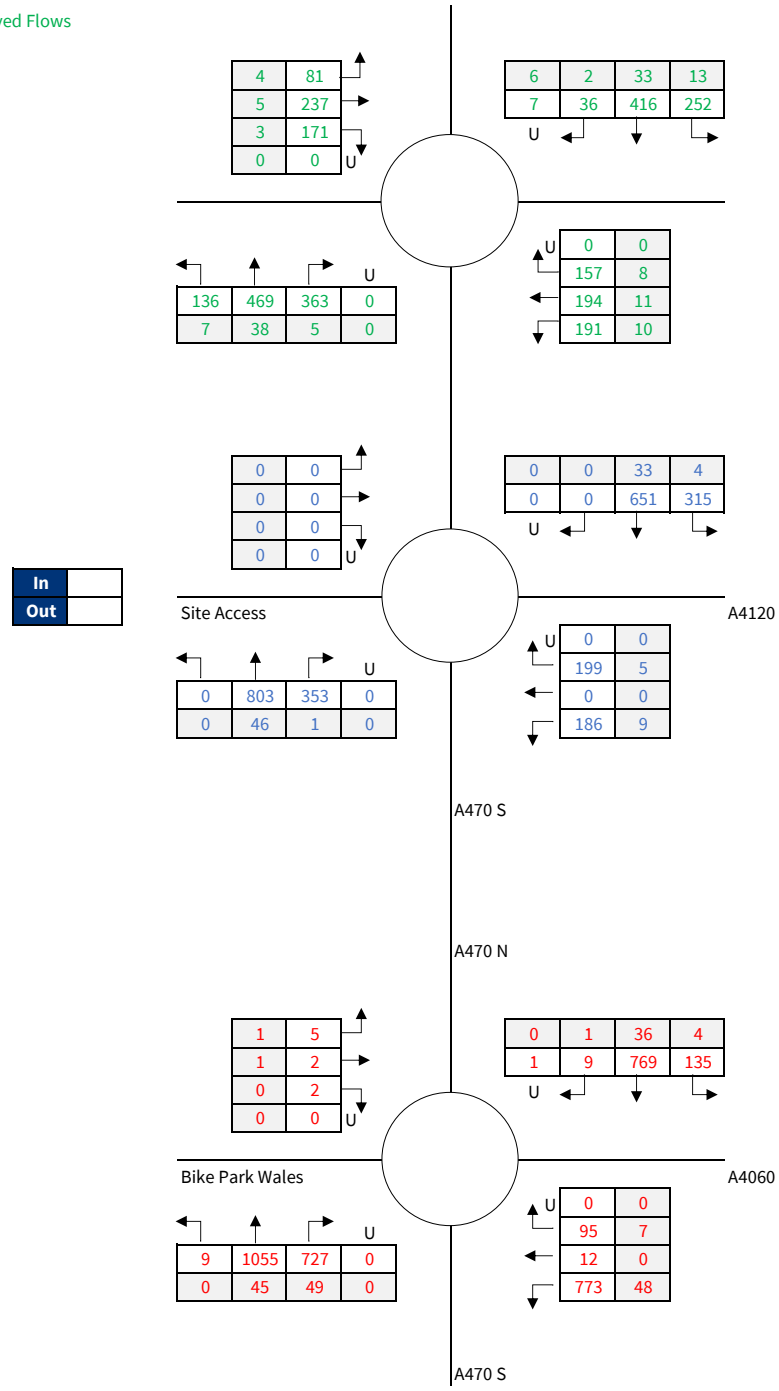
20 January 2022

© Crown Copyright All rights reserved. Licence number: 100019980
Open Government Data reproduced contains public sector information licensed under the Open Government Licence v3.0
Other Credits: Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.



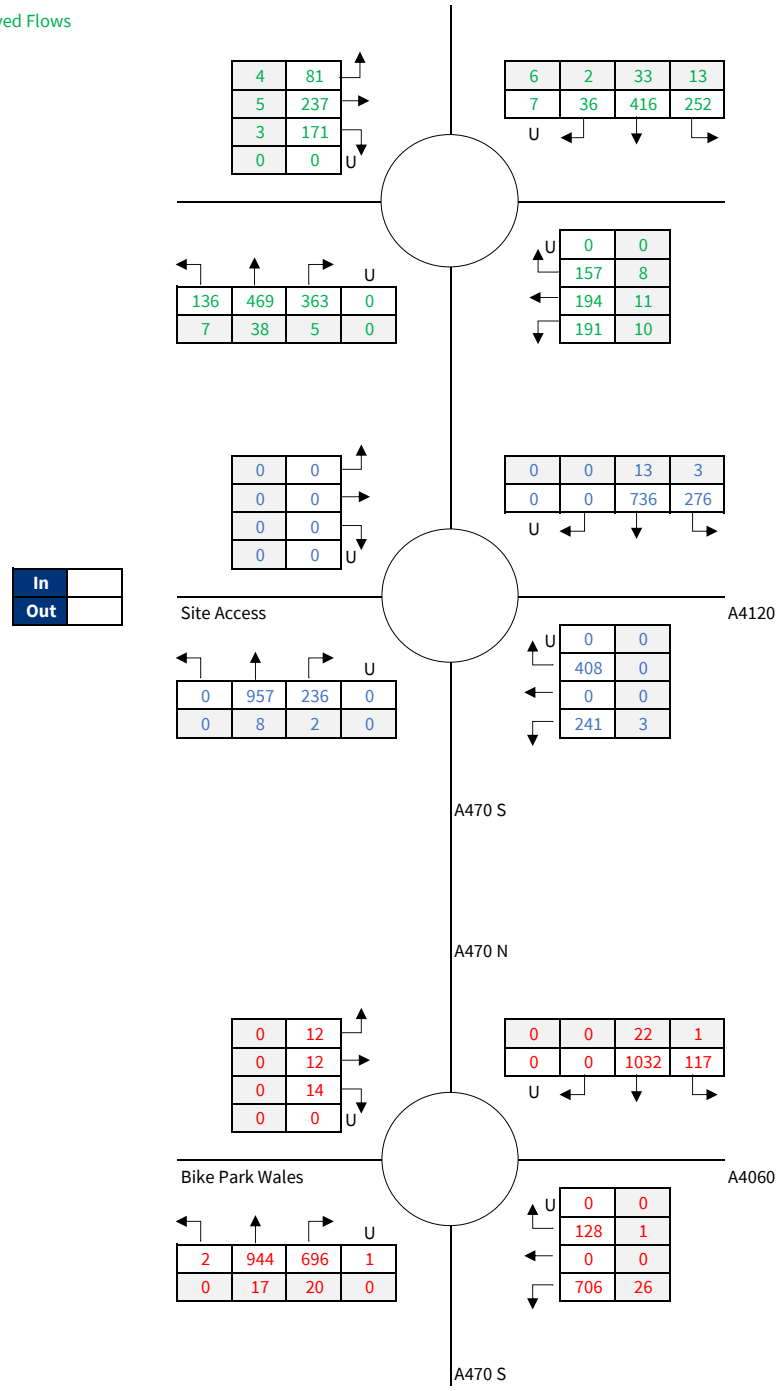
TETRA TECH

2017 Observed Flows
2018 Observed Flows
2022 Observed Flows



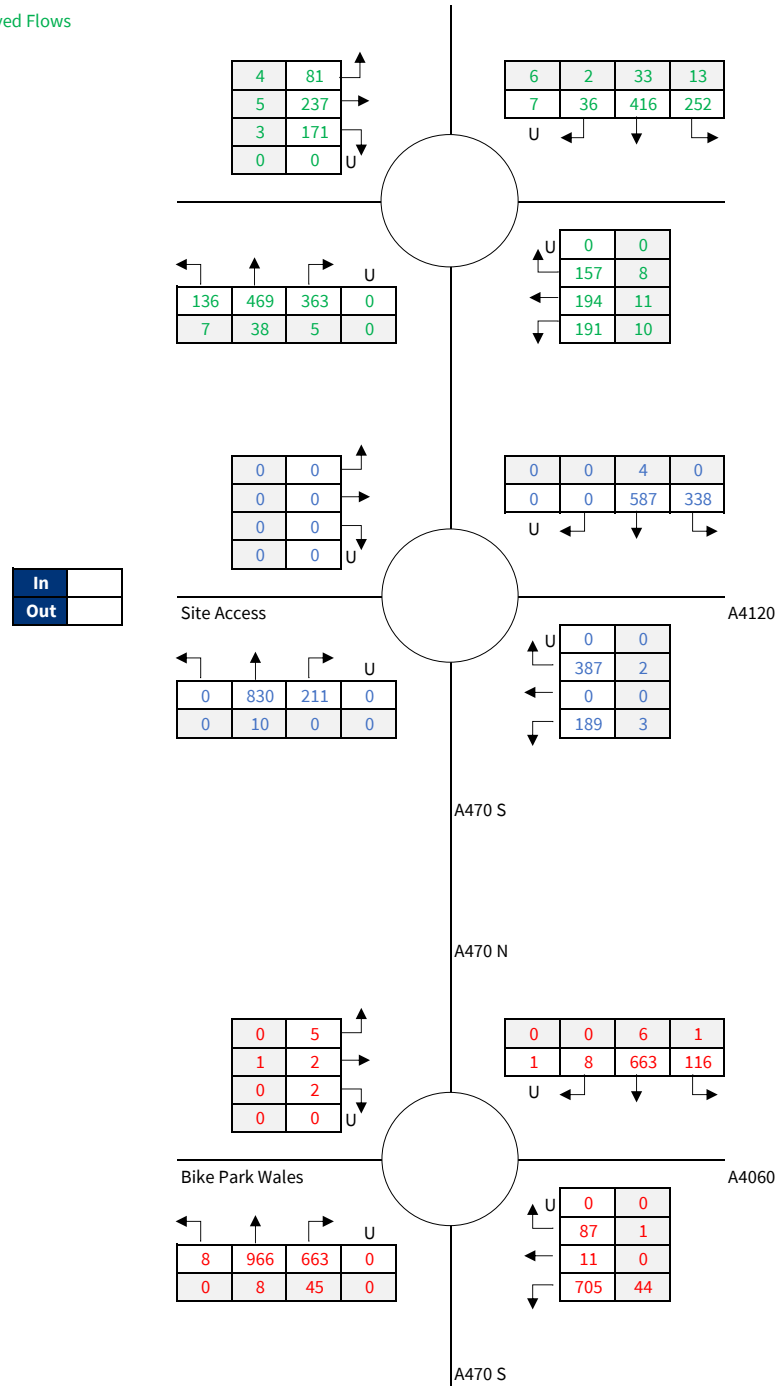
Tetra Tech 5th Flr, Longcross Court, 47 Newport Rd, Cardiff CF24 0AD	**Project:** Rhydycar West
	Title: Observed Traffic Flows AM (0800-0900)
	Date: April 2022
	Job No: 784-B023905

2017 Observed Flows
2018 Observed Flows
2022 Observed Flows

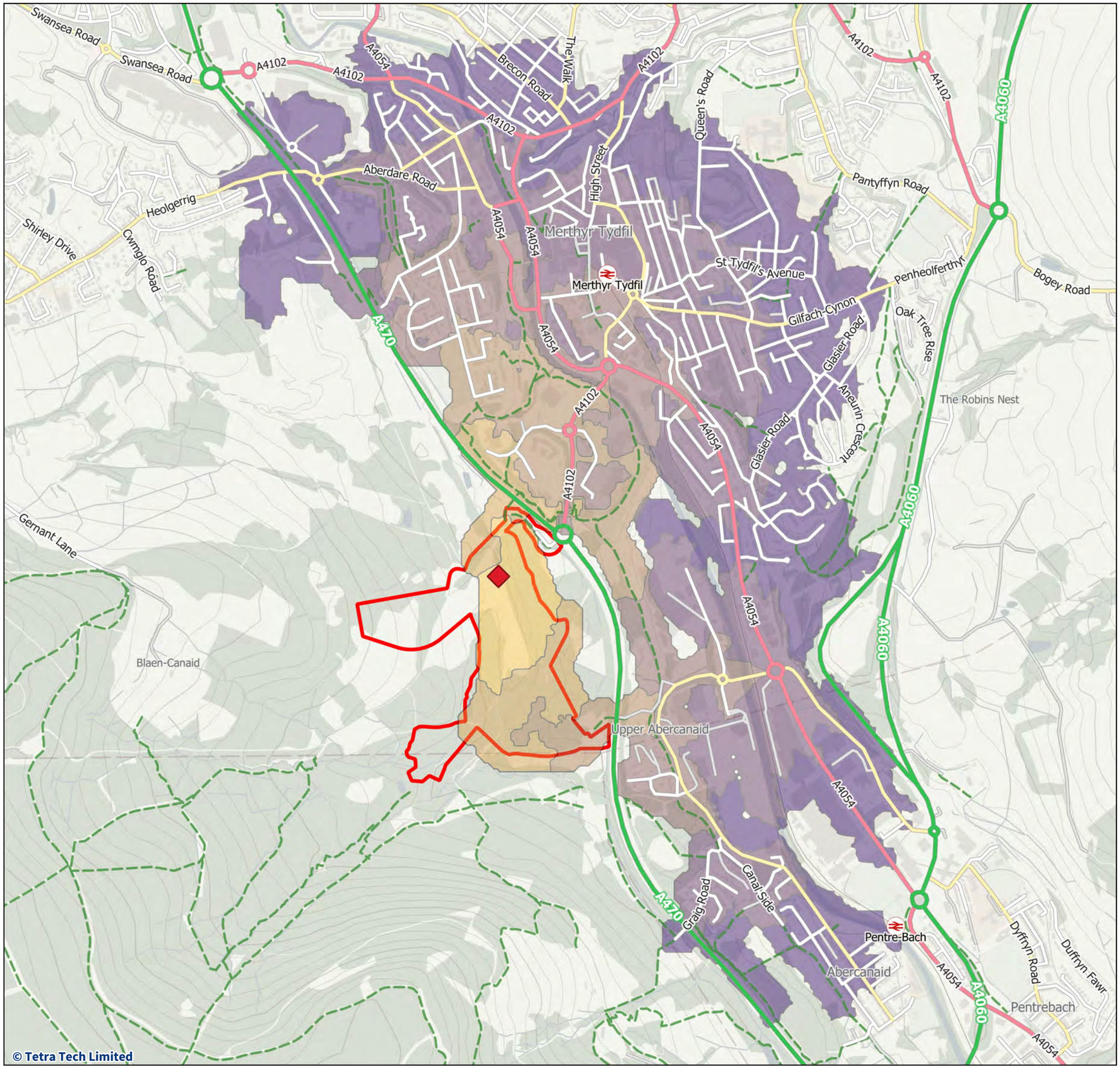


Tetra Tech 5th Flr, Longcross Court, 47 Newport Rd, Cardiff CF24 0AD	**Project:** Rhydycar West
	Title: Observed Traffic Flows AM (1630-1730)
	Date: April 2022
	Job No: 784-B023905

2017 Observed Flows
2018 Observed Flows
2022 Observed Flows



Tetra Tech 5th Flr, Longcross Court, 47 Newport Rd, Cardiff CF24 0AD	**Project:** Rhydycar West
	Title: Observed Traffic Flows Saturday (1200-1300)
	Date: April 2022
	Job No: 784-B023905



Accessibility by Walking (Main Site)

Rhydycar West
Marvel Ltd

Legend

Site

Access by Walking

- 0-5 mins / 0-400m
- 5-10 mins / 400-800m
- 10-15 mins / 800-1.2km
- 15-20 mins / 1.2-1.6km
- 20-25 mins / 1.6-2.0km
- 25-30 mins / 2.0-2.4km

Isochrone Origin

Public Rights of Way

Drawn by: BM
Checked by: AP
Office: Cardiff

Drawing No.: 784-B023905-0005.1
Revision No.: 0001

0 100 200 300 400 m
Scale at A3:12,500

20 January 2022

© Crown Copyright All rights reserved. Licence number: 100019980
Open Government Data reproduced contains public sector information licensed under the Open Government Licence v3.0
Other Credits: Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.



TETRA TECH

Accessibility by Walking (Forest Lodges)

Rhydycar West
Marvel Ltd

Legend

- Site
- Isochrone Origin

Access by Walking

- 0-5 mins / 0-400m
- 5-10 mins / 400-800m
- 10-15 mins / 800-1.2km
- 15-20 mins / 1.2-1.6km
- 20-25 mins / 1.6-2.0km
- 25-30 mins / 2.0-2.4km
- Public Rights of Way

Drawn by: BM
Checked by: AP
Office: Cardiff

Drawing No.: 784-B023905-0005.2
Revision No.: 0001

0 100 200 300 400 m
Scale at A3:15,000

20 January 2022

© Crown Copyright All rights reserved. Licence number: 100019980
Open Government Data reproduced contains public sector information licensed under the Open Government Licence v3.0
Other Credits: Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.



TETRA TECH

© Tetra Tech Limited

Accessibility by Cycling (Main Site)

Rhydycar West
Marvel Ltd

Legend

Site

Access by Cycling

- 0-5 mins / 0-1.33km
- 5-10 mins / 1.33-2.67km
- 10-15 mins / 2.67-4.00km
- 15-20 mins / 4.00-5.33km
- 20-25 mins / 5.33-6.67km
- 25-30 mins / 6.67-8.00km

Isochrone Origin

National Cycle Route

Drawn by: BM
Checked by: AP
Office: Cardiff

Drawing No.: 784-B023905-0005.3
Revision No.: 0001

0 1 2 km
Scale at A3:12,500

20 January 2022

© Crown Copyright All rights reserved. Licence number: 100019980
Open Government Data reproduced contains public sector information licensed under the Open Government Licence v3.0
Other Credits: Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.



TETRA TECH

© Tetra Tech Limited

Accessibility by Cycling (Forest Lodges)

Rhydycar West
Marvel Ltd

Legend

- Site
- Isochrone Origin

Access by Cycling

- 0-5 mins / 0-1.33km
- 5-10 mins / 1.33-2.67km
- 10-15 mins / 2.67-4.00km
- 15-20 mins / 4.00-5.33km
- 20-25 mins / 5.33-6.67km
- 25-30 mins / 6.67-8.00km
- Public Rights of Way

Drawn by: BM
Checked by: AP
Office: Cardiff

Drawing No.: 784-B023905-0005.4
Revision No.: 0001

0 100 200 300 400 m

Scale at A3:15,000

20 January 2022

© Crown Copyright All rights reserved. Licence number: 100019980
Open Government Data reproduced contains public sector information licensed under the Open Government Licence v3.0
Other Credits: Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.

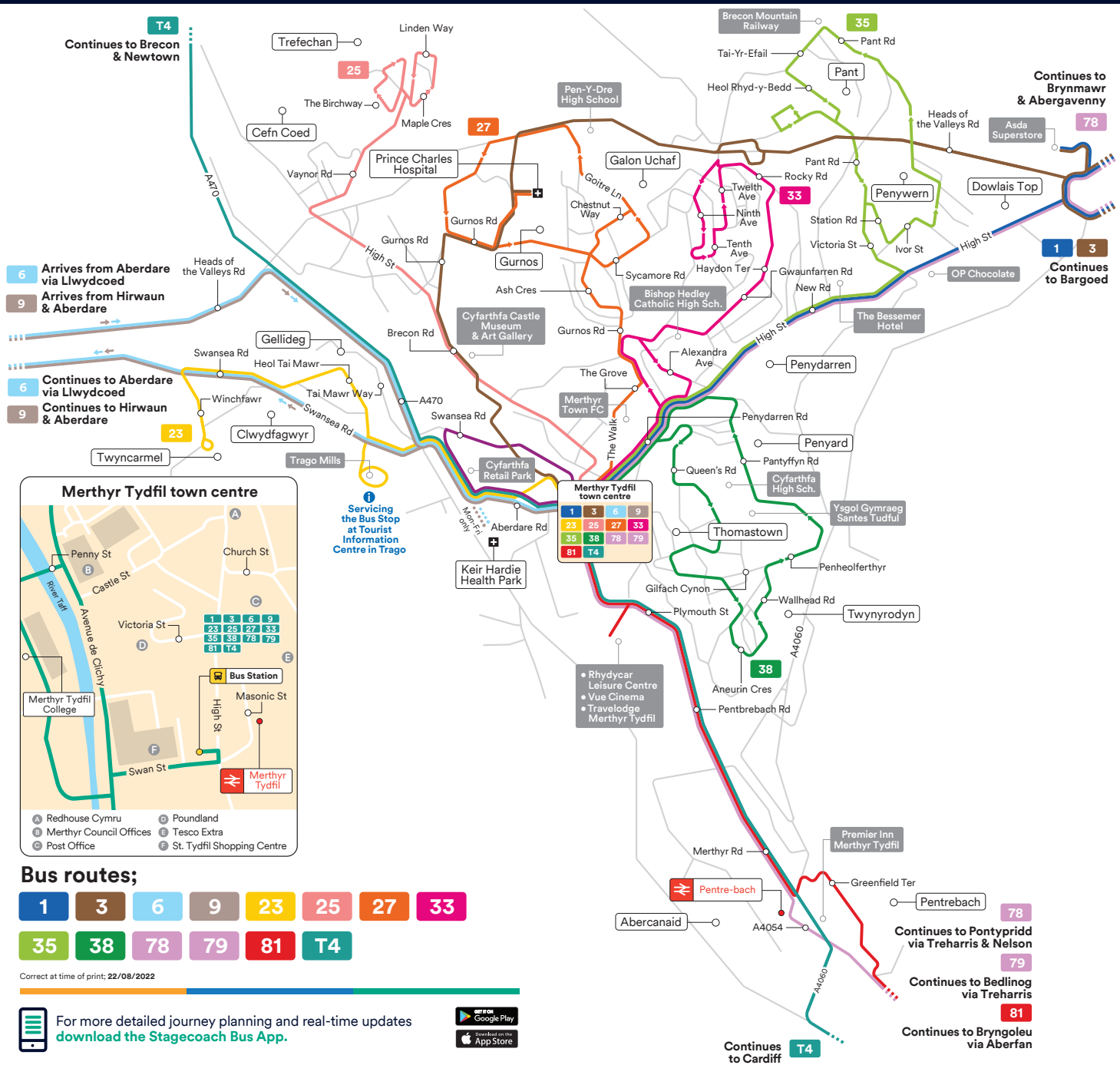


TETRA TECH

© Tetra Tech Limited

Merthyr Tydfil

Stagecoach



Bus routes;

1 3 6 9 23 25 27 33 35 38 78 79 81 T4

Correct at time of print; **22/08/2022**

For more detailed journey planning and real-time updates **download the Stagecoach Bus App.**

GET IT ON Google Play

Download on the App Store

Accessibility by Public Transport

Rhydycar West
Marvel Ltd

Legend

Site

Access by Public Transport

- 0 - 60 minutes
- 60 - 120 minutes
- 120 - 180 minutes
- 180 - 240 minutes

Drawn by: BM
Checked by: AP
Office: Cardiff

Drawing No.: 784-B023905-003
Revision No.: 0001

0 20 40 km

Scale at A3:1,200,000

24 January 2022

© Crown Copyright All rights reserved. Licence number: 100019980
Open Government Data reproduced contains public sector information licensed under the Open Government Licence v3.0
Other Credits: Contains OpenStreetMap data © OpenStreetMap contributors. OSM data is available under the Open Database License, licensed as CC BY-SA.



TETRA TECH

© Tetra Tech Limited



1 **Illustrative Masterplan**
1 : 2000

N

20 0 20 40 60 80 100
SCALE 1:2000 m

P3	S0	01/02/22	WS	ISSUED FOR PLANNING
P2	S0	17/01/22	WS	Amendments incorporating highways, drainage and construction zones
P1	S0	xx/xx/xx	WS	DRAFT ISSUE
Rev.	Status	Date		Check Description

HolderMathiasarchitects

T +44 (0) 20 7287 0735
www.holdermathias.com
London Cardiff Munich

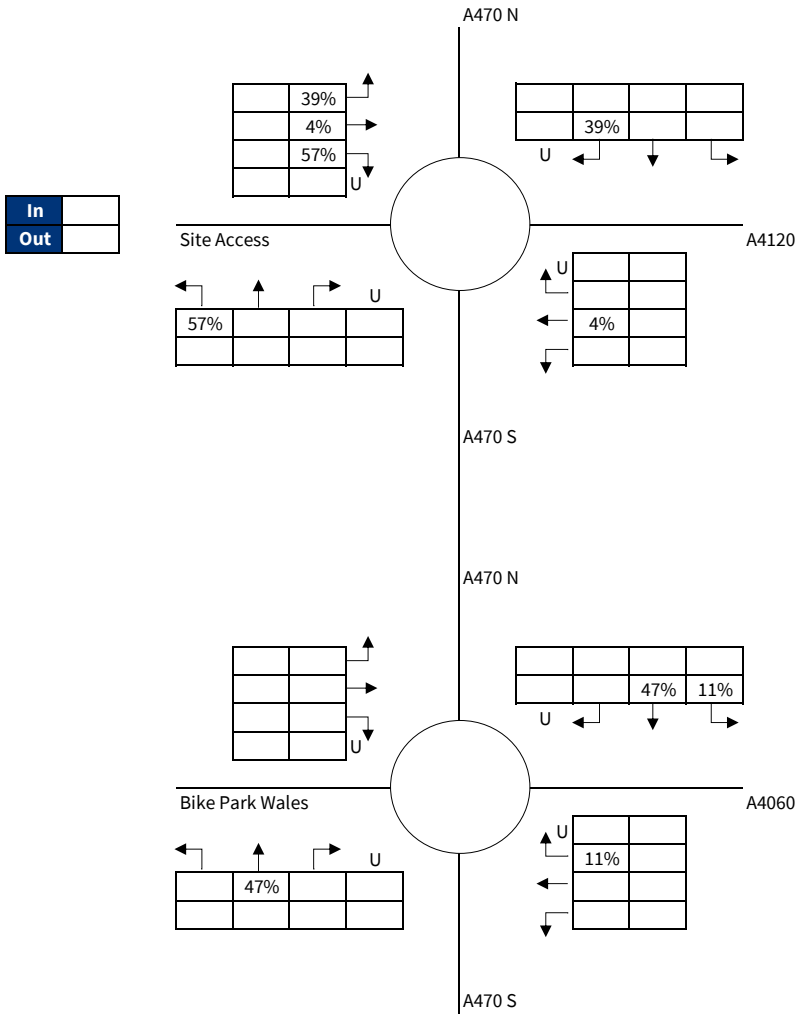
Project
Rhydycar West
Merthyr Tydfil
Marvel Ltd

Title
Illustrative Masterplan

Job No	Scale at A1	Status	Rev.	Ext.	Int.
4170	1 : 2000	S0	P3		

Project	Originator	Zone	Level	Type	Role	Sheet
RHDR	-HMA-	LE-	ZZ-	DR	-A	-**PL-020**

ISO 14001 : 2015 ISO 9001 : 2015 RIBA Chartered Practice
Please consider the environment before printing this document



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

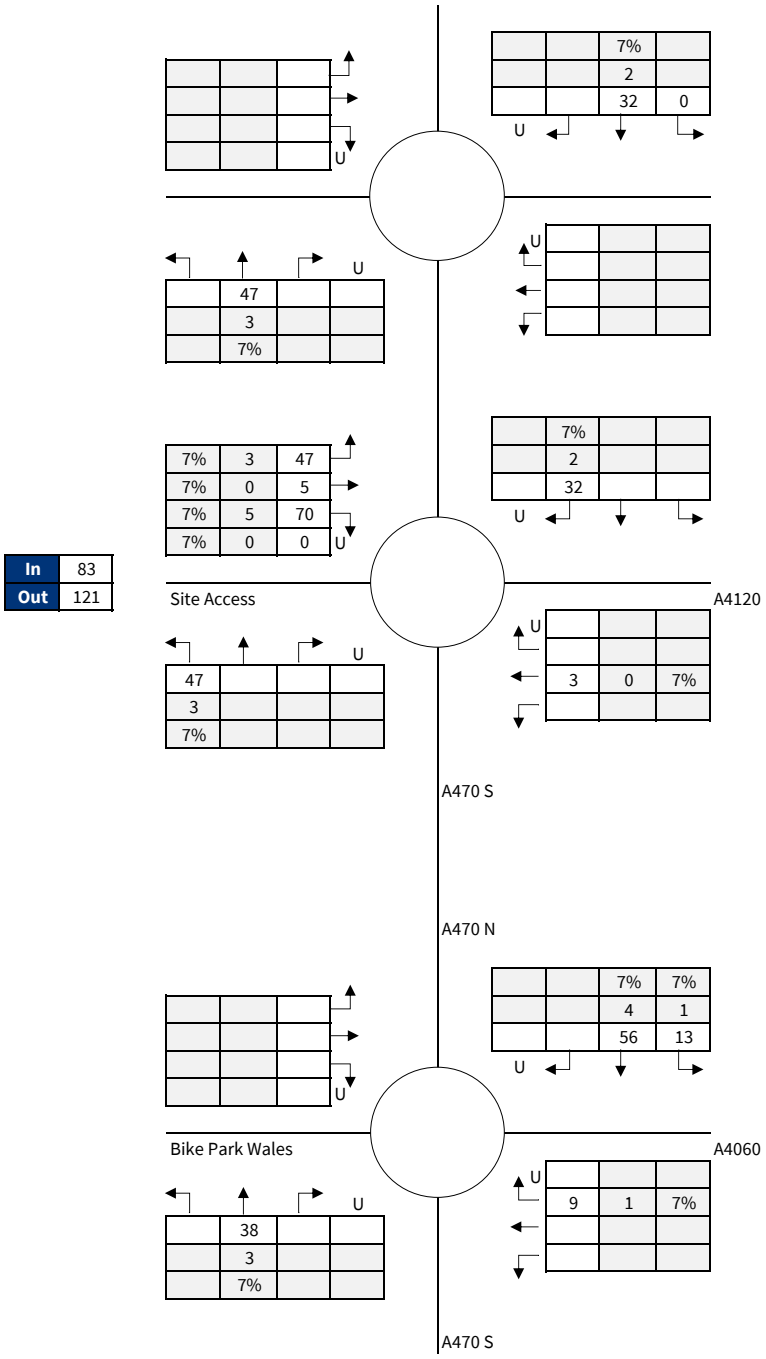
TETRA TECH

Project: Rhydycar West

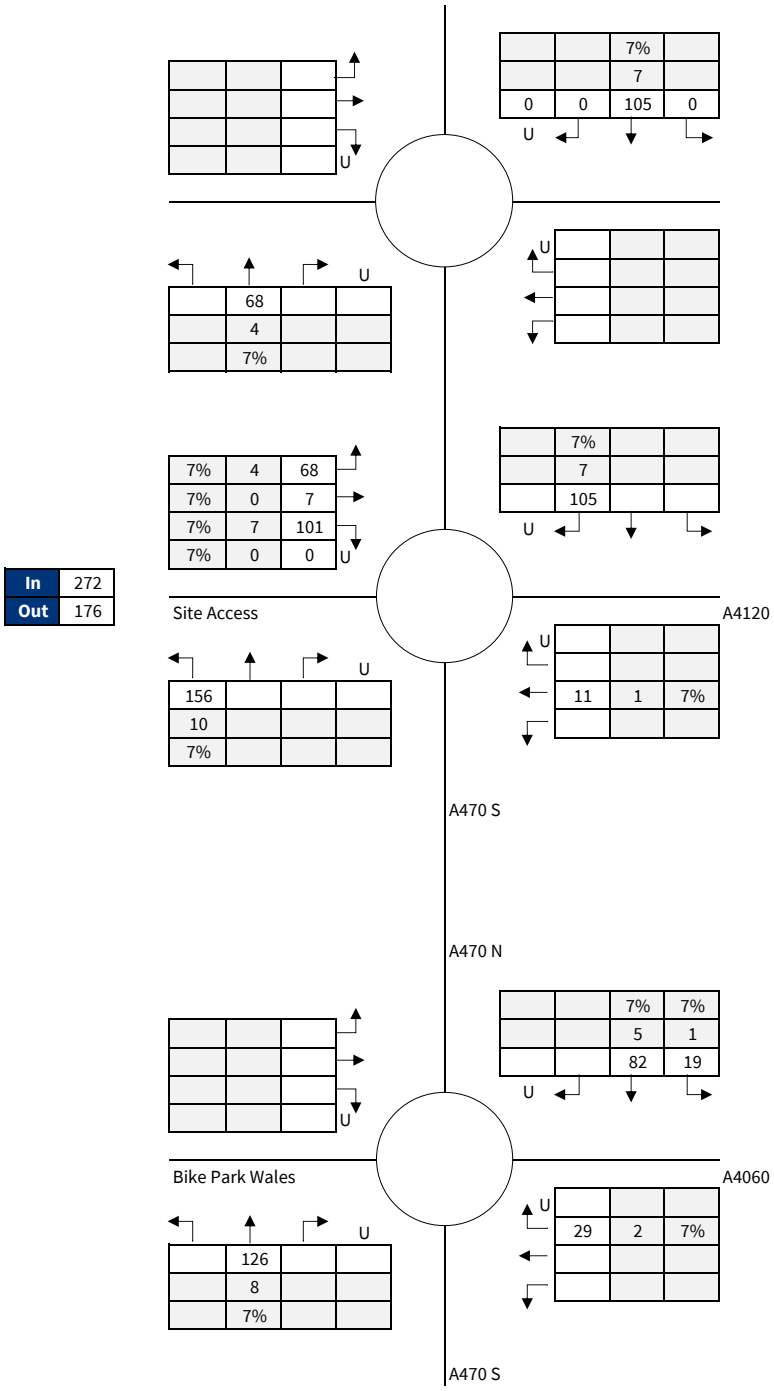
Title: Development Traffic Distribution

Date: April 2022

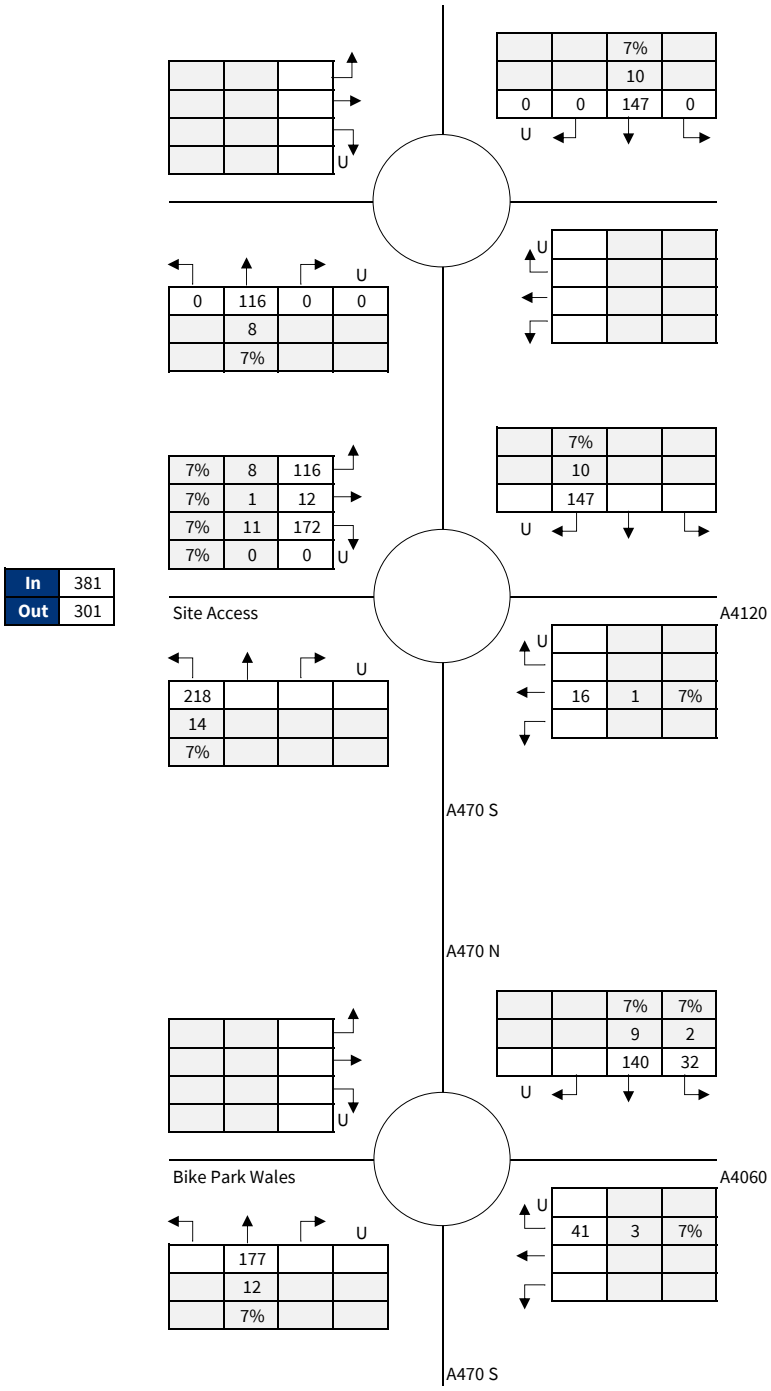
Job No: 784-B023905



Tetra Tech	**Project:** Rhydycar West
5th Flr, Longcross Court, 47 Newport Rd, Cardiff CF24 0AD	**Title:** Development Traffic Assignment: Weekday AM Peak
TETRA TECH	**Date:** April 2022
	Job No: 784-B023905



Tetra Tech	**Project:** Rhydycar West
5th Flr, Longcross Court, 47 Newport Rd, Cardiff CF24 0AD	**Title:** Development Traffic Assignment: Weekday PM Peak
TETRA TECH	**Date:** April 2022
	Job No: 784-B023905



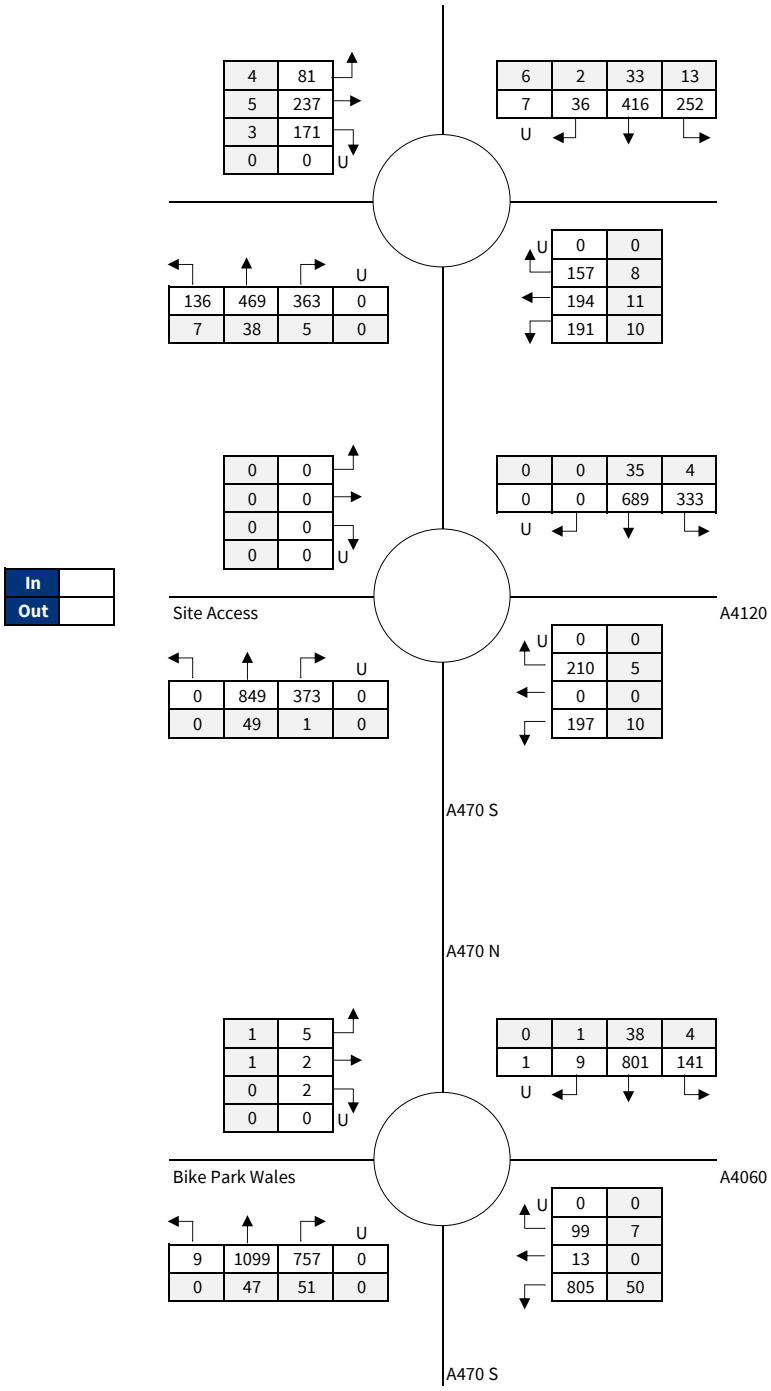
In	381
Out	301

Tetra Tech

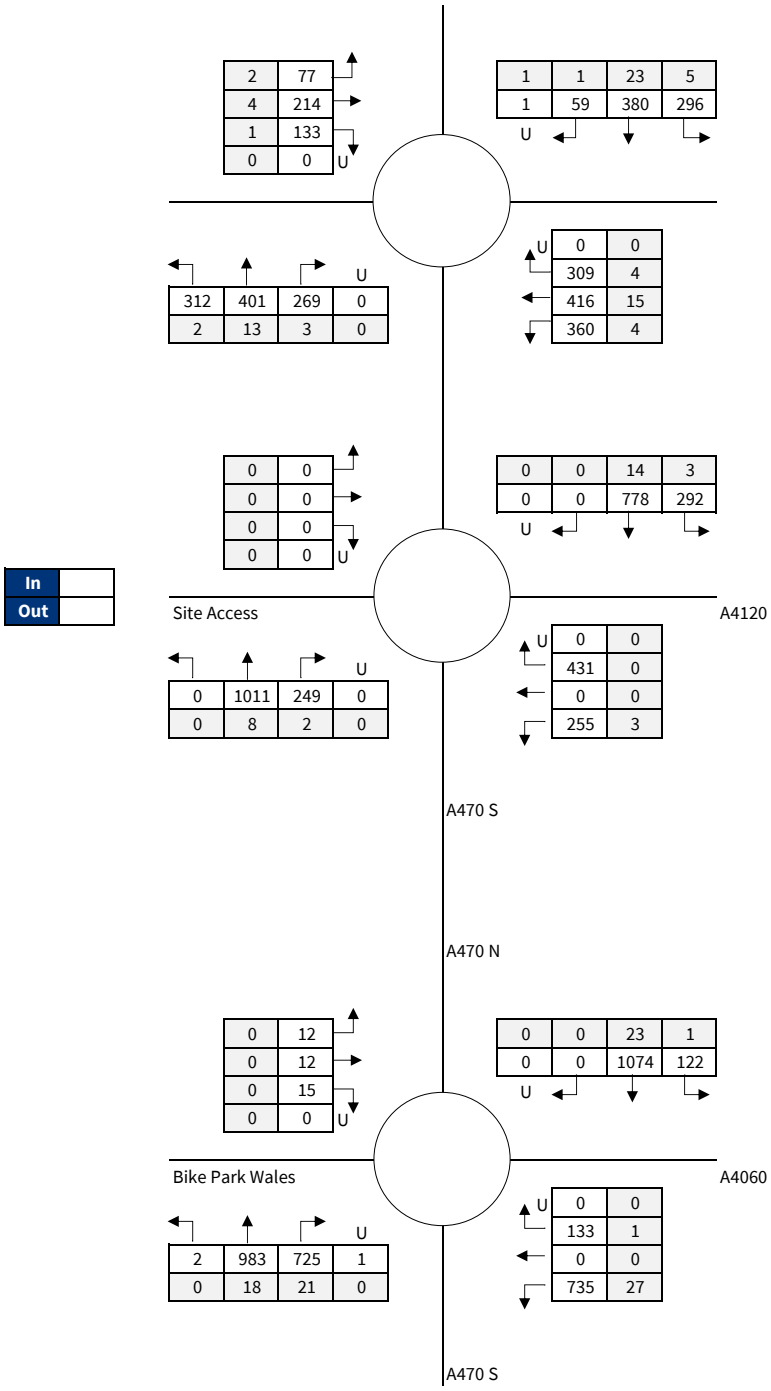
5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project:	**Rhydycar West**
Title:	**Development Traffic Assignment: Saturday Peak**
Date:	**April 2022**
Job No:	**784-B023905**



Tetra Tech 5th Flr, Longcross Court, 47 Newport Rd, Cardiff CF24 0AD	**Project:** Rhydycar West
	Title: 2021 Forecast AM (0800-0900)
	Date: April 2022
	Job No: 784-B023905

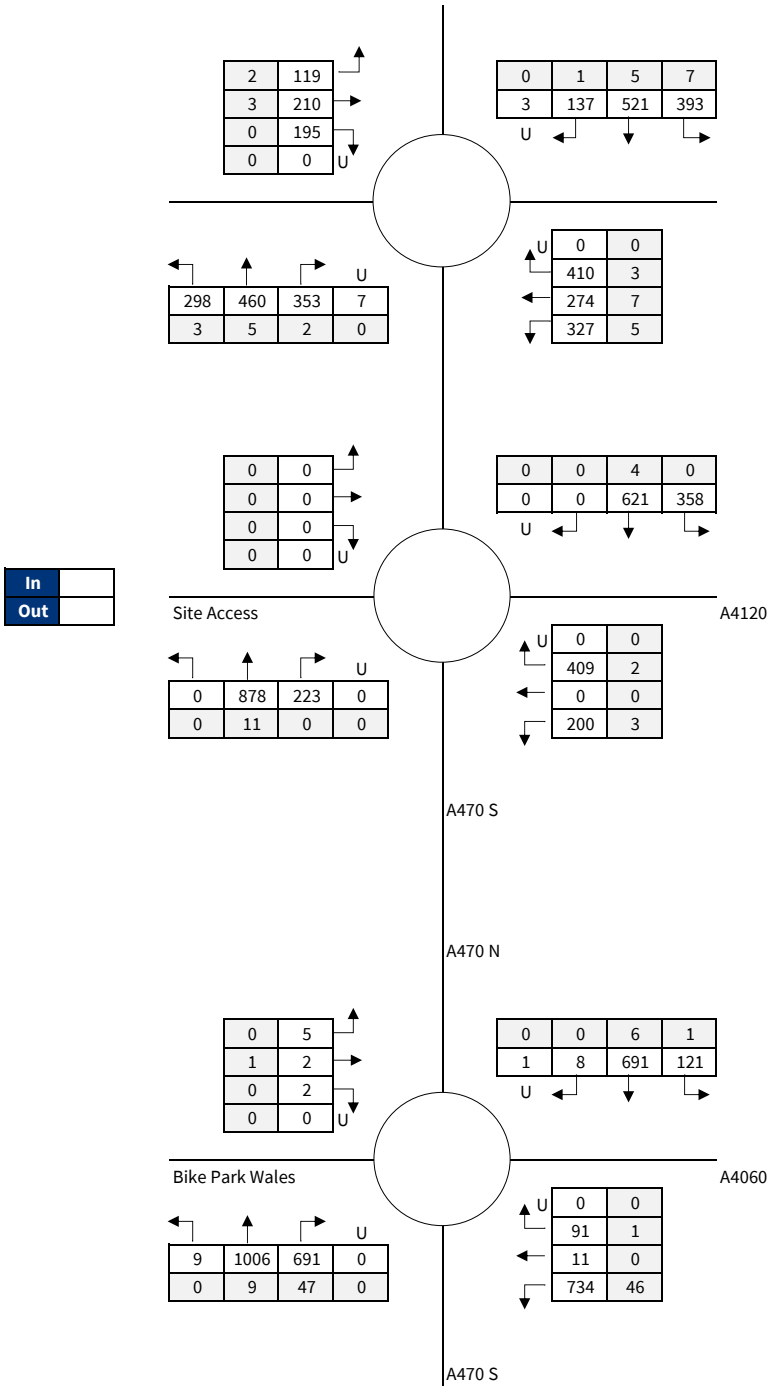


Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project:	**Rhydycar West**
Title:	**2021 Forecast PM (1630-1730)**
Date:	**April 2022**
Job No:	**784-B023905**

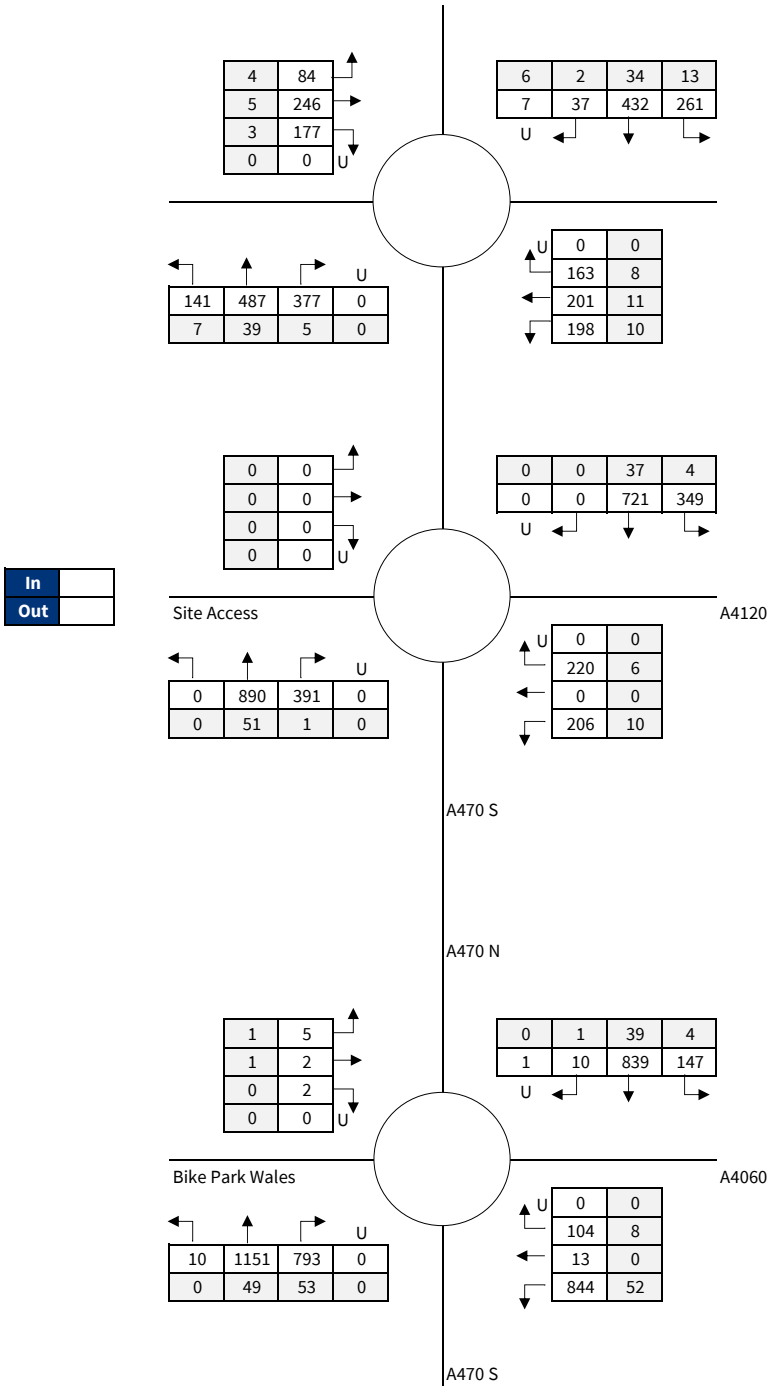


Tetra Tech

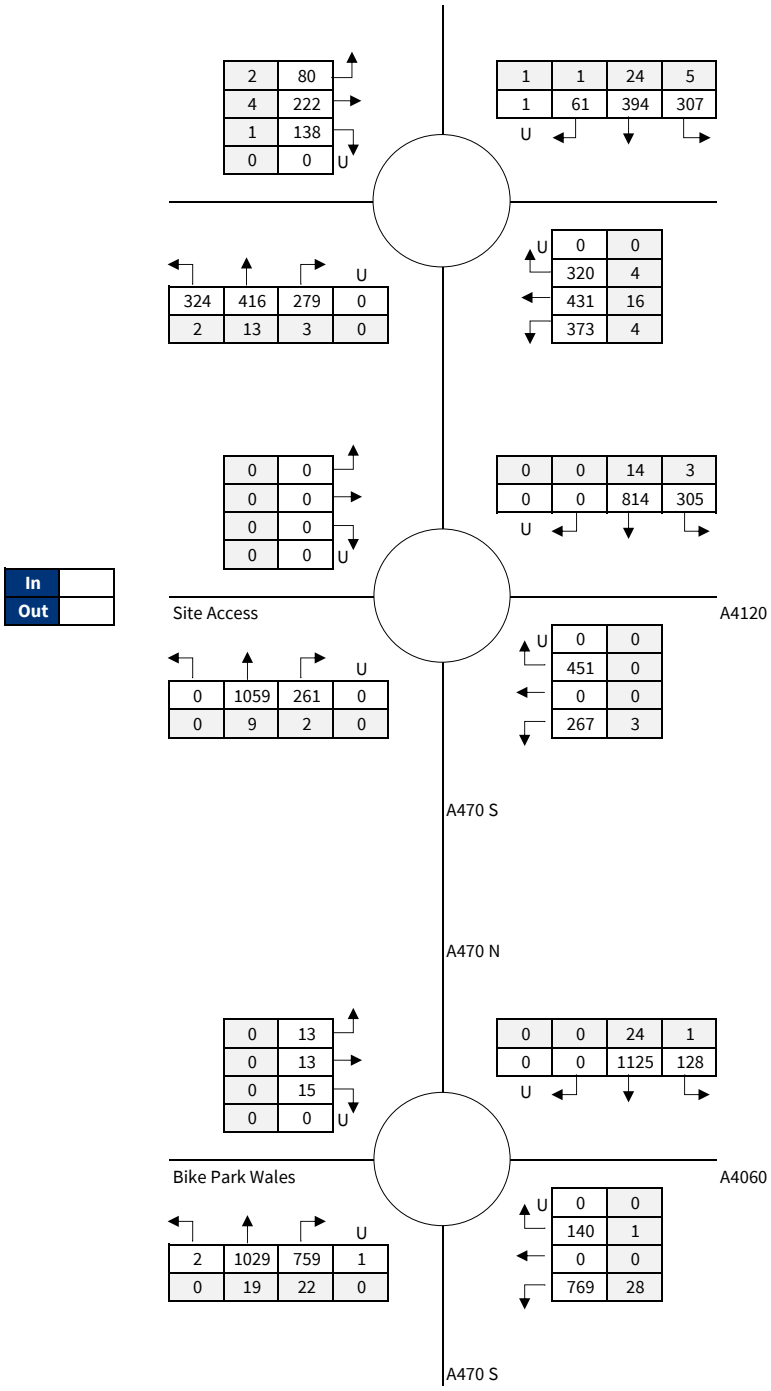
5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project:	**Rhydycar West**
Title:	**2021 Forecast Saturday Peak (1200-1300)**
Date:	**April 2022**
Job No:	**784-B023905**



Tetra Tech 5th Flr, Longcross Court, 47 Newport Rd, Cardiff CF24 0AD	**Project:** Rhydycar West
	Title: 2026 Forecast AM (0800-0900)
	Date: April 2022
	Job No: 784-B023905

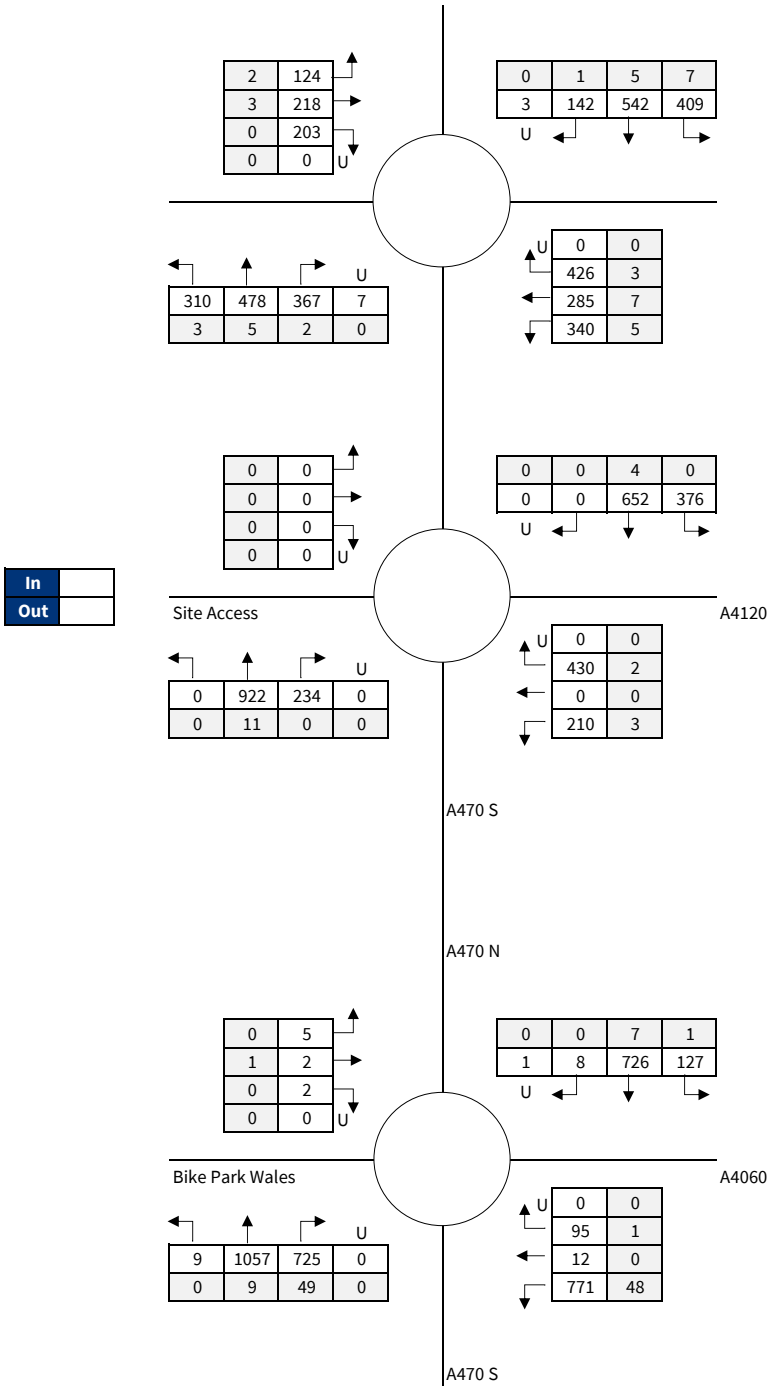


Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project:	**Rhydycar West**
Title:	**2026 Forecast PM (1630-1730)**
Date:	**April 2022**
Job No:	**784-B023905**

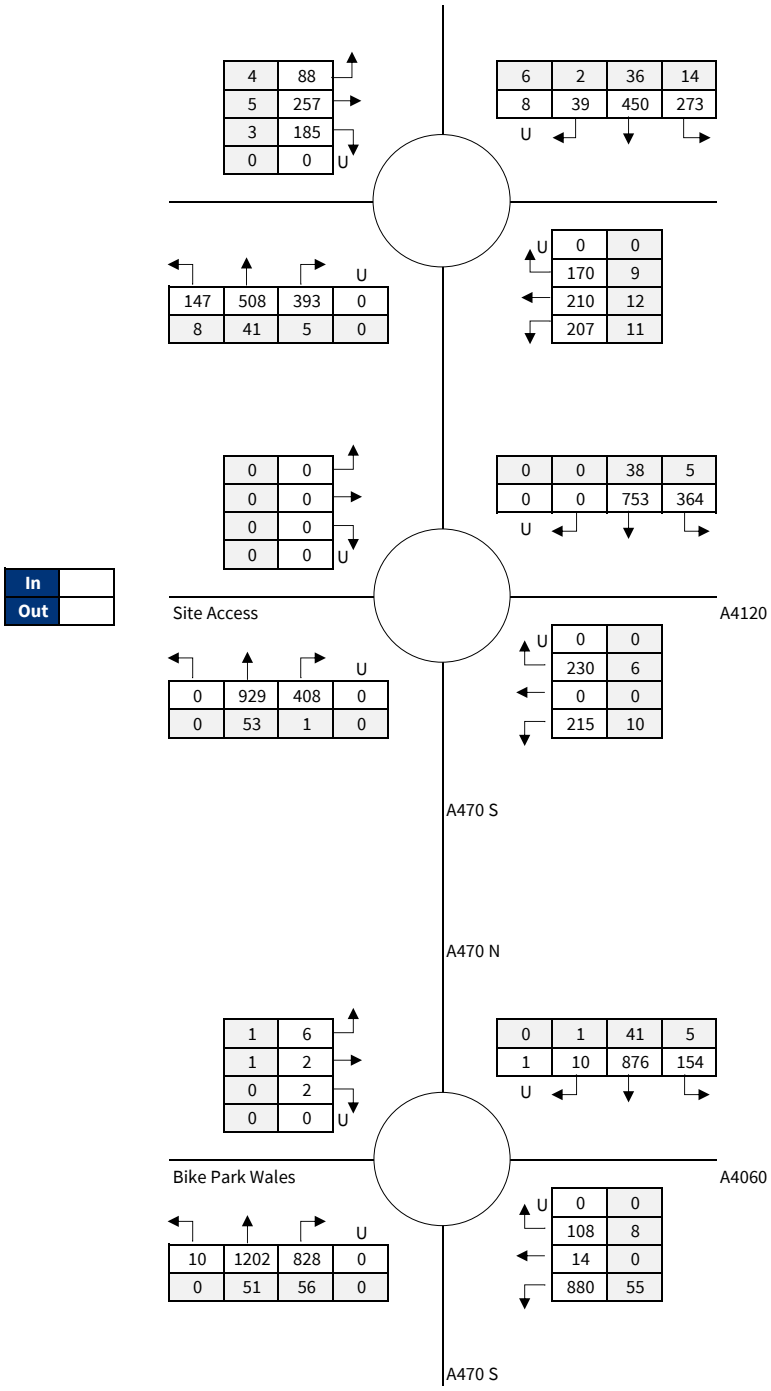


Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project:	**Rhydycar West**
Title:	**2026 Forecast Saturday Peak (1200-1300)**
Date:	**April 2022**
Job No:	**784-B023905**

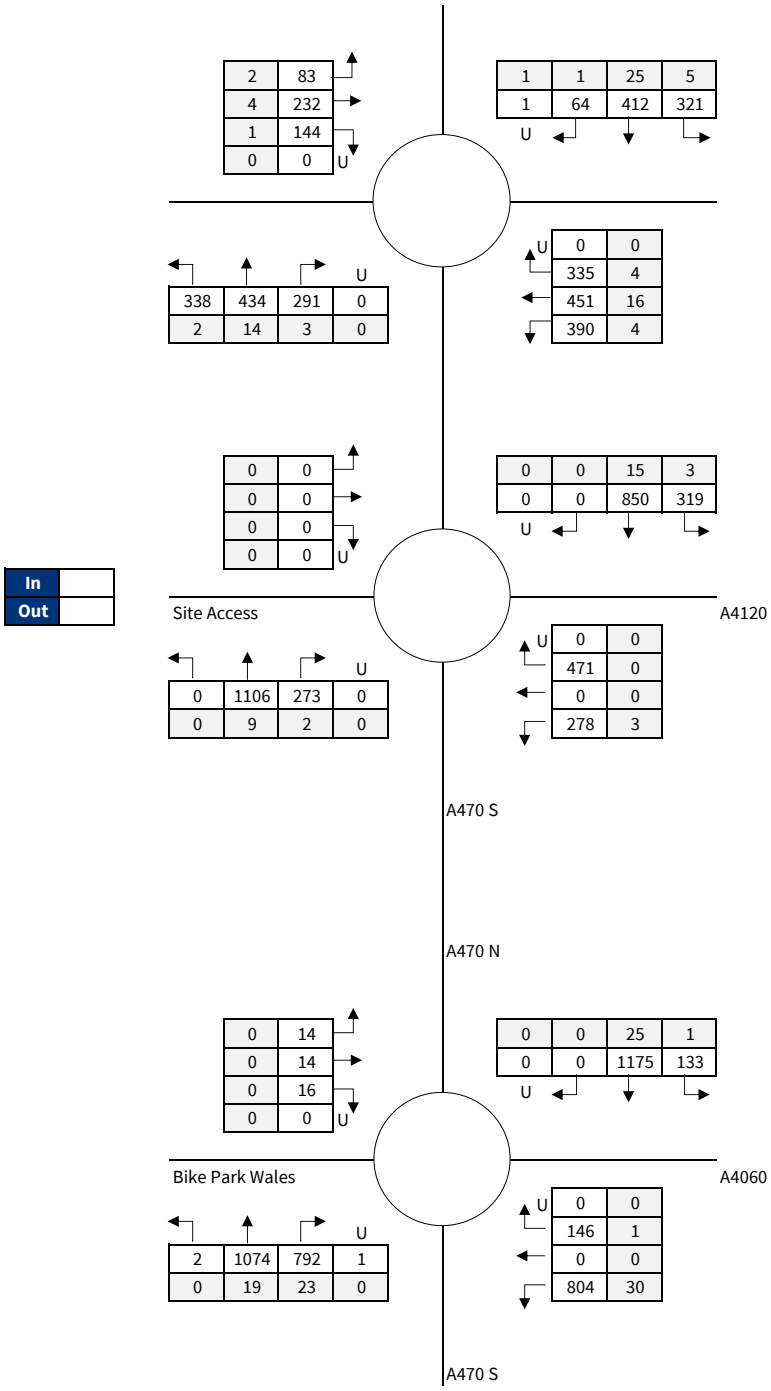


Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project:	**Rhydycar West**
Title:	**2031 Forecast AM (0800-0900)**
Date:	**April 2022**
Job No:	**784-B023905**

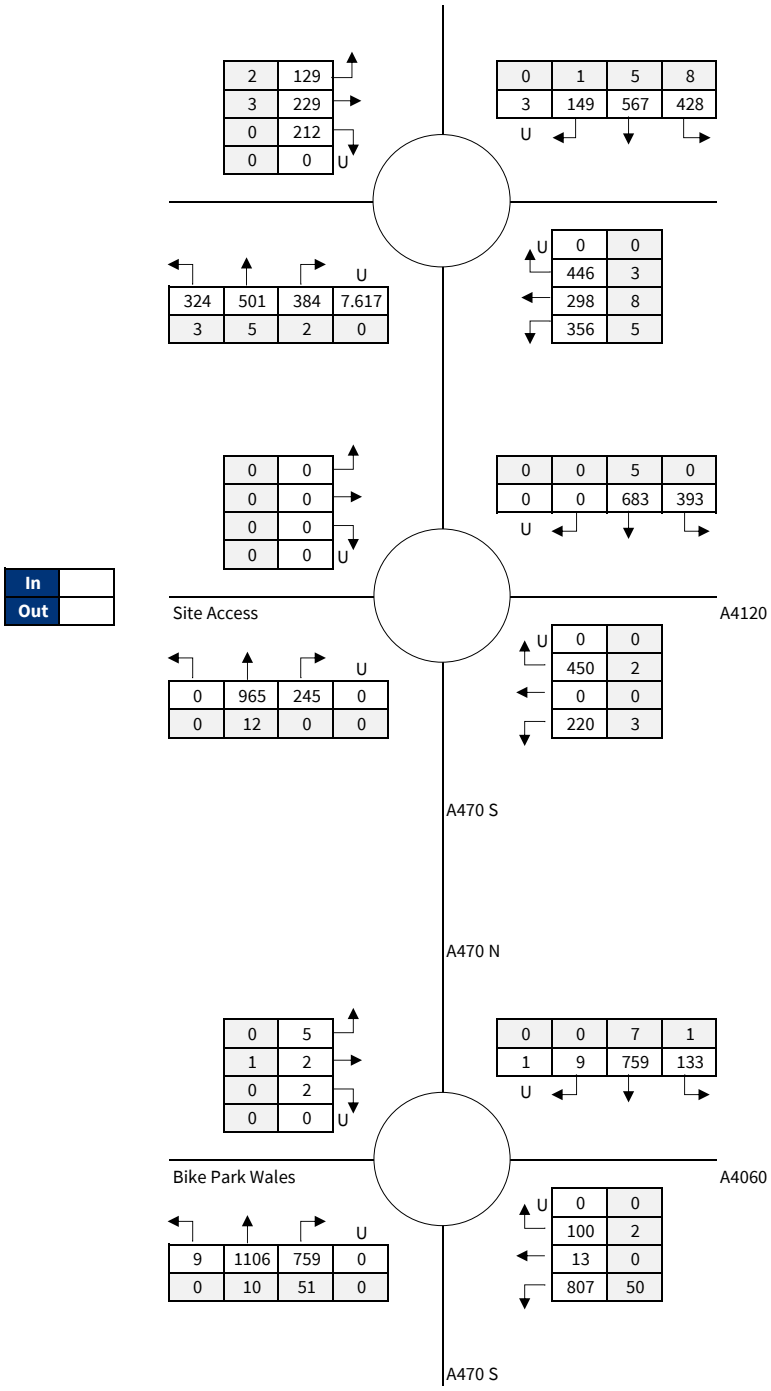


Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project:	**Rhydycar West**
Title:	**2031 Forecast PM (1630-1730)**
Date:	**April 2022**
Job No:	**784-B023905**

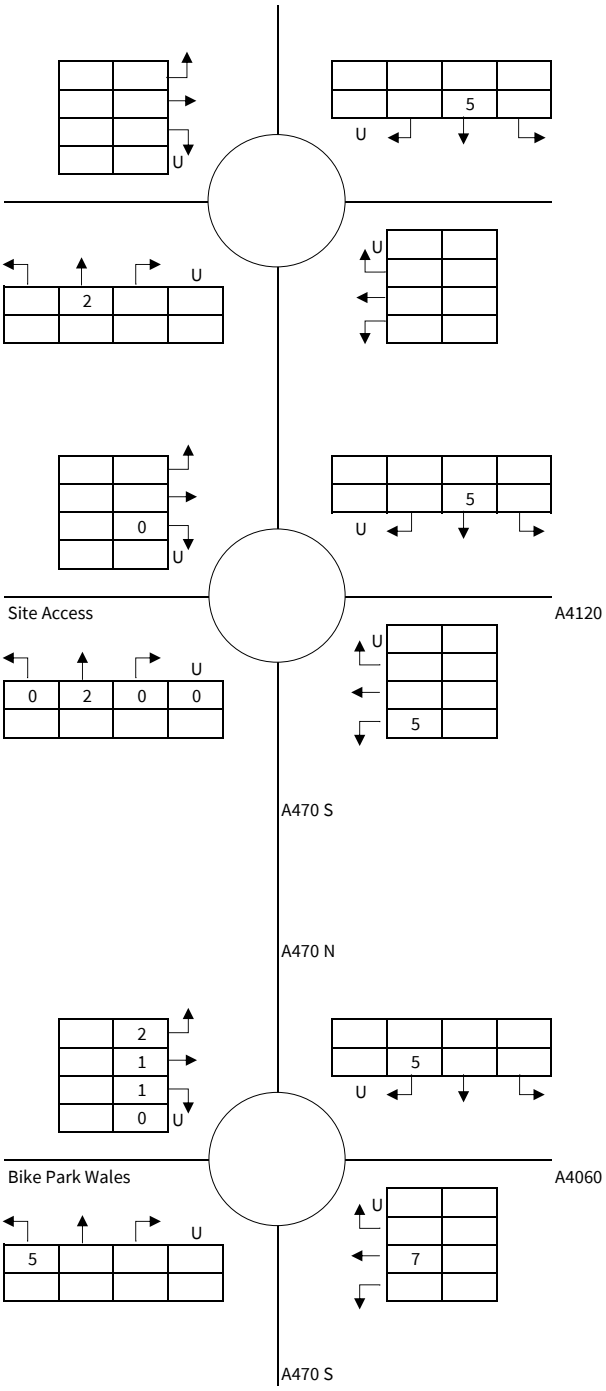


Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project:	**Rhydycar West**
Title:	**2031 Forecast Saturday Peak (1200-1300)**
Date:	**April 2022**
Job No:	**784-B023905**



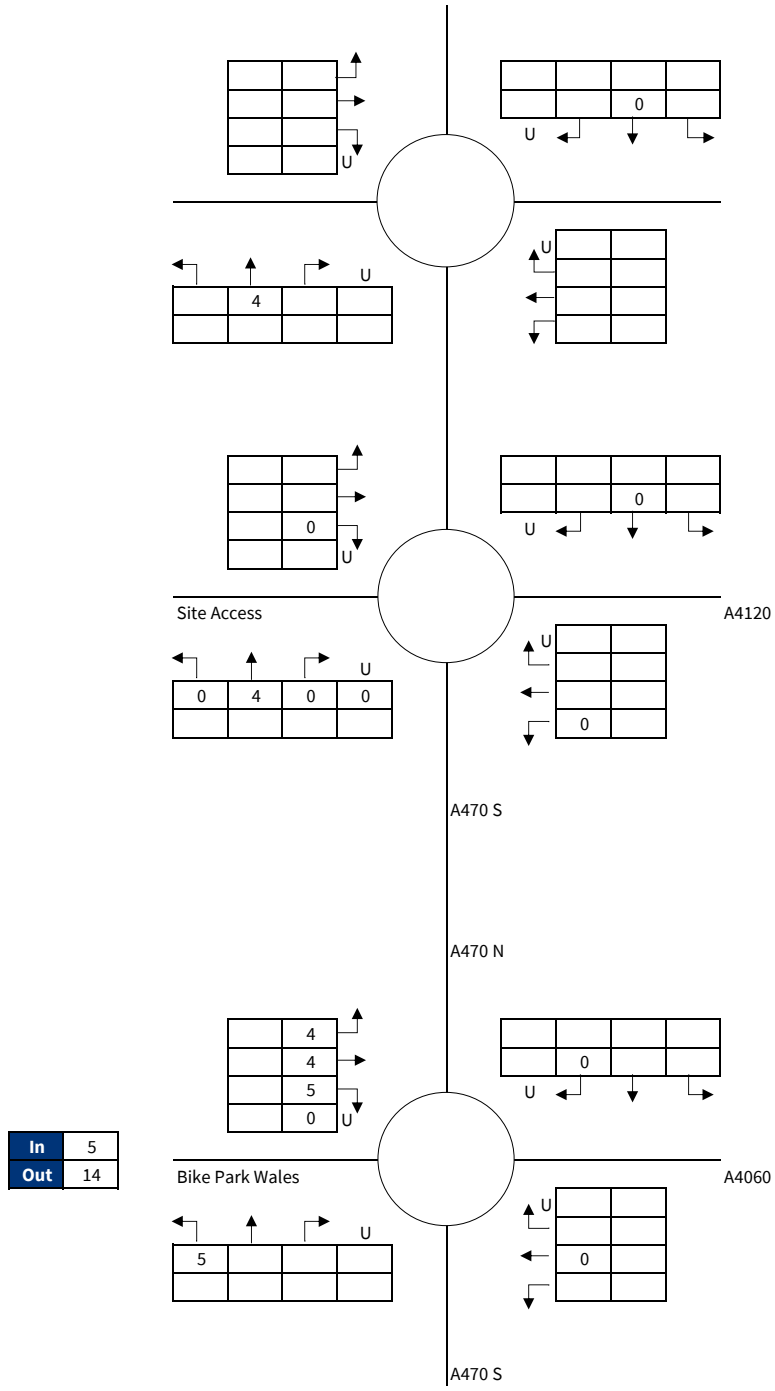
In	18
Out	4

Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project:	**Rhydycar West**
Title:	**Bike Park Wales Traffic AM**
Date:	**April 2022**
Job No:	**784-B023905**



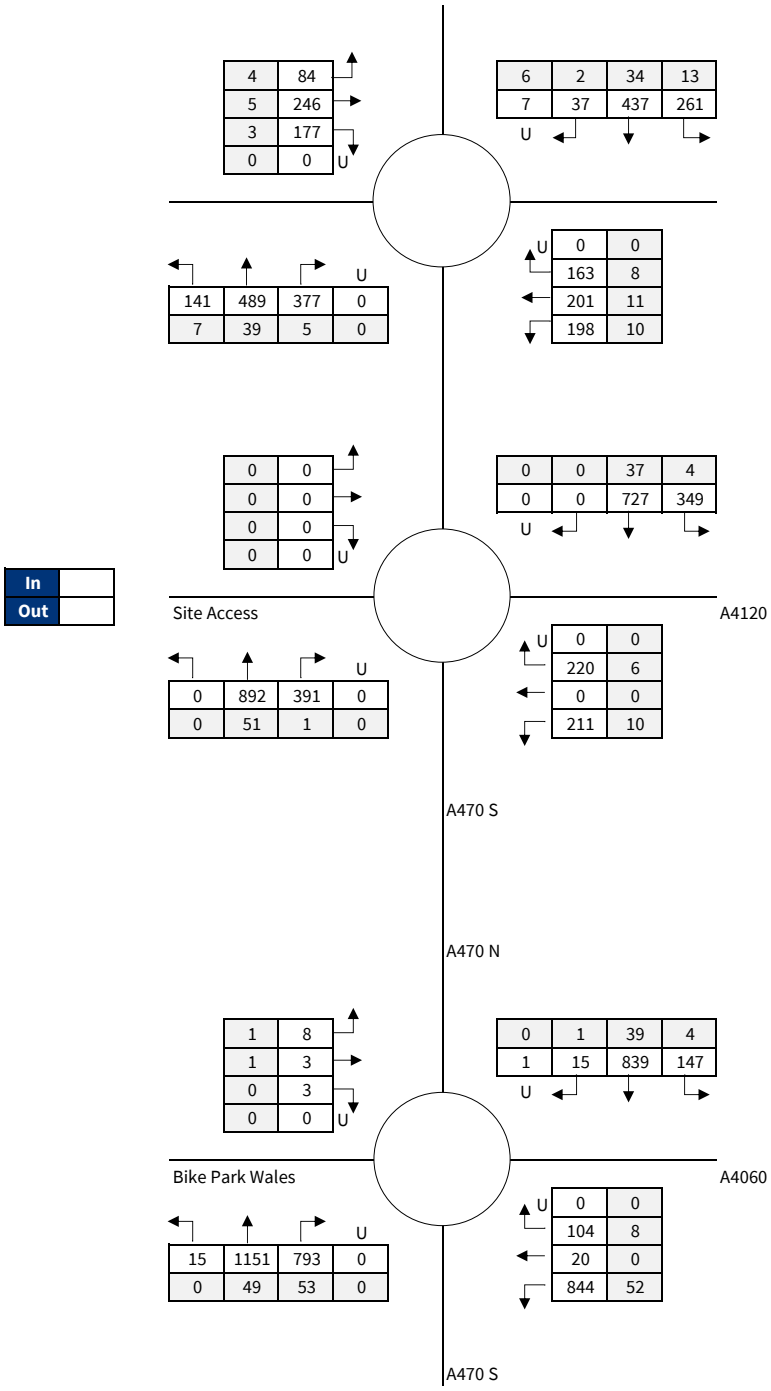
In	5
Out	14

Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project:	Rhydycar West
Title:	Bike Park Wales Traffic PM
Date:	April 2022
Job No:	784-B023905

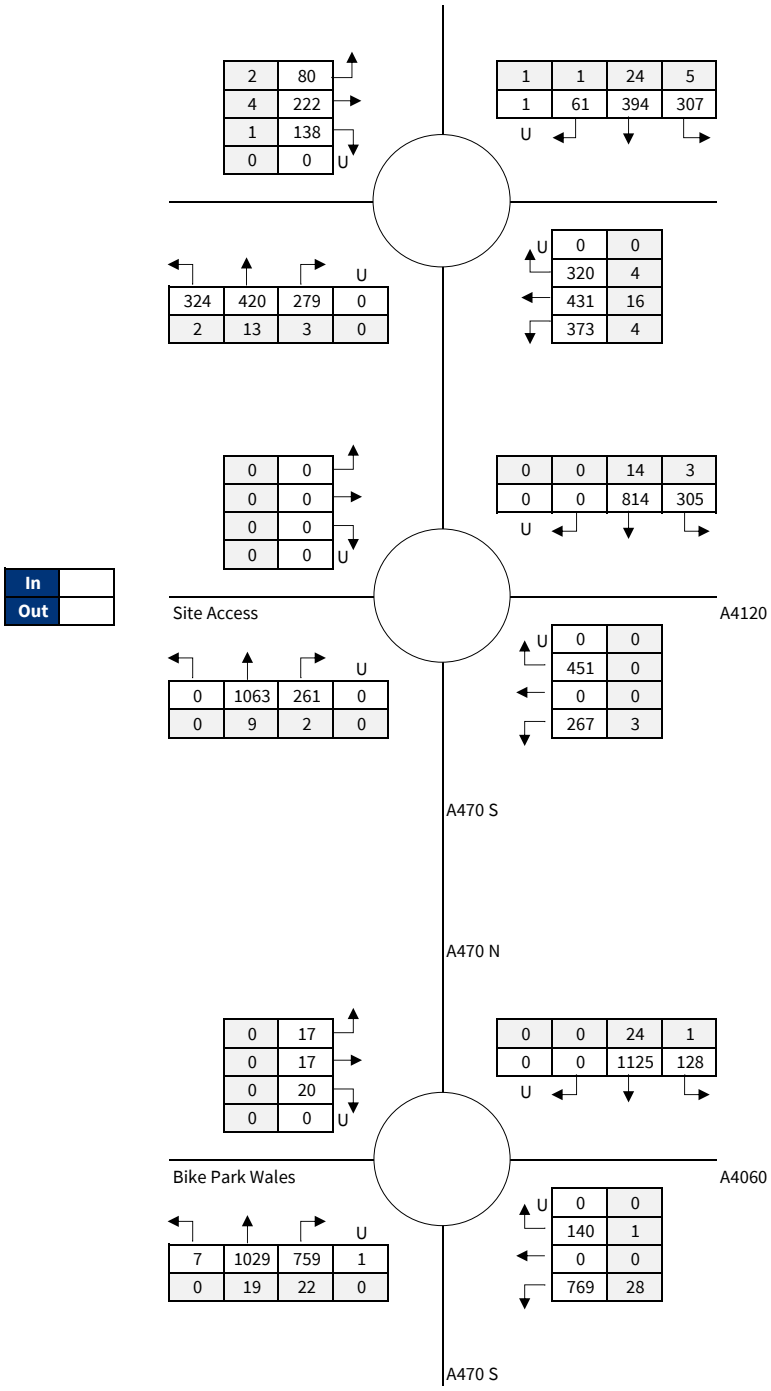


Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project:	**Rhydycar West**
Title:	**2026 with Committed Development AM (0800-0900)**
Date:	**April 2022**
Job No:	**784-B023905**



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

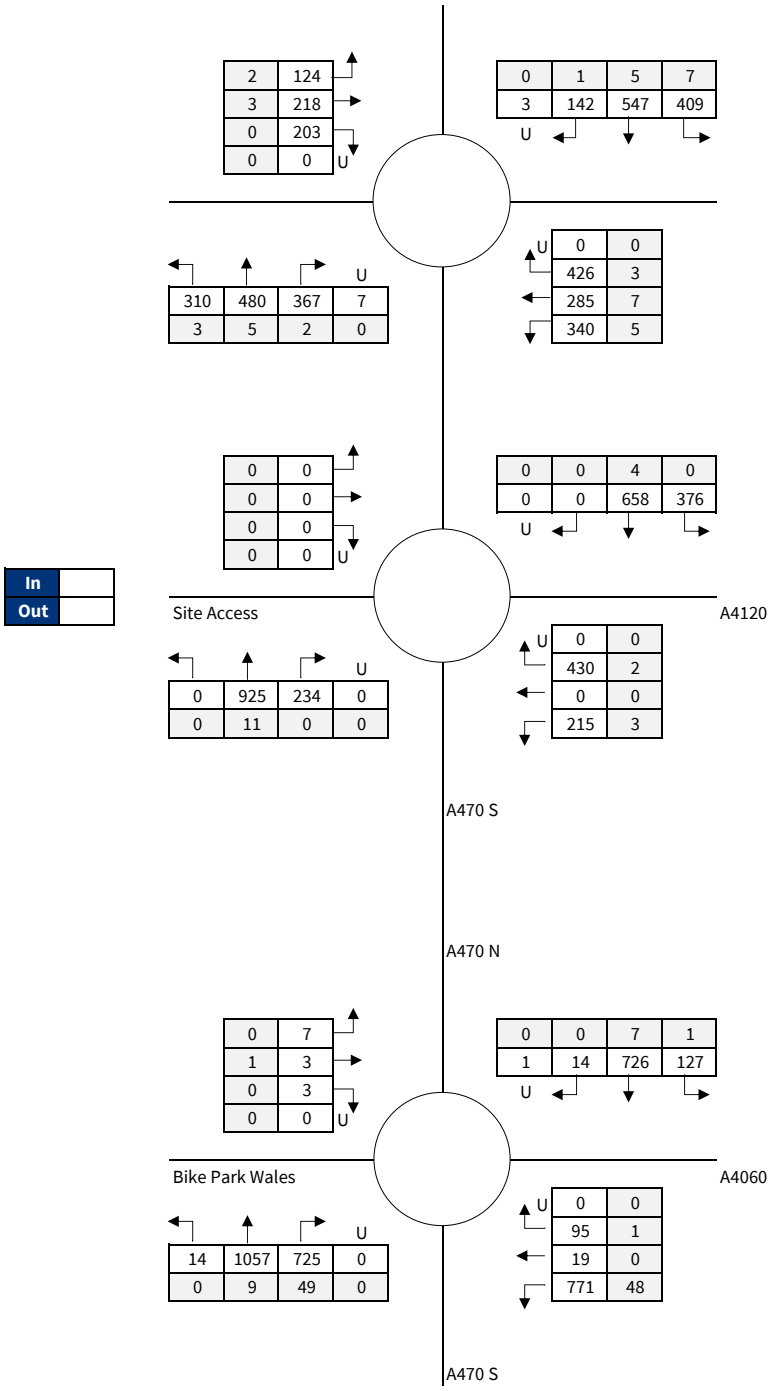
TETRA TECH

Project: Rhydycar West

Title: 2026 with Committed Development PM (1630 - 1730)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

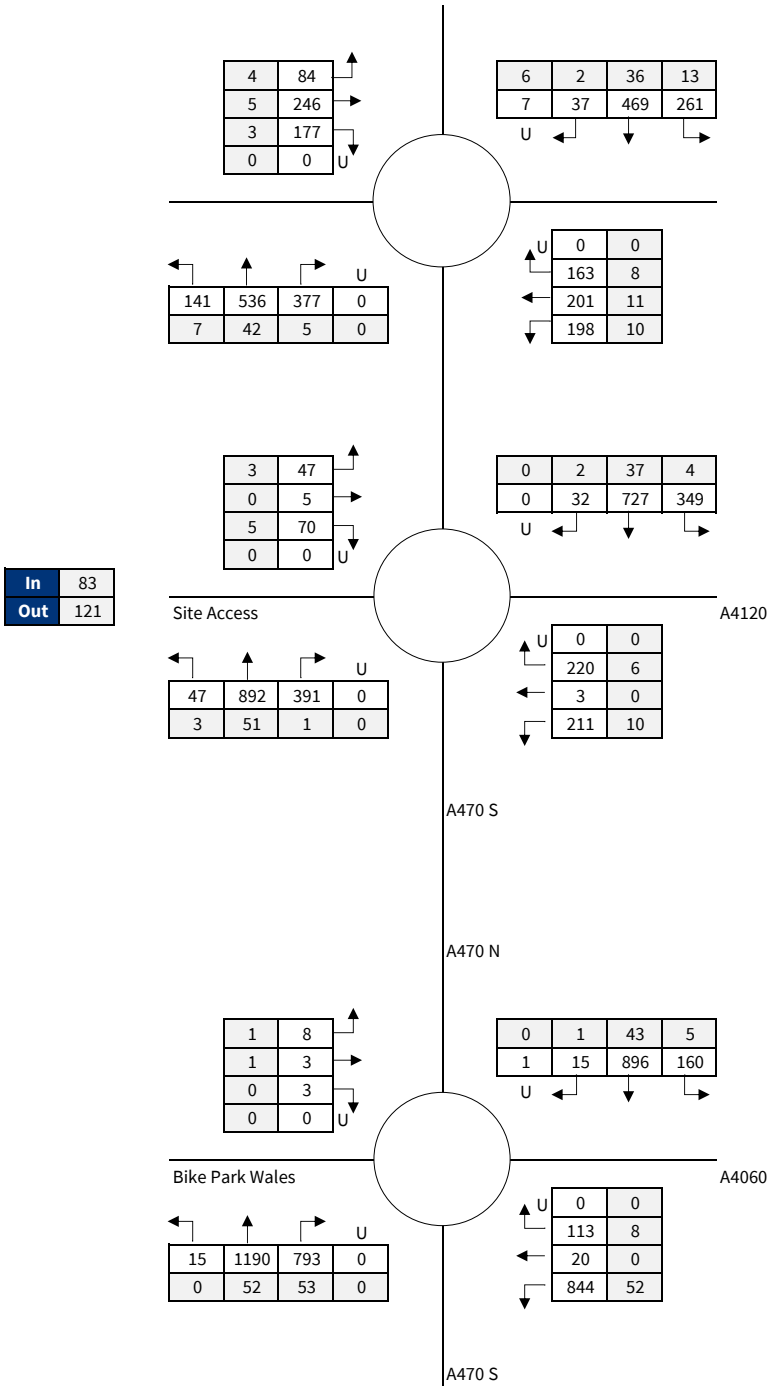
TETRA TECH

Project: Rhydycar West

Title: 2026 with Committed Development Sat (1200-1300)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

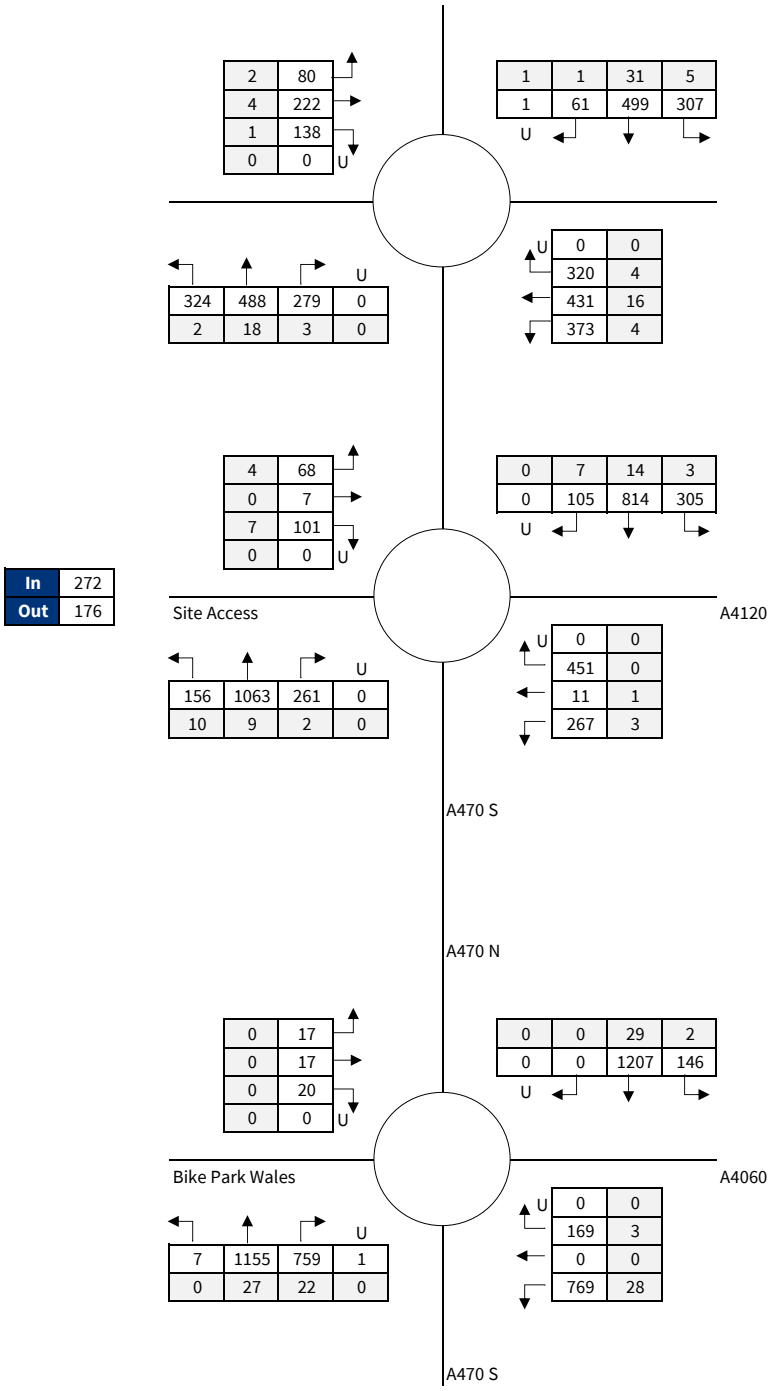
TETRA TECH

Project: Rhydycar West

Title: 2026 with Committed Development and Rhydycar West AM (0800-0900)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

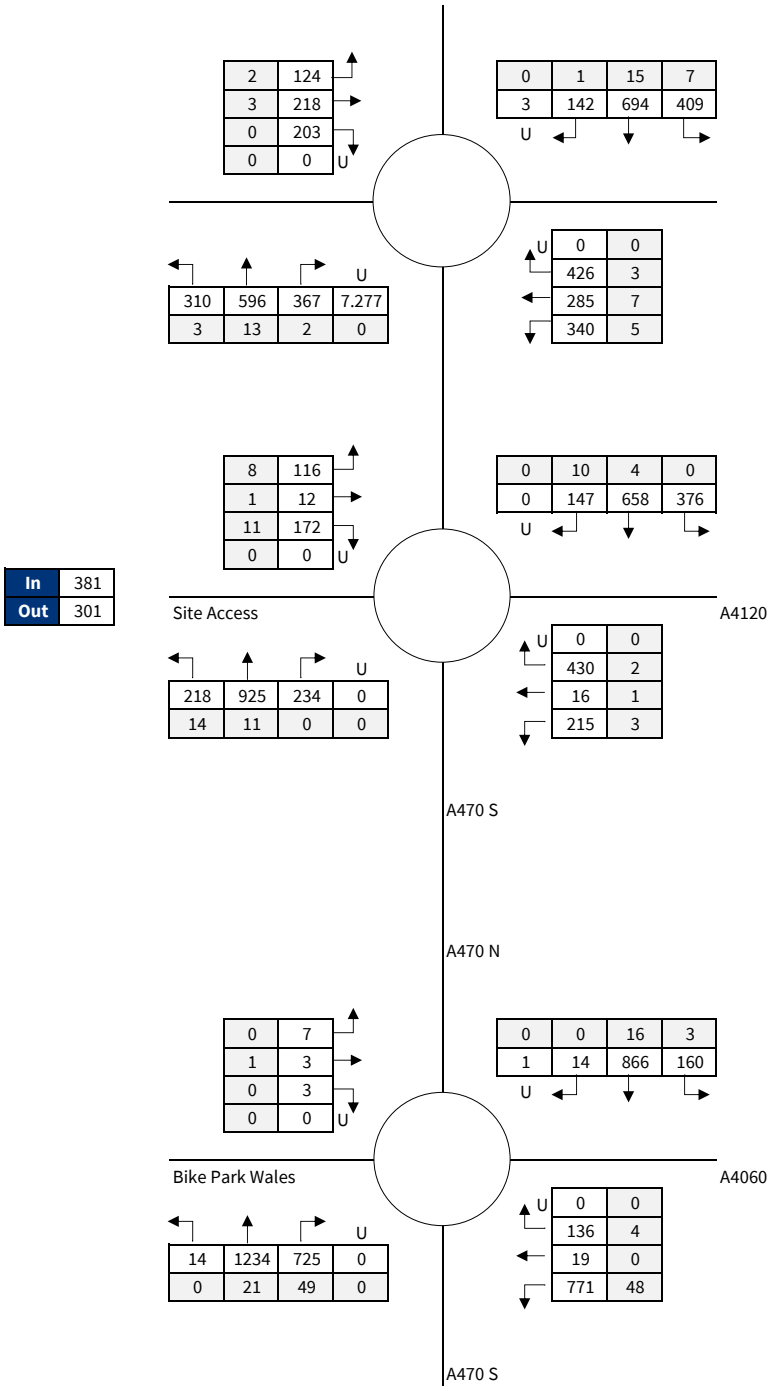
TETRA TECH

Project: Rhydycar West

Title: 2026 with Committed Development and Rhydycar West PM (1630-1730)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

