ASD Build

Land at Abernant Road

Transport Assessment

May 2023

(Revision B, September 2023)

BANCROFT CONSULTING

bancroftconsulting.co.uk

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CONTENTS

TABLES

FIGURES

DRAWINGS

APPENDICES

1.0 INTRODUCTION

1.1 Bancroft Consulting were appointed by ASD Build to provide highways and transport advice in respect of proposals to develop up to 250 dwellings on land north of Abernant Road in Aberdare, Rhondda Cynon Taf. **Figure 1** shows the general site location whilst **Figure 2** shows it within the context of its local surroundings.

1.2 The site has been designated as part of 'NSA 9.6 – Land at Nant y Wenallt, Abernant Road' within the Rhonda Cynon Taf Local Development Plan (up to 2021, which is the latest available plan as the 2022 to 2027 plan is currently being prepared). The 2021 Local Development Plan states *"the 6.1 hectare site is allocated for residential use, although the wooded area around the stream is a designated SINC, which is unsuitable for development".*

1.3 By way of background, the site was subject to a Feasibility Study produced by Bancroft Consulting in May 2020. The objective of this study was to identify access opportunities to the site from Abernant Road, with consideration of the consented (and now built) development of 7 dwellings at the site. The report identified several access options from Abernant Road alongside internal opportunities to connect the developments. The access layouts were designed with consideration of the physical constraints and in particular, the level differences between the development site and Abernant Road. Presenting various options was necessary at this early stage to begin negotiations with the Council and establish a preferred access and internal strategy before any application was submitted. Relevant extracts from the Feasibility Study are contained at **Appendix A.**

1.4 Following the Feasibility Study, negotiations began with Rhondda Cynon Taf Borough Council (RCTBC) acting in their role as the Highway Authority, to establish an appropriate way forward. This culminated in an agreement with the council as summarised below:

- The scheme could be served from a single point of access alongside an emergency access point.

- The emergency access point could be informal and tested using a swept path analysis of typical emergency service vehicles.
- It was considered that the most feasible bus route would be through the adjacent Aberdare Hospital site housing development. This would then extend through the proposed development connecting to Abernant Road and help reduce walking distances to nearby bus stops for pedestrians.
- All roads along the bus route would comprise a 'Distributor Road' with a 6.75 metres wide carriageway, a 3 metres wide footway/cycleway on one side and a 2 metres wide footway on the other. Any other roads within the estate not forming the bus route could adopt the standards of an 'Approach Road' comprising a 5.5 metres wide carriageway and 2 metres wide footways on both sides.
- It was also agreed that a similar road layout to that shown in Drawing Number F20029/04 (contained in **Appendix B**) should be suitable to serve the development.
- The Highway Authority also requested that the scope of the Transport Assessment (TA) be agreed upon before preparing the report. This should include details of trip rates, access strategy, committed developments, the study area for further detailed assessment and sustainable travel opportunities.

1.5 The email outlining the above agreement with the Highway Authority is contained in **Appendix C**.

1.6 A formal Scoping Study has not been submitted following this agreement although there has been continued liaison with the Highway Authority throughout the initial design process leading up to the preparation of this report. The requirements for the TA and what should be included have also considered the application and subsequent highways comments at the former Aberdare Hospital Site (Rhondda Cynon Taf Borough Council Planning Reference: 22/0676/10) which is an approved application for up to 299 residential dwellings. In addition, an outline of what is expected from the TA was provided by the Council in an email dated 27 March 2023. This showed the Highway Authority would expect the TA to assess the potential impact of development traffic on the surrounding highway network, explore the possibility of providing a new bus route within the site masterplan and

highlight the sustainability credentials of the site. The email also stated that *"any application should be supported by a robust Travel Plan"*. A copy of this email is contained in **Appendix D.**

1.7 As mentioned, a Planning Application at the former Aberdare Hospital site for up to 299 dwellings has now been approved and is currently subject to negotiations regarding Section 106 Agreements. A Transport Assessment supporting the development was submitted on 31 May 2022 and, following liaison with the Highway Authority, a Technical Note was submitted in December 2022. The Highway Authority confirmed on 8 February 2023 that they had no objection (subject to conditions) to the development and these Consultee Comments are contained in **Appendix E**.

1.8 To inform this report and earlier stages of work on this project, various detailed site visits and meetings have been completed. The first of these was on 17 March 2020, which aimed to understand any constraints that could affect access to the site and gain an understanding of the existing conditions along Abernant Road. The most recent site visit took place on 15 September 2022. This site visit predominantly looked at the larger study area (established from the Aberdare Hospital site application) and a manual radar speed survey was also completed on Abernant Road at the proposed site access. Throughout the project, meetings with the wider Project Team have been frequent and have occasionally included members of RCTBC, such as on 10 February 2023 which aimed to understand the Council's current position regarding the proposed development.

1.9 For ease of reference, this Transport Assessment is structured as follows:

- **Section 2 -** provides a review of relevant local and national planning policy and design guidance.
- **Section 3 -** outlines the existing conditions in terms of the local highway network, committed developments and road safety record.
- **Section 4 -** provides a review of existing access by pedestrians, cyclists and public transport users.
- **Section 5 -** outlines the development proposals.

- **Section 6 -** describes the traffic generation, distribution and growth calculations.
- **Section 7 -** details the proposed site access arrangement and internal highway considerations such as parking and servicing.
- **Section 8 –** provides capacity assessments of the junctions within the study area.
- **Section 9 -** discusses future opportunities for residents of the new development to travel by non-car modes and presents a Transport Implementation Strategy (TIS).
- **Section 10** – provides a summary and conclusions.

1.10 This Transport Assessment has been prepared with due regard to the local adopted standards contained in the Rhondda Cynon Taf Supplementary Planning Guidance (2011). The principles set out in 'Manual for Streets' (DfT, March 2007) and 'Manual for Streets 2 – Wider Application of the Principles' (CIHT, September 2010) have also been considered. Additionally, adopted Welsh policy has been considered, such as the TAN 18 document, which places significant emphasis on non-car modes of travel for new developments.

2.0 POLICY CONTEXT AND RELEVANT GUIDANCE

2.1 Planning Policy Wales (Edition 11, 2021)

2.1.1 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Assembly Government. This is supplemented by a series of Technical Advice Notes (TANs).

2.1.2 Sections 3.12 and 3.13 of this document state *"good design is about avoiding the creation of car-based developments"* and that *"existing infrastructure must be utilised and maximised, wherever possible."* This suggests that any new infrastructure should be integrated into the existing networks and should not emphasise car-based movements.

2.1.3 Section 4.1.1 of the document, which focuses on transport, states that *"the planning system should enable people to access jobs and services through shorter, more efficient and sustainable journeys, by walking, cycling and public transport. By influencing the location, scale, density, mix of uses and design of new development, the planning system can improve choice in transport and secure accessibility in a way which supports sustainable development, increases physical activity, improves health and helps to tackle the causes of climate change and airborne pollution by:*

- *Enabling More Sustainable Travel Choices – measures to increase walking, cycling and public transport, reduce dependency on the car for daily travel;*
- *Network Management – measures to make best use of the available capacity, supported by targeted new infrastructure; and*
- *Demand Management – the application of strategies and policies to reduce travel demand, specifically that of single occupancy private vehicles."*

2.1.4 Welsh Government policy requires the use of a sustainable transport hierarchy for new developments, prioritising walking, cycling and public transport ahead of private motor vehicles. This hierarchy should be used to reduce the need to travel and prevent *"car-dependent developments in unsustainable locations"* as per Section 4.1.13.

2.1.5 To promote walking and cycling, this document refers to the Active Travel (Wales) Act 2013, with Section 4.1.27 stating *"the Active Travel Act (Wales) 2013 makes walking and cycling the preferred option for shorter journeys, particularly everyday journeys, such as to and from a workplace or education establishment, or in order to access health, leisure or other services or facilities. The Active Travel Act requires local authorities to produce Integrated Network Maps, identifying the walking and cycling routes required to create fully integrated networks for walking and cycling to access work, education, services and facilities".*

2.1.6 Planning Policy Wales also states in Section 4.1.29 that *"the planning system has an important role to play in promoting and supporting the delivery of the Active Travel Act and creating the right environments and infrastructure to make it easier for people to walk and cycle, including new and improved routes and related facilities".*

2.1.7 In relation to car parking, Planning Policy Wales details in Section 4.1.49 that *"car parking provision is a major influence on how people choose to travel and the pattern of development. Where and how cars are parked can in turn be a major factor in the quality of a place".* This shows developments are encouraged not to overprovision for car parking due to it encouraging the use of cars.

2.2 Llwybr Newydd: The Wales Transport Strategy 2021

2.2.1 The Wales Transport Strategy sets out a vision for how the transport system can deliver priorities for Wales, stating in its introduction that it aims to create a *"more prosperous, green and equal society".* This was published in March 2021 and sets a long-term direction with three immediate priorities as shown in Section 2 of the document:

- *"Priority 1 – Bring services to people in order to reduce the need to travel"*
- *"Priority 2 – Allow people and goods to move easily from door to door by accessible, sustainable and efficient transport services and infrastructure"*
- *"Priority 3 – Encourage people to make the change to more sustainable transport"*

2.2.2 This document aims to achieve a shift away from private car use towards public transport, stating in its opening 'Croseo: Ministers' section *"we need fewer cars on our roads, and more people using public transport, walking or cycling."* This could be achieved by encouraging people to use public transport and, where necessary, the investment will be promoted into low-carbon, accessible, efficient and sustainable transport services and infrastructure.

2.2.3 Where this investment is required the Sustainable Transport Hierarchy would give *"priority to meeting the demand for travel by walking, cycling and public transport ahead of private motor vehicles"* as stated in the 'So, how do we make this happen?' section.

2.3 Future Wales: the National Plan 2040

2.3.1 Future Wales is the national development framework for Wales which sets out the direction for development in Wales up to 2040. Future Wales aims to promote development that *"enhances our wellbeing and our quality of life"* as stated on Page 4 of the document.

2.3.2 To achieve this, Future Wales pledges to shape growth around sustainable forms of transport, developing places that make people and the environment healthier. The objective is for developments to focus on active travel and public transport, alongside a reduced reliance on private vehicles.

2.3.3 Additionally, Policy 12 of the document (which relates to Regional Connectivity) states *"planning authorities must act to reduce levels of car parking in urban areas, including supporting car-free developments in accessible locations and developments with car parking spaces that allow them to be converted to other uses over time".* This shows that planning authorities should be encouraged to support developments which provide fewer car parking spaces, especially in areas which are easily accessible by non-car modes.

2.3.4 From a transport perspective, this document frequently refers back to previous editions of the Wales Transport Strategy.

2.4 TAN 18

2.4.1 TAN 18 identifies how Planning Policy Wales and the Wales Transport Strategy both aim to secure the provision of transport infrastructure and services. These aim to *"improve accessibility, build a stronger economy, improve road safety and foster more sustainable communities. This includes:*

- *integration of transport and land use planning;*
- *integration between different types of transport;*
- *integration of transport policy with policies for the environment, education, social justice, health, economic development and wealth creation."*

2.4.2 Section 2.3 of TAN 18 focuses on sustainability and emphasises the necessity for integrating land use planning and transport infrastructure, noting its key role in *"addressing the environmental aspects of sustainable development".*

2.4.3 Section 3.4 further emphasises the need for sustainable and accessible development, stating that *"settlement policies and residential allocations should therefore:*

- *promote housing development at locations with good access by walking and cycling to primary and secondary schools and public transport stops, and by all modes to employment, further and higher education, services, shopping and leisure, or where such access will be provided as part of the scheme or is a firm proposal in the RTP;*
- *ensure that significant new housing schemes contain ancillary uses including local shops, and services and, where appropriate, local employment;*
- *include policies and standards on density, and parking to achieve higher residential densities in places with good public transport accessibility and capacity;*
- *encourage residential layouts that incorporate traffic management proposals such as home zones, calming measures and 20 mph zones and where appropriate, layouts that allow public transport to pass through easily; and*
- *require layouts and densities, which maximise the opportunity for residents to walk and cycle to local facilities and public transport stops."*

2.4.4 Additionally, this document states in Paragraph 9.1 that *"the transport assessment process should include the production of a ''Transport Implementation Strategy' (TIS)".* This document should set out objectives and targets relating to managing travel demand and to set out infrastructure, demand management measures and the financial contributions necessary to achieve them. It should also set a framework for monitoring the objectives and targets, such as the future modal split of transport to the development site. The TIS will be included in Section 9 of this report.

2.5 One Wales: Connecting the Nation

2.5.1 The national transport policy for Wales is specified within the Wales Transport Strategy, One Wales: Connecting the Nation, which is supplemented by a series of TANs. TAN 18 has been summarised in Section 2.4 of this report and is considered the most relevant.

2.5.2 The objective of this document is to:

"Promote sustainable transport networks that safeguard the environment while strengthening our country's economic and social life. The transport strategy identifies a series of high-level outcomes and sets out the steps to their delivery. The One Wales programme is working to achieve a nation with access for all, where travelling between communities and accessing services, jobs and facilities in different parts of Wales is both easy and sustainable, and which support the growth of our economy."

2.6 Local Policy

2.6.1 Local design guidance is contained within the Rhondda Cynon Taf Supplementary Planning Guidance (2011) and the Highways Development Control guidance. The adopted guidance notes that a maximum of 300 dwellings could be served by a single access and states in Section 4.5.7 of the Supplementary Planning Guidance that layout designers should *"demonstrate they have taken into account all of the following factors:*

- *The primary and secondary function of the street, road and/or the carriageway*

- *The volume of vehicular traffic and pedestrian activity*
- *Traffic composition – vehicle type, frequency of larger vehicle movements*
- *Design speed for the street, road and/or carriageway, to be 20mph or less in residential areas*
- *The demarcation between the carriageway and footway (e.g. kerb, street furniture, trees, planting)*
- *The curvature of the street (bends require greater width to accommodate the swept path of larger vehicles)*
- *Any intention to include one-way streets, or short sections of single lane working in two-way streets*
- *The safety of all highway users".*

2.6.2 Table a2 of the Section 8 Appendices in the Supplementary Planning Guidance outlines the parking standards for a residential development in Zones 2, 3 and 4 (as Zone 1 is for developments in Town Centres). A summary of these standards is shown in the table below:

Type of Dwelling	Residents	Visitors
Houses (1 or 2 bedrooms)	Maximum 2 spaces	Maximum 1 space per 5 units for all general-purpose developments
Houses (3 or more bedrooms)	Maximum 3 spaces	
Apartments (1 or 2 bedrooms)	Maximum 2 spaces	
Apartments (3 or more bedrooms)	Maximum 3 spaces	

2.6.3 Additionally, the RCTBC Local Development Plan (up to 2021) has been influenced by strategies adopted by the Welsh Government. It states in Section 1.15 that the plans should *"contribute towards the achievement of sustainable development"* and the government policies it refers to often have an environmental focus, such as the 'Environment Strategy for Wales' (2006) document which aims to *"provide*

a framework within which to achieve an environment that is clean, healthy, biologically diverse and valued by the people of Wales".

2.6.4 The Local Development Plan also refers to regional strategies, specifically within South East Wales. The 'Turning Heads – A Strategy for the Heads of the Valleys' (June 2006) document focuses on the regeneration of the northern valley areas in South East Wales, with Aberdare included as one of the strategy areas and seeks *"to ensure:*

- *An attractive and well used natural, historic and built environment;*
- *A vibrant economic landscape offering new opportunities;*
- *A well educated, skilled and healthier population;*
- *An appealing and coherent tourism and leisure experience; and*
- *Public confidence in a shared bright future."*

2.6.5 Additionally, local strategies are referred to on Page 12 of the document, with the 'Children and Young Peoples Plan' (2008) and the 'Live. Grow. Aspire. Achieve', Rhondda Cynon Taf Community Strategy (2010 to 2020) documents both referenced. The Community Strategy in particular, aimed to focus on five improvement themes, one of which was for the environment and housing in Rhonnda Cynon Taf.

2.7 Manual for Streets and Manual for Streets 2

2.7.1 Due regard should also be given to guidance contained in both Manual for Streets and its companion document, Manual for Streets 2. Manual for Streets states in Section 1.1.5 that it aims to *"assist in the creation of streets that:*

- *Help to build and strengthen the communities they serve;*
- *Meet the needs of all users, by embodying the principles of inclusive design;*
- *Form part of a well-connected network;*
- *Are attractive and have their own distinctive identity*
- *Are cost-effective to construct and maintain; and*
- *Are safe".*

2.7.2 Manual for Streets also looks to discourage the building of streets that are primarily designed to meet the needs of motor traffic, instead looking to prioritise pedestrians and cyclists. The general principles are the continued focus in Manual for Streets 2 although it looked to explain how the principles can be applied more widely.

2.8 Policy Review Conclusion

2.8.1 The relevant policy which is outlined above, indicates there is an emphasis on sustainable modes of transport such as public transport, walking and cycling, with single occupancy private vehicle modes being generally discouraged. This is further demonstrated by the parking standards contained within the local design guide, which requires a ‘maximum’ number of parking spaces. Based on this, developments that are sustainable and do not rely on private vehicles are considered to be imperative.

3.0 EXISTING CONDITIONS

3.1 Site Location and Surrounding Area

3.1.1 The site is located to the north of Abernant Road in Aberdare, Rhondda Cynon Taf and currently comprises undeveloped land with sections of woodland. It is immediately bound to the south by Abernant Road, to the west by land associated with the Aberdare Hospital development and to the north and east by more undeveloped land. There are also approximately 25 dwellings to the northwest of the site boundary, which borders both this and the Aberdare Hospital site. The general site location is shown in **Figure 1** and the detailed site location in the context of the local surroundings is shown in **Figure 2**.

3.1.2 Aberdare town centre is located approximately 1.6 kilometres west of the proposed site, whilst Cwmdare is approximately 4.1 kilometres to the northwest. Slightly further afield, Merthyr Tydfil is located approximately 12 kilometres to the northeast.

3.2 Local Highway Network

3.2.1 The site lies immediately north of Abernant Road, which has a carriageway width of approximately 8.4 metres at the site frontage with centreline road markings, and extends in a predominantly east-to-west direction. On the site visit, on-street parking was observed on the eastern edge of Abernant Road along the site frontage. The carriageway has a gradual bend at the southwestern boundary of the site and beyond this, it has a relatively straight alignment. There is a slight downward gradient for vehicles travelling westbound, which Topographical mapping indicates is at approximately 1 in 16 (6.25%). Along the site frontage, there is an approximately 2 metres wide footway at the southern edge of the carriageway, whilst the northern edge is bound by vegetation and a narrow grass verge, which does not appear to be regularly maintained. Abernant Road is subject to a 30mph speed limit, with a 20mph school zone speed limit in place along the site frontage. Street lighting is provided throughout Abernant Road and **Image 1** below shows the carriageway at the site frontage

Image 1

3.2.2 There is currently vehicular access to the site via Moss Row, which is at the southwestern boundary of the site. Moss Row has a carriageway width of approximately 5 metres and is accessed via a T-junction with Abernant Road, directly opposite Forge Place. Moss Row is rural in nature and provides access to Llwydcoed (approximately 2.1 kilometres to the northwest) alongside circa 25 dwellings via Richmond Gardens. **Image 2** shows the existing vehicular access.

Image 2

3.2.3 As Abernant Road extends west towards Aberdare, it narrows to approximately 6.8 metres wide. Beginning immediately to the west of the Moss Place T-junction, footways are provided on both sides of the carriageway extending to the Abernant Road/Cwmbach Road/Wellington Street roundabout. Abernant Road maintains a relatively straight alignment towards Aberdare, although there are some gradual bends on approach to the aforementioned roundabout. The surrounding area on Abernant Road is residential in character, with a convenience store located approximately 40 metres west of Moss Row and a school approximately 213 metres east. Abernant Road provides access to multiple smaller residential streets throughout.

3.2.4 Abernant Road predominantly serves residential dwellings to the east of the site, alongside a public house. Approximately 700 metres to the east of the site, Abernant Road splits into Werfa Lane, which is rural in character. It also splits into an unnamed carriageway, which extends east and is predominantly surrounded by both undeveloped and agricultural land, also serving approximately 6 dwellings.

3.2.5 Approximately 660 metres west of the site, Abernant Road connects to Wellington Street and Cwmbach Road via a four-arm roundabout. In a clockwise direction starting from the north, the arms comprise Abernant Road (N), Cwmbach Road, Abernant Road (S) and Wellington Street. The Abernant Road (N) arm has a single-lane approach to the roundabout with an entry width of approximately 3 metres and an entry radius of approximately 17.7 metres. The Cwmbach Road arm also has a single-lane approach and a wider entry width of approximately 5.5 metres with an entry radius of 14.8 metres. This arm also has a Zebra Crossing located approximately 10 metres from the entry point. The Abernant Road (S) arm has two lanes and an approach width of approximately 5.5 metres, with an entry radius of approximately 15.6 metres, whilst the Wellington Street arm has a single lane entry width of 5.75 metres and a 21.7 metres entry radius. The Wellington Street arm has a Pelican Crossing located approximately 60 metres from the entry point. **Image 3** below shows this roundabout.

Image 3

3.2.6 Approximately 90 metres southwest of the Abernant Road/Cwmbach Road/Wellington Street roundabout, Abernant Road connects to the A4059 and the roundabout provides access to Sobell Leisure Centre via a four-arm roundabout. At this roundabout, the Abernant Road arm has a two-lane approach, an entry width of approximately 6 metres and an entry radius of approximately 27 metres. The Sobell Leisure Centre access arm also has two lanes, with an entry width of approximately 6.4 metres and an entry radius of approximately 10 metres. The A4059 arms both have two lanes and entry widths of 7 metres, although the southern arm has an entry radius of 29 metres and the northern arm has 27 metres. The southern arm also has a Pelican Crossing located approximately 13.5 metres from the junction entry. Passing over the A4059 southern arm, there is a pedestrian footbridge (shown in **Image 4**), which ties into the footway on the western edge of the Sobell Leisure Centre access.

Image 4

3.2.7 Between the two mentioned roundabouts, footways are provided on both sides of the carriageway with tactile paving crossings leading to the section of Abernant Road which extends towards the site. The pedestrian footbridge can also be accessed via these crossing points and can be used to access Aberdare town centre.

3.2.8 The A4059 is an important route extending through Aberdare. It is subject to a 30mph speed limit and is urban in character. It connects Cwmbach towards Penywaun through various roundabouts and extends for approximately 5.9 kilometres.

3.3 Aberdare Hospital Site

3.3.1 The Aberdare Hospital site has been subject to a now approved Planning Application immediately west of the proposed development (Rhondda Cynon Taf Borough Council Planning Reference: 22/0676/10) for up to 299 dwellings. The final set of Consultee Comments from the Highway Authority confirms they would have ‘no objection’ to the development and a Decision Notice will be issued once any Section 106 contributions have been agreed. It is understood that both applications are to be considered in conjunction with one another.

3.3.2 The access strategy for the development involves a spine road with 6.75 metres carriageway width, with a 2 metres wide footway on one side and a 3 metres wide shared footway/cycleway on the other. This would be in the same position as the existing access albeit with some realignment utilising land to the south. This is supported by a visibility assessment, showing 43 metres of visibility is achievable to the east and 36 metres is achievable to the west.

3.3.3 The development would provide 991 parking spaces, which is 69 spaces more than the maximum number of spaces for the development as set out in SPG; Access. Circulation and Parking (March 2011) and summarised in Section 2 of this report. This excess is primarily associated with the larger four and five-bedroom dwellings and whilst discouraged, is not considered by the Highway Authority to cause

significant harm by facilitating additional car ownership. The Highway Authority therefore considered the proposed parking provision to be acceptable.

3.3.4 In terms of cycle parking, the Highway Authority considered the proposals to be acceptable, with secure cycle parking provided within garages or sheds. The flats and smaller accommodation would also have the potential to accommodate secure cycle storage within sheds/shelters.

3.3.5 No specific requirements for electric vehicle parking are provided within the adopted design standards, although the Highway Authority note that residents can utilise any government schemes/grants towards the costs of installing charging points at the development if required.

3.3.6 Emergency access has been proposed to the north of the site at the termination of the spine road, which would provide access to the road linking Moss Row to Abernant Road. This was considered acceptable by the Highway Authority, although they note that any future development to the north/west of the site (the proposed development site) would be expected to deliver an improved and permanent link. This would allow the proposed emergency access to become permanent and potentially accommodate a future bus route connection.

3.3.7 The Highway Authority has considered the site to be in a *"highly sustainable location within walking distance of education facilities, Aberdare Town Centre which offers a variety of local facilities such as health care, small supermarkets and public transport"* as per their latest Consultee Comments. The submitted Transport Assessment identified improvements to the local Active Travel network, including a link from the wider site to Aberdare town centre, which would form part of the NCN 478 Public Right of Way (PRoW). It would also provide a further link on the northern part of the site, connecting to RCTAT22i and NCN 478 via the PRoW currently extending along the northern edge of the boundary. Additionally, there would be potential to extend the footway link to the north as part of the future development.

3.3.8 The Applicant also agreed to provide a contribution of £75,000 towards further Active Travel improvements undertaken by the Council in the vicinity of the site, which would be secured via a Section 106 agreement. They would also provide an additional £500,000 in phased payments reflecting the completion of dwellings through a Section 106 agreement as part of a Travel Plan Bond. This would ensure that measures could be implemented to mitigate any impact on the highway network if modal targets are not met by the end of the Travel Plan period.

3.4 Personal Injury Accident Data

3.4.1 To determine if any existing highway safety problems could potentially be exacerbated by the proposed development, a Personal Injury Accident (PIA) data review was completed.

3.4.2 A review of the CrashMap website (www.crashmap.co.uk) was completed using the most recent 5-year study period 2017 to 2021. As shown in **Figure 3**, there has been 1 incident along Abernant Road within the immediate vicinity of the site which occurred in 2019 and was classed as 'slight'. Based on this information, it is considered that there are no existing highway safety issues which could be exacerbated by the proposed development.

3.4.3 This conclusion was also reached in the submitted Transport Assessment for the Hospital site, which concluded in Section 3.9.13 that *"the majority of recorded collisions within the study area are relatively remote from the proposed development site with any increase in highway safety risk on the surveyed roads being negligible".* This position raised no objections from the Highway Authority and should be appropriate for the proposed development.

3.5 Speed Survey Results

3.5.1 A speed survey was undertaken at the proposed access on Abernant Road on Thursday 15 September 2022 between 0903 and 1127 hours. The weather remained dry throughout the survey and no standing water was present within the

carriageway. A total of 100 speed readings were gathered in both the westbound and eastbound directions within this period.

3.5.2 The results of the speed survey are summarised in **Tables 1** and **2** which demonstrate 85th percentile vehicle speeds of 23.63 mph (38 kph) in the westbound direction and 27.65 mph (44.5 kph) in the eastbound direction. In accordance with Table 7.1 of the Manual for Streets document for vehicle speeds under 60 kph, **Tables 3** and **4** contain the corresponding visibility splay requirements of 33 metres to the east (westbound vehicles) and 36 metres to the west (eastbound vehicles). The gradient at the site frontage outlined in Section 3.2.1 of this report was considered and input into the visibility splay calculator.

4.0 EXISTING SUSTAINABLE TRAVEL INFRASTRUCTURE

4.1 Pedestrian Travel

4.1.1 Table 3.2 of The Institute of Highways & Transportation's publication 'Guidelines for Providing for Journeys on Foot' (2000) provides suitable walking distances and is summarised below:

	Commuting / School / Sight-seeing (m)
Desirable	500
Acceptable	1000
Preferred Maximum	2000

4.1.2 **Figure 4** shows a 2 kilometres pedestrian isodistance from the centre of the site. This is considered to be the 'preferred maximum' walking distance for *"commuting/schools/sight-seeing."* It confirms the majority of Aberdare town centre, Abernant and Robertstown are all within an acceptable walking distance of the site. These areas provide access to a range of amenities including a swimming pool, a supermarket, a train station, a library and numerous schools (such as Abernant Primary School, Aberdare Community School and Caradog Primary School). It also includes several sightseeing and recreational opportunities such as Aberdare Golf Club, Ron Jones Stadium and Aberdare Skate Park.

4.1.3 At the site frontage, no footways are currently provided at the northern edge of the carriageway along Abernant Road. On the southern edge, there is a 2 metres wide footway which extends along Abernant Road towards Aberdare. On the northern edge, beginning immediately west of the Abernant Road / Moss Row T-junction, there is a footway measuring approximately 1 metre wide extending towards Aberdare. This footway widens to 2 metres approximately 60 metres west of the T-junction and this continues towards the town centre.

4.1.4 **Figure 5** shows there are currently several Public Rights of Way surrounding the site, providing important links connecting to the wider area. The figure

demonstrates how footpath ABD 46/1 extends along the eastern boundary of the site, connecting to Byway 101 64 which then extends to Heolgerrig. Footpath ABD 43/1 is located at the southern edge of the site and continues through the site to connect to footpaths extending to Llwydcoed. There is also a connection from the southern edge of the site to Aberdare Golf Club via footpath ABD 56/5.

4.1.5 As mentioned in Section 3 of this report, the proposed development at the Aberdare Hospital site would provide improvements to the PRoWs extending towards Abernant Road. As both developments would be connected, this improvement would benefit the proposed development with an alternate route to Aberdare. Additionally, the Highway Authority comments suggested that a footway link could be provided on the western edge of the carriageway between the accesses of each development in the future.

4.2 Cycle Travel

4.2.1 **Figure 6** shows that the site is within 5 kilometres cycle distance of Aberdare alongside Llwydcoed, Penywaun, Abercanaid and a section of Ferndale to the south. Whilst there are no dedicated cycle facilities in the area, it is considered that Abernant Road is suitable for cyclists due to the relatively light flow of traffic and low vehicle speeds, with 85th percentile speeds being lower than 30mph and an average of 80 two-way vehicles being recorded per hour during the speed survey. This is supported by **Figure 7**, which shows Abernant Road is part of a local cycle route.

4.2.2 **Figure 7** highlights local cycle routes in the surrounding area demonstrating an abundance in the immediate vicinity of the site and throughout Aberdare. Additionally, National Cycle Network route number ‘478’ is located circa 2 kilometre west of the site and links the Taff Trail to the south and the Brecon Beacons and Heads of Valle cycle route (‘46’) to the north.

4.3 Bus Travel

4.3.1 **Figure 8** illustrates the closest bus stops to the site. According to the Google Maps route planning tool, the nearest bus stops are the 'Post Office' on Abernant Road (located approximately 350 metres from the centre of the site). The eastbound stop comprises a flag and pole arrangement while the westbound stop also provides a shelter. According to the BusTimes website (bustimes.org), this stop is served by Bus Route Number '1' which is operated by Stagecoach South Wales. This route provides an hourly service from Monday to Saturday between Abernant Terminus and Aberdare Bus Station. The bus stop is shown in **Image 5** below.

Image 5

4.3.2 Slightly further afield, **Figure 8** demonstrates that bus stops are also provided further east along Abernant Road. The 'Primary School' bus stop is located on the edge of the site boundary and comprises a flag and pole arrangement. The 'Heol-y-Parc' bus stops are located near the eastern corner of the site boundary at Abernant Road. All of these stops are also served by Route Number '1'.

4.3.3 **Table 5** contains a summary of these bus routes and demonstrates how route '1' operates at a frequency of one service every hour between 0900 and 1900 hours (northbound) and between 0630 and 1900 hours (southbound) through the weekday and on Saturdays. There is a single service in the morning peak period (0730 to 0930 hours) and four services in the evening peak (1600 to 1800 hours).

4.3.4 Additionally, the Aberdare Hospital site would provide funding for improvements to the bus infrastructure at Abernant Road, which would be secured through a Section 106 agreement. The internal layout of the Hospital development would also incorporate a spine road which could potentially accommodate a bus link in the future. There may be scope for this link to extend through the proposed site in the future, although it is important to note that this review has confirmed that any future residents would not be reliant on this in order to access the site by bus.

4.4 Rail Travel

4.4.1 Aberdare Train Station is located to the west of the site. It is approximately a 1-kilometre walk or cycle from the centre of the site (approximately an 11-minute walk or 2-minute cycle).

4.4.2 The station is operated by Transport for Wales and includes services to Cardiff and Barry Island. A total of 41 car parking spaces are provided at the station which is free of charge, however, passengers must obtain a parking ticket when purchasing a travel ticket. This can be issued from the ticket machine in the car park or from the ticket office. The car park is open 24 hours a day during weekdays and at weekends. On-site observations show that there is also provision for cycle parking as shown in **Image 6** below.

Image 6

5.0 DEVELOPMENT PROPOSALS

5.1 The proposed development comprises up to 250 dwellings with the latest masterplan showing 247 dwellings, which would be served by a spine road and various smaller internal access roads. A total of 100 units would be allocated as 'affordable housing', comprising 58 x one-bedroom, 19 x two-bedroom, 21 x three-bedroom and 2 x four-bedroom units. The remaining 147 would be privately owned, comprising 30 x two-bedroom, 70 x three-bedroom and 47 x four-bedroom dwellings. The latest site masterplan is contained in **Appendix F**.

5.2 The development would be served by a new access, extending northwest from Abernant Road. The access would have a shallow gradient (no steeper than 1 in 30) to tie into the existing Moss Place carriageway layout, with the initial 100 metres section of Moss Row being stopped up for vehicular movements (although it could be retained as a shared footway/cycleway). The carriageway of the access would be 6.75 metres wide to ensure a bus route could potentially be provided with a maximum centreline radius of 30 metres and would have a gradient no steeper than 1:10 (10%) throughout.

5.3 Footways would be provided throughout the development, connecting to the access and the Aberdare Hospital site development to the west. On any potential bus routes, a 3 metres wide shared footway cycleway would be provided on one side of the carriageway and a 2 metres wide footway provided on the other. On the sections of the roads predominantly serving the dwellings, a 5.5 metres-wide carriageway would be provided, with 2 metres wide footways provided on both sides.

5.4 A total of 576 parking spaces would be provided throughout the development, with the majority of dwellings providing at least 2 parking spaces. Most of the parking spaces would be provided on driveways adjacent to dwellings and Electric Vehicle Charging could also be easily installed if the homeowner decides to, as per the comments for the Aberdare Hospital site. Of these 576 spaces, 60 would be facilitated within garages, all of which would be associated with private dwellings located within the northern section of the site.

6.0 TRAFFIC GENERATION, DISTRIBUTION AND GROWTH

6.1 Proposed Development Traffic Generation

6.1.1 To understand the level of activity that could be generated by the development, the TRICS database was interrogated to determine suitable trip rates for up to 250 proposed dwellings (noting that the latest masterplan shows 247 dwellings, making the following assessment robust). The category 'Residential – Houses Privately Owned' was searched and a site in Margate, Kent (TRICS Reference: KC–03-A-06) which consists of 363 dwellings was considered an appropriate comparator due to the scale of the development and the similarity in its surrounding area such as access opportunities by sustainable modes.

6.1.2 The above selection process has identified the following trip rates (per dwelling):

- morning peak (0800 to 0900) 0.091 arrive 0.386 depart
- evening peak (1700 to 1800) 0.380 arrive 0.198 depart
- daily (0700 to 1900) 2.294 arrive 0.350 depart

6.1.3 The proposed development of up to 250 dwellings could generate up to the following peak hour and daily vehicle movements:

- morning peak (0800 to 0900) 23 arrive 97 depart 120 total
- evening peak (1700 to 1800) 95 arrive 50 depart 145 total
- daily (0700 to 1900) 574 arrive 590 depart 1164 total

Table 6 shows the full daily traffic generation profile.

6.1.4 It should be noted that these trip rates are slightly higher than those submitted and agreed as part of the application for the hospital site so they should therefore be considered as a robust assessment. However, the trip rates used are considered to be appropriate to the proposed development as it is marginally further away from Aberdare Town Centre compared to the hospital site.

6.2 Traffic Distribution

6.2.1 The Census 2011 'Location of usual residence and place of work by method of travel to work' dataset (WU03EW) was utilised to identify an appropriate traffic distribution model for the proposed development. **Appendix G** contains the Census data used for the distribution calculations.

6.2.2 The study area beyond the site access includes six roundabouts located around Aberdare and Cwmbach. A plan of the junctions that have been modelled is shown in **Image 7** below. This study area was obtained from that agreed as part of the Aberdare Hospital Site TA.

Image 7

6.3 Traffic Assignment

6.3.1 Using the percentages established from the Census data, the morning and evening peak hour traffic assignment is demonstrated in **Figures 9** and **10**. All movements associated with the development would travel to and from Aberdare so all movements would turn right from the site and left into the site. From this point, it has been calculated that 59% of traffic would continue to Abernant Road (S) at the Abernant Road/Cwmbach Road/Wellington Street roundabout and the remaining

41% would travel along Cwmbach Road (E) which extends towards Cardiff. Of the 59% who would travel on the Abernant Road (S) arm, 49% would travel on the A4059 (W) and the remaining 10% would use the A4059 (E).

6.4 Traffic Flows

6.4.1 The 'observed traffic flows' throughout the study area have been extracted for use from Appendix D of the Aberdare Hospital site TA and are contained at **Appendix H** of this report for reference. As detailed in Section 3.7.9 of the hospital site TA, turning count surveys were undertaken on 12 October 2021 at the hospital site access and each junction shown in **Image 7**. These surveys are still within the widely accepted 3-year shelf life and should remain appropriate. The results indicate that most traffic currently extends through the A4059, which is likely due to this being the primary through route which provides access to most of Aberdare. Wellington Street and Cwmbach Road appear to be more lightly trafficked is likely due to the more effective route being via the A4059.

6.4.2 The 2021 'observed traffic flows' identified above have been used to create baseline flows for all of the junctions using TEMPro growth factors from 2021 to 2023. The potential traffic associated with the Aberdare Hospital Site has also been included as part of the baseline flows for robustness. Full details in respect of the TEMPro growth factor calculations are contained in **Appendix I** and a summary is presented below:

- 2021 to 2023 AM Peak = 1.0175
- 2021 to 2023 PM Peak = 1.0168

6.4.3 The 2023 baseline flows were then used to create the '2028 Opening Year' and '2038 Future Year' traffic flow scenarios. This has been completed using TEMPro growth factors contained in **Appendix I** and summarised below:

- 2023 to 2028 AM Peak = 1.0405
- 2023 to 2028 PM Peak = 1.0395
- 2023 to 2038 AM Peak = 1.1199
- 2023 to 2038 PM Peak = 1.1164

6.4.4 Adopting the above growth factors, the figures outlined below present the following traffic scenarios which will be used within the capacity assessments detailed in Section 8 of this report:

- **Figure 11** - 2028 Opening Year (AM Peak)
- **Figure 12** - 2028 Opening Year (PM Peak)
- **Figure 13** - 2028 Opening Year with Proposed Development (AM Peak)
- **Figure 14** - 2028 Opening Year with Proposed Development (PM Peak)
- **Figure 15** - 2038 Future Year (AM Peak)
- **Figure 16** - 2038 Future Year (PM Peak)
- **Figure 17** - 2038 Future Year with Proposed Development (AM Peak)
- **Figure 18** - 2038 Future Year with Proposed Development (PM Peak)

7.0 HIGHWAY CONSIDERATIONS

7.1 Site Access

7.1.1 The proposed development would be served by a new access extending north from Abernant Road, which would be classified as a Distributor Road. Following discussions with RCTBC, it was established that to accommodate a potential bus route, the access would need to comprise a 6.75 metres wide carriageway with 10 metres kerb radii. Additionally, a 2 metres wide footway would need to be provided on one side of the carriageway and a 3 metres wide shared footway/cycleway provided on the other. This route would extend to the site boundary and offer a potential future connection to the Aberdare Hospital Site.

7.1.2 There is currently a significant level difference between Moss Row and Abernant Road at the proposed access point, which is illustrated in **Image 8** below. Topographical mapping indicates that there is an approximately 3.5 metres drop between Moss Row and Abernant Road at the proposed site access. Because of this, a cut-and-fill method of construction would be required to provide an access with a suitable gradient. The new access carriageway would follow the existing route of Moss Row (which would be stopped up for vehicular movements). Liaison with the Highway Authority has confirmed that the maximum acceptable gradient for an adopted 'Distributor Road', is no steeper than 1:20 (5%) for the first 15 metres from the junction and thereafter no steeper than 1:10 (10%).


Image 8

7.1.3 Considering the above information, **Drawing Number F20029/10 Revision B** demonstrates a suitable access layout. The drawing also demonstrates how the access would gradually tie into the existing levels with a 1:3 gradient, where a cut-and-fill construction method could be used. The existing Moss Row carriageway would be stopped up as part of the development. Additionally, a spur would be provided from the new carriageway, which would serve the existing dwellings at Richmond Gardens. This would extend west from the main carriageway and would measure 5 metres wide with a 6 metres kerb radii. This is shown in the latest site masterplan and the proposed carriageway gradients are demonstrated in further detail within the Engineering Drawings contained in **Appendix J**.

7.1.4 To support the suitability of this layout, **Drawing Number F20029/10 Revision B** also contains a visibility assessment from the proposed site access. As shown, the required 33 metres of visibility is achievable to the north and the required 36 metres is achievable to the south based on the results of the speed survey detailed in Section 3 of this report. The assessment is taken from a point 2.4 metres back at the centreline of the access to the nearside edge of the carriageway.

7.1.5 Based on the above information and visibility assessment, the Highway Authority should be satisfied that a compliant access could be provided for the site and that the required visibility splays are achievable in both directions along Abernant Road.

7.1.6 To further demonstrate the suitability of the access layout, a swept path assessment has been completed using a single-decker bus (the largest bus anticipated to potentially serve the site). This is shown in **Drawing Number F20029/11 Revision B** and confirms that the vehicle could perform a left-turn in and left-turn-out manoeuvre (which is the worst-case scenario), as well as a right-turn in and right-turn out manoeuvre. Both turnings have been assessed as the details of any potential bus route have not yet been established. It should be noted that on-street parking was observed opposite the proposed site access as shown in **Image 9** below, which has been indicated in **Drawing Number F20029/11 Revision B**. The drawing also shows the vehicle using the proposed connection to the Aberdare Hospital site.


Image 9

7.2 Internal Site Layout

7.2.1 The aim of the site masterplan (contained in **Appendix F**) was to deliver a road layout that is to adoptable standards and to ensure a bus route from Abernant Road through the site to the Hospital site could be provided if required in the future. With this considered, the development would be served by a spine road measuring 6.75 metres wide, which would connect to the Aberdare Hospital site to the west via a junction approximately 130 metres from the site access. To ensure it is designed to the adopted standards, the Highways Development Control guidance published by RCTBC has been considered. For a bus route, this presents a minimum acceptable centreline radius of 30 metres. This has been appropriately considered throughout the section of the development likely to accommodate a bus route.

7.2.2 Additionally, Section A of the Highways Development Control guidance requires a bus route to be served by a 2 metres wide footway on one side and a 3 metres wide shared footway/cycleway on the other. This has been considered and is shown throughout the development where appropriate.

7.2.3 Beyond the initial section of the carriageway which would serve the bus route, the site would be served by an ‘Approach Road’. This would comprise a 5.5 metres-wide carriageway, with 2 metres-wide footways on both sides. The kerb radii have

not been provided in comments from RCTBC however standard practice would typically require 6 metres kerb radii. This has been shown in the latest site masterplan.

7.2.4 Regarding the emergency access, this would be provided in the southeastern corner of the site at its boundary with Abernant Road. The existing pedestrian link would be maintained and would tie into the development.

7.3 Parking Provision

7.3.1 To inform the parking requirements, the adopted standards contained in RCTBC Supplementary Planning Documents (Section 8) have been considered. The adopted standards for parking spaces are shown in Section 2 of this report.

7.3.2 The current proposed schedule of development (split by bedrooms) is shown in the table below, along with the corresponding maximum parking requirements:

Type of Dwelling	Number of Units	Maximum Number of Spaces	Visitor Parking (Maximum 1 Space per 5 Units)
House (2 bedrooms)	43	86	49
House (3 bedrooms)	91	273	
House (4 bedrooms)	49	147	
Apartment (1 bedroom)	58	116	
Apartment (2 bedrooms)	6	12	
Total	247	634	
Total Parking Spaces (With Visitor)	683		

7.3.3 The latest site masterplan contained in **Appendix F** indicates there would be a total of 576 spaces provided for the development. This is 107 fewer spaces than the adopted standards which are set out as maximums. The proposed level of parking provision aligns with the parking accumulation assessment contained within **Table 6** calculated using the TRICS data which indicates that the proposed development would have a maximum parking demand of 336 spaces occupied before 0700 hours. Based on this information, the number of spaces proposed should be acceptable and would support the objective of reducing reliance on single-occupancy private vehicles, which is viable given the sustainability credentials of the site.

7.3.4 It should be acknowledged that the proposed site masterplan follows the principles agreed as part of the hospital site, including the ability of visitor parking to occur on-street if required.

7.4 Servicing Requirements

7.4.1 The development would be required to accommodate refuse vehicle manoeuvres throughout. An indicative route has been plotted on **Drawing Number F20029/12 Revision B** which a refuse vehicle would be anticipated to take. As shown, an 11.2 metres long vehicle would be able to turn into the site, serve the site adequately reaching a point within the acceptable distance of each dwelling (reflecting Section 6.89 of Manual for Streets which recognises a maximum of 30 metres for residents to carry their waste to the storage point, where refuse vehicles should be able to reach a point within 25 metres of) and depart in a forward gear back onto Abernant Road.

7.4.2 Additionally, a Swept Path Assessment has also been completed of a fire tender which is shown in **Drawing Number F20029/13 Revision B**. This shows the vehicle successfully entering the driveways and reaching a point within 45 metres of all dwellings, as per Sections 13.1 and 13.2 of Approved Document B of the Building Regulations 2010. The drawing also shows the vehicle successfully entering and departing the site via the emergency access at the eastern edge of the development if required to do so.

7.4.3 Based on this information, the Highway Authority should be satisfied that the site could be served sufficiently by both refuse collection and emergency vehicles.

8.0 CAPACITY ASSESSMENT

8.1 Introduction and Background Information

8.1.1 As outlined earlier in the report, the following section will provide RCTBC with a review of the potential impact of the proposed development at the following junctions, which are the same as those assessed for the hospital site:

- Site Access (Junction 1)
- Abernant Road/Cwmbach Road/Wellington Street Roundabout (Junction 2)
- A4059/Abernant Road/Sobell Leisure Centre Roundabout (Junction 3)
- A4059/Wellington Street/Meirion Road Roundabout (Junction 4)
- A4059/A4233 (Tesco) Roundabout (Junction 5)
- A4059/Aberdare College/B4275/Cardiff Street Roundabout (Junction 6)
- A4059/Canal Street Roundabout (Junction 7)

8.1.2 The method for this assessment in terms of 'impact' is consistent with the accepted strategy adopted for the Aberdare Hospital site, where the Highway Authority stated in their February 2023 comments that *"the impact of the proposed development in terms of ratio of flow to capacity, increased queue lengths and delays would be reduced further by improved Active Travel links, improvements to public transport infrastructure and implementation of a Travel Plan to encourage sustainable travel and reduce single occupancy vehicle trips".*

8.1.3 As outlined in Section 6 of this report, the same 2021 observed traffic flows have been used as those obtained for the hospital site application. A 2023 base year has been used to calculate the 2028 Opening Year and 2038 Future years scenarios, which is the same future forecast in terms of the time period as that used by the hospital site. The roundabout input geometries used have also been taken from the Aberdare Hospital site, which the Highway Authority has previously accepted. For robustness, the Aberdare Hospital site also made changes to the capacity limits to some junctions and these adjustments have been replicated for this assessment.

8.1.4 In addition to the above, Junctions 2 and 3 have also been modelled using the same method as presented in the December 2022 Technical Note for the hospital site. This was changed from the previously submitted TA to include queue variations, which were considered to more accurately represent the proximity of the roundabouts. This updated method was accepted by the Highway Authority and should be suitable for this assessment.

8.1.5 The capacity assessments of the junctions have been carried out using the TRL software package 'Junctions'. Within 'Junctions' the PICADY module has been used for the priority T-junction at the site access and the ARCADY module has been used for the roundabouts.

8.1.6 As outlined in Section 6 of this report, the baseline flows used include trips associated with the Aberdare Hospital site for robustness. For these assessments, the 'O-D profile' of traffic input has been used where appropriate and the traffic flow scenarios outlined in Section 6 of this report have all been modelled. For reference, an RFC (Ratio of Flow to Capacity) value of less than 0.85 indicates that the junction is operating within capacity, whilst an RFC value of between 0.85 and 1 indicates the junction could experience occasional periods of congestion. If the RFC value is over 1 then this suggests that the junction is saturated and congestion/delays are expected. The results of the capacity assessments of each junction will be summarised throughout this section.

8.1.7 It is important to note that as part of the Aberdare Hospital Site assessment, the modelling results of the proposed access along with Junctions 4 to 7 were accepted by the Highway Authority. However, further assessment was required at Junctions 2 and 3, to account for the impact of overspilling at each of the roundabouts and how it would affect the other. The Consultee Comments dated 8 February 2023 show the Highway Authority considered the results of the final assessment submitted as part of the hospital site application to be robust and that although the two junctions showed signs of experiencing congestion/delay, it was concluded that the impact of the development was marginal. They also refer to the increased provision of Active Travel and public transport links which should mitigate the impact on the surrounding highway network. It is important to note that

through liaison with the Highway Authority in preparation for this report, it is understood that they will consider any perceived impact of the proposed development in context with what was accepted as part of the hospital site.

8.2 Proposed Access – Junction 1

8.2.1 The proposed site access junction on Abernant Road (shown in **Drawing Number F20029/10 Revision B**) was modelled using the PICADY module within 'Junctions'. Full details of the PICADY output data and measurements plan with the relevant input data are contained in **Appendix K**.

8.2.2 The results of the PICADY assessment are summarised in **Table 7**. This confirms that the proposed access junction would operate well within capacity during both the 2028 and 2038 scenarios. During the 2038 Future Year with Development morning peak hour scenario, the minor arm of the junction would operate with a maximum delay of 8.81 seconds, a mean maximum queue of 0.3 PCUs and an RFC of 0.21. The Highway Authority should therefore be satisfied that the junction has been suitably designed to serve the proposed development.

8.3 Abernant Road/Cwmbach Road/ Wellington Street Roundabout - Junction 2

8.3.1 This junction was modelled using the ARCADY module within Junctions. The traffic flow scenarios outlined in Section 6 of this report have all been modelled and full details of the output data are contained in **Appendix L**, with a summary of the results of the Junctions assessment in **Table 8**. The input data has been replicated from the Aberdare Hospital site assessment contained within their December 2022 Technical Note, with Queue Variations and Queue Markers included for robustness.

8.3.2 The results indicate that the roundabout would operate within theoretical capacity (RFC value below 1) during both the morning and peak hours in the 2038 Future Year with Development scenario. During this scenario, the most congested arm would be Cwmbach Road, which operates at a maximum RFC of 0.94 in the Future Year morning peak hour. In comparison, during the 2038 Future Year without

Development scenario, the RFC on this arm would be 0.89, which demonstrates there could be some periods of delay on this arm of the junction even without the addition of development traffic (which would only increase the RFC by 0.05). For reference, a comparison of the RFC results at the Cwmbach Road arm with those submitted as part of the Aberdare Hospital site is shown below:

Abedare Hospital (2036 AM)	Aberdare Hospital (2036 PM)	Proposed Development (2038 AM)	Proposed Development (2038 PM)
0.87	0.74	0.94	0.83

8.3.3 This demonstrates that the proposed development would only slightly increase the RFC value on the Cwmbach Road arm compared to what was accepted by the Highway Authority as part of the hospital site. It also confirms that the Highway Authority has previously accepted RFC results of over 0.85 at this junction (which suggests occasional congestion/delay may occur).

8.3.4 Considering the above and given that the roundabout is likely to operate with occasional congestion in the Future Year even without the additional development traffic, the conclusions reached as part of the Aberdare Hospital site application should remain for this updated assessment. This is especially the case as the increase in RFC as a result of the development would be negligible and not represent a severe impact.

8.3.5 For reference, the junction has also been assessed by using the 'DIRECT' flow profile on the Junctions software. This flow profile offers a more accurate representation of peak hour conditions, by entering the traffic flows over several time segments. Having assessed the junction with this flow profile, the results were shown to be slightly lower, with a maximum RFC on Cwmbach Road of 0.84 during the 2038 Future Year with Development morning peak hour scenario. This indicates that in reality, the junction operates better in terms of congestion/delays than the initial modelling suggests. Based on these results and conclusions reached above, the Highway Authority should be satisfied that the development would not have a severe impact at this junction and no further assessment should be required.

8.4 A4059/Abernant Road/Sobell Leisure Centre - Junction 3

8.4.1 This roundabout is located approximately 90 metres southwest of Junction 2. This assessment has been completed as per Junction 2, where the Highway Authority requested Queue Variations and Queue Markers be included within the input data as noted earlier in this report.

8.4.2 The results of this assessment are contained in **Appendix M** and summarised in **Table 9**. This confirms that the roundabout would continue to operate within its theoretical capacity (RFC value below 1) throughout each scenario. During the 2038 Future Year morning peak hour without development, the Abernant Road arm would have a maximum RFC of 0.80 and the A4059 (S) arm would have a RFC of 0.83. In the evening peak hour, the RFC on the A4059 (N) arm and A4059 (S) arm would be 0.90 and 0.85, indicating they could already operate with sporadic periods of congestion without the development traffic. When the development traffic is added, the morning peak RFC would increase to 0.88 on the Abernant Road arm and increase to 0.85 on the A4059 (S) arm (from 0.80 and 0.83 respectively). In the evening peak, the RFC on the A4059 (N) arm would increase to 0.94 and the A4059 (S) arm could increase to 0.87 with the proposed development (from 0.90 and 0.85 respectively), showing there could be a minor increase on the conditions projected at this junction in the 2038 Future Year without the development.

8.4.3 A comparison to the hospital site results demonstrates some capacity issues were identified in 2026 with the development at the A4059 (N) arm. The RFC would be 0.87 in the morning peak hour, which was previously accepted by the Highway Authority. For reference, a comparison of the maximum RFC results at each arm is summarised in the table below:

Arm	Abedare Hospital (2036 AM)	Aberdare Hospital (2036 PM)	Proposed Development (2038 AM)	Proposed Development (2038 PM)
A4059 (N)	0.73	0.87	0.76	0.94
Abernant Road	0.72	0.70	0.88	0.82

Sobell Leisure Centre	0.38	0.36	0.44	0.41
A4059 (S)	0.81	0.82	0.85	0.87

8.4.4 This comparison demonstrates that periods of congestion could potentially occur at two arms of the roundabout in both the morning and evening peak hours. Despite this, the results indicate that it is the cumulative impact of both developments rather than the proposed development alone that causes this, particularly on the Abernant Road arm.

8.4.5 Based on the comparison and the previous information provided, this roundabout could experience periods of delay/congestion in the 2038 Future Year scenarios even without the development traffic added, especially during the evening peak hour. As with the conclusions accepted as part of the hospital site, it should be reasonable that the cumulative impact of both developments is considered together. This impact is not considered to be severe and the promotion of active and sustainable travel as per the comments for the hospital site, should remain appropriate for the proposed development.

8.4.6 Similarly to Junction 2, a 'DIRECT' flow profile has also been assessed for this junction to understand if there are any differences in results. When using this flow profile there would be a maximum RFC of 0.84 on the A4059 (N) arm in the 2038 Future Year with Development. Again, this indicates that in reality, the junction operates better in terms of congestion/delays than the initial modelling suggests. This, coupled with the Highway Authority accepting periods of congestion for the hospital site, indicates they should reach the same conclusion for this development.

8.5 A4059/Wellington Street/Meirion Road - Junction 4

8.5.1 This roundabout is located approximately 1.1 kilometres northwest of Junction 3 and the traffic flow scenarios outlined in Section 6 of this report have been modelled. The full output data is contained in **Appendix N**.

8.5.2 A summary of the output data is shown in **Table 10.** This confirms that the junction will continue to operate within capacity throughout the 2028 and 2038 scenarios with the addition of the proposed development. The most congested arm of the roundabout is the A4059 (N) arm, which has an RFC of 0.61 in the 2038 Future Year evening peak hour. This could increase to 0.63 in the 2038 Future Year with the proposed development. As this shows the roundabout will continue to operate well within capacity, the Highway Authority should be satisfied there would be minimal impact at the junction associated with the proposed development.

8.6 A4059/A4233 (Tesco) - Junction 5

8.6.1 Between Junctions 3 and 4, this roundabout serves the A4059 and the A4233, which provides a route to the Tesco supermarket. This junction is located approximately 350 metres northwest of Junction 3. The traffic flow scenarios outlined in Section 6 of this report have been modelled. The full output data is contained in **Appendix O**.

8.6.2 **Table 11** contains a summary of the output data. This shows that during the 2038 Future Year, the A4059 (N) arm would begin operating above 0.85 RFC in the evening without the development, with an RFC of 0.90. The development traffic would only increase this to 0.93, with a negligible 29.73-second delay.

8.6.3 In addition, the table below contains a summary of the results for the A4059 (N) arm from both this development and the hospital site in the Future Year. This demonstrates that the A4059 (N) arm would operate with periods of congestion in 2036 with just the hospital site and the proposed development with 2038 growth factors shows this would increase marginally. As the Highway Authority accepted the slight increase above 0.85 for the hospital site, the marginal further increase should continue to be acceptable.

Abedare Hospital (2036 AM)	Aberdare Hospital (2036 PM)	Proposed Development (2038 AM)	Proposed Development (2038 PM)
0.66	0.88	0.68	0.93

8.6.4 Based on this assessment, it is considered the Highway Authority should be satisfied that the results remain acceptable with the proposed development.

8.7 A4059/Aberdare College/B4275/Cardiff Street - Junction 6

8.7.1 Approximately 340 metres southeast of Junction 3 is a five-arm roundabout which connects the A4059 to Aberdare College and the B4275. The roundabout geometry and capacity adjustments were made to be consistent with the Transport Assessment for the consented hospital site. The traffic flow scenarios outlined in Section 6 of this report have been modelled for this junction, with the full output data contained in **Appendix P**.

8.7.2 A summary of the output data is contained in **Table 12**, which demonstrates the development traffic will not result in the junction operating over its capacity by 2038. The maximum RFC is on the A4059 (S) arm, in the evening peak hour in the 2038 Future Year with Development which would have an RFC value of 0.84, with a delay of 17.23 seconds. Based on this, the Highway Authority should be satisfied that the roundabout would continue to operate within capacity with the proposed development traffic added.

8.8 A4059/Canal Road – Junction 7

8.8.1 The southernmost roundabout in the study area is located approximately 2.4 kilometres southeast of Junction 6 and connects the A4059 to Canal Road. For the modelling, the geometry settings were set to the same values as the previously consented TA and the traffic flows outlined in Section 6 of this report have been modelled. The full output data is contained in **Appendix Q**.

8.8.2 The output data is summarised in **Table 13**. This data confirms that the roundabout will not be significantly affected by the development, with the worst-case scenario in 2038 showing an increase on the A4059 (S) arm from 0.82 in the evening peak hour to 0.83 when including the development. This suggests the RFC increase is mostly attributed to the growth factors, with the development having a negligible impact. The 0.83 RFC on the A4059 (S) shows it is the most congested arm,

although it will still operate within capacity by 2038, with maximum delays of 12.34 seconds. Because of this, it is considered that the junction would continue to operate sufficiently.

8.9 Conclusions

8.9.1 The junction modelling suggests that most of the roundabouts included in the study area will not be severely affected by the growth or proposed development during the 2038 Future Year. Junctions 2, 3 and 5 experience increases of RFC to over 0.85 by 2028 when including development traffic, but they would all reach the 0.85 RFC threshold by 2038 regardless and the comparison tables presented throughout this section demonstrate they would exceed or almost exceed the 0.85 RFC threshold as presented in the hospital site assessment, which the Highway Authority accepted.

8.9.2 As previously mentioned, the assessment for the Aberdare Hospital site was considered to be robust and this has been replicated for the updated assessment. It should therefore be considered a suitable assessment. It should be noted that the Applicant for this scheme would consider providing a reasonable contribution towards active and sustainable travel modes which should help mitigate any impact on the surrounding highway network. This was considered appropriate by the Highway Authority for the Aberdare Hospital site and the conclusion should also apply to this development.

9.0 TRANSPORT IMPLEMENTATION STRATEGY (TIS)

9.1 Introduction

9.1.1 As established in Section 2 of this report, the adopted guidance (such as TAN 18 and Planning Policy Wales) places a significant emphasis on ensuring developments encourage sustainable travel. This section of the report considers and explores any future opportunities for sustainable travel in the local area, with the intention of reducing the number of single-occupancy car trips to and from the site. This is a particular focus of TAN 18, which requires a Transport Implementation Strategy (TIS) to be included in a Transport Assessment. This *"should set objectives and targets relating to managing travel demand for the development and set out the infrastructure, demand management measures and financial contributions necessary to achieve them".*

9.1.2 A Framework Travel Plan will also been produced as a component of the TIS. The Travel Plan will ensure the strategies outlined in this Section would be integrated with the design elements of the new development.

9.1.3 To inform the future targets, a daily person trip generation calculation based on the Census 2011 ' Method of Travel to Work' (QS701EW) dataset for the Rhonda Cynon Taf 004 Middle Super Output Area has been identified below based upon proposals for up to 250 dwellings, as follows:

- by underground, metro, light rail or tram 0.0%
- by train 3.9%
- by bus, minibus or coach 3.5%
- by taxi or minicab 0.3%
- by motorcycle / scooter / moped 0.4%
- by car/van (as driver) 73.4%
- by car / van (as passenger) 8.5%
- on bicycle 0.4%
- on foot 6.7%
- work mainly at or from home 2.6%
- other method 0.4%

9.1.4 A copy of the output data is contained at **Appendix R**. To calculate the hourly number of trips by each mode, the following approach was adopted:

- 73.1% of car/van drivers is equal to 145 total car movements during the busiest (evening) peak hour.
- 145/73.4 equals the number of trips per percent, or 1.98.
- The evening peak hour person trips can therefore be calculated by multiplying the modal percentage for each category by 1.98.

9.1.5 Using the above process, it was possible to calculate that the proposed development would generate the following total person trips:

	peak hour	daily
• by underground, metro, light rail or tram	0	1
• by train	8	61
• by bus	7	56
• by taxi or minicab	1	4
• by motorcycle / scooter / moped	1	6
• by car/van (as driver)	145	1164
• by car / van (as passenger)	17	135
• on bicycle	1	6
• on foot	13	105
• other method	1	6

9.2 Pedestrian Travel

9.2.1 The above calculations show how the proposed development could generate up to 105 daily pedestrian trips, including 13 peak hourly movements.

9.2.2 The latest site masterplan demonstrates how 2 metres wide footways would be provided throughout the site and facilitate key pedestrian desire lines toward Aberdare. The development would also link to the Aberdare Hospital site via a carriageway connection at the western edge of the development. Additionally, a footway connection on the northern edge of Abernant Road could be proposed to

connect to the hospital site access in the future. This was suggested in comments received for the hospital site application as noted earlier in this report.

9.2.3 **Figure 4** also shows a 2-kilometre pedestrian isodistance which demonstrates the site is within the maximum acceptable walking distance of the centre of Aberdare. Additionally, **Figure 5** shows the PRoWs in the vicinity of the site. It shows that the northeastern boundary of the development runs along PRoW ABD 46/1 and to the southwest of the site it is bound by ABD 43/1. As part of the Aberdare Hospital site application, it is understood that improvements will be made to the PRoW access towards Aberdare, which this development would benefit from.

9.2.4 Due to the above, it is considered that the local highway network should be able to safely accommodate the additional pedestrian movements associated with the development.

9.3 Cycle Travel

9.3.1 The trip calculations show that the proposed development would generate up to 6 daily cyclist movements including 1 peak-hour movement. A map of local cycle routes has been taken from DataMap Wales and shows various cycle routes in the immediate vicinity of the site, alongside routes within Aberdare. Additionally, National Cycle Route 478 is located approximately 650 metres south of the proposed site. This route connects Abercynon and Penderyn.

9.3.2 Within the proposed development, 3 metres wide shared footway/cycleways are provided on one side of any carriageway designated as a ‘Distributor Road’ which would serve the access and link to the Aberdare Hospital site. It is therefore considered that the internal layout of the development could accommodate the potential number of cyclists. Additionally, the surrounding highway network is considered to be suitable due to the lightly trafficked nature and slow speeds outlined in Section 4.2.1 of this report.

9.3.3 Based on the abundance of cycle routes in the immediate vicinity of the site and throughout Aberdare, it is clear that the site is surrounded by sufficient opportunities to travel by cycle.

9.4 Bus Travel

9.4.1 In terms of bus journeys, the above calculations demonstrate that the proposed development would result in up to 56 daily and 7 peak-hour bus passenger trips. The closest bus route is located approximately 90 metres west of the proposed access. There are also two more bus stops located on either side of the access along Abernant Road. These stops serve Route Number '1', which is operated by Stagecoach South Wales and provides a service between the Abernant Terminus and Aberdare Bus Station at a frequency of one service per hour from Monday to Saturday. From Aberdare Bus Station, which is located approximately 1.1 kilometres (14-minute walk) south of the site, there are more frequent bus routes that can be used to travel to places such as Merthyr Tydfil and Pontypridd which can provide further employment and leisure opportunities outside of Aberdare.

9.4.2 As mentioned throughout this report, the proposed development and Aberdare Hospital site would be served by a 6.75 metres wide carriageway in line with the adopted standards for a 'Distributor Road' which could accommodate a future bus route. This has been discussed as a potential option with the Highway Authority and the masterplan incorporates the required carriageway to ensure this remains a possibility. This would further improve the accessibility for bus travel throughout the full development.

9.4.3 Due to the accessibility of Aberdare Bus Station, it is considered that the existing bus services should be suitable to serve the development. It is important to note however that both this development and the Aberdare Hospital site would have carriageway widths of 6.75 metres connecting via a spine road, which could accommodate a bus route in the future.

9.5 Rail Travel

9.5.1 The above calculations show that the proposed development could generate demand for up to 61 daily train journeys with up to 8 in the peak hour. This shows that the train would be a highly selected mode of travel among residents of the development. Aberdare Train Station provides services to Cardiff and Barry Island. The station is located approximately 800 metres south of the site (a 9-minute walk), demonstrating the station is in a convenient location and can provide opportunities for long-distance sustainable travel.

9.5.2 Based on this information, it is considered that the existing rail services should be sufficient for the proposed development.

9.6 Travel Plan

9.6.1 The adopted policy outlined in Section 2 of this report indicates that a Travel Plan would be required as part of the Planning Application. This would encourage occupants of the site to take advantage of the surrounding sustainable travel opportunities and provide them with information on schemes and initiatives, to minimise any demand for car travel and corresponding impact within the surrounding highway network.

9.6.2 The Framework Travel Plan for the proposed development would include measures such as the following:

- Travel Plan Welcome Packs for new occupants
- Discounted bus tickets
- Walking to School Club
- Car sharing initiatives
- Cycling club
- Residents' newsletters

9.6.3 Hence, new residents will be provided with information relating to a variety of sustainable transport modes, and where possible opportunities to incentivise and

improve sustainable travel will be implemented from the initial occupation of the site.

10.0 SUMMARY AND CONCLUSIONS

10.1 Bancroft Consulting were appointed by ASD Build to provide highways and transport advice in respect of proposals to develop up to 250 dwellings on land west of Abernant Road in Aberdare, Rhondda Cynon Taf. **Figure 1** shows the general site location whilst **Figure 2** shows it within the context of its local surroundings. The latest site masterplan is contained in **Appendix F** which shows that 247 dwellings would be provided.

10.2 This Transport Assessment follows a Feasibility Study that was produced by Bancroft Consulting in May 2020. The objective of the study was to identify access opportunities to the site preceding negotiations with the Council to establish the most suitable access opportunities. Following this study, there has been consistent communication between the Project Team and Council to identify an appropriate scheme.

10.3 The site is adjacent to the Aberdare Hospital site, which was subject to a now approved Planning Application for up to 299 residential dwellings. Both schemes are part of the Rhondda Cynon Taf Local Development Plan for a residential scheme. The importance of this site is that it should provide infrastructure improvements as required by the Highway Authority. This should better connect both developments to Aberdare and also benefit local residents in the future.

10.4 The below peak hour and daily two-way vehicle movements for the proposed development of up to 250 dwellings have been utilised. These trip rates are higher (and therefore more robust) than those presented for the Aberdare Hospital site:

- morning peak (0800 to 0900) 23 arrive 97 depart 120 total
- evening peak (1700 to 1800) 95 arrive 50 depart 145 total
- daily (0700 to 1900) 574 arrive 590 depart 1164 total

10.5 The development would be served by a new access extending north from Abernant Road. **Drawing Number F20029/10 Revision B** demonstrates the access would comprise a 6.75 metres wide carriageway, with 10 metres kerb radii and a 2 metres wide footway provided on one side, with a 3 metres wide shared footway/cycleway

provided on the other. The drawing also demonstrates how the required visibility splays in both directions along Abernant Road could be achieved from the required setback distance. On this basis, RCTBC should be satisfied that a suitable access strategy could be provided at the site.

10.6 The proposed development would provide a total of 576 spaces, which aligns with the maximum parking demand using the TRICS data. RCTBC should therefore be satisfied that a suitable parking provision could be provided for the proposed development.

10.7 **Drawing Number F20029/12 Revision B** provides several swept path assessments using an 11.2 metres long refuse vehicle. The drawing demonstrates how the vehicle could manoeuvre through the internal road layout and could access each property, **Drawing Number F20029/13 Revision B** also shows how a fire tender could complete the necessary manoeuvres and could enter and depart at the emergency access. Based on this RCTBC should be satisfied that a suitable servicing strategy could be implemented at the site.

10.8 The latest site masterplan shown in **Appendix F** demonstrates how footways would be provided throughout the site and facilitate key pedestrian desire lines. There would also be a footway connection between the eastern edge of the development and Abernant Road. On any Distributor Road serving the site, a 3 metres wide shared footway/cycleway would be provided on one side of the carriageway.