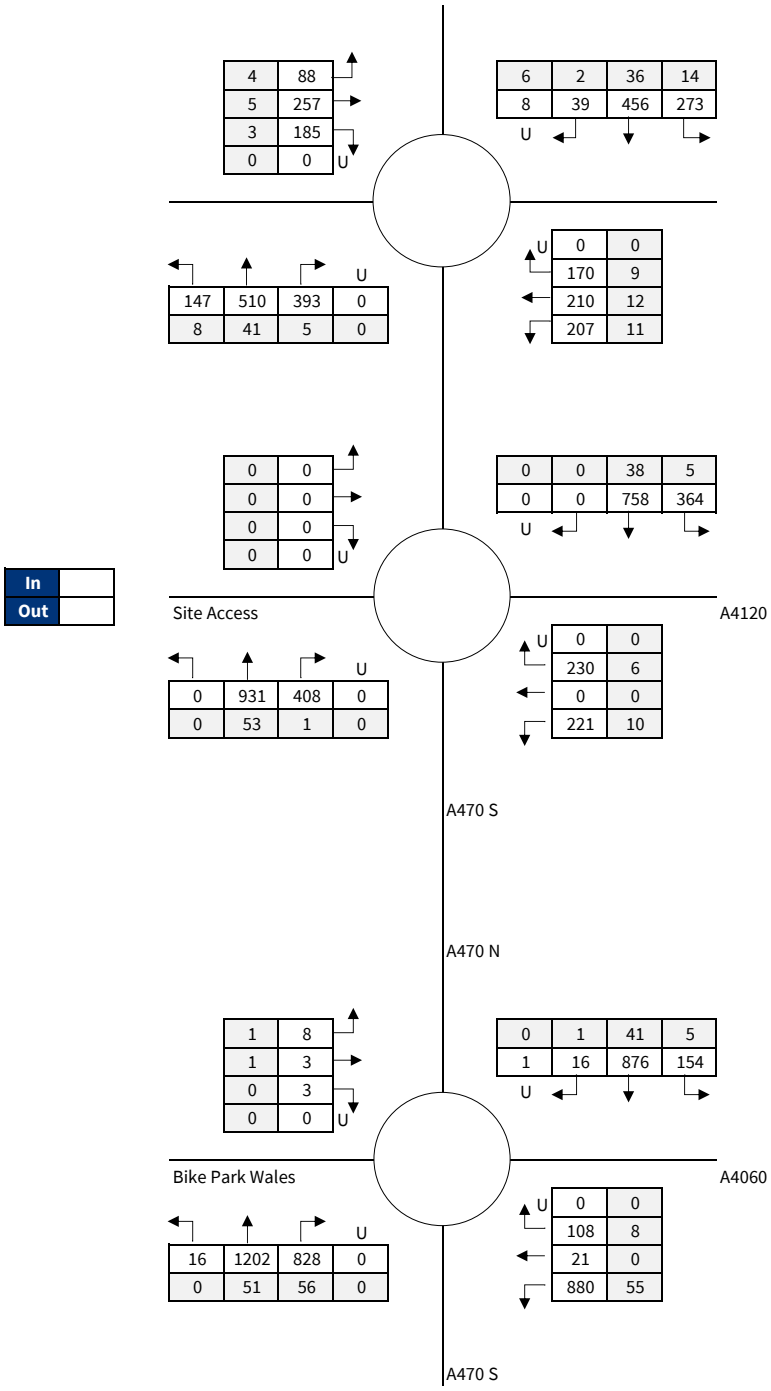
TETRA TECH

Project: Rhydycar West

Title: 2026 with Committed Development and Rhydycar West Sat (1200-1300)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

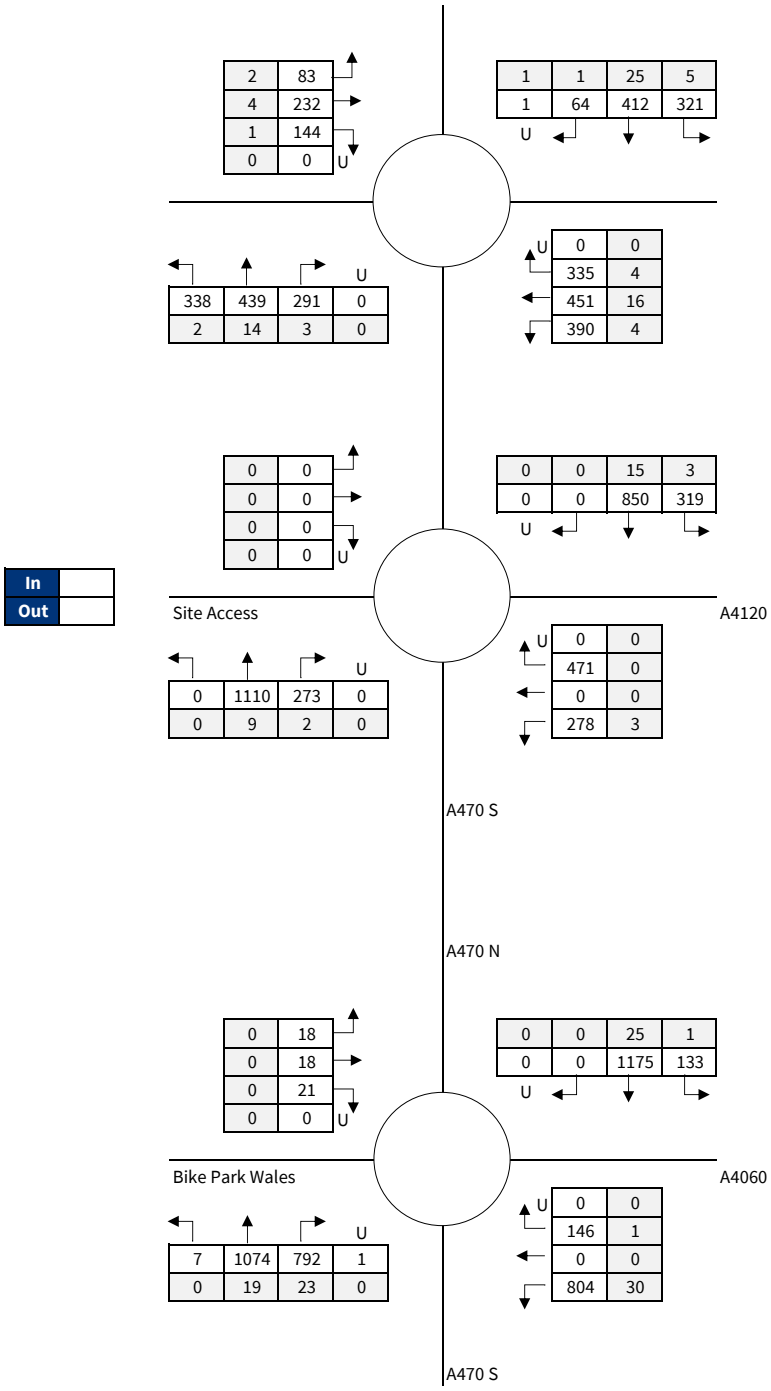
TETRA TECH

Project: Rhydycar West

Title: 2031 with Committed Development AM (0800-0900)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

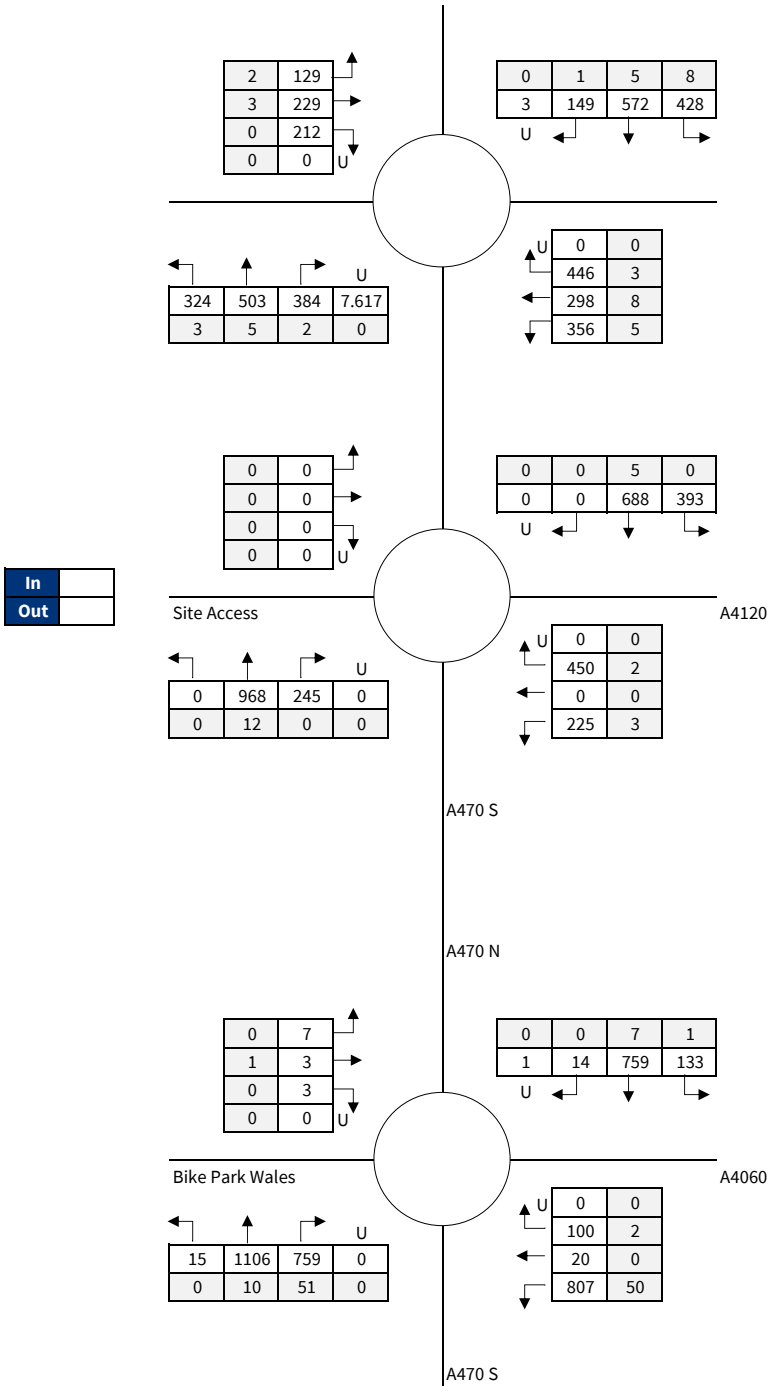
TETRA TECH

Project: Rhydycar West

Title: 2031 with Committed Development PM (1630 - 1730)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

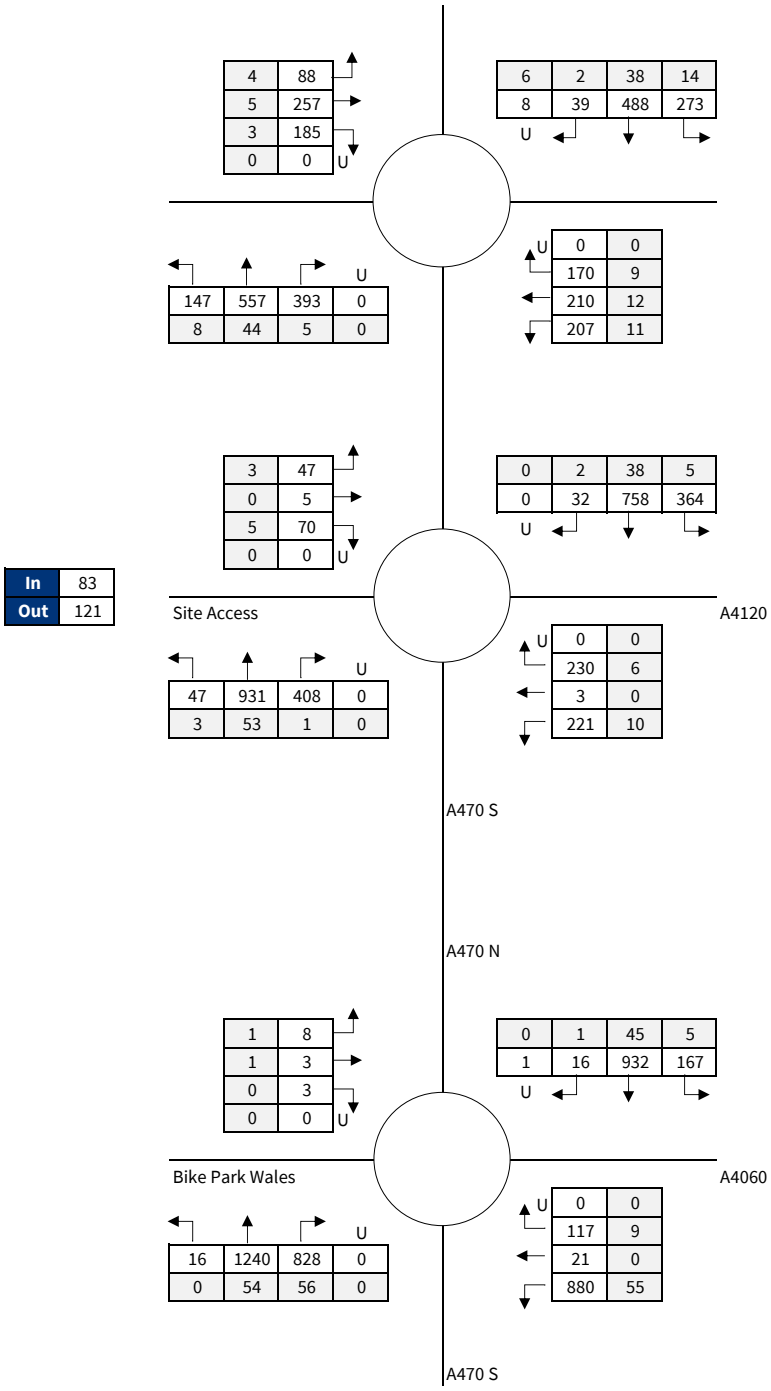
TETRA TECH

Project: Rhydycar West

Title: 2031 with Committed Development Sat (1200-1300)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

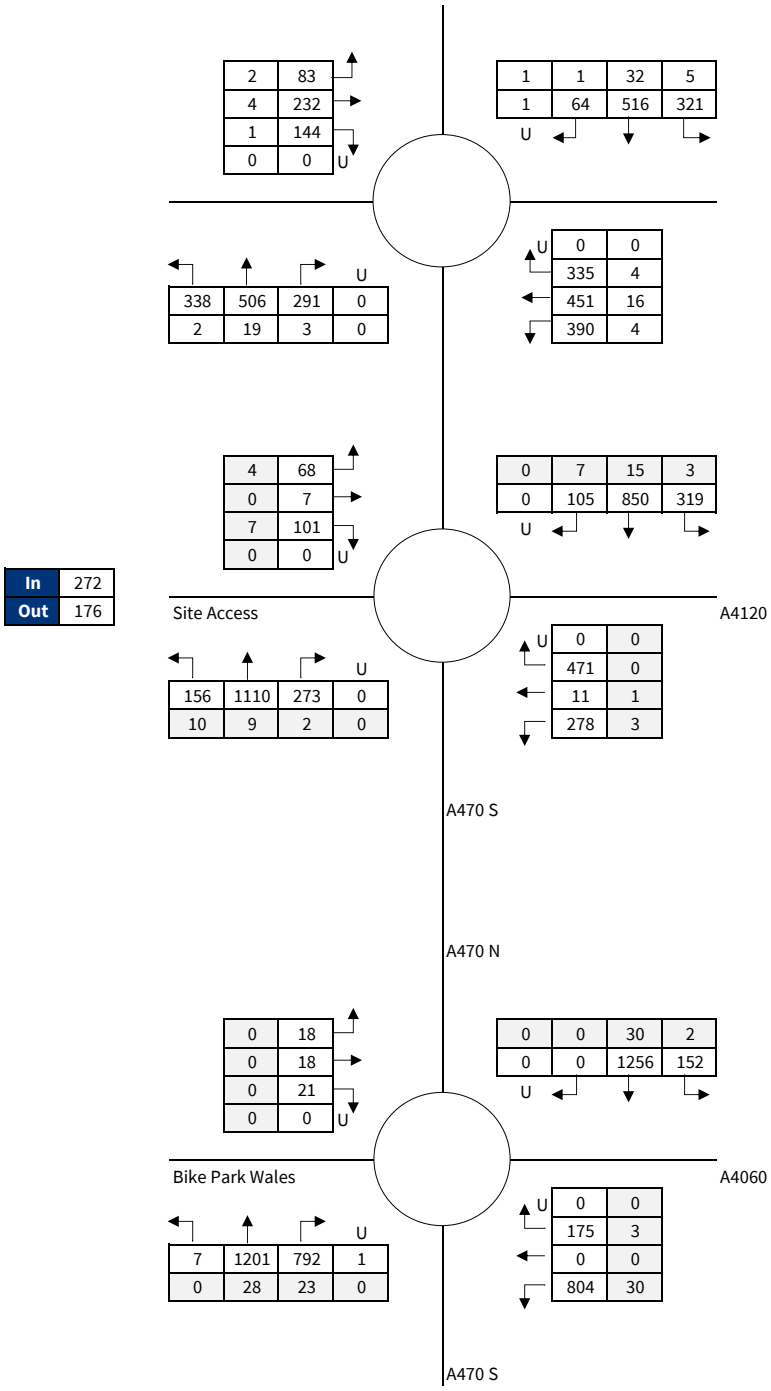
TETRA TECH

Project: Rhydycar West

Title: 2031 with Committed Development and Rhydycar West AM (0800-0900)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

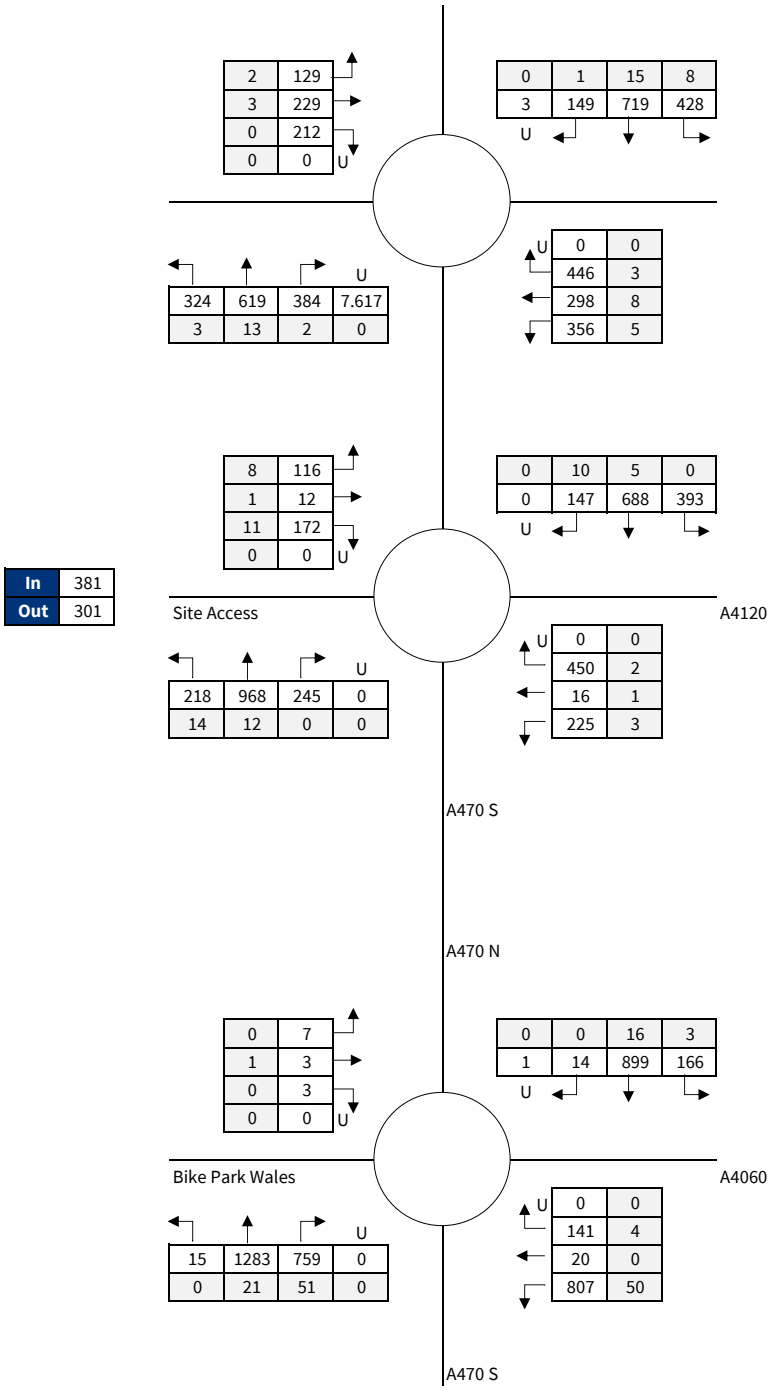
TETRA TECH

Project: Rhydycar West

Title: 2031 with Committed Development and Rhydycar West PM (1630-1730)

Date: April 2022

Job No: 784-B023905



Tetra Tech

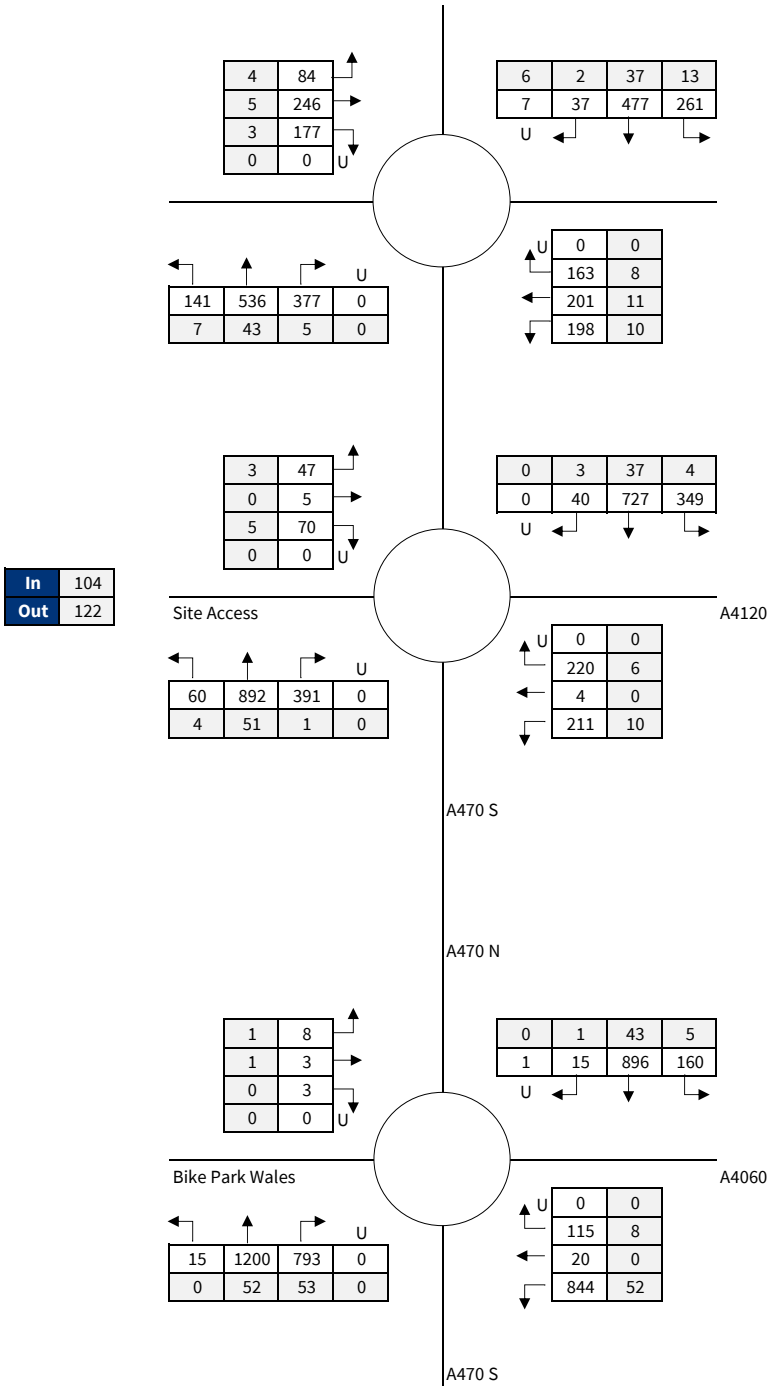
5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

TETRA TECH

Project: Rhydycar West

Title: 2031 with Committed Development and Rhydycar West Sat (1200-1300)

Date:	April 2022
Job No:	784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

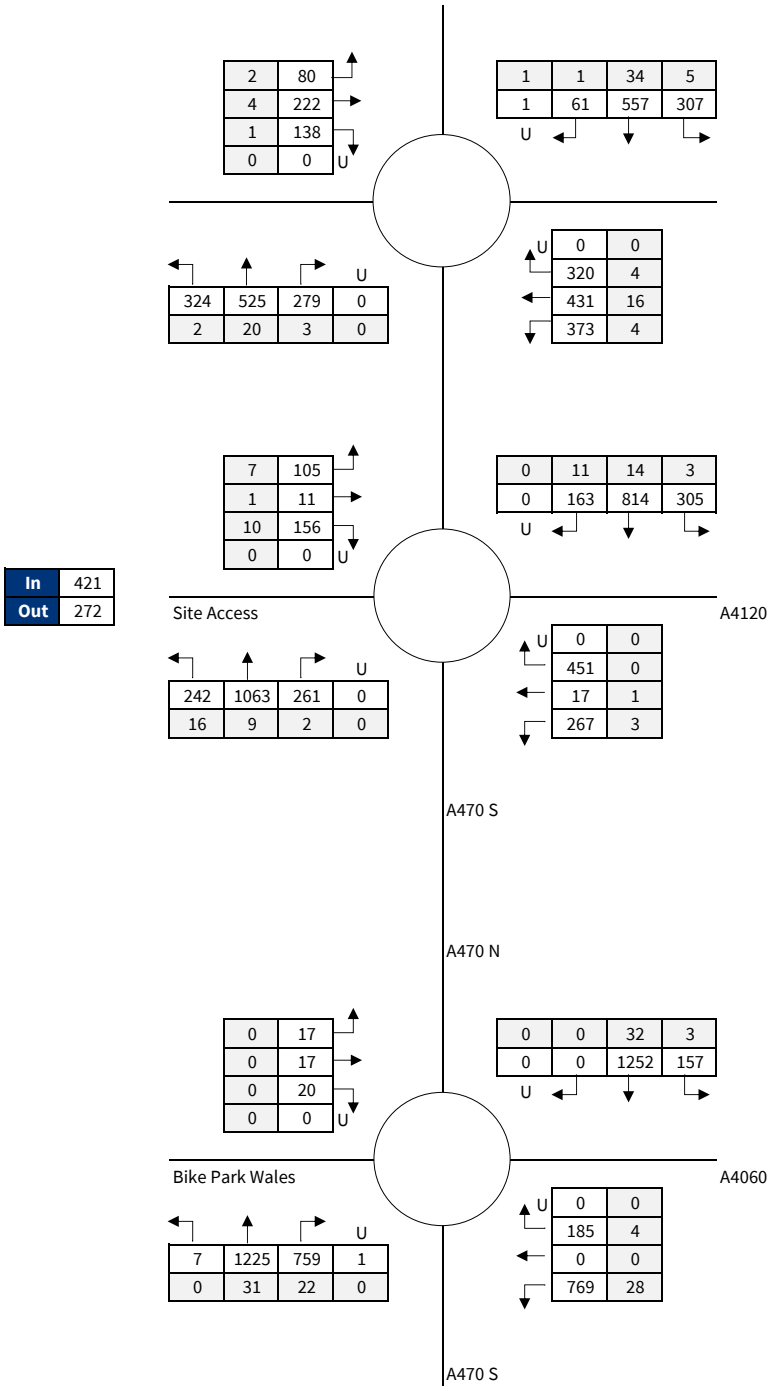
TETRA TECH

Project: Rhydycar West

Title: 2026 with Committed Development and Peak Rhydycar West AM (0800-0900)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

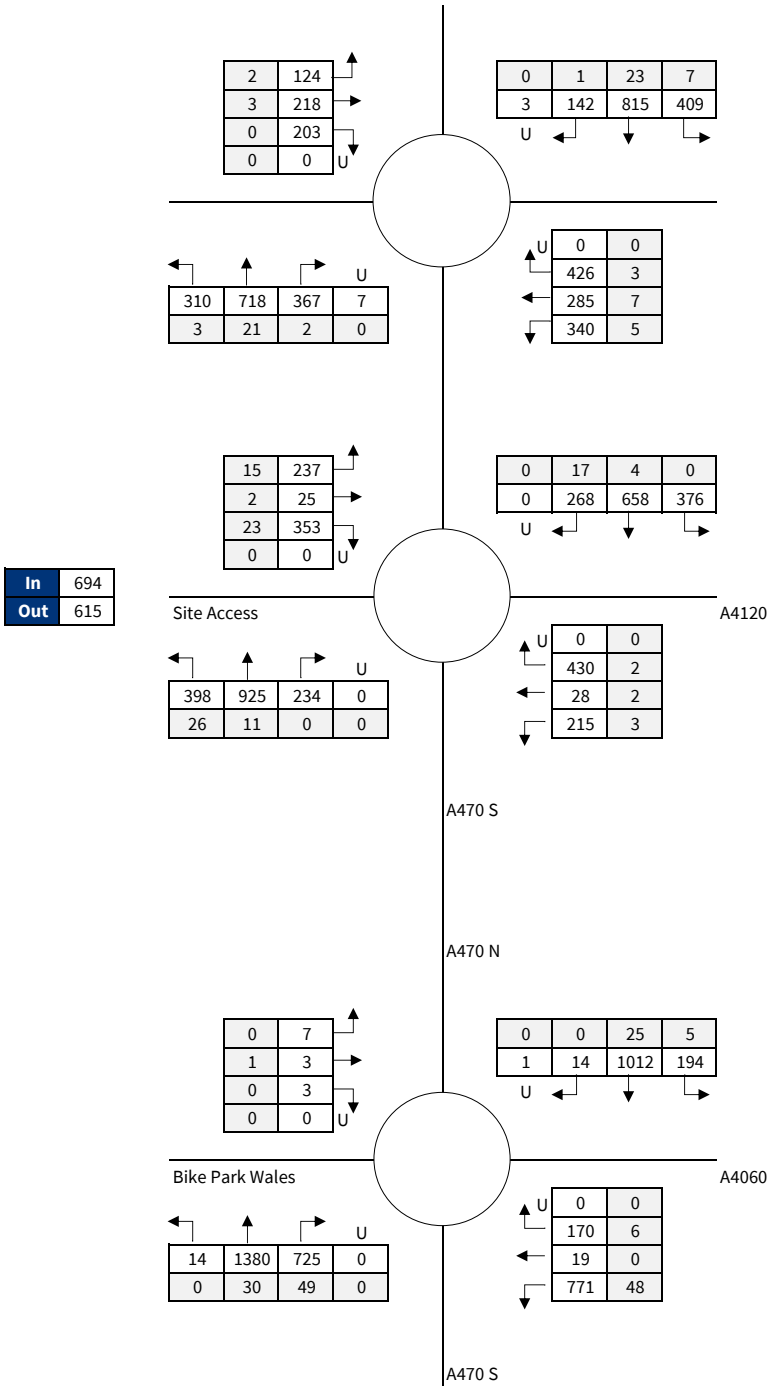
TETRA TECH

Project: Rhydycar West

Title: 2026 with Committed Development and Peak Rhydycar West PM (1630-1730)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

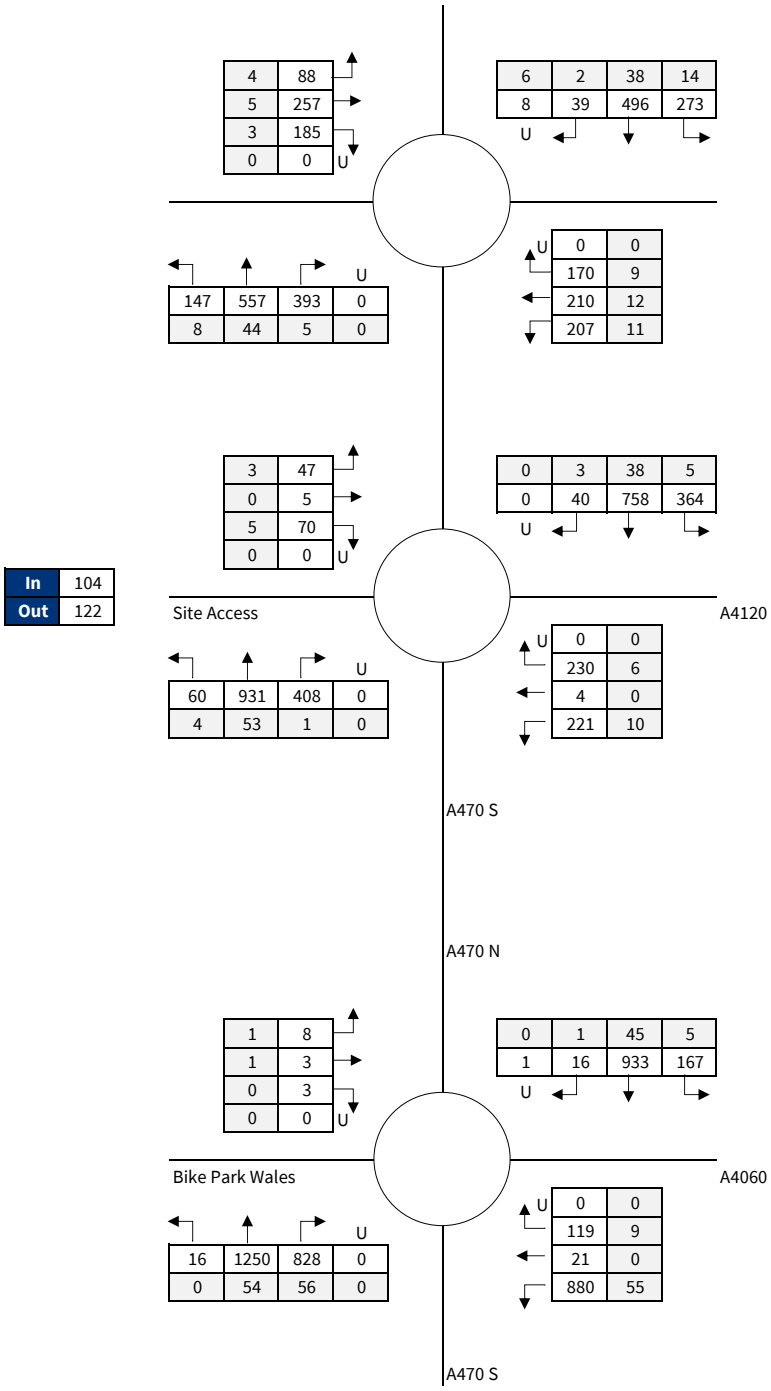
TETRA TECH

Project: Rhydycar West

Title: 2026 with Committed Development and Peak Rhydycar West Sat (1200-1300)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

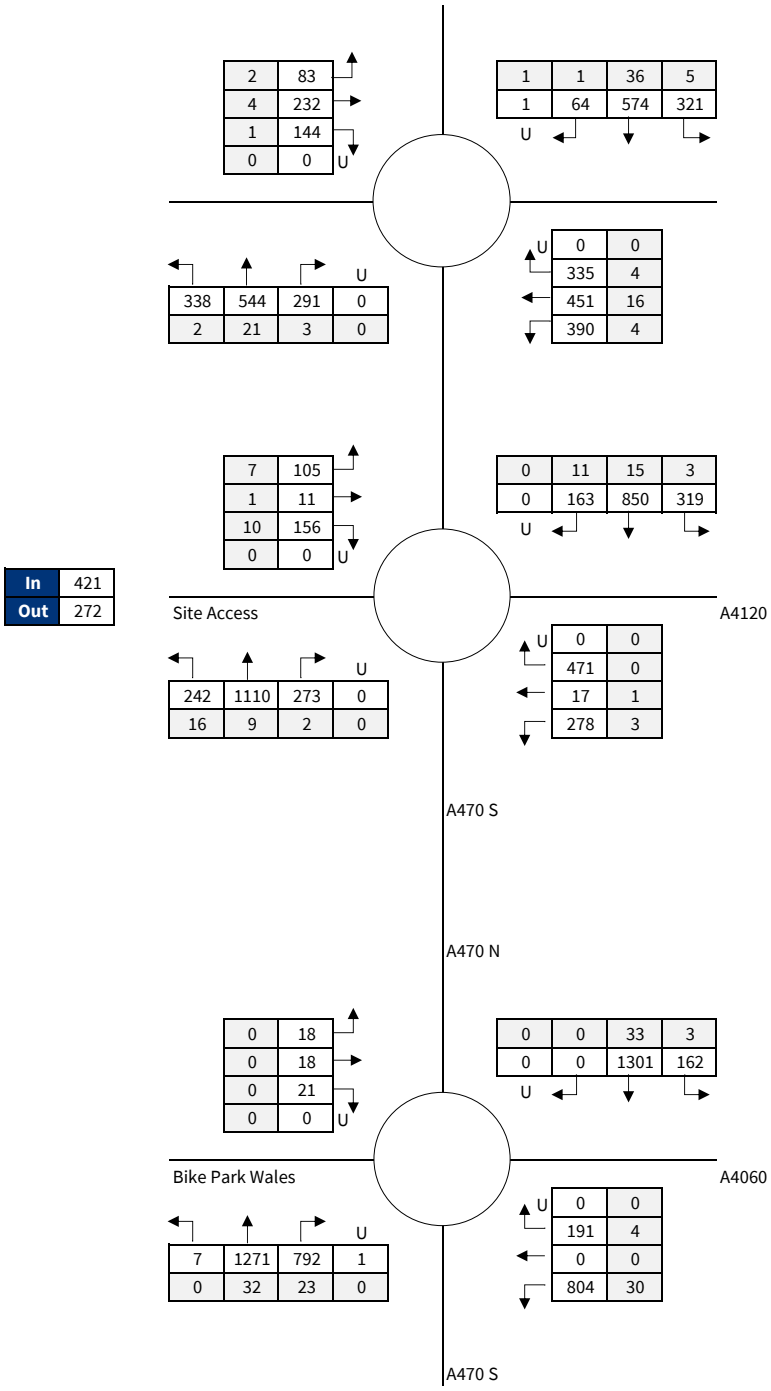
TETRA TECH

Project: Rhydycar West

Title: 2031 with Committed Development and Peak Rhydycar West AM (0800-0900)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

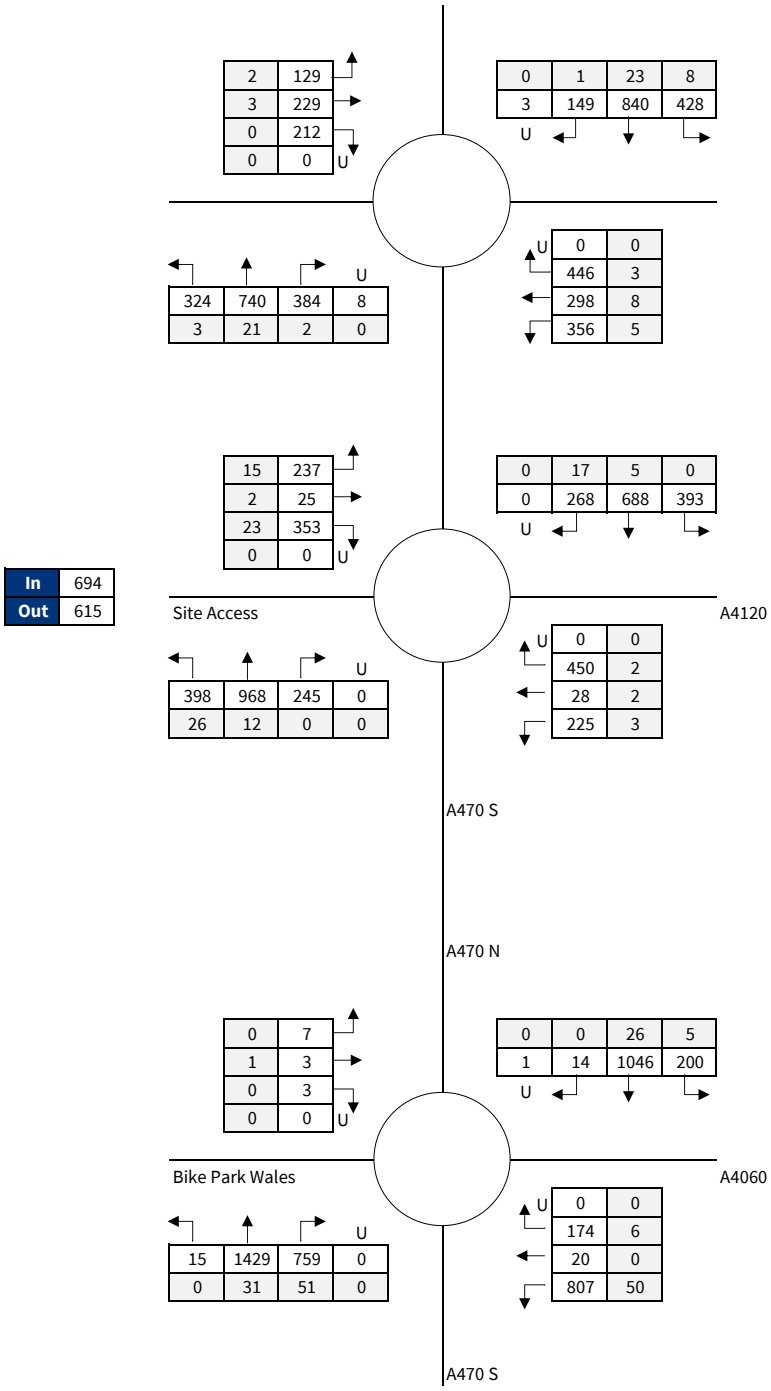
TETRA TECH

Project: Rhydycar West

Title: 2031 with Committed Development and Peak Rhydycar West PM (1630-1730)

Date: April 2022

Job No: 784-B023905



Tetra Tech

5th Flr, Longcross Court, 47
Newport Rd, Cardiff CF24 0AD

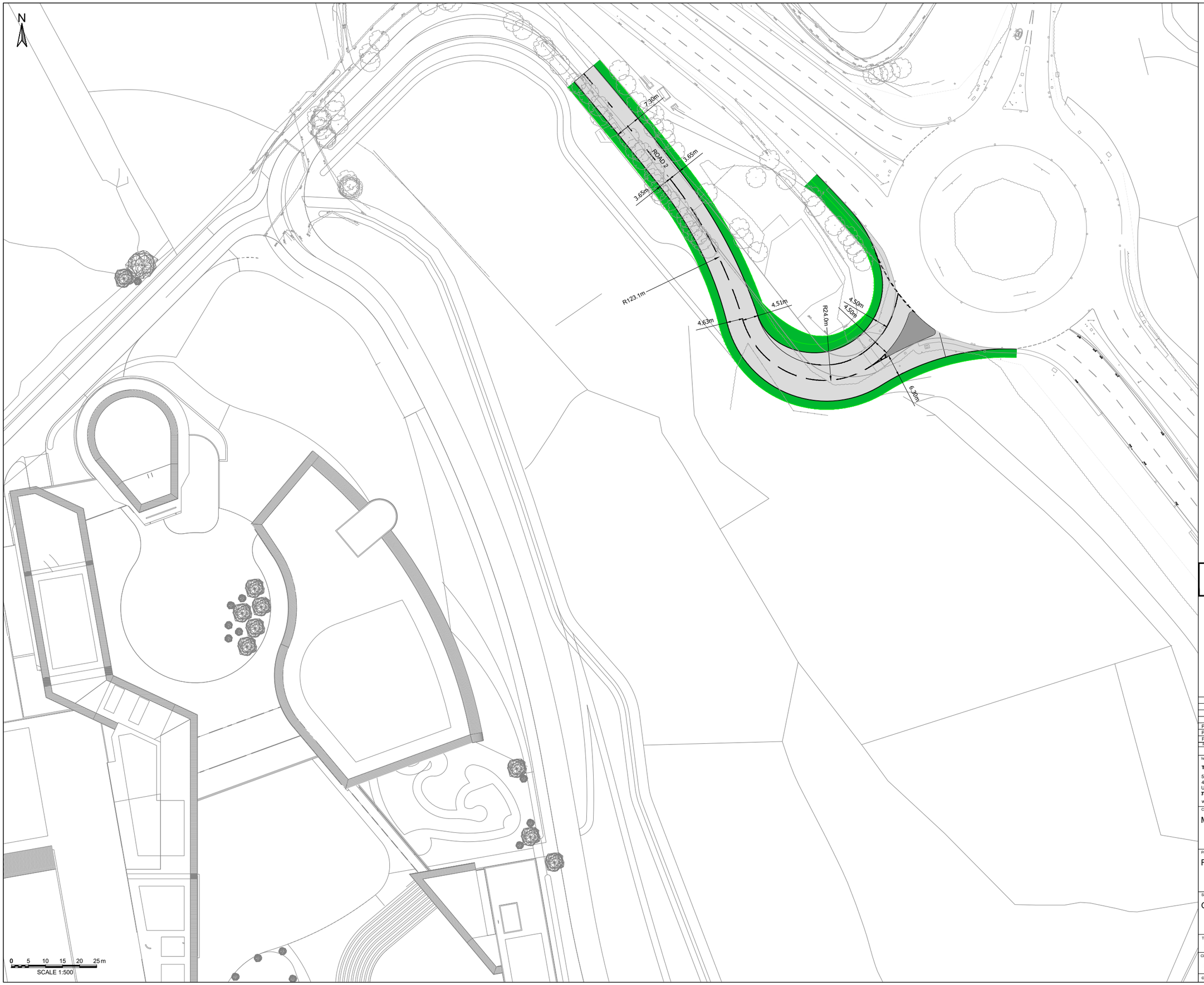
TETRA TECH

Project: Rhydycar West

Title: 2031 with Committed Development and Peak Rhydycar West Sat (1200-1300)

Date:	April 2022
Job No:	784-B023905

DRAWINGS



KEY

- Carriageway
- Footway/Cycleway-Footway
- Verge

PRELIMINARY ISSUE

Rev	Description	Date	Drn	Chk	App
P03	DESIGN UPDATED TO TOPOGRAPHIC SURVEY	04.08.2022	AT	BM	AP
P02	REVISED MASTERPLAN	19.04.2022	BM	AP	AP
P01	PRELIMINARY FIRST ISSUE	15.10.2021	AT	BM	AP

Document Control

Issuing Office

Tetra Tech Cardiff

5th Floor, Longcross Court,
47 Newport Road, Cardiff,
United Kingdom, CF24 0AD
Tel: +44 (0)29 2082 9200
www.tetratecheurope.com

TETRA TECH

Client

MARVEL LTD

Project Name

RHYDYCAR WEST, MERTHYR TYDFIL

Sheet Title

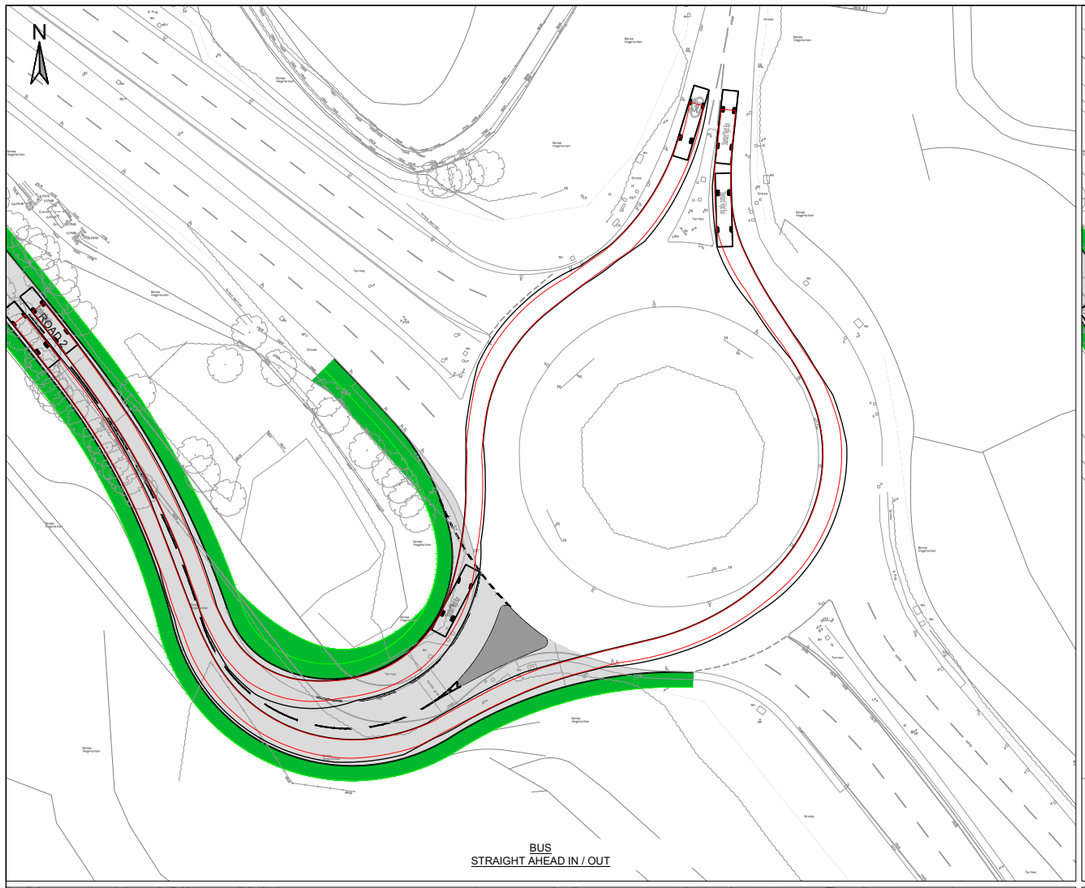
GENERAL ARRANGEMENT

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B023905	AT	Oct '21	BM	Oct '21	AP	Oct '21	1:500	S0

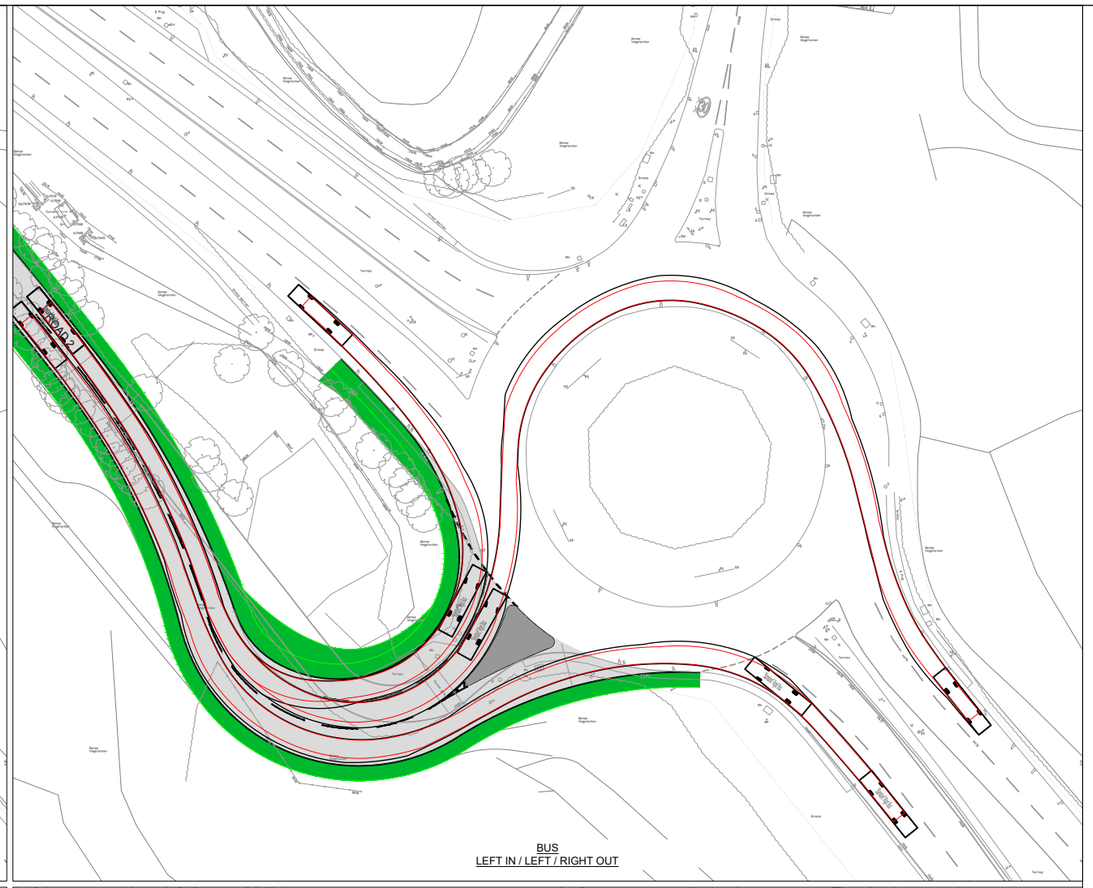
Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B023905	TTE	00	ZZ	DR	CH	SK001	P03

© Copyright Tetra Tech

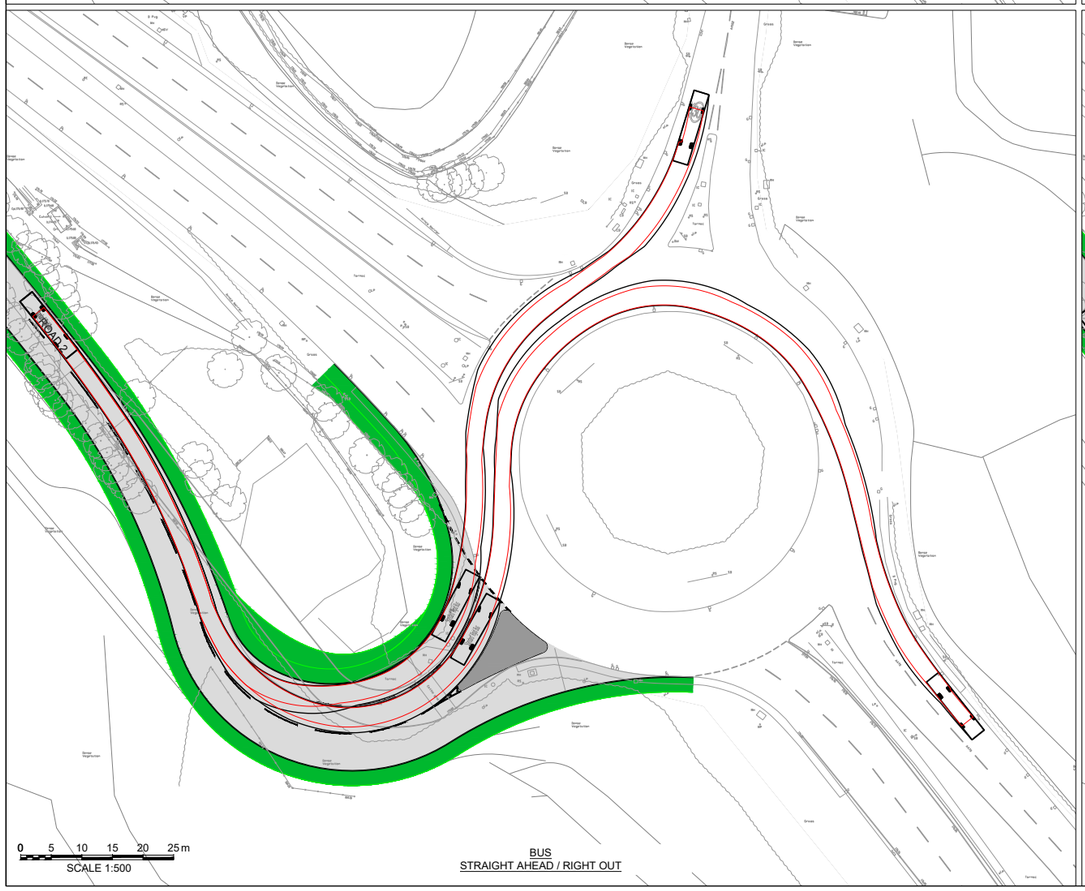
TTE_MT_v1



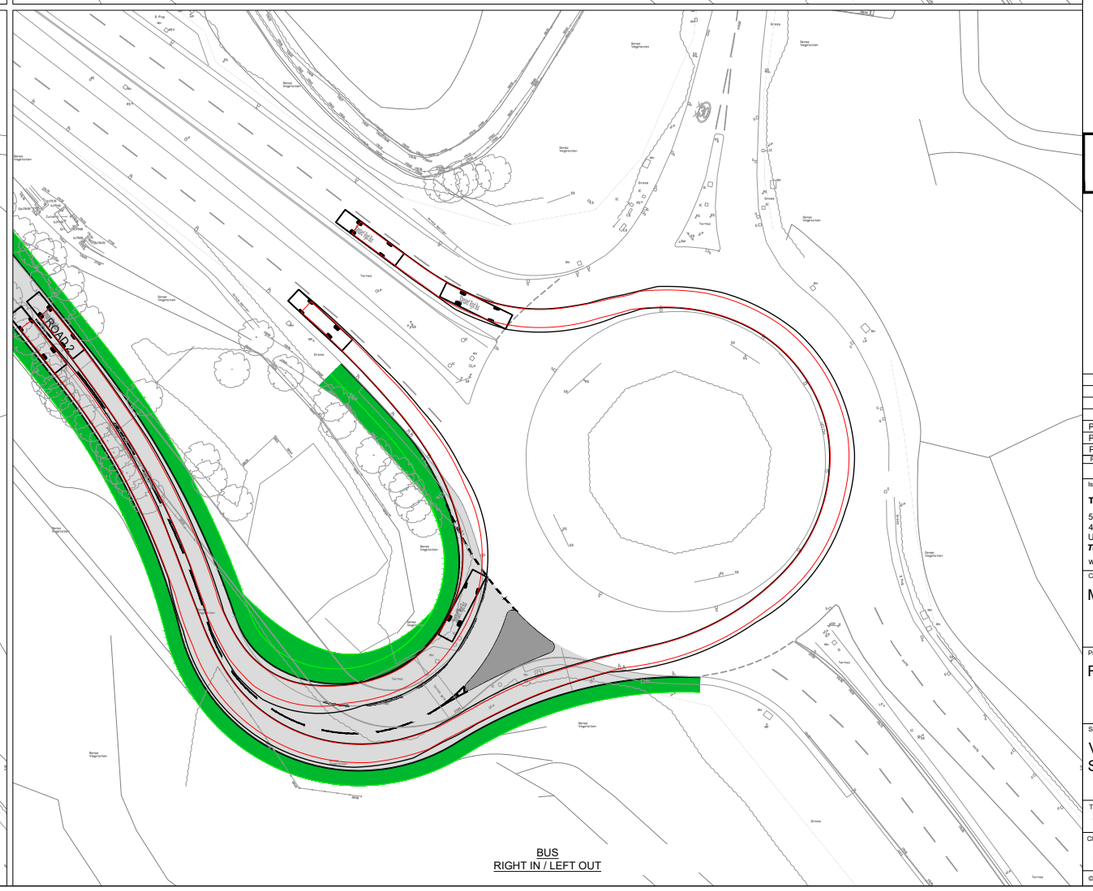
BUS
STRAIGHT AHEAD IN / OUT



BUS
LEFT IN / LEFT / RIGHT OUT

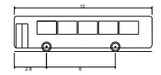


BUS
STRAIGHT AHEAD / RIGHT OUT



BUS
RIGHT IN / LEFT OUT

KEY



'Standard' Rigid Bus

Overall Length	12.000m
Overall Width	2.550m
Overall Body Height	3.069m
Min Body Ground Clearance	0.309m
Track Width	2.350m
Lock to lock time	4.00s
Wall to Wall Turning Radius	10.771m

PRELIMINARY ISSUE

Rev	Description	Date	Drn	Chk	App
P03	LAYOUT REVISION FOLLOWING TOPO SURVEY	05.08.2022	BM	AP	AP
P02	REVISED MASTERPLAN	19.04.2022	BM	AP	AP
P01	PRELIMINARY FIRST ISSUE	15.10.2021	AT	BM	AP

Document Control

Issuing Office

Tetra Tech Cardiff

5th Floor, Longcross Court,
47 Newport Road, Cardiff,
United Kingdom, CF24 0AD
Tel: +44 (0)29 2082 9200

www.tetratecheurope.com

Client

MARVEL LTD

Project Name

RHYDYCAR WEST, MERTHYR TYDFIL

Sheet Title

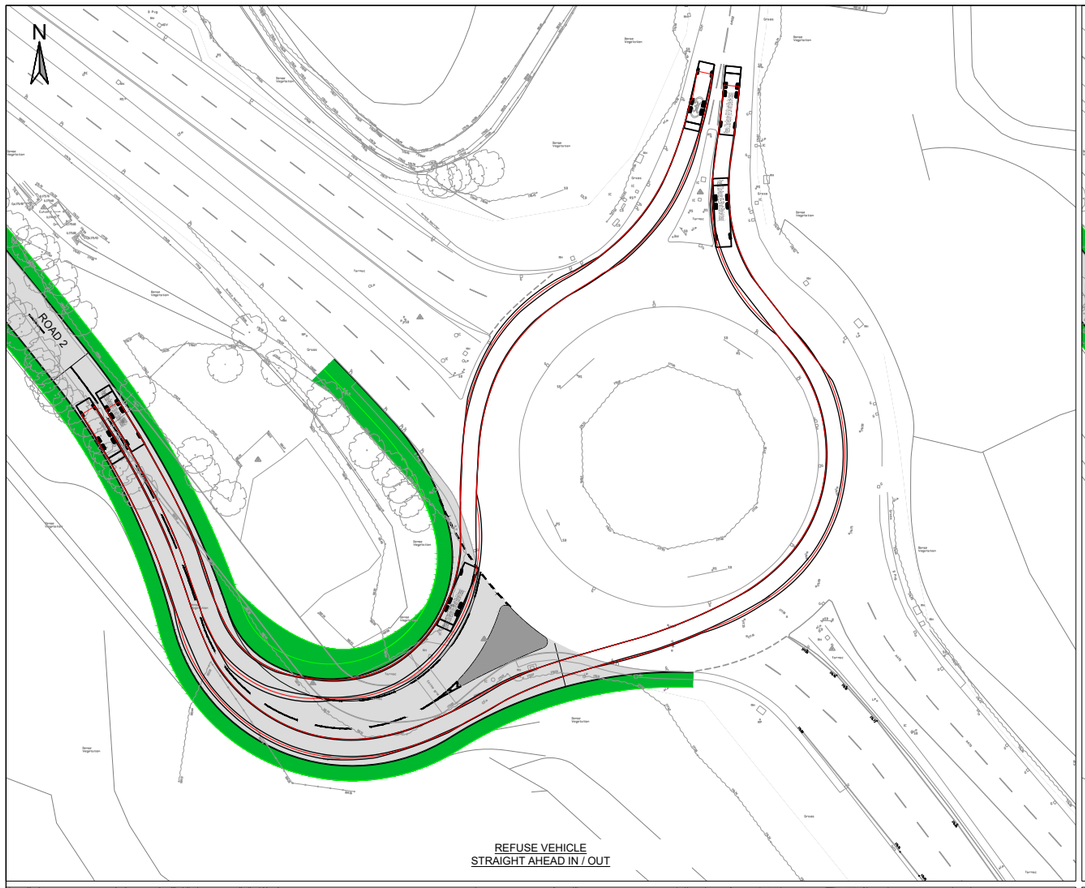
VEHICLE TRACKING
SHEET 1 - STANDARD BUS

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B023905	AT	Oct '21	BM	Oct '21	AP	Oct '21	1:500	S0

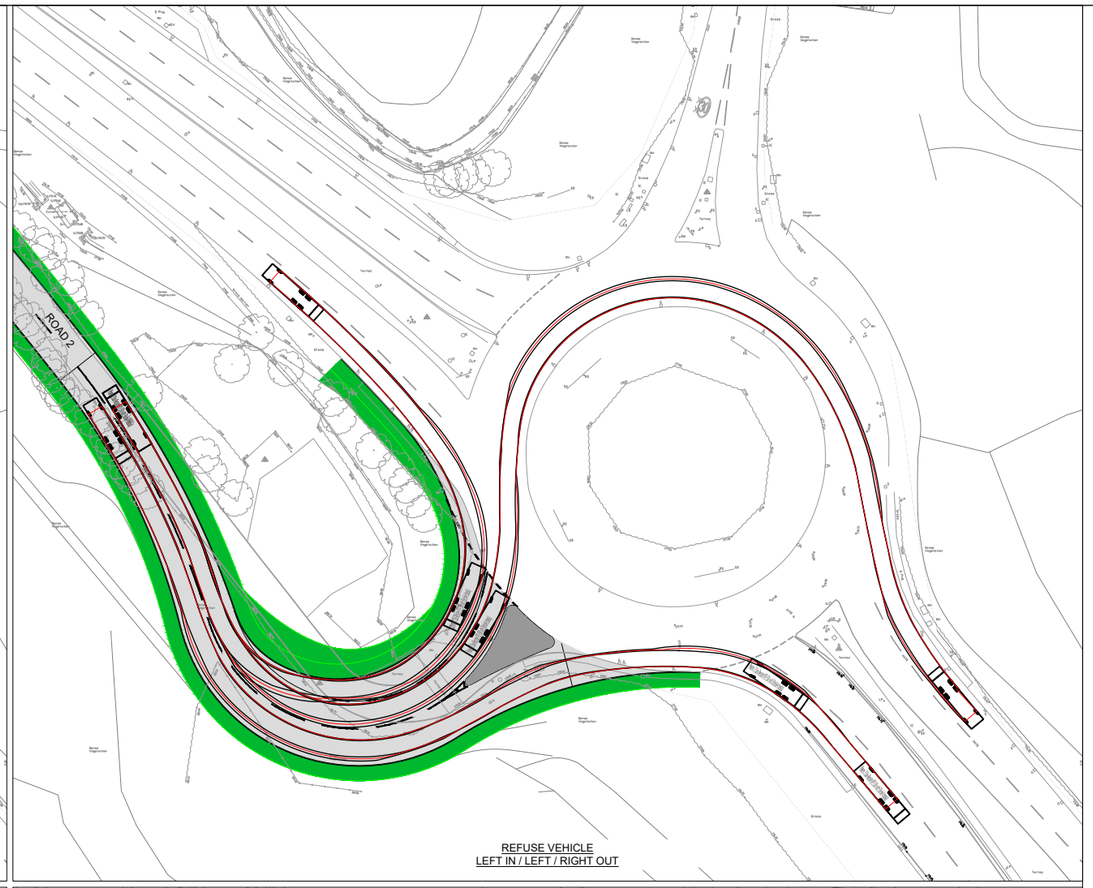
Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B023905	- TTE	- 00	- ZZ	- DR	- CH	- SK002	P03

© Copyright Tetra Tech

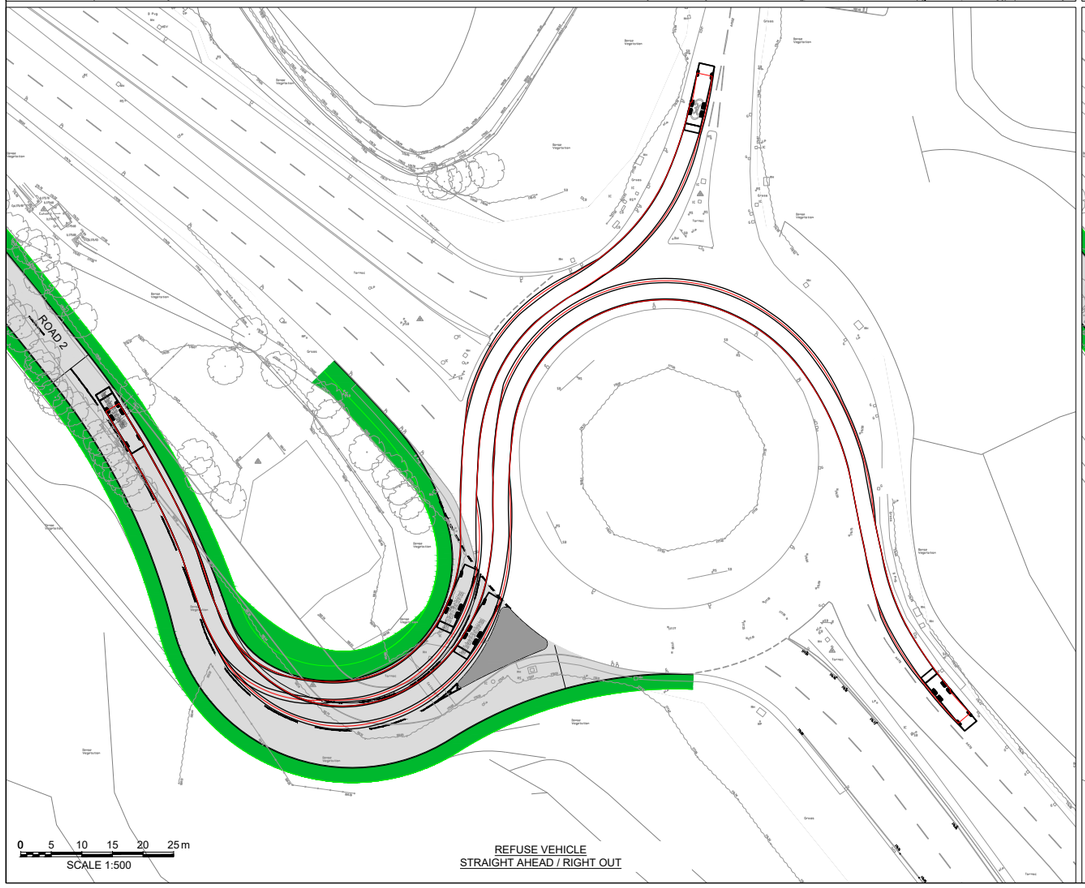
TTE_MT_v1



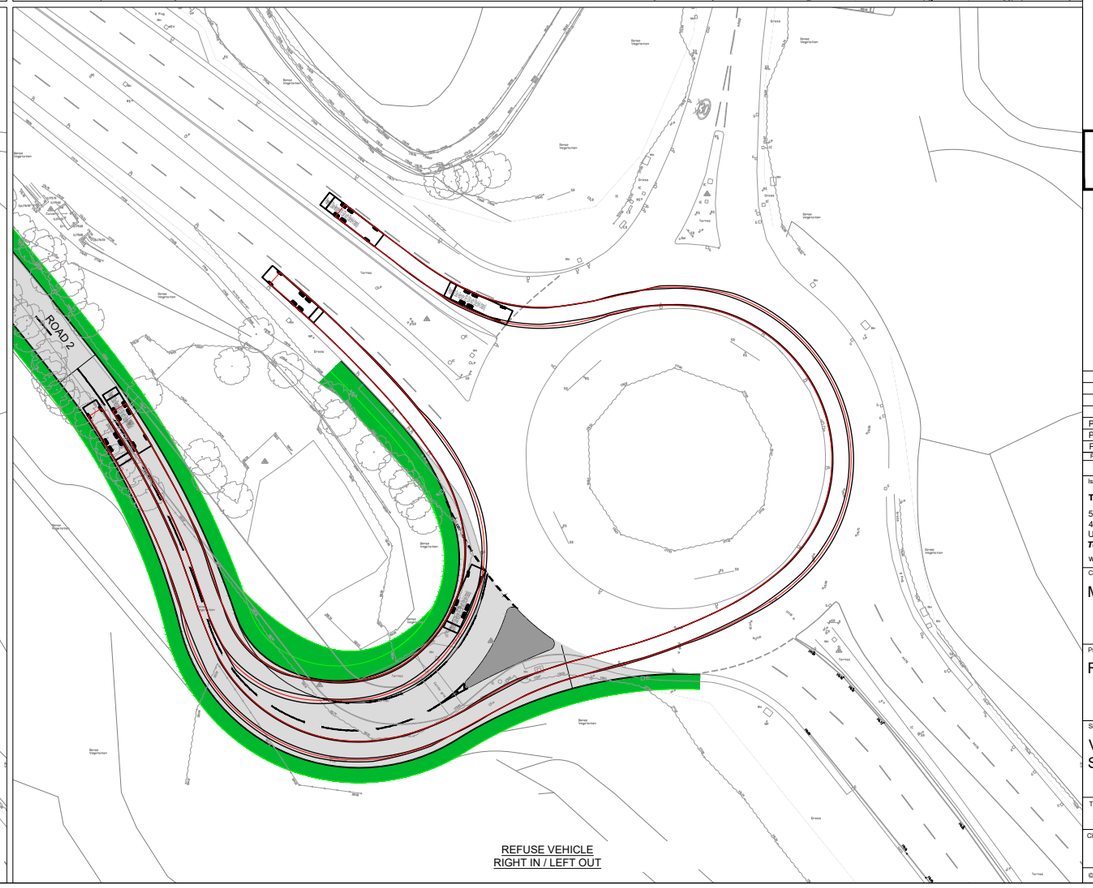
REFUSE VEHICLE
STRAIGHT AHEAD IN / OUT



REFUSE VEHICLE
LEFT IN / LEFT / RIGHT OUT

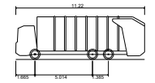


REFUSE VEHICLE
STRAIGHT AHEAD / RIGHT OUT



REFUSE VEHICLE
RIGHT IN / LEFT OUT

KEY



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

Overall Length	11.220m
Overall Width	2.530m
Overall Body Height	3.756m
Min Body Ground Clearance	0.309m
Track Width	2.530m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	11.550m

PRELIMINARY ISSUE

Rev	Description	Date	Drn	Chk	App
P03	LAYOUT REVISION FOLLOWING TOPO SURVEY	05.08.2022	BM	AP	AP
P02	REVISED MASTERPLAN	19.04.2022	BM	AP	AP
P01	PRELIMINARY FIRST ISSUE	15.10.2021	AT	BM	AP

Document Control

Issuing Office

Tetra Tech Cardiff

5th Floor, Longcross Court,
47 Newport Road, Cardiff,
United Kingdom, CF24 0AD
Tel: +44 (0)29 2082 9200
www.tetratecheurope.com

Client

MARVEL LTD

Project Name

RHYDYCAR WEST, MERTHYR TYDFIL

Sheet Title

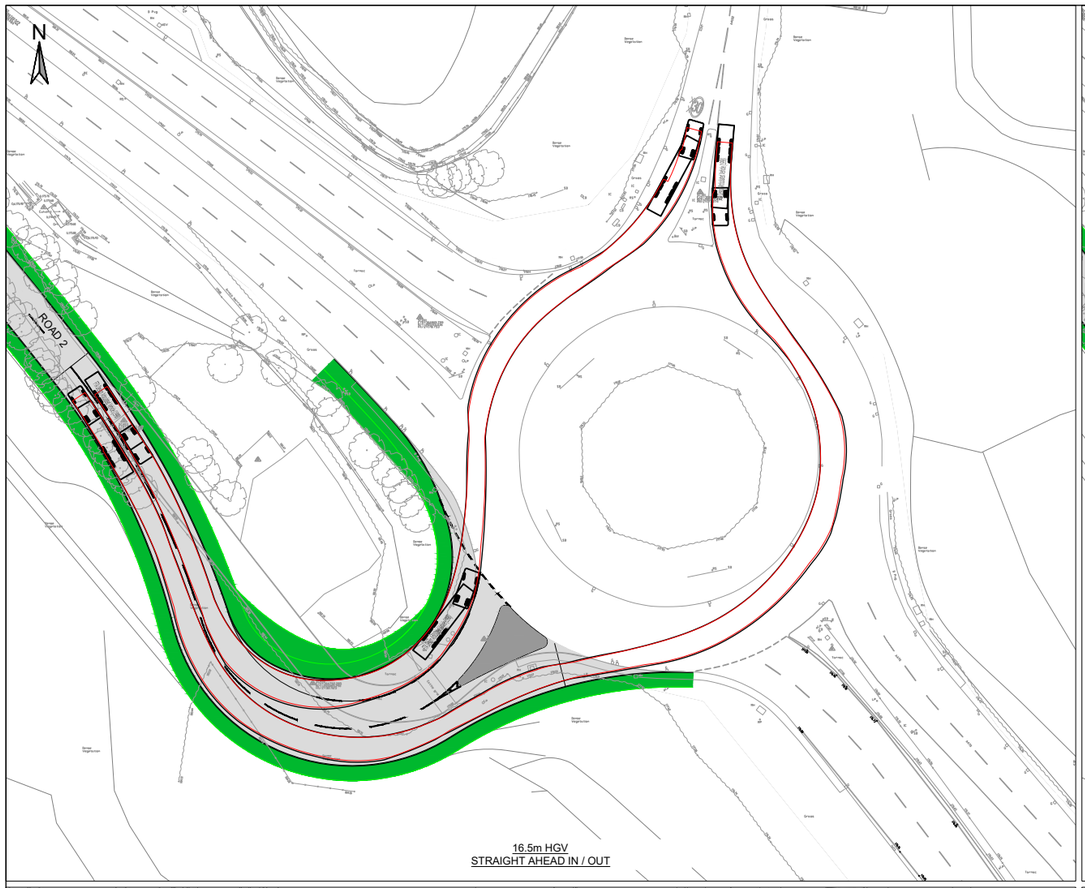
VEHICLE TRACKING
SHEET 2 - REFUSE VEHICLE

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B023905	AT	Oct '21	BM	Oct '21	AP	Oct '21	1:500	S0

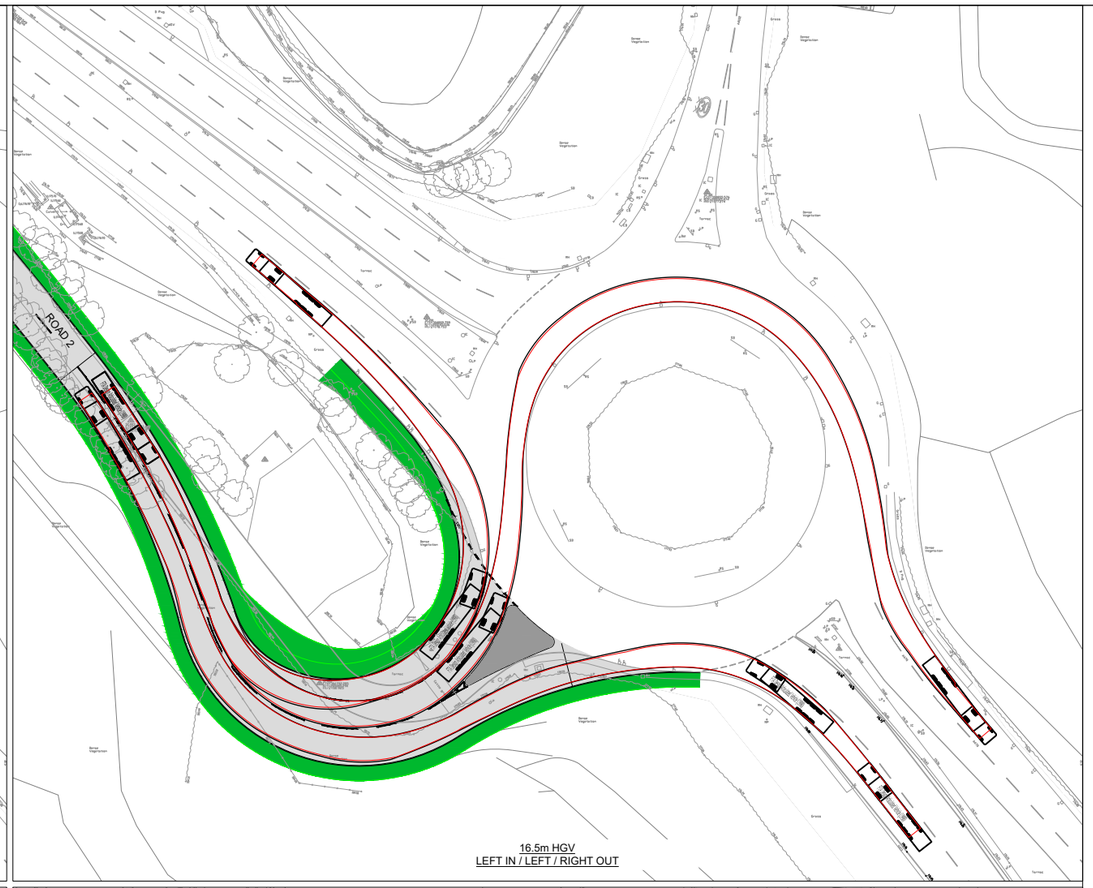
Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B023905	TTE	00	ZZ	DR	CH	SK003	P03

© Copyright Tetra Tech

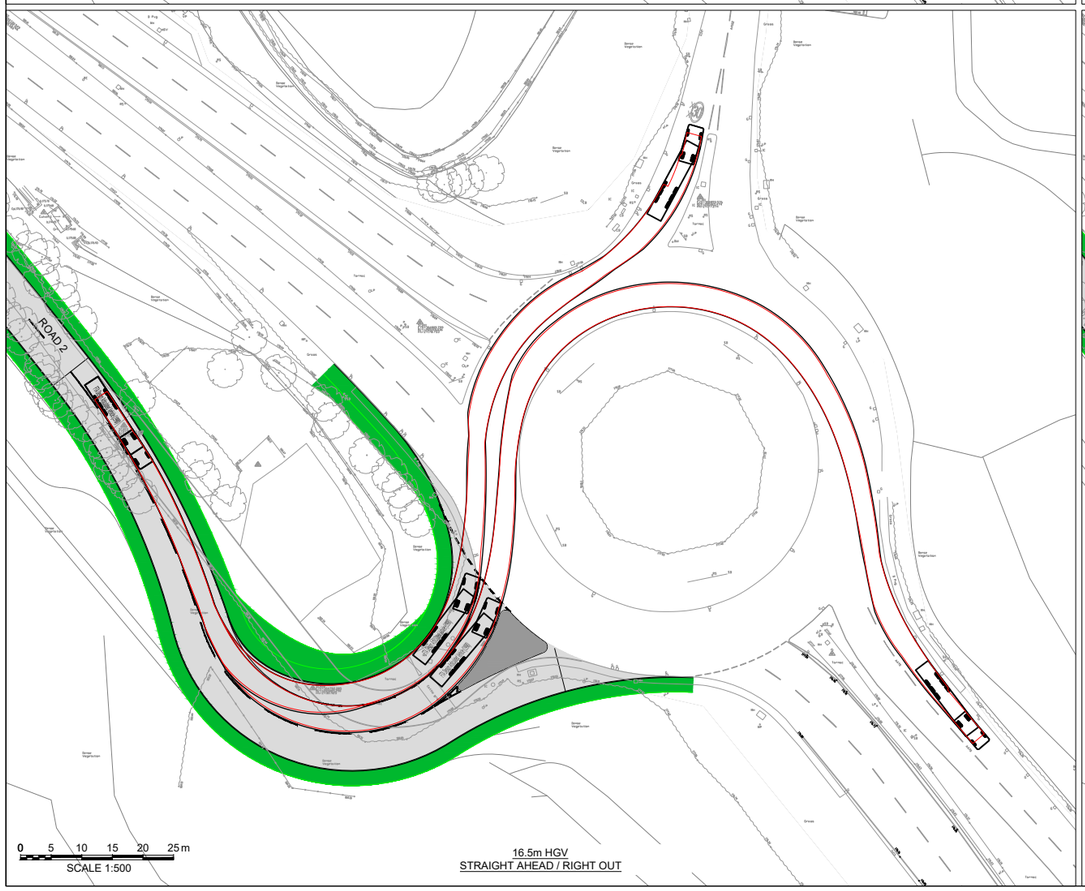
TTE_MT_v1



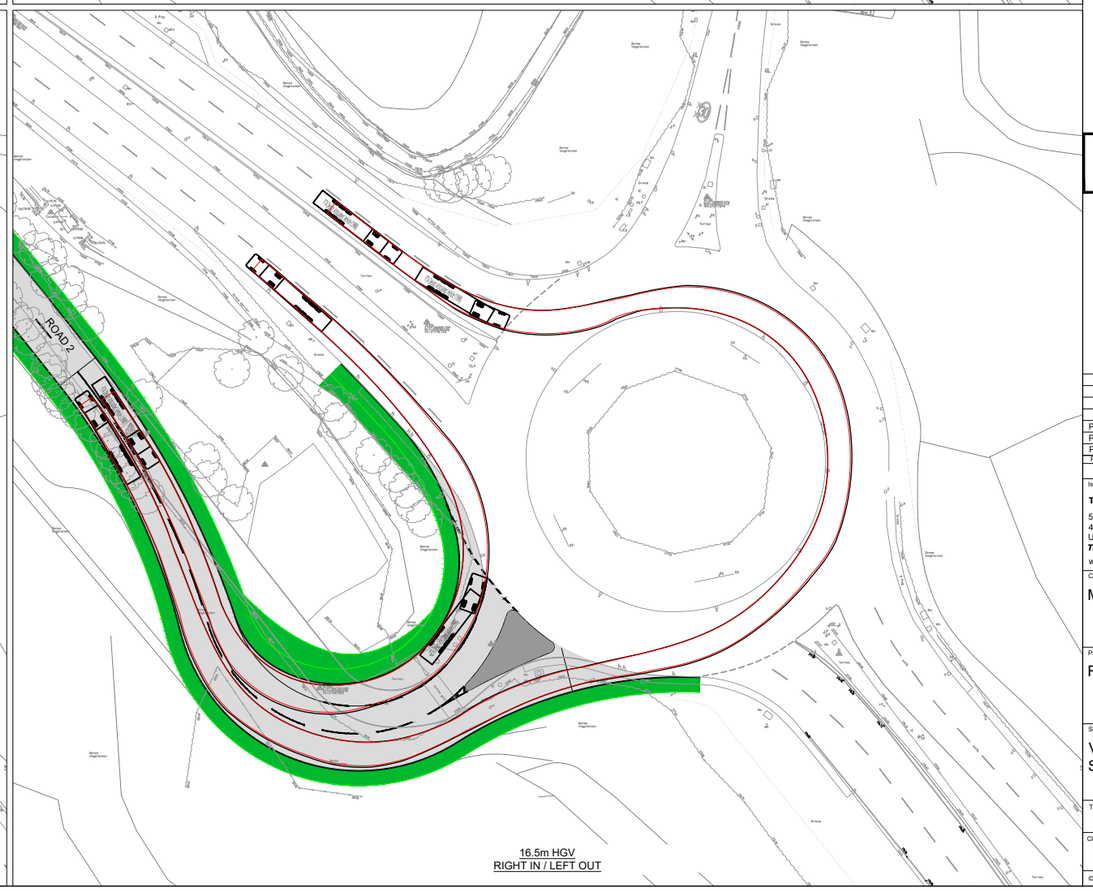
16.5m HGV
STRAIGHT AHEAD IN / OUT



16.5m HGV
LEFT IN / LEFT / RIGHT OUT

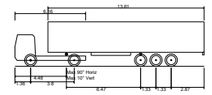


16.5m HGV
STRAIGHT AHEAD / RIGHT OUT



16.5m HGV
RIGHT IN / LEFT OUT

KEY



FTA Design Articulated Vehicle (1998)

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

PRELIMINARY ISSUE

Rev	Description	Date	Drn	Chk	App
P03	LAYOUT REVISION FOLLOWING TOPO SURVEY	05.08.2022	BM	AP	AP
P02	REVISED MASTERPLAN	19.04.2022	BM	AP	AP
P01	PRELIMINARY FIRST ISSUE	15.10.2021	AT	BM	AP

Document Control

Issuing Office
Tetra Tech Cardiff
5th Floor, Longcross Court,
47 Newport Road, Cardiff,
United Kingdom, CF24 0AD
Tel: +44 (0)29 2082 9200
www.tetratecheurope.com

Client
MARVEL LTD

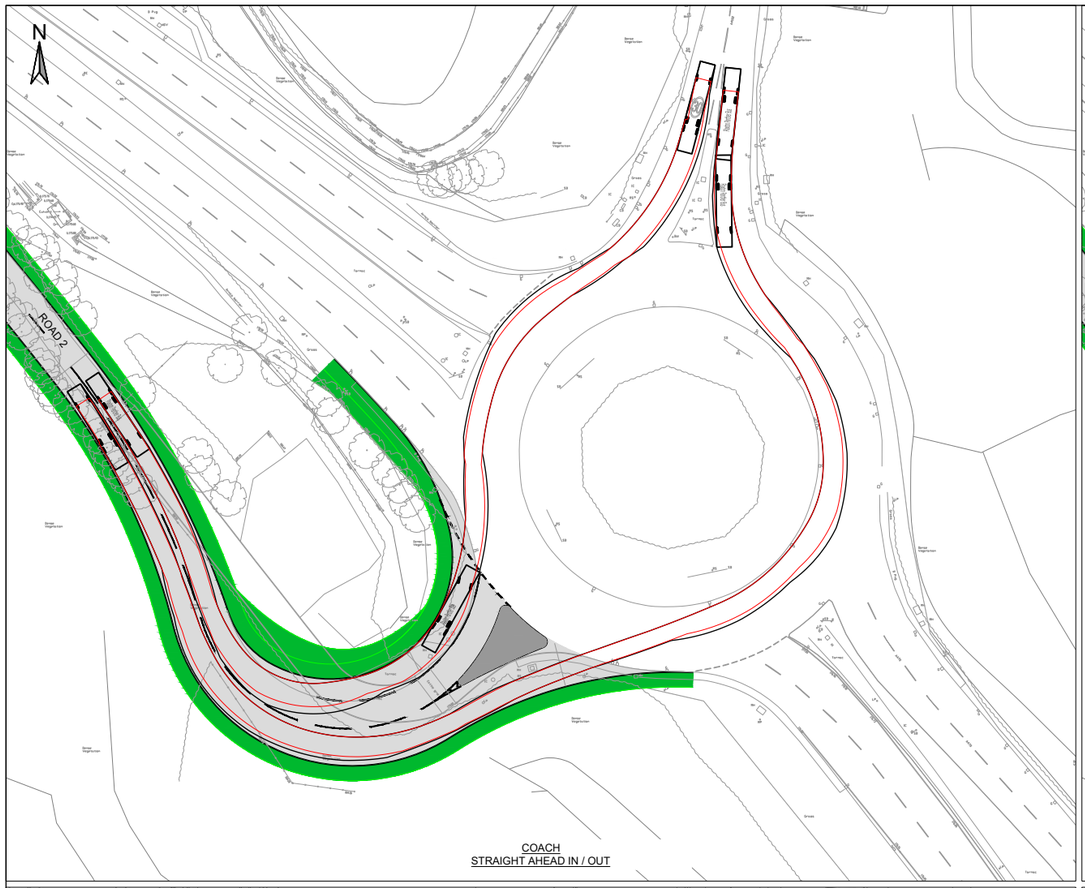
Project Name
RHYDYCAR WEST, MERTHYR TYDFIL

Sheet Title
VEHICLE TRACKING
SHEET 3 - ARTICULATED VEHICLE

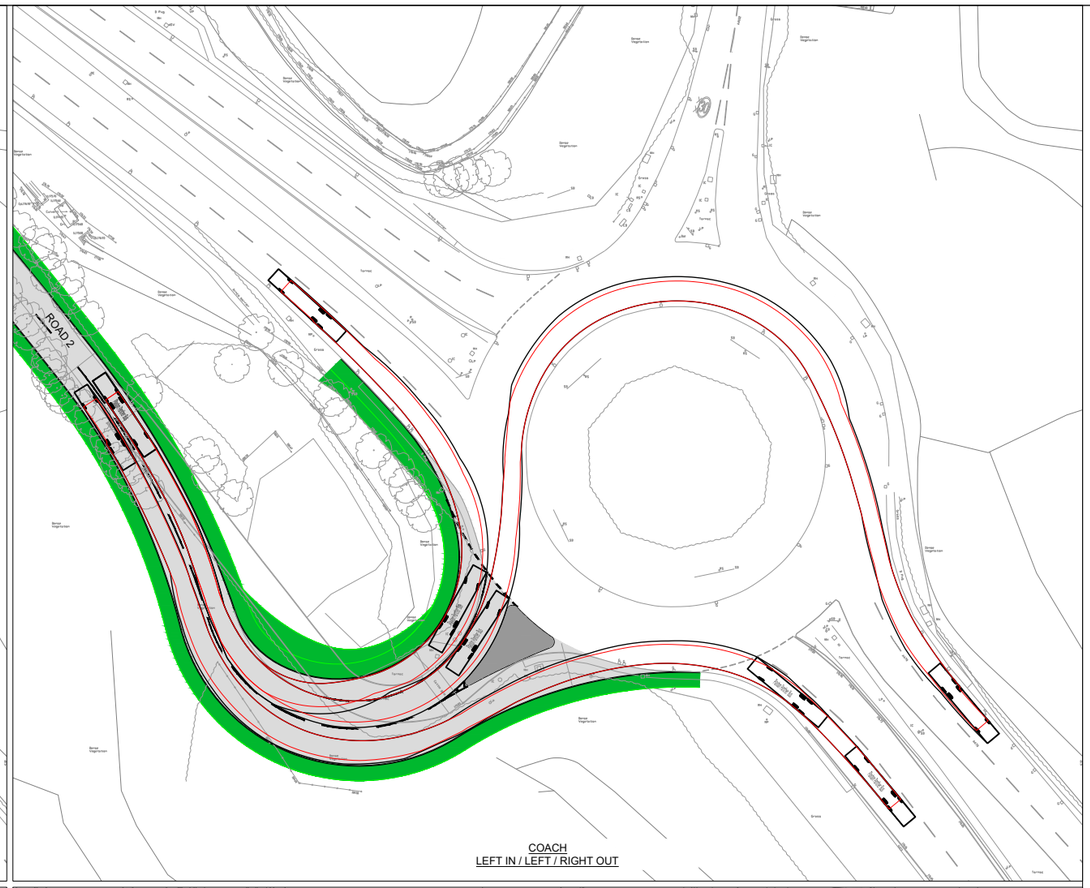
TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B023905	AT	Oct '21	BM	Oct '21	AP	Oct '21	1:500	S0

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B023905	TTE	00	ZZ	DR	CH	SK004	P03

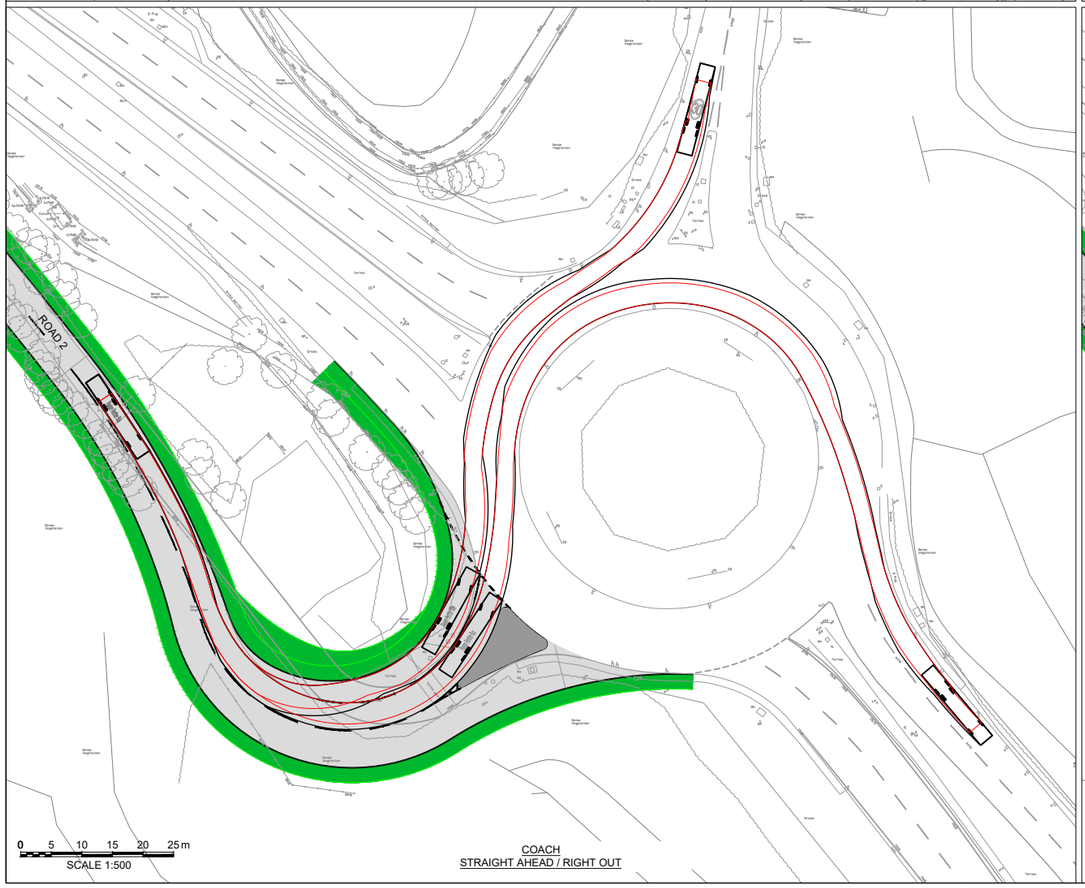
© Copyright Tetra Tech
TTE_MT_v1



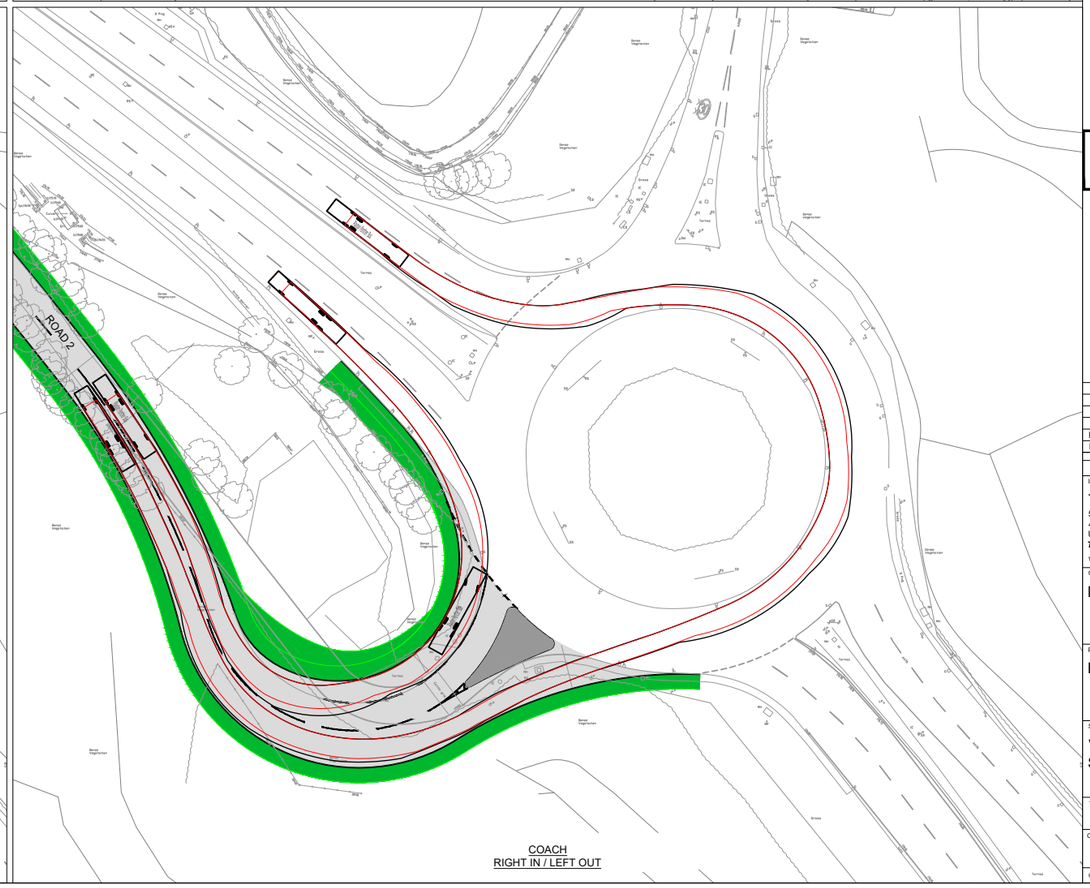
COACH
STRAIGHT AHEAD IN / OUT



COACH
LEFT IN / LEFT / RIGHT OUT

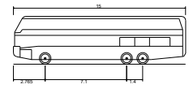


COACH
STRAIGHT AHEAD / RIGHT OUT



COACH
RIGHT IN / LEFT OUT

KEY



Plaxton Panther Bus	
Overall Length	15.000m
Overall Width	2.500m
Overall Body Height	4.157m
Min Body Ground Clearance	0.397m
Track Width	2.500m
Lock to lock time	5.00s
Wall to Wall Turning Radius	12.500m

PRELIMINARY ISSUE

Rev	Description	Date	Drn	Chk	App
P02	LAYOUT REVISION FOLLOWING TOPO SURVEY	05.08.2022	BM	AP	AP
P01	REVISED MASTERPLAN	19.04.2022	BM	AP	AP

Document Control

Issuing Office

Tetra Tech Cardiff

5th Floor, Longcross Court,
47 Newport Road, Cardiff,
United Kingdom, CF24 0AD
Tel: +44 (0)29 2082 9200

www.tetratecheurope.com

Client

MARVEL LTD

Project Name

RHYDYCAR WEST, MERTHYR TYDFIL

Sheet Title

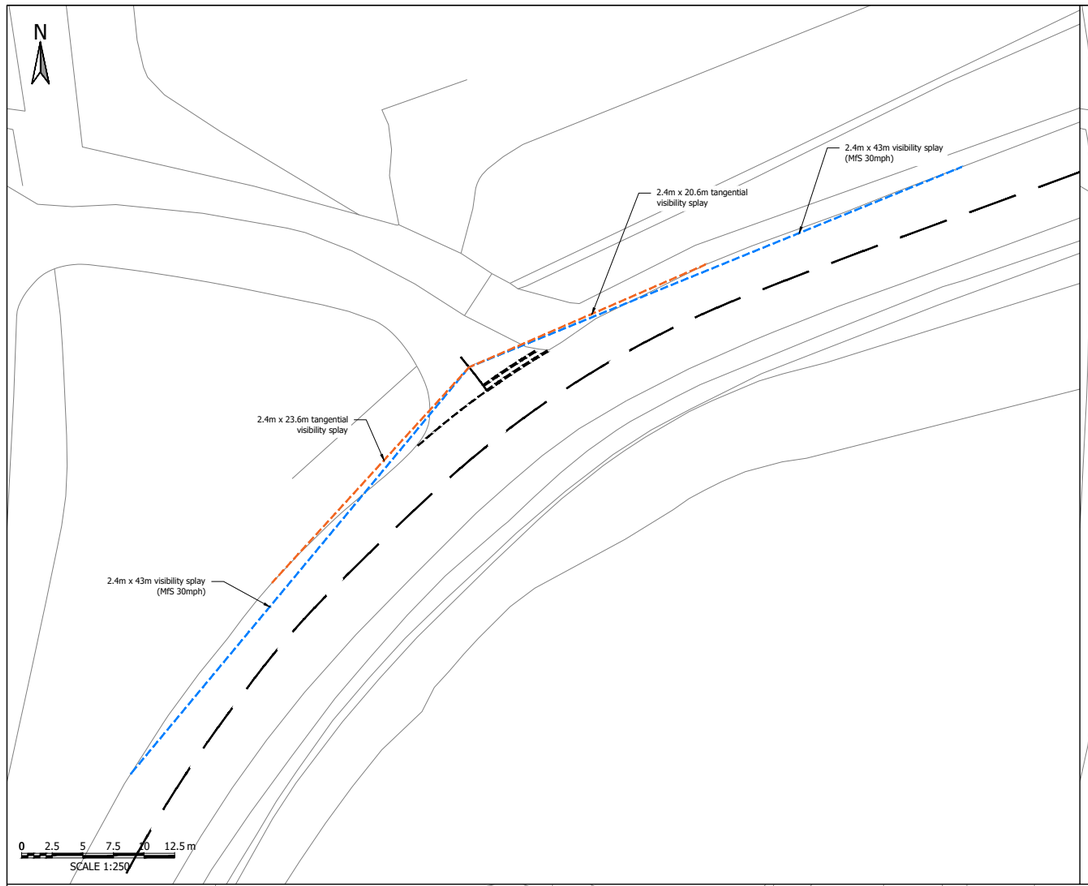
VEHICLE TRACKING
SHEET 4 - COACH

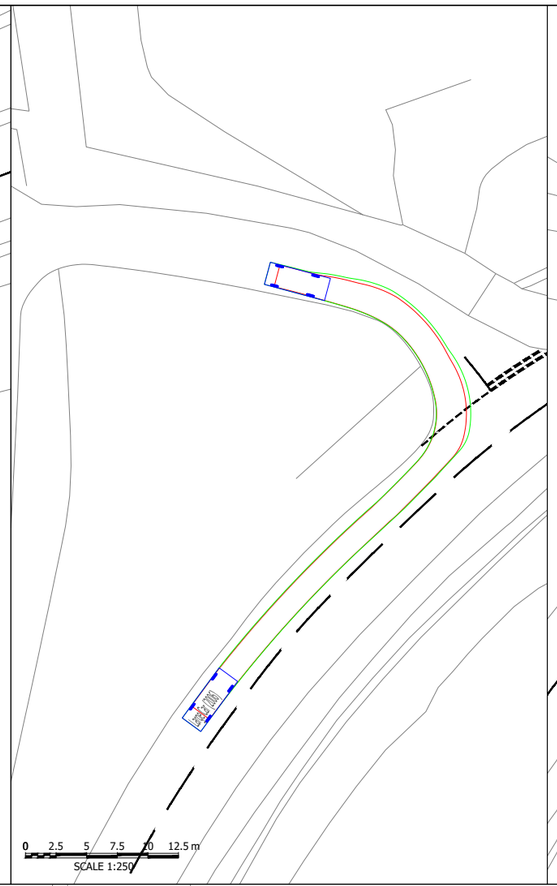
TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B023905	AT	Oct '21	BM	Oct '21	AP	Oct '21	1:500	S0

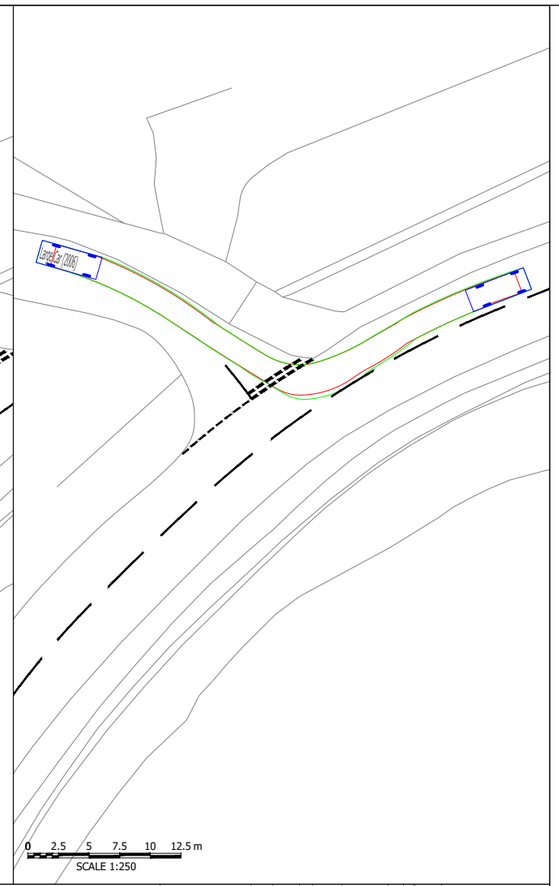
Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B023905	TTE	00	ZZ	DR	CH	SK005	P03

© Copyright Tetra Tech

TTE_MT_v1









Notes:

General
1. Do not scale from drawing.
2. All dimensions are in metres, unless stated otherwise.
3. This drawing is to be read & printed in colour.
4. This drawing is for illustrative purposes only.