10.9 As part of the Aberdare Hospital site development, PRoW infrastructure would be provided to improve the links to Aberdare, which this scheme would benefit from. This includes a link from the wider site to Aberdare Town Centre, which would form part of NCN 478 and a further link on the northern part of the site connecting to RCTAT22i and NCN 478 via the Public Right of Way (PRoW) currently extending along the northern edge of the boundary. Additionally, there would be potential to extend the footway link to the east as part of the future development.

10.10 The report has established that the proposed development would not have a 'severe cumulative impact' or materially change the operation of any junction within the study area. This conclusion has been reached with consideration of the results previously accepted as part of the hospital site TA.

10.11 Notwithstanding the above and in the interest of sustainability, the Applicant would be prepared to undertake additional discussions with RCTBC to establish further reasonable contributions to Non-Motorised User-led improvements if required.

10.12 In conclusion, having due regard to the adopted Welsh policy, this assessment has demonstrated that new residents would have opportunities to travel by sustainable modes, a safe and suitable access arrangement can be provided and a suitable internal layout could be delivered. It is therefore considered that the proposed development would comply with current planning policy and best practice design guidance. Hence, the Highway Authority should be in a position to provide its support for the upcoming planning application.

observed speed mph	no. of readings n	n×x	n×x²
10	0	0	0
11	0	0	0
12	0	0	0
13	1	13	169
14	0	0	0
15	1	15	225
16	7	112	1792
17	8	136	2312
18	8	144	2592
19	12	228	4332
20	14	280	5600
21	12	252	5292
22	12	264	5808
23	6	138	3174
24	6	144	3456
25	5	125	3125
26	5	130	3380
27	0	0	0
28	2	56	1568
29	1	29	841
30	0	0	0
31	0	0	0
32	0	0	0
33	0	0	0
34	0	0	0
35	0	0	0
36	0	0	0
37	0	0	0
38	0	0	0
39	0	0	0
40	0	0	0
41	0	0	0
42	0	0	0
43	0	0	0
44	0	0	0
45	0	0	0
46	0	0	0
47	0	0	0
48	0	0	0
49	0	0	0
50	0	0	0
51	0	0	0
52	0	0	0
53	0	0	0
54	0	0	0
55	0	0	0
56	0	0	0
57	0	0	0
58	0	0	0
59	0	0	0
60	0	0	0
61	0	0	0
62	0	0	0
63	0	0	0
64	0	0	0
65	0	0	0
66	0	0	0
67	0	0	0
68	0	0	0
69	0	0	0
70	0	0	0
71	0	0	0
72	0	0	0
73	0	0	0
74	0	0	0
75	0	0	0
76	0	0	0
77	0	0	0
78	0	0	0
79	0	0	0
80	0	0	0
	n=	Σv=	Σv²=
Total Σ	100	2066	43666

SPEED READINGS FOR SINGLE CARRIAGEWAYS

location: **Abernant Road**
direction: **Westbound**
day: **Thursday**
date **15.09.22**
time: **0903 to 1127**

SUMMARY

mean	20.66 mph	33.2 kph
85%ile	23.63 mph	38.0 kph

Step 1:
Mean speed

$$m = \frac{\sum v}{n}$$ *m=* 20.66 **mph**

Step 2:
Finding Value ∑

$$\sum(v\text{-}m)^2 = \sum v^2 - \frac{(\sum v^2)}{n}$$ *∑ (v - m)² =* 982.44

Step 3:
Standard deviation

$$s = \sqrt{\frac{\sum(v-m)^2}{n-1}}$$ *s=* 2.97 **mph**

Step 4:
85 percentile dry weather spot speed

$$p85 = m + s$$ *p=* 23.63

checks: 85%ile/mean = 1.14
should be 1.1 to 1.25

S.D./mean = 0.14
should be approx 1/6 (0.17)

TABLE 1: LAND AT ABERNANT ROAD - WESTBOUND SPEED SURVEY RESULTS

observed speed mph	no. of readings n	n×x	$n \times x^2$
10	0	0	0
11	0	0	0
12	1	12	144
13	0	0	0
14	0	0	0
15	0	0	0
16	4	64	1024
17	2	34	578
18	5	90	1620
19	3	57	1083
20	8	160	3200
21	6	126	2646
22	7	154	3388
23	14	322	7406
24	12	288	6912
25	10	250	6250
26	5	130	3380
27	5	135	3645
28	4	112	3136
29	6	174	5046
30	4	120	3600
31	1	31	961
32	2	64	2048
33	0	0	0
34	0	0	0
35	0	0	0
36	0	0	0
37	1	37	1369
38	0	0	0
39	0	0	0
40	0	0	0
41	0	0	0
42	0	0	0
43	0	0	0
44	0	0	0
45	0	0	0
46	0	0	0
47	0	0	0
48	0	0	0
49	0	0	0
50	0	0	0
51	0	0	0
52	0	0	0
53	0	0	0
54	0	0	0
55	0	0	0
56	0	0	0
57	0	0	0
58	0	0	0
59	0	0	0
60	0	0	0
61	0	0	0
62	0	0	0
63	0	0	0
64	0	0	0
65	0	0	0
66	0	0	0
67	0	0	0
68	0	0	0
69	0	0	0
70	0	0	0
71	0	0	0
72	0	0	0
73	0	0	0
74	0	0	0
75	0	0	0
76	0	0	0
77	0	0	0
78	0	0	0
79	0	0	0
80	0	0	0
	n=	Σv=	Σv^2=
Total Σ	100	2360	57436

SPEED READINGS FOR SINGLE CARRIAGEWAYS

location: **Abernant Road**
direction: **Eastbound**
day: **Thursday**
date **15.09.22**
time: **0903 to 1127**

SUMMARY

mean	23.60 mph	38.0 kph
85%ile	27.65 mph	44.5 kph

Step 1:
Mean speed

$$m = \frac{\sum v}{n}$$ *m=* 23.60 **mph**

Step 2:
Finding Value ∑

$$\sum(v\text{-}m)^2 = \sum v^2 - \frac{(\sum v^2)}{n}$$ $\sum(v - m)^2$ = 1740.00

Step 3:
Standard deviation

$$s = \sqrt{\frac{\sum(v-m)^2}{n-1}}$$ *s=* 4.05 **mph**

Step 4:
85 percentile dry weather spot speed

$$p85 = m + s$$ *p=* 27.65

checks: 85%ile/mean = 1.17
should be 1.1 to 1.25

S.D./mean = 0.17
should be approx 1/6 (0.17)

TABLE 2: LAND AT ABERNANT ROAD - EASTBOUND SPEED SURVEY RESULTS

Vehicle speeds	**23.63**	mph				
	38.02	kph				
	10.56	v (m/s)				
	111.54	v^2				
Driver Perception-Reaction time	**1.5**	t (s)				
	15.84	v x t				
Deceleration Rate	**0.45**	g				
	4.41	d (m/s)				
	8.83	2d				
Gradient	**-6.25**	a*				
	3.79	d+0.1a				
	7.579	2(d+0.1a)				
	v t		+	v^2 / 2(d+0.1a)	=	SSD
Stopping Sight Distance (SSD) =	**15.84**		+	**14.72**	=	**30.56**
SSD Bonnet Adjusted (SSD+2.4)**	**32.96**					

Formula: $SSD = vt + v^2/2(d+0.1a)$

	Manual for Streets 2		DMRB	
	Light Vehicles (less than 5% HGVs)	HGVs/Buses (over 5% of total vehicles)	All traffic (Maximum decel.)	All traffic (Desirable decel.)
Perception-Reaction Time (t)	**1.5s**	**1.5s**	**2s**	**2s**
Deceleration Rate ($g = 9.81m/s^2$)	**0.45g**	**0.375g**	**0.375g**	**0.25g**

Enter gradient as positive for uphill towards junction and negative for downhill towards junction

* for simplicity, gradient will be given as zero where details of levels are unavailable and observed gradients are deemed to be insignificant in terms of the effect on vehicle braking

** 2.4 metres added to splay to allow for bonnet length of approaching vehicles

TABLE 3 - VISIBILITY SPLAY CALCULATOR: LAND AT ABERNANT ROAD - WESTBOUND

Vehicle speeds	**27.65**	mph			
	44.49	kph			
	12.36	v (m/s)			
	152.72	v^2			
Driver Perception-Reaction time	**1.5**	t (s)			
	18.54	v x t			
Deceleration Rate	**0.45**	g			
	4.41	d (m/s)			
	8.83	2d			
Gradient	**6.25**	a*			
	5.04	d+0.1a			
	10.079	2(d+0.1a)			
	v t	+	v^2 / 2(d+0.1a)	=	SSD
Stopping Sight Distance (SSD) =	**18.54**	+	**15.15**	=	**33.69**
SSD Bonnet Adjusted (SSD+2.4)**	**36.09**				

Formula: *$SSD = vt + v^2/2(d+0.1a)$*

Enter gradient as positive for uphill towards junction and negative for downhill towards junction

	Manual for Streets 2		DMRB	
	Light Vehicles (less than 5% HGVs)	HGVs/Buses (over 5% of total vehicles)	All traffic (Maximum decel.)	All traffic (Desirable decel.)
Perception-Reaction Time (t)	**1.5s**	**1.5s**	**2s**	**2s**
Deceleration Rate ($g = 9.81 m/s^2$)	**0.45g**	**0.375g**	**0.375g**	**0.25g**

* for simplicity, gradient will be given as zero where details of levels are unavailable and observed gradients are deemed to be insignificant in terms of the effect on vehicle braking

** 2.4 metres added to splay to allow for bonnet length of approaching vehicles

TABLE 4 - VISIBILITY SPLAY CALCULATOR: LAND AT ABERNANT ROAD - EASTBOUND

Route No.	Operator	Details	Frequency				
			Weekdays			Saturday	Sunday
			AM peak period (0730-0930)	PM peak period (1600-1800)	off peak frequency		
1	Stagecoach South Wales	Aberdare - Abernant	No service	2 Services	Hourly	Hourly	No service
		Abernant - Aberdare	1 Service	2 Services	Hourly	Hourly	No service

TABLE 5: SUMMARY OF LOCAL BUS SERVICES (TAKEN FROM BUSTIMES.ORG)

Time Period	Trip Rates (per dwelling)		Traffic Generation (250 dwellings)			Parking Accumulation (initial occupancy = 336 spaces)
	Arrive	Depart	Arrive	Depart	Total	
						336
07:00-08:00	0.074	0.311	19	78	97	277
08:00-09:00	0.091	0.386	23	97	120	203
09:00-10:00	0.140	0.138	35	35	70	203
10:00-11:00	0.096	0.160	24	40	64	187
11:00-12:00	0.116	0.132	29	33	62	183
12:00-13:00	0.165	0.138	41	35	76	189
13:00-14:00	0.176	0.140	44	35	79	198
14:00-15:00	0.160	0.171	40	43	83	195
15:00-16:00	0.240	0.165	60	41	101	214
16:00-17:00	0.320	0.174	80	44	124	250
17:00-18:00	0.380	0.198	95	50	145	295
18:00-19:00	0.336	0.237	84	59	143	320
Daily	2.294	2.350	574	590	1164	

TABLE 6 - PROPOSED DEVELOPMENT DAILY TRAFFIC GENERATION PROFILE (WEEKDAY)

Traffic scenario		Site Access Left/Right (B-AC)	Abernant Road Ahead/Right (C-AB)
2023 - AM Peak	Queue (veh)	0.0	0.0
	Delay (s)	0.00	0.00
	RFC	0.00	0.00
2023 PM Peak	Queue (veh)	0.0	0.0
	Delay (s)	0.00	0.00
	RFC	0.00	0.00
2028 Opening Year AM Peak	Queue (veh)	0.0	0.0
	Delay (s)	0.00	0.00
	RFC	0.00	0.00
2028 Opening Year PM Peak	Queue (veh)	0.0	0.0
	Delay (s)	0.00	0.00
	RFC	0.00	0.00
2028 Opening Year + Development AM Peak	Queue (veh)	0.3	0.0
	Delay (s)	8.71	0.00
	RFC	0.21	0.00
2028 Opening Year + Development PM Peak	Queue (veh)	0.1	0.0
	Delay (s)	8.16	0.00
	RFC	0.11	0.00
2038 Future Year AM Peak	Queue (veh)	0.0	0.0
	Delay (s)	0.00	0.00
	RFC	0.00	0.00
2038 Future Year PM Peak	Queue (veh)	0.0	0.0
	Delay (s)	0.00	0.00
	RFC	0.00	0.00
2038 Future Year + Development AM Peak	Queue (veh)	0.3	0.0
	Delay (s)	8.81	0.00
	RFC	0.21	0.00
2038 Future Year + Development PM Peak	Queue (veh)	0.1	0.0
	Delay (s)	8.27	0.00
	RFC	0.11	0.00

TABLE 7 - PICADY RESULTS SUMMARY (SITE ACCESS - JUNCTION 1)

Traffic scenario		Abernant Road (N)	Cwmbach Road	Abernant Road (S)	Wellington Street
2023 - AM Peak	Queue (veh)	0.6	2.9	0.9	0.6
	Delay (s)	10.85	21.22	6.31	11.89
	RFC	0.38	0.75	0.47	0.36
2023 PM Peak	Queue (veh)	0.4	1.6	1.0	0.7
	Delay (s)	9.82	13.58	6.68	13.40
	RFC	0.29	0.62	0.50	0.39
2028 Opening Year AM Peak	Queue (veh)	1.3	4.3	1.0	0.7
	Delay (s)	15.75	30.20	6.88	12.83
	RFC	0.57	0.82	0.50	0.40
2028 Opening Year PM Peak	Queue (veh)	0.8	2.3	1.4	1.0
	Delay (s)	12.50	17.99	7.98	16.85
	RFC	0.43	0.70	0.57	0.49
2028 Opening Year + Development AM Peak	Queue (veh)	3.1	5.7	1.1	0.7
	Delay (s)	28.60	39.86	7.14	13.16
	RFC	0.77	0.86	0.52	0.40
2028 Opening Year + Development PM Peak	Queue (veh)	1.2	3.4	1.8	1.1
	Delay (s)	15.27	24.20	9.80	19.63
	RFC	0.54	0.78	0.65	0.52
2038 Future Year AM Peak	Queue (veh)	1.6	6.8	1.2	0.8
	Delay (s)	18.59	45.36	7.59	13.94
	RFC	0.62	0.89	0.54	0.43
2038 Future Year PM Peak	Queue (veh)	0.9	1.5	1.4	1.1
	Delay (s)	14.01	13.36	7.88	19.09
	RFC	0.47	0.59	0.59	0.53
2038 Future Year + Development AM Peak	Queue (veh)	4.3	10.0	1.3	0.8
	Delay (s)	38.39	65.51	7.91	14.34
	RFC	0.83	0.94	0.56	0.44
2038 Future Year + Development PM Peak	Queue (veh)	1.4	4.6	2.2	1.4
	Delay (s)	17.67	31.86	11.29	22.95
	RFC	0.58	0.83	0.69	0.58

TABLE 8 - ARCADY RESULTS SUMMARY (JUNCTION 2)

Traffic scenario		A4059 (N)	Abernant Road	Sobell Leisure Centre	A4059 (S)
2023 - AM Peak	Queue (pcu)	2.1	1.7	0.5	3.0
	Delay (s)	6.43	11.35	8.59	12.67
	RFC	0.66	0.62	0.31	0.75
2023 PM Peak	Queue (pcu)	3.8	1.4	0.4	3.2
	Delay (s)	10.09	11.67	9.35	12.39
	RFC	0.78	0.59	0.28	0.75
2028 Opening Year AM Peak	Queue (pcu)	2.4	2.5	0.6	3.5
	Delay (s)	7.15	15.39	9.91	13.84
	RFC	0.69	0.72	0.35	0.77
2028 Opening Year PM Peak	Queue (pcu)	5.3	2.2	0.5	3.8
	Delay (s)	13.45	15.70	10.92	14.30
	RFC	0.84	0.68	0.33	0.79
2028 Opening Year + Development AM Peak	Queue (pcu)	2.5	3.7	0.6	3.7
	Delay (s)	7.34	20.65	10.88	14.83
	RFC	0.70	0.79	0.38	0.78
2028 Opening Year + Development PM Peak	Queue (pcu)	6.8	2.6	0.5	4.2
	Delay (s)	16.79	18.08	11.49	15.87
	RFC	0.87	0.73	0.34	0.80
2038 Future Year AM Peak	Queue (pcu)	3.1	4.0	0.7	4.9
	Delay (s)	8.82	23.03	11.98	18.79
	RFC	0.75	0.80	0.41	0.83
2038 Future Year PM Peak	Queue (pcu)	9.0	3.4	0.7	5.9
	Delay (s)	21.84	23.40	13.60	21.19
	RFC	0.90	0.78	0.39	0.85
2038 Future Year + Development AM Peak	Queue (pcu)	3.3	6.6	0.8	5.8
	Delay (s)	9.12	35.73	13.39	22.21
	RFC	0.76	0.88	0.44	0.85
2038 Future Year + Development PM Peak	Queue (pcu)	12.9	4.3	0.7	6.8
	Delay (s)	30.43	28.50	14.41	24.53
	RFC	0.94	0.82	0.41	0.87

TABLE 9 - ARCADY RESULTS SUMMARY (JUNCTION 3)

Traffic scenario		A4059 (N)	Wellington Street	A4059 (S)	Meirion Road
2023 - AM Peak	Queue (pcu)	0.8	0.4	0.8	0.0
	Delay (s)	2.94	8.93	3.24	4.04
	RFC	0.45	0.28	0.43	0.04
2023 PM Peak	Queue (pcu)	1.2	0.6	0.9	0.0
	Delay (s)	3.44	11.92	3.42	4.23
	RFC	0.53	0.36	0.46	0.04
2028 Opening Year AM Peak	Queue (pcu)	0.9	0.5	1.0	0.0
	Delay (s)	3.07	10.17	3.63	4.41
	RFC	0.48	0.34	0.49	0.05
2028 Opening Year PM Peak	Queue (pcu)	1.4	0.7	1.0	0.0
	Delay (s)	3.74	13.83	3.64	4.45
	RFC	0.57	0.42	0.49	0.04
2028 Opening Year + Development AM Peak	Queue (pcu)	0.9	0.5	1.0	0.1
	Delay (s)	3.10	10.15	3.74	4.53
	RFC	0.48	0.34	0.50	0.05
2028 Opening Year + Development PM Peak	Queue (pcu)	1.4	0.8	1.0	0.0
	Delay (s)	3.89	14.64	3.72	4.52
	RFC	0.59	0.44	0.50	0.04
2038 Future Year AM Peak	Queue (pcu)	1.1	0.6	1.0	0.1
	Delay (s)	3.31	11.27	3.74	4.53
	RFC	0.51	0.38	0.50	0.05
2038 Future Year PM Peak	Queue (pcu)	1.6	1.0	1.2	0.1
	Delay (s)	4.15	16.82	3.96	4.75
	RFC	0.61	0.49	0.53	0.05
2038 Future Year + Development AM Peak	Queue (pcu)	1.1	0.6	1.1	0.1
	Delay (s)	3.34	11.40	3.90	4.67
	RFC	0.52	0.38	0.52	0.05
2038 Future Year + Development PM Peak	Queue (pcu)	1.7	1.0	1.2	0.1
	Delay (s)	4.34	18.03	4.04	4.83
	RFC	0.63	0.51	0.54	0.05

TABLE 10 - ARCADY RESULTS SUMMARY (JUNCTION 4)

Traffic scenario		A4059 (N)	A4059 (S)	A4233 (Tesco)
2023 - AM Peak	Queue (veh)	1.4	1.5	1.3
	Delay (s)	5.47	4.68	6.78
	RFC	0.58	0.59	0.56
2023 PM Peak	Queue (veh)	3.3	1.7	2.1
	Delay (s)	10.03	5.30	8.96
	RFC	0.77	0.63	0.67
2028 Opening Year AM Peak	Queue (veh)	1.6	1.8	1.5
	Delay (s)	5.99	5.24	7.55
	RFC	0.62	0.63	0.60
2028 Opening Year PM Peak	Queue (veh)	4.5	2.1	2.6
	Delay (s)	13.18	6.06	10.83
	RFC	0.82	0.67	0.72
2028 Opening Year + Development AM Peak	Queue (veh)	1.7	2.0	1.6
	Delay (s)	6.09	5.64	7.93
	RFC	0.62	0.66	0.61
2028 Opening Year + Development PM Peak	Queue (veh)	5.5	2.2	2.8
	Delay (s)	15.78	6.33	11.56
	RFC	0.85	0.69	0.74
2038 Future Year AM Peak	Queue (veh)	2.1	2.2	2.0
	Delay (s)	7.17	6.17	9.09
	RFC	0.67	0.69	0.66
2038 Future Year PM Peak	Queue (veh)	7.9	2.7	3.8
	Delay (s)	22.34	7.39	14.65
	RFC	0.90	0.73	0.79
2038 Future Year + Development AM Peak	Queue (veh)	2.2	2.5	2.1
	Delay (s)	7.35	6.77	9.69
	RFC	0.68	0.71	0.68
2038 Future Year + Development PM Peak	Queue (veh)	10.8	2.9	4.2
	Delay (s)	29.73	7.81	16.11
	RFC	0.93	0.74	0.81

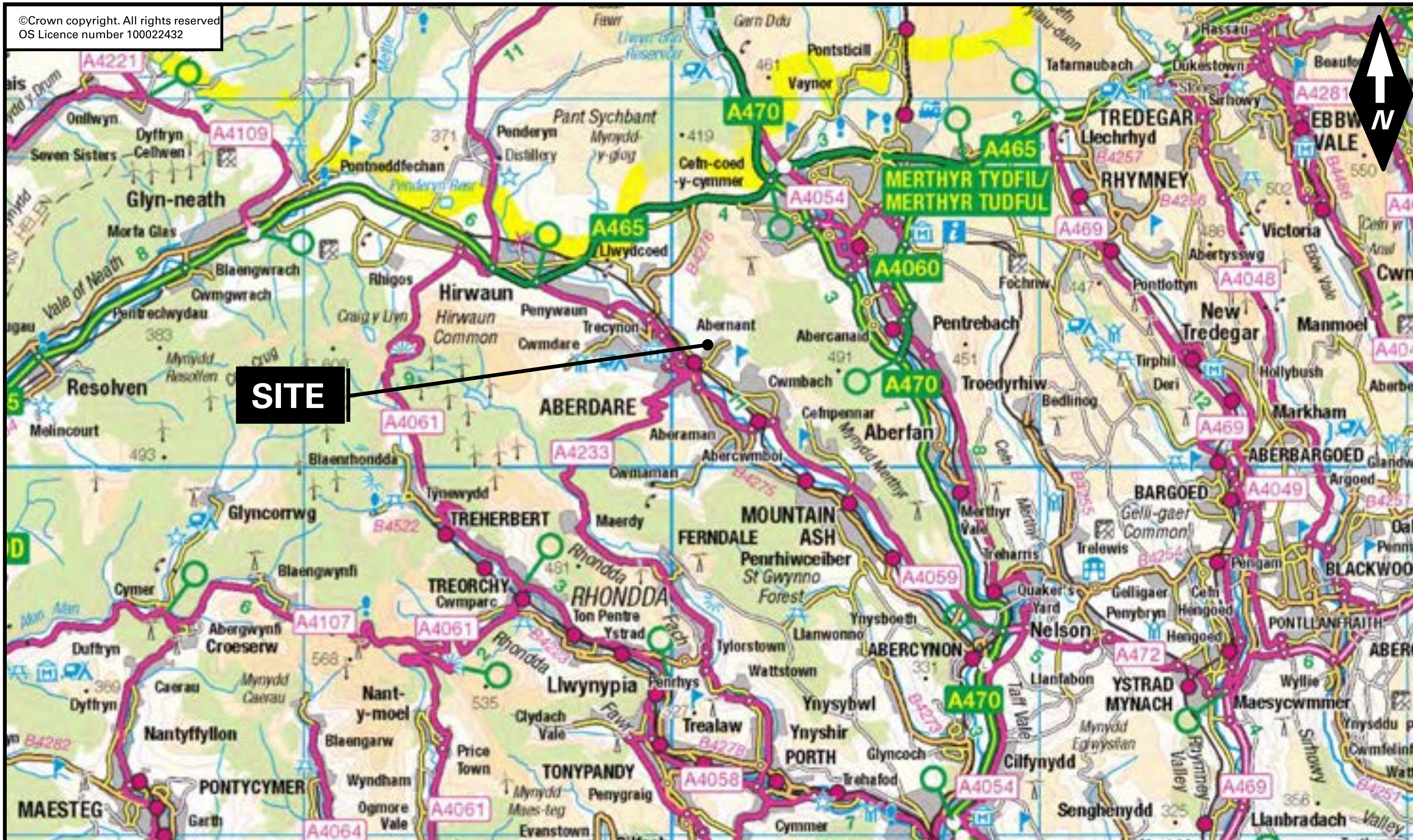
TABLE 11 - ARCADY RESULTS SUMMARY (JUNCTION 5)

Traffic scenario		A4059 (N)	Aberdare College	A4059 (S)	B4275	Cardiff Street
2023 - AM Peak	Queue (veh)	1.4	0.4	1.8	1.1	1.2
	Delay (s)	5.53	7.86	7.43	7.14	9.16
	RFC	0.57	0.30	0.64	0.53	0.55
2023 PM Peak	Queue (veh)	2.0	0.2	2.7	0.9	1.4
	Delay (s)	7.05	7.42	9.90	6.46	9.30
	RFC	0.67	0.15	0.73	0.47	0.57
2028 Opening Year AM Peak	Queue (veh)	1.5	0.5	2.1	1.3	1.4
	Delay (s)	5.83	8.57	8.27	7.84	10.12
	RFC	0.60	0.33	0.67	0.56	0.58
2028 Opening Year PM Peak	Queue (veh)	2.4	0.2	3.3	1.0	1.6
	Delay (s)	7.78	8.01	11.74	7.03	10.37
	RFC	0.70	0.16	0.77	0.50	0.61
2028 Opening Year + Development AM Peak	Queue (veh)	1.6	0.5	2.1	1.3	1.4
	Delay (s)	5.94	8.67	8.36	7.87	10.14
	RFC	0.60	0.33	0.68	0.56	0.58
2028 Opening Year + Development PM Peak	Queue (veh)	2.4	0.2	3.4	1.1	1.6
	Delay (s)	7.87	8.05	11.84	7.19	10.50
	RFC	0.70	0.17	0.77	0.51	0.61
2038 Future Year AM Peak	Queue (veh)	1.9	0.6	2.7	1.7	1.9
	Delay (s)	6.60	10.08	10.33	9.52	12.62
	RFC	0.64	0.38	0.73	0.62	0.65
2038 Future Year PM Peak	Queue (veh)	3.0	0.3	5.1	1.3	2.1
	Delay (s)	9.38	9.27	17.02	8.23	12.86
	RFC	0.75	0.20	0.84	0.56	0.67
2038 Future Year + Development AM Peak	Queue (veh)	1.9	0.6	2.8	1.7	1.9
	Delay (s)	6.72	10.22	10.48	9.57	12.66
	RFC	0.65	0.39	0.74	0.63	0.65
2038 Future Year + Development PM Peak	Queue (veh)	3.1	0.3	5.2	1.4	2.1
	Delay (s)	9.51	9.33	17.23	8.44	13.06
	RFC	0.75	0.20	0.84	0.57	0.68

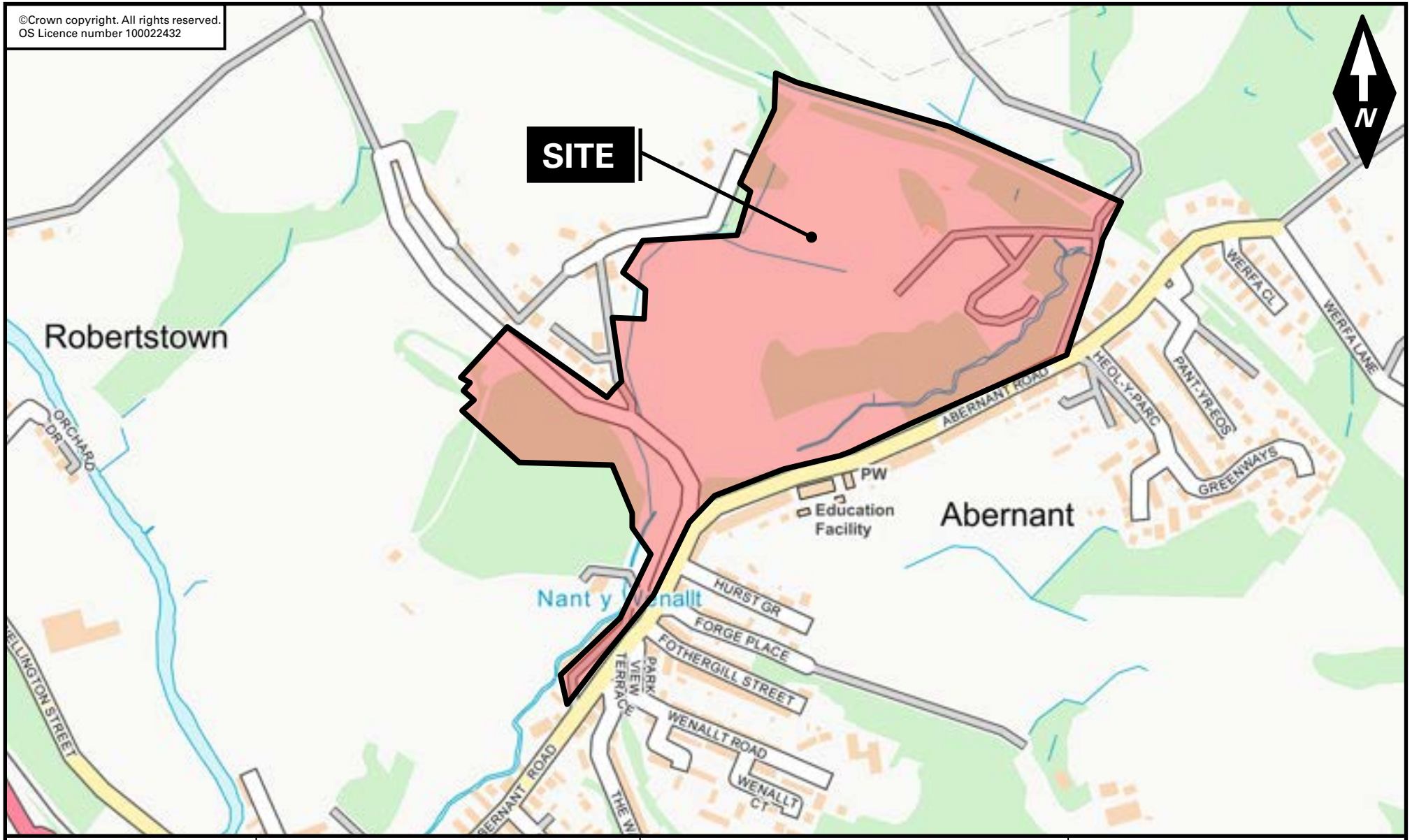
TABLE 12 - ARCADY RESULTS SUMMARY (JUNCTION 6)

Traffic scenario		A4059 (N)	Canal Street	A4059 (S)
2023 - AM Peak	Queue (veh)	1.1	1.4	1.1
	Delay (s)	4.59	7.81	4.27
	RFC	0.53	0.58	0.51
2023 PM Peak	Queue (veh)	1.7	1.0	2.4
	Delay (s)	5.94	6.80	7.03
	RFC	0.62	0.49	0.71
2028 Opening Year AM Peak	Queue (veh)	1.3	1.7	1.2
	Delay (s)	4.92	9.77	4.59
	RFC	0.56	0.66	0.54
2028 Opening Year PM Peak	Queue (veh)	2.0	1.2	3.1
	Delay (s)	6.75	7.56	8.53
	RFC	0.66	0.54	0.76
2028 Opening Year + Development AM Peak	Queue (veh)	1.3	1.9	1.2
	Delay (s)	4.94	9.63	4.58
	RFC	0.56	0.65	0.54
2028 Opening Year + Development PM Peak	Queue (veh)	2.1	1.2	3.4
	Delay (s)	6.98	7.77	9.06
	RFC	0.67	0.55	0.77
2038 Future Year AM Peak	Queue (veh)	1.6	2.3	1.4
	Delay (s)	5.57	11.26	5.09
	RFC	0.61	0.69	0.58
2038 Future Year PM Peak	Queue (veh)	2.6	1.5	4.4
	Delay (s)	8.20	8.89	11.35
	RFC	0.72	0.59	0.82
2038 Future Year + Development AM Peak	Queue (veh)	1.6	2.6	1.4
	Delay (s)	5.61	12.19	5.12
	RFC	0.61	0.72	0.58
2038 Future Year + Development PM Peak	Queue (veh)	2.7	1.6	4.9
	Delay (s)	8.53	9.18	12.34
	RFC	0.73	0.61	0.83

TABLE 13 - ARCADY RESULTS SUMMARY (JUNCTION 7)

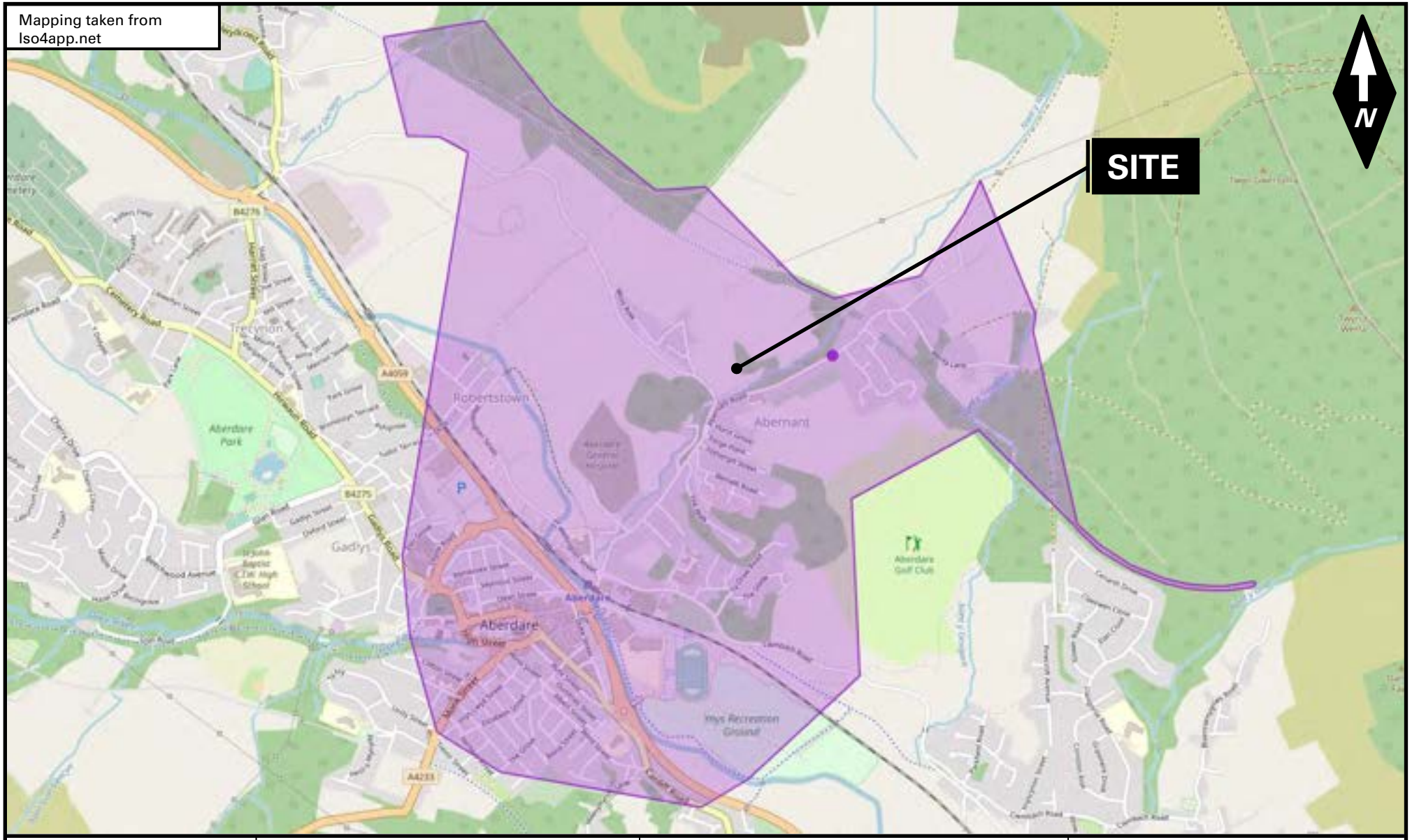


SCALE: **Do Not Scale**	CLIENT: **ASD BUILD**	JOB TITLE: **LAND AT ABERNANT ROAD**		BANCROFT CONSULTING
DATE: **22.07.22**				
DRAWN: **CAB**	TITLE: **GENERAL SITE LOCATION PLAN**		JOB NUMBER: **F20029**	FIGURE: **1**

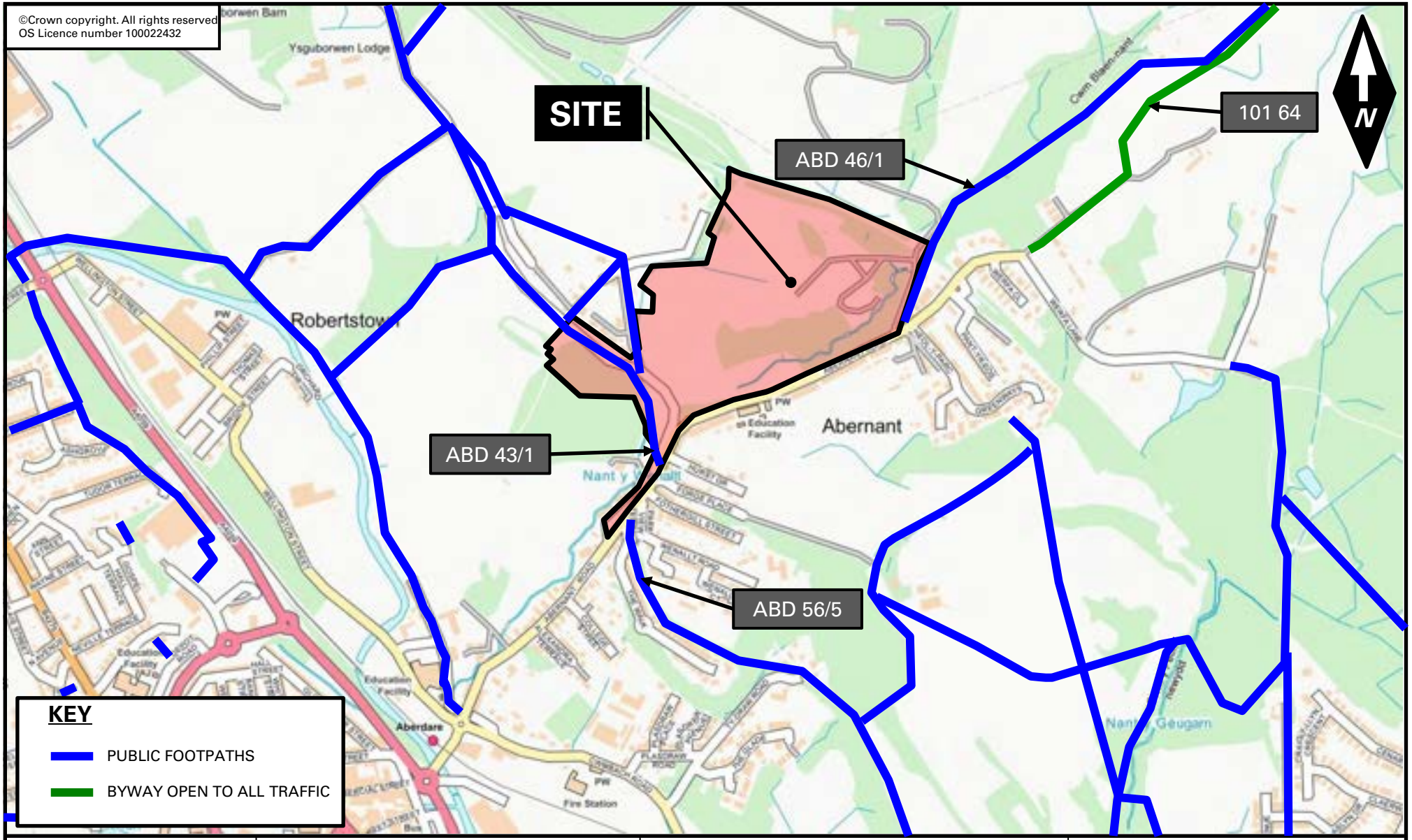


SCALE: Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE: 22.07.22			
DRAWN: CAB	TITLE: DETAILED SITE LOCATION PLAN	JOB NUMBER: F20029	FIGURE: 2

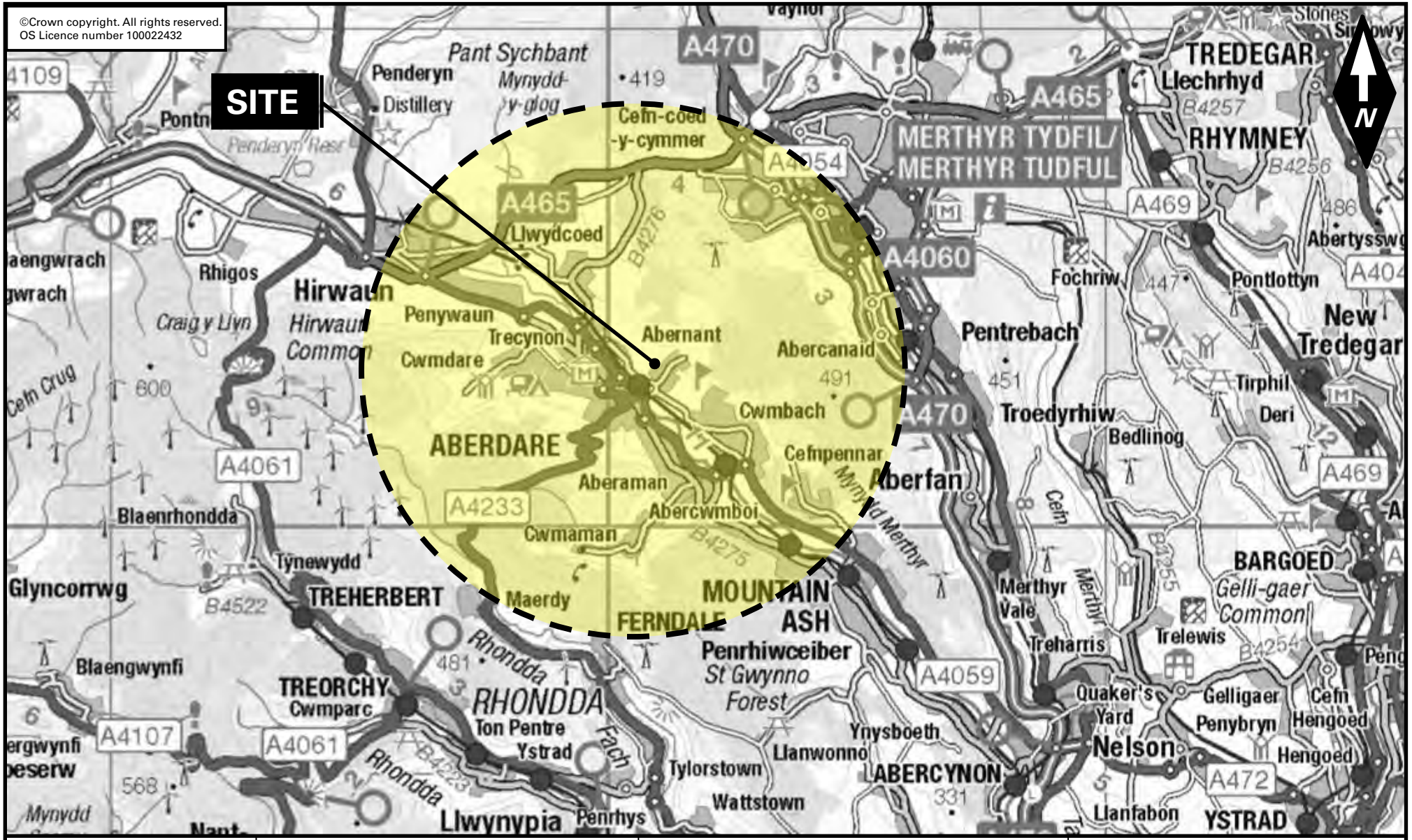
SCALE: Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE: 22.07.22	TITLE: ACCIDENT DATA TAKEN FROM CRASHMAP.CO.UK (2017-2021)	JOB NUMBER: F20029	FIGURE: 3
DRAWN: CAB			



SCALE: Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE: 22.07.22	TITLE: 2KM PEDESTRIAN ISODISTANCE (TAKEN FROM ISO4APP.NET)	JOB NUMBER: F20029	FIGURE: 4
DRAWN: CAB			

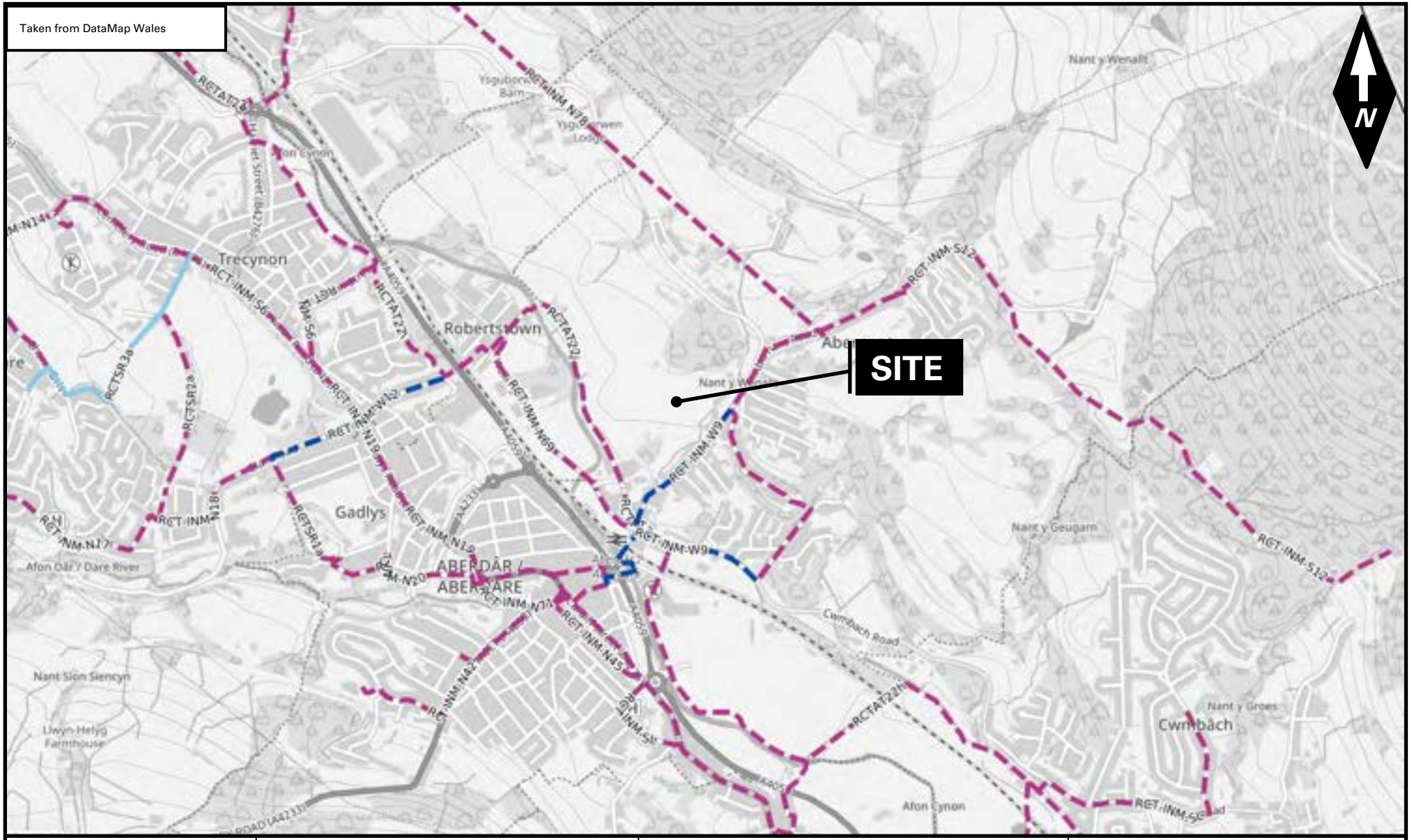


SCALE: Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE: 22.07.22			
DRAWN: CAB	TITLE: PUBLIC RIGHTS OF WAY	JOB NUMBER: F20029	FIGURE: 5

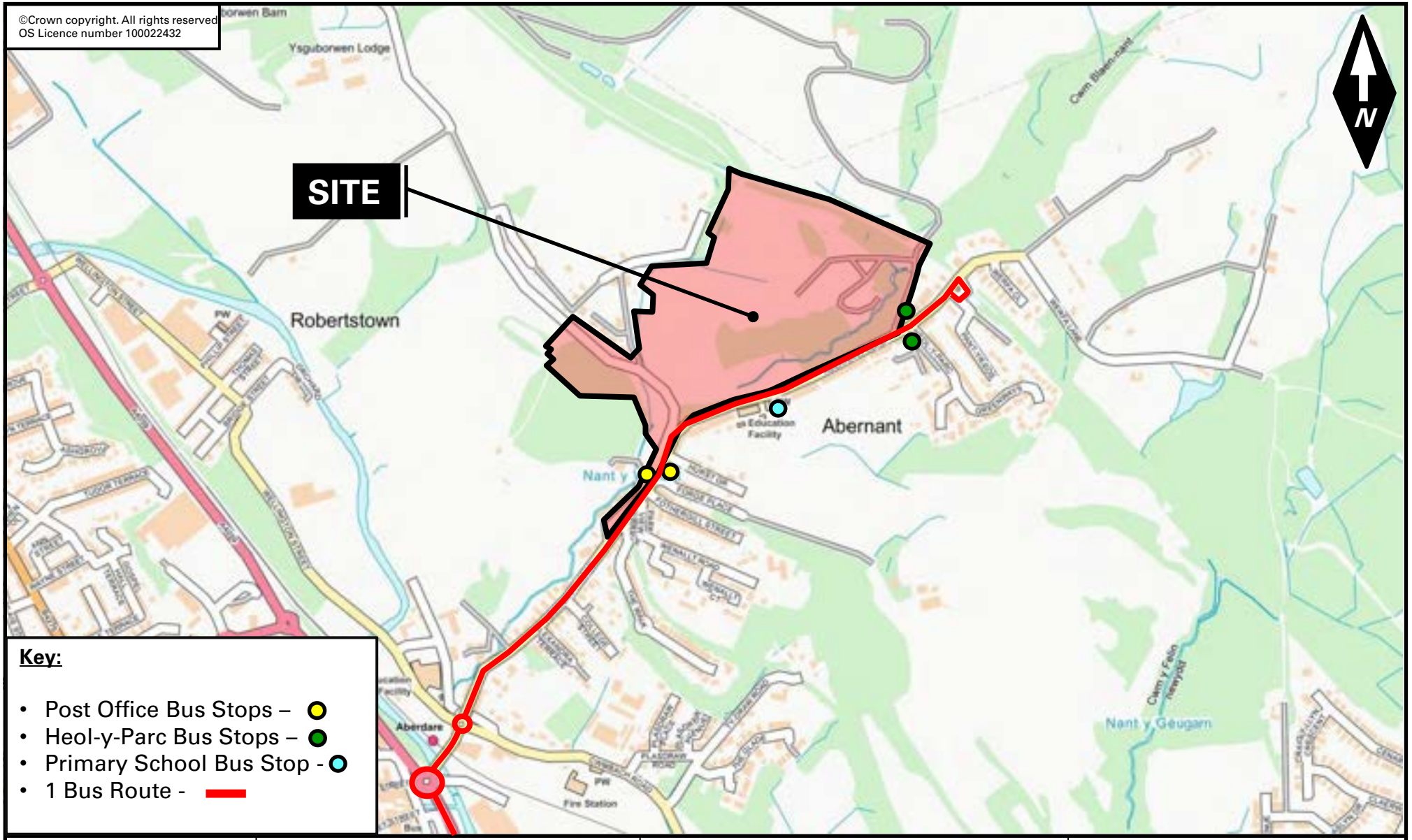


SCALE: Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE: 22.07.22			
DRAWN: CAB	TITLE: CYCLIST CATCHMENT AREA (5 KILOMETRES)	JOB NUMBER: F20029	FIGURE: 6

Taken from DataMap Wales



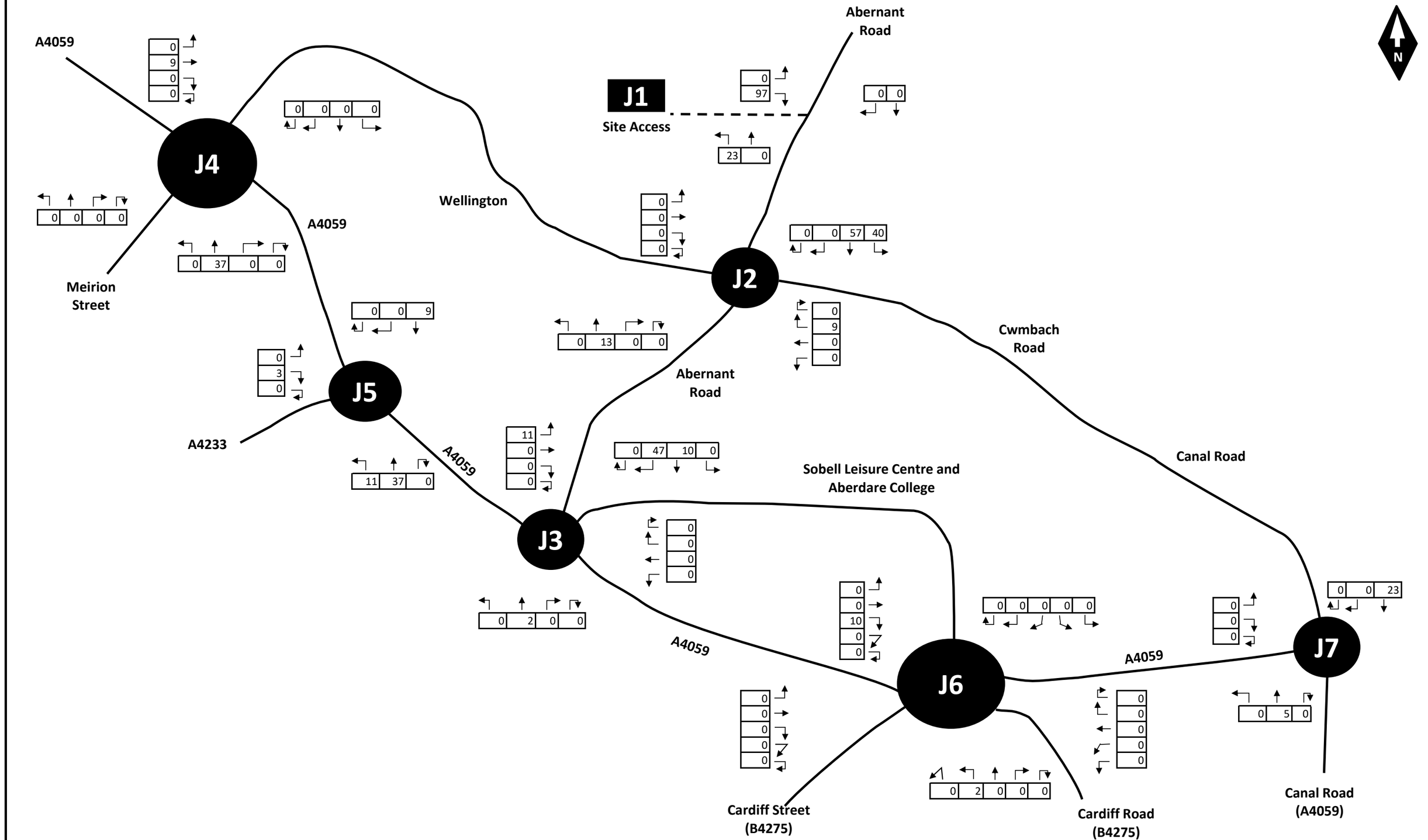
SCALE: Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE: 22.07.22			
DRAWN: CAB	TITLE: CYCLE ROUTES (TAKEN FROM DATAMAP WALES)	JOB NUMBER: F20029	FIGURE: 7



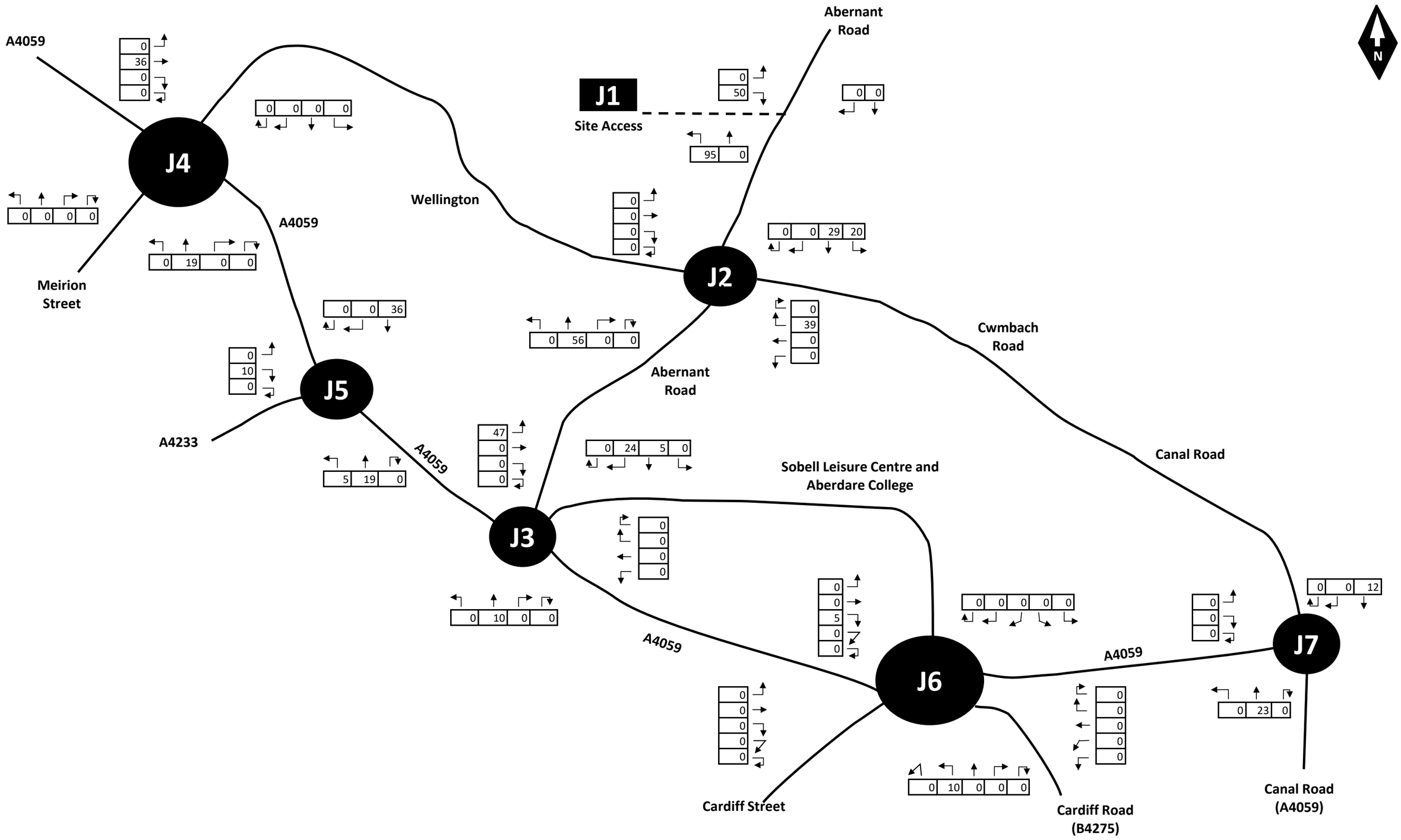
Key:

- Post Office Bus Stops –
- Heol-y-Parc Bus Stops –
- Primary School Bus Stop -
- 1 Bus Route -

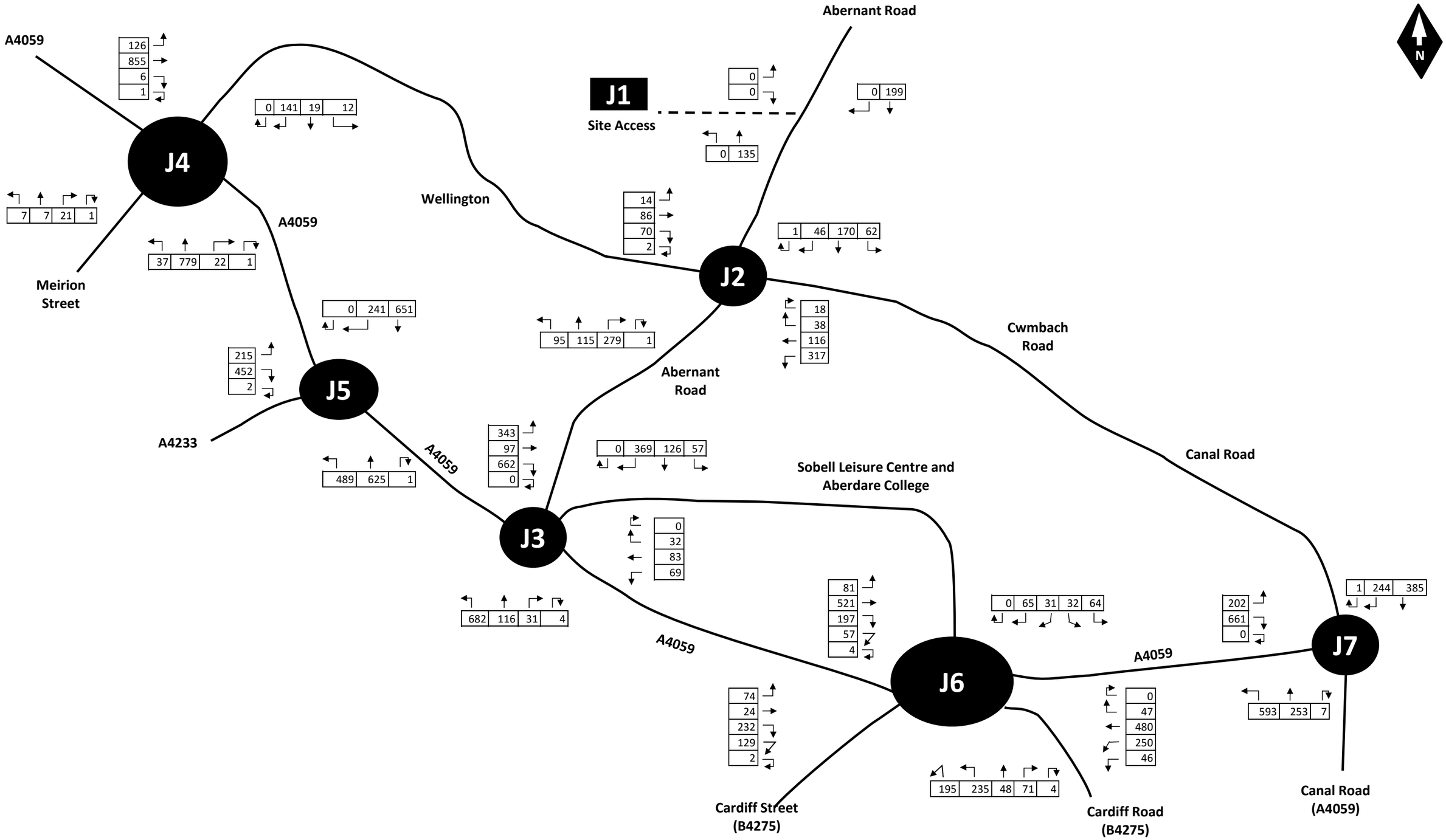
SCALE: Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE: 22.07.22			
DRAWN: CAB	TITLE: LOCAL BUS ROUTES	JOB NUMBER: F20029	FIGURE: 8



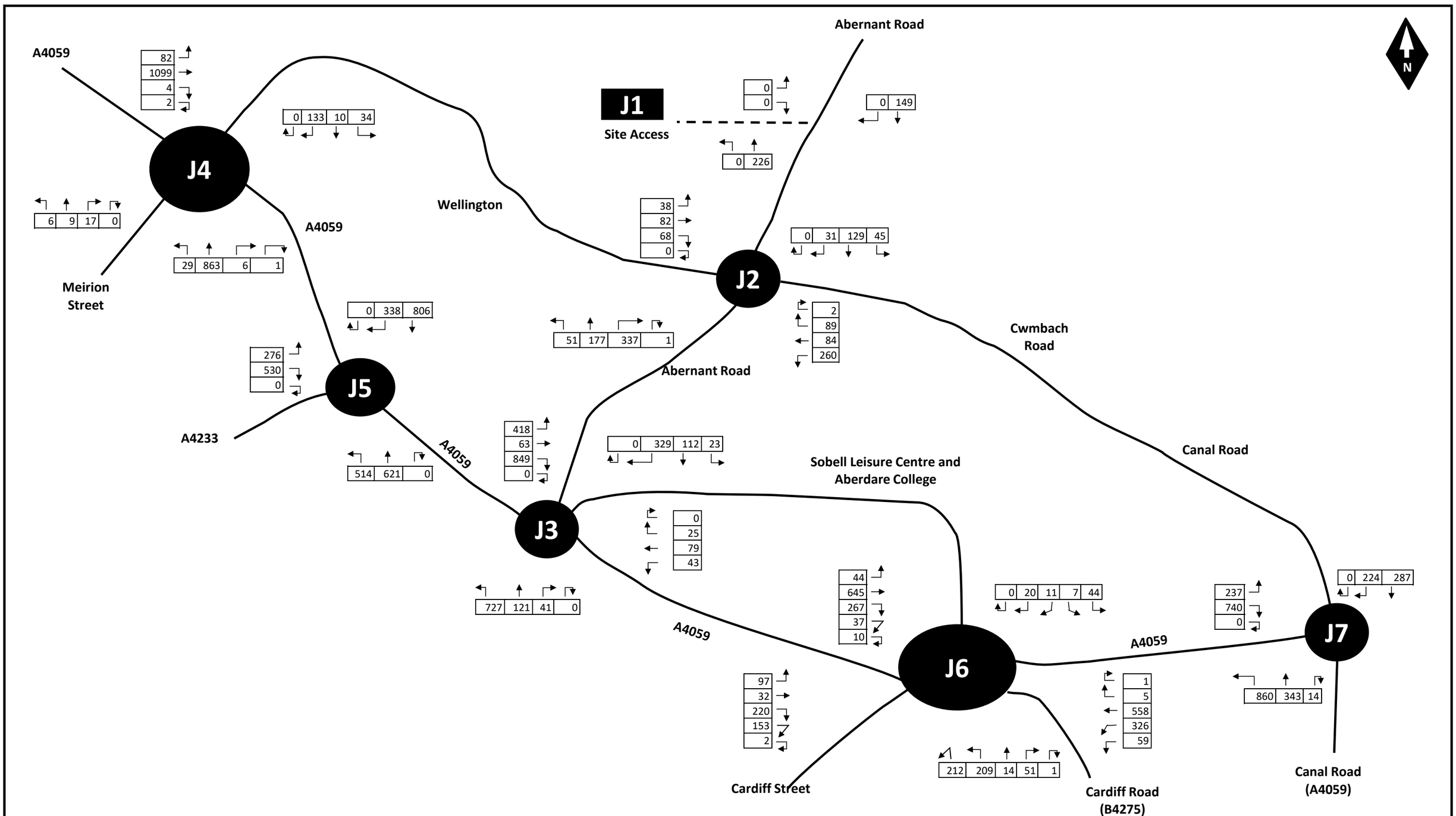
SCALE:	Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE:	01.08.23	TITLE: PROPOSED DEVELOPMENT TRAFFIC ASSIGNMENT (AM PEAK HOUR)	JOB NUMBER: F20029	FIGURE: 9
DRAWN BY:	MB			



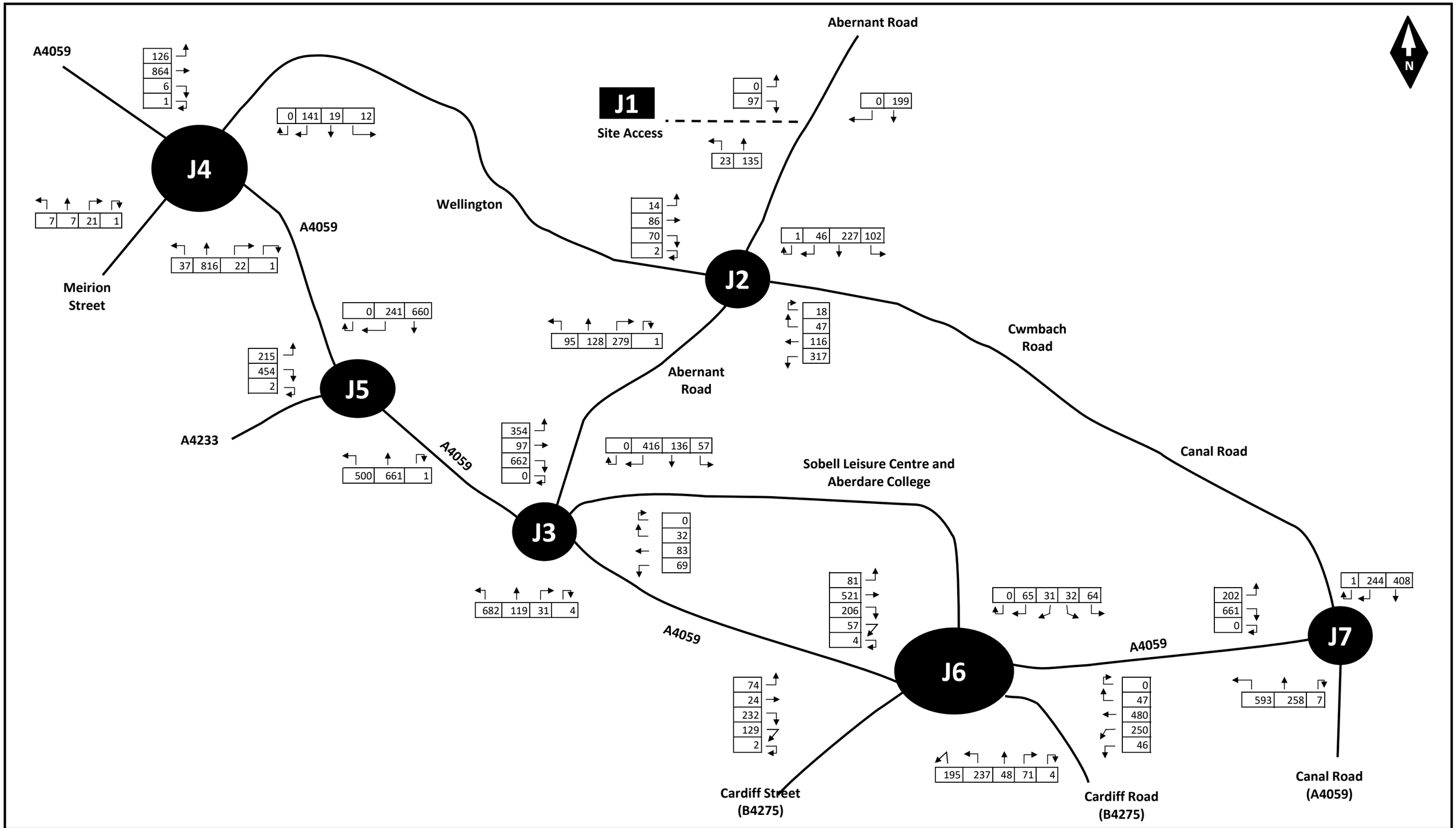
SCALE: Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING	
DATE: 01.08.23	TITLE: PROPOSED DEVELOPMENT TRAFFIC ASSIGNMENT (PM PEAK HOUR)		JOB NUMBER: F20029	FIGURE: 10
DRAWN BY: MB				



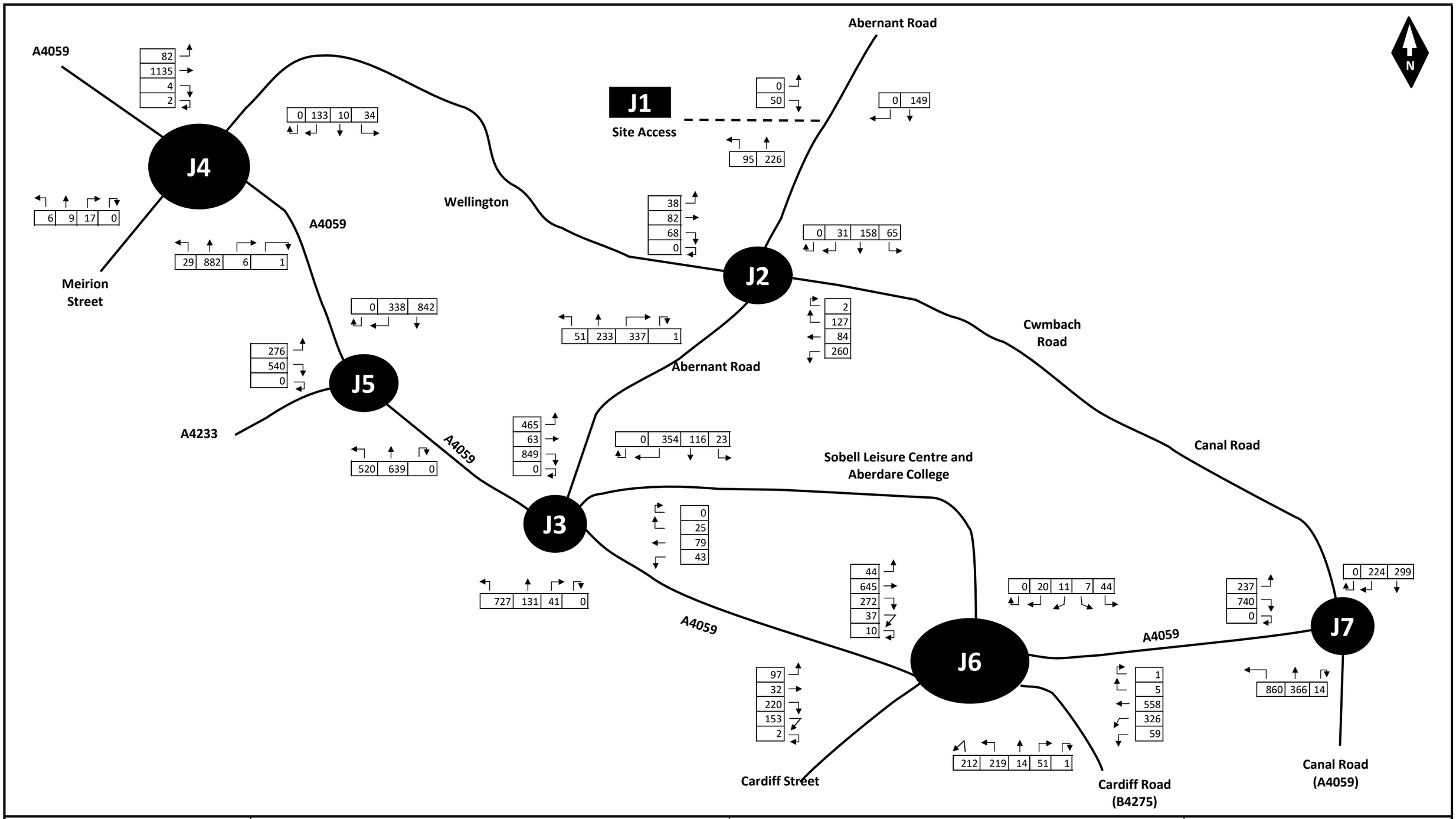
SCALE:	Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE:	01.08.23	TITLE: 2028 OPENING YEAR (AM PEAK HOUR)	JOB NUMBER: F20029	FIGURE: 11
DRAWN BY:	MB			



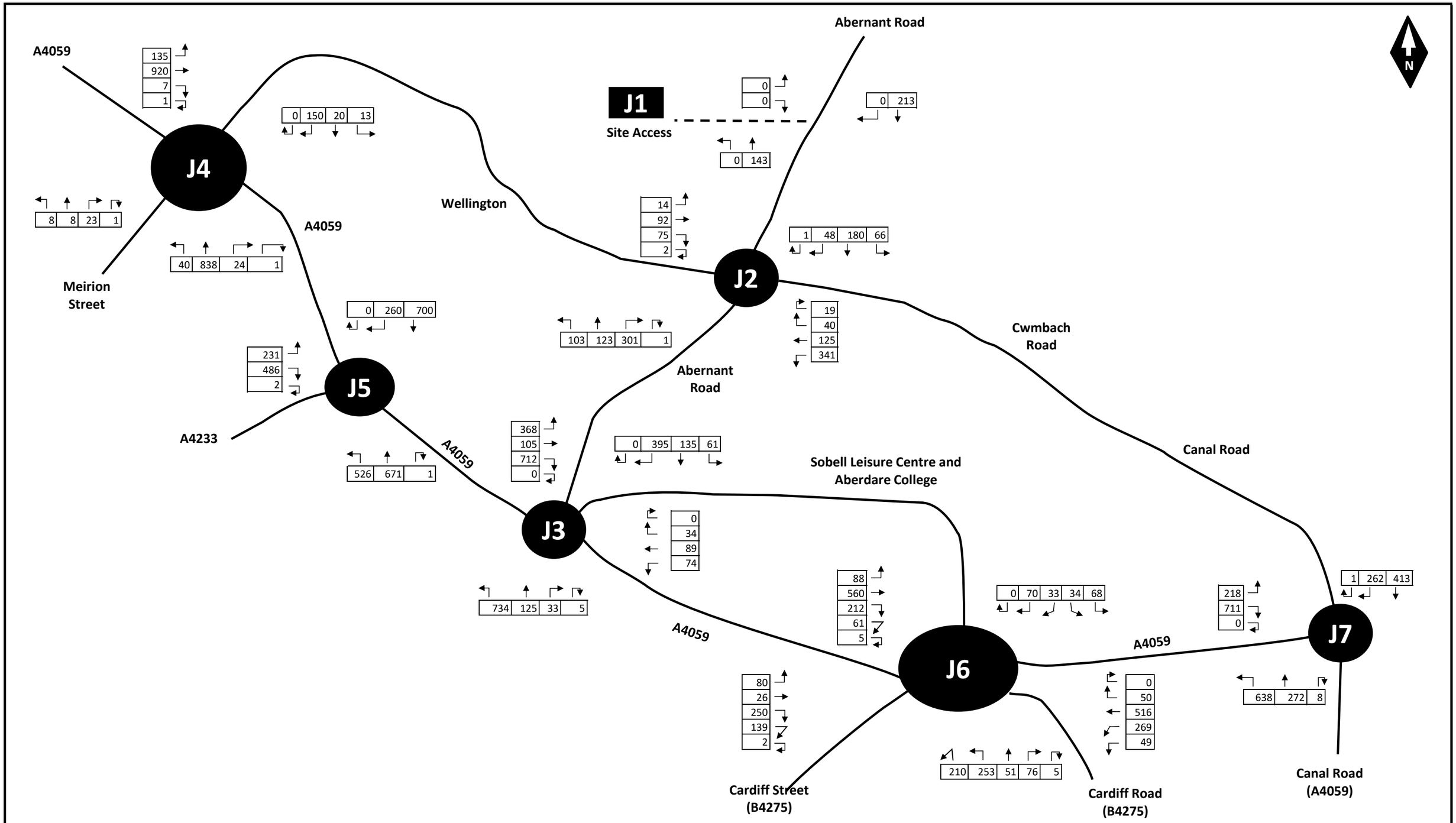
SCALE:	Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE:	01.08.23	TITLE: 2028 OPENING YEAR (PM PEAK HOUR)	JOB NUMBER: F20029	FIGURE: 12
DRAWN BY:	MB			



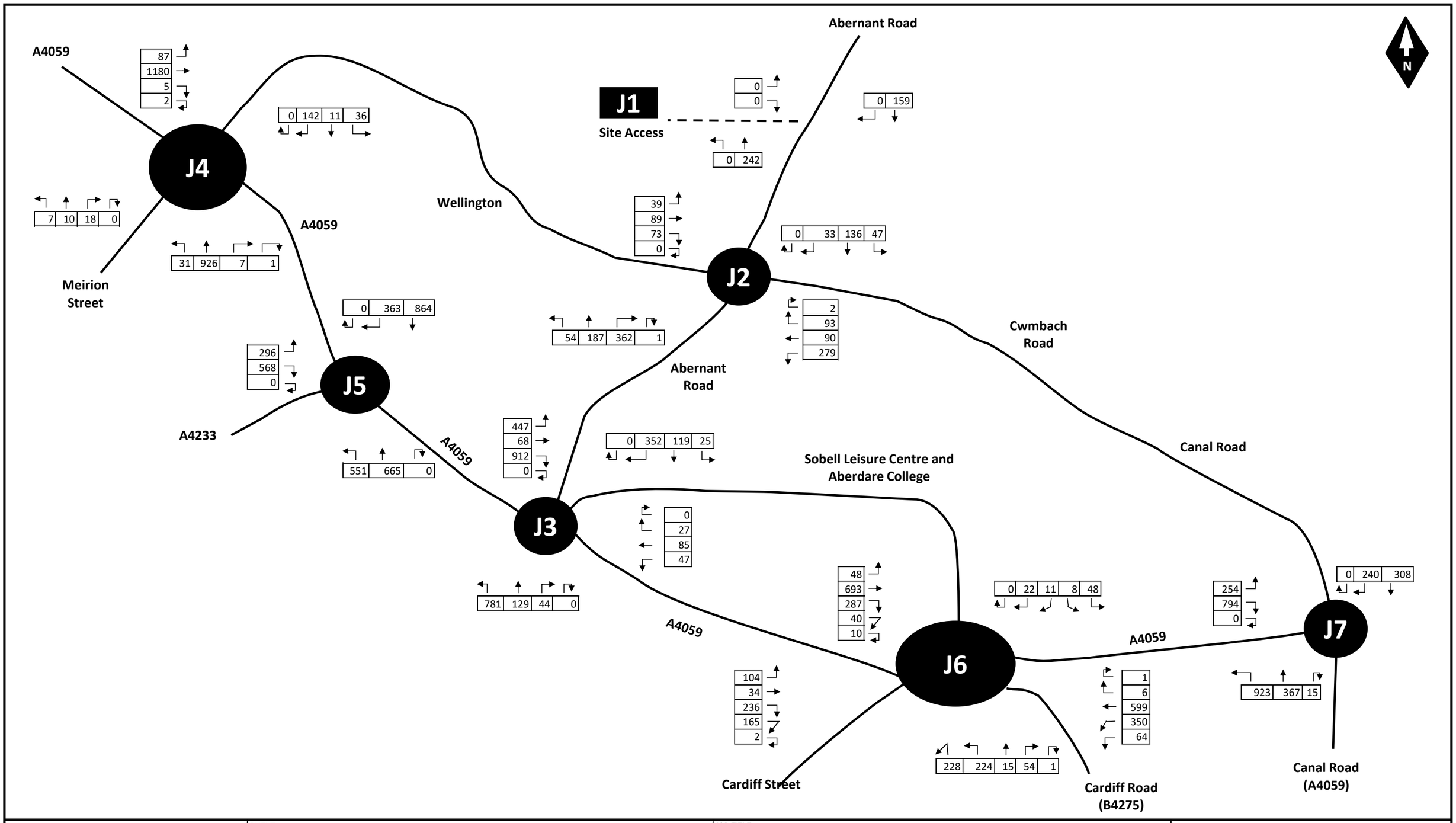
SCALE:	Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE:	01.08.23	TITLE: 2028 OPENING YEAR WITH PROPOSED DEVELOPMENT (AM PEAK HOUR)	JOB NUMBER: F20029	FIGURE: 13
DRAWN BY:	MB			



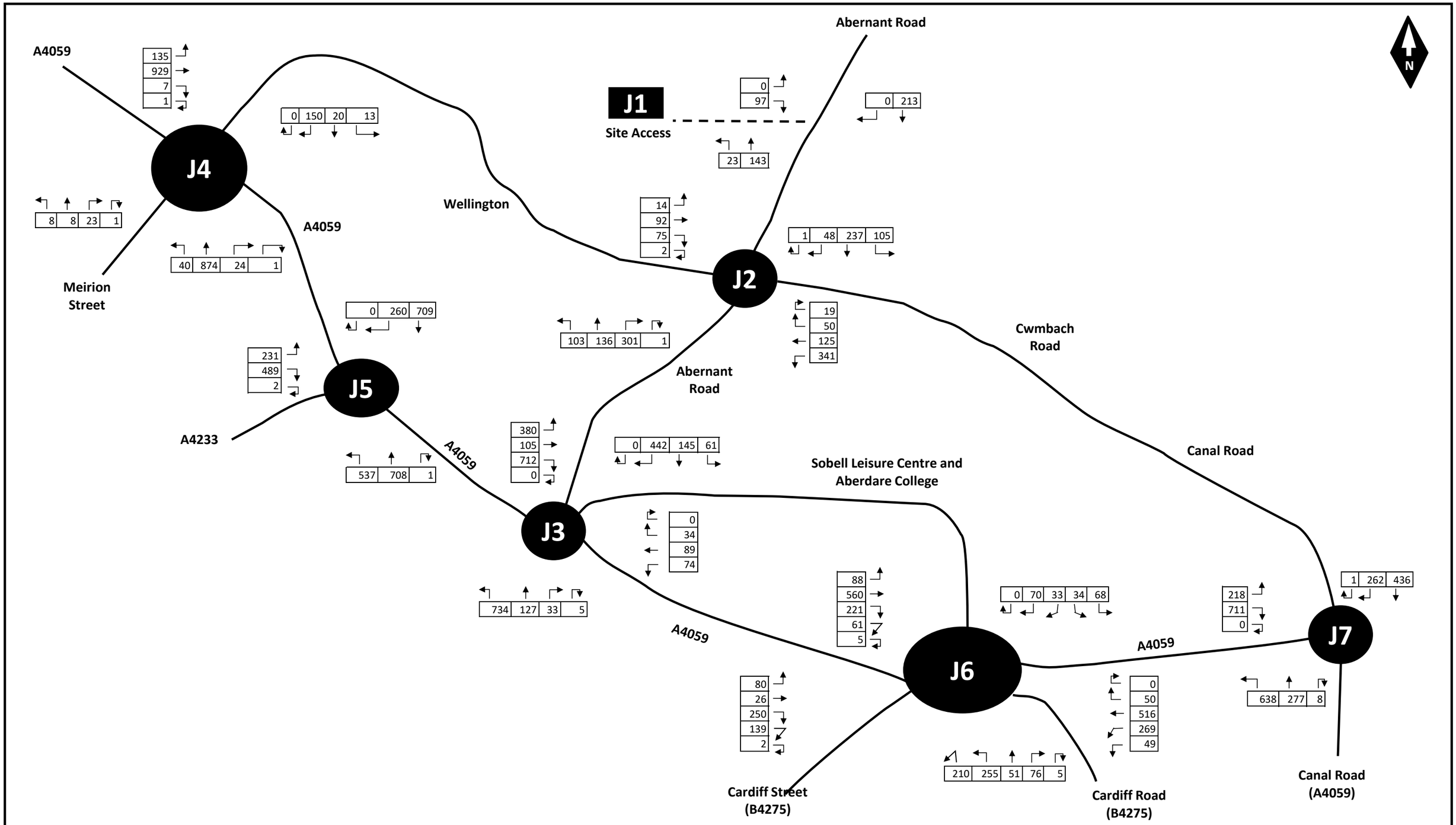
SCALE:	Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE:	01.08.23	TITLE: 2028 OPENING YEAR WITH PROPOSED DEVELOPMENT (PM PEAK HOUR)	JOB NUMBER: F20029	FIGURE: 14
DRAWN BY:	MB			



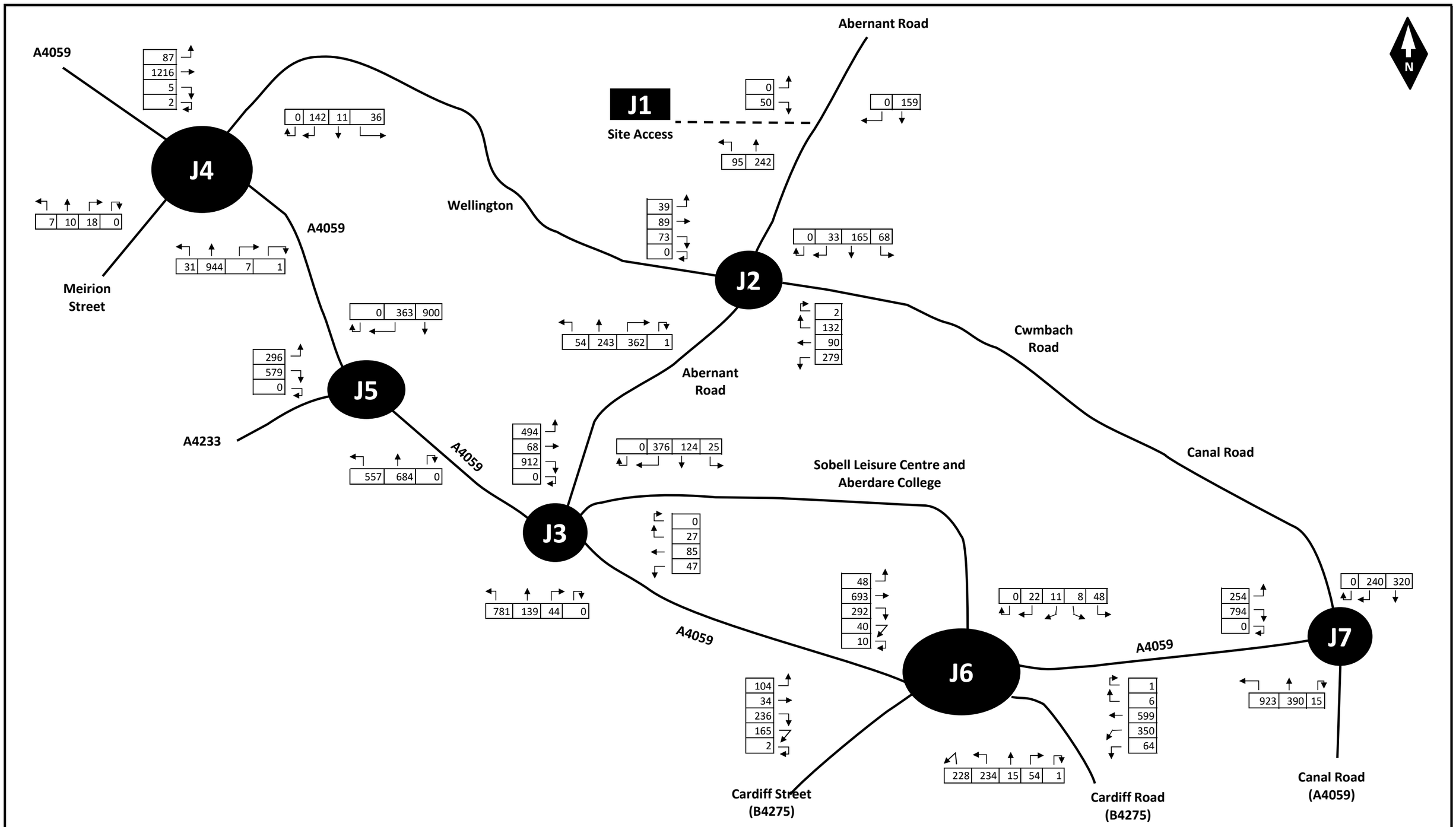
SCALE:	Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE:	01.08.23	TITLE: 2038 FUTURE YEAR (AM PEAK HOUR)	JOB NUMBER: F20029	FIGURE: 15
DRAWN BY:	MB			



SCALE:	Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE:	01.08.23	TITLE: 2038 FUTURE YEAR (PM PEAK HOUR)	JOB NUMBER: F20029	FIGURE: 16
DRAWN BY:	MB			



SCALE: Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE: 01.08.23	TITLE: 2038 FUTURE YEAR WITH PROPOSED DEVELOPMENT (AM PEAK HOUR)	JOB NUMBER: F20029	FIGURE: 17
DRAWN BY: MB			



SCALE:	Do Not Scale	CLIENT: ASD BUILD	JOB TITLE: LAND AT ABERNANT ROAD	BANCROFT CONSULTING
DATE:	01.08.23	TITLE: 2038 FUTURE YEAR WITH PROPOSED DEVELOPMENT (PM PEAK HOUR)	JOB NUMBER: F20029	FIGURE: 18
DRAWN BY:	MB			

DRG. No. F20029/10 | REV. No. B

NOTES:

Grid North

W E S

2 metres wide footway

3 metres wide shared footway/cyelceway

6.75 metres wide carriageway

embankments of 3:1 gradient

tactile paving crossing

2.4 x 36 metres visibility splay (taken to edge of carriageway)

10 metres kerb radii

2.4 x 33 metres visibility splay (taken to edge of carriageway)

tactile paving crossings

158.9m

166.8m

Drain

Richmond Terrace

Abernant Road

20 14 8 6 8a 8

REV.	DATE	DESCRIPTION	DRN	CHK'D
B	25.09.23	UPDATED WITH LATEST MASTERPLAN	DS	WM
A	08.08.23	UPDATED WITH LATEST MASTERPLAN	DS	WM

CLIENT: ASD BUILD

CONTRACT: LAND AT ABERNANT ROAD

TITLE: PROPOSED SITE ACCESS AND VISIBILITY ASSESSMENT

BANCROFT CONSULTING

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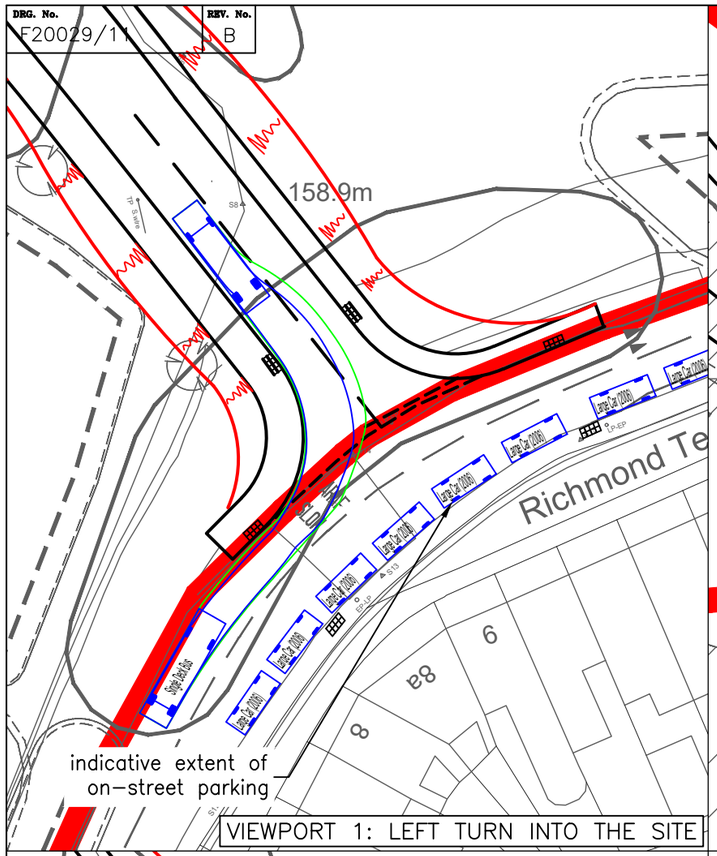
e office@bancroftconsulting.co.uk

DRAWN BY	
NAME (PRINT)	DATE
DS	19.05.23
CHECKED BY	
NAME (PRINT)	DATE
WM	19.05.23

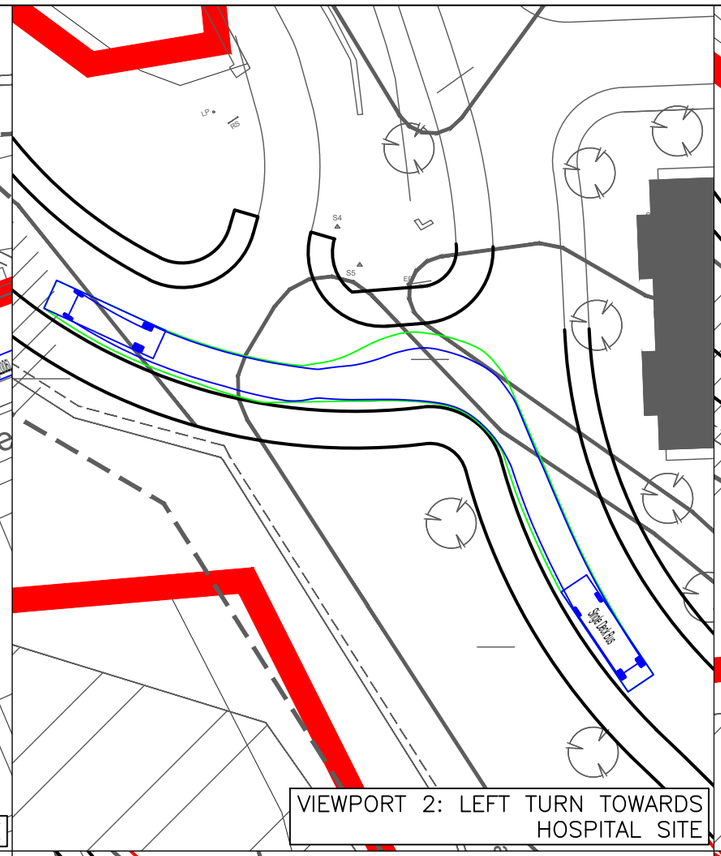
SCALE 1:500@A3 | STATUS PRELIMINARY

DRG. NO. F20029/10 | REV B

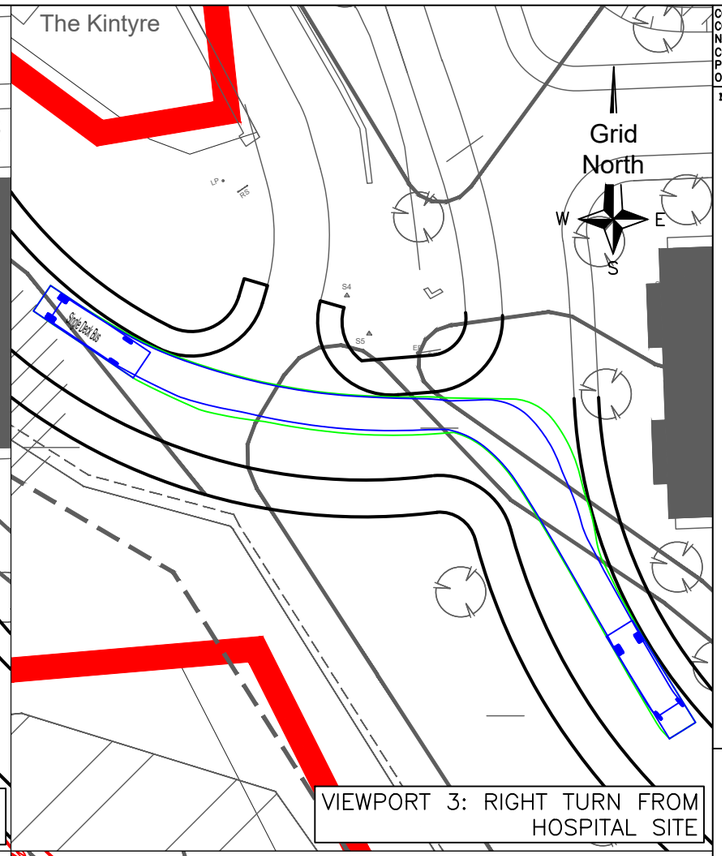
DRG. No. F20029/11 | REV. No. B



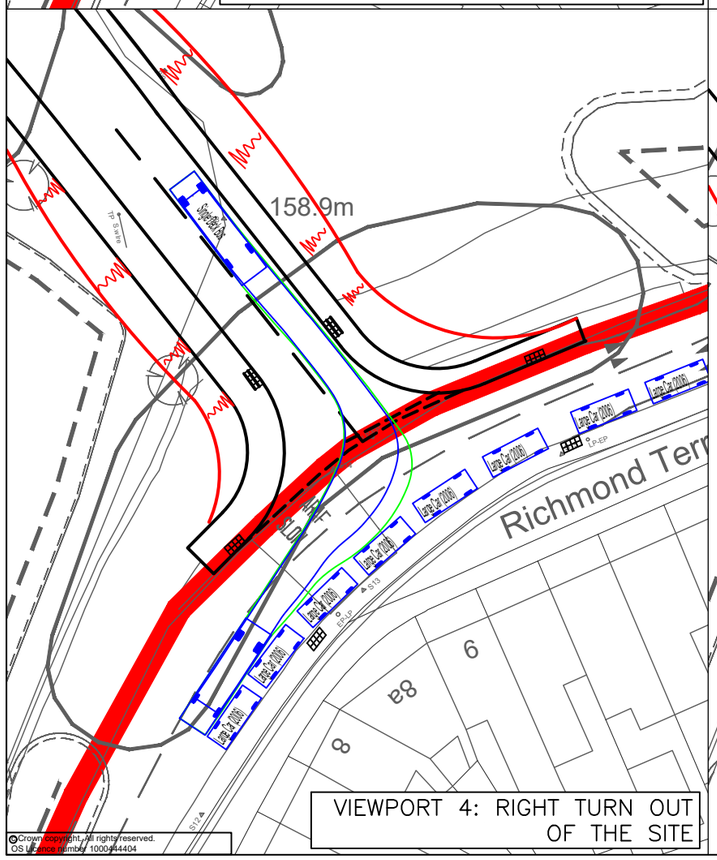
VIEWPORT 1: LEFT TURN INTO THE SITE



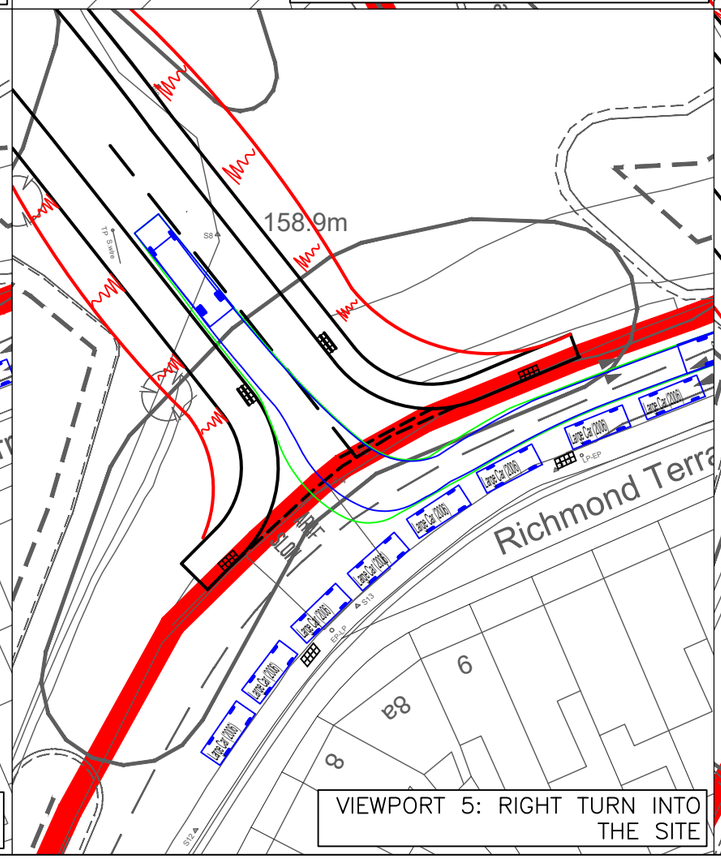
VIEWPORT 2: LEFT TURN TOWARDS HOSPITAL SITE



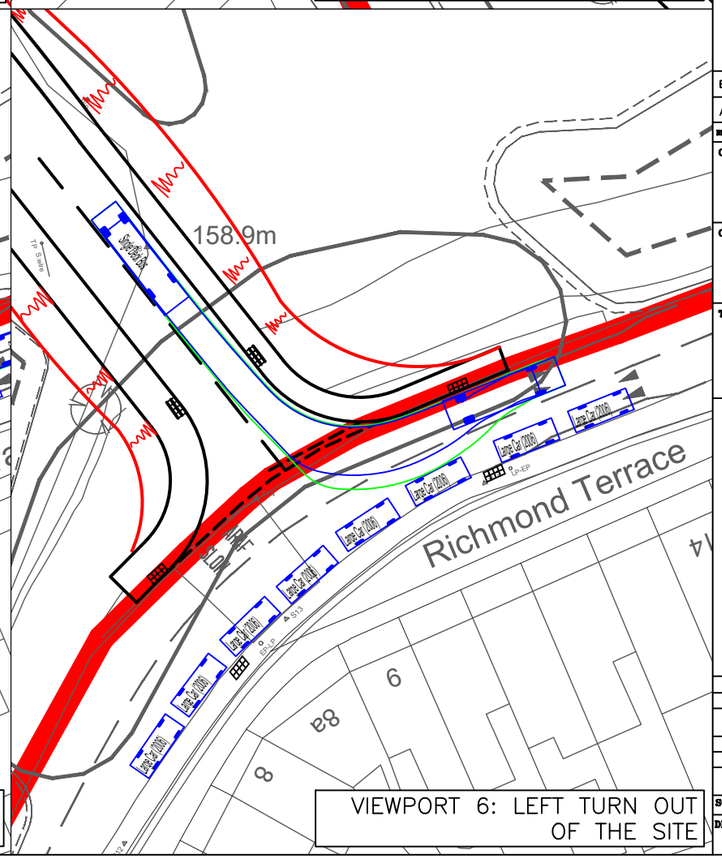
VIEWPORT 3: RIGHT TURN FROM HOSPITAL SITE



VIEWPORT 4: RIGHT TURN OUT OF THE SITE

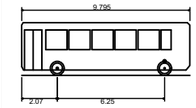


VIEWPORT 5: RIGHT TURN INTO THE SITE



VIEWPORT 6: LEFT TURN OUT OF THE SITE

NOTES:



Single Deck Bus	
Overall Length	9.795m
Overall Width	2.500m
Overall Body Height	3.070m
Min Body Ground Clearance	0.306m
Track Width	2.322m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	10.111m

REV.	DATE	DESCRIPTION	DRN	CHK'D
B	25.09.23	UPDATED WITH LATEST MASTERPLAN	DS	WM
A	08.08.23	UPDATED WITH LATEST MASTERPLAN	DS	WM

CLIENT

ASD BUILD

CONTRACT

LAND AT ABERNANT ROAD

TITLE

SWEPT PATH ASSESSMENT (SINGLE-DECKER BUS)

BANCROFT CONSULTING

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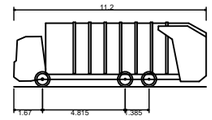
NAME (PRINT)	DATE
DS	19.05.23
CHECKED BY	
NAME (PRINT)	DATE
WM	19.05.23

SCALE 1:500@A3 | STATUS PRELIMINARY

DRG. NO. F20029/11 | REV B

DRG. No. F20029/12 | REV. No. B

NOTES:



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

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

Grid North

VIEWPORT 1: ASSESSMENT OF FULL SITE
SCALE – 1:2000@A3

VIEWPORT 2: ASSESSMENT OF INTERNAL RESIDENTIAL ROAD
SCALE – 1:2000@A3

VIEWPORT 3: LEFT TURN IN/OUT AT ACCESS
SCALE – 1:500@A3

REV.	DATE	DESCRIPTION	DRN	CHK'D
B	25.09.23	UPDATED WITH LATEST MASTERPLAN	DS	WM
A	08.08.23	UPDATED WITH LATEST MASTERPLAN	DS	WM

CLIENT
ASD BUILD

CONTRACT
LAND AT ABERNANT ROAD

TITLE
SWEPT PATH ASSESSMENT
(11.2M REFUSE VEHICLE)

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DS	22.05.23
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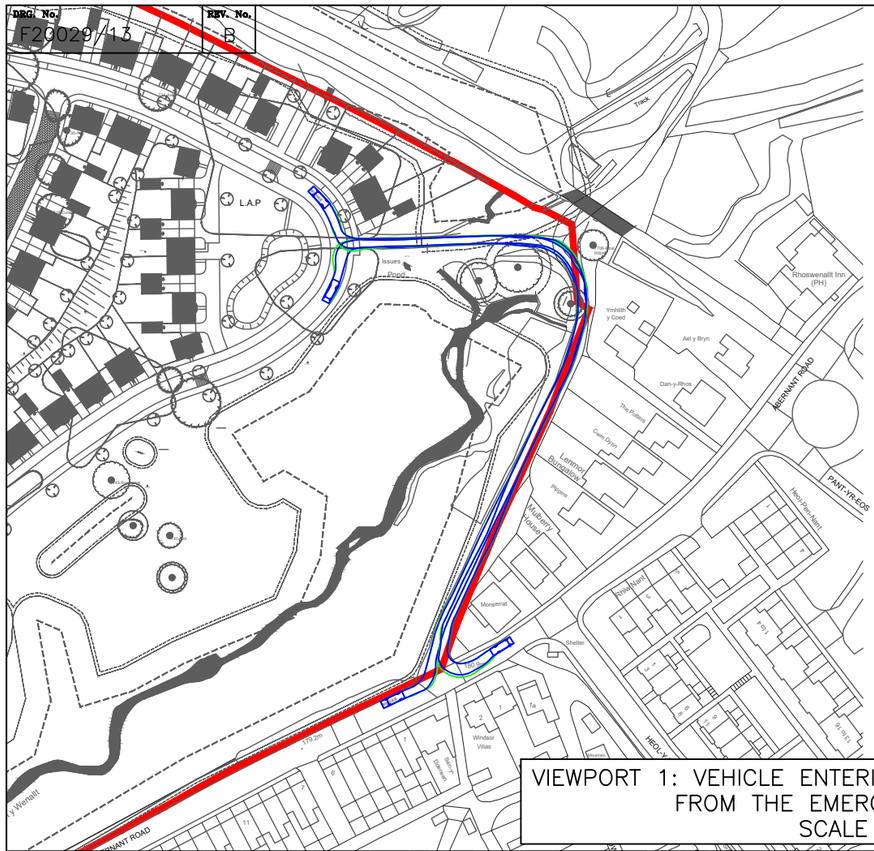
NAME (PRINT)	DATE
WM	22.05.23

SCALE AS SHOWN | STATUS PRELIMINARY

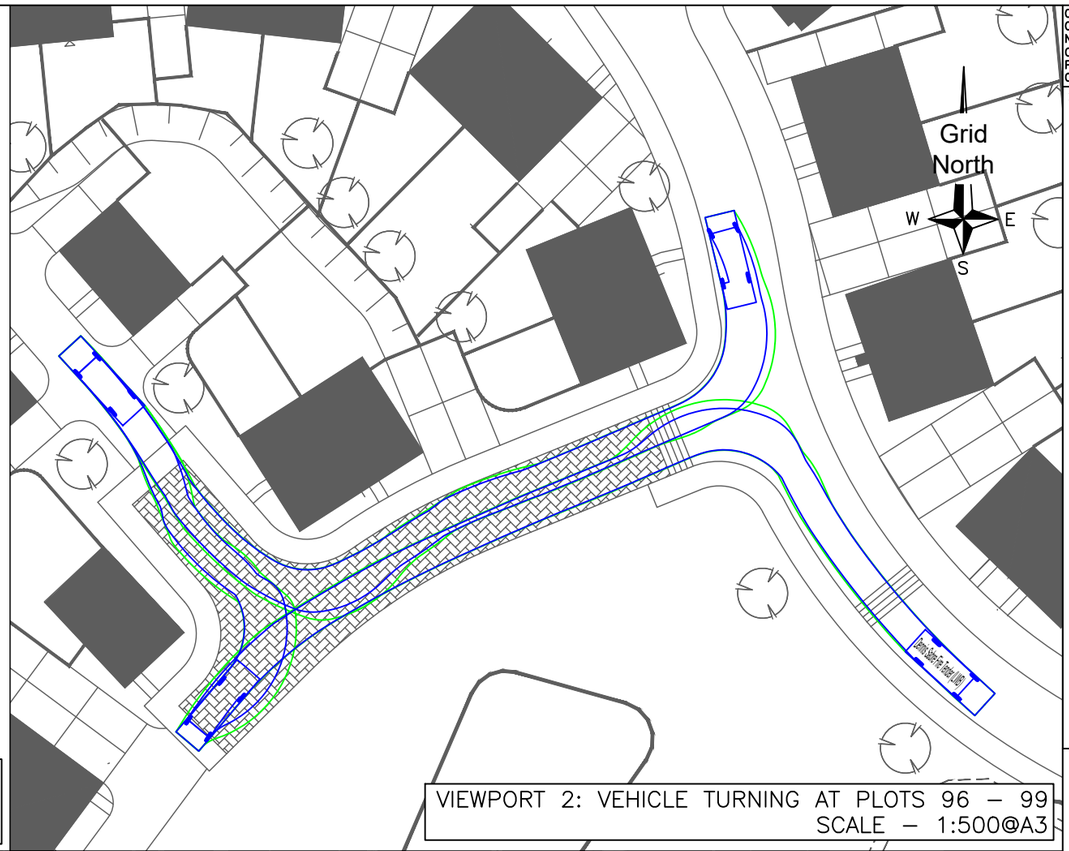
DRG. NO. F20029/12 | REV B

DRG. No. F20029/13

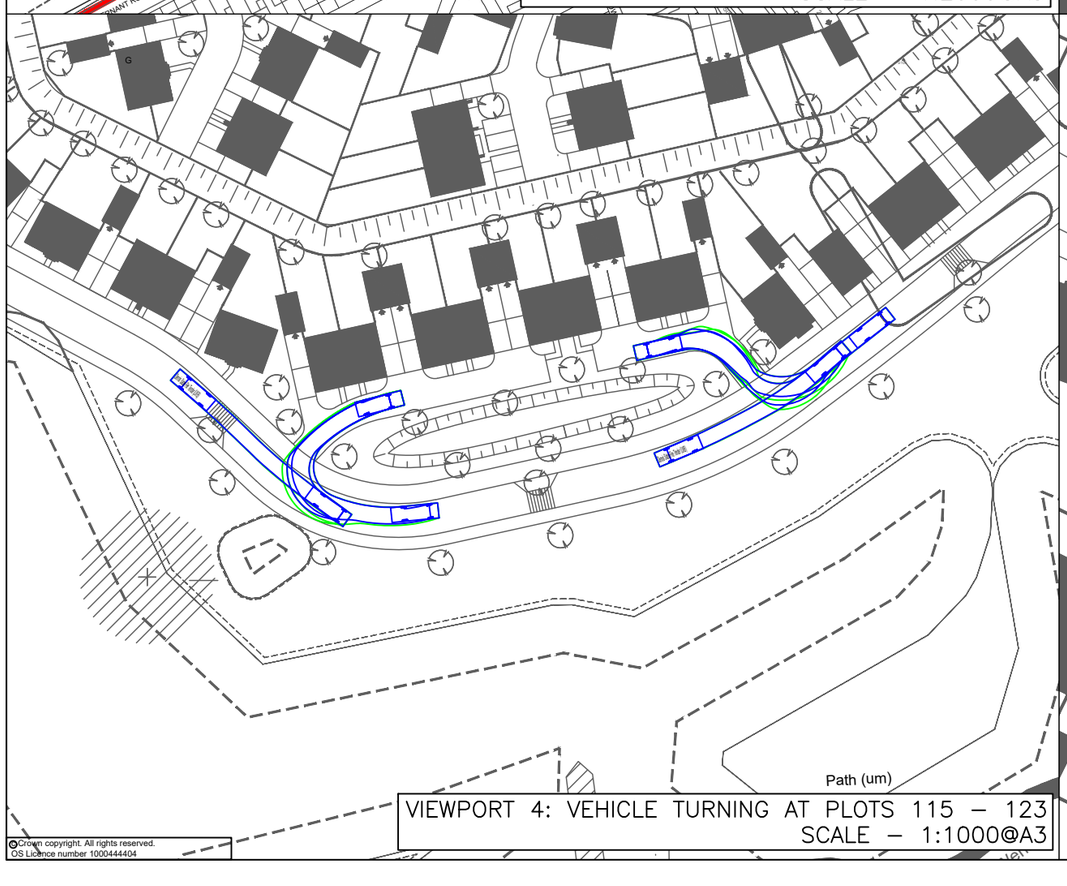
REV. No. B



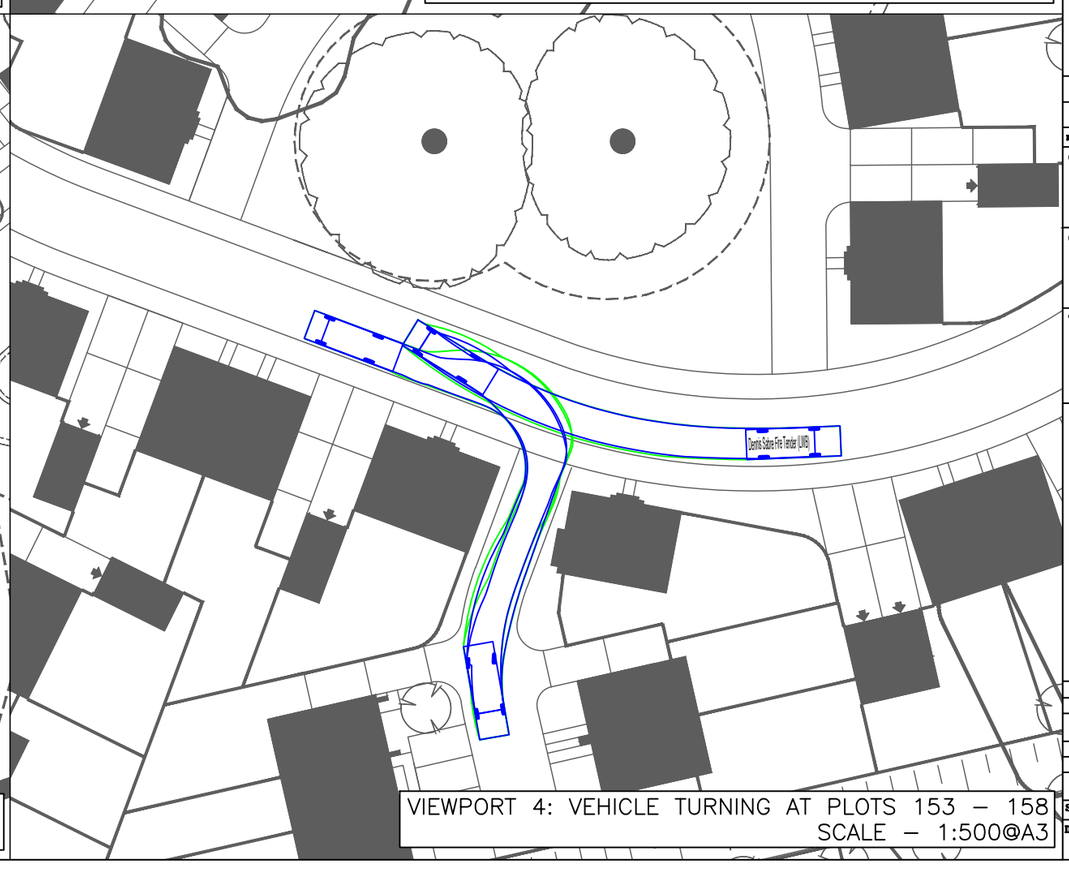
VIEWPORT 1: VEHICLE ENTERING/DEPARTING FROM THE EMERGENCY ACCESS
SCALE – 1:2000@A3



VIEWPORT 2: VEHICLE TURNING AT PLOTS 96 – 99
SCALE – 1:500@A3

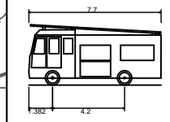


VIEWPORT 4: VEHICLE TURNING AT PLOTS 115 – 123
SCALE – 1:1000@A3



VIEWPORT 4: VEHICLE TURNING AT PLOTS 153 – 158
SCALE – 1:500@A3

NOTES:



Dennis Sabre Fire Tender (LWB)	
Overall Length	7.700m
Overall Width	2.430m
Overall Body Height	3.512m
Min Body Ground Clearance	0.397m
Track Width	2.380m
Lock to lock time	5.00s
Kerb to Kerb Turning Radius	7.400m

REV.	DATE	DESCRIPTION	DRN	CHK'D
B	25.09.23	UPDATED WITH LATEST MASTERPLAN	DS	WM
A	08.08.23	UPDATED WITH LATEST MASTERPLAN	DS	WM

CLIENT

ASD BUILD

CONTRACT

LAND AT ABERNANT ROAD

TITLE

SWEPT PATH ASSESSMENT (FIRE TENDER)

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SCALE AS SHOWN | STATUS PRELIMINARY

DRG. NO. F20029/13 | REV B

APPENDIX A – RELEVANT EXTRACTS FROM FEASIBILITY STUDY

ASD Build

Land at Abernant Road, Aberdare

Feasibility Study

May 2020

BANCROFT CONSULTING

bancroftconsulting.co.uk

LAND AT ABERNANT ROAD, ABERDARE
FEASIBILITY STUDY
MAY 2020

1.0 INTRODUCTION

1.1 Bancroft Consulting were appointed by ASD Build to provide highways and transportation advice in respect of two separate residential developments on land at Nant y Wenallt in Aberdare, Rhondda Cynon Taf. **Figure 1** shows the locations of the two developments, referenced as Plot 1 (comprising the erection of approximately 30 dwellings) and Plot 2 (comprising the erection of approximately 300 dwellings), which form 'the site'. This report also takes into consideration a consented development referenced as Plot 3 (which has planning permission for up to 50 dwellings) and under the ownership of a third-party. **Appendix A** contains a copy of the preliminary site layout plan for Plot 2.

1.2 The easternmost part of Plot 2 forms the allocated site 'NSA 9.6 – Land at Nant y Wenallt, Abernant Road' within the Rhondda Cynon Taf Local Development Plan (March 2011). The allocation is for 150 residential dwellings within a site area of 6.1 hectares. **Appendix B** contains a plan showing the location of this Local Plan allocation.

1.3 The objective of this Feasibility Study is to identify access opportunities from Abernant Road to serve Plots 1 and 2, whilst retaining/improving access to Plot 3. It will consider the benefits of each option for further consultation within the Project Team with the view to obtaining confirmation from the Highway Authority on the preferred access strategy prior to planning applications being submitted for the developments. Although the access designs are subject to further detailed assessment they do take into consideration the scales of development and likely traffic flows.

1.4 This Feasibility Study follows a site visit undertaken on 17 March 2020. The purpose of the visit was to establish any constraints that could affect access, whilst gaining an understanding on the current conditions along Abernant Road and beyond. In addition, a topographical survey has also been completed across the

site to allow for the access designs to consider the site levels. A copy of the topographical survey is included at **Appendix C**.

2.0 EXISTING CONDITIONS

Site Details

2.1 **Figure 1** shows that Plot 1 is located towards the western end and Plot 2 towards the eastern end, with Plot 3 situated in between. The site in its entirety is within the settlement boundary of Aberdare and largely bound by open land to the north and west, open land and residential properties to the east and Abernant Road to the south. The site and surrounding areas were formerly used for coal and iron works and associated tips. It has since been reclaimed with the northern end comprising an open grazing paddock, whilst an old feeder pond used as a builder's timber yard is located at its southern end. The Nant y Wenallt stream extends along the southern boundary of the site within a wooded embankment and the area surrounding the stream is designated as a Site of Importance to Nature Conservation (SINC). The topographical survey at **Appendix C** confirms that there are significant level differences across the site, which create an uphill gradient from southwest to northeast. The embankment at the southern end of the site is at a level approximately 7 to 9 metres below the Abernant Road carriageway.

2.2 Plot 3 received planning permission in 2005 for 50 residential dwellings served by a new access from Abernant Road (application ref: 05/0134/13). **Appendix D** includes extracts from the Transport Statement supporting the scheme, which shows the approved access layout. During the site visit, the development appeared to be partially built out but unoccupied, however no new access had been implemented and access was through Plot 1 via a track sign posted as 'Moss Place'. Further clarity is therefore required as to why the access from Abernant Road has not been delivered, which may be due to third party land constraints.

2.3 Access to Plot 1 is via Moss Place at the western boundary. Moss Place comprises an informal road that adopts a skewed angle from Abernant Road. It has a carriageway width of approximately 3.2 metres and extends for approximately 250

metres towards Plot 3 with intermittent passing bays to assist with two-way traffic flow. There are significant level differences between the level of Moss Place and the ground to the north within Plot 1, which drops by approximately 7 metres.

2.4 Access to Plot 2 is via the public footpath towards the eastern end of the site (which also serves a number of other residential properties). However, this access is less formal and during the site visit appeared to be lightly used. This access also adopts a skewed angle from Abernant Road and has a width of approximately 4.5 metres. The track is within the site boundary and formerly served the timber yard.

Highway Layout

2.5 Abernant Road extends in an approximate southwest to northeast direction past the southern side of the site. The site frontage is within a 20mph zone, which includes 20mph roundels and traffic calming features. The carriageway fluctuates in width, however in the vicinity of the site, it generally measures 8 metres wide. The majority of existing properties fronting Abernant Road do not benefit from any off-street parking and therefore on-street parking takes place frequently along both sides of the carriageway, particularly towards the western part of the site frontage. Towards the southwestern corner of the site, Abernant Road features a bend to the south and through this section adopts a significant downhill gradient of 7.7% (1 in 13) on approach to the Moss Place junction. Abernant Road is effectively a cul-de-sac serving approximately 150 dwellings and a Public House and during the site visit was lightly trafficked.

2.6 Abernant Road accommodates the Bus Route 1 service. The service travels along Abernant Road, undertaking a U-turn within Park-Yr-Eos before continuing back along Abernant Road in the opposite direction. A pair of bus stops currently exist adjacent to the Moss Place junction at the southwest corner of the site and also adjacent to the entrance to the public footpath at the sites southeast corner.

2.7 It is understood that the Council has aspirations to provide a bus link from the A4059 through Plots 1 and 2 via an improvement to the existing tracks/roads within the site, with a loop back along Abernant Road. **Figure 2** shows the approximate routeing for a new internal bus service. During the site visit it was noted how the

ground level to the west of Plot 1 appears to drop significantly and therefore further work would be required to establish the strategy for delivering a bus route through this area. However, the access layouts to serve Plot 1 will aim to facilitate a connection point for any future scheme brought forward by the Council.

3.0 DEVELOPMENT DETAILS

Scale of Development

3.1 This Feasibility Study will consider how Plots 1 and 2 could be served by suitable access arrangements, taking into account continued access to Plot 3. A full planning application for approximately 30 dwellings at Plot 1 is likely to come forward in 2020, which would generate income to fund infrastructure improvements to build out Plot 2. An outline planning application for approximately 300 dwellings would then be submitted for Plot 2, which aims to fulfil the requirements of the Rhondda Cynon Taf Local Development Plan and beyond.

3.2 The access options identified as part of this Feasibility Study will demonstrate how Plots 1 and 2 could be served by suitable access layouts, taking into account the site constraints, such as the level issues and the SINC. It also seeks to demonstrate how the internal road layouts could help facilitate an internal bus service through the site.

Traffic Generation

3.3 To understand the level of traffic that could be generated by both developments, typical trip rates of 0.6 peak hour and 6 daily movements per dwelling have been used. It should be noted that as part of any future Transport Assessments supporting both Plots 1 and 2, detailed TRICS searches will be undertaken to identify accurate trip rates. Nevertheless, the following calculations should give a good indication into the likely impacts of both developments. In light of the above trip rates, the two developments at Plots 1 and 2 could generate the following peak hour and daily two-way movements:

Plot 1: Residential Development of 30 dwellings

- peak hours (0800 to 0900 hours/1700 to 1800 hours) = 18 two-way movements.
- daily (0700 to 1900 hours) = 180 two-way movements.

Plot 2: Residential Development of 300 dwellings

- peak hours = 180 two-way movements.
- daily = 1,800 two-way movements.

3.4 The traffic generation calculations confirm that the impact from a development of 30 dwellings would be relatively minimal, with up to 18 two-way peak hour movements being generated (equating to less than one vehicle every 3 minutes on average). However, a development of 300 dwellings has the potential to significantly alter the flow of traffic in the local area, generating approximately 180 peak hour movements (equating to three movements per minute on average). Whilst further detailed assessments into the change in traffic conditions along Abernant Road would be undertaken as part of any future Transport Assessment, the following access options have been designed with consideration to the above traffic generation figures.

4.0 ACCESS OPPORTUNITIES

4.1 The following access designs take into consideration the local design standards outlined in the Rhondda Cynon Taf Design Guide (January 2014). The document confirms that it has been prepared with consideration to national guidance within Manual for Streets (DfT, March 2007) and is therefore considered up to date and applicable. Section A of the guidance relates to 'Residential Roads, Footpaths and Cycleway' standards but does not specify the maximum number of dwellings that can be served from a single point of access. However, Section 7 of Manual for Streets confirms that this is typically the decision of the local Fire Authority who would consider each development on its own merits based on the risk of blockages occurring that could restrict access to certain parts of the site. This can generally be overcome by designing the internal layout in a loop/circuit arrangement and minimising the number of cul-de-sacs.

4.2 The purpose of this section is to demonstrate suitable access layouts that retain access to Plot 3 and other existing properties currently served by Moss Place and then identify suitable access options to serve Plot 1, which considers the scope to accommodate a future bus service. It also considers access options to serve Plot 2, which is a substantial housing development of up to 300 dwellings that could require significant infrastructure improvements.

4.3 In light of the above, the access details have been separated into the following four areas:

- Location 1 – Primary access from Abernant Road.
- Location 2 – Internal hub.
- Location 3 – Internal route within Plot 2.
- Location 4 – Secondary access from Abernant Road.

4.4 The access options presented below are preliminary layouts intended to identify key principles that could be incorporated within any future masterplan. Whilst the designs take into account the predicted level of trips and vehicle types that would be generated, they are all subject to further detailed capacity assessments and swept path analysis of vehicle manoevures. However, in advance of any such detailed assessments these options should demonstrate the opportunities of gaining access to both Plots 1 and 2 for further consultation within the Project Team and the Highway Authority.

Location 1: Primary access from Abernant Road

4.5 Access Option 1a retains the access layout approved as part of the 50 dwelling development located at Plot 3, as the design principles have been agreed with the Highway Authority. **Drawing Number F20029/01** shows how a simple T-junction could be delivered at Abernant Road on the outside of the bend approximately 100 metres north of the Moss Place junction, in line with the previously agreed layout shown at **Appendix D**. This location is considered most suitable as it maximises visibility in both directions, whilst avoiding significant impacts on the SINC.

4.6 The access comprises a 6.75 metres wide carriageway with 2 metres wide footways on either side. The access layout at **Appendix D** was approved with a

6.1 metres wide carriageway, however a width of 6.75 metres is considered more appropriate for the larger scale of development associated with Plots 1, 2 and 3 and would provide appropriate conditions to accommodate an internal bus service.

4.7 In terms of gradients, Section 8 of the Rhondda Cynon Taf Design Guide states the following:

> *"Road gradients will normally lie between limits of 1 in 100 (1.0%) and 1 in 12 (8.3%). In exceptional cases, this can be increased to 1 in 8 (12.5%) in which case grit bins will be required that also require a commuted sum for future maintenance, Refer to Section D – Commuted Sums. Care must be taken to ensure that at steep junctions; at no point is the back of the footway steeper tan 1 in 8 (12.5%).*
>
> *At junctions the gradient of the non-priority road should not exceed 1 in 20 (5%) over a distance of 15m."*

4.8 **Drawing Number F20029/02** shows a long section across access Option 1a, which demonstrates how the site level drops immediately from Abernant Road before gradually increasing back to a similar level further north. Therefore, to deliver a gradient of 5% (1 in 20) for the initial 10 metres, the existing site level would need to be raised by filling in the embankment. The drawing also shows the extent of 'fill' required to deliver a 2% (1 in 50) gradient. This would create more suitable conditions for a roundabout to be delivered on-site at a later stage and be more desirable. It is understood that material is available from the northern end of the site and therefore with the provision of suitable retaining walls or embankments this should be achievable.

4.9 In terms of visibility, **Drawing Number F20029/01** shows how visibility splays of 43 metres are achievable in both directions onto Abernant Road. This reflects a 30mph design speed, which should be robust given Abernant Road is within a 20mph zone at this location. Nevertheless, as part of any future Transport Assessment a manual speed survey would be conducted to establish accurate approaching vehicle speeds and visibility splay requirements.

4.10 As a scheme of 300 dwellings at Plot 2 has the potential to significantly alter the pattern of traffic movement, access Option 1b shown at **Drawing Number F20029/03**, demonstrates how Abernant Road could be reconfigured to extend directly into the site and a reverse T-junction formed from this new carriageway. Option 1b would continue to ensure that the predominant flow of traffic is accommodated on the major arm. Again, the access includes the provision of a 6.75 metres carriageway, with 2 metres wide footways at both sides and would require further engineering works to ensure that suitable embankments/retaining walls are provided to the north of Abernant Road and along both sides of the new access road that meet the required gradients, which may cause impacts upon the SINC. Therefore, further work into the impacts on the SINC may be required.

4.11 The current locations of access Options 1a and 1b would require the existing Moss Place track to be stopped up. However, there would be scope to move the accesses further east along Abernant Road to avoid impacts on Moss Place and allow it to be retained. This would bring a number of benefits as access to the existing properties would be retained during the construction stages, which would reduce disturbance and inconvenience to existing residents. It could also allow Moss Place to be converted into a dedicated pedestrian/cycle route and improve the overall sustainability of the site.

4.12 In addition to the above, roundabout and right turn lane access options have been considered from Abernant Road. However, due to level differences and the extent of infrastructure works that would be required to deliver a roundabout in particular, these options have been disregarded. In addition, a right turn lane would not provide significant capacity benefits as the majority of traffic from the site is likely to travel west along Abernant Road towards the main trip attractors in Aberdare.

Location 2: Internal Hub

4.13 The purpose of an internal hub is to maintain access to Plots 1 and 3 when developing Plot 2. The junction types at this location take into account the preliminary highway layout shown at PHG Consulting Engineers drawing no. 1967 003 Revision A (included at **Appendix E**) as it is understood that this route has been designed with consideration to the site levels/constraints and is deliverable.

The following access options have been imposed onto Option 1a (consented layout) to show how they could tie in to any new access from Abernant Road, however the following options could also come forward alongside Option 1b (reverse T-junction).

4.14 **Drawing Number F20029/04** shows Option 2a comprising a series of T-junction layouts. The main access road would be extended into Plot 2, with a T-junction formed at the western edge to serve Plot 1. In addition, a new junction would be created to retain access to Plot 3. The minor arm of the junction would continue through Plot 3 to create a suitable connection point for any future scheme led by the Council to construct a new bus route through the site. Therefore, any future masterplan would need to retain space for a link to be constructed at the northern end of this access road.

4.15 To improve capacity and the flow of traffic within the site, **Drawing Number F20029/05** shows Option 2b comprising a roundabout approximately 80 metres into the site. The roundabout comprises the geometric standards outlined in Table 3.8.1N1 of DMRB CD 116 'Geometric Design of Roundabouts'. There is an approximate gradient of 5% (1 in 20) across the roundabout between Points A and B, which should be suitable in accommodating the swing of larger vehicles. It would, however, require the ground level to the west of the roundabout being raised and an embankment or retaining wall provided.

4.16 The roundabout would bring added benefits in that it would act as a natural entry/gateway feature to the site, whilst providing separate arms to Plots 1 and 2 (however, a T-junction would need to be delivered from the western spur to maintain access to Plot 3). It would also provide greater capacity compared to a simple T-junction and improve accessibility for emergency vehicles by reducing the likelihood of blockages occurring at the junction that could restrict entry by ambulances and fire tenders. The roundabout could also be delivered after the T-junction as a phased approach as part of the outline application for 300 dwellings (subject to land being retained and futureproofed).

Location 3: Internal Layout

4.17 To help maximise the number of dwellings that could be served by a single point of access it would be beneficial to develop an internal circuit/loop arrangement within the site. However, the site levels pose significant constraints in achieving an acceptable gradient that provide suitable conditions for access by motorised and non-motorised users. As set out above, Section 8 of the Rhondda Cynon Taf Design Guide confirms that gradients of 8.3% (1 in 12) are acceptable and in some cases a gradient of 12.5% (1 in 8) would be considered where the topography of a site is particularly challenging.

4.18 **Drawing Number F20029/06** shows Option 3a comprising a potential route for an internal circuit road. It shows how the carriageway could extend to the south from the route shown at PHG's drawing no. 1967 003 Revision A and meander through the site before connecting back to the access road to the north of the roundabout. The circuit road has been split into four different sections (labelled as A to D) and the levels through each section have been plotted on **Drawing Number F20029/07**. It demonstrates how the site levels are significant within the northern part of the site between sections A and B before levelling off between Sections B and D.

4.19 **Drawing Number F20029/07** shows how a carriageway gradient of 5% (1 in 20) would be unachievable without undertaking significant land treatment works to relocate material from the northern part of the site to the southern part of the site. However, it does show how a gradient of 8.3% (1 in 12) would be achievable subject to 'filling' in the southern part of the site. Whilst the delivery of an internal circuit road would require large scale engineering works, it could unlock the potential for a much larger development and avoid the requirement for a second point of access.

Location 4: Secondary Access from Abernant Road

4.20 If engineering works to deliver a suitable circuit arrangement are undeliverable, then to satisfy the risk assessment requirements for emergency vehicle access, a secondary point of access from Abernant Road could be provided. It is understood

that any infrastructure improvements should avoid impacts on the SINC and therefore the most suitable location for a secondary access is likely to be via the existing public footpath at the southeast corner of the site.

4.21 **Drawing Number F20029/08** (Option 4a) shows how the existing track could be improved to act as a secondary access. It comprises a 6.75 metres wide carriageway with 7.5 metres kerb radii and extends along a similar alignment into the northern part of Plot 2. The access adopts a slightly skewed angle of approximately 75 degrees from Abernant Road, however this should be acceptable in accordance with Paragraph 2.14 of the Rhondda Cynon Taf Design Guide, which states *"At priority junctions roads should preferably be at an angle 90°. Deviation to a maximum of 70° would be considered acceptable. In exceptional circumstances and subject to appropriate mitigation measures deviation of up to 45° would be considered sympathetically".* The access would then tie into the preliminary road layout shown at drawing no. 1967 003 Revision A.

4.22 **Drawing Number F20029/08** separates the access route into four sections (A to D). The existing track between points A and B has a gradient of approximately 2.9% (1 in 33) over a distance of 110 metres. The section between points B and C includes a 57 metres distance around the bend in the track, which currently has a gradient of approximately 5.3% (1 in 19). The final section between points C and D is largely flat. As such, there should not no concerns with achieving a suitable gradient at this location.

4.23 Alternatively, **Drawing Number F20029/09** (Option 4b) shows how the track could be modified to provide a straight section for the first 20 metres before connecting back into the existing alignment. This would improve the position of vehicles departing the site onto Abernant Road who would have better visibility to the east. It would also improve the left turn out manoevure, which could be important if any future bus route(s) were to serve existing residents in Abernant. However, whilst the topographical survey was unable to record existing site levels to the north of the public footpath due to 'dense overgrown vegetation' from site observations it appears as though there could be a level difference of between 7 and 9 metres. Hence, these improvements would require embankments or retaining walls to deliver the initial straight section and widening improvements.