Disclaimer
1. The information contained in this drawing is based on a combination of OS and data provided by others and Tetra Tech shall not be liable for any inaccuracies or deficiencies.



Large Car (2006)	
Overall Length	5.079m
Overall Width	1.972m
Overall Body Height	1.412m
Min Body Ground Clearance	0.319m
Max Track Width	1.831m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.900m

PRELIMINARY ISSUE

Rev	Description	Date	Drn	Chk	App
P01	PRELIMINARY FIRST ISSUE	12.04.2022	BM	AP	AP

Document Control

Issuing Office

Tetra Tech Cardiff

5th Floor, Longcross Court,
47 Newport Road, Cardiff,
United Kingdom, CF24 0AD
Tel: +44 (0)29 2082 9200
www.tetratecheurope.com

TETRA TECH

Client

Marvel Ltd.

Project Name

Rhydycar West, Merthyr Tydfil

Sheet Title

Secondary Access Visibility Splays and Swept Path Assessment

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B023905	BM	Apr 22	AP	Apr 22	AP	Apr 22	As Shown	S1

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B023905	TTE	00	00	SK	O	00007	P01

© Copyright Tetra Tech

TTE_MT_v1

NOTE: THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN TETRA TECH. IT MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THEIR PRIOR WRITTEN CONSENT.

APPENDIX A – EIA SCOPING RESPONSES

Judith Jones BA (Hons), BTP, MRTPI
Prif Swyddog Cynllunio a Gwasanaethau Cymdogaeth
Chief Officer Planning & Neighbourhood Services

Uned 5, Parc Fusness Triongl, Pentrebach,
Merthyr Tudful, CF48 4TQ

Unit 5, Triangle Business Park, Pentrebach,
Merthyr Tydfil, CF48 4TQ

Ffon/ Tel: **(01685) 725000**
*Ffacs/*Fax: **(01685) 374397**
www.merthyr.gov.uk

Cyngor Bwrdeistref Sirol
MERTHYR TUDFUL
MERTHYR TYDFIL
County Borough Council

Tetra Tech
(Peter Waldren – Director)
Via email: Peter.Waldren@tetratech.com

Dyddiad/Date: **16th July 2021**

Ein Cyf./Our ref.**:** HR/Scoping/Rhydycar
Eich Cyf./Your ref.:

Gofynnwch am/Please ask for**:** Huw Roberts
Llinell Uniongyrchol/Direct Line: 01685 726204
e-bost/e-mail**:** Huw.Roberts@merthyr.gov.uk

Dear Mr Waldren,

The Town and Country Planning (Environmental Impact Assessment)(Wales) Regulations 2017
Scoping Opinion

Re: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil

I refer to the above request for a Scoping Opinion.

With regard to the requirement to provide a site location plan under the 2017 Regulations, the proposed development (albeit it is appreciated the small scale of plan does not allow for close scrutiny) would result in development, in places, tight up against the application site boundary (e.g. the proposed ski centre). This would appear to necessitate development (construction) outside of the site boundary. This needs to be assessed (and amended) and the relevant implications considered in the ES.

In line with Part 4(14) of the 2017 Regulations, formal consultation was undertaken with the following bodies:

- Caerphilly County Borough Council, Breacon Beacons National Park, Rhondda Cynon Taf County Borough Council.
- Natural Resources Wales (NRW)
- Cadw
- Health & Safety Executive
- The Coal Authority
- Glamorgan Gwent Archaeological Trust
- Highways Authority
- Welsh Government (Transport)
- Welsh Water
- (Internal Officers – Ecologist/Landscape Architect)

Responses received are attached.

Schedule 4(2) of the 2017 Regulations states that environmental statements (ES) must include '*A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the applicant or appellant which are relevant to the proposed development and its specific characteristics and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.*' Therefore, the need for the development in this location and the alternatives

considered must be presented in the ES and the detailed reasons/assessments behind the selection of the chosen option provided.

Schedule 4(5) of the EIA Regulations requires a description of the likely significant transboundary effects to be provided in an ES. The ES should address this matter as appropriate.

The ES should address any significant effects on population and human health, in light of the EIA Regulations. This could be addressed under separate topic chapters or within its own specific chapter.

The submitted information (in several of the appendices) refers to various mitigation and compensation/enhancement measures. Any such measures relied upon for the purposes of the assessment should be explained in detail within the ES. The ES should provide reference to how the delivery of measures proposed to prevent/minimise adverse effects is secured (through legal requirements or other suitably robust methods) and whether relevant consultees agree on the adequacy of the measures proposed.

Further comments on the scope of the ES are set out below:

Appendix 1: Community and Socio-Economic

This chapter needs to consider likely significant socio-economic effects (these maybe positive and negative and both inside and outside the County Borough) – see comments from Caerphilly County Borough Council and Brecon Beacons National Park.

Appendix 2: Sustainability and Climate Change

A sustainability assessment of the proposal and its impact on climate change is welcomed, however, in line with Future Wales and Planning Policy Wales a comprehensive assessment of the overall development needs to be undertaken in line with the decarbonisation agenda. This not only involves the removal of vegetation/trees, the construction of buildings and infrastructure but also must take into account the location of the site and the number of vehicular movements etc. It should be less about mitigation and more about creating a development which is as close to carbon neutral as possible.

Appendix 3: Ground Conditions

See comments from The Coal Authority and Gerald Coughlan (Highways/Engineering Officer).

Appendix 4: Ecology

See comments from Natural Resources Wales (NRW) and Matthew Davies (Councils Ecologist). I would draw your attention to the points raised that refer to outdated reports.

Appendix 5: Transportation and Movement

See comments from Welsh Government (Transport) and Gerald Coughlan (Highways/Engineering Officer).

Appendix 6: Heritage

See response from Cadw and Glamorgan Gwent Archaeological Trust.

Appendix 7: Hydrology and Hydrogeology

See response from NRW and Gerald Coughlan (Highways/Engineering Officer). As highlighted by NRW, the proposed method(s) of sustainable drainage needs to be included.

Appendix 8: Arboriculture

The method of assessment is noted, however, greater detail maybe required with regard to smaller unrecorded trees/vegetation and cross referenced with the 'Sustainability and Climate Change' topic area (i.e. Carbon emissions). These smaller trees/vegetation will also have ecological value which may need to be assessed depending on their species and/or value.

Appendix 9: Townscape and Landscape.

It is questioned whether a 3km LVIA study area is acceptable and this needs to be considered further (with appropriate viewpoints). In addition to photomontages, wireframes must also be provided. A topographical survey of the site and relevant existing and proposed (illustrative) cross-sections must be provided. Also see comments from Tom Bramley (Landscape Architect).

Appendix 10: Noise, Acoustics & Vibration

See Comments from Garin Eldred (Environmental Health Officer).

Appendix 11: Air Quality

See Comments from Garin Eldred (Environmental Health Officer) and NRW.

Appendix 12: Lighting

Planning Policy Wales (PPW) (Edition11) Paragraph 6.8 also needs to be addressed in the ES. Given the extremely sensitive setting and location of the development, vertical and horizontal light spillage diagrams/details (both within and outside the site) need to be provided. Light spillage not only needs to be assessed from external sources but also internally from the buildings/structures themselves. A night/sky glow assessment would also be required. As PPW points out there is also a need to reduce carbon emissions associated with lighting. Therefore, this assessment needs to be undertaken and included in the 'Sustainability and Climate Change' topic area.

Appendix 13: Services and Energy

The scoping report provides little detail in terms of services. How the proposed development connects to the gas mains, electricity network, sewerage network etc. could have significant environmental impacts both inside and outside of the application site. Such connections and their impacts need to be fully considered (including plans which identify how the development would connect to the existing infrastructure) in the ES

Finally, as recently discussed, given the scale of the development and significant sensitivities/constraints of the site (and surroundings), the Local Planning Authority are seriously concerned about being able to fully assess any outline application (with only access to be considered at this stage). Whilst it is appreciated that there is a plethora of information to be submitted, it is considered that at the very least access, layout and scale must be considered at the outline stage. Indicative designs of the overall development as well as individual buildings/structures can then be provided to further inform the decision-making process. I should point out that this would be requested under Part 2 section 3(2) of The Town and County Planning (Development Management Procedure) (Wales) Order 2021.

In terms of developments close to the site which may have a cumulative impact, I would suggest planning permission P/19/0073 at Bike Park Wales. This permission is for the '*Provision of 36 camping pods and 5 chalets, erection of shower/toilet block and creation of play and picnic area. Construction of new parking area (150 spaces) with overflow carpark (46 spaces), together with a trail maintenance yard, new highway access routes, ground profile works, drainage, infrastructure and landscape works*.' In addition, there is permission for a Leisure facility (and other development) at the Trago Mills site (P/00/0268 and P/03/0130). Finally, the allocated sites in the Methyr Tydfil County Borough Council Replacement Local Development Plan (2016 – 2031), in proximity of the site, will need to be fully considered.

If you wish to discuss the above further, please do not hesitate to contact Huw Roberts using the above contact details.

Yours sincerely,

MISS J JONES
PRIF SWYDDOG CYNLLUNIO A GWASANAETHAU CYMDOGAETH/CHIEF OFFICER PLANNING & NEIGHBOURHOOD SERVICES

Croesawn ohebu yn Gymraeg a fydd gohebu yn y Gymraeg ddim yn arwain at oedi. Rhowch wybod inni beth yw'ch dewis iaith e.e Cymraeg neu'n ddwyieithog.

We welcome correspondence in Welsh and corresponding with us in Welsh will not lead to a delay. Let us know your language choice if Welsh or bilingual.

PARC CENEDLAETHOL BANNAU BRYCHEINIOG
BRECON BEACONS NATIONAL PARK

Huw Roberts
Merthyr Tydfil County Borough Council
Civic Centre
Castle Street
Merthyr Tydfil
CF47 8AN

Date: 12 July 2021

Officer: Ffion Bevan

Your Ref: Scoping Opinion/2021

Our Ref: 21/19928/FRI

Dear Sirs,

Town and Country Planning Act 1990 (as amended)
Town and Country Planning (Development Management Procedure) (Wales) Order 2012

Proposal: "Proposed mixed leisure development"
Address: Land At Rhydycar West, Merthyr Tydfil,

The Authority welcomes feedback from agents and applicants on the quality of the service received. For further information, please visit www.beacons-npa.gov.uk/planningsurvey to fill in a brief online survey.

Thank you for your consultation received 30 April 2021 regarding the above.

We understand Tetra Tech Planning has submitted an EIA Scoping Opinion to Merthyr Tydfil County Borough Council for a proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil.

It is understood that the red outline of the site subject to the above measures approximately 38 hectares. The site is circa 3,000 metres from the Brecon Beacons National Park Authority (NPA) boundary at its closest point and the site is located further south further away from the border than the existing retail and leisure facilities offered in the locality.

We set out below background on the NPA's policy and legal context. The letter ends with our comments on the Scoping Opinion submission made available on your website.

Background
Policy and legal context
Section 63 of the Environment Act (1995) sets out the statutory purposes of the National Park as follows:-

- To conserve and enhance the natural beauty, wildlife and cultural heritage of the National Park; and

- To promote opportunities for the public understanding and enjoyment of the special qualities of the National Park

In accordance with section 62(2) of the Environment, any relevant Authority shall have regard to National Park purposes when performing any functions in relation to, or so as to affect, land in a National Park. Relevant Authorities include public bodies, government departments, local authorities and statutory undertakers. It goes on to state that if it appears that there is a conflict between those purposes, greater weight shall be attached to the purpose of conserving and enhancing the natural beauty, wildlife and cultural heritage of the area comprised in the National Park.

The Special Qualities of the National Park may be significantly impacted by development proposals on the fringes of the National Park. The Brecon Beacons National Park Management Plan 2015-2020 defines the Special Qualities of the Brecon Beacons National Park as follows:

- A National Park offering **peace and tranquility** with opportunities for quiet enjoyment, inspiration, relaxation and spiritual renewal.
- A feeling of **vitality and healthfulness** that comes from enjoying the Park's fresh air, clean water, rural setting, open land and locally produced foods.
- A **sense of place and cultural identity** - "Welshness" - characterised by the use of the indigenous Welsh language, religious and spiritual connections, unique customs and events, traditional foods and crafts, relatively unspoilt historic towns, villages and family farms. The continued practices of traditional skills developed by local inhabitants to live and earn a living here, such as common land practices and grazing.
- A **sense of discovery** where people are able to explore the Park's hidden secrets and stories such as genealogical histories, prehistoric ritual sites, medieval rural settlements, early industrial sites, local myths, legends and geological treasures.
- The Park's **sweeping grandeur and outstanding natural beauty** observed across a variety of harmoniously connected landscapes, including marvellous gorges and waterfalls, classic karst geology with caves and sink holes, contrasting glacial landforms such as cliffs and broad valleys carved from old red sandstone and prominent hilltops with extensive views in all directions.
- A **working, living "patchwork" of contrasting patterns, colours, and textures** comprising of well-maintained farmed landscapes, open uplands, lakes and meandering rivers punctuated by small-scale woodlands, country lanes, hedgerows, stone walls and scattered settlements.
- **Extensive and widespread access to the Park's diversity of wildlife and richness of semi-natural habitats**, such as native woodlands, heathland and grassland, natural lakes and riparian habitats, ancient hedgerows, limestone pavement and blanket bogs including those of international and national importance.
- In the context of the UK, **geographically rugged, remote and challenging landscapes**.
- **Enjoyable and accessible countryside** with extensive, widespread and varied opportunities to pursue walking, cycling, fishing, water-based activities and other forms of sustainable recreation or relaxation.
- **An intimate sense of community** where small, pastoral towns and villages are comparatively safe, friendly, welcoming and retain a spirit of cooperation.

Planning Policy Wales (PPW) (Edition 11) acknowledges the statutory purposes of National Parks and references the "Sandford Principle", whereby if there is a conflict between the statutory purposes, greater weight shall be given to the first purpose of conserving and enhancing the natural beauty, wildlife and cultural heritage.

PPW states that *"planning authorities have a statutory duty to have regard to National Parks and AONB purposes. This duty applies in relation to all activities affecting National Parks and AONBs,*

whether those activities lie within, or in the setting of, the designated areas. The designated landscapes should be drivers of the sustainable use and management of natural resources in their areas, and planning authorities should have regard to their identified special qualities in the exercise of their functions and any relevant management plans." (see para 6.3.5) (underlining is my emphasis).

Consideration

We have reviewed the submission and the NPA does not object to the development and offers no comment on the Scoping Opinion.

Please note that this response has been prepared by Officers, and will not receive formal ratification from Members until 7th September 2021 after which point in time I may provide supplementary response as necessary.

We trust the above comments are of assistance however if you wish to discuss any aspect further please do not hesitate to contact me.

Yours faithfully,



Tracy Nettleton
Planning and Heritage Manager

Yr ydym yn croesawu gohebiaeth yn y Gymraeg. Bydd unrhyw ohebiaeth yn y Gymraeg yn cael ei ateb yn y Gymraeg a ni fydd unrhyw gyswllt trwy gyfrwng y Gymraeg yn arwain at oedi yn y mater sy'n cael ei drin.
We welcome correspondence in Welsh. Any correspondence in Welsh will be answered in Welsh and corresponding in Welsh will not lead to a delay in the matter being dealt with.

Roberts, Huw

From: Coughlan, Gerald
Sent: 11 June 2021 10:59
To: Roberts, Huw
Cc: Morris, Carwyn
Subject: FW: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request [NOT PROTECTIVELY MARKED]
Attachments: RHDR-HMA-LE-XX-DR-A-91-003-EIA Scoping Area-S0-P2.pdf; 210427 B023905 Rhydycar West EIA Scoping Request FINAL.pdf; RHDR-HMA-LE-XX-DR-A-SK0005-Masterplan - Land use Plan (1 in 6)-S0-P1.pdf; Scoping letter 2 Rhydycar West.pdf

Classification: NOT PROTECTIVELY MARKED
Huw – apologies for late response .

Looking at the original letter of the 27th April 2021 sent to Judith Jones, there are three particular sections of the listed appendices that I am would like to comment on

a) Appendix 3 – Ground Conditions
b) Appendix 5 – Transportation and Movement
c) Appendix 7 – Hydrology and Hydrogeology

Appendix 3 – Ground Conditions
The third paragraph states 'No consultation or agreement has been undertaken with MTCBC or its consultees with regard to ground conditions on site'. Also suggested mitigation measures are outlined but are not limited to those indicated .
Due to the past history of the area initial investigations and surveys, as indicated, could suggest future solutions to site problems that may be revealed and could require further works.
The geology of the area is paramount in the future proposals for this site and any adjacent sites. Ground contamination needs to be investigated also

Appendix 5 – Transport and Movement
Considerations for this aspect of the proposal need to include acknowledgement of the existing highway network. The adjacent highway is the A470 which is administered by the WG, these links with the A465 Heads of the Valley to the north and the Abercynon roundabout to the south/eventually Cardiff.
Detailed discussions with the WG, and the agents, is strongly advised at the earliest opportunity.
Concerns with the local network and the impact of the proposals, in particular the A4102 into the town and then the roundabout serving A4054 in both north and south directions. Discussion is required with MTCBC with regards the affects on the local network .

Appendix 7 - Hydrology and Hydrogeology
The topography and mining history of the area present a unique challenge to future development. Future proposals are to comply with new legislation in place since January 2019.
Baseline information from a previous report of January 2018, this is to be updated. Works affecting existing watercourses will require relevant approval. Contact with MTCBC SAB Officer is advised at earliest opportunity.

Initial comments based on info supplied so far , as and when detail more becomes available relevant officer needs to comment .

Gerald

From: Roberts, Huw <Huw.Roberts@merthyr.gov.uk>
Sent: 10 June 2021 13:52

To: Morris, Carwyn <Carwyn.Morris@merthyr.gov.uk>; Coughlan, Gerald <Gerald.Coughlan@merthyr.gov.uk>
Subject: FW: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request

Hi both, I don't think I have received a response to this. I would be grateful if I could have one urgently as I need to send a response by next Tuesday.

Thanks

Huw

From: Roberts, Huw
Sent: 30 April 2021 13:58
To: 'cadwplanning@gov.wales' <cadwplanning@gov.wales>; 'planadmin@caerphilly.gov.uk' <planadmin@caerphilly.gov.uk>; 'david.j.bailey@rctcbc.gov.uk' <david.j.bailey@rctcbc.gov.uk>; 'southeastplanning@naturalresourceswales.gov.uk' <southeastplanning@naturalresourceswales.gov.uk>; 'planningconsultation@coal.gov.uk' <planningconsultation@coal.gov.uk>; 'judith@ggat.org.uk' <judith@ggat.org.uk>; 'lupenquiries@hse.gov.uk' <lupenquiries@hse.gov.uk>; 'planning.enquiries@beacons-npa.gov.uk' <planning.enquiries@beacons-npa.gov.uk>; Morris, Carwyn <Carwyn.Morris@merthyr.gov.uk>; Davies, Matthew (Planning) <Matthew.Davies3@merthyr.gov.uk>; Bramley, Tom <Tom.Bramley@merthyr.gov.uk>; Long, Chris <Chris.Long@merthyr.gov.uk>; Gow, Susan <Susan.Gow@merthyr.gov.uk>; Watkins, Craig <Craig.Watkins@merthyr.gov.uk>; Jones, Beth (Rights of Way) <Beth.Jones@merthyr.gov.uk>; 'developer.services@dwrcymru.com' <developer.services@dwrcymru.com>; 'enquiries@southwales-tra.gov.uk' <enquiries@southwales-tra.gov.uk>
Subject: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request

Dear all, please find attached consultation letter and documents/plans regarding the Scoping Opinion.

Regards,

Huw Roberts
Planning Group Leader

Roberts, Huw

From: Eldred, Garin
Sent: 04 May 2021 10:57
To: Roberts, Huw
Subject: FW: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request [NOT PROTECTIVELY MARKED]
Attachments: RHDR-HMA-LE-XX-DR-A-91-003-EIA Scoping Area-S0-P2.pdf; 210427 B023905 Rhydycar West EIA Scoping Request FINAL.pdf; RHDR-HMA-LE-XX-DR-A-SK0005-Masterplan - Land use Plan (1 in 6)-S0-P1.pdf; Scoping letter 2 Rhydycar West.pdf

Morning Huw,

The EIA scoping report appears to covers all the area Environmental Health would consider a potential problem for the proposed site. Specifically the Geoevironmental Assessment, Air Quality Assessment, Noise Impact Assessment and the Lighting Report. I shall wait on this information for further comments.

Kind regards

From: Gow, Susan <Susan.Gow@merthyr.gov.uk>
Sent: 30 April 2021 14:12
To: Public Health <PublicHealth@merthyr.gov.uk>; Eldred, Garin <Garin.Eldred@merthyr.gov.uk>
Subject: FW: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request [NOT PROTECTIVELY MARKED]

Classification: NOT PROTECTIVELY MARKED

Susan Gow
Rheolwr Iechyd yr Amgylchedd / Environmental Health Manager

Cyngor Bwrdeistref Sirol Merthyr Tudful / Merthyr Tydfil County Borough Council
Canolfan Ddinesig / Civic Centre
Stryd Y Castell / Castle Street
Merthyr Tudful / Merthyr Tydfil
CF47 8AN

From: Roberts, Huw <Huw.Roberts@merthyr.gov.uk>
Sent: 30 April 2021 13:58
To: cadwplanning@gov.wales; planadmin@caerphilly.gov.uk; david.j.bailey@rctcbc.gov.uk; southeastplanning@naturalresourceswales.gov.uk; planningconsultation@coal.gov.uk; judith@ggat.org.uk; lupenquiries@hse.gov.uk; planning.enquiries@beacons-npa.gov.uk; Morris, Carwyn <Carwyn.Morris@merthyr.gov.uk>; Davies, Matthew (Planning) <Matthew.Davies3@merthyr.gov.uk>; Bramley, Tom <Tom.Bramley@merthyr.gov.uk>; Long, Chris <Chris.Long@merthyr.gov.uk>; Gow, Susan <Susan.Gow@merthyr.gov.uk>; Watkins, Craig <Craig.Watkins@merthyr.gov.uk>; Jones, Beth (Rights of Way) <Beth.Jones@merthyr.gov.uk>; developer.services@dwrcymru.com; enquiries@southwales-tra.gov.uk
Subject: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request

Dear all, please find attached consultation letter and documents/plans regarding the Scoping Opinion.

Regards,

Huw Roberts

Planning Group Leader

Science Division

Kathryn Deakin

Statutory and Commercial
Land Use Planning Advice
HSE, Harpur Hill,
Buxton,
Derbyshire,
SK17 9JN

lupenquiries@hse.gov.uk

http://www.hse.gov.uk/

Head of Team
Stuart Reston

(by email only)
Merthyr Tydfil Council
Civic Centre
Castle Street
Merthyr Tydfil
CF47 8AN

Your Ref: Scoping Opinion/2021

Date: 6 May 2021

Dear Sir/Madam

Thank you for your EIA Scoping request for any comments dated 30 April 2021 for a proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil.

Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017, Regulation 4(3)(b) - the vulnerability of the proposed development to major accidents relevant to the development.

- HSE's response is limited to our role in the land use planning system on the control of major industrial hazards involving dangerous substances.
- HSE is not responding in our regulatory role in the health and safety system.

1. The proposed development does not appear to be of a type that would store or process hazardous substances in quantities relevant to the potential for industrial major accidents with respect to Directive 2012/18/EU [see *The Planning (Hazardous Substances) (Wales) Regulations 2015*].

2. The development is not located within a safeguarding zone of an Explosives site licensed under the Explosives regulations 2014 or the Dangerous goods in harbour area regulations 2016.

3. The development is not located within HSE's land-use-planning consultation zones for major-accident-hazard pipelines and hazardous substances consented sites (licensed explosives sites are covered in the previous paragraph).

Due to the above 3 points, there was no need to consult HSE.

4. General health and safety at work

HSE realises that Environmental Risk Assessments are not expected to include general health and safety at work however we take this opportunity to point out that it may be beneficial for employer(s) to undertake a risk assessment as early as possible to satisfy themselves that their design and operation will meet requirements of relevant health and safety legislation as the project progresses.

Yours sincerely

Kathryn Deakin
Statutory and Commercial Land Use Planning Advice

The Coal Authority

INVESTOR IN PEOPLE

RTPI Learning Partner

200 Lichfield Lane
Berry Hill
Mansfield
Nottinghamshire
NG18 4RG

Tel: 01623 637 119 (Planning Enquiries)

Email: planningconsultation@coal.gov.uk

Web: www.gov.uk/coalauthority

For the Attention of: Mr H. Roberts – Case Officer
Merthyr Tydfil County Borough Council

[By Email: planning@merthyr.gov.uk]

17 May 2021

Dear Mr Roberts

SCOPING OPINION REQUEST: Rhydycar West

Proposed mixed leisure development at Land at Rhydycar West, Merthyr Tydfil

Thank you for your consultation letter of 30 April 2021 seeking the views of the Coal Authority regarding the above matter.

The Coal Authority is a non-departmental public body sponsored by the Department of Business, Energy & Industrial Strategy. As a statutory consultee, the Coal Authority has a duty to respond to planning applications and development plans in order to protect the public and the environment in mining areas.

The Coal Authority Response:

The site of the proposed EIA development is located largely within the defined Development High Risk Area. The following provides a summary of the Coal Authority's information relating to the significant coal mining legacy affecting the site:

- The site is within the potential zone of influence of former mine workings in 11 coal seams, including workings at shallow depth.
- There are parts of the site where historic unrecorded coal mining activity is likely to have taken place at shallow depth.
- There are 34 recorded mine entries (shafts and adits) and their associated zones of influence present within the site or within 20m of its boundary. We hold limited treatment details for four shafts and no information relating to past treatment of the remaining mining entries. Due to potential plotting

inaccuracies, the actual positions of the mine entries could deviate from their plotted positions by several metres.

Consideration of Coal Mining issues in the Environmental Statement

We note that Appendix 3 of the Scoping Opinion request letter from Peter Waldren of Tetra Tech Planning (dated 27 April 2021) considers the potential impacts of the proposed development on the ground conditions at the site.

The Appendix acknowledges that the site has been subject to extensive coal and ironstone mining activity in the past. As such, the Coal Authority is pleased to note that it indicates that a Mining Risk Assessment is to be produced to support the development proposal, which will identify potential remedial works required to stabilise former mining legacy including mine workings, mine entries and spoil tips.

We wish to advise that any Coal Mining Risk Assessment, or equivalent report, prepared in relation to the proposed development should utilise up-to-date coal mining and geological information to assess the extent to which past mining activity poses any risk to the development proposal and, where necessary, propose mitigation measures to address any issues of land instability. This should include further intrusive investigations to establish the exact situation regarding coal mining legacy affecting the site, as necessary.

Additional Information for the Applicant

It would appear from the Masterplan that built development is proposed over recorded mine entries, with the footprint of the snow centre encompassing the plotted positions of a number of mine shafts and adits.

The Coal Authority takes this opportunity to highlight that any form of development over or within the influencing distance of a mine entry can be dangerous and raises significant safety and engineering risks and exposes all parties to potential financial liabilities. The Coal Authority has adopted a policy where, as a general precautionary principle, the building over or within the influencing distance of a mine entry should wherever possible be avoided. Our adopted policy on this matter can be found at:
www.gov.uk/government/publications/building-on-or-within-the-influencing-distance-of-mine-entries

Notwithstanding the above policy, the Coal Authority acknowledges that there are occasionally exceptional situations where large scale development cannot feasibly be designed to avoid being located over mine entries, such as the snow centre element of the proposal. Nevertheless, in these cases we would expect a thorough justification for the layout proposed and a robust solution

for addressing the risks posed by the mine entries to be provided to the LPA to support the submission.

We note that Appendix 3 indicates that there are a number of spoil tips present within the site which may require stabilisation. We take this opportunity to highlight that the Coal Authority does not provide comment upon matters relating to tips in our role as a statutory consultee. As such, it its consideration of any future planning application, the LPA would need to seek its own technical advice regarding the matter.

Under the Coal Industry Act 1994 any intrusive activities, including initial site investigation boreholes, and/or any subsequent treatment of coal mine workings/coal mine entries for ground stability purposes require the prior written permission of The Coal Authority, since such activities can have serious public health and safety implications. Failure to obtain permission will result in trespass, with the potential for court action. Application forms for Coal Authority permission and further guidance can be obtained from The Coal Authority's website at: www.gov.uk/get-a-permit-to-deal-with-a-coal-mine-on-your-property

I trust the above comments are acceptable, however, please do not hesitate to contact me if you require any additional information or would like to discuss this matter further.

Yours sincerely

James Smith

James Smith *BSc. (Hons), Dip.URP, MRTPI*
Planning and Development Manager

Disclaimer

The above consultation response is provided by The Coal Authority as a Statutory Consultee and is based upon the latest available coal mining data on the date of the response, and electronic consultation records held by The Coal Authority since 1 April 2013. The comments made are also based upon only the information provided to The Coal Authority and/or has been published on the relevant website for consultation purposes in relation to this specific matter. The views and conclusions contained in this response may be subject to review and amendment by The Coal Authority if additional or new data/information is provided for consultation purposes.

Dŵr Cymru
Welsh Water

Developer Services
PO Box 3146
Cardiff
CF30 0EH

Tel: +44 (0)800 917 2652
Fax: +44 (0)2920 740472
E.mail: developer.services@dwrcymru.com

Gwasanaethau Datblygu
Blwch Post 3146
Caerdydd
CF30 0EH

Ffôn: +44 (0)800 917 2652
Ffacs: +44 (0)2920 740472
E.bost: developer.services@dwrcymru.com

Merthyr Tydfil County Council
The Planning Division
Unit 5 Triangle Business Park
PENTREBACH
Merthyr Tydfil
CF48 4TQ

Date: 17/05/2021
Our Ref: PLA0056860
Your Ref: Scoping Opinion/2021

Dear Sir

Grid Ref: SO042048 304650 204737
Site: Land at Rhydycar West, Merthyr Tydfil
Development: Scoping Opinion - Proposed mixed leisure development

We refer to your planning consultation relating to the above site, and we can provide the following comments in respect to the proposed development.

We have examined the Scoping Opinion letter in respect of the above development, and on the basis that the Environmental Statement has regard to the impact of the proposed development on the foul, surface water, and combined sewer network, together with the potable water supply network, we have no comments to offer at this stage.

Our response is based on the information provided by your application. Should the proposal alter during the course of the application process we kindly request that we are re-consulted and reserve the right to make new representation.

If you have any queries, please contact the undersigned on 0800 917 2652 or via email at **developer.services@dwrcymru.com**

Please quote our reference number in all communications and correspondence.

Yours faithfully,

Maria Evans
Development Control Officer
Developer Services

glas
Glas Cymru Cyfyngedig

Welsh Water is owned by Glas Cymru – a 'not-for-profit' company.
Mae Dŵr Cymru yn eiddo i Glas Cymru – cwmni 'nid-er-elw'.

We welcome correspondence in Welsh and English

Dŵr Cymru Cyf, a limited company registered in Wales no 2366777. Registered office: Pentwyn Road, Nelson, Treharris, Mid Glamorgan CF46 6LY

Rydym yn croesawu gohebiaeth yn y Gymraeg neu yn Saesneg

Dŵr Cymru Cyf, cwmni cyfyngedig wedi'i gofrestru yng Nghymru rhif 2366777. Swyddfa gofrestredig: Heol Pentwyn Nelson, Treharris, Morgannwg Ganol CF46 6LY.

MEMORANDUM

To : Huw Roberts
From : Landscape Architect
Ask for : Tom Bramley
Ext. : 6276

Date : 18th May 2021

SUBJECT: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil
Environmental Impact Assessment (Wales) Regulations 2017
Regulation 14: Request for a Scoping Opinion

With regard to the above proposed scoping opinion the following additional areas are require reference:

- Landscape and Visual Impact
- Special Landscape Area SLA3: Merthyr West Flank
- Landscape Management

Tom Bramley – Landscape Architect

INTERNAL MEMORANDUM

To: Huw Roberts
From: Matt Davies (Ecologist)
Ext: 5278
Memo number: 1
Date of Memo #1: -
Date: 18/05/2021

SUBJECT: PROPOSED MIXED LEISURE DEVELOPMENT ON LAND AT RHYDYCAR WEST, MERTHYR TYDFIL - EIA SCOPING REQUEST

Part of the proposed land use area is within the Cwm Glo a Glyndyrys Site of Special Scientific Interest (SSSI).

Planning Policy Wales, Edition 11, February 2021
SSSIs are statutory designations and of national importance and there is a legal duty[1] on, e.g., planning authorities to take reasonable steps to further the conservation and enhancement of the special interest features of these sites. There is a presumption against development likely to damage a SSSI. Natural Resources Wales must be consulted and their advice taken into account.

The SSSI notification and the 'Your Special Site and its Future' document for Cwm Glo a Glyndyrys outlines the special interest features of the site and describes typical, significant and uncommon onsite species. Many of these onsite habitats and species feature in Section 7 of the Environment (Wales) Act 2016. For example, Lowland Acid Grassland, big blue pinkgill, olive earthtongue and dark purple earthtongue, marsh fritillary butterfly, European nightjar, common cuckoo, tree pipit, great crested newt.

Merthyr Tydfil County Borough Council Replacement Local Development Plan
Policy EnW2: Internationally and Nationally Protected Sites and Species
Development likely to have a direct or indirect adverse effect on the conservation value of a nationally designated site (e.g., SSSI), will only be permitted where it is demonstrated that:

- There is no suitable alternative to the proposed development; and
- It can be demonstrated that the benefits from the development clearly outweigh the special interest of the site; and
- Appropriate compensatory measures are secured; or
- The proposal contributes to the protection, enhancement and positive management of the site.

Development proposals likely to affect protected species will only be permitted where it is demonstrated that:

- The population size, range, distribution and long-term prospects of the species will not be significantly adversely impacted;
- There is no suitable alternative to the proposed development;
- The benefits of the development clearly outweigh the adverse impacts on the protected species; and
- Appropriate, avoidance, minimisation, mitigation, compensation and enhancement measures are provided.

[1] Wildlife and Countryside Act 1981 (as amended)

Protected species include those detailed within Schedules 2 and 4 of the Conservation of Habitats and Species Regulations 2017, Section 7 Environment (Wales) Act 2016, the Wildlife and Countryside Act 1981 (as amended) and species specific legislation e.g. the Protection of Badgers Act 1992. The Council is required to comply with legislation regarding the protection and conservation of protected species in the exercise of its duties and the presence of a protected species is a material consideration in the determination of planning applications.

There will always be a presumption against development, which is likely to harm a protected site or species. However, there may be instances when the importance of a development proposal will outweigh the conservation value and there are no suitable alternatives. In such instances, the objective will always be to ensure that the nature conservation value of the site or protected species is preserved and enhanced wherever possible. Proposals will also be required to promote wider ecosystem resilience in accordance with Policy EnW1.

Where development is permitted, appropriate conditions or agreed planning obligations will be used to secure adequate compensation or mitigation measures.

The proposed development land use area is also entirely within the Rhydycar West Site of Importance for Nature Conservation (SINC) and would impact a significant proportion of the designated site (approximately 1/3).

Planning Policy Wales, Edition 11, February 2021

SINCs are non-statutory designations, of local importance and carry less weight than statutory designations. However, their contribution to delivering ecological networks for biodiversity and resilient ecosystems can be significant, and therefore they should be afforded adequate protection in development plans. Before authorising development likely to damage a SINC, planning authorities should consult the County Ecologist and third sector environmental organisations.

Assessments should consider the presence of protected and priority species and habitats including those on the Section 7 list and appropriate weight attached to their protection. Policies for non-statutory sites should make it clear that such designations do not preclude appropriate developments, where there are no adverse impacts on the features for which a site is designated.

Planning decisions must be based on up-to-date ecological, survey data and local biological records information.

Merthyr Tydfil County Borough Council Replacement Local Development Plan

Policy EnW3: Regionally Important Geological Sites, Sites of Importance for Nature Conservation, Local Nature Reserves and Priority Habitats and Species

Development proposals likely to have an adverse impact on Regionally Important Geological Sites, Sites of Importance for Nature Conservation, Local Nature Reserves, or Priority Habitats and Species will only be permitted where it can be demonstrated that:

- The need for the development clearly outweighs the conservation value of the site;
- Adverse impacts on nature conservation features or geological features can be avoided;
- Appropriate and proportionate mitigation and compensation measures can be provided; and
- The development maintains and where possible enhances biodiversity and geodiversity interests.

The previous survey programme scoped with both Rolf Brown (the previous Countryside Officer/Ecology at MTCBC) in 2015, and with NRW and in 2015, 2016 and 2017 was reasonable

and appropriate for that time. NB the agreement made in 2015 with Rolf Brown was prior to both The Environment (Wales) Act 2016 and the Bat Conservation Trust Bat Surveys for Professional Ecologists Good Practice Guidelines (Collins, 2016).

I note from the Ecology Appendix (#4) in the Rhydycar West EIA Scoping Request document that, whilst some of the survey work in the programme has been undertaken relatively recently or is due to be updated in 2021, most of the extant ecological survey work is approximately 3 years old if not older, being undertaken in 2015, 2016 and 2018. This survey work is therefore considered to be out-of-date and will need to be updated for inclusion within the EIA ecology chapter. See below in bold:

1. **Habitat verification/condition surveys (Phase 1, Phase 2, NVC, including ground 'truthing' and updating results of Bosanquet and Stevens work for CCW and mapping Priority habitats) (2015, 2018)**
2. **Targeted botanical work (e.g. searches for nationally scarce plants) (2015 and 2016)**
3. Mycological surveys (focused on 'CHG'[2] fungi) (2015, some work in 2018 and full re-survey in 2020)
4. **General invertebrate surveys (including standing water aquatics, and overnight moth trapping) (2015, 2018)**
5. Butterfly surveys (including marsh fritillary larval web surveys) (2015, 2020)
6. **Great crested newt surveys (spring 2015, 2018)**
7. **Bat surveys (including transect and static surveys of bat activity, swarming surveys and detailed examination of built structures for winter and summer roosts) (2015, 2016, 2018)**
8. **Breeding bird surveys (2015 and 2018)**
9. Wintering bird surveys (2015/16, refresher 2021)
10. **Dormouse surveys (2015)**
11. **Badger surveys (2015 and 2016)**
12. Desk survey and data trawl (including review of on-line data repositories, work by previous consultants and file information held by NRW).

To re-iterate, all survey work from 2018 or earlier will need to be updated. In addition, an up-to-date Aderyn biological data search will need to be undertaken.

Specifically, in response to the proposed survey programme to inform EIA as seen also on page 20 of the Rhydycar West EIA Scoping Request document:

GCN - eDNA surveys are proposed for all ponds within 250m of the proposed application site. This is not acceptable. Best practice guidance refers to a distance from ponds of 500m and will be used. Population assessments will then required for any ponds that return a positive eDNA result.

Bats – Updated manual bat activity transect surveys and automated/static activity surveys are required. The habitat is of high suitability for bats and this will dictate the number of bat activity surveys required for reasonable effort as per the BCT Bat Surveys for Professional Ecologists Good Practice Guidelines (Collins 2016). Bat activity surveys of any structures that would be impacted by the proposed development will be undertaken. Where trees are to be removed or have major works, they must be subject to a Preliminary Ground Level Roost Assessment to inform whether further survey work is required (e.g., PRF Inspection surveys or bat activity/roost characterisation surveys).

[2] Clavariaceae, Hygrocybe spp and Geoglossaceae

Dormouse – Updated Dormouse nest tube surveys are required. NB NRW normally request the use of wooden nest boxes for surveys in woodland areas rather than nest tubes.

Reptiles – The Scoping Request Document states that adder, grass snake and common lizard have all been noted within the landholding, including in quite good numbers in the more open grasslands in the south-west of the site (including and in parts of the proposed application site). Full details of these results are required to determine whether specific reptile survey work will be required.

Breeding birds – Methodologies such as the CBC were designed to monitor long-term trends in bird populations at a national level. As such, they are unsuitable for fine-scale applications, such as ecological impact assessments. New guidelines (for breeding birds) have been designed to address this issue. These new Bird Survey Guidelines must therefore be followed – www.birdsurveyguidelines.org . Reasonable justification (for consideration by the LPA ecologist) must be offered for any departure from the guidelines.

Habitats, botany and terrestrial mammals – with no detail of the exact methodologies employed or areas surveyed during the previous Phase 1 and Phase 2 survey work, it is difficult for this continued approach to be endorsed as acceptable.

Updated otter, water vole and badger survey work will be required.

Invertebrates – Repeat surveys are planned for 2021. This will acceptable be acceptable insofar as they will qualify as up-to-date surveys. However, details (for example) of areas surveyed, methodologies used and definitions of 'scarce and notable invertebrates' are required for full endorsement and acceptability in terms of survey effort/suitability.

Grassland fungi and **marsh fritillary** larval web surveys were completed in 2020. This is again acceptable insofar as they will qualify as up-to-date surveys. However, details (for example) of timings, areas surveyed and methodologies used are required for full endorsement and acceptability in terms of survey effort/suitability.

NB as already outlined, full details of the methodology for all survey work already undertaken or to be undertaken will be required in order for full endorsement and acceptability in terms of survey effort/suitability.

Welsh Government
Ty'r Afon,
Heol Bedwas/ Bedwas Road
Caerffili/ Caerphilly
CF83 8WT
0300 025 6000
cadw@gov.wales/cadw@llyw.cymru
www.cadw.gov.wales

Merthyr Tydfil County Borough Council

By email

Eich cyfeirnod Your reference	
Ein cyfeirnod Our reference	DH
Dyddiad Date	18 May 2021
Llinell uniongyrchol Direct line	0300 0256004
Ebost Email:	Cadwplanning@gov.wales

Dear Mr Roberts

PROPOSED DEVELOPMENT: MIXED USE DEVELOPMENT
LOCATION: LAND AT RHYDYCAR WEST, MERTHYR TYDFIL

Thank you for your letter of 30 April 2021 asking for Cadw to provide a scoping opinion in order to inform the production of the Environmental Statement.

We consider that additional information is required. Full details of the additional information that is required are explained below.

These views are provided without prejudice to the Welsh Government's consideration of the matter, should it come before it formally for determination.

Advice

This advice is given in response to scoping opinion as to the contents of an Environmental Impact Assessment (EIA) that will be submitted in support of an application for a proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil

A letter explaining the proposed development outlining the approach that the EIA will take has been submitted by Tetra Tech. This letter includes an appendix outlining the works that have already been undertaken to identify the heritage assets of the site and how the impact of the proposed development on them will assessed.

The heritage assets of the site have been identified by the production of an Archaeology and Heritage Baseline Assessment that has been carried out in accordance with appropriate standards and guidance, along with an Assessment of the Impact of Development on the Historic Landscape produced in line with the guidance given in the "Guide to Good Practice on Using the Register of Landscapes of

Mae'r Gwasanaeth Amgylchedd Hanesyddol Llywodraeth Cymru (Cadw) yn hyrwyddo gwaith cadwraeth ar gyfer amgylchedd hanesyddol Cymru a gwerthfawrogiad ohono.

The Welsh Government Historic Environment Service (Cadw) promotes the conservation and appreciation of Wales's historic environment.

Rydym yn croesawu gohebiaeth yn Gymraeg ac yn Saesneg.
We welcome correspondence in both English and Welsh.

BUDDSODDWR MEWN POBL
INVESTOR IN PEOPLE

Cadw

Historic Interest in Wales in the Planning and Development Process" (2007). These are appropriate assessments to identify the historic assets that will be affected by the proposed development and provide a current baseline for assessing the impact of the proposed development on them.

It is noted that the Tetra Tech document suggests that the impact of the proposed development on the heritage assets will be considered against a 'future baseline scenario', whereby development does not proceed and the condition of the historic environment within the site continues to deteriorate. It is normal practice for the impact of the development to be considered against the current situation and there should be more explanation why this approach is being taken, especially as a normal EIA would include an assessment of the "do nothing situation" which would be the same as a 'future baseline scenario'

Whilst a 'future baseline scenario' could be appropriate in this case, there is a need for agreement in regard to what date this future scenario is set. Is this perhaps some 10 years in the future, when the standing remains have suffered more deterioration and possible collapse or a much later date when the upstanding remains have completely disappeared? Will the legal requirements of section 54 of the Listed Building and Conservation Areas Act requiring the owner of the assets to carry out urgent repairs be considered and/or the possibility that works may be carried out by the Welsh Government on the assets under section 5 of the Ancient Monuments and Archaeological Areas Act on 1979?

It is therefore our opinion that before the scope of the heritage section of the EIA can be agreed that the applicant should provide more detail on the 'future baseline scenario'.

Yours sincerely

Denise Harris
Diogelu a Pholisi/ Protection and Policy

Roberts, Huw

From: Powell, Carwyn <POWELC2@CAERPHILLY.GOV.UK>
Sent: 01 June 2021 13:38
To: Roberts, Huw
Cc: Thomas, Ryan; Kyte, Rhian
Subject: Scoping Opinion/2021 - Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil

Huw,

I write in reply to your consultation in accordance with Paragraph 4 of The Town and Country Planning (Environmental Impact Assessment)(Wales) Regulations 2017 and apologise for not replying sooner.

I note the content of the submitted documents and would advise you that I am concerned that they do not appear to have any regard for the impact of the development on the wider area of South Wales and in particular the population of Caerphilly. The benefits and effects referred to in the documents only seems to consider the area immediately surrounding the application site and the Town Centre of Merthyr and has no regard for the impacts on the wider highway network or on retail and tourism within this County Borough. As such I would expect any Environmental Statement submitted to support any subsequent planning application to make reference to these issues.

I hope the above information is of assistance.

Regards

Carwyn Powell
Prif Gynllunydd | Principal Planner
Cyngor Bwrdeistref Sirol Caerffili | Caerphilly County Borough Council

☎ 01443 864424
✉powelc2@caerphilly.gov.uk powelc2@caerffili.gov.uk

Porwch ein gwefan | Browse our website www.caerffili.gov.uk | www.caerphilly.
Hoffwch ni ar Facebook | Like us on Facebook www.facebook.com/CaerphillyCBC
Dilynwch ni ar Twitter | Follow us on Twitter twitter.com/caerphillycbc
Gwyliwch ein Sianel YouTube | Watch our YouTube Channel www.youtube.com/caerphillycbctv
Edrychwch ar ein horiel lluniau ar Flickr | View our photo galleries on Flickr www.flickr.com/photos/caerphillycbc

Gallwch ohebu mewn unrhyw iaith neu fformat.Ni fydd gohebu yn Gymraeg yn creu unrhyw oedi.
Correspondence may be in any language or format.Corresponding in Welsh will not lead to any delay.

Mae'r e-bost hwn ac unrhyw ffeiliau sy'n atodol yn gyfrinachol a dim ond ar gyfer defnydd yr unigolyn neu'r sefydliad y cyfeiriwyd atynt. Os ydych wedi derbyn yr e-bost hwn ar gam rhowch wybod i reolwr eich system. Nodwch fod unrhyw sylwadau neu farn o fewn testun yr e-bost yw sylwadau a barn yr awdur yn unig ac nid yn angenrheidiol yn cynrychioli barn Cyngor Bwrdeistref Sirol Caerffili. I orffen, dylai'r person sy'n derbyn yr e-bost sicrhau nad oes firws ynghlwm

nac mewn unrhyw ddogfen atodol i'r e-bost. Nid yw'r Cyngor yn derbyn unrhyw gyfrifoldeb am unrhyw ddifrod achoswyd gan unrhyw firws sy'n cael ei drosglwyddo gan yr e-bost hwn.

Rydym yn croesawu gohebiaeth yn Gymraeg, Saesneg neu'n ddwyieithog (yn unol ?'ch dewis), ac mewn ieithoedd a fformatau eraill. Cewch ymateb yn unol ?'ch dewis iaith os nodwch hynny i ni, ac ni fydd cyfathrebu ? ni yn Gymraeg yn arwain at oedi.

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager. Please note that any views or opinions presented in this email are solely those of the author and do not necessarily represent those of Caerphilly County Borough Council. Finally, the recipient should check this email and any attachments for the presence of viruses. The Council accepts no liability for any damage caused by any virus transmitted by this email.

We welcome correspondence in English, Welsh or bilingually (according to your choice) or in other languages and formats. We will respond in your declared chosen language, and corresponding with us in Welsh will not lead to any delay.

Roberts, Huw

From: Davies, Gareth (Planning) <Gareth.Davies@rctcbc.gov.uk>
Sent: 24 May 2021 12:23
To: Roberts, Huw
Subject: proposed mixed liesure development on land at Rhydycar West, Merthyr Tydfil

Dear Mr Roberts

The Town & Country Planning (Environmental Impact Assessment)(Wales) Regulations 2017

Scoping Opinion

I write in response to your consultation letter and accompanying correspondence relating to the scoping opinion sought in respect of a mixed leisure development on land at Rhydycar West, Merthyr Tydfil.

Having considered the detail that accompanied your correspondence, I can confirm that Rhondda Cynon Taf County Borough Council considers the scope of the detail sufficient to inform and environmental statement for the development proposed.

Yours faithfully

Gareth Davies
Team Leader Development Management

Croesawn ohebu yn Gymraeg a fydd gohebu yn y Gymraeg ddim yn arwain at oedi. Rhowch wybod inni beth yw'ch dewis iaith e.e. Cymraeg neu'n ddwyieithog

Mae'r neges ar gyfer y person / pobl enwedig yn unig. Gall gynnwys gwybodaeth bersonol, sensitif neu gyfrinachol. Os nad chi yw'r person a enwyd (neu os nad oes gyda chi'r awdurdod i'w derbyn ar ran y person a enwyd) chewch chi ddim ei chopïo neu'i defnyddio, neu'i datgelu i berson arall. Os ydych chi wedi derbyn y neges ar gam, rhowch wybod i'r sawl sy wedi anfon y neges ar unwaith. Mae'n bosibl y bydd holl negeseuon yn cael eu cofnodi a/neu fonitro unol â'r ddeddfwriaeth berthnasol. I ddarllen yr ymwadiad llawn, ewch i http://www.rctcbc.gov.uk/ymwadiad

We welcome correspondence in Welsh and corresponding with us in Welsh will not lead to a delay. Let us know your language choice if Welsh or bilingual

This transmission is intended for the named addressee(s) only and may contain personal, sensitive or confidential material and should be handled accordingly. Unless you are the named addressee (or authorised to receive it for the addressee) you may not copy or use it, or disclose it to anyone else. If you have received this transmission in error please notify the sender immediately. All traffic may be subject to recording and/or monitoring in accordance with relevant legislation For the full disclaimer please access http://www.rctcbc.gov.uk/disclaimer

Cyfoeth Naturiol Cymru
Natural Resources Wales

Ein cyf/Our ref: CAS-147696-Q3X1
Eich cyf/Your ref: Scoping Opinion/2021

Rivers House,
St Mellons Business Park,
St Mellons,
Cardiff,
CF3 0EY

ebost/email:
southeastplanning@cyfoethnaturiolcymru.gov.uk

Merthyr Tydfil County Borough Council,
Unit 5 Traingle Business Park,
Pentrebach,
Merthyr Tydfil,
CF48 4TQ

21/05/2021

Annwyl Syr/Madam / Dear Sir/Madam,

BWRIAD / PROPOSAL: PROPOSED MIXED LEISURE DEVELOPMENT COMPRISED ON BUILT LEISURE AND LOW DENSITY LEISURE, WHICH WILL INCLUDE: INDOOR SNOE CENTRE, INDOOR WATERPARK, SPA HOTEL, SPORT HOTEL, INDOOR ADVENTURE CENTRE, OUTDOOR ADVENTURE CENTRE, ASSOCIATED ROADS, PARKING AND LANDSCAPING.

LLEOLIAD / LOCATION: LAND AT RHYDYCAR WEST, MERTHYR TYDFIL

We have considered the information contained within the following documents:

- Letter from Peter Waldren (Tetra Tech Planning) to Judith Jones (Head of Planning at Merthyr Tydfil CCBC) dated 27/4/21;
- Drawing RHDR-HMA-LE-XX-DR-A-SK0005 (Rev P1) entitled '*Rhydycar West, Merthyr Tydfil. Marvel Ltd. Masterplan – Land Use Plan*' by Holder Mathias Architects (undated);
- Drawing RHDR-HMA-LE-XX-DR-A-91-003 (Rev P2) entitled '*Rhydycar West, Merthyr Tydfil. Marvel Ltd. EIA Scoping Area*' by Holder Mathias Architects (undated).

Ecology

Key Habitats

Any habitat surveys should accord with the NCC Phase 1 survey guidelines (NCC (1990) Handbook for Phase 1 habitat survey. NCC, Peterborough). We advise that Phase 1 surveys are undertaken and completed during the summer to ensure the best chance of identifying the habitats present.

Protected Species

Site Surveys

We advise the site is subject to assessment to determine the likelihood of protected species being present in the area and likely to be affected by the proposals. Targeted species surveys should be undertaken for all species scoped in and:

i. Be undertaken by qualified, experienced and where necessary, licensed ecologist; and
ii. comply with current best practice guidelines. In the event that the surveys deviate from published guidance, or there are good reasons for deviation, full justification for this should be included within the EIA.

Should protected species be found during the surveys, information must be provided identifying the species specific impacts in the short, medium and long term together with any mitigation and compensation measures proposed to offset the impacts identified.

Where proposals implicate protected species, which are also notified features of designated sites (Eg. SAC, SSSI), we advise that the EIA considers the impacts on those species from both perspectives.

We advise that the EIA sets out how the long term site security of any mitigation or compensation will be assured, including management and monitoring information and long term financial and management responsibility. Where the potential for significant impacts on protected species is identified, we advise that a Conservation Plan is prepared for the relevant species and included as an Annex to the EA.

Great Crested Newt

This area of Merthyr is significant for great crested newts and, as such, we welcome that this species is scoped into the EIA.

With reference to Appendix 4 (Ecology) of the Tetra Tech letter we note the proposals to survey ponds within 250m of the site boundary using eDNA methodology only, and using the results in combination with extant survey information for the species in the area, or alternatively full population assessment surveys using three techniques applied over six visits in accordance with standard methodology for all ponds returning a positive eDNA result.

Regarding the survey area, we advise that it should be extended to include all ponds/waterbodies within a minimum of 500m from the proposed planning application boundary.

We also advise that each waterbody within this extended survey area is scored using the High Suitability Index (HSI) methodology. It will not be sufficient to rely on eDNA surveys and historic survey data alone to assess population size. We advise that each waterbody within the survey is the subject of traditional surveys in accordance with published guidance for this purpose (ie. at least two methods (torch survey and bottle trapping) over 6 visits in

suitable weather conditions between mid-March and mid-June, with at least 3 visits between mid-April to mid-May). Further, that all waterbodies should be subject to traditional surveys regardless of any eDNA survey results.

We take this opportunity to highlight that given the timing of this consultation, it will be too late this year to complete the required traditional surveys.

Bats

Appendix 4 of the Tetra Tech letter proposes an assessment of the likely impacts of the scheme on bats based on reference to historic bat survey data (the most recent being 2018) alongside 2021 roost inspection surveys of built structures only.

We advise that bat surveys 2 years old or older are updated if they are to support a planning application or EPS (bat) licence application. This is necessary to determine current use of the site by bats, including any changes in use of the site from that identified by previous surveys. Therefore, the site should be subject to comprehensive bat surveys in accordance with published best practice (BCT's 2016 '*Bat Surveys for Ecologists. Good Practice Guidelines*'). This should include:

i. activity surveys across the site utilising a combination of static and transect survey methodologies;
ii. surveys of all built structures, including above-ground (eg. buildings) and below-ground structures (eg. mine adits);
iii. surveys of all trees that may need to be felled or pruned to accommodate the proposals. The process outlined in Figure 6.1 of BCT's 2016 '*Bat Surveys for Ecologists. Good Practice Guidelines*' should be followed.

Dormice

We note from Appendix 4 of the Tetra Tech letter that no surveys for dormice are planned given negative results for the species in 2015.

In view of the recent (2019) positive records for the species at the heads of the valleys west of the site, the presence of potentially suitable habitat for the species on site and potential connectivity of habitat through the wider landscape between the two areas, we advise that surveys for dormice are undertaken to inform the EIA.

Otters and Water Voles

We are aware of records of otters principally along the River Taff, with some along the A470 corridor. In addition, there appears to be a water vole record close to the proposed site. We therefore welcome that these species are scoped into the EIA.

Appendix 4 of Tetra Tech's letter indicates surveys of watercourses for field signs of these species is proposed to take place in May-June 2021 as update botanical (Phase 1 and 2) surveys are undertaken.

Whilst an Extended Phase 1 update survey would be suitable to flag the requirement for further species-specific surveys, it is not a substitute for them. Therefore should the updated Phase 1 survey identify that species-specific surveys are required please note that otters should be surveyed across the seasons, and surveys for water voles should include a survey in the early part of the season (mid-April to June) and another later in the season (July to September).

Schedule 1 Birds

We advise that consideration is given to the presence and likely impacts of the proposals on Schedule 1 birds in the area.

Reptiles

Tetra Tech's letter seeks our view on their approach to reptiles. However, with the exception of European Protected Species of reptiles, we defer this matter to the local authority ecologist to advise. We have no comment to make with regards to European Protected Species of reptiles.

EPS Licence

Where a European Protected Species is identified and the development proposal will contravene the legal protection they are afforded, a licence should be sought from NRW. The EIA must include consideration of the requirements for a licence and set out how the works will satisfy the three requirements as set out in the Conservation of Habitats and Species Regulations 2017 (as amended). One of these requires that the development authorised will 'not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status (FCS) in their natural range'. These requirements are also translated into planning policy through Planning Policy Wales (PPW) December 2018, section 6.4.22 and 6.4.23 and Technical Advice Note (TAN) 5, Nature Conservation and Planning (September 2009). The local planning authority will take them into account when considering the EIA where a European Protected Species is present.

Biodiversity

Mitigation

Welcome the reference to compensation and mitigation through design and Construction Environmental Management Plan but the ES and supporting documents should explicitly outline the means of delivery and maintenance of these commitments through the lifetime of the development – for example through a standalone Habitat Management Plan. Therefore, we recommend these are scoped into the ES.

Local Biodiversity Interests

We recommend that the applicant consults the local authority Ecologist on the scope of the work to ensure that regional and local biodiversity issues are adequately considered, particularly those habitats and species listed in the relevant Local Biodiversity Action Plan, and are that are considered important for the conservation of biological diversity in Wales.

We would expect the applicant to contact other relevant people/organisations for biological information/records relevant to the site and its surrounds. These include the relevant Local Records Centre and any local ecological interest groups (eg. bat groups, mammal groups).

We advise that the development incorporates robust green infrastructure that gives connectivity across the site and that will remain unlit to allow protected species to continue to inhabit the site and move through it.

Securing Biodiversity Enhancement

We also advise that, in accordance with the Environment (Wales) Act 2016 and Planning Policy Wales, the application demonstrates how it can deliver biodiversity enhancements and thus contribute to promoting ecological resilience. This is reaffirmed in the Welsh Government letter of 23/10/19 to all Chief Planning Officers.

Designated Sites

We note that parts of the proposed development site will be partially within the Cwm Glo a Glyndrys SSSI. We welcome the level of survey detail outlined in the scoping report, however we have concerns about the potential loss of SSSI land and impact on the remaining habitats and species within the protected site.

We note the need for the entire scheme to be described in detail. This description should cover construction, operation and decommissioning phases and include detailed, scaled maps and drawings as appropriate.

We would require the further details on the impacts to the protected site with a local context be scoped in:

- The area of SSSI land that would be lost to the development
- The potential impacts on the habitats and species on the remaining protected site.
- Habitat connectivity, including suitable remaining marshy grassland habitat for marsh fritillary.
- Further detail on robust long-term compensation and mitigation strategies.

As well as an assessment of direct loss of habitat, full assessments of both the hydrological changes and subsequent consequences of those changes on the SSSI need to be included.

Evaluation of the impacts of the scheme should include:

- direct and indirect
- secondary

- cumulative
- short medium and long term
- permanent and temporary
- positive and negative, and construction (including impacts of construction site access) operation and decommissioning phase impacts on the nature conservation resource.

Hydrology and Hydrogeology

Due to the proximity of the Cwm Glo a Glyndrys SSSI and Rhydycar West SINC we have concerns to the degree to which these sensitive areas are hydrologically and hydrogeologically dependent as areas defined as wet woodlands in Appendix 4:Ecology and Appendix 8: Arboriculture. The EIA should therefore include a baseline assessment of these sensitive areas with respect to local hydrodynamics and assess whether or not the proposed scheme could interact with/disrupt these hydrodynamics. This assessment should form part of a wider Groundwater Monitoring Strategy which should also focus on:

- The hydrogeology of the Made Ground, Superficial Deposits and the bedrock of the Middle Coal Measures which underlie parts or all of the site respectively.
- Assess if any degree of groundwater rebound is occurring notably as shafts, adits, disused workings and coal seems are present on the site.
- Assess groundwater interactions/baseflow associated with the streams that cross the site.

A Groundwater Monitoring Strategy and Plan should be developed that shows the proposed locations for groundwater monitoring boreholes and a summary rationale for why these locations have been chosen. Groundwater monitoring should ideally occur through the use of dataloggers as these provide 'real time' and 'complete data sets' and ideally across at least one year so that seasonal variation can be assessed. It would also be useful to have a designated rain gauge on site.

We also advise that the following should be scoped in:

- Design of a Geo-Environmental Investigation to assess the baseline land quality conditions of the proposed development site with a focus on ground contamination, notably the Made Ground that underlies much of the site, and geotechnical properties of the range of ground materials present at the site.
- Information, albeit high level at this stage, on the degree to which the proposed development site will require ground reprofiling, ground stripping and excavation as these 'interim' site conditions can result in environmental risks and impacts. Estimates of the duration of these interim conditions should also be provided as a combination of wet conditions and denuded ground can generate sediment and contaminant risks which can impact upon the wider environment.
- The Scoping Letter makes no mention of how site Stormwater will be managed either during the construction phase or what the operational stormwater management design will consist of albeit conceptual design. The adoption of SuDs for the site will require groundwater level data that reflects worst-case groundwater levels; i.e. the highest groundwater levels. The Scoping should also include assessment of the

capacity of site ground materials for stormwater infiltration as such testing should be performed when the soil moisture content is at its highest typically between October and March (over winter).
- Further information on how foul water notably from the 90 proposed Forest Lodges will be managed for the site. This detail should include foul disposal methods and consider their potential impacts to the surrounding environment.

Arboriculture

It should be ensured that any trees to be felled are done so under appropriate planning permission and not prior to this being granted. There are some areas of Ancient Semi Natural Woodland along the southern boundary of the plan and ideally this would be retained.

Landscape

Advice in this section relates to the potential impacts on the Brecon Beacons National Park which lies approximately 3km from the boundary of the proposed site at its closest point.

We would advise further information on the zones of theoretical visibility (ZTV) and preliminary viewpoint locations is included in order for us to complete future reviews review.

We have reviewed the submitted information, including Appendix 9: Townscape & Landscape, of the Scoping Report and offer the following advice.

- We note that a Full LVIA will be carried out in accordance with GLVIA3, including a review of LANDMAP information. We agree with this approach and advise that all 5 layers of LANDMAP should be considered in the Assessment. We have recently updated our guidance regarding LVIA and LANDMAP. The updated guidance note will be included on our website in due course.
- We note that lightness and darkness assessment will be carried out (Night-time Assessment), including whether the proposal would affect the Dark Skies Reserve designation in the National Park. We advise reference to the National Park's SPG 'Light Pollution & Obtrusive Lighting' (2015). The result of the assessment should then be used to influence the final lighting scheme.
- The preliminary site and viewpoint visits Study Area for the LVIA is proposed to be 3km. The selection of viewpoints has been carried out in liaison with Merthyr Tydfil Council's Landscape Officer, Tom Bramley. The preliminary ZTV and agreed viewpoints are not included with the information, therefore it is unclear whether any viewpoints within the National Park have been included. It is stated that visual receptors including visitors to the National Park would be included in the assessment. We require information on the ZTV and preliminary viewpoints in order to advise on this aspect.

The location of the development on the western valley sides means that there is potential visibility from within the valley and the opposing valley slopes to the east, with views beyond restricted by enclosing ridges. There is potential visibility from high ground to the north, within the National Park e.g. Cefn Sil Sanws (460m). This viewpoint and others from high ground

to the north, looking down the valley, are over 5km from the development. However, we note that the relatively recent Trago Mills development is visible from the National Park, although this is closer to the Park. We therefore recommend that the above be scoped in for consideration.

Air Quality

We note that a nitrogen deposition/habitat assessment will be completed due to the development's proximity to Cwm Glo a Glyndryrys SSSI. We would also advise that nitrogen oxide (NOx), sulphur dioxide (SO2) and the other traffic pollutant and impact on sensitive habitats be scoped in to the ES. When doing so, we also recommend that specific details relating to guidance used to inform these tests is made clear.

Cwm Glo a Glyndryrys SSSI is a particularly sensitive SSSI with a mosaic of habitats. The most sensitive habitat is the U4 *Festuca ovina – Agrostis capillaris – Gallium saxatile* acid grassland. There is also diverse assemblage of sensitive grassland fungi, including 32 species of waxcap *Hygrocybe* spp. These sensitive habitats should be assessed against the following critical loads:

- Nutrient Nitrogen critical load = 8 – 15kgN/ha/yr.
- Ammonia critical level = 1µg/m3 (due to the presence of the fungi)
- NOx critical level = 30µg/m3,
- SO2 critical level = 20µg/m3

If you have any queries on the above, please do not hesitate to contact us.

Yn gywir / Yours faithfully

Lindy Marshall

Cynghorydd - Cynllunio Datblygu / Advisor - Development Planning
Cyfoeth Naturiol Cymru / Natural Resources Wales

cc'd Matt Davies: matthew.davies3@merthyr.gov.uk Merthyr Tydfil.

Maliphant, Ben

From: Roberts, Huw <Huw.Roberts@merthyr.gov.uk>
Sent: 14 July 2021 12:09
To: Waldren, Peter
Subject: FW: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request

Good afternoon, response from GGAT.

Regards

Huw

From: Claudine Gerrard <claudine@ggat.org.uk>
Sent: 14 July 2021 10:29
To: Roberts, Huw <Huw.Roberts@merthyr.gov.uk>
Subject: RE: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request

*****WARNING THIS IS AN EXTERNAL EMAIL*****
*****External attachment warning, although this email has been scanned for threats, please take extra care before opening attachments from unrecognised senders.*****

Dear Huw,

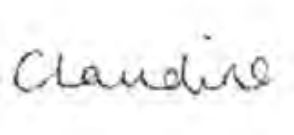
Your email was passed to me from my colleague Judith. (Apologies I had thought I had previously responded to this scoping).

Thank you for consulting us on the proposed mixed use redevelopment scoping at Rhydycar West. I attended a meeting with Cadw and the developers archaeological consultants EDP who outlined the archaeological work undertaken to date to inform the proposals. I was also able to see a draft version of an archaeological assessment which has been prepared by EDP on behalf of the developer.

It is likely that in response to any planning application we would request an archaeological assessment be prepared to inform mitigation advice. The draft I have seen provides a good baseline for this, and it would be beneficial to see this assessment submitted in support of any planning application.

It may be that following submission of an archaeological assessment that further mitigation work would be required as conditions on any consent granted.

Many thanks



Claudine Gerrard BSc (Hons) MPhil MCIfA

Stewardship Officer
Glamorgan Gwent Archaeological Trust

Core working days Monday, Tuesday.

From: Roberts, Huw <Huw.Roberts@merthyr.gov.uk>
Sent: 06 July 2021 14:40
To: Judith Doyle <Judith@ggat.org.uk>
Subject: FW: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request

Hi Judith, I don't appear to have received a response to my email dated 30th April 2021. Have you sent a response? If not, do you intend to respond?

Many thanks

Huw Roberts
Planning Group Leader

From: Roberts, Huw
Sent: 30 April 2021 13:58
To: 'cadwplanning@gov.wales' <cadwplanning@gov.wales>; 'planadmin@caerphilly.gov.uk' <planadmin@caerphilly.gov.uk>; 'david.j.bailey@rctcbc.gov.uk' <david.j.bailey@rctcbc.gov.uk>; 'southeastplanning@naturalresourceswales.gov.uk' <southeastplanning@naturalresourceswales.gov.uk>; 'planningconsultation@coal.gov.uk' <planningconsultation@coal.gov.uk>; 'judith@ggat.org.uk' <judith@ggat.org.uk>; 'lupenquiries@hse.gov.uk' <lupenquiries@hse.gov.uk>; 'planning.enquiries@beacons-npa.gov.uk' <planning.enquiries@beacons-npa.gov.uk>; Morris, Carwyn <Carwyn.Morris@merthyr.gov.uk>; Davies, Matthew (Planning) <Matthew.Davies3@merthyr.gov.uk>; Bramley, Tom <Tom.Bramley@merthyr.gov.uk>; Long, Chris <Chris.Long@merthyr.gov.uk>; Gow, Susan <Susan.Gow@merthyr.gov.uk>; Watkins, Craig <Craig.Watkins@merthyr.gov.uk>; Jones, Beth (Rights of Way) <Beth.Jones@merthyr.gov.uk>; 'developer.services@dwrcymru.com' <developer.services@dwrcymru.com>; 'enquiries@southwales-tra.gov.uk' <enquiries@southwales-tra.gov.uk>
Subject: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request

Dear all, please find attached consultation letter and documents/plans regarding the Scoping Opinion.

Regards,

Huw Roberts
Planning Group Leader

Croesawn ohebu yn Gymraeg a fydd hyn ddim yn arwain at oedi.

Mae'r e-bost hwn ac unrhyw ffeiliau a drosglwyddir gydag ef yn gyfrinachol ac wedi'u bwriadu ar gyfer pwy bynnag y cyfeirir ef ato neu atynt. Mae cynnwys yr e-bost hwn cynrychioli barn y sawl a enwir uchod, felly nid ydyw'n dilyn ei fod yn cynrychioli barn Cyngor Bwrdeistref Sirol Merthyr Tudful.

Darllenwch ein hysbysiadau preifatrwydd i ddarganfod mwy am sut rydym yn defnyddio eich gwybodaeth bersonol.

Cyngor Bwrdeistref Sirol Merthyr Tudful
Canolfan Dinesig
Stryd Y Castell
Merthyr Tudful
CF47 8AN

Teleffon: 01685 725000

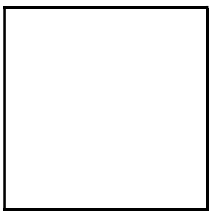
We welcome correspondence in Welsh and this will not lead to a delay.

This e-mail and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. The contents of this e-mail represent the views of the individual(s) named above and do not necessarily represent the views of Merthyr Tydfil County Borough Council.

Please read our privacy notices to find out more about how we use your personal information.

Merthyr Tydfil County Borough Council
Civic Centre
Castle Street
Merthyr Tydfil
CF47 8AN

Telephone: 01685 725000



http://www.merthyr.gov.uk
Croesawn ohebu yn Gymraeg a fydd hyn ddim yn arwain at oedi.

Mae'r e-bost hwn ac unrhyw ffeiliau a drosglwyddir gydag ef yn gyfrinachol ac wedi'u bwriadu ar gyfer pwy bynnag y cyfeirir ef ato neu atynt. Mae cynnwys yr e-bost hwn cynrychioli barn y sawl a enwir uchod, felly nid ydyw'n dilyn ei fod yn cynrychioli barn Cyngor Bwrdeistref Sirol Merthyr Tudful.

Darllenwch ein hysbysiadau preifatrwydd i ddarganfod mwy am sut rydym yn defnyddio eich gwybodaeth bersonol.

Cyngor Bwrdeistref Sirol Merthyr Tudful
Canolfan Dinesig
Stryd Y Castell
Merthyr Tudful
CF47 8AN

Teleffon: 01685 725000

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

This e-mail and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. The contents of this e-mail represent the views of the individual(s) named above and do not necessarily represent the views of Merthyr Tydfil County Borough Council.

Please read our privacy notices to find out more about how we use your personal information.

Merthyr Tydfil County Borough Council
Civic Centre
Castle Street
Merthyr Tydfil
CF47 8AN

Telephone: 01685 725000



http://www.merthyr.gov.uk

Maliphant, Ben

From:	Richard.Jones7@gov.wales
Sent:	14 July 2021 15:03
To:	Roberts, Huw
Cc:	Niall.McBride@gov.wales; L.Norvill@southwales-tra.gov.uk; LGC_Development_Control-South@gov.wales
Subject:	RE: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request

Good afternoon Huw,

With regard to the above site and scoping opinion, the Welsh Government have the following comments.

The network and its junctions should be modelled specifically within the immediate vicinity or provided with percentage impact increases of below 5% to demonstrate no material impact and requirement to model further. The Transport for Wales (TFW) owned South East Wales Transport Model may provide some useful data regarding A470 flows. In terms of any consultation with the planning authority, consultation is with the Welsh Government (Trunk Highway Authority) and not TFW as stated by the developer.

There are some network developments that should be considered as part of a Transport Assessment. The improvement of the nearby A465 in particular S5&6 which is open in the next 4-5 years will make travel to Merthyr more attractive from the midlands; the general expectation is for the greatest distribution from the south with traffic coming from the M4, however the balance may shift with an improved A465.

The developer should factor in committed development and if not committed, any other nearby plans at development stage which may include the expansion of phase 2 at Trago Mills with associated leisure and accommodation – where at all possible such sites should be factored into sensitivity tests.

Multimodal connections are critical to new sites in line with the Welsh Transport Strategy in order to influence travel demand by provision of local connections that will encourage walking and cycling as well as use by public transport. There may be scope for internal connections with the Bike Park Wales that could be explored however any access proposal will need to be Design Manual for Roads and Bridges compliant.

With regards to Active Travel, there is a nearby shared use WG bridge structure that crosses the A470, just north of Rhydycar Roundabout, Parish Road Footbridge; and with greater use it would likely require improvements in line with AT design guidance. The site will need to be demonstrated as benefitting from adequate AT connections as well as public transport accessibility.

We welcome further details as and when these come in,

Kind regards
Richard

Richard Jones
Peiriannydd Ffyrdd / Route Engineer

Is-adran Rheoli'r Rhwydwaith - Network Management Division

Trafnidiaeth / Transport
Llywodraeth Cymru / Welsh Government
Parc Cathays / Cathays Park
Caerdydd / Cardiff

Ffôn / Tel: 03000 256573

From: Roberts, Huw
Sent: 06 July 2021 11:31
To: Richard.Jones7@gov.wales
Cc: LGC_Development_Control-South@gov.wales
Subject: FW: Proposed mixed leisure development on land at Rhydycar West, Merthyr Tydfil - EIA Scoping Request

Good morning Richard and thanks you for the quick telephone conversation regarding the above and sending me the email addresses.

Please find attached original consultation letter and documents/plans regarding the Scoping Opinion.

As discussed, I look forward to receiving your comments as soon as possible.

Many thanks

Huw Roberts
Planning Group Leader

Croesawn ohebu yn Gymraeg a fydd hyn ddim yn arwain at oedi.

Mae'r e-bost hwn ac unrhyw ffeiliau a drosglwyddir gydag ef yn gyfrinachol ac wedi'u bwriadu ar gyfer pwy bynnag y cyfeirir ef ato neu atynt. Mae cynnwys yr e-bost hwn cynrychioli barn y sawl a enwir uchod, felly nid ydyw'n dilyn ei fod yn cynrychioli barn Cyngor Bwrdeistref Sirol Merthyr Tudful.

Darllenwch ein hysbysiadau preifatrwydd i ddarganfod mwy am sut rydym yn defnyddio eich gwybodaeth bersonol.

Cyngor Bwrdeistref Sirol Merthyr Tudful
Canolfan Dinesig
Stryd Y Castell
Merthyr Tudful
CF47 8AN

Teleffon: 01685 725000

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

This e-mail and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. The contents of this e-mail represent the views of the individual(s) named above and do not necessarily represent the views of Merthyr Tydfil County Borough Council.

Please read our privacy notices to find out more about how we use your personal information.

Merthyr Tydfil County Borough Council
Civic Centre
Castle Street
Merthyr Tydfil
CF47 8AN

Telephone: 01685 725000



http://www.merthyr.gov.uk

Sganiwyd y neges hon am bob feirws hysbys wrth iddi adael Llywodraeth Cymru. Mae Llywodraeth Cymru yn cymryd o ddifrif yr angen i ddiogelu eich data. Os cysylltwch â Llywodraeth Cymru, mae ein hysbysiad preifatrwydd yn esbonio sut rydym yn defnyddio eich gwybodaeth a sut rydym yn diogelu eich preifatrwydd. Rydym yn croesawu gohebiaeth yn Gymraeg. Byddwn yn anfon ateb yn Gymraeg i ohebiaeth a dderbynnir yn Gymraeg ac ni fydd gohebu yn Gymraeg yn arwain at oedi. On leaving the Welsh Government this email was scanned for all known viruses. The Welsh Government takes the protection of your data seriously. If you contact the Welsh Government then our Privacy Notice explains how we use your information and the ways in which we protect your privacy. We welcome receiving correspondence in Welsh. Any correspondence received in Welsh will be answered in Welsh and corresponding in Welsh will not lead to a delay in responding.