4.24 **Drawing Number F20029/08** and **F20029/09** show how visibility splays of 19 to the east and 25 metres to the west are achievable from Options 4a and 4b. A 25 metres splay reflects a design speed of 20mph, which should be suitable for current vehicle approach speeds in this location. As such, visibility to the east may be restricted and therefore further assessment on current vehicle speeds and splay requirements in this direction are required. In addition, as the track is classified as a public footpath and vehicle activity should be prohibited along it. Whilst there are established rights of access, any intensification of movements would need to be assessed in detail as they may trigger impact issues with existing properties and in particular the property located on the corner of the junction which contains tall vegetation along its boundary which screens it from Abernant Road, suggesting it could potentially sensitive to any significant impacts.

5.0 SUMMARY AND CONCLUSIONS

5.1 Bancroft Consulting were appointed by ASD Build to provide highways and transportation advice in respect of two separate residential developments on land at Nant y Wenallt in Aberdare, Rhondda Cynon Taf. **Figure 1** shows the locations of the two developments, referenced as Plot 1 (comprising the erection of approximately 30 dwellings) and Plot 2 (comprising the erection of approximately 300 dwellings), which form 'the site'. This report also takes into consideration a consented development referenced as Plot 3 (which has planning permission for up to 50 dwellings) and under the ownership of a third-party.

5.2 This Feasibility Study has identified a number of access options from Abernant Road (both primary and secondary layouts) and internal junctions to serve Plots 1, 2 and 3. Each access option has taken into consideration the site constraints and in particular the level differences, SINC and the Council's ambitions to deliver a future bus route. Whilst there are benefits and potential downfalls of each, the options presented in this report should provide the Project Team with suitable information to commence negotiations with the Council and establish the preferred access strategy prior to planning applications being submitted.

5.3 At this stage, the preferred layout from Abernant Road comprises the consented layout as shown at **Drawing Number F20029/01** (Option 1a), supported by an internal roundabout as shown at **Drawing Number F20029/05** (Option 2b). In practice, it would be beneficial to adopt a circuit layout within any future masterplan as shown at **Drawing Number F20029/07**, however owing to the site constraints then it should be acceptable to provide a secondary point of access as shown at **Drawing Number F20029/09** (Option 4b). This secondary access could be restricted as a 'bus only' or emergency access route to avoid significant impacts on the public footpath.

5.4 It is recommended that the Project Team review the information within this Feasibility Study and liaise with the Highway Authority to establish its position on the preferred access layout. This should provide further confidence on the access strategy before preparing the Scoping Study (and subsequent Transport Assessment) to support planning applications for both Plots 1 and 2.

APPENDIX B – DRAWING NUMBER F20029/04

DRG. No.	REV. No.
F20029/04	

Grid North

W E

S

road connection retained for future bus route

road to tie into road layout shown at PHG Drawing Reference: 1967 002

recommended route shown in PHG Drawing Reference: 1967 002

2.4 x 43 metres visibility splay (taken to edge of carriageway)

6.75 metres wide carriageway with 2 metres wide footways

access to consented development

2.4 x 43 metres visibility splay (taken to edge of carriageway)

access option 1A (shown in Drawing Number F20029/01)

Cartref

Glas-Fryn

The Kintyre

Drain

Ysgol Gynradd Abernant

Richmond Terrace

NOTES:

REV.	DATE	DESCRIPTION	DRN	CHK'D

CLIENT

ASD BUILD

CONTRACT

LAND AT ABERNANT ROAD

TITLE

ACCESS OPTION 2A
(T–JUNCTION)

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DRAWN BY	
NAME (PRINT)	DATE
WM	23.04.20
CHECKED BY	
NAME (PRINT)	DATE
MC	23.04.20

SCALE	1:500@A1	STATUS	PRELIMINARY

DRG. NO.	REV
F20029/04	

APPENDIX C – EMAIL OF AGREEMENT WITH RCTBC

David Scott

Subject: FW: Abernant - Draft Layout - (HDC Ref: S3/EST/134)

From: Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Sent: Wednesday, July 22, 2020 9:49 AM
To: Matthew Corner <matthew@bancroftconsulting.co.uk>
Cc: Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>; Davies, Gareth (Planning) <Gareth.Davies@rctcbc.gov.uk>
Subject: RE: Abernant - Draft Layout - (HDC Ref: S3/EST/134)

Hi Matt
Thank you for your email and attachment which broadly reflects our discussions. I have slightly amended to your email below (in red) to reflect Highway Authority's requirement, should any pre-application or planning application be forthcoming.

There should be safe and convenient pedestrian connectivity between Phase 2 and communities along Abernant Road and east of the Abernant Road.

Please also note that I have copied Gareth Davies Planning Officer in RCT for his awareness.

Kind regards

Mr Souren Zeinali BSc MSc CEng MCIHT MIEI FIHE
Rheolwr Rheoli Datblygu a Mabwysiadu – Y Ffyrdd | Highways Development Control & Adoptions Manager
Gwasanaethau'r Priffyrdd a Gofal y Strydoedd | Highways and Streetcare Services
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E-bost | E-mail:souren.zeinali@rctcbc.gov.uk

From: Matthew Corner <matthew@bancroftconsulting.co.uk>
Sent: 21 July 2020 16:37
To: Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Cc: Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Subject: RE: Abernant - Draft Layout - (HDC Ref: S3/EST/134)

Hi Souren,

Thank you for returning my call earlier today which was most helpful and should allow us to start developing the masterplan layouts for both Phases 1 and 2. For clarity, I have provided a summary of our conversation and the key points of detail below:

1. I confirmed that Phase 1 would likely comprise 25-30 dwellings, whilst Phase 2 would likely comprise 200-250 dwellings, resulting in between 225 and 280 dwellings in total. You confirmed that this scale of development could be served by a single point of access along with an emergency access point, whilst the trigger point of two vehicular points of access is 300 dwellings. The emergency access can be informal and should be tested using swept path analysis of typical emergency service vehicles to demonstrate manoeuvrability.

2. In terms of the strategic bus link, you confirmed that the feasible route will is via the existing access serving former Aberdare Hospital site and through Phases 1 and 2 of our development before connecting back onto Abernant Road. I confirmed that the Engineering Consultants have investigated the potential of providing a bus route through Phase 2, however this is unlikely to be deliverable due to the site constraints/level differences, which would require significant infrastructure works that affect the viability of the scheme. Hence, we agreed that the most appropriate route would be via the former Aberdare Hospital site, through Phase 1 (there has to be a degree of penetration within phase 2 to reduce walking distance and encourage use of sustainable mode of travel in compliance with Planning Policy Wales 10th Edition (PPW10) and as such the indicative route shown in the attached pdf would not be acceptable.) and then along Abernant Road as shown on the attached plan. You confirmed that all roads along the bus route should comprise a 'Distributor Road' with a 6.75 metres wide carriageway, a 3 metres wide footway/cycleway and 2 metres wide footway. The other roads within the estate not forming the bus route could adopt the standards of an 'Approach Road' comprising a 5.5 metres wide carriageway with 2 metres wide footways at both sides.

3. As Phases 1 and 2 would be served by a single point of access, the order of priority along the access should be with Phase 2 to reflect the balance of traffic. A T-junction can then be provided off the main access road to serve Phase 1, similar to that shown in Drawing Number F20029/04 'Access Option 2A (T-junction)' of the Feasibility Study.

4. Finally, the scope of the Transport Assessment should be agreed with the Highway Authority before preparing the Transport Assessment. Thank you for sending through a copy of the Scoping Agenda and will be submitting a Scoping Study report prior to the Transport Assessment to agree baseline parameters such as trip rates, access strategy, committed developments, study area for further detailed assessment and sustainable travel opportunities.

I trust the above is clear and reflects our conversation earlier this afternoon. Please could you confirm whether the above details are acceptable and following this we will be in a position to start developing masterplan layouts, which we will be happy to send to you for initial review. Alternatively, please feel free to add anything that I may have missed.

Kind regards

Matt

Matthew Corner
Senior Engineer
Bancroft Consulting Limited

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From: Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Sent: 21 July 2020 15:24
To: Matthew Corner <matthew@bancroftconsulting.co.uk>
Cc: Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Subject: RE: Abernant - Draft Layout - (HDC Ref: S3/EST/134)

Hi Matt
Further to our discussions please see attached TA Scoping agenda , which should be completed and agreed prior to full assessment being carried out.

I also reiterate that TIA must reflect committed and anticipated developments served off Abernant Road and Wellington Street.

Any further queries, please let me know.

Kind regards

Mr Souren Zeinali BSc MSc CEng MCIHT MIEI FIHE
Rheolwr Rheoli Datblygu a Mabwysiadu – Y Ffyrdd | Highways Development Control & Adoptions Manager
Gwasanaethau'r Priffyrdd a Gofal y Strydoedd | Highways and Streetcare Services
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From: Matthew Corner <matthew@bancroftconsulting.co.uk>
Sent: 17 July 2020 14:12
To: Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Cc: Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Subject: RE: Abernant - Draft Layout - (HDC Ref: S3/EST/134)

Hi Souren,

Shall we say Tuesday at 10am? At this stage we don't have any masterplan layouts prepared, however we should be able to discuss the below points using the drawings within the Feasibility Study. I have attached a copy with this email for reference.

Let me know whether 10am Tuesday works for you and I will put this in the diary.

Kind regards

Matt

Matthew Corner
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TRANSPORT ASSESSMENTS / ROAD SAFETY AUDITS / ACCESS APPRAISAL / HIGHWAY DESIGN / TRAVEL PLANS / CONCEPTUAL DESIGN AND MASTERPLANNING

From: Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Sent: 17 July 2020 07:03
To: Matthew Corner <matthew@bancroftconsulting.co.uk>
Cc: Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Subject: RE: Abernant - Draft Layout - (HDC Ref: S3/EST/134)

Hi Matt
Note thanks and advise that I am ok for Monday 20th PM or any time on Tuesday 21st July 2020. I am unable to access your previous submission and in order to enable me to contribute meaningful to any discussions, I would appreciate if you could email me at your earliest convenience a copy of the layout plans, Masterplan, phasing plan and other details that you wish to discuss on the phone.

Kind regards

Mr Souren Zeinali BSc MSc CEng MCIHT MIEI FIHE
Rheolwr Rheoli Datblygu a Mabwysiadu – Y Ffyrdd | Highways Development Control & Adoptions Manager
Gwasanaethau'r Priffyrdd a Gofal y Strydoedd | Highways and Streetcare Services
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From: Matthew Corner <matthew@bancroftconsulting.co.uk>
Sent: 13 July 2020 17:31
To: Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>; Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Cc: Rob Bailey (ASD Build) <rob.bailey@asdbuild.com>; Jon Hurley <jon@asbriplanning.co.uk>; Chris Bancroft <chris@bancroftconsulting.co.uk>; Davies, Gareth (Planning) <Gareth.Davies@rctcbc.gov.uk>
Subject: RE: Abernant - Draft Layout - (HDC Ref: S3/EST/134)

Hi Souren,

Thank you for sending the below details through. The Project Team had a meeting last week to discuss the strategy for developing the layouts for both Phases 1 and 2 and how these will connect/interact and there are a few points of detail that require confirmation from the Highway Authority. For instance, we need to establish a strategy for dealing with the Highway Authority's strategic ambitions in delivering a bus link through the site from the A4059, the balance of traffic flows as a result of traffic re-routeing and the internal junction types connecting Phases 1 and 2. These all need to take into account the phased approach to development.

Timescales are now pressing and therefore could we arrange a telephone conversation sometime this week to talk through the above details. I am available anytime during the rest of this week and therefore please let me know what time best suits you. To help with the discussion I have listed a number of bullet points below which can act as an agenda.

- Principle of new access layout from Abernant Road.
- Internal junction type to serve Phases 1 and 2 and order of priority.
- Opportunities and constraints of providing a bus link.
- Secondary/emergency point of access.

Kind regards

Matt

Matthew Corner
Senior Engineer
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From: Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Sent: 07 July 2020 12:51
To: Matthew Corner <matthew@bancroftconsulting.co.uk>; Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Cc: Rob Bailey (ASD Build) <rob.bailey@asdbuild.com>; 'Mark Hennessey' <mark@asdbuild.com>; Jon Hurley <jon@asbriplanning.co.uk>; Dylan Green <Dylan@asbriplanning.co.uk>; Chris Bancroft <chris@bancroftconsulting.co.uk>; Davies, Gareth (Planning) <Gareth.Davies@rctcbc.gov.uk>
Subject: RE: Abernant - Draft Layout - (HDC Ref: S3/EST/134)

Hi Matt
Noted and advise that the time scale to respond to informal pre-application enquires is between 3 to 8 weeks although we endeavour to respond as soon as possible.

In principle, the hierarchy of the highway infrastructure, parking and Masterplan should be as follows:-

Distributor Road (Bus Route

1.0 6.75m wide carriageway, 3m wide shared pedestrian/cycleway on one side and 2.0m wide footway on the opposite side.
2.0 7.5m – 9.0m junction radii.
3.0 2.4m X40m vision splays.
4.0 Longitudinal gradient to be no steeper that 1:20 for the first 15m from the junction and thereafter no steeper than 1:10.
5.0 Cambered carriageway and constructed in impermeable material and drained vis gullies and 150mm diameter pipe into SuDS system as approved and adopted by SAB.

Approach Roads

1.0 5.5m wide carriageway, 2.0m wide footways on both sides of the carriageway.
2.0 5.5m wide carriageway, 2.0m wide footways on both sides of the carriageway.
3.0 2.4m X40m vision splays.
4.0 Longitudinal gradient to be no steeper that 1:20 for the first 15m from the junction and thereafter no steeper than 1:10.
5.0 Cambered carriageway and constructed in impermeable material and drained vis gullies and 150mm diameter pipe into SuDS system as approved and adopted by SAB.

Cul-De-Sac

1.0 5.5m wide carriageway, 2.0m wide footways on both sides of the carriageway.
2.0 5.5m wide carriageway, 2.0m wide footways on both sides of the carriageway.
3.0 2.4m X40m vision splays.
4.0 Longitudinal gradient to be no steeper that 1:20 for the first 15m from the junction and thereafter no steeper than 1:10.
5.0 Cambered carriageway and constructed in impermeable material and drained vis gullies and 150mm diameter pipe into SuDS system as approved and adopted by SAB.

Private Shared Access
4.5m wide shared surface, passing bays, turning area, vision splays of 2.4m X40m and Bin collection area adjacent to it's junction with adoptable standard road.

Parking

Provision of on-site parking must be in compliance with the adopted SPG – ie 2 spaces for 1 and 2 bedroom dwellings, 3 spaces for 3+ dwellings..

It should be noted that the Masterplan should incorporate public transport and pedestrian/cycle connectivity between former Aberdare Hospital site (NSA 7, River level tip site and NSA 9.6.

I hope above is of assistance and be assured that you will also be provided with a response on your submission.

Kind regards

Mr Souren Zeinali BSc MSc CEng MCIHT MIEI FIHE
Rheolwr Rheoli Datblygu a Mabwysiadu – Y Ffyrdd | Highways Development Control & Adoptions Manager
Gwasanaethau'r Priffyrdd a Gofal y Strydoedd | Highways and Streetcare Services
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From: Matthew Corner <matthew@bancroftconsulting.co.uk>
Sent: 07 July 2020 10:07
To: Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>; Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Cc: Rob Bailey (ASD Build) <rob.bailey@asdbuild.com>; 'Mark Hennessey' <mark@asdbuild.com>; Jon Hurley <jon@asbriplanning.co.uk>; Dylan Green <Dylan@asbriplanning.co.uk>; Chris Bancroft <chris@bancroftconsulting.co.uk>
Subject: RE: Abernant - Draft Layout

Hi Alan / Souren,

Further to my email below, we are yet to receive a response from you confirming timescales for providing comments on our Feasibility Study. Please note that the purpose of this report is to open up discussions with the LHA on the access and internal layout strategies, rather than fixing details on particular schemes. We can then incorporate any comments you have into revised drawings that will be submitted as part of a Scoping Study where will then be looking to agree design principles before we go on to prepare the Transport Assessment.

We have a Project Team meeting tomorrow morning at 10am and it would be useful to provide an update on timescales. As I mentioned below, we would be happy to arrange a meeting on-site (socially distanced) to talk through the plans in more detail if this would help with your response. Therefore, please could you come back to me on a preferred date from the list below?

Kind regards

Matt

Matthew Corner

Senior Engineer
Bancroft Consulting Limited

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TRANSPORT ASSESSMENTS / ROAD SAFETY AUDITS / ACCESS APPRAISAL / HIGHWAY DESIGN / TRAVEL PLANS / CONCEPTUAL DESIGN AND MASTERPLANNING

From: Matthew Corner
Sent: 02 July 2020 17:10
To: Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Cc: Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Subject: RE: Abernant - Draft Layout

Hi Alan,

Further to Souren's email below, please could you provide an update as to how you are getting on with reviewing our Feasibility Study and timescales for providing initial comments?

It may be worthwhile arranging a meeting on-site over the next couple of weeks to talk through points of detail and the access options included in the report. If you think this would be helpful before providing comments then looking at our diary we would be available anytime on the 9th, 14th, 15th or 16th July?

Please let us know how you would like to proceed.

Kind regards

Matt

From: Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Sent: 25 June 2020 20:12
To: Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Cc: Matthew Corner <matthew@bancroftconsulting.co.uk>
Subject: RE: Abernant - Draft Layout

Hi Matt
Noted thanks.

Alan
Please advise Matt.
Thanks.

Mr Souren Zeinali BSc MSc CEng MCIHT MIEI FIHE
Rheolwr Rheoli Datblygu a Mabwysiadu – Y Ffyrdd | Highways Development Control & Adoptions Manager

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From: Matthew Corner <matthew@bancroftconsulting.co.uk>
Sent: 25 June 2020 17:41
To: Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Cc: Davies, Gareth (Planning) <Gareth.Davies@rctcbc.gov.uk>; Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Subject: RE: Abernant - Draft Layout

Hi Souren,

Thank you for your confirmation.

Please could you advise on timescales for providing comments? We are in the process of developing the layout plans and therefore your early comments would be most appreciated.

Kind regards

Matt

Matthew Corner
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TRANSPORT ASSESSMENTS / ROAD SAFETY AUDITS / ACCESS APPRAISAL / HIGHWAY DESIGN / TRAVEL PLANS / CONCEPTUAL DESIGN AND MASTERPLANNING

From: Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Sent: 18 June 2020 16:11
To: Matthew Corner <matthew@bancroftconsulting.co.uk>
Cc: Davies, Gareth (Planning) <Gareth.Davies@rctcbc.gov.uk>; Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Subject: RE: Abernant - Draft Layout

Hi Matt
Noted thanks and confirm receipt of your email and attachment.

Kind regards

Mr Souren Zeinali BSc MSc CEng MCIHT MIEI FIHE
Rheolwr Rheoli Datblygu a Mabwysiadu – Y Ffyrdd | Highways Development Control & Adoptions Manager
Gwasanaethau'r Priffyrdd a Gofal y Strydoedd | Highways and Streetcare Services
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From: Matthew Corner <matthew@bancroftconsulting.co.uk>
Sent: 18 June 2020 15:09
To: Davies, Gareth (Planning) <Gareth.Davies@rctcbc.gov.uk>; Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Cc: Rob Bailey <rob.bailey@swallowhillhomes.com>; Dylan Green <Dylan@asbriplanning.co.uk>; Jon Hurley <jon@asbriplanning.co.uk>; Chris Bancroft <chris@bancroftconsulting.co.uk>; 'Mark Hennessey' <mark@asdbuild.com>
Subject: RE: Abernant - Draft Layout

Dear Gareth and Souren,

Please could you confirm whether you received my email below of 10th June including a copy of our Feasibility Study?

If you could also confirm your timescales for providing a response that would be greatly appreciated so that I can update my Client.

Kind regards

Matt

Matthew Corner
Senior Engineer

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TRANSPORT ASSESSMENTS / ROAD SAFETY AUDITS / ACCESS APPRAISAL / HIGHWAY DESIGN / TRAVEL PLANS / CONCEPTUAL DESIGN AND MASTERPLANNING

From: Matthew Corner
Sent: 10 June 2020 13:19
To: Davies, Gareth (Planning) <Gareth.Davies@rctcbc.gov.uk>; Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Cc: Rob Bailey <rob.bailey@swallowhillhomes.com>; Dylan Green <Dylan@asbriplanning.co.uk>; Jon Hurley <jon@asbriplanning.co.uk>; Chris Bancroft <chris@bancroftconsulting.co.uk>; 'Mark Hennessey' <mark@asdbuild.com>
Subject: RE: Abernant - Draft Layout

Dear Gareth / Souren,

Further to Jon's email below, please see attached our Feasibility Study which considers access opportunities to Phase 1 (relating to 24 affordable homes as per the plan Jon sent through) and Phase 2 (outline application for up to 300 dwellings to meet the LDP requirements) on land at Nant y Wenallt, Abernant Road.

The Feasibility Study considers access opportunities from Abernant Road along with potential internal road layouts/junctions to connect the two sites that take into account the site levels and potential traffic generation. It also gives consideration to how any layout could be designed to accommodate a future bus link.

Please could you take a look at our report and provide your thoughts on the preferred access strategy. Once we receive this we will be able to make any necessary design changes and then be in a position to start preparing the Scoping Study to confirm baseline points of detail for any Transport Assessment supporting an application for Phase 2.

If there are any queries whatsoever, then please feel free to contact me.

Kind regards

Matt

From: Jon Hurley <jon@asbriplanning.co.uk>
Sent: 10 June 2020 11:40
To: Davies, Gareth (Planning) <Gareth.Davies@rctcbc.gov.uk>; Zeinali, Souren <Souren.Zeinali@rctcbc.gov.uk>
Cc: Matthew Corner <matthew@bancroftconsulting.co.uk>; Dylan Green <Dylan@asbriplanning.co.uk>
Subject: Abernant - Draft Layout

Hi Gareth / Souren

Hope you are well.

Further to the pre-application discussions that we held last year, in terms of an update please find attached a draft layout that has been prepared for a proportion of the site.

It is proposed that this scheme will form an initial phase and be the subject of a full application, with the wider site to the north which is allocated in the LDP then being the subject of an outline application for residential development.

The first phase of the project includes a new junction into the site from Abernant Road, alongside the proposals for 24 affordable homes to be built for 1 of the Authority's zoned HAs.

I have cc'd in Matthew who is advising on transport matters. If its ok he will also send through their initial feasibility document. We are conscious of the need to consider the potential bus route requirement through this site, plus the land to the north and the site to the south. It would be great if we could please discuss this element in more detail in due course. Look forward to hearing from you.

Thanks and if there are any questions please let us know .

Jon

Jon Hurley - Director

Asbri Planning Ltd | T: 02920 732 652 | M: 07949819033 | W: http://www.asbriplanning.co.uk

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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

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APPENDIX D – EMAIL OUTLINING TA REQUIREMENTS

David Scott

Subject: FW: Abernant - Highway Discussion - 22/5115

From: Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Sent: Monday, March 27, 2023 9:58 AM
To: Jon Hurley <jon@asbriplanning.co.uk>
Cc: Phillip Stokes <phill@devandtech.co.uk>; Mark Hennessey <mark.hennessey@asdbuild.com>; Rachel Hennessey <rachel.hennessey@asdbuild.com>; Smith, Paul <Paul.D.Smith@rctcbc.gov.uk>; Phillips, Tim (Traffic) <Tim.DJ.Phillips@rctcbc.gov.uk>
Subject: RE: Abernant - Highway Discussion - 22/5115

Dear Jon,

Further to your request for information with regard the proposed development at River Level Tips and Nant y Wenallt, I note previous correspondence on file from
Souren during June and July 2021, however, as you will be aware from your involvement with the former hospital site the situation has moved on slightly. With regard the submitted layout plan and TA please comments as follows:-

Layout / access/ Bus Route

1. The development for a total of 200 dwellings consisting of 174No 3- 5 bed houses and 26 flats giving a total of 200 dwellings, would require provision of an emergency or secondary means of access.

2. Bus route will need to connect to the facility provided by the adjacent developer serving the hospital site and link to Abernant Road.

3. I note that the proposed bus route through the development was considered unlikely to be deliverable due to the topography of the site , however, given the members concerns with regard traffic impact on Abernant Road extension of the bus route to connect to Abernant Road in the vicinity of the turning circle would potentially remove bus movements in one direction from Abernant Road with a positive impact on free flow of traffic within the constrained sections with high on street parking demand.

4. If the bus route extended through the development it would allow the link road connection in the vicinity to Richmond Terrace to be constructed with reduced carriageway width.

5. The estate roads should be as outlined in Souren's email of 7th July 2020.

Distributor Road (Bus Route

1.0 6.75m wide carriageway, 3m wide shared pedestrian/cycleway on one side and 2.0m wide footway on the opposite side.
2.0 7.5m – 9.0m junction radii.
3.0 2.4m X40m vision splays.
4.0 Longitudinal gradient to be no steeper that 1:20 for the first 15m from the junction and thereafter no steeper than 1:10.
5.0 Cambered carriageway and constructed in impermeable material and drained vis gullies and 150mm diameter pipe into SuDS system as approved and adopted by SAB.

Approach Roads

1.0 5.5m wide carriageway, 2.0m wide footways on both sides of the carriageway.
2.0 5.5m wide carriageway, 2.0m wide footways on both sides of the carriageway.
3.0 2.4m X 40m vision splays.
4.0 Longitudinal gradient to be no steeper that 1:20 for the first 15m from the junction and thereafter no steeper than 1:10.

5.0 Cambered carriageway and constructed in impermeable material and drained vis gullies and 150mm diameter pipe into SuDS system as approved and adopted by SAB.

Cul-De-Sac

1.0 5.5m wide carriageway, 2.0m wide footways on both sides of the carriageway.
2.0 5.5m wide carriageway, 2.0m wide footways on both sides of the carriageway.
3.0 2.4m X40m vision splays.
4.0 Longitudinal gradient to be no steeper that 1:20 for the first 15m from the junction and thereafter no steeper than 1:10.
5.0 Cambered carriageway and constructed in impermeable material and drained vis gullies and 150mm diameter pipe into SuDS system as approved and adopted by SAB.

Private Shared Access

4.5m wide shared surface, passing bays, turning area, vision splays of 2.4m X40m and Bin collection area adjacent to it's junction with adoptable standard road.

Parking

Provision of on-site parking must be in compliance with the adopted SPG – ie 2 spaces for 1 and 2 bedroom dwellings, 3 spaces for 3+ dwellings..

It should be noted that the Masterplan should incorporate public transport and pedestrian/cycle connectivity between former Aberdare Hospital site (NSA 7, River level tip site and NSA 9.6.

Active Travel

6. The bus route spine road should include provision of 3m shared use path on one side and 2m wide footway on the other and connect to the spine road provided as part of the hospital site development.

7. Active Travel connectivity for cycling and walking must be provided to the Primary School, cycle route to the North of the site and existing private access roads at Moss Place, Moss Row and Richmond Gardens to encourage sustainable travel to local amenities and facilities.

8. Improvements to bus stops along Abernant Road in the vicinity of the site will need to be undertaken to reflect changes in bus route.

Transport Assessment

9. I note that a scoping agenda was provided by Souren, however, the TA provided for the hospital site undertook surveys and modelling of significant junctions, with committed development sites included within the assessment. The TA should therefore clearly explain how the impact of development traffic on the wider highway network has been considered and address the impact of the development on the congested sections of Abernant Road with high parking demand.

10. The provision of a bus route linking to the bus turning circle would have benefits to residents and traffic flow by making bus movements along Abernant Road and the route would provide a potential alternative route to the South in the event of roadworks/accident north of the former hospital entrance.

11. The TA will need to highlight the sustainability of the site and facilities to be provided to encourage Active Travel, through provision of links to the primary school, adjoining development, Abernant Road and cycle route.

12. Any application should be supported by a robust Travel Plan including Targets to reduce single occupancy car trips and the Council would seek a similar arrangement of Travel Plan Bond secured via a S106 following a similar mechanism as at the adjacent development on the former hospital site.

I am happy to arrange a meeting at Sardis House to discuss the internal layout and TA in more detail and would be grateful if you could confirm availability.

Regards

Alan Rees

Blaen Beiriannydd (Gwasanaethau Rheoli Materion Datblygu a Mabwysiadu Priffyrdd) | Principal Engineer (Highway Development Control and Adoption)

Cyngor Bwrdeistref Sirol Rhondda Cynon Taf | Rhondda Cynon Taf County Borough Council,
Tŷ Sardis/ Sardis House, Pontypridd, CF37 1DU

Ffôn | Tel: 01443 494885 Symudol | Mob: 07717 360 582
E-bost | E-mail: **alan.rees@rctcbc.gov.uk**

From: Jon Hurley <jon@asbriplanning.co.uk>
Sent: 20 March 2023 07:10
To: Rees, Alan (HDC) <Alan.Rees@rctcbc.gov.uk>
Cc: Davies, Gareth (Planning) <Gareth.Davies@rctcbc.gov.uk>; Jones, Christopher (ESG) <Christopher.Jones@rctcbc.gov.uk>; Phillip Stokes <phill@devandtech.co.uk>; Mark Hennessey <mark.hennessey@asdbuild.com>; Rachel Hennessey <rachel.hennessey@asdbuild.com>
Subject: RE: Abernant - Highway Discussion - 22/5115

Hi Alan

Hope you are well.

Further to the email below I have a DTM tomorrow so if you could please let me have an update that would be really appreciated.

Thank you

Jon,

From: Jon Hurley
Sent: 09 March 2023 11:37
To: 'alan.rees@rctcbc.gov.uk' <alan.rees@rctcbc.gov.uk>

Cc: 'Gareth Davies' <Gareth.Davies@rctcbc.gov.uk>; Jones, Christopher (ESG) <Christopher.Jones@rctcbc.gov.uk>
Subject: Abernant - Highway Discussion - 22/5115

Hi Alan

Hope you are well.

In relation to the above pre-application submission, and further to our recent emails, following the approval of the hospital site one area we could really do with a meeting on is highways, so that our consultants can scope out the approach to our TA.

The current layout is attached. If it would be possible to please arrange a meeting that would be really appreciated – I also wondered if it would be an option to involve Redstart if they will ultimately review any TA as they did for the hospital site?

Thanks

Jon

Jon Hurley - Director

Asbri Planning Ltd | T: 02920 732 652 | M: 07949819033 | W: http://www.asbriplanning.co.uk

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APPENDIX E – CONSULTEE COMMENTS DATED 8 FEBRUARY 2023

To/At :	Planning – Sardis House 2nd Floor FAO : Gareth Davies	**My Ref/Fy Nghyf :**	22/ 0676/AR
		Tel. Ext/Est. Ffôn :	4885 A Rees
		Your Ref/Eich Cyf :	22/0676/10
From/Odd Wrth :	Highways Development Control Sardis House 5th Floor	**Date/Dyddiad :**	3rd February 2023.

OBSERVATIONS OF THE HIGHWAYS AND TRANSPORTATION SECTION IN RESPECT OF DEVELOPMENT AFFECTING PRESENT OR PROPOSED HIGHWAYS

1. APPLICANT

Mr John Butcher, WD L Homes, Stuart Quarry, Penderyn, CF44 9JY, c/o Rob Davies (Agent) Asbri Planning Ltd, Unit 9, Oak Tree Court, Cardiff, CF23 8RS.

2. DESCRIPTION AND LOCATION OF PROPOSED DEVELOPMENT

Full planning application for 299 residential homes, highways, parking, drainage, landscape and associated works

FORMER ABERDARE GENERAL HOSPITAL, ABERNANT ROAD, ABER-NANT, ABERDARE, CF44 0RF

3. APPLICATION DETAILS

Full planning application for 299 residential homes, highways, parking, drainage, landscape and associated works.

The proposed site is part of a wider allocation for development within Rhondda Cynon Taf's Local Development Plan (LDP), along with land at Robertstown.

The former Aberdare Hospital is noted under Policy NSA 7 as a strategic site for the construction of 500-600 dwellings, 3.7 hectares of employment / leisure, a new primary school, medical centre and associated informal amenity space.

The development seeks to provide 299 dwellings consisting of

- 269 No Market prices units
- 15 No Social / Low rent dwellings
- 15 No Affordable dwellings

4. HIGHWAY ASSESSMENT

Site Location

The site of the old Aberdare Hospital is located just to the north of Aberdare in the associated village of Abernant. Aberdare is a town of 39,550 population

(mid-2017estimate), in the Cynon Valley area of Rhondda Cynon Taf, located 6km south-west of Merthyr Tydfil and 32km north-west of Cardiff.

Transport Assessment (TA)

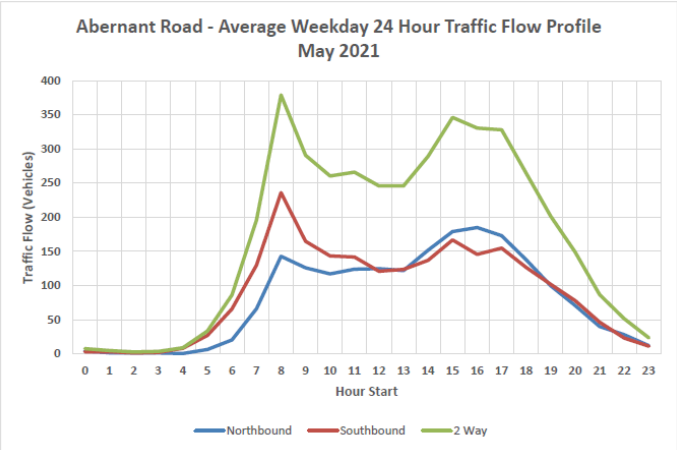
A Transport Assessment, (TA) dated was prepared by Asbri Planning and following review was considered to be lacking in detail, subsequently additional information was provided in the form of addenda and Technical Notes which have been considered and reviewed by independent Consultants Capita/Redstart as outlined within in the assessment below ;-

Traffic Surveys Automatic Traffic Count Data (ATC)

In relation to the previously submitted Technical Note for the site access application, an Automated Traffic Count (ATC) survey was undertaken over a 21- day period 1st to 14th May and 19th to 25th May 2021 to observe the average traffic flows on Abernant Road in the vicinity of the site. Traffic Count figures are given in the TA at Table 3.1 and Figure 3.2 which is reproduced below:-

Hour Start	Traffic Flow (Vehicles)		
	Northbound	Southbound	2 Way
0	5	3	8
1	2	3	5
2	1	2	3
3	1	2	4
4	1	8	9
5	6	27	34
6	21	66	86
7	66	130	196
8	143	236	379
9	126	165	291
10	117	143	261
11	124	142	266
12	125	121	246
13	122	124	246
14	152	137	289
15	179	167	346
16	185	146	331
17	173	155	328
18	138	127	265
19	100	102	202
20	71	78	149
21	40	47	87
22	28	23	52
23	12	11	24
24 Hour Total	1939	2165	4103

Table 3.1: Abernant Rd – Average Weekday Traffic Flows: May 2021



Concerns were raised at the pre-application stage with regard the potential impact of Covid 19 pandemic on traffic during the original survey. In response the developer undertook a subsequent survey in May 2022 at a time when no covid restrictions were in force. Comparison of the key data within Table 3.2, reproduced below, indicates only minor differences in the observed data.

Table 3.2- ATC Comparison

ATC Comparison site						
Date	Direction	Total Vehicles	5 Day Ave.	7 Day Ave.	Mean Speed	85%ile Speed
01 - 07 May 2021	Northbound	12967	1943	1852	24.3	27.4
	Southbound	15269	2273	2181	24.9	28.4
	Two-Way	28236	4216	4034	25	28
12 - 18 May 2022	Northbound	13821	2104	1974	24.2	27.5
	Southbound	13835	2108	1976	24.9	28.9
	Two-Way	27656	4212	3951	25	28
% Difference	Northbound	7%	8%	7%	0%	0%
	Southbound	-9%	-7%	-9%	0%	2%
	Two-Way	-2%	0%	-2%	0%	1%

Table 3.2 ATC Comparison

This data indicates that the observed traffic flows in May 2021 are representative of the average traffic flow and speed conditions on Abernant Road, and are comparable with other TAs undertaken in the area pre-covid and are therefore an acceptable basis for the subsequent traffic analysis, including the junction turning counts undertaken.

The traffic data summarised in Table 3.1 of the TA shows that Abernant Road has a typical 2 peak traffic flow profile with the AM peak traffic flow between 08:00 and 09:00 and the evening peak period between 16:00 and 17:00.

Proposed Trip Generation.

The trip generation which could be associated with the proposed residential development has been derived through an interrogation of the Trip Rate Computer Information System, (TRICS) utilising TRICS 7.8.1.

The TA provides the estimated multimodal Trip Generation at Table 6.2 reproduced below which summarises the resultant total people trip generation which could be associated with the site

Table 6.2 - Total People Trip Distribution.

Period	Trip Rates (per dwelling)			Total People Trips (300 dwellings)		
	Arrival	Departure	2 Way	Arrival	Departure	2 Way
AM Peak (0800 – 0900)	0.181	0.861	1.042	54	258	313
PM Peak (1700 – 1800)	0.617	0.344	0.961	185	103	288
Daily	3.871	4.145	8.016	1161	1244	2405

Table 6.2: Total People Trip Generation – 300 Residential Dwellings

To derive vehicular trips for the proposed development modal share, data derived from Tempro v72 for the AM and PM peak periods as well as throughout the average weekday has been applied to the total people trips rates.
This utilises data from the National Transport Model (NTM) and the National Trip End Model (NTEM) to identify travel to and from homebased locations for multiple journey purposes including travel for work, leisure, education etc.

As such, it is considered more representative of trips which would be undertaken from a residential location during peak periods than the use of 2011 census data which only assesses travel for work purposes.

The modal share data for MSOA Rhondda Cynon Taff 004 (Ref: W02000255) is summarised in Table 6.3 of the TA reproduced below.

Table 6.3 Modal Share NTM /NTEM

Mode	AM	PM	Daily
Car Driver	42%	47%	44%
Car Passenger	25%	26%	26%
Bus	7%	5%	7%
Rail	2%	2%	1%
Walk	22%	18%	20%
Cycle	2%	2%	2%

The resultant vehicular flows which could therefore be associated with the proposed development is set out in the TA at Table 6.4 which is reproduced below:-

Table 6.4. Vehicular Trips 300 Dwellings.

Period	Trip Rates (per dwelling)			Total People Trips (300 dwellings)		
	Arrival	Departure	2 Way	Arrival	Departure	2 Way
AM Peak (0800 – 0900)	0.076	0.362	0.438	23	108	131
PM Peak (1700 – 1800)	0.290	0.162	0.452	87	49	136
Daily	1.703	1.824	3.527	511	547	1058

Table 6.4: Vehicular Trip Generation – 300 Residential Dwellings

The TA indicates that the proposed development of up to 300 dwellings could generate up to around 131 vehicle movements during the AM Peak period and 136 vehicle movements during the PM Peak period.

The TA also includes a comparison against historical data relating to the previous trip rate as a hospital which potentially would have generated in excess of the proposed trip rate albeit with different peak trips to that of a residential use, however, the trip rate associated with the Hospital has not been considered within the Traffic Impact Analysis.

Traffic Impact Assessment

Section 7 of the TA investigates the traffic impact of the proposed development of 299 dwellings.

Future Year Base Traffic Flows

Future year assessments have been carried out at the anticipated year of opening 2026 and forecast future year of 2036 (+15 years from date of application).

Growth rates to allow for background growth on the local highway network have been calculated using Tempro v7.2 which extrapolates data from the National Trip End Model (NTEM) dataset.

This includes allocated sites contained within the Rhondda Cynon Taf LDP (2011 – 2021) as Committed Development and therefore it is considered that it will both capture any surrounding developments which are likely to have a material impact on the operation of the surrounding local highway network as well as generalised background growth which will capture smaller developments within the local vicinity of the site.

The factors to be applied to the 2021 baseline surveyed flows are shown in Table 7.1 of the TA which has been reproduced below;-

Table 7.1 - NTEM Growth Factors

Period	NTEM growth factors		
	Ward	AM	PM
2021 - 2026	W02000255: Rhondda Cynon Taf 004	1.0406	1.0403
2021 – 2036		1.1190	1.1186

Table 7.1: NTEM growth factors

Trip Distribution

Section 7.4 of the TA indicates that the distribution and assignment of the forecast future year trip generation on the local highway network as based upon the observed traffic flow movements and turning proportions at the surveyed junctions. It was noted at paragraph 7.4.4 that the proposed trip distribution assumed that 25% of development traffic would turn left at the site access to reflect school traffic. Whilst this would reflect turning movements at the junction concern was raised that having dropped off children at the school it was likely that parents would continue their journey to work resulting in these trips returning southbound along Abernant Road.

This has been addressed by Asbri in subsequent analyses which have been reviewed by Redstart, resulting in assignment of these additional tips to proposed traffic flows on the northern arm of the Abernant Wellington Street junction. Therefore, trip distribution indicated is considered acceptable.

Junction Analysis

The TA includes junction assessments utilising the Junctions 9 software suite which is an accepted tool for capacity / delay analysis.

The following junctions were analysed within the original TA.

1. Site Access / Abernant Road;
2. Abernant Rd / Cwmbach Rd / Wellington St;
3. Abernant Rd / A4059/Sobell Leisure Centre and
4. A4059 / Wellington St / Meirion St.
5. A4059 / A4233 (Tesco)
6. A4059 / B4275 Cardiff Rd
7. A4059 / Canal Rd

TEMPRO growth factors have been applied to Base 2021 data to derive Opening year flows for 2026, which provides a three –year period for completion of the development and the Future Year Flows for 2036.

Site Access / Abernant Road

The site access junction has been analysed with the results summarised within Table 8.2 of the TA which is reproduced below: -

Table 8.2 Site Access / Abernant Road

Movement	2026							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
Site Access to Abernant Rd North & South	0.0	0.00	0.00	A	0.1	6.84	0.05	A
Abernant Rd North to South	0.0	0.00	0.00	A	0.2	9.27	0.19	A
Abernant Rd to Site	0.0	0.00	0.00	A	0.0	5.43	0.01	A
PM Peak (17:00-18:00)								
Site Access to Abernant Rd North & South	0.0	0.00	0.00	A	0.0	7.06	0.01	A
Abernant Rd North to South	0.0	7.62	0.02	A	0.1	8.91	0.12	A
Abernant Rd to Site	0.0	0.00	0.00	A	0.0	5.91	0.02	A
Movement	2036							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
Site Access to Abernant Rd North & South	0.0	0.00	0.00	A	0.1	6.87	0.05	A
Abernant Rd North to South	0.0	0.00	0.00	A	0.2	9.38	0.19	A
Abernant Rd to Site	0.0	0.00	0.00	A	0.0	5.38	0.01	A
PM Peak (17:00-18:00)								
Site Access to Abernant Rd North & South	0.0	0.00	0.00	A	0.0	7.13	0.01	A
Abernant Rd North to South	0.0	7.75	0.02	A	0.1	9.08	0.13	A
Abernant Rd to Site	0.0	0.00	0.00	A	0.0	5.89	0.02	A

Table 8.2: Site Access\Abernant Road Capacity Assessment Results – 2026 & 2036

The analysis indicates no capacity issues at the site access road junction for both the design and future years

Abernant Road / Cwmbach Road/ Wellington Street Roundabout

The TA included assessment of the Abernant Road / Cwmbach Road/ Wellington Street Roundabout with results summarised within Table 8.4 reproduced below: -

Table 8.4 Abernant Road / Cwmbach Road/ Wellington Street Roundabout

Movement	2026							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
Abernant Rd North	0.5	9.05	0.35	A	1.0	11.59	0.49	B
Cwmbach Rd	2.1	14.89	0.68	B	2.4	16.91	0.71	C
Abernant Rd South	0.8	5.22	0.43	A	0.8	5.42	0.44	A
Wellington St	0.5	9.90	0.33	A	0.5	10.17	0.34	B
PM Peak (17:00-18:00)								
Abernant Rd North	0.4	8.29	0.26	A	0.6	9.72	0.37	A
Cwmbach Rd	1.3	10.68	0.56	B	1.6	12.27	0.61	B
Abernant Rd South	0.9	5.49	0.46	A	1.0	6.05	0.50	A
Wellington St	0.6	11.00	0.35	B	0.7	12.51	0.41	B
Movement	2036							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
Abernant Rd North	0.6	9.90	0.38	A	1.2	13.14	0.53	B
Cwmbach Rd	2.8	18.37	0.74	C	3.3	21.53	0.77	C
Abernant Rd South	0.9	5.60	0.46	A	0.9	5.83	0.47	A
Wellington St	0.6	10.61	0.36	B	0.6	10.88	0.37	B
PM Peak (17:00-18:00)								
Abernant Rd North	0.4	8.94	0.29	A	0.7	10.67	0.40	B
Cwmbach Rd	1.6	12.00	0.61	B	1.9	14.06	0.66	B
Abernant Rd South	1.0	5.95	0.50	A	1.2	6.61	0.54	A
Wellington St	0.6	11.95	0.39	B	0.8	13.81	0.45	B

Table 8.4: Abernant Rd\Cwmbach Rd\Wellington St Capacity Assessment Results – 2026

The results indicate a marginal increase in congestion and delay in the future year scenario although the maximum Ratio of Flow to Capacity, (RFC), of 0.74 without development rising to 0.77 with development in the 2036 future year scenario, which indicates an element of spare capacity being below the normal maximum desirable level of 0.85 and with marginal impact in terms of queue length and delay.

In response to concerns raised by the Highway Authority, given the congestion evident at this location during the AM and PM Peak periods and discrepancy between the queue lengths indicated by the analysis compared with those witnessed on site and indicated on video survey additional analysis and investigation and analysis of the junction was provided to include;

Junctions 9 modelling, undertaken with Queue Variation and Queue Markers within the two roundabout junction models to try and produce more representative outputs to those that are experienced on-site within the network peak periods and to better reflect what is typically experienced for short periods during the modelled peak hours.

Further analysis accommodating potential trips dropping pupils off at school and returning southwards and considering the amended baseline model which reflects the observed situation in terms of queues was submitted by Asbri Transport within Technical Note T21.120 dated 13th December 2022 which was reviewed by Redstart and provides the following results: -

Table 5 Abernant Road / Cwmbach Road / Wellington Street Roundabout – 2021 AM Peak

Period	Existing			With Development		
	RFC	Delay	Q/95th%ile Q	RFC	Delay	Q/95th %ile Q
Abernant Rd North	0.38	10.76	0.6/2.9	-	-	-
Cwmbach Rd	0.73	20.09	2.7/13.3	-	-	-
Abernant Rd South	0.46	6.18	0.9/2.4	-	-	-
Wellington St	0.36	11.7	0.6/2.6	-	-	-

Table 6: Abernant Road / Cwmbach Road / Wellington Street Roundabout – 2021 PM Peak

Period	Existing			With Development		
	RFC	Delay	Q/95th%ile Q	RFC	Delay	Q/95th%ile Q
Abernant Rd North	0.29	9.8	0.4/1.6	-	-	-
Cwmbach Rd	0.61	13.22	1.5/3.7	-	-	-
Abernant Rd South	0.50	6.56	1.0/1.9	-	-	-
Wellington St	0.43	15.7	0.8/3.3	-	-	-

Table 7: Abernant Road / Cwmbach Road / Wellington Street Roundabout – 2036 AM Peak

Period	Existing			With Development		
	RFC	Delay	Q/95th%ile Q	RFC	Delay	Q/95th%ile Q
Abernant Rd North	0.45	12.87	0.8/3.5	0.62	18.88	1.6/6.1
Cwmbach Rd	0.83	31.43	4.7/24.4	0.87	40.81	6.0/32.9
Abernant Rd South	0.52	7.05	1.1/1.9	0.53	7.4	1.2/1.8
Wellington St	0.41	13.26	0.7/3.1	0.43	13.69	0.7/3.3

Table 8: Abernant Road / Cwmbach Road / Wellington Street Roundabout – 2036 PM Peak

Period	Existing			With Development		
	RFC	Delay	Q/95th%ile Q	RFC	Delay	Q/95th%ile Q
Abernant Rd North	0.34	11.28	0.5/2.4	0.47	14.17	0.9/3.9
Cwmbach Rd	0.69	16.66	2.2/9.1	0.74	20.88	2.8/14
Abernant Rd South	0.56	7.61	1.3/1.5	0.61	8.72	1.6/1.9
Wellington St	0.45	15.42	0.8/3.6	0.52	18.66	1.1/4.5

The Abernant Road modelled average and 95th percentile queues in the 2021 base model from the Abernant Rd / A4059 / Sobell Leisure Centre Roundabout (Tables 1 and 2) back to the Abernant Road / Cwmbach Road / Wellington Street Roundabout are 1.6 /3.4 pcus in the AM peak and 1.3 / 3.9 passenger car units, (pcu) in the PM peak.

This indicates that there are short lived periods of blocking back on the Cwmbach Road arm of the Abernant Road / Cwmbach Road / Wellington Street Roundabout tend to be related to blocking back on Abernant Road from the A4059 / Abernant Road / Sobell Leisure Centre Roundabout. Asbri

Transport have identified that this is due to the grade signal controlled pedestrian crossing on the A4059 southern arm.

For the AM peak this blocking back occurs six times over the hour ranging from just a few seconds to a minute in duration, with all such occurrences between 08:35 and 08:47. For the PM peak this blocking back occurs six times over the hour ranging from just a few seconds to nearly 2 minutes in duration, with a short occurrence at 17:15 with the remainder concentrated between 17:46 and 18:00.

The average observed queue between 17:45-18:00 hours on Abernant Road from the Abernant Rd / A4059/Sobell Leisure Centre Roundabout is six vehicles (see **Table 9**). There is potential stacking capacity for 15 (if only the outer lane is used) to 20 vehicles before the queue backs onto Abernant Road / Cwmbach Road / Wellington Street Roundabout, which happens on five occasions in this 15-minute period. Therefore, whilst the average queues can be accommodated in the stacking space, this does get exceeded five times in a 15-minute period during the peak hour.

In the 2036 AM peak, the RFC on the Cwmbach Road arm increases from 0.83 to 0.87 with development. As previously stated, for priority-controlled junctions the Ratio of Flow to Capacity (RFC) value of 0.85 is considered to be the upper limit of desired junction capacity. The delay increases by 9 seconds and the 95th percentile queue by 8.5 passenger car units (pcu).

Observed length data from the existing video footage for Abernant Road / Cwmbach Road / Wellington Street Roundabout and estimated queue figures for Abernant Road from the A4059 / Abernant Road / Sobell Leisure Centre Roundabout were provided by Asbri Transport. These have been checked and compared by Redstart to the modelled results in **Table 9**:

Table 9: Observed/ Modelled Average Queues

	Abernant Rd/Cwmbach Rd/Wellington St R/A				A4059/Abernant Road /Sobell Leisure Centre R/A
	Abernant Rd North	Cwmbach Rd	Abernant Rd South	Wellington Rd	Abernant Rd North
AM					
08:00	0.5	0.5	0.5	0.2	1.8
08:15	0.5	0.7	0.8	0.5	2.0
08:30	0.5	2.3	0.8	0.5	6.0
08:45	0.5	3.2	0.5	0.5	2.0
Ave Observed	**0.5**	**1.7**	**0.7**	**0.4**	**3.0**
Ave Modelled	**0.5**	**2.7**	**0.9**	**0.6**	**1.9**
PM					
17:00	0.7	0.8	0.8	0.5	1.8
17:15	0.3	0.5	0.8	0.5	6.0
17:30	0.5	0.5	0.3	0.3	3.0
17:45	0.7	1.8	0.3	0.7	6.0
Ave Observed	**0.5**	**0.9**	**0.6**	**0.5**	**4.2**
Ave Modelled	**0.5**	**1.5**	**1.0**	**0.8**	**3.5**

The results highlight that average modelled and observed queues are similar which supports the accuracy of the modelling undertaken for these junctions.

Abernant Rd/A4059/Sobell Leisure Centre Roundabout.

The TA included assessment of the Abernant Rd/A4059/Sobell Leisure Centre Roundabout within Table 8.6 reproduced below:-

Table 8.6 Abernant Road / A4059/ Sobell Leisure Centre Roundabout

Movement	2026							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
A4059 North	2.2	6.74	0.67	A	2.1	6.47	0.68	A
Abernant Rd	1.8	12.13	0.64	B	2.3	14.22	0.70	B
Sobell Leisure Centre	0.5	8.96	0.32	A	0.5	9.50	0.34	A
A4059 South	3.2	13.21	0.76	B	3.4	13.66	0.77	B
PM Peak (17:00-18:00)								
A4059 North	4.2	11.10	0.80	B	4.8	12.38	0.82	B
Abernant Rd	1.6	12.63	0.61	B	2.0	14.64	0.67	B
Sobell Leisure Centre	0.4	9.87	0.30	A	0.5	10.47	0.31	B
A4059 South	3.4	12.94	0.77	B	3.6	13.56	0.78	B
Movement	2036							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
A4059 North	2.8	8.15	0.73	A	2.9	8.31	0.73	A
Abernant Rd	2.6	16.31	0.72	C	3.5	20.44	0.78	C
Sobell Leisure Centre	0.6	10.57	0.38	B	0.7	11.35	0.40	B
A4059 South	4.3	16.70	0.81	C	5.1	19.54	0.82	C
PM Peak (17:00-18:00)								
A4059 North	6.7	16.54	0.87	C	7.9	19.31	0.89	C
Abernant Rd	2.3	17.23	0.70	C	3.0	21.22	0.76	C
Sobell Leisure Centre	0.6	11.99	0.36	B	0.6	12.90	0.38	B
A4059 South	4.7	17.12	0.82	C	5.3	19.30	0.84	C

Table 8.6: A4059/Abernant Rd/Sobell Leisure Centre Capacity Assessment Results – 2026 & 2036

Again in response to concerns raised by the Highway Authority, given the congestion evident at this location during the AM and PM Peak periods and discrepancy between the queue lengths indicated by the analysis compared with those witnessed on site and indicated on video survey, additional analysis and investigation and analysis of the junction.

This was undertaken in the same manner as the Abernant Road / Cwmbach Road / Wellington Street Roundabout including Junctions 9 modelling undertaken with Queue Variation and Queue Markers within the two roundabout junction models to try and produce more representative outputs to those that are experienced on-site within the network peak periods and to better reflect what is typically experienced for short periods during the modelled peak hours.

Further analysis accommodating potential trips dropping pupils off at school and returning southwards and considering the amended baseline model which reflects the observed situation in terms of queues was submitted by Asbri

Transport within Technical Note T21.120 dated 13th December 2022 which was reviewed by Redstart and provides the following results:-

Table 1 ***Abernant Road / Sobell Leisure / A4059 Roundabout – 2021 AM Peak***

Period	Existing			With Development		
	RFC	Delay	Q/95th%ile Q	RFC	Delay	Q/95th %ile Q
A4059 North	0.65	6.19	1.9/3.1	-	-	-
Abernant Road	0.61	10.73	1.6/3.4	-	-	-
Sobell Leisure	0.30	8.31	0.4/1.7	-	-	-
A4059 South	0.74	12.34	2.9/12.1	-	-	-

Table 2: Abernant Road / Sobell Leisure / A4059 Roundabout – 2021 PM Peak

Period	Existing			With Development		
	RFC	Delay	Q/95th%ile Q	RFC	Delay	Q/95th%ile Q
A4059 North	0.77	9.51	3.5/12.5	-	-	-
Abernant Road	0.57	11.09	1.3/3.9	-	-	-
Sobell Leisure	0.27	9.06	0.4/1.1	-	-	-
A4059 South	0.74	12.01	3.0/12.5	-	-	-

Table 3: Abernant Road / Sobell Leisure / A4059 Roundabout – 2036 AM Peak

Period	Existing			With Development		
	RFC	Delay	Q/95th%ile Q	RFC	Delay	Q/95th%ile Q
A4059 North	0.73	8.15	2.8/6.7	0.73	8.31	2.9/7.3
Abernant Road	0.72	16.31	2.6/11.5	0.78	20.44	3.5/17.7
Sobell Leisure	0.38	10.59	0.6/2.9	0.40	11.35	0.7/3.1
A4059 South	0.81	16.7	4.3/21.9	0.82	19.54	5.1/26.2

Table 4: Abernant Road / Sobell Leisure / A4059 Roundabout – 2036 PM Peak

Period	Existing			With Development		
	RFC	Delay	Q/95th%ile Q	RFC	Delay	Q/95th%ile Q
A4059 North	0.87	16.54	6.7/34.6	0.89	19.31	7.9/39.9
Abernant Road	0.70	17.23	2.3/9.6	0.76	21.22	3.0/14.8
Sobell Leisure	0.36	11.99	0.6/2.5	0.38	12.90	0.6/2.8
A4059 South	0.82	17.12	4.7/23.9	0.84	19.30	5.3/27.3

The result shows the maximum average queue in the 2021 base is 4 pcus, with a maximum 95th percentile queue of 13 pcus.

For priority-controlled junctions the Ratio of Flow to Capacity (RFC) value of 0.85 is considered to be the upper desirable limit of junction capacity. This is shown to be exceeded by predicted traffic growth for the year 2036 on the A4059 Northern arm without development and the impact of the development being assessed to increasing the RFC from 0.87 to 0.89 with delay increasing by 2.7 seconds (16.54 to 19.31 seconds) with an increase in average queue length of 1.2 pcu, (from 6.7 to 6.9pcu) and increase in the 95th percentile queue of 5.3pcu (from 34.6 to 39.9pcu).

A4059 / Wellington Street / Meirion Street Junction

The TA includes assessment of the A4059 / Wellington Street / Meirion Street Junction within Table 8.8 reproduced below:-

Table 8.6 A4059 / Wellington Street / Meirion Street Junction

Movement	2026							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
A4059 North	0.9	3.03	0.47	A	0.9	3.05	0.47	A
Wellington St	0.4	9.13	0.29	A	0.5	9.68	0.33	A
A4059 South	0.8	3.21	0.44	A	0.8	3.31	0.45	A
Meirion St	0.0	4.11	0.04	A	0.0	4.22	0.04	A
PM Peak (17:00-18:00)								
A4059 North	1.2	3.53	0.54	A	1.3	3.67	0.56	A
Wellington St	0.6	12.47	0.38	B	0.7	13.31	0.41	B
A4059 South	0.9	3.39	0.47	A	0.9	3.47	0.48	A
Meirion St	0.0	4.31	0.04	A	0.0	4.40	0.04	A
Movement	2036							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
A4059 North	1.0	3.25	0.50	A	1.0	3.28	0.50	A
Wellington St	0.5	10.09	0.32	B	0.6	10.78	0.37	B
A4059 South	0.9	3.44	0.47	A	1.0	3.56	0.48	A
Meirion St	0.1	4.34	0.05	A	0.1	4.46	0.05	A
PM Peak (17:00-18:00)								
A4059 North	1.4	3.89	0.59	A	0.1	2.24	0.13	A
Wellington St	0.8	14.90	0.44	B	1.6	11.47	0.61	B
A4059 South	1.0	3.66	0.50	A	0.5	2.77	0.33	A
Meirion St	0.0	4.60	0.04	A	0.2	4.11	0.20	A

Table 8.8: A4059/Wellington St/Meirion St Capacity Assessment Results – 2026 & 2036

The analysis indicates no detriment in terms of level of serviceability as result of the proposed development with RFC on all arms well below the maximum capacity level of 0.85.

A4059 / A4233 (Tesco) Roundabout

The results of the analysis of the A4059 / A4233 (Tesco) Roundabout are summarised in Table 8.10 of the TA reproduced below:-

Table 8.10 A4059 / A4233 (Tesco) Roundabout

Movement	2026							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
A4059 North	1.5	5.73	0.60	A	1.5	5.78	0.60	A
A4059 South	1.6	4.81	0.61	A	1.7	5.02	0.62	A
A4233 (Tesco)	1.4	7.08	0.58	A	1.4	7.26	0.59	A
PM Peak (17:00-18:00)								
A4059 North	3.7	11.13	0.79	B	4.0	12.05	0.80	B
A4059 South	1.7	5.30	0.63	A	2.0	5.83	0.66	A
A4233 (Tesco)	2.3	9.69	0.69	A	2.4	10.22	0.71	B
Movement	2036							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
A4059 North	1.9	6.76	0.66	A	1.9	6.83	0.66	A
A4059 South	1.9	5.57	0.66	A	2.1	5.85	0.67	A
A4233 (Tesco)	1.8	8.38	0.64	A	1.8	8.63	0.65	A
PM Peak (17:00-18:00)								
A4059 North	6.1	17.37	0.86	C	6.9	19.63	0.88	C
A4059 South	2.4	6.69	0.70	A	2.5	7.05	0.72	A
A4233 (Tesco)	3.2	12.69	0.76	B	3.5	13.63	0.78	B

Table 8.10: A4059/A4233 (Tesco) Capacity Assessment Results – 2026 & 2036

The analysis indicates only a marginal impact arising as a result of development traffic with no significant increase in congestion and delay. The modelling indicates that traffic growth alone increases the RFC for the A4059 Northern arm above 0.85 to 0.86 without the proposed development. With the development the RFC on this arm increases to 0.88, however, the increase in delay of 2.26 seconds and queue length by 0.8 passenger car units, (pcu), is not significant.

A4059/B4275 (Cardiff Road) Roundabout

The results of the analysis of the A4059 / B4275 Cardiff Road Roundabout are summarised in Table 8.12 of the TA reproduced below:-

Table 8.3 A4059/B4275 (Cardiff Road) Roundabout

Movement	2026							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
A4059 North	2.2	8.91	0.69	A	2.3	8.99	0.70	A
Aberdare College	0.5	8.15	0.31	A	0.5	8.22	0.31	A
A4059 South	1.9	7.82	0.66	A	1.9	7.90	0.66	A
B4275 Cardiff Rd	1.7	10.69	0.63	B	1.8	10.88	0.64	B
Cardiff St	1.8	13.28	0.65	B	1.8	13.47	0.65	B
PM Peak (17:00-18:00)								
A4059 North	3.7	12.60	0.78	B	3.8	13.08	0.79	B
Aberdare College	0.2	7.71	0.16	A	0.2	7.80	0.16	A
A4059 South	3.0	10.71	0.75	B	3.1	10.99	0.76	B
B4275 Cardiff Rd	1.2	8.57	0.55	A	1.3	8.80	0.56	A
Cardiff St	1.8	12.05	0.64	B	1.8	12.34	0.65	B
Movement	2036							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
A4059 North	3.3	12.14	0.76	B	3.4	12.59	0.77	B
Aberdare College	0.6	9.50	0.36	A	0.6	9.60	0.37	A
A4059 South	2.5	9.61	0.72	A	2.5	9.68	0.72	A
B4275 Cardiff Rd	2.2	12.28	0.68	B	2.2	12.71	0.68	B
Cardiff St	2.2	15.20	0.70	C	2.3	15.52	0.70	C
PM Peak (17:00-18:00)								
A4059 North	6.4	20.90	0.87	C	6.8	21.91	0.88	C
Aberdare College	0.2	8.86	0.19	A	0.2	8.95	0.19	A
A4059 South	4.4	15.03	0.82	C	4.6	15.50	0.83	C
B4275 Cardiff Rd	1.5	9.95	0.60	A	1.6	10.19	0.61	B
Cardiff St	2.3	14.13	0.70	B	2.3	14.40	0.70	B

Table 8.12: A4059/B4275 Cardiff Rd Capacity Assessment Results – 2026 & 2036

Whilst the analysis indicates that the roundabout is operating close and slightly above desired capacity with an RFC of 0.87 on the A4059 Northbound arm for the 2036 base scenario PM Peak as a result of traffic growth, the impact of the development is to only increase the RFC by 0.01 to 0.88 with an increase in delay of 1 second and an increase in queue length of 0.4pcus which is not significant.

A4059 / Canal Road Roundabout

The results of assessment of the junction of the A4059 / Canal Road Roundabout are summarised within table 8.14 of the TA reproduced below:-

Table 8.14 A4059 / Canal Road Roundabout

Movement	2026							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
A4059 North	1.7	9.54	0.63	A	1.9	10.14	0.65	B
A4059 South	1.1	4.35	0.52	A	1.1	4.40	0.53	A
Canal Rd	1.1	4.25	0.52	A	1.1	4.29	0.52	A
PM Peak (17:00-18:00)								
A4059 North	1.2	8.06	0.54	A	1.3	8.34	0.56	A
A4059 South	2.6	7.51	0.73	A	2.9	8.08	0.74	A
Canal Rd	1.6	5.39	0.61	A	1.6	5.59	0.62	A
Movement	2036							
	Base				Base + Development			
	Q	Delay	RFC	LOS	Q	Delay	RFC	LOS
AM Peak (08:00-09:00)								
A4059 North	2.3	11.98	0.70	B	2.6	12.96	0.72	B
A4059 South	1.3	4.83	0.57	A	1.3	4.90	0.57	A
Canal Rd	1.3	4.71	0.56	A	1.3	4.77	0.57	A
PM Peak (17:00-18:00)								
A4059 North	1.5	9.60	0.60	A	1.6	9.94	0.62	A
A4059 South	3.6	9.67	0.79	A	4.1	10.61	0.80	B
Canal Rd	2.0	6.30	0.66	A	2.1	6.58	0.67	A

Table 8.14: A4059/Canal Rd Capacity Assessment Results – 2026 & 2036

The analysis indicates RFC values remain below the desired 0.85 and the development has only a marginal impact on the roundabout with no significant impact on queue length, delay and capacity.

Junction Analysis Summary

The TA has been reviewed and checked by independent consultants Redstart together with additional information and analyses provided in response to issues raised and requests for information to support the findings of the TA and to ensure that the stated within base model reflects the observed current situation. Therefore, the TA and additional supporting information is considered to represent a robust analysis of the anticipated impact on the surrounding highway network.

Whilst at a number of locations Ratio of Flow to Capacity values are shown to marginally exceed the normally desired upper value of 0.85. This has historically been considered the upper limit for junctions to operate satisfactorily, however, guidance from Transport Research Laboratory, (TRL) TRL, suggest that whilst this approach would ensure satisfactory performance of junctions, greater emphasis should be placed on delays and queue lengths at junctions from the point of view of congestion. The exceeding a junction RFC of 0.85 value would result in increased queue lengths and delays which

have been shown within the junction modelling, to have only a marginal impact.

The junction analysis reflects the existing situation with regard congestion at peak times, however, the impact of the proposed development is marginal in terms of ratio of flow to capacity, increased queue lengths and delays and would be reduced further by provision of improved Active Travel links, improvements to public transport infrastructure and implementation of a Travel Plan to encourage sustainable travel and reduce single occupancy vehicle trips.

Within the impact assessment no reduction to the trip rates have been applied to reflect

i) The previous use of the site as a Hospital has been excluded from the analysis.

ii) No trip reduction has been applied to Social Rent dwellings

iii) The sustainable location of the site in terms of proximity to public transport and Aberdare town centre.

iv) Impact of improvements proposed to Active Travel links between the development and Aberdare Town Centre.

v) Increased opportunities for residents to work from home post Covid

vi) Impact of the Transport Implementation Strategy, including a Travel Plan to reduce single occupancy car trips and to promote sustainable modes of transport.

vii) Welsh Government Policy and initiatives to address the climate emergency and encourage increased use of sustainable modes of travel.

Current policy implemented by the Welsh Government via, the Roads Review, Llwybr Newydd - A New Wales Transport Strategy (2021) and supported by changes incorporated into Planning Policy Wales 11th Ed., places much greater emphasis on changing the way people travel as part of Welsh Government strategy to address the climate emergency and targets for net zero by 2050. As stated within Llwybr Newydd these measures need fewer cars on the roads and more people using public transport, walking and cycling as set out within their sustainable transport hierarchy which prioritises walking and cycling, public transport, use of ultra-low emission vehicles above other private vehicles.

Whilst the Local Development Plan, policy NSA7 identified constraints associated with the development in terms of access and envisaged that that improvements to the A4059 and the existing highway at Abernant would be secured via planning obligations the proposed development is of a lower magnitude of 299 dwellings with only marginal impact on the highway network which could be mitigated via the improvements to Active Travel routes and implementation of a travel plan in line with Welsh Government Policy.

Transport Implementation Strategy

Details of the proposed Transport Implementation Strategy within Section 9.2 of the TA which seeks to encourage a modal shift towards sustainable transport within the proposed development and neighbouring communities. Suggested Targets on the basis of achieving a reduction in car use offset by an increase in walking and cycling are outlined within Table 9.2 reproduced below.

Table 9.2 Modal Split Targets

Objective	Target	Base	Mode share target		
			Year 1	Year 2	Year 5
Reduce the proportion of SOV trips to and from the site	To reduce the mode share for car	75%	72%	68%	65%
	To increase the mode share for car	9%	10%	11%	12%
Increase the proportion of walking and cycling	To increase the mode share for	2%	3%	4%	5%
	To increase the mode share for	0%	1%	2%	3%
Increase the proportion of public transport trips to and from the site	To increase the mode share for rail	4%	5%	6%	7%
	To increase the mode share for bus	4%	5%	6%	7%
Enable occupiers to make informed	Every new occupier to receive travel	100%	100%	100%	100%

Table 9.2: Modal split targets

The modal targets would be encouraged by means of Active travel improvements set out in Paragraph 9.95 of the TA to consist of :-

- Providing a link from the wider site to Aberdare Town Centre which will form part of NCN 478, via Abernant Road. This in turn will provide a link from the wider allocated site to Aberdare Town Centre via a crossing of the railway line at Robertstown.
- A further link proposed on the northern part of the site will be introduced connecting the site to RCTAT22i and NCN 478 via the Public Right of Way that currently runs along the northern edge of the boundary connecting with the NCN close to the pedestrian bridge over the Cynon River at Robertstown.
- Implementation of a Travel Plan including active measures for surveys, review of effectiveness and provision to implement additional measures should the modal targets not be met within the 5 year period.
-

Accident Data

Accident Data has been reviewed at Section 3 of the TA. The information which has been compared against the Welsh Government accident data held by the Council and indicates no accidents in the vicinity of the site access.

Travel Plan

A Travel Plan, prepared by Absbri Transport and dated February 2022 was reviewed and in response to enquiries for clarification of information an amended Travel Plan dated May 2022 was submitted on 18th January 2023 with a further Travel Plan submitted dated February 2023 incorporating additional measures that could be adopted to influence modal shift to sustainable modes of travel.

All submitted Travel Plans set out modal targets within Table 4.1, which re slightly higher than those set out within the TIS and are reproduced below:-

Objective	Target	Base	Mode share target		
			Year 1	Year 3	Year 5
Reduce the proportion of SOV trips to and from the site	To reduce the mode share for car drivers	75%	72%	68%	62%
	To increase the mode share for car passengers	9%	10%	11%	12%
Increase the proportion of walking and cycling trips to and from the site	To increase the mode share for walkers	2%	3%	5%	7%
	To increase the mode share for cyclists	0%	1%	2%	3%
Increase the proportion of public transport trips to and from the site	To increase the mode share for rail	4%	5%	6%	7%
	To increase the mode share for bus	4%	5%	6%	7%
Other		6%	4%	2%	2%
Enable occupiers to make informed decisions about how and when they travel for all trips to and from the site	Every new occupier to receive travel information within one month of occupation	100%	100%	100%	100%

Table 4.1 Travel Plan targets

The Travel Plan includes details of arrangements for the appointment of the Travel Plan Co-ordinator, implementation, key stages for monitoring and funding of the Travel Plan by the developer for a period of 5 years.

The applicant has indicated a willingness to enter into a S106 agreement to provide a Travel Plan bond on the basis of completed dwellings to ensure that should the agreed modal split targets not be achieved monies will be available to undertake and independent review and surveys to understand the barriers

to meeting the targets and implement additional measures. The developer has indicated agreement to provide a bond which would amount to a sum of circa £500,000 is phased payments reflecting completion of dwellings via a Section 106 agreement to provide a Travel Plan Bond to ensure that should the agreed modal targets not be met by the end of the proposed Travel Plan period additional surveys and investigation to understand the barriers to achieving the modal targets is undertaken to identify and implement measures to achieve the targets with a further review to demonstrate that targets have been met or that the Highway authority considers that all reasonable measures have been taken to achieve the targets to mitigate impact on the highway. The mechanism is not reflected within the submitted Travel Plan therefore a condition is suggested to require agreement of a Travel Plan including agreed modal shift targets and bond mechanism within 6 months should planning permission be granted. The bond will be secured by S106 agreement and utilised for solely to mitigate the impact of the development on the adjacent highway network agreed by the developer and the Council.

Abernant Road

Abernant Road is two-way single carriageway road that runs in a north-east to south-west alignment, to the south of the proposed development site. It provides a link between the A4059 and the surrounding residential area.

Street-lighting is present and the road is subject to a speed limit of 30mph in the vicinity of the site. Footways are provided along both sides of the carriageway within the vicinity of the site. However, it is noted that the footway running along the development side is below the recommended width of 2.0m for safe pedestrian movement. In order to mitigate the concern additional un-controlled crossing points shall be provided on Abernant Road to provide pedestrians the opportunity to cross safely and use the controlled Zebra crossing located on Cwmbach Road for direct access to Aberdare Town Centre.

At its southern extent the road connects with Cwmbach Road and Wellington Street at a 4-arm roundabout located to the east of the railway overbridge and adjacent to the Aberdare Railway Station Car Park. Approximately 100m further to the west and on the other side of the railway bridge at Aberdare Railway Station, Abernant Road terminates at its junction with the A4059 at the Ynys Roundabout.

Access to site (Hospital Drive).

Planning permission was granted on 24/01/22 for the access road improvements General Arrangement drawing number 200710_WDL_001 REV C which overcomes the previous highway and pedestrian safety concerns by providing a 6.75m wide carriageway width for safe two-way vehicular movement, 3.0m shared cycle / pedestrian route linking with Abernant Road, junction radii of 8.0m for safe vehicular turning movements and vision splays in accordance with the 85 percentile speeds which is acceptable.

Vision Splays

Vision splays at the access with actual 85th percentile speeds recorded of 31mph Southbound & 29 mph northbound require vision splays of 2.4m x 43m Southbound and 2.4m x 36m Northbound.

The submitted drawing indicates the access moved south to improve vision splays to accord with the actual speeds.

Site Access 300 dwellings (subject to this application).

The proposed spine road has been designed at 6.75m to cater for safe movement of proposed buses and residential traffic which is acceptable. There are 2.0m footways on one side and a 3.0m cycle route.

Secondary emergency access has been indicated within the application site boundary with access onto Moss Row which accords with the Council's Design Guide for provision of emergency access.

The secondary residential access points measuring 5.5m with 2.0m footways are acceptable for safe two-way vehicular movement with safe pedestrian connectivity.

The mews court access roads accord with the council's design guide which indicates a 5.5m carriageway, 2.0m footway and one side and 0.5m hard margin strip on the opposite side.

There substantial length of estate roads proposed with mews court geometry which results in residents of one side of the road having no footway, however, whilst not ideal in terms of ensuring a 2m wide footway access to each dwelling such arrangements are in compliance with the aims and guidance set out within Manual for Streets, the RCT Design Guide for Residential, Commercial and Industrial Estate Roads and the Common Standards for Residential, Commercial and Industrial Estate Roads published by the County Surveyors Society and promoted by the Welsh Government, for lightly trafficked and low speed residential estate roads and would therefore not warrant objection.

Sustainable Drainage System (SuDS)

The site falls under the requirements for Sustainable Drainage Systems and acceptable arrangements for drainage of the internal estate roads can be accommodated via the SAB which is outside the planning process and will form part of the detailed design of the internal access roads.

Private Shared Access

The proposed private shared access points with a 4.5m carriageway width and turning facilities which accord with the Council's Design Guide standard detail 103 which is acceptable.

Parking

Table 5.2 – Car Parking provision (Extract from TA)

Dwelling type/no. of units	Parking Standard	Parking Provision	
		Maximum	Proposed
14 x five bed	1 space per bedroom (max 3)	42	56
164 x four bed	1 space per bedroom (max 3)	492	547
87 x three bed	1 space per bedroom (max 3)	257	258
31 x two bed	1 space per bedroom	64	64
3 x one bed	1 space per bedroom	7	3
Visitor spaces	1 space per 5 units	60	60
Total		**922**	**988**

Table 5.2: Car Parking Provision

The table incorrectly totals the parking maximum parking provision for the 83No three –bed dwellings which should be 261 rather than the 258 shown.

The TA Audit undertaken by Redstart summarises the provision as shown in the table below:-

Dwelling	type/no. of units Parking Standard	TA Parking Provision		Audit
		Maximum	Proposed	Maximum
14 x five bed	1 space per bedroom (max 3)	42	56	42
164 x four bed	1 space per bedroom (max 3)	492	547	492
87 x three bed	1 space per bedroom (max 3)	257	258	261
31 x two bed	Maximum 2 spaces	64	64	62
3 x one bed	Maximum 2 spaces	7	3	6
Visitor spaces	1 space per 5 units	60	60	60
Total		**922**	**988**	**923**

The proposed parking provision is in excess of that required by the Council's SPG; Access, Circulation & Parking (March 2011), however, the excess parking provision is primarily associated with the larger five and four bedroom dwellings which are arranged with drives fronting double garages resulting in 4 spaces provided. It is considered that that the degree of parking in excess of the SPG requirements would not cause significant harm by encouraging additional car ownership and would ensure adequate off street parking provision to minimise long term on-street parking and pavement parking by residents which would be to the detriment of pedestrians and cyclists.

The majority of the visitor spaces which are generally short term in nature are provided on-street, therefore, the overall level of off-street car parking is considered acceptable.

Cycle Parking

The Cycle Storage / Car Parking Layout Drawing FOTH-22-04-08 identifies the provision for cyclists and point 5 within the conclusion (paragraph 10.2.1) confirms that cycle parking within the development will be provided to reflect the minimum standards as set out in the adopted parking standards. Residents have the opportunity to provide secure cycle parking and storage within garages and sheds to meet their personal requirements and can allow visitors to leave or park cycles securely within their curtilage. Resident flats of flats and smaller accommodation will have potential to accommodate secure cycle storage within sheds. On this basis, the proposed cycle provision is considered acceptable.

Electric Vehicle Charging

The TA at paragraph 5.7.8 indicates that electric vehicle charging points will be in line with the prevailing guidelines.

No requirement for electric vehicle charging provision is provided within the Councils current SPG, Access circulation and parking (March 2011). PPW 11th Ed does not set out any specific requirements for provision of EV charging facilities for residential dwellings as the current strategy is to ensure increased provision of public charging facilities. The residential dwellings benefit from off road parking and owners of electric vehicles can utilise government schemes/grants and manufacturers discount offers towards the cost of provision of electric vehicle charging facilities within the curtilage of their plot if they require.

Emergency Access

The proposed development indicates the development will consist of 299 dwellings and in accordance with the Councils SPG Access Circulation and Parking (March 2011) developments in excess of 150 dwellings but less than 300 dwelling will require provision of an emergency access in case the primary access is unavailable.

The plans indicate an emergency access located to the North of the site at the termination of the spine road which would provide access to the road linking Moss Row to Abernant Road. Whilst this road is not maintained at public expense it is considered that highway rights have been established over time and it is considered acceptable for the proposed emergency use.

Any future development to the North of the site will be expected to deliver an improved and permanent access to link to allow the emergency access to become a permanent access to accommodate a bus route through the development and provide an alternative route.

Geotechnical

The Geotechnical report indicates high likelihood of geotechnical issues including shallow mine workings, contamination and made ground containing colliery shale and slag materials. Any remediation to address such issues must

be extended beneath the proposed estate roads to ensure no adverse impact on the roads providing access to the dwellings and can be considered as part of the detailed design.

Active Travel

Planning Policy Wales 11th Ed., (PPW), details the Welsh Government's objective of promoting active travel and references the Active Travel (Wales) Act 2013.

The proposed site is within a highly sustainable location within walking distance of education facilities, Aberdare Town Centre which offers a variety of local facilities such as health care, small supermarkets and public transport in the form of both bus and rail stops which accords with the above guidance.

Walking and Cycling

Within the TA, Paragraph 9.95, improvements to the local Active Travel network are identified and can be secured by condition to :-

i) Provide a link from the wider site to Aberdare Town Centre which will form part of NCN 478, via Abernant Road. This in turn will provide a link from the wider allocated site to Aberdare Town Centre via a crossing of the railway line at Robertstown.

ii) Provide a further link proposed on the northern part of the site will be introduced connecting the site to RCTAT22i and NCN 478 via the Public Right of Way that currently runs along the northern edge of the boundary connecting with the NCN close to the pedestrian bridge over the Cynon River at Robertstown.

Within the development the has been designed with a width of 6.5m with a footway 2m footway on one side and a 3m shared use path on the other to accommodate off road cycling and with potential to extend the link to the North as part of future development.

The applicant has indicated agreement to provide a contribution of £75,000 towards further Active Travel Improvements to be undertaken by the Council in the vicinity of the site subject to implementation within a five-year period which can be secured via a S106 agreement.

The residential estate roads within the development have been designed in accordance with the RCT Design Guide for Residential, Commercial and Industrial Developments with highway geometry designed to constrain vehicle speeds to 20mph to facilitate on street cycling. The arrangement of estate roads and mews Court construction emphasises the low speed residential nature of the internal estate roads subject to detailed design.

Public Transport

Estate spine road has been designed to accommodate public services vehicles with the aspiration that further development to the north of the site will deliver a link to connect to the northern section of Abernant Road to facilitate diversion of existing or new bus services through the site. Details of such facilities can be conditioned to be provided as part of the detailed design.

Commuted Sums

Commuted sums will also be required in accordance with the Councils Design Guide for Residential Commercial and Industrial Estate Roads for any proposed highway elements set out within Section D of the Guide.

5. SUMMARY AND CONCLUSION

The former Aberdare Hospital site is allocated within the Local Development Plan Policy NSA 7 as a strategic site for the construction of 500-600 dwellings, 3.7 hectares of employment / leisure, a new primary school, medical centre and associated informal amenity space.

The current application seeks full planning approval for a development of 299 dwellings which is half of the allocation due to constraints associated with remediation of underground mine workings, ecological constraints and requirements to incorporate sustainable drainage.

The site is in a sustainable location within easy walking distance of Aberdare Town centre where a range of amenities and facilities including rail and bus station can be accessed.

The submitted TA has been audited and reviewed by Redstart and additional information and analysis was submitted by Asbri Planning to better understand the existing baseline traffic to allow assessment of the traffic impact as a result of the proposed development.

The proposed development is expected to generate up to 1058 daily vehicle movements with 131 during the AM Peak (08:00- 09:00) and 136 movements during the PM Peak (17:00-18:00). Although this is similar to that generated by the previous use as a hospital. No reduction of vehicle trips has been included within the assessment to reflect potential reduction in vehicle trips through Active Travel improvements or measures implemented as part of a Travel Plan to ensure a robust assessment.

Traffic Growth Factors (TEMPRO) have been applied which include Committed Development and remaining LDP sites within Abernant.

The Traffic Modelling identifies existing congestion, however, the impact of the development trips for the future year 2036 at the most impacted junctions are as follows:-

<u>Abernant Road / Cwmbach Road / Wellington Street Roundabout</u>

Further analysis of traffic survey video footage by Absri Transport and Redstart indicates that for the AM peak blocking back occurs six times over

the hour ranging from just a few seconds to a minute in duration, with all such occurrences between 08:35 and 08:47. For the PM peak this blocking back occurs six times over the hour ranging from just a few seconds to nearly 2 minutes in duration, with a short occurrence at 17:15 with the remainder concentrated between 17:46 and 18:00.

In the 2036 AM peak, the Ration of Flow to Capacity, (RFC) on the Cwmbach Road arm increases from 0.83 to 0.87 with development which is above the value of 0.85 which is considered to be the upper limit of desired junction capacity. However, Junctions can operate at RFC values greater than 0.85 with increasing delay and queue lengths. At this arm the delay increases by 9 seconds and the 95th percentile queue length by 8.5 passenger car units, (pcu).

For the PM Peak period at this location the desired 0.85 RFC value is not exceeded indicating reserve capacity.

Abernant Rd/A4059/Sobell Leisure Centre Roundabout.

For the year 2036 on the A4059 Northern arm without development the RFC is forecast to exceed the desired 0.85 value due to traffic growth alone. The impact of the development is to increase this value from 0.87 to 0.89 with delay increasing by 2.7 seconds (16.54 to 19.31 seconds) with an increase in average queue length of 1.2 passenger car units, (from 6.7 to 6.9pcu) and increase in the 95th percentile queue of 5.3pcu (from 34.6 to 39.9pcu).

Following review and Audit of the TA Redstart conclude that the traffic impact arising from the proposed development is marginal and can be reduced by measures to encourage uptake of sustainable modes of travel including walking and cycling given the close proximity of the site to Aberdare Town Centre.

Current Welsh Government policy set out can be conditioned accordingly by the Roads review, Llwybr Newydd - A New Wales Transport Strategy (2021) supported by changes incorporated into Planning Policy Wales 11th Ed., places much greater emphasis on changing the way people travel as part of Welsh Government strategy to address the climate emergency and targets for net zero by 2050 therefore it is considered that the marginal impact of the proposed development can be addressed by measures to encourage greater use of sustainable modes of travel above the private car through Active Travel Improvements and comprehensive Travel Plan.

Active Travel improvements are proposed to improve accessibility by walking and cycling between the site and Aberdare Town Centre and can be secured by condition along with improvements to bus infrastructure at Abernant Road together with a financial contribution of £75,000 towards further improvements in the vicinity of the site which can be secured via a S106.

The internal estate road layout incorporates a spine road capable of extension into future development to provide a bus link through the site and residential streets are laid out in accordance with the Council's Design Guide and Common Standards for residential development and are acceptable subject to approval of full engineering design and detail.

Parking provision is in accordance with the Councils SPG, however, there is a minor overprovision associated with the 4/ 5 bed dwellings which benefit from 4 spaces arising from the need for a double garage to be served from a double width driveway, however the majority of visitor parking is provided on- street and there is no evidence that increased car ownership above that associated with the larger dwellings would be encouraged.

An amended Travel Plan dated February 2023 was submitted on 3rd February incorporating additional information suggested as a result of the review undertaken by Redstart and contain modal shift targets which are considered by Redstart to mitigate the impact of the development on the adjacent highway network to be supported by a Travel Plan Bond. The mechanism is not reflected within the submitted Travel Plan therefore a condition is suggested to require agreement of a Travel Plan including agreed modal shift targets and bond mechanism within 6 months should planning permission be granted. The bond will be secured by S106 agreement and utilised for solely to mitigate the impact of the development on the adjacent highway network agreed by the developer and the Council.

6. RECOMMENDATION

Taking the above into consideration no highway objection is raised subject to the following conditions:-

1. Notwithstanding the submitted plans, no works shall commence on site, other than remediation works, until full engineering design and details of the internal road layout, shallow mine working restoration, traffic calming, footpath links, cycle route, bus stops, emergency access, street lighting, surface water drainage and highway structures including longitudinal and cross sections have been submitted to and approved in writing by the Local Planning Authority. The highway works shall be fully implemented in accordance with the approved engineering to the satisfaction of the Local Planning Authority.

   REASON: *To ensure the adequacy of the proposed development, in the interest of highway safety.*

2. The emergency access shall be fully implemented to the satisfaction of the Local Planning Authority no later than beneficial occupation of the 150th dwelling unless agreed in writing by the LPA.

   REASON: - In the interest of safety of all highway users.

3. Notwithstanding the submitted layout plan, no works shall commence on site, with the exception of remediation works, until the design and construction details of the offsite highway works to include un-controlled pedestrian crossing points and bus stops to be upgrade on Abernant Road to promote Active Travel have been submitted to and approved in writing by the Local Planning Authority prior to works commencing on site. The approved details shall be implemented to the satisfaction of the Local Planning Authority prior to beneficial occupation of the first dwelling.

REASON: To promote sustainable mode of travel. In the interests of pedestrian safety.

4. Notwithstanding the submitted layout plan, no works shall commence on site, other than remediation works, until the design and construction details of the offsite highway works to include upgrading of the PROW ABD/44/1 to the northern boundary of the site linking to the Cynon trail have been submitted to and approved in writing by the Local Planning Authority prior to works commencing on site. The approved details shall be implemented to the satisfaction of the Local Planning Authority prior to beneficial occupation of the first dwelling.

   REASON: To promote sustainable mode of travel. In the interests of pedestrian safety.

5. Within 6 months following the implementation of this consent a Travel Plan shall be submitted to and approved in writing by the Local Planning Authority. The Plan shall include:-

   i) Travel Plan Co-ordinator.
   ii) Agreed targets for the reduction of road traffic and single occupancy car use, the promotion and delivery of more sustainable travel such as walking, cycling, car sharing/pooling and use of public transport.
   iii) Management strategy for monitoring and delivering the objectives.
   iv) Review process.
   v) Contributions to a Travel Plan Bond to be called upon to implement further measures should the modal targets not be achieved.

   The Travel Plan shall be implemented within one month following its approval and maintained until such time that the modal targets are achieved or five years following full occupation of the development, unless otherwise agreed in writing by the Local Planning Authority.

   REASON: To ensure reduction of road traffic and promotion of sustainable modes of travel in accordance with the relevant National and Local Planning Policies.

6. Surface water run-off from the proposed development shall not discharge onto the public highway or connected to any highway drainage system unless otherwise agreed in writing by the LPA.

   REASON: In the interests of highway safety and to prevent overcapacity of the existing highway drainage system and potential flooding.

7. Prior to the commencement of the development, a report indicating the methodology for undertaking a survey of the condition of the local roads affected

by the proposed development shall be submitted to and approved in writing by the Local Planning Authority. The report should include:

a) Details of the roads to be surveyed,
b) The timescales for undertaking the surveys,
c) The method(s) of reporting the findings to the local planning authority (including the use of comprehensive photographs), and
d) Any potential compensation arrangements.

The development hereby permitted shall not commence until a condition survey has been undertaken and submitted to and approved in writing by the Local Planning Authority. The development shall not be brought into beneficial use until the final survey on completion of the development has been undertaken and any compensation arrangements have been submitted to and approved in writing by the local planning authority.

REASON: To ensure that the extraordinary traffic use arising from the proposed development does not have an adverse impact on highway safety and structural integrity.

8. No development shall take place, including any works of site clearance, until a Construction Method Statement has been submitted and approved in writing by the Local Planning Authority to provide for;

a) the means of access into the site for all construction traffic,
b) measures to address the main transport impact/risks in delivering the development safely including details of monitoring mechanisms, measures for enforcement action by the developer's project team and provision of compliance performance data,
c) the parking of vehicles of site operatives and visitors,
d) the management of vehicular and pedestrian traffic,
e) loading and unloading of plant and materials,
f) storage of plant and materials used in constructing the development,
g) wheel cleansing facilities,
h) the sheeting of lorries leaving the site.

The approved Construction Method Statement shall be adhered to throughout the development process unless agreed otherwise in writing by the Local Planning Authority.

Reason *:* In the interests of the safety and free flow of traffic.

9. NOTES

1. The Council has statutory obligation under Public Health Act 1925 for naming and numbering of streets and buildings within its designated administrative boundary. The purpose of naming and numbering is to ensure that any new or amended streets

and buildings are allocated logically and in a consistent manner to facilitate effective service delivery from both public and private sector bodies and in particular to ensure that emergency services are able to locate any address to which they may be summoned. The developer should therefore be advised to contact the Council's Street Naming and House Numbering Officer contact NamingNumbering@rctcbc.gov.uk

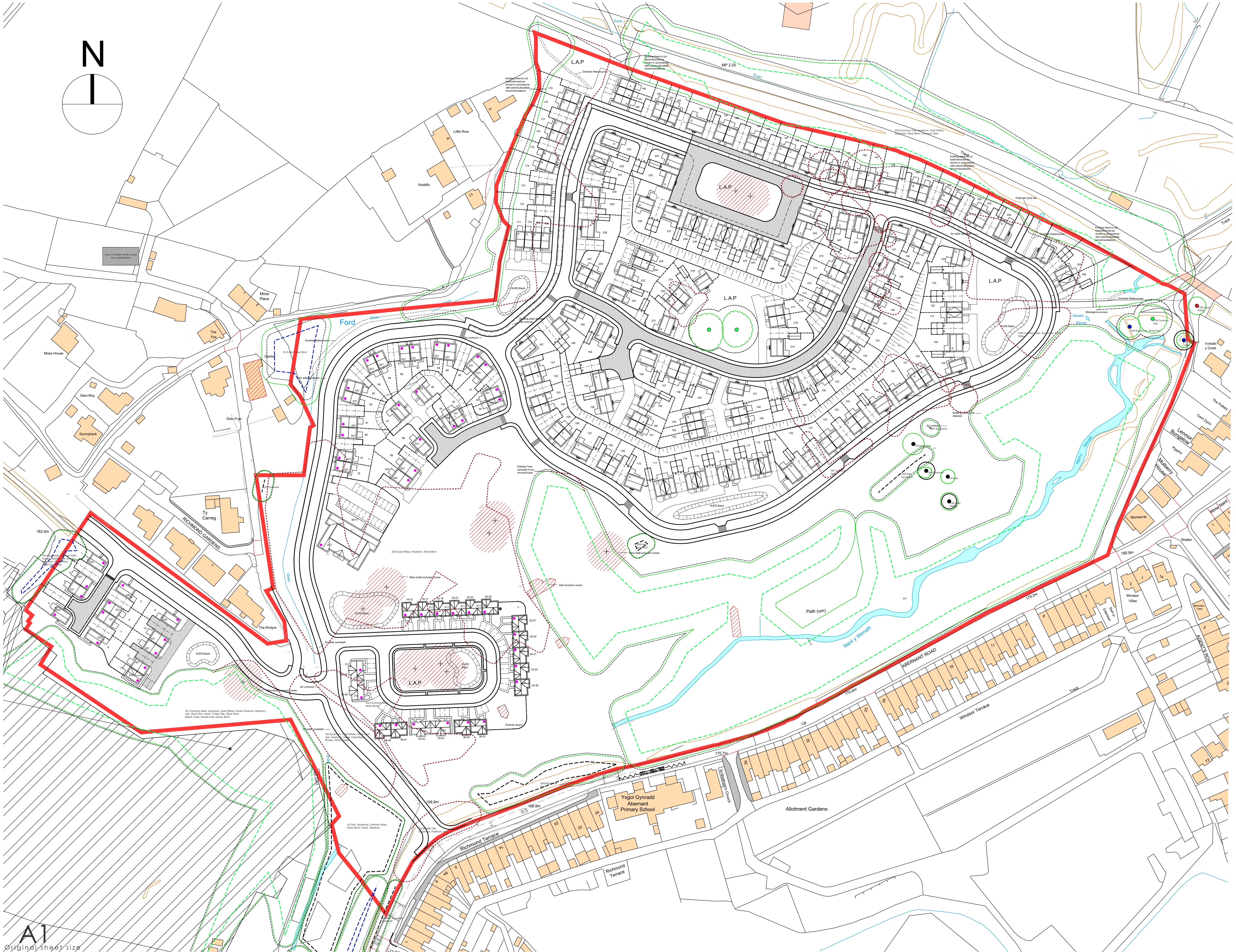
2. The Highway Authority will require the Developer to enter into legally binding agreements (S38 and S278 of Highways Act 1980) to secure the proper design and implementation of the proposed works to the existing highway and the internal roads, footways and highway drainage including an appropriate bond.

3. The Highway Authority will require the developer to undertake Statutory Consultations in respect of any Traffic Orders associated with the proposed development including the implementation of such orders granted by the Highway Authority to the satisfaction of the Local Planning Authority.

4. The developer will be required to enter into a legal agreement under S106 of the Town and Country Planning Act to provide a a contribution of £75,000 towards Active Travel Improvements in the vicinity of the site and a Travel Plan Bond to be paid in stages based on completion of dwellings and upon completion of all dwellings amounting to £500,000 for the purpose of providing further measures to encourage sustainable modes of travel to and from the development or to instigate further studies and /or highway improvements should the targets set out within the Travel Plan not be achieved.

Highways Development Control and Adoptions Manager

APPENDIX F – LATEST SITE MASTERPLAN



Site key

- Site Boundary (Gross Area = 38.13 Acres)
- 1.8m High close boarded timber fence
- SW — 1.8m High brick screen wall with brick piers
- Indicates potential locations for tree planting
- A — Indicates Affordable units
- Locations of existing mine shafts with exclusion zone
- Locations of existing adits with exclusion zone

Landscape Key

- Public facing soft landscaping managed by management company
- Public facing private frontage managed by residents
- Private rear gardens managed by residents

Surface Treatments

- Adoptable Road to be finished in tarmacadam
- Adoptable footpaths to be finished in tarmacadam
- Adoptable highway to be finished in block paving
- Private drives to be finished in permeable paving
- Private footpaths & patios to be finished in concrete paving slabs

Schedule of Accommodation

Private

Ref	Description	Sqft	M²	No.
A	2 Bed	732	68	30 No.
B	3 Bed	836	77	16 No.
C	3 Bed	924	85	40 No.
D	3 Bed	1011	93	7 No.
E	3 Bed	1024	95	7 No.
F	4 Bed	1255	116	22 No.
G	4 Bed	1259	117	19 No.
H	4 Bed	1272	118	6 No.
			Total	147 No.

Affordable (A)

Ref	Description	Sqft	M²	No.
211	1 Bed	570	53	30 No.
212	1 Bed	538	50	12 No.
213	1 Bed	538	50	16 No.
321	2 Bed	699	65	6 No.
421	2 Bed	882	82	9 No.
422	2 Bed	882	82	4 No.
531	3 Bed	1011	92	15 No.
532	3 Bed	1011	92	1 No.
533	3 Bed	1011	92	5 No.
641	4 Bed	1184	110	2 No.
			Total	100 No.

Total Units 247 No.

Rev	Date	By	CHK	Description
A	26.04.23	CC		Plots 63-84
B	09.05.23	CC		Layout amended to engineers comments
C	16.05.23	CC		Access to Richmond Gardens added
D	01.06.23	CC		Access to Richmond Gardens amended
E	25.07.23	CC		Tree constraints added
F	11.08.23	CC		Patios & footpaths added

Client:	Project:	Drawing Title:
ASD Build Limited	Moss Place Abernant	Sketch Layout

Drawing Status:	Date:	Drawn By:	Checked:	Director:	Scale:	Job No:	Drawing No.	Rev.
CONCEPT DESIGN	April 23	CC		CW	1:1000 @ A1	2696	(02) 100	F

spring design
Unit 2 Chapel Barns | Merthyr Mawr | Bridgend | CF32 0LS
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APPENDIX G – CENSUS DATA

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

population	All usual residents aged 16 and over in employment the week before the census
units	Persons
date	2011
method of travel to work	Driving a car or van
Usual Residence	(Rhondda Cynon Taf 004)

place of work : 2011 census merged local authority district	Driving a car or van	% Split	Route
Rhondda Cynon Taf	903	60%	R1/R2/R3/R4
Merthyr Tydfil	180	12%	R1
Cardiff	154	10%	R5
Caerphilly	103	7%	R5
Bridgend	42	3%	R5
Neath Port Talbot	39	3%	R1
Newport	34	2%	R5
The Vale of Glamorgan	23	2%	R5
Blaenau Gwent	23	2%	R1
Total	1,501	100%	

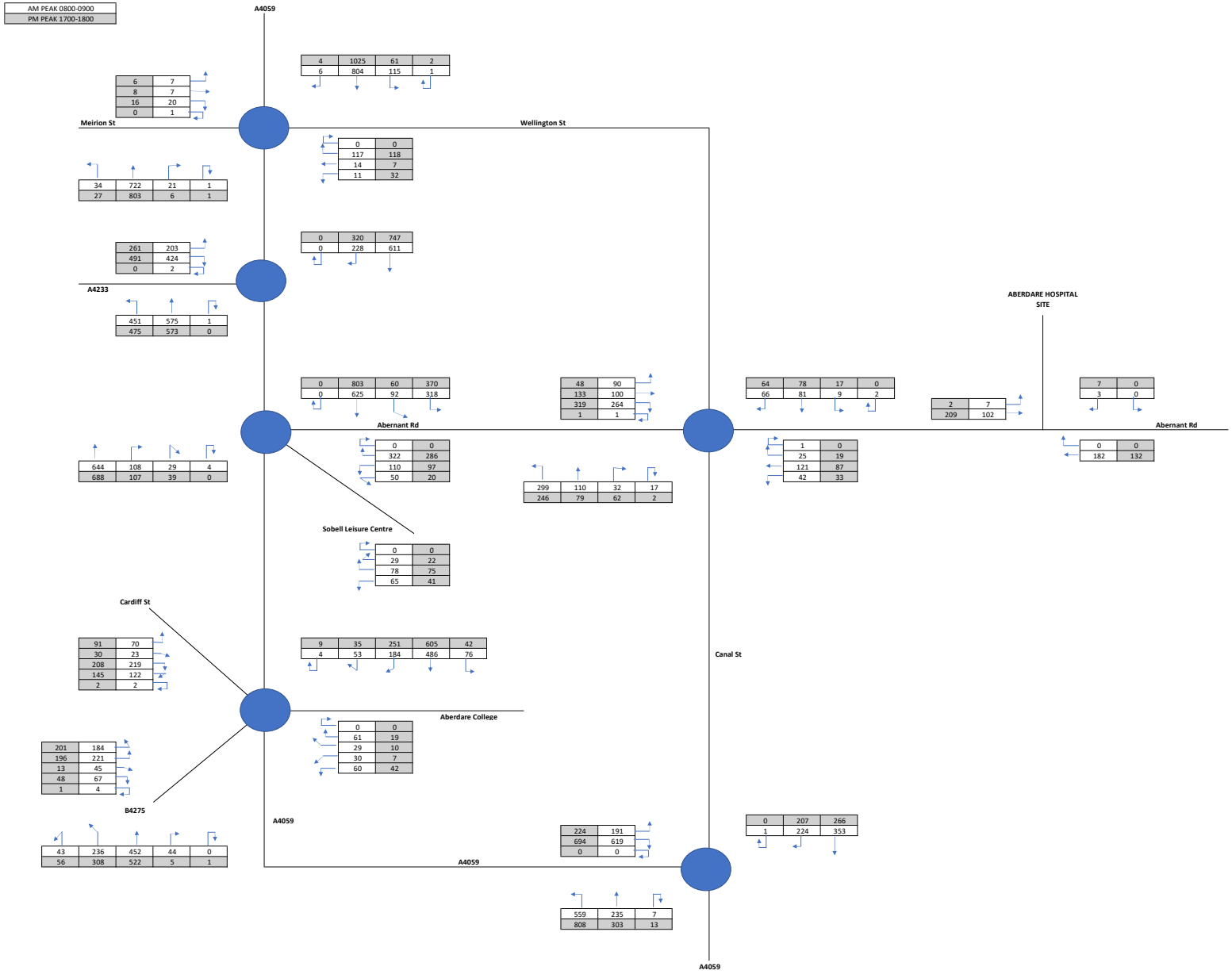
Route	% Split
R1	38%
R2	17%
R3	11%
R4	10%
R5	24%
	100%

Route 1:	Abernant Rd (S), Abernant Rd (S), A4059 (W), B4276 (N)
Route 2:	Abernant Rd (S), Cwmbach Rd (E), Well Pl (N)
Route 3:	Abernant Rd (S), Abernant Rd (S), A4059 (W), A4233 (S)
Route 4:	Abernant Rd (S), Abernant Rd (S), A4059 (E), B4275 (S)
Route 5:	Abernant Rd (S), Cwmbach Rd (E), Canal Rd (E), A4059 (E)

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

APPENDIX H – BASELINE FLOWS FROM ABERDARE HOSPITAL SITE APPLICATION

2021 SURVEYED BASELINE FLOWS



APPENDIX I – TEMPRO GROWTH FACTORS

2021 - 2023

2023-2028

2023-2038

APPENDIX J – ENGINEERING DRAWINGS PRODUCED BY SPRING DESIGN

walls adjacent root
areas to be
refined in consultation
ricultural Consultant

Ty
Carreg

RICHMOND GARDENS

Richmond Gardens

Moss Place

162.9m

Existing DCWW combined water sewer to be diverted in to proposed carriageway under a S.185 Agreement

Drain

Proposed SuDS Basin
Design to be confirmed following the results of infiltration testing. Basins will either be infiltration type , detention basins with restricted discharge to downstream SuDS network, or a combination of both.

Mine shaft exclusion zones

The Kintyre

Moss Place

Upgraded access to Moss Place and Richmond Gardens

3m wide cyclepath

SUDS Basin

Proposed SuDS Basin
Design to be confirmed following the results of infiltration testing. Basins will either be infiltration type , detention basins with restricted discharge to downstream SuDS network, or a combination of both.

5m contours

Mine shaft exclusion zones

Treated storm water flows to discharge to existing drain/watercourse

Drain

3m wide cyclepath

Storm water flows to discharge to existing drain/watercourse via bioretention treatment areas

Existing DCWW combined water sewer to be diverted in to proposed carriageway under a S.185 Agreement

Drain (Um)

Mine shaft exclusion zones

SUDS Basin

Proposed SuDS Basin
Design to be confirmed following the results of infiltration testing. Basins will either be infiltration type , detention basins with restricted discharge to downstream SuDS network, or a combination of both.

L.A.P.

Amenity Space

Low-lying area to be utilised for bioretention prior to discharge to the Nant y Wenallt watercourse

Assumed route of culverted watercourse (Nant y Wenallt). Exact location to be determined.

158.9m

166.8m

Abernant Road

Richmond Terrace

Abernant Ro

14

Notes:

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4. Permeable paving/asphalt shall be used within domestic driveways and parking areas. Infiltration will be utilised where rates are suitable. Should infiltration rates not be sufficient then attenuation storage can be provided within the tanked, permeable sub-base, with discharge restricted via flow control.
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6. Rain gardens and bioretention areas to be provided where suitable.

N

KEY

- 42.90 — Proposed Ground Level
- 150 / 225 — Masonary Retaining Wall (Height Indicated)
- Exposed Facing Brickwork (Height Indicated)
- 1 in 2.5 max Embankment
- 94.600 — Finished Floor Level
- Steps (No. Indicated)
- Existing Culverted Watercourse (shown indicatively)
- Existing DCWW combined sewer
- Sewer to be diverted and abandoned
- Proposed Foul Water Sewer
- Proposed Storm Water Sewer/Highway Drain/SuDS Sewer
- Proposed Highway Gully and Connection
- Permeable Parking Bays & Driveways
- SuDS Infiltration Basin/Detention Basin
- Arboricultural Root Protection Area

rev	date	description	by
A	May 2023	Site layout updated. Engineering revised to suit; Sketch drainage layout added.	RMJ
B	Aug 2023	Site layout updated to suit Tree Survey. Engineering revised to suit.	RMJ

Status: **SKETCH**

Drawn:	RMJ
Checked:	RMJ
Date:	April 2023
Scale:	1:250

Client:	ASD Build Limited
Project:	Moss Place, Abernant
Title:	Sketch Engineering Layout - 1: 250 - 1 of 4
Ref:	2696-505-1
Rev:	B

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Unit 3 Chapel Barns | Merthyr Mawr
Bridgend | CF32 0LS | 01656 656267
mail@spring-consultancy.co.uk

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KEY

- Proposed Ground Level
- Masonary Retaining Wall (Height Indicated)
- Exposed Facing Brickwork (Height Indicated)
- 1 in 2.5 max Embankment
- Finished Floor Level
- Steps (No. Indicated)
- Existing Culverted Watercourse (shown indicatively)
- Existing DCWW combined sewer
- Sewer to be diverted and abandoned
- Proposed Foul Water Sewer
- Proposed Storm Water Sewer/Highway Drain/SuDS Sewer
- Proposed Highway Gully and Connection
- Permeable Parking Bays & Driveways
- SuDS Infiltration Basin/Detention Basin
- Arboricultural Root Protection Area

Proposed SuDS Basin
Design to be confirmed following the results of infiltration testing. Basins will either be infiltration type detention basins with restricted discharge to downstream SuDS network, or a combination of both.

SUDS Basin

Existing drain diverted into avenue

Diverted Watercourse

5m contours

3m wide cyclepath

Existing Tree canopies to be trimmed back

1 in 3 engineered slope. Alternatively, gravity retaining structures could be considered - subject to Highway Authority approval.

Mine shaft exclusion zones

Adit exclusion zones

L.A.P

Moss Place

Ford

Cartref

rev	date	description	by
A	May 2023	Site layout updated. Engineering revised to suit; Sketch drainage layout added.	RMJ
B	Aug 2023	Site layout updated to suit Tree Survey. Engineering revised to suit.	RMJ

rev	date	description	by
-	-	-	-

Status: **SKETCH**

Drawn:	RMJ
Checked:	RMJ
Date:	April 2023
Scale:	1:250

Client:	ASD Build Limited
Project:	Moss Place, Abernant
Title:	Sketch Engineering Layout - 1: 250 - 2 of 4
Ref:	2696-505-2
Rev:	B

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mail@spring-consultancy.co.uk

Existing trees to cut back/removed as shown in accordance with arboriculturalists recommendations

Existing watercourse to be diverted to swale along proposed carriageway

Diverted Watercourse

Existing trees to cut back/removed as shown in accordance with arboriculturalists recommendations

MP 2.25

Drain

Retaining walls adjacent root protection areas to be reviewed/refined in consultation with Arboricultural Consultant

Retaining walls adjacent root protection areas to be reviewed/refined in consultation with Arboricultural Consultant

Existing trees to cut back/removed as shown in accordance with arboriculturalists recommendations

Track

L.A.P

Possible SuDS Area
If required, and subject to infiltration testing, this amenity space can be utilised for surface or underground SuDS e.g. detention basin, cellular storage etc. with discharge to downstream SuDS restricted by flow control.

L.A.P

3m wide cyclepath

SUDS Basin

Existing drain diverted into avenue

Proposed SuDS Basin
Design to be confirmed following the results of infiltration testing. Basins will either be infiltration type detention basins with restricted discharge to downstream SuDS network, or a combination of both.

Proposed SuDS Basin
Design to be confirmed following the results of infiltration testing. Basins will either be infiltration type detention basins with restricted discharge to downstream SuDS network, or a combination of both.

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6. Rain gardens and bioretention areas to be provided where suitable.

KEY

- 82.90 — Proposed Ground Level
- 92m — Masonary Retaining Wall (Height Indicated)
- 92m — Exposed Facing Brickwork (Height Indicated)
- 1 in 2.5 max Embankment
- 94.600 — Finished Floor Level
- Steps (No. Indicated)
- Existing Culverted Watercourse (shown indicatively)
- Existing DCWW combined sewer
- Sewer to be diverted and abandoned
- Proposed Foul Water Sewer
- Proposed Storm Water Sewer/Highway Drain/SuDS Sewer
- Proposed Highway Gully and Connection
- Permeable Paving Beds & Driveways
- SuDS Infiltration Basin/Detention Basin
- Arboricultural Root Protection Area

rev	date	description	by
A	May 2023	Site layout updated. Engineering revised to suit; Sketch drainage layout added.	RMJ
B	Aug 2023	Site layout updated to suit Tree Survey. Engineering revised to suit.	RMJ

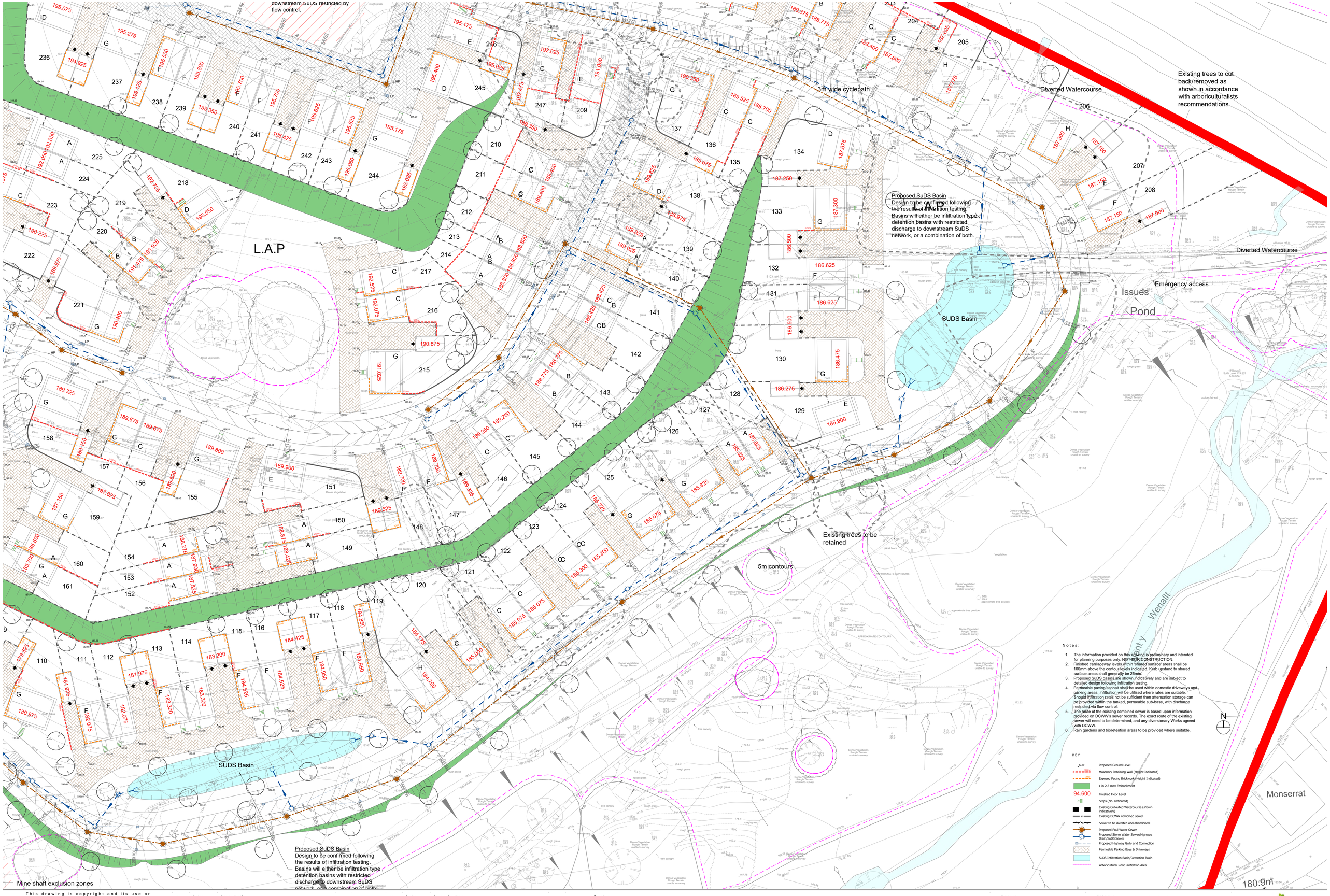
rev	date	description	by
-	-	-	-

Status:

SKETCH

Drawn:	RMJ	Client:	ASD Build Limited
Checked:	RMJ	Project:	Moss Place, Abernant
Date:	April 2023	Title:	Sketch Engineering Layout - 1: 250 - 3 of 4
Scale:	1:250	Ref:	2696-505-3 Rev: B

spring design
Unit 3 Chapel Barns | Merthyr Mawr
Bridgend | CF32 0LS | 01656 656267
mail@spring-consultancy.co.uk



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KEY

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- Masonary Retaining Wall (Height Indicated)
- Exposed Facing Brickwork (Height Indicated)
- 1 in 2.5 max Embankment
- 94.600 — Finished Floor Level
- Steps (No. Indicated)
- Existing Culverted Watercourse (shown indicatively)
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- Permeable Parking Bays & Driveways
- SuDS Infiltration Basin/Detention Basin
- Arboricultural Root Protection Area

rev	date	description	by
A	May 2023	Site layout updated. Engineering revised to suit; Sketch drainage layout added.	RMJ
B	Aug 2023	Site layout updated to suit Tree Survey. Engineering revised to suit.	RMJ

rev	date	description	by
-	-	-	-

Status: **SKETCH**

Drawn:	RMJ
Checked:	RMJ
Date:	April 2023
Scale:	1:250

Client:	ASD Build Limited
Project:	Moss Place, Abernant
Title:	Sketch Engineering Layout - 1:250 - 4 of 4
Ref:	2696-505-4
Rev:	B

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Bridgend | CF32 0LS | 01656 656267
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6. Rain gardens and bioretention areas to be provided where suitable.

KEY

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- Masonary Retaining Wall (Height Indicated)
- Exposed Facing Brickwork (Height Indicated)
- 1 in 2.5 max Embankment
- 94.600 — Finished Floor Level
- Steps (No. Indicated)
- Existing Culverted Watercourse (shown indicatively)
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- Permeable Parking Bays & Driveways
- SuDS Infiltration Basin/Detention Basin
- Arboricultural Root Protection Area

rev	date	description	by
A	May 2023	Site layout updated. Engineering revised to suit; Sketch drainage layout added.	RMJ
B	Aug 2023	Site layout updated to suit Tree Survey. Engineering revised to suit.	RMJ

rev	date	description	by
-	-	-	-

Status: **SKETCH**

Drawn:	RMJ
Checked:	RMJ
Date:	April 2023
Scale:	1:500
Client:	ASD Build Limited
Project:	Moss Place, Abernant
Title:	Sketch Engineering Layout - 1:500 - 1 of 2
Ref:	2696-505-500-1
Rev:	B

spring design
Unit 3 Chapel Barns | Merthyr Mawr
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rev	date	description	by
A	May 2023	Site layout updated. Engineering revised to suit; Sketch drainage layout added.	RMJ
B	Aug 2023	Site layout updated to suit Tree Survey. Engineering revised to suit.	RMJ

rev	date	description	by
-	-	-	-

Status: **SKETCH**

Drawn: RMJ
Checked: RMJ
Date: April 2023
Scale: 1:500

Client: ASD Build Limited
Project: Moss Place, Abernant
Title: Sketch Engineering Layout - 1:500 - 2 of 2
Ref: 2696-505-500-2 Rev: B

spring design
Unit 3 Chapel Barns | Merthyr Mawr
Bridgend | CF32 0LS | 01656 656267
mail@spring-consultancy.co.uk

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RD1

CHAINAGE	0.000, 0.001, 10.000, 20.000, 25.384, 30.000, 40.000, 41.318, 50.000, 55.384, 58.768, 60.000, 70.000, 73.118, 80.000, 90.000, 100.000, 104.699, 110.782, 115.384, 120.000, 128.630, 129.299, 140.000, 150.000, 160.000, 160.510, 170.000, 180.000, 186.731, 190.000, 200.000, 210.000, 220.000, 230.000, 234.730, 240.000, 250.000, 250.532, 260.000, 265.740, 269.911, 270.000, 280.000, 290.000, 300.000, 305.835, 310.000, 320.000, 322.679, 330.000, 340.000, 344.940, 350.000, 360.000, 365.869, 368.884, 370.000, 380.859, 381.283, 390.000, 391.535, 400.000, 405.859, 410.000, 411.742, 420.000, 428.024, 430.000, 435.923, 440.000, 443.751, 450.000, 460.000, 463.029, 470.000, 478.744, 480.000, 490.000, 497.790, 500.000, 500.196, 510.000, 513.363, 520.000, 530.000, 530.377, [illegible]
EXISTING GROUND LEVEL	162.884, 161.043, 158.987, 159.156, 159.902, 161.116, 161.756, 161.778, 161.167, 161.750, 162.353, 163.402, 164.135, 164.466, 165.376, 166.667, 167.690, 168.167, 169.647, 171.078, 172.112, 173.103, 174.028, 175.009, 176.062, 177.126, 178.086, 178.980, 179.868, 180.648, 181.324, 181.958, 182.432, 183.430, 183.874, 184.355, 184.829, 185.366, 185.852, 186.491, 187.249, 187.769, 188.454, 188.960, 189.349, 189.834, 190.239, 190.350, 190.513, 190.882, 191.783
ALIGNMENT LEVEL	162.884, 162.384, 161.884, 161.615, 161.402, 161.062, 160.889, 160.865, 160.883, 161.043, 161.370, 161.863, 162.524, 163.351, 163.865, 164.327, 165.327, 166.327, 167.327, 168.327, 169.327, 170.327, 171.327, 172.327, 173.327, 174.327, 175.327, 176.327, 177.327, 178.327, 179.318, 179.327, 180.254, 181.038, 181.680, 181.988, 182.191, 182.678, 183.165, 183.651, 184.138, 184.625, 185.112, 185.599, 185.640, 186.116, 186.704, 187.083, 187.359, 188.026, 188.693, 189.089, 189.344, 189.829, 190.115, 190.162, 190.249, 190.374, 190.499, 190.597, 190.629, 190.898, 191.368, 192.037, 192.066
VERTICAL ALIGNMENT	G= -5.000% 1: -20.0; KF= 6.0 L= 90.000; G= 10.000% 1: 10.0; L= 35.924 KF= -7.0; G= 4.868% 1: 20.5; KF= 13.86342 L= 25.000; G= 6.671% 1: 15.0; L= 27.107 KF= -5.0; G= 1.250% 1: 80.0; KF= 5.0 L= 32.587
HORIZONTAL ALIGNMENT	R= 149.350; R= 45.650; R= 50.000; R= 50.000; R= 100.000; R= 40.000; R= 40.000; R= 20.000; R= 40.000; R= 75.000; R= 12.750

rev	date	description	by	rev	date	description	by
A	May 2023	Proposed vertical alignment updated.	RMJ	-	-	-	-
B	Aug 2023	RD2 junction chainage revised.	RMJ				

Status:

SKETCH

Drawn:	RMJ	Client:	ASD Build Limited
Checked:	RMJ	Project:	Moss Place, Abernant
Date:	April 2023	Title:	Sketch Road Long. Sections - 1 of 4
Scale:	1:500(H); 1:100(V)	Ref:	2696-600-1 Rev: B

spring design
Unit 3 Chapel Barns | Merthyr Mawr
Bridgend | CF32 0LS | 01656 656267
mail@spring-consultancy.co.uk

Notes:

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RD1

CHAINAGE: 497.790, 500.000, 500.196, 510.000, 513.363, 520.000, 530.000, 530.377, 533.363, 540.000, 550.000, 560.000, 570.000, 572.004, 580.000, 584.350, 590.000, 598.471, 600.000, 610.000, 620.000, 622.004, 630.000, 636.534, 640.000, 642.656, 650.000, 660.000, 663.165, 670.000, 680.000, 688.584, 691.288, 700.000, 710.000, 720.000, 720.545, 730.000, 731.843, 740.000, 750.000, 760.000, 770.000, 771.453, 774.023, 780.000, 790.000, 800.000, 810.000, 818.939, 820.000, 830.000, 840.000, 850.000, 859.933, 860.000, 870.000, 872.063, 880.000, 889.962, 890.000, 900.000, 910.000, 920.000, 930.000, 940.000, 945.610, 946.110, 950.000, 960.000, 970.000, 971.110, 980.000, 981.202, 990.000, 1000.000

EXISTING GROUND LEVEL: 190.350, 190.513, 190.882, 191.783, 192.577, 193.362, 194.124, 194.813, 195.453, 195.888, 196.180, 195.857, 195.151, 194.761, 193.890, 193.327, 192.639, 191.831, 191.419, 190.859, 189.978, 189.052, 188.550, 188.011, 186.509, 186.057, 185.478, 184.954, 185.159, 185.359, 185.369, 185.404, 185.473, 185.313, 185.203, 185.158, 185.094, 184.976, 184.832, 184.652, 184.370, 183.646, 183.550, 183.895, 183.185

ALIGNMENT LEVEL: 190.597, 190.629, 190.898, 191.368, 192.037, 192.066, 192.813, 193.590, 194.367, 195.144, 195.299, 195.826, 196.222, 196.327, 196.324, 196.132, 195.647, 195.514, 194.962, 194.272, 193.581, 192.890, 192.200, 191.509, 190.818, 190.128, 189.437, 188.746, 188.709, 188.105, 187.575, 187.156, 186.849, 186.652, 186.632, 186.526, 186.401, 186.276, 186.151, 186.026, 185.901, 185.776, 185.651, 185.526, 185.401, 185.276, 185.151, 185.026, 184.901, 184.776, 184.651, 184.526, 184.449, 184.394, 184.186, 183.885, 183.846, 183.528, 183.170, 182.812

VERTICAL ALIGNMENT: KF= 5.0 L= 32.587; G= 7.767% 1: 12.9; L= 50.000 KF= -3.40738; G= -6.907% 1: -14.5; KF= 9.0 L= 50.909; G= -1.250% 1: -80.0; L= 25.000 KF= -10.74039

HORIZONTAL ALIGNMENT: R= 12.750; R= 150.000; R= 150.000; R= 25.000; R= 76.000; R= 74.000; R= 428.181; R= 500.999; R= 76.000

rev	date	description	by
A	May 2023	Proposed vertical alignment updated.	RMJ
-	-	-	-

Status: **SKETCH**

Drawn:	RMJ
Checked:	RMJ
Date:	April 2023
Scale:	1:500(H); 1:100(V)
Client:	ASD Build Limited
Project:	Moss Place, Abernant
Title:	Sketch Road Long. Sections - 2 of 4
Ref:	2696-600-2
Rev:	A

spring design
Unit 3 Chapel Barns | Merthyr Mawr
Bridgend | CF32 0LS | 01656 656267
mail@spring-consultancy.co.uk

Notes:

1. The information provided on this drawing is preliminary and intended for planning purposes only. NOT FOR CONSTRUCTION.
2. Finished carriageway levels within 'shared surface' areas shall be 100mm above the contour levels indicated. Kerb upstand to shared surface areas shall generally be 25mm.

RD1

CHAINAGE	EXISTING GROUND LEVEL	ALIGNMENT LEVEL
900.000	185.203	185.026
910.000	185.158	184.901
920.000	185.094	184.776
930.000	184.976	184.651
940.000	184.832	184.526
945.610		184.449
946.110		
950.000	184.652	184.394
960.000	184.370	184.186
970.000	183.646	183.885
971.110		183.846
980.000	183.550	183.528
981.202		
990.000	183.895	183.170
1000.000	183.185	182.812
1010.000	182.742	182.454
1012.242		
1020.000	182.558	182.097
1030.000	183.072	181.739
1040.000	182.156	181.381
1041.433		
1050.000	180.884	181.023
1060.000	180.241	180.666
1070.000	180.057	180.308
1071.605		
1080.000	180.143	179.950
1089.038		
1090.000	180.360	179.592
1098.706		179.281
1100.000	180.085	179.237
1101.911		
1109.439 (LP)		179.089
1110.000	179.206	179.089
1120.000	178.511	179.275
1125.816		
1130.000	178.500	179.793
1139.439		180.589
1140.000	179.261	180.645
1150.000	180.467	181.645
1160.000	181.940	182.645
1163.053		182.950
1163.854		
1170.000	183.669	183.597
1171.871		
1174.993		
1180.000	184.548	184.358
1188.053		184.825
1190.000	185.112	184.923
1192.852		
1196.473		
1200.000	185.360	185.423
		185.575
1205.803	185.426	

VERTICAL ALIGNMENT: L= 25.000 KF= -10.74039; G= -3.578% 1: -28.0; KF= 3.0 L= 40.733; G= 10.000% 1: 10.0; L= 25.000 KF= -5.0; G= 5.000% 1: 20.0

HORIZONTAL ALIGNMENT: R= 428.181; R= 500.999; R= 76.000; R= 31.000; R= 49.000; R= 51.000; R= 50.000; R= 10.750

rev	date	description	by
A	May 2023	Proposed vertical alignment updated.	RMJ
-	-	-	-

Status:

SKETCH

Drawn: RMJ
Checked: RMJ
Date: April 2023
Scale: 1:500(H); 1:100(V)

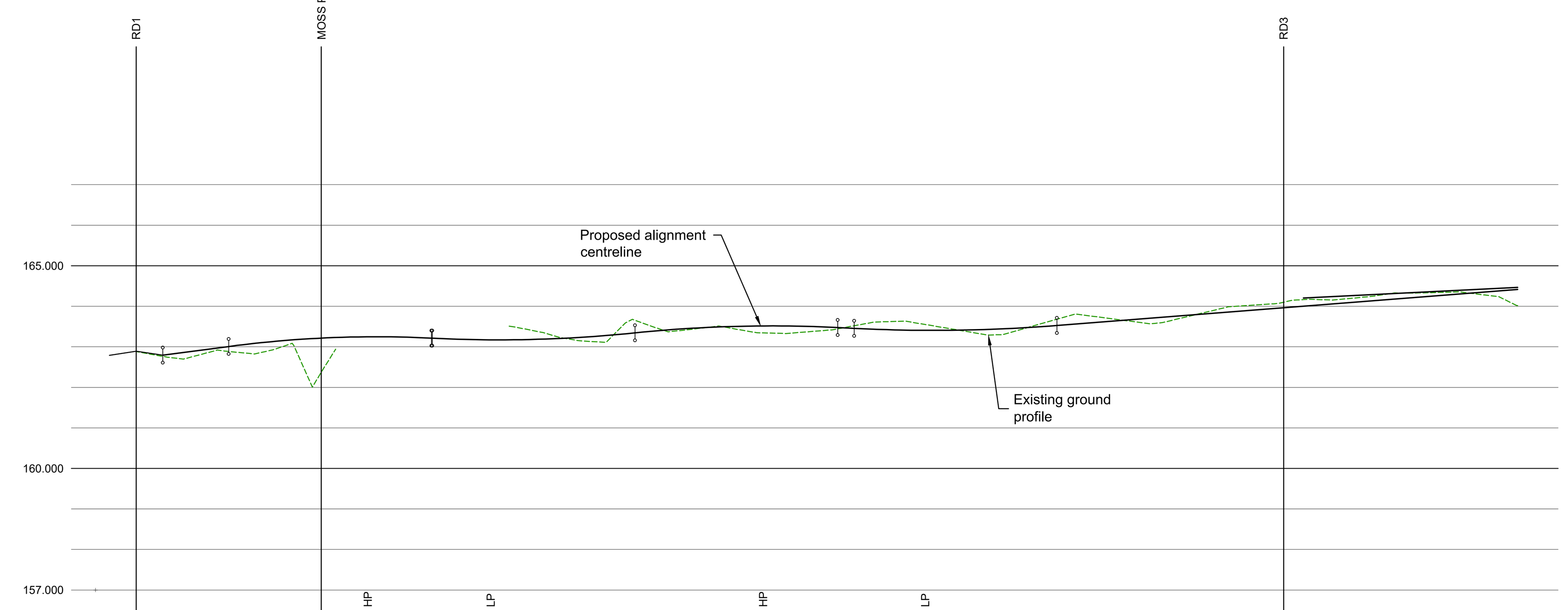
Client: ASD Build Limited
Project: Moss Place, Abernant
Title: Sketch Road Long. Sections - 3 of 4
Ref: 2696-600-3 Rev: A

spring design
Unit 3 Chapel Barns | Merthyr Mawr
Bridgend | CF32 0LS | 01656 656267
mail@spring-consultancy.co.uk

Notes:

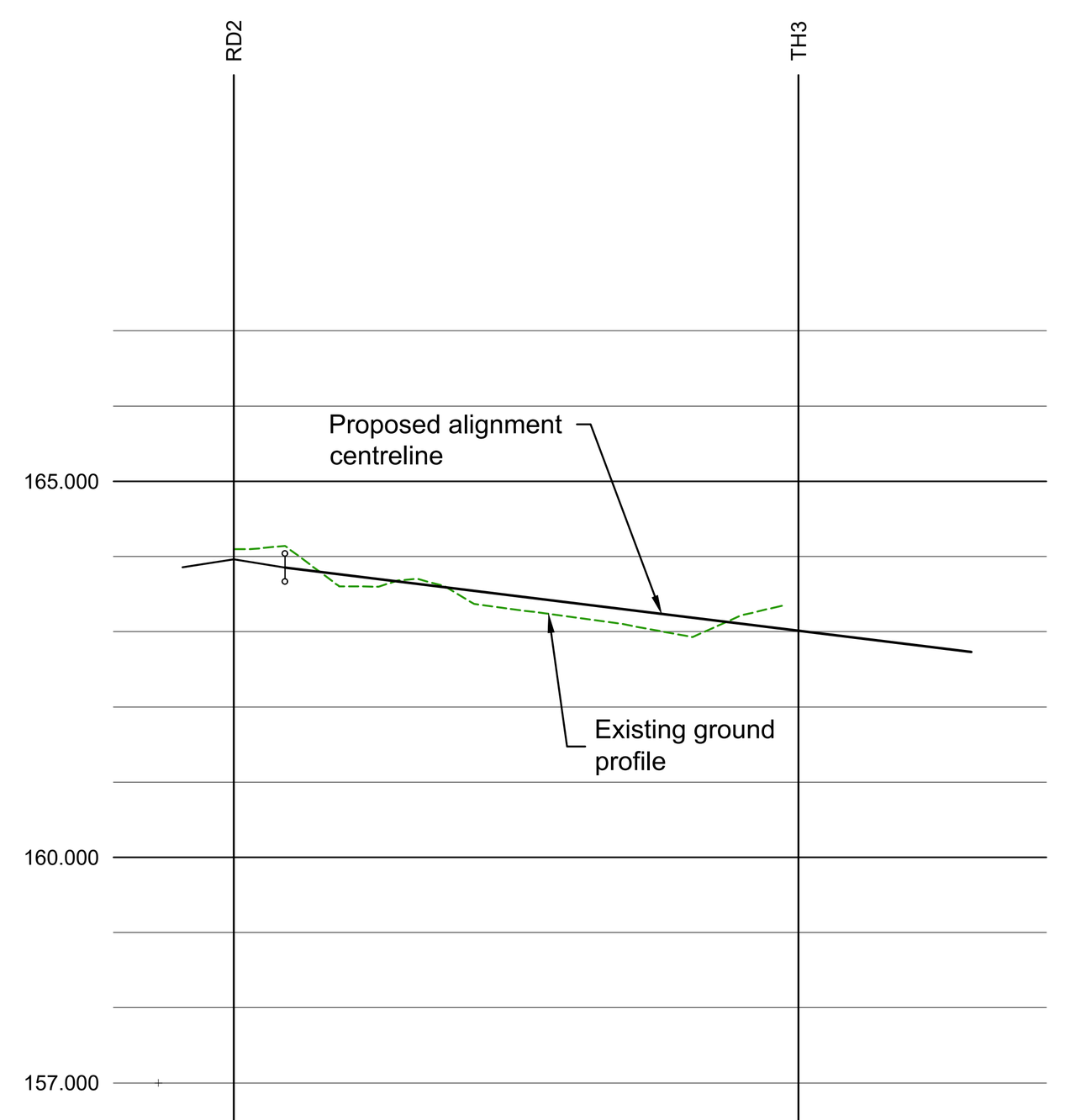
1. The information provided on this drawing is preliminary and intended for planning purposes only. NOT FOR CONSTRUCTION.
2. Finished carriageway levels within 'shared surface' areas shall be 100mm above the contour levels indicated. Kerb upstand to shared surface areas shall generally be 25mm.