APPENDIX B – BASELINE TRAFFIC SURVEYS

Merthyr Tydfil - Manual Traffic Survey, Saturday 8th July 2017

Junction: (1) A470 / A4120 / Unnamed Road

Approach: A470 (North)

	Left to A4120			Ahead to A470 (South)			Right to Unnamed Road		
TIME	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**
1000 - 1015	53	0	**53**	84	3	**87**	0	0	**0**
1015 - 1030	55	0	**55**	83	8	**91**	0	0	**0**
1030 - 1045	61	0	**61**	93	5	**98**	0	0	**0**
1045 - 1100	82	0	**82**	97	2	**99**	0	0	**0**
Hourly Total	**251**	**0**	**251**	**357**	**18**	**375**	**0**	**0**	**0**
1100 - 1115	69	0	**69**	113	1	**114**	0	0	**0**
1115 - 1130	72	0	**72**	126	5	**131**	0	0	**0**
1130 - 1145	80	0	**80**	142	1	**143**	0	0	**0**
1145 - 1200	66	1	**67**	122	1	**123**	0	0	**0**
Hourly Total	**287**	**1**	**288**	**503**	**8**	**511**	**0**	**0**	**0**
1200 - 1215	80	0	**80**	124	1	**125**	0	0	**0**
1215 - 1230	84	0	**84**	160	2	**162**	0	0	**0**
1230 - 1245	84	0	**84**	139	1	**140**	0	0	**0**
1245 - 1300	90	0	**90**	160	0	**160**	0	0	**0**
Hourly Total	**338**	**0**	**338**	**583**	**4**	**587**	**0**	**0**	**0**

TOTAL	**876**	**1**	**877**	**1443**	**30**	**1473**	**0**	**0**	**0**

Merthyr Tydfil - Manual Traffic Survey, Saturday 8th July 2017

Junction: (1) A470 / A4120 / Unnamed Road

Approach: A4120

	Left to A470 (South)			Ahead to Unnamed Road			Right to A470 (North)		
TIME	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**
1000 - 1015	27	0	**27**	1	0	**1**	65	0	**65**
1015 - 1030	27	0	**27**	0	0	**0**	75	0	**75**
1030 - 1045	30	0	**30**	0	0	**0**	60	0	**60**
1045 - 1100	39	0	**39**	1	0	**1**	84	0	**84**
Hourly Total	**123**	**0**	**123**	**2**	**0**	**2**	**284**	**0**	**284**
1100 - 1115	35	2	**37**	0	0	**0**	91	0	**91**
1115 - 1130	26	1	**27**	0	0	**0**	85	0	**85**
1130 - 1145	47	0	**47**	0	0	**0**	88	0	**88**
1145 - 1200	40	0	**40**	0	0	**0**	85	0	**85**
Hourly Total	**148**	**3**	**151**	**0**	**0**	**0**	**349**	**0**	**349**
1200 - 1215	43	0	**43**	0	0	**0**	99	0	**99**
1215 - 1230	46	1	**47**	0	0	**0**	99	1	**100**
1230 - 1245	56	2	**58**	0	0	**0**	103	0	**103**
1245 - 1300	41	0	**41**	0	0	**0**	84	1	**85**
Hourly Total	**186**	**3**	**189**	**0**	**0**	**0**	**385**	**2**	**387**

TOTAL	**457**	**6**	**463**	**2**	**0**	**2**	**1018**	**2**	**1020**

Merthyr Tydfil - Manual Traffic Survey, Saturday 8th July 2017

Junction: (1) A470 / A4120 / Unnamed Road

Approach: A470 (South)

	Left to Unnamed Road			Ahead to A470 (North)			Right to A4120		
TIME	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**
1000 - 1015	0	0	**0**	128	1	**129**	26	0	**26**
1015 - 1030	0	0	**0**	136	2	**138**	41	1	**42**
1030 - 1045	0	0	**0**	143	1	**144**	34	0	**34**
1045 - 1100	0	0	**0**	192	6	**198**	50	2	**52**
Hourly Total	**0**	**0**	**0**	**599**	**10**	**609**	**151**	**3**	**154**
1100 - 1115	1	0	**1**	183	0	**183**	43	2	**45**
1115 - 1130	0	0	**0**	222	2	**224**	43	0	**43**
1130 - 1145	0	0	**0**	228	0	**228**	33	0	**33**
1145 - 1200	0	0	**0**	236	1	**237**	47	0	**47**
Hourly Total	**1**	**0**	**1**	**869**	**3**	**872**	**166**	**2**	**168**
1200 - 1215	0	0	**0**	224	2	**226**	59	0	**59**
1215 - 1230	0	0	**0**	195	1	**196**	58	0	**58**
1230 - 1245	0	0	**0**	202	3	**205**	59	0	**59**
1245 - 1300	0	0	**0**	199	4	**203**	35	0	**35**
Hourly Total	**0**	**0**	**0**	**820**	**10**	**830**	**211**	**0**	**211**

TOTAL	**1**	**0**	**1**	**2288**	**23**	**2311**	**528**	**5**	**533**

Merthyr Tydfil - Manual Traffic Survey, Saturday 8th July 2017

Junction: (1) A470 / A4120 / Unnamed Road

Approach: Unnamed Road

	Left to A470 (North)			Ahead to A4120			Right to A470 (South)		
TIME	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**
1000 - 1015	0	0	**0**	1	0	**1**	0	0	**0**
1015 - 1030	0	0	**0**	0	0	**0**	0	0	**0**
1030 - 1045	0	0	**0**	0	0	**0**	0	0	**0**
1045 - 1100	0	0	**0**	1	0	**1**	0	0	**0**
Hourly Total	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**
1100 - 1115	1	0	**1**	0	0	**0**	0	0	**0**
1115 - 1130	0	0	**0**	0	0	**0**	0	0	**0**
1130 - 1145	0	0	**0**	0	0	**0**	0	0	**0**
1145 - 1200	0	0	**0**	0	0	**0**	0	0	**0**
Hourly Total	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
1200 - 1215	0	0	**0**	0	0	**0**	0	0	**0**
1215 - 1230	0	0	**0**	0	0	**0**	0	0	**0**
1230 - 1245	0	0	**0**	0	0	**0**	0	0	**0**
1245 - 1300	0	0	**0**	0	0	**0**	0	0	**0**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TOTAL	**1**	**0**	**1**	**2**	**0**	**2**	**0**	**0**	**0**

Merthyr Tydfil - Manual Traffic Survey, Thursday 6th July 2017

Junction: (1) A470 / A4120 / Unnamed Road

Approach: A470 (North)

	Left to A4120			Ahead to A470 (South)			Right to Unnamed Road		
TIME	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**
0700 - 0715	31	1	**32**	101	6	**107**	0	0	**0**
0715 - 0730	32	0	**32**	98	9	**107**	0	0	**0**
0730 - 0745	65	2	**67**	146	9	**155**	0	0	**0**
0745 - 0800	73	0	**73**	170	3	**173**	0	0	**0**
Hourly Total	**201**	**3**	**204**	**515**	**27**	**542**	**0**	**0**	**0**
0800 - 0815	69	1	**70**	164	2	**166**	0	0	**0**
0815 - 0830	71	0	**71**	178	12	**190**	0	0	**0**
0830 - 0845	85	1	**86**	147	8	**155**	0	0	**0**
0845 - 0900	86	2	**88**	129	11	**140**	0	0	**0**
Hourly Total	**311**	**4**	**315**	**618**	**33**	**651**	**0**	**0**	**0**
0900 - 0915	72	1	**73**	103	6	**109**	0	0	**0**
0915 - 0930	54	2	**56**	110	2	**112**	0	0	**0**
0930 - 0945	59	0	**59**	114	15	**129**	0	0	**0**
0945 - 1000	63	0	**63**	105	8	**113**	0	0	**0**
Hourly Total	**248**	**3**	**251**	**432**	**31**	**463**	**0**	**0**	**0**
Session Total	**760**	**10**	**770**	**1565**	**91**	**1656**	**0**	**0**	**0**
1600 - 1615	65	0	**65**	195	11	**206**	0	0	**0**
1615 - 1630	55	1	**56**	201	8	**209**	0	0	**0**
1630 - 1645	50	0	**50**	188	5	**193**	0	0	**0**
1645 - 1700	84	0	**84**	181	3	**184**	0	0	**0**
Hourly Total	**254**	**1**	**255**	**765**	**27**	**792**	**0**	**0**	**0**
1700 - 1715	62	3	**65**	186	5	**191**	0	0	**0**
1715 - 1730	77	0	**77**	168	0	**168**	0	0	**0**
1730 - 1745	84	0	**84**	177	2	**179**	0	0	**0**
1745 - 1800	73	0	**73**	160	6	**166**	0	0	**0**
Hourly Total	**296**	**3**	**299**	**691**	**13**	**704**	**0**	**0**	**0**
1800 - 1815	63	0	**63**	154	2	**156**	0	0	**0**
1815 - 1830	74	0	**74**	136	4	**140**	0	0	**0**
1830 - 1845	75	0	**75**	129	2	**131**	0	0	**0**
1845 - 1900	68	0	**68**	113	0	**113**	0	0	**0**
Hourly Total	**280**	**0**	**280**	**532**	**8**	**540**	**0**	**0**	**0**
Session Total	**830**	**4**	**834**	**1988**	**48**	**2036**	**0**	**0**	**0**

Merthyr Tydfil - Manual Traffic Survey, Thursday 6th July 2017

Junction: (1) A470 / A4120 / Unnamed Road

Approach: A4120

	Left to A470 (South)			Ahead to Unnamed Road			Right to A470 (North)		
TIME	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**
0700 - 0715	38	0	**38**	0	0	**0**	31	0	**31**
0715 - 0730	34	0	**34**	0	0	**0**	25	1	**26**
0730 - 0745	48	3	**51**	0	0	**0**	32	1	**33**
0745 - 0800	39	2	**41**	0	0	**0**	42	1	**43**
Hourly Total	**159**	**5**	**164**	**0**	**0**	**0**	**130**	**3**	**133**
0800 - 0815	48	1	**49**	0	0	**0**	47	1	**48**
0815 - 0830	52	5	**57**	0	0	**0**	45	2	**47**
0830 - 0845	40	2	**42**	0	0	**0**	50	0	**50**
0845 - 0900	37	1	**38**	0	0	**0**	52	2	**54**
Hourly Total	**177**	**9**	**186**	**0**	**0**	**0**	**194**	**5**	**199**
0900 - 0915	39	0	**39**	0	0	**0**	50	2	**52**
0915 - 0930	39	0	**39**	0	0	**0**	60	1	**61**
0930 - 0945	34	1	**35**	0	0	**0**	44	1	**45**
0945 - 1000	29	0	**29**	0	0	**0**	64	1	**65**
Hourly Total	**141**	**1**	**142**	**0**	**0**	**0**	**218**	**5**	**223**
Session Total	**477**	**15**	**492**	**0**	**0**	**0**	**542**	**13**	**555**
1600 - 1615	59	1	**60**	0	0	**0**	100	1	**101**
1615 - 1630	60	1	**61**	1	0	**1**	98	0	**98**
1630 - 1645	67	0	**67**	0	0	**0**	109	0	**109**
1645 - 1700	66	3	**69**	0	0	**0**	88	0	**88**
Hourly Total	**252**	**5**	**257**	**1**	**0**	**1**	**395**	**1**	**396**
1700 - 1715	57	0	**57**	0	0	**0**	120	0	**120**
1715 - 1730	48	0	**48**	0	0	**0**	91	0	**91**
1730 - 1745	47	0	**47**	0	0	**0**	108	0	**108**
1745 - 1800	44	1	**45**	0	0	**0**	94	2	**96**
Hourly Total	**196**	**1**	**197**	**0**	**0**	**0**	**413**	**2**	**415**
1800 - 1815	38	1	**39**	0	0	**0**	89	0	**89**
1815 - 1830	46	2	**48**	0	0	**0**	103	0	**103**
1830 - 1845	47	0	**47**	0	0	**0**	83	1	**84**
1845 - 1900	32	0	**32**	0	0	**0**	70	1	**71**
Hourly Total	**163**	**3**	**166**	**0**	**0**	**0**	**345**	**2**	**347**
Session Total	**611**	**9**	**620**	**1**	**0**	**1**	**1153**	**5**	**1158**

Merthyr Tydfil - Manual Traffic Survey, Thursday 6th July 2017

Junction: (1) A470 / A4120 / Unnamed Road

Approach: A470 (South)

	Left to Unnamed Road			Ahead to A470 (North)			Right to A4120		
TIME	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**
0700 - 0715	0	0	**0**	106	9	**115**	24	2	**26**
0715 - 0730	0	0	**0**	126	4	**130**	32	2	**34**
0730 - 0745	0	0	**0**	156	12	**168**	54	2	**56**
0745 - 0800	0	0	**0**	181	12	**193**	70	2	**72**
Hourly Total	**0**	**0**	**0**	**569**	**37**	**606**	**180**	**8**	**188**
0800 - 0815	0	0	**0**	180	12	**192**	90	0	**90**
0815 - 0830	0	0	**0**	182	9	**191**	79	0	**79**
0830 - 0845	0	0	**0**	206	10	**216**	86	0	**86**
0845 - 0900	0	0	**0**	189	15	**204**	97	1	**98**
Hourly Total	**0**	**0**	**0**	**757**	**46**	**803**	**352**	**1**	**353**
0900 - 0915	0	0	**0**	134	7	**141**	69	0	**69**
0915 - 0930	0	0	**0**	144	13	**157**	64	0	**64**
0930 - 0945	0	0	**0**	146	15	**161**	51	1	**52**
0945 - 1000	0	0	**0**	143	13	**156**	53	0	**53**
Hourly Total	**0**	**0**	**0**	**567**	**48**	**615**	**237**	**1**	**238**
Session Total	**0**	**0**	**0**	**1893**	**131**	**2024**	**769**	**10**	**779**
1600 - 1615	0	0	**0**	203	3	**206**	56	0	**56**
1615 - 1630	0	0	**0**	227	9	**236**	68	1	**69**
1630 - 1645	0	0	**0**	243	5	**248**	61	1	**62**
1645 - 1700	0	0	**0**	241	0	**241**	58	0	**58**
Hourly Total	**0**	**0**	**0**	**914**	**17**	**931**	**243**	**2**	**245**
1700 - 1715	0	0	**0**	229	2	**231**	55	1	**56**
1715 - 1730	0	0	**0**	236	1	**237**	60	0	**60**
1730 - 1745	0	0	**0**	255	2	**257**	65	0	**65**
1745 - 1800	2	0	**2**	227	1	**228**	59	0	**59**
Hourly Total	**2**	**0**	**2**	**947**	**6**	**953**	**239**	**1**	**240**
1800 - 1815	0	0	**0**	219	1	**220**	49	0	**49**
1815 - 1830	0	0	**0**	209	1	**210**	42	1	**43**
1830 - 1845	0	0	**0**	171	1	**172**	44	0	**44**
1845 - 1900	0	0	**0**	163	1	**164**	52	0	**52**
Hourly Total	**0**	**0**	**0**	**762**	**4**	**766**	**187**	**1**	**188**
Session Total	**2**	**0**	**2**	**2623**	**27**	**2650**	**669**	**4**	**673**

Merthyr Tydfil - Manual Traffic Survey, Thursday 6th July 2017

Junction: (1) A470 / A4120 / Unnamed Road

Approach: Unnamed Road

	Left to A470 (North)			Ahead to A4120			Right to A470 (South)		
TIME	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**	LIGHT	HEAVY	**TOTAL**
0700 - 0715	0	0	**0**	0	0	**0**	0	0	**0**
0715 - 0730	0	0	**0**	0	0	**0**	0	0	**0**
0730 - 0745	0	0	**0**	0	0	**0**	0	0	**0**
0745 - 0800	0	0	**0**	0	0	**0**	0	0	**0**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0800 - 0815	0	0	**0**	0	0	**0**	0	0	**0**
0815 - 0830	0	0	**0**	0	0	**0**	0	0	**0**
0830 - 0845	0	0	**0**	0	0	**0**	1	0	**1**
0845 - 0900	0	0	**0**	0	0	**0**	0	0	**0**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
0900 - 0915	0	0	**0**	0	0	**0**	0	0	**0**
0915 - 0930	0	0	**0**	1	0	**1**	0	0	**0**
0930 - 0945	0	0	**0**	0	0	**0**	0	0	**0**
0945 - 1000	0	0	**0**	0	0	**0**	0	0	**0**
Hourly Total	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**
Session Total	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**1**
1600 - 1615	0	0	**0**	1	0	**1**	1	0	**1**
1615 - 1630	0	0	**0**	1	0	**1**	0	0	**0**
1630 - 1645	0	0	**0**	0	0	**0**	0	0	**0**
1645 - 1700	0	0	**0**	0	0	**0**	0	0	**0**
Hourly Total	**0**	**0**	**0**	**2**	**0**	**2**	**1**	**0**	**1**
1700 - 1715	0	0	**0**	0	0	**0**	0	0	**0**
1715 - 1730	0	0	**0**	0	0	**0**	0	0	**0**
1730 - 1745	0	0	**0**	0	0	**0**	0	0	**0**
1745 - 1800	0	0	**0**	0	0	**0**	2	0	**2**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**
1800 - 1815	0	0	**0**	0	0	**0**	0	0	**0**
1815 - 1830	0	0	**0**	0	0	**0**	0	0	**0**
1830 - 1845	0	0	**0**	0	0	**0**	0	0	**0**
1845 - 1900	0	0	**0**	0	0	**0**	0	0	**0**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Session Total	**0**	**0**	**0**	**2**	**0**	**2**	**3**	**0**	**3**

Tracsis plc
Traffic and Data Services

Return To Dashboard
Convert to PCU

3825-WAL Bike Park Wales Road
Junction Turning Count
Thursday 6th September 2018

Site 1 - A4060 / A470 (E) / Unnamed Road / A470 (W)

Origin Arm A A4060

	Destination : Arm A A4060								**Destination :** Arm B A470 (E)								**Destination :** Arm C Unnamed Road								**Destination :** Arm D A470 (W)								Arm Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
07:00	0	0	0	0	0	0	0	0	140	29	10	3	1	0	0	183	1	0	0	0	0	0	0	1	12	4	0	0	0	0	0	16	200
07:15	0	0	0	0	0	0	0	0	123	24	7	1	2	0	0	157	0	0	0	0	0	0	0	0	15	5	0	0	0	0	0	20	177
07:30	0	0	0	0	0	0	0	0	124	27	11	5	4	2	0	173	0	0	1	0	0	0	0	1	9	1	1	0	2	0	0	13	187
07:45	0	0	0	0	0	0	0	0	155	30	10	7	0	2	0	204	0	1	0	0	0	0	0	1	12	5	0	1	0	0	0	18	223
1 Hr	0	0	0	0	0	0	0	0	542	110	38	16	7	4	0	717	1	1	1	0	0	0	0	3	48	15	1	1	2	0	0	67	787
08:00	0	0	0	0	0	0	0	0	164	30	7	2	1	1	0	205	2	0	0	0	0	0	0	2	23	5	1	0	1	0	0	30	237
08:15	0	0	0	0	0	0	0	0	172	20	8	3	1	1	0	205	3	1	0	0	0	0	0	4	19	7	2	1	0	2	0	31	240
08:30	0	0	0	0	0	0	0	0	126	24	5	4	0	0	0	159	4	1	0	0	0	0	0	5	12	3	0	1	0	0	0	16	180
08:45	0	0	0	0	0	0	0	0	112	17	6	8	0	0	0	143	4	1	0	0	0	0	0	5	23	1	2	0	0	0	0	26	174
1 Hr	0	0	0	0	0	0	0	0	574	91	26	17	2	2	0	712	13	3	0	0	0	0	0	16	77	16	5	2	1	2	0	103	831
09:00	0	0	0	0	0	0	0	0	96	13	5	5	2	1	0	122	6	0	0	0	0	0	0	6	21	3	2	1	0	0	0	27	155
09:15	0	0	0	0	0	0	0	0	88	23	3	5	2	0	0	121	7	1	0	0	0	0	0	8	11	3	0	1	0	0	0	15	144
09:30	0	0	0	0	0	0	0	0	61	18	6	4	1	0	0	90	1	0	0	0	0	0	0	1	15	1	0	2	0	0	0	18	109
09:45	0	0	0	0	0	0	0	0	56	15	6	9	1	1	0	88	2	0	0	0	0	0	0	2	15	4	0	1	0	0	0	20	110
1 Hr	0	0	0	0	0	0	0	0	301	69	20	23	6	2	0	421	16	1	0	0	0	0	0	17	62	11	2	5	0	0	0	80	518
3 Hrs	0	0	0	0	0	0	0	0	1417	270	84	56	15	8	0	1850	30	5	1	0	0	0	0	36	187	42	8	8	3	2	0	250	2136

Origin Arm A A4060

	Destination : Arm A A4060								**Destination :** Arm B A470 (E)								**Destination :** Arm C Unnamed Road								**Destination :** Arm D A470 (W)								Arm Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
15:00	0	1	0	0	0	0	0	1	101	25	5	9	1	0	0	141	2	0	0	0	0	0	0	2	26	4	0	0	1	0	0	31	175
15:15	0	0	0	0	0	0	0	0	80	16	7	4	1	1	0	109	0	1	0	0	0	0	0	1	26	3	1	0	0	0	0	30	140
15:30	0	0	0	0	0	0	0	0	95	17	8	1	1	1	0	123	0	0	0	0	0	0	0	0	31	4	0	1	0	0	0	36	159
15:45	0	0	0	0	0	0	0	0	99	32	3	2	1	0	0	137	1	0	0	0	0	0	0	1	24	7	0	0	0	0	0	31	169
1 Hr	0	1	0	0	0	0	0	1	375	90	23	16	4	2	0	510	3	1	0	0	0	0	0	4	107	18	1	1	1	0	0	128	643
16:00	0	0	0	0	0	0	0	0	125	25	6	5	1	0	0	162	0	0	0	0	0	0	0	0	25	1	0	1	0	0	0	27	189
16:15	1	0	0	0	0	0	0	1	126	26	5	3	2	0	0	162	0	0	1	0	0	0	0	1	27	4	0	0	0	0	0	31	195
16:30	0	0	0	0	0	0	0	0	159	25	2	4	1	2	0	193	0	0	0	0	0	0	0	0	30	7	0	0	0	1	0	38	231
16:45	0	0	0	0	0	0	0	0	141	19	5	1	1	0	0	167	0	0	0	0	0	0	0	0	21	8	0	0	0	0	0	29	196
1 Hr	1	0	0	0	0	0	0	1	551	95	18	13	5	2	0	684	0	0	1	0	0	0	0	1	103	20	0	1	0	1	0	125	811
17:00	0	0	0	0	0	0	0	0	139	12	3	3	0	1	0	158	0	0	0	0	0	0	0	0	35	5	0	0	0	0	0	40	198
17:15	0	0	0	0	0	0	0	0	164	16	3	1	2	2	0	188	0	0	0	0	0	0	0	0	19	1	1	0	0	0	0	21	209
17:30	1	0	0	0	0	0	0	1	119	11	2	1	0	0	0	133	0	0	0	0	0	0	0	0	31	4	0	0	0	0	0	35	169
17:45	1	0	0	0	0	0	0	1	134	13	1	1	0	0	0	149	0	0	0	0	0	0	0	0	17	2	1	0	0	0	0	20	170
1 Hr	2	0	0	0	0	0	0	2	556	52	9	6	2	3	0	628	0	0	0	0	0	0	0	0	102	12	2	0	0	0	0	116	746
18:00	0	0	0	0	0	0	0	0	104	9	3	1	0	0	0	117	0	0	0	0	0	0	0	0	26	6	0	0	0	0	0	32	149
18:15	0	0	0	0	0	0	0	0	109	8	0	1	1	1	0	120	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	16	136
18:30	1	0	0	0	0	0	0	1	74	5	2	0	0	0	0	81	0	0	0	0	0	0	0	0	22	2	0	0	0	0	0	24	106
18:45	0	0	0	0	0	0	0	0	56	10	0	0	0	0	0	66	0	0	0	0	0	0	0	0	20	2	0	0	0	0	0	22	88
1 Hr	1	0	0	0	0	0	0	1	343	32	5	2	1	1	0	384	0	0	0	0	0	0	0	0	84	10	0	0	0	0	0	94	479
4 Hrs	4	1	0	0	0	0	0	5	1825	269	55	37	12	8	0	2206	3	1	1	0	0	0	0	5	396	60	3	2	1	1	0	463	2679
Total	4	1	0	0	0	0	0	5	3242	539	139	93	27	16	0	4056	33	6	2	0	0	0	0	41	583	102	11	10	4	3	0	713	4815

Tracsis plc
Traffic and Data Services

Return To Dashboard
Convert to PCU

3825-WAL Bike Park Wales Road
Junction Turning Count
Thursday 6th September 2018

Site 1 - A4060 / A470 (E) / Unnamed Road / A470 (W)

Origin Arm B A470 (E)

	Destination : Arm A A4060								**Destination :** Arm B A470 (E)								**Destination :** Arm C Unnamed Road								**Destination :** Arm D A470 (W)								Arm Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
07:00	86	18	5	7	0	0	0	116	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	89	30	7	2	0	0	0	128	245
07:15	113	21	5	2	0	0	0	141	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	124	35	3	3	0	0	0	165	307
07:30	167	29	3	1	0	1	0	201	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	158	41	8	5	0	0	0	212	414
07:45	167	23	9	8	0	2	0	209	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	3	177	34	6	5	0	0	0	222	434
1 Hr	533	91	22	18	0	3	0	667	0	0	0	0	0	0	0	0	4	2	0	0	0	0	0	6	548	140	24	15	0	0	0	727	1400
08:00	147	22	9	2	1	1	0	182	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	207	36	5	8	0	1	0	257	442
08:15	142	22	7	6	0	0	0	177	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	224	38	7	4	0	0	0	273	451
08:30	124	27	3	4	0	1	0	159	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	260	31	6	3	1	2	0	303	464
08:45	109	21	2	7	1	0	0	140	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	5	254	23	5	3	2	0	0	287	432
1 Hr	522	92	21	19	2	2	0	658	0	0	0	0	0	0	0	0	8	3	0	0	0	0	0	11	945	128	23	18	3	3	0	1120	1789
09:00	92	20	7	6	0	3	0	128	0	0	0	0	0	0	0	0	5	3	0	0	0	0	0	8	215	22	8	5	0	1	0	251	387
09:15	73	23	4	6	2	0	0	108	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	170	22	2	5	0	1	0	200	309
09:30	63	19	8	5	0	0	0	95	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	152	29	4	4	0	2	0	191	289
09:45	52	12	1	3	2	0	0	70	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	131	24	6	5	0	2	0	168	239
1 Hr	280	74	20	20	4	3	0	401	0	0	0	0	0	0	0	0	8	5	0	0	0	0	0	13	668	97	20	19	0	6	0	810	1224
3 Hrs	1335	257	63	57	6	8	0	1726	0	0	0	0	0	0	0	0	20	10	0	0	0	0	0	30	2161	365	67	52	3	9	0	2657	4413

Origin Arm B A470 (E)

	Destination : Arm A A4060								**Destination :** Arm B A470 (E)								**Destination :** Arm C Unnamed Road								**Destination :** Arm D A470 (W)								Arm Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
15:00	83	24	4	1	2	0	0	114	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	111	26	6	2	0	0	0	145	261
15:15	117	20	3	5	1	0	0	146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	129	33	2	3	0	2	0	169	315
15:30	98	39	2	2	3	0	0	144	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3	165	33	7	1	0	1	0	207	354
15:45	115	27	3	2	1	1	0	149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	160	22	1	7	0	2	0	192	341
1 Hr	413	110	12	10	7	1	0	553	1	0	0	0	0	0	0	1	2	2	0	0	0	0	0	4	565	114	16	13	0	5	0	713	1271
16:00	107	33	5	3	1	3	0	152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	165	29	1	2	0	0	0	197	349
16:15	98	23	5	1	1	1	0	129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	157	40	2	4	0	0	0	203	332
16:30	145	30	3	1	2	1	0	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182	36	7	0	0	0	0	225	407
16:45	144	33	3	1	0	1	0	182	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	185	30	5	1	0	0	0	221	404
1 Hr	494	119	16	6	4	6	0	645	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	689	135	15	7	0	0	0	846	1492
17:00	132	22	3	1	1	0	0	159	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	217	40	1	0	0	0	0	258	418
17:15	146	21	1	3	1	1	0	173	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	220	17	2	1	0	0	0	240	414
17:30	135	21	2	2	2	0	0	162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	205	12	3	0	0	4	0	224	386
17:45	149	15	0	0	1	1	0	166	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	212	24	1	0	1	0	0	238	405
1 Hr	562	79	6	6	5	2	0	660	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	854	93	7	1	1	4	0	960	1623
18:00	108	20	1	2	1	0	0	132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	178	19	2	1	0	0	0	200	332
18:15	94	6	2	1	1	0	0	104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159	13	0	0	0	2	0	174	278
18:30	97	5	0	1	1	0	0	104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	143	14	1	1	0	0	0	159	263
18:45	58	8	2	0	2	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	10	1	1	0	0	0	131	201
1 Hr	357	39	5	4	5	0	0	410	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	599	56	4	3	0	2	0	664	1074
4 Hrs	1826	347	39	26	21	9	0	2268	2	0	0	0	0	0	0	2	5	2	0	0	0	0	0	7	2707	398	42	24	1	11	0	3183	5460
Total	3161	604	102	83	27	17	0	3994	2	0	0	0	0	0	0	2	25	12	0	0	0	0	0	37	4868	763	109	76	4	20	0	5840	9873

Tracsis plc
Traffic and Data Services

Return To Dashboard
Convert to PCU

3825-WAL Bike Park Wales Road
Junction Turning Count
Thursday 6th September 2018

Site 1 - A4060 / A470 (E) / Unnamed Road / A470 (W)

Origin Arm C Unnamed Road

	Destination : Arm A A4060								Destination : Arm B A470 (E)								Destination : Arm C Unnamed Road								Destination : Arm D A470 (W)								Arm Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
07:00	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:15	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2
1 Hr	0	1	1	0	0	0	0	2	2	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	7
08:00	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	3
08:15	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
08:45	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	3
1 Hr	1	1	1	0	0	0	0	3	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	6	10
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
09:15	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 Hr	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	3
3 Hrs	2	2	2	0	0	0	0	6	3	1	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	5	1	0	0	0	0	10	20

Origin Arm C Unnamed Road

	Destination : Arm A A4060								Destination : Arm B A470 (E)								Destination : Arm C Unnamed Road								Destination : Arm D A470 (W)								Arm Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
15:00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3
15:15	1	2	0	0	0	0	0	3	2	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	9
15:30	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3	5
15:45	3	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	4	8
1 Hr	5	2	0	0	0	0	1	8	5	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	8	3	0	0	0	0	0	11	25
16:00	2	1	0	0	0	0	0	3	3	3	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
16:15	2	1	0	0	0	0	0	3	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	3	8
16:30	1	0	0	0	0	0	0	1	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	6
16:45	4	0	0	0	0	0	0	4	3	2	0	0	0	0	0	5	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	4	13
1 Hr	9	2	0	0	0	0	0	11	10	6	0	0	0	0	0	16	0	0	0	0	0	0	0	0	7	2	0	0	0	0	0	9	36
17:00	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	4	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	6
17:15	5	2	0	0	0	0	0	7	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	4	13
17:30	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
17:45	2	1	0	0	0	0	0	3	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3	8
1 Hr	8	3	0	0	0	0	0	11	7	2	0	0	0	0	0	9	0	0	0	0	0	0	0	0	7	2	0	0	0	0	0	9	29
18:00	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
18:15	2	0	0	0	0	0	0	2	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
18:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
18:45	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	6
1 Hr	3	0	0	0	0	0	0	3	4	2	0	0	0	0	0	6	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	13
4 Hrs	25	7	0	0	0	0	1	33	26	11	0	0	0	0	0	37	0	0	0	0	0	0	0	0	26	7	0	0	0	0	0	33	103
Total	27	9	2	0	0	0	1	39	29	12	0	0	0	0	0	41	0	0	0	0	0	0	0	0	30	12	1	0	0	0	0	43	123

Tracsis plc
Traffic and Data Services

Return To Dashboard
Convert to PCU

3825-WAL Bike Park Wales Road
Junction Turning Count
Thursday 6th September 2018

Site 1 - A4060 / A470 (E) / Unnamed Road / A470 (W)

Origin Arm D A470 (W)

	Destination : Arm A A4060								**Destination :** Arm B A470 (E)								**Destination :** Arm C Unnamed Road								**Destination :** Arm D A470 (W)								Arm Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
07:00	14	4	1	1	0	1	0	21	90	34	4	5	1	0	0	134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155
07:15	17	5	0	0	0	0	0	22	115	26	6	4	0	0	0	151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	173
07:30	25	3	1	0	0	0	0	29	147	19	7	3	0	0	0	176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	205
07:45	31	4	0	0	0	0	0	35	162	27	6	4	0	0	0	199	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	235
1 Hr	87	16	2	1	0	1	0	107	514	106	23	16	1	0	0	660	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	768
08:00	21	8	0	1	0	0	0	30	173	24	9	2	0	1	0	209	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	241
08:15	26	8	1	0	0	0	0	35	165	18	3	3	0	0	0	189	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1	227
08:30	27	6	1	1	0	0	0	35	143	20	4	4	1	0	0	172	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	211
08:45	28	3	0	2	1	0	0	34	114	18	2	7	0	1	0	142	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	177
1 Hr	102	25	2	4	1	0	0	134	595	80	18	16	1	2	0	712	7	2	0	0	0	0	0	9	1	0	0	0	0	0	0	1	856
09:00	19	7	0	0	0	0	0	26	110	12	4	4	0	0	0	130	3	1	0	0	0	0	0	4	0	0	0	0	0	0	0	0	160
09:15	25	3	0	2	0	0	0	30	103	14	2	7	0	1	0	127	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	160
09:30	23	4	0	0	0	0	0	27	90	20	5	3	0	1	0	119	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	147
09:45	20	3	0	0	0	0	0	23	92	15	8	5	1	0	0	121	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	146
1 Hr	87	17	0	2	0	0	0	106	395	61	19	19	1	2	0	497	9	1	0	0	0	0	0	10	0	0	0	0	0	0	0	0	613
3 Hrs	276	58	4	7	1	1	0	347	1504	247	60	51	3	4	0	1869	16	3	1	0	0	0	0	20	1	0	0	0	0	0	0	1	2237

Origin Arm D A470 (W)

	Destination : Arm A A4060								**Destination :** Arm B A470 (E)								**Destination :** Arm C Unnamed Road								**Destination :** Arm D A470 (W)								Arm Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
15:00	29	4	2	1	0	0	0	36	172	18	3	3	0	4	0	200	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	238
15:15	19	5	0	1	1	0	0	26	149	29	5	5	0	2	0	190	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	219
15:30	27	4	1	0	0	0	0	32	175	33	4	3	0	2	0	217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	249
15:45	21	2	0	0	0	0	0	23	145	27	3	3	0	0	0	178	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	202
1 Hr	96	15	3	2	1	0	0	117	641	107	15	14	0	8	0	785	5	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	908
16:00	42	4	1	0	0	0	0	47	191	26	3	1	3	1	0	225	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	273
16:15	28	4	0	0	0	0	0	32	201	35	5	2	1	0	0	244	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	276
16:30	25	2	0	0	0	0	0	27	230	27	3	2	0	0	0	262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	289
16:45	24	5	1	0	0	0	0	30	250	26	1	2	1	1	0	281	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	311
1 Hr	119	15	2	0	0	0	0	136	872	114	12	7	5	2	0	1012	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1149
17:00	26	4	0	0	0	0	0	30	239	17	5	5	0	0	0	266	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	296
17:15	27	3	0	0	0	0	0	30	205	15	2	1	0	0	0	223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	253
17:30	31	5	0	0	0	0	0	36	174	16	3	1	0	1	0	195	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	232
17:45	28	6	0	0	0	0	0	34	151	18	2	2	0	2	0	175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	209
1 Hr	112	18	0	0	0	0	0	130	769	66	12	9	0	3	0	859	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	990
18:00	30	1	0	0	0	0	0	31	191	17	2	1	0	1	0	212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	243
18:15	36	2	0	0	0	0	0	38	183	15	4	0	0	1	0	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	241
18:30	17	1	0	0	0	0	0	18	113	9	3	0	0	0	0	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	143
18:45	19	0	0	0	0	0	0	19	99	6	0	0	0	0	0	105	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	125
1 Hr	102	4	0	0	0	0	0	106	586	47	9	1	0	2	0	645	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	752
4 Hrs	429	52	5	2	1	0	0	489	2868	334	48	31	5	15	0	3301	5	2	0	0	0	0	0	7	2	0	0	0	0	0	0	2	3799
Total	705	110	9	9	2	1	0	836	4372	581	108	82	8	19	0	5170	21	5	1	0	0	0	0	27	3	0	0	0	0	0	0	3	6036

Tracsis plc
Traffic and Data Services

Return To Dashboard
Convert to PCU

3825-WAL Bike Park Wales Road
Junction Turning Count
Thursday 6th September 2018

Site 1 - A4060 / A470 (E) / Unnamed Road / A470 (W)

ORIGIN SUMMARY

	Origin : Arm A A4060								Origin : Arm B A470 (E)								Origin : Arm C Unnamed Road								Origin : Arm D A470 (W)								Origin Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
07:00	153	33	10	3	1	0	0	200	175	49	12	9	0	0	0	245	1	1	0	0	0	0	0	2	104	38	5	6	1	1	0	155	602
07:15	138	29	7	1	2	0	0	177	238	56	8	5	0	0	0	307	1	1	1	0	0	0	0	3	132	31	6	4	0	0	0	173	660
07:30	133	28	13	5	6	2	0	187	326	70	11	6	0	1	0	414	0	0	0	0	0	0	0	0	172	22	8	3	0	0	0	205	806
07:45	167	36	10	8	0	2	0	223	346	58	15	13	0	2	0	434	0	1	1	0	0	0	0	2	193	31	7	4	0	0	0	235	894
08:00	189	35	8	2	2	1	0	237	357	58	14	10	1	2	0	442	0	2	1	0	0	0	0	3	194	34	9	3	0	1	0	241	923
08:15	194	28	10	4	1	3	0	240	366	61	14	10	0	0	0	451	2	1	0	0	0	0	0	3	194	26	4	3	0	0	0	227	921
08:30	142	28	5	5	0	0	0	180	385	59	9	7	1	3	0	464	1	0	0	0	0	0	0	1	174	26	5	5	1	0	0	211	856
08:45	139	19	8	8	0	0	0	174	367	45	7	10	3	0	0	432	2	1	0	0	0	0	0	3	143	21	2	9	1	1	0	177	786
09:00	123	16	7	6	2	1	0	155	312	45	15	11	0	4	0	387	1	0	0	0	0	0	0	1	132	20	4	4	0	0	0	160	703
09:15	106	27	3	6	2	0	0	144	243	46	6	11	2	1	0	309	1	1	0	0	0	0	0	2	131	17	2	9	0	1	0	160	615
09:30	77	19	6	6	1	0	0	109	218	48	12	9	0	2	0	289	0	0	0	0	0	0	0	0	114	24	5	3	0	1	0	147	545
09:45	73	19	6	10	1	1	0	110	183	37	7	8	2	2	0	239	0	0	0	0	0	0	0	0	114	18	8	5	1	0	0	146	495
1 Hr	379	81	22	28	6	2	0	518	956	176	40	39	4	9	0	1224	2	1	0	0	0	0	0	3	491	79	19	21	1	2	0	613	2358
3 Hrs	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!

ORIGIN SUMMARY

	Origin : Arm A A4060								Origin : Arm B A470 (E)								Origin : Arm C Unnamed Road								Origin : Arm D A470 (W)								Origin Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
15:00	129	30	5	9	2	0	0	175	196	50	10	3	2	0	0	261	3	0	0	0	0	0	0	3	203	22	5	4	0	4	0	238	677
15:15	106	20	8	4	1	1	0	140	246	53	5	8	1	2	0	315	6	3	0	0	0	0	0	9	171	34	5	6	1	2	0	219	683
15:30	126	21	8	2	1	1	0	159	264	74	9	3	3	1	0	354	3	2	0	0	0	0	0	5	202	37	5	3	0	2	0	249	767
15:45	124	39	3	2	1	0	0	169	275	49	4	9	1	3	0	341	6	1	0	0	0	0	1	8	166	30	3	3	0	0	0	202	720
16:00	150	26	6	6	1	0	0	189	272	62	6	5	1	3	0	349	5	4	0	0	0	0	0	9	233	31	4	1	3	1	0	273	820
16:15	154	30	6	3	2	0	0	195	255	63	7	5	1	1	0	332	5	3	0	0	0	0	0	8	229	39	5	2	1	0	0	276	811
16:30	189	32	2	4	1	3	0	231	327	66	10	1	2	1	0	407	6	0	0	0	0	0	0	6	255	29	3	2	0	0	0	289	933
16:45	162	27	5	1	1	0	0	196	330	63	8	2	0	1	0	404	10	3	0	0	0	0	0	13	274	31	2	2	1	1	0	311	924
17:00	174	17	3	3	0	1	0	198	350	62	4	1	1	0	0	418	4	2	0	0	0	0	0	6	265	21	5	5	0	0	0	296	918
17:15	183	17	4	1	2	2	0	209	367	38	3	4	1	1	0	414	10	3	0	0	0	0	0	13	232	18	2	1	0	0	0	253	889
17:30	151	15	2	1	0	0	0	169	340	33	5	2	2	4	0	386	2	0	0	0	0	0	0	2	206	21	3	1	0	1	0	232	789
17:45	152	15	2	1	0	0	0	170	362	39	1	0	2	1	0	405	6	2	0	0	0	0	0	8	179	24	2	2	0	2	0	209	792
18:00	130	15	3	1	0	0	0	149	286	39	3	3	1	0	0	332	1	0	0	0	0	0	0	1	221	18	2	1	0	1	0	243	725
18:15	125	8	0	1	1	1	0	136	253	19	2	1	1	2	0	278	5	0	0	0	0	0	0	5	219	17	4	0	0	1	0	241	660
18:30	97	7	2	0	0	0	0	106	240	19	1	2	1	0	0	263	1	0	0	0	0	0	0	1	130	10	3	0	0	0	0	143	513
18:45	76	12	0	0	0	0	0	88	177	18	3	1	2	0	0	201	4	2	0	0	0	0	0	6	119	6	0	0	0	0	0	125	420
1 Hr	428	42	5	2	1	1	0	479	956	95	9	7	5	2	0	1074	11	2	0	0	0	0	0	13	689	51	9	1	0	2	0	752	2318
4 Hrs	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
Total	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!

Tracsis plc
Traffic and Data Services

Return To Dashboard
Convert to PCU

3825-WAL Bike Park Wales Road
Junction Turning Count
Thursday 6th September 2018

Site 1 - A4060 / A470 (E) / Unnamed Road / A470 (W)

DESTINATION SUMMARY

	Destination : Arm A A4060								Destination : Arm B A470 (E)								Destination : Arm C Unnamed Road								Destination : Arm D A470 (W)								Dest Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
07:00	100	23	6	8	0	1	0	138	231	63	14	8	2	0	0	318	1	1	0	0	0	0	0	2	101	34	7	2	0	0	0	144	602
07:15	130	26	6	2	0	0	0	164	239	50	13	5	2	0	0	309	1	0	0	0	0	0	0	1	139	41	3	3	0	0	0	186	660
07:30	192	32	4	1	0	1	0	230	271	46	18	8	4	2	0	349	1	0	1	0	0	0	0	2	167	42	9	5	2	0	0	225	806
07:45	198	27	9	8	0	2	0	244	317	58	16	11	0	2	0	404	2	2	1	0	0	0	0	5	189	39	7	6	0	0	0	241	894
08:00	168	30	10	3	1	1	0	213	337	54	16	4	1	2	0	414	5	2	0	0	0	0	0	7	230	43	6	8	1	1	0	289	923
08:15	168	31	8	6	0	0	0	213	338	38	11	6	1	1	0	395	5	2	0	0	0	0	0	7	245	45	9	5	0	2	0	306	921
08:30	151	33	4	5	0	1	0	194	269	44	9	8	1	0	0	331	9	2	0	0	0	0	0	11	273	34	6	4	1	2	0	320	856
08:45	138	24	2	9	2	0	0	175	226	35	8	15	0	1	0	285	9	2	0	0	0	0	0	11	278	25	7	3	2	0	0	315	786
09:00	111	27	7	6	0	3	0	154	206	25	9	9	2	1	0	252	14	4	0	0	0	0	0	18	237	25	10	6	0	1	0	279	703
09:15	99	26	4	8	2	0	0	139	191	37	5	12	2	1	0	248	10	2	0	0	0	0	0	12	181	26	2	6	0	1	0	216	615
09:30	86	23	8	5	0	0	0	122	151	38	11	7	1	1	0	209	5	0	0	0	0	0	0	5	167	30	4	6	0	2	0	209	545
09:45	72	15	1	3	2	0	0	93	148	30	14	14	2	1	0	209	4	1	0	0	0	0	0	5	146	28	6	6	0	2	0	188	495
1 Hr	368	91	20	22	4	3	0	508	696	130	39	42	7	4	0	918	33	7	0	0	0	0	0	40	731	109	22	24	0	6	0	892	2358
3 Hrs	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!

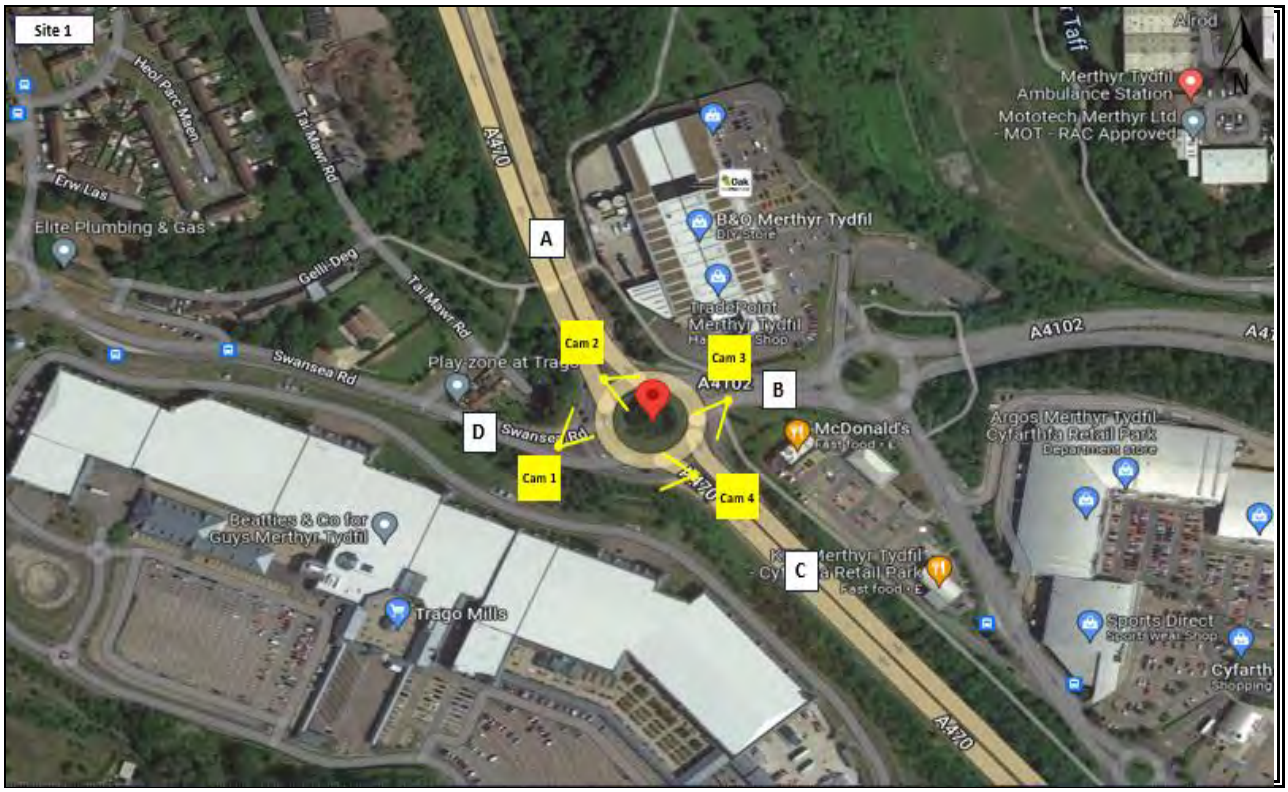
DESTINATION SUMMARY

	Destination : Arm A A4060								Destination : Arm B A470 (E)								Destination : Arm C Unnamed Road								Destination : Arm D A470 (W)								Dest Totals
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	
15:00	112	29	6	2	2	0	0	151	276	43	8	12	1	4	0	344	5	0	0	0	0	0	0	5	138	30	6	2	1	0	0	177	677
15:15	137	27	3	6	2	0	0	175	231	46	12	9	1	3	0	302	3	1	0	0	0	0	0	4	158	36	3	3	0	2	0	202	683
15:30	126	43	3	2	3	0	0	177	271	50	12	4	1	3	0	341	1	2	0	0	0	0	0	3	197	39	7	2	0	1	0	246	767
15:45	139	29	3	2	1	1	1	176	244	59	6	5	1	0	0	315	1	1	0	0	0	0	0	2	187	30	1	7	0	2	0	227	720
16:00	151	38	6	3	1	3	0	202	319	54	9	6	4	1	0	393	0	1	0	0	0	0	0	1	190	30	1	3	0	0	0	224	820
16:15	129	28	5	1	1	1	0	165	328	62	10	5	3	0	0	408	0	0	1	0	0	0	0	1	186	45	2	4	0	0	0	237	811
16:30	171	32	3	1	2	1	0	210	392	52	5	6	1	2	0	458	0	0	0	0	0	0	0	0	214	43	7	0	0	1	0	265	933
16:45	172	38	4	1	0	1	0	216	395	47	6	3	2	1	0	454	0	0	0	0	0	0	0	0	209	39	5	1	0	0	0	254	924
17:00	158	26	3	1	1	0	0	189	381	30	8	8	0	1	0	428	1	0	0	0	0	0	0	1	253	46	1	0	0	0	0	300	918
17:15	178	26	1	3	1	1	0	210	371	31	5	2	2	2	0	413	1	0	0	0	0	0	0	1	242	19	3	1	0	0	0	265	889
17:30	168	26	2	2	2	0	0	200	294	27	5	2	0	1	0	329	0	0	0	0	0	0	0	0	237	16	3	0	0	4	0	260	789
17:45	180	22	0	0	1	1	0	204	286	32	3	3	0	2	0	326	1	0	0	0	0	0	0	1	232	26	2	0	1	0	0	261	792
18:00	139	21	1	2	1	0	0	164	295	26	5	2	0	1	0	329	0	0	0	0	0	0	0	0	204	25	2	1	0	0	0	232	725
18:15	132	8	2	1	1	0	0	144	295	23	4	1	1	2	0	326	0	0	0	0	0	0	0	0	175	13	0	0	0	2	0	190	660
18:30	115	6	0	1	1	0	0	123	188	14	5	0	0	0	0	207	0	0	0	0	0	0	0	0	165	16	1	1	0	0	0	183	513
18:45	77	8	2	0	2	0	0	89	155	18	0	0	0	0	0	173	0	0	0	0	0	0	0	0	144	12	1	1	0	0	0	158	420
1 Hr	463	43	5	4	5	0	0	520	933	81	14	3	1	3	0	1035	0	0	0	0	0	0	0	0	688	66	4	3	0	2	0	763	2318
4 Hrs	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
Total	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!

Severnside
Transportation Data Collection

Survey Overview

Job Number/Job Name	SS769 Swansea Road, Merthyr
Date	Thursday 16 June and Saturday 18 June
Time	0700-1900
Survey Type	Classified Junction Turning Counts
Weather Conditions	



Comments

Severnside
Transportation Data Collection

	Arm A - Arm A							
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total
0700-0715	0	1	0	0	0	0	0	**1**
0715-0730	1	0	0	0	0	0	0	**1**
0730-0745	0	0	0	0	0	0	0	**0**
0745-0800	0	0	0	0	0	0	0	**0**
Hourly Total	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**2**
0800-0815	0	0	0	0	0	0	0	**0**
0815-0830	0	0	0	0	0	0	0	**0**
0830-0845	0	1	0	2	0	0	0	**3**
0845-0900	0	0	2	2	0	0	0	**4**
Hourly Total	**0**	**1**	**2**	**4**	**0**	**0**	**0**	**7**
0900-0915	0	0	0	1	0	0	0	**1**
0915-0930	0	1	0	0	0	0	0	**1**
0930-0945	1	0	0	2	0	0	0	**3**
0945-1000	0	0	0	2	0	0	0	**2**
Hourly Total	**1**	**1**	**0**	**5**	**0**	**0**	**0**	**7**
1000-1015	1	0	0	0	0	0	0	**1**
1015-1030	1	1	0	2	0	0	0	**4**
1030-1045	0	0	0	0	0	0	0	**0**
1045-1100	0	0	0	0	0	0	0	**0**
Hourly Total	**2**	**1**	**0**	**2**	**0**	**0**	**0**	**5**
1100-1115	0	0	0	3	0	0	0	**3**
1115-1130	0	0	2	0	0	0	0	**2**
1130-1145	0	0	0	2	0	0	0	**2**
1145-1200	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**2**	**5**	**0**	**0**	**0**	**7**
1200-1215	0	1	0	2	0	0	0	**3**
1215-1230	1	0	1	0	0	0	0	**2**
1230-1245	0	0	1	2	0	0	0	**3**
1245-1300	0	0	0	1	0	0	0	**1**
Hourly Total	**1**	**1**	**2**	**5**	**0**	**0**	**0**	**9**
1300-1315	0	0	0	2	0	0	0	**2**
1315-1330	0	2	0	2	0	0	0	**4**
1330-1345	0	1	0	2	0	0	0	**3**
1345-1400	2	0	0	2	0	0	0	**4**
Hourly Total	**2**	**3**	**0**	**8**	**0**	**0**	**0**	**13**
1400-1415	2	0	0	0	0	0	0	**2**
1415-1430	1	0	0	0	0	0	0	**1**
1430-1445	1	0	0	2	0	0	0	**3**
1445-1500	0	0	0	1	0	0	0	**1**
Hourly Total	**4**	**0**	**0**	**3**	**0**	**0**	**0**	**7**
1500-1515	1	0	0	2	0	0	0	**3**
1515-1530	2	1	0	1	0	0	0	**4**
1530-1545	0	0	0	2	0	0	0	**2**
1545-1600	3	0	0	3	0	0	0	**6**
Hourly Total	**6**	**1**	**0**	**8**	**0**	**0**	**0**	**15**
1600-1615	0	0	0	0	0	0	0	**0**
1615-1630	0	0	0	0	0	0	0	**0**
1630-1645	0	0	0	0	0	0	0	**0**
1645-1700	0	0	1	0	0	0	0	**1**
Hourly Total	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
1700-1715	0	0	0	0	0	0	0	**0**
1715-1730	0	0	0	0	0	0	0	**0**
1730-1745	0	0	0	0	0	0	0	**0**
1745-1800	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
1800-1815	0	0	0	0	0	0	0	**0**
1815-1830	2	1	0	0	0	0	0	**3**
1830-1845	0	0	0	0	0	0	0	**0**
1845-1900	3	1	0	0	0	0	0	**4**
Hourly Total	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**7**
Total	22	11	7	40	0	0	0	**80**

	Arm B - Arm A							
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0700-0715	31	8	1	0	0	0	0	**40**
0715-0730	29	14	0	0	1	0	0	**44**
0730-0745	18	14	0	0	3	1	0	**36**
0745-0800	33	9	2	0	0	0	0	**44**
Hourly Total	**111**	**45**	**3**	**0**	**4**	**1**	**0**	**164**
0800-0815	21	12	2	1	0	1	0	**37**
0815-0830	37	12	3	0	0	0	0	**52**
0830-0845	20	14	2	0	0	0	0	**36**
0845-0900	24	7	0	0	0	1	0	**32**
Hourly Total	**102**	**45**	**7**	**1**	**0**	**2**	**0**	**157**
0900-0915	32	14	3	0	0	0	0	**49**
0915-0930	36	12	0	0	1	0	0	**49**
0930-0945	37	13	0	1	0	0	0	**51**
0945-1000	45	6	1	0	0	0	0	**52**
Hourly Total	**150**	**45**	**4**	**1**	**1**	**0**	**0**	**201**
1000-1015	42	4	1	1	0	0	0	**48**
1015-1030	37	3	2	1	0	0	0	**43**
1030-1045	47	10	1	0	0	2	0	**60**
1045-1100	59	6	0	1	1	0	0	**67**
Hourly Total	**185**	**23**	**4**	**3**	**1**	**2**	**0**	**218**
1100-1115	72	8	1	0	0	0	0	**81**
1115-1130	52	5	2	0	1	0	0	**60**
1130-1145	69	8	0	1	0	1	0	**79**
1145-1200	64	9	0	1	0	0	0	**74**
Hourly Total	**257**	**30**	**3**	**2**	**1**	**1**	**0**	**294**
1200-1215	65	10	1	0	0	0	0	**76**
1215-1230	55	5	1	1	0	0	0	**62**
1230-1245	70	9	0	0	0	0	0	**79**
1245-1300	60	2	0	0	0	2	0	**64**
Hourly Total	**250**	**26**	**2**	**1**	**0**	**2**	**0**	**281**
1300-1315	53	9	1	1	0	0	0	**64**
1315-1330	54	2	2	1	0	0	0	**59**
1330-1345	56	5	1	0	0	0	0	**62**
1345-1400	71	5	2	0	1	1	0	**80**
Hourly Total	**234**	**21**	**6**	**2**	**1**	**1**	**0**	**265**
1400-1415	76	6	2	0	0	1	0	**85**
1415-1430	63	2	2	1	1	0	0	**69**
1430-1445	57	11	2	0	0	1	0	**71**
1445-1500	61	8	1	0	0	0	0	**70**
Hourly Total	**257**	**27**	**7**	**1**	**1**	**2**	**0**	**295**
1500-1515	61	8	0	0	0	1	0	**70**
1515-1530	71	13	3	0	2	0	0	**89**
1530-1545	72	10	0	0	1	1	0	**84**
1545-1600	73	9	0	1	0	0	0	**83**
Hourly Total	**277**	**40**	**3**	**1**	**3**	**2**	**0**	**326**
1600-1615	86	13	1	0	0	0	0	**100**
1615-1630	63	7	0	1	1	1	0	**73**
1630-1645	75	5	0	1	1	1	0	**83**
1645-1700	73	6	0	0	0	1	0	**80**
Hourly Total	**297**	**31**	**1**	**2**	**2**	**3**	**0**	**336**
1700-1715	66	5	1	0	0	0	0	**72**
1715-1730	70	3	0	1	0	0	0	**74**
1730-1745	70	3	1	0	1	0	0	**75**
1745-1800	76	3	0	0	1	0	0	**80**
Hourly Total	**282**	**14**	**2**	**1**	**2**	**0**	**0**	**301**
1800-1815	72	5	0	0	0	1	0	**78**
1815-1830	77	7	0	0	0	1	0	**85**
1830-1845	55	5	0	0	2	0	0	**62**
1845-1900	80	4	1	0	0	0	0	**85**
Hourly Total	**284**	**21**	**1**	**0**	**2**	**2**	**0**	**310**
Total	2686	368	43	15	18	18	0	**3148**

	Arm C - Arm A							
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0700-0715	56	27	5	11	0	1	0	**100**
0715-0730	68	31	3	5	1	0	0	**108**
0730-0745	93	32	3	6	0	0	0	**134**
0745-0800	79	35	3	6	1	0	0	**124**
Hourly Total	**296**	**125**	**14**	**28**	**2**	**1**	**0**	**466**
0800-0815	90	28	3	4	0	4	0	**129**
0815-0830	75	31	8	5	0	0	0	**119**
0830-0845	80	32	1	5	1	2	0	**121**
0845-0900	60	25	4	6	1	4	0	**100**
Hourly Total	**305**	**116**	**16**	**20**	**2**	**10**	**0**	**469**
0900-0915	56	25	5	1	0	2	0	**89**
0915-0930	67	17	0	7	1	4	0	**96**
0930-0945	64	17	2	4	0	0	0	**87**
0945-1000	54	16	5	9	1	2	0	**87**
Hourly Total	**241**	**75**	**12**	**21**	**2**	**8**	**0**	**359**
1000-1015	63	23	3	6	1	4	0	**100**
1015-1030	51	15	6	7	1	3	0	**83**
1030-1045	68	15	3	1	1	1	0	**89**
1045-1100	70	15	1	3	0	4	0	**93**
Hourly Total	**252**	**68**	**13**	**17**	**3**	**12**	**0**	**365**
1100-1115	68	15	3	5	0	1	0	**92**
1115-1130	61	15	2	4	1	1	0	**84**
1130-1145	64	22	2	4	0	4	0	**96**
1145-1200	70	18	7	2	0	4	0	**101**
Hourly Total	**263**	**70**	**14**	**15**	**1**	**10**	**0**	**373**
1200-1215	63	11	3	4	0	0	0	**81**
1215-1230	68	15	4	2	0	1	0	**90**
1230-1245	88	15	5	2	2	0	0	**112**
1245-1300	67	23	0	8	0	8	0	**106**
Hourly Total	**286**	**64**	**12**	**16**	**2**	**9**	**0**	**389**
1300-1315	85	14	2	1	0	0	0	**102**
1315-1330	66	19	4	3	0	0	0	**92**
1330-1345	68	10	3	5	0	4	0	**90**
1345-1400	64	8	5	2	0	3	0	**82**
Hourly Total	**283**	**51**	**14**	**11**	**0**	**7**	**0**	**366**
1400-1415	66	17	3	6	0	2	0	**94**
1415-1430	73	14	3	6	1	3	0	**100**
1430-1445	78	16	1	5	0	1	0	**101**
1445-1500	70	12	2	2	0	3	0	**89**
Hourly Total	**287**	**59**	**9**	**19**	**1**	**9**	**0**	**384**
1500-1515	79	20	3	4	0	2	0	**108**
1515-1530	68	7	1	1	0	1	0	**78**
1530-1545	84	19	0	3	0	1	0	**107**
1545-1600	81	23	1	2	0	0	0	**107**
Hourly Total	**312**	**69**	**5**	**10**	**0**	**4**	**0**	**400**
1600-1615	91	12	5	4	1	0	0	**113**
1615-1630	99	17	3	1	0	1	0	**121**
1630-1645	82	15	2	1	0	2	0	**102**
1645-1700	89	13	4	2	0	1	0	**109**
Hourly Total	**361**	**57**	**14**	**8**	**1**	**4**	**0**	**445**
1700-1715	93	12	3	1	0	1	0	**110**
1715-1730	84	13	3	0	0	0	0	**100**
1730-1745	90	9	1	3	0	1	0	**104**
1745-1800	73	11	0	0	0	2	0	**86**
Hourly Total	**340**	**45**	**7**	**4**	**0**	**4**	**0**	**400**
1800-1815	75	6	1	2	-1	4	0	**87**
1815-1830	75	11	1	2	0	5	0	**94**
1830-1845	67	6	2	0	1	1	0	**77**
1845-1900	70	10	2	0	2	1	0	**85**
Hourly Total	**287**	**33**	**6**	**4**	**2**	**11**	**0**	**343**
Total	3513	832	136	173	16	89	0	**4759**

	Arm D - Arm A							
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0700-0715	9	4	0	0	0	0	0	**13**
0715-0730	12	2	0	0	0	0	0	**14**
0730-0745	9	0	0	0	0	0	0	**9**
0745-0800	17	5	1	0	0	0	0	**23**
Hourly Total	**47**	**11**	**1**	**0**	**0**	**0**	**0**	**59**
0800-0815	18	2	1	0	0	0	0	**21**
0815-0830	18	4	1	0	0	0	0	**23**
0830-0845	12	8	0	0	0	0	0	**20**
0845-0900	13	2	2	0	0	0	0	**17**
Hourly Total	**61**	**16**	**4**	**0**	**0**	**0**	**0**	**81**
0900-0915	14	3	1	0	0	0	0	**18**
0915-0930	10	3	0	0	0	0	0	**13**
0930-0945	11	4	0	0	0	1	0	**16**
0945-1000	13	1	0	0	0	0	0	**14**
Hourly Total	**48**	**11**	**1**	**0**	**0**	**1**	**0**	**61**
1000-1015	11	2	0	0	0	0	0	**13**
1015-1030	19	0	0	0	0	0	0	**19**
1030-1045	10	1	2	1	0	0	0	**14**
1045-1100	16	2	1	0	0	0	0	**19**
Hourly Total	**56**	**5**	**3**	**1**	**0**	**0**	**0**	**65**
1100-1115	11	2	0	0	0	0	0	**13**
1115-1130	6	4	2	0	0	0	0	**12**
1130-1145	10	1	0	0	0	1	0	**12**
1145-1200	12	1	0	0	0	0	0	**13**
Hourly Total	**39**	**8**	**2**	**0**	**0**	**1**	**0**	**50**
1200-1215	11	2	1	0	0	1	0	**15**
1215-1230	17	3	4	1	0	0	0	**25**
1230-1245	11	4	1	1	0	1	0	**18**
1245-1300	20	7	0	0	0	0	0	**27**
Hourly Total	**59**	**16**	**6**	**2**	**0**	**2**	**0**	**85**
1300-1315	18	0	1	0	0	0	0	**19**
1315-1330	22	0	0	1	0	0	0	**23**
1330-1345	22	0	0	0	0	0	0	**22**
1345-1400	22	6	1	0	0	0	0	**29**
Hourly Total	**84**	**6**	**2**	**1**	**0**	**0**	**0**	**93**
1400-1415	9	2	2	0	0	0	0	**13**
1415-1430	11	2	0	0	0	0	0	**13**
1430-1445	10	5	0	0	0	0	0	**15**
1445-1500	12	2	1	0	0	0	0	**15**
Hourly Total	**42**	**11**	**3**	**0**	**0**	**0**	**0**	**56**
1500-1515	13	2	0	0	0	1	0	**16**
1515-1530	18	1	0	0	1	0	0	**20**
1530-1545	17	1	1	0	0	0	0	**19**
1545-1600	18	1	1	0	0	0	0	**20**
Hourly Total	**66**	**5**	**2**	**0**	**1**	**1**	**0**	**75**
1600-1615	18	2	0	0	0	0	0	**20**
1615-1630	13	4	0	0	0	0	0	**17**
1630-1645	19	2	1	0	0	0	0	**22**
1645-1700	19	5	1	0	0	0	0	**25**
Hourly Total	**69**	**13**	**2**	**0**	**0**	**0**	**0**	**84**
1700-1715	10	2	0	0	0	0	0	**12**
1715-1730	16	2	0	0	0	0	0	**18**
1730-1745	16	4	0	0	0	0	0	**20**
1745-1800	14	4	0	0	0	0	0	**18**
Hourly Total	**56**	**12**	**0**	**0**	**0**	**0**	**0**	**68**
1800-1815	16	3	0	0	0	0	0	**19**
1815-1830	12	2	0	0	0	0	0	**14**
1830-1845	14	1	0	0	0	0	0	**15**
1845-1900	10	2	0	0	0	0	0	**12**
Hourly Total	**52**	**8**	**0**	**0**	**0**	**0**	**0**	**60**
Total	679	122	26	4	1	5	0	**837**

	Origin - Arm A							
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0700-0715	69	28	1	2	0	0	0	**100**
0715-0730	95	20	8	8	3	1	0	**135**
0730-0745	135	31	2	6	3	1	1	**179**
0745-0800	153	37	3	7	1	0	0	**201**
Hourly Total	**452**	**116**	**14**	**23**	**7**	**2**	**1**	**615**
0800-0815	143	27	7	9	1	0	0	**187**
0815-0830	146	23	4	7	0	1	0	**181**
0830-0845	141	19	4	7	0	0	0	**171**
0845-0900	136	20	6	5	4	1	0	**172**
Hourly Total	**566**	**89**	**21**	**28**	**5**	**2**	**0**	**711**
0900-0915	149	22	7	6	2	0	0	**186**
0915-0930	178	21	6	1	2	1	0	**209**
0930-0945	132	26	4	10	2	0	0	**174**
0945-1000	128	21	2	8	0	0	0	**159**
Hourly Total	**587**	**90**	**19**	**25**	**6**	**1**	**0**	**728**
1000-1015	143	29	5	6	1	1	0	**185**
1015-1030	143	17	7	7	1	0	0	**175**
1030-1045	142	21	8	7	3	0	0	**181**
1045-1100	117	23	5	2	1	2	0	**150**
Hourly Total	**545**	**90**	**25**	**22**	**6**	**3**	**0**	**691**
1100-1115	127	29	4	6	2	3	0	**171**
1115-1130	133	16	8	3	0	1	0	**161**
1130-1145	126	28	15	9	2	0	0	**180**
1145-1200	135	22	8	3	0	1	2	**171**
Hourly Total	**521**	**95**	**35**	**21**	**4**	**5**	**2**	**683**
1200-1215	121	27	3	7	0	0	0	**158**
1215-1230	146	36	3	6	1	3	0	**195**
1230-1245	162	36	7	6	2	2	0	**215**
1245-1300	143	29	2	4	1	0	0	**179**
Hourly Total	**572**	**128**	**15**	**23**	**4**	**5**	**0**	**747**
1300-1315	161	25	2	5	0	2	0	**195**
1315-1330	137	29	5	7	1	2	0	**181**
1330-1345	127	28	6	10	1	5	0	**177**
1345-1400	133	19	9	7	1	1	0	**170**
Hourly Total	**558**	**101**	**22**	**29**	**3**	**10**	**0**	**723**
1400-1415	130	29	10	3	1	4	0	**177**
1415-1430	159	42	8	3	3	4	0	**219**
1430-1445	146	25	3	12	4	4	0	**194**
1445-1500	139	29	8	8	2	3	0	**189**
Hourly Total	**574**	**125**	**29**	**26**	**10**	**15**	**0**	**779**
1500-1515	137	50	8	7	1	1	0	**204**
1515-1530	158	27	4	6	4	6	0	**205**
1530-1545	141	34	4	8	1	3	0	**191**
1545-1600	142	44	4	6	2	4	0	**202**
Hourly Total	**578**	**155**	**20**	**27**	**8**	**14**	**0**	**802**
1600-1615	162	33	1	4	2	6	0	**208**
1615-1630	178	44	3	2	1	4	0	**232**
1630-1645	132	28	3	3	2	0	0	**168**
1645-1700	155	17	4	3	1	3	0	**183**
Hourly Total	**627**	**122**	**11**	**12**	**6**	**13**	**0**	**791**
1700-1715	146	38	2	1	0	0	0	**187**
1715-1730	158	25	8	1	2	4	0	**198**
1730-1745	191	25	2	0	3	3	0	**224**
1745-1800	212	31	0	1	1	5	0	**250**
Hourly Total	**707**	**119**	**12**	**3**	**6**	**12**	**0**	**859**
1800-1815	189	28	0	1	2	0	0	**220**
1815-1830	157	21	1	1	0	1	0	**181**
1830-1845	154	13	1	0	4	1	0	**173**
1845-1900	134	12	1	0	1	1	0	**149**
Hourly Total	**634**	**74**	**3**	**2**	**7**	**3**	**0**	**723**
Total	6921	1304	226	241	72	85	3	**8852**

	Destination - Arm A							
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0700-0715	96	40	6	11	0	1	0	**154**
0715-0730	110	47	3	5	2	0	0	**167**
0730-0745	120	46	3	6	3	1	0	**179**
0745-0800	129	49	6	6	1	0	0	**191**
Hourly Total	**455**	**182**	**18**	**28**	**6**	**2**	**0**	**691**
0800-0815	129	42	6	5	0	5	0	**187**
0815-0830	130	47	12	5	0	0	0	**194**
0830-0845	112	55	3	7	1	2	0	**180**
0845-0900	97	34	8	8	1	5	0	**153**
Hourly Total	**468**	**178**	**29**	**25**	**2**	**12**	**0**	**714**
0900-0915	102	42	9	2	0	2	0	**157**
0915-0930	113	33	0	7	2	4	0	**159**
0930-0945	113	34	2	7	0	1	0	**157**
0945-1000	112	23	6	11	1	2	0	**155**
Hourly Total	**440**	**132**	**17**	**27**	**3**	**9**	**0**	**628**
1000-1015	117	29	4	7	1	4	0	**162**
1015-1030	108	19	8	10	1	3	0	**149**
1030-1045	125	26	6	2	1	3	0	**163**
1045-1100	145	23	2	4	1	4	0	**179**
Hourly Total	**495**	**97**	**20**	**23**	**4**	**14**	**0**	**653**
1100-1115	151	25	4	8	0	1	0	**189**
1115-1130	119	24	8	4	2	1	0	**158**
1130-1145	143	31	2	7	0	6	0	**189**
1145-1200	146	28	7	3	0	4	0	**188**
Hourly Total	**559**	**108**	**21**	**22**	**2**	**12**	**0**	**724**
1200-1215	139	24	5	6	0	1	0	**175**
1215-1230	141	23	10	4	0	1	0	**179**
1230-1245	169	28	7	5	2	1	0	**212**
1245-1300	147	32	0	9	0	10	0	**198**
Hourly Total	**596**	**107**	**22**	**24**	**2**	**13**	**0**	**764**
1300-1315	156	23	4	4	0	0	0	**187**
1315-1330	142	23	6	7	0	0	0	**178**
1330-1345	146	16	4	7	0	4	0	**177**
1345-1400	159	19	8	4	1	4	0	**195**
Hourly Total	**603**	**81**	**22**	**22**	**1**	**8**	**0**	**737**
1400-1415	153	25	7	6	0	3	0	**194**
1415-1430	148	18	5	7	2	3	0	**183**
1430-1445	146	32	3	7	0	2	0	**190**
1445-1500	143	22	4	3	0	3	0	**175**
Hourly Total	**590**	**97**	**19**	**23**	**2**	**11**	**0**	**742**
1500-1515	154	30	3	6	0	4	0	**197**
1515-1530	159	22	4	2	3	1	0	**191**
1530-1545	173	30	1	5	1	2	0	**212**
1545-1600	175	33	2	6	0	0	0	**216**
Hourly Total	**661**	**115**	**10**	**19**	**4**	**7**	**0**	**816**
1600-1615	195	27	6	4	1	0	0	**233**
1615-1630	175	28	3	2	1	2	0	**211**
1630-1645	176	22	3	2	1	3	0	**207**
1645-1700	181	24	6	2	0	2	0	**215**
Hourly Total	**727**	**101**	**18**	**10**	**3**	**7**	**0**	**866**
1700-1715	169	19	4	1	0	1	0	**194**
1715-1730	170	18	3	1	0	0	0	**192**
1730-1745	176	16	2	3	1	1	0	**199**
1745-1800	163	18	0	0	1	2	0	**184**
Hourly Total	**678**	**71**	**9**	**5**	**2**	**4**	**0**	**769**
1800-1815	163	14	1	2	-1	5	0	**184**
1815-1830	166	21	1	2	0	6	0	**196**
1830-1845	136	12	2	0	3	1	0	**154**
1845-1900	163	17	3	0	2	1	0	**186**
Hourly Total	**628**	**64**	**7**	**4**	**4**	**13**	**0**	**720**
Total	6900	1333	212	232	35	112	0	**8824**

SS76
Thursday

Arm A - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
15	10	0	1	0	0	0	**26**
19	11	2	2	2	0	0	**36**
28	9	1	2	3	0	1	**44**
43	9	1	1	1	0	0	**55**
105	**39**	**4**	**6**	**6**	**0**	**1**	**161**
45	8	6	0	1	0	0	**60**
48	5	1	0	0	1	0	**55**
62	4	1	1	0	0	0	**68**
62	4	1	0	2	0	0	**69**
217	**21**	**9**	**1**	**3**	**1**	**0**	**252**
74	12	4	0	1	0	0	**91**
88	7	3	0	1	0	0	**99**
62	6	1	0	2	0	0	**71**
63	9	0	1	0	0	0	**73**
287	**34**	**8**	**1**	**4**	**0**	**0**	**334**
60	11	2	1	1	0	0	**75**
71	5	3	0	0	0	0	**79**
67	10	3	2	1	0	0	**83**
54	12	0	0	1	0	0	**67**
252	**38**	**8**	**3**	**3**	**0**	**0**	**304**
61	11	2	0	2	0	0	**76**
64	5	1	0	0	0	0	**70**
70	6	4	2	2	0	0	**84**
60	9	4	0	0	0	0	**73**
255	**31**	**11**	**2**	**4**	**0**	**0**	**303**
53	9	1	0	0	0	0	**63**
76	22	1	0	1	2	0	**102**
75	23	2	1	2	0	0	**103**
69	7	1	0	1	0	0	**78**
273	**61**	**5**	**1**	**4**	**2**	**0**	**346**
84	14	1	0	0	0	0	**99**
56	4	1	0	1	1	0	**63**
62	8	0	0	1	2	0	**73**
54	5	1	1	1	1	0	**63**
256	**31**	**3**	**1**	**3**	**4**	**0**	**298**
58	3	2	0	1	1	0	**65**
64	10	3	0	1	0	0	**78**
59	3	0	0	4	0	0	**66**
57	12	0	0	1	0	0	**70**
238	**28**	**5**	**0**	**7**	**1**	**0**	**279**
63	19	2	0	1	1	0	**86**
58	8	0	0	2	3	0	**71**
57	14	0	0	0	0	0	**71**
54	17	1	0	2	1	0	**75**
232	**58**	**3**	**0**	**5**	**5**	**0**	**303**
60	13	0	0	1	0	0	**74**
61	11	1	1	0	0	0	**74**
62	11	0	0	1	0	0	**74**
65	4	1	0	1	1	0	**72**
248	**39**	**2**	**1**	**3**	**1**	**0**	**294**
66	9	0	0	0	0	0	**75**
63	9	0	0	2	1	0	**75**
61	7	1	0	2	1	0	**72**
95	4	0	0	0	1	0	**100**
285	**29**	**1**	**0**	**4**	**3**	**0**	**322**
74	9	0	0	2	0	0	**85**
72	6	0	1	0	0	0	**79**
73	4	0	0	4	0	0	**81**
59	6	0	0	1	0	0	**66**
278	**25**	**0**	**1**	**7**	**0**	**0**	**311**
2926	434	59	17	53	17	1	**3507**

Arm B - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**

0	0	0	0	0	0	0	**0**

Arm C - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
24	4	3	0	0	0	0	**31**
26	11	0	0	0	0	0	**37**
49	18	1	0	0	0	0	**68**
94	12	1	0	0	1	0	**108**
193	**45**	**5**	**0**	**0**	**1**	**0**	**244**
66	9	0	0	0	0	0	**75**
84	8	4	0	0	0	0	**96**
97	9	1	0	0	2	0	**109**
73	10	0	0	0	0	0	**83**
320	**36**	**5**	**0**	**0**	**2**	**0**	**363**
71	6	0	1	0	0	0	**78**
50	10	3	1	0	0	0	**64**
51	11	0	0	1	0	0	**63**
52	10	4	0	0	1	0	**67**
224	**37**	**7**	**2**	**1**	**1**	**0**	**272**
68	7	0	2	0	2	0	**79**
46	3	0	1	0	0	0	**50**
46	7	0	1	0	0	0	**54**
55	3	2	0	0	1	0	**61**
215	**20**	**2**	**4**	**0**	**3**	**0**	**244**
54	7	1	1	0	0	0	**63**
48	5	2	1	0	0	0	**56**
43	4	0	0	0	0	0	**47**
58	4	2	0	0	0	0	**64**
203	**20**	**5**	**2**	**0**	**0**	**0**	**230**
44	5	2	0	0	0	0	**51**
45	2	1	0	0	0	0	**48**
46	7	0	0	0	0	0	**53**
58	4	1	0	0	2	0	**65**
193	**18**	**4**	**0**	**0**	**2**	**0**	**217**
41	7	1	0	0	1	0	**50**
43	8	1	1	0	0	0	**53**
62	4	1	0	0	0	0	**67**
51	3	0	2	0	0	0	**56**
197	**22**	**3**	**3**	**0**	**1**	**0**	**226**
48	6	1	0	0	0	0	**55**
48	11	1	1	1	0	0	**62**
49	9	3	2	0	0	0	**63**
49	8	1	1	0	0	0	**59**
194	**34**	**6**	**4**	**1**	**0**	**0**	**239**
36	6	0	0	0	0	0	**42**
38	5	0	1	2	0	0	**46**
56	9	0	1	0	0	0	**66**
55	8	0	0	0	0	0	**63**
185	**28**	**0**	**2**	**2**	**0**	**0**	**217**
63	13	0	1	0	0	0	**77**
52	8	1	1	0	0	0	**62**
67	7	0	1	0	0	0	**75**
61	3	1	0	0	1	0	**66**
243	**31**	**2**	**3**	**0**	**1**	**0**	**280**
56	4	0	0	0	0	0	**60**
55	8	1	0	0	0	0	**64**
54	7	0	1	0	1	0	**63**
59	6	0	0	0	0	0	**65**
224	**25**	**1**	**1**	**0**	**1**	**0**	**252**
58	4	0	0	1	0	0	**63**
43	4	0	0	0	0	0	**47**
48	6	2	0	0	0	0	**56**
33	5	0	0	0	1	0	**39**
182	**19**	**2**	**0**	**1**	**1**	**0**	**205**

2573	335	42	21	5	13	0	**2989**

Arm D - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
8	4	0	0	0	0	0	**12**
16	6	0	0	1	0	0	**23**
36	4	0	0	1	1	0	**42**
32	7	1	0	1	0	0	**41**
92	**21**	**1**	**0**	**3**	**1**	**0**	**118**
48	6	0	0	1	1	0	**56**
57	5	0	0	1	0	0	**63**
51	7	1	0	1	0	0	**60**
51	6	0	0	1	0	0	**58**
207	**24**	**1**	**0**	**4**	**1**	**0**	**237**
45	3	0	0	2	0	0	**50**
27	6	1	0	1	1	0	**36**
33	5	2	0	1	0	0	**41**
41	5	0	0	0	0	0	**46**
146	**19**	**3**	**0**	**4**	**1**	**0**	**173**
34	3	2	0	1	0	0	**40**
39	5	0	0	1	1	0	**46**
36	4	0	0	1	0	0	**41**
47	8	0	0	0	1	0	**56**
156	**20**	**2**	**0**	**3**	**2**	**0**	**183**
36	4	1	0	0	0	0	**41**
46	5	1	0	1	0	0	**53**
50	5	1	0	1	0	0	**57**
34	5	1	0	0	0	0	**40**
166	**19**	**4**	**0**	**2**	**0**	**0**	**191**
55	10	1	0	0	0	0	**66**
40	4	1	0	1	0	0	**46**
53	5	0	0	2	0	0	**60**
38	2	2	1	1	0	0	**44**
186	**21**	**4**	**1**	**4**	**0**	**0**	**216**
45	5	1	0	0	0	0	**51**
31	4	0	0	0	0	0	**35**
48	2	3	0	1	0	1	**55**
44	4	0	0	0	0	0	**48**
168	**15**	**4**	**0**	**1**	**0**	**1**	**189**
38	4	0	0	2	0	0	**44**
50	2	0	1	1	0	0	**54**
59	2	0	0	1	1	0	**63**
47	7	0	0	0	0	0	**54**
194	**15**	**0**	**1**	**4**	**1**	**0**	**215**
57	4	0	0	1	0	0	**62**
44	5	0	0	3	0	0	**52**
44	2	0	0	2	0	0	**48**
43	4	1	0	2	0	0	**50**
188	**15**	**1**	**0**	**8**	**0**	**0**	**212**
54	4	0	0	1	0	0	**59**
50	5	0	0	1	0	0	**56**
48	6	0	0	0	2	0	**56**
39	8	0	0	2	1	0	**50**
191	**23**	**0**	**0**	**4**	**3**	**0**	**221**
44	2	0	0	1	0	0	**47**
58	2	0	0	1	0	0	**61**
54	10	0	0	0	0	0	**64**
45	6	1	0	1	1	0	**54**
201	**20**	**1**	**0**	**3**	**1**	**0**	**226**
44	2	0	0	1	0	0	**47**
21	1	0	0	1	0	0	**23**
40	3	0	0	0	0	0	**43**
34	4	0	0	1	0	0	**39**
139	**10**	**0**	**0**	**3**	**0**	**0**	**152**
2034	222	21	2	43	10	1	**2333**

Origin - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
68	21	2	1	1	0	0	**93**
62	25	1	1	1	0	0	**90**
71	30	0	0	5	1	0	**107**
94	22	2	0	4	0	0	**122**
295	**98**	**5**	**2**	**11**	**1**	**0**	**412**
98	25	3	4	1	1	0	**132**
116	24	7	0	1	0	0	**148**
100	27	7	0	2	0	0	**136**
105	15	3	0	1	2	0	**126**
419	**91**	**20**	**4**	**5**	**3**	**0**	**542**
129	28	4	1	3	0	0	**165**
113	24	2	0	3	1	0	**143**
113	31	7	2	1	0	0	**154**
134	16	3	1	2	0	0	**156**
489	**99**	**16**	**4**	**9**	**1**	**0**	**618**
112	24	2	1	1	0	0	**140**
128	21	4	1	2	0	0	**156**
135	24	1	3	0	4	0	**167**
160	21	2	2	2	0	0	**187**
535	**90**	**9**	**7**	**5**	**4**	**0**	**650**
167	14	4	1	2	0	0	**188**
157	20	2	0	3	0	0	**182**
182	16	1	1	0	1	0	**201**
177	18	6	2	1	0	0	**204**
683	**68**	**13**	**4**	**6**	**1**	**0**	**775**
182	25	1	1	2	0	0	**211**
169	16	3	1	1	0	0	**190**
189	19	0	1	2	0	0	**211**
167	15	3	0	1	3	0	**189**
707	**75**	**7**	**3**	**6**	**3**	**0**	**801**
159	26	3	1	2	2	0	**193**
176	14	4	1	3	2	0	**200**
164	20	3	0	1	1	0	**189**
161	12	2	0	4	2	0	**181**
660	**72**	**12**	**2**	**10**	**7**	**0**	**763**
209	21	2	1	3	2	0	**238**
168	12	4	2	3	0	0	**189**
168	21	2	0	2	2	0	**195**
203	22	1	0	2	0	0	**228**
748	**76**	**9**	**3**	**10**	**4**	**0**	**850**
190	30	1	2	2	1	0	**226**
200	23	5	1	4	0	0	**233**
235	25	2	0	3	1	0	**266**
215	21	2	1	1	1	0	**241**
840	**99**	**10**	**4**	**10**	**3**	**0**	**966**
217	44	2	0	3	0	0	**266**
223	23	1	4	3	1	0	**255**
281	22	0	1	2	2	0	**308**
227	30	0	0	1	1	0	**259**
948	**119**	**3**	**5**	**9**	**4**	**0**	**1088**
248	22	4	1	3	1	0	**279**
216	18	2	1	1	1	0	**239**
209	16	1	1	3	1	0	**231**
202	17	0	0	3	0	0	**222**
875	**73**	**7**	**3**	**10**	**3**	**0**	**971**
174	15	0	0	1	1	0	**191**
181	17	0	0	1	1	0	**200**
179	14	0	0	3	0	0	**196**
177	12	1	0	1	5	0	**196**
711	**58**	**1**	**0**	**6**	**7**	**0**	**783**
7910	1018	112	41	97	41	0	**9219**

Destination - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
47	18	3	1	0	0	0	**69**
61	28	2	2	3	0	0	**96**
113	31	2	2	4	1	1	**154**
169	28	3	1	2	1	0	**204**
390	**105**	**10**	**6**	**9**	**2**	**1**	**523**
159	23	6	0	2	1	0	**191**
189	18	5	0	1	1	0	**214**
210	20	3	1	1	2	0	**237**
186	20	1	0	3	0	0	**210**
744	**81**	**15**	**1**	**7**	**4**	**0**	**852**
190	21	4	1	3	0	0	**219**
165	23	7	1	2	1	0	**199**
146	22	3	0	4	0	0	**175**
156	24	4	1	0	1	0	**186**
657	**90**	**18**	**3**	**9**	**2**	**0**	**779**
162	21	4	3	2	2	0	**194**
156	13	3	1	1	1	0	**175**
149	21	3	3	2	0	0	**178**
156	23	2	0	1	2	0	**184**
623	**78**	**12**	**7**	**6**	**5**	**0**	**731**
151	22	4	1	2	0	0	**180**
158	15	4	1	1	0	0	**179**
163	15	5	2	3	0	0	**188**
152	18	7	0	0	0	0	**177**
624	**70**	**20**	**4**	**6**	**0**	**0**	**724**
152	24	4	0	0	0	0	**180**
161	28	3	0	2	2	0	**196**
174	35	2	1	4	0	0	**216**
165	13	4	1	2	2	0	**187**
652	**100**	**13**	**2**	**8**	**4**	**0**	**779**
170	26	3	0	0	1	0	**200**
130	16	2	1	1	1	0	**151**
172	14	4	0	2	2	1	**195**
149	12	1	3	1	1	0	**167**
621	**68**	**10**	**4**	**4**	**5**	**1**	**713**
144	13	3	0	3	1	0	**164**
162	23	4	2	3	0	0	**194**
167	14	3	2	5	1	0	**192**
153	27	1	1	1	0	0	**183**
626	**77**	**11**	**5**	**12**	**2**	**0**	**733**
156	29	2	0	2	1	0	**190**
140	18	0	1	7	3	0	**169**
157	25	0	1	2	0	0	**185**
152	29	2	0	4	1	0	**188**
605	**101**	**4**	**2**	**15**	**5**	**0**	**732**
177	30	0	1	2	0	0	**210**
163	24	2	2	1	0	0	**192**
177	24	0	1	1	2	0	**205**
165	15	2	0	3	3	0	**188**
682	**93**	**4**	**4**	**7**	**5**	**0**	**795**
166	15	0	0	1	0	0	**182**
176	19	1	0	3	1	0	**200**
169	24	1	1	2	2	0	**199**
199	16	1	0	1	2	0	**219**
710	**74**	**3**	**1**	**7**	**5**	**0**	**800**
176	15	0	0	4	0	0	**195**
136	11	0	1	1	0	0	**149**
161	13	2	0	4	0	0	**180**
126	15	0	0	2	1	0	**144**
599	**54**	**2**	**1**	**11**	**1**	**0**	**668**
7533	991	122	40	101	40	2	**8829**

9 Swansea Road, Merthyr
16 June and Saturday 18 June
0700-1900
Site 1 16 June

Arm A - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
53	16	1	1	0	0	0	**71**
73	9	6	6	1	1	0	**96**
103	22	1	4	0	1	0	**131**
107	23	2	6	0	0	0	**138**
336	**70**	**10**	**17**	**1**	**2**	**0**	**436**
96	18	1	9	0	0	0	**124**
89	15	2	7	0	0	0	**113**
74	12	3	4	0	0	0	**93**
63	16	2	3	2	0	0	**86**
322	**61**	**8**	**23**	**2**	**0**	**0**	**416**
63	8	2	5	1	0	0	**79**
78	11	3	1	1	0	0	**94**
64	19	3	8	0	0	0	**94**
54	11	2	5	0	0	0	**72**
259	**49**	**10**	**19**	**2**	**0**	**0**	**339**
70	17	3	5	0	1	0	**96**
60	8	3	4	1	0	0	**76**
54	9	5	5	1	0	0	**74**
57	10	5	2	0	1	0	**75**
241	**44**	**16**	**16**	**2**	**2**	**0**	**321**
52	16	2	3	0	3	0	**76**
57	9	3	3	0	1	0	**73**
43	21	9	5	0	0	0	**78**
61	13	4	3	0	1	2	**84**
213	**59**	**18**	**14**	**0**	**5**	**2**	**311**
55	15	1	4	0	0	0	**75**
50	10	1	6	0	1	0	**68**
66	12	3	2	0	2	0	**85**
57	20	1	3	0	0	0	**81**
228	**57**	**6**	**15**	**0**	**3**	**0**	**309**
64	10	1	3	0	2	0	**80**
66	21	4	5	0	0	0	**96**
54	13	5	8	0	3	0	**83**
61	14	8	3	0	0	0	**86**
245	**58**	**18**	**19**	**0**	**5**	**0**	**345**
59	25	8	3	0	3	0	**98**
82	31	5	3	2	4	0	**127**
77	19	2	10	0	3	0	**111**
67	17	7	7	1	3	0	**102**
285	**92**	**22**	**23**	**3**	**13**	**0**	**438**
63	28	6	5	0	0	0	**102**
89	18	4	5	2	3	0	**121**
70	18	4	6	1	3	0	**102**
69	25	3	3	0	3	0	**103**
291	**89**	**17**	**19**	**3**	**9**	**0**	**428**
89	18	1	4	1	6	0	**119**
106	30	1	1	1	3	0	**142**
56	15	3	3	1	0	0	**78**
77	13	1	3	0	1	0	**95**
328	**76**	**6**	**11**	**3**	**10**	**0**	**434**
66	28	2	1	0	0	0	**97**
85	13	8	1	0	3	0	**110**
120	17	1	0	1	2	0	**141**
103	25	0	1	1	4	0	**134**
374	**83**	**11**	**3**	**2**	**9**	**0**	**482**
107	18	0	1	0	0	0	**126**
71	14	1	0	0	1	0	**87**
72	9	1	0	0	1	0	**83**
67	3	1	0	0	1	0	**72**
317	**44**	**3**	**1**	**0**	**3**	**0**	**368**
3439	782	145	180	18	61	2	**4627**

Arm B - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
27	8	1	1	0	0	0	**37**
26	6	1	1	0	0	0	**34**
40	11	0	0	0	0	0	**51**
30	9	0	0	0	0	0	**39**
123	**34**	**2**	**2**	**0**	**0**	**0**	**161**
43	11	0	3	0	0	0	**57**
41	10	4	0	0	0	0	**55**
29	6	2	0	0	0	0	**37**
37	4	1	0	0	0	0	**42**
150	**31**	**7**	**3**	**0**	**0**	**0**	**191**
39	4	1	1	0	0	0	**45**
36	7	2	0	0	0	0	**45**
43	15	4	1	0	0	0	**63**
51	8	1	1	0	0	0	**61**
169	**34**	**8**	**3**	**0**	**0**	**0**	**214**
37	13	1	0	1	0	0	**52**
43	11	1	0	0	0	0	**55**
47	10	0	3	0	1	0	**61**
43	6	1	1	0	0	0	**51**
170	**40**	**3**	**4**	**1**	**1**	**0**	**219**
46	2	1	1	0	0	0	**50**
58	10	0	0	0	0	0	**68**
60	4	0	0	0	0	0	**64**
64	5	4	0	0	0	0	**73**
228	**21**	**5**	**1**	**0**	**0**	**0**	**255**
63	6	0	1	0	0	0	**70**
54	7	2	0	0	0	0	**63**
71	9	0	1	0	0	0	**81**
61	6	2	0	0	0	0	**69**
249	**28**	**4**	**2**	**0**	**0**	**0**	**283**
50	9	2	0	1	2	0	**64**
71	8	1	0	0	2	0	**82**
65	9	1	0	0	0	0	**75**
50	5	0	0	0	1	0	**56**
236	**31**	**4**	**0**	**1**	**5**	**0**	**277**
72	11	0	1	0	0	0	**84**
60	4	2	1	0	0	0	**67**
64	9	0	0	0	1	0	**74**
71	10	0	0	0	0	0	**81**
267	**34**	**2**	**2**	**0**	**1**	**0**	**306**
74	14	1	1	0	0	0	**90**
69	7	1	1	0	0	0	**78**
79	9	0	0	0	0	0	**88**
64	7	1	0	0	1	0	**73**
286	**37**	**3**	**2**	**0**	**1**	**0**	**329**
77	18	1	0	0	0	0	**96**
94	6	0	2	0	0	0	**102**
104	2	0	0	0	0	0	**106**
64	5	0	0	0	0	0	**69**
339	**31**	**1**	**2**	**0**	**0**	**0**	**373**
87	9	2	1	0	0	0	**99**
84	1	1	0	0	0	0	**86**
79	5	0	1	0	0	0	**85**
65	7	0	0	0	0	0	**72**
315	**22**	**3**	**2**	**0**	**0**	**0**	**342**
58	6	0	0	0	0	0	**64**
62	5	0	0	0	0	0	**67**
70	4	0	0	0	0	0	**74**
53	4	0	0	0	3	0	**60**
243	**19**	**0**	**0**	**0**	**3**	**0**	**265**
2775	362	42	23	2	11	0	**3215**

Arm C - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
1	**0**	**0**	**0**	**0**	**0**	**0**	**1**
1	1	0	0	0	0	0	**2**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
1	**1**	**0**	**0**	**0**	**0**	**0**	**2**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
2	0	0	0	0	0	0	**2**
0	0	0	0	0	0	0	**0**
2	**0**	**0**	**0**	**0**	**0**	**0**	**2**
0	0	2	0	0	0	0	**2**
2	0	0	0	0	1	0	**3**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
2	**0**	**2**	**0**	**0**	**1**	**0**	**5**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
1	**0**	**0**	**0**	**0**	**0**	**0**	**1**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**

7	1	2	0	0	1	0	**11**

Arm D - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
17	6	0	0	0	0	0	**23**
20	3	0	0	0	0	0	**23**
24	1	0	0	0	0	0	**25**
46	2	0	0	0	0	0	**48**
107	**12**	**0**	**0**	**0**	**0**	**0**	**119**
46	3	0	0	0	0	0	**49**
48	8	2	0	0	0	0	**58**
33	1	1	0	0	0	0	**35**
24	5	0	0	0	0	0	**29**
151	**17**	**3**	**0**	**0**	**0**	**0**	**171**
26	6	1	0	0	1	0	**34**
19	3	1	0	0	0	0	**23**
22	6	0	0	0	0	0	**28**
27	1	0	0	0	0	0	**28**
94	**16**	**2**	**0**	**0**	**1**	**0**	**113**
19	2	0	0	0	1	0	**22**
14	6	0	0	0	0	0	**20**
18	0	0	0	0	0	0	**18**
23	2	1	0	0	0	0	**26**
74	**10**	**1**	**0**	**0**	**1**	**0**	**86**
13	5	1	0	0	0	0	**19**
28	0	1	0	0	0	0	**29**
30	3	1	0	0	0	0	**34**
27	2	0	0	1	0	0	**30**
98	**10**	**3**	**0**	**1**	**0**	**0**	**112**
29	0	0	0	0	0	0	**29**
29	5	1	0	0	0	0	**35**
27	2	0	0	0	0	0	**29**
23	2	0	0	0	0	0	**25**
108	**9**	**1**	**0**	**0**	**0**	**0**	**118**
27	3	0	0	0	0	0	**30**
23	3	1	0	0	0	0	**27**
24	3	1	0	0	1	0	**29**
30	4	0	0	0	0	0	**34**
104	**13**	**2**	**0**	**0**	**1**	**0**	**120**
26	3	0	0	1	1	0	**31**
24	2	0	0	0	0	0	**26**
22	2	0	0	0	1	0	**25**
28	2	0	0	0	0	0	**30**
100	**9**	**0**	**0**	**1**	**2**	**0**	**112**
30	2	0	0	0	0	0	**32**
32	1	0	1	0	0	0	**34**
33	1	1	0	0	0	0	**35**
30	3	0	0	0	1	0	**34**
125	**7**	**1**	**1**	**0**	**1**	**0**	**135**
29	3	1	0	0	0	0	**33**
32	4	0	0	0	0	0	**36**
31	2	0	0	0	1	0	**34**
31	1	0	0	0	0	0	**32**
123	**10**	**1**	**0**	**0**	**1**	**0**	**135**
27	1	0	0	0	0	0	**28**
34	4	0	0	1	0	0	**39**
24	3	0	0	0	0	0	**27**
28	3	0	0	0	0	0	**31**
113	**11**	**0**	**0**	**1**	**0**	**0**	**125**
39	4	0	0	0	0	0	**43**
20	2	0	0	0	0	0	**22**
19	1	0	0	0	0	0	**20**
15	0	0	0	0	0	0	**15**
93	**7**	**0**	**0**	**0**	**0**	**0**	**100**
1290	131	14	1	3	7	0	**1446**

Origin - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
97	33	8	11	0	1	0	**150**
104	46	5	5	1	0	0	**161**
155	57	5	6	0	0	0	**223**
192	49	4	6	1	2	0	**254**
548	**185**	**22**	**28**	**2**	**3**	**0**	**788**
180	46	6	5	1	5	0	**243**
189	42	12	5	1	0	0	**249**
204	50	2	5	1	4	0	**266**
155	39	5	6	1	4	0	**210**
728	**177**	**25**	**21**	**4**	**13**	**0**	**968**
159	37	6	3	0	2	0	**207**
143	34	5	9	1	4	0	**196**
141	32	2	5	1	0	0	**181**
129	30	10	9	2	3	0	**183**
572	**133**	**23**	**26**	**4**	**9**	**0**	**767**
174	34	3	8	2	6	0	**227**
124	24	6	9	1	3	0	**167**
147	25	3	3	1	1	0	**180**
157	21	4	3	0	6	0	**191**
602	**104**	**16**	**23**	**4**	**16**	**0**	**765**
146	27	5	6	0	1	0	**185**
148	26	4	5	1	1	0	**185**
134	30	2	4	0	4	0	**174**
167	29	9	2	0	4	0	**211**
595	**112**	**20**	**17**	**1**	**10**	**0**	**755**
140	20	8	4	0	0	0	**172**
145	24	5	2	0	2	0	**178**
171	23	5	2	2	0	0	**203**
164	31	1	9	0	10	0	**215**
620	**98**	**19**	**17**	**2**	**12**	**0**	**768**
150	26	4	1	0	1	0	**182**
140	32	6	4	0	0	0	**182**
155	20	6	5	0	4	0	**190**
145	15	5	4	0	3	0	**172**
590	**93**	**21**	**14**	**0**	**8**	**0**	**726**
142	24	4	7	1	6	0	**184**
156	29	5	7	2	3	0	**202**
161	36	5	7	0	1	0	**210**
149	27	3	3	0	4	0	**186**
608	**116**	**17**	**24**	**3**	**14**	**0**	**782**
169	29	3	4	0	2	0	**207**
159	14	1	2	2	1	0	**179**
195	39	0	5	0	2	0	**241**
204	37	3	3	1	0	0	**248**
727	**119**	**7**	**14**	**3**	**5**	**0**	**875**
217	39	6	5	1	0	0	**268**
211	40	5	2	0	1	0	**259**
220	36	3	2	0	2	0	**263**
233	26	6	2	0	2	0	**269**
881	**141**	**20**	**11**	**1**	**5**	**0**	**1059**
239	31	3	1	0	1	0	**275**
216	38	4	1	0	0	0	**259**
216	22	1	4	0	2	0	**245**
181	22	0	0	0	2	0	**205**
852	**113**	**8**	**6**	**0**	**5**	**0**	**984**
176	15	2	2	0	4	0	**199**
146	20	1	2	0	5	0	**174**
137	17	4	0	1	2	0	**161**
133	17	3	0	2	2	0	**157**
592	**69**	**10**	**4**	**3**	**13**	**0**	**691**
7915	1460	208	205	27	113	0	**9928**

Destination - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
97	30	2	2	0	0	0	**131**
119	18	7	7	1	1	0	**153**
167	34	1	4	0	1	0	**207**
183	34	2	6	0	0	0	**225**
566	**116**	**12**	**19**	**1**	**2**	**0**	**716**
185	32	1	12	0	0	0	**230**
178	33	8	7	0	0	0	**226**
136	19	6	4	0	0	0	**165**
124	25	3	3	2	0	0	**157**
623	**109**	**18**	**26**	**2**	**0**	**0**	**778**
128	18	4	6	1	1	0	**158**
133	21	6	1	1	0	0	**162**
129	40	7	9	0	0	0	**185**
133	20	3	6	0	0	0	**162**
523	**99**	**20**	**22**	**2**	**1**	**0**	**667**
127	33	4	5	1	2	0	**172**
117	25	4	4	1	0	0	**151**
119	19	5	8	1	1	0	**153**
123	18	7	3	0	1	0	**152**
486	**95**	**20**	**20**	**3**	**4**	**0**	**628**
111	23	4	4	0	3	0	**145**
143	19	4	3	0	1	0	**170**
135	28	10	5	0	0	0	**178**
152	20	8	3	1	1	2	**187**
541	**90**	**26**	**15**	**1**	**5**	**2**	**680**
147	21	3	5	0	0	0	**176**
135	22	4	6	0	2	0	**169**
164	23	3	3	0	2	0	**195**
141	28	3	3	0	0	0	**175**
587	**94**	**13**	**17**	**0**	**4**	**0**	**715**
141	22	3	3	1	4	0	**174**
160	32	6	5	0	2	0	**205**
143	25	7	8	0	4	0	**187**
142	23	8	3	0	1	0	**177**
586	**102**	**24**	**19**	**1**	**11**	**0**	**743**
157	39	8	4	1	4	0	**213**
166	37	7	4	2	4	0	**220**
163	30	2	10	0	5	0	**210**
166	29	7	7	1	3	0	**213**
652	**135**	**24**	**25**	**4**	**16**	**0**	**856**
167	44	7	6	0	0	0	**224**
190	26	5	7	2	3	0	**233**
182	28	5	6	1	3	0	**225**
163	35	4	3	0	5	0	**210**
702	**133**	**21**	**22**	**3**	**11**	**0**	**892**
195	39	3	4	1	6	0	**248**
232	40	1	3	1	3	0	**280**
191	19	3	3	1	1	0	**218**
172	19	1	3	0	1	0	**196**
790	**117**	**8**	**13**	**3**	**11**	**0**	**942**
180	38	4	2	0	0	0	**224**
203	18	9	1	1	3	0	**235**
223	25	1	1	1	2	0	**253**
196	35	0	1	1	4	0	**237**
802	**116**	**14**	**5**	**3**	**9**	**0**	**949**
204	28	0	1	0	0	0	**233**
153	21	1	0	0	1	0	**176**
161	14	1	0	0	1	0	**177**
135	7	1	0	0	4	0	**147**
653	**70**	**3**	**1**	**0**	**6**	**0**	**733**
7511	1276	203	204	23	80	2	**9299**

Arm A - Arm D								
Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Arm Total
1	1	0	0	0	0	0	**2**	**100**
2	0	0	0	0	0	0	**2**	**135**
4	0	0	0	0	0	0	**4**	**179**
3	5	0	0	0	0	0	**8**	**201**
10	**6**	**0**	**0**	**0**	**0**	**0**	**16**	**615**
2	1	0	0	0	0	0	**3**	**187**
9	3	1	0	0	0	0	**13**	**181**
5	2	0	0	0	0	0	**7**	**171**
11	0	1	0	0	1	0	**13**	**172**
27	**6**	**2**	**0**	**0**	**1**	**0**	**36**	**711**
12	2	1	0	0	0	0	**15**	**186**
12	2	0	0	0	1	0	**15**	**209**
5	1	0	0	0	0	0	**6**	**174**
11	1	0	0	0	0	0	**12**	**159**
40	**6**	**1**	**0**	**0**	**1**	**0**	**48**	**728**
12	1	0	0	0	0	0	**13**	**185**
11	3	1	1	0	0	0	**16**	**175**
21	2	0	0	1	0	0	**24**	**181**
6	1	0	0	0	1	0	**8**	**150**
50	**7**	**1**	**1**	**1**	**1**	**0**	**61**	**691**
14	2	0	0	0	0	0	**16**	**171**
12	2	2	0	0	0	0	**16**	**161**
13	1	2	0	0	0	0	**16**	**180**
14	0	0	0	0	0	0	**14**	**171**
53	**5**	**4**	**0**	**0**	**0**	**0**	**62**	**683**
13	2	1	1	0	0	0	**17**	**158**
19	4	0	0	0	0	0	**23**	**195**
21	1	1	1	0	0	0	**24**	**215**
17	2	0	0	0	0	0	**19**	**179**
70	**9**	**2**	**2**	**0**	**0**	**0**	**83**	**747**
13	1	0	0	0	0	0	**14**	**195**
15	2	0	0	0	1	0	**18**	**181**
11	6	1	0	0	0	0	**18**	**177**
16	0	0	1	0	0	0	**17**	**170**
55	**9**	**1**	**1**	**0**	**1**	**0**	**67**	**723**
11	1	0	0	0	0	0	**12**	**177**
12	1	0	0	0	0	0	**13**	**219**
9	3	1	0	0	1	0	**14**	**194**
15	0	1	0	0	0	0	**16**	**189**
47	**5**	**2**	**0**	**0**	**1**	**0**	**55**	**779**
10	3	0	0	0	0	0	**13**	**204**
9	0	0	0	0	0	0	**9**	**205**
14	2	0	0	0	0	0	**16**	**191**
16	2	0	0	0	0	0	**18**	**202**
49	**7**	**0**	**0**	**0**	**0**	**0**	**56**	**802**
13	2	0	0	0	0	0	**15**	**208**
11	3	1	0	0	1	0	**16**	**232**
14	2	0	0	0	0	0	**16**	**168**
13	0	1	0	0	1	0	**15**	**183**
51	**7**	**2**	**0**	**0**	**2**	**0**	**62**	**791**
14	1	0	0	0	0	0	**15**	**187**
10	3	0	0	0	0	0	**13**	**198**
10	1	0	0	0	0	0	**11**	**224**
14	2	0	0	0	0	0	**16**	**250**
48	**7**	**0**	**0**	**0**	**0**	**0**	**55**	**859**
8	1	0	0	0	0	0	**9**	**220**
12	0	0	0	0	0	0	**12**	**181**
9	0	0	0	0	0	0	**9**	**173**
5	2	0	0	0	0	0	**7**	**149**
34	**3**	**0**	**0**	**0**	**0**	**0**	**37**	**723**
534	77	15	4	1	7	0	**638**	**8852**

Arm B - Arm D								
Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Arm Total
10	5	0	0	1	0	0	**16**	**93**
7	5	0	0	0	0	0	**12**	**90**
13	5	0	0	2	0	0	**20**	**107**
31	4	0	0	4	0	0	**39**	**122**
61	**19**	**0**	**0**	**7**	**0**	**0**	**87**	**412**
34	2	1	0	1	0	0	**38**	**132**
38	2	0	0	1	0	0	**41**	**148**
51	7	3	0	2	0	0	**63**	**136**
44	4	2	0	1	1	0	**52**	**126**
167	**15**	**6**	**0**	**5**	**1**	**0**	**194**	**542**
58	10	0	0	3	0	0	**71**	**165**
41	5	0	0	2	1	0	**49**	**143**
33	3	3	0	1	0	0	**40**	**154**
38	2	1	0	2	0	0	**43**	**156**
170	**20**	**4**	**0**	**8**	**1**	**0**	**203**	**618**
33	7	0	0	0	0	0	**40**	**140**
48	7	1	0	2	0	0	**58**	**156**
41	4	0	0	0	1	0	**46**	**167**
58	9	1	0	1	0	0	**69**	**187**
180	**27**	**2**	**0**	**3**	**1**	**0**	**213**	**650**
49	4	2	0	2	0	0	**57**	**188**
47	5	0	0	2	0	0	**54**	**182**
53	4	1	0	0	0	0	**58**	**201**
49	4	2	1	1	0	0	**57**	**204**
198	**17**	**5**	**1**	**5**	**0**	**0**	**226**	**775**
54	9	0	0	2	0	0	**65**	**211**
60	4	0	0	1	0	0	**65**	**190**
48	1	0	0	2	0	0	**51**	**211**
46	7	1	0	1	1	0	**56**	**189**
208	**21**	**1**	**0**	**6**	**1**	**0**	**237**	**801**
56	8	0	0	1	0	0	**65**	**193**
51	4	1	0	3	0	0	**59**	**200**
43	6	1	0	1	1	0	**52**	**189**
40	2	0	0	3	0	0	**45**	**181**
190	**20**	**2**	**0**	**8**	**1**	**0**	**221**	**763**
61	4	0	0	3	1	0	**69**	**238**
45	6	0	0	2	0	0	**53**	**189**
47	1	0	0	2	0	0	**50**	**195**
71	4	0	0	2	0	0	**77**	**228**
224	**15**	**0**	**0**	**9**	**1**	**0**	**249**	**850**
55	8	0	1	2	0	0	**66**	**226**
60	3	1	0	2	0	0	**66**	**233**
84	6	2	0	2	0	0	**94**	**266**
78	5	1	0	1	0	0	**85**	**241**
277	**22**	**4**	**1**	**7**	**0**	**0**	**311**	**966**
54	13	0	0	3	0	0	**70**	**266**
66	10	1	1	2	0	0	**80**	**255**
102	15	0	0	1	1	0	**119**	**308**
90	19	0	0	1	0	0	**110**	**259**
312	**57**	**1**	**1**	**7**	**1**	**0**	**379**	**1088**
95	8	1	0	3	1	0	**108**	**279**
62	14	1	0	1	1	0	**79**	**239**
60	8	0	0	2	1	0	**71**	**231**
61	7	0	0	2	0	0	**70**	**222**
278	**37**	**2**	**0**	**8**	**3**	**0**	**328**	**971**
44	4	0	0	1	0	0	**49**	**191**
42	5	0	0	1	0	0	**48**	**200**
54	5	0	0	1	0	0	**60**	**196**
44	4	0	0	1	2	0	**51**	**196**
184	**18**	**0**	**0**	**4**	**2**	**0**	**208**	**783**
2449	288	27	3	77	12	0	**2856**	**9219**

Arm C - Arm D								
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**	**Arm Total**
17	2	0	0	0	0	0	**19**	**150**
10	4	2	0	0	0	0	**16**	**161**
13	7	1	0	0	0	0	**21**	**223**
19	2	0	0	0	1	0	**22**	**254**
59	**15**	**3**	**0**	**0**	**1**	**0**	**78**	**788**
24	9	3	1	1	1	0	**39**	**243**
30	3	0	0	1	0	0	**34**	**249**
27	9	0	0	0	0	0	**36**	**266**
22	4	1	0	0	0	0	**27**	**210**
103	**25**	**4**	**1**	**2**	**1**	**0**	**136**	**968**
32	6	1	1	0	0	0	**40**	**207**
26	7	2	1	0	0	0	**36**	**196**
26	4	0	1	0	0	0	**31**	**181**
22	4	1	0	1	0	0	**28**	**183**
106	**21**	**4**	**3**	**1**	**0**	**0**	**135**	**767**
42	3	0	0	1	0	0	**46**	**227**
27	6	0	1	0	0	0	**34**	**167**
33	3	0	1	0	0	0	**37**	**180**
32	3	1	0	0	1	0	**37**	**191**
134	**15**	**1**	**2**	**1**	**1**	**0**	**154**	**765**
24	5	1	0	0	0	0	**30**	**185**
39	6	0	0	0	0	0	**45**	**185**
25	4	0	0	0	0	0	**29**	**174**
39	7	0	0	0	0	0	**46**	**211**
127	**22**	**1**	**0**	**0**	**0**	**0**	**150**	**755**
33	4	1	0	0	0	0	**38**	**172**
30	7	0	0	0	0	0	**37**	**178**
37	1	0	0	0	0	0	**38**	**203**
39	4	0	1	0	0	0	**44**	**215**
139	**16**	**1**	**1**	**0**	**0**	**0**	**157**	**768**
24	5	1	0	0	0	0	**30**	**182**
31	5	1	0	0	0	0	**37**	**182**
25	6	2	0	0	0	0	**33**	**190**
29	4	0	0	0	0	0	**33**	**172**
109	**20**	**4**	**0**	**0**	**0**	**0**	**133**	**726**
28	1	0	1	1	4	0	**35**	**184**
35	4	1	0	0	0	0	**40**	**202**
34	11	1	0	0	0	0	**46**	**210**
30	7	0	0	0	1	0	**38**	**186**
127	**23**	**2**	**1**	**1**	**5**	**0**	**159**	**782**
54	3	0	0	0	0	0	**57**	**207**
53	2	0	0	0	0	0	**55**	**179**
55	11	0	1	0	1	0	**68**	**241**
68	6	2	1	1	0	0	**78**	**248**
230	**22**	**2**	**2**	**1**	**1**	**0**	**258**	**875**
63	14	1	0	0	0	0	**78**	**268**
60	15	1	0	0	0	0	**76**	**259**
71	14	1	0	0	0	0	**86**	**263**
83	10	1	0	0	0	0	**94**	**269**
277	**53**	**4**	**0**	**0**	**0**	**0**	**334**	**1059**
90	15	0	0	0	0	0	**105**	**275**
77	17	0	1	0	0	0	**95**	**259**
72	6	0	0	0	0	0	**78**	**245**
49	5	0	0	0	0	0	**54**	**205**
288	**43**	**0**	**1**	**0**	**0**	**0**	**332**	**984**
43	5	1	0	0	0	0	**49**	**199**
28	5	0	0	0	0	0	**33**	**174**
22	5	0	0	0	1	0	**28**	**161**
30	2	1	0	0	0	0	**33**	**157**
123	**17**	**2**	**0**	**0**	**1**	**0**	**143**	**691**
1822	292	28	11	6	10	0	**2169**	**9928**

Arm D - Arm D								
Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Arm Total
0	0	0	0	0	0	0	**0**	**48**
0	0	0	0	0	0	0	**0**	**60**
0	0	0	0	0	0	0	**0**	**76**
0	0	0	0	0	0	0	**0**	**112**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**296**
0	0	0	0	0	0	0	**0**	**126**
0	0	0	0	0	0	0	**0**	**144**
0	0	0	0	0	0	0	**0**	**115**
0	0	0	0	0	0	0	**0**	**104**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**489**
0	0	0	0	0	0	0	**0**	**102**
0	0	0	0	0	0	0	**0**	**72**
0	0	0	0	0	0	0	**0**	**85**
0	0	0	0	0	0	0	**0**	**88**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**347**
0	0	0	0	0	0	0	**0**	**75**
0	0	0	0	0	0	0	**0**	**85**
0	0	0	0	0	0	0	**0**	**73**
0	0	0	0	0	0	0	**0**	**101**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**334**
0	0	0	0	0	0	0	**0**	**73**
0	0	0	0	0	0	0	**0**	**94**
0	0	0	0	0	0	0	**0**	**103**
0	0	0	0	0	0	0	**0**	**83**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**353**
0	0	0	0	0	0	0	**0**	**110**
0	0	0	0	0	0	0	**0**	**106**
0	0	0	0	0	0	0	**0**	**107**
0	0	0	0	0	0	0	**0**	**96**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**419**
0	0	0	0	0	0	0	**0**	**100**
0	0	0	0	0	0	0	**0**	**85**
0	0	0	0	0	0	0	**0**	**106**
1	0	0	0	0	0	0	**1**	**112**
1	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**403**
0	0	0	0	0	0	0	**0**	**88**
0	0	0	0	0	0	0	**0**	**93**
0	0	0	0	0	0	0	**0**	**103**
0	0	0	0	0	0	0	**0**	**99**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**383**
0	0	0	0	0	0	0	**0**	**110**
0	0	0	0	0	0	0	**0**	**106**
0	0	0	0	0	0	0	**0**	**102**
0	0	0	0	0	0	0	**0**	**104**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**422**
0	0	0	0	0	0	0	**0**	**112**
0	0	0	0	0	0	0	**0**	**109**
0	0	0	0	0	0	0	**0**	**112**
0	0	0	0	0	0	0	**0**	**107**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**440**
0	0	0	0	0	0	0	**0**	**87**
0	0	0	0	0	0	0	**0**	**118**
0	0	0	0	0	0	0	**0**	**111**
0	0	0	0	0	0	0	**0**	**103**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**419**
0	0	0	0	0	0	0	**0**	**109**
0	0	0	0	0	0	0	**0**	**59**
0	0	0	0	0	0	0	**0**	**78**
0	0	0	0	0	0	0	**0**	**66**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**312**
1	0	0	0	0	0	0	**1**	**4617**

Origin - Arm D								
Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Arm Total
34	14	0	0	0	0	0	**48**	**391**
48	11	0	0	1	0	0	**60**	**446**
69	5	0	0	1	1	0	**76**	**585**
95	14	2	0	1	0	0	**112**	**689**
246	**44**	**2**	**0**	**3**	**1**	**0**	**296**	**2111**
112	11	1	0	1	1	0	**126**	**688**
123	17	3	0	1	0	0	**144**	**722**
96	16	2	0	1	0	0	**115**	**688**
88	13	2	0	1	0	0	**104**	**612**
419	**57**	**8**	**0**	**4**	**1**	**0**	**489**	**2710**
85	12	2	0	2	1	0	**102**	**660**
56	12	2	0	1	1	0	**72**	**620**
66	15	2	0	1	1	0	**85**	**594**
81	7	0	0	0	0	0	**88**	**586**
288	**46**	**6**	**0**	**4**	**3**	**0**	**347**	**2460**
64	7	2	0	1	1	0	**75**	**627**
72	11	0	0	1	1	0	**85**	**583**
64	5	2	1	1	0	0	**73**	**601**
86	12	2	0	0	1	0	**101**	**629**
286	**35**	**6**	**1**	**3**	**3**	**0**	**334**	**2440**
60	11	2	0	0	0	0	**73**	**617**
80	9	4	0	1	0	0	**94**	**622**
90	9	2	0	1	1	0	**103**	**658**
73	8	1	0	1	0	0	**83**	**669**
303	**37**	**9**	**0**	**3**	**1**	**0**	**353**	**2566**
95	12	2	0	0	1	0	**110**	**651**
86	12	6	1	1	0	0	**106**	**669**
91	11	1	1	2	1	0	**107**	**736**
81	11	2	1	1	0	0	**96**	**679**
353	**46**	**11**	**3**	**4**	**2**	**0**	**419**	**2735**
90	8	2	0	0	0	0	**100**	**670**
76	7	1	1	0	0	0	**85**	**648**
94	5	4	0	1	1	1	**106**	**662**
97	14	1	0	0	0	0	**112**	**635**
357	**34**	**8**	**1**	**1**	**1**	**1**	**403**	**2615**
73	9	2	0	3	1	0	**88**	**687**
85	6	0	1	1	0	0	**93**	**703**
91	9	0	0	1	2	0	**103**	**702**
87	11	1	0	0	0	0	**99**	**702**
336	**35**	**3**	**1**	**5**	**3**	**0**	**383**	**2794**
100	8	0	0	1	1	0	**110**	**747**
94	7	0	1	4	0	0	**106**	**723**
94	4	2	0	2	0	0	**102**	**800**
91	8	2	0	2	1	0	**104**	**795**
379	**27**	**4**	**1**	**9**	**2**	**0**	**422**	**3065**
101	9	1	0	1	0	0	**112**	**854**
95	13	0	0	1	0	0	**109**	**855**
98	10	1	0	0	3	0	**112**	**851**
89	14	1	0	2	1	0	**107**	**818**
383	**46**	**3**	**0**	**4**	**4**	**0**	**440**	**3378**
81	5	0	0	1	0	0	**87**	**828**
108	8	0	0	2	0	0	**118**	**814**
94	17	0	0	0	0	0	**111**	**811**
87	13	1	0	1	1	0	**103**	**780**
370	**43**	**1**	**0**	**4**	**1**	**0**	**419**	**3233**
99	9	0	0	1	0	0	**109**	**719**
53	5	0	0	1	0	0	**59**	**614**
73	5	0	0	0	0	0	**78**	**608**
59	6	0	0	1	0	0	**66**	**568**
284	**25**	**0**	**0**	**3**	**0**	**0**	**312**	**2509**
4004	475	61	7	47	22	1	**4617**	**32616**

Destination - Arm D								
Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Arm Total
28	8	0	0	1	0	0	**37**	**391**
19	9	2	0	0	0	0	**30**	**446**
30	12	1	0	2	0	0	**45**	**585**
53	11	0	0	4	1	0	**69**	**689**
130	**40**	**3**	**0**	**7**	**1**	**0**	**181**	**2111**
60	12	4	1	2	1	0	**80**	**688**
77	8	1	0	2	0	0	**88**	**722**
83	18	3	0	2	0	0	**106**	**688**
77	8	4	0	1	2	0	**92**	**612**
297	**46**	**12**	**1**	**7**	**3**	**0**	**366**	**2710**
102	18	2	1	3	0	0	**126**	**660**
79	14	2	1	2	2	0	**100**	**620**
64	8	3	1	1	0	0	**77**	**594**
71	7	2	0	3	0	0	**83**	**586**
316	**47**	**9**	**3**	**9**	**2**	**0**	**386**	**2460**
87	11	0	0	1	0	0	**99**	**627**
86	16	2	2	2	0	0	**108**	**583**
95	9	0	1	1	1	0	**107**	**601**
96	13	2	0	1	2	0	**114**	**629**
364	**49**	**4**	**3**	**5**	**3**	**0**	**428**	**2440**
87	11	3	0	2	0	0	**103**	**617**
98	13	2	0	2	0	0	**115**	**622**
91	9	3	0	0	0	0	**103**	**658**
102	11	2	1	1	0	0	**117**	**669**
378	**44**	**10**	**1**	**5**	**0**	**0**	**438**	**2566**
100	15	2	1	2	0	0	**120**	**651**
109	15	0	0	1	0	0	**125**	**669**
106	3	1	1	2	0	0	**113**	**736**
102	13	1	1	1	1	0	**119**	**679**
417	**46**	**4**	**3**	**6**	**1**	**0**	**477**	**2735**
93	14	1	0	1	0	0	**109**	**670**
97	11	2	0	3	1	0	**114**	**648**
79	18	4	0	1	1	0	**103**	**662**
86	6	0	1	3	0	0	**96**	**635**
355	**49**	**7**	**1**	**8**	**2**	**0**	**422**	**2615**
100	6	0	1	4	5	0	**116**	**687**
92	11	1	0	2	0	0	**106**	**703**
90	15	2	0	2	1	0	**110**	**702**
116	11	1	0	2	1	0	**131**	**702**
398	**43**	**4**	**1**	**10**	**7**	**0**	**463**	**2794**
119	14	0	1	2	0	0	**136**	**747**
122	5	1	0	2	0	0	**130**	**723**
153	19	2	1	2	1	0	**178**	**800**
162	13	3	1	2	0	0	**181**	**795**
556	**51**	**6**	**3**	**8**	**1**	**0**	**625**	**3065**
130	29	1	0	3	0	0	**163**	**854**
137	28	3	1	2	1	0	**172**	**855**
187	31	1	0	1	1	0	**221**	**851**
186	29	2	0	1	1	0	**219**	**818**
640	**117**	**7**	**1**	**7**	**3**	**0**	**775**	**3378**
199	24	1	0	3	1	0	**228**	**828**
149	34	1	1	1	1	0	**187**	**814**
142	15	0	0	2	1	0	**160**	**811**
124	14	0	0	2	0	0	**140**	**780**
614	**87**	**2**	**1**	**8**	**3**	**0**	**715**	**3233**
95	10	1	0	1	0	0	**107**	**719**
82	10	0	0	1	0	0	**93**	**614**
85	10	0	0	1	1	0	**97**	**608**
79	8	1	0	1	2	0	**91**	**568**
341	**38**	**2**	**0**	**4**	**3**	**0**	**388**	**2509**
4806	657	70	18	84	29	0	**5664**	**32616**

Severnside
Transportation Data Collection

	Arm A - Arm A							
	Car	LGV	OGV1	OGV2	PSV	MC	PC	Total
0700-0715	0	0	0	0	0	0	0	**0**
0715-0730	1	0	0	0	0	0	0	**1**
0730-0745	0	0	0	0	0	0	0	**0**
0745-0800	0	0	0	0	0	0	0	**0**
Hourly Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
0800-0815	1	0	0	0	0	0	0	**1**
0815-0830	0	0	0	0	0	0	0	**0**
0830-0845	0	0	0	0	0	0	0	**0**
0845-0900	0	0	0	0	0	0	0	**0**
Hourly Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
0900-0915	0	0	0	0	0	0	0	**0**
0915-0930	0	0	0	0	0	0	0	**0**
0930-0945	1	1	0	0	0	0	0	**2**
0945-1000	1	0	0	0	0	0	0	**1**
Hourly Total	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**3**
1000-1015	0	0	0	0	0	0	0	**0**
1015-1030	0	1	0	0	0	0	0	**1**
1030-1045	0	0	0	0	0	0	0	**0**
1045-1100	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**
1100-1115	0	0	0	0	0	0	0	**0**
1115-1130	0	0	0	0	0	0	0	**0**
1130-1145	0	0	0	0	0	0	0	**0**
1145-1200	2	0	0	0	0	0	0	**2**
Hourly Total	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
1200-1215	0	0	0	0	0	0	0	**0**
1215-1230	1	0	0	0	0	0	0	**1**
1230-1245	1	0	0	0	0	0	0	**1**
1245-1300	1	0	0	0	0	0	0	**1**
Hourly Total	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
1300-1315	0	0	0	0	0	0	0	**0**
1315-1330	0	1	0	0	0	0	0	**1**
1330-1345	2	0	0	0	0	0	0	**2**
1345-1400	0	0	0	0	0	0	0	**0**
Hourly Total	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**3**
1400-1415	0	0	0	0	0	0	0	**0**
1415-1430	2	0	0	0	0	0	0	**2**
1430-1445	1	0	0	0	0	0	0	**1**
1445-1500	1	2	0	0	0	0	0	**3**
Hourly Total	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**6**
1500-1515	0	1	0	0	0	0	0	**1**
1515-1530	2	0	0	0	0	0	0	**2**
1530-1545	1	0	0	0	0	0	0	**1**
1545-1600	0	0	0	0	0	0	0	**0**
Hourly Total	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**4**
1600-1615	4	0	0	0	0	0	0	**4**
1615-1630	1	0	0	0	0	0	0	**1**
1630-1645	1	0	0	0	0	0	0	**1**
1645-1700	0	0	0	0	0	0	0	**0**
Hourly Total	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**6**
1700-1715	0	0	0	0	0	0	0	**0**
1715-1730	1	0	0	0	0	0	0	**1**
1730-1745	1	0	0	0	0	0	0	**1**
1745-1800	0	0	0	0	0	0	0	**0**
Hourly Total	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
1800-1815	1	0	0	0	0	0	0	**1**
1815-1830	0	1	0	0	0	0	0	**1**
1830-1845	0	0	0	0	0	0	0	**0**
1845-1900	0	0	0	0	0	0	0	**0**
Hourly Total	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**2**
Total	27	7	0	0	0	0	0	**34**

	Arm B - Arm A							
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0700-0715	8	1	0	0	0	0	0	**9**
0715-0730	16	3	0	0	1	0	0	**20**
0730-0745	9	3	0	0	0	0	0	**12**
0745-0800	12	3	1	1	0	0	0	**17**
Hourly Total	**45**	**10**	**1**	**1**	**1**	**0**	**0**	**58**
0800-0815	11	3	0	0	1	0	0	**15**
0815-0830	14	3	0	1	0	0	0	**18**
0830-0845	12	4	0	0	0	0	0	**16**
0845-0900	31	5	0	1	1	0	1	**39**
Hourly Total	**68**	**15**	**0**	**2**	**2**	**0**	**1**	**88**
0900-0915	34	3	0	0	0	0	0	**37**
0915-0930	41	9	0	0	2	0	0	**52**
0930-0945	39	8	0	1	0	1	0	**49**
0945-1000	66	7	0	0	0	5	0	**78**
Hourly Total	**180**	**27**	**0**	**1**	**2**	**6**	**0**	**216**
1000-1015	67	7	1	0	0	0	0	**75**
1015-1030	75	1	0	0	0	0	0	**76**
1030-1045	68	3	0	1	0	0	0	**72**
1045-1100	84	6	1	0	0	1	0	**92**
Hourly Total	**294**	**17**	**2**	**1**	**0**	**1**	**0**	**315**
1100-1115	76	8	0	0	0	0	0	**84**
1115-1130	77	11	0	0	0	0	0	**88**
1130-1145	78	5	0	0	0	2	0	**85**
1145-1200	91	5	0	0	0	0	0	**96**
Hourly Total	**322**	**29**	**0**	**0**	**0**	**2**	**0**	**353**
1200-1215	103	9	0	0	0	0	0	**112**
1215-1230	95	2	1	0	1	1	0	**100**
1230-1245	87	7	0	0	1	0	0	**95**
1245-1300	95	8	0	0	0	0	0	**103**
Hourly Total	**380**	**26**	**1**	**0**	**2**	**1**	**0**	**410**
1300-1315	83	1	2	0	0	0	0	**86**
1315-1330	100	4	0	0	1	0	0	**105**
1330-1345	74	8	0	0	0	0	0	**82**
1345-1400	94	3	0	0	0	0	0	**97**
Hourly Total	**351**	**16**	**2**	**0**	**1**	**0**	**0**	**370**
1400-1415	73	3	0	0	0	0	0	**76**
1415-1430	78	5	0	0	0	0	0	**83**
1430-1445	95	5	2	0	0	0	0	**102**
1445-1500	83	2	0	0	0	0	0	**85**
Hourly Total	**329**	**15**	**2**	**0**	**0**	**0**	**0**	**346**
1500-1515	79	1	1	0	0	0	0	**81**
1515-1530	58	4	0	0	2	0	0	**64**
1530-1545	93	4	0	0	0	0	0	**97**
1545-1600	73	9	0	0	0	0	0	**82**
Hourly Total	**303**	**18**	**1**	**0**	**2**	**0**	**0**	**324**
1600-1615	115	7	1	0	0	0	0	**123**
1615-1630	100	4	0	0	0	0	0	**104**
1630-1645	103	4	0	0	2	0	0	**109**
1645-1700	97	5	0	0	0	0	0	**102**
Hourly Total	**415**	**20**	**1**	**0**	**2**	**0**	**0**	**438**
1700-1715	93	1	0	0	0	0	0	**94**
1715-1730	90	3	0	0	0	0	0	**93**
1730-1745	87	4	0	0	1	0	0	**92**
1745-1800	74	6	0	0	0	0	0	**80**
Hourly Total	**344**	**14**	**0**	**0**	**1**	**0**	**0**	**359**
1800-1815	81	5	0	0	0	0	0	**86**
1815-1830	70	5	0	0	0	0	0	**75**
1830-1845	54	0	0	0	0	0	0	**54**
1845-1900	37	6	0	0	0	0	0	**43**
Hourly Total	**242**	**16**	**0**	**0**	**0**	**0**	**0**	**258**
Total	3273	223	10	5	13	10	1	**3535**

	Arm C - Arm A							
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0700-0715	30	4	2	0	0	0	0	**36**
0715-0730	37	7	3	1	0	0	0	**48**
0730-0745	32	3	2	0	0	0	0	**37**
0745-0800	44	15	2	0	1	0	0	**62**
Hourly Total	**143**	**29**	**9**	**1**	**1**	**0**	**0**	**183**
0800-0815	35	7	1	0	0	1	0	**44**
0815-0830	32	8	2	2	0	0	0	**44**
0830-0845	53	11	3	0	1	0	0	**68**
0845-0900	49	1	1	1	2	0	0	**54**
Hourly Total	**169**	**27**	**7**	**3**	**3**	**1**	**0**	**210**
0900-0915	66	5	0	1	1	0	0	**73**
0915-0930	74	5	3	1	0	1	0	**84**
0930-0945	56	12	4	0	0	2	0	**74**
0945-1000	76	6	3	1	3	0	0	**89**
Hourly Total	**272**	**28**	**10**	**3**	**4**	**3**	**0**	**320**
1000-1015	84	11	1	1	1	0	0	**98**
1015-1030	93	4	2	0	0	0	0	**99**
1030-1045	107	8	0	0	0	2	0	**117**
1045-1100	93	6	1	0	0	0	0	**100**
Hourly Total	**377**	**29**	**4**	**1**	**1**	**2**	**0**	**414**
1100-1115	86	7	2	0	3	0	0	**98**
1115-1130	85	14	0	0	0	1	0	**100**
1130-1145	103	14	0	1	0	0	0	**118**
1145-1200	98	7	1	0	0	0	0	**106**
Hourly Total	**372**	**42**	**3**	**1**	**3**	**1**	**0**	**422**
1200-1215	111	5	1	0	0	2	0	**119**
1215-1230	100	9	1	0	0	0	0	**110**
1230-1245	98	10	0	0	0	0	0	**108**
1245-1300	108	11	0	0	3	1	0	**123**
Hourly Total	**417**	**35**	**2**	**0**	**3**	**3**	**0**	**460**
1300-1315	110	9	1	1	1	1	0	**123**
1315-1330	76	9	1	0	0	0	0	**86**
1330-1345	106	8	1	0	0	1	0	**116**
1345-1400	106	7	1	0	1	0	0	**115**
Hourly Total	**398**	**33**	**4**	**1**	**2**	**2**	**0**	**440**
1400-1415	103	4	0	0	1	0	0	**108**
1415-1430	112	5	1	0	0	0	0	**118**
1430-1445	92	10	0	1	0	1	0	**104**
1445-1500	99	7	2	0	0	0	0	**108**
Hourly Total	**406**	**26**	**3**	**1**	**1**	**1**	**0**	**438**
1500-1515	125	6	0	0	1	0	0	**132**
1515-1530	90	4	2	0	1	0	0	**97**
1530-1545	96	6	0	0	1	0	0	**103**
1545-1600	69	5	1	0	1	0	0	**76**
Hourly Total	**380**	**21**	**3**	**0**	**4**	**0**	**0**	**408**
1600-1615	81	5	0	0	0	1	0	**87**
1615-1630	84	4	0	1	1	0	0	**90**
1630-1645	70	3	0	0	0	0	0	**73**
1645-1700	72	4	0	0	0	0	0	**76**
Hourly Total	**307**	**16**	**0**	**1**	**1**	**1**	**0**	**326**
1700-1715	54	7	0	0	0	0	0	**61**
1715-1730	82	7	0	0	0	0	0	**89**
1730-1745	76	4	0	0	1	0	0	**81**
1745-1800	65	4	0	0	0	0	0	**69**
Hourly Total	**277**	**22**	**0**	**0**	**1**	**0**	**0**	**300**
1800-1815	78	3	0	0	0	0	0	**81**
1815-1830	68	3	0	0	0	0	0	**71**
1830-1845	83	5	0	0	0	0	0	**88**
1845-1900	53	2	0	0	0	0	0	**55**
Hourly Total	**282**	**13**	**0**	**0**	**0**	**0**	**0**	**295**
Total	3800	321	45	12	24	14	0	**4216**

	Arm D - Arm A							
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0700-0715	5	3	0	0	0	0	0	**8**
0715-0730	2	1	0	0	0	0	0	**3**
0730-0745	6	1	0	0	0	0	0	**7**
0745-0800	7	0	0	0	0	0	0	**7**
Hourly Total	**20**	**5**	**0**	**0**	**0**	**0**	**0**	**25**
0800-0815	5	3	0	0	0	0	0	**8**
0815-0830	3	2	0	0	0	0	0	**5**
0830-0845	4	1	0	0	0	0	0	**5**
0845-0900	10	0	0	0	0	0	0	**10**
Hourly Total	**22**	**6**	**0**	**0**	**0**	**0**	**0**	**28**
0900-0915	13	1	1	0	0	0	0	**15**
0915-0930	7	2	0	0	0	0	0	**9**
0930-0945	9	1	0	0	0	0	0	**10**
0945-1000	15	0	0	0	0	0	0	**15**
Hourly Total	**44**	**4**	**1**	**0**	**0**	**0**	**0**	**49**
1000-1015	16	2	1	0	0	0	0	**19**
1015-1030	16	0	1	0	0	0	0	**17**
1030-1045	14	0	0	0	0	0	0	**14**
1045-1100	14	2	0	0	0	0	0	**16**
Hourly Total	**60**	**4**	**2**	**0**	**0**	**0**	**0**	**66**
1100-1115	25	2	0	0	0	0	0	**27**
1115-1130	23	3	0	0	0	0	0	**26**
1130-1145	28	1	0	0	0	0	0	**29**
1145-1200	21	2	0	0	0	0	0	**23**
Hourly Total	**97**	**8**	**0**	**0**	**0**	**0**	**0**	**105**
1200-1215	29	1	0	0	0	0	0	**30**
1215-1230	26	2	0	0	0	0	0	**28**
1230-1245	24	1	2	0	0	0	0	**27**
1245-1300	31	3	0	0	0	0	0	**34**
Hourly Total	**110**	**7**	**2**	**0**	**0**	**0**	**0**	**119**
1300-1315	23	0	0	0	0	0	0	**23**
1315-1330	36	1	0	0	0	0	0	**37**
1330-1345	24	3	0	0	0	0	0	**27**
1345-1400	38	4	0	0	0	0	0	**42**
Hourly Total	**121**	**8**	**0**	**0**	**0**	**0**	**0**	**129**
1400-1415	28	2	0	0	0	0	0	**30**
1415-1430	38	3	0	0	0	0	0	**41**
1430-1445	23	1	0	0	0	0	0	**24**
1445-1500	35	3	0	0	0	0	0	**38**
Hourly Total	**124**	**9**	**0**	**0**	**0**	**0**	**0**	**133**
1500-1515	30	2	0	0	0	0	0	**32**
1515-1530	35	0	0	0	0	0	0	**35**
1530-1545	24	5	0	0	0	0	0	**29**
1545-1600	28	0	0	0	0	0	0	**28**
Hourly Total	**117**	**7**	**0**	**0**	**0**	**0**	**0**	**124**
1600-1615	30	0	0	0	0	0	0	**30**
1615-1630	20	2	0	0	0	0	0	**22**
1630-1645	32	1	0	0	0	0	0	**33**
1645-1700	26	2	0	0	0	0	0	**28**
Hourly Total	**108**	**5**	**0**	**0**	**0**	**0**	**0**	**113**
1700-1715	19	2	0	0	0	0	0	**21**
1715-1730	20	1	0	0	0	0	0	**21**
1730-1745	26	1	0	0	0	0	0	**27**
1745-1800	21	1	0	0	0	0	0	**22**
Hourly Total	**86**	**5**	**0**	**0**	**0**	**0**	**0**	**91**
1800-1815	11	0	0	0	0	0	0	**11**
1815-1830	10	3	0	0	0	0	0	**13**
1830-1845	12	0	0	0	0	0	0	**12**
1845-1900	12	1	0	0	0	0	0	**13**
Hourly Total	**45**	**4**	**0**	**0**	**0**	**0**	**0**	**49**
Total	954	72	5	0	0	0	0	**1031**

	Origin - Arm A							
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0700-0715	33	6	1	2	0	0	0	**42**
0715-0730	33	5	1	1	1	0	0	**41**
0730-0745	43	12	1	2	1	0	0	**59**
0745-0800	57	4	2	0	1	0	0	**64**
Hourly Total	**166**	**27**	**5**	**5**	**3**	**0**	**0**	**206**
0800-0815	52	6	4	0	1	0	0	**63**
0815-0830	66	8	3	1	0	0	0	**78**
0830-0845	123	9	0	2	2	0	0	**136**
0845-0900	124	10	0	1	1	0	0	**136**
Hourly Total	**365**	**33**	**7**	**4**	**4**	**0**	**0**	**413**
0900-0915	104	13	0	1	2	0	2	**122**
0915-0930	128	10	2	2	0	0	0	**142**
0930-0945	157	11	2	1	2	0	0	**173**
0945-1000	171	20	1	2	0	0	6	**200**
Hourly Total	**560**	**54**	**5**	**6**	**4**	**0**	**8**	**637**
1000-1015	162	16	0	0	1	0	0	**179**
1015-1030	183	23	2	1	1	2	0	**212**
1030-1045	221	10	1	0	4	1	0	**237**
1045-1100	222	10	0	0	2	0	0	**234**
Hourly Total	**788**	**59**	**3**	**1**	**8**	**3**	**0**	**862**
1100-1115	199	12	0	0	2	0	1	**214**
1115-1130	210	23	3	0	0	0	0	**236**
1130-1145	202	21	0	1	1	0	0	**225**
1145-1200	237	20	0	0	1	2	0	**260**
Hourly Total	**848**	**76**	**3**	**1**	**4**	**2**	**1**	**935**
1200-1215	240	15	3	2	1	0	0	**261**
1215-1230	216	18	0	1	1	0	0	**236**
1230-1245	262	21	1	0	2	2	0	**288**
1245-1300	257	9	0	0	2	1	0	**269**
Hourly Total	**975**	**63**	**4**	**3**	**6**	**3**	**0**	**1054**
1300-1315	182	14	1	0	1	0	0	**198**
1315-1330	248	20	1	0	1	0	0	**270**
1330-1345	213	12	1	0	4	1	0	**231**
1345-1400	209	13	1	1	0	1	0	**225**
Hourly Total	**852**	**59**	**4**	**1**	**6**	**2**	**0**	**924**
1400-1415	222	12	0	0	1	2	0	**237**
1415-1430	224	25	2	2	0	0	0	**253**
1430-1445	191	9	1	0	2	0	0	**203**
1445-1500	240	15	2	0	2	0	0	**259**
Hourly Total	**877**	**61**	**5**	**2**	**5**	**2**	**0**	**952**
1500-1515	212	11	0	2	0	0	0	**225**
1515-1530	221	17	1	0	1	2	0	**242**
1530-1545	170	11	2	0	2	0	0	**185**
1545-1600	181	10	0	0	0	0	0	**191**
Hourly Total	**784**	**49**	**3**	**2**	**3**	**2**	**0**	**843**
1600-1615	207	15	1	0	1	0	0	**224**
1615-1630	155	7	0	0	3	0	0	**165**
1630-1645	200	11	4	1	2	0	0	**218**
1645-1700	196	12	0	1	1	0	0	**210**
Hourly Total	**758**	**45**	**5**	**2**	**7**	**0**	**0**	**817**
1700-1715	172	6	2	1	2	0	0	**183**
1715-1730	158	11	0	0	0	0	0	**169**
1730-1745	136	8	2	0	4	0	0	**150**
1745-1800	138	10	0	0	1	0	0	**149**
Hourly Total	**604**	**35**	**4**	**1**	**7**	**0**	**0**	**651**
1800-1815	132	9	1	0	1	8	0	**151**
1815-1830	106	11	0	0	2	0	0	**119**
1830-1845	117	7	1	0	3	0	0	**128**
1845-1900	67	12	1	0	0	3	0	**83**
Hourly Total	**422**	**39**	**3**	**0**	**6**	**11**	**0**	**481**
Total	7999	600	51	28	63	25	9	**8775**

	Destination - Arm A							
	Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0700-0715	43	8	2	0	0	0	0	**53**
0715-0730	56	11	3	1	1	0	0	**72**
0730-0745	47	7	2	0	0	0	0	**56**
0745-0800	63	18	3	1	1	0	0	**86**
Hourly Total	**209**	**44**	**10**	**2**	**2**	**0**	**0**	**267**
0800-0815	52	13	1	0	1	1	0	**68**
0815-0830	49	13	2	3	0	0	0	**67**
0830-0845	69	16	3	0	1	0	0	**89**
0845-0900	90	6	1	2	3	0	1	**103**
Hourly Total	**260**	**48**	**7**	**5**	**5**	**1**	**1**	**327**
0900-0915	113	9	1	1	1	0	0	**125**
0915-0930	122	16	3	1	2	1	0	**145**
0930-0945	105	22	4	1	0	3	0	**135**
0945-1000	158	13	3	1	3	5	0	**183**
Hourly Total	**498**	**60**	**11**	**4**	**6**	**9**	**0**	**588**
1000-1015	167	20	3	1	1	0	0	**192**
1015-1030	184	6	3	0	0	0	0	**193**
1030-1045	189	11	0	1	0	2	0	**203**
1045-1100	191	14	2	0	0	1	0	**208**
Hourly Total	**731**	**51**	**8**	**2**	**1**	**3**	**0**	**796**
1100-1115	187	17	2	0	3	0	0	**209**
1115-1130	185	28	0	0	0	1	0	**214**
1130-1145	209	20	0	1	0	2	0	**232**
1145-1200	212	14	1	0	0	0	0	**227**
Hourly Total	**793**	**79**	**3**	**1**	**3**	**3**	**0**	**882**
1200-1215	243	15	1	0	0	2	0	**261**
1215-1230	222	13	2	0	1	1	0	**239**
1230-1245	210	18	2	0	1	0	0	**231**
1245-1300	235	22	0	0	3	1	0	**261**
Hourly Total	**910**	**68**	**5**	**0**	**5**	**4**	**0**	**992**
1300-1315	216	10	3	1	1	1	0	**232**
1315-1330	212	15	1	0	1	0	0	**229**
1330-1345	206	19	1	0	0	1	0	**227**
1345-1400	238	14	1	0	1	0	0	**254**
Hourly Total	**872**	**58**	**6**	**1**	**3**	**2**	**0**	**942**
1400-1415	204	9	0	0	1	0	0	**214**
1415-1430	230	13	1	0	0	0	0	**244**
1430-1445	211	16	2	1	0	1	0	**231**
1445-1500	218	14	2	0	0	0	0	**234**
Hourly Total	**863**	**52**	**5**	**1**	**1**	**1**	**0**	**923**
1500-1515	234	10	1	0	1	0	0	**246**
1515-1530	185	8	2	0	3	0	0	**198**
1530-1545	214	15	0	0	1	0	0	**230**
1545-1600	170	14	1	0	1	0	0	**186**
Hourly Total	**803**	**47**	**4**	**0**	**6**	**0**	**0**	**860**
1600-1615	230	12	1	0	0	1	0	**244**
1615-1630	205	10	0	1	1	0	0	**217**
1630-1645	206	8	0	0	2	0	0	**216**
1645-1700	195	11	0	0	0	0	0	**206**
Hourly Total	**836**	**41**	**1**	**1**	**3**	**1**	**0**	**883**
1700-1715	166	10	0	0	0	0	0	**176**
1715-1730	193	11	0	0	0	0	0	**204**
1730-1745	190	9	0	0	2	0	0	**201**
1745-1800	160	11	0	0	0	0	0	**171**
Hourly Total	**709**	**41**	**0**	**0**	**2**	**0**	**0**	**752**
1800-1815	171	8	0	0	0	0	0	**179**
1815-1830	148	12	0	0	0	0	0	**160**
1830-1845	149	5	0	0	0	0	0	**154**
1845-1900	102	9	0	0	0	0	0	**111**
Hourly Total	**570**	**34**	**0**	**0**	**0**	**0**	**0**	**604**
Total	8054	623	60	17	37	24	1	**8816**

SS76
Thursday

Arm A - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
6	2	0	0	0	0	0	**8**
10	2	0	0	1	0	0	**13**
15	1	1	1	1	0	0	**19**
22	0	2	0	1	0	0	**25**
53	**5**	**3**	**1**	**3**	**0**	**0**	65
11	3	0	0	1	0	0	**15**
27	3	2	0	0	0	0	**32**
58	3	0	1	2	0	0	**64**
61	4	0	0	0	0	0	**65**
157	**13**	**2**	**1**	**3**	**0**	**0**	176
43	8	0	0	2	0	2	**55**
54	4	1	1	0	0	0	**60**
70	4	0	0	2	0	0	**76**
84	10	0	0	0	0	6	**100**
251	**26**	**1**	**1**	**4**	**0**	**8**	291
62	6	0	0	1	0	0	**69**
89	9	1	0	0	0	0	**99**
88	6	1	0	2	0	0	**97**
102	3	0	0	1	0	0	**106**
341	**24**	**2**	**0**	**4**	**0**	**0**	371
89	2	0	0	2	0	1	**94**
79	7	2	0	0	0	0	**88**
73	4	0	0	1	0	0	**78**
89	8	0	0	1	0	0	**98**
330	**21**	**2**	**0**	**4**	**0**	**1**	358
97	6	1	0	1	0	0	**105**
81	5	0	0	1	0	0	**87**
96	6	0	0	2	0	0	**104**
92	3	0	0	2	0	0	**97**
366	**20**	**1**	**0**	**6**	**0**	**0**	393
81	8	0	0	1	0	0	**90**
101	7	0	0	0	0	0	**108**
79	6	0	0	2	0	0	**87**
79	5	1	0	0	0	0	**85**
340	**26**	**1**	**0**	**3**	**0**	**0**	370
81	1	0	0	1	1	0	**84**
89	7	0	0	0	0	0	**96**
67	3	0	0	1	0	0	**71**
77	6	1	0	1	0	0	**85**
314	**17**	**1**	**0**	**3**	**1**	**0**	336
75	5	0	0	0	0	0	**80**
77	6	0	0	0	0	0	**83**
73	4	0	0	2	0	0	**79**
74	5	0	0	0	0	0	**79**
299	**20**	**0**	**0**	**2**	**0**	**0**	321
91	5	1	0	1	0	0	**98**
70	3	0	0	2	0	0	**75**
81	3	0	0	2	0	0	**86**
85	3	0	0	1	0	0	**89**
327	**14**	**1**	**0**	**6**	**0**	**0**	348
76	2	0	0	1	0	0	**79**
62	3	0	0	0	0	0	**65**
55	2	1	0	2	0	0	**60**
45	2	0	0	0	0	0	**47**
238	**9**	**1**	**0**	**3**	**0**	**0**	251
38	3	0	0	1	0	0	**42**
28	4	0	0	0	0	0	**32**
47	3	0	0	3	0	0	**53**
25	3	0	0	0	0	0	**28**
138	**13**	**0**	**0**	**4**	**0**	**0**	155
3154	208	15	3	45	1	9	**3435**

Arm B - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0	0	0	0	0	0	0	**0**
0	1	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
1	**1**	**0**	**0**	**0**	**0**	**0**	**2**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
1	0	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
1	**0**	**0**	**0**	**0**	**0**	**0**	**1**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
1	**0**	**0**	**0**	**0**	**0**	**0**	**1**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
1	**0**	**0**	**0**	**0**	**0**	**0**	**1**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
1	**0**	**0**	**0**	**0**	**0**	**0**	**1**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
1	0	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
2	**0**	**0**	**0**	**0**	**0**	**0**	**2**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
1	**0**	**0**	**0**	**0**	**0**	**0**	**1**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**

8	1	0	0	0	0	0	**9**

Arm C - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
7	2	0	0	0	0	0	**9**
13	3	0	0	0	0	0	**16**
8	3	0	0	0	0	0	**11**
23	1	0	0	0	0	0	**24**
51	**9**	**0**	**0**	**0**	**0**	**0**	**60**
16	1	0	0	0	0	0	**17**
26	4	0	0	0	0	0	**30**
32	3	0	0	0	0	0	**35**
51	5	0	1	0	0	0	**57**
125	**13**	**0**	**1**	**0**	**0**	**0**	**139**
26	3	1	0	1	4	0	**35**
28	6	1	0	0	2	0	**37**
44	6	1	0	0	0	0	**51**
63	2	0	0	0	0	0	**65**
161	**17**	**3**	**0**	**1**	**6**	**0**	**188**
49	3	0	0	0	0	0	**52**
48	3	0	0	0	0	0	**51**
65	6	1	0	0	1	0	**73**
65	4	0	0	0	0	0	**69**
227	**16**	**1**	**0**	**0**	**1**	**0**	**245**
56	6	0	0	0	0	0	**62**
73	1	0	1	0	0	0	**75**
74	7	0	0	0	2	0	**83**
75	5	0	0	0	0	0	**80**
278	**19**	**0**	**1**	**0**	**2**	**0**	**300**
91	3	0	0	1	0	0	**95**
80	2	0	0	0	0	0	**82**
84	5	0	1	0	0	0	**90**
82	4	0	0	0	0	0	**86**
337	**14**	**0**	**1**	**1**	**0**	**0**	**353**
86	5	0	0	0	0	0	**91**
71	3	0	0	0	0	0	**74**
91	4	1	0	1	0	0	**97**
92	2	0	0	0	0	0	**94**
340	**14**	**1**	**0**	**1**	**0**	**0**	**356**
96	3	0	0	0	0	0	**99**
77	4	0	1	0	0	0	**82**
63	2	0	0	0	0	0	**65**
59	7	0	0	0	0	0	**66**
295	**16**	**0**	**1**	**0**	**0**	**0**	**312**
79	3	0	0	0	1	0	**83**
65	1	0	0	0	0	0	**66**
68	2	1	0	0	0	0	**71**
75	5	0	0	0	0	0	**80**
287	**11**	**1**	**0**	**0**	**1**	**0**	**300**
58	2	1	0	0	0	0	**61**
62	6	0	0	0	0	0	**68**
62	0	1	0	0	0	0	**63**
56	2	0	0	0	0	0	**58**
238	**10**	**2**	**0**	**0**	**0**	**0**	**250**
53	2	1	1	0	0	0	**57**
47	3	0	1	0	0	0	**51**
38	4	0	0	0	0	0	**42**
39	2	0	0	0	0	0	**41**
177	**11**	**1**	**2**	**0**	**0**	**0**	**191**
36	2	0	0	0	0	0	**38**
27	2	0	0	0	0	0	**29**
45	1	0	0	0	1	0	**47**
26	1	0	0	0	0	0	**27**
134	**6**	**0**	**0**	**0**	**1**	**0**	**141**

2650	156	9	6	3	11	0	**2835**

Arm D - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
4	1	0	0	0	0	0	**5**
6	0	0	0	1	0	0	**7**
6	0	0	0	1	0	0	**7**
9	0	0	0	0	0	0	**9**
25	**1**	**0**	**0**	**2**	**0**	**0**	**28**
11	1	0	0	1	0	0	**13**
12	4	0	0	1	1	0	**18**
12	2	0	0	0	0	0	**14**
28	3	0	0	0	0	0	**31**
63	**10**	**0**	**0**	**2**	**1**	**0**	**76**
23	2	0	0	1	0	0	**26**
26	2	0	0	1	0	0	**29**
26	1	0	0	1	0	0	**28**
30	4	0	0	0	0	0	**34**
105	**9**	**0**	**0**	**3**	**0**	**0**	**117**
38	4	1	0	1	0	0	**44**
43	1	1	0	1	0	0	**46**
47	4	0	0	1	0	0	**52**
47	4	0	0	0	0	0	**51**
175	**13**	**2**	**0**	**3**	**0**	**0**	**193**
37	3	1	0	1	0	0	**42**
39	4	0	0	0	0	0	**43**
45	3	0	0	2	0	0	**50**
59	2	0	0	0	0	0	**61**
180	**12**	**1**	**0**	**3**	**0**	**0**	**196**
45	0	0	0	1	0	0	**46**
55	0	0	0	1	0	1	**57**
56	2	0	0	1	0	0	**59**
45	4	0	0	0	0	0	**49**
201	**6**	**0**	**0**	**3**	**0**	**1**	**211**
57	1	0	0	1	1	0	**60**
65	5	0	0	1	0	0	**71**
40	3	0	0	1	0	0	**44**
45	1	0	0	0	0	0	**46**
207	**10**	**0**	**0**	**3**	**1**	**0**	**221**
44	3	0	0	1	0	0	**48**
39	3	0	0	1	0	0	**43**
36	3	0	0	0	0	0	**39**
44	4	0	0	1	0	0	**49**
163	**13**	**0**	**0**	**3**	**0**	**0**	**179**
49	4	0	0	1	0	0	**54**
44	0	0	0	1	0	0	**45**
49	1	0	0	1	0	0	**51**
66	4	0	0	0	0	0	**70**
208	**9**	**0**	**0**	**3**	**0**	**0**	**220**
50	1	0	0	1	1	0	**53**
44	1	0	0	0	0	0	**45**
53	2	0	0	0	0	0	**55**
71	1	0	0	1	2	0	**75**
218	**5**	**0**	**0**	**2**	**3**	**0**	**228**
45	5	0	0	1	0	0	**51**
68	1	0	0	1	0	0	**70**
44	3	0	0	1	0	0	**48**
44	4	0	0	0	0	0	**48**
201	**13**	**0**	**0**	**3**	**0**	**0**	**217**
35	4	0	0	1	0	0	**40**
42	0	0	0	1	1	0	**44**
31	0	0	0	1	0	0	**32**
19	0	0	0	0	0	0	**19**
127	**4**	**0**	**0**	**3**	**1**	**0**	**135**

1873	105	3	0	33	6	1	**2021**

Origin - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
17	3	1	1	0	0	0	**22**
35	7	1	1	2	0	0	**46**
30	7	0	0	1	0	0	**38**
28	4	3	2	2	0	0	**39**
110	**21**	**5**	**4**	**5**	**0**	**0**	**145**
26	9	0	0	2	0	0	**37**
35	5	0	1	1	0	0	**42**
45	11	1	0	1	0	0	**58**
81	9	0	1	3	0	1	**95**
187	**34**	**1**	**2**	**7**	**0**	**1**	**232**
90	9	1	1	1	1	0	**103**
91	13	0	0	4	0	0	**108**
102	17	2	1	1	1	0	**124**
134	16	1	0	3	5	0	**159**
417	**55**	**4**	**2**	**9**	**7**	**0**	**494**
157	13	1	0	0	1	0	**172**
150	11	0	0	2	0	0	**163**
154	10	0	1	1	1	0	**167**
194	14	1	0	2	1	0	**212**
655	**48**	**2**	**1**	**5**	**3**	**0**	**714**
162	22	0	0	0	0	0	**184**
189	20	0	0	5	1	0	**215**
183	15	0	0	0	2	0	**200**
206	16	1	1	2	0	0	**226**
740	**73**	**1**	**1**	**7**	**3**	**0**	**825**
232	12	1	0	3	0	0	**248**
236	12	2	0	4	1	0	**255**
227	16	0	0	2	0	0	**245**
244	15	1	0	2	1	0	**263**
939	**55**	**4**	**0**	**11**	**2**	**0**	**1011**
251	5	2	0	2	0	0	**260**
247	11	0	0	3	0	0	**261**
233	19	0	1	2	0	0	**255**
253	11	1	0	3	0	0	**268**
984	**46**	**3**	**1**	**10**	**0**	**0**	**1044**
212	10	0	0	0	0	0	**222**
223	12	0	0	3	0	0	**238**
253	13	2	0	1	0	0	**269**
208	7	0	0	1	0	0	**216**
896	**42**	**2**	**0**	**5**	**0**	**0**	**945**
234	13	1	0	2	1	0	**251**
205	11	0	0	4	0	0	**220**
223	12	0	0	1	0	0	**236**
221	15	0	1	2	0	0	**239**
883	**51**	**1**	**1**	**9**	**1**	**0**	**946**
257	19	1	0	0	0	0	**277**
261	11	0	0	2	1	0	**275**
232	10	0	0	3	0	0	**245**
227	10	0	0	2	0	0	**239**
977	**50**	**1**	**0**	**7**	**1**	**0**	**1036**
232	5	1	0	1	0	0	**239**
220	5	0	1	1	0	0	**227**
209	14	0	0	2	0	0	**225**
168	7	0	0	3	0	0	**178**
829	**31**	**1**	**1**	**7**	**0**	**0**	**869**
205	10	0	0	1	0	0	**216**
137	7	0	0	2	0	0	**146**
125	4	0	0	0	1	0	**130**
114	9	0	0	2	0	0	**125**
581	**30**	**0**	**0**	**5**	**1**	**0**	**617**
8198	536	25	13	87	18	1	**8878**

Destination - Arm B							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
17	5	0	0	0	0	0	**22**
29	6	0	0	2	0	0	**37**
29	4	1	1	2	0	0	**37**
55	1	2	0	1	0	0	**59**
130	**16**	**3**	**1**	**5**	**0**	**0**	**155**
38	5	0	0	2	0	0	**45**
65	11	2	0	1	1	0	**80**
102	8	0	1	2	0	0	**113**
140	12	0	1	0	0	0	**153**
345	**36**	**2**	**2**	**5**	**1**	**0**	**391**
93	13	1	0	4	4	2	**117**
108	12	2	1	1	2	0	**126**
140	11	1	0	3	0	0	**155**
177	16	0	0	0	0	6	**199**
518	**52**	**4**	**1**	**8**	**6**	**8**	**597**
149	13	1	0	2	0	0	**165**
180	13	2	0	1	0	0	**196**
201	16	2	0	3	1	0	**223**
214	11	0	0	1	0	0	**226**
744	**53**	**5**	**0**	**7**	**1**	**0**	**810**
182	11	1	0	3	0	1	**198**
191	12	2	1	0	0	0	**206**
192	14	0	0	3	2	0	**211**
223	15	0	0	1	0	0	**239**
788	**52**	**3**	**1**	**7**	**2**	**1**	**854**
233	9	1	0	3	0	0	**246**
216	7	0	0	2	0	1	**226**
236	13	0	1	3	0	0	**253**
219	11	0	0	2	0	0	**232**
904	**40**	**1**	**1**	**10**	**0**	**1**	**957**
224	14	0	0	2	1	0	**241**
238	15	0	0	1	0	0	**254**
210	13	1	0	4	0	0	**228**
216	8	1	0	0	0	0	**225**
888	**50**	**2**	**0**	**7**	**1**	**0**	**948**
221	7	0	0	2	1	0	**231**
205	14	0	1	1	0	0	**221**
167	8	0	0	1	0	0	**176**
180	17	1	0	2	0	0	**200**
773	**46**	**1**	**1**	**6**	**1**	**0**	**828**
203	12	0	0	1	1	0	**217**
187	7	0	0	1	0	0	**195**
191	7	1	0	3	0	0	**202**
215	14	0	0	0	0	0	**229**
796	**40**	**1**	**0**	**5**	**1**	**0**	**843**
199	8	2	0	2	1	0	**212**
176	10	0	0	2	0	0	**188**
196	5	1	0	2	0	0	**204**
212	6	0	0	2	2	0	**222**
783	**29**	**3**	**0**	**8**	**3**	**0**	**826**
174	9	1	1	2	0	0	**187**
178	7	0	1	1	0	0	**187**
137	9	1	0	3	0	0	**150**
128	8	0	0	0	0	0	**136**
617	**33**	**2**	**2**	**6**	**0**	**0**	**660**
109	9	0	0	2	0	0	**120**
97	6	0	0	1	1	0	**105**
123	4	0	0	4	1	0	**132**
70	4	0	0	0	0	0	**74**
399	**23**	**0**	**0**	**7**	**2**	**0**	**431**
7685	470	27	9	81	18	10	**8300**

9 Swansea Road, Merthyr
16 June and Saturday 18 June
0700-1900
Site 1 18 June

Arm A - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
26	4	1	2	0	0	0	**33**
22	3	1	1	0	0	0	**27**
26	11	0	1	0	0	0	**38**
33	4	0	0	0	0	0	**37**
107	**22**	**2**	**4**	**0**	**0**	**0**	**135**
35	3	4	0	0	0	0	**42**
39	4	1	1	0	0	0	**45**
60	6	0	1	0	0	0	**67**
53	6	0	1	1	0	0	**61**
187	**19**	**5**	**3**	**1**	**0**	**0**	**215**
42	5	0	1	0	0	0	**48**
62	6	1	1	0	0	0	**70**
67	6	2	1	0	0	0	**76**
71	6	0	2	0	0	0	**79**
242	**23**	**3**	**5**	**0**	**0**	**0**	**273**
75	8	0	0	0	0	0	**83**
78	10	1	1	1	2	0	**93**
100	4	0	0	2	1	0	**107**
97	5	0	0	1	0	0	**103**
350	**27**	**1**	**1**	**4**	**3**	**0**	**386**
85	9	0	0	0	0	0	**94**
103	15	0	0	0	0	0	**118**
107	14	0	1	0	0	0	**122**
111	11	0	0	0	2	0	**124**
406	**49**	**0**	**1**	**0**	**2**	**0**	**458**
115	8	1	2	0	0	0	**126**
104	11	0	1	0	0	0	**116**
134	12	1	0	0	2	0	**149**
125	4	0	0	0	1	0	**130**
478	**35**	**2**	**3**	**0**	**3**	**0**	**521**
78	6	1	0	0	0	0	**85**
124	11	1	0	1	0	0	**137**
105	4	1	0	2	1	0	**113**
101	8	0	1	0	1	0	**111**
408	**29**	**3**	**1**	**3**	**2**	**0**	**446**
116	10	0	0	0	1	0	**127**
106	11	2	2	0	0	0	**121**
101	3	1	0	1	0	0	**106**
127	6	1	0	1	0	0	**135**
450	**30**	**4**	**2**	**2**	**1**	**0**	**489**
111	4	0	2	0	0	0	**117**
120	9	1	0	1	2	0	**133**
78	6	2	0	0	0	0	**86**
88	5	0	0	0	0	0	**93**
397	**24**	**3**	**2**	**1**	**2**	**0**	**429**
92	8	0	0	0	0	0	**100**
64	4	0	0	1	0	0	**69**
102	8	4	1	0	0	0	**115**
103	9	0	1	0	0	0	**113**
361	**29**	**4**	**2**	**1**	**0**	**0**	**397**
77	4	2	1	1	0	0	**85**
83	8	0	0	0	0	0	**91**
73	6	1	0	2	0	0	**82**
89	7	0	0	1	0	0	**97**
322	**25**	**3**	**1**	**4**	**0**	**0**	**355**
85	4	1	0	0	8	0	**98**
70	5	0	0	2	0	0	**77**
66	4	1	0	0	0	0	**71**
42	9	1	0	0	3	0	**55**
263	**22**	**3**	**0**	**2**	**11**	**0**	**301**
3971	334	33	25	18	24	0	**4405**

Arm B - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
7	1	1	1	0	0	0	**10**
14	2	1	1	0	0	0	**18**
14	3	0	0	0	0	0	**17**
9	0	2	1	0	0	0	**12**
44	**6**	**4**	**3**	**0**	**0**	**0**	**57**
10	3	0	0	0	0	0	**13**
15	2	0	0	0	0	0	**17**
16	6	0	0	0	0	0	**22**
24	3	0	0	0	0	0	**27**
65	**14**	**0**	**0**	**0**	**0**	**0**	**79**
29	3	1	1	0	1	0	**35**
27	1	0	0	0	0	0	**28**
32	7	1	0	0	0	0	**40**
36	4	0	0	0	0	0	**40**
124	**15**	**2**	**1**	**0**	**1**	**0**	**143**
45	3	0	0	0	0	0	**48**
42	7	0	0	0	0	0	**49**
49	3	0	0	0	0	0	**52**
56	5	0	0	0	0	0	**61**
192	**18**	**0**	**0**	**0**	**0**	**0**	**210**
47	9	0	0	0	0	0	**56**
68	7	0	0	1	1	0	**77**
63	8	0	0	0	0	0	**71**
65	4	1	1	0	0	0	**71**
243	**28**	**1**	**1**	**1**	**1**	**0**	**275**
71	0	1	0	1	0	0	**73**
79	5	1	0	1	0	0	**86**
79	7	0	0	0	0	0	**86**
75	6	0	0	1	0	0	**82**
304	**18**	**2**	**0**	**3**	**0**	**0**	**327**
82	4	0	0	0	0	0	**86**
83	4	0	0	0	0	0	**87**
88	5	0	1	1	0	0	**95**
92	4	1	0	0	0	0	**97**
345	**17**	**1**	**1**	**1**	**0**	**0**	**365**
80	3	0	0	0	0	0	**83**
85	4	0	0	0	0	0	**89**
89	5	0	0	0	0	0	**94**
78	2	0	0	0	0	0	**80**
332	**14**	**0**	**0**	**0**	**0**	**0**	**346**
90	5	0	0	0	0	0	**95**
82	4	0	0	0	0	0	**86**
82	3	0	0	0	0	0	**85**
90	4	0	0	0	0	0	**94**
344	**16**	**0**	**0**	**0**	**0**	**0**	**360**
91	6	0	0	0	0	0	**97**
106	3	0	0	0	0	0	**109**
80	3	0	0	0	0	0	**83**
73	1	0	0	0	0	0	**74**
350	**13**	**0**	**0**	**0**	**0**	**0**	**363**
85	1	0	0	0	0	0	**86**
75	1	0	1	0	0	0	**77**
75	4	0	0	0	0	0	**79**
52	1	0	0	0	0	0	**53**
287	**7**	**0**	**1**	**0**	**0**	**0**	**295**
66	4	0	0	0	0	0	**70**
39	2	0	0	0	0	0	**41**
39	3	0	0	0	0	0	**42**
45	3	0	0	0	0	0	**48**
189	**12**	**0**	**0**	**0**	**0**	**0**	**201**

2819	178	10	7	5	2	0	**3021**

Arm C - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
1	**0**	**0**	**0**	**0**	**0**	**0**	**1**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
1	**0**	**0**	**0**	**0**	**0**	**0**	**1**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
1	0	0	0	0	0	0	**1**
1	0	0	0	0	0	0	**1**
3	**0**	**0**	**0**	**0**	**0**	**0**	**3**
2	0	0	0	0	0	0	**2**
3	0	0	0	0	0	0	**3**
0	1	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
5	**1**	**0**	**0**	**0**	**0**	**0**	**6**
2	0	0	0	0	0	0	**2**
1	0	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
4	0	0	0	0	0	0	**4**
7	**0**	**0**	**0**	**0**	**0**	**0**	**7**
5	0	0	0	0	0	0	**5**
3	0	0	0	0	0	0	**3**
1	0	0	0	0	0	0	**1**
4	0	0	0	0	0	0	**4**
13	**0**	**0**	**0**	**0**	**0**	**0**	**13**
5	1	0	0	0	0	0	**6**
6	0	0	0	0	0	0	**6**
3	0	0	0	0	0	0	**3**
6	0	0	0	0	0	0	**6**
20	**1**	**0**	**0**	**0**	**0**	**0**	**21**
5	0	0	0	0	0	0	**5**
7	0	0	0	0	0	0	**7**
1	0	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
13	**0**	**0**	**0**	**0**	**0**	**0**	**13**
1	0	0	0	0	0	0	**1**
1	0	0	0	0	0	0	**1**
2	0	0	0	0	0	0	**2**
1	0	0	0	0	0	0	**1**
5	**0**	**0**	**0**	**0**	**0**	**0**	**5**
0	0	0	0	0	0	0	**0**
2	0	0	0	0	0	0	**2**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
3	**0**	**0**	**0**	**0**	**0**	**0**	**3**
1	0	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
1	0	0	0	0	0	0	**1**
0	0	0	0	0	0	0	**0**
2	**0**	**0**	**0**	**0**	**0**	**0**	**2**
73	2	0	0	0	0	0	**75**

Arm D - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
4	1	0	0	0	0	0	**5**
10	1	0	0	0	0	0	**11**
4	1	0	0	0	0	0	**5**
14	2	0	0	0	0	0	**16**
32	**5**	**0**	**0**	**0**	**0**	**0**	**37**
10	2	0	0	0	0	0	**12**
15	0	0	0	0	0	0	**15**
15	0	0	0	0	0	0	**15**
12	3	0	0	0	0	0	**15**
52	**5**	**0**	**0**	**0**	**0**	**0**	**57**
21	2	0	0	0	0	0	**23**
16	1	0	0	0	0	0	**17**
27	1	0	0	0	0	0	**28**
19	1	0	0	0	0	0	**20**
83	**5**	**0**	**0**	**0**	**0**	**0**	**88**
26	0	1	0	0	0	0	**27**
23	3	0	0	0	0	0	**26**
31	0	0	0	0	0	0	**31**
32	3	0	0	0	0	0	**35**
112	**6**	**1**	**0**	**0**	**0**	**0**	**119**
30	1	0	0	0	0	0	**31**
51	2	0	0	0	0	0	**53**
45	1	1	0	0	0	0	**47**
44	1	0	0	0	0	0	**45**
170	**5**	**1**	**0**	**0**	**0**	**0**	**176**
41	4	0	0	0	0	0	**45**
48	1	0	0	0	0	0	**49**
37	3	0	0	0	0	0	**40**
59	2	0	0	0	0	0	**61**
185	**10**	**0**	**0**	**0**	**0**	**0**	**195**
45	2	0	0	0	0	0	**47**
52	7	0	0	0	0	0	**59**
46	4	0	0	0	0	0	**50**
62	3	0	0	0	0	0	**65**
205	**16**	**0**	**0**	**0**	**0**	**0**	**221**
65	1	0	0	0	0	0	**66**
57	3	0	0	0	0	0	**60**
50	3	0	0	0	0	0	**53**
69	5	0	0	0	0	0	**74**
241	**12**	**0**	**0**	**0**	**0**	**0**	**253**
64	2	0	0	0	0	0	**66**
61	3	0	0	0	0	0	**64**
60	5	0	0	0	0	0	**65**
43	0	0	0	0	0	0	**43**
228	**10**	**0**	**0**	**0**	**0**	**0**	**238**
26	2	0	0	0	0	0	**28**
56	2	1	0	0	0	0	**59**
53	0	0	0	0	0	0	**53**
51	0	0	0	0	0	0	**51**
186	**4**	**1**	**0**	**0**	**0**	**0**	**191**
41	2	0	0	0	0	0	**43**
39	0	0	0	0	0	0	**39**
34	1	0	0	0	0	0	**35**
28	1	0	0	0	0	0	**29**
142	**4**	**0**	**0**	**0**	**0**	**0**	**146**
34	0	0	0	0	0	0	**34**
21	2	0	0	0	0	0	**23**
21	1	0	0	0	0	0	**22**
19	0	0	0	0	0	0	**19**
95	**3**	**0**	**0**	**0**	**0**	**0**	**98**

1731	85	3	0	0	0	0	**1819**

Origin - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
40	6	2	1	0	0	0	**49**
55	10	3	1	0	0	0	**69**
46	6	2	0	0	0	0	**54**
71	16	2	0	1	0	0	**90**
212	**38**	**9**	**2**	**1**	**0**	**0**	**262**
66	10	1	0	0	1	0	**78**
66	13	2	3	0	0	0	**84**
91	15	3	0	2	0	0	**111**
114	8	1	2	2	0	0	**127**
337	**46**	**7**	**5**	**4**	**1**	**0**	**400**
104	12	1	1	2	4	0	**124**
117	15	4	1	0	4	0	**141**
137	18	5	0	0	3	0	**163**
169	10	3	1	3	0	0	**186**
527	**55**	**13**	**3**	**5**	**11**	**0**	**614**
164	17	1	1	1	0	0	**184**
179	10	3	0	0	0	0	**192**
214	17	1	0	0	3	0	**235**
200	15	2	0	0	0	0	**217**
757	**59**	**7**	**1**	**1**	**3**	**0**	**828**
195	16	2	0	3	0	0	**216**
210	20	0	1	0	1	0	**232**
234	24	0	3	0	2	0	**263**
231	16	1	0	0	0	0	**248**
870	**76**	**3**	**4**	**3**	**3**	**0**	**959**
271	10	2	1	1	2	0	**287**
249	16	2	0	0	0	0	**267**
260	16	0	1	0	0	0	**277**
265	18	0	0	3	1	0	**287**
1045	**60**	**4**	**2**	**4**	**3**	**0**	**1118**
275	18	1	1	1	1	0	**297**
209	18	1	0	0	0	0	**228**
259	14	2	0	1	1	0	**277**
267	13	1	1	1	0	0	**283**
1010	**63**	**5**	**2**	**3**	**2**	**0**	**1085**
285	11	0	0	1	0	0	**297**
261	13	1	1	0	0	0	**276**
221	13	0	1	0	1	0	**236**
221	15	2	0	0	0	0	**238**
988	**52**	**3**	**2**	**1**	**1**	**0**	**1047**
286	12	0	0	1	1	0	**300**
218	8	3	0	1	0	0	**230**
217	12	1	0	1	0	0	**231**
195	13	1	1	1	0	0	**211**
916	**45**	**5**	**1**	**4**	**1**	**0**	**972**
191	10	1	0	0	1	0	**203**
180	10	0	1	1	0	0	**192**
174	7	1	0	0	0	0	**182**
166	7	0	0	0	0	0	**173**
711	**34**	**2**	**1**	**1**	**1**	**0**	**750**
146	11	1	1	0	0	0	**159**
163	12	1	1	0	0	0	**177**
145	9	0	0	1	0	0	**155**
139	7	0	0	0	0	0	**146**
593	**39**	**2**	**2**	**1**	**0**	**0**	**637**
136	5	0	0	0	0	0	**141**
117	5	0	0	0	0	0	**122**
156	6	0	0	0	1	0	**163**
97	4	0	0	0	0	0	**101**
506	**20**	**0**	**0**	**0**	**1**	**0**	**527**

8472	587	60	25	28	27	0	**9199**

Destination - Arm C							
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**
37	6	2	3	0	0	0	**48**
46	6	2	2	0	0	0	**56**
45	15	0	1	0	0	0	**61**
56	6	2	1	0	0	0	**65**
184	**33**	**6**	**7**	**0**	**0**	**0**	**230**
55	8	4	0	0	0	0	**67**
69	6	1	1	0	0	0	**77**
91	12	0	1	0	0	0	**104**
89	12	0	1	1	0	0	**103**
304	**38**	**5**	**3**	**1**	**0**	**0**	**351**
92	10	1	2	0	1	0	**106**
105	8	1	1	0	0	0	**115**
126	14	3	1	0	0	0	**144**
127	11	0	2	0	0	0	**140**
450	**43**	**5**	**6**	**0**	**1**	**0**	**505**
146	11	1	0	0	0	0	**158**
144	20	1	1	1	2	0	**169**
181	7	0	0	2	1	0	**191**
186	13	0	0	1	0	0	**200**
657	**51**	**2**	**1**	**4**	**3**	**0**	**718**
164	19	0	0	0	0	0	**183**
225	24	0	0	1	1	0	**251**
215	24	1	1	0	0	0	**241**
220	16	1	1	0	2	0	**240**
824	**83**	**2**	**2**	**1**	**3**	**0**	**915**
229	12	2	2	1	0	0	**246**
232	17	1	1	1	0	0	**252**
250	22	1	0	0	2	0	**275**
263	12	0	0	1	1	0	**277**
974	**63**	**4**	**3**	**3**	**3**	**0**	**1050**
210	12	1	0	0	0	0	**223**
262	22	1	0	1	0	0	**286**
240	13	1	1	3	1	0	**259**
259	15	1	1	0	1	0	**277**
971	**62**	**4**	**2**	**4**	**2**	**0**	**1045**
266	15	0	0	0	1	0	**282**
254	18	2	2	0	0	0	**276**
243	11	1	0	1	0	0	**256**
280	13	1	0	1	0	0	**295**
1043	**57**	**4**	**2**	**2**	**1**	**0**	**1109**
270	11	0	2	0	0	0	**283**
270	16	1	0	1	2	0	**290**
221	14	2	0	0	0	0	**237**
221	9	0	0	0	0	0	**230**
982	**50**	**3**	**2**	**1**	**2**	**0**	**1040**
210	16	0	0	0	0	0	**226**
227	9	1	0	1	0	0	**238**
237	11	4	1	0	0	0	**253**
228	10	0	1	0	0	0	**239**
902	**46**	**5**	**2**	**1**	**0**	**0**	**956**
203	7	2	1	1	0	0	**214**
199	9	0	1	0	0	0	**209**
182	11	1	0	2	0	0	**196**
170	9	0	0	1	0	0	**180**
754	**36**	**3**	**2**	**4**	**0**	**0**	**799**
186	8	1	0	0	8	0	**203**
130	9	0	0	2	0	0	**141**
127	8	1	0	0	0	0	**136**
106	12	1	0	0	3	0	**122**
549	**37**	**3**	**0**	**2**	**11**	**0**	**602**
8594	599	46	32	23	26	0	**9320**

Arm A - Arm D								
Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Arm Total
1	0	0	0	0	0	0	**1**	**42**
0	0	0	0	0	0	0	**0**	**41**
2	0	0	0	0	0	0	**2**	**59**
2	0	0	0	0	0	0	**2**	**64**
5	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**206**
5	0	0	0	0	0	0	**5**	**63**
0	1	0	0	0	0	0	**1**	**78**
5	0	0	0	0	0	0	**5**	**136**
10	0	0	0	0	0	0	**10**	**136**
20	**1**	**0**	**0**	**0**	**0**	**0**	**21**	**413**
19	0	0	0	0	0	0	**19**	**122**
12	0	0	0	0	0	0	**12**	**142**
19	0	0	0	0	0	0	**19**	**173**
15	4	1	0	0	0	0	**20**	**200**
65	**4**	**1**	**0**	**0**	**0**	**0**	**70**	**637**
25	2	0	0	0	0	0	**27**	**179**
16	3	0	0	0	0	0	**19**	**212**
33	0	0	0	0	0	0	**33**	**237**
23	2	0	0	0	0	0	**25**	**234**
97	**7**	**0**	**0**	**0**	**0**	**0**	**104**	**862**
25	1	0	0	0	0	0	**26**	**214**
28	1	1	0	0	0	0	**30**	**236**
22	3	0	0	0	0	0	**25**	**225**
35	1	0	0	0	0	0	**36**	**260**
110	**6**	**1**	**0**	**0**	**0**	**0**	**117**	**935**
28	1	1	0	0	0	0	**30**	**261**
30	2	0	0	0	0	0	**32**	**236**
31	3	0	0	0	0	0	**34**	**288**
39	2	0	0	0	0	0	**41**	**269**
128	**8**	**1**	**0**	**0**	**0**	**0**	**137**	**1054**
23	0	0	0	0	0	0	**23**	**198**
23	1	0	0	0	0	0	**24**	**270**
27	2	0	0	0	0	0	**29**	**231**
29	0	0	0	0	0	0	**29**	**225**
102	**3**	**0**	**0**	**0**	**0**	**0**	**105**	**924**
25	1	0	0	0	0	0	**26**	**237**
27	7	0	0	0	0	0	**34**	**253**
22	3	0	0	0	0	0	**25**	**203**
35	1	0	0	0	0	0	**36**	**259**
109	**12**	**0**	**0**	**0**	**0**	**0**	**121**	**952**
26	1	0	0	0	0	0	**27**	**225**
22	2	0	0	0	0	0	**24**	**242**
18	1	0	0	0	0	0	**19**	**185**
19	0	0	0	0	0	0	**19**	**191**
85	**4**	**0**	**0**	**0**	**0**	**0**	**89**	**843**
20	2	0	0	0	0	0	**22**	**224**
20	0	0	0	0	0	0	**20**	**165**
16	0	0	0	0	0	0	**16**	**218**
8	0	0	0	0	0	0	**8**	**210**
64	**2**	**0**	**0**	**0**	**0**	**0**	**66**	**817**
19	0	0	0	0	0	0	**19**	**183**
12	0	0	0	0	0	0	**12**	**169**
7	0	0	0	0	0	0	**7**	**150**
4	1	0	0	0	0	0	**5**	**149**
42	**1**	**0**	**0**	**0**	**0**	**0**	**43**	**651**
8	2	0	0	0	0	0	**10**	**151**
8	1	0	0	0	0	0	**9**	**119**
4	0	0	0	0	0	0	**4**	**128**
0	0	0	0	0	0	0	**0**	**83**
20	**3**	**0**	**0**	**0**	**0**	**0**	**23**	**481**
847	51	3	0	0	0	0	**901**	**8775**

Arm B - Arm D								
Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Arm Total
2	1	0	0	0	0	0	**3**	**22**
5	1	0	0	1	0	0	**7**	**46**
7	1	0	0	1	0	0	**9**	**38**
6	1	0	0	2	0	0	**9**	**39**
20	**4**	**0**	**0**	**4**	**0**	**0**	**28**	**145**
5	3	0	0	1	0	0	**9**	**37**
6	0	0	0	1	0	0	**7**	**42**
17	1	1	0	1	0	0	**20**	**58**
26	1	0	0	2	0	0	**29**	**95**
54	**5**	**1**	**0**	**5**	**0**	**0**	**65**	**232**
26	3	0	0	1	0	0	**30**	**103**
23	3	0	0	2	0	0	**28**	**108**
31	2	1	0	1	0	0	**35**	**124**
32	5	1	0	3	0	0	**41**	**159**
112	**13**	**2**	**0**	**7**	**0**	**0**	**134**	**494**
45	3	0	0	0	1	0	**49**	**172**
33	3	0	0	2	0	0	**38**	**163**
36	4	0	0	1	1	0	**42**	**167**
54	3	0	0	2	0	0	**59**	**212**
168	**13**	**0**	**0**	**5**	**2**	**0**	**188**	**714**
39	5	0	0	0	0	0	**44**	**184**
44	2	0	0	4	0	0	**50**	**215**
42	2	0	0	0	0	0	**44**	**200**
50	7	0	0	2	0	0	**59**	**226**
175	**16**	**0**	**0**	**6**	**0**	**0**	**197**	**825**
58	3	0	0	2	0	0	**63**	**248**
62	5	0	0	2	0	0	**69**	**255**
61	2	0	0	1	0	0	**64**	**245**
74	1	1	0	1	1	0	**78**	**263**
255	**11**	**1**	**0**	**6**	**1**	**0**	**274**	**1011**
86	0	0	0	2	0	0	**88**	**260**
63	3	0	0	2	0	0	**68**	**261**
71	6	0	0	1	0	0	**78**	**255**
67	4	0	0	3	0	0	**74**	**268**
287	**13**	**0**	**0**	**8**	**0**	**0**	**308**	**1044**
59	4	0	0	0	0	0	**63**	**222**
60	3	0	0	3	0	0	**66**	**238**
68	3	0	0	1	0	0	**72**	**269**
47	3	0	0	1	0	0	**51**	**216**
234	**13**	**0**	**0**	**5**	**0**	**0**	**252**	**945**
65	7	0	0	2	1	0	**75**	**251**
64	3	0	0	2	0	0	**69**	**220**
47	5	0	0	1	0	0	**53**	**236**
58	2	0	1	2	0	0	**63**	**239**
234	**17**	**0**	**1**	**7**	**1**	**0**	**260**	**946**
51	6	0	0	0	0	0	**57**	**277**
55	4	0	0	2	1	0	**62**	**275**
49	3	0	0	1	0	0	**53**	**245**
57	4	0	0	2	0	0	**63**	**239**
212	**17**	**0**	**0**	**5**	**1**	**0**	**235**	**1036**
54	3	1	0	1	0	0	**59**	**239**
54	1	0	0	1	0	0	**56**	**227**
47	6	0	0	1	0	0	**54**	**225**
42	0	0	0	3	0	0	**45**	**178**
197	**10**	**1**	**0**	**6**	**0**	**0**	**214**	**869**
58	1	0	0	1	0	0	**60**	**216**
28	0	0	0	2	0	0	**30**	**146**
32	1	0	0	0	1	0	**34**	**130**
32	0	0	0	2	0	0	**34**	**125**
150	**2**	**0**	**0**	**5**	**1**	**0**	**158**	**617**
2098	134	5	1	69	6	0	**2313**	**8878**

Arm C - Arm D								
Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Arm Total
3	0	0	1	0	0	0	**4**	**49**
5	0	0	0	0	0	0	**5**	**69**
5	0	0	0	0	0	0	**5**	**54**
4	0	0	0	0	0	0	**4**	**90**
17	**0**	**0**	**1**	**0**	**0**	**0**	**18**	**262**
15	2	0	0	0	0	0	**17**	**78**
8	1	0	1	0	0	0	**10**	**84**
6	1	0	0	1	0	0	**8**	**111**
14	2	0	0	0	0	0	**16**	**127**
43	**6**	**0**	**1**	**1**	**0**	**0**	**51**	**400**
12	4	0	0	0	0	0	**16**	**124**
15	4	0	0	0	1	0	**20**	**141**
37	0	0	0	0	1	0	**38**	**163**
29	2	0	0	0	0	0	**31**	**186**
93	**10**	**0**	**0**	**0**	**2**	**0**	**105**	**614**
31	3	0	0	0	0	0	**34**	**184**
37	3	1	0	0	0	0	**41**	**192**
41	3	0	0	0	0	0	**44**	**235**
41	5	1	0	0	0	0	**47**	**217**
150	**14**	**2**	**0**	**0**	**0**	**0**	**166**	**828**
51	3	0	0	0	0	0	**54**	**216**
49	5	0	0	0	0	0	**54**	**232**
57	2	0	2	0	0	0	**61**	**263**
58	4	0	0	0	0	0	**62**	**248**
215	**14**	**0**	**2**	**0**	**0**	**0**	**231**	**959**
67	2	1	1	0	0	0	**71**	**287**
68	5	1	0	0	0	0	**74**	**267**
78	1	0	0	0	0	0	**79**	**277**
71	3	0	0	0	0	0	**74**	**287**
284	**11**	**2**	**1**	**0**	**0**	**0**	**298**	**1118**
74	4	0	0	0	0	0	**78**	**297**
59	6	0	0	0	0	0	**65**	**228**
61	2	0	0	0	0	0	**63**	**277**
65	4	0	1	0	0	0	**70**	**283**
259	**16**	**0**	**1**	**0**	**0**	**0**	**276**	**1085**
81	3	0	0	0	0	0	**84**	**297**
66	4	0	0	0	0	0	**70**	**276**
63	1	0	0	0	0	0	**64**	**236**
57	1	0	0	0	0	0	**58**	**238**
267	**9**	**0**	**0**	**0**	**0**	**0**	**276**	**1047**
77	3	0	0	0	0	0	**80**	**300**
56	3	1	0	0	0	0	**60**	**230**
52	4	0	0	0	0	0	**56**	**231**
51	3	0	1	0	0	0	**55**	**211**
236	**13**	**1**	**1**	**0**	**0**	**0**	**251**	**972**
51	3	0	0	0	0	0	**54**	**203**
33	0	0	0	0	0	0	**33**	**192**
40	4	0	0	0	0	0	**44**	**182**
37	1	0	0	0	0	0	**38**	**173**
161	**8**	**0**	**0**	**0**	**0**	**0**	**169**	**750**
39	2	0	0	0	0	0	**41**	**159**
32	2	1	0	0	0	0	**35**	**177**
31	1	0	0	0	0	0	**32**	**155**
34	1	0	0	0	0	0	**35**	**146**
136	**6**	**1**	**0**	**0**	**0**	**0**	**143**	**637**
21	0	0	0	0	0	0	**21**	**141**
22	0	0	0	0	0	0	**22**	**122**
27	0	0	0	0	0	0	**27**	**163**
18	1	0	0	0	0	0	**19**	**101**
88	**1**	**0**	**0**	**0**	**0**	**0**	**89**	**527**
1949	108	6	7	1	2	0	**2073**	**9199**

Arm D - Arm D								
Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Arm Total
0	0	0	0	0	0	0	**0**	**18**
0	0	0	0	0	0	0	**0**	**21**
0	0	0	0	0	0	0	**0**	**19**
0	0	0	0	0	0	0	**0**	**32**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**90**
0	0	0	0	0	0	0	**0**	**33**
0	0	0	0	0	0	0	**0**	**38**
0	0	0	0	0	0	0	**0**	**34**
0	0	0	0	0	0	0	**0**	**56**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**161**
0	0	0	0	0	0	0	**0**	**64**
0	0	0	0	0	0	0	**0**	**55**
0	0	0	0	0	0	0	**0**	**66**
0	0	0	0	0	0	0	**0**	**69**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**254**
0	0	0	0	0	0	0	**0**	**90**
0	0	0	0	0	0	0	**0**	**89**
0	0	0	0	0	0	0	**0**	**97**
0	0	0	0	0	0	0	**0**	**102**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**378**
0	0	0	0	0	0	0	**0**	**100**
1	0	0	0	0	0	0	**1**	**123**
0	0	0	0	0	0	0	**0**	**126**
0	0	0	0	0	0	0	**0**	**129**
1	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**478**
0	0	0	0	0	0	0	**0**	**121**
0	0	0	0	0	0	0	**0**	**134**
0	0	0	0	0	0	0	**0**	**126**
0	0	0	0	0	0	0	**0**	**144**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**525**
0	0	0	0	0	0	0	**0**	**130**
0	0	0	0	0	0	0	**0**	**167**
0	0	0	0	0	0	0	**0**	**121**
0	0	0	0	0	0	0	**0**	**153**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**571**
0	0	0	0	0	0	0	**0**	**144**
0	0	0	0	0	0	0	**0**	**144**
0	0	0	0	0	0	0	**0**	**116**
0	0	0	0	0	0	0	**0**	**161**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**565**
0	0	0	0	0	0	0	**0**	**152**
0	0	0	0	0	0	0	**0**	**144**
0	0	0	0	0	0	0	**0**	**145**
0	0	0	0	0	0	0	**0**	**141**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**582**
0	0	0	0	0	0	0	**0**	**111**
0	0	0	0	0	0	0	**0**	**126**
0	0	0	0	0	0	0	**0**	**141**
0	0	0	0	0	0	0	**0**	**154**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**532**
0	0	0	0	0	0	0	**0**	**115**
0	0	0	0	0	0	0	**0**	**130**
0	0	0	0	0	0	0	**0**	**110**
0	0	0	0	0	0	0	**0**	**99**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**454**
0	0	0	0	0	0	0	**0**	**85**
0	0	0	0	0	0	0	**0**	**80**
0	0	0	0	0	0	0	**0**	**66**
0	0	0	0	0	0	0	**0**	**51**
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**282**
1	0	0	0	0	0	0	**1**	**4872**

Origin - Arm D								
Car	**LGV**	**OGV1**	**OGV2**	**PSV**	**MC**	**PC**	**Total**	**Arm Total**
13	5	0	0	0	0	0	**18**	**131**
18	2	0	0	1	0	0	**21**	**177**
16	2	0	0	1	0	0	**19**	**170**
30	2	0	0	0	0	0	**32**	**225**
77	**11**	**0**	**0**	**2**	**0**	**0**	**90**	**703**
26	6	0	0	1	0	0	**33**	**211**
30	6	0	0	1	1	0	**38**	**242**
31	3	0	0	0	0	0	**34**	**339**
50	6	0	0	0	0	0	**56**	**414**
137	**21**	**0**	**0**	**2**	**1**	**0**	**161**	**1206**
57	5	1	0	1	0	0	**64**	**413**
49	5	0	0	1	0	0	**55**	**446**
62	3	0	0	1	0	0	**66**	**526**
64	5	0	0	0	0	0	**69**	**614**
232	**18**	**1**	**0**	**3**	**0**	**0**	**254**	**1999**
80	6	3	0	1	0	0	**90**	**625**
82	4	2	0	1	0	0	**89**	**656**
92	4	0	0	1	0	0	**97**	**736**
93	9	0	0	0	0	0	**102**	**765**
347	**23**	**5**	**0**	**3**	**0**	**0**	**378**	**2782**
92	6	1	0	1	0	0	**100**	**714**
114	9	0	0	0	0	0	**123**	**806**
118	5	1	0	2	0	0	**126**	**814**
124	5	0	0	0	0	0	**129**	**863**
448	**25**	**2**	**0**	**3**	**0**	**0**	**478**	**3197**
115	5	0	0	1	0	0	**121**	**917**
129	3	0	0	1	0	1	**134**	**892**
117	6	2	0	1	0	0	**126**	**936**
135	9	0	0	0	0	0	**144**	**963**
496	**23**	**2**	**0**	**3**	**0**	**1**	**525**	**3708**
125	3	0	0	1	1	0	**130**	**885**
153	13	0	0	1	0	0	**167**	**926**
110	10	0	0	1	0	0	**121**	**884**
145	8	0	0	0	0	0	**153**	**929**
533	**34**	**0**	**0**	**3**	**1**	**0**	**571**	**3624**
137	6	0	0	1	0	0	**144**	**900**
134	9	0	0	1	0	0	**144**	**911**
109	7	0	0	0	0	0	**116**	**824**
148	12	0	0	1	0	0	**161**	**874**
528	**34**	**0**	**0**	**3**	**0**	**0**	**565**	**3509**
143	8	0	0	1	0	0	**152**	**928**
140	3	0	0	1	0	0	**144**	**836**
133	11	0	0	1	0	0	**145**	**797**
137	4	0	0	0	0	0	**141**	**782**
553	**26**	**0**	**0**	**3**	**0**	**0**	**582**	**3343**
106	3	0	0	1	1	0	**111**	**815**
120	5	1	0	0	0	0	**126**	**758**
138	3	0	0	0	0	0	**141**	**786**
148	3	0	0	1	2	0	**154**	**776**
512	**14**	**1**	**0**	**2**	**3**	**0**	**532**	**3135**
105	9	0	0	1	0	0	**115**	**696**
127	2	0	0	1	0	0	**130**	**703**
104	5	0	0	1	0	0	**110**	**640**
93	6	0	0	0	0	0	**99**	**572**
429	**22**	**0**	**0**	**3**	**0**	**0**	**454**	**2611**
80	4	0	0	1	0	0	**85**	**593**
73	5	0	0	1	1	0	**80**	**467**
64	1	0	0	1	0	0	**66**	**487**
50	1	0	0	0	0	0	**51**	**360**
267	**11**	**0**	**0**	**3**	**1**	**0**	**282**	**1907**
4559	262	11	0	33	6	1	**4872**	**31724**

Destination - Arm D								
Car	LGV	OGV1	OGV2	PSV	MC	PC	Total	Arm Total
6	1	0	1	0	0	0	**8**	**131**
10	1	0	0	1	0	0	**12**	**177**
14	1	0	0	1	0	0	**16**	**170**
12	1	0	0	2	0	0	**15**	**225**
42	**4**	**0**	**1**	**4**	**0**	**0**	**51**	**703**
25	5	0	0	1	0	0	**31**	**211**
14	2	0	1	1	0	0	**18**	**242**
28	2	1	0	2	0	0	**33**	**339**
50	3	0	0	2	0	0	**55**	**414**
117	**12**	**1**	**1**	**6**	**0**	**0**	**137**	**1206**
57	7	0	0	1	0	0	**65**	**413**
50	7	0	0	2	1	0	**60**	**446**
87	2	1	0	1	1	0	**92**	**526**
76	11	2	0	3	0	0	**92**	**614**
270	**27**	**3**	**0**	**7**	**2**	**0**	**309**	**1999**
101	8	0	0	0	1	0	**110**	**625**
86	9	1	0	2	0	0	**98**	**656**
110	7	0	0	1	1	0	**119**	**736**
118	10	1	0	2	0	0	**131**	**765**
415	**34**	**2**	**0**	**5**	**2**	**0**	**458**	**2782**
115	9	0	0	0	0	0	**124**	**714**
122	8	1	0	4	0	0	**135**	**806**
121	7	0	2	0	0	0	**130**	**814**
143	12	0	0	2	0	0	**157**	**863**
501	**36**	**1**	**2**	**6**	**0**	**0**	**546**	**3197**
153	6	2	1	2	0	0	**164**	**917**
160	12	1	0	2	0	0	**175**	**892**
170	6	0	0	1	0	0	**177**	**936**
184	6	1	0	1	1	0	**193**	**963**
667	**30**	**4**	**1**	**6**	**1**	**0**	**709**	**3708**
183	4	0	0	2	0	0	**189**	**885**
145	10	0	0	2	0	0	**157**	**926**
159	10	0	0	1	0	0	**170**	**884**
161	8	0	1	3	0	0	**173**	**929**
648	**32**	**0**	**1**	**8**	**0**	**0**	**689**	**3624**
165	8	0	0	0	0	0	**173**	**900**
153	14	0	0	3	0	0	**170**	**911**
153	7	0	0	1	0	0	**161**	**824**
139	5	0	0	1	0	0	**145**	**874**
610	**34**	**0**	**0**	**5**	**0**	**0**	**649**	**3509**
168	11	0	0	2	1	0	**182**	**928**
142	8	1	0	2	0	0	**153**	**836**
117	10	0	0	1	0	0	**128**	**797**
128	5	0	2	2	0	0	**137**	**782**
555	**34**	**1**	**2**	**7**	**1**	**0**	**600**	**3343**
122	11	0	0	0	0	0	**133**	**815**
108	4	0	0	2	1	0	**115**	**758**
105	7	0	0	1	0	0	**113**	**786**
102	5	0	0	2	0	0	**109**	**776**
437	**27**	**0**	**0**	**5**	**1**	**0**	**470**	**3135**
112	5	1	0	1	0	0	**119**	**696**
98	3	1	0	1	0	0	**103**	**703**
85	7	0	0	1	0	0	**93**	**640**
80	2	0	0	3	0	0	**85**	**572**
375	**17**	**2**	**0**	**6**	**0**	**0**	**400**	**2611**
87	3	0	0	1	0	0	**91**	**593**
58	1	0	0	2	0	0	**61**	**467**
63	1	0	0	0	1	0	**65**	**487**
50	1	0	0	2	0	0	**53**	**360**
258	**6**	**0**	**0**	**5**	**1**	**0**	**270**	**1907**
4895	293	14	8	70	8	0	**5288**	**31724**

APPENDIX C – ILLUSTRATIVE SITE MASTERPLAN



1 **Illustrative Masterplan**
1 : 2000

N

20 0 20 40 60 80 100
SCALE 1:2000 m

P3	S0	01/02/22	WS	ISSUED FOR PLANNING
P2	S0	17/01/22	WS	Amendments incorporating highways, drainage and construction zones
P1	S0	xx/xx/xx	WS	DRAFT ISSUE
Rev.	Status	Date		Check Description

HolderMathiasarchitects

T +44 (0) 20 7287 0735
www.holdermathias.com
London Cardiff Munich

Project
Rhydycar West
Merthyr Tydfil
Marvel Ltd

Title
Illustrative Masterplan

Job No	Scale at A1	Status	Rev.	Ext.	Int.
4170	1 : 2000	S0	P3		

Project	Originator	Zone	Level	Type	Role	Sheet
RHDR	-HMA-	LE-	ZZ-	DR	-A	-**PL-020**

ISO 14001 : 2015 ISO 9001 : 2015 RIBA Chartered Practice
Please consider the environment before printing this document

APPENDIX D – TRICS OUTPUT: HOTEL

Calculation Reference: AUDIT-705103-210514-0519

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : A - HOTELS
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	BU	BUCKINGHAMSHIRE	1 days
	HF	HERTFORDSHIRE	1 days
03	SOUTH WEST		
	WL	WILTSHIRE	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	1 days
10	WALES		
	WR	WREXHAM	1 days
11	SCOTLAND		
	AG	ANGUS	1 days
	HI	HIGHLAND	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: Number of bedrooms
Actual Range: 4 to 139 (units:)
Range Selected by User: 4 to 380 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/04 to 25/11/19

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

Selected survey days:

Tuesday	2 days
Wednesday	2 days
Thursday	3 days

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

Selected survey types:

Manual count	7 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	6
Free Standing (PPS6 Out of Town)	1

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

Selected Location Sub Categories:

Commercial Zone	1
Residential Zone	1
Out of Town	3
No Sub Category	2

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

Secondary Filtering selection:

Use Class:

C1	7 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	1 days
5,001 to 10,000	4 days
10,001 to 15,000	1 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	2 days
50,001 to 75,000	1 days
75,001 to 100,000	1 days
100,001 to 125,000	2 days

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

Car ownership within 5 miles:

0.5 or Less	1 days
1.1 to 1.5	6 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	7 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	7 days

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

LIST OF SITES relevant to selection parameters

1	AG-06-A-01	BOUTIQUE B&B		ANGUS
	CLIFFBURN ROAD			
	ARBROATH			
	HAYSHEAD			
	Edge of Town			
	Residential Zone			
	Total Number of bedrooms:		4	
	Survey date: TUESDAY		*22/05/12*	*Survey Type: MANUAL*
2	BU-06-A-02	HOLIDAY INN		BUCKINGHAMSHIRE
	NEW ROAD			
	AYLESBURY			
	WESTON TURVILLE			
	Edge of Town			
	Out of Town			
	Total Number of bedrooms:		139	
	Survey date: WEDNESDAY		*01/10/14*	*Survey Type: MANUAL*
3	HF-06-A-03	NOVOTEL		HERTFORDSHIRE
	A1(M)			
	STEVENAGE			
	KNEBWORTH PARK			
	Edge of Town			
	No Sub Category			
	Total Number of bedrooms:		100	
	Survey date: THURSDAY		*08/07/04*	*Survey Type: MANUAL*
4	HI-06-A-03	EXPRESS BY HOL.INN		HIGHLAND
	A96			
	INVERNESS			
	STONEYFIELD BUSINESS PK			
	Edge of Town			
	Commercial Zone			
	Total Number of bedrooms:		94	
	Survey date: THURSDAY		*25/05/06*	*Survey Type: MANUAL*
5	WK-06-A-01	HOLIDAY INN EXPRESS		WARWICKSHIRE
	STRATFORD ROAD			
	WARWICK			
	LONGBRIDGE			
	Edge of Town			
	Out of Town			
	Total Number of bedrooms:		138	
	Survey date: WEDNESDAY		*25/09/19*	*Survey Type: MANUAL*
6	WL-06-A-03	TRAVELODGE		WILTSHIRE
	LAWRENCE HILL			
	WINCANTON			
	Edge of Town			
	No Sub Category			
	Total Number of bedrooms:		57	
	Survey date: TUESDAY		*18/09/18*	*Survey Type: MANUAL*
7	WR-06-A-02	HOTEL		WREXHAM
	WREXHAM ROAD			
	NEAR WREXHAM			
	HOLT			
	Free Standing (PPS6 Out of Town)			
	Out of Town			
	Total Number of bedrooms:		37	
	Survey date: THURSDAY		*06/10/11*	*Survey Type: MANUAL*