RD2



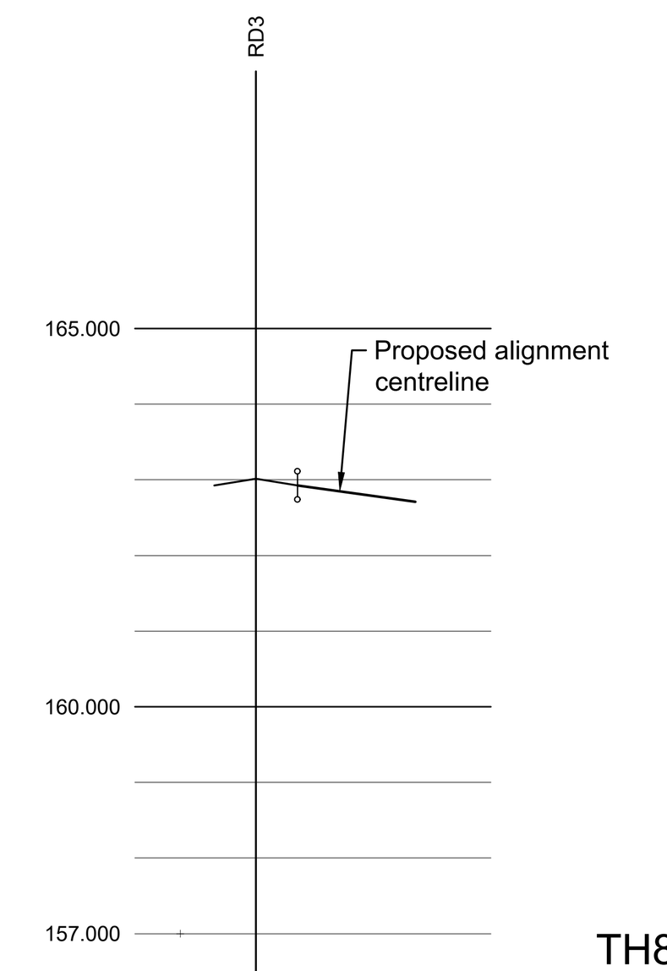
CHAINAGE	0.000 3.299 10.844 11.422 20.000 22.834 29.571 30.000 36.422 36.522 40.000 44.723 50.000 52.865 60.869 61.527 70.000 77.291 78.318 80.000 86.517 88.547 90.000 98.294 100.000 110.000 113.547 120.000 130.000 140.245 141.492 143.928 150.087 150.000 160.000 170.000 170.348
EXISTING GROUND LEVEL	162.884 162.918 162.757 163.365 163.523 163.467 163.329 163.573 163.459 163.479 163.700 163.762 164.057 164.200 164.338 164.041 164.015
ALIGNMENT LEVEL	162.792 162.970 163.007 163.181 163.248 163.248 163.214 163.213 163.185 163.172 163.189 163.314 163.344 163.474 163.516 163.514 163.475 163.454 163.441 163.406 163.407 163.476 163.525 163.626 163.783 163.939 164.096 164.252 164.409 164.414
VERTICAL ALIGNMENT	G= 2.650% 1: 37.7 | L= 25.000 KF= -6.85015 | G= -1.000% 1: -100.0 | KF= 8.20188 L= 25.000 | L= 24.990 KF= -8.19860 | G= -1.000% 1: -100.0 | KF= 9.74633 L= 25.000 | G= 1.565% 1: 63.9
HORIZONTAL ALIGNMENT	R= 40.650 | R= 50.000 | R= 30.000 | R= 150.000

RD3



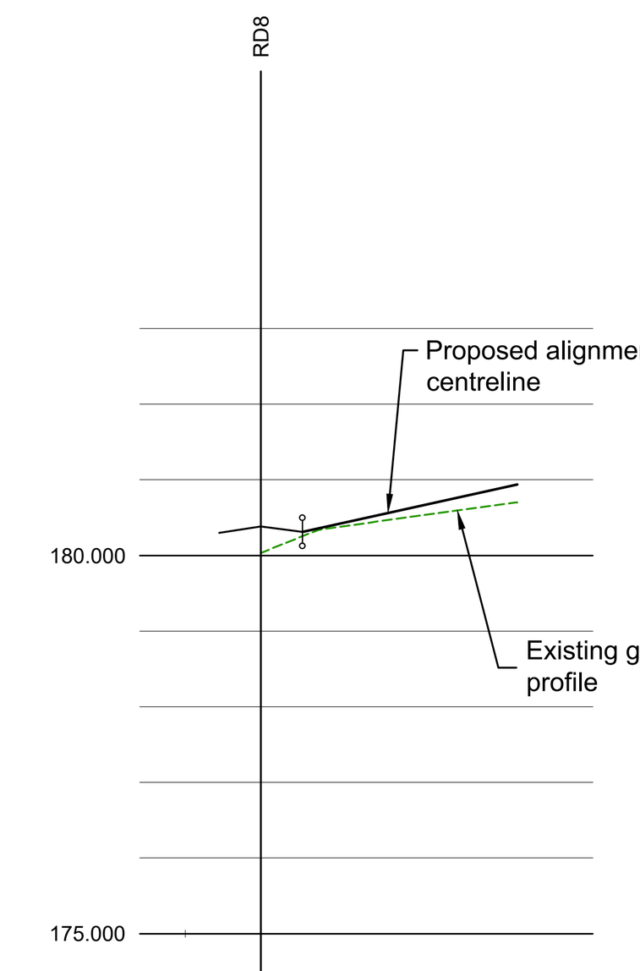
CHAINAGE	0.000 3.411 10.000 20.000 30.000 37.562 40.000 49.046
EXISTING GROUND LEVEL	164.100 163.622 163.261 162.948
ALIGNMENT LEVEL	163.852 163.690 163.444 163.198 162.953 162.730
VERTICAL ALIGNMENT	G= -2.458% 1: -40.7
HORIZONTAL ALIGNMENT	

TH3



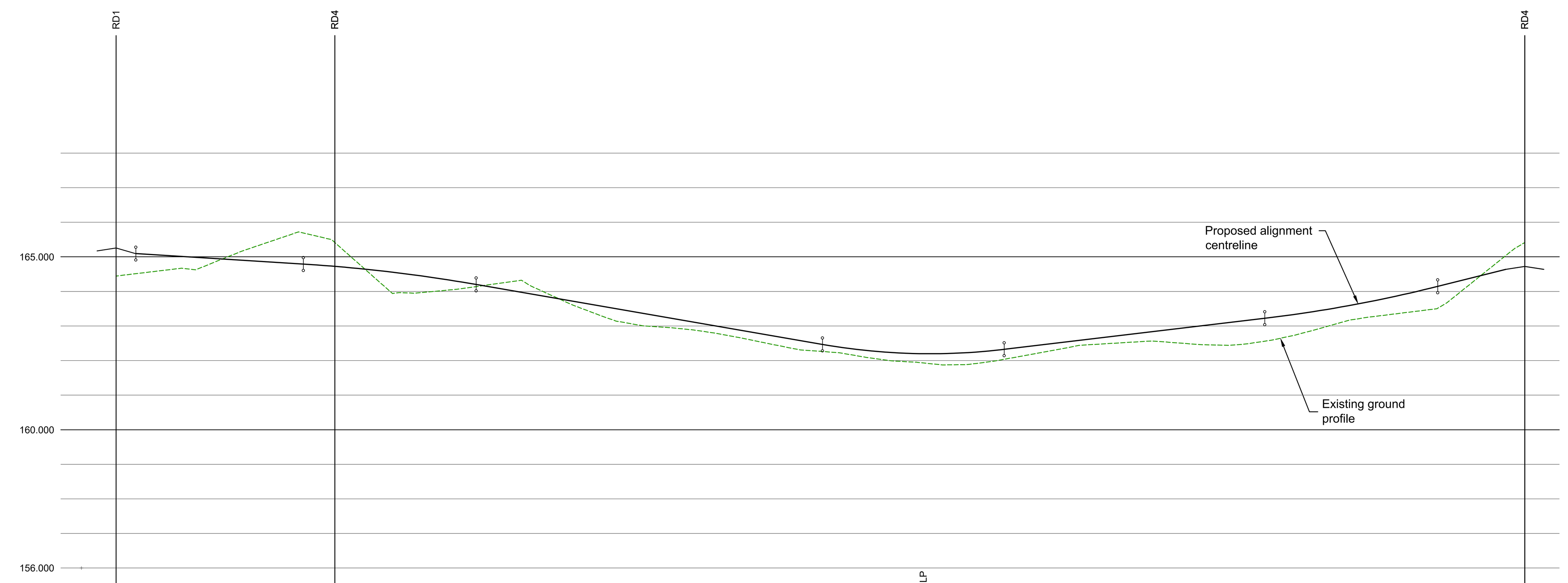
CHAINAGE	0.000 2.750 10.000 10.550
EXISTING GROUND LEVEL	
ALIGNMENT LEVEL	162.927 162.724 162.708
VERTICAL ALIGNMENT	G= -2.800% 1: -35.7
HORIZONTAL ALIGNMENT	

TH8



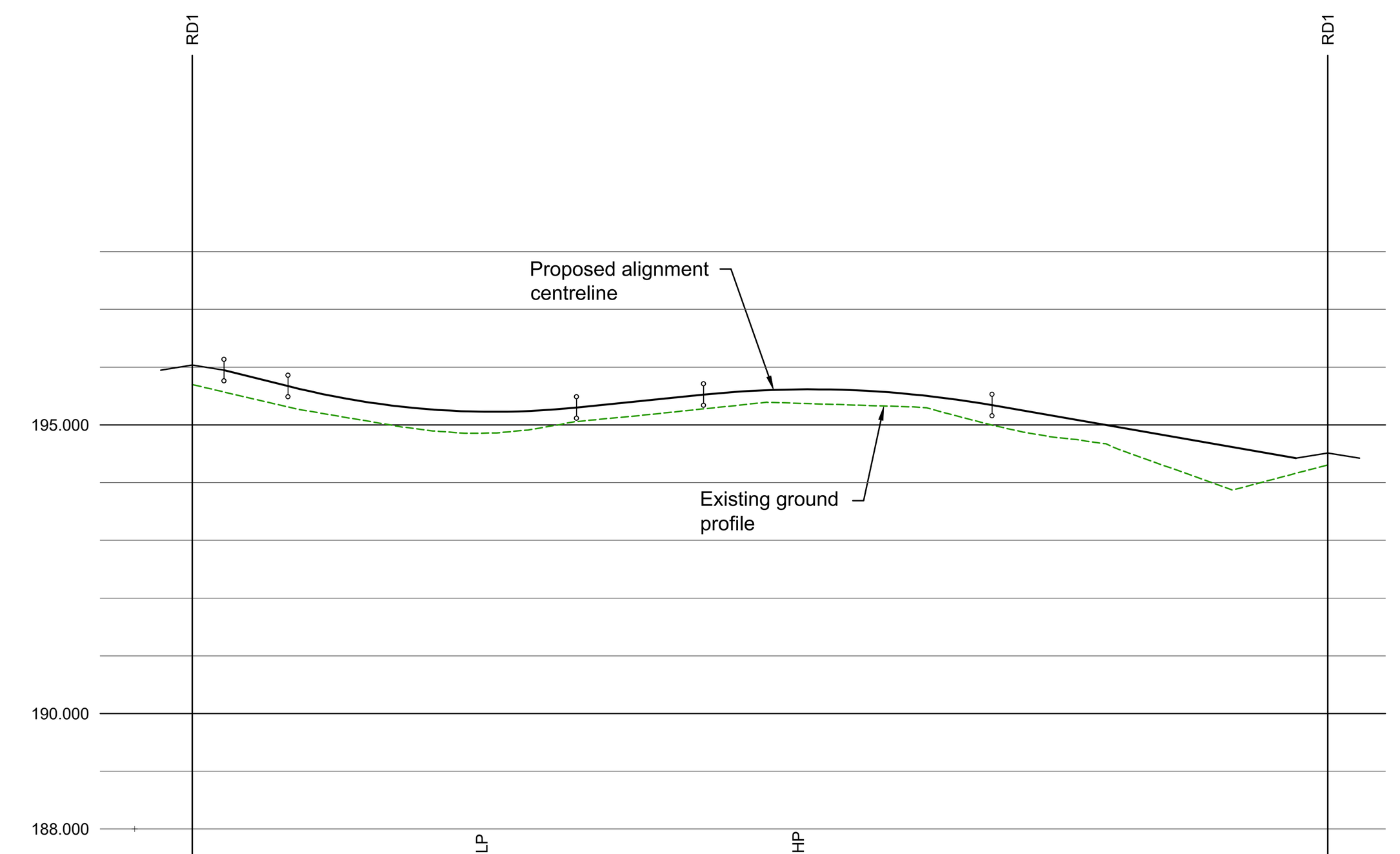
CHAINAGE	0.000 2.753 10.000 16.947
EXISTING GROUND LEVEL	180.034 180.511 180.699
ALIGNMENT LEVEL	180.310 180.631 180.939
VERTICAL ALIGNMENT	G= 4.436% 1: 22.5
HORIZONTAL ALIGNMENT	

RD4



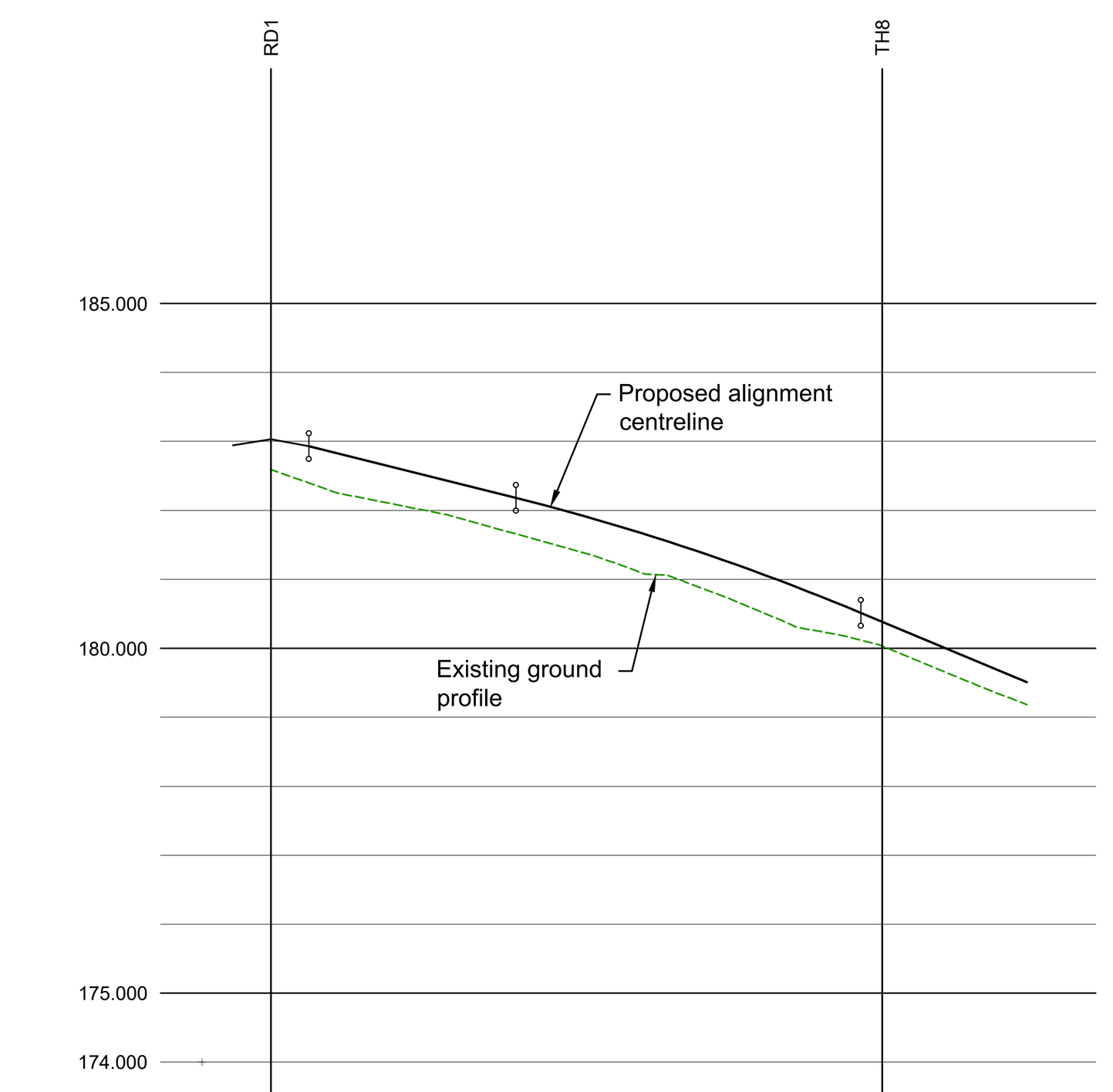
CHAINAGE	0.000 2.859 10.000 20.000 27.091 30.000 31.648 40.000 50.000 52.091 60.000 70.000 80.000 80.175 90.000 97.061 100.000 102.202 108.561 110.000 117.774 120.000 126.872 128.490 130.000 140.000 150.000 160.000 163.741 166.189 170.000 180.000 180.628 190.000 191.189 200.000 203.784
EXISTING GROUND LEVEL	164.445 164.658 165.287 165.553 163.938 164.082 164.157 163.307 162.954 162.671 162.294 162.045 161.871 162.093 162.449 162.564 162.445 162.710 163.219 163.474 164.870 165.414
ALIGNMENT LEVEL	165.093 165.004 164.879 164.790 164.750 164.555 164.272 164.201 163.928 163.581 163.235 162.889 162.543 162.467 162.265 162.198 162.203 162.325 162.361 162.599 162.837 163.076 163.223 163.321 163.652 164.087 164.146 164.586 164.638
VERTICAL ALIGNMENT	G= -1.250% 1: -80.0 | L= 25.000 KF= -11.310 | G= -3.460% 1: -28.9 | KF= 4.50 L= 26.287 | G= 2.381% 1: 42.0 | KF= 9.54641 L= 25.000 | G= 5.000% 1: 20.0
HORIZONTAL ALIGNMENT	R= 10.750 | R= 11.657 | R= 10.750

RD7



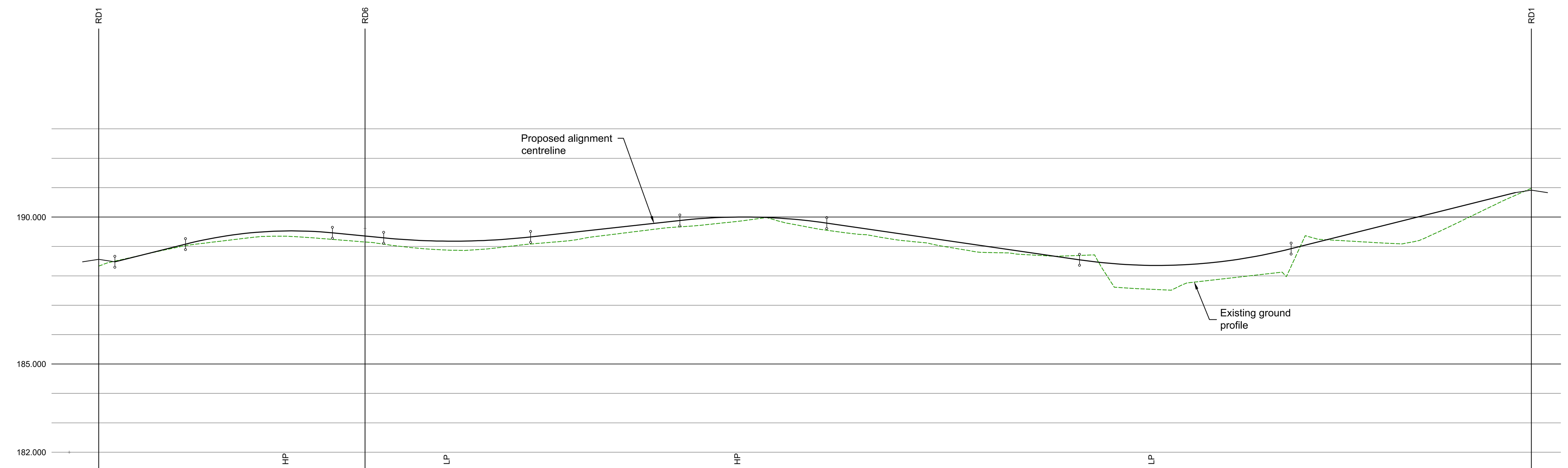
CHAINAGE	0.000 2.750 8.279 10.000 18.081 20.000 26.076 30.000 31.844 33.279 40.000 44.280 50.000 53.479 60.000 66.528 69.280 70.000 80.000 80.253 90.000 98.371
EXISTING GROUND LEVEL	195.698 195.241 194.911 194.939 195.188 195.390 195.327 194.962 194.595 193.879 194.307
ALIGNMENT LEVEL	195.948 195.672 195.590 195.279 195.227 195.249 195.300 195.436 195.523 195.602 195.616 195.569 195.341 195.316 194.968 194.621 194.425
VERTICAL ALIGNMENT	G= -5.000% 1: -20.0 | KF= 3.55930 L= 25.000 | G= 2.024% 1: 49.4 | L= 25.000 KF= -4.54527 | G= -3.476% 1: -28.8
HORIZONTAL ALIGNMENT	R= 8.750 | R= 8.750

RD8



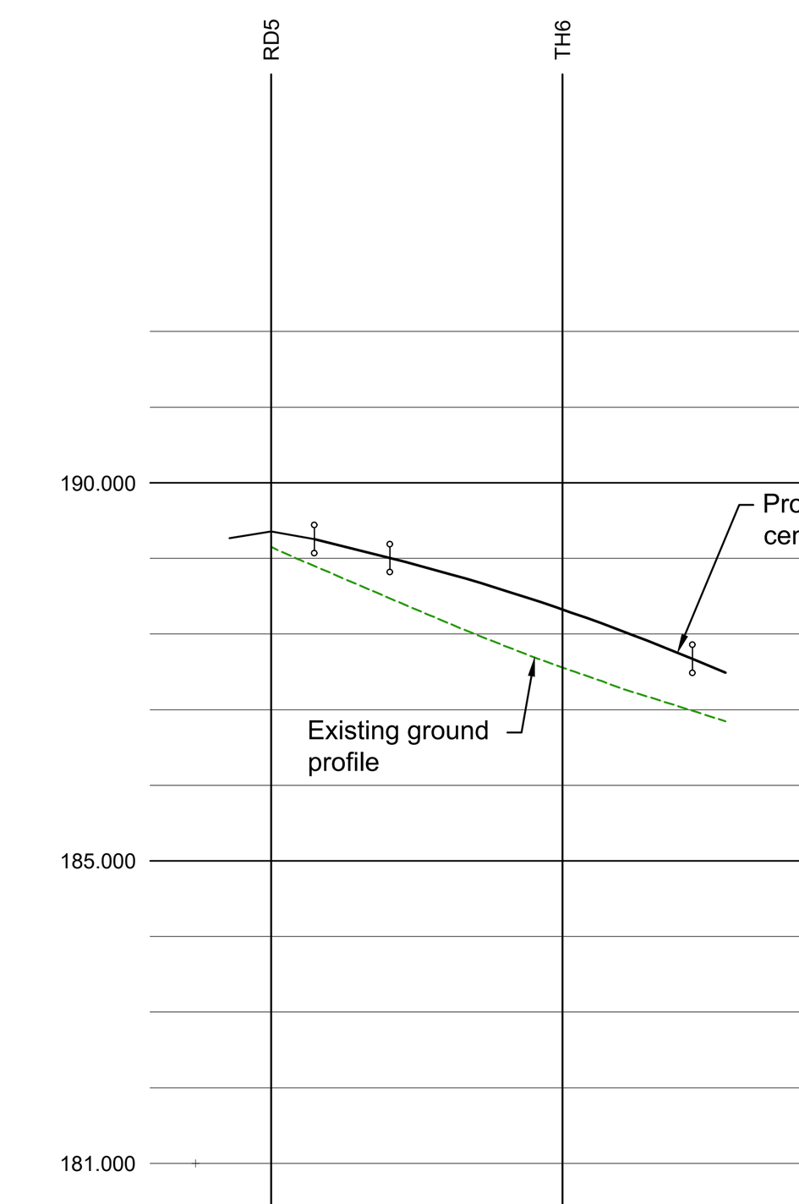
CHAINAGE	0.000 2.754 10.000 17.754 20.000 25.249 30.000 40.000 42.754 44.293 44.989 50.000 54.776
EXISTING GROUND LEVEL	182.593 182.046 181.533 180.967 180.240 179.562 179.183
ALIGNMENT LEVEL	182.930 182.568 182.180 182.064 181.468 180.738 180.513 179.909 179.511
VERTICAL ALIGNMENT	G= -5.000% 1: -20.0 | L= 25.000 KF= -7.50 | G= -8.333% 1: -12.0
HORIZONTAL ALIGNMENT	R= 50.000

RD5



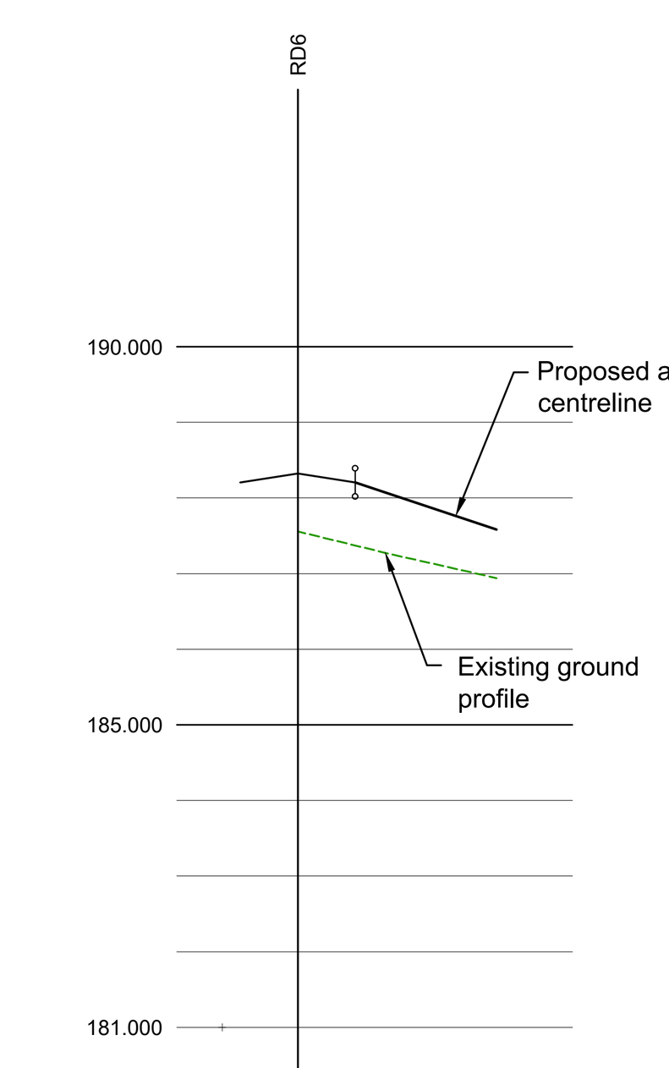
CHAINAGE	0.000 2.750 10.000 14.783 20.000 25.200 30.000 32.796 36.154 39.783 40.000 45.330 47.087 48.494 50.000 60.000 60.217 62.511 70.000 73.494 80.000 90.000 98.887 100.000 102.343 109.656 110.000 120.000 123.887 130.000 140.000 150.000 160.000 166.898 170.000 176.438 180.000 180.119 190.000 200.000 202.898 210.000 219.034 220.000 230.000 230.770 240.000 243.777
EXISTING GROUND LEVEL	188.331 188.828 189.161 189.349 189.236 189.034 188.871 189.005 189.195 189.472 189.681 189.883 189.676 189.401 189.126 188.798 188.681 188.510 187.536 187.867 188.096 189.215 189.100 189.688 190.647 190.980
ALIGNMENT LEVEL	188.478 188.840 189.079 189.302 189.519 189.529 189.462 189.458 189.293 189.265 189.179 189.179 189.258 189.325 189.468 189.687 189.883 189.906 190.001 190.001 189.892 189.794 189.617 189.327 189.037 188.746 188.546 188.467 188.354 188.354 188.461 188.788 188.924 189.279 189.779 190.279 190.779 190.830
VERTICAL ALIGNMENT	G= 5.000% 1: 20.0 | L= 25.000 KF= -3.60264 | G= -1.939% 1: -51.6 | KF= 6.04496 L= 25.000 | G= 2.196% 1: 45.5 | L= 25.000 KF= -4.90330 | G= -2.902% 1: -34.5 | KF= 4.55564 L= 36.000 | G= 5.000% 1: 20.0
HORIZONTAL ALIGNMENT	R= 50.000 | R= 50.000 | R= 50.000 | R= 50.000

RD6



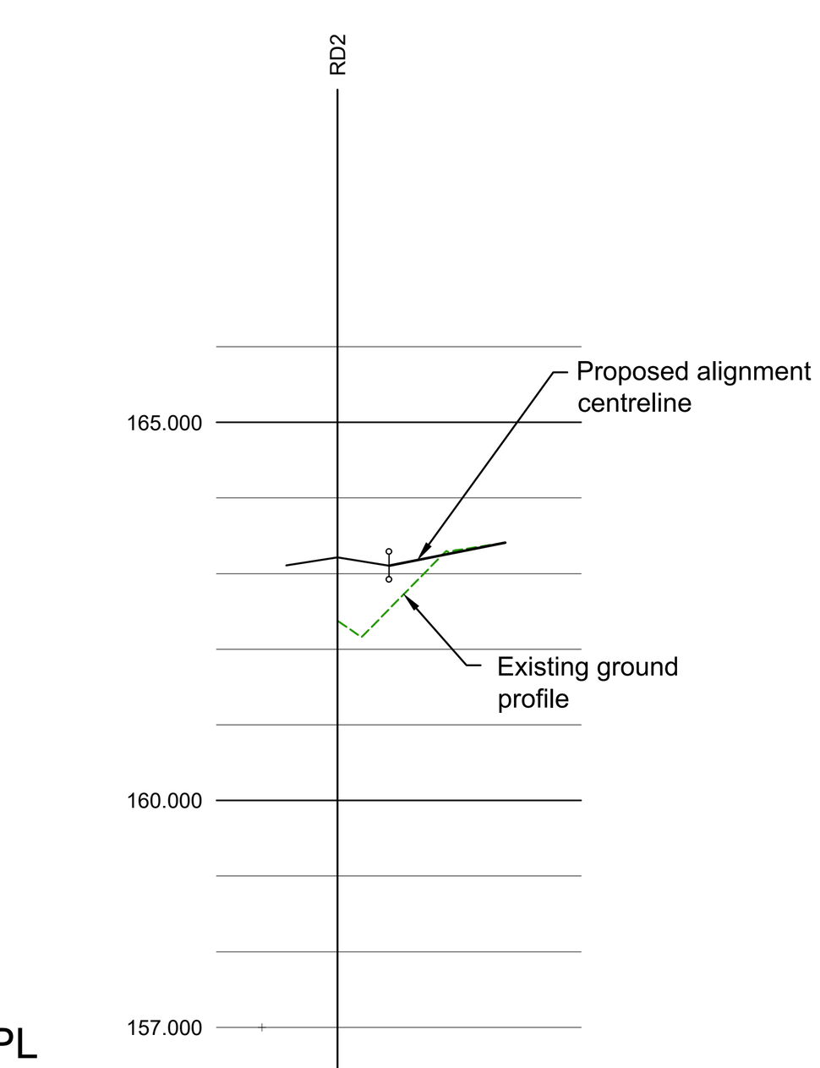
CHAINAGE	0.000 2.863 7.863 8.079 10.000 19.262 20.059 27.863 30.000 30.036
EXISTING GROUND LEVEL	189.151 188.288 187.504 186.849 186.847
ALIGNMENT LEVEL	189.253 189.003 188.892 188.273 187.669 187.491 187.488
VERTICAL ALIGNMENT	G= -5.000% 1: -20.0 | L= 20.000 KF= -6.0 | G= -8.333% 1: -12.0
HORIZONTAL ALIGNMENT	R= 20.000

TH6



CHAINAGE	0.000 3.800 10.000 13.135
EXISTING GROUND LEVEL	187.556 187.082 186.940
ALIGNMENT LEVEL	188.206 187.793 187.584
VERTICAL ALIGNMENT	G= -6.667% 1: -15.0
HORIZONTAL ALIGNMENT	

MOSS PL



CHAINAGE	0.000 3.408 10.000 11.094
EXISTING GROUND LEVEL	162.376 163.375 163.408
ALIGNMENT LEVEL	163.106 163.365 163.408
VERTICAL ALIGNMENT	G= 3.932% 1: 25.4
HORIZONTAL ALIGNMENT	

rev	date	description	by
A	May 2023	Proposed vertical alignments RD4, RD5 & RD7 updated.	RMJ
B	Aug 2023	Alignments RD2, RD3, RD6, RD & TH6 revised; TH3 & MOSS PL added.	RMJ

rev	date	description	by
-	-	-	-

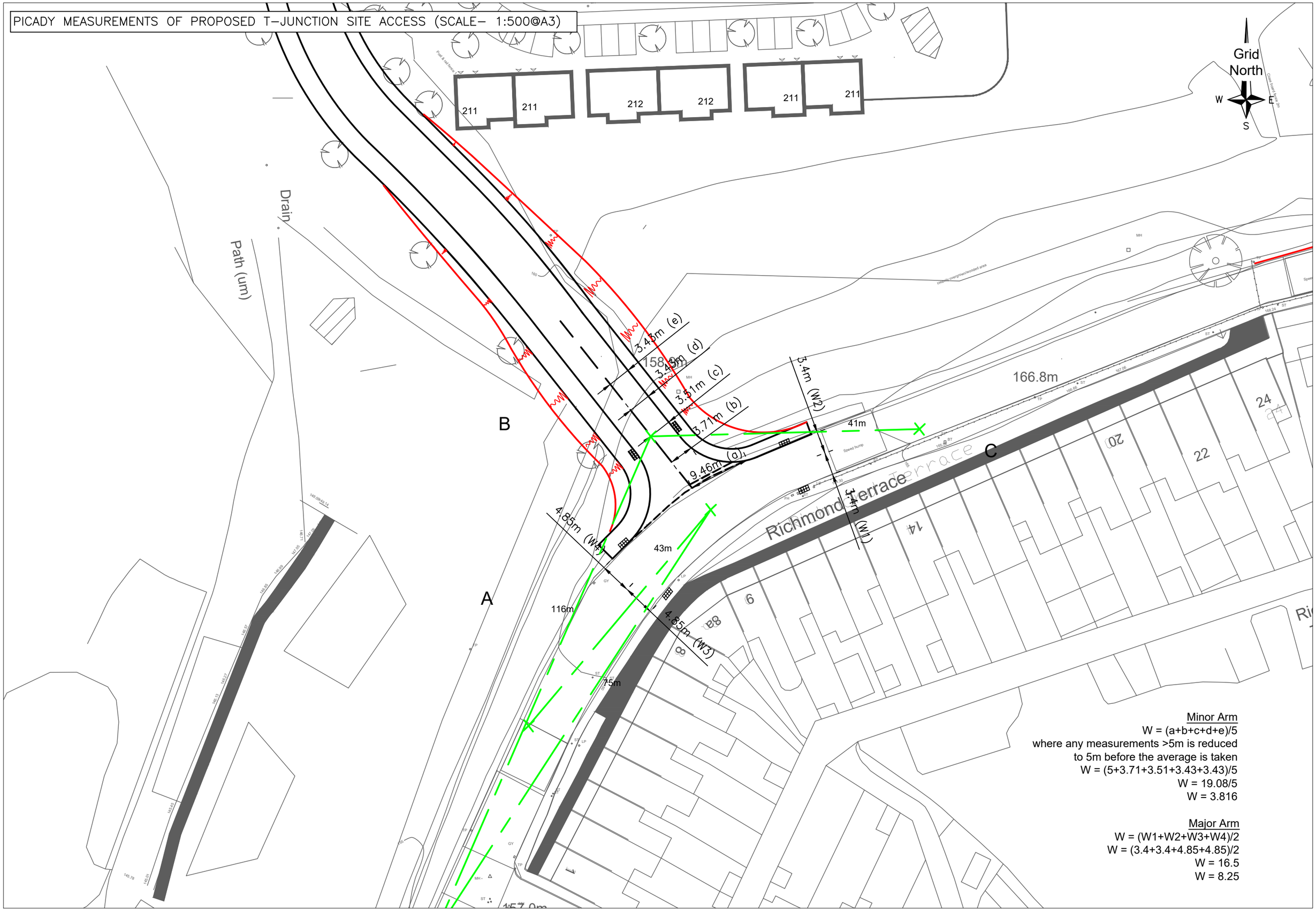
Status: **SKETCH**

Drawn:	RMJ	Client:	ASD Build Limited
Checked:	RMJ	Project:	Moss Place, Abernant
Date:	April 2023	Title:	Sketch Road Long. Sections - 4 of 4
Scale:	1:500(H); 1:100(V)	Ref:	2696-600-4 Rev: B

spring design
Unit 3 Chapel Barns | Merthyr Mawr
Bridgend | CF32 0LS | 01656 656267
mail@spring-consultancy.co.uk

APPENDIX K – PICADY OUTPUT DATA (SITE ACCESS/JUNCTION 1)

PICADY MEASUREMENTS OF PROPOSED T-JUNCTION SITE ACCESS (SCALE- 1:500@A3)



Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Access Junction 223.j9
Path: Z:\2020 Projects\F20029 Land at Abernant Road\Capacity Analysis\August 2023\Access Junction
Report generation date: 07/08/2023 16:45:22

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023							
Stream B-AC	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2028 Opening Year							
Stream B-AC	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2028 Opening Year + Dev							
Stream B-AC	0.3	8.71	0.21	A	0.1	8.16	0.11	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2038 Future Year							
Stream B-AC	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2038 Future Year + Dev							
Stream B-AC	0.3	8.81	0.21	A	0.1	8.27	0.11	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A

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	24/10/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	BANCROFT\wmorgan
Description	

Units

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

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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)
D1	2023	AM	ONE HOUR	08:00	09:30	15
D2	2023	PM	ONE HOUR	17:00	18:30	15
D3	2028 Opening Year	AM	ONE HOUR	08:00	09:30	15
D4	2028 Opening Year	PM	ONE HOUR	17:00	18:30	15
D5	2028 Opening Year + Dev	AM	ONE HOUR	08:00	09:30	15
D6	2028 Opening Year + Dev	PM	ONE HOUR	17:00	18:30	15
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15
D9	2038 Future Year + Dev	AM	ONE HOUR	08:00	09:30	15
D10	2038 Future Year + Dev	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Abernant Road (W)		Major
B	Access		Minor
C	Abernant Road (E)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Abernant Road (E)	8.25			75.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Access	One lane	3.82	41	116

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	593	0.097	0.246	0.155	0.352
1	B-C	754	0.104	0.264	-	-
1	C-B	617	0.216	0.216	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2023	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abernant Road (W)		✓	104	100.000
B - Access		✓	0	100.000
C - Abernant Road (E)		✓	185	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	104
	B - Access	0	0	0
	C - Abernant Road (E)	185	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	0
	B - Access	0	0	0
	C - Abernant Road (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.00	0.00	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	630	0.000	0	0.0	0.000	A
C-AB	0	601	0.000	0	0.0	0.000	A
C-A	139			139			
A-B	0			0			
A-C	78			78			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	623	0.000	0	0.0	0.000	A
C-AB	0	597	0.000	0	0.0	0.000	A
C-A	166			166			
A-B	0			0			
A-C	93			93			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	614	0.000	0	0.0	0.000	A
C-AB	0	593	0.000	0	0.0	0.000	A
C-A	204			204			
A-B	0			0			
A-C	115			115			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	614	0.000	0	0.0	0.000	A
C-AB	0	593	0.000	0	0.0	0.000	A
C-A	204			204			
A-B	0			0			
A-C	115			115			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	623	0.000	0	0.0	0.000	A
C-AB	0	597	0.000	0	0.0	0.000	A
C-A	166			166			
A-B	0			0			
A-C	93			93			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	630	0.000	0	0.0	0.000	A
C-AB	0	601	0.000	0	0.0	0.000	A
C-A	139			139			
A-B	0			0			
A-C	78			78			

2023, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	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)
D2	2023	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abernant Road (W)		✓	213	100.000
B - Access		✓	0	100.000
C - Abernant Road (E)		✓	134	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	213
	B - Access	0	0	0
	C - Abernant Road (E)	134	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	0
	B - Access	0	0	0
	C - Abernant Road (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.00	0.00	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	613	0.000	0	0.0	0.000	A
C-AB	0	583	0.000	0	0.0	0.000	A
C-A	101			101			
A-B	0			0			
A-C	160			160			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	603	0.000	0	0.0	0.000	A
C-AB	0	576	0.000	0	0.0	0.000	A
C-A	120			120			
A-B	0			0			
A-C	191			191			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	589	0.000	0	0.0	0.000	A
C-AB	0	567	0.000	0	0.0	0.000	A
C-A	148			148			
A-B	0			0			
A-C	235			235			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	589	0.000	0	0.0	0.000	A
C-AB	0	567	0.000	0	0.0	0.000	A
C-A	148			148			
A-B	0			0			
A-C	235			235			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	603	0.000	0	0.0	0.000	A
C-AB	0	576	0.000	0	0.0	0.000	A
C-A	120			120			
A-B	0			0			
A-C	191			191			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	613	0.000	0	0.0	0.000	A
C-AB	0	583	0.000	0	0.0	0.000	A
C-A	101			101			
A-B	0			0			
A-C	160			160			

2028 Opening Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	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)
D3	2028 Opening Year	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abernant Road (W)		✓	135	100.000
B - Access		✓	0	100.000
C - Abernant Road (E)		✓	199	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	135
	B - Access	0	0	0
	C - Abernant Road (E)	199	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	0
	B - Access	0	0	0
	C - Abernant Road (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.00	0.00	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	623	0.000	0	0.0	0.000	A
C-AB	0	595	0.000	0	0.0	0.000	A
C-A	150			150			
A-B	0			0			
A-C	102			102			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	615	0.000	0	0.0	0.000	A
C-AB	0	591	0.000	0	0.0	0.000	A
C-A	179			179			
A-B	0			0			
A-C	121			121			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	604	0.000	0	0.0	0.000	A
C-AB	0	585	0.000	0	0.0	0.000	A
C-A	219			219			
A-B	0			0			
A-C	149			149			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	604	0.000	0	0.0	0.000	A
C-AB	0	585	0.000	0	0.0	0.000	A
C-A	219			219			
A-B	0			0			
A-C	149			149			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	615	0.000	0	0.0	0.000	A
C-AB	0	591	0.000	0	0.0	0.000	A
C-A	179			179			
A-B	0			0			
A-C	121			121			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	623	0.000	0	0.0	0.000	A
C-AB	0	595	0.000	0	0.0	0.000	A
C-A	150			150			
A-B	0			0			
A-C	102			102			

2028 Opening Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	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)
D4	2028 Opening Year	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abernant Road (W)		✓	226	100.000
B - Access		✓	0	100.000
C - Abernant Road (E)		✓	149	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	226
	B - Access	0	0	0
	C - Abernant Road (E)	149	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	0
	B - Access	0	0	0
	C - Abernant Road (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.00	0.00	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	609	0.000	0	0.0	0.000	A
C-AB	0	581	0.000	0	0.0	0.000	A
C-A	112			112			
A-B	0			0			
A-C	170			170			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	598	0.000	0	0.0	0.000	A
C-AB	0	574	0.000	0	0.0	0.000	A
C-A	134			134			
A-B	0			0			
A-C	203			203			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	583	0.000	0	0.0	0.000	A
C-AB	0	564	0.000	0	0.0	0.000	A
C-A	164			164			
A-B	0			0			
A-C	249			249			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	583	0.000	0	0.0	0.000	A
C-AB	0	564	0.000	0	0.0	0.000	A
C-A	164			164			
A-B	0			0			
A-C	249			249			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	598	0.000	0	0.0	0.000	A
C-AB	0	574	0.000	0	0.0	0.000	A
C-A	134			134			
A-B	0			0			
A-C	203			203			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	609	0.000	0	0.0	0.000	A
C-AB	0	581	0.000	0	0.0	0.000	A
C-A	112			112			
A-B	0			0			
A-C	170			170			

2028 Opening Year + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.86	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)
D5	2028 Opening Year + Dev	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abernant Road (W)		✓	158	100.000
B - Access		✓	97	100.000
C - Abernant Road (E)		✓	199	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	23	135
	B - Access	97	0	0
	C - Abernant Road (E)	199	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	0
	B - Access	0	0	0
	C - Abernant Road (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.21	8.71	0.3	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	73	543	0.134	72	0.2	7.639	A
C-AB	0	592	0.000	0	0.0	0.000	A
C-A	150			150			
A-B	17			17			
A-C	102			102			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	533	0.163	87	0.2	8.063	A
C-AB	0	587	0.000	0	0.0	0.000	A
C-A	179			179			
A-B	21			21			
A-C	121			121			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	107	520	0.205	107	0.3	8.702	A
C-AB	0	580	0.000	0	0.0	0.000	A
C-A	219			219			
A-B	25			25			
A-C	149			149			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	107	520	0.205	107	0.3	8.712	A
C-AB	0	580	0.000	0	0.0	0.000	A
C-A	219			219			
A-B	25			25			
A-C	149			149			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	533	0.163	87	0.2	8.078	A
C-AB	0	587	0.000	0	0.0	0.000	A
C-A	179			179			
A-B	21			21			
A-C	121			121			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	73	543	0.134	73	0.2	7.666	A
C-AB	0	592	0.000	0	0.0	0.000	A
C-A	150			150			
A-B	17			17			
A-C	102			102			

2028 Opening Year + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.78	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)
D6	2028 Opening Year + Dev	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abernant Road (W)		✓	321	100.000
B - Access		✓	50	100.000
C - Abernant Road (E)		✓	149	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	95	226
	B - Access	50	0	0
	C - Abernant Road (E)	149	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	0
	B - Access	0	0	0
	C - Abernant Road (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.11	8.16	0.1	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	38	527	0.071	37	0.1	7.350	A
C-AB	0	565	0.000	0	0.0	0.000	A
C-A	112			112			
A-B	72			72			
A-C	170			170			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	45	514	0.087	45	0.1	7.675	A
C-AB	0	555	0.000	0	0.0	0.000	A
C-A	134			134			
A-B	85			85			
A-C	203			203			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	496	0.111	55	0.1	8.158	A
C-AB	0	541	0.000	0	0.0	0.000	A
C-A	164			164			
A-B	105			105			
A-C	249			249			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	496	0.111	55	0.1	8.161	A
C-AB	0	541	0.000	0	0.0	0.000	A
C-A	164			164			
A-B	105			105			
A-C	249			249			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	45	514	0.087	45	0.1	7.681	A
C-AB	0	555	0.000	0	0.0	0.000	A
C-A	134			134			
A-B	85			85			
A-C	203			203			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	38	527	0.071	38	0.1	7.361	A
C-AB	0	565	0.000	0	0.0	0.000	A
C-A	112			112			
A-B	72			72			
A-C	170			170			

2038 Future Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	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)
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abernant Road (W)		✓	143	100.000
B - Access		✓	0	100.000
C - Abernant Road (E)		✓	213	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	143
	B - Access	0	0	0
	C - Abernant Road (E)	213	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	0
	B - Access	0	0	0
	C - Abernant Road (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.00	0.00	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	594	0.000	0	0.0	0.000	A
C-A	160			160			
A-B	0			0			
A-C	108			108			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	612	0.000	0	0.0	0.000	A
C-AB	0	590	0.000	0	0.0	0.000	A
C-A	191			191			
A-B	0			0			
A-C	129			129			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	600	0.000	0	0.0	0.000	A
C-AB	0	583	0.000	0	0.0	0.000	A
C-A	235			235			
A-B	0			0			
A-C	157			157			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	600	0.000	0	0.0	0.000	A
C-AB	0	583	0.000	0	0.0	0.000	A
C-A	235			235			
A-B	0			0			
A-C	157			157			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	612	0.000	0	0.0	0.000	A
C-AB	0	590	0.000	0	0.0	0.000	A
C-A	191			191			
A-B	0			0			
A-C	129			129			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	594	0.000	0	0.0	0.000	A
C-A	160			160			
A-B	0			0			
A-C	108			108			

2038 Future Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	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)
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abernant Road (W)		✓	242	100.000
B - Access		✓	0	100.000
C - Abernant Road (E)		✓	159	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	242
	B - Access	0	0	0
	C - Abernant Road (E)	159	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	0
	B - Access	0	0	0
	C - Abernant Road (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.00	0.00	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	605	0.000	0	0.0	0.000	A
C-AB	0	578	0.000	0	0.0	0.000	A
C-A	120			120			
A-B	0			0			
A-C	182			182			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	594	0.000	0	0.0	0.000	A
C-AB	0	570	0.000	0	0.0	0.000	A
C-A	143			143			
A-B	0			0			
A-C	218			218			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	578	0.000	0	0.0	0.000	A
C-AB	0	560	0.000	0	0.0	0.000	A
C-A	175			175			
A-B	0			0			
A-C	266			266			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	578	0.000	0	0.0	0.000	A
C-AB	0	560	0.000	0	0.0	0.000	A
C-A	175			175			
A-B	0			0			
A-C	266			266			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	594	0.000	0	0.0	0.000	A
C-AB	0	570	0.000	0	0.0	0.000	A
C-A	143			143			
A-B	0			0			
A-C	218			218			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	605	0.000	0	0.0	0.000	A
C-AB	0	578	0.000	0	0.0	0.000	A
C-A	120			120			
A-B	0			0			
A-C	182			182			

2038 Future Year + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.80	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)
D9	2038 Future Year + Dev	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abernant Road (W)		✓	166	100.000
B - Access		✓	97	100.000
C - Abernant Road (E)		✓	213	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	23	143
	B - Access	97	0	0
	C - Abernant Road (E)	213	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	0
	B - Access	0	0	0
	C - Abernant Road (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.21	8.81	0.3	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	73	540	0.135	72	0.2	7.690	A
C-AB	0	590	0.000	0	0.0	0.000	A
C-A	160			160			
A-B	17			17			
A-C	108			108			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	530	0.165	87	0.2	8.131	A
C-AB	0	585	0.000	0	0.0	0.000	A
C-A	191			191			
A-B	21			21			
A-C	129			129			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	107	515	0.207	107	0.3	8.799	A
C-AB	0	578	0.000	0	0.0	0.000	A
C-A	235			235			
A-B	25			25			
A-C	157			157			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	107	515	0.207	107	0.3	8.809	A
C-AB	0	578	0.000	0	0.0	0.000	A
C-A	235			235			
A-B	25			25			
A-C	157			157			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87	530	0.165	87	0.2	8.145	A
C-AB	0	585	0.000	0	0.0	0.000	A
C-A	191			191			
A-B	21			21			
A-C	129			129			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	73	540	0.135	73	0.2	7.715	A
C-AB	0	590	0.000	0	0.0	0.000	A
C-A	160			160			
A-B	17			17			
A-C	108			108			

2038 Future Year + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.76	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)
D10	2038 Future Year + Dev	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Abernant Road (W)		✓	337	100.000
B - Access		✓	50	100.000
C - Abernant Road (E)		✓	159	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	95	242
	B - Access	50	0	0
	C - Abernant Road (E)	159	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Abernant Road (W)	B - Access	C - Abernant Road (E)
From	A - Abernant Road (W)	0	0	0
	B - Access	0	0	0
	C - Abernant Road (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.11	8.27	0.1	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	38	523	0.072	37	0.1	7.413	A
C-AB	0	563	0.000	0	0.0	0.000	A
C-A	120			120			
A-B	72			72			
A-C	182			182			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	45	509	0.088	45	0.1	7.756	A
C-AB	0	552	0.000	0	0.0	0.000	A
C-A	143			143			
A-B	85			85			
A-C	218			218			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	490	0.112	55	0.1	8.272	A
C-AB	0	537	0.000	0	0.0	0.000	A
C-A	175			175			
A-B	105			105			
A-C	266			266			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	490	0.112	55	0.1	8.275	A
C-AB	0	537	0.000	0	0.0	0.000	A
C-A	175			175			
A-B	105			105			
A-C	266			266			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	45	509	0.088	45	0.1	7.762	A
C-AB	0	552	0.000	0	0.0	0.000	A
C-A	143			143			
A-B	85			85			
A-C	218			218			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	38	523	0.072	38	0.1	7.424	A
C-AB	0	563	0.000	0	0.0	0.000	A
C-A	120			120			
A-B	72			72			
A-C	182			182			

APPENDIX L – ARCADY OUTPUT DATA (JUNCTION 2)

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.0.6896

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

Filename: J2 - Abernant Rd_Cwmbach Rd_Wellington St.j9
Path: Z:\2020 Projects\F20029 Land at Abernant Road\Capacity Analysis\August 2023\J2 - Abernant Rd_Cwmbach Rd_Wellington St
Report generation date: 07/08/2023 15:46:44

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023							
1 - Abernant Road (N)	0.6	10.85	0.38	B	0.4	9.82	0.29	A
2 - Cwmbach Road	2.9	21.22	0.75	C	1.6	13.58	0.62	B
3 - Abernant Road (S)	0.9	6.31	0.47	A	1.0	6.68	0.50	A
4 - Wellington Street	0.6	11.89	0.36	B	0.7	13.40	0.39	B
	2028 Opening Year							
1 - Abernant Road (N)	1.3	15.75	0.57	C	0.8	12.50	0.43	B
2 - Cwmbach Road	4.3	30.20	0.82	D	2.3	17.99	0.70	C
3 - Abernant Road (S)	1.0	6.88	0.50	A	1.4	7.98	0.57	A
4 - Wellington Street	0.7	12.83	0.40	B	1.0	16.85	0.49	C
	2028 Opening Year + Proposed Dev							
1 - Abernant Road (N)	3.1	28.60	0.77	D	1.2	15.27	0.54	C
2 - Cwmbach Road	5.7	39.86	0.86	E	3.4	24.20	0.78	C
3 - Abernant Road (S)	1.1	7.14	0.52	A	1.8	9.80	0.65	A
4 - Wellington Street	0.7	13.16	0.40	B	1.1	19.63	0.52	C
	2038 Future Year							
1 - Abernant Road (N)	1.6	18.59	0.62	C	0.9	14.01	0.47	B
2 - Cwmbach Road	6.8	45.36	0.89	E	1.5	13.36	0.59	B
3 - Abernant Road (S)	1.2	7.59	0.54	A	1.4	7.88	0.59	A
4 - Wellington Street	0.8	13.94	0.43	B	1.1	19.09	0.53	C
	2038 Future Year + Proposed Dev							
1 - Abernant Road (N)	4.3	38.39	0.83	E	1.4	17.67	0.58	C
2 - Cwmbach Road	10.0	65.51	0.94	F	4.6	31.86	0.83	D
3 - Abernant Road (S)	1.3	7.91	0.56	A	2.2	11.29	0.69	B
4 - Wellington Street	0.8	14.34	0.44	B	1.4	22.95	0.58	C

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	Abernant Road/Cwmbach Road/Wellington Street
Location	Aberdare
Site number	
Date	30/09/2022
Version	
Status	Preliminary
Identifier	DS
Client	Xurbia Developments
Jobnumber	F20029
Enumerator	BANCROFT\dscott
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023	AM	ONE HOUR	08:00	09:30	15	✓
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓
D3	2028 Opening Year	AM	ONE HOUR	08:00	09:30	15	✓
D4	2028 Opening Year	PM	ONE HOUR	17:00	18:30	15	✓
D5	2028 Opening Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓
D6	2028 Opening Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓
D9	2038 Future Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓
D10	2038 Future Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2023, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	2 - Cwmbach Road - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - Wellington Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Abernant Road/Cwmbach Road/Wellington Street	Standard Roundabout		1, 2, 3, 4	13.10	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Abernant Road (N)	
2	Cwmbach Road	
3	Abernant Road (S)	
4	Wellington Street	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Abernant Road (N)	2.71	3.00	1.0	17.7	30.0	25.7	
2 - Cwmbach Road	3.25	5.50	10.0	14.8	30.0	25.7	
3 - Abernant Road (S)	3.00	5.50	12.0	15.6	30.0	28.3	
4 - Wellington Street	3.25	5.75	8.0	21.7	30.0	25.1	

Queue Markers

Arm	Queue marker	Queue marker type	Distance from start of flare (m)	Flare storage (PCU)	Lanes on approach
1 - Abernant Road (N)	✓	Distance + Flare	70.00	1.00	1
2 - Cwmbach Road	✓	Distance + Flare	141.00	1.00	1
3 - Abernant Road (S)	✓	Distance + Flare	67.00	3.00	1
4 - Wellington Street	✓	Distance + Flare	120.00	3.00	1

Zebra Crossings

Arm	Space between crossing and junction entry (Zebra) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (m)	Crossing time (s)
2 - Cwmbach Road	10.00	2.00		Distance	7.50	5.36

Pelican/Puffin Crossings

Arm	Space between crossing and junc. entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
4 - Wellington Street	60.00	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Percentage intercept adjustment (%)
1 - Abernant Road (N)	Percentage	Calibration of Queues	90.00
2 - Cwmbach Road	Percentage	Calibration of Queues	90.00
3 - Abernant Road (S)	Percentage	Calibration of Queues	90.00
4 - Wellington Street	Percentage	Calibration of Queues	90.00

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Abernant Road (N)	0.492	787
2 - Cwmbach Road	0.591	1240
3 - Abernant Road (S)	0.584	1217
4 - Wellington Street	0.601	1253

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - Abernant Road (N)	Percentage	Calibration	100.00
2 - Cwmbach Road	Percentage	Impact of blocking back from Ynys Roundabout	62.50
3 - Abernant Road (S)	Percentage		100.00
4 - Wellington Street	Percentage		50.00

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	2023	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Abernant Road (N)		ONE HOUR	✓	192	100.000
2 - Cwmbach Road		ONE HOUR	✓	466	100.000
3 - Abernant Road (S)		ONE HOUR	✓	464	100.000
4 - Wellington Street		ONE HOUR	✓	160	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Abernant Road (N)		
2 - Cwmbach Road	[ONEHOUR]	0.00
3 - Abernant Road (S)		
4 - Wellington Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	1	43	123	25
	2 - Cwmbach Road	33	17	304	112
	3 - Abernant Road (S)	102	269	1	92
	4 - Wellington Street	9	82	67	2

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	2	2	2
	2 - Cwmbach Road	3	0	3	3
	3 - Abernant Road (S)	3	2	0	3
	4 - Wellington Street	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Abernant Road (N)	0.38	10.85	0.6	2.9	B	176	264
2 - Cwmbach Road	0.75	21.22	2.9	14.7	C	428	641
3 - Abernant Road (S)	0.47	6.31	0.9	2.3	A	426	639
4 - Wellington Street	0.36	11.89	0.6	2.7	B	147	220

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	145	36	327		626	0.231	143	108	0.0	0.3	7.593	A
2 - Cwmbach Road	351	88	163	0.00	715	0.491	347	307	0.0	1.0	9.971	A
3 - Abernant Road (S)	349	87	142		1135	0.308	348	369	0.0	0.5	4.673	A
4 - Wellington Street	120	30	317	0.00	531	0.227	119	172	0.0	0.3	8.928	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	173	43	393		594	0.291	172	130	0.3	0.4	8.704	A
2 - Cwmbach Road	419	105	196	0.00	703	0.596	417	369	1.0	1.5	12.874	B
3 - Abernant Road (S)	417	104	170		1118	0.373	417	443	0.5	0.6	5.250	A
4 - Wellington Street	144	36	380	0.00	512	0.281	143	207	0.3	0.4	9.989	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	211	53	481		550	0.384	211	159	0.4	0.6	10.776	B
2 - Cwmbach Road	513	128	240	0.00	686	0.748	508	451	1.5	2.8	20.126	C
3 - Abernant Road (S)	511	128	207		1096	0.466	510	541	0.6	0.9	6.273	A
4 - Wellington Street	176	44	464	0.00	487	0.362	175	253	0.4	0.6	11.819	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	211	53	482		550	0.385	211	160	0.6	0.6	10.850	B
2 - Cwmbach Road	513	128	241	0.00	686	0.748	513	452	2.8	2.9	21.217	C
3 - Abernant Road (S)	511	128	209		1095	0.466	511	545	0.9	0.9	6.307	A
4 - Wellington Street	176	44	466	0.00	486	0.362	176	254	0.6	0.6	11.886	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	173	43	395		592	0.291	173	131	0.6	0.4	8.779	A
2 - Cwmbach Road	419	105	198	0.00	702	0.597	424	371	2.9	1.6	13.582	B
3 - Abernant Road (S)	417	104	173		1116	0.374	418	449	0.9	0.6	5.287	A
4 - Wellington Street	144	36	382	0.00	512	0.281	145	209	0.6	0.4	10.067	B

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	145	36	331		624	0.232	145	109	0.4	0.3	7.671	A
2 - Cwmbach Road	351	88	165	0.00	714	0.491	353	310	1.6	1.0	10.326	B
3 - Abernant Road (S)	349	87	144		1133	0.308	350	375	0.6	0.5	4.709	A
4 - Wellington Street	120	30	319	0.00	530	0.227	121	175	0.4	0.3	9.016	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.30	0.00	0.00	0.30	0.30			< 0.05	0.00
2 - Cwmbach Road	0.97	0.57	1.03	1.44	1.49			< 0.05	0.00
3 - Abernant Road (S)	0.45	0.00	0.00	0.45	0.45			< 0.05	0.00
4 - Wellington Street	0.30	0.00	0.00	0.30	0.30			< 0.05	0.00

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.41	0.00	0.00	0.41	0.41			< 0.05	0.00
2 - Cwmbach Road	1.47	0.09	1.13	2.89	3.88			< 0.05	0.00
3 - Abernant Road (S)	0.60	0.11	0.88	1.40	1.47			< 0.05	0.00
4 - Wellington Street	0.39	0.00	0.00	0.39	0.39			< 0.05	0.00

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.62	0.03	0.26	0.62	0.62			< 0.05	0.00
2 - Cwmbach Road	2.81	0.03	0.33	4.96	14.68			< 0.05	0.00
3 - Abernant Road (S)	0.88	0.03	0.26	0.88	0.88			< 0.05	0.00
4 - Wellington Street	0.57	0.03	0.26	0.57	0.57			< 0.05	0.00

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.63	0.03	0.30	1.36	2.93			< 0.05	0.00
2 - Cwmbach Road	2.92	0.03	0.30	2.92	11.04			< 0.05	0.00
3 - Abernant Road (S)	0.89	0.03	0.28	0.89	2.31			< 0.05	0.00
4 - Wellington Street	0.58	0.03	0.30	1.37	2.70			< 0.05	0.00

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.42	0.00	0.00	0.42	0.42			< 0.05	0.00
2 - Cwmbach Road	1.57	0.05	0.51	3.99	6.18			< 0.05	0.00
3 - Abernant Road (S)	0.62	0.15	0.92	1.41	1.47			< 0.05	0.00
4 - Wellington Street	0.41	0.00	0.00	0.41	0.41			< 0.05	0.00

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.31	0.03	0.26	0.46	0.49			< 0.05	0.00
2 - Cwmbach Road	1.02	0.04	0.39	2.54	4.44			< 0.05	0.00
3 - Abernant Road (S)	0.46	0.04	0.36	1.17	1.35			< 0.05	0.00
4 - Wellington Street	0.30	0.03	0.26	0.46	0.49			< 0.05	0.00

2023, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	2 - Cwmbach Road - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - Wellington Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Abernant Road/Cwmbach Road/Wellington Street	Standard Roundabout		1, 2, 3, 4	10.21	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
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Abernant Road (N)		ONE HOUR	✓	141	100.000
2 - Cwmbach Road		ONE HOUR	✓	395	100.000
3 - Abernant Road (S)		ONE HOUR	✓	509	100.000
4 - Wellington Street		ONE HOUR	✓	161	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Abernant Road (N)		
2 - Cwmbach Road	[ONEHOUR]	0.00
3 - Abernant Road (S)		
4 - Wellington Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	34	88	19
	2 - Cwmbach Road	63	2	250	80
	3 - Abernant Road (S)	135	324	1	49
	4 - Wellington Street	17	79	65	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	2	3	3
	2 - Cwmbach Road	2	0	2	2
	3 - Abernant Road (S)	3	2	0	3
	4 - Wellington Street	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Abernant Road (N)	0.29	9.82	0.4	1.7	A	129	194
2 - Cwmbach Road	0.62	13.58	1.6	4.3	B	362	544
3 - Abernant Road (S)	0.50	6.68	1.0	1.9	A	467	701
4 - Wellington Street	0.39	13.40	0.7	3.0	B	148	222

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	106	27	352		614	0.173	105	161	0.0	0.2	7.265	A
2 - Cwmbach Road	297	74	129	0.00	727	0.409	295	328	0.0	0.7	8.430	A
3 - Abernant Road (S)	383	96	122		1146	0.334	381	301	0.0	0.5	4.805	A
4 - Wellington Street	121	30	393	0.00	508	0.239	120	111	0.0	0.3	9.475	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	127	32	423		579	0.219	126	193	0.2	0.3	8.169	A
2 - Cwmbach Road	355	89	155	0.00	718	0.495	354	394	0.7	1.0	10.059	B
3 - Abernant Road (S)	458	114	147		1132	0.404	457	362	0.5	0.7	5.455	A
4 - Wellington Street	145	36	471	0.00	485	0.299	144	133	0.3	0.4	10.826	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	155	39	517		533	0.291	155	236	0.3	0.4	9.775	A
2 - Cwmbach Road	435	109	190	0.00	705	0.617	432	482	1.0	1.6	13.351	B
3 - Abernant Road (S)	560	140	180		1113	0.504	559	443	0.7	1.0	6.642	A
4 - Wellington Street	177	44	576	0.00	453	0.391	176	162	0.4	0.6	13.296	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	155	39	519		532	0.292	155	237	0.4	0.4	9.822	A
2 - Cwmbach Road	435	109	190	0.00	705	0.617	435	483	1.6	1.6	13.584	B
3 - Abernant Road (S)	560	140	181		1112	0.504	560	445	1.0	1.0	6.680	A
4 - Wellington Street	177	44	578	0.00	453	0.392	177	163	0.6	0.7	13.397	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	127	32	425		578	0.219	127	194	0.4	0.3	8.221	A
2 - Cwmbach Road	355	89	156	0.00	717	0.495	357	396	1.6	1.0	10.267	B
3 - Abernant Road (S)	458	114	148		1131	0.405	459	365	1.0	0.7	5.496	A
4 - Wellington Street	145	36	474	0.00	484	0.299	146	134	0.7	0.4	10.932	B

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	106	27	355		612	0.173	106	162	0.3	0.2	7.323	A
2 - Cwmbach Road	297	74	131	0.00	727	0.409	299	331	1.0	0.7	8.599	A
3 - Abernant Road (S)	383	96	124		1145	0.335	384	305	0.7	0.5	4.845	A
4 - Wellington Street	121	30	396	0.00	507	0.239	122	112	0.4	0.3	9.582	A

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.21	0.00	0.00	0.21	0.21			< 0.05	0.00
2 - Cwmbach Road	0.69	0.56	1.02	1.43	1.48			< 0.05	0.00
3 - Abernant Road (S)	0.51	0.00	0.00	0.51	0.51			< 0.05	0.00
4 - Wellington Street	0.32	0.00	0.00	0.32	0.32			< 0.05	0.00

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.28	0.00	0.00	0.28	0.28			< 0.05	0.00
2 - Cwmbach Road	0.98	0.13	0.98	1.38	1.76			< 0.05	0.00
3 - Abernant Road (S)	0.69	0.13	0.90	1.41	1.47			< 0.05	0.00
4 - Wellington Street	0.43	0.00	0.00	0.43	0.43			< 0.05	0.00

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.42	0.03	0.26	0.47	0.50			< 0.05	0.00
2 - Cwmbach Road	1.58	0.03	0.28	1.58	4.25			< 0.05	0.00
3 - Abernant Road (S)	1.02	0.03	0.26	1.02	1.02			< 0.05	0.00
4 - Wellington Street	0.64	0.03	0.27	0.64	0.64			< 0.05	0.00

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.42	0.03	0.32	1.35	1.69			< 0.05	0.00
2 - Cwmbach Road	1.61	0.03	0.28	1.61	3.56			< 0.05	0.00
3 - Abernant Road (S)	1.03	0.03	0.28	1.03	1.86			< 0.05	0.00
4 - Wellington Street	0.65	0.03	0.30	1.36	3.01			< 0.05	0.00

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.29	0.00	0.00	0.29	0.29			< 0.05	0.00
2 - Cwmbach Road	1.02	0.07	0.86	1.83	2.44			< 0.05	0.00
3 - Abernant Road (S)	0.70	0.18	0.94	1.42	1.48			< 0.05	0.00
4 - Wellington Street	0.44	0.03	0.33	1.08	1.31			< 0.05	0.00

18:15 - 18:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.22	0.00	0.00	0.22	0.22			< 0.05	0.00
2 - Cwmbach Road	0.72	0.05	0.48	1.31	1.87			< 0.05	0.00
3 - Abernant Road (S)	0.52	0.05	0.49	1.32	1.43			< 0.05	0.00
4 - Wellington Street	0.33	0.03	0.26	0.47	0.50			< 0.05	0.00

2028 Opening Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	2 - Cwmbach Road - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - Wellington Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Abernant Road/Cwmbach Road/Wellington Street	Standard Roundabout		1, 2, 3, 4	17.30	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
D3	2028 Opening Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Abernant Road (N)		ONE HOUR	✓	279	100.000
2 - Cwmbach Road		ONE HOUR	✓	489	100.000
3 - Abernant Road (S)		ONE HOUR	✓	490	100.000
4 - Wellington Street		ONE HOUR	✓	172	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Abernant Road (N)		
2 - Cwmbach Road	[ONEHOUR]	0.00
3 - Abernant Road (S)		
4 - Wellington Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	1	62	170	46
	2 - Cwmbach Road	38	18	317	116
	3 - Abernant Road (S)	115	279	1	95
	4 - Wellington Street	14	86	70	2

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	2	2	2
	2 - Cwmbach Road	3	0	3	3
	3 - Abernant Road (S)	3	2	0	3
	4 - Wellington Street	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Abernant Road (N)	0.57	15.75	1.3	4.5	C	256	384
2 - Cwmbach Road	0.82	30.20	4.3	21.7	D	449	673
3 - Abernant Road (S)	0.50	6.88	1.0	2.0	A	450	674
4 - Wellington Street	0.40	12.83	0.7	3.0	B	158	237

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	210	53	341		619	0.339	208	126	0.0	0.5	8.885	A
2 - Cwmbach Road	368	92	216	0.00	695	0.530	364	333	0.0	1.1	11.026	B
3 - Abernant Road (S)	369	92	164		1121	0.329	367	415	0.0	0.5	4.874	A
4 - Wellington Street	129	32	338	0.00	525	0.247	128	193	0.0	0.3	9.273	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	251	63	409		586	0.428	250	151	0.5	0.7	10.904	B
2 - Cwmbach Road	440	110	260	0.00	679	0.647	437	399	1.1	1.8	15.108	C
3 - Abernant Road (S)	440	110	198		1102	0.400	440	499	0.5	0.7	5.562	A
4 - Wellington Street	155	39	405	0.00	504	0.307	154	232	0.3	0.4	10.516	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	307	77	500		541	0.568	305	184	0.7	1.3	15.424	C
2 - Cwmbach Road	538	135	317	0.00	658	0.818	530	488	1.8	4.0	27.141	D
3 - Abernant Road (S)	540	135	240		1077	0.501	538	607	0.7	1.0	6.823	A
4 - Wellington Street	189	47	496	0.00	477	0.397	189	282	0.4	0.7	12.732	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	307	77	502		540	0.569	307	185	1.3	1.3	15.746	C
2 - Cwmbach Road	538	135	319	0.00	657	0.819	537	490	4.0	4.3	30.204	D
3 - Abernant Road (S)	540	135	243		1076	0.502	539	614	1.0	1.0	6.878	A
4 - Wellington Street	189	47	497	0.00	477	0.397	189	285	0.7	0.7	12.828	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	251	63	412		584	0.429	253	152	1.3	0.8	11.150	B
2 - Cwmbach Road	440	110	263	0.00	678	0.648	449	402	4.3	2.0	16.749	C
3 - Abernant Road (S)	440	110	202		1099	0.401	442	509	1.0	0.7	5.621	A
4 - Wellington Street	155	39	408	0.00	504	0.307	155	236	0.7	0.5	10.621	B

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	210	53	344		617	0.340	211	127	0.8	0.5	9.055	A
2 - Cwmbach Road	368	92	219	0.00	694	0.530	371	336	2.0	1.2	11.585	B
3 - Abernant Road (S)	369	92	168		1119	0.330	370	423	0.7	0.5	4.923	A
4 - Wellington Street	129	32	341	0.00	524	0.247	130	196	0.5	0.3	9.380	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.52	0.52	1.02	1.43	1.48			< 0.05	0.00
2 - Cwmbach Road	1.13	0.57	1.03	1.44	1.49			< 0.05	0.00
3 - Abernant Road (S)	0.50	0.00	0.00	0.50	0.50			< 0.05	0.00
4 - Wellington Street	0.33	0.00	0.00	0.33	0.33			< 0.05	0.00

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.75	0.15	0.92	1.41	1.48			< 0.05	0.00
2 - Cwmbach Road	1.81	0.08	1.19	3.97	5.50			< 0.05	0.00
3 - Abernant Road (S)	0.68	0.13	0.90	1.41	1.47			< 0.05	0.00
4 - Wellington Street	0.45	0.00	0.00	0.45	0.45			< 0.05	0.00

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.29	0.03	0.28	1.29	2.91			< 0.05	0.00
2 - Cwmbach Road	4.00	0.04	0.40	10.47	21.38			< 0.05	0.00
3 - Abernant Road (S)	1.01	0.03	0.26	1.01	1.01			< 0.05	0.00
4 - Wellington Street	0.66	0.03	0.26	0.66	0.66			< 0.05	0.00

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.32	0.03	0.29	1.32	4.48			< 0.05	0.00
2 - Cwmbach Road	4.29	0.03	0.33	6.54	21.72			< 0.05	0.00
3 - Abernant Road (S)	1.02	0.03	0.28	1.02	2.00			< 0.05	0.00
4 - Wellington Street	0.67	0.03	0.30	1.30	3.02			< 0.05	0.00

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.78	0.07	0.75	1.53	1.59			< 0.05	0.00
2 - Cwmbach Road	1.98	0.04	0.45	5.37	9.09			< 0.05	0.00
3 - Abernant Road (S)	0.69	0.17	0.93	1.42	1.48			< 0.05	0.00
4 - Wellington Street	0.46	0.04	0.36	1.18	1.36			< 0.05	0.00

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.53	0.04	0.42	1.37	1.52			< 0.05	0.00
2 - Cwmbach Road	1.19	0.04	0.35	2.83	5.94			< 0.05	0.00
3 - Abernant Road (S)	0.51	0.05	0.46	1.31	1.42			< 0.05	0.00
4 - Wellington Street	0.34	0.03	0.27	0.48	0.51			< 0.05	0.00

2028 Opening Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	2 - Cwmbach Road - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - Wellington Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Abernant Road/Cwmbach Road/Wellington Street	Standard Roundabout		1, 2, 3, 4	12.97	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
D4	2028 Opening Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Abernant Road (N)		ONE HOUR	✓	205	100.000
2 - Cwmbach Road		ONE HOUR	✓	435	100.000
3 - Abernant Road (S)		ONE HOUR	✓	566	100.000
4 - Wellington Street		ONE HOUR	✓	188	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Abernant Road (N)		
2 - Cwmbach Road	[ONEHOUR]	0.00
3 - Abernant Road (S)		
4 - Wellington Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	45	129	31
	2 - Cwmbach Road	89	2	260	84
	3 - Abernant Road (S)	177	337	1	51
	4 - Wellington Street	38	82	68	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	2	3	3
	2 - Cwmbach Road	2	0	2	2
	3 - Abernant Road (S)	3	2	0	3
	4 - Wellington Street	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Abernant Road (N)	0.43	12.50	0.8	3.4	B	188	282
2 - Cwmbach Road	0.70	17.99	2.3	10.5	C	399	599
3 - Abernant Road (S)	0.57	7.98	1.4	1.6	A	519	779
4 - Wellington Street	0.49	16.85	1.0	4.0	C	173	259

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	154	39	366		607	0.254	153	227	0.0	0.3	8.130	A
2 - Cwmbach Road	327	82	171	0.00	712	0.460	324	348	0.0	0.9	9.385	A
3 - Abernant Road (S)	426	107	154		1128	0.378	424	341	0.0	0.6	5.218	A
4 - Wellington Street	142	35	453	0.00	490	0.289	140	124	0.0	0.4	10.497	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	184	46	439		571	0.323	184	273	0.3	0.5	9.547	A
2 - Cwmbach Road	391	98	205	0.00	699	0.559	389	418	0.9	1.3	11.785	B
3 - Abernant Road (S)	509	127	184		1110	0.459	508	410	0.6	0.9	6.115	A
4 - Wellington Street	169	42	544	0.00	463	0.365	168	149	0.4	0.6	12.504	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	226	56	537		523	0.432	225	333	0.5	0.8	12.366	B
2 - Cwmbach Road	479	120	251	0.00	682	0.702	475	511	1.3	2.3	17.351	C
3 - Abernant Road (S)	623	156	225		1086	0.574	621	501	0.9	1.4	7.894	A
4 - Wellington Street	207	52	665	0.00	427	0.485	206	182	0.6	0.9	16.597	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	226	56	539		522	0.433	226	335	0.8	0.8	12.500	B
2 - Cwmbach Road	479	120	252	0.00	682	0.702	479	513	2.3	2.3	17.994	C
3 - Abernant Road (S)	623	156	227		1085	0.574	623	504	1.4	1.4	7.978	A
4 - Wellington Street	207	52	667	0.00	426	0.486	207	183	0.9	1.0	16.854	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	184	46	443		569	0.324	185	275	0.8	0.5	9.670	A
2 - Cwmbach Road	391	98	207	0.00	699	0.560	395	421	2.3	1.3	12.250	B
3 - Abernant Road (S)	509	127	187		1108	0.459	511	415	1.4	0.9	6.191	A
4 - Wellington Street	169	42	547	0.00	462	0.366	170	150	1.0	0.6	12.732	B

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	154	39	370		605	0.255	155	230	0.5	0.4	8.234	A
2 - Cwmbach Road	327	82	173	0.00	711	0.461	329	352	1.3	0.9	9.659	A
3 - Abernant Road (S)	426	107	156		1126	0.378	427	346	0.9	0.6	5.278	A
4 - Wellington Street	142	35	458	0.00	489	0.290	142	125	0.6	0.4	10.678	B

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.35	0.00	0.00	0.35	0.35			< 0.05	0.00
2 - Cwmbach Road	0.85	0.56	1.02	1.43	1.48			< 0.05	0.00
3 - Abernant Road (S)	0.62	0.56	1.02	1.43	1.48			< 0.05	0.00
4 - Wellington Street	0.41	0.00	0.00	0.41	0.41			< 0.05	0.00

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.48	0.00	0.00	0.48	0.48			< 0.05	0.00
2 - Cwmbach Road	1.26	0.10	1.07	2.18	2.89			< 0.05	0.00
3 - Abernant Road (S)	0.86	0.11	0.91	1.44	1.44			< 0.05	0.00
4 - Wellington Street	0.58	0.56	1.03	1.44	1.49			< 0.05	0.00

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.76	0.03	0.27	0.76	0.76			< 0.05	0.00
2 - Cwmbach Road	2.26	0.03	0.31	2.48	10.49			< 0.05	0.00
3 - Abernant Road (S)	1.35	0.03	0.27	1.35	1.35			< 0.05	0.00
4 - Wellington Street	0.93	0.03	0.27	0.93	1.30			< 0.05	0.00

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.77	0.03	0.30	1.26	3.39			< 0.05	0.00
2 - Cwmbach Road	2.33	0.03	0.29	2.33	7.12			< 0.05	0.00
3 - Abernant Road (S)	1.37	0.03	0.28	1.37	1.58			< 0.05	0.00
4 - Wellington Street	0.95	0.03	0.29	1.23	3.97			< 0.05	0.00

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.50	0.04	0.45	1.30	1.42			< 0.05	0.00
2 - Cwmbach Road	1.33	0.06	0.68	3.06	4.59			< 0.05	0.00
3 - Abernant Road (S)	0.88	0.13	0.94	1.41	1.41			< 0.05	0.00
4 - Wellington Street	0.60	0.06	0.64	1.37	1.46			< 0.05	0.00

18:15 - 18:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.36	0.03	0.28	0.51	0.98			< 0.05	0.00
2 - Cwmbach Road	0.89	0.04	0.41	2.03	3.39			< 0.05	0.00
3 - Abernant Road (S)	0.63	0.06	0.61	1.39	1.49			< 0.05	0.00
4 - Wellington Street	0.42	0.04	0.37	1.20	1.37			< 0.05	0.00

2028 Opening Year + Proposed Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	2 - Cwmbach Road - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - Wellington Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Abernant Road/Cwmbach Road/Wellington Street	Standard Roundabout		1, 2, 3, 4	23.54	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
D5	2028 Opening Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Abernant Road (N)		ONE HOUR	✓	376	100.000
2 - Cwmbach Road		ONE HOUR	✓	498	100.000
3 - Abernant Road (S)		ONE HOUR	✓	503	100.000
4 - Wellington Street		ONE HOUR	✓	172	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Abernant Road (N)		
2 - Cwmbach Road	[ONEHOUR]	0.00
3 - Abernant Road (S)		
4 - Wellington Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	1	102	227	46
	2 - Cwmbach Road	47	18	317	116
	3 - Abernant Road (S)	128	279	1	95
	4 - Wellington Street	14	86	70	2

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	2	2	2
	2 - Cwmbach Road	3	0	3	3
	3 - Abernant Road (S)	3	2	0	3
	4 - Wellington Street	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Abernant Road (N)	0.77	28.60	3.1	15.9	D	345	518
2 - Cwmbach Road	0.86	39.86	5.7	31.1	E	457	685
3 - Abernant Road (S)	0.52	7.14	1.1	1.9	A	462	692
4 - Wellington Street	0.40	13.16	0.7	3.1	B	158	237

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	283	71	341		619	0.457	280	142	0.0	0.8	10.713	B
2 - Cwmbach Road	375	94	258	0.00	680	0.552	370	362	0.0	1.2	11.784	B
3 - Abernant Road (S)	379	95	171		1118	0.339	377	457	0.0	0.5	4.963	A
4 - Wellington Street	129	32	355	0.00	520	0.249	128	193	0.0	0.3	9.388	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	338	85	409		586	0.577	336	170	0.8	1.3	14.583	B
2 - Cwmbach Road	448	112	310	0.00	660	0.678	444	435	1.2	2.1	16.878	C
3 - Abernant Road (S)	452	113	205		1097	0.412	451	549	0.5	0.7	5.700	A
4 - Wellington Street	155	39	425	0.00	499	0.310	154	232	0.3	0.5	10.694	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	414	103	500		541	0.765	407	208	1.3	3.0	26.290	D
2 - Cwmbach Road	548	137	377	0.00	636	0.862	536	531	2.1	5.1	33.578	D
3 - Abernant Road (S)	554	138	248		1073	0.516	552	665	0.7	1.1	7.069	A
4 - Wellington Street	189	47	519	0.00	470	0.403	188	281	0.5	0.7	13.047	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	414	103	502		540	0.767	413	209	3.0	3.1	28.596	D
2 - Cwmbach Road	548	137	382	0.00	634	0.865	546	534	5.1	5.7	39.863	E
3 - Abernant Road (S)	554	138	252		1070	0.518	554	675	1.1	1.1	7.143	A
4 - Wellington Street	189	47	522	0.00	470	0.403	189	285	0.7	0.7	13.159	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	338	85	412		584	0.579	345	173	3.1	1.5	15.737	C
2 - Cwmbach Road	448	112	317	0.00	658	0.681	461	440	5.7	2.3	19.950	C
3 - Abernant Road (S)	452	113	213		1093	0.414	454	566	1.1	0.7	5.779	A
4 - Wellington Street	155	39	429	0.00	497	0.311	155	237	0.7	0.5	10.815	B

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	283	71	344		617	0.458	285	144	1.5	0.9	11.130	B
2 - Cwmbach Road	375	94	263	0.00	678	0.553	379	367	2.3	1.3	12.553	B
3 - Abernant Road (S)	379	95	175		1115	0.340	379	467	0.7	0.5	5.017	A
4 - Wellington Street	129	32	358	0.00	519	0.250	130	196	0.5	0.3	9.502	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.84	0.56	1.02	1.43	1.48			< 0.05	0.00
2 - Cwmbach Road	1.23	0.57	1.03	1.44	1.49			< 0.05	0.00
3 - Abernant Road (S)	0.52	0.52	1.02	1.43	1.49			< 0.05	0.00
4 - Wellington Street	0.34	0.00	0.00	0.34	0.34			< 0.05	0.00

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.34	0.09	1.07	2.59	3.42			< 0.05	0.00
2 - Cwmbach Road	2.05	0.08	1.24	4.74	6.63			< 0.05	0.00
3 - Abernant Road (S)	0.71	0.13	0.90	1.41	1.48			< 0.05	0.00
4 - Wellington Street	0.45	0.00	0.00	0.45	0.45			< 0.05	0.00

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	2.97	0.04	0.36	6.85	15.92			0.06	0.00
2 - Cwmbach Road	5.10	0.05	0.49	14.57	25.53			0.05	0.00
3 - Abernant Road (S)	1.08	0.03	0.27	1.08	1.08			< 0.05	0.00
4 - Wellington Street	0.68	0.03	0.27	0.68	0.68			< 0.05	0.00

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	3.14	0.03	0.31	3.77	14.93			0.06	0.00
2 - Cwmbach Road	5.68	0.04	0.38	13.25	31.07			0.06	0.00
3 - Abernant Road (S)	1.09	0.03	0.28	1.09	1.91			< 0.05	0.00
4 - Wellington Street	0.68	0.03	0.30	1.30	3.07			< 0.05	0.00

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.45	0.05	0.46	3.74	5.97			< 0.05	0.00
2 - Cwmbach Road	2.32	0.04	0.43	6.33	11.19			< 0.05	0.00
3 - Abernant Road (S)	0.73	0.17	0.93	1.42	1.48			< 0.05	0.00
4 - Wellington Street	0.47	0.04	0.38	1.22	1.38			< 0.05	0.00

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.88	0.04	0.35	2.04	4.05			< 0.05	0.00
2 - Cwmbach Road	1.31	0.03	0.34	2.81	6.70			< 0.05	0.00
3 - Abernant Road (S)	0.53	0.05	0.50	1.33	1.43			< 0.05	0.00
4 - Wellington Street	0.35	0.03	0.27	0.49	0.55			< 0.05	0.00

2028 Opening Year + Proposed Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	2 - Cwmbach Road - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - Wellington Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Abernant Road/Cwmbach Road/Wellington Street	Standard Roundabout		1, 2, 3, 4	16.34	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
D6	2028 Opening Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Abernant Road (N)		ONE HOUR	✓	254	100.000
2 - Cwmbach Road		ONE HOUR	✓	473	100.000
3 - Abernant Road (S)		ONE HOUR	✓	622	100.000
4 - Wellington Street		ONE HOUR	✓	188	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Abernant Road (N)		
2 - Cwmbach Road	[ONEHOUR]	0.00
3 - Abernant Road (S)		
4 - Wellington Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	65	158	31
	2 - Cwmbach Road	127	2	260	84
	3 - Abernant Road (S)	233	337	1	51
	4 - Wellington Street	38	82	68	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	2	3	3
	2 - Cwmbach Road	2	0	2	2
	3 - Abernant Road (S)	3	2	0	3
	4 - Wellington Street	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Abernant Road (N)	0.54	15.27	1.2	4.3	C	233	350
2 - Cwmbach Road	0.78	24.20	3.4	17.2	C	434	651
3 - Abernant Road (S)	0.65	9.80	1.8	3.3	A	571	856
4 - Wellington Street	0.52	19.63	1.1	4.7	C	173	259

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	191	48	366		607	0.315	189	297	0.0	0.5	8.821	A
2 - Cwmbach Road	356	89	192	0.00	704	0.506	352	363	0.0	1.0	10.315	B
3 - Abernant Road (S)	468	117	182		1111	0.421	465	363	0.0	0.7	5.683	A
4 - Wellington Street	142	35	523	0.00	469	0.302	140	124	0.0	0.4	11.157	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	228	57	439		571	0.400	228	357	0.5	0.7	10.745	B
2 - Cwmbach Road	425	106	231	0.00	690	0.616	423	436	1.0	1.6	13.643	B
3 - Abernant Road (S)	559	140	218		1090	0.513	558	436	0.7	1.1	6.915	A
4 - Wellington Street	169	42	627	0.00	438	0.386	168	149	0.4	0.6	13.659	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	280	70	536		523	0.535	278	435	0.7	1.1	14.965	B
2 - Cwmbach Road	521	130	282	0.00	671	0.776	514	532	1.6	3.2	22.537	C
3 - Abernant Road (S)	685	171	266		1062	0.645	682	531	1.1	1.8	9.617	A
4 - Wellington Street	207	52	766	0.00	396	0.523	205	181	0.6	1.1	19.168	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	280	70	539		522	0.536	280	438	1.1	1.2	15.265	C
2 - Cwmbach Road	521	130	284	0.00	670	0.777	520	535	3.2	3.4	24.203	C
3 - Abernant Road (S)	685	171	268		1061	0.646	685	536	1.8	1.8	9.802	A
4 - Wellington Street	207	52	770	0.00	395	0.524	207	183	1.1	1.1	19.626	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	228	57	444		569	0.402	230	361	1.2	0.7	10.984	B
2 - Cwmbach Road	425	106	234	0.00	689	0.617	432	440	3.4	1.7	14.641	B
3 - Abernant Road (S)	559	140	223		1087	0.514	562	443	1.8	1.1	7.059	A
4 - Wellington Street	169	42	634	0.00	436	0.388	171	151	1.1	0.7	14.022	B

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	191	48	370		605	0.316	192	301	0.7	0.5	8.985	A
2 - Cwmbach Road	356	89	195	0.00	703	0.507	359	367	1.7	1.1	10.742	B
3 - Abernant Road (S)	468	117	185		1109	0.422	470	369	1.1	0.8	5.779	A
4 - Wellington Street	142	35	529	0.00	467	0.303	142	126	0.7	0.5	11.391	B

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.47	0.00	0.00	0.47	0.47			< 0.05	0.00
2 - Cwmbach Road	1.02	0.56	1.02	1.43	1.48			< 0.05	0.00
3 - Abernant Road (S)	0.74	0.56	1.02	1.43	1.49			< 0.05	0.00
4 - Wellington Street	0.44	0.00	0.00	0.44	0.44			< 0.05	0.00

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.67	0.15	0.93	1.42	1.48			< 0.05	0.00
2 - Cwmbach Road	1.58	0.09	1.14	3.26	4.46			< 0.05	0.00
3 - Abernant Road (S)	1.06	0.09	0.95	1.82	2.34			< 0.05	0.00
4 - Wellington Street	0.63	0.16	0.93	1.42	1.48			< 0.05	0.00

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.14	0.03	0.28	1.14	1.64			< 0.05	0.00
2 - Cwmbach Road	3.20	0.03	0.35	6.92	17.22			< 0.05	0.00
3 - Abernant Road (S)	1.81	0.03	0.28	1.81	3.26			< 0.05	0.00
4 - Wellington Street	1.08	0.03	0.28	1.08	2.28			< 0.05	0.00

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.17	0.03	0.29	1.17	4.26			< 0.05	0.00
2 - Cwmbach Road	3.36	0.03	0.30	3.36	14.60			< 0.05	0.00
3 - Abernant Road (S)	1.84	0.03	0.28	1.84	2.14			< 0.05	0.00
4 - Wellington Street	1.10	0.03	0.30	1.35	4.68			< 0.05	0.00

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.70	0.07	0.73	1.44	1.53			< 0.05	0.00
2 - Cwmbach Road	1.71	0.05	0.47	4.50	7.20			< 0.05	0.00
3 - Abernant Road (S)	1.10	0.09	0.97	1.88	2.50			< 0.05	0.00
4 - Wellington Street	0.67	0.06	0.65	1.43	1.52			< 0.05	0.00

18:15 - 18:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.48	0.04	0.41	1.29	1.44			< 0.05	0.00
2 - Cwmbach Road	1.07	0.04	0.37	2.67	4.98			< 0.05	0.00
3 - Abernant Road (S)	0.76	0.05	0.51	1.40	1.92			< 0.05	0.00
4 - Wellington Street	0.45	0.04	0.39	1.27	1.43			< 0.05	0.00

2038 Future Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	2 - Cwmbach Road - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - Wellington Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Abernant Road/Cwmbach Road/Wellington Street	Standard Roundabout		1, 2, 3, 4	23.42	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
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Abernant Road (N)		ONE HOUR	✓	295	100.000
2 - Cwmbach Road		ONE HOUR	✓	525	100.000
3 - Abernant Road (S)		ONE HOUR	✓	528	100.000
4 - Wellington Street		ONE HOUR	✓	183	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Abernant Road (N)		
2 - Cwmbach Road	[ONEHOUR]	0.00
3 - Abernant Road (S)		
4 - Wellington Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	1	66	180	48
	2 - Cwmbach Road	40	19	341	125
	3 - Abernant Road (S)	123	301	1	103
	4 - Wellington Street	14	92	75	2

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	2	2	2
	2 - Cwmbach Road	3	0	3	3
	3 - Abernant Road (S)	3	2	0	3
	4 - Wellington Street	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Abernant Road (N)	0.62	18.59	1.6	6.0	C	271	406
2 - Cwmbach Road	0.89	45.36	6.8	36.9	E	482	723
3 - Abernant Road (S)	0.54	7.59	1.2	1.8	A	485	727
4 - Wellington Street	0.43	13.94	0.8	3.3	B	168	252

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	222	56	366		607	0.366	220	133	0.0	0.6	9.437	A
2 - Cwmbach Road	395	99	229	0.00	691	0.572	390	357	0.0	1.3	12.116	B
3 - Abernant Road (S)	398	99	175		1115	0.356	395	444	0.0	0.6	5.105	A
4 - Wellington Street	138	34	363	0.00	517	0.266	136	207	0.0	0.4	9.646	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	265	66	439		571	0.465	264	159	0.6	0.9	11.927	B
2 - Cwmbach Road	472	118	275	0.00	674	0.701	468	429	1.3	2.3	17.704	C
3 - Abernant Road (S)	475	119	210		1095	0.434	474	533	0.6	0.8	5.928	A
4 - Wellington Street	165	41	435	0.00	496	0.332	164	249	0.4	0.5	11.105	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	325	81	537		523	0.621	322	194	0.9	1.6	18.016	C
2 - Cwmbach Road	578	145	335	0.00	651	0.888	563	524	2.3	6.0	36.946	E
3 - Abernant Road (S)	581	145	253		1070	0.544	580	645	0.8	1.2	7.500	A
4 - Wellington Street	201	50	531	0.00	467	0.432	200	302	0.5	0.8	13.797	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	325	81	539		522	0.623	325	196	1.6	1.6	18.594	C
2 - Cwmbach Road	578	145	338	0.00	650	0.889	575	526	6.0	6.8	45.356	E
3 - Abernant Road (S)	581	145	258		1067	0.545	581	655	1.2	1.2	7.589	A
4 - Wellington Street	201	50	534	0.00	466	0.432	201	305	0.8	0.8	13.939	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	265	66	443		569	0.466	268	162	1.6	0.9	12.317	B
2 - Cwmbach Road	472	118	279	0.00	672	0.702	489	432	6.8	2.6	21.770	C
3 - Abernant Road (S)	475	119	218		1090	0.435	476	550	1.2	0.8	6.023	A
4 - Wellington Street	165	41	439	0.00	494	0.333	166	255	0.8	0.5	11.252	B

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	222	56	370		605	0.367	223	135	0.9	0.6	9.656	A
2 - Cwmbach Road	395	99	232	0.00	689	0.573	400	361	2.6	1.4	12.998	B
3 - Abernant Road (S)	398	99	179		1113	0.357	398	453	0.8	0.6	5.165	A
4 - Wellington Street	138	34	366	0.00	516	0.267	138	211	0.5	0.4	9.778	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.58	0.56	1.02	1.43	1.48			< 0.05	0.00
2 - Cwmbach Road	1.33	0.58	1.16	1.54	1.80			< 0.05	0.00
3 - Abernant Road (S)	0.56	0.56	1.02	1.43	1.49			< 0.05	0.00
4 - Wellington Street	0.37	0.00	0.00	0.37	0.37			< 0.05	0.00

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.86	0.13	0.93	1.31	1.31			< 0.05	0.00
2 - Cwmbach Road	2.27	0.08	1.29	5.37	7.58			< 0.05	0.00
3 - Abernant Road (S)	0.78	0.12	0.90	1.43	1.50			< 0.05	0.00
4 - Wellington Street	0.50	0.00	0.00	0.50	0.50			< 0.05	0.00

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.59	0.03	0.29	1.59	6.04			< 0.05	0.00
2 - Cwmbach Road	5.98	0.06	1.00	17.25	28.42			0.06	0.00
3 - Abernant Road (S)	1.20	0.03	0.27	1.20	1.20			< 0.05	0.00
4 - Wellington Street	0.76	0.03	0.27	0.76	0.76			< 0.05	0.00

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.64	0.03	0.29	1.64	5.86			< 0.05	0.00
2 - Cwmbach Road	6.79	0.04	0.42	17.93	36.85			0.08	0.00
3 - Abernant Road (S)	1.21	0.03	0.28	1.21	1.76			< 0.05	0.00
4 - Wellington Street	0.77	0.03	0.29	1.21	3.32			< 0.05	0.00

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.91	0.06	0.72	1.71	2.26			< 0.05	0.00
2 - Cwmbach Road	2.59	0.04	0.43	7.07	12.83			< 0.05	0.00
3 - Abernant Road (S)	0.80	0.15	0.93	1.44	1.50			< 0.05	0.00
4 - Wellington Street	0.52	0.05	0.49	1.32	1.43			< 0.05	0.00

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.60	0.04	0.41	1.05	1.76			< 0.05	0.00
2 - Cwmbach Road	1.43	0.03	0.33	2.90	7.37			< 0.05	0.00
3 - Abernant Road (S)	0.57	0.05	0.57	1.35	1.45			< 0.05	0.00
4 - Wellington Street	0.38	0.03	0.30	0.89	1.21			< 0.05	0.00

2038 Future Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	2 - Cwmbach Road - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - Wellington Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	O-D data		O-D matrix contains negative demand. Matrix should only be used as a development matrix for Demand Set relationships and should not be run on its own.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Abernant Road/Cwmbach Road/Wellington Street	Standard Roundabout		1, 2, 3, 4	11.91	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
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Abernant Road (N)		ONE HOUR	✓	216	100.000
2 - Cwmbach Road		ONE HOUR	✓	365	100.000
3 - Abernant Road (S)		ONE HOUR	✓	604	100.000
4 - Wellington Street		ONE HOUR	✓	201	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Abernant Road (N)		
2 - Cwmbach Road	[ONEHOUR]	0.00
3 - Abernant Road (S)		
4 - Wellington Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	47	136	33
	2 - Cwmbach Road	93	2	279	-9
	3 - Abernant Road (S)	187	362	1	54
	4 - Wellington Street	39	89	73	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	2	3	3
	2 - Cwmbach Road	2	0	2	2
	3 - Abernant Road (S)	3	2	0	3
	4 - Wellington Street	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Abernant Road (N)	0.47	14.01	0.9	3.8	B	198	297
2 - Cwmbach Road	0.59	13.36	1.5	3.5	B	335	502
3 - Abernant Road (S)	0.59	7.88	1.4	1.7	A	554	831
4 - Wellington Street	0.53	19.09	1.1	4.7	C	184	277

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	163	41	394		593	0.274	161	235	0.0	0.4	8.533	A
2 - Cwmbach Road	275	69	181	0.00	708	0.388	272	374	0.0	0.6	8.375	A
3 - Abernant Road (S)	455	114	99		1160	0.392	452	355	0.0	0.7	5.190	A
4 - Wellington Street	151	38	479	0.00	482	0.314	149	71	0.0	0.5	11.035	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	194	49	472		555	0.350	194	282	0.4	0.5	10.232	B
2 - Cwmbach Road	328	82	218	0.00	695	0.472	327	448	0.6	0.9	9.959	A
3 - Abernant Road (S)	543	136	118		1148	0.473	542	426	0.7	0.9	6.070	A
4 - Wellington Street	181	45	575	0.00	454	0.398	180	86	0.5	0.7	13.446	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	238	59	577		503	0.473	236	345	0.5	0.9	13.810	B
2 - Cwmbach Road	402	100	266	0.00	677	0.594	400	548	0.9	1.4	13.137	B
3 - Abernant Road (S)	665	166	145		1133	0.587	663	521	0.9	1.4	7.808	A
4 - Wellington Street	221	55	703	0.00	415	0.533	219	105	0.7	1.1	18.695	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	238	59	580		502	0.474	238	346	0.9	0.9	14.014	B
2 - Cwmbach Road	402	100	267	0.00	676	0.594	402	550	1.4	1.5	13.361	B
3 - Abernant Road (S)	665	166	145		1132	0.587	665	524	1.4	1.4	7.882	A
4 - Wellington Street	221	55	705	0.00	414	0.534	221	105	1.1	1.1	19.087	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	194	49	476		553	0.351	196	284	0.9	0.6	10.403	B
2 - Cwmbach Road	328	82	220	0.00	694	0.473	330	452	1.5	0.9	10.161	B
3 - Abernant Road (S)	543	136	120		1148	0.473	545	431	1.4	0.9	6.137	A
4 - Wellington Street	181	45	578	0.00	453	0.399	182	86	1.1	0.7	13.761	B

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	163	41	398		591	0.275	163	238	0.6	0.4	8.663	A
2 - Cwmbach Road	275	69	184	0.00	707	0.389	276	378	0.9	0.7	8.536	A
3 - Abernant Road (S)	455	114	100		1159	0.392	456	360	0.9	0.7	5.248	A
4 - Wellington Street	151	38	483	0.00	481	0.315	152	72	0.7	0.5	11.258	B

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.38	0.00	0.00	0.38	0.38			< 0.05	0.00
2 - Cwmbach Road	0.64	0.56	1.02	1.43	1.48			< 0.05	0.00
3 - Abernant Road (S)	0.65	0.56	1.02	1.43	1.48			< 0.05	0.00
4 - Wellington Street	0.46	0.00	0.00	0.46	0.46			< 0.05	0.00

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.54	0.54	1.03	1.44	1.49			< 0.05	0.00
2 - Cwmbach Road	0.90	0.15	0.96	1.41	1.41			< 0.05	0.00
3 - Abernant Road (S)	0.91	0.10	0.92	1.23	1.69			< 0.05	0.00
4 - Wellington Street	0.66	0.19	0.94	1.42	1.48			< 0.05	0.00

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.90	0.03	0.27	0.90	0.90			< 0.05	0.00
2 - Cwmbach Road	1.44	0.03	0.28	1.44	3.14			< 0.05	0.00
3 - Abernant Road (S)	1.43	0.03	0.27	1.43	1.43			< 0.05	0.00
4 - Wellington Street	1.12	0.03	0.28	1.12	2.58			< 0.05	0.00

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.91	0.03	0.29	1.20	3.81			< 0.05	0.00
2 - Cwmbach Road	1.47	0.03	0.28	1.47	3.47			< 0.05	0.00
3 - Abernant Road (S)	1.44	0.03	0.27	1.44	1.44			< 0.05	0.00
4 - Wellington Street	1.15	0.03	0.29	1.26	4.68			< 0.05	0.00

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.57	0.06	0.61	1.36	1.45			< 0.05	0.00
2 - Cwmbach Road	0.93	0.08	0.85	1.58	1.95			< 0.05	0.00
3 - Abernant Road (S)	0.93	0.13	0.96	1.17	1.64			< 0.05	0.00
4 - Wellington Street	0.70	0.06	0.67	1.20	1.20			< 0.05	0.00

18:15 - 18:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.40	0.03	0.33	1.09	1.32			< 0.05	0.00
2 - Cwmbach Road	0.66	0.05	0.48	1.51	1.60			< 0.05	0.00
3 - Abernant Road (S)	0.67	0.06	0.64	1.43	1.53			< 0.05	0.00
4 - Wellington Street	0.48	0.04	0.40	1.31	1.46			< 0.05	0.00

2038 Future Year + Proposed Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	2 - Cwmbach Road - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - Wellington Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Abernant Road/Cwmbach Road/Wellington Street	Standard Roundabout		1, 2, 3, 4	34.52	D

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	2038 Future Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Abernant Road (N)		ONE HOUR	✓	391	100.000
2 - Cwmbach Road		ONE HOUR	✓	535	100.000
3 - Abernant Road (S)		ONE HOUR	✓	541	100.000
4 - Wellington Street		ONE HOUR	✓	183	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Abernant Road (N)		
2 - Cwmbach Road	[ONEHOUR]	0.00
3 - Abernant Road (S)		
4 - Wellington Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	1	105	237	48
	2 - Cwmbach Road	50	19	341	125
	3 - Abernant Road (S)	136	301	1	103
	4 - Wellington Street	14	92	75	2

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	3	2	2
	2 - Cwmbach Road	3	0	3	3
	3 - Abernant Road (S)	3	2	0	3
	4 - Wellington Street	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Abernant Road (N)	0.83	38.39	4.3	23.3	E	359	538
2 - Cwmbach Road	0.94	65.51	10.0	47.9	F	491	736
3 - Abernant Road (S)	0.56	7.91	1.3	1.7	A	496	745
4 - Wellington Street	0.44	14.34	0.8	3.4	B	168	252

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	294	74	366		607	0.485	291	150	0.0	0.9	11.512	B
2 - Cwmbach Road	403	101	271	0.00	675	0.597	397	386	0.0	1.5	13.059	B
3 - Abernant Road (S)	407	102	182		1111	0.367	405	486	0.0	0.6	5.205	A
4 - Wellington Street	138	34	380	0.00	512	0.269	136	207	0.0	0.4	9.776	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	352	88	439		571	0.616	349	180	0.9	1.6	16.406	C
2 - Cwmbach Road	481	120	325	0.00	655	0.734	476	463	1.5	2.6	20.195	C
3 - Abernant Road (S)	486	122	218		1090	0.446	485	583	0.6	0.8	6.092	A
4 - Wellington Street	165	41	455	0.00	489	0.336	164	248	0.4	0.5	11.313	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	430	108	537		523	0.823	421	219	1.6	4.0	33.340	D
2 - Cwmbach Road	589	147	393	0.00	630	0.935	567	564	2.6	8.1	47.532	E
3 - Abernant Road (S)	596	149	261		1065	0.559	594	700	0.8	1.3	7.792	A
4 - Wellington Street	201	50	555	0.00	460	0.438	200	299	0.5	0.8	14.175	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	430	108	539		522	0.825	429	221	4.0	4.3	38.394	E
2 - Cwmbach Road	589	147	400	0.00	627	0.939	581	568	8.1	10.0	65.510	F
3 - Abernant Road (S)	596	149	267		1062	0.561	596	714	1.3	1.3	7.911	A
4 - Wellington Street	201	50	558	0.00	459	0.439	201	304	0.8	0.8	14.341	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	352	88	443		569	0.618	362	184	4.3	1.7	18.593	C
2 - Cwmbach Road	481	120	335	0.00	651	0.739	508	470	10.0	3.2	29.690	D
3 - Abernant Road (S)	486	122	232		1082	0.449	488	612	1.3	0.8	6.225	A
4 - Wellington Street	165	41	462	0.00	488	0.337	166	258	0.8	0.5	11.491	B

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	294	74	370		605	0.487	297	152	1.7	1.0	12.088	B
2 - Cwmbach Road	403	101	276	0.00	673	0.599	409	391	3.2	1.6	14.354	B
3 - Abernant Road (S)	407	102	187		1108	0.368	408	498	0.8	0.6	5.278	A
4 - Wellington Street	138	34	384	0.00	511	0.270	138	211	0.5	0.4	9.919	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.94	0.56	1.02	1.43	1.48			< 0.05	0.00
2 - Cwmbach Road	1.47	0.60	1.36	1.81	1.95			< 0.05	0.00
3 - Abernant Road (S)	0.59	0.56	1.02	1.43	1.49			< 0.05	0.00
4 - Wellington Street	0.37	0.00	0.00	0.37	0.37			< 0.05	0.00

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.57	0.08	1.10	3.29	4.53			< 0.05	0.00
2 - Cwmbach Road	2.63	0.08	1.40	6.40	9.07			< 0.05	0.00
3 - Abernant Road (S)	0.82	0.12	0.90	1.46	1.53			< 0.05	0.00
4 - Wellington Street	0.51	0.00	0.00	0.51	0.51			< 0.05	0.00

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	3.96	0.04	0.43	10.91	20.32			0.09	0.01
2 - Cwmbach Road	8.12	0.10	2.47	22.29	32.91			0.09	0.01
3 - Abernant Road (S)	1.28	0.03	0.27	1.28	1.28			< 0.05	0.00
4 - Wellington Street	0.78	0.03	0.27	0.78	0.78			< 0.05	0.00

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	4.32	0.03	0.35	8.89	23.33			0.08	0.00
2 - Cwmbach Road	10.03	0.07	1.05	29.30	47.86			0.12	0.01
3 - Abernant Road (S)	1.29	0.03	0.28	1.29	1.73			< 0.05	0.00
4 - Wellington Street	0.79	0.03	0.29	1.21	3.41			< 0.05	0.00

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.73	0.04	0.43	4.64	7.95			< 0.05	0.00
2 - Cwmbach Road	3.17	0.04	0.43	8.75	16.06			< 0.05	0.00
3 - Abernant Road (S)	0.85	0.14	0.94	1.47	1.53			< 0.05	0.00
4 - Wellington Street	0.53	0.05	0.52	1.33	1.44			< 0.05	0.00

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.99	0.03	0.33	2.09	4.94			< 0.05	0.00
2 - Cwmbach Road	1.59	0.03	0.32	2.77	8.14			< 0.05	0.00
3 - Abernant Road (S)	0.60	0.06	0.59	1.37	1.47			< 0.05	0.00
4 - Wellington Street	0.38	0.03	0.31	0.97	1.25			< 0.05	0.00

2038 Future Year + Proposed Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	2 - Cwmbach Road - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - Wellington Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Abernant Road/Cwmbach Road/Wellington Street	Standard Roundabout		1, 2, 3, 4	20.12	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
D10	2038 Future Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Abernant Road (N)		ONE HOUR	✓	266	100.000
2 - Cwmbach Road		ONE HOUR	✓	503	100.000
3 - Abernant Road (S)		ONE HOUR	✓	660	100.000
4 - Wellington Street		ONE HOUR	✓	201	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Abernant Road (N)		
2 - Cwmbach Road	[ONEHOUR]	0.00
3 - Abernant Road (S)		
4 - Wellington Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	68	165	33
	2 - Cwmbach Road	132	2	279	90
	3 - Abernant Road (S)	243	362	1	54
	4 - Wellington Street	39	89	73	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Abernant Road (N)	2 - Cwmbach Road	3 - Abernant Road (S)	4 - Wellington Street
From	1 - Abernant Road (N)	0	2	3	3
	2 - Cwmbach Road	2	0	2	2
	3 - Abernant Road (S)	3	2	0	3
	4 - Wellington Street	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Abernant Road (N)	0.58	17.67	1.4	5.2	C	244	366
2 - Cwmbach Road	0.83	31.86	4.6	24.3	D	462	692
3 - Abernant Road (S)	0.69	11.29	2.2	6.7	B	606	908
4 - Wellington Street	0.58	22.95	1.4	5.9	C	184	277

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	200	50	393		593	0.337	198	309	0.0	0.5	9.312	A
2 - Cwmbach Road	379	95	203	0.00	700	0.541	374	389	0.0	1.2	11.102	B
3 - Abernant Road (S)	497	124	191		1106	0.449	494	385	0.0	0.8	5.992	A
4 - Wellington Street	151	38	553	0.00	460	0.329	149	132	0.0	0.5	11.807	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	239	60	472		555	0.431	238	371	0.5	0.8	11.648	B
2 - Cwmbach Road	452	113	243	0.00	685	0.660	449	467	1.2	1.9	15.372	C
3 - Abernant Road (S)	593	148	230		1083	0.548	592	463	0.8	1.2	7.479	A
4 - Wellington Street	181	45	663	0.00	427	0.423	180	158	0.5	0.7	14.870	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	293	73	576		504	0.582	290	451	0.8	1.4	17.161	C
2 - Cwmbach Road	554	138	297	0.00	665	0.832	544	570	1.9	4.3	28.226	D
3 - Abernant Road (S)	727	182	278		1055	0.689	723	563	1.2	2.2	10.980	B
4 - Wellington Street	221	55	809	0.00	383	0.577	219	193	0.7	1.3	22.144	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	293	73	580		502	0.584	293	455	1.4	1.4	17.671	C
2 - Cwmbach Road	554	138	299	0.00	665	0.833	552	573	4.3	4.6	31.857	D
3 - Abernant Road (S)	727	182	282		1052	0.690	726	569	2.2	2.2	11.295	B
4 - Wellington Street	221	55	814	0.00	382	0.580	221	195	1.3	1.4	22.946	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	239	60	478		552	0.433	242	377	1.4	0.8	12.011	B
2 - Cwmbach Road	452	113	247	0.00	684	0.661	462	472	4.6	2.1	17.269	C
3 - Abernant Road (S)	593	148	236		1080	0.550	597	474	2.2	1.3	7.705	A
4 - Wellington Street	181	45	671	0.00	424	0.426	183	162	1.4	0.8	15.437	C

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Abernant Road (N)	200	50	399		591	0.339	201	313	0.8	0.5	9.524	A
2 - Cwmbach Road	379	95	206	0.00	699	0.542	382	394	2.1	1.2	11.706	B
3 - Abernant Road (S)	497	124	195		1103	0.450	499	393	1.3	0.8	6.113	A
4 - Wellington Street	151	38	560	0.00	458	0.330	152	134	0.8	0.5	12.116	B

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.52	0.52	1.03	1.44	1.49			< 0.05	0.00
2 - Cwmbach Road	1.17	0.56	1.02	1.43	1.48			< 0.05	0.00
3 - Abernant Road (S)	0.83	0.56	1.02	1.43	1.49			< 0.05	0.00
4 - Wellington Street	0.49	0.00	0.00	0.49	0.49			< 0.05	0.00

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.76	0.15	0.92	1.43	1.49			< 0.05	0.00
2 - Cwmbach Road	1.89	0.08	1.19	4.24	5.92			< 0.05	0.00
3 - Abernant Road (S)	1.22	0.08	0.95	2.36	3.14			< 0.05	0.00
4 - Wellington Street	0.73	0.18	0.94	1.42	1.48			< 0.05	0.00

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.37	0.03	0.29	1.37	4.00			< 0.05	0.00
2 - Cwmbach Road	4.29	0.04	0.41	11.60	22.68			< 0.05	0.00
3 - Abernant Road (S)	2.19	0.03	0.29	2.19	6.72			< 0.05	0.00
4 - Wellington Street	1.33	0.03	0.29	1.33	4.98			< 0.05	0.00

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	1.41	0.03	0.29	1.41	5.18			< 0.05	0.00
2 - Cwmbach Road	4.63	0.03	0.33	8.03	24.27			< 0.05	0.00
3 - Abernant Road (S)	2.24	0.03	0.28	2.24	3.35			< 0.05	0.00
4 - Wellington Street	1.37	0.03	0.30	1.53	5.87			< 0.05	0.00

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.80	0.06	0.73	1.23	1.74			< 0.05	0.00
2 - Cwmbach Road	2.09	0.04	0.44	5.69	9.76			< 0.05	0.00
3 - Abernant Road (S)	1.27	0.07	0.93	2.61	3.57			< 0.05	0.00
4 - Wellington Street	0.78	0.06	0.64	1.30	1.81			< 0.05	0.00

18:15 - 18:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - Abernant Road (N)	0.53	0.04	0.41	1.21	1.21			< 0.05	0.00
2 - Cwmbach Road	1.24	0.03	0.34	2.88	6.23			< 0.05	0.00
3 - Abernant Road (S)	0.85	0.05	0.46	1.84	2.78			< 0.05	0.00
4 - Wellington Street	0.52	0.04	0.40	1.30	1.30			< 0.05	0.00

APPENDIX M – ARCADY OUTPUT DATA (JUNCTION 3)

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.0.6896

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

Filename: J3 - A4059 (N)_Abernant Road_Sobell Leisure_A4059 (S).j9
Path: Z:\2020 Projects\F20029 Land at Abernant Road\Capacity Analysis\August 2023\J3 - A4059 (S)_Abernant Road_Sobell Leisure Centre_A4059 (N)
Report generation date: 07/08/2023 15:56:07

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023							
1 - A4059/N	2.1	6.43	0.66	A	3.8	10.09	0.78	B
2 - Abernant Road	1.7	11.35	0.62	B	1.4	11.67	0.59	B
3 - Sobell Leisure Centre	0.5	8.59	0.31	A	0.4	9.35	0.28	A
4 - A4059 (S)	3.0	12.67	0.75	B	3.2	12.39	0.75	B
	2028 Opening Year							
1 - A4059/N	2.4	7.15	0.69	A	5.3	13.45	0.84	B
2 - Abernant Road	2.5	15.39	0.72	C	2.2	15.70	0.68	C
3 - Sobell Leisure Centre	0.6	9.91	0.35	A	0.5	10.92	0.33	B
4 - A4059 (S)	3.5	13.84	0.77	B	3.8	14.30	0.79	B
	2028 Opening Year + Proposed Dev							
1 - A4059/N	2.5	7.34	0.70	A	6.8	16.79	0.87	C
2 - Abernant Road	3.7	20.65	0.79	C	2.6	18.08	0.73	C
3 - Sobell Leisure Centre	0.6	10.88	0.38	B	0.5	11.49	0.34	B
4 - A4059 (S)	3.7	14.83	0.78	B	4.2	15.87	0.80	C
	2038 Future Year							
1 - A4059/N	3.1	8.82	0.75	A	9.0	21.84	0.90	C
2 - Abernant Road	4.0	23.03	0.80	C	3.4	23.40	0.78	C
3 - Sobell Leisure Centre	0.7	11.98	0.41	B	0.7	13.60	0.39	B
4 - A4059 (S)	4.9	18.79	0.83	C	5.9	21.19	0.85	C
	2038 Future Year + Proposed Dev							
1 - A4059/N	3.3	9.12	0.76	A	12.9	30.43	0.94	D
2 - Abernant Road	6.6	35.73	0.88	E	4.3	28.50	0.82	D
3 - Sobell Leisure Centre	0.8	13.39	0.44	B	0.7	14.41	0.41	B
4 - A4059 (S)	5.8	22.21	0.85	C	6.8	24.53	0.87	C

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	J3 - A4059 (N)/Abernant Road/Sobell Leisure Centre/A4059/S
Location	Aberdare
Site number	
Date	30/09/2022
Version	
Status	Preliminary
Identifier	DS
Client	Xurbia Developments
Jobnumber	F20029
Enumerator	BANCROFT\dscott
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023	AM	ONE HOUR	08:00	09:30	15	✓
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓
D3	2028 Opening Year	AM	ONE HOUR	08:00	09:30	15	✓
D4	2028 Opening Year	PM	ONE HOUR	17:00	18:30	15	✓
D5	2028 Opening Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓
D6	2028 Opening Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓
D9	2038 Future Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓
D10	2038 Future Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2023, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059/N - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.52	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A4059/N	
2	Abernant Road	
3	Sobell Leisure Centre	
4	A4059 (S)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A4059/N	3.60	7.00	100.0	27.3	42.0	20.9	
2 - Abernant Road	3.00	6.00	30.0	9.2	41.9	29.9	
3 - Sobell Leisure Centre	3.10	6.41	6.0	10.6	44.3	28.8	
4 - A4059 (S)	3.25	7.00	100.0	29.8	43.1	30.3	

Queue Markers

Arm	Queue marker	Queue marker type	Distance from start of flare (m)	Flare storage (PCU)	Lanes on approach
1 - A4059/N	✓	Distance + Flare	150.00	0.00	2
2 - Abernant Road	✓	Distance + Flare	66.00	4.00	1
3 - Sobell Leisure Centre	✓	Distance + Flare	40.00	2.00	1
4 - A4059 (S)	✓	Distance + Flare	70.00	0.00	2

Pelican/Puffin Crossings

Arm	Space between crossing and junc. entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
4 - A4059 (S)	13.50	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Percentage intercept adjustment (%)
1 - A4059/N	Percentage	Calibration	90.00
2 - Abernant Road	Percentage	Calibration	90.00
3 - Sobell Leisure Centre	None		
4 - A4059 (S)	Percentage	Calibration	85.00

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A4059/N	0.732	1899
2 - Abernant Road	0.582	1356
3 - Sobell Leisure Centre	0.530	1251
4 - A4059 (S)	0.703	1725

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A4059/N	Percentage		100.00
4 - A4059 (S)	Percentage		90.00

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	2023	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059/N		ONE HOUR	✓	1054	100.000
2 - Abernant Road		ONE HOUR	✓	491	100.000
3 - Sobell Leisure Centre		ONE HOUR	✓	175	100.000
4 - A4059 (S)		ONE HOUR	✓	799	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059/N		
2 - Abernant Road		
3 - Sobell Leisure Centre		
4 - A4059 (S)	[ONEHOUR]	189.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	324	94	636
	2 - Abernant Road	328	0	51	112
	3 - Sobell Leisure Centre	79	30	0	66
	4 - A4059 (S)	655	110	30	4

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	3	1	10
	2 - Abernant Road	3	0	2	3
	3 - Sobell Leisure Centre	2	2	0	2
	4 - A4059 (S)	10	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059/N	0.66	6.43	2.1	3.4	A	967	1451
2 - Abernant Road	0.62	11.35	1.7	3.8	B	451	676
3 - Sobell Leisure Centre	0.31	8.59	0.5	1.8	A	161	241
4 - A4059 (S)	0.75	12.67	3.0	13.1	B	733	1100

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	794	198	130		1804	0.440	790	794	0.0	0.8	3.784	A
2 - Abernant Road	370	92	573		1023	0.361	367	347	0.0	0.6	5.633	A
3 - Sobell Leisure Centre	132	33	809		822	0.160	131	131	0.0	0.2	5.310	A
4 - A4059 (S)	602	150	327	142.29	1124	0.535	597	613	0.0	1.2	7.348	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	948	237	156		1785	0.531	946	952	0.8	1.2	4.581	A
2 - Abernant Road	441	110	686		957	0.461	440	416	0.6	0.9	7.152	A
3 - Sobell Leisure Centre	157	39	969		737	0.213	157	157	0.2	0.3	6.329	A
4 - A4059 (S)	718	180	392	169.91	1147	0.626	716	734	1.2	1.8	9.016	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1160	290	191		1760	0.659	1157	1163	1.2	2.0	6.352	A
2 - Abernant Road	541	135	839		868	0.623	537	509	0.9	1.6	11.102	B
3 - Sobell Leisure Centre	193	48	1184		623	0.309	192	192	0.3	0.5	8.511	A
4 - A4059 (S)	880	220	479	208.09	1178	0.747	875	898	1.8	3.0	12.673	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1160	290	192		1759	0.660	1160	1170	2.0	2.1	6.429	A
2 - Abernant Road	541	135	841		867	0.624	540	511	1.6	1.7	11.347	B
3 - Sobell Leisure Centre	193	48	1189		620	0.311	193	193	0.5	0.5	8.587	A
4 - A4059 (S)	880	220	481	208.09	1231	0.715	881	901	3.0	2.8	11.218	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	948	237	157		1784	0.531	951	961	2.1	1.2	4.637	A
2 - Abernant Road	441	110	689		955	0.462	445	419	1.7	0.9	7.300	A
3 - Sobell Leisure Centre	157	39	976		733	0.215	158	158	0.5	0.3	6.391	A
4 - A4059 (S)	718	180	395	169.91	1212	0.592	723	738	2.8	1.6	8.065	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	794	198	131		1803	0.440	795	802	1.2	0.8	3.823	A
2 - Abernant Road	370	92	576		1021	0.362	371	350	0.9	0.6	5.711	A
3 - Sobell Leisure Centre	132	33	815		819	0.161	132	132	0.3	0.2	5.351	A
4 - A4059 (S)	602	150	330	142.29	1187	0.507	603	617	1.6	1.1	6.723	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	0.83	0.59	1.07	1.50	1.55			< 0.05	0.00
2 - Abernant Road	0.58	0.57	1.03	1.44	1.49			< 0.05	0.00
3 - Sobell Leisure Centre	0.19	0.00	0.00	0.19	0.19			< 0.05	0.00
4 - A4059 (S)	1.23	0.60	1.09	1.52	1.57			< 0.05	0.00

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.20	0.07	0.84	2.45	3.39			< 0.05	0.00
2 - Abernant Road	0.87	0.09	0.88	1.15	1.66			< 0.05	0.00
3 - Sobell Leisure Centre	0.27	0.00	0.00	0.27	0.27			< 0.05	0.00
4 - A4059 (S)	1.77	0.08	1.12	3.99	5.57			< 0.05	0.00

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.03	0.03	0.29	2.03	2.03			< 0.05	0.00
2 - Abernant Road	1.65	0.03	0.28	1.65	3.17			< 0.05	0.00
3 - Sobell Leisure Centre	0.45	0.03	0.26	0.47	0.50			< 0.05	0.00
4 - A4059 (S)	3.04	0.03	0.32	3.04	13.14			< 0.05	0.00

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.05	0.03	0.28	2.05	2.05			< 0.05	0.00
2 - Abernant Road	1.68	0.03	0.28	1.68	3.76			< 0.05	0.00
3 - Sobell Leisure Centre	0.46	0.03	0.33	1.42	1.80			< 0.05	0.00
4 - A4059 (S)	2.81	0.03	0.29	2.81	3.18			< 0.05	0.00

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.22	0.13	1.13	1.93	2.39			< 0.05	0.00
2 - Abernant Road	0.90	0.08	0.85	1.42	1.84			< 0.05	0.00
3 - Sobell Leisure Centre	0.28	0.00	0.00	0.28	0.28			< 0.05	0.00
4 - A4059 (S)	1.61	0.05	0.53	4.08	6.33			< 0.05	0.00

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	0.85	0.06	0.71	1.44	1.94			< 0.05	0.00
2 - Abernant Road	0.59	0.04	0.44	1.42	1.42			< 0.05	0.00
3 - Sobell Leisure Centre	0.20	0.00	0.00	0.20	0.20			< 0.05	0.00
4 - A4059 (S)	1.13	0.04	0.42	2.84	4.85			< 0.05	0.00

2023, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059/N - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	11.03	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
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059/N		ONE HOUR	✓	1253	100.000
2 - Abernant Road		ONE HOUR	✓	410	100.000
3 - Sobell Leisure Centre		ONE HOUR	✓	140	100.000
4 - A4059 (S)		ONE HOUR	✓	849	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059/N		
2 - Abernant Road		
3 - Sobell Leisure Centre		
4 - A4059 (S)	[ONEHOUR]	110.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	376	61	816
	2 - Abernant Road	291	0	20	99
	3 - Sobell Leisure Centre	76	22	0	42
	4 - A4059 (S)	700	109	40	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	3	2	10
	2 - Abernant Road	3	0	2	3
	3 - Sobell Leisure Centre	2	2	0	2
	4 - A4059 (S)	10	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059/N	0.78	10.09	3.8	14.8	B	1150	1725
2 - Abernant Road	0.59	11.67	1.4	4.1	B	376	564
3 - Sobell Leisure Centre	0.28	9.35	0.4	1.3	A	128	193
4 - A4059 (S)	0.75	12.39	3.2	13.8	B	779	1169

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	943	236	128		1806	0.522	939	798	0.0	1.2	4.436	A
2 - Abernant Road	309	77	687		956	0.323	307	380	0.0	0.5	5.688	A
3 - Sobell Leisure Centre	105	26	903		772	0.137	105	91	0.0	0.2	5.500	A
4 - A4059 (S)	639	160	291	82.81	1217	0.525	634	717	0.0	1.2	6.659	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1126	282	153		1787	0.630	1124	956	1.2	1.8	5.809	A
2 - Abernant Road	369	92	822		877	0.420	368	455	0.5	0.7	7.254	A
3 - Sobell Leisure Centre	126	31	1082		677	0.186	126	108	0.2	0.2	6.653	A
4 - A4059 (S)	763	191	349	98.89	1222	0.624	761	858	1.2	1.8	8.434	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1380	345	187		1762	0.783	1372	1168	1.8	3.7	9.722	A
2 - Abernant Road	451	113	1004		772	0.585	449	555	0.7	1.4	11.377	B
3 - Sobell Leisure Centre	154	39	1320		551	0.280	154	132	0.2	0.4	9.233	A
4 - A4059 (S)	935	234	426	121.11	1239	0.754	929	1048	1.8	3.2	12.391	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1380	345	188		1761	0.783	1379	1175	3.7	3.8	10.092	B
2 - Abernant Road	451	113	1009		769	0.587	451	558	1.4	1.4	11.666	B
3 - Sobell Leisure Centre	154	39	1327		547	0.282	154	133	0.4	0.4	9.351	A
4 - A4059 (S)	935	234	428	121.11	1281	0.729	935	1053	3.2	3.0	11.340	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1126	282	155		1786	0.631	1134	966	3.8	1.9	5.999	A
2 - Abernant Road	369	92	830		873	0.422	371	459	1.4	0.8	7.427	A
3 - Sobell Leisure Centre	126	31	1092		672	0.187	126	110	0.4	0.2	6.740	A
4 - A4059 (S)	763	191	352	98.89	1278	0.597	769	866	3.0	1.6	7.765	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	943	236	129		1805	0.523	946	806	1.9	1.2	4.518	A
2 - Abernant Road	309	77	692		953	0.324	310	383	0.8	0.5	5.771	A
3 - Sobell Leisure Centre	105	26	911		768	0.137	106	91	0.2	0.2	5.547	A
4 - A4059 (S)	639	160	294	82.81	1262	0.506	641	723	1.6	1.1	6.317	A

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.16	0.59	1.07	1.50	1.56			< 0.05	0.00
2 - Abernant Road	0.49	0.00	0.00	0.49	0.49			< 0.05	0.00
3 - Sobell Leisure Centre	0.16	0.00	0.00	0.16	0.16			< 0.05	0.00
4 - A4059 (S)	1.18	0.60	1.09	1.52	1.58			< 0.05	0.00

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.80	0.05	0.53	4.66	7.25			< 0.05	0.00
2 - Abernant Road	0.74	0.09	0.85	1.43	1.50			< 0.05	0.00
3 - Sobell Leisure Centre	0.23	0.00	0.00	0.23	0.23			< 0.05	0.00
4 - A4059 (S)	1.76	0.07	1.04	4.07	5.80			< 0.05	0.00

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	3.69	0.03	0.32	3.69	14.76			< 0.05	0.00
2 - Abernant Road	1.41	0.03	0.28	1.41	1.82			< 0.05	0.00
3 - Sobell Leisure Centre	0.39	0.03	0.26	0.47	0.50			< 0.05	0.00
4 - A4059 (S)	3.17	0.03	0.32	3.17	13.77			< 0.05	0.00

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	3.78	0.03	0.29	3.78	5.19			< 0.05	0.00
2 - Abernant Road	1.44	0.03	0.29	1.44	4.14			< 0.05	0.00
3 - Sobell Leisure Centre	0.40	0.03	0.33	1.28	1.28			< 0.05	0.00
4 - A4059 (S)	3.02	0.03	0.30	3.02	4.12			< 0.05	0.00

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.87	0.06	0.91	4.57	6.73			< 0.05	0.00
2 - Abernant Road	0.76	0.08	0.80	1.20	1.20			< 0.05	0.00
3 - Sobell Leisure Centre	0.24	0.00	0.00	0.24	0.24			< 0.05	0.00
4 - A4059 (S)	1.64	0.05	0.54	4.15	6.39			< 0.05	0.00

18:15 - 18:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.19	0.04	0.43	2.99	5.06			< 0.05	0.00
2 - Abernant Road	0.50	0.04	0.41	1.32	1.47			< 0.05	0.00
3 - Sobell Leisure Centre	0.16	0.00	0.00	0.16	0.16			< 0.05	0.00
4 - A4059 (S)	1.13	0.04	0.42	2.84	4.88			< 0.05	0.00

2028 Opening Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059/N - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	11.13	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
D3	2028 Opening Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059/N		ONE HOUR	✓	1102	100.000
2 - Abernant Road		ONE HOUR	✓	552	100.000
3 - Sobell Leisure Centre		ONE HOUR	✓	184	100.000
4 - A4059 (S)		ONE HOUR	✓	833	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059/N		
2 - Abernant Road		
3 - Sobell Leisure Centre		
4 - A4059 (S)	[ONEHOUR]	189.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	343	97	662
	2 - Abernant Road	369	0	57	126
	3 - Sobell Leisure Centre	83	32	0	69
	4 - A4059 (S)	682	116	31	4

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	3	2	10
	2 - Abernant Road	3	0	2	3
	3 - Sobell Leisure Centre	2	2	0	2
	4 - A4059 (S)	10	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059/N	0.69	7.15	2.4	4.2	A	1011	1517
2 - Abernant Road	0.72	15.39	2.5	10.8	C	507	760
3 - Sobell Leisure Centre	0.35	9.91	0.6	2.5	A	169	253
4 - A4059 (S)	0.77	13.84	3.5	16.5	B	764	1147

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	830	207	137		1799	0.461	826	847	0.0	0.9	3.944	A
2 - Abernant Road	416	104	595		1010	0.412	413	368	0.0	0.7	6.166	A
3 - Sobell Leisure Centre	139	35	869		790	0.175	138	138	0.0	0.2	5.624	A
4 - A4059 (S)	627	157	362	142.29	1113	0.564	622	645	0.0	1.4	7.879	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	991	248	164		1779	0.557	989	1016	0.9	1.3	4.863	A
2 - Abernant Road	496	124	713		941	0.527	495	440	0.7	1.1	8.259	A
3 - Sobell Leisure Centre	165	41	1041		699	0.237	165	166	0.2	0.3	6.877	A
4 - A4059 (S)	749	187	434	169.91	1144	0.654	746	772	1.4	2.0	9.756	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1213	303	200		1753	0.692	1209	1240	1.3	2.3	7.035	A
2 - Abernant Road	608	152	871		849	0.716	602	538	1.1	2.5	14.707	B
3 - Sobell Leisure Centre	203	51	1271		577	0.351	202	203	0.3	0.5	9.766	A
4 - A4059 (S)	917	229	529	208.09	1188	0.772	911	944	2.0	3.5	13.843	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1213	303	202		1752	0.693	1213	1248	2.3	2.4	7.148	A
2 - Abernant Road	608	152	874		847	0.717	607	541	2.5	2.5	15.387	C
3 - Sobell Leisure Centre	203	51	1278		573	0.354	203	204	0.5	0.6	9.908	A
4 - A4059 (S)	917	229	533	208.09	1215	0.755	917	948	3.5	3.4	13.148	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	991	248	166		1778	0.557	995	1029	2.4	1.4	4.946	A
2 - Abernant Road	496	124	717		939	0.529	502	444	2.5	1.2	8.573	A
3 - Sobell Leisure Centre	165	41	1051		693	0.239	166	167	0.6	0.3	6.977	A
4 - A4059 (S)	749	187	439	169.91	1226	0.611	756	778	3.4	1.7	8.430	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	830	207	138		1798	0.461	831	857	1.4	0.9	3.991	A
2 - Abernant Road	416	104	599		1007	0.413	417	371	1.2	0.7	6.296	A
3 - Sobell Leisure Centre	139	35	877		786	0.176	139	140	0.3	0.2	5.681	A
4 - A4059 (S)	627	157	366	142.29	1179	0.532	629	650	1.7	1.3	7.131	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	0.91	0.59	1.07	1.50	1.55			< 0.05	0.00
2 - Abernant Road	0.71	0.57	1.03	1.44	1.49			< 0.05	0.00
3 - Sobell Leisure Centre	0.22	0.00	0.00	0.22	0.22			< 0.05	0.00
4 - A4059 (S)	1.38	0.60	1.09	1.52	1.57			< 0.05	0.00

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.33	0.06	0.78	2.97	4.23			< 0.05	0.00
2 - Abernant Road	1.13	0.07	0.88	2.08	2.93			< 0.05	0.00
3 - Sobell Leisure Centre	0.31	0.00	0.00	0.31	0.31			< 0.05	0.00
4 - A4059 (S)	2.00	0.08	1.16	4.67	6.60			< 0.05	0.00

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.35	0.03	0.29	2.35	3.12			< 0.05	0.00
2 - Abernant Road	2.45	0.03	0.30	2.45	10.76			< 0.05	0.00
3 - Sobell Leisure Centre	0.54	0.03	0.26	0.54	0.54			< 0.05	0.00
4 - A4059 (S)	3.46	0.03	0.33	4.16	16.46			< 0.05	0.00

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.38	0.03	0.28	2.38	2.38			< 0.05	0.00
2 - Abernant Road	2.53	0.03	0.29	2.53	7.62			< 0.05	0.00
3 - Sobell Leisure Centre	0.55	0.03	0.32	1.03	2.50			< 0.05	0.00
4 - A4059 (S)	3.42	0.03	0.30	3.42	6.99			< 0.05	0.00

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.36	0.10	1.14	2.46	3.16			< 0.05	0.00
2 - Abernant Road	1.18	0.06	0.71	2.58	3.69			< 0.05	0.00
3 - Sobell Leisure Centre	0.32	0.00	0.00	0.32	0.32			< 0.05	0.00
4 - A4059 (S)	1.74	0.05	0.48	4.60	7.57			< 0.05	0.00

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	0.92	0.06	0.60	1.84	2.59			< 0.05	0.00
2 - Abernant Road	0.73	0.04	0.39	1.69	2.77			< 0.05	0.00
3 - Sobell Leisure Centre	0.22	0.00	0.00	0.22	0.22			< 0.05	0.00
4 - A4059 (S)	1.25	0.04	0.41	3.15	5.75			< 0.05	0.00

2028 Opening Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059/N - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	13.96	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
D4	2028 Opening Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059/N		ONE HOUR	✓	1330	100.000
2 - Abernant Road		ONE HOUR	✓	464	100.000
3 - Sobell Leisure Centre		ONE HOUR	✓	147	100.000
4 - A4059 (S)		ONE HOUR	✓	889	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059/N		
2 - Abernant Road		
3 - Sobell Leisure Centre		
4 - A4059 (S)	[ONEHOUR]	110.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	418	63	849
	2 - Abernant Road	329	0	23	112
	3 - Sobell Leisure Centre	79	25	0	43
	4 - A4059 (S)	727	121	41	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	3	2	10
	2 - Abernant Road	3	0	2	3
	3 - Sobell Leisure Centre	2	2	0	2
	4 - A4059 (S)	10	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059/N	0.84	13.45	5.3	26.4	B	1220	1831
2 - Abernant Road	0.68	15.70	2.2	8.3	C	426	639
3 - Sobell Leisure Centre	0.33	10.92	0.5	1.9	B	135	202
4 - A4059 (S)	0.79	14.30	3.8	18.2	B	816	1224

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1001	250	140		1797	0.557	996	848	0.0	1.3	4.792	A
2 - Abernant Road	349	87	714		941	0.371	347	422	0.0	0.6	6.216	A
3 - Sobell Leisure Centre	111	28	965		739	0.150	110	95	0.0	0.2	5.833	A
4 - A4059 (S)	669	167	324	82.81	1204	0.556	664	752	0.0	1.3	7.173	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1196	299	168		1777	0.673	1192	1017	1.3	2.2	6.574	A
2 - Abernant Road	417	104	854		859	0.486	416	506	0.6	1.0	8.336	A
3 - Sobell Leisure Centre	132	33	1156		638	0.207	132	114	0.2	0.3	7.254	A
4 - A4059 (S)	799	200	388	98.89	1215	0.658	796	900	1.3	2.0	9.272	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1464	366	205		1749	0.837	1453	1240	2.2	5.1	12.541	B
2 - Abernant Road	511	128	1041		750	0.681	506	616	1.0	2.1	14.915	B
3 - Sobell Leisure Centre	162	40	1409		504	0.321	161	139	0.3	0.5	10.685	B
4 - A4059 (S)	979	245	473	121.11	1246	0.785	972	1097	2.0	3.7	13.914	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1464	366	206		1749	0.837	1464	1249	5.1	5.3	13.452	B
2 - Abernant Road	511	128	1049		746	0.685	511	621	2.1	2.2	15.700	C
3 - Sobell Leisure Centre	162	40	1419		498	0.325	162	140	0.5	0.5	10.922	B
4 - A4059 (S)	979	245	476	121.11	1251	0.782	979	1105	3.7	3.8	14.301	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1196	299	170		1775	0.674	1208	1031	5.3	2.3	6.949	A
2 - Abernant Road	417	104	865		852	0.489	422	512	2.2	1.0	8.695	A
3 - Sobell Leisure Centre	132	33	1172		629	0.210	133	115	0.5	0.3	7.409	A
4 - A4059 (S)	799	200	393	98.89	1288	0.621	807	912	3.8	1.8	8.264	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1001	250	141		1796	0.558	1005	858	2.3	1.4	4.907	A
2 - Abernant Road	349	87	720		937	0.373	351	426	1.0	0.6	6.338	A
3 - Sobell Leisure Centre	111	28	975		734	0.151	111	96	0.3	0.2	5.901	A
4 - A4059 (S)	669	167	327	82.81	1253	0.534	671	759	1.8	1.3	6.749	A

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.33	0.60	1.16	1.34	1.75			< 0.05	0.00
2 - Abernant Road	0.60	0.57	1.03	1.44	1.49			< 0.05	0.00
3 - Sobell Leisure Centre	0.18	0.00	0.00	0.18	0.18			< 0.05	0.00
4 - A4059 (S)	1.34	0.60	1.09	1.52	1.57			< 0.05	0.00

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.16	0.05	0.52	5.82	9.38			< 0.05	0.00
2 - Abernant Road	0.96	0.08	0.87	1.62	1.99			< 0.05	0.00
3 - Sobell Leisure Centre	0.26	0.00	0.00	0.26	0.26			< 0.05	0.00
4 - A4059 (S)	2.03	0.07	1.08	4.90	7.08			< 0.05	0.00

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	5.08	0.03	0.35	8.42	26.35			< 0.05	0.00
2 - Abernant Road	2.09	0.03	0.30	2.09	8.32			< 0.05	0.00
3 - Sobell Leisure Centre	0.47	0.03	0.26	0.47	0.50			< 0.05	0.00
4 - A4059 (S)	3.72	0.03	0.34	4.97	18.16			< 0.05	0.00

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	5.29	0.03	0.31	5.29	16.39			< 0.05	0.00
2 - Abernant Road	2.17	0.03	0.29	2.17	7.10			< 0.05	0.00
3 - Sobell Leisure Centre	0.49	0.03	0.33	1.47	1.91			< 0.05	0.00
4 - A4059 (S)	3.79	0.03	0.30	3.79	9.48			< 0.05	0.00

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.26	0.05	0.54	6.08	9.63			< 0.05	0.00
2 - Abernant Road	1.00	0.06	0.74	1.93	2.73			< 0.05	0.00
3 - Sobell Leisure Centre	0.27	0.00	0.00	0.27	0.27			< 0.05	0.00
4 - A4059 (S)	1.82	0.05	0.48	4.83	7.95			< 0.05	0.00

18:15 - 18:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.37	0.04	0.38	3.37	6.71			< 0.05	0.00
2 - Abernant Road	0.62	0.04	0.39	1.27	2.00			< 0.05	0.00
3 - Sobell Leisure Centre	0.18	0.00	0.00	0.18	0.18			< 0.05	0.00
4 - A4059 (S)	1.26	0.04	0.40	3.17	5.95			< 0.05	0.00

2028 Opening Year + Proposed Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059/N - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	12.82	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
D5	2028 Opening Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059/N		ONE HOUR	✓	1113	100.000
2 - Abernant Road		ONE HOUR	✓	609	100.000
3 - Sobell Leisure Centre		ONE HOUR	✓	184	100.000
4 - A4059 (S)		ONE HOUR	✓	836	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059/N		
2 - Abernant Road		
3 - Sobell Leisure Centre		
4 - A4059 (S)	[ONEHOUR]	189.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	354	97	662
	2 - Abernant Road	416	0	57	136
	3 - Sobell Leisure Centre	83	32	0	69
	4 - A4059 (S)	682	119	31	4

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	3	2	10
	2 - Abernant Road	3	0	2	3
	3 - Sobell Leisure Centre	2	2	0	2
	4 - A4059 (S)	10	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059/N	0.70	7.34	2.5	4.5	A	1021	1532
2 - Abernant Road	0.79	20.65	3.7	18.9	C	559	838
3 - Sobell Leisure Centre	0.38	10.88	0.6	2.8	B	169	253
4 - A4059 (S)	0.78	14.83	3.7	17.9	B	767	1151