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

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS
TOTAL VEHICLES
Calculation factor: 1 BEDRMS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	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	7	81	0.088	7	81	0.283	7	81	0.371
08:00 - 09:00	7	81	0.134	7	81	0.290	7	81	0.424
09:00 - 10:00	7	81	0.199	7	81	0.195	7	81	0.394
10:00 - 11:00	7	81	0.139	7	81	0.139	7	81	0.278
11:00 - 12:00	7	81	0.086	7	81	0.146	7	81	0.232
12:00 - 13:00	7	81	0.088	7	81	0.105	7	81	0.193
13:00 - 14:00	7	81	0.116	7	81	0.127	7	81	0.243
14:00 - 15:00	7	81	0.146	7	81	0.139	7	81	0.285
15:00 - 16:00	7	81	0.137	7	81	0.134	7	81	0.271
16:00 - 17:00	7	81	0.204	7	81	0.134	7	81	0.338
17:00 - 18:00	7	81	0.297	7	81	0.163	7	81	0.460
18:00 - 19:00	7	81	0.234	7	81	0.135	7	81	0.369
19:00 - 20:00	7	81	0.176	7	81	0.139	7	81	0.315
20:00 - 21:00	7	81	0.132	7	81	0.079	7	81	0.211
21:00 - 22:00	5	75	0.128	5	75	0.128	5	75	0.256
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.304			2.336			4.640

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.*

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	4 - 139 (units:)
Survey date date range:	01/01/04 - 25/11/19
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS
OGVS
Calculation factor: 1 BEDRMS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	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	7	81	0.004	7	81	0.004	7	81	0.008
08:00 - 09:00	7	81	0.000	7	81	0.002	7	81	0.002
09:00 - 10:00	7	81	0.004	7	81	0.002	7	81	0.006
10:00 - 11:00	7	81	0.007	7	81	0.004	7	81	0.011
11:00 - 12:00	7	81	0.002	7	81	0.004	7	81	0.006
12:00 - 13:00	7	81	0.002	7	81	0.004	7	81	0.006
13:00 - 14:00	7	81	0.004	7	81	0.004	7	81	0.008
14:00 - 15:00	7	81	0.002	7	81	0.002	7	81	0.004
15:00 - 16:00	7	81	0.000	7	81	0.000	7	81	0.000
16:00 - 17:00	7	81	0.002	7	81	0.002	7	81	0.004
17:00 - 18:00	7	81	0.000	7	81	0.000	7	81	0.000
18:00 - 19:00	7	81	0.000	7	81	0.000	7	81	0.000
19:00 - 20:00	7	81	0.002	7	81	0.002	7	81	0.004
20:00 - 21:00	7	81	0.000	7	81	0.000	7	81	0.000
21:00 - 22:00	5	75	0.000	5	75	0.000	5	75	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.029			0.030			0.059

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 06 - HOTEL, FOOD & DRINK/A - HOTELS
PSVS
Calculation factor: 1 BEDRMS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	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	7	81	0.004	7	81	0.004	7	81	0.008
08:00 - 09:00	7	81	0.002	7	81	0.002	7	81	0.004
09:00 - 10:00	7	81	0.000	7	81	0.000	7	81	0.000
10:00 - 11:00	7	81	0.000	7	81	0.000	7	81	0.000
11:00 - 12:00	7	81	0.000	7	81	0.000	7	81	0.000
12:00 - 13:00	7	81	0.000	7	81	0.000	7	81	0.000
13:00 - 14:00	7	81	0.000	7	81	0.000	7	81	0.000
14:00 - 15:00	7	81	0.000	7	81	0.000	7	81	0.000
15:00 - 16:00	7	81	0.000	7	81	0.000	7	81	0.000
16:00 - 17:00	7	81	0.000	7	81	0.000	7	81	0.000
17:00 - 18:00	7	81	0.002	7	81	0.000	7	81	0.002
18:00 - 19:00	7	81	0.000	7	81	0.002	7	81	0.002
19:00 - 20:00	7	81	0.000	7	81	0.000	7	81	0.000
20:00 - 21:00	7	81	0.000	7	81	0.000	7	81	0.000
21:00 - 22:00	5	75	0.000	5	75	0.000	5	75	0.000
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 06 - HOTEL, FOOD & DRINK/A - HOTELS
CYCLISTS
Calculation factor: 1 BEDRMS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	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	7	81	0.002	7	81	0.000	7	81	0.002
08:00 - 09:00	7	81	0.002	7	81	0.002	7	81	0.004
09:00 - 10:00	7	81	0.000	7	81	0.000	7	81	0.000
10:00 - 11:00	7	81	0.004	7	81	0.002	7	81	0.006
11:00 - 12:00	7	81	0.000	7	81	0.002	7	81	0.002
12:00 - 13:00	7	81	0.000	7	81	0.000	7	81	0.000
13:00 - 14:00	7	81	0.000	7	81	0.002	7	81	0.002
14:00 - 15:00	7	81	0.000	7	81	0.004	7	81	0.004
15:00 - 16:00	7	81	0.004	7	81	0.004	7	81	0.008
16:00 - 17:00	7	81	0.004	7	81	0.000	7	81	0.004
17:00 - 18:00	7	81	0.002	7	81	0.002	7	81	0.004
18:00 - 19:00	7	81	0.000	7	81	0.000	7	81	0.000
19:00 - 20:00	7	81	0.000	7	81	0.000	7	81	0.000
20:00 - 21:00	7	81	0.000	7	81	0.000	7	81	0.000
21:00 - 22:00	5	75	0.003	5	75	0.000	5	75	0.003
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.021			0.018			0.039

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

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

Calculation Reference: AUDIT-705103-210514-0540

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : A - HOTELS
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	KC	KENT	1 days
03	SOUTH WEST		
	BR	BRISTOL CITY	1 days
	DC	DORSET	1 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	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: Number of bedrooms
Actual Range: 15 to 126 (units:)
Range Selected by User: 4 to 380 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/00 to 25/11/19

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

Selected survey days:

Saturday	3 days
Sunday	1 days

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

Selected survey types:

Manual count	4 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	2
Free Standing (PPS6 Out of Town)	2

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:

Residential Zone	1
Out of Town	2
No Sub Category	1

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

Secondary Filtering selection:

Use Class:

C1	4 days

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

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	2 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:

5,001 to 25,000	1 days
100,001 to 125,000	1 days
125,001 to 250,000	1 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	1 days
1.1 to 1.5	3 days

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

Travel Plan:

Not Known	2 days
No	2 days

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

PTAL Rating:

No PTAL Present	4 days

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

LIST OF SITES relevant to selection parameters

1 BR-06-A-01 HOTEL BRISTOL CITY
A38 BRIDGWATER ROAD
BRISTOL

Edge of Town
Out of Town
Total Number of bedrooms: 36
Survey date: SUNDAY *27/09/15* *Survey Type: MANUAL*

2 DC-06-A-03 HOTEL DORSET
EAST STOKE
NEAR WAREHAM
BINNEGAR
Free Standing (PPS6 Out of Town)
No Sub Category
Total Number of bedrooms: 15
Survey date: SATURDAY *21/09/02* *Survey Type: MANUAL*

3 DS-06-A-03 MENZIES HOTEL DERBYSHIRE
ETWALL ROAD
DERBY
MICKLEOVER
Edge of Town
Residential Zone
Total Number of bedrooms: 99
Survey date: SATURDAY *25/07/15* *Survey Type: MANUAL*

4 KC-06-A-01 RAMADA HOTEL KENT
ASHFORD ROAD
NEAR MAIDSTONE
HOLLINGBOURNE
Free Standing (PPS6 Out of Town)
Out of Town
Total Number of bedrooms: 126
Survey date: SATURDAY *15/06/02* *Survey Type: MANUAL*

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
HC-06-A-05	Motorway Services hotel
HC-06-A-06	"large christmas parties" held during survey dates

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS
TOTAL VEHICLES
Calculation factor: 1 BEDRMS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	1	126	0.111	1	126	0.048	1	126	0.159
07:00 - 08:00	4	69	0.167	4	69	0.174	4	69	0.341
08:00 - 09:00	4	69	0.228	4	69	0.286	4	69	0.514
09:00 - 10:00	4	69	0.254	4	69	0.246	4	69	0.500
10:00 - 11:00	4	69	0.243	4	69	0.304	4	69	0.547
11:00 - 12:00	4	69	0.243	4	69	0.322	4	69	0.565
12:00 - 13:00	4	69	0.210	4	69	0.167	4	69	0.377
13:00 - 14:00	4	69	0.286	4	69	0.156	4	69	0.442
14:00 - 15:00	4	69	0.167	4	69	0.210	4	69	0.377
15:00 - 16:00	4	69	0.167	4	69	0.188	4	69	0.355
16:00 - 17:00	4	69	0.308	4	69	0.236	4	69	0.544
17:00 - 18:00	4	69	0.293	4	69	0.159	4	69	0.452
18:00 - 19:00	4	69	0.312	4	69	0.232	4	69	0.544
19:00 - 20:00	3	87	0.280	3	87	0.195	3	87	0.475
20:00 - 21:00	3	87	0.218	3	87	0.215	3	87	0.433
21:00 - 22:00	2	113	0.107	2	113	0.120	2	113	0.227
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.594			3.258			6.852

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.*

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	15 - 126 (units:)
Survey date date range:	01/01/00 - 25/11/19
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	3
Number of Sundays:	2
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	2

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

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS
OGVS
Calculation factor: 1 BEDRMS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	1	126	0.008	1	126	0.008	1	126	0.016
07:00 - 08:00	4	69	0.011	4	69	0.007	4	69	0.018
08:00 - 09:00	4	69	0.000	4	69	0.004	4	69	0.004
09:00 - 10:00	4	69	0.004	4	69	0.000	4	69	0.004
10:00 - 11:00	4	69	0.007	4	69	0.004	4	69	0.011
11:00 - 12:00	4	69	0.000	4	69	0.007	4	69	0.007
12:00 - 13:00	4	69	0.000	4	69	0.000	4	69	0.000
13:00 - 14:00	4	69	0.000	4	69	0.000	4	69	0.000
14:00 - 15:00	4	69	0.000	4	69	0.000	4	69	0.000
15:00 - 16:00	4	69	0.004	4	69	0.004	4	69	0.008
16:00 - 17:00	4	69	0.000	4	69	0.000	4	69	0.000
17:00 - 18:00	4	69	0.000	4	69	0.000	4	69	0.000
18:00 - 19:00	4	69	0.000	4	69	0.000	4	69	0.000
19:00 - 20:00	3	87	0.000	3	87	0.000	3	87	0.000
20:00 - 21:00	3	87	0.000	3	87	0.000	3	87	0.000
21:00 - 22:00	2	113	0.000	2	113	0.000	2	113	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.034			0.034			0.068

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 06 - HOTEL, FOOD & DRINK/A - HOTELS
PSVS
Calculation factor: 1 BEDRMS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	1	126	0.016	1	126	0.016	1	126	0.032
07:00 - 08:00	4	69	0.000	4	69	0.000	4	69	0.000
08:00 - 09:00	4	69	0.000	4	69	0.000	4	69	0.000
09:00 - 10:00	4	69	0.000	4	69	0.000	4	69	0.000
10:00 - 11:00	4	69	0.004	4	69	0.004	4	69	0.008
11:00 - 12:00	4	69	0.004	4	69	0.004	4	69	0.008
12:00 - 13:00	4	69	0.000	4	69	0.000	4	69	0.000
13:00 - 14:00	4	69	0.004	4	69	0.004	4	69	0.008
14:00 - 15:00	4	69	0.000	4	69	0.000	4	69	0.000
15:00 - 16:00	4	69	0.000	4	69	0.000	4	69	0.000
16:00 - 17:00	4	69	0.000	4	69	0.000	4	69	0.000
17:00 - 18:00	4	69	0.004	4	69	0.000	4	69	0.004
18:00 - 19:00	4	69	0.000	4	69	0.000	4	69	0.000
19:00 - 20:00	3	87	0.000	3	87	0.004	3	87	0.004
20:00 - 21:00	3	87	0.000	3	87	0.000	3	87	0.000
21:00 - 22:00	2	113	0.004	2	113	0.000	2	113	0.004
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.036			0.032			0.068

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 06 - HOTEL, FOOD & DRINK/A - HOTELS
CYCLISTS
Calculation factor: 1 BEDRMS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	1	126	0.000	1	126	0.000	1	126	0.000
07:00 - 08:00	4	69	0.000	4	69	0.000	4	69	0.000
08:00 - 09:00	4	69	0.000	4	69	0.000	4	69	0.000
09:00 - 10:00	4	69	0.000	4	69	0.000	4	69	0.000
10:00 - 11:00	4	69	0.004	4	69	0.000	4	69	0.004
11:00 - 12:00	4	69	0.000	4	69	0.004	4	69	0.004
12:00 - 13:00	4	69	0.004	4	69	0.004	4	69	0.008
13:00 - 14:00	4	69	0.000	4	69	0.004	4	69	0.004
14:00 - 15:00	4	69	0.000	4	69	0.000	4	69	0.000
15:00 - 16:00	4	69	0.000	4	69	0.000	4	69	0.000
16:00 - 17:00	4	69	0.004	4	69	0.000	4	69	0.004
17:00 - 18:00	4	69	0.000	4	69	0.000	4	69	0.000
18:00 - 19:00	4	69	0.000	4	69	0.000	4	69	0.000
19:00 - 20:00	3	87	0.004	3	87	0.000	3	87	0.004
20:00 - 21:00	3	87	0.000	3	87	0.000	3	87	0.000
21:00 - 22:00	2	113	0.000	2	113	0.000	2	113	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.016			0.012			0.028

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 E – TRICS OUTPUT: FOREST LODGES

Calculation Reference: AUDIT-705103-210429-0449

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : J - HOLIDAY ACCOMMODATION
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
	HC	HAMPSHIRE	2 days
	HF	HERTFORDSHIRE	1 days
	KC	KENT	1 days
03	SOUTH WEST		
	DC	DORSET	3 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
	WM	WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days
10	WALES		
	PS	POWYS	1 days
	VG	VALE OF GLAMORGAN	1 days

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

Primary Filtering selection:

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

Parameter: Number of units
Actual Range: 55 to 1130 (units:)
Range Selected by User: 31 to 9700 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/00 to 28/07/18

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

Selected survey days:

Monday	2 days
Tuesday	1 days
Wednesday	3 days
Thursday	1 days
Friday	7 days

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

Selected survey types:

Manual count	14 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	4
Neighbourhood Centre (PPS6 Local Centre)	4
Free Standing (PPS6 Out of Town)	6

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:

Residential Zone	1
Village	5
Out of Town	5
No Sub Category	3

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village,

Secondary Filtering selection:

Use Class:

n/a	14 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,000 or Less	3 days
1,001 to 5,000	8 days
5,001 to 10,000	2 days
10,001 to 15,000	1 days

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

Population within 5 miles:

5,001 to 25,000	4 days
25,001 to 50,000	2 days
50,001 to 75,000	3 days
75,001 to 100,000	2 days
100,001 to 125,000	1 days
125,001 to 250,000	2 days

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

Car ownership within 5 miles:

0.6 to 1.0	6 days
1.1 to 1.5	4 days
1.6 to 2.0	4 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:

Not Known	8 days
No	6 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	14 days

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

LIST OF SITES relevant to selection parameters

1 DC-03-J-03 CARAVAN PARK DORSET
PRESTON ROAD
NEAR WEYMOUTH
PRESTON
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Number of units: 799
Survey date: FRIDAY *24/08/01* *Survey Type: MANUAL*

2 DC-03-J-04 CARAVAN PARK DORSET
PRESTON ROAD
NEAR WEYMOUTH
PRESTON
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Number of units: 353
Survey date: FRIDAY *26/07/02* *Survey Type: MANUAL*

3 DC-03-J-05 CAMPING/CARAVAN DORSET
STATION ROAD
MORETON

Free Standing (PPS6 Out of Town)
Out of Town
Total Number of units: 122
Survey date: FRIDAY *11/07/08* *Survey Type: MANUAL*

4 DS-03-J-01 CARAVAN PARK DERBYSHIRE
MAIN ROAD
THULSTON
ELVASTON
Free Standing (PPS6 Out of Town)
Village
Total Number of units: 152
Survey date: FRIDAY *29/07/11* *Survey Type: MANUAL*

5 ES-03-J-01 CARAVAN PARK EAST SUSSEX
EASTBOURNE ROAD
EASTBOURNE
PEVENSEY BAY
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Number of units: 305
Survey date: THURSDAY *02/08/01* *Survey Type: MANUAL*

6 HC-03-J-02 HOLIDAY VILLAGE HAMPSHIRE
CHRISTCHURCH ROAD
NEW MILTON

Edge of Town
Residential Zone
Total Number of units: 1130
Survey date: WEDNESDAY *30/08/00* *Survey Type: MANUAL*

7 HC-03-J-03 CARAVAN & CAMPING HAMPSHIRE
BROCKENHURST ROAD
BROCKENHURST

Free Standing (PPS6 Out of Town)
Out of Town
Total Number of units: 600
Survey date: WEDNESDAY *23/08/00* *Survey Type: MANUAL*

8 HF-03-J-01 CARAVAN HERTFORDSHIRE
BREAKSPEAR WAY
HEMEL HEMPSTEAD

Edge of Town
No Sub Category
Total Number of units: 55
Survey date: WEDNESDAY *30/07/08* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

9	KC-03-J-01	CARAVAN PARK		KENT
	FAVERSHAM ROAD			
	WHITSTABLE			
	SEASALTER			
	Edge of Town			
	No Sub Category			
	Total Number of units:		334	
	Survey date: FRIDAY		*09/08/02*	*Survey Type: MANUAL*
10	NY-03-J-01	CAMPING & CARAVANNING		NORTH YORKSHIRE
	BAR LANE			
	NEAR BOROUGHBRIDGE			
	ROECLIFFE			
	Neighbourhood Centre (PPS6 Local Centre)			
	Village			
	Total Number of units:		163	
	Survey date: TUESDAY		*16/09/08*	*Survey Type: MANUAL*
11	PS-03-J-01	CAMPING/CARAVAN		POWYS
	HAY ROAD			
	NEAR BRECON			
	Free Standing (PPS6 Out of Town)			
	Out of Town			
	Total Number of units:		115	
	Survey date: FRIDAY		*19/07/02*	*Survey Type: MANUAL*
12	SH-03-J-01	CARAVAN PARK		SHROPSHIRE
	WELSHPOOL ROAD			
	SHREWSBURY			
	BICTON HEATH			
	Edge of Town			
	No Sub Category			
	Total Number of units:		115	
	Survey date: FRIDAY		*26/06/09*	*Survey Type: MANUAL*
13	VG-03-J-01	CARAVAN PARK		VALE OF GLAMORGAN
	FONTYGARY ROAD			
	NEAR BARRY			
	RHOOSE			
	Free Standing (PPS6 Out of Town)			
	Out of Town			
	Total Number of units:		494	
	Survey date: MONDAY		*22/07/02*	*Survey Type: MANUAL*
14	WM-03-J-01	CARAVAN PARK		WEST MIDLANDS
	MILL LANE			
	NEAR COVENTRY			
	ASTON CANTLOW			
	Free Standing (PPS6 Out of Town)			
	Out of Town			
	Total Number of units:		86	
	Survey date: MONDAY		*08/06/09*	*Survey Type: MANUAL*

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

TRIP RATE for Land Use 03 - RESIDENTIAL/J - HOLIDAY ACCOMMODATION
TOTAL VEHICLES
Calculation factor: 1 UNITS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. UNITS	Trip Rate	No. Days	Ave. UNITS	Trip Rate	No. Days	Ave. UNITS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	1	305	0.010	1	305	0.023	1	305	0.033
07:00 - 08:00	14	345	0.012	14	345	0.023	14	345	0.035
08:00 - 09:00	14	345	0.030	14	345	0.041	14	345	0.071
09:00 - 10:00	14	345	0.045	14	345	0.092	14	345	0.137
10:00 - 11:00	14	345	0.056	14	345	0.136	14	345	0.192
11:00 - 12:00	14	345	0.066	14	345	0.131	14	345	0.197
12:00 - 13:00	14	345	0.074	14	345	0.101	14	345	0.175
13:00 - 14:00	14	345	0.073	14	345	0.072	14	345	0.145
14:00 - 15:00	14	345	0.083	14	345	0.072	14	345	0.155
15:00 - 16:00	14	345	0.093	14	345	0.070	14	345	0.163
16:00 - 17:00	14	345	0.104	14	345	0.071	14	345	0.175
17:00 - 18:00	14	345	0.136	14	345	0.074	14	345	0.210
18:00 - 19:00	14	345	0.109	14	345	0.075	14	345	0.184
19:00 - 20:00	8	167	0.067	8	167	0.057	8	167	0.124
20:00 - 21:00	8	167	0.061	8	167	0.033	8	167	0.094
21:00 - 22:00	7	178	0.030	7	178	0.023	7	178	0.053
22:00 - 23:00	1	334	0.015	1	334	0.018	1	334	0.033
23:00 - 24:00									
Total Rates:			1.064			1.112			2.176

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.*

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	55 - 1130 (units:)
Survey date date range:	01/01/00 - 28/07/18
Number of weekdays (Monday-Friday):	17
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Calculation Reference: AUDIT-705103-210429-0415

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : J - HOLIDAY ACCOMMODATION
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
	KC	KENT	1 days
03	SOUTH WEST		
	DC	DORSET	1 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
10	WALES		
	BG	BRIDGEND	1 days
	PS	POWYS	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: Number of units
Actual Range: 115 to 2700 (units:)
Range Selected by User: 31 to 9700 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/00 to 28/07/18

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	6 days

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

Selected survey types:

Manual count	6 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	2
Neighbourhood Centre (PPS6 Local Centre)	2
Free Standing (PPS6 Out of Town)	2

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:

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

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

Secondary Filtering selection:

Use Class:

n/a	6 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	4 days
5,001 to 10,000	2 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 75,000	1 days
75,001 to 100,000	1 days
100,001 to 125,000	1 days
125,001 to 250,000	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	5 days
1.1 to 1.5	1 days

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

Travel Plan:

Not Known	4 days
No	2 days

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

PTAL Rating:

No PTAL Present	6 days

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

LIST OF SITES relevant to selection parameters

1 BG-03-J-01 CARAVAN PARK BRIDGEND
BAY VIEW ROAD
PORTHCAWL

Edge of Town
Residential Zone
Total Number of units: 2700
Survey date: SATURDAY *20/09/08* *Survey Type: MANUAL*

2 DC-03-J-04 CARAVAN PARK DORSET
PRESTON ROAD
NEAR WEYMOUTH
PRESTON
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Number of units: 353
Survey date: SATURDAY *27/07/02* *Survey Type: MANUAL*

3 DS-03-J-02 CARAVAN & CAMPING PARK DERBYSHIRE
COACH ROAD
NEAR RIPLEY
GOLDEN VALLEY
Free Standing (PPS6 Out of Town)
Out of Town
Total Number of units: 170
Survey date: SATURDAY *28/07/18* *Survey Type: MANUAL*

4 ES-03-J-01 CARAVAN PARK EAST SUSSEX
EASTBOURNE ROAD
EASTBOURNE
PEVENSEY BAY
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Number of units: 305
Survey date: SATURDAY *04/08/01* *Survey Type: MANUAL*

5 KC-03-J-01 CARAVAN PARK KENT
FAVERSHAM ROAD
WHITSTABLE
SEASALTER
Edge of Town
No Sub Category
Total Number of units: 334
Survey date: SATURDAY *10/08/02* *Survey Type: MANUAL*

6 PS-03-J-01 CAMPING/CARAVAN POWYS
HAY ROAD
NEAR BRECON

Free Standing (PPS6 Out of Town)
Out of Town
Total Number of units: 115
Survey date: SATURDAY *20/07/02* *Survey Type: MANUAL*

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

TRIP RATE for Land Use 03 - RESIDENTIAL/J - HOLIDAY ACCOMMODATION
TOTAL VEHICLES
Calculation factor: 1 UNITS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. UNITS	Trip Rate	No. Days	Ave. UNITS	Trip Rate	No. Days	Ave. UNITS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	1	305	0.016	1	305	0.013	1	305	0.029
07:00 - 08:00	6	663	0.009	6	663	0.015	6	663	0.024
08:00 - 09:00	6	663	0.023	6	663	0.039	6	663	0.062
09:00 - 10:00	6	663	0.052	6	663	0.086	6	663	0.138
10:00 - 11:00	6	663	0.081	6	663	0.107	6	663	0.188
11:00 - 12:00	6	663	0.098	6	663	0.088	6	663	0.186
12:00 - 13:00	6	663	0.126	6	663	0.091	6	663	0.217
13:00 - 14:00	6	663	0.137	6	663	0.092	6	663	0.229
14:00 - 15:00	6	663	0.127	6	663	0.085	6	663	0.212
15:00 - 16:00	6	663	0.119	6	663	0.079	6	663	0.198
16:00 - 17:00	6	663	0.108	6	663	0.093	6	663	0.201
17:00 - 18:00	6	663	0.100	6	663	0.105	6	663	0.205
18:00 - 19:00	6	663	0.076	6	663	0.084	6	663	0.160
19:00 - 20:00	4	877	0.062	4	877	0.064	4	877	0.126
20:00 - 21:00	4	877	0.045	4	877	0.042	4	877	0.087
21:00 - 22:00	3	1113	0.035	3	1113	0.025	3	1113	0.060
22:00 - 23:00	1	334	0.009	1	334	0.006	1	334	0.015
23:00 - 24:00									
Total Rates:			1.223			1.114			2.337

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.*

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	115 - 2700 (units:)
Survey date date range:	01/01/00 - 28/07/18
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	7
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

APPENDIX F – A470 / A4102 / SITE ACCESS JUNCTIONS 9 OUTPUT

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
© Copyright TRL Limited, 2019

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 784-B023905 220805 A470 A4102 Site Access EXISTING.j9
Path: \\CARDIFF31\Data\data\B023000-B023999\B023905 Rhydycar West Restart\B023905 Transport\30 Technical\31 Modelling
Report generation date: 05/08/2022 10:19:31

»A470 / A4102 / Site Access - 2021 Forecast, AM
»A470 / A4102 / Site Access - 2021 Forecast, PM
»A470 / A4102 / Site Access - 2021 Forecast, Saturday Peak
»A470 / A4102 / Site Access - 2026 Forecast, AM
»A470 / A4102 / Site Access - 2026 Forecast, PM
»A470 / A4102 / Site Access - 2026 Forecast, Saturday Peak
»A470 / A4102 / Site Access - 2026 plus Committed Development, AM
»A470 / A4102 / Site Access - 2026 plus Committed Development, PM
»A470 / A4102 / Site Access - 2026 plus Committed Development, Saturday Peak

Summary of junction performance

	AM			PM			Saturday Peak		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	A470 / A4102 / Site Access - 2021 Forecast								
1 - A470 (SE)	0.9	2.44	0.48	1.0	2.67	0.51	0.8	2.34	0.44
2 - Site Access	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
3 - A470 (NW)	1.1	3.46	0.52	1.0	3.21	0.51	0.8	2.84	0.46
4 - A4102	0.5	4.26	0.35	1.4	6.66	0.58	0.9	5.06	0.49
	A470 / A4102 / Site Access - 2026 Forecast								
1 - A470 (SE)	1.0	2.57	0.50	1.1	2.84	0.53	0.9	2.47	0.47
2 - Site Access	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
3 - A470 (NW)	1.2	3.69	0.55	1.2	3.41	0.54	0.9	2.99	0.48
4 - A4102	0.6	4.47	0.37	1.6	7.42	0.62	1.1	5.45	0.52
	A470 / A4102 / Site Access - 2026 plus Committed Development								
1 - A470 (SE)	1.0	2.57	0.50	1.2	2.85	0.54	0.9	2.47	0.47
2 - Site Access	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
3 - A470 (NW)	1.2	3.71	0.55	1.2	3.41	0.54	0.9	3.01	0.49
4 - A4102	0.6	4.52	0.37	1.6	7.42	0.62	1.1	5.53	0.52

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	A470 / A4102 / Site Access
Location	Merthyr Tydfil
Site number	9
Date	17/08/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	A091860 - Rhydycar
Enumerator	WYG\lucy.briggs
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2021 Forecast	AM	ONE HOUR	07:45	09:15	15	✓
D2	2021 Forecast	PM	ONE HOUR	16:15	17:45	15	✓
D3	2021 Forecast	Saturday Peak	ONE HOUR	11:45	13:15	15	✓
D4	2026 Forecast	AM	ONE HOUR	07:45	09:15	15	✓
D5	2026 Forecast	PM	ONE HOUR	16:15	17:45	15	✓
D6	2026 Forecast	Saturday Peak	ONE HOUR	11:45	13:15	15	✓
D7	2026 plus Committed Development	AM	ONE HOUR	07:45	09:15	15	✓
D8	2026 plus Committed Development	PM	ONE HOUR	16:15	17:45	15	✓
D9	2026 plus Committed Development	Saturday Peak	ONE HOUR	11:45	13:15	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	A470 / A4102 / Site Access	✓	100.000	100.000

A470 / A4102 / Site Access - 2021 Forecast, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.11	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A470 (SE)	
2	Site Access	
3	A470 (NW)	
4	A4102	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A470 (SE)	7.61	10.16	61.0	22.5	70.0	19.8	
2 - Site Access	3.70	7.20	72.5	21.2	69.1	14.0	
3 - A470 (NW)	7.36	10.23	4.6	20.0	70.0	31.4	
4 - A4102	3.78	7.58	16.5	19.9	70.0	40.8	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A470 (SE)	0.737	3109
2 - Site Access	0.596	2159
3 - A470 (NW)	0.631	2508
4 - A4102	0.503	1740

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2021 Forecast	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1223	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1022	100.000
4 - A4102		ONE HOUR	✓	407	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	849	373
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	689	0	0	333
	4 - A4102	197	0	210	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	6	0
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	5	0	0	1
	4 - A4102	5	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.48	2.44	0.9	A	1122	1683
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.52	3.46	1.1	A	938	1406
4 - A4102	0.35	4.26	0.5	A	374	561

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	921	230	158	2873	0.320	919	665	0.0	0.5	1.839	A
2 - Site Access	0	0	1077	1492	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	769	192	281	2244	0.343	767	796	0.0	0.5	2.434	A
4 - A4102	307	77	517	1415	0.217	305	531	0.0	0.3	3.240	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1099	275	189	2851	0.386	1099	795	0.5	0.6	2.055	A
2 - Site Access	0	0	1288	1361	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	919	230	335	2211	0.415	918	952	0.5	0.7	2.782	A
4 - A4102	366	92	619	1364	0.268	366	635	0.3	0.4	3.607	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1346	337	231	2820	0.477	1345	973	0.6	0.9	2.440	A
2 - Site Access	0	0	1577	1182	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1125	281	411	2165	0.520	1124	1166	0.7	1.1	3.452	A
4 - A4102	448	112	757	1293	0.347	448	777	0.4	0.5	4.257	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1346	337	232	2820	0.477	1346	975	0.9	0.9	2.442	A
2 - Site Access	0	0	1578	1181	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1125	281	411	2165	0.520	1125	1167	1.1	1.1	3.461	A
4 - A4102	448	112	758	1292	0.347	448	778	0.5	0.5	4.264	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1099	275	190	2850	0.386	1100	797	0.9	0.6	2.059	A
2 - Site Access	0	0	1290	1360	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	919	230	336	2211	0.416	920	954	1.1	0.7	2.794	A
4 - A4102	366	92	620	1363	0.269	367	636	0.5	0.4	3.618	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	921	230	159	2873	0.320	921	667	0.6	0.5	1.847	A
2 - Site Access	0	0	1080	1490	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	769	192	281	2244	0.343	770	799	0.7	0.5	2.445	A
4 - A4102	307	77	519	1414	0.217	307	532	0.4	0.3	3.253	A

A470 / A4102 / Site Access - 2021 Forecast, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.77	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	2021 Forecast	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1261	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1069	100.000
4 - A4102		ONE HOUR	✓	686	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1011	249
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	778	0	0	292
	4 - A4102	255	0	431	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1	1
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	2	0	0	1
	4 - A4102	1	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.51	2.67	1.0	A	1157	1735
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.51	3.21	1.0	A	981	1472
4 - A4102	0.58	6.66	1.4	A	629	944

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	949	237	323	2847	0.333	947	775	0.0	0.5	1.892	A
2 - Site Access	0	0	1270	1396	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	805	201	187	2352	0.342	803	1083	0.0	0.5	2.322	A
4 - A4102	516	129	584	1435	0.360	514	406	0.0	0.6	3.902	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1133	283	387	2801	0.405	1133	927	0.5	0.7	2.157	A
2 - Site Access	0	0	1520	1247	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	961	240	224	2329	0.413	961	1296	0.5	0.7	2.630	A
4 - A4102	617	154	699	1376	0.448	616	486	0.6	0.8	4.727	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1388	347	473	2738	0.507	1387	1135	0.7	1.0	2.662	A
2 - Site Access	0	0	1860	1042	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1177	294	274	2297	0.513	1176	1586	0.7	1.0	3.207	A
4 - A4102	755	189	855	1296	0.582	753	595	0.8	1.4	6.596	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1388	347	475	2737	0.507	1388	1137	1.0	1.0	2.668	A
2 - Site Access	0	0	1863	1041	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1177	294	275	2297	0.513	1177	1588	1.0	1.0	3.215	A
4 - A4102	755	189	856	1296	0.583	755	596	1.4	1.4	6.656	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1133	283	389	2799	0.405	1135	930	1.0	0.7	2.165	A
2 - Site Access	0	0	1524	1244	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	961	240	224	2328	0.413	963	1299	1.0	0.7	2.640	A
4 - A4102	617	154	700	1375	0.448	619	487	1.4	0.8	4.773	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	949	237	325	2846	0.334	950	778	0.7	0.5	1.898	A
2 - Site Access	0	0	1275	1393	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	805	201	188	2351	0.342	806	1087	0.7	0.5	2.332	A
4 - A4102	516	129	586	1433	0.360	517	408	0.8	0.6	3.933	A

A470 / A4102 / Site Access - 2021 Forecast, Saturday Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2021 Forecast	Saturday Peak	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1102	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	979	100.000
4 - A4102		ONE HOUR	✓	609	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	878	223
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	621	0	0	358
	4 - A4102	200	0	409	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1	0
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	1	0	0	0
	4 - A4102	2	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.44	2.34	0.8	A	1011	1516
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.46	2.84	0.8	A	898	1347
4 - A4102	0.49	5.06	0.9	A	559	839

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	829	207	307	2854	0.291	828	616	0.0	0.4	1.774	A
2 - Site Access	0	0	1135	1476	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	737	184	168	2392	0.308	735	967	0.0	0.4	2.171	A
4 - A4102	459	115	466	1491	0.308	457	436	0.0	0.4	3.476	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	990	248	368	2810	0.352	990	738	0.4	0.5	1.978	A
2 - Site Access	0	0	1357	1342	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	880	220	201	2371	0.371	879	1157	0.4	0.6	2.413	A
4 - A4102	548	137	558	1445	0.379	547	522	0.4	0.6	4.008	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1213	303	450	2750	0.441	1212	903	0.5	0.8	2.340	A
2 - Site Access	0	0	1662	1159	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1078	269	246	2343	0.460	1077	1416	0.6	0.8	2.840	A
4 - A4102	671	168	683	1382	0.486	670	639	0.6	0.9	5.044	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1213	303	451	2749	0.441	1213	904	0.8	0.8	2.343	A
2 - Site Access	0	0	1664	1158	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1078	269	246	2343	0.460	1078	1418	0.8	0.8	2.845	A
4 - A4102	671	168	684	1382	0.486	671	640	0.9	0.9	5.064	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	990	248	369	2809	0.353	991	739	0.8	0.5	1.982	A
2 - Site Access	0	0	1360	1341	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	880	220	201	2371	0.371	881	1159	0.8	0.6	2.419	A
4 - A4102	548	137	559	1444	0.379	549	523	0.9	0.6	4.026	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	829	207	309	2853	0.291	830	619	0.5	0.4	1.781	A
2 - Site Access	0	0	1139	1474	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	737	184	168	2392	0.308	737	970	0.6	0.4	2.178	A
4 - A4102	459	115	468	1490	0.308	460	438	0.6	0.4	3.494	A

A470 / A4102 / Site Access - 2026 Forecast, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.29	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2026 Forecast	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1281	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1070	100.000
4 - A4102		ONE HOUR	✓	427	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	890	391
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	721	0	0	349
	4 - A4102	206	0	220	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	6	0
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	5	0	0	1
	4 - A4102	5	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.50	2.57	1.0	A	1175	1763
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.55	3.69	1.2	A	982	1473
4 - A4102	0.37	4.47	0.6	A	391	587

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	964	241	165	2868	0.336	962	696	0.0	0.5	1.887	A
2 - Site Access	0	0	1128	1460	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	806	201	294	2236	0.360	804	834	0.0	0.6	2.513	A
4 - A4102	321	80	541	1403	0.229	320	556	0.0	0.3	3.321	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1151	288	198	2844	0.405	1151	833	0.5	0.7	2.124	A
2 - Site Access	0	0	1349	1323	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	962	241	351	2201	0.437	961	997	0.6	0.8	2.902	A
4 - A4102	383	96	648	1349	0.284	383	665	0.3	0.4	3.725	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1410	353	242	2812	0.502	1409	1020	0.7	1.0	2.563	A
2 - Site Access	0	0	1651	1136	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1178	295	430	2153	0.547	1177	1221	0.8	1.2	3.680	A
4 - A4102	470	117	793	1275	0.368	469	814	0.4	0.6	4.464	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1410	353	243	2812	0.502	1410	1021	1.0	1.0	2.568	A
2 - Site Access	0	0	1653	1135	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1178	295	431	2153	0.547	1178	1222	1.2	1.2	3.693	A
4 - A4102	470	117	794	1274	0.369	470	815	0.6	0.6	4.474	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1151	288	199	2844	0.405	1153	835	1.0	0.7	2.131	A
2 - Site Access	0	0	1351	1322	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	962	241	352	2201	0.437	964	999	1.2	0.8	2.915	A
4 - A4102	383	96	650	1348	0.285	384	666	0.6	0.4	3.737	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	964	241	166	2867	0.336	965	699	0.7	0.5	1.895	A
2 - Site Access	0	0	1131	1458	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	806	201	295	2236	0.360	807	836	0.8	0.6	2.521	A
4 - A4102	321	80	544	1402	0.229	322	558	0.4	0.3	3.332	A

A470 / A4102 / Site Access - 2026 Forecast, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	4.08	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2026 Forecast	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1320	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1120	100.000
4 - A4102		ONE HOUR	✓	718	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1059	261
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	814	0	0	305
	4 - A4102	267	0	451	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1	1
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	2	0	0	1
	4 - A4102	1	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.53	2.84	1.1	A	1211	1817
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.54	3.41	1.2	A	1027	1541
4 - A4102	0.62	7.42	1.6	A	659	988

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	994	248	338	2836	0.350	991	811	0.0	0.5	1.950	A
2 - Site Access	0	0	1330	1361	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	843	211	196	2346	0.359	841	1134	0.0	0.6	2.388	A
4 - A4102	541	135	611	1421	0.381	538	425	0.0	0.6	4.067	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1186	297	405	2787	0.426	1186	971	0.5	0.7	2.246	A
2 - Site Access	0	0	1591	1204	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1006	252	235	2322	0.433	1006	1356	0.6	0.8	2.733	A
4 - A4102	645	161	731	1359	0.475	644	509	0.6	0.9	5.025	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1453	363	495	2722	0.534	1452	1188	0.7	1.1	2.830	A
2 - Site Access	0	0	1947	990	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1233	308	287	2289	0.539	1231	1660	0.8	1.2	3.399	A
4 - A4102	791	198	895	1276	0.620	788	623	0.9	1.6	7.331	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1453	363	497	2720	0.534	1453	1190	1.1	1.1	2.840	A
2 - Site Access	0	0	1950	988	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1233	308	287	2289	0.539	1233	1663	1.2	1.2	3.407	A
4 - A4102	791	198	896	1275	0.620	790	624	1.6	1.6	7.421	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1186	297	408	2786	0.426	1188	974	1.1	0.7	2.255	A
2 - Site Access	0	0	1596	1201	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1006	252	235	2322	0.434	1008	1361	1.2	0.8	2.745	A
4 - A4102	645	161	733	1359	0.475	648	510	1.6	0.9	5.087	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	994	248	341	2835	0.351	994	815	0.7	0.5	1.957	A
2 - Site Access	0	0	1335	1357	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	843	211	197	2346	0.359	844	1138	0.8	0.6	2.397	A
4 - A4102	541	135	614	1419	0.381	542	427	0.9	0.6	4.108	A

A470 / A4102 / Site Access - 2026 Forecast, Saturday Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.33	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2026 Forecast	Saturday Peak	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1157	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1028	100.000
4 - A4102		ONE HOUR	✓	640	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	922	234
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	652	0	0	376
	4 - A4102	210	0	430	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1	0
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	1	0	0	0
	4 - A4102	2	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.47	2.47	0.9	A	1061	1592
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.48	2.99	0.9	A	943	1415
4 - A4102	0.52	5.45	1.1	A	587	881

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	871	218	322	2843	0.306	869	647	0.0	0.4	1.821	A
2 - Site Access	0	0	1192	1442	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	774	193	176	2386	0.324	772	1015	0.0	0.5	2.226	A
4 - A4102	482	120	490	1479	0.326	480	458	0.0	0.5	3.597	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1040	260	386	2796	0.372	1039	775	0.4	0.6	2.049	A
2 - Site Access	0	0	1425	1301	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	924	231	211	2365	0.391	923	1215	0.5	0.6	2.496	A
4 - A4102	575	144	586	1431	0.402	575	548	0.5	0.7	4.201	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1274	318	472	2733	0.466	1273	948	0.6	0.9	2.464	A
2 - Site Access	0	0	1745	1109	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1132	283	258	2335	0.485	1131	1487	0.6	0.9	2.986	A
4 - A4102	705	176	717	1365	0.516	703	671	0.7	1.1	5.426	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1274	318	473	2732	0.466	1274	949	0.9	0.9	2.467	A
2 - Site Access	0	0	1747	1108	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1132	283	258	2335	0.485	1132	1489	0.9	0.9	2.991	A
4 - A4102	705	176	718	1365	0.516	705	672	1.1	1.1	5.455	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1040	260	388	2795	0.372	1041	776	0.9	0.6	2.054	A
2 - Site Access	0	0	1429	1299	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	924	231	211	2365	0.391	925	1218	0.9	0.6	2.502	A
4 - A4102	575	144	587	1430	0.402	577	549	1.1	0.7	4.227	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	871	218	324	2842	0.306	871	650	0.6	0.4	1.826	A
2 - Site Access	0	0	1196	1439	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	774	193	177	2386	0.324	774	1019	0.6	0.5	2.235	A
4 - A4102	482	120	491	1478	0.326	483	460	0.7	0.5	3.620	A

A470 / A4102 / Site Access - 2026 plus Committed Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.31	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2026 plus Committed Development	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1283	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1076	100.000
4 - A4102		ONE HOUR	✓	432	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	892	391
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	727	0	0	349
	4 - A4102	211	0	220	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	6	0
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	5	0	0	1
	4 - A4102	5	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.50	2.57	1.0	A	1177	1766
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.55	3.71	1.2	A	987	1481
4 - A4102	0.37	4.52	0.6	A	396	595

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	966	241	165	2868	0.337	964	704	0.0	0.5	1.888	A
2 - Site Access	0	0	1129	1459	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	810	202	294	2237	0.362	808	835	0.0	0.6	2.514	A
4 - A4102	325	81	546	1402	0.232	324	556	0.0	0.3	3.338	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1153	288	198	2844	0.406	1153	843	0.5	0.7	2.127	A
2 - Site Access	0	0	1351	1322	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	967	242	351	2202	0.439	966	999	0.6	0.8	2.912	A
4 - A4102	388	97	653	1347	0.288	388	665	0.3	0.4	3.751	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1413	353	242	2812	0.502	1411	1031	0.7	1.0	2.567	A
2 - Site Access	0	0	1654	1135	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1184	296	430	2154	0.550	1183	1223	0.8	1.2	3.701	A
4 - A4102	476	119	799	1272	0.374	475	814	0.4	0.6	4.510	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1413	353	243	2812	0.502	1413	1033	1.0	1.0	2.572	A
2 - Site Access	0	0	1655	1134	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1184	296	431	2153	0.550	1184	1225	1.2	1.2	3.714	A
4 - A4102	476	119	800	1272	0.374	476	815	0.6	0.6	4.521	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1153	288	199	2844	0.406	1155	845	1.0	0.7	2.134	A
2 - Site Access	0	0	1353	1321	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	967	242	352	2201	0.439	969	1001	1.2	0.8	2.926	A
4 - A4102	388	97	654	1346	0.288	389	666	0.6	0.4	3.766	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	966	241	166	2867	0.337	967	707	0.7	0.5	1.893	A
2 - Site Access	0	0	1133	1457	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	810	202	295	2236	0.362	811	838	0.8	0.6	2.526	A
4 - A4102	325	81	548	1400	0.232	326	558	0.4	0.3	3.352	A

A470 / A4102 / Site Access - 2026 plus Committed Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	4.08	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2026 plus Committed Development	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1324	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1120	100.000
4 - A4102		ONE HOUR	✓	718	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1063	261
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	814	0	0	305
	4 - A4102	267	0	451	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1	1
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	2	0	0	1
	4 - A4102	1	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.54	2.85	1.2	A	1215	1823
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.54	3.41	1.2	A	1027	1541
4 - A4102	0.62	7.42	1.6	A	659	988

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	997	249	338	2836	0.352	995	811	0.0	0.5	1.953	A
2 - Site Access	0	0	1333	1359	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	843	211	196	2346	0.359	841	1137	0.0	0.6	2.388	A
4 - A4102	541	135	611	1421	0.381	538	425	0.0	0.6	4.067	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1190	298	405	2788	0.427	1190	971	0.5	0.7	2.252	A
2 - Site Access	0	0	1595	1202	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1006	252	235	2322	0.433	1006	1360	0.6	0.8	2.733	A
4 - A4102	645	161	731	1359	0.475	644	509	0.6	0.9	5.025	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1458	365	495	2722	0.536	1456	1188	0.7	1.1	2.841	A
2 - Site Access	0	0	1952	987	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1233	308	287	2289	0.539	1231	1664	0.8	1.2	3.399	A
4 - A4102	791	198	895	1276	0.620	788	623	0.9	1.6	7.331	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1458	365	497	2720	0.536	1458	1190	1.1	1.2	2.851	A
2 - Site Access	0	0	1955	985	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1233	308	287	2289	0.539	1233	1667	1.2	1.2	3.407	A
4 - A4102	791	198	896	1275	0.620	790	624	1.6	1.6	7.421	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1190	298	408	2786	0.427	1192	974	1.2	0.7	2.262	A
2 - Site Access	0	0	1600	1199	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1006	252	235	2322	0.434	1008	1365	1.2	0.8	2.743	A
4 - A4102	645	161	733	1359	0.475	648	510	1.6	0.9	5.087	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	997	249	341	2835	0.352	998	815	0.7	0.5	1.960	A
2 - Site Access	0	0	1338	1355	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	843	211	197	2346	0.359	844	1142	0.8	0.6	2.399	A
4 - A4102	541	135	614	1419	0.381	542	427	0.9	0.6	4.108	A

A470 / A4102 / Site Access - 2026 plus Committed Development, Saturday Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.36	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2026 plus Committed Development	Saturday Peak	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1159	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1033	100.000
4 - A4102		ONE HOUR	✓	645	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	925	234
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	658	0	0	376
	4 - A4102	215	0	430	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1	0
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	1	0	0	0
	4 - A4102	2	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.47	2.47	0.9	A	1064	1595
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.49	3.01	0.9	A	948	1422
4 - A4102	0.52	5.53	1.1	A	592	888

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	873	218	322	2842	0.307	871	655	0.0	0.4	1.824	A
2 - Site Access	0	0	1193	1441	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	778	194	176	2386	0.326	776	1017	0.0	0.5	2.232	A
4 - A4102	486	121	494	1477	0.329	484	458	0.0	0.5	3.619	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1042	260	386	2795	0.373	1041	784	0.4	0.6	2.053	A
2 - Site Access	0	0	1427	1300	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	929	232	211	2364	0.393	928	1217	0.5	0.6	2.505	A
4 - A4102	580	145	591	1429	0.406	579	548	0.5	0.7	4.236	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1276	319	472	2732	0.467	1275	960	0.6	0.9	2.470	A
2 - Site Access	0	0	1747	1107	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1138	284	258	2335	0.487	1136	1489	0.6	0.9	3.002	A
4 - A4102	711	178	723	1362	0.522	709	671	0.7	1.1	5.499	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1276	319	473	2731	0.467	1276	961	0.9	0.9	2.474	A
2 - Site Access	0	0	1750	1106	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1138	284	258	2335	0.487	1138	1491	0.9	0.9	3.007	A
4 - A4102	711	178	724	1362	0.522	711	672	1.1	1.1	5.529	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1042	260	388	2794	0.373	1043	786	0.9	0.6	2.058	A
2 - Site Access	0	0	1431	1298	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	929	232	211	2364	0.393	930	1220	0.9	0.7	2.513	A
4 - A4102	580	145	592	1428	0.406	582	549	1.1	0.7	4.262	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	873	218	324	2840	0.307	873	658	0.6	0.4	1.829	A
2 - Site Access	0	0	1197	1438	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	778	194	177	2386	0.326	779	1021	0.7	0.5	2.240	A
4 - A4102	486	121	496	1476	0.329	487	460	0.7	0.5	3.639	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
© Copyright TRL Limited, 2019

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 784-B023905 220805 A470 A4102 Site Access PROPOSED.j9
Path: \\CARDIFF31\Data\data\B023000-B023999\B023905 Rhydycar West Restart\B023905 Transport\30 Technical\31 Modelling
Report generation date: 05/08/2022 10:12:46

»A470 / A4102 / Site Access - 2026 plus Committed Development and Average Rhydycar West, AM
»A470 / A4102 / Site Access - 2026 plus Committed Development and Average Rhydycar West, PM
»A470 / A4102 / Site Access - 2026 plus Committed Development and Average Rhydycar West, Saturday Peak
»A470 / A4102 / Site Access - 2031 Forecast, AM
»A470 / A4102 / Site Access - 2031 Forecast, PM
»A470 / A4102 / Site Access - 2031 Forecast, Saturday Peak
»A470 / A4102 / Site Access - 2031 + Committed, AM
»A470 / A4102 / Site Access - 2031 + Committed, PM
»A470 / A4102 / Site Access - 2031 + Committed, Saturday Peak
»A470 / A4102 / Site Access - 2031 plus Committed Development and Average Rhydycar West, AM
»A470 / A4102 / Site Access - 2031 plus Committed Development and Average Rhydycar West, PM
»A470 / A4102 / Site Access - 2031 plus Committed Development and Average Rhydycar West, Saturday Peak
»A470 / A4102 / Site Access - 2026 plus Committed Development and Peak Rhydycar West, AM
»A470 / A4102 / Site Access - 2026 plus Committed Development and Peak Rhydycar West, PM
»A470 / A4102 / Site Access - 2026 plus Committed Development and Peak Rhydycar West, Saturday Peak
»A470 / A4102 / Site Access - 2031 plus Committed Development and Peak Rhydycar West, AM
»A470 / A4102 / Site Access - 2031 plus Committed Development and Peak Rhydycar West, PM
»A470 / A4102 / Site Access - 2031 plus Committed Development and Peak Rhydycar West, Saturday Peak

Summary of junction performance

	AM			PM			Saturday Peak		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	A470 / A4102 / Site Access - 2026 plus Committed Development and Average Rhydycar West								
1 - A470 (SE)	1.1	2.74	0.53	1.7	3.69	0.63	1.4	3.42	0.59
2 - Site Access	0.1	3.24	0.11	0.2	3.97	0.18	0.4	4.05	0.27
3 - A470 (NW)	1.4	4.10	0.58	1.6	4.23	0.61	1.5	4.08	0.60
4 - A4102	0.6	4.90	0.40	2.2	10.25	0.70	1.6	8.08	0.62
	A470 / A4102 / Site Access - 2031 Forecast								
1 - A470 (SE)	1.1	2.70	0.52	1.3	3.03	0.56	1.0	2.61	0.49
2 - Site Access	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
3 - A470 (NW)	1.3	3.95	0.57	1.3	3.63	0.56	1.0	3.15	0.51
4 - A4102	0.6	4.70	0.39	1.9	8.38	0.66	1.2	5.90	0.55
	A470 / A4102 / Site Access - 2031 + Committed								
1 - A470 (SE)	1.1	2.71	0.53	1.3	3.04	0.56	1.0	2.61	0.49
2 - Site Access	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00
3 - A470 (NW)	1.4	3.98	0.58	1.3	3.63	0.56	1.0	3.17	0.51
4 - A4102	0.7	4.75	0.40	1.9	8.38	0.66	1.2	5.99	0.55
	A470 / A4102 / Site Access - 2031 plus Committed Development and Average Rhydycar West								
1 - A470 (SE)	1.2	2.89	0.55	1.9	4.02	0.65	1.6	3.68	0.62
2 - Site Access	0.1	3.37	0.11	0.2	4.20	0.18	0.4	4.29	0.28
3 - A470 (NW)	1.5	4.42	0.61	1.8	4.56	0.64	1.6	4.38	0.62
4 - A4102	0.7	5.17	0.42	2.8	12.15	0.74	1.9	9.09	0.66
	A470 / A4102 / Site Access - 2026 plus Committed Development and Peak Rhydycar West								
1 - A470 (SE)	1.1	2.78	0.53	2.1	4.39	0.68	2.3	4.93	0.70
2 - Site Access	0.1	3.24	0.11	0.4	4.49	0.27	1.2	6.65	0.56
3 - A470 (NW)	1.4	4.15	0.59	1.9	4.86	0.66	2.4	6.03	0.71
4 - A4102	0.7	4.95	0.40	2.8	12.95	0.75	2.8	14.09	0.74
	A470 / A4102 / Site Access - 2031 plus Committed Development and Peak Rhydycar West								
1 - A470 (SE)	1.3	2.94	0.56	2.4	4.86	0.71	2.7	5.49	0.73
2 - Site Access	0.1	3.37	0.11	0.4	4.79	0.29	1.4	7.29	0.58
3 - A470 (NW)	1.6	4.47	0.61	2.1	5.30	0.68	2.7	6.69	0.73
4 - A4102	0.7	5.22	0.42	3.7	16.09	0.79	3.6	17.40	0.79

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	A470 / A4102 / Site Access
Location	Merthyr Tydfil
Site number	9
Date	17/08/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	A091860 - Rhydycar
Enumerator	WYG\lucy.briggs
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2026 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D2	2026 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓
D3	2026 plus Committed Development and Average Rhydycar West	Saturday Peak	ONE HOUR	11:45	13:15	15	✓
D4	2031 Forecast	AM	ONE HOUR	07:45	09:15	15	✓
D5	2031 Forecast	PM	ONE HOUR	16:15	17:45	15	✓
D6	2031 Forecast	Saturday Peak	ONE HOUR	11:45	13:15	15	✓
D7	2031 + Committed	AM	ONE HOUR	07:45	09:15	15	✓
D8	2031 + Committed	PM	ONE HOUR	16:15	17:45	15	✓
D9	2031 + Committed	Saturday Peak	ONE HOUR	11:45	13:15	15	✓
D12	2031 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D13	2031 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓
D14	2031 plus Committed Development and Average Rhydycar West	Saturday Peak	ONE HOUR	11:45	13:15	15	✓
D15	2026 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D16	2026 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓
D17	2026 plus Committed Development and Peak Rhydycar West	Saturday Peak	ONE HOUR	11:45	13:15	15	✓
D18	2031 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D19	2031 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓
D20	2031 plus Committed Development and Peak Rhydycar West	Saturday Peak	ONE HOUR	11:45	13:15	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	A470 / A4102 / Site Access	✓	100.000	100.000

A470 / A4102 / Site Access - 2026 plus Committed Development and Average Rhydycar West, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.57	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A470 (SE)	
2	Site Access	
3	A470 (NW)	
4	A4102	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A470 (SE)	7.61	10.16	61.0	22.5	70.0	19.8	
2 - Site Access	4.50	9.00	36.1	20.0	70.0	23.3	
3 - A470 (NW)	7.36	10.23	4.6	20.0	70.0	31.4	
4 - A4102	3.78	7.58	16.5	19.9	70.0	40.8	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A470 (SE)	0.737	3109
2 - Site Access	0.620	2393
3 - A470 (NW)	0.631	2507
4 - A4102	0.503	1740

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2026 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1330	100.000
2 - Site Access		ONE HOUR	✓	121	100.000
3 - A470 (NW)		ONE HOUR	✓	1108	100.000
4 - A4102		ONE HOUR	✓	435	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	47	892	391
	2 - Site Access	70	0	47	5
	3 - A470 (NW)	727	32	0	349
	4 - A4102	211	3	220	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	6	0
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	5	7	0	1
	4 - A4102	5	7	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.53	2.74	1.1	A	1221	1831
2 - Site Access	0.11	3.24	0.1	A	111	167
3 - A470 (NW)	0.58	4.10	1.4	A	1016	1524
4 - A4102	0.40	4.90	0.6	A	399	599

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1002	250	192	2846	0.352	999	756	0.0	0.5	1.948	A
2 - Site Access	91	23	1129	1564	0.058	91	62	0.0	0.1	2.444	A
3 - A470 (NW)	834	208	350	2198	0.379	831	870	0.0	0.6	2.630	A
4 - A4102	328	82	622	1361	0.241	326	560	0.0	0.3	3.473	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1196	299	230	2818	0.424	1195	905	0.5	0.7	2.217	A
2 - Site Access	109	27	1351	1430	0.076	109	74	0.1	0.1	2.725	A
3 - A470 (NW)	996	249	418	2156	0.462	995	1041	0.6	0.9	3.098	A
4 - A4102	391	98	744	1299	0.301	391	669	0.3	0.4	3.962	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1465	366	281	2781	0.527	1463	1108	0.7	1.1	2.731	A
2 - Site Access	133	33	1653	1247	0.107	133	91	0.1	0.1	3.232	A
3 - A470 (NW)	1219	305	512	2098	0.581	1217	1275	0.9	1.4	4.078	A
4 - A4102	479	120	910	1214	0.395	478	819	0.4	0.6	4.887	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1465	366	282	2780	0.527	1465	1109	1.1	1.1	2.736	A
2 - Site Access	133	33	1655	1246	0.107	133	91	0.1	0.1	3.236	A
3 - A470 (NW)	1219	305	513	2097	0.581	1219	1276	1.4	1.4	4.099	A
4 - A4102	479	120	912	1213	0.395	479	820	0.6	0.6	4.903	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1196	299	230	2817	0.424	1197	908	1.1	0.7	2.223	A
2 - Site Access	109	27	1353	1428	0.076	109	74	0.1	0.1	2.729	A
3 - A470 (NW)	996	249	419	2155	0.462	998	1044	1.4	0.9	3.117	A
4 - A4102	391	98	746	1298	0.302	392	671	0.6	0.4	3.979	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1002	250	193	2845	0.352	1002	760	0.7	0.5	1.954	A
2 - Site Access	91	23	1133	1561	0.058	91	62	0.1	0.1	2.450	A
3 - A470 (NW)	834	208	351	2197	0.380	835	873	0.9	0.6	2.646	A
4 - A4102	328	82	624	1360	0.241	328	561	0.4	0.3	3.491	A

A470 / A4102 / Site Access - 2026 plus Committed Development and Average Rhydycar West, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	5.20	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2026 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1480	100.000
2 - Site Access		ONE HOUR	✓	176	100.000
3 - A470 (NW)		ONE HOUR	✓	1224	100.000
4 - A4102		ONE HOUR	✓	729	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	156	1063	261
	2 - Site Access	101	0	68	7
	3 - A470 (NW)	814	105	0	305
	4 - A4102	267	11	451	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	1	1
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	2	7	0	1
	4 - A4102	1	7	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.63	3.69	1.7	A	1358	2037
2 - Site Access	0.18	3.97	0.2	A	161	242
3 - A470 (NW)	0.61	4.23	1.6	A	1123	1685
4 - A4102	0.70	10.25	2.2	B	669	1004

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1114	279	425	2752	0.405	1111	887	0.0	0.7	2.190	A
2 - Site Access	132	33	1333	1466	0.090	132	204	0.0	0.1	2.699	A
3 - A470 (NW)	922	230	277	2282	0.404	919	1187	0.0	0.7	2.636	A
4 - A4102	549	137	765	1337	0.411	546	431	0.0	0.7	4.538	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1330	333	509	2691	0.494	1329	1061	0.7	1.0	2.641	A
2 - Site Access	158	40	1594	1312	0.120	158	244	0.1	0.1	3.118	A
3 - A470 (NW)	1101	275	331	2247	0.490	1099	1421	0.7	1.0	3.133	A
4 - A4102	655	164	916	1260	0.520	654	515	0.7	1.1	5.931	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1629	407	621	2608	0.625	1627	1298	1.0	1.6	3.658	A
2 - Site Access	194	48	1950	1104	0.175	193	298	0.1	0.2	3.951	A
3 - A470 (NW)	1348	337	406	2200	0.613	1346	1737	1.0	1.6	4.200	A
4 - A4102	803	201	1121	1154	0.696	798	630	1.1	2.2	9.986	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1629	407	624	2606	0.625	1629	1301	1.6	1.7	3.686	A
2 - Site Access	194	48	1955	1101	0.176	194	299	0.2	0.2	3.966	A
3 - A470 (NW)	1348	337	406	2200	0.613	1348	1742	1.6	1.6	4.226	A
4 - A4102	803	201	1123	1153	0.696	803	632	2.2	2.2	10.253	B

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1330	333	513	2688	0.495	1333	1066	1.7	1.0	2.662	A
2 - Site Access	158	40	1601	1308	0.121	158	245	0.2	0.1	3.133	A
3 - A470 (NW)	1101	275	332	2247	0.490	1103	1427	1.6	1.0	3.156	A
4 - A4102	655	164	919	1258	0.521	660	517	2.2	1.1	6.064	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1114	279	428	2750	0.405	1115	891	1.0	0.7	2.205	A
2 - Site Access	132	33	1339	1462	0.091	132	205	0.1	0.1	2.709	A
3 - A470 (NW)	922	230	278	2281	0.404	923	1193	1.0	0.7	2.654	A
4 - A4102	549	137	769	1335	0.411	551	432	1.1	0.7	4.597	A

A470 / A4102 / Site Access - 2026 plus Committed Development and Average Rhydycar West, Saturday Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	4.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2026 plus Committed Development and Average Rhydycar West	Saturday Peak	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1377	100.000
2 - Site Access		ONE HOUR	✓	301	100.000
3 - A470 (NW)		ONE HOUR	✓	1180	100.000
4 - A4102		ONE HOUR	✓	661	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	218	925	234
	2 - Site Access	172	0	116	12
	3 - A470 (NW)	658	147	0	376
	4 - A4102	215	16	430	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	1	0
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	1	7	0	0
	4 - A4102	2	7	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.59	3.42	1.4	A	1264	1896
2 - Site Access	0.27	4.05	0.4	A	276	414
3 - A470 (NW)	0.60	4.08	1.5	A	1083	1624
4 - A4102	0.62	8.08	1.6	A	607	910

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1037	259	444	2723	0.381	1034	784	0.0	0.6	2.129	A
2 - Site Access	226	57	1193	1546	0.146	226	286	0.0	0.2	2.725	A
3 - A470 (NW)	888	222	315	2275	0.391	886	1104	0.0	0.6	2.587	A
4 - A4102	498	124	733	1348	0.369	495	467	0.0	0.6	4.212	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1238	310	532	2659	0.466	1237	939	0.6	0.9	2.531	A
2 - Site Access	270	68	1427	1408	0.192	270	342	0.2	0.2	3.162	A
3 - A470 (NW)	1061	265	376	2235	0.475	1060	1320	0.6	0.9	3.059	A
4 - A4102	594	149	877	1274	0.466	593	559	0.6	0.9	5.276	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1516	379	650	2571	0.590	1514	1149	0.9	1.4	3.398	A
2 - Site Access	331	83	1746	1221	0.271	330	418	0.2	0.4	4.039	A
3 - A470 (NW)	1299	325	461	2181	0.596	1297	1615	0.9	1.5	4.061	A
4 - A4102	728	182	1074	1174	0.620	725	684	0.9	1.6	7.963	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1516	379	652	2570	0.590	1516	1151	1.4	1.4	3.416	A
2 - Site Access	331	83	1749	1219	0.272	331	419	0.4	0.4	4.054	A
3 - A470 (NW)	1299	325	461	2181	0.596	1299	1619	1.5	1.5	4.083	A
4 - A4102	728	182	1075	1173	0.620	728	685	1.6	1.6	8.079	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1238	310	535	2656	0.466	1240	942	1.4	0.9	2.545	A
2 - Site Access	270	68	1432	1405	0.192	271	343	0.4	0.2	3.174	A
3 - A470 (NW)	1061	265	378	2235	0.475	1063	1326	1.5	0.9	3.077	A
4 - A4102	594	149	880	1273	0.467	597	561	1.6	0.9	5.351	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1037	259	447	2721	0.381	1038	788	0.9	0.6	2.139	A
2 - Site Access	226	57	1198	1543	0.147	227	287	0.2	0.2	2.735	A
3 - A470 (NW)	888	222	316	2274	0.391	889	1109	0.9	0.6	2.603	A
4 - A4102	498	124	736	1346	0.370	499	469	0.9	0.6	4.253	A

A470 / A4102 / Site Access - 2031 Forecast, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.49	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
D4	2031 Forecast	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1337	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1117	100.000
4 - A4102		ONE HOUR	✓	445	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	929	408
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	753	0	0	364
	4 - A4102	215	0	230	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	6	0
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	5	0	0	1
	4 - A4102	5	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.52	2.70	1.1	A	1227	1840
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.57	3.95	1.3	A	1025	1538
4 - A4102	0.39	4.70	0.6	A	409	613

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1006	252	173	2863	0.352	1004	726	0.0	0.5	1.936	A
2 - Site Access	0	0	1177	1635	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	841	210	307	2227	0.378	839	870	0.0	0.6	2.588	A
4 - A4102	335	84	565	1390	0.241	334	580	0.0	0.3	3.402	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1202	300	207	2838	0.424	1201	869	0.5	0.7	2.198	A
2 - Site Access	0	0	1408	1486	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1004	251	367	2191	0.458	1003	1041	0.6	0.8	3.028	A
4 - A4102	400	100	676	1334	0.300	400	694	0.3	0.4	3.853	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1472	368	253	2804	0.525	1470	1064	0.7	1.1	2.697	A
2 - Site Access	0	0	1723	1283	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1230	308	449	2141	0.575	1228	1274	0.8	1.3	3.936	A
4 - A4102	490	123	828	1257	0.390	489	849	0.4	0.6	4.687	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1472	368	253	2804	0.525	1472	1066	1.1	1.1	2.702	A
2 - Site Access	0	0	1725	1282	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1230	308	449	2140	0.575	1230	1276	1.3	1.3	3.954	A
4 - A4102	490	123	829	1256	0.390	490	851	0.6	0.6	4.700	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1202	300	207	2837	0.424	1203	872	1.1	0.7	2.206	A
2 - Site Access	0	0	1411	1484	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1004	251	367	2190	0.459	1006	1043	1.3	0.9	3.047	A
4 - A4102	400	100	678	1333	0.300	401	696	0.6	0.4	3.866	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1006	252	173	2862	0.352	1007	730	0.7	0.5	1.943	A
2 - Site Access	0	0	1181	1632	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	841	210	308	2227	0.378	842	873	0.9	0.6	2.601	A
4 - A4102	335	84	567	1389	0.241	336	582	0.4	0.3	3.420	A

A470 / A4102 / Site Access - 2031 Forecast, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	4.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2031 Forecast	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1378	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1169	100.000
4 - A4102		ONE HOUR	✓	750	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1106	273
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	850	0	0	319
	4 - A4102	278	0	471	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1	1
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	2	0	0	1
	4 - A4102	1	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.56	3.03	1.3	A	1265	1897
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.56	3.63	1.3	A	1073	1609
4 - A4102	0.66	8.38	1.9	A	688	1032

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1038	259	353	2825	0.367	1035	847	0.0	0.6	2.008	A
2 - Site Access	0	0	1389	1526	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	880	220	205	2339	0.376	878	1184	0.0	0.6	2.458	A
4 - A4102	564	141	638	1406	0.401	562	444	0.0	0.7	4.250	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1239	310	423	2774	0.447	1238	1014	0.6	0.8	2.342	A
2 - Site Access	0	0	1661	1356	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1051	263	245	2314	0.454	1050	1416	0.6	0.8	2.847	A
4 - A4102	674	169	764	1343	0.502	673	531	0.7	1.0	5.364	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1518	379	517	2706	0.561	1516	1240	0.8	1.3	3.016	A
2 - Site Access	0	0	2032	1125	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1287	322	300	2280	0.565	1285	1733	0.8	1.3	3.614	A
4 - A4102	826	206	935	1255	0.658	822	650	1.0	1.9	8.241	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1518	379	519	2704	0.561	1518	1243	1.3	1.3	3.033	A
2 - Site Access	0	0	2036	1122	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1287	322	300	2280	0.565	1287	1736	1.3	1.3	3.626	A
4 - A4102	826	206	936	1255	0.658	825	651	1.9	1.9	8.382	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1239	310	426	2772	0.447	1241	1017	1.3	0.8	2.355	A
2 - Site Access	0	0	1667	1353	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1051	263	245	2314	0.454	1053	1421	1.3	0.8	2.860	A
4 - A4102	674	169	766	1342	0.502	678	533	1.9	1.0	5.451	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1038	259	356	2823	0.368	1039	851	0.8	0.6	2.019	A
2 - Site Access	0	0	1394	1523	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	880	220	205	2339	0.376	881	1189	0.8	0.6	2.472	A
4 - A4102	564	141	641	1405	0.402	566	446	1.0	0.7	4.297	A

A470 / A4102 / Site Access - 2031 Forecast, Saturday Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.55	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2031 Forecast	Saturday Peak	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1211	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1076	100.000
4 - A4102		ONE HOUR	✓	670	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	965	245
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	683	0	0	393
	4 - A4102	220	0	450	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1	0
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	1	0	0	0
	4 - A4102	2	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.49	2.61	1.0	A	1111	1667
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.51	3.15	1.0	A	987	1481
4 - A4102	0.55	5.90	1.2	A	615	922

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	912	228	337	2830	0.322	910	678	0.0	0.5	1.872	A
2 - Site Access	0	0	1247	1612	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	810	202	184	2380	0.340	808	1063	0.0	0.5	2.287	A
4 - A4102	504	126	513	1467	0.344	502	480	0.0	0.5	3.723	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1089	272	404	2782	0.391	1088	811	0.5	0.6	2.124	A
2 - Site Access	0	0	1492	1459	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	967	242	220	2357	0.410	967	1271	0.5	0.7	2.587	A
4 - A4102	602	151	613	1417	0.425	601	574	0.5	0.7	4.411	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1333	333	494	2715	0.491	1332	992	0.6	1.0	2.599	A
2 - Site Access	0	0	1826	1250	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1185	296	270	2326	0.509	1183	1556	0.7	1.0	3.146	A
4 - A4102	738	184	751	1348	0.547	736	702	0.7	1.2	5.865	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1333	333	496	2715	0.491	1333	994	1.0	1.0	2.605	A
2 - Site Access	0	0	1829	1249	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1185	296	270	2326	0.509	1185	1559	1.0	1.0	3.154	A
4 - A4102	738	184	752	1347	0.548	738	703	1.2	1.2	5.904	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1089	272	406	2780	0.392	1090	813	1.0	0.6	2.132	A
2 - Site Access	0	0	1496	1457	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	967	242	221	2357	0.410	969	1275	1.0	0.7	2.595	A
4 - A4102	602	151	615	1416	0.425	604	575	1.2	0.7	4.443	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	912	228	339	2829	0.322	912	680	0.6	0.5	1.877	A
2 - Site Access	0	0	1252	1610	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	810	202	185	2379	0.340	811	1067	0.7	0.5	2.297	A
4 - A4102	504	126	514	1466	0.344	505	481	0.7	0.5	3.751	A

A470 / A4102 / Site Access - 2031 + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.51	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2031 + Committed	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1339	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1123	100.000
4 - A4102		ONE HOUR	✓	451	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	931	408
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	758	0	0	364
	4 - A4102	221	0	230	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	6	0
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	5	0	0	1
	4 - A4102	5	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.53	2.71	1.1	A	1229	1843
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.58	3.98	1.4	A	1030	1545
4 - A4102	0.40	4.75	0.7	A	414	620

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1008	252	173	2863	0.352	1006	735	0.0	0.5	1.937	A
2 - Site Access	0	0	1179	1634	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	845	211	307	2228	0.379	843	872	0.0	0.6	2.595	A
4 - A4102	339	85	569	1389	0.244	338	580	0.0	0.3	3.420	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1204	301	207	2838	0.424	1203	879	0.5	0.7	2.200	A
2 - Site Access	0	0	1410	1485	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1009	252	367	2191	0.461	1008	1043	0.6	0.8	3.040	A
4 - A4102	405	101	681	1332	0.304	405	694	0.3	0.4	3.880	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1474	369	253	2804	0.526	1473	1076	0.7	1.1	2.701	A
2 - Site Access	0	0	1726	1281	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1236	309	449	2141	0.577	1234	1277	0.8	1.4	3.960	A
4 - A4102	496	124	833	1254	0.396	495	849	0.4	0.6	4.738	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1474	369	253	2804	0.526	1474	1078	1.1	1.1	2.706	A
2 - Site Access	0	0	1728	1280	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1236	309	449	2141	0.577	1236	1278	1.4	1.4	3.978	A
4 - A4102	496	124	835	1254	0.396	496	851	0.6	0.7	4.752	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1204	301	207	2837	0.424	1205	882	1.1	0.7	2.207	A
2 - Site Access	0	0	1413	1483	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1009	252	367	2191	0.461	1011	1045	1.4	0.9	3.058	A
4 - A4102	405	101	683	1331	0.304	406	696	0.7	0.4	3.896	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1008	252	173	2862	0.352	1009	738	0.7	0.5	1.943	A
2 - Site Access	0	0	1182	1631	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	845	211	308	2227	0.379	846	875	0.9	0.6	2.610	A
4 - A4102	339	85	572	1388	0.244	340	582	0.4	0.3	3.438	A

A470 / A4102 / Site Access - 2031 + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	4.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2031 + Committed	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1383	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1169	100.000
4 - A4102		ONE HOUR	✓	750	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1110	273
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	850	0	0	319
	4 - A4102	278	0	471	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1	1
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	2	0	0	1
	4 - A4102	1	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.56	3.04	1.3	A	1269	1903
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.56	3.63	1.3	A	1073	1609
4 - A4102	0.66	8.38	1.9	A	688	1032

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1041	260	353	2825	0.368	1039	847	0.0	0.6	2.012	A
2 - Site Access	0	0	1392	1524	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	880	220	205	2339	0.376	878	1187	0.0	0.6	2.458	A
4 - A4102	564	141	638	1406	0.401	562	444	0.0	0.7	4.250	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1243	311	423	2774	0.448	1242	1014	0.6	0.8	2.348	A
2 - Site Access	0	0	1665	1354	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1051	263	245	2314	0.454	1050	1420	0.6	0.8	2.847	A
4 - A4102	674	169	764	1343	0.502	673	531	0.7	1.0	5.364	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1522	381	517	2706	0.563	1521	1240	0.8	1.3	3.031	A
2 - Site Access	0	0	2037	1121	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1287	322	300	2280	0.565	1285	1737	0.8	1.3	3.614	A
4 - A4102	826	206	935	1255	0.658	822	650	1.0	1.9	8.241	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1522	381	519	2704	0.563	1522	1243	1.3	1.3	3.045	A
2 - Site Access	0	0	2041	1119	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1287	322	300	2280	0.565	1287	1741	1.3	1.3	3.626	A
4 - A4102	826	206	936	1255	0.658	825	651	1.9	1.9	8.382	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1243	311	426	2772	0.448	1245	1017	1.3	0.8	2.361	A
2 - Site Access	0	0	1671	1350	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1051	263	245	2314	0.454	1053	1425	1.3	0.8	2.858	A
4 - A4102	674	169	766	1342	0.502	678	533	1.9	1.0	5.449	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1041	260	356	2824	0.369	1042	851	0.8	0.6	2.022	A
2 - Site Access	0	0	1398	1521	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	880	220	205	2339	0.376	881	1192	0.8	0.6	2.472	A
4 - A4102	564	141	641	1405	0.402	566	446	1.0	0.7	4.297	A

A470 / A4102 / Site Access - 2031 + Committed, Saturday Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.58	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2031 + Committed	Saturday Peak	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1213	100.000
2 - Site Access		ONE HOUR	✓	0	100.000
3 - A470 (NW)		ONE HOUR	✓	1081	100.000
4 - A4102		ONE HOUR	✓	675	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	968	245
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	688	0	0	393
	4 - A4102	225	0	450	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	0	1	0
	2 - Site Access	0	0	0	0
	3 - A470 (NW)	1	0	0	0
	4 - A4102	2	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.49	2.61	1.0	A	1113	1670
2 - Site Access	0.00	0.00	0.0	A	0	0
3 - A470 (NW)	0.51	3.17	1.0	A	992	1488
4 - A4102	0.55	5.99	1.2	A	620	930

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	913	228	337	2831	0.323	911	686	0.0	0.5	1.873	A
2 - Site Access	0	0	1249	1611	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	814	204	184	2380	0.342	812	1064	0.0	0.5	2.293	A
4 - A4102	508	127	517	1465	0.347	506	480	0.0	0.5	3.746	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1091	273	404	2782	0.392	1090	820	0.5	0.6	2.126	A
2 - Site Access	0	0	1494	1458	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	972	243	220	2357	0.412	971	1273	0.5	0.7	2.596	A
4 - A4102	607	152	618	1414	0.429	606	574	0.5	0.7	4.450	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1336	334	494	2716	0.492	1334	1004	0.6	1.0	2.604	A
2 - Site Access	0	0	1829	1249	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1191	298	270	2326	0.512	1189	1559	0.7	1.0	3.162	A
4 - A4102	744	186	757	1345	0.553	742	702	0.7	1.2	5.949	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1336	334	496	2715	0.492	1336	1006	1.0	1.0	2.610	A
2 - Site Access	0	0	1831	1247	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	1191	298	270	2326	0.512	1191	1561	1.0	1.0	3.170	A
4 - A4102	744	186	758	1344	0.553	744	703	1.2	1.2	5.991	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1091	273	406	2780	0.392	1092	823	1.0	0.6	2.133	A
2 - Site Access	0	0	1498	1456	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	972	243	221	2357	0.412	973	1277	1.0	0.7	2.604	A
4 - A4102	607	152	620	1414	0.429	609	575	1.2	0.8	4.483	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	913	228	339	2829	0.323	914	688	0.6	0.5	1.879	A
2 - Site Access	0	0	1253	1609	0.000	0	0	0.0	0.0	0.000	A
3 - A470 (NW)	814	204	185	2379	0.342	815	1069	0.7	0.5	2.303	A
4 - A4102	508	127	519	1464	0.347	509	481	0.8	0.5	3.774	A

A470 / A4102 / Site Access - 2031 plus Committed Development and Average Rhydycar West, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.80	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2031 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1386	100.000
2 - Site Access		ONE HOUR	✓	121	100.000
3 - A470 (NW)		ONE HOUR	✓	1154	100.000
4 - A4102		ONE HOUR	✓	454	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	47	931	408
	2 - Site Access	70	0	47	5
	3 - A470 (NW)	758	32	0	364
	4 - A4102	221	3	230	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	6	0
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	5	7	0	1
	4 - A4102	5	7	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.55	2.89	1.2	A	1272	1908
2 - Site Access	0.11	3.37	0.1	A	111	167
3 - A470 (NW)	0.61	4.42	1.5	A	1059	1589
4 - A4102	0.42	5.17	0.7	A	417	625

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1044	261	199	2840	0.367	1041	787	0.0	0.6	1.998	A
2 - Site Access	91	23	1178	1534	0.060	91	62	0.0	0.1	2.495	A
3 - A470 (NW)	869	217	363	2190	0.397	866	907	0.0	0.7	2.714	A
4 - A4102	342	85	645	1349	0.253	340	584	0.0	0.3	3.563	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1246	312	238	2812	0.443	1246	941	0.6	0.8	2.297	A
2 - Site Access	109	27	1410	1394	0.078	109	74	0.1	0.1	2.800	A
3 - A470 (NW)	1038	259	434	2146	0.484	1037	1085	0.7	0.9	3.242	A
4 - A4102	408	102	772	1285	0.318	408	698	0.3	0.5	4.103	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1527	382	292	2773	0.551	1525	1152	0.8	1.2	2.880	A
2 - Site Access	133	33	1726	1203	0.111	133	91	0.1	0.1	3.364	A
3 - A470 (NW)	1271	318	531	2086	0.609	1269	1328	0.9	1.5	4.388	A
4 - A4102	500	125	945	1197	0.418	499	855	0.5	0.7	5.153	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1527	382	292	2773	0.551	1527	1154	1.2	1.2	2.888	A
2 - Site Access	133	33	1728	1202	0.111	133	91	0.1	0.1	3.368	A
3 - A470 (NW)	1271	318	531	2086	0.609	1271	1330	1.5	1.5	4.416	A
4 - A4102	500	125	946	1196	0.418	500	856	0.7	0.7	5.173	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1246	312	239	2811	0.443	1248	945	1.2	0.8	2.306	A
2 - Site Access	109	27	1413	1392	0.078	109	74	0.1	0.1	2.805	A
3 - A470 (NW)	1038	259	435	2146	0.484	1040	1087	1.5	0.9	3.262	A
4 - A4102	408	102	775	1283	0.318	409	700	0.7	0.5	4.123	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1044	261	200	2840	0.368	1045	790	0.8	0.6	2.006	A
2 - Site Access	91	23	1182	1531	0.060	91	62	0.1	0.1	2.499	A
3 - A470 (NW)	869	217	364	2189	0.397	870	910	0.9	0.7	2.731	A
4 - A4102	342	85	648	1348	0.254	342	586	0.5	0.3	3.580	A

A470 / A4102 / Site Access - 2031 plus Committed Development and Average Rhydycar West, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	5.84	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
D13	2031 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1538	100.000
2 - Site Access		ONE HOUR	✓	176	100.000
3 - A470 (NW)		ONE HOUR	✓	1274	100.000
4 - A4102		ONE HOUR	✓	761	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	156	1110	273
	2 - Site Access	101	0	68	7
	3 - A470 (NW)	850	105	0	319
	4 - A4102	278	11	471	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	1	1
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	2	7	0	1
	4 - A4102	1	7	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.65	4.02	1.9	A	1412	2118
2 - Site Access	0.18	4.20	0.2	A	161	242
3 - A470 (NW)	0.64	4.56	1.8	A	1169	1753
4 - A4102	0.74	12.15	2.8	B	698	1047

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1158	290	440	2742	0.422	1155	922	0.0	0.7	2.265	A
2 - Site Access	132	33	1391	1431	0.092	132	204	0.0	0.1	2.771	A
3 - A470 (NW)	959	240	286	2277	0.421	956	1237	0.0	0.7	2.720	A
4 - A4102	573	143	792	1323	0.433	570	450	0.0	0.8	4.760	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1383	346	527	2678	0.516	1382	1104	0.7	1.1	2.774	A
2 - Site Access	158	40	1664	1271	0.124	158	244	0.1	0.1	3.233	A
3 - A470 (NW)	1145	286	342	2241	0.511	1144	1480	0.7	1.0	3.278	A
4 - A4102	684	171	948	1243	0.550	682	538	0.8	1.2	6.398	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1694	423	643	2593	0.653	1691	1349	1.1	1.9	3.974	A
2 - Site Access	194	48	2035	1054	0.184	193	298	0.1	0.2	4.181	A
3 - A470 (NW)	1403	351	418	2193	0.640	1400	1810	1.0	1.8	4.524	A
4 - A4102	838	209	1160	1134	0.739	832	658	1.2	2.7	11.684	B

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1694	423	646	2590	0.654	1694	1354	1.9	1.9	4.015	A
2 - Site Access	194	48	2041	1051	0.184	194	299	0.2	0.2	4.200	A
3 - A470 (NW)	1403	351	419	2192	0.640	1403	1816	1.8	1.8	4.559	A
4 - A4102	838	209	1162	1133	0.739	838	659	2.7	2.8	12.151	B

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1383	346	532	2675	0.517	1386	1110	1.9	1.1	2.802	A
2 - Site Access	158	40	1673	1266	0.125	158	245	0.2	0.1	3.252	A
3 - A470 (NW)	1145	286	343	2240	0.511	1148	1489	1.8	1.1	3.305	A
4 - A4102	684	171	951	1241	0.551	690	540	2.8	1.2	6.602	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1158	290	443	2740	0.423	1160	927	1.1	0.7	2.281	A
2 - Site Access	132	33	1398	1427	0.093	132	205	0.1	0.1	2.782	A
3 - A470 (NW)	959	240	287	2276	0.421	960	1244	1.1	0.7	2.740	A
4 - A4102	573	143	796	1321	0.434	575	451	1.2	0.8	4.836	A

A470 / A4102 / Site Access - 2031 plus Committed Development and Average Rhydycar West, Saturday Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	4.98	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D14	2031 plus Committed Development and Average Rhydycar West	Saturday Peak	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1431	100.000
2 - Site Access		ONE HOUR	✓	301	100.000
3 - A470 (NW)		ONE HOUR	✓	1228	100.000
4 - A4102		ONE HOUR	✓	691	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	218	968	245
	2 - Site Access	172	0	116	12
	3 - A470 (NW)	688	147	0	393
	4 - A4102	225	16	450	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	1	0
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	1	7	0	0
	4 - A4102	2	7	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.62	3.68	1.6	A	1313	1970
2 - Site Access	0.28	4.29	0.4	A	276	414
3 - A470 (NW)	0.62	4.38	1.6	A	1127	1690
4 - A4102	0.66	9.09	1.9	A	634	951

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1078	269	459	2713	0.397	1075	815	0.0	0.7	2.193	A
2 - Site Access	226	57	1248	1513	0.150	226	286	0.0	0.2	2.794	A
3 - A470 (NW)	925	231	323	2271	0.407	922	1151	0.0	0.7	2.663	A
4 - A4102	520	130	756	1337	0.389	518	489	0.0	0.6	4.383	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1287	322	550	2647	0.486	1286	975	0.7	0.9	2.642	A
2 - Site Access	270	68	1493	1369	0.197	270	342	0.2	0.2	3.275	A
3 - A470 (NW)	1104	276	386	2230	0.495	1103	1377	0.7	1.0	3.191	A
4 - A4102	621	155	905	1261	0.493	620	585	0.6	1.0	5.606	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1576	394	672	2556	0.616	1573	1192	0.9	1.6	3.653	A
2 - Site Access	331	83	1827	1173	0.282	330	418	0.2	0.4	4.267	A
3 - A470 (NW)	1352	338	473	2174	0.622	1350	1684	1.0	1.6	4.350	A
4 - A4102	761	190	1107	1157	0.657	757	715	1.0	1.9	8.914	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1576	394	674	2554	0.617	1576	1195	1.6	1.6	3.678	A
2 - Site Access	331	83	1831	1171	0.283	331	419	0.4	0.4	4.285	A
3 - A470 (NW)	1352	338	474	2174	0.622	1352	1688	1.6	1.6	4.381	A
4 - A4102	761	190	1109	1156	0.658	761	717	1.9	1.9	9.091	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1287	322	553	2644	0.487	1289	979	1.6	1.0	2.662	A
2 - Site Access	270	68	1500	1365	0.198	271	343	0.4	0.2	3.289	A
3 - A470 (NW)	1104	276	387	2229	0.495	1107	1383	1.6	1.0	3.216	A
4 - A4102	621	155	908	1259	0.493	625	586	1.9	1.0	5.708	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1078	269	462	2711	0.397	1079	819	1.0	0.7	2.206	A
2 - Site Access	226	57	1254	1510	0.150	227	287	0.2	0.2	2.805	A
3 - A470 (NW)	925	231	324	2270	0.407	926	1156	1.0	0.7	2.682	A
4 - A4102	520	130	759	1335	0.390	522	491	1.0	0.6	4.435	A

A470 / A4102 / Site Access - 2026 plus Committed Development and Peak Rhydycar West, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D15	2026 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1343	100.000
2 - Site Access		ONE HOUR	✓	122	100.000
3 - A470 (NW)		ONE HOUR	✓	1116	100.000
4 - A4102		ONE HOUR	✓	436	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	60	892	391
	2 - Site Access	70	0	47	5
	3 - A470 (NW)	727	40	0	349
	4 - A4102	211	4	220	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	6	0
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	5	7	0	1
	4 - A4102	5	7	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.53	2.78	1.1	A	1232	1848
2 - Site Access	0.11	3.24	0.1	A	112	169
3 - A470 (NW)	0.59	4.15	1.4	A	1024	1536
4 - A4102	0.40	4.95	0.7	A	400	600

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1011	253	199	2840	0.356	1009	757	0.0	0.6	1.963	A
2 - Site Access	92	23	1129	1564	0.059	92	78	0.0	0.1	2.446	A
3 - A470 (NW)	840	210	350	2197	0.382	838	871	0.0	0.6	2.644	A
4 - A4102	328	82	628	1358	0.242	327	560	0.0	0.3	3.487	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1207	302	238	2811	0.429	1206	906	0.6	0.7	2.242	A
2 - Site Access	110	28	1351	1430	0.077	110	94	0.1	0.1	2.727	A
3 - A470 (NW)	1003	251	419	2155	0.466	1002	1042	0.6	0.9	3.120	A
4 - A4102	392	98	752	1295	0.303	392	669	0.3	0.4	3.984	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1479	370	291	2772	0.533	1477	1108	0.7	1.1	2.775	A
2 - Site Access	135	34	1653	1247	0.108	135	115	0.1	0.1	3.236	A
3 - A470 (NW)	1229	307	513	2097	0.586	1227	1275	0.9	1.4	4.126	A
4 - A4102	480	120	920	1209	0.397	479	819	0.4	0.7	4.929	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1479	370	292	2772	0.533	1479	1110	1.1	1.1	2.783	A
2 - Site Access	135	34	1655	1246	0.108	135	115	0.1	0.1	3.240	A
3 - A470 (NW)	1229	307	513	2097	0.586	1229	1277	1.4	1.4	4.147	A
4 - A4102	480	120	922	1208	0.398	480	820	0.7	0.7	4.945	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1207	302	239	2811	0.430	1209	908	1.1	0.8	2.249	A
2 - Site Access	110	28	1353	1428	0.077	110	94	0.1	0.1	2.731	A
3 - A470 (NW)	1003	251	420	2154	0.466	1005	1044	1.4	0.9	3.138	A
4 - A4102	392	98	754	1294	0.303	393	671	0.7	0.4	4.002	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1011	253	200	2839	0.356	1012	760	0.8	0.6	1.972	A
2 - Site Access	92	23	1133	1561	0.059	92	79	0.1	0.1	2.452	A
3 - A470 (NW)	840	210	351	2196	0.383	841	874	0.9	0.6	2.658	A
4 - A4102	328	82	631	1357	0.242	329	562	0.4	0.3	3.503	A

A470 / A4102 / Site Access - 2026 plus Committed Development and Peak Rhydycar West, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	6.16	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
D16	2026 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1566	100.000
2 - Site Access		ONE HOUR	✓	272	100.000
3 - A470 (NW)		ONE HOUR	✓	1282	100.000
4 - A4102		ONE HOUR	✓	735	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	242	1063	261
	2 - Site Access	156	0	105	11
	3 - A470 (NW)	814	163	0	305
	4 - A4102	267	17	451	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	1	1
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	2	7	0	1
	4 - A4102	1	7	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.68	4.39	2.1	A	1437	2155
2 - Site Access	0.27	4.49	0.4	A	250	375
3 - A470 (NW)	0.66	4.86	1.9	A	1176	1765
4 - A4102	0.75	12.95	2.8	B	675	1012

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1179	295	473	2708	0.435	1176	928	0.0	0.8	2.344	A
2 - Site Access	205	51	1332	1466	0.140	204	316	0.0	0.2	2.852	A
3 - A470 (NW)	965	241	322	2248	0.429	962	1215	0.0	0.7	2.795	A
4 - A4102	554	138	850	1291	0.429	551	434	0.0	0.7	4.843	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1408	352	566	2639	0.533	1406	1110	0.8	1.1	2.916	A
2 - Site Access	245	61	1594	1313	0.186	245	378	0.2	0.2	3.370	A
3 - A470 (NW)	1153	288	385	2208	0.522	1151	1454	0.7	1.1	3.402	A
4 - A4102	661	165	1017	1205	0.549	659	519	0.7	1.2	6.574	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1724	431	691	2547	0.677	1720	1357	1.1	2.1	4.335	A
2 - Site Access	300	75	1948	1105	0.271	299	463	0.2	0.4	4.464	A
3 - A470 (NW)	1412	353	471	2153	0.656	1408	1777	1.1	1.9	4.815	A
4 - A4102	810	202	1245	1088	0.744	803	635	1.2	2.8	12.389	B

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1724	431	695	2544	0.678	1724	1362	2.1	2.1	4.389	A
2 - Site Access	300	75	1955	1101	0.272	300	464	0.4	0.4	4.491	A
3 - A470 (NW)	1412	353	472	2152	0.656	1412	1783	1.9	1.9	4.859	A
4 - A4102	810	202	1247	1086	0.745	809	636	2.8	2.8	12.952	B

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1408	352	572	2635	0.534	1411	1117	2.1	1.2	2.950	A
2 - Site Access	245	61	1603	1307	0.187	245	380	0.4	0.2	3.394	A
3 - A470 (NW)	1153	288	386	2207	0.522	1156	1463	1.9	1.1	3.436	A
4 - A4102	661	165	1021	1203	0.550	667	521	2.8	1.2	6.800	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1179	295	477	2705	0.436	1180	933	1.2	0.8	2.364	A
2 - Site Access	205	51	1339	1462	0.140	205	318	0.2	0.2	2.865	A
3 - A470 (NW)	965	241	323	2247	0.430	967	1222	1.1	0.8	2.813	A
4 - A4102	554	138	854	1289	0.429	555	435	1.2	0.8	4.920	A

A470 / A4102 / Site Access - 2026 plus Committed Development and Peak Rhydycar West, Saturday Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	7.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D17	2026 plus Committed Development and Peak Rhydycar West	Saturday Peak	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1557	100.000
2 - Site Access		ONE HOUR	✓	615	100.000
3 - A470 (NW)		ONE HOUR	✓	1301	100.000
4 - A4102		ONE HOUR	✓	674	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	398	925	234
	2 - Site Access	353	0	237	25
	3 - A470 (NW)	658	268	0	376
	4 - A4102	215	28	430	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	1	0
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	1	7	0	0
	4 - A4102	2	7	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.70	4.93	2.3	A	1429	2143
2 - Site Access	0.56	6.65	1.2	A	565	847
3 - A470 (NW)	0.71	6.03	2.4	A	1194	1790
4 - A4102	0.74	14.09	2.8	B	618	928

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1172	293	544	2633	0.445	1169	919	0.0	0.8	2.454	A
2 - Site Access	463	116	1192	1546	0.300	462	521	0.0	0.4	3.320	A
3 - A470 (NW)	979	245	460	2168	0.452	976	1194	0.0	0.8	3.013	A
4 - A4102	507	127	959	1227	0.414	505	477	0.0	0.7	4.965	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1400	350	651	2553	0.548	1398	1100	0.8	1.2	3.112	A
2 - Site Access	553	138	1426	1409	0.393	552	623	0.4	0.6	4.199	A
3 - A470 (NW)	1169	292	550	2110	0.554	1168	1429	0.8	1.2	3.815	A
4 - A4102	606	151	1147	1130	0.536	604	570	0.7	1.1	6.821	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1714	429	794	2447	0.700	1710	1344	1.2	2.3	4.851	A
2 - Site Access	677	169	1742	1223	0.554	675	762	0.6	1.2	6.544	A
3 - A470 (NW)	1432	358	672	2031	0.705	1428	1745	1.2	2.3	5.927	A
4 - A4102	742	185	1403	998	0.743	736	697	1.1	2.7	13.378	B

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1714	429	799	2444	0.701	1714	1350	2.3	2.3	4.931	A
2 - Site Access	677	169	1749	1219	0.556	677	764	1.2	1.2	6.645	A
3 - A470 (NW)	1432	358	674	2029	0.706	1432	1752	2.3	2.4	6.025	A
4 - A4102	742	185	1407	996	0.745	742	699	2.7	2.8	14.088	B

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1400	350	658	2548	0.549	1404	1108	2.3	1.2	3.159	A
2 - Site Access	553	138	1436	1403	0.394	555	626	1.2	0.7	4.261	A
3 - A470 (NW)	1169	292	553	2108	0.555	1174	1439	2.4	1.3	3.871	A
4 - A4102	606	151	1153	1127	0.538	612	573	2.8	1.2	7.084	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1172	293	548	2630	0.446	1174	925	1.2	0.8	2.477	A
2 - Site Access	463	116	1199	1542	0.300	464	523	0.7	0.4	3.344	A
3 - A470 (NW)	979	245	462	2167	0.452	981	1201	1.3	0.8	3.042	A
4 - A4102	507	127	964	1224	0.414	509	479	1.2	0.7	5.046	A

A470 / A4102 / Site Access - 2031 plus Committed Development and Peak Rhydycar West, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	3.85	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
D18	2031 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1399	100.000
2 - Site Access		ONE HOUR	✓	122	100.000
3 - A470 (NW)		ONE HOUR	✓	1163	100.000
4 - A4102		ONE HOUR	✓	455	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	60	931	408
	2 - Site Access	70	0	47	5
	3 - A470 (NW)	758	40	0	364
	4 - A4102	221	4	230	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	6	0
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	5	7	0	1
	4 - A4102	5	7	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.56	2.94	1.3	A	1284	1926
2 - Site Access	0.11	3.37	0.1	A	112	169
3 - A470 (NW)	0.61	4.47	1.6	A	1067	1601
4 - A4102	0.42	5.22	0.7	A	417	626

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1053	263	206	2835	0.372	1051	787	0.0	0.6	2.015	A
2 - Site Access	92	23	1178	1534	0.060	92	78	0.0	0.1	2.496	A
3 - A470 (NW)	875	219	363	2189	0.400	873	907	0.0	0.7	2.729	A
4 - A4102	342	86	652	1346	0.254	341	584	0.0	0.3	3.578	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1258	314	247	2805	0.448	1257	942	0.6	0.8	2.324	A
2 - Site Access	110	28	1410	1394	0.079	110	94	0.1	0.1	2.803	A
3 - A470 (NW)	1045	261	434	2145	0.487	1044	1085	0.7	0.9	3.266	A
4 - A4102	409	102	780	1280	0.319	408	698	0.3	0.5	4.125	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1540	385	302	2765	0.557	1539	1153	0.8	1.2	2.932	A
2 - Site Access	135	34	1726	1203	0.112	135	115	0.1	0.1	3.368	A
3 - A470 (NW)	1280	320	532	2085	0.614	1278	1329	0.9	1.6	4.444	A
4 - A4102	501	125	955	1191	0.420	500	855	0.5	0.7	5.199	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1540	385	302	2764	0.557	1540	1155	1.2	1.3	2.940	A
2 - Site Access	135	34	1728	1202	0.112	135	115	0.1	0.1	3.373	A
3 - A470 (NW)	1280	320	532	2085	0.614	1280	1330	1.6	1.6	4.472	A
4 - A4102	501	125	956	1190	0.421	501	856	0.7	0.7	5.220	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1258	314	248	2804	0.448	1259	945	1.3	0.8	2.334	A
2 - Site Access	110	28	1413	1392	0.079	110	94	0.1	0.1	2.810	A
3 - A470 (NW)	1045	261	435	2145	0.487	1048	1088	1.6	1.0	3.288	A
4 - A4102	409	102	783	1279	0.320	410	700	0.7	0.5	4.146	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1053	263	207	2834	0.372	1054	791	0.8	0.6	2.023	A
2 - Site Access	92	23	1183	1531	0.060	92	79	0.1	0.1	2.501	A
3 - A470 (NW)	875	219	364	2188	0.400	877	911	1.0	0.7	2.746	A
4 - A4102	342	86	655	1344	0.255	343	586	0.5	0.3	3.598	A

A470 / A4102 / Site Access - 2031 plus Committed Development and Peak Rhydycar West, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	7.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D19	2031 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1624	100.000
2 - Site Access		ONE HOUR	✓	272	100.000
3 - A470 (NW)		ONE HOUR	✓	1332	100.000
4 - A4102		ONE HOUR	✓	767	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	242	1110	273
	2 - Site Access	156	0	105	11
	3 - A470 (NW)	850	163	0	319
	4 - A4102	278	17	471	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	1	1
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	2	7	0	1
	4 - A4102	1	7	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.71	4.86	2.4	A	1491	2236
2 - Site Access	0.29	4.79	0.4	A	250	375
3 - A470 (NW)	0.68	5.30	2.1	A	1222	1833
4 - A4102	0.79	16.09	3.7	C	704	1056

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1223	306	488	2698	0.453	1220	964	0.0	0.8	2.430	A
2 - Site Access	205	51	1391	1431	0.143	204	316	0.0	0.2	2.932	A
3 - A470 (NW)	1003	251	330	2243	0.447	999	1265	0.0	0.8	2.887	A
4 - A4102	578	144	877	1277	0.452	574	452	0.0	0.8	5.097	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1460	365	584	2627	0.556	1459	1153	0.8	1.2	3.077	A
2 - Site Access	245	61	1664	1271	0.193	244	378	0.2	0.2	3.505	A
3 - A470 (NW)	1197	299	395	2202	0.544	1196	1513	0.8	1.2	3.574	A
4 - A4102	690	172	1050	1189	0.580	687	541	0.8	1.4	7.152	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1789	447	711	2533	0.706	1784	1409	1.2	2.4	4.777	A
2 - Site Access	300	75	2032	1056	0.284	299	463	0.2	0.4	4.754	A
3 - A470 (NW)	1466	367	483	2146	0.683	1462	1848	1.2	2.1	5.240	A
4 - A4102	845	211	1284	1068	0.791	836	662	1.4	3.5	15.001	C

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1789	447	717	2529	0.707	1788	1414	2.4	2.4	4.858	A
2 - Site Access	300	75	2041	1051	0.285	300	464	0.4	0.4	4.793	A
3 - A470 (NW)	1466	367	484	2145	0.684	1466	1856	2.1	2.1	5.301	A
4 - A4102	845	211	1287	1066	0.792	844	664	3.5	3.7	16.092	C

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1460	365	592	2621	0.557	1465	1161	2.4	1.3	3.126	A
2 - Site Access	245	61	1676	1264	0.194	245	380	0.4	0.2	3.537	A
3 - A470 (NW)	1197	299	397	2201	0.544	1201	1525	2.1	1.2	3.612	A
4 - A4102	690	172	1054	1186	0.581	699	543	3.7	1.4	7.515	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1223	306	492	2695	0.454	1225	969	1.3	0.8	2.452	A
2 - Site Access	205	51	1399	1427	0.144	205	318	0.2	0.2	2.947	A
3 - A470 (NW)	1003	251	332	2242	0.447	1004	1272	1.2	0.8	2.910	A
4 - A4102	578	144	881	1275	0.453	580	454	1.4	0.8	5.194	A

A470 / A4102 / Site Access - 2031 plus Committed Development and Peak Rhydycar West, Saturday Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 (SE) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	2 - Site Access - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4102 / Site Access	Standard Roundabout		1, 2, 3, 4	8.06	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D20	2031 plus Committed Development and Peak Rhydycar West	Saturday Peak	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 (SE)		ONE HOUR	✓	1611	100.000
2 - Site Access		ONE HOUR	✓	615	100.000
3 - A470 (NW)		ONE HOUR	✓	1349	100.000
4 - A4102		ONE HOUR	✓	704	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	398	968	245
	2 - Site Access	353	0	237	25
	3 - A470 (NW)	688	268	0	393
	4 - A4102	225	28	450	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 (SE)	2 - Site Access	3 - A470 (NW)	4 - A4102
From	1 - A470 (SE)	0	7	1	0
	2 - Site Access	7	0	7	7
	3 - A470 (NW)	1	7	0	0
	4 - A4102	2	7	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 (SE)	0.73	5.49	2.7	A	1478	2217
2 - Site Access	0.58	7.29	1.4	A	565	847
3 - A470 (NW)	0.73	6.69	2.7	A	1238	1857
4 - A4102	0.79	17.40	3.6	C	646	969

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1213	303	559	2623	0.462	1209	950	0.0	0.9	2.540	A
2 - Site Access	463	116	1248	1513	0.306	461	521	0.0	0.4	3.416	A
3 - A470 (NW)	1015	254	468	2164	0.469	1012	1241	0.0	0.9	3.116	A
4 - A4102	530	132	982	1216	0.436	527	498	0.0	0.8	5.203	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1448	362	669	2542	0.570	1446	1136	0.9	1.3	3.281	A
2 - Site Access	553	138	1492	1370	0.404	552	623	0.4	0.7	4.400	A
3 - A470 (NW)	1213	303	560	2105	0.576	1211	1485	0.9	1.3	4.019	A
4 - A4102	633	158	1174	1116	0.567	631	596	0.8	1.3	7.379	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1774	443	815	2434	0.729	1768	1387	1.3	2.6	5.367	A
2 - Site Access	677	169	1822	1176	0.576	675	761	0.7	1.3	7.142	A
3 - A470 (NW)	1485	371	684	2024	0.734	1480	1812	1.3	2.7	6.548	A
4 - A4102	775	194	1435	982	0.789	766	728	1.3	3.4	16.065	C

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1774	443	821	2429	0.730	1773	1394	2.6	2.7	5.487	A
2 - Site Access	677	169	1831	1171	0.579	677	764	1.3	1.4	7.289	A
3 - A470 (NW)	1485	371	686	2023	0.734	1485	1822	2.7	2.7	6.690	A
4 - A4102	775	194	1441	980	0.791	774	731	3.4	3.6	17.398	C

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1448	362	678	2535	0.571	1453	1145	2.7	1.3	3.343	A
2 - Site Access	553	138	1505	1362	0.406	556	626	1.4	0.7	4.479	A
3 - A470 (NW)	1213	303	563	2102	0.577	1218	1498	2.7	1.4	4.094	A
4 - A4102	633	158	1182	1113	0.569	642	599	3.6	1.3	7.787	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 (SE)	1213	303	564	2620	0.463	1215	956	1.3	0.9	2.565	A
2 - Site Access	463	116	1255	1509	0.307	464	523	0.7	0.4	3.450	A
3 - A470 (NW)	1015	254	470	2162	0.470	1017	1249	1.4	0.9	3.148	A
4 - A4102	530	132	987	1213	0.437	532	501	1.3	0.8	5.306	A

APPENDIX G – A470 / A4060 / BIKE PARK WALES JUNCTIONS 9 OUTPUT

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
© Copyright TRL Limited, 2019

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 784-B023905 220118 A470 A4060 BikePark Wales Access.j9
Path: \\CARDIFF31\Data\data\B023000-B023999\B023905 Rhydycar West Restart\B023905 Transport\30 Technical\31 Modelling
Report generation date: 18/01/2022 11:53:36

»A470 / A4060 / BikePark Wales Access - 2021 Baseline, AM
»A470 / A4060 / BikePark Wales Access - 2021 Baseline, PM
»A470 / A4060 / BikePark Wales Access - 2021 Baseline, Saturday
»A470 / A4060 / BikePark Wales Access - 2026 Forecast, AM
»A470 / A4060 / BikePark Wales Access - 2026 Forecast, PM
»A470 / A4060 / BikePark Wales Access - 2026 Forecast, Saturday
»A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development, AM
»A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development, PM
»A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development, Saturday
»A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Average Rhydycar West, AM
»A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Average Rhydycar West, PM
»A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Average Rhydycar West, Saturday
»A470 / A4060 / BikePark Wales Access - 2031 Forecast, AM
»A470 / A4060 / BikePark Wales Access - 2031 Forecast, PM
»A470 / A4060 / BikePark Wales Access - 2031 Forecast, Saturday
»A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development, AM
»A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development, PM
»A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development, Saturday
»A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Average Rhydycar West, AM
»A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Average Rhydycar West, PM
»A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Average Rhydycar West, Saturday
»A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Peak Rhydycar West, AM
»A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Peak Rhydycar West, PM
»A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Peak Rhydycar West, Saturday
»A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Peak Rhydycar West, AM
»A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Peak Rhydycar West, PM
»A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Peak Rhydycar West, Saturday

Summary of junction performance

	AM			PM			Saturday		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	A470 / A4060 / BikePark Wales Access - 2021 Baseline								
1 - A4060	1.4	5.16	0.59	1.5	5.70	0.60	1.0	4.06	0.51
2 - A470 (E)	4.7	8.36	0.83	2.8	5.37	0.74	2.8	5.40	0.74
3 - BikePark Wales Access	0.1	18.14	0.05	0.1	12.36	0.13	0.0	12.00	0.03
4 - A470 (W)	1.0	3.40	0.50	1.5	4.14	0.60	0.7	2.70	0.40
	A470 / A4060 / BikePark Wales Access - 2026 Forecast								
1 - A4060	1.7	5.77	0.63	1.8	6.51	0.64	1.2	4.40	0.54
2 - A470 (E)	6.3	10.87	0.87	3.4	6.23	0.77	3.4	6.33	0.78
3 - BikePark Wales Access	0.1	22.12	0.06	0.2	14.38	0.15	0.0	13.66	0.04
4 - A470 (W)	1.1	3.67	0.53	1.8	4.61	0.64	0.8	2.86	0.43
	A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development								
1 - A4060	1.7	5.87	0.63	1.8	6.55	0.65	1.2	4.46	0.55
2 - A470 (E)	6.6	11.35	0.87	3.4	6.28	0.78	3.5	6.49	0.78
3 - BikePark Wales Access	0.1	21.42	0.08	0.3	15.32	0.21	0.1	13.37	0.05
4 - A470 (W)	1.1	3.70	0.53	1.8	4.65	0.64	0.8	2.88	0.43
	A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Average Rhydycar West								
1 - A4060	1.9	6.37	0.66	2.2	7.83	0.69	1.5	5.40	0.60
2 - A470 (E)	7.8	13.35	0.89	5.1	8.87	0.84	6.5	11.10	0.87
3 - BikePark Wales Access	0.1	24.17	0.09	0.4	22.25	0.27	0.1	20.51	0.08
4 - A470 (W)	1.3	4.02	0.57	2.2	5.48	0.69	1.1	3.46	0.52
	A470 / A4060 / BikePark Wales Access - 2031 Forecast								
1 - A4060	2.0	6.51	0.67	2.2	7.57	0.69	1.3	4.79	0.57
2 - A470 (E)	9.0	15.18	0.91	4.2	7.39	0.81	4.3	7.60	0.81
3 - BikePark Wales Access	0.1	28.01	0.08	0.2	17.16	0.19	0.0	15.81	0.04
4 - A470 (W)	1.3	3.98	0.56	2.1	5.19	0.67	0.8	3.03	0.46
	A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development								
1 - A4060	2.0	6.64	0.67	2.2	7.63	0.69	1.4	4.86	0.58
2 - A470 (E)	9.5	16.07	0.91	4.2	7.48	0.81	4.4	7.84	0.82
3 - BikePark Wales Access	0.1	27.32	0.11	0.3	18.52	0.24	0.1	15.52	0.06
4 - A470 (W)	1.3	4.01	0.56	2.1	5.24	0.68	0.8	3.05	0.46
	A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Average Rhydycar West								
1 - A4060	2.2	7.28	0.69	2.8	9.42	0.74	1.8	6.00	0.64
2 - A470 (E)	12.0	19.99	0.93	6.7	11.38	0.88	9.2	15.43	0.91
3 - BikePark Wales Access	0.1	31.77	0.12	0.5	29.61	0.34	0.1	25.94	0.10
4 - A470 (W)	1.5	4.39	0.60	2.7	6.32	0.73	1.2	3.71	0.55
	A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Peak Rhydycar West								
1 - A4060	1.9	6.40	0.66	2.5	8.77	0.72	1.5	5.40	0.60
2 - A470 (E)	8.2	14.00	0.90	6.7	11.42	0.88	6.5	11.10	0.87
3 - BikePark Wales Access	0.1	25.00	0.10	0.5	29.58	0.33	0.1	20.51	0.08
4 - A470 (W)	1.3	4.03	0.57	2.6	6.07	0.72	1.1	3.46	0.52
	A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Peak Rhydycar West								
1 - A4060	2.3	7.33	0.70	3.2	10.80	0.77	2.3	7.76	0.70
2 - A470 (E)	12.8	21.30	0.94	9.5	15.73	0.91	27.0	41.15	0.99
3 - BikePark Wales Access	0.1	33.17	0.13	0.7	43.78	0.44	0.2	50.90	0.17
4 - A470 (W)	1.5	4.39	0.60	3.1	7.11	0.76	1.8	4.71	0.65

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	A470 / A4060 / BikePark Wales Access
Location	Merthyr Tydfil
Site number	
Date	19/04/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	784-B023905
Enumerator	TT\LUCY.BRIGGS
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2021 Baseline	AM	ONE HOUR	07:45	09:15	15	✓
D2	2021 Baseline	PM	ONE HOUR	16:15	17:45	15	✓
D3	2021 Baseline	Saturday	ONE HOUR	11:45	13:15	15	✓
D4	2026 Forecast	AM	ONE HOUR	07:45	09:15	15	✓
D5	2026 Forecast	PM	ONE HOUR	16:15	17:45	15	✓
D6	2026 Forecast	Saturday	ONE HOUR	11:45	13:15	15	✓
D7	2026 plus Committed Development	AM	ONE HOUR	07:45	09:15	15	✓
D8	2026 plus Committed Development	PM	ONE HOUR	16:15	17:45	15	✓
D9	2026 plus Committed Development	Saturday	ONE HOUR	11:45	13:15	15	✓
D10	2026 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D11	2026 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓
D12	2026 plus Committed Development and Average Rhydycar West	Saturday	ONE HOUR	11:45	13:15	15	✓
D13	2031 Forecast	AM	ONE HOUR	07:45	09:15	15	✓
D14	2031 Forecast	PM	ONE HOUR	16:15	17:45	15	✓
D15	2031 Forecast	Saturday	ONE HOUR	11:45	13:15	15	✓
D16	2031 plus Committed Development	AM	ONE HOUR	07:45	09:15	15	✓
D17	2031 plus Committed Development	PM	ONE HOUR	16:15	17:45	15	✓
D18	2031 plus Committed Development	Saturday	ONE HOUR	11:45	13:15	15	✓
D19	2031 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D20	2031 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓
D21	2031 plus Committed Development and Average Rhydycar West	Saturday	ONE HOUR	11:45	13:15	15	✓
D22	2026 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D23	2026 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓
D24	2026 plus Committed Development and Peak Rhydycar West	Saturday	ONE HOUR	11:45	13:15	15	✓
D25	2031 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D26	2031 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓
D27	2031 plus Committed Development and Peak Rhydycar West	Saturday	ONE HOUR	11:45	13:15	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	A470 / A4060 / BikePark Wales Access	✓	100.000	100.000

A470 / A4060 / BikePark Wales Access - 2021 Baseline, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	6.35	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A4060	
2	A470 (E)	
3	BikePark Wales Access	
4	A470 (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A4060	6.80	8.00	14.5	41.9	71.7	33.0	
2 - A470 (E)	8.48	8.77	2.9	30.0	71.7	26.7	
3 - BikePark Wales Access	3.00	6.85	4.9	8.0	71.7	26.0	
4 - A470 (W)	7.43	10.22	6.6	26.7	71.7	10.5	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A4060	0.608	2384
2 - A470 (E)	0.661	2709
3 - BikePark Wales Access	0.402	1167
4 - A470 (W)	0.691	2819

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2021 Baseline	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	917	100.000
2 - A470 (E)		ONE HOUR	✓	1866	100.000
3 - BikePark Wales Access		ONE HOUR	✓	9	100.000
4 - A470 (W)		ONE HOUR	✓	952	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	805	13	99
	2 - A470 (E)	757	0	9	1099
	3 - BikePark Wales Access	2	2	0	5
	4 - A470 (W)	141	801	9	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	7
	2 - A470 (E)	7	0	0	4
	3 - BikePark Wales Access	50	0	0	20
	4 - A470 (W)	3	5	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.59	5.16	1.4	A	841	1262
2 - A470 (E)	0.83	8.36	4.7	A	1712	2568
3 - BikePark Wales Access	0.05	18.14	0.1	C	9	13
4 - A470 (W)	0.50	3.40	1.0	A	874	1311

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	690	173	611	1877	0.368	688	675	0.0	0.6	3.022	A
2 - A470 (E)	1405	351	91	2512	0.559	1400	1207	0.0	1.3	3.221	A
3 - BikePark Wales Access	7	2	1468	446	0.016	7	23	0.0	0.0	8.191	A
4 - A470 (W)	717	179	571	2295	0.312	715	903	0.0	0.5	2.277	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	824	206	731	1805	0.457	823	808	0.6	0.8	3.662	A
2 - A470 (E)	1677	419	109	2500	0.671	1674	1445	1.3	2.0	4.343	A
3 - BikePark Wales Access	8	2	1756	347	0.024	8	28	0.0	0.0	10.642	B
4 - A470 (W)	856	214	683	2216	0.386	855	1081	0.5	0.6	2.645	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1009	252	895	1707	0.591	1007	987	0.8	1.4	5.124	A
2 - A470 (E)	2054	514	134	2484	0.827	2044	1768	2.0	4.6	8.007	A
3 - BikePark Wales Access	10	3	2144	212	0.049	10	34	0.0	0.1	17.816	C
4 - A470 (W)	1048	262	834	2109	0.497	1047	1320	0.6	1.0	3.385	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1009	252	896	1706	0.592	1009	991	1.4	1.4	5.164	A
2 - A470 (E)	2054	514	134	2484	0.827	2054	1771	4.6	4.7	8.357	A
3 - BikePark Wales Access	10	3	2154	209	0.049	10	34	0.1	0.1	18.143	C
4 - A470 (W)	1048	262	838	2106	0.498	1048	1326	1.0	1.0	3.402	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	824	206	733	1804	0.457	827	814	1.4	0.8	3.692	A
2 - A470 (E)	1677	419	110	2500	0.671	1688	1449	4.7	2.1	4.488	A
3 - BikePark Wales Access	8	2	1769	342	0.025	9	28	0.1	0.0	10.804	B
4 - A470 (W)	856	214	689	2212	0.387	857	1089	1.0	0.6	2.660	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	690	173	613	1876	0.368	691	679	0.8	0.6	3.043	A
2 - A470 (E)	1405	351	92	2512	0.559	1408	1213	2.1	1.3	3.268	A
3 - BikePark Wales Access	7	2	1476	443	0.016	7	24	0.0	0.0	8.250	A
4 - A470 (W)	717	179	575	2292	0.313	718	909	0.6	0.5	2.288	A

A470 / A4060 / BikePark Wales Access - 2021 Baseline, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	5.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2021 Baseline	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	868	100.000
2 - A470 (E)		ONE HOUR	✓	1710	100.000
3 - BikePark Wales Access		ONE HOUR	✓	40	100.000
4 - A470 (W)		ONE HOUR	✓	1196	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	735	0	133
	2 - A470 (E)	725	1	2	983
	3 - BikePark Wales Access	12	15	0	12
	4 - A470 (W)	122	1074	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	4	0	1
	2 - A470 (E)	3	0	0	2
	3 - BikePark Wales Access	0	0	0	0
	4 - A470 (W)	1	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.60	5.70	1.5	A	797	1195
2 - A470 (E)	0.74	5.37	2.8	A	1570	2354
3 - BikePark Wales Access	0.13	12.36	0.1	B	36	54
4 - A470 (W)	0.60	4.14	1.5	A	1098	1646

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	654	163	818	1817	0.360	651	645	0.0	0.6	3.084	A
2 - A470 (E)	1288	322	100	2584	0.498	1284	1370	0.0	1.0	2.761	A
3 - BikePark Wales Access	30	7	1382	600	0.050	30	2	0.0	0.1	6.312	A
4 - A470 (W)	901	225	565	2371	0.380	898	847	0.0	0.6	2.440	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	781	195	979	1720	0.454	779	771	0.6	0.8	3.824	A
2 - A470 (E)	1538	384	120	2571	0.598	1536	1639	1.0	1.5	3.471	A
3 - BikePark Wales Access	36	9	1654	488	0.073	35	2	0.1	0.1	7.946	A
4 - A470 (W)	1075	269	676	2294	0.469	1074	1013	0.6	0.9	2.949	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	956	239	1198	1589	0.602	953	943	0.8	1.5	5.643	A
2 - A470 (E)	1883	471	146	2554	0.737	1878	2005	1.5	2.7	5.288	A
3 - BikePark Wales Access	44	11	2022	337	0.129	43	2	0.1	0.1	12.242	B
4 - A470 (W)	1317	329	826	2189	0.602	1315	1239	0.9	1.5	4.106	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	956	239	1200	1587	0.602	956	946	1.5	1.5	5.702	A
2 - A470 (E)	1883	471	147	2554	0.738	1883	2009	2.7	2.8	5.368	A
3 - BikePark Wales Access	44	11	2028	335	0.130	44	2	0.1	0.1	12.356	B
4 - A470 (W)	1317	329	829	2187	0.602	1317	1242	1.5	1.5	4.136	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	781	195	982	1718	0.454	783	775	1.5	0.8	3.862	A
2 - A470 (E)	1538	384	120	2571	0.598	1543	1645	2.8	1.5	3.518	A
3 - BikePark Wales Access	36	9	1661	485	0.073	36	2	0.1	0.1	8.015	A
4 - A470 (W)	1075	269	679	2291	0.469	1078	1018	1.5	0.9	2.971	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	654	163	822	1815	0.360	655	648	0.8	0.6	3.108	A
2 - A470 (E)	1288	322	100	2584	0.498	1290	1376	1.5	1.0	2.785	A
3 - BikePark Wales Access	30	7	1389	597	0.050	30	2	0.1	0.1	6.349	A
4 - A470 (W)	901	225	568	2369	0.380	902	851	0.9	0.6	2.456	A

A470 / A4060 / BikePark Wales Access - 2021 Baseline, Saturday

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	4.44	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2021 Baseline	Saturday	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	836	100.000
2 - A470 (E)		ONE HOUR	✓	1705	100.000
3 - BikePark Wales Access		ONE HOUR	✓	9	100.000
4 - A470 (W)		ONE HOUR	✓	821	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	734	11	91
	2 - A470 (E)	691	0	9	1006
	3 - BikePark Wales Access	2	2	0	5
	4 - A470 (W)	121	691	8	0.90

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	2
	2 - A470 (E)	7	0	0	1
	3 - BikePark Wales Access	50	0	0	4
	4 - A470 (W)	1	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.51	4.06	1.0	A	767	1151
2 - A470 (E)	0.74	5.40	2.8	A	1565	2347
3 - BikePark Wales Access	0.03	12.00	0.0	B	8	12
4 - A470 (W)	0.40	2.70	0.7	A	753	1130

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	630	157	527	1951	0.323	628	611	0.0	0.5	2.718	A
2 - A470 (E)	1284	321	83	2570	0.500	1280	1072	0.0	1.0	2.784	A
3 - BikePark Wales Access	6	2	1342	539	0.012	6	21	0.0	0.0	6.764	A
4 - A470 (W)	618	155	521	2413	0.256	617	827	0.0	0.3	2.003	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	752	188	630	1890	0.398	751	731	0.5	0.7	3.158	A
2 - A470 (E)	1533	383	100	2559	0.599	1531	1282	1.0	1.5	3.497	A
3 - BikePark Wales Access	8	2	1606	442	0.017	8	25	0.0	0.0	8.284	A
4 - A470 (W)	738	185	624	2338	0.316	738	990	0.3	0.5	2.249	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	921	230	772	1808	0.509	919	894	0.7	1.0	4.043	A
2 - A470 (E)	1878	469	122	2544	0.738	1873	1569	1.5	2.8	5.318	A
3 - BikePark Wales Access	9	2	1964	311	0.030	9	31	0.0	0.0	11.922	B
4 - A470 (W)	904	226	763	2237	0.404	903	1211	0.5	0.7	2.698	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	921	230	773	1808	0.509	921	896	1.0	1.0	4.058	A
2 - A470 (E)	1878	469	122	2544	0.738	1878	1571	2.8	2.8	5.397	A
3 - BikePark Wales Access	9	2	1969	309	0.030	9	31	0.0	0.0	11.999	B
4 - A470 (W)	904	226	765	2235	0.404	904	1214	0.7	0.7	2.703	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	752	188	632	1890	0.398	753	734	1.0	0.7	3.171	A
2 - A470 (E)	1533	383	100	2559	0.599	1538	1285	2.8	1.5	3.547	A
3 - BikePark Wales Access	8	2	1613	440	0.018	8	25	0.0	0.0	8.338	A
4 - A470 (W)	738	185	626	2336	0.316	739	994	0.7	0.5	2.256	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	630	157	529	1950	0.323	630	614	0.7	0.5	2.732	A
2 - A470 (E)	1284	321	84	2569	0.500	1286	1075	1.5	1.0	2.808	A
3 - BikePark Wales Access	6	2	1348	536	0.012	6	21	0.0	0.0	6.796	A
4 - A470 (W)	618	155	524	2411	0.256	619	831	0.5	0.3	2.009	A

A470 / A4060 / BikePark Wales Access - 2026 Forecast, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	7.83	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2026 Forecast	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	960	100.000
2 - A470 (E)		ONE HOUR	✓	1954	100.000
3 - BikePark Wales Access		ONE HOUR	✓	10	100.000
4 - A470 (W)		ONE HOUR	✓	997	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	844	13	104
	2 - A470 (E)	793	0	10	1151
	3 - BikePark Wales Access	2	2	0	5
	4 - A470 (W)	147	839	10	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	7
	2 - A470 (E)	7	0	0	4
	3 - BikePark Wales Access	50	0	0	20
	4 - A470 (W)	3	5	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.63	5.77	1.7	A	881	1322
2 - A470 (E)	0.87	10.87	6.3	B	1793	2690
3 - BikePark Wales Access	0.06	22.12	0.1	C	9	14
4 - A470 (W)	0.53	3.67	1.1	A	915	1373

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	723	181	640	1860	0.389	720	707	0.0	0.6	3.153	A
2 - A470 (E)	1471	368	96	2509	0.586	1466	1265	0.0	1.4	3.431	A
3 - BikePark Wales Access	7	2	1537	422	0.018	7	25	0.0	0.0	8.671	A
4 - A470 (W)	751	188	598	2276	0.330	749	946	0.0	0.5	2.354	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	863	216	765	1785	0.484	862	846	0.6	0.9	3.898	A
2 - A470 (E)	1757	439	115	2497	0.704	1753	1513	1.4	2.3	4.817	A
3 - BikePark Wales Access	9	2	1838	318	0.028	9	29	0.0	0.0	11.641	B
4 - A470 (W)	897	224	716	2193	0.409	896	1132	0.5	0.7	2.774	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1057	264	937	1682	0.629	1054	1032	0.9	1.7	5.719	A
2 - A470 (E)	2152	538	140	2480	0.868	2137	1851	2.3	6.1	10.090	B
3 - BikePark Wales Access	11	3	2241	178	0.061	11	36	0.0	0.1	21.442	C
4 - A470 (W)	1098	275	872	2082	0.527	1096	1380	0.7	1.1	3.645	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1057	264	938	1681	0.629	1057	1038	1.7	1.7	5.771	A
2 - A470 (E)	2152	538	141	2479	0.868	2151	1855	6.1	6.3	10.874	B
3 - BikePark Wales Access	11	3	2255	174	0.062	11	36	0.1	0.1	22.121	C
4 - A470 (W)	1098	275	878	2078	0.528	1098	1388	1.1	1.1	3.672	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	863	216	768	1783	0.484	866	854	1.7	0.9	3.939	A
2 - A470 (E)	1757	439	115	2496	0.704	1772	1519	6.3	2.4	5.076	A
3 - BikePark Wales Access	9	2	1858	311	0.028	9	30	0.1	0.0	11.918	B
4 - A470 (W)	897	224	723	2187	0.410	898	1144	1.1	0.7	2.798	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	723	181	642	1858	0.389	724	712	0.9	0.6	3.176	A
2 - A470 (E)	1471	368	96	2509	0.586	1475	1270	2.4	1.4	3.494	A
3 - BikePark Wales Access	7	2	1547	419	0.018	7	25	0.0	0.0	8.749	A
4 - A470 (W)	751	188	602	2273	0.330	752	952	0.7	0.5	2.367	A

A470 / A4060 / BikePark Wales Access - 2026 Forecast, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	5.87	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2026 Forecast	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	909	100.000
2 - A470 (E)		ONE HOUR	✓	1791	100.000
3 - BikePark Wales Access		ONE HOUR	✓	41	100.000
4 - A470 (W)		ONE HOUR	✓	1252	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	769	0	140
	2 - A470 (E)	759	1	2	1029
	3 - BikePark Wales Access	13	15	0	13
	4 - A470 (W)	128	1125	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	4	0	1
	2 - A470 (E)	3	0	0	2
	3 - BikePark Wales Access	0	0	0	0
	4 - A470 (W)	1	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.64	6.51	1.8	A	834	1251
2 - A470 (E)	0.77	6.23	3.4	A	1643	2465
3 - BikePark Wales Access	0.15	14.38	0.2	B	38	57
4 - A470 (W)	0.64	4.61	1.8	A	1149	1724

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	684	171	857	1794	0.382	682	675	0.0	0.6	3.231	A
2 - A470 (E)	1348	337	105	2581	0.522	1344	1434	0.0	1.1	2.901	A
3 - BikePark Wales Access	31	8	1447	573	0.054	31	2	0.0	0.1	6.634	A
4 - A470 (W)	943	236	591	2353	0.401	940	887	0.0	0.7	2.545	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	817	204	1025	1693	0.483	816	807	0.6	0.9	4.100	A
2 - A470 (E)	1610	402	125	2568	0.627	1608	1715	1.1	1.7	3.740	A
3 - BikePark Wales Access	37	9	1731	457	0.082	37	2	0.1	0.1	8.576	A
4 - A470 (W)	1126	281	707	2272	0.496	1125	1061	0.7	1.0	3.135	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1001	250	1254	1555	0.644	997	987	0.9	1.8	6.417	A
2 - A470 (E)	1972	493	153	2549	0.773	1965	2098	1.7	3.3	6.090	A
3 - BikePark Wales Access	46	11	2116	299	0.153	45	2	0.1	0.2	14.183	B
4 - A470 (W)	1379	345	865	2162	0.638	1376	1296	1.0	1.7	4.560	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1001	250	1256	1553	0.644	1001	990	1.8	1.8	6.511	A
2 - A470 (E)	1972	493	154	2549	0.773	1971	2103	3.3	3.4	6.225	A
3 - BikePark Wales Access	46	11	2123	296	0.154	46	2	0.2	0.2	14.383	B
4 - A470 (W)	1379	345	868	2160	0.638	1379	1301	1.7	1.8	4.606	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	817	204	1029	1690	0.483	821	812	1.8	0.9	4.154	A
2 - A470 (E)	1610	402	126	2567	0.627	1616	1723	3.4	1.7	3.814	A
3 - BikePark Wales Access	37	9	1740	453	0.082	38	2	0.2	0.1	8.680	A
4 - A470 (W)	1126	281	711	2269	0.496	1129	1067	1.8	1.0	3.167	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	684	171	860	1792	0.382	686	678	0.9	0.6	3.260	A
2 - A470 (E)	1348	337	105	2581	0.522	1351	1441	1.7	1.1	2.931	A
3 - BikePark Wales Access	31	8	1454	570	0.055	31	2	0.1	0.1	6.682	A
4 - A470 (W)	943	236	594	2350	0.401	944	891	1.0	0.7	2.563	A

A470 / A4060 / BikePark Wales Access - 2026 Forecast, Saturday

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	5.03	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2026 Forecast	Saturday	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	878	100.000
2 - A470 (E)		ONE HOUR	✓	1791	100.000
3 - BikePark Wales Access		ONE HOUR	✓	9	100.000
4 - A470 (W)		ONE HOUR	✓	862	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	771	12	95
	2 - A470 (E)	725	0	9	1057
	3 - BikePark Wales Access	2	2	0	5
	4 - A470 (W)	127	726	8	0.94

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	2
	2 - A470 (E)	7	0	0	1
	3 - BikePark Wales Access	50	0	0	4
	4 - A470 (W)	1	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.54	4.40	1.2	A	806	1209
2 - A470 (E)	0.78	6.33	3.4	A	1643	2465
3 - BikePark Wales Access	0.04	13.66	0.0	B	8	12
4 - A470 (W)	0.43	2.86	0.8	A	791	1187

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	661	165	554	1935	0.342	659	641	0.0	0.5	2.816	A
2 - A470 (E)	1348	337	87	2567	0.525	1344	1125	0.0	1.1	2.933	A
3 - BikePark Wales Access	7	2	1409	514	0.013	7	22	0.0	0.0	7.095	A
4 - A470 (W)	649	162	547	2394	0.271	648	869	0.0	0.4	2.059	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	790	197	662	1872	0.422	789	767	0.5	0.7	3.323	A
2 - A470 (E)	1610	403	105	2556	0.630	1608	1346	1.1	1.7	3.788	A
3 - BikePark Wales Access	8	2	1686	413	0.020	8	26	0.0	0.0	8.892	A
4 - A470 (W)	775	194	655	2316	0.335	775	1039	0.4	0.5	2.336	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	967	242	811	1786	0.542	965	938	0.7	1.2	4.377	A
2 - A470 (E)	1972	493	128	2540	0.776	1965	1648	1.7	3.4	6.185	A
3 - BikePark Wales Access	10	2	2061	276	0.036	10	32	0.0	0.0	13.534	B
4 - A470 (W)	949	237	800	2209	0.430	948	1271	0.5	0.7	2.852	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	967	242	811	1785	0.542	967	941	1.2	1.2	4.399	A
2 - A470 (E)	1972	493	128	2540	0.776	1972	1650	3.4	3.4	6.325	A
3 - BikePark Wales Access	10	2	2068	273	0.036	10	32	0.0	0.0	13.665	B
4 - A470 (W)	949	237	803	2207	0.430	949	1275	0.7	0.8	2.861	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	790	197	663	1871	0.422	791	771	1.2	0.7	3.340	A
2 - A470 (E)	1610	403	105	2555	0.630	1617	1350	3.4	1.7	3.862	A
3 - BikePark Wales Access	8	2	1695	409	0.020	8	27	0.0	0.0	8.971	A
4 - A470 (W)	775	194	658	2313	0.335	776	1045	0.8	0.5	2.343	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	661	165	555	1934	0.342	662	645	0.7	0.5	2.831	A
2 - A470 (E)	1348	337	88	2567	0.525	1351	1130	1.7	1.1	2.968	A
3 - BikePark Wales Access	7	2	1416	511	0.013	7	22	0.0	0.0	7.135	A
4 - A470 (W)	649	162	550	2392	0.271	650	873	0.5	0.4	2.066	A

A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	8.10	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2026 plus Committed Development	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	967	100.000
2 - A470 (E)		ONE HOUR	✓	1960	100.000
3 - BikePark Wales Access		ONE HOUR	✓	14	100.000
4 - A470 (W)		ONE HOUR	✓	1003	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	844	20	104
	2 - A470 (E)	793	0	15	1151
	3 - BikePark Wales Access	3	3	0	8
	4 - A470 (W)	147	839	15	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	7
	2 - A470 (E)	7	0	0	4
	3 - BikePark Wales Access	36	0	0	14
	4 - A470 (W)	3	5	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.63	5.87	1.7	A	888	1332
2 - A470 (E)	0.87	11.35	6.6	B	1798	2698
3 - BikePark Wales Access	0.08	21.42	0.1	C	13	19
4 - A470 (W)	0.53	3.70	1.1	A	920	1380

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	728	182	645	1858	0.392	726	708	0.0	0.6	3.173	A
2 - A470 (E)	1475	369	105	2504	0.589	1470	1265	0.0	1.4	3.463	A
3 - BikePark Wales Access	10	3	1537	446	0.023	10	38	0.0	0.0	8.262	A
4 - A470 (W)	755	189	600	2275	0.332	753	948	0.0	0.5	2.361	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	870	217	771	1782	0.488	869	847	0.6	0.9	3.936	A
2 - A470 (E)	1762	440	126	2490	0.708	1758	1514	1.4	2.4	4.892	A
3 - BikePark Wales Access	12	3	1838	336	0.037	12	46	0.0	0.0	11.134	B
4 - A470 (W)	901	225	717	2192	0.411	901	1134	0.5	0.7	2.786	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1065	266	944	1679	0.635	1062	1032	0.9	1.7	5.810	A
2 - A470 (E)	2158	539	154	2471	0.873	2142	1852	2.4	6.3	10.464	B
3 - BikePark Wales Access	15	4	2240	189	0.081	15	56	0.0	0.1	20.712	C
4 - A470 (W)	1104	276	874	2082	0.530	1102	1382	0.7	1.1	3.670	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1065	266	945	1678	0.635	1065	1039	1.7	1.7	5.873	A
2 - A470 (E)	2158	539	154	2471	0.873	2157	1856	6.3	6.6	11.351	B
3 - BikePark Wales Access	15	4	2255	183	0.083	15	56	0.1	0.1	21.424	C
4 - A470 (W)	1104	276	880	2077	0.531	1104	1391	1.1	1.1	3.697	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	870	217	773	1781	0.488	873	855	1.7	1.0	3.978	A
2 - A470 (E)	1762	440	127	2490	0.708	1778	1520	6.6	2.5	5.172	A
3 - BikePark Wales Access	12	3	1859	328	0.038	13	46	0.1	0.0	11.417	B
4 - A470 (W)	901	225	725	2186	0.412	903	1146	1.1	0.7	2.808	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	728	182	647	1857	0.392	730	712	1.0	0.6	3.199	A
2 - A470 (E)	1475	369	106	2504	0.589	1479	1271	2.5	1.4	3.528	A
3 - BikePark Wales Access	10	3	1547	442	0.024	10	38	0.0	0.0	8.340	A
4 - A470 (W)	755	189	604	2273	0.332	756	954	0.7	0.5	2.374	A

A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	5.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2026 plus Committed Development	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	909	100.000
2 - A470 (E)		ONE HOUR	✓	1796	100.000
3 - BikePark Wales Access		ONE HOUR	✓	55	100.000
4 - A470 (W)		ONE HOUR	✓	1252	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	769	0	140
	2 - A470 (E)	759	1	7	1029
	3 - BikePark Wales Access	17	20	0	17
	4 - A470 (W)	128	1125	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	4	0	1
	2 - A470 (E)	3	0	0	2
	3 - BikePark Wales Access	0	0	0	0
	4 - A470 (W)	1	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.65	6.55	1.8	A	834	1251
2 - A470 (E)	0.78	6.28	3.4	A	1648	2472
3 - BikePark Wales Access	0.21	15.32	0.3	C	51	76
4 - A470 (W)	0.64	4.65	1.8	A	1149	1724

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	684	171	860	1791	0.382	682	678	0.0	0.6	3.238	A
2 - A470 (E)	1352	338	105	2581	0.524	1348	1438	0.0	1.1	2.909	A
3 - BikePark Wales Access	42	10	1447	573	0.073	41	5	0.0	0.1	6.766	A
4 - A470 (W)	943	236	598	2348	0.402	940	890	0.0	0.7	2.554	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	817	204	1029	1690	0.484	816	811	0.6	0.9	4.112	A
2 - A470 (E)	1614	404	125	2568	0.629	1612	1720	1.1	1.7	3.757	A
3 - BikePark Wales Access	50	12	1731	457	0.109	50	6	0.1	0.1	8.840	A
4 - A470 (W)	1126	281	716	2266	0.497	1125	1065	0.7	1.0	3.151	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1001	250	1259	1552	0.645	997	992	0.9	1.8	6.453	A
2 - A470 (E)	1977	494	153	2550	0.775	1970	2103	1.7	3.4	6.145	A
3 - BikePark Wales Access	61	15	2116	299	0.204	60	8	0.1	0.3	15.076	C
4 - A470 (W)	1379	345	875	2155	0.640	1376	1301	1.0	1.8	4.599	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1001	250	1262	1550	0.646	1001	995	1.8	1.8	6.550	A
2 - A470 (E)	1977	494	154	2549	0.776	1977	2109	3.4	3.4	6.284	A
3 - BikePark Wales Access	61	15	2123	296	0.206	61	8	0.3	0.3	15.324	C
4 - A470 (W)	1379	345	878	2153	0.640	1379	1306	1.8	1.8	4.648	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	817	204	1033	1687	0.484	821	816	1.8	0.9	4.168	A
2 - A470 (E)	1614	404	126	2567	0.629	1621	1728	3.4	1.7	3.830	A
3 - BikePark Wales Access	50	12	1741	453	0.110	50	6	0.3	0.1	8.959	A
4 - A470 (W)	1126	281	720	2263	0.497	1129	1071	1.8	1.0	3.182	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	684	171	864	1789	0.382	686	681	0.9	0.6	3.267	A
2 - A470 (E)	1352	338	105	2581	0.524	1354	1445	1.7	1.1	2.942	A
3 - BikePark Wales Access	42	10	1454	570	0.073	42	5	0.1	0.1	6.817	A
4 - A470 (W)	943	236	602	2345	0.402	944	894	1.0	0.7	2.570	A

A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development, Saturday

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	5.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2026 plus Committed Development	Saturday	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	886	100.000
2 - A470 (E)		ONE HOUR	✓	1796	100.000
3 - BikePark Wales Access		ONE HOUR	✓	13	100.000
4 - A470 (W)		ONE HOUR	✓	868	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	771	19	95
	2 - A470 (E)	725	0	14	1057
	3 - BikePark Wales Access	3	3	0	7
	4 - A470 (W)	127	726	14	0.94

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	2
	2 - A470 (E)	7	0	0	1
	3 - BikePark Wales Access	35	0	0	3
	4 - A470 (W)	1	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.55	4.46	1.2	A	813	1219
2 - A470 (E)	0.78	6.49	3.5	A	1648	2473
3 - BikePark Wales Access	0.05	13.37	0.1	B	12	18
4 - A470 (W)	0.43	2.88	0.8	A	796	1194

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	667	167	558	1933	0.345	665	642	0.0	0.5	2.832	A
2 - A470 (E)	1352	338	97	2561	0.528	1348	1126	0.0	1.1	2.957	A
3 - BikePark Wales Access	10	2	1409	533	0.018	10	36	0.0	0.0	6.873	A
4 - A470 (W)	653	163	549	2393	0.273	652	870	0.0	0.4	2.065	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	796	199	668	1870	0.426	795	768	0.5	0.7	3.347	A
2 - A470 (E)	1615	404	116	2549	0.634	1613	1347	1.1	1.7	3.835	A
3 - BikePark Wales Access	12	3	1686	428	0.027	12	43	0.0	0.0	8.637	A
4 - A470 (W)	780	195	656	2315	0.337	780	1041	0.4	0.5	2.345	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	975	244	817	1783	0.547	973	939	0.7	1.2	4.438	A
2 - A470 (E)	1978	494	142	2532	0.781	1971	1649	1.7	3.5	6.338	A
3 - BikePark Wales Access	14	4	2061	286	0.050	14	52	0.0	0.1	13.228	B
4 - A470 (W)	955	239	802	2208	0.433	954	1273	0.5	0.8	2.868	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	975	244	818	1782	0.547	975	942	1.2	1.2	4.460	A
2 - A470 (E)	1978	494	142	2532	0.781	1978	1651	3.5	3.5	6.492	A
3 - BikePark Wales Access	14	4	2068	284	0.050	14	52	0.1	0.1	13.365	B
4 - A470 (W)	955	239	805	2206	0.433	955	1277	0.8	0.8	2.878	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	796	199	669	1869	0.426	798	772	1.2	0.7	3.368	A
2 - A470 (E)	1615	404	116	2548	0.634	1622	1351	3.5	1.7	3.914	A
3 - BikePark Wales Access	12	3	1696	425	0.028	12	43	0.1	0.0	8.717	A
4 - A470 (W)	780	195	660	2312	0.337	781	1047	0.8	0.5	2.352	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	667	167	560	1932	0.345	668	645	0.7	0.5	2.847	A
2 - A470 (E)	1352	338	97	2561	0.528	1355	1130	1.7	1.1	2.990	A
3 - BikePark Wales Access	10	2	1416	531	0.018	10	36	0.0	0.0	6.913	A
4 - A470 (W)	653	163	551	2391	0.273	654	875	0.5	0.4	2.072	A

A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Average Rhydycar West, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	9.26	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2026 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	976	100.000
2 - A470 (E)		ONE HOUR	✓	1998	100.000
3 - BikePark Wales Access		ONE HOUR	✓	14	100.000
4 - A470 (W)		ONE HOUR	✓	1072	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	844	20	113
	2 - A470 (E)	793	0	15	1190
	3 - BikePark Wales Access	3	3	0	8
	4 - A470 (W)	160	896	15	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	7
	2 - A470 (E)	7	0	0	4
	3 - BikePark Wales Access	36	0	0	14
	4 - A470 (W)	3	5	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.66	6.37	1.9	A	896	1344
2 - A470 (E)	0.89	13.35	7.8	B	1834	2750
3 - BikePark Wales Access	0.09	24.17	0.1	C	13	19
4 - A470 (W)	0.57	4.02	1.3	A	984	1476

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	735	184	687	1832	0.401	732	718	0.0	0.7	3.265	A
2 - A470 (E)	1504	376	112	2499	0.602	1498	1307	0.0	1.5	3.576	A
3 - BikePark Wales Access	10	3	1572	433	0.024	10	38	0.0	0.0	8.517	A
4 - A470 (W)	807	202	599	2273	0.355	805	983	0.0	0.5	2.450	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	878	219	822	1751	0.501	876	858	0.7	1.0	4.109	A
2 - A470 (E)	1796	449	134	2484	0.723	1792	1564	1.5	2.6	5.170	A
3 - BikePark Wales Access	12	3	1881	320	0.039	12	46	0.0	0.0	11.694	B
4 - A470 (W)	964	241	717	2190	0.440	963	1176	0.5	0.8	2.934	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1075	269	1006	1641	0.655	1072	1045	1.0	1.9	6.283	A
2 - A470 (E)	2200	550	164	2464	0.893	2181	1913	2.6	7.4	11.955	B
3 - BikePark Wales Access	15	4	2289	171	0.089	15	56	0.0	0.1	23.086	C
4 - A470 (W)	1181	295	872	2080	0.568	1179	1431	0.8	1.3	3.985	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1075	269	1007	1640	0.656	1075	1053	1.9	1.9	6.370	A
2 - A470 (E)	2200	550	164	2464	0.893	2198	1918	7.4	7.8	13.354	B
3 - BikePark Wales Access	15	4	2307	164	0.093	15	56	0.1	0.1	24.165	C
4 - A470 (W)	1181	295	880	2075	0.569	1181	1443	1.3	1.3	4.025	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	878	219	824	1750	0.502	881	869	1.9	1.0	4.163	A
2 - A470 (E)	1796	449	135	2484	0.723	1817	1571	7.8	2.7	5.560	A
3 - BikePark Wales Access	12	3	1906	311	0.040	13	46	0.1	0.0	12.080	B
4 - A470 (W)	964	241	727	2183	0.442	966	1191	1.3	0.8	2.963	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	735	184	690	1830	0.402	736	722	1.0	0.7	3.293	A
2 - A470 (E)	1504	376	113	2498	0.602	1509	1314	2.7	1.5	3.653	A
3 - BikePark Wales Access	10	3	1583	429	0.024	10	38	0.0	0.0	8.605	A
4 - A470 (W)	807	202	604	2270	0.356	808	990	0.8	0.6	2.466	A

A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Average Rhydycar West, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	7.74	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D11	2026 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	938	100.000
2 - A470 (E)		ONE HOUR	✓	1922	100.000
3 - BikePark Wales Access		ONE HOUR	✓	55	100.000
4 - A470 (W)		ONE HOUR	✓	1353	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	769	0	169
	2 - A470 (E)	759	1	7	1155
	3 - BikePark Wales Access	17	20	0	17
	4 - A470 (W)	146	1207	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	4	0	2
	2 - A470 (E)	3	0	0	2
	3 - BikePark Wales Access	0	0	0	0
	4 - A470 (W)	2	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.69	7.83	2.2	A	861	1291
2 - A470 (E)	0.84	8.87	5.1	A	1764	2646
3 - BikePark Wales Access	0.27	22.25	0.4	C	51	76
4 - A470 (W)	0.69	5.48	2.2	A	1242	1862

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	706	177	922	1751	0.403	704	692	0.0	0.7	3.428	A
2 - A470 (E)	1447	362	127	2559	0.566	1442	1499	0.0	1.3	3.209	A
3 - BikePark Wales Access	42	10	1563	523	0.080	41	5	0.0	0.1	7.463	A
4 - A470 (W)	1019	255	598	2340	0.435	1016	1006	0.0	0.8	2.713	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	843	211	1103	1642	0.514	842	828	0.7	1.0	4.489	A
2 - A470 (E)	1728	432	151	2543	0.680	1725	1793	1.3	2.1	4.384	A
3 - BikePark Wales Access	50	12	1870	397	0.125	50	6	0.1	0.1	10.350	B
4 - A470 (W)	1216	304	716	2259	0.539	1215	1204	0.8	1.2	3.445	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1033	258	1348	1494	0.691	1028	1010	1.0	2.2	7.651	A
2 - A470 (E)	2116	529	185	2521	0.840	2105	2192	2.1	4.9	8.434	A
3 - BikePark Wales Access	61	15	2282	227	0.268	60	8	0.1	0.4	21.415	C
4 - A470 (W)	1490	372	873	2149	0.693	1486	1469	1.2	2.2	5.388	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1033	258	1352	1492	0.692	1033	1015	2.2	2.2	7.834	A
2 - A470 (E)	2116	529	186	2520	0.840	2116	2199	4.9	5.1	8.870	A
3 - BikePark Wales Access	61	15	2294	223	0.274	61	8	0.4	0.4	22.250	C
4 - A470 (W)	1490	372	878	2146	0.694	1490	1477	2.2	2.2	5.481	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	843	211	1108	1639	0.515	848	835	2.2	1.1	4.576	A
2 - A470 (E)	1728	432	153	2542	0.680	1740	1804	5.1	2.2	4.552	A
3 - BikePark Wales Access	50	12	1886	391	0.128	51	6	0.4	0.1	10.619	B
4 - A470 (W)	1216	304	722	2254	0.540	1221	1214	2.2	1.2	3.496	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	706	177	926	1749	0.404	708	696	1.1	0.7	3.466	A
2 - A470 (E)	1447	362	127	2559	0.566	1451	1507	2.2	1.3	3.260	A
3 - BikePark Wales Access	42	10	1572	520	0.080	42	5	0.1	0.1	7.541	A
4 - A470 (W)	1019	255	602	2337	0.436	1020	1012	1.2	0.8	2.735	A

A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Average Rhydycar West, Saturday

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	7.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2026 plus Committed Development and Average Rhydycar West	Saturday	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	927	100.000
2 - A470 (E)		ONE HOUR	✓	1974	100.000
3 - BikePark Wales Access		ONE HOUR	✓	13	100.000
4 - A470 (W)		ONE HOUR	✓	1040	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	771	19	136
	2 - A470 (E)	725	0	14	1234
	3 - BikePark Wales Access	3	3	0	7
	4 - A470 (W)	160	866	14	0.94

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	3
	2 - A470 (E)	7	0	0	2
	3 - BikePark Wales Access	35	0	0	3
	4 - A470 (W)	2	2	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.60	5.40	1.5	A	850	1275
2 - A470 (E)	0.87	11.10	6.5	B	1811	2717
3 - BikePark Wales Access	0.08	20.51	0.1	C	12	18
4 - A470 (W)	0.52	3.46	1.1	A	954	1432

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	698	174	663	1868	0.373	695	666	0.0	0.6	3.062	A
2 - A470 (E)	1486	371	128	2533	0.587	1480	1231	0.0	1.4	3.402	A
3 - BikePark Wales Access	10	2	1572	470	0.021	10	36	0.0	0.0	7.828	A
4 - A470 (W)	783	196	548	2372	0.330	781	1034	0.0	0.5	2.260	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	833	208	793	1792	0.465	832	797	0.6	0.9	3.747	A
2 - A470 (E)	1774	444	153	2516	0.705	1771	1472	1.4	2.3	4.803	A
3 - BikePark Wales Access	12	3	1881	352	0.033	12	43	0.0	0.0	10.571	B
4 - A470 (W)	935	234	656	2294	0.408	934	1236	0.5	0.7	2.647	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1020	255	971	1688	0.604	1018	972	0.9	1.5	5.352	A
2 - A470 (E)	2173	543	187	2494	0.871	2158	1802	2.3	6.2	10.256	B
3 - BikePark Wales Access	14	4	2292	195	0.073	14	52	0.0	0.1	19.841	C
4 - A470 (W)	1145	286	799	2190	0.523	1144	1507	0.7	1.1	3.437	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1020	255	972	1687	0.605	1020	977	1.5	1.5	5.398	A
2 - A470 (E)	2173	543	187	2494	0.871	2172	1805	6.2	6.5	11.099	B
3 - BikePark Wales Access	14	4	2307	190	0.075	14	52	0.1	0.1	20.513	C
4 - A470 (W)	1145	286	805	2186	0.524	1145	1517	1.1	1.1	3.458	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	833	208	795	1791	0.465	836	804	1.5	0.9	3.778	A
2 - A470 (E)	1774	444	153	2516	0.705	1790	1478	6.5	2.4	5.070	A
3 - BikePark Wales Access	12	3	1901	344	0.034	12	43	0.1	0.0	10.832	B
4 - A470 (W)	935	234	663	2288	0.409	937	1250	1.1	0.7	2.665	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	698	174	666	1867	0.374	699	670	0.9	0.6	3.084	A
2 - A470 (E)	1486	371	128	2532	0.587	1490	1236	2.4	1.4	3.468	A
3 - BikePark Wales Access	10	2	1582	466	0.021	10	36	0.0	0.0	7.899	A
4 - A470 (W)	783	196	552	2369	0.331	784	1040	0.7	0.5	2.273	A

A470 / A4060 / BikePark Wales Access - 2031 Forecast, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	10.25	B

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
D13	2031 Forecast	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	1002	100.000
2 - A470 (E)		ONE HOUR	✓	2040	100.000
3 - BikePark Wales Access		ONE HOUR	✓	10	100.000
4 - A470 (W)		ONE HOUR	✓	1041	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	880	14	108
	2 - A470 (E)	828	0	10	1202
	3 - BikePark Wales Access	2	2	0	6
	4 - A470 (W)	154	876	10	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	7
	2 - A470 (E)	7	0	0	4
	3 - BikePark Wales Access	50	0	0	20
	4 - A470 (W)	3	5	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.67	6.51	2.0	A	920	1380
2 - A470 (E)	0.91	15.18	9.0	C	1872	2808
3 - BikePark Wales Access	0.08	28.01	0.1	D	9	14
4 - A470 (W)	0.56	3.98	1.3	A	955	1433

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	755	189	668	1843	0.409	752	738	0.0	0.7	3.291	A
2 - A470 (E)	1536	384	100	2507	0.613	1530	1320	0.0	1.6	3.660	A
3 - BikePark Wales Access	8	2	1604	399	0.019	8	26	0.0	0.0	9.189	A
4 - A470 (W)	784	196	624	2257	0.347	782	987	0.0	0.5	2.436	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	901	225	799	1765	0.511	900	883	0.7	1.0	4.155	A
2 - A470 (E)	1834	458	120	2493	0.735	1829	1579	1.6	2.7	5.382	A
3 - BikePark Wales Access	9	2	1918	290	0.032	9	31	0.0	0.0	12.802	B
4 - A470 (W)	936	234	747	2171	0.431	935	1181	0.5	0.8	2.911	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1104	276	978	1657	0.666	1100	1074	1.0	2.0	6.415	A
2 - A470 (E)	2246	562	146	2476	0.907	2223	1931	2.7	8.4	13.213	B
3 - BikePark Wales Access	11	3	2332	147	0.077	11	37	0.0	0.1	26.458	D
4 - A470 (W)	1146	287	907	2057	0.557	1144	1436	0.8	1.2	3.933	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1104	276	979	1656	0.666	1104	1083	2.0	2.0	6.509	A
2 - A470 (E)	2246	562	147	2475	0.907	2244	1936	8.4	9.0	15.175	C
3 - BikePark Wales Access	11	3	2353	140	0.081	11	38	0.1	0.1	28.006	D
4 - A470 (W)	1146	287	916	2051	0.559	1146	1448	1.2	1.3	3.976	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	901	225	801	1763	0.511	905	895	2.0	1.1	4.211	A
2 - A470 (E)	1834	458	120	2493	0.736	1859	1586	9.0	2.8	5.885	A
3 - BikePark Wales Access	9	2	1948	280	0.033	9	31	0.1	0.0	13.313	B
4 - A470 (W)	936	234	759	2162	0.433	938	1199	1.3	0.8	2.946	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	755	189	671	1841	0.410	756	743	1.1	0.7	3.322	A
2 - A470 (E)	1536	384	101	2506	0.613	1541	1326	2.8	1.6	3.746	A
3 - BikePark Wales Access	8	2	1616	395	0.020	8	26	0.0	0.0	9.292	A
4 - A470 (W)	784	196	629	2254	0.348	785	994	0.8	0.5	2.451	A

A470 / A4060 / BikePark Wales Access - 2031 Forecast, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	6.84	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
D14	2031 Forecast	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	949	100.000
2 - A470 (E)		ONE HOUR	✓	1870	100.000
3 - BikePark Wales Access		ONE HOUR	✓	43	100.000
4 - A470 (W)		ONE HOUR	✓	1308	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	804	0	146
	2 - A470 (E)	792	1	2	1074
	3 - BikePark Wales Access	14	16	0	14
	4 - A470 (W)	133	1175	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	4	0	1
	2 - A470 (E)	3	0	0	2
	3 - BikePark Wales Access	0	0	0	0
	4 - A470 (W)	1	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.69	7.57	2.2	A	871	1307
2 - A470 (E)	0.81	7.39	4.2	A	1716	2574
3 - BikePark Wales Access	0.19	17.16	0.2	C	40	60
4 - A470 (W)	0.67	5.19	2.1	A	1200	1800

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	715	179	894	1771	0.404	712	705	0.0	0.7	3.391	A
2 - A470 (E)	1408	352	109	2578	0.546	1403	1497	0.0	1.2	3.051	A
3 - BikePark Wales Access	33	8	1511	547	0.060	32	2	0.0	0.1	6.990	A
4 - A470 (W)	985	246	617	2334	0.422	982	926	0.0	0.7	2.656	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	853	213	1070	1665	0.512	852	843	0.7	1.0	4.416	A
2 - A470 (E)	1681	420	131	2564	0.656	1678	1791	1.2	1.9	4.053	A
3 - BikePark Wales Access	39	10	1807	425	0.091	39	2	0.1	0.1	9.311	A
4 - A470 (W)	1176	294	739	2250	0.523	1174	1107	0.7	1.1	3.342	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1045	261	1309	1522	0.687	1041	1030	1.0	2.1	7.412	A
2 - A470 (E)	2059	515	160	2545	0.809	2050	2190	1.9	4.1	7.150	A
3 - BikePark Wales Access	48	12	2207	261	0.182	47	2	0.1	0.2	16.793	C
4 - A470 (W)	1440	360	902	2136	0.674	1436	1353	1.1	2.0	5.114	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1045	261	1312	1520	0.688	1045	1034	2.1	2.2	7.575	A
2 - A470 (E)	2059	515	160	2545	0.809	2059	2197	4.1	4.2	7.393	A
3 - BikePark Wales Access	48	12	2217	257	0.185	48	3	0.2	0.2	17.161	C
4 - A470 (W)	1440	360	906	2134	0.675	1440	1358	2.0	2.1	5.187	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	853	213	1075	1663	0.513	858	848	2.2	1.1	4.499	A
2 - A470 (E)	1681	420	132	2563	0.656	1690	1801	4.2	1.9	4.164	A
3 - BikePark Wales Access	39	10	1820	420	0.093	39	2	0.2	0.1	9.464	A
4 - A470 (W)	1176	294	744	2246	0.523	1179	1115	2.1	1.1	3.388	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	715	179	899	1769	0.404	716	708	1.1	0.7	3.427	A
2 - A470 (E)	1408	352	110	2578	0.546	1411	1505	1.9	1.2	3.094	A
3 - BikePark Wales Access	33	8	1519	544	0.060	33	2	0.1	0.1	7.047	A
4 - A470 (W)	985	246	621	2332	0.422	986	931	1.1	0.7	2.677	A

A470 / A4060 / BikePark Wales Access - 2031 Forecast, Saturday

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	5.82	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D15	2031 Forecast	Saturday	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	919	100.000
2 - A470 (E)		ONE HOUR	✓	1875	100.000
3 - BikePark Wales Access		ONE HOUR	✓	9	100.000
4 - A470 (W)		ONE HOUR	✓	903	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	807	13	100
	2 - A470 (E)	759	0	9	1106
	3 - BikePark Wales Access	2	2	0	5
	4 - A470 (W)	133	759	9	0.99

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	2
	2 - A470 (E)	7	0	0	1
	3 - BikePark Wales Access	50	0	0	4
	4 - A470 (W)	1	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.57	4.79	1.3	A	844	1266
2 - A470 (E)	0.81	7.60	4.3	A	1720	2580
3 - BikePark Wales Access	0.04	15.81	0.0	C	9	13
4 - A470 (W)	0.46	3.03	0.8	A	828	1242

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	692	173	579	1920	0.360	690	671	0.0	0.6	2.921	A
2 - A470 (E)	1411	353	92	2564	0.550	1406	1178	0.0	1.2	3.097	A
3 - BikePark Wales Access	7	2	1475	490	0.014	7	23	0.0	0.0	7.452	A
4 - A470 (W)	680	170	573	2376	0.286	678	909	0.0	0.4	2.119	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	827	207	693	1854	0.446	826	803	0.6	0.8	3.496	A
2 - A470 (E)	1685	421	110	2552	0.660	1682	1409	1.2	1.9	4.125	A
3 - BikePark Wales Access	8	2	1764	384	0.022	8	28	0.0	0.0	9.580	A
4 - A470 (W)	811	203	685	2293	0.354	811	1088	0.4	0.5	2.427	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1012	253	848	1764	0.574	1010	981	0.8	1.3	4.763	A
2 - A470 (E)	2064	516	134	2537	0.814	2055	1724	1.9	4.2	7.337	A
3 - BikePark Wales Access	10	3	2155	241	0.043	10	34	0.0	0.0	15.576	C
4 - A470 (W)	994	248	837	2182	0.455	993	1329	0.5	0.8	3.023	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1012	253	849	1763	0.574	1012	985	1.3	1.3	4.792	A
2 - A470 (E)	2064	516	134	2536	0.814	2064	1727	4.2	4.3	7.599	A
3 - BikePark Wales Access	10	3	2164	238	0.044	10	34	0.0	0.0	15.810	C
4 - A470 (W)	994	248	840	2180	0.456	994	1334	0.8	0.8	3.034	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	827	207	694	1853	0.446	829	808	1.3	0.8	3.522	A
2 - A470 (E)	1685	421	110	2552	0.660	1694	1413	4.3	2.0	4.240	A
3 - BikePark Wales Access	8	2	1777	380	0.022	9	28	0.0	0.0	9.700	A
4 - A470 (W)	811	203	690	2290	0.354	813	1095	0.8	0.6	2.438	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	692	173	581	1919	0.361	693	675	0.8	0.6	2.940	A
2 - A470 (E)	1411	353	92	2564	0.550	1414	1182	2.0	1.2	3.141	A
3 - BikePark Wales Access	7	2	1483	487	0.015	7	23	0.0	0.0	7.499	A
4 - A470 (W)	680	170	576	2373	0.286	680	914	0.6	0.4	2.128	A

A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	10.74	B

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
D16	2031 plus Committed Development	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	1010	100.000
2 - A470 (E)		ONE HOUR	✓	2045	100.000
3 - BikePark Wales Access		ONE HOUR	✓	14	100.000
4 - A470 (W)		ONE HOUR	✓	1046	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	880	21	108
	2 - A470 (E)	828	0	16	1202
	3 - BikePark Wales Access	3	3	0	8
	4 - A470 (W)	154	876	16	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	7
	2 - A470 (E)	7	0	0	4
	3 - BikePark Wales Access	36	0	0	14
	4 - A470 (W)	3	5	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.67	6.64	2.0	A	926	1390
2 - A470 (E)	0.91	16.07	9.5	C	1877	2815
3 - BikePark Wales Access	0.11	27.32	0.1	D	13	20
4 - A470 (W)	0.56	4.01	1.3	A	960	1440

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	760	190	673	1841	0.413	757	739	0.0	0.7	3.313	A
2 - A470 (E)	1540	385	109	2501	0.616	1534	1320	0.0	1.6	3.697	A
3 - BikePark Wales Access	11	3	1604	421	0.026	11	39	0.0	0.0	8.776	A
4 - A470 (W)	788	197	626	2257	0.349	786	989	0.0	0.5	2.444	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	908	227	805	1762	0.515	906	883	0.7	1.1	4.199	A
2 - A470 (E)	1839	460	131	2487	0.739	1834	1580	1.6	2.8	5.475	A
3 - BikePark Wales Access	13	3	1918	306	0.042	13	47	0.0	0.0	12.273	B
4 - A470 (W)	941	235	748	2170	0.433	940	1183	0.5	0.8	2.924	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1112	278	985	1654	0.672	1108	1074	1.1	2.0	6.542	A
2 - A470 (E)	2252	563	160	2467	0.913	2228	1932	2.8	8.9	13.807	B
3 - BikePark Wales Access	16	4	2331	155	0.101	15	57	0.0	0.1	25.666	D
4 - A470 (W)	1152	288	909	2057	0.560	1150	1437	0.8	1.3	3.961	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1112	278	986	1653	0.672	1111	1083	2.0	2.0	6.643	A
2 - A470 (E)	2252	563	161	2467	0.913	2249	1937	8.9	9.5	16.072	C
3 - BikePark Wales Access	16	4	2352	147	0.106	16	57	0.1	0.1	27.316	D
4 - A470 (W)	1152	288	918	2051	0.562	1152	1451	1.3	1.3	4.006	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	908	227	807	1761	0.516	911	897	2.0	1.1	4.258	A
2 - A470 (E)	1839	460	132	2486	0.740	1865	1587	9.5	2.9	6.037	A
3 - BikePark Wales Access	13	3	1950	294	0.044	13	47	0.1	0.0	12.808	B
4 - A470 (W)	941	235	761	2161	0.435	943	1202	1.3	0.8	2.960	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	760	190	675	1840	0.413	761	744	1.1	0.7	3.343	A
2 - A470 (E)	1540	385	110	2501	0.616	1545	1327	2.9	1.6	3.786	A
3 - BikePark Wales Access	11	3	1616	416	0.026	11	39	0.0	0.0	8.878	A
4 - A470 (W)	788	197	630	2254	0.350	789	996	0.8	0.5	2.460	A

A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	6.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D17	2031 plus Committed Development	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	949	100.000
2 - A470 (E)		ONE HOUR	✓	1875	100.000
3 - BikePark Wales Access		ONE HOUR	✓	57	100.000
4 - A470 (W)		ONE HOUR	✓	1308	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	804	0	146
	2 - A470 (E)	792	1	7	1074
	3 - BikePark Wales Access	18	21	0	18
	4 - A470 (W)	133	1175	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	4	0	1
	2 - A470 (E)	3	0	0	2
	3 - BikePark Wales Access	0	0	0	0
	4 - A470 (W)	1	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.69	7.63	2.2	A	871	1307
2 - A470 (E)	0.81	7.48	4.2	A	1721	2581
3 - BikePark Wales Access	0.24	18.52	0.3	C	53	79
4 - A470 (W)	0.68	5.24	2.1	A	1200	1800

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	715	179	898	1769	0.404	712	708	0.0	0.7	3.398	A
2 - A470 (E)	1412	353	109	2578	0.548	1407	1501	0.0	1.2	3.061	A
3 - BikePark Wales Access	43	11	1511	547	0.079	43	5	0.0	0.1	7.134	A
4 - A470 (W)	985	246	624	2330	0.423	982	929	0.0	0.7	2.665	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	853	213	1075	1663	0.513	852	847	0.7	1.0	4.431	A
2 - A470 (E)	1686	421	131	2564	0.657	1683	1796	1.2	1.9	4.071	A
3 - BikePark Wales Access	51	13	1807	425	0.121	51	7	0.1	0.1	9.617	A
4 - A470 (W)	1176	294	747	2244	0.524	1174	1111	0.7	1.1	3.360	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1045	261	1314	1519	0.688	1041	1034	1.0	2.2	7.463	A
2 - A470 (E)	2064	516	160	2545	0.811	2056	2195	1.9	4.1	7.223	A
3 - BikePark Wales Access	63	16	2207	261	0.241	62	8	0.1	0.3	18.048	C
4 - A470 (W)	1440	360	912	2129	0.676	1436	1357	1.1	2.1	5.164	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1045	261	1318	1517	0.689	1045	1039	2.2	2.2	7.628	A
2 - A470 (E)	2064	516	160	2545	0.811	2064	2202	4.1	4.2	7.476	A
3 - BikePark Wales Access	63	16	2217	257	0.245	63	8	0.3	0.3	18.519	C
4 - A470 (W)	1440	360	916	2126	0.677	1440	1363	2.1	2.1	5.241	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	853	213	1080	1660	0.514	858	853	2.2	1.1	4.515	A
2 - A470 (E)	1686	421	132	2564	0.658	1695	1806	4.2	1.9	4.186	A
3 - BikePark Wales Access	51	13	1820	420	0.122	52	7	0.3	0.1	9.800	A
4 - A470 (W)	1176	294	753	2240	0.525	1180	1119	2.1	1.1	3.405	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	715	179	902	1766	0.405	716	712	1.1	0.7	3.435	A
2 - A470 (E)	1412	353	110	2578	0.548	1415	1509	1.9	1.2	3.101	A
3 - BikePark Wales Access	43	11	1519	544	0.079	43	5	0.1	0.1	7.197	A
4 - A470 (W)	985	246	628	2327	0.423	986	934	1.1	0.7	2.689	A

A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development, Saturday

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	5.97	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D18	2031 plus Committed Development	Saturday	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	927	100.000
2 - A470 (E)		ONE HOUR	✓	1880	100.000
3 - BikePark Wales Access		ONE HOUR	✓	13	100.000
4 - A470 (W)		ONE HOUR	✓	908	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	807	20	100
	2 - A470 (E)	759	0	15	1106
	3 - BikePark Wales Access	3	3	0	7
	4 - A470 (W)	133	759	14	0.99

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	2
	2 - A470 (E)	7	0	0	1
	3 - BikePark Wales Access	35	0	0	3
	4 - A470 (W)	1	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.58	4.86	1.4	A	850	1275
2 - A470 (E)	0.82	7.84	4.4	A	1725	2588
3 - BikePark Wales Access	0.06	15.52	0.1	C	12	18
4 - A470 (W)	0.46	3.05	0.8	A	833	1250

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	698	174	584	1918	0.364	695	672	0.0	0.6	2.939	A
2 - A470 (E)	1415	354	101	2558	0.553	1410	1178	0.0	1.2	3.124	A
3 - BikePark Wales Access	10	3	1475	508	0.020	10	37	0.0	0.0	7.230	A
4 - A470 (W)	684	171	574	2375	0.288	682	911	0.0	0.4	2.125	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	833	208	699	1852	0.450	832	804	0.6	0.8	3.527	A
2 - A470 (E)	1690	423	121	2545	0.664	1687	1410	1.2	1.9	4.180	A
3 - BikePark Wales Access	12	3	1764	398	0.030	12	44	0.0	0.0	9.319	A
4 - A470 (W)	816	204	687	2292	0.356	816	1090	0.4	0.6	2.436	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1020	255	855	1761	0.579	1018	982	0.8	1.4	4.833	A
2 - A470 (E)	2070	517	148	2528	0.819	2060	1725	1.9	4.3	7.550	A
3 - BikePark Wales Access	15	4	2155	250	0.059	15	54	0.0	0.1	15.270	C
4 - A470 (W)	1000	250	839	2181	0.458	999	1331	0.6	0.8	3.041	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1020	255	856	1760	0.580	1020	986	1.4	1.4	4.865	A
2 - A470 (E)	2070	517	148	2528	0.819	2070	1728	4.3	4.4	7.839	A
3 - BikePark Wales Access	15	4	2164	247	0.060	15	54	0.1	0.1	15.518	C
4 - A470 (W)	1000	250	842	2179	0.459	1000	1336	0.8	0.8	3.053	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	833	208	700	1851	0.450	835	809	1.4	0.8	3.551	A
2 - A470 (E)	1690	423	121	2545	0.664	1700	1414	4.4	2.0	4.305	A
3 - BikePark Wales Access	12	3	1777	393	0.031	12	44	0.1	0.0	9.447	A
4 - A470 (W)	816	204	692	2289	0.357	817	1097	0.8	0.6	2.450	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	698	174	586	1917	0.364	699	676	0.8	0.6	2.958	A
2 - A470 (E)	1415	354	101	2558	0.553	1418	1183	2.0	1.2	3.169	A
3 - BikePark Wales Access	10	3	1483	505	0.020	10	37	0.0	0.0	7.277	A
4 - A470 (W)	684	171	577	2372	0.288	684	916	0.6	0.4	2.134	A

A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Average Rhydycar West, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	12.87	B

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
D19	2031 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	1018	100.000
2 - A470 (E)		ONE HOUR	✓	2084	100.000
3 - BikePark Wales Access		ONE HOUR	✓	14	100.000
4 - A470 (W)		ONE HOUR	✓	1116	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	880	21	117
	2 - A470 (E)	828	0	16	1240
	3 - BikePark Wales Access	3	3	0	8
	4 - A470 (W)	167	932	16	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	7
	2 - A470 (E)	7	0	0	4
	3 - BikePark Wales Access	36	0	0	14
	4 - A470 (W)	3	5	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.69	7.28	2.2	A	935	1402
2 - A470 (E)	0.93	19.99	12.0	C	1912	2868
3 - BikePark Wales Access	0.12	31.77	0.1	D	13	20
4 - A470 (W)	0.60	4.39	1.5	A	1024	1536

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	767	192	715	1815	0.422	764	748	0.0	0.7	3.413	A
2 - A470 (E)	1569	392	116	2496	0.629	1562	1363	0.0	1.7	3.827	A
3 - BikePark Wales Access	11	3	1639	408	0.026	11	39	0.0	0.0	9.064	A
4 - A470 (W)	840	210	625	2254	0.373	838	1024	0.0	0.6	2.537	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	916	229	855	1731	0.529	914	895	0.7	1.1	4.398	A
2 - A470 (E)	1873	468	139	2481	0.755	1868	1630	1.7	3.0	5.823	A
3 - BikePark Wales Access	13	3	1960	291	0.044	13	47	0.0	0.0	12.958	B
4 - A470 (W)	1003	251	748	2168	0.463	1002	1225	0.6	0.9	3.085	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1121	280	1046	1616	0.694	1117	1086	1.1	2.2	7.145	A
2 - A470 (E)	2294	574	170	2460	0.933	2263	1994	3.0	10.8	16.195	C
3 - BikePark Wales Access	16	4	2376	139	0.113	15	57	0.0	0.1	29.121	D
4 - A470 (W)	1229	307	906	2056	0.598	1226	1485	0.9	1.5	4.324	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1121	280	1048	1615	0.694	1121	1097	2.2	2.2	7.282	A
2 - A470 (E)	2294	574	170	2460	0.933	2290	1999	10.8	12.0	19.993	C
3 - BikePark Wales Access	16	4	2403	129	0.122	16	57	0.1	0.1	31.770	D
4 - A470 (W)	1229	307	917	2049	0.600	1229	1501	1.5	1.5	4.389	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	916	229	858	1729	0.529	920	912	2.2	1.1	4.473	A
2 - A470 (E)	1873	468	140	2480	0.755	1909	1638	12.0	3.2	6.672	A
3 - BikePark Wales Access	13	3	2001	276	0.047	13	47	0.1	0.0	13.736	B
4 - A470 (W)	1003	251	764	2156	0.465	1006	1250	1.5	0.9	3.136	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	767	192	718	1813	0.423	768	754	1.1	0.7	3.448	A
2 - A470 (E)	1569	392	117	2496	0.629	1575	1370	3.2	1.7	3.933	A
3 - BikePark Wales Access	11	3	1652	403	0.027	11	39	0.0	0.0	9.182	A
4 - A470 (W)	840	210	631	2251	0.373	841	1032	0.9	0.6	2.555	A

A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Average Rhydycar West, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	9.57	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
D20	2031 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	978	100.000
2 - A470 (E)		ONE HOUR	✓	2002	100.000
3 - BikePark Wales Access		ONE HOUR	✓	57	100.000
4 - A470 (W)		ONE HOUR	✓	1409	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	804	0	175
	2 - A470 (E)	792	1	7	1201
	3 - BikePark Wales Access	18	21	0	18
	4 - A470 (W)	152	1256	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	4	0	2
	2 - A470 (E)	3	0	0	2
	3 - BikePark Wales Access	0	0	0	0
	4 - A470 (W)	2	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.74	9.42	2.8	A	898	1347
2 - A470 (E)	0.88	11.38	6.7	B	1837	2755
3 - BikePark Wales Access	0.34	29.61	0.5	D	53	79
4 - A470 (W)	0.73	6.32	2.7	A	1293	1939

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	737	184	960	1729	0.426	734	722	0.0	0.7	3.608	A
2 - A470 (E)	1507	377	131	2556	0.589	1501	1562	0.0	1.4	3.394	A
3 - BikePark Wales Access	43	11	1627	497	0.087	43	5	0.0	0.1	7.913	A
4 - A470 (W)	1060	265	624	2322	0.457	1057	1045	0.0	0.8	2.838	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	880	220	1148	1615	0.545	878	863	0.7	1.2	4.870	A
2 - A470 (E)	1799	450	157	2539	0.709	1795	1869	1.4	2.4	4.814	A
3 - BikePark Wales Access	51	13	1946	366	0.141	51	7	0.1	0.2	11.428	B
4 - A470 (W)	1266	317	747	2237	0.566	1264	1250	0.8	1.3	3.694	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1077	269	1403	1462	0.737	1071	1052	1.2	2.7	9.079	A
2 - A470 (E)	2204	551	191	2517	0.876	2188	2282	2.4	6.4	10.455	B
3 - BikePark Wales Access	63	16	2371	191	0.330	62	8	0.2	0.5	27.629	D
4 - A470 (W)	1551	388	909	2125	0.730	1545	1524	1.3	2.6	6.158	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1077	269	1408	1459	0.739	1077	1059	2.7	2.8	9.415	A
2 - A470 (E)	2204	551	193	2516	0.876	2203	2292	6.4	6.7	11.379	B
3 - BikePark Wales Access	63	16	2387	184	0.342	63	8	0.5	0.5	29.607	D
4 - A470 (W)	1551	388	916	2120	0.732	1551	1534	2.6	2.7	6.317	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	880	220	1155	1611	0.546	886	873	2.8	1.2	5.005	A
2 - A470 (E)	1799	450	158	2538	0.709	1816	1882	6.7	2.5	5.100	A
3 - BikePark Wales Access	51	13	1968	357	0.144	53	7	0.5	0.2	11.892	B
4 - A470 (W)	1266	317	756	2231	0.568	1272	1265	2.7	1.3	3.773	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	737	184	964	1726	0.427	739	726	1.2	0.8	3.652	A
2 - A470 (E)	1507	377	132	2556	0.590	1511	1571	2.5	1.4	3.461	A
3 - BikePark Wales Access	43	11	1638	493	0.087	43	5	0.2	0.1	8.013	A
4 - A470 (W)	1060	265	629	2319	0.457	1062	1052	1.3	0.8	2.870	A

A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Average Rhydycar West, Saturday

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	10.19	B

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
D21	2031 plus Committed Development and Average Rhydycar West	Saturday	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	968	100.000
2 - A470 (E)		ONE HOUR	✓	2057	100.000
3 - BikePark Wales Access		ONE HOUR	✓	13	100.000
4 - A470 (W)		ONE HOUR	✓	1080	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	807	20	141
	2 - A470 (E)	759	0	15	1283
	3 - BikePark Wales Access	3	3	0	7
	4 - A470 (W)	166	899	14	0.99

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	3
	2 - A470 (E)	7	0	0	2
	3 - BikePark Wales Access	35	0	0	3
	4 - A470 (W)	2	2	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.64	6.00	1.8	A	888	1332
2 - A470 (E)	0.91	15.43	9.2	C	1888	2832
3 - BikePark Wales Access	0.10	25.94	0.1	D	12	18
4 - A470 (W)	0.55	3.71	1.2	A	991	1487

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	728	182	689	1853	0.393	726	696	0.0	0.6	3.187	A
2 - A470 (E)	1549	387	132	2530	0.612	1543	1283	0.0	1.6	3.623	A
3 - BikePark Wales Access	10	3	1638	444	0.023	10	37	0.0	0.0	8.289	A
4 - A470 (W)	813	203	574	2354	0.346	811	1074	0.0	0.5	2.330	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	870	217	824	1774	0.490	869	832	0.6	1.0	3.970	A
2 - A470 (E)	1850	462	158	2514	0.736	1845	1535	1.6	2.7	5.347	A
3 - BikePark Wales Access	12	3	1959	322	0.037	12	44	0.0	0.0	11.602	B
4 - A470 (W)	971	243	686	2272	0.427	970	1285	0.5	0.7	2.763	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1065	266	1009	1666	0.640	1062	1013	1.0	1.7	5.933	A
2 - A470 (E)	2265	566	193	2490	0.910	2242	1878	2.7	8.6	13.363	B
3 - BikePark Wales Access	15	4	2381	162	0.091	15	53	0.0	0.1	24.434	C
4 - A470 (W)	1190	297	834	2166	0.549	1188	1562	0.7	1.2	3.675	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1065	266	1010	1665	0.640	1065	1021	1.7	1.8	6.001	A
2 - A470 (E)	2265	566	193	2490	0.910	2263	1882	8.6	9.2	15.428	C
3 - BikePark Wales Access	15	4	2402	154	0.096	15	54	0.1	0.1	25.938	D
4 - A470 (W)	1190	297	842	2160	0.551	1189	1575	1.2	1.2	3.709	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	870	217	827	1773	0.491	873	844	1.8	1.0	4.015	A
2 - A470 (E)	1850	462	158	2513	0.736	1875	1541	9.2	2.9	5.859	A
3 - BikePark Wales Access	12	3	1989	311	0.039	12	44	0.1	0.0	12.080	B
4 - A470 (W)	971	243	697	2264	0.429	973	1304	1.2	0.8	2.791	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	728	182	692	1852	0.393	730	701	1.0	0.7	3.214	A
2 - A470 (E)	1549	387	132	2530	0.612	1554	1289	2.9	1.6	3.708	A
3 - BikePark Wales Access	10	3	1649	440	0.023	10	37	0.0	0.0	8.383	A
4 - A470 (W)	813	203	578	2351	0.346	814	1082	0.8	0.5	2.345	A

A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Peak Rhydycar West, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	9.59	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
D22	2026 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	979	100.000
2 - A470 (E)		ONE HOUR	✓	2008	100.000
3 - BikePark Wales Access		ONE HOUR	✓	14	100.000
4 - A470 (W)		ONE HOUR	✓	1073	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	844	20	115
	2 - A470 (E)	793	0	15	1200
	3 - BikePark Wales Access	3	3	0	8
	4 - A470 (W)	160	896	15	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	7
	2 - A470 (E)	7	0	0	4
	3 - BikePark Wales Access	36	0	0	14
	4 - A470 (W)	3	5	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.66	6.40	1.9	A	898	1347
2 - A470 (E)	0.90	14.00	8.2	B	1843	2765
3 - BikePark Wales Access	0.10	25.00	0.1	D	13	19
4 - A470 (W)	0.57	4.03	1.3	A	985	1477

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	737	184	687	1832	0.402	734	718	0.0	0.7	3.271	A
2 - A470 (E)	1512	378	114	2498	0.605	1506	1308	0.0	1.5	3.609	A
3 - BikePark Wales Access	10	3	1582	429	0.024	10	38	0.0	0.0	8.588	A
4 - A470 (W)	808	202	599	2273	0.355	806	992	0.0	0.5	2.451	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	880	220	822	1751	0.503	879	858	0.7	1.0	4.121	A
2 - A470 (E)	1806	451	136	2483	0.727	1801	1565	1.5	2.6	5.250	A
3 - BikePark Wales Access	12	3	1892	316	0.039	12	46	0.0	0.0	11.854	B
4 - A470 (W)	965	241	717	2190	0.441	964	1187	0.5	0.8	2.935	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1078	269	1006	1641	0.657	1074	1045	1.0	1.9	6.317	A
2 - A470 (E)	2211	553	166	2462	0.898	2191	1914	2.6	7.8	12.414	B
3 - BikePark Wales Access	15	4	2302	166	0.092	15	56	0.0	0.1	23.797	C
4 - A470 (W)	1181	295	872	2080	0.568	1179	1444	0.8	1.3	3.987	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1078	269	1008	1639	0.657	1078	1053	1.9	1.9	6.404	A
2 - A470 (E)	2211	553	167	2462	0.898	2209	1919	7.8	8.2	13.996	B
3 - BikePark Wales Access	15	4	2320	159	0.096	15	56	0.1	0.1	25.003	D
4 - A470 (W)	1181	295	879	2075	0.569	1181	1456	1.3	1.3	4.028	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	880	220	825	1749	0.503	883	869	1.9	1.0	4.173	A
2 - A470 (E)	1806	451	137	2482	0.727	1828	1572	8.2	2.7	5.676	A
3 - BikePark Wales Access	12	3	1918	306	0.041	13	46	0.1	0.0	12.273	B
4 - A470 (W)	965	241	727	2182	0.442	967	1204	1.3	0.8	2.966	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	737	184	690	1830	0.403	738	722	1.0	0.7	3.300	A
2 - A470 (E)	1512	378	114	2497	0.606	1517	1314	2.7	1.6	3.691	A
3 - BikePark Wales Access	10	3	1593	425	0.024	10	38	0.0	0.0	8.680	A
4 - A470 (W)	808	202	604	2269	0.356	809	999	0.8	0.6	2.465	A

A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Peak Rhydycar West, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	9.36	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
D23	2026 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	954	100.000
2 - A470 (E)		ONE HOUR	✓	1992	100.000
3 - BikePark Wales Access		ONE HOUR	✓	55	100.000
4 - A470 (W)		ONE HOUR	✓	1408	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	769	0	185
	2 - A470 (E)	759	1	7	1225
	3 - BikePark Wales Access	17	20	0	17
	4 - A470 (W)	157	1252	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	4	0	2
	2 - A470 (E)	3	0	0	3
	3 - BikePark Wales Access	0	0	0	0
	4 - A470 (W)	2	3	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.72	8.77	2.5	A	876	1314
2 - A470 (E)	0.88	11.42	6.7	B	1828	2742
3 - BikePark Wales Access	0.33	29.58	0.5	D	51	76
4 - A470 (W)	0.72	6.07	2.6	A	1292	1939

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	718	180	955	1729	0.415	716	700	0.0	0.7	3.541	A
2 - A470 (E)	1500	375	139	2547	0.589	1494	1532	0.0	1.4	3.400	A
3 - BikePark Wales Access	42	10	1627	496	0.084	41	5	0.0	0.1	7.911	A
4 - A470 (W)	1060	265	598	2336	0.454	1057	1071	0.0	0.8	2.807	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	858	214	1143	1616	0.531	856	837	0.7	1.1	4.726	A
2 - A470 (E)	1791	448	166	2529	0.708	1787	1833	1.4	2.4	4.824	A
3 - BikePark Wales Access	50	12	1946	364	0.137	50	6	0.1	0.2	11.425	B
4 - A470 (W)	1266	317	715	2255	0.561	1264	1281	0.8	1.3	3.627	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1051	263	1397	1463	0.718	1045	1020	1.1	2.5	8.507	A
2 - A470 (E)	2193	548	202	2505	0.875	2177	2240	2.4	6.4	10.488	B
3 - BikePark Wales Access	61	15	2372	189	0.323	60	8	0.2	0.5	27.628	D
4 - A470 (W)	1551	388	871	2147	0.722	1546	1560	1.3	2.5	5.934	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1051	263	1402	1460	0.720	1051	1027	2.5	2.5	8.773	A
2 - A470 (E)	2193	548	204	2505	0.876	2192	2249	6.4	6.7	11.416	B
3 - BikePark Wales Access	61	15	2388	182	0.335	61	8	0.5	0.5	29.584	D
4 - A470 (W)	1551	388	878	2143	0.724	1551	1571	2.5	2.6	6.073	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	858	214	1150	1612	0.532	863	846	2.5	1.2	4.843	A
2 - A470 (E)	1791	448	167	2528	0.708	1808	1846	6.7	2.5	5.108	A
3 - BikePark Wales Access	50	12	1969	355	0.140	51	7	0.5	0.2	11.882	B
4 - A470 (W)	1266	317	724	2249	0.563	1271	1295	2.6	1.3	3.703	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	718	180	960	1726	0.416	720	704	1.2	0.7	3.585	A
2 - A470 (E)	1500	375	140	2547	0.589	1504	1541	2.5	1.4	3.464	A
3 - BikePark Wales Access	42	10	1638	492	0.085	42	5	0.2	0.1	8.011	A
4 - A470 (W)	1060	265	602	2334	0.454	1062	1078	1.3	0.8	2.837	A

A470 / A4060 / BikePark Wales Access - 2026 plus Committed Development and Peak Rhydycar West, Saturday

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	7.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D24	2026 plus Committed Development and Peak Rhydycar West	Saturday	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	927	100.000
2 - A470 (E)		ONE HOUR	✓	1974	100.000
3 - BikePark Wales Access		ONE HOUR	✓	13	100.000
4 - A470 (W)		ONE HOUR	✓	1040	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	771	19	136
	2 - A470 (E)	725	0	14	1234
	3 - BikePark Wales Access	3	3	0	7
	4 - A470 (W)	160	866	14	0.94

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	3
	2 - A470 (E)	7	0	0	2
	3 - BikePark Wales Access	35	0	0	3
	4 - A470 (W)	2	2	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.60	5.40	1.5	A	850	1275
2 - A470 (E)	0.87	11.10	6.5	B	1811	2717
3 - BikePark Wales Access	0.08	20.51	0.1	C	12	18
4 - A470 (W)	0.52	3.46	1.1	A	954	1432

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	698	174	663	1868	0.373	695	666	0.0	0.6	3.062	A
2 - A470 (E)	1486	371	128	2533	0.587	1480	1231	0.0	1.4	3.402	A
3 - BikePark Wales Access	10	2	1572	470	0.021	10	36	0.0	0.0	7.828	A
4 - A470 (W)	783	196	548	2372	0.330	781	1034	0.0	0.5	2.260	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	833	208	793	1792	0.465	832	797	0.6	0.9	3.747	A
2 - A470 (E)	1774	444	153	2516	0.705	1771	1472	1.4	2.3	4.803	A
3 - BikePark Wales Access	12	3	1881	352	0.033	12	43	0.0	0.0	10.571	B
4 - A470 (W)	935	234	656	2294	0.408	934	1236	0.5	0.7	2.647	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1020	255	971	1688	0.604	1018	972	0.9	1.5	5.352	A
2 - A470 (E)	2173	543	187	2494	0.871	2158	1802	2.3	6.2	10.256	B
3 - BikePark Wales Access	14	4	2292	195	0.073	14	52	0.0	0.1	19.841	C
4 - A470 (W)	1145	286	799	2190	0.523	1144	1507	0.7	1.1	3.437	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1020	255	972	1687	0.605	1020	977	1.5	1.5	5.398	A
2 - A470 (E)	2173	543	187	2494	0.871	2172	1805	6.2	6.5	11.099	B
3 - BikePark Wales Access	14	4	2307	190	0.075	14	52	0.1	0.1	20.513	C
4 - A470 (W)	1145	286	805	2186	0.524	1145	1517	1.1	1.1	3.458	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	833	208	795	1791	0.465	836	804	1.5	0.9	3.778	A
2 - A470 (E)	1774	444	153	2516	0.705	1790	1478	6.5	2.4	5.070	A
3 - BikePark Wales Access	12	3	1901	344	0.034	12	43	0.1	0.0	10.832	B
4 - A470 (W)	935	234	663	2288	0.409	937	1250	1.1	0.7	2.665	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	698	174	666	1867	0.374	699	670	0.9	0.6	3.084	A
2 - A470 (E)	1486	371	128	2532	0.587	1490	1236	2.4	1.4	3.468	A
3 - BikePark Wales Access	10	2	1582	466	0.021	10	36	0.0	0.0	7.899	A
4 - A470 (W)	783	196	552	2369	0.331	784	1040	0.7	0.5	2.273	A

A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Peak Rhydycar West, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	13.54	B

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
D25	2031 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	1021	100.000
2 - A470 (E)		ONE HOUR	✓	2094	100.000
3 - BikePark Wales Access		ONE HOUR	✓	14	100.000
4 - A470 (W)		ONE HOUR	✓	1117	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	880	21	119
	2 - A470 (E)	828	0	16	1250
	3 - BikePark Wales Access	3	3	0	8
	4 - A470 (W)	167	933	16	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	7
	2 - A470 (E)	7	0	0	4
	3 - BikePark Wales Access	36	0	0	14
	4 - A470 (W)	3	5	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.70	7.33	2.3	A	937	1405
2 - A470 (E)	0.94	21.30	12.8	C	1922	2882
3 - BikePark Wales Access	0.13	33.17	0.1	D	13	20
4 - A470 (W)	0.60	4.39	1.5	A	1025	1537

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	768	192	715	1815	0.423	766	748	0.0	0.7	3.420	A
2 - A470 (E)	1577	394	118	2495	0.632	1570	1363	0.0	1.7	3.865	A
3 - BikePark Wales Access	11	3	1648	404	0.027	11	39	0.0	0.0	9.143	A
4 - A470 (W)	841	210	625	2254	0.373	838	1034	0.0	0.6	2.538	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	918	229	856	1731	0.530	916	895	0.7	1.1	4.411	A
2 - A470 (E)	1883	471	141	2479	0.759	1877	1631	1.7	3.1	5.923	A
3 - BikePark Wales Access	13	3	1971	286	0.045	13	47	0.0	0.0	13.152	B
4 - A470 (W)	1004	251	748	2168	0.463	1003	1236	0.6	0.9	3.087	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1124	281	1047	1616	0.695	1119	1085	1.1	2.2	7.185	A
2 - A470 (E)	2306	576	172	2458	0.938	2272	1994	3.1	11.5	16.931	C
3 - BikePark Wales Access	16	4	2387	134	0.117	15	57	0.0	0.1	30.158	D
4 - A470 (W)	1229	307	905	2057	0.598	1227	1497	0.9	1.5	4.325	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1124	281	1049	1615	0.696	1124	1097	2.2	2.3	7.326	A
2 - A470 (E)	2306	576	173	2458	0.938	2300	2000	11.5	12.8	21.301	C
3 - BikePark Wales Access	16	4	2416	124	0.126	16	57	0.1	0.1	33.168	D
4 - A470 (W)	1229	307	917	2049	0.600	1229	1515	1.5	1.5	4.392	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	918	229	859	1729	0.531	922	913	2.3	1.1	4.485	A
2 - A470 (E)	1883	471	142	2479	0.759	1921	1639	12.8	3.2	6.880	A
3 - BikePark Wales Access	13	3	2015	270	0.047	13	47	0.1	0.1	14.022	B
4 - A470 (W)	1004	251	765	2156	0.466	1006	1263	1.5	0.9	3.140	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	768	192	718	1813	0.424	770	754	1.1	0.7	3.458	A
2 - A470 (E)	1577	394	119	2494	0.632	1583	1370	3.2	1.7	3.975	A
3 - BikePark Wales Access	11	3	1662	399	0.027	11	39	0.1	0.0	9.267	A
4 - A470 (W)	841	210	631	2251	0.374	842	1042	0.9	0.6	2.556	A

A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Peak Rhydycar West, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	12.25	B

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
D26	2031 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	995	100.000
2 - A470 (E)		ONE HOUR	✓	2071	100.000
3 - BikePark Wales Access		ONE HOUR	✓	57	100.000
4 - A470 (W)		ONE HOUR	✓	1464	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	804	0	191
	2 - A470 (E)	792	1	7	1271
	3 - BikePark Wales Access	18	21	0	18
	4 - A470 (W)	162	1301	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	4	0	2
	2 - A470 (E)	3	0	0	3
	3 - BikePark Wales Access	0	0	0	0
	4 - A470 (W)	2	3	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.77	10.80	3.2	B	913	1369
2 - A470 (E)	0.91	15.73	9.5	C	1901	2851
3 - BikePark Wales Access	0.44	43.78	0.7	E	53	79
4 - A470 (W)	0.76	7.11	3.1	A	1343	2015

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	749	187	993	1707	0.439	746	729	0.0	0.8	3.733	A
2 - A470 (E)	1559	390	143	2545	0.613	1553	1596	0.0	1.6	3.610	A
3 - BikePark Wales Access	43	11	1691	470	0.092	43	5	0.0	0.1	8.420	A
4 - A470 (W)	1102	276	624	2319	0.475	1099	1110	0.0	0.9	2.941	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	894	224	1188	1589	0.563	892	872	0.8	1.3	5.149	A
2 - A470 (E)	1862	466	171	2526	0.737	1857	1909	1.6	2.7	5.344	A
3 - BikePark Wales Access	51	13	2022	333	0.154	51	7	0.1	0.2	12.747	B
4 - A470 (W)	1316	329	746	2234	0.589	1314	1327	0.9	1.4	3.903	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1095	274	1451	1431	0.765	1088	1060	1.3	3.1	10.278	B
2 - A470 (E)	2281	570	209	2501	0.912	2256	2330	2.7	8.8	13.532	B
3 - BikePark Wales Access	63	16	2457	154	0.410	61	8	0.2	0.6	38.141	E
4 - A470 (W)	1612	403	906	2124	0.759	1605	1613	1.4	3.1	6.860	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1095	274	1457	1427	0.767	1095	1070	3.1	3.2	10.799	B
2 - A470 (E)	2281	570	210	2501	0.912	2278	2341	8.8	9.5	15.730	C
3 - BikePark Wales Access	63	16	2480	144	0.437	63	8	0.6	0.7	43.779	E
4 - A470 (W)	1612	403	915	2117	0.761	1611	1628	3.1	3.1	7.108	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	894	224	1197	1584	0.564	902	886	3.2	1.3	5.332	A
2 - A470 (E)	1862	466	173	2525	0.738	1889	1925	9.5	2.9	5.881	A
3 - BikePark Wales Access	51	13	2055	320	0.161	54	7	0.7	0.2	13.631	B
4 - A470 (W)	1316	329	760	2225	0.592	1323	1349	3.1	1.5	4.021	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	749	187	999	1703	0.440	751	735	1.3	0.8	3.786	A
2 - A470 (E)	1559	390	144	2544	0.613	1565	1605	2.9	1.6	3.693	A
3 - BikePark Wales Access	43	11	1703	465	0.093	43	5	0.2	0.1	8.553	A
4 - A470 (W)	1102	276	629	2315	0.476	1104	1118	1.5	0.9	2.979	A

A470 / A4060 / BikePark Wales Access - 2031 plus Committed Development and Peak Rhydycar West, Saturday

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A470 / A4060 / BikePark Wales Access	Standard Roundabout		1, 2, 3, 4	23.46	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D27	2031 plus Committed Development and Peak Rhydycar West	Saturday	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A4060		ONE HOUR	✓	1001	100.000
2 - A470 (E)		ONE HOUR	✓	2203	100.000
3 - BikePark Wales Access		ONE HOUR	✓	13	100.000
4 - A470 (W)		ONE HOUR	✓	1261	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	807	20	174
	2 - A470 (E)	759	0	15	1429
	3 - BikePark Wales Access	3	3	0	7
	4 - A470 (W)	200	1046	14	0.99

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4060	2 - A470 (E)	3 - BikePark Wales Access	4 - A470 (W)
From	1 - A4060	0	6	0	4
	2 - A470 (E)	7	0	0	2
	3 - BikePark Wales Access	35	0	0	3
	4 - A470 (W)	3	2	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A4060	0.70	7.76	2.3	A	919	1378
2 - A470 (E)	0.99	41.15	27.0	E	2022	3033
3 - BikePark Wales Access	0.17	50.90	0.2	F	12	18
4 - A470 (W)	0.65	4.71	1.8	A	1157	1735

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	754	188	799	1785	0.422	751	721	0.0	0.7	3.470	A
2 - A470 (E)	1659	415	157	2508	0.661	1651	1393	0.0	1.9	4.163	A
3 - BikePark Wales Access	10	3	1771	392	0.026	10	37	0.0	0.0	9.424	A
4 - A470 (W)	949	237	573	2339	0.406	947	1208	0.0	0.7	2.582	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	900	225	956	1693	0.532	899	862	0.7	1.1	4.523	A
2 - A470 (E)	1981	495	188	2488	0.796	1973	1666	1.9	3.8	6.892	A
3 - BikePark Wales Access	12	3	2117	260	0.046	12	44	0.0	0.0	14.505	B
4 - A470 (W)	1133	283	685	2258	0.502	1132	1444	0.7	1.0	3.195	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1102	276	1169	1567	0.704	1098	1035	1.1	2.3	7.594	A
2 - A470 (E)	2426	606	229	2461	0.986	2359	2037	3.8	20.5	25.944	D
3 - BikePark Wales Access	15	4	2535	101	0.146	14	53	0.0	0.2	41.387	E
4 - A470 (W)	1388	347	819	2162	0.642	1385	1730	1.0	1.8	4.618	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	1102	276	1172	1566	0.704	1102	1050	2.3	2.3	7.764	A
2 - A470 (E)	2426	606	230	2460	0.986	2400	2044	20.5	27.0	41.149	E
3 - BikePark Wales Access	15	4	2576	85	0.174	15	54	0.2	0.2	50.902	F
4 - A470 (W)	1388	347	833	2151	0.645	1388	1758	1.8	1.8	4.715	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	900	225	959	1691	0.532	905	897	2.3	1.2	4.610	A
2 - A470 (E)	1981	495	189	2487	0.796	2072	1675	27.0	4.1	10.562	B
3 - BikePark Wales Access	12	3	2217	222	0.054	13	45	0.2	0.1	17.226	C
4 - A470 (W)	1133	283	720	2233	0.508	1137	1510	1.8	1.0	3.290	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A4060	754	188	802	1783	0.423	755	727	1.2	0.7	3.507	A
2 - A470 (E)	1659	415	158	2508	0.661	1667	1400	4.1	2.0	4.325	A
3 - BikePark Wales Access	10	3	1788	386	0.026	10	37	0.1	0.0	9.594	A
4 - A470 (W)	949	237	579	2335	0.407	951	1219	1.0	0.7	2.605	A

APPENDIX H – A470 / A4102 / SWANSEA ROAD JUNCTIONS 9 OUTPUT

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
© Copyright TRL Limited, 2019

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 784-B023905 220728 A470 Swansea Road A4102.j9
Path: \\CARDIFF31\Data\data\B023000-B023999\B023905 Rhydycar West Restart\B023905 Transport\30 Technical\31 Modelling
Report generation date: 02/08/2022 13:37:31

»2022 Baseline, AM
»2022 Baseline, PM
»2022 Baseline, Sat
»2026 Forecast, AM
»2026 Forecast, PM
»2026 Forecast, Sat
»2026 plus Committed Development, AM
»2026 plus Committed Development, PM
»2026 plus Committed Development, Sat
»2026 plus Committed Development and Average Rhydycar West, AM
»2026 plus Committed Development and Average Rhydycar West, PM
»2026 plus Committed Development and Average Rhydycar West, Sat
»2031 Forecast, AM
»2031 Forecast, PM
»2031 Forecast, Sat
»2031 plus Committed Development, AM
»2031 plus Committed Development, PM
»2031 plus Committed Development, Sat
»2031 plus Committed Development and Average Rhydycar West, AM
»2031 plus Committed Development and Average Rhydycar West, PM
»2031 plus Committed Development and Average Rhydycar West, Sat
»2026 plus Committed Development and Peak Rhydycar West, AM
»2026 plus Committed Development and Peak Rhydycar West, PM
»2026 plus Committed Development and Peak Rhydycar West, Sat
»2031 plus Committed Development and Peak Rhydycar West, AM
»2031 plus Committed Development and Peak Rhydycar West, PM
»2031 plus Committed Development and Peak Rhydycar West, Sat

Summary of junction performance

	AM			PM			Sat		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2022 Baseline								
1 - A470 S	0.8	2.59	0.43	0.9	3.04	0.48	1.2	3.48	0.54
2 - Swansea Road	0.6	3.91	0.37	0.5	3.48	0.31	0.7	4.57	0.42
3 - A470 N	0.5	2.39	0.34	0.5	2.15	0.33	0.9	2.81	0.48
4 - A4102	0.4	2.37	0.28	1.1	3.45	0.53	1.2	3.79	0.54
	2026 Forecast								
1 - A470 S	0.8	2.69	0.45	1.0	3.21	0.50	1.3	3.75	0.57
2 - Swansea Road	0.6	4.11	0.39	0.5	3.62	0.33	0.8	4.89	0.45
3 - A470 N	0.6	2.47	0.36	0.5	2.22	0.34	1.0	2.97	0.50
4 - A4102	0.4	2.43	0.29	1.3	3.66	0.56	1.3	4.08	0.57
	2026 plus Committed Development								
1 - A470 S	0.8	2.69	0.45	1.0	3.22	0.50	1.3	3.76	0.57
2 - Swansea Road	0.6	4.11	0.39	0.5	3.63	0.33	0.8	4.90	0.45
3 - A470 N	0.6	2.48	0.36	0.5	2.22	0.34	1.0	2.98	0.50
4 - A4102	0.4	2.43	0.30	1.3	3.66	0.56	1.3	4.10	0.57
	2026 plus Committed Development and Average Rhydycar West								
1 - A470 S	0.9	2.81	0.47	1.2	3.48	0.54	1.7	4.39	0.63
2 - Swansea Road	0.7	4.26	0.40	0.5	3.79	0.34	0.9	5.45	0.48
3 - A470 N	0.6	2.54	0.38	0.6	2.40	0.39	1.3	3.49	0.57
4 - A4102	0.4	2.47	0.30	1.4	3.97	0.58	1.5	4.68	0.60
	2031 Forecast								
1 - A470 S	0.9	2.82	0.47	1.1	3.44	0.53	1.5	4.13	0.61
2 - Swansea Road	0.7	4.37	0.41	0.5	3.81	0.35	0.9	5.36	0.48
3 - A470 N	0.6	2.58	0.38	0.6	2.30	0.36	1.1	3.19	0.53
4 - A4102	0.4	2.51	0.31	1.4	3.96	0.59	1.5	4.51	0.60
	2031 plus Committed Development								
1 - A470 S	0.9	2.79	0.47	1.1	3.46	0.53	1.5	4.14	0.61
2 - Swansea Road	0.7	4.38	0.41	0.5	3.82	0.35	0.9	5.37	0.48
3 - A470 N	0.6	2.59	0.38	0.6	2.30	0.36	1.1	3.21	0.53
4 - A4102	0.5	2.51	0.31	1.4	3.96	0.59	1.5	4.53	0.60
	2031 plus Committed Development and Average Rhydycar West								
1 - A470 S	1.0	2.95	0.50	1.3	3.75	0.57	2.0	4.92	0.67
2 - Swansea Road	0.7	4.54	0.42	0.6	4.00	0.36	1.0	6.04	0.51
3 - A470 N	0.7	2.66	0.40	0.7	2.49	0.41	1.5	3.80	0.60
4 - A4102	0.5	2.56	0.31	1.5	4.33	0.61	1.8	5.24	0.64
	2026 plus Committed Development and Peak Rhydycar West								
1 - A470 S	0.9	2.81	0.48	1.2	3.63	0.56	2.3	5.32	0.70
2 - Swansea Road	0.7	4.26	0.40	0.5	3.89	0.34	1.0	6.18	0.51
3 - A470 N	0.6	2.56	0.38	0.7	2.51	0.42	1.7	4.05	0.63
4 - A4102	0.4	2.48	0.30	1.4	4.17	0.59	1.7	5.29	0.63
	2031 plus Committed Development and Peak Rhydycar West								
1 - A470 S	1.0	2.95	0.50	1.4	3.93	0.59	2.7	6.11	0.73
2 - Swansea Road	0.7	4.54	0.42	0.6	4.11	0.37	1.2	6.95	0.55
3 - A470 N	0.7	2.67	0.40	0.8	2.61	0.43	1.9	4.47	0.66
4 - A4102	0.5	2.57	0.32	1.6	4.56	0.62	2.0	6.03	0.67

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	
Location	
Site number	
Date	11/07/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	TT\CLARA.EVANS
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022 Baseline	AM	ONE HOUR	07:45	09:15	15	✓
D2	2022 Baseline	PM	ONE HOUR	16:45	18:15	15	✓
D3	2022 Baseline	Sat	ONE HOUR	11:45	13:15	15	✓
D4	2026 Forecast	AM	ONE HOUR	07:45	09:15	15	✓
D5	2026 Forecast	PM	ONE HOUR	16:45	18:15	15	✓
D6	2026 Forecast	Sat	ONE HOUR	11:45	13:15	15	✓
D7	2026 plus Committed Development	AM	ONE HOUR	07:45	09:15	15	✓
D8	2026 plus Committed Development	PM	ONE HOUR	16:45	18:15	15	✓
D9	2026 plus Committed Development	Sat	ONE HOUR	11:45	13:15	15	✓
D10	2026 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D11	2026 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:45	18:15	15	✓
D12	2026 plus Committed Development and Average Rhydycar West	Sat	ONE HOUR	11:45	13:15	15	✓
D13	2031 Forecast	AM	ONE HOUR	07:45	09:15	15	✓
D14	2031 Forecast	PM	ONE HOUR	16:45	18:15	15	✓
D15	2031 Forecast	Sat	ONE HOUR	11:45	13:15	15	✓
D16	2031 plus Committed Development	AM	ONE HOUR	07:45	09:15	15	✓
D17	2031 plus Committed Development	PM	ONE HOUR	16:45	18:15	15	✓
D18	2031 plus Committed Development	Sat	ONE HOUR	11:45	13:15	15	✓
D19	2031 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D20	2031 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:45	18:15	15	✓
D21	2031 plus Committed Development and Average Rhydycar West	Sat	ONE HOUR	11:45	13:15	15	✓
D22	2026 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D23	2026 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:45	18:15	15	✓
D24	2026 plus Committed Development and Peak Rhydycar West	Sat	ONE HOUR	11:45	13:15	15	✓
D25	2031 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓
D26	2031 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:45	18:15	15	✓
D27	2031 plus Committed Development and Peak Rhydycar West	Sat	ONE HOUR	11:45	13:15	15	✓

Analysis Set Details

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

2022 Baseline, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	2.72	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A470 S	
2	Swansea Road	
3	A470 N	
4	A4102	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A470 S	7.11	11.00	32.3	32.0	76.0	47.0	
2 - Swansea Road	3.47	11.08	20.0	18.7	76.0	22.9	
3 - A470 N	7.90	10.84	24.5	29.2	76.0	32.7	
4 - A4102	7.36	11.06	6.6	19.6	76.0	21.4	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A470 S	0.652	2883
2 - Swansea Road	0.553	2136
3 - A470 N	0.688	3056
4 - A4102	0.641	2707

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022 Baseline	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	968	100.000
2 - Swansea Road		ONE HOUR	✓	489	100.000
3 - A470 N		ONE HOUR	✓	711	100.000
4 - A4102		ONE HOUR	✓	542	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	136	469	363
	2 - Swansea Road	171	0	81	237
	3 - A470 N	416	36	7	252
	4 - A4102	191	194	157	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	5	8	1
	2 - Swansea Road	2	0	5	2
	3 - A470 N	8	6	86	5
	4 - A4102	5	6	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.43	2.59	0.8	A	888	1332
2 - Swansea Road	0.37	3.91	0.6	A	449	673
3 - A470 N	0.34	2.39	0.5	A	652	979
4 - A4102	0.28	2.37	0.4	A	497	746

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	729	182	296	2545	0.286	727	584	0.0	0.4	1.978	A
2 - Swansea Road	368	92	748	1657	0.222	367	275	0.0	0.3	2.787	A
3 - A470 N	535	134	579	2464	0.217	534	536	0.0	0.3	1.866	A
4 - A4102	408	102	473	2262	0.180	407	640	0.0	0.2	1.940	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	870	218	354	2507	0.347	870	699	0.4	0.5	2.199	A
2 - Swansea Road	440	110	895	1573	0.279	439	329	0.3	0.4	3.174	A
3 - A470 N	639	160	693	2390	0.267	639	641	0.3	0.4	2.056	A
4 - A4102	487	122	566	2201	0.221	487	765	0.2	0.3	2.099	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1066	266	433	2454	0.434	1065	856	0.5	0.8	2.590	A
2 - Swansea Road	538	135	1096	1459	0.369	538	403	0.4	0.6	3.904	A
3 - A470 N	783	196	848	2289	0.342	782	785	0.4	0.5	2.388	A
4 - A4102	597	149	693	2119	0.282	596	937	0.3	0.4	2.365	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1066	266	434	2454	0.434	1066	857	0.8	0.8	2.592	A
2 - Swansea Road	538	135	1097	1458	0.369	538	403	0.6	0.6	3.913	A
3 - A470 N	783	196	849	2288	0.342	783	786	0.5	0.5	2.391	A
4 - A4102	597	149	694	2118	0.282	597	938	0.4	0.4	2.365	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	870	218	355	2507	0.347	871	700	0.8	0.5	2.203	A
2 - Swansea Road	440	110	896	1573	0.280	440	329	0.6	0.4	3.180	A
3 - A470 N	639	160	694	2389	0.268	640	643	0.5	0.4	2.060	A
4 - A4102	487	122	567	2201	0.221	488	767	0.4	0.3	2.103	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	729	182	297	2545	0.286	729	586	0.5	0.4	1.983	A
2 - Swansea Road	368	92	750	1656	0.222	369	276	0.4	0.3	2.796	A
3 - A470 N	535	134	581	2462	0.217	536	538	0.4	0.3	1.868	A
4 - A4102	408	102	475	2261	0.180	408	642	0.3	0.2	1.943	A

2022 Baseline, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.03	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022 Baseline	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	982	100.000
2 - Swansea Road		ONE HOUR	✓	424	100.000
3 - A470 N		ONE HOUR	✓	736	100.000
4 - A4102		ONE HOUR	✓	1085	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	312	401	269
	2 - Swansea Road	133	0	77	214
	3 - A470 N	380	59	1	296
	4 - A4102	360	416	309	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	3	1
	2 - Swansea Road	1	0	3	2
	3 - A470 N	6	2	100	2
	4 - A4102	1	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.48	3.04	0.9	A	901	1352
2 - Swansea Road	0.31	3.48	0.5	A	389	584
3 - A470 N	0.33	2.15	0.5	A	675	1013
4 - A4102	0.53	3.45	1.1	A	996	1493

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	739	185	590	2444	0.303	738	656	0.0	0.4	2.108	A
2 - Swansea Road	319	80	736	1692	0.189	318	591	0.0	0.2	2.620	A
3 - A470 N	554	139	463	2626	0.211	553	592	0.0	0.3	1.736	A
4 - A4102	817	204	430	2369	0.345	815	585	0.0	0.5	2.314	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	883	221	705	2368	0.373	882	784	0.4	0.6	2.421	A
2 - Swansea Road	381	95	880	1611	0.237	381	707	0.2	0.3	2.925	A
3 - A470 N	662	165	553	2565	0.258	661	708	0.3	0.3	1.890	A
4 - A4102	975	244	515	2313	0.422	975	700	0.5	0.7	2.688	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1081	270	863	2264	0.478	1080	960	0.6	0.9	3.038	A
2 - Swansea Road	467	117	1078	1502	0.311	466	865	0.3	0.4	3.475	A
3 - A470 N	810	203	677	2482	0.326	810	867	0.3	0.5	2.152	A
4 - A4102	1195	299	630	2237	0.534	1193	857	0.7	1.1	3.440	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1081	270	864	2263	0.478	1081	961	0.9	0.9	3.044	A
2 - Swansea Road	467	117	1079	1501	0.311	467	866	0.4	0.5	3.480	A
3 - A470 N	810	203	678	2482	0.327	810	868	0.5	0.5	2.153	A
4 - A4102	1195	299	631	2237	0.534	1195	858	1.1	1.1	3.452	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	883	221	707	2367	0.373	884	786	0.9	0.6	2.431	A
2 - Swansea Road	381	95	882	1610	0.237	382	709	0.5	0.3	2.930	A
3 - A470 N	662	165	555	2565	0.258	662	709	0.5	0.3	1.891	A
4 - A4102	975	244	516	2313	0.422	977	701	1.1	0.7	2.697	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	739	185	592	2442	0.303	740	658	0.6	0.4	2.116	A
2 - Swansea Road	319	80	738	1690	0.189	320	593	0.3	0.2	2.626	A
3 - A470 N	554	139	464	2625	0.211	554	594	0.3	0.3	1.737	A
4 - A4102	817	204	432	2368	0.345	818	587	0.7	0.5	2.325	A

2022 Baseline, Sat

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.53	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2022 Baseline	Sat	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1118	100.000
2 - Swansea Road		ONE HOUR	✓	524	100.000
3 - A470 N		ONE HOUR	✓	1054	100.000
4 - A4102		ONE HOUR	✓	1011	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	7	298	460	353
	2 - Swansea Road	195	0	119	210
	3 - A470 N	521	137	3	393
	4 - A4102	327	274	410	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	1	1
	2 - Swansea Road	0	0	2	1
	3 - A470 N	1	1	0	2
	4 - A4102	2	3	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.54	3.48	1.2	A	1026	1539
2 - Swansea Road	0.42	4.57	0.7	A	481	721
3 - A470 N	0.48	2.81	0.9	A	967	1451
4 - A4102	0.54	3.79	1.2	A	928	1392

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	842	210	619	2452	0.343	840	788	0.0	0.5	2.229	A
2 - Swansea Road	394	99	926	1604	0.246	393	532	0.0	0.3	2.971	A
3 - A470 N	794	198	574	2626	0.302	792	745	0.0	0.4	1.961	A
4 - A4102	761	190	648	2255	0.337	759	718	0.0	0.5	2.403	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1005	251	740	2373	0.424	1004	943	0.5	0.7	2.629	A
2 - Swansea Road	471	118	1107	1503	0.313	471	637	0.3	0.5	3.483	A
3 - A470 N	948	237	687	2548	0.372	947	891	0.4	0.6	2.246	A
4 - A4102	909	227	775	2175	0.418	908	859	0.5	0.7	2.841	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1231	308	906	2265	0.544	1229	1154	0.7	1.2	3.471	A
2 - Swansea Road	577	144	1356	1366	0.422	576	780	0.5	0.7	4.547	A
3 - A470 N	1160	290	841	2443	0.475	1159	1090	0.6	0.9	2.801	A
4 - A4102	1113	278	949	2064	0.539	1111	1051	0.7	1.2	3.772	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1231	308	907	2264	0.544	1231	1156	1.2	1.2	3.484	A
2 - Swansea Road	577	144	1358	1365	0.423	577	781	0.7	0.7	4.566	A
3 - A470 N	1160	290	842	2442	0.475	1160	1092	0.9	0.9	2.808	A
4 - A4102	1113	278	950	2063	0.539	1113	1053	1.2	1.2	3.787	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1005	251	742	2372	0.424	1007	946	1.2	0.7	2.640	A
2 - Swansea Road	471	118	1110	1502	0.314	472	638	0.7	0.5	3.499	A
3 - A470 N	948	237	689	2547	0.372	949	893	0.9	0.6	2.253	A
4 - A4102	909	227	777	2173	0.418	911	861	1.2	0.7	2.854	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	842	210	621	2451	0.343	843	791	0.7	0.5	2.240	A
2 - Swansea Road	394	99	929	1602	0.246	395	534	0.5	0.3	2.985	A
3 - A470 N	794	198	577	2624	0.302	794	748	0.6	0.4	1.969	A
4 - A4102	761	190	650	2254	0.338	762	720	0.7	0.5	2.413	A

2026 Forecast, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	2.83	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2026 Forecast	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1004	100.000
2 - Swansea Road		ONE HOUR	✓	507	100.000
3 - A470 N		ONE HOUR	✓	738	100.000
4 - A4102		ONE HOUR	✓	562	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	141	487	377
	2 - Swansea Road	177	0	84	246
	3 - A470 N	432	37	7	261
	4 - A4102	198	201	163	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	5	8	1
	2 - Swansea Road	2	0	5	2
	3 - A470 N	8	6	86	5
	4 - A4102	5	6	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.45	2.69	0.8	A	922	1382
2 - Swansea Road	0.39	4.11	0.6	A	466	698
3 - A470 N	0.36	2.47	0.6	A	677	1015
4 - A4102	0.29	2.43	0.4	A	516	774

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	756	189	307	2538	0.298	754	606	0.0	0.4	2.016	A
2 - Swansea Road	382	95	776	1641	0.233	381	285	0.0	0.3	2.853	A
3 - A470 N	555	139	601	2449	0.227	554	556	0.0	0.3	1.899	A
4 - A4102	423	106	491	2250	0.188	422	664	0.0	0.2	1.968	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	903	226	367	2498	0.361	902	725	0.4	0.6	2.256	A
2 - Swansea Road	456	114	928	1554	0.293	456	341	0.3	0.4	3.274	A
3 - A470 N	663	166	718	2373	0.279	663	665	0.3	0.4	2.105	A
4 - A4102	505	126	587	2188	0.231	505	794	0.2	0.3	2.139	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1106	276	450	2444	0.452	1105	888	0.6	0.8	2.689	A
2 - Swansea Road	559	140	1137	1435	0.389	558	418	0.4	0.6	4.097	A
3 - A470 N	812	203	880	2268	0.358	811	815	0.4	0.6	2.470	A
4 - A4102	619	155	719	2102	0.295	619	972	0.3	0.4	2.427	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1106	276	450	2443	0.453	1106	889	0.8	0.8	2.690	A
2 - Swansea Road	559	140	1138	1435	0.389	559	418	0.6	0.6	4.108	A
3 - A470 N	812	203	881	2267	0.358	812	816	0.6	0.6	2.473	A
4 - A4102	619	155	720	2101	0.295	619	973	0.4	0.4	2.428	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	903	226	368	2498	0.361	904	726	0.8	0.6	2.261	A
2 - Swansea Road	456	114	930	1553	0.294	457	342	0.6	0.4	3.287	A
3 - A470 N	663	166	720	2372	0.280	664	667	0.6	0.4	2.108	A
4 - A4102	505	126	588	2187	0.231	506	796	0.4	0.3	2.143	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	756	189	308	2537	0.298	757	608	0.6	0.4	2.023	A
2 - Swansea Road	382	95	779	1640	0.233	382	286	0.4	0.3	2.863	A
3 - A470 N	555	139	603	2448	0.227	556	558	0.4	0.3	1.901	A
4 - A4102	423	106	492	2249	0.188	424	666	0.3	0.2	1.973	A

2026 Forecast, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.18	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2026 Forecast	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1018	100.000
2 - Swansea Road		ONE HOUR	✓	440	100.000
3 - A470 N		ONE HOUR	✓	763	100.000
4 - A4102		ONE HOUR	✓	1125	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	324	416	279
	2 - Swansea Road	138	0	80	222
	3 - A470 N	394	61	1	307
	4 - A4102	373	431	320	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	3	1
	2 - Swansea Road	1	0	3	2
	3 - A470 N	6	2	100	2
	4 - A4102	1	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.50	3.21	1.0	A	934	1402
2 - Swansea Road	0.33	3.62	0.5	A	403	605
3 - A470 N	0.34	2.22	0.5	A	700	1051
4 - A4102	0.56	3.66	1.3	A	1033	1549

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	767	192	611	2429	0.316	765	680	0.0	0.5	2.161	A
2 - Swansea Road	331	83	763	1677	0.197	330	613	0.0	0.2	2.672	A
3 - A470 N	575	144	480	2615	0.220	574	614	0.0	0.3	1.763	A
4 - A4102	847	212	446	2358	0.359	845	607	0.0	0.6	2.376	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	916	229	731	2351	0.389	915	813	0.5	0.6	2.505	A
2 - Swansea Road	395	99	913	1593	0.248	395	733	0.2	0.3	3.004	A
3 - A470 N	686	172	574	2552	0.269	686	734	0.3	0.4	1.929	A
4 - A4102	1012	253	534	2301	0.440	1011	726	0.6	0.8	2.789	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1121	280	895	2243	0.500	1120	996	0.6	1.0	3.200	A
2 - Swansea Road	484	121	1117	1480	0.327	484	897	0.3	0.5	3.612	A
3 - A470 N	840	210	702	2466	0.341	840	899	0.4	0.5	2.214	A
4 - A4102	1239	310	654	2222	0.558	1237	889	0.8	1.2	3.649	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1121	280	896	2242	0.500	1121	997	1.0	1.0	3.210	A
2 - Swansea Road	484	121	1119	1479	0.327	484	899	0.5	0.5	3.618	A
3 - A470 N	840	210	703	2465	0.341	840	900	0.5	0.5	2.215	A
4 - A4102	1239	310	654	2222	0.558	1239	889	1.2	1.3	3.661	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	916	229	733	2349	0.390	917	815	1.0	0.6	2.517	A
2 - Swansea Road	395	99	915	1592	0.248	396	735	0.5	0.3	3.010	A
3 - A470 N	686	172	575	2551	0.269	687	736	0.5	0.4	1.933	A
4 - A4102	1012	253	535	2300	0.440	1013	727	1.3	0.8	2.801	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	767	192	614	2428	0.316	767	682	0.6	0.5	2.168	A
2 - Swansea Road	331	83	766	1675	0.198	331	615	0.3	0.2	2.681	A
3 - A470 N	575	144	481	2614	0.220	575	616	0.4	0.3	1.765	A
4 - A4102	847	212	448	2357	0.359	848	609	0.8	0.6	2.386	A

2026 Forecast, Sat

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.78	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2026 Forecast	Sat	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1162	100.000
2 - Swansea Road		ONE HOUR	✓	545	100.000
3 - A470 N		ONE HOUR	✓	1096	100.000
4 - A4102		ONE HOUR	✓	1051	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	7	310	478	367
	2 - Swansea Road	203	0	124	218
	3 - A470 N	542	142	3	409
	4 - A4102	340	285	426	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	1	1
	2 - Swansea Road	0	0	2	1
	3 - A470 N	1	1	0	2
	4 - A4102	2	3	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.57	3.75	1.3	A	1067	1600
2 - Swansea Road	0.45	4.89	0.8	A	500	750
3 - A470 N	0.50	2.97	1.0	A	1005	1508
4 - A4102	0.57	4.08	1.3	A	964	1447

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	875	219	643	2436	0.359	873	820	0.0	0.6	2.299	A
2 - Swansea Road	410	103	962	1584	0.259	409	553	0.0	0.3	3.059	A
3 - A470 N	825	206	597	2610	0.316	823	774	0.0	0.5	2.013	A
4 - A4102	791	198	674	2239	0.353	789	746	0.0	0.5	2.480	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1045	261	769	2354	0.444	1044	980	0.6	0.8	2.747	A
2 - Swansea Road	490	122	1151	1479	0.331	489	662	0.3	0.5	3.634	A
3 - A470 N	985	246	714	2530	0.389	984	926	0.5	0.6	2.328	A
4 - A4102	945	236	806	2155	0.438	944	893	0.5	0.8	2.971	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1280	320	942	2241	0.571	1278	1200	0.8	1.3	3.728	A
2 - Swansea Road	600	150	1409	1337	0.449	599	810	0.5	0.8	4.868	A
3 - A470 N	1206	302	874	2420	0.498	1205	1133	0.6	1.0	2.959	A
4 - A4102	1157	289	986	2040	0.567	1155	1093	0.8	1.3	4.057	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1280	320	943	2240	0.571	1280	1202	1.3	1.3	3.746	A
2 - Swansea Road	600	150	1411	1336	0.449	600	812	0.8	0.8	4.891	A
3 - A470 N	1206	302	876	2419	0.499	1206	1135	1.0	1.0	2.967	A
4 - A4102	1157	289	988	2039	0.567	1157	1094	1.3	1.3	4.080	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1045	261	772	2352	0.444	1047	983	1.3	0.8	2.761	A
2 - Swansea Road	490	122	1155	1477	0.331	491	664	0.8	0.5	3.653	A
3 - A470 N	985	246	717	2528	0.390	986	929	1.0	0.6	2.336	A
4 - A4102	945	236	808	2154	0.439	947	895	1.3	0.8	2.989	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	875	219	646	2435	0.359	876	823	0.8	0.6	2.312	A
2 - Swansea Road	410	103	966	1582	0.259	411	555	0.5	0.4	3.075	A
3 - A470 N	825	206	599	2608	0.316	826	777	0.6	0.5	2.019	A
4 - A4102	791	198	676	2238	0.354	792	749	0.8	0.5	2.491	A

2026 plus Committed Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	2.83	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2026 plus Committed Development	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1006	100.000
2 - Swansea Road		ONE HOUR	✓	507	100.000
3 - A470 N		ONE HOUR	✓	743	100.000
4 - A4102		ONE HOUR	✓	562	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	141	489	377
	2 - Swansea Road	177	0	84	246
	3 - A470 N	437	37	7	261
	4 - A4102	198	201	163	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	5	8	1
	2 - Swansea Road	2	0	5	2
	3 - A470 N	8	6	86	5
	4 - A4102	5	6	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.45	2.69	0.8	A	924	1385
2 - Swansea Road	0.39	4.11	0.6	A	466	698
3 - A470 N	0.36	2.48	0.6	A	682	1023
4 - A4102	0.30	2.43	0.4	A	516	774

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	758	189	307	2538	0.299	756	610	0.0	0.4	2.018	A
2 - Swansea Road	382	95	778	1640	0.233	381	285	0.0	0.3	2.855	A
3 - A470 N	559	140	601	2451	0.228	558	558	0.0	0.3	1.902	A
4 - A4102	423	106	495	2248	0.188	422	664	0.0	0.2	1.971	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	905	226	367	2498	0.362	904	730	0.4	0.6	2.258	A
2 - Swansea Road	456	114	930	1553	0.294	456	341	0.3	0.4	3.277	A
3 - A470 N	668	167	718	2374	0.281	668	667	0.3	0.4	2.109	A
4 - A4102	505	126	592	2185	0.231	505	794	0.2	0.3	2.143	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1108	277	450	2444	0.453	1107	894	0.6	0.8	2.693	A
2 - Swansea Road	559	140	1139	1434	0.389	558	418	0.4	0.6	4.103	A
3 - A470 N	818	205	880	2269	0.361	817	817	0.4	0.6	2.478	A
4 - A4102	619	155	725	2098	0.295	619	972	0.3	0.4	2.433	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1108	277	450	2444	0.453	1108	895	0.8	0.8	2.695	A
2 - Swansea Road	559	140	1140	1433	0.390	559	418	0.6	0.6	4.114	A
3 - A470 N	818	205	881	2268	0.361	818	818	0.6	0.6	2.481	A
4 - A4102	619	155	726	2098	0.295	619	973	0.4	0.4	2.434	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	905	226	368	2498	0.362	906	731	0.8	0.6	2.261	A
2 - Swansea Road	456	114	932	1552	0.294	457	342	0.6	0.4	3.288	A
3 - A470 N	668	167	720	2373	0.282	669	669	0.6	0.4	2.112	A
4 - A4102	505	126	593	2184	0.231	506	796	0.4	0.3	2.145	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	758	189	308	2538	0.299	758	612	0.6	0.4	2.023	A
2 - Swansea Road	382	95	780	1639	0.233	382	286	0.4	0.3	2.865	A
3 - A470 N	559	140	603	2449	0.228	560	560	0.4	0.3	1.904	A
4 - A4102	423	106	497	2247	0.188	424	666	0.3	0.2	1.974	A

2026 plus Committed Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.19	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2026 plus Committed Development	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1023	100.000
2 - Swansea Road		ONE HOUR	✓	440	100.000
3 - A470 N		ONE HOUR	✓	763	100.000
4 - A4102		ONE HOUR	✓	1125	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	324	420	279
	2 - Swansea Road	138	0	80	222
	3 - A470 N	394	61	1	307
	4 - A4102	373	431	320	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	3	1
	2 - Swansea Road	1	0	3	2
	3 - A470 N	6	2	100	2
	4 - A4102	1	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.50	3.22	1.0	A	939	1408
2 - Swansea Road	0.33	3.63	0.5	A	403	605
3 - A470 N	0.34	2.22	0.5	A	700	1051
4 - A4102	0.56	3.66	1.3	A	1033	1549

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	770	193	611	2430	0.317	768	680	0.0	0.5	2.165	A
2 - Swansea Road	331	83	767	1675	0.198	330	613	0.0	0.2	2.676	A
3 - A470 N	575	144	480	2615	0.220	574	617	0.0	0.3	1.763	A
4 - A4102	847	212	446	2358	0.359	845	607	0.0	0.6	2.376	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	919	230	731	2351	0.391	919	813	0.5	0.6	2.512	A
2 - Swansea Road	395	99	917	1591	0.248	395	733	0.2	0.3	3.009	A
3 - A470 N	686	172	574	2552	0.269	686	738	0.3	0.4	1.929	A
4 - A4102	1012	253	534	2301	0.440	1011	726	0.6	0.8	2.789	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1126	282	895	2243	0.502	1125	996	0.6	1.0	3.214	A
2 - Swansea Road	484	121	1122	1477	0.328	484	897	0.3	0.5	3.622	A
3 - A470 N	840	210	702	2466	0.341	840	903	0.4	0.5	2.214	A
4 - A4102	1239	310	654	2222	0.558	1237	889	0.8	1.2	3.649	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1126	282	896	2242	0.502	1126	997	1.0	1.0	3.224	A
2 - Swansea Road	484	121	1124	1476	0.328	484	899	0.5	0.5	3.628	A
3 - A470 N	840	210	703	2465	0.341	840	905	0.5	0.5	2.215	A
4 - A4102	1239	310	654	2222	0.558	1239	889	1.2	1.3	3.661	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	919	230	733	2350	0.391	921	815	1.0	0.6	2.521	A
2 - Swansea Road	395	99	919	1590	0.249	396	735	0.5	0.3	3.015	A
3 - A470 N	686	172	575	2551	0.269	687	740	0.5	0.4	1.931	A
4 - A4102	1012	253	535	2300	0.440	1013	727	1.3	0.8	2.803	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	770	193	614	2428	0.317	771	682	0.6	0.5	2.172	A
2 - Swansea Road	331	83	769	1673	0.198	331	615	0.3	0.2	2.685	A
3 - A470 N	575	144	481	2614	0.220	575	619	0.4	0.3	1.768	A
4 - A4102	847	212	448	2357	0.359	848	609	0.8	0.6	2.386	A

2026 plus Committed Development, Sat

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2026 plus Committed Development	Sat	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1164	100.000
2 - Swansea Road		ONE HOUR	✓	545	100.000
3 - A470 N		ONE HOUR	✓	1101	100.000
4 - A4102		ONE HOUR	✓	1051	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	7	310	480	367
	2 - Swansea Road	203	0	124	218
	3 - A470 N	547	142	3	409
	4 - A4102	340	285	426	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	1	1
	2 - Swansea Road	0	0	2	1
	3 - A470 N	1	1	0	2
	4 - A4102	2	3	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.57	3.76	1.3	A	1069	1603
2 - Swansea Road	0.45	4.90	0.8	A	500	750
3 - A470 N	0.50	2.98	1.0	A	1010	1516
4 - A4102	0.57	4.10	1.3	A	964	1447

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	877	219	643	2437	0.360	874	824	0.0	0.6	2.302	A
2 - Swansea Road	410	103	964	1583	0.259	409	553	0.0	0.3	3.062	A
3 - A470 N	829	207	597	2610	0.318	827	776	0.0	0.5	2.017	A
4 - A4102	791	198	678	2237	0.354	789	746	0.0	0.5	2.484	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1047	262	769	2354	0.445	1046	985	0.6	0.8	2.751	A
2 - Swansea Road	490	122	1153	1478	0.331	489	662	0.3	0.5	3.638	A
3 - A470 N	990	247	714	2530	0.391	989	928	0.5	0.6	2.335	A
4 - A4102	945	236	811	2152	0.439	944	893	0.5	0.8	2.980	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1282	321	942	2241	0.572	1280	1206	0.8	1.3	3.737	A
2 - Swansea Road	600	150	1411	1336	0.449	599	810	0.5	0.8	4.876	A
3 - A470 N	1212	303	874	2421	0.501	1211	1136	0.6	1.0	2.971	A
4 - A4102	1157	289	992	2037	0.568	1155	1093	0.8	1.3	4.074	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1282	321	943	2240	0.572	1282	1208	1.3	1.3	3.756	A
2 - Swansea Road	600	150	1414	1334	0.450	600	812	0.8	0.8	4.900	A
3 - A470 N	1212	303	876	2420	0.501	1212	1138	1.0	1.0	2.981	A
4 - A4102	1157	289	994	2036	0.568	1157	1094	1.3	1.3	4.097	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1047	262	772	2352	0.445	1049	988	1.3	0.8	2.767	A
2 - Swansea Road	490	122	1157	1476	0.332	491	664	0.8	0.5	3.657	A
3 - A470 N	990	247	717	2528	0.392	991	931	1.0	0.6	2.343	A
4 - A4102	945	236	813	2151	0.439	947	895	1.3	0.8	2.994	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	877	219	646	2435	0.360	878	827	0.8	0.6	2.312	A
2 - Swansea Road	410	103	968	1581	0.259	411	556	0.5	0.4	3.080	A
3 - A470 N	829	207	599	2608	0.318	830	779	0.6	0.5	2.026	A
4 - A4102	791	198	680	2235	0.354	792	749	0.8	0.6	2.498	A

2026 plus Committed Development and Average Rhydycar West, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	2.92	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2026 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1053	100.000
2 - Swansea Road		ONE HOUR	✓	507	100.000
3 - A470 N		ONE HOUR	✓	775	100.000
4 - A4102		ONE HOUR	✓	562	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	141	536	377
	2 - Swansea Road	177	0	84	246
	3 - A470 N	469	37	7	261
	4 - A4102	198	201	163	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	5	8	1
	2 - Swansea Road	2	0	5	2
	3 - A470 N	8	6	86	5
	4 - A4102	5	6	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.47	2.81	0.9	A	966	1450
2 - Swansea Road	0.40	4.26	0.7	A	466	698
3 - A470 N	0.38	2.54	0.6	A	711	1067
4 - A4102	0.30	2.47	0.4	A	516	774

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	793	198	307	2537	0.313	791	634	0.0	0.5	2.060	A
2 - Swansea Road	382	95	813	1620	0.236	381	285	0.0	0.3	2.902	A
3 - A470 N	583	146	601	2452	0.238	582	593	0.0	0.3	1.925	A
4 - A4102	423	106	519	2232	0.190	422	664	0.0	0.2	1.988	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	947	237	367	2497	0.379	946	759	0.5	0.6	2.320	A
2 - Swansea Road	456	114	972	1529	0.298	456	341	0.3	0.4	3.351	A
3 - A470 N	697	174	718	2375	0.293	696	709	0.3	0.4	2.144	A
4 - A4102	505	126	621	2166	0.233	505	794	0.2	0.3	2.167	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1160	290	450	2442	0.475	1158	929	0.6	0.9	2.801	A
2 - Swansea Road	559	140	1190	1405	0.398	558	418	0.4	0.7	4.246	A
3 - A470 N	853	213	879	2270	0.376	852	869	0.4	0.6	2.538	A
4 - A4102	619	155	760	2075	0.298	619	972	0.3	0.4	2.471	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1160	290	450	2442	0.475	1160	930	0.9	0.9	2.806	A
2 - Swansea Road	559	140	1192	1404	0.398	559	418	0.7	0.7	4.258	A
3 - A470 N	853	213	881	2269	0.376	853	869	0.6	0.6	2.541	A
4 - A4102	619	155	761	2075	0.298	619	973	0.4	0.4	2.472	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	947	237	368	2497	0.379	948	760	0.9	0.6	2.327	A
2 - Swansea Road	456	114	974	1528	0.298	457	342	0.7	0.4	3.363	A
3 - A470 N	697	174	720	2374	0.293	697	711	0.6	0.4	2.148	A
4 - A4102	505	126	622	2165	0.233	506	796	0.4	0.3	2.171	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	793	198	308	2536	0.313	794	636	0.6	0.5	2.066	A
2 - Swansea Road	382	95	815	1619	0.236	382	286	0.4	0.3	2.914	A
3 - A470 N	583	146	603	2450	0.238	584	595	0.4	0.3	1.929	A
4 - A4102	423	106	521	2231	0.190	424	666	0.3	0.2	1.993	A

2026 plus Committed Development and Average Rhydycar West, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D11	2026 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1091	100.000
2 - Swansea Road		ONE HOUR	✓	440	100.000
3 - A470 N		ONE HOUR	✓	868	100.000
4 - A4102		ONE HOUR	✓	1125	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	324	488	279
	2 - Swansea Road	138	0	80	222
	3 - A470 N	499	61	1	307
	4 - A4102	373	431	320	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	4	1
	2 - Swansea Road	1	0	3	2
	3 - A470 N	6	2	100	2
	4 - A4102	1	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.54	3.48	1.2	A	1001	1501
2 - Swansea Road	0.34	3.79	0.5	A	403	605
3 - A470 N	0.39	2.40	0.6	A	796	1195
4 - A4102	0.58	3.97	1.4	A	1033	1549

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	821	205	611	2423	0.339	819	759	0.0	0.5	2.241	A
2 - Swansea Road	331	83	817	1645	0.201	330	613	0.0	0.3	2.736	A
3 - A470 N	653	163	480	2607	0.251	652	668	0.0	0.3	1.841	A
4 - A4102	847	212	525	2306	0.367	845	607	0.0	0.6	2.460	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	980	245	731	2344	0.418	980	907	0.5	0.7	2.637	A
2 - Swansea Road	395	99	978	1556	0.254	395	733	0.3	0.3	3.101	A
3 - A470 N	780	195	574	2544	0.307	780	799	0.3	0.4	2.040	A
4 - A4102	1012	253	628	2238	0.452	1011	726	0.6	0.8	2.930	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1201	300	895	2237	0.537	1199	1111	0.7	1.1	3.462	A
2 - Swansea Road	484	121	1197	1434	0.338	483	897	0.3	0.5	3.786	A
3 - A470 N	956	239	702	2459	0.389	955	978	0.4	0.6	2.392	A
4 - A4102	1239	310	769	2145	0.578	1237	888	0.8	1.4	3.953	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1201	300	896	2236	0.537	1201	1112	1.1	1.2	3.476	A
2 - Swansea Road	484	121	1198	1433	0.338	484	899	0.5	0.5	3.793	A
3 - A470 N	956	239	703	2458	0.389	956	979	0.6	0.6	2.395	A
4 - A4102	1239	310	770	2145	0.578	1239	889	1.4	1.4	3.974	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	980	245	733	2343	0.418	982	909	1.2	0.7	2.650	A
2 - Swansea Road	395	99	980	1554	0.254	396	735	0.5	0.3	3.108	A
3 - A470 N	780	195	575	2543	0.307	781	801	0.6	0.4	2.043	A
4 - A4102	1012	253	629	2237	0.452	1014	727	1.4	0.8	2.949	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	821	205	614	2421	0.339	822	761	0.7	0.5	2.251	A
2 - Swansea Road	331	83	820	1644	0.201	331	615	0.3	0.3	2.743	A
3 - A470 N	653	163	481	2606	0.251	654	670	0.4	0.3	1.843	A
4 - A4102	847	212	527	2305	0.368	848	609	0.8	0.6	2.473	A

2026 plus Committed Development and Average Rhydycar West, Sat

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	4.33	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2026 plus Committed Development and Average Rhydycar West	Sat	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1280	100.000
2 - Swansea Road		ONE HOUR	✓	545	100.000
3 - A470 N		ONE HOUR	✓	1248	100.000
4 - A4102		ONE HOUR	✓	1051	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	7	310	596	367
	2 - Swansea Road	203	0	124	218
	3 - A470 N	694	142	3	409
	4 - A4102	340	285	426	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	2	1
	2 - Swansea Road	0	0	2	1
	3 - A470 N	2	1	0	2
	4 - A4102	2	3	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.63	4.39	1.7	A	1175	1762
2 - Swansea Road	0.48	5.45	0.9	A	500	750
3 - A470 N	0.57	3.49	1.3	A	1145	1718
4 - A4102	0.60	4.68	1.5	A	964	1447

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	964	241	643	2424	0.398	961	934	0.0	0.7	2.456	A
2 - Swansea Road	410	103	1051	1532	0.268	409	553	0.0	0.4	3.200	A
3 - A470 N	939	235	597	2594	0.362	937	863	0.0	0.6	2.170	A
4 - A4102	791	198	788	2162	0.366	789	746	0.0	0.6	2.616	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1151	288	769	2342	0.491	1150	1117	0.7	1.0	3.016	A
2 - Swansea Road	490	122	1257	1418	0.345	489	662	0.4	0.5	3.875	A
3 - A470 N	1122	280	714	2515	0.446	1121	1032	0.6	0.8	2.582	A
4 - A4102	945	236	942	2063	0.458	944	893	0.6	0.8	3.212	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1410	352	941	2230	0.632	1407	1367	1.0	1.7	4.356	A
2 - Swansea Road	600	150	1538	1262	0.475	598	810	0.5	0.9	5.415	A
3 - A470 N	1374	343	874	2406	0.571	1372	1263	0.8	1.3	3.473	A
4 - A4102	1157	289	1153	1928	0.600	1155	1092	0.8	1.5	4.637	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1410	352	943	2229	0.632	1410	1369	1.7	1.7	4.393	A
2 - Swansea Road	600	150	1541	1260	0.476	600	811	0.9	0.9	5.454	A
3 - A470 N	1374	343	876	2405	0.571	1374	1265	1.3	1.3	3.491	A
4 - A4102	1157	289	1155	1927	0.601	1157	1094	1.5	1.5	4.676	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1151	288	772	2340	0.492	1154	1121	1.7	1.0	3.043	A
2 - Swansea Road	490	122	1262	1415	0.346	491	664	0.9	0.5	3.904	A
3 - A470 N	1122	280	717	2513	0.446	1124	1036	1.3	0.8	2.595	A
4 - A4102	945	236	945	2062	0.458	947	896	1.5	0.9	3.240	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	964	241	646	2423	0.398	965	937	1.0	0.7	2.471	A
2 - Swansea Road	410	103	1055	1530	0.268	411	556	0.5	0.4	3.221	A
3 - A470 N	939	235	600	2592	0.362	940	866	0.8	0.6	2.181	A
4 - A4102	791	198	791	2161	0.366	792	749	0.9	0.6	2.632	A

2031 Forecast, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	2.97	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D13	2031 Forecast	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1048	100.000
2 - Swansea Road		ONE HOUR	✓	530	100.000
3 - A470 N		ONE HOUR	✓	770	100.000
4 - A4102		ONE HOUR	✓	587	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	147	508	393
	2 - Swansea Road	185	0	88	257
	3 - A470 N	450	39	8	273
	4 - A4102	207	210	170	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	5	8	1
	2 - Swansea Road	2	0	5	2
	3 - A470 N	8	6	86	5
	4 - A4102	5	6	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.47	2.82	0.9	A	962	1443
2 - Swansea Road	0.41	4.37	0.7	A	486	729
3 - A470 N	0.38	2.58	0.6	A	707	1060
4 - A4102	0.31	2.51	0.4	A	539	808

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	789	197	321	2529	0.312	787	633	0.0	0.5	2.065	A
2 - Swansea Road	399	100	810	1622	0.246	397	298	0.0	0.3	2.937	A
3 - A470 N	580	145	627	2432	0.238	578	581	0.0	0.3	1.941	A
4 - A4102	442	110	512	2236	0.198	441	693	0.0	0.2	2.004	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	942	236	383	2488	0.379	942	757	0.5	0.6	2.327	A
2 - Swansea Road	476	119	969	1531	0.311	476	356	0.3	0.4	3.408	A
3 - A470 N	692	173	750	2352	0.294	692	695	0.3	0.4	2.168	A
4 - A4102	528	132	613	2171	0.243	527	829	0.2	0.3	2.190	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1154	289	469	2431	0.475	1153	927	0.6	0.9	2.815	A
2 - Swansea Road	583	146	1186	1407	0.414	582	436	0.4	0.7	4.358	A
3 - A470 N	848	212	918	2243	0.378	847	850	0.4	0.6	2.577	A
4 - A4102	646	162	750	2081	0.310	646	1015	0.3	0.4	2.508	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1154	289	470	2430	0.475	1154	928	0.9	0.9	2.820	A
2 - Swansea Road	583	146	1188	1406	0.415	583	436	0.7	0.7	4.372	A
3 - A470 N	848	212	919	2242	0.378	848	851	0.6	0.6	2.581	A
4 - A4102	646	162	751	2081	0.311	646	1016	0.4	0.4	2.508	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	942	236	384	2487	0.379	944	758	0.9	0.6	2.333	A
2 - Swansea Road	476	119	971	1530	0.311	477	357	0.7	0.5	3.420	A
3 - A470 N	692	173	752	2351	0.294	693	696	0.6	0.4	2.173	A
4 - A4102	528	132	614	2170	0.243	528	831	0.4	0.3	2.192	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	789	197	321	2529	0.312	790	635	0.6	0.5	2.070	A
2 - Swansea Road	399	100	813	1620	0.246	399	299	0.5	0.3	2.950	A
3 - A470 N	580	145	629	2431	0.238	580	583	0.4	0.3	1.945	A
4 - A4102	442	110	514	2235	0.198	442	695	0.3	0.2	2.009	A

2031 Forecast, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D14	2031 Forecast	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1064	100.000
2 - Swansea Road		ONE HOUR	✓	459	100.000
3 - A470 N		ONE HOUR	✓	797	100.000
4 - A4102		ONE HOUR	✓	1175	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	338	434	291
	2 - Swansea Road	144	0	83	232
	3 - A470 N	412	64	1	321
	4 - A4102	390	451	335	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	3	1
	2 - Swansea Road	1	0	3	2
	3 - A470 N	6	2	100	2
	4 - A4102	1	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.53	3.44	1.1	A	976	1464
2 - Swansea Road	0.35	3.81	0.5	A	421	632
3 - A470 N	0.36	2.30	0.6	A	731	1097
4 - A4102	0.59	3.96	1.4	A	1078	1617

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	801	200	638	2412	0.332	799	710	0.0	0.5	2.228	A
2 - Swansea Road	346	86	797	1658	0.209	345	640	0.0	0.3	2.738	A
3 - A470 N	600	150	501	2601	0.231	599	641	0.0	0.3	1.798	A
4 - A4102	885	221	466	2345	0.377	882	634	0.0	0.6	2.456	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	956	239	764	2329	0.410	955	849	0.5	0.7	2.618	A
2 - Swansea Road	413	103	953	1571	0.263	412	766	0.3	0.4	3.107	A
3 - A470 N	717	179	599	2535	0.283	716	767	0.3	0.4	1.979	A
4 - A4102	1056	264	558	2285	0.462	1055	758	0.6	0.9	2.924	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1171	293	935	2217	0.528	1169	1040	0.7	1.1	3.429	A
2 - Swansea Road	506	126	1167	1452	0.348	505	937	0.4	0.5	3.799	A
3 - A470 N	878	219	733	2445	0.359	877	938	0.4	0.6	2.295	A
4 - A4102	1294	323	683	2203	0.587	1292	928	0.9	1.4	3.939	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1171	293	936	2216	0.528	1171	1041	1.1	1.1	3.443	A
2 - Swansea Road	506	126	1169	1451	0.348	506	938	0.5	0.5	3.806	A
3 - A470 N	878	219	735	2444	0.359	878	940	0.6	0.6	2.297	A
4 - A4102	1294	323	683	2203	0.587	1294	929	1.4	1.4	3.960	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	956	239	766	2328	0.411	958	851	1.1	0.7	2.632	A
2 - Swansea Road	413	103	956	1569	0.263	414	768	0.5	0.4	3.115	A
3 - A470 N	717	179	601	2534	0.283	717	769	0.6	0.4	1.982	A
4 - A4102	1056	264	558	2285	0.462	1059	760	1.4	0.9	2.943	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	801	200	641	2410	0.332	801	712	0.7	0.5	2.240	A
2 - Swansea Road	346	86	800	1656	0.209	346	642	0.4	0.3	2.750	A
3 - A470 N	600	150	503	2599	0.231	600	643	0.4	0.3	1.803	A
4 - A4102	885	221	468	2344	0.377	886	636	0.9	0.6	2.471	A

2031 Forecast, Sat

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	4.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D15	2031 Forecast	Sat	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1217	100.000
2 - Swansea Road		ONE HOUR	✓	570	100.000
3 - A470 N		ONE HOUR	✓	1147	100.000
4 - A4102		ONE HOUR	✓	1100	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	8	324	501	384
	2 - Swansea Road	212	0	129	229
	3 - A470 N	567	149	3	428
	4 - A4102	356	298	446	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	1	1
	2 - Swansea Road	0	0	2	1
	3 - A470 N	1	1	0	2
	4 - A4102	2	3	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.61	4.13	1.5	A	1116	1675
2 - Swansea Road	0.48	5.36	0.9	A	523	785
3 - A470 N	0.53	3.19	1.1	A	1052	1579
4 - A4102	0.60	4.51	1.5	A	1010	1514

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	916	229	673	2417	0.379	914	858	0.0	0.6	2.390	A
2 - Swansea Road	429	107	1007	1559	0.275	428	579	0.0	0.4	3.179	A
3 - A470 N	864	216	625	2591	0.333	862	810	0.0	0.5	2.080	A
4 - A4102	828	207	705	2219	0.373	826	781	0.0	0.6	2.579	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1094	273	805	2330	0.469	1093	1026	0.6	0.9	2.905	A
2 - Swansea Road	513	128	1205	1450	0.354	512	693	0.4	0.5	3.837	A
3 - A470 N	1031	258	748	2507	0.411	1030	969	0.5	0.7	2.436	A
4 - A4102	989	247	844	2131	0.464	988	934	0.6	0.9	3.146	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1340	335	985	2213	0.605	1337	1256	0.9	1.5	4.100	A
2 - Swansea Road	628	157	1474	1301	0.483	626	848	0.5	0.9	5.326	A
3 - A470 N	1263	316	915	2393	0.528	1261	1186	0.7	1.1	3.178	A
4 - A4102	1211	303	1032	2011	0.602	1209	1143	0.9	1.5	4.472	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1340	335	987	2211	0.606	1339	1258	1.5	1.5	4.129	A
2 - Swansea Road	628	157	1477	1299	0.483	628	849	0.9	0.9	5.362	A
3 - A470 N	1263	316	917	2391	0.528	1263	1189	1.1	1.1	3.189	A
4 - A4102	1211	303	1034	2010	0.603	1211	1145	1.5	1.5	4.506	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1094	273	808	2329	0.470	1096	1029	1.5	0.9	2.928	A
2 - Swansea Road	513	128	1209	1447	0.354	514	695	0.9	0.6	3.865	A
3 - A470 N	1031	258	750	2505	0.412	1033	973	1.1	0.7	2.449	A
4 - A4102	989	247	846	2130	0.464	992	937	1.5	0.9	3.171	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	916	229	676	2415	0.379	917	861	0.9	0.6	2.406	A
2 - Swansea Road	429	107	1011	1557	0.276	430	582	0.6	0.4	3.196	A
3 - A470 N	864	216	628	2589	0.334	864	814	0.7	0.5	2.089	A
4 - A4102	828	207	708	2218	0.374	829	784	0.9	0.6	2.596	A

2031 plus Committed Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	2.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D16	2031 plus Committed Development	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1050	100.000
2 - Swansea Road		ONE HOUR	✓	530	100.000
3 - A470 N		ONE HOUR	✓	775	100.000
4 - A4102		ONE HOUR	✓	587	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	147	510	393
	2 - Swansea Road	185	0	88	257
	3 - A470 N	456	39	8	273
	4 - A4102	207	210	170	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	0	8	1
	2 - Swansea Road	2	0	5	2
	3 - A470 N	8	6	86	5
	4 - A4102	5	6	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.47	2.79	0.9	A	964	1446
2 - Swansea Road	0.41	4.38	0.7	A	486	729
3 - A470 N	0.38	2.59	0.6	A	711	1067
4 - A4102	0.31	2.51	0.5	A	539	808

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	791	198	321	2547	0.311	789	637	0.0	0.4	2.046	A
2 - Swansea Road	399	100	812	1621	0.246	397	298	0.0	0.3	2.940	A
3 - A470 N	584	146	627	2434	0.240	582	582	0.0	0.3	1.944	A
4 - A4102	442	110	516	2234	0.198	441	693	0.0	0.2	2.007	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	944	236	383	2505	0.377	944	762	0.4	0.6	2.304	A
2 - Swansea Road	476	119	971	1530	0.311	476	356	0.3	0.4	3.411	A
3 - A470 N	697	174	750	2353	0.296	697	697	0.3	0.4	2.173	A
4 - A4102	528	132	618	2168	0.243	527	829	0.2	0.3	2.194	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1157	289	469	2447	0.473	1155	933	0.6	0.9	2.783	A
2 - Swansea Road	583	146	1189	1406	0.415	582	436	0.4	0.7	4.365	A
3 - A470 N	854	213	918	2244	0.380	853	853	0.4	0.6	2.586	A
4 - A4102	646	162	756	2078	0.311	646	1015	0.3	0.4	2.514	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1157	289	470	2447	0.473	1157	934	0.9	0.9	2.788	A
2 - Swansea Road	583	146	1190	1405	0.415	583	436	0.7	0.7	4.379	A
3 - A470 N	854	213	919	2243	0.381	854	854	0.6	0.6	2.590	A
4 - A4102	646	162	757	2077	0.311	646	1016	0.4	0.5	2.515	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	944	236	384	2504	0.377	945	763	0.9	0.6	2.312	A
2 - Swansea Road	476	119	973	1529	0.311	477	357	0.7	0.5	3.427	A
3 - A470 N	697	174	752	2352	0.296	698	698	0.6	0.4	2.176	A
4 - A4102	528	132	619	2167	0.243	528	831	0.5	0.3	2.196	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	791	198	321	2546	0.311	791	639	0.6	0.5	2.053	A
2 - Swansea Road	399	100	814	1620	0.246	399	299	0.5	0.3	2.952	A
3 - A470 N	584	146	629	2432	0.240	584	584	0.4	0.3	1.948	A
4 - A4102	442	110	518	2233	0.198	442	695	0.3	0.2	2.012	A

2031 plus Committed Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D17	2031 plus Committed Development	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1068	100.000
2 - Swansea Road		ONE HOUR	✓	459	100.000
3 - A470 N		ONE HOUR	✓	797	100.000
4 - A4102		ONE HOUR	✓	1175	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	338	439	291
	2 - Swansea Road	144	0	83	232
	3 - A470 N	412	64	1	321
	4 - A4102	390	451	335	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	3	1
	2 - Swansea Road	1	0	3	2
	3 - A470 N	6	2	100	2
	4 - A4102	1	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.53	3.46	1.1	A	980	1470
2 - Swansea Road	0.35	3.82	0.5	A	421	632
3 - A470 N	0.36	2.30	0.6	A	731	1097
4 - A4102	0.59	3.96	1.4	A	1078	1617

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	804	201	638	2412	0.333	802	710	0.0	0.5	2.233	A
2 - Swansea Road	346	86	800	1656	0.209	345	640	0.0	0.3	2.742	A
3 - A470 N	600	150	501	2601	0.231	599	644	0.0	0.3	1.798	A
4 - A4102	885	221	466	2345	0.377	882	634	0.0	0.6	2.456	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	960	240	764	2330	0.412	959	849	0.5	0.7	2.626	A
2 - Swansea Road	413	103	957	1569	0.263	412	766	0.3	0.4	3.113	A
3 - A470 N	717	179	599	2535	0.283	716	770	0.3	0.4	1.979	A
4 - A4102	1056	264	558	2285	0.462	1055	758	0.6	0.9	2.924	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1176	294	935	2217	0.530	1174	1040	0.7	1.1	3.444	A
2 - Swansea Road	506	126	1172	1450	0.349	505	937	0.4	0.5	3.809	A
3 - A470 N	878	219	733	2445	0.359	877	943	0.4	0.6	2.295	A
4 - A4102	1294	323	683	2203	0.587	1292	928	0.9	1.4	3.939	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1176	294	936	2216	0.531	1176	1041	1.1	1.1	3.459	A
2 - Swansea Road	506	126	1173	1449	0.349	506	938	0.5	0.5	3.816	A
3 - A470 N	878	219	735	2444	0.359	878	944	0.6	0.6	2.297	A
4 - A4102	1294	323	683	2203	0.587	1294	929	1.4	1.4	3.960	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	960	240	766	2328	0.412	962	851	1.1	0.7	2.637	A
2 - Swansea Road	413	103	960	1567	0.263	414	768	0.5	0.4	3.121	A
3 - A470 N	717	179	601	2534	0.283	717	773	0.6	0.4	1.982	A
4 - A4102	1056	264	558	2285	0.462	1059	760	1.4	0.9	2.943	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	804	201	641	2410	0.334	805	712	0.7	0.5	2.244	A
2 - Swansea Road	346	86	803	1654	0.209	346	642	0.4	0.3	2.754	A
3 - A470 N	600	150	503	2599	0.231	600	647	0.4	0.3	1.800	A
4 - A4102	885	221	468	2344	0.377	886	636	0.9	0.6	2.469	A

2031 plus Committed Development, Sat

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	4.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D18	2031 plus Committed Development	Sat	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1219	100.000
2 - Swansea Road		ONE HOUR	✓	570	100.000
3 - A470 N		ONE HOUR	✓	1152	100.000
4 - A4102		ONE HOUR	✓	1100	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	8	324	503	384
	2 - Swansea Road	212	0	129	229
	3 - A470 N	572	149	3	428
	4 - A4102	356	298	446	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	1	1
	2 - Swansea Road	0	0	2	1
	3 - A470 N	1	1	0	2
	4 - A4102	2	3	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.61	4.14	1.5	A	1118	1678
2 - Swansea Road	0.48	5.37	0.9	A	523	785
3 - A470 N	0.53	3.21	1.1	A	1057	1586
4 - A4102	0.60	4.53	1.5	A	1010	1514

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	918	229	673	2417	0.380	915	862	0.0	0.6	2.393	A
2 - Swansea Road	429	107	1009	1558	0.276	428	579	0.0	0.4	3.181	A
3 - A470 N	868	217	625	2591	0.335	866	812	0.0	0.5	2.085	A
4 - A4102	828	207	709	2217	0.374	826	781	0.0	0.6	2.584	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1096	274	805	2330	0.470	1095	1031	0.6	0.9	2.910	A
2 - Swansea Road	513	128	1207	1448	0.354	512	693	0.4	0.5	3.841	A
3 - A470 N	1036	259	748	2507	0.413	1035	971	0.5	0.7	2.444	A
4 - A4102	989	247	848	2128	0.465	988	934	0.6	0.9	3.154	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1342	335	985	2213	0.607	1339	1262	0.9	1.5	4.110	A
2 - Swansea Road	628	157	1477	1299	0.483	626	848	0.5	0.9	5.337	A
3 - A470 N	1269	317	915	2393	0.530	1267	1189	0.7	1.1	3.194	A
4 - A4102	1211	303	1038	2007	0.603	1209	1143	0.9	1.5	4.493	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1342	335	987	2211	0.607	1342	1264	1.5	1.5	4.140	A
2 - Swansea Road	628	157	1480	1298	0.484	628	849	0.9	0.9	5.372	A
3 - A470 N	1269	317	917	2391	0.531	1269	1191	1.1	1.1	3.205	A
4 - A4102	1211	303	1040	2006	0.604	1211	1145	1.5	1.5	4.528	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1096	274	808	2329	0.471	1098	1034	1.5	0.9	2.931	A
2 - Swansea Road	513	128	1211	1446	0.354	514	695	0.9	0.6	3.869	A
3 - A470 N	1036	259	750	2505	0.414	1038	975	1.1	0.7	2.457	A
4 - A4102	989	247	851	2127	0.465	992	937	1.5	0.9	3.180	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	918	229	676	2415	0.380	919	865	0.9	0.6	2.409	A
2 - Swansea Road	429	107	1013	1556	0.276	430	582	0.6	0.4	3.201	A
3 - A470 N	868	217	628	2589	0.335	868	815	0.7	0.5	2.092	A
4 - A4102	828	207	712	2215	0.374	829	784	0.9	0.6	2.601	A

2031 plus Committed Development and Average Rhydycar West, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.06	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D19	2031 plus Committed Development and Average Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1097	100.000
2 - Swansea Road		ONE HOUR	✓	530	100.000
3 - A470 N		ONE HOUR	✓	807	100.000
4 - A4102		ONE HOUR	✓	587	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	147	557	393
	2 - Swansea Road	185	0	88	257
	3 - A470 N	488	39	8	273
	4 - A4102	207	210	170	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	5	8	1
	2 - Swansea Road	2	0	5	2
	3 - A470 N	8	6	86	5
	4 - A4102	5	6	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.50	2.95	1.0	A	1007	1510
2 - Swansea Road	0.42	4.54	0.7	A	486	729
3 - A470 N	0.40	2.66	0.7	A	741	1111
4 - A4102	0.31	2.56	0.5	A	539	808

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	826	207	320	2528	0.327	824	661	0.0	0.5	2.111	A
2 - Swansea Road	399	100	847	1601	0.249	397	298	0.0	0.3	2.989	A
3 - A470 N	608	152	627	2434	0.250	606	617	0.0	0.3	1.968	A
4 - A4102	442	110	540	2218	0.199	441	693	0.0	0.2	2.024	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	986	247	383	2486	0.397	986	790	0.5	0.7	2.397	A
2 - Swansea Road	476	119	1013	1506	0.316	476	356	0.3	0.5	3.491	A
3 - A470 N	726	181	750	2354	0.308	725	739	0.3	0.4	2.210	A
4 - A4102	528	132	646	2149	0.245	527	829	0.2	0.3	2.219	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1208	302	469	2430	0.497	1207	968	0.7	1.0	2.942	A
2 - Swansea Road	583	146	1240	1376	0.424	582	436	0.5	0.7	4.527	A
3 - A470 N	889	222	918	2245	0.396	888	904	0.4	0.7	2.651	A
4 - A4102	646	162	791	2055	0.314	646	1015	0.3	0.5	2.554	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1208	302	470	2429	0.497	1208	969	1.0	1.0	2.947	A
2 - Swansea Road	583	146	1241	1375	0.424	583	436	0.7	0.7	4.542	A
3 - A470 N	889	222	919	2244	0.396	889	905	0.7	0.7	2.655	A
4 - A4102	646	162	792	2054	0.315	646	1016	0.5	0.5	2.555	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	986	247	384	2486	0.397	988	792	1.0	0.7	2.404	A
2 - Swansea Road	476	119	1015	1505	0.316	477	357	0.7	0.5	3.505	A
3 - A470 N	726	181	752	2353	0.308	726	740	0.7	0.4	2.214	A
4 - A4102	528	132	648	2148	0.246	528	831	0.5	0.3	2.222	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	826	207	321	2527	0.327	827	663	0.7	0.5	2.117	A
2 - Swansea Road	399	100	850	1599	0.249	399	299	0.5	0.3	3.002	A
3 - A470 N	608	152	629	2433	0.250	608	619	0.4	0.3	1.973	A
4 - A4102	442	110	542	2217	0.199	442	695	0.3	0.2	2.028	A

2031 plus Committed Development and Average Rhydycar West, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.65	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D20	2031 plus Committed Development and Average Rhydycar West	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1136	100.000
2 - Swansea Road		ONE HOUR	✓	459	100.000
3 - A470 N		ONE HOUR	✓	902	100.000
4 - A4102		ONE HOUR	✓	1175	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	338	506	291
	2 - Swansea Road	144	0	83	232
	3 - A470 N	516	64	1	321
	4 - A4102	390	451	335	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	4	1
	2 - Swansea Road	1	0	3	2
	3 - A470 N	6	2	100	2
	4 - A4102	1	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.57	3.75	1.3	A	1042	1563
2 - Swansea Road	0.36	4.00	0.6	A	421	632
3 - A470 N	0.41	2.49	0.7	A	828	1241
4 - A4102	0.61	4.33	1.5	A	1078	1617

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	855	214	638	2405	0.355	853	789	0.0	0.5	2.316	A
2 - Swansea Road	346	86	851	1626	0.213	345	640	0.0	0.3	2.805	A
3 - A470 N	679	170	501	2594	0.262	678	695	0.0	0.4	1.879	A
4 - A4102	885	221	545	2293	0.386	882	634	0.0	0.6	2.548	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1021	255	764	2323	0.439	1020	943	0.5	0.8	2.761	A
2 - Swansea Road	413	103	1018	1533	0.269	412	765	0.3	0.4	3.211	A
3 - A470 N	811	203	599	2528	0.321	810	831	0.4	0.5	2.096	A
4 - A4102	1056	264	652	2222	0.475	1055	758	0.6	0.9	3.082	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1250	313	934	2211	0.565	1248	1155	0.8	1.3	3.730	A
2 - Swansea Road	506	126	1246	1406	0.359	505	937	0.4	0.6	3.989	A
3 - A470 N	993	248	733	2438	0.407	992	1017	0.5	0.7	2.488	A
4 - A4102	1294	323	798	2126	0.609	1291	928	0.9	1.5	4.299	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1250	313	936	2210	0.566	1250	1156	1.3	1.3	3.749	A
2 - Swansea Road	506	126	1248	1405	0.360	506	938	0.6	0.6	4.001	A
3 - A470 N	993	248	735	2437	0.407	993	1019	0.7	0.7	2.491	A
4 - A4102	1294	323	799	2126	0.609	1294	929	1.5	1.5	4.327	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1021	255	766	2322	0.440	1023	946	1.3	0.8	2.775	A
2 - Swansea Road	413	103	1021	1532	0.270	414	768	0.6	0.4	3.221	A
3 - A470 N	811	203	601	2527	0.321	812	834	0.7	0.5	2.099	A
4 - A4102	1056	264	653	2222	0.476	1059	760	1.5	0.9	3.102	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	855	214	641	2404	0.356	856	791	0.8	0.6	2.327	A
2 - Swansea Road	346	86	854	1625	0.213	346	642	0.4	0.3	2.815	A
3 - A470 N	679	170	503	2592	0.262	679	698	0.5	0.4	1.884	A
4 - A4102	885	221	546	2292	0.386	886	636	0.9	0.6	2.564	A

2031 plus Committed Development and Average Rhydycar West, Sat

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	4.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D21	2031 plus Committed Development and Average Rhydycar West	Sat	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1335	100.000
2 - Swansea Road		ONE HOUR	✓	570	100.000
3 - A470 N		ONE HOUR	✓	1299	100.000
4 - A4102		ONE HOUR	✓	1100	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	8	324	619	384
	2 - Swansea Road	212	0	129	229
	3 - A470 N	719	149	3	428
	4 - A4102	356	298	446	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	2	1
	2 - Swansea Road	0	0	2	1
	3 - A470 N	2	1	0	2
	4 - A4102	2	3	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.67	4.92	2.0	A	1225	1837
2 - Swansea Road	0.51	6.04	1.0	A	523	785
3 - A470 N	0.60	3.80	1.5	A	1192	1788
4 - A4102	0.64	5.24	1.8	A	1010	1514

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1005	251	673	2405	0.418	1002	972	0.0	0.7	2.560	A
2 - Swansea Road	429	107	1096	1507	0.285	428	579	0.0	0.4	3.331	A
3 - A470 N	978	245	625	2576	0.380	976	899	0.0	0.6	2.247	A
4 - A4102	828	207	819	2143	0.387	826	781	0.0	0.6	2.730	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1200	300	805	2319	0.517	1199	1163	0.7	1.1	3.207	A
2 - Swansea Road	513	128	1311	1388	0.369	512	693	0.4	0.6	4.106	A
3 - A470 N	1168	292	747	2492	0.469	1167	1075	0.6	0.9	2.713	A
4 - A4102	989	247	980	2039	0.485	988	934	0.6	0.9	3.418	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1470	367	985	2202	0.667	1466	1423	1.1	2.0	4.864	A
2 - Swansea Road	628	157	1603	1226	0.512	626	847	0.6	1.0	5.987	A
3 - A470 N	1430	358	914	2379	0.601	1428	1315	0.9	1.5	3.775	A
4 - A4102	1211	303	1199	1899	0.638	1208	1143	0.9	1.7	5.187	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1470	367	987	2201	0.668	1469	1426	2.0	2.0	4.923	A
2 - Swansea Road	628	157	1607	1223	0.513	628	849	1.0	1.0	6.044	A
3 - A470 N	1430	358	917	2377	0.602	1430	1319	1.5	1.5	3.800	A
4 - A4102	1211	303	1202	1898	0.638	1211	1145	1.7	1.8	5.245	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1200	300	809	2317	0.518	1204	1167	2.0	1.1	3.242	A
2 - Swansea Road	513	128	1316	1385	0.370	514	696	1.0	0.6	4.146	A
3 - A470 N	1168	292	751	2490	0.469	1170	1080	1.5	0.9	2.734	A
4 - A4102	989	247	983	2037	0.485	992	938	1.8	1.0	3.456	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1005	251	676	2403	0.418	1006	976	1.1	0.7	2.581	A
2 - Swansea Road	429	107	1101	1504	0.285	430	582	0.6	0.4	3.354	A
3 - A470 N	978	245	628	2574	0.380	979	903	0.9	0.6	2.258	A
4 - A4102	828	207	823	2140	0.387	830	784	1.0	0.6	2.748	A

2026 plus Committed Development and Peak Rhydycar West, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	2.92	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
D22	2026 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1054	100.000
2 - Swansea Road		ONE HOUR	✓	507	100.000
3 - A470 N		ONE HOUR	✓	783	100.000
4 - A4102		ONE HOUR	✓	562	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	141	536	377
	2 - Swansea Road	177	0	84	246
	3 - A470 N	477	37	7	261
	4 - A4102	198	201	163	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	5	8	1
	2 - Swansea Road	2	0	5	2
	3 - A470 N	8	6	86	5
	4 - A4102	5	6	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.48	2.81	0.9	A	967	1450
2 - Swansea Road	0.40	4.26	0.7	A	466	698
3 - A470 N	0.38	2.56	0.6	A	719	1078
4 - A4102	0.30	2.48	0.4	A	516	774

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	793	198	307	2537	0.313	791	641	0.0	0.5	2.061	A
2 - Swansea Road	382	95	813	1620	0.236	381	285	0.0	0.3	2.902	A
3 - A470 N	590	147	601	2452	0.241	588	593	0.0	0.3	1.931	A
4 - A4102	423	106	525	2228	0.190	422	664	0.0	0.2	1.992	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	947	237	367	2497	0.379	947	766	0.5	0.6	2.320	A
2 - Swansea Road	456	114	973	1529	0.298	456	341	0.3	0.4	3.352	A
3 - A470 N	704	176	718	2375	0.296	704	710	0.3	0.4	2.154	A
4 - A4102	505	126	628	2161	0.234	505	794	0.2	0.3	2.174	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1160	290	450	2442	0.475	1159	938	0.6	0.9	2.802	A
2 - Swansea Road	559	140	1191	1404	0.398	558	418	0.4	0.7	4.248	A
3 - A470 N	862	216	879	2270	0.380	862	869	0.4	0.6	2.554	A
4 - A4102	619	155	769	2069	0.299	619	972	0.3	0.4	2.481	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1160	290	450	2442	0.475	1160	939	0.9	0.9	2.807	A
2 - Swansea Road	559	140	1192	1404	0.398	559	418	0.7	0.7	4.259	A
3 - A470 N	862	216	881	2270	0.380	862	870	0.6	0.6	2.558	A
4 - A4102	619	155	770	2069	0.299	619	973	0.4	0.4	2.482	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	947	237	368	2497	0.379	948	768	0.9	0.6	2.326	A
2 - Swansea Road	456	114	975	1528	0.299	457	342	0.7	0.4	3.366	A
3 - A470 N	704	176	720	2374	0.297	705	711	0.6	0.4	2.159	A
4 - A4102	505	126	629	2160	0.234	506	796	0.4	0.3	2.178	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	793	198	308	2536	0.313	794	643	0.6	0.5	2.068	A
2 - Swansea Road	382	95	816	1619	0.236	382	286	0.4	0.3	2.915	A
3 - A470 N	590	147	603	2450	0.241	590	595	0.4	0.3	1.936	A
4 - A4102	423	106	527	2227	0.190	424	666	0.3	0.2	1.997	A

2026 plus Committed Development and Peak Rhydycar West, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.54	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
D23	2026 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1128	100.000
2 - Swansea Road		ONE HOUR	✓	440	100.000
3 - A470 N		ONE HOUR	✓	926	100.000
4 - A4102		ONE HOUR	✓	1125	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	324	525	279
	2 - Swansea Road	138	0	80	222
	3 - A470 N	557	61	1	307
	4 - A4102	373	431	320	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	4	1
	2 - Swansea Road	1	0	3	2
	3 - A470 N	6	2	100	2
	4 - A4102	1	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.56	3.63	1.2	A	1035	1552
2 - Swansea Road	0.34	3.89	0.5	A	403	605
3 - A470 N	0.42	2.51	0.7	A	850	1274
4 - A4102	0.59	4.17	1.4	A	1033	1549

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	849	212	611	2419	0.351	847	802	0.0	0.5	2.286	A
2 - Swansea Road	331	83	845	1629	0.203	330	613	0.0	0.3	2.771	A
3 - A470 N	697	174	480	2604	0.268	696	696	0.0	0.4	1.886	A
4 - A4102	847	212	568	2277	0.372	845	607	0.0	0.6	2.510	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1014	253	731	2341	0.433	1013	959	0.5	0.8	2.710	A
2 - Swansea Road	395	99	1011	1537	0.257	395	733	0.3	0.3	3.153	A
3 - A470 N	832	208	574	2541	0.328	832	832	0.4	0.5	2.106	A
4 - A4102	1012	253	680	2203	0.459	1011	726	0.6	0.8	3.015	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1242	310	895	2234	0.556	1240	1174	0.8	1.2	3.616	A
2 - Swansea Road	484	121	1237	1410	0.343	483	897	0.3	0.5	3.882	A
3 - A470 N	1019	255	702	2455	0.415	1018	1019	0.5	0.7	2.504	A
4 - A4102	1239	310	832	2103	0.589	1237	888	0.8	1.4	4.146	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1242	310	896	2233	0.556	1242	1176	1.2	1.2	3.631	A
2 - Swansea Road	484	121	1239	1409	0.344	484	899	0.5	0.5	3.891	A
3 - A470 N	1019	255	703	2455	0.415	1019	1020	0.7	0.7	2.507	A
4 - A4102	1239	310	833	2102	0.589	1239	889	1.4	1.4	4.170	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1014	253	733	2339	0.433	1016	961	1.2	0.8	2.725	A
2 - Swansea Road	395	99	1014	1535	0.258	396	735	0.5	0.3	3.164	A
3 - A470 N	832	208	575	2540	0.328	833	835	0.7	0.5	2.111	A
4 - A4102	1012	253	681	2202	0.459	1014	727	1.4	0.9	3.036	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	849	212	614	2418	0.351	850	805	0.8	0.5	2.298	A
2 - Swansea Road	331	83	848	1627	0.203	331	615	0.3	0.3	2.780	A
3 - A470 N	697	174	481	2603	0.268	697	698	0.5	0.4	1.888	A
4 - A4102	847	212	570	2275	0.372	848	609	0.9	0.6	2.525	A

2026 plus Committed Development and Peak Rhydycar West, Sat

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	5.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D24	2026 plus Committed Development and Peak Rhydycar West	Sat	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1402	100.000
2 - Swansea Road		ONE HOUR	✓	545	100.000
3 - A470 N		ONE HOUR	✓	1369	100.000
4 - A4102		ONE HOUR	✓	1051	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	7	310	718	367
	2 - Swansea Road	203	0	124	218
	3 - A470 N	815	142	3	409
	4 - A4102	340	285	426	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	3	1
	2 - Swansea Road	0	0	2	1
	3 - A470 N	3	1	0	2
	4 - A4102	2	3	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.70	5.32	2.3	A	1286	1929
2 - Swansea Road	0.51	6.18	1.0	A	500	750
3 - A470 N	0.63	4.05	1.7	A	1256	1884
4 - A4102	0.63	5.29	1.7	A	964	1447

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1055	264	643	2414	0.437	1052	1024	0.0	0.8	2.639	A
2 - Swansea Road	410	103	1142	1479	0.277	409	553	0.0	0.4	3.359	A
3 - A470 N	1030	258	597	2584	0.399	1028	954	0.0	0.7	2.309	A
4 - A4102	791	198	878	2102	0.377	789	746	0.0	0.6	2.738	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1260	315	769	2332	0.540	1259	1225	0.8	1.2	3.349	A
2 - Swansea Road	490	122	1366	1354	0.362	489	662	0.4	0.6	4.158	A
3 - A470 N	1230	308	714	2504	0.491	1229	1141	0.7	1.0	2.820	A
4 - A4102	945	236	1051	1991	0.475	944	892	0.6	0.9	3.436	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1543	386	941	2221	0.695	1539	1499	1.2	2.2	5.248	A
2 - Swansea Road	600	150	1670	1184	0.506	598	809	0.6	1.0	6.122	A
3 - A470 N	1507	377	873	2397	0.629	1504	1395	1.0	1.7	4.020	A
4 - A4102	1157	289	1286	1839	0.629	1154	1092	0.9	1.7	5.230	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1543	386	943	2219	0.695	1543	1502	2.2	2.3	5.323	A
2 - Swansea Road	600	150	1675	1182	0.508	600	811	1.0	1.0	6.184	A
3 - A470 N	1507	377	876	2395	0.629	1507	1399	1.7	1.7	4.053	A
4 - A4102	1157	289	1288	1838	0.630	1157	1094	1.7	1.7	5.290	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1260	315	772	2330	0.541	1264	1230	2.3	1.2	3.391	A
2 - Swansea Road	490	122	1372	1350	0.363	492	665	1.0	0.6	4.201	A
3 - A470 N	1230	308	717	2502	0.492	1233	1146	1.7	1.0	2.845	A
4 - A4102	945	236	1055	1988	0.475	948	896	1.7	0.9	3.473	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1055	264	646	2412	0.438	1057	1029	1.2	0.8	2.659	A
2 - Swansea Road	410	103	1147	1476	0.278	411	556	0.6	0.4	3.381	A
3 - A470 N	1030	258	600	2582	0.399	1032	958	1.0	0.7	2.325	A
4 - A4102	791	198	882	2099	0.377	792	749	0.9	0.6	2.756	A

2031 plus Committed Development and Peak Rhydycar West, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.07	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D25	2031 plus Committed Development and Peak Rhydycar West	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1098	100.000
2 - Swansea Road		ONE HOUR	✓	530	100.000
3 - A470 N		ONE HOUR	✓	816	100.000
4 - A4102		ONE HOUR	✓	587	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	147	557	393
	2 - Swansea Road	185	0	88	257
	3 - A470 N	496	39	8	273
	4 - A4102	207	210	170	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	5	8	1
	2 - Swansea Road	2	0	5	2
	3 - A470 N	8	6	86	5
	4 - A4102	5	6	5	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.50	2.95	1.0	A	1007	1511
2 - Swansea Road	0.42	4.54	0.7	A	486	729
3 - A470 N	0.40	2.67	0.7	A	748	1123
4 - A4102	0.32	2.57	0.5	A	539	808

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	826	207	320	2528	0.327	824	667	0.0	0.5	2.111	A
2 - Swansea Road	399	100	847	1601	0.249	397	298	0.0	0.3	2.989	A
3 - A470 N	614	154	627	2435	0.252	613	618	0.0	0.3	1.975	A
4 - A4102	442	110	547	2214	0.200	441	693	0.0	0.2	2.029	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	987	247	383	2486	0.397	986	798	0.5	0.7	2.398	A
2 - Swansea Road	476	119	1013	1506	0.316	476	356	0.3	0.5	3.492	A
3 - A470 N	733	183	750	2355	0.311	733	739	0.3	0.5	2.220	A
4 - A4102	528	132	654	2144	0.246	527	829	0.2	0.3	2.226	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1209	302	469	2430	0.497	1207	977	0.7	1.0	2.943	A
2 - Swansea Road	583	146	1241	1376	0.424	582	436	0.5	0.7	4.529	A
3 - A470 N	898	225	918	2245	0.400	897	905	0.5	0.7	2.669	A
4 - A4102	646	162	801	2049	0.315	646	1015	0.3	0.5	2.565	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1209	302	470	2429	0.498	1209	978	1.0	1.0	2.948	A
2 - Swansea Road	583	146	1242	1375	0.424	583	436	0.7	0.7	4.544	A
3 - A470 N	898	225	919	2244	0.400	898	906	0.7	0.7	2.673	A
4 - A4102	646	162	801	2048	0.315	646	1016	0.5	0.5	2.566	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	987	247	384	2486	0.397	988	800	1.0	0.7	2.404	A
2 - Swansea Road	476	119	1015	1505	0.316	477	357	0.7	0.5	3.509	A
3 - A470 N	733	183	752	2353	0.312	734	741	0.7	0.5	2.225	A
4 - A4102	528	132	655	2143	0.246	528	831	0.5	0.3	2.229	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	826	207	321	2527	0.327	827	669	0.7	0.5	2.119	A
2 - Swansea Road	399	100	850	1599	0.249	399	299	0.5	0.3	3.001	A
3 - A470 N	614	154	629	2433	0.252	615	620	0.5	0.3	1.981	A
4 - A4102	442	110	549	2213	0.200	442	695	0.3	0.3	2.033	A

2031 plus Committed Development and Peak Rhydycar West, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	3.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D26	2031 plus Committed Development and Peak Rhydycar West	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1173	100.000
2 - Swansea Road		ONE HOUR	✓	459	100.000
3 - A470 N		ONE HOUR	✓	960	100.000
4 - A4102		ONE HOUR	✓	1175	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	338	544	291
	2 - Swansea Road	144	0	83	232
	3 - A470 N	574	64	1	321
	4 - A4102	390	451	335	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	4	1
	2 - Swansea Road	1	0	3	2
	3 - A470 N	6	2	100	2
	4 - A4102	1	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.59	3.93	1.4	A	1076	1614
2 - Swansea Road	0.37	4.11	0.6	A	421	632
3 - A470 N	0.43	2.61	0.8	A	881	1321
4 - A4102	0.62	4.56	1.6	A	1078	1617

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	883	221	638	2402	0.368	881	832	0.0	0.6	2.364	A
2 - Swansea Road	346	86	879	1610	0.215	345	640	0.0	0.3	2.841	A
3 - A470 N	722	181	501	2590	0.279	721	723	0.0	0.4	1.924	A
4 - A4102	885	221	588	2264	0.391	882	634	0.0	0.6	2.602	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1054	264	763	2320	0.454	1053	995	0.6	0.8	2.839	A
2 - Swansea Road	413	103	1051	1514	0.273	412	765	0.3	0.4	3.268	A
3 - A470 N	863	216	599	2525	0.342	862	865	0.4	0.5	2.165	A
4 - A4102	1056	264	704	2188	0.483	1055	758	0.6	0.9	3.176	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1291	323	934	2208	0.585	1289	1218	0.8	1.4	3.907	A
2 - Swansea Road	506	126	1287	1383	0.366	505	937	0.4	0.6	4.097	A
3 - A470 N	1057	264	733	2435	0.434	1056	1058	0.5	0.8	2.608	A
4 - A4102	1294	323	861	2084	0.621	1291	928	0.9	1.6	4.526	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1291	323	936	2207	0.585	1291	1220	1.4	1.4	3.930	A
2 - Swansea Road	506	126	1289	1381	0.366	506	938	0.6	0.6	4.109	A
3 - A470 N	1057	264	735	2434	0.434	1057	1060	0.8	0.8	2.612	A
4 - A4102	1294	323	862	2083	0.621	1294	929	1.6	1.6	4.560	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1054	264	766	2318	0.455	1057	998	1.4	0.8	2.857	A
2 - Swansea Road	413	103	1055	1512	0.273	414	768	0.6	0.4	3.278	A
3 - A470 N	863	216	601	2523	0.342	864	868	0.8	0.5	2.169	A
4 - A4102	1056	264	705	2187	0.483	1059	760	1.6	0.9	3.199	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	883	221	641	2400	0.368	884	835	0.8	0.6	2.377	A
2 - Swansea Road	346	86	882	1608	0.215	346	642	0.4	0.3	2.852	A
3 - A470 N	722	181	503	2589	0.279	723	726	0.5	0.4	1.929	A
4 - A4102	885	221	590	2262	0.391	886	636	0.9	0.6	2.616	A

2031 plus Committed Development and Peak Rhydycar West, Sat

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A470 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A4720 / A4102 / Swansea Rd Roundabout	Standard Roundabout		1, 2, 3, 4	5.68	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D27	2031 plus Committed Development and Peak Rhydycar West	Sat	ONE HOUR	11:45	13:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A470 S		ONE HOUR	✓	1456	100.000
2 - Swansea Road		ONE HOUR	✓	570	100.000
3 - A470 N		ONE HOUR	✓	1420	100.000
4 - A4102		ONE HOUR	✓	1100	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	8	324	740	384
	2 - Swansea Road	212	0	129	229
	3 - A470 N	840	149	3	428
	4 - A4102	356	298	446	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A470 S	2 - Swansea Road	3 - A470 N	4 - A4102
From	1 - A470 S	0	1	3	1
	2 - Swansea Road	0	0	2	1
	3 - A470 N	3	1	0	2
	4 - A4102	2	3	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A470 S	0.73	6.11	2.7	A	1336	2004
2 - Swansea Road	0.55	6.95	1.2	A	523	785
3 - A470 N	0.66	4.47	1.9	A	1303	1954
4 - A4102	0.67	6.03	2.0	A	1010	1514

Main Results for each time segment

11:45 - 12:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1096	274	673	2395	0.458	1093	1063	0.0	0.8	2.757	A
2 - Swansea Road	429	107	1187	1454	0.295	428	579	0.0	0.4	3.501	A
3 - A470 N	1069	267	625	2566	0.417	1066	990	0.0	0.7	2.396	A
4 - A4102	828	207	910	2082	0.398	826	781	0.0	0.7	2.860	A

12:00 - 12:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1309	327	805	2310	0.567	1307	1271	0.8	1.3	3.585	A
2 - Swansea Road	513	128	1420	1324	0.387	512	693	0.4	0.6	4.425	A
3 - A470 N	1276	319	747	2483	0.514	1275	1184	0.7	1.1	2.978	A
4 - A4102	989	247	1088	1967	0.503	988	934	0.7	1.0	3.672	A

12:15 - 12:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1603	401	984	2193	0.731	1598	1554	1.3	2.7	5.989	A
2 - Swansea Road	628	157	1735	1148	0.547	626	847	0.6	1.2	6.857	A
3 - A470 N	1563	391	913	2370	0.660	1560	1447	1.1	1.9	4.424	A
4 - A4102	1211	303	1331	1810	0.669	1207	1142	1.0	2.0	5.932	A

12:30 - 12:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1603	401	987	2191	0.732	1603	1558	2.7	2.7	6.114	A
2 - Swansea Road	628	157	1741	1145	0.548	628	849	1.2	1.2	6.953	A
3 - A470 N	1563	391	916	2368	0.660	1563	1452	1.9	1.9	4.472	A
4 - A4102	1211	303	1334	1808	0.670	1211	1145	2.0	2.0	6.028	A

12:45 - 13:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1309	327	809	2307	0.567	1314	1277	2.7	1.3	3.648	A
2 - Swansea Road	513	128	1427	1320	0.388	515	696	1.2	0.6	4.485	A
3 - A470 N	1276	319	752	2480	0.515	1280	1191	1.9	1.1	3.007	A
4 - A4102	989	247	1093	1964	0.504	993	939	2.0	1.0	3.722	A

13:00 - 13:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A470 S	1096	274	676	2393	0.458	1098	1067	1.3	0.9	2.785	A
2 - Swansea Road	429	107	1193	1451	0.296	430	582	0.6	0.4	3.531	A
3 - A470 N	1069	267	628	2564	0.417	1070	995	1.1	0.7	2.412	A
4 - A4102	828	207	914	2079	0.398	830	784	1.0	0.7	2.886	A