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	838	209	139		1798	0.466	834	882	0.0	0.9	3.982	A
2 - Abernant Road	458	115	595		1010	0.454	455	378	0.0	0.8	6.640	A
3 - Sobell Leisure Centre	139	35	912		767	0.181	138	138	0.0	0.2	5.822	A
4 - A4059 (S)	629	157	397	142.29	1097	0.574	624	652	0.0	1.4	8.160	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1001	250	167		1777	0.563	999	1058	0.9	1.4	4.936	A
2 - Abernant Road	547	137	712		941	0.582	545	453	0.8	1.4	9.299	A
3 - Sobell Leisure Centre	165	41	1092		672	0.246	165	166	0.2	0.3	7.239	A
4 - A4059 (S)	752	188	476	169.91	1131	0.665	749	781	1.4	2.1	10.154	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1225	306	203		1750	0.700	1221	1289	1.4	2.4	7.218	A
2 - Abernant Road	671	168	871		849	0.790	662	554	1.4	3.5	18.987	C
3 - Sobell Leisure Centre	203	51	1331		545	0.372	202	202	0.3	0.6	10.657	B
4 - A4059 (S)	920	230	578	208.09	1178	0.781	914	954	2.1	3.6	14.478	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1225	306	205		1749	0.701	1225	1300	2.4	2.5	7.342	A
2 - Abernant Road	671	168	874		847	0.791	670	556	3.5	3.7	20.648	C
3 - Sobell Leisure Centre	203	51	1340		540	0.375	203	204	0.6	0.6	10.878	B
4 - A4059 (S)	920	230	584	208.09	1183	0.778	920	959	3.6	3.7	14.830	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1001	250	169		1776	0.564	1005	1074	2.5	1.4	5.024	A
2 - Abernant Road	547	137	717		939	0.583	556	457	3.7	1.5	9.901	A
3 - Sobell Leisure Centre	165	41	1106		664	0.249	166	168	0.6	0.3	7.390	A
4 - A4059 (S)	752	188	484	169.91	1219	0.616	759	788	3.7	1.8	8.632	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	838	209	140		1796	0.466	840	893	1.4	0.9	4.032	A
2 - Abernant Road	458	115	599		1007	0.455	461	381	1.5	0.9	6.807	A
3 - Sobell Leisure Centre	139	35	920		763	0.182	139	140	0.3	0.2	5.892	A
4 - A4059 (S)	629	157	402	142.29	1165	0.540	631	658	1.8	1.3	7.353	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	0.93	0.59	1.07	1.50	1.55			< 0.05	0.00
2 - Abernant Road	0.84	0.57	1.03	1.44	1.49			< 0.05	0.00
3 - Sobell Leisure Centre	0.22	0.00	0.00	0.22	0.22			< 0.05	0.00
4 - A4059 (S)	1.43	0.60	1.09	1.52	1.57			< 0.05	0.00

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.36	0.06	0.76	3.08	4.48			< 0.05	0.00
2 - Abernant Road	1.40	0.06	0.82	3.11	4.54			< 0.05	0.00
3 - Sobell Leisure Centre	0.33	0.00	0.00	0.33	0.33			< 0.05	0.00
4 - A4059 (S)	2.09	0.08	1.19	4.93	7.00			< 0.05	0.00

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.43	0.03	0.29	2.43	3.77			< 0.05	0.00
2 - Abernant Road	3.51	0.03	0.34	7.06	18.85			0.06	0.00
3 - Sobell Leisure Centre	0.59	0.03	0.26	0.59	0.59			< 0.05	0.00
4 - A4059 (S)	3.63	0.03	0.34	4.98	17.85			< 0.05	0.00

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.47	0.03	0.28	2.47	2.47			< 0.05	0.00
2 - Abernant Road	3.70	0.03	0.31	3.70	15.76			0.05	0.00
3 - Sobell Leisure Centre	0.61	0.03	0.32	1.13	2.82			< 0.05	0.00
4 - A4059 (S)	3.70	0.03	0.30	3.70	9.38			< 0.05	0.00

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.40	0.10	1.14	2.63	3.41			< 0.05	0.00
2 - Abernant Road	1.48	0.05	0.48	3.77	5.94			< 0.05	0.00
3 - Sobell Leisure Centre	0.34	0.00	0.00	0.34	0.34			< 0.05	0.00
4 - A4059 (S)	1.79	0.05	0.46	4.76	8.07			< 0.05	0.00

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	0.94	0.05	0.56	1.92	2.78			< 0.05	0.00
2 - Abernant Road	0.87	0.03	0.35	1.99	4.04			< 0.05	0.00
3 - Sobell Leisure Centre	0.23	0.00	0.00	0.23	0.23			< 0.05	0.00
4 - A4059 (S)	1.30	0.04	0.40	3.25	6.12			< 0.05	0.00

2028 Opening Year + Proposed Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059/N - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	16.46	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
D6	2028 Opening Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059/N		ONE HOUR	✓	1377	100.000
2 - Abernant Road		ONE HOUR	✓	493	100.000
3 - Sobell Leisure Centre		ONE HOUR	✓	147	100.000
4 - A4059 (S)		ONE HOUR	✓	899	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059/N		
2 - Abernant Road		
3 - Sobell Leisure Centre		
4 - A4059 (S)	[ONEHOUR]	110.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	465	63	849
	2 - Abernant Road	354	0	23	116
	3 - Sobell Leisure Centre	79	25	0	43
	4 - A4059 (S)	727	131	41	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	3	2	10
	2 - Abernant Road	3	0	2	3
	3 - Sobell Leisure Centre	2	2	0	2
	4 - A4059 (S)	10	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059/N	0.87	16.79	6.8	35.0	C	1264	1895
2 - Abernant Road	0.73	18.08	2.6	11.9	C	452	679
3 - Sobell Leisure Centre	0.34	11.49	0.5	2.0	B	135	202
4 - A4059 (S)	0.80	15.87	4.2	20.8	C	825	1237

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1037	259	147		1791	0.579	1031	867	0.0	1.5	5.034	A
2 - Abernant Road	371	93	713		941	0.394	369	465	0.0	0.7	6.445	A
3 - Sobell Leisure Centre	111	28	987		727	0.152	110	95	0.0	0.2	5.942	A
4 - A4059 (S)	677	169	342	82.81	1195	0.566	671	754	0.0	1.4	7.382	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1238	309	176		1770	0.699	1234	1039	1.5	2.4	7.143	A
2 - Abernant Road	443	111	854		859	0.516	442	556	0.7	1.1	8.841	A
3 - Sobell Leisure Centre	132	33	1182		624	0.212	132	114	0.2	0.3	7.454	A
4 - A4059 (S)	808	202	410	98.89	1208	0.669	805	903	1.4	2.1	9.618	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1516	379	215		1742	0.871	1500	1266	2.4	6.4	15.077	C
2 - Abernant Road	543	136	1038		752	0.722	537	677	1.1	2.5	16.826	C
3 - Sobell Leisure Centre	162	40	1437		489	0.331	161	138	0.3	0.5	11.173	B
4 - A4059 (S)	990	247	500	121.11	1236	0.801	982	1098	2.1	4.0	14.925	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1516	379	217		1741	0.871	1515	1276	6.4	6.8	16.793	C
2 - Abernant Road	543	136	1048		746	0.728	542	683	2.5	2.6	18.080	C
3 - Sobell Leisure Centre	162	40	1451		481	0.336	162	140	0.5	0.5	11.487	B
4 - A4059 (S)	990	247	504	121.11	1234	0.802	989	1109	4.0	4.2	15.866	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1238	309	179		1768	0.700	1255	1055	6.8	2.6	7.747	A
2 - Abernant Road	443	111	868		851	0.521	449	565	2.6	1.1	9.359	A
3 - Sobell Leisure Centre	132	33	1202		613	0.215	133	116	0.5	0.3	7.659	A
4 - A4059 (S)	808	202	417	98.89	1289	0.627	818	918	4.2	1.9	8.452	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1037	259	149		1790	0.579	1041	877	2.6	1.5	5.177	A
2 - Abernant Road	371	93	720		937	0.396	373	469	1.1	0.7	6.596	A
3 - Sobell Leisure Centre	111	28	997		722	0.153	111	96	0.3	0.2	6.017	A
4 - A4059 (S)	677	169	346	82.81	1246	0.543	679	762	1.9	1.3	6.926	A

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.45	0.61	1.31	1.81	1.98			< 0.05	0.00
2 - Abernant Road	0.66	0.57	1.03	1.44	1.49			< 0.05	0.00
3 - Sobell Leisure Centre	0.18	0.00	0.00	0.18	0.18			< 0.05	0.00
4 - A4059 (S)	1.39	0.60	1.09	1.52	1.57			< 0.05	0.00

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.43	0.05	0.51	6.63	10.83			< 0.05	0.00
2 - Abernant Road	1.08	0.07	0.87	1.97	2.75			< 0.05	0.00
3 - Sobell Leisure Centre	0.27	0.00	0.00	0.27	0.27			< 0.05	0.00
4 - A4059 (S)	2.13	0.07	1.08	5.20	7.55			< 0.05	0.00

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	6.39	0.04	0.39	14.76	34.98			< 0.05	0.00
2 - Abernant Road	2.51	0.03	0.31	2.96	11.86			< 0.05	0.00
3 - Sobell Leisure Centre	0.50	0.03	0.26	0.50	0.50			< 0.05	0.00
4 - A4059 (S)	4.04	0.03	0.35	6.52	20.76			< 0.05	0.00

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	6.76	0.03	0.33	6.76	29.65			< 0.05	0.00
2 - Abernant Road	2.64	0.03	0.30	2.64	9.84			< 0.05	0.00
3 - Sobell Leisure Centre	0.51	0.03	0.33	1.51	2.03			< 0.05	0.00
4 - A4059 (S)	4.22	0.03	0.31	4.22	13.15			< 0.05	0.00

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.57	0.05	0.50	7.08	11.81			< 0.05	0.00
2 - Abernant Road	1.14	0.06	0.64	2.54	3.68			< 0.05	0.00
3 - Sobell Leisure Centre	0.28	0.00	0.00	0.28	0.28			< 0.05	0.00
4 - A4059 (S)	1.87	0.05	0.46	5.01	8.56			< 0.05	0.00

18:15 - 18:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.49	0.04	0.36	3.40	7.65			< 0.05	0.00
2 - Abernant Road	0.68	0.04	0.37	1.58	2.70			< 0.05	0.00
3 - Sobell Leisure Centre	0.19	0.00	0.00	0.19	0.19			< 0.05	0.00
4 - A4059 (S)	1.31	0.04	0.39	3.23	6.33			< 0.05	0.00

2038 Future Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059/N - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	15.08	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
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059/N		ONE HOUR	✓	1185	100.000
2 - Abernant Road		ONE HOUR	✓	591	100.000
3 - Sobell Leisure Centre		ONE HOUR	✓	197	100.000
4 - A4059 (S)		ONE HOUR	✓	897	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059/N		
2 - Abernant Road		
3 - Sobell Leisure Centre		
4 - A4059 (S)	[ONEHOUR]	189.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	368	105	712
	2 - Abernant Road	395	0	61	135
	3 - Sobell Leisure Centre	89	34	0	74
	4 - A4059 (S)	734	125	33	5

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	3	2	10
	2 - Abernant Road	3	0	2	3
	3 - Sobell Leisure Centre	2	2	0	2
	4 - A4059 (S)	10	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059/N	0.75	8.82	3.1	9.3	A	1087	1631
2 - Abernant Road	0.80	23.03	4.0	20.3	C	542	813
3 - Sobell Leisure Centre	0.41	11.98	0.7	3.4	B	181	271
4 - A4059 (S)	0.83	18.79	4.9	25.2	C	823	1235

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	892	223	147		1792	0.498	888	909	0.0	1.1	4.243	A
2 - Abernant Road	445	111	641		983	0.453	442	394	0.0	0.8	6.796	A
3 - Sobell Leisure Centre	148	37	933		756	0.196	147	149	0.0	0.2	6.023	A
4 - A4059 (S)	675	169	387	142.29	1111	0.608	669	693	0.0	1.6	8.713	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1065	266	176		1770	0.602	1063	1091	1.1	1.6	5.433	A
2 - Abernant Road	531	133	767		910	0.584	529	473	0.8	1.4	9.672	A
3 - Sobell Leisure Centre	177	44	1118		658	0.269	177	178	0.2	0.4	7.618	A
4 - A4059 (S)	806	202	464	169.91	1161	0.695	803	830	1.6	2.4	10.851	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1305	326	215		1742	0.749	1299	1327	1.6	3.1	8.579	A
2 - Abernant Road	651	163	937		811	0.802	641	577	1.4	3.7	20.793	C
3 - Sobell Leisure Centre	217	54	1361		529	0.410	216	217	0.4	0.7	11.667	B
4 - A4059 (S)	988	247	563	208.09	1196	0.826	979	1013	2.4	4.7	17.262	C

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1305	326	217		1741	0.750	1304	1339	3.1	3.1	8.819	A
2 - Abernant Road	651	163	941		808	0.805	650	580	3.7	4.0	23.026	C
3 - Sobell Leisure Centre	217	54	1372		523	0.415	217	219	0.7	0.7	11.981	B
4 - A4059 (S)	988	247	570	208.09	1192	0.829	986	1019	4.7	4.9	18.787	C

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1065	266	179		1768	0.603	1071	1112	3.1	1.6	5.575	A
2 - Abernant Road	531	133	773		906	0.586	541	477	4.0	1.5	10.414	B
3 - Sobell Leisure Centre	177	44	1134		650	0.273	178	181	0.7	0.4	7.813	A
4 - A4059 (S)	806	202	473	169.91	1253	0.644	818	839	4.9	2.0	9.218	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	892	223	149		1790	0.498	894	921	1.6	1.1	4.312	A
2 - Abernant Road	445	111	645		980	0.454	447	398	1.5	0.9	6.981	A
3 - Sobell Leisure Centre	148	37	942		751	0.197	149	150	0.4	0.3	6.102	A
4 - A4059 (S)	675	169	392	142.29	1187	0.569	678	699	2.0	1.5	7.715	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.05	0.59	1.07	1.50	1.55			< 0.05	0.00
2 - Abernant Road	0.84	0.57	1.03	1.44	1.49			< 0.05	0.00
3 - Sobell Leisure Centre	0.25	0.00	0.00	0.25	0.25			< 0.05	0.00
4 - A4059 (S)	1.64	1.14	1.63	2.06	2.12			< 0.05	0.00

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.59	0.06	0.62	3.96	6.00			< 0.05	0.00
2 - Abernant Road	1.41	0.06	0.81	3.19	4.66			< 0.05	0.00
3 - Sobell Leisure Centre	0.37	0.00	0.00	0.37	0.37			< 0.05	0.00
4 - A4059 (S)	2.38	0.07	1.18	5.94	8.60			< 0.05	0.00

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	3.08	0.03	0.30	3.08	9.32			< 0.05	0.00
2 - Abernant Road	3.75	0.04	0.36	8.41	20.28			0.07	0.00
3 - Sobell Leisure Centre	0.69	0.03	0.26	0.69	0.69			< 0.05	0.00
4 - A4059 (S)	4.66	0.04	0.37	9.77	25.25			0.05	0.00

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	3.14	0.03	0.29	3.14	3.14			< 0.05	0.00
2 - Abernant Road	3.98	0.03	0.31	4.30	18.45			0.06	0.00
3 - Sobell Leisure Centre	0.71	0.03	0.31	1.20	3.45			< 0.05	0.00
4 - A4059 (S)	4.94	0.03	0.32	4.94	19.81			< 0.05	0.00

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.65	0.07	1.05	3.68	5.15			< 0.05	0.00
2 - Abernant Road	1.50	0.05	0.46	3.86	6.18			< 0.05	0.00
3 - Sobell Leisure Centre	0.39	0.00	0.00	0.39	0.39			< 0.05	0.00
4 - A4059 (S)	2.01	0.04	0.42	5.33	9.90			< 0.05	0.00

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.07	0.05	0.47	2.57	4.02			< 0.05	0.00
2 - Abernant Road	0.87	0.03	0.34	1.93	4.14			< 0.05	0.00
3 - Sobell Leisure Centre	0.25	0.03	0.26	0.46	0.48			< 0.05	0.00
4 - A4059 (S)	1.46	0.04	0.38	3.55	7.36			< 0.05	0.00

2038 Future Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059/N - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	21.46	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
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059/N		ONE HOUR	✓	1427	100.000
2 - Abernant Road		ONE HOUR	✓	496	100.000
3 - Sobell Leisure Centre		ONE HOUR	✓	159	100.000
4 - A4059 (S)		ONE HOUR	✓	954	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059/N		
2 - Abernant Road		
3 - Sobell Leisure Centre		
4 - A4059 (S)	[ONEHOUR]	110.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	447	68	912
	2 - Abernant Road	352	0	25	119
	3 - Sobell Leisure Centre	85	27	0	47
	4 - A4059 (S)	781	129	44	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	3	2	10
	2 - Abernant Road	3	0	2	3
	3 - Sobell Leisure Centre	2	2	0	2
	4 - A4059 (S)	10	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059/N	0.90	21.84	9.0	48.0	C	1309	1964
2 - Abernant Road	0.78	23.40	3.4	16.8	C	455	683
3 - Sobell Leisure Centre	0.39	13.60	0.7	3.0	B	146	219
4 - A4059 (S)	0.85	21.19	5.9	29.8	C	875	1313

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1074	269	149		1790	0.600	1068	909	0.0	1.6	5.302	A
2 - Abernant Road	373	93	766		910	0.410	371	451	0.0	0.7	6.834	A
3 - Sobell Leisure Centre	120	30	1034		702	0.170	119	102	0.0	0.2	6.285	A
4 - A4059 (S)	718	180	347	82.81	1199	0.599	712	807	0.0	1.6	7.932	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1283	321	179		1768	0.726	1278	1090	1.6	2.8	7.810	A
2 - Abernant Road	446	111	917		822	0.542	444	540	0.7	1.2	9.744	A
3 - Sobell Leisure Centre	143	36	1238		594	0.241	142	123	0.2	0.3	8.124	A
4 - A4059 (S)	858	214	415	98.89	1223	0.701	854	966	1.6	2.5	10.487	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1571	393	218		1740	0.903	1549	1325	2.8	8.2	18.453	C
2 - Abernant Road	546	137	1112		709	0.770	538	655	1.2	3.1	20.813	C
3 - Sobell Leisure Centre	175	44	1501		455	0.385	174	149	0.3	0.6	13.022	B
4 - A4059 (S)	1050	263	504	121.11	1233	0.852	1038	1171	2.5	5.5	18.945	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1571	393	220		1738	0.904	1568	1339	8.2	9.0	21.836	C
2 - Abernant Road	546	137	1125		701	0.779	545	663	3.1	3.4	23.404	C
3 - Sobell Leisure Centre	175	44	1520		445	0.394	175	151	0.6	0.7	13.599	B
4 - A4059 (S)	1050	263	510	121.11	1230	0.854	1049	1185	5.5	5.9	21.186	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1283	321	183		1765	0.727	1307	1114	9.0	2.9	8.845	A
2 - Abernant Road	446	111	938		810	0.550	454	552	3.4	1.3	10.643	B
3 - Sobell Leisure Centre	143	36	1267		579	0.247	144	125	0.7	0.3	8.470	A
4 - A4059 (S)	858	214	424	98.89	1284	0.668	872	987	5.9	2.2	9.808	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1074	269	151		1788	0.601	1080	921	2.9	1.6	5.488	A
2 - Abernant Road	373	93	775		905	0.413	376	456	1.3	0.7	7.028	A
3 - Sobell Leisure Centre	120	30	1047		696	0.172	120	104	0.3	0.2	6.384	A
4 - A4059 (S)	718	180	351	82.81	1259	0.571	721	816	2.2	1.5	7.320	A

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.59	0.62	1.49	1.97	2.11			< 0.05	0.00
2 - Abernant Road	0.71	0.57	1.03	1.44	1.49			< 0.05	0.00
3 - Sobell Leisure Centre	0.21	0.00	0.00	0.21	0.21			< 0.05	0.00
4 - A4059 (S)	1.59	0.64	1.48	1.91	2.04			< 0.05	0.00

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.75	0.05	0.52	7.57	12.48			< 0.05	0.00
2 - Abernant Road	1.19	0.06	0.83	2.48	3.44			< 0.05	0.00
3 - Sobell Leisure Centre	0.32	0.00	0.00	0.32	0.32			< 0.05	0.00
4 - A4059 (S)	2.46	0.07	1.05	6.31	9.41			< 0.05	0.00

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	8.24	0.05	0.47	22.80	44.08			< 0.05	0.00
2 - Abernant Road	3.14	0.03	0.34	6.30	16.78			0.06	0.00
3 - Sobell Leisure Centre	0.62	0.03	0.26	0.62	0.62			< 0.05	0.00
4 - A4059 (S)	5.49	0.04	0.40	13.32	29.80			0.07	0.00

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	9.00	0.04	0.37	16.51	48.00			< 0.05	0.00
2 - Abernant Road	3.39	0.03	0.31	3.64	15.68			0.05	0.00
3 - Sobell Leisure Centre	0.65	0.03	0.32	1.34	3.01			< 0.05	0.00
4 - A4059 (S)	5.89	0.03	0.34	6.58	27.53			0.06	0.00

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	2.94	0.05	0.47	8.17	14.26			< 0.05	0.00
2 - Abernant Road	1.29	0.05	0.49	3.12	4.87			< 0.05	0.00
3 - Sobell Leisure Centre	0.34	0.00	0.00	0.34	0.34			< 0.05	0.00
4 - A4059 (S)	2.25	0.04	0.43	6.06	11.08			< 0.05	0.00

18:15 - 18:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.64	0.03	0.35	3.28	8.52			< 0.05	0.00
2 - Abernant Road	0.73	0.03	0.34	1.67	3.31			< 0.05	0.00
3 - Sobell Leisure Centre	0.21	0.03	0.26	0.46	0.48			< 0.05	0.00
4 - A4059 (S)	1.47	0.04	0.36	3.27	7.51			< 0.05	0.00

2038 Future Year + Proposed Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059/N - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	19.27	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
D9	2038 Future Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059/N		ONE HOUR	✓	1197	100.000
2 - Abernant Road		ONE HOUR	✓	648	100.000
3 - Sobell Leisure Centre		ONE HOUR	✓	197	100.000
4 - A4059 (S)		ONE HOUR	✓	899	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059/N		
2 - Abernant Road		
3 - Sobell Leisure Centre		
4 - A4059 (S)	[ONEHOUR]	189.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	380	105	712
	2 - Abernant Road	442	0	61	145
	3 - Sobell Leisure Centre	89	34	0	74
	4 - A4059 (S)	734	127	33	5

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	3	2	10
	2 - Abernant Road	3	0	2	3
	3 - Sobell Leisure Centre	2	2	0	2
	4 - A4059 (S)	10	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059/N	0.76	9.12	3.3	10.5	A	1098	1648
2 - Abernant Road	0.88	35.73	6.6	36.3	E	595	892
3 - Sobell Leisure Centre	0.44	13.39	0.8	3.9	B	181	271
4 - A4059 (S)	0.85	22.21	5.8	29.0	C	825	1237

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	901	225	148		1791	0.503	897	944	0.0	1.1	4.288	A
2 - Abernant Road	488	122	640		983	0.496	484	405	0.0	1.0	7.362	A
3 - Sobell Leisure Centre	148	37	976		733	0.202	147	149	0.0	0.3	6.254	A
4 - A4059 (S)	677	169	422	142.29	1096	0.617	670	701	0.0	1.7	9.031	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1076	269	178		1769	0.608	1074	1132	1.1	1.6	5.523	A
2 - Abernant Road	583	146	767		910	0.640	579	485	1.0	1.8	11.075	B
3 - Sobell Leisure Centre	177	44	1168		631	0.281	177	178	0.3	0.4	8.064	A
4 - A4059 (S)	808	202	505	169.91	1148	0.704	805	839	1.7	2.5	11.291	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1318	329	217		1741	0.757	1312	1372	1.6	3.2	8.848	A
2 - Abernant Road	713	178	937		811	0.880	697	592	1.8	5.9	29.047	D
3 - Sobell Leisure Centre	217	54	1417		499	0.434	215	217	0.4	0.8	12.866	B
4 - A4059 (S)	990	247	610	208.09	1166	0.849	978	1022	2.5	5.3	19.642	C

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1318	329	219		1739	0.758	1318	1389	3.2	3.3	9.120	A
2 - Abernant Road	713	178	941		808	0.883	711	595	5.9	6.6	35.725	E
3 - Sobell Leisure Centre	217	54	1433		491	0.442	217	219	0.8	0.8	13.386	B
4 - A4059 (S)	990	247	620	208.09	1160	0.853	988	1030	5.3	5.8	22.208	C

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1076	269	182		1766	0.609	1082	1163	3.3	1.7	5.682	A
2 - Abernant Road	583	146	774		906	0.643	601	491	6.6	1.9	12.863	B
3 - Sobell Leisure Centre	177	44	1193		618	0.287	179	182	0.8	0.4	8.386	A
4 - A4059 (S)	808	202	522	169.91	1222	0.661	823	850	5.8	2.2	10.114	B

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	901	225	150		1789	0.504	904	957	1.7	1.1	4.359	A
2 - Abernant Road	488	122	645		980	0.498	491	409	1.9	1.0	7.630	A
3 - Sobell Leisure Centre	148	37	986		728	0.204	149	150	0.4	0.3	6.352	A
4 - A4059 (S)	677	169	428	142.29	1177	0.575	680	707	2.2	1.5	7.900	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.07	0.59	1.07	1.50	1.55			< 0.05	0.00
2 - Abernant Road	1.00	0.57	1.03	1.44	1.50			< 0.05	0.00
3 - Sobell Leisure Centre	0.26	0.00	0.00	0.26	0.26			< 0.05	0.00
4 - A4059 (S)	1.71	1.14	1.63	2.06	2.12			< 0.05	0.00

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.64	0.05	0.60	4.10	6.25			< 0.05	0.00
2 - Abernant Road	1.77	0.06	0.73	4.47	6.73			< 0.05	0.00
3 - Sobell Leisure Centre	0.39	0.00	0.00	0.39	0.39			< 0.05	0.00
4 - A4059 (S)	2.48	0.07	1.15	6.28	9.24			< 0.05	0.00

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	3.21	0.03	0.31	3.21	10.51			< 0.05	0.00
2 - Abernant Road	5.90	0.05	0.51	16.93	29.71			0.12	0.01
3 - Sobell Leisure Centre	0.76	0.03	0.26	0.76	0.76			< 0.05	0.00
4 - A4059 (S)	5.35	0.04	0.41	13.04	28.96			0.06	0.00

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	3.28	0.03	0.29	3.28	3.28			< 0.05	0.00
2 - Abernant Road	6.63	0.04	0.39	15.88	36.30			0.11	0.00
3 - Sobell Leisure Centre	0.79	0.03	0.31	1.30	3.87			< 0.05	0.00
4 - A4059 (S)	5.80	0.03	0.34	6.88	27.55			0.06	0.00

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.69	0.07	1.02	3.88	5.48			< 0.05	0.00
2 - Abernant Road	1.92	0.04	0.41	5.13	9.23			< 0.05	0.00
3 - Sobell Leisure Centre	0.41	0.03	0.30	0.78	1.16			< 0.05	0.00
4 - A4059 (S)	2.18	0.04	0.42	5.77	10.89			< 0.05	0.00

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.10	0.05	0.45	2.68	4.22			< 0.05	0.00
2 - Abernant Road	1.04	0.03	0.31	1.72	5.14			< 0.05	0.00
3 - Sobell Leisure Centre	0.26	0.03	0.26	0.46	0.49			< 0.05	0.00
4 - A4059 (S)	1.50	0.04	0.37	3.41	7.66			< 0.05	0.00

2038 Future Year + Proposed Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059/N - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	27.47	D

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	2038 Future Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059/N		ONE HOUR	✓	1474	100.000
2 - Abernant Road		ONE HOUR	✓	525	100.000
3 - Sobell Leisure Centre		ONE HOUR	✓	159	100.000
4 - A4059 (S)		ONE HOUR	✓	964	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059/N		
2 - Abernant Road		
3 - Sobell Leisure Centre		
4 - A4059 (S)	[ONEHOUR]	110.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	494	68	912
	2 - Abernant Road	376	0	25	124
	3 - Sobell Leisure Centre	85	27	0	47
	4 - A4059 (S)	781	139	44	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059/N	2 - Abernant Road	3 - Sobell Leisure Centre	4 - A4059 (S)
From	1 - A4059/N	0	3	2	10
	2 - Abernant Road	3	0	2	3
	3 - Sobell Leisure Centre	2	2	0	2
	4 - A4059 (S)	10	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059/N	0.94	30.43	12.9	70.2	D	1353	2029
2 - Abernant Road	0.82	28.50	4.3	22.4	D	482	723
3 - Sobell Leisure Centre	0.41	14.41	0.7	3.3	B	146	219
4 - A4059 (S)	0.87	24.53	6.8	35.4	C	885	1327

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1110	277	157		1784	0.622	1103	927	0.0	1.7	5.605	A
2 - Abernant Road	395	99	766		910	0.434	392	493	0.0	0.8	7.110	A
3 - Sobell Leisure Centre	120	30	1056		691	0.173	119	102	0.0	0.2	6.410	A
4 - A4059 (S)	726	181	365	82.81	1191	0.609	719	810	0.0	1.7	8.174	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1325	331	188		1762	0.752	1319	1112	1.7	3.1	8.616	A
2 - Abernant Road	472	118	917		823	0.574	470	591	0.8	1.3	10.431	B
3 - Sobell Leisure Centre	143	36	1264		581	0.246	142	123	0.2	0.3	8.371	A
4 - A4059 (S)	867	217	437	98.89	1218	0.711	863	969	1.7	2.6	10.883	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1623	406	228		1732	0.937	1591	1348	3.1	11.1	23.326	C
2 - Abernant Road	578	145	1106		713	0.811	568	714	1.3	3.9	24.095	C
3 - Sobell Leisure Centre	175	44	1525		442	0.396	174	148	0.3	0.7	13.629	B
4 - A4059 (S)	1061	265	529	121.11	1218	0.872	1047	1170	2.6	6.3	21.207	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1623	406	231		1730	0.938	1616	1364	11.1	12.9	30.429	D
2 - Abernant Road	578	145	1123		703	0.822	576	724	3.9	4.3	28.499	D
3 - Sobell Leisure Centre	175	44	1549		429	0.408	175	150	0.7	0.7	14.411	B
4 - A4059 (S)	1061	265	536	121.11	1213	0.875	1059	1188	6.3	6.8	24.529	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1325	331	192		1758	0.754	1363	1140	12.9	3.4	10.617	B
2 - Abernant Road	472	118	946		805	0.586	483	609	4.3	1.5	11.889	B
3 - Sobell Leisure Centre	143	36	1304		560	0.255	144	126	0.7	0.4	8.872	A
4 - A4059 (S)	867	217	448	98.89	1269	0.683	884	1000	6.8	2.4	10.592	B

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059/N	1110	277	159		1783	0.622	1116	940	3.4	1.8	5.841	A
2 - Abernant Road	395	99	775		905	0.437	398	500	1.5	0.8	7.350	A
3 - Sobell Leisure Centre	120	30	1070		684	0.175	120	104	0.4	0.2	6.524	A
4 - A4059 (S)	726	181	370	82.81	1255	0.578	729	820	2.4	1.5	7.485	A

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.73	0.61	1.10	2.25	2.82			< 0.05	0.00
2 - Abernant Road	0.78	0.57	1.03	1.44	1.49			< 0.05	0.00
3 - Sobell Leisure Centre	0.21	0.00	0.00	0.21	0.21			< 0.05	0.00
4 - A4059 (S)	1.65	0.65	1.10	1.96	2.07			< 0.05	0.00

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	3.14	0.05	0.53	8.73	14.36			< 0.05	0.00
2 - Abernant Road	1.35	0.06	0.80	3.00	4.33			< 0.05	0.00
3 - Sobell Leisure Centre	0.33	0.00	0.00	0.33	0.33			< 0.05	0.00
4 - A4059 (S)	2.57	0.07	1.04	6.68	10.04			< 0.05	0.00

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	11.13	0.07	1.59	32.60	53.75			0.05	0.00
2 - Abernant Road	3.87	0.04	0.38	9.58	20.80			0.07	0.00
3 - Sobell Leisure Centre	0.65	0.03	0.26	0.65	0.65			< 0.05	0.00
4 - A4059 (S)	6.26	0.04	0.45	16.77	33.69			0.08	0.00

17:45 - 18:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	12.86	0.05	0.48	34.98	70.20			0.07	0.00
2 - Abernant Road	4.33	0.03	0.33	7.13	22.38			0.07	0.00
3 - Sobell Leisure Centre	0.69	0.03	0.32	1.42	3.25			< 0.05	0.00
4 - A4059 (S)	6.84	0.04	0.36	11.19	35.40			0.07	0.00

18:00 - 18:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	3.41	0.05	0.46	9.45	17.19			< 0.05	0.00
2 - Abernant Road	1.50	0.05	0.46	3.88	6.22			< 0.05	0.00
3 - Sobell Leisure Centre	0.35	0.00	0.00	0.35	0.35			< 0.05	0.00
4 - A4059 (S)	2.42	0.04	0.43	6.45	12.08			< 0.05	0.00

18:15 - 18:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1 - A4059/N	1.80	0.03	0.33	3.01	9.18			< 0.05	0.00
2 - Abernant Road	0.81	0.03	0.33	1.70	3.93			< 0.05	0.00
3 - Sobell Leisure Centre	0.22	0.03	0.26	0.46	0.48			< 0.05	0.00
4 - A4059 (S)	1.52	0.04	0.35	3.17	7.84			< 0.05	0.00

APPENDIX N – ARCADY OUTPUT DATA (JUNCTION 4)

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.0.6896

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

Filename: A4059 (N)_Wellington St_A4059 (S)_Meirion Rd.j9
Path: Z:\2020 Projects\F20029 Land at Abernant Road\Capacity Analysis\August 2023\J4 - A4059 (N)_Wellington St_A4059 (S)_Meirion Rd
Report generation date: 07/08/2023 16:01:54

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023							
1 - A4059 (N)	0.8	2.94	0.45	A	1.2	3.44	0.53	A
2 - Wellington Street	0.4	8.93	0.28	A	0.6	11.92	0.36	B
3 - A4059 (S)	0.8	3.24	0.43	A	0.9	3.42	0.46	A
4 - Meirion Road	0.0	4.04	0.04	A	0.0	4.23	0.04	A
	2028 Opening Year							
1 - A4059 (N)	0.9	3.07	0.48	A	1.4	3.74	0.57	A
2 - Wellington Street	0.5	10.05	0.34	B	0.7	13.83	0.42	B
3 - A4059 (S)	0.9	3.47	0.46	A	1.0	3.64	0.49	A
4 - Meirion Road	0.0	4.26	0.04	A	0.0	4.45	0.04	A
	2028 Opening Year + Dev							
1 - A4059 (N)	0.9	3.10	0.48	A	1.4	3.89	0.59	A
2 - Wellington Street	0.5	10.15	0.34	B	0.8	14.64	0.44	B
3 - A4059 (S)	1.0	3.60	0.48	A	1.0	3.72	0.50	A
4 - Meirion Road	0.0	4.39	0.04	A	0.0	4.52	0.04	A
	2038 Future Year							
1 - A4059 (N)	1.1	3.31	0.51	A	1.6	4.15	0.61	A
2 - Wellington Street	0.6	11.27	0.38	B	1.0	16.82	0.49	C
3 - A4059 (S)	1.0	3.74	0.50	A	1.2	3.96	0.53	A
4 - Meirion Road	0.1	4.53	0.05	A	0.1	4.75	0.05	A
	2038 Future Year + Proposed Dev							
1 - A4059 (N)	1.1	3.34	0.52	A	1.7	4.34	0.63	A
2 - Wellington Street	0.6	11.40	0.38	B	1.0	18.03	0.51	C
3 - A4059 (S)	1.1	3.90	0.52	A	1.2	4.04	0.54	A
4 - Meirion Road	0.1	4.67	0.05	A	0.1	4.83	0.05	A

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	A4059 (N)/Wellington Street/A4059 (S)/Meirion Road
Location	Aberdare
Site number	
Date	30/09/2022
Version	
Status	Preliminary
Identifier	DS
Client	Xurbia Developments
Jobnumber	F20029
Enumerator	BANCROFT\dscott
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023	AM	ONE HOUR	08:00	09:30	15	✓
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓
D3	2028 Opening Year	AM	ONE HOUR	08:00	09:30	15	✓
D4	2028 Opening Year	PM	ONE HOUR	17:00	18:30	15	✓
D5	2028 Opening Year + Dev	AM	ONE HOUR	08:00	09:30	15	✓
D6	2028 Opening Year + Dev	PM	ONE HOUR	17:00	18:30	15	✓
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓
D9	2038 Future Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓
D10	2038 Future Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2023, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3, 4	3.54	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A4059 (N)	
2	Wellington Street	
3	A4059 (S)	
4	Meirion Road	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A4059 (N)	3.50	8.61	80.0	15.0	37.0	27.7	
2 - Wellington Street	3.89	5.29	13.9	18.5	37.0	21.5	
3 - A4059 (S)	3.70	7.39	115.0	15.0	37.0	26.2	
4 - Meirion Road	2.98	6.41	17.9	16.3	37.0	26.2	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A4059 (N)	0.772	2327
2 - Wellington Street	0.623	1538
3 - A4059 (S)	0.734	2128
4 - Meirion Road	0.619	1550

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
2 - Wellington Street	Percentage		60.00

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	2023	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	942	100.000
2 - Wellington Street		ONE HOUR	✓	144	100.000
3 - A4059 (S)		ONE HOUR	✓	792	100.000
4 - Meirion Road		ONE HOUR	✓	35	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	1	117	818	6
	2 - Wellington Street	119	0	11	14
	3 - A4059 (S)	735	21	1	35
	4 - Meirion Road	7	7	20	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	0	2	2	2
	2 - Wellington Street	3	0	3	3
	3 - A4059 (S)	3	2	0	3
	4 - Meirion Road	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.45	2.94	0.8	A	864	1297
2 - Wellington Street	0.28	8.93	0.4	A	132	198
3 - A4059 (S)	0.43	3.24	0.8	A	727	1090
4 - Meirion Road	0.04	4.04	0.0	A	32	48

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	709	177	38	2298	0.309	707	647	0.0	0.5	2.307	A
2 - Wellington Street	108	27	636	685	0.158	108	109	0.0	0.2	6.417	A
3 - A4059 (S)	596	149	105	2051	0.291	595	638	0.0	0.4	2.543	A
4 - Meirion Road	26	7	658	1143	0.023	26	42	0.0	0.0	3.309	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	847	212	45	2292	0.370	846	774	0.5	0.6	2.538	A
2 - Wellington Street	129	32	761	638	0.203	129	130	0.2	0.3	7.283	A
3 - A4059 (S)	712	178	127	2036	0.350	711	764	0.4	0.6	2.797	A
4 - Meirion Road	31	8	788	1063	0.030	31	50	0.0	0.0	3.583	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1037	259	55	2284	0.454	1036	948	0.6	0.8	2.939	A
2 - Wellington Street	159	40	932	574	0.276	158	159	0.3	0.4	8.898	A
3 - A4059 (S)	872	218	155	2015	0.433	871	935	0.6	0.8	3.237	A
4 - Meirion Road	39	10	964	954	0.040	38	62	0.0	0.0	4.039	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1037	259	55	2284	0.454	1037	949	0.8	0.8	2.944	A
2 - Wellington Street	159	40	933	574	0.276	159	160	0.4	0.4	8.926	A
3 - A4059 (S)	872	218	155	2015	0.433	872	936	0.8	0.8	3.243	A
4 - Meirion Road	39	10	966	953	0.040	39	62	0.0	0.0	4.042	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	847	212	45	2292	0.370	848	776	0.8	0.6	2.544	A
2 - Wellington Street	129	32	762	638	0.203	130	131	0.4	0.3	7.313	A
3 - A4059 (S)	712	178	127	2035	0.350	713	765	0.8	0.6	2.804	A
4 - Meirion Road	31	8	790	1062	0.030	32	50	0.0	0.0	3.587	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	709	177	38	2297	0.309	710	650	0.6	0.5	2.313	A
2 - Wellington Street	108	27	638	684	0.158	109	109	0.3	0.2	6.447	A
3 - A4059 (S)	596	149	106	2050	0.291	597	640	0.6	0.4	2.550	A
4 - Meirion Road	26	7	661	1142	0.023	26	42	0.0	0.0	3.315	A

2023, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3, 4	4.07	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1110	100.000
2 - Wellington Street		ONE HOUR	✓	160	100.000
3 - A4059 (S)		ONE HOUR	✓	850	100.000
4 - Meirion Road		ONE HOUR	✓	30	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	2	62	1042	4
	2 - Wellington Street	120	0	33	7
	3 - A4059 (S)	816	6	1	27
	4 - Meirion Road	6	8	16	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	0	2	3	3
	2 - Wellington Street	2	0	2	2
	3 - A4059 (S)	3	2	0	3
	4 - Meirion Road	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.53	3.44	1.2	A	1019	1528
2 - Wellington Street	0.36	11.92	0.6	B	147	220
3 - A4059 (S)	0.46	3.42	0.9	A	780	1170
4 - Meirion Road	0.04	4.23	0.0	A	28	41

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	836	209	23	2309	0.362	833	708	0.0	0.6	2.504	A
2 - Wellington Street	120	30	800	624	0.193	119	57	0.0	0.2	7.270	A
3 - A4059 (S)	640	160	99	2056	0.311	638	820	0.0	0.5	2.612	A
4 - Meirion Road	23	6	709	1112	0.020	23	28	0.0	0.0	3.394	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	998	249	28	2305	0.433	997	848	0.6	0.8	2.832	A
2 - Wellington Street	144	36	957	565	0.255	143	68	0.2	0.3	8.703	A
3 - A4059 (S)	764	191	119	2041	0.374	764	981	0.5	0.6	2.900	A
4 - Meirion Road	27	7	849	1025	0.026	27	34	0.0	0.0	3.703	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1222	306	34	2300	0.531	1221	1038	0.8	1.2	3.428	A
2 - Wellington Street	176	44	1171	485	0.363	175	84	0.3	0.6	11.830	B
3 - A4059 (S)	936	234	146	2022	0.463	935	1201	0.6	0.9	3.408	A
4 - Meirion Road	33	8	1039	908	0.036	33	42	0.0	0.0	4.227	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1222	306	34	2300	0.531	1222	1039	1.2	1.2	3.436	A
2 - Wellington Street	176	44	1173	484	0.364	176	84	0.6	0.6	11.918	B
3 - A4059 (S)	936	234	146	2021	0.463	936	1202	0.9	0.9	3.415	A
4 - Meirion Road	33	8	1040	907	0.036	33	42	0.0	0.0	4.232	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	998	249	28	2305	0.433	999	850	1.2	0.8	2.840	A
2 - Wellington Street	144	36	959	564	0.255	145	68	0.6	0.4	8.775	A
3 - A4059 (S)	764	191	120	2040	0.375	765	983	0.9	0.6	2.912	A
4 - Meirion Road	27	7	851	1024	0.026	27	34	0.0	0.0	3.709	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	836	209	23	2309	0.362	836	712	0.8	0.6	2.518	A
2 - Wellington Street	120	30	803	623	0.193	121	57	0.4	0.2	7.328	A
3 - A4059 (S)	640	160	100	2055	0.311	641	823	0.6	0.5	2.622	A
4 - Meirion Road	23	6	712	1110	0.020	23	29	0.0	0.0	3.401	A

2028 Opening Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	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
D3	2028 Opening Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	988	100.000
2 - Wellington Street		ONE HOUR	✓	172	100.000
3 - A4059 (S)		ONE HOUR	✓	839	100.000
4 - Meirion Road		ONE HOUR	✓	36	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	1	126	855	6
	2 - Wellington Street	141	0	12	19
	3 - A4059 (S)	779	22	1	37
	4 - Meirion Road	7	7	21	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	0	2	2	2
	2 - Wellington Street	3	0	3	3
	3 - A4059 (S)	3	2	0	3
	4 - Meirion Road	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.48	3.07	0.9	A	907	1360
2 - Wellington Street	0.34	10.05	0.5	B	158	237
3 - A4059 (S)	0.46	3.47	0.9	A	770	1155
4 - Meirion Road	0.04	4.26	0.0	A	33	50

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	744	186	39	2296	0.324	742	696	0.0	0.5	2.359	A
2 - Wellington Street	129	32	665	674	0.192	129	116	0.0	0.2	6.783	A
3 - A4059 (S)	632	158	126	2036	0.310	630	667	0.0	0.5	2.632	A
4 - Meirion Road	27	7	708	1112	0.024	27	47	0.0	0.0	3.406	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	888	222	47	2290	0.388	888	833	0.5	0.6	2.615	A
2 - Wellington Street	155	39	795	625	0.247	154	139	0.2	0.3	7.864	A
3 - A4059 (S)	754	189	151	2018	0.374	754	799	0.5	0.6	2.930	A
4 - Meirion Road	32	8	848	1026	0.032	32	57	0.0	0.0	3.720	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1088	272	57	2282	0.477	1087	1020	0.6	0.9	3.068	A
2 - Wellington Street	189	47	973	559	0.339	189	170	0.3	0.5	10.001	B
3 - A4059 (S)	924	231	184	1993	0.463	923	978	0.6	0.9	3.459	A
4 - Meirion Road	40	10	1038	908	0.044	40	69	0.0	0.0	4.255	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1088	272	57	2282	0.477	1088	1022	0.9	0.9	3.073	A
2 - Wellington Street	189	47	974	558	0.339	189	171	0.5	0.5	10.050	B
3 - A4059 (S)	924	231	185	1993	0.464	924	979	0.9	0.9	3.466	A
4 - Meirion Road	40	10	1039	907	0.044	40	69	0.0	0.0	4.260	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	888	222	47	2290	0.388	889	836	0.9	0.6	2.624	A
2 - Wellington Street	155	39	797	625	0.247	155	140	0.5	0.3	7.911	A
3 - A4059 (S)	754	189	152	2017	0.374	755	800	0.9	0.6	2.941	A
4 - Meirion Road	32	8	850	1024	0.032	32	57	0.0	0.0	3.729	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	744	186	39	2296	0.324	744	700	0.6	0.5	2.368	A
2 - Wellington Street	129	32	667	673	0.192	130	117	0.3	0.2	6.827	A
3 - A4059 (S)	632	158	127	2035	0.310	632	670	0.6	0.5	2.642	A
4 - Meirion Road	27	7	712	1110	0.024	27	48	0.0	0.0	3.416	A

2028 Opening Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3, 4	4.49	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	2028 Opening Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1188	100.000
2 - Wellington Street		ONE HOUR	✓	177	100.000
3 - A4059 (S)		ONE HOUR	✓	899	100.000
4 - Meirion Road		ONE HOUR	✓	32	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	2	83	1099	4
	2 - Wellington Street	133	0	34	10
	3 - A4059 (S)	863	6	1	29
	4 - Meirion Road	6	9	17	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	0	2	3	3
	2 - Wellington Street	2	0	2	2
	3 - A4059 (S)	3	2	0	3
	4 - Meirion Road	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.57	3.74	1.4	A	1090	1635
2 - Wellington Street	0.42	13.83	0.7	B	162	244
3 - A4059 (S)	0.49	3.64	1.0	A	825	1237
4 - Meirion Road	0.04	4.45	0.0	A	29	44

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	894	224	25	2307	0.388	892	753	0.0	0.6	2.613	A
2 - Wellington Street	133	33	843	607	0.219	132	74	0.0	0.3	7.707	A
3 - A4059 (S)	677	169	111	2047	0.331	675	864	0.0	0.5	2.699	A
4 - Meirion Road	24	6	754	1084	0.022	24	32	0.0	0.0	3.487	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1068	267	30	2304	0.464	1067	902	0.6	0.9	2.995	A
2 - Wellington Street	159	40	1009	545	0.292	159	88	0.3	0.4	9.477	A
3 - A4059 (S)	808	202	134	2030	0.398	807	1034	0.5	0.7	3.030	A
4 - Meirion Road	29	7	902	992	0.029	29	39	0.0	0.0	3.837	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1308	327	36	2299	0.569	1306	1103	0.9	1.3	3.728	A
2 - Wellington Street	195	49	1235	461	0.423	194	108	0.4	0.7	13.671	B
3 - A4059 (S)	990	247	163	2009	0.493	989	1265	0.7	1.0	3.629	A
4 - Meirion Road	35	9	1104	867	0.041	35	47	0.0	0.0	4.444	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1308	327	36	2298	0.569	1308	1105	1.3	1.4	3.739	A
2 - Wellington Street	195	49	1236	460	0.423	195	108	0.7	0.7	13.828	B
3 - A4059 (S)	990	247	164	2008	0.493	990	1267	1.0	1.0	3.640	A
4 - Meirion Road	35	9	1106	866	0.041	35	47	0.0	0.0	4.451	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1068	267	30	2304	0.464	1070	905	1.4	0.9	3.006	A
2 - Wellington Street	159	40	1011	544	0.292	160	88	0.7	0.4	9.589	A
3 - A4059 (S)	808	202	135	2029	0.398	809	1037	1.0	0.7	3.041	A
4 - Meirion Road	29	7	906	990	0.029	29	39	0.0	0.0	3.846	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	894	224	25	2307	0.388	895	757	0.9	0.7	2.625	A
2 - Wellington Street	133	33	846	606	0.220	134	74	0.4	0.3	7.782	A
3 - A4059 (S)	677	169	113	2046	0.331	678	868	0.7	0.5	2.712	A
4 - Meirion Road	24	6	758	1082	0.022	24	32	0.0	0.0	3.498	A

2028 Opening Year + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3, 4	3.92	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
D5	2028 Opening Year + Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	997	100.000
2 - Wellington Street		ONE HOUR	✓	172	100.000
3 - A4059 (S)		ONE HOUR	✓	876	100.000
4 - Meirion Road		ONE HOUR	✓	36	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	1	126	864	6
	2 - Wellington Street	141	0	12	19
	3 - A4059 (S)	816	22	1	37
	4 - Meirion Road	7	7	21	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	0	2	2	2
	2 - Wellington Street	3	0	3	3
	3 - A4059 (S)	3	2	0	3
	4 - Meirion Road	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.48	3.10	0.9	A	915	1372
2 - Wellington Street	0.34	10.15	0.5	B	158	237
3 - A4059 (S)	0.48	3.60	1.0	A	804	1206
4 - Meirion Road	0.04	4.39	0.0	A	33	50

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	751	188	39	2296	0.327	749	724	0.0	0.5	2.369	A
2 - Wellington Street	129	32	671	672	0.193	129	116	0.0	0.2	6.814	A
3 - A4059 (S)	659	165	126	2036	0.324	658	674	0.0	0.5	2.685	A
4 - Meirion Road	27	7	736	1095	0.025	27	47	0.0	0.0	3.461	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	896	224	47	2290	0.391	896	867	0.5	0.7	2.631	A
2 - Wellington Street	155	39	803	622	0.248	154	139	0.2	0.3	7.915	A
3 - A4059 (S)	788	197	151	2018	0.390	787	807	0.5	0.7	3.009	A
4 - Meirion Road	32	8	881	1005	0.032	32	57	0.0	0.0	3.799	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1098	274	57	2282	0.481	1097	1061	0.7	0.9	3.093	A
2 - Wellington Street	189	47	983	555	0.341	189	170	0.3	0.5	10.100	B
3 - A4059 (S)	964	241	184	1993	0.484	963	988	0.7	1.0	3.594	A
4 - Meirion Road	40	10	1078	883	0.045	40	69	0.0	0.0	4.382	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1098	274	57	2282	0.481	1098	1062	0.9	0.9	3.098	A
2 - Wellington Street	189	47	984	555	0.341	189	171	0.5	0.5	10.150	B
3 - A4059 (S)	964	241	185	1993	0.484	964	989	1.0	1.0	3.604	A
4 - Meirion Road	40	10	1080	882	0.045	40	69	0.0	0.0	4.388	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	896	224	47	2290	0.391	897	869	0.9	0.7	2.639	A
2 - Wellington Street	155	39	805	622	0.249	155	140	0.5	0.3	7.963	A
3 - A4059 (S)	788	197	152	2017	0.390	789	808	1.0	0.7	3.022	A
4 - Meirion Road	32	8	884	1004	0.032	32	57	0.0	0.0	3.809	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	751	188	39	2296	0.327	751	727	0.7	0.5	2.379	A
2 - Wellington Street	129	32	674	671	0.193	130	117	0.3	0.2	6.859	A
3 - A4059 (S)	659	165	127	2035	0.324	660	677	0.7	0.5	2.698	A
4 - Meirion Road	27	7	740	1093	0.025	27	48	0.0	0.0	3.468	A

2028 Opening Year + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3, 4	4.64	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2028 Opening Year + Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1223	100.000
2 - Wellington Street		ONE HOUR	✓	177	100.000
3 - A4059 (S)		ONE HOUR	✓	918	100.000
4 - Meirion Road		ONE HOUR	✓	32	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	2	82	1135	4
	2 - Wellington Street	133	0	34	10
	3 - A4059 (S)	882	6	1	29
	4 - Meirion Road	6	9	17	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	0	2	3	3
	2 - Wellington Street	2	0	2	2
	3 - A4059 (S)	3	2	0	3
	4 - Meirion Road	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.59	3.89	1.4	A	1122	1683
2 - Wellington Street	0.44	14.64	0.8	B	162	244
3 - A4059 (S)	0.50	3.72	1.0	A	842	1264
4 - Meirion Road	0.04	4.52	0.0	A	29	44

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	921	230	25	2307	0.399	918	767	0.0	0.7	2.663	A
2 - Wellington Street	133	33	870	597	0.223	132	73	0.0	0.3	7.873	A
3 - A4059 (S)	691	173	111	2047	0.338	689	891	0.0	0.5	2.727	A
4 - Meirion Road	24	6	768	1075	0.022	24	32	0.0	0.0	3.516	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1099	275	30	2304	0.477	1098	919	0.7	0.9	3.071	A
2 - Wellington Street	159	40	1041	533	0.298	159	87	0.3	0.4	9.781	A
3 - A4059 (S)	825	206	133	2030	0.406	825	1066	0.5	0.7	3.073	A
4 - Meirion Road	29	7	919	982	0.029	29	39	0.0	0.0	3.880	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1347	337	36	2299	0.586	1345	1124	0.9	1.4	3.876	A
2 - Wellington Street	195	49	1274	446	0.437	194	107	0.4	0.8	14.454	B
3 - A4059 (S)	1011	253	163	2009	0.503	1009	1305	0.7	1.0	3.704	A
4 - Meirion Road	35	9	1125	854	0.041	35	47	0.0	0.0	4.513	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1347	337	36	2298	0.586	1347	1126	1.4	1.4	3.892	A
2 - Wellington Street	195	49	1276	445	0.437	195	107	0.8	0.8	14.643	B
3 - A4059 (S)	1011	253	164	2008	0.503	1011	1307	1.0	1.0	3.716	A
4 - Meirion Road	35	9	1127	853	0.041	35	47	0.0	0.0	4.521	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1099	275	30	2304	0.477	1101	922	1.4	0.9	3.086	A
2 - Wellington Street	159	40	1044	532	0.299	160	87	0.8	0.4	9.912	A
3 - A4059 (S)	825	206	135	2029	0.407	827	1069	1.0	0.7	3.085	A
4 - Meirion Road	29	7	923	979	0.029	29	39	0.0	0.0	3.889	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	921	230	25	2307	0.399	922	771	0.9	0.7	2.675	A
2 - Wellington Street	133	33	874	596	0.224	134	73	0.4	0.3	7.956	A
3 - A4059 (S)	691	173	113	2046	0.338	692	895	0.7	0.5	2.741	A
4 - Meirion Road	24	6	772	1073	0.022	24	32	0.0	0.0	3.528	A

2038 Future Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3, 4	4.18	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
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1063	100.000
2 - Wellington Street		ONE HOUR	✓	183	100.000
3 - A4059 (S)		ONE HOUR	✓	903	100.000
4 - Meirion Road		ONE HOUR	✓	40	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	1	135	920	7
	2 - Wellington Street	150	0	13	20
	3 - A4059 (S)	838	24	1	40
	4 - Meirion Road	8	8	23	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	0	2	2	2
	2 - Wellington Street	3	0	3	3
	3 - A4059 (S)	3	2	0	3
	4 - Meirion Road	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.51	3.31	1.1	A	975	1463
2 - Wellington Street	0.38	11.27	0.6	B	168	252
3 - A4059 (S)	0.50	3.74	1.0	A	829	1243
4 - Meirion Road	0.05	4.53	0.1	A	37	55

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	800	200	43	2294	0.349	798	748	0.0	0.5	2.452	A
2 - Wellington Street	138	34	715	655	0.210	137	125	0.0	0.3	7.138	A
3 - A4059 (S)	680	170	134	2030	0.335	678	718	0.0	0.5	2.737	A
4 - Meirion Road	30	8	761	1080	0.028	30	51	0.0	0.0	3.521	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	956	239	51	2287	0.418	955	895	0.5	0.7	2.755	A
2 - Wellington Street	165	41	856	603	0.273	164	150	0.3	0.4	8.448	A
3 - A4059 (S)	812	203	161	2011	0.404	811	860	0.5	0.7	3.088	A
4 - Meirion Road	36	9	911	987	0.036	36	61	0.0	0.0	3.887	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1170	293	63	2278	0.514	1169	1096	0.7	1.1	3.306	A
2 - Wellington Street	201	50	1048	531	0.380	201	184	0.4	0.6	11.197	B
3 - A4059 (S)	994	249	196	1984	0.501	993	1052	0.7	1.0	3.733	A
4 - Meirion Road	44	11	1114	861	0.051	44	75	0.0	0.1	4.526	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1170	293	63	2278	0.514	1170	1098	1.1	1.1	3.314	A
2 - Wellington Street	201	50	1049	530	0.380	201	184	0.6	0.6	11.274	B
3 - A4059 (S)	994	249	197	1984	0.501	994	1054	1.0	1.0	3.744	A
4 - Meirion Road	44	11	1116	860	0.051	44	75	0.1	0.1	4.532	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	956	239	51	2287	0.418	957	898	1.1	0.7	2.763	A
2 - Wellington Street	165	41	858	602	0.273	165	150	0.6	0.4	8.514	A
3 - A4059 (S)	812	203	162	2010	0.404	813	862	1.0	0.7	3.100	A
4 - Meirion Road	36	9	914	985	0.037	36	61	0.1	0.0	3.897	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	800	200	43	2293	0.349	801	752	0.7	0.5	2.463	A
2 - Wellington Street	138	34	718	654	0.211	138	126	0.4	0.3	7.196	A
3 - A4059 (S)	680	170	135	2029	0.335	681	721	0.7	0.5	2.751	A
4 - Meirion Road	30	8	764	1077	0.028	30	51	0.0	0.0	3.532	A

2038 Future Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3, 4	5.05	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1274	100.000
2 - Wellington Street		ONE HOUR	✓	189	100.000
3 - A4059 (S)		ONE HOUR	✓	965	100.000
4 - Meirion Road		ONE HOUR	✓	35	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	2	87	1180	5
	2 - Wellington Street	142	0	36	11
	3 - A4059 (S)	926	7	1	31
	4 - Meirion Road	7	10	18	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	0	2	3	3
	2 - Wellington Street	2	0	2	2
	3 - A4059 (S)	3	2	0	3
	4 - Meirion Road	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.61	4.15	1.6	A	1169	1754
2 - Wellington Street	0.49	16.82	1.0	C	173	260
3 - A4059 (S)	0.53	3.96	1.2	A	886	1328
4 - Meirion Road	0.05	4.75	0.1	A	32	48

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	959	240	27	2306	0.416	956	808	0.0	0.7	2.740	A
2 - Wellington Street	142	36	905	584	0.244	141	78	0.0	0.3	8.262	A
3 - A4059 (S)	727	182	119	2041	0.356	724	927	0.0	0.6	2.811	A
4 - Meirion Road	26	7	808	1050	0.025	26	35	0.0	0.0	3.610	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1145	286	32	2302	0.498	1144	967	0.7	1.0	3.198	A
2 - Wellington Street	170	42	1083	518	0.328	169	93	0.3	0.5	10.520	B
3 - A4059 (S)	868	217	143	2023	0.429	867	1109	0.6	0.8	3.204	A
4 - Meirion Road	31	8	968	952	0.033	31	42	0.0	0.0	4.017	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1403	351	40	2296	0.611	1400	1183	1.0	1.6	4.126	A
2 - Wellington Street	208	52	1326	427	0.487	206	114	0.5	0.9	16.509	C
3 - A4059 (S)	1062	266	175	2000	0.531	1061	1357	0.8	1.2	3.941	A
4 - Meirion Road	39	10	1184	818	0.047	38	52	0.0	0.1	4.743	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1403	351	40	2296	0.611	1403	1186	1.6	1.6	4.147	A
2 - Wellington Street	208	52	1328	426	0.488	208	115	0.9	1.0	16.821	C
3 - A4059 (S)	1062	266	176	1999	0.531	1062	1360	1.2	1.2	3.957	A
4 - Meirion Road	39	10	1187	816	0.047	39	52	0.1	0.1	4.754	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1145	286	32	2302	0.498	1148	971	1.6	1.0	3.219	A
2 - Wellington Street	170	42	1086	516	0.329	172	94	1.0	0.5	10.705	B
3 - A4059 (S)	868	217	145	2022	0.429	869	1113	1.2	0.8	3.219	A
4 - Meirion Road	31	8	972	949	0.033	32	42	0.1	0.0	4.031	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	959	240	27	2306	0.416	960	812	1.0	0.7	2.758	A
2 - Wellington Street	142	36	909	583	0.244	143	78	0.5	0.3	8.363	A
3 - A4059 (S)	727	182	121	2040	0.356	727	931	0.8	0.6	2.828	A
4 - Meirion Road	26	7	813	1048	0.025	26	35	0.0	0.0	3.623	A

2038 Future Year + Proposed Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3, 4	4.26	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
D9	2038 Future Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1072	100.000
2 - Wellington Street		ONE HOUR	✓	183	100.000
3 - A4059 (S)		ONE HOUR	✓	939	100.000
4 - Meirion Road		ONE HOUR	✓	40	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	1	135	929	7
	2 - Wellington Street	150	0	13	20
	3 - A4059 (S)	874	24	1	40
	4 - Meirion Road	8	8	23	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	0	2	2	2
	2 - Wellington Street	3	0	3	3
	3 - A4059 (S)	3	2	0	3
	4 - Meirion Road	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.52	3.34	1.1	A	984	1476
2 - Wellington Street	0.38	11.40	0.6	B	168	252
3 - A4059 (S)	0.52	3.90	1.1	A	862	1292
4 - Meirion Road	0.05	4.67	0.1	A	37	55

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	807	202	43	2294	0.352	805	775	0.0	0.6	2.463	A
2 - Wellington Street	138	34	722	653	0.211	137	125	0.0	0.3	7.173	A
3 - A4059 (S)	707	177	134	2030	0.348	705	725	0.0	0.5	2.791	A
4 - Meirion Road	30	8	788	1063	0.028	30	51	0.0	0.0	3.578	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	964	241	51	2287	0.421	963	928	0.6	0.7	2.772	A
2 - Wellington Street	165	41	864	600	0.274	164	150	0.3	0.4	8.507	A
3 - A4059 (S)	844	211	160	2011	0.420	843	868	0.5	0.7	3.174	A
4 - Meirion Road	36	9	943	967	0.037	36	61	0.0	0.0	3.970	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1180	295	63	2278	0.518	1179	1135	0.7	1.1	3.335	A
2 - Wellington Street	201	50	1058	527	0.382	201	184	0.4	0.6	11.322	B
3 - A4059 (S)	1034	258	196	1984	0.521	1032	1062	0.7	1.1	3.893	A
4 - Meirion Road	44	11	1154	837	0.053	44	75	0.0	0.1	4.665	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1180	295	63	2278	0.518	1180	1137	1.1	1.1	3.343	A
2 - Wellington Street	201	50	1059	527	0.383	201	184	0.6	0.6	11.403	B
3 - A4059 (S)	1034	258	197	1984	0.521	1034	1064	1.1	1.1	3.901	A
4 - Meirion Road	44	11	1156	835	0.053	44	75	0.1	0.1	4.673	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	964	241	51	2287	0.421	965	931	1.1	0.7	2.780	A
2 - Wellington Street	165	41	866	599	0.275	165	150	0.6	0.4	8.575	A
3 - A4059 (S)	844	211	162	2010	0.420	846	870	1.1	0.8	3.187	A
4 - Meirion Road	36	9	946	965	0.037	36	61	0.1	0.0	3.981	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	807	202	43	2293	0.352	808	779	0.7	0.6	2.474	A
2 - Wellington Street	138	34	725	652	0.211	138	126	0.4	0.3	7.231	A
3 - A4059 (S)	707	177	135	2029	0.348	708	728	0.8	0.6	2.808	A
4 - Meirion Road	30	8	792	1061	0.028	30	51	0.0	0.0	3.587	A

2038 Future Year + Proposed Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3, 4	5.26	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	2038 Future Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1310	100.000
2 - Wellington Street		ONE HOUR	✓	189	100.000
3 - A4059 (S)		ONE HOUR	✓	983	100.000
4 - Meirion Road		ONE HOUR	✓	35	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	2	87	1216	5
	2 - Wellington Street	142	0	36	11
	3 - A4059 (S)	944	7	1	31
	4 - Meirion Road	7	10	18	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A4059 (N)	2 - Wellington Street	3 - A4059 (S)	4 - Meirion Road
From	1 - A4059 (N)	0	2	3	3
	2 - Wellington Street	2	0	2	2
	3 - A4059 (S)	3	2	0	3
	4 - Meirion Road	3	2	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.63	4.34	1.7	A	1202	1803
2 - Wellington Street	0.51	18.03	1.0	C	173	260
3 - A4059 (S)	0.54	4.04	1.2	A	902	1353
4 - Meirion Road	0.05	4.83	0.1	A	32	48

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	986	247	27	2306	0.428	983	821	0.0	0.8	2.796	A
2 - Wellington Street	142	36	932	574	0.248	141	78	0.0	0.3	8.453	A
3 - A4059 (S)	740	185	119	2041	0.363	738	954	0.0	0.6	2.840	A
4 - Meirion Road	26	7	822	1042	0.025	26	35	0.0	0.0	3.639	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1178	294	32	2302	0.512	1176	983	0.8	1.1	3.290	A
2 - Wellington Street	170	42	1115	506	0.336	169	93	0.3	0.5	10.894	B
3 - A4059 (S)	884	221	143	2023	0.437	883	1141	0.6	0.8	3.250	A
4 - Meirion Road	31	8	984	942	0.033	31	42	0.0	0.0	4.061	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1442	361	40	2296	0.628	1440	1203	1.1	1.7	4.314	A
2 - Wellington Street	208	52	1365	412	0.505	206	114	0.5	1.0	17.648	C
3 - A4059 (S)	1082	271	175	2000	0.541	1081	1397	0.8	1.2	4.024	A
4 - Meirion Road	39	10	1204	806	0.048	38	52	0.0	0.1	4.818	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1442	361	40	2296	0.628	1442	1206	1.7	1.7	4.340	A
2 - Wellington Street	208	52	1367	411	0.506	208	115	1.0	1.0	18.028	C
3 - A4059 (S)	1082	271	176	1999	0.541	1082	1399	1.2	1.2	4.043	A
4 - Meirion Road	39	10	1207	804	0.048	39	52	0.1	0.1	4.830	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1178	294	32	2302	0.512	1180	987	1.7	1.1	3.311	A
2 - Wellington Street	170	42	1119	504	0.337	172	94	1.0	0.5	11.114	B
3 - A4059 (S)	884	221	145	2022	0.437	885	1145	1.2	0.8	3.266	A
4 - Meirion Road	31	8	988	939	0.034	32	42	0.1	0.0	4.074	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	986	247	27	2306	0.428	987	826	1.1	0.8	2.815	A
2 - Wellington Street	142	36	936	573	0.249	143	78	0.5	0.3	8.565	A
3 - A4059 (S)	740	185	121	2040	0.363	741	958	0.8	0.6	2.856	A
4 - Meirion Road	26	7	827	1039	0.025	26	35	0.0	0.0	3.653	A

APPENDIX O – ARCADY OUTPUT DATA (JUNCTION 5)

Junctions 9

ARCADY 9 - Roundabout Module

Filename: J5 - A4059 (N)_A4059 (S)_A4233 (Tesco).j9
Path: Z:\2020 Projects\F20029 Land at Abernant Road\Capacity Analysis\August 2023\J5 - A4059 (N)_A4059 (S)_A4233 (Tesco)
Report generation date: 07/08/2023 16:07:21

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023							
1 - A4059 (N)	1.4	5.47	0.58	A	3.3	10.03	0.77	B
2 - A4059 (S)	1.5	4.68	0.59	A	1.7	5.30	0.63	A
3 - A4233 (Tesco)	1.3	6.78	0.56	A	2.1	8.96	0.67	A
	2028 Design Year							
1 - A4059 (N)	1.6	5.99	0.62	A	4.5	13.18	0.82	B
2 - A4059 (S)	1.8	5.24	0.63	A	2.1	6.06	0.67	A
3 - A4233 (Tesco)	1.5	7.55	0.60	A	2.6	10.83	0.72	B
	2028 Design Year + Dev							
1 - A4059 (N)	1.7	6.09	0.62	A	5.5	15.78	0.85	C
2 - A4059 (S)	2.0	5.64	0.66	A	2.2	6.33	0.69	A
3 - A4233 (Tesco)	1.6	7.93	0.61	A	2.8	11.56	0.74	B
	2038 Future Year							
1 - A4059 (N)	2.1	7.17	0.67	A	7.9	22.34	0.90	C
2 - A4059 (S)	2.2	6.17	0.69	A	2.7	7.39	0.73	A
3 - A4233 (Tesco)	2.0	9.09	0.66	A	3.8	14.65	0.79	B
	2038 Future Year + Dev							
1 - A4059 (N)	2.2	7.35	0.68	A	10.8	29.73	0.93	D
2 - A4059 (S)	2.5	6.77	0.71	A	2.9	7.81	0.74	A
3 - A4233 (Tesco)	2.1	9.69	0.68	A	4.2	16.11	0.81	C

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	A4059 (N)/A4059 (S)/A4233 Tesco
Location	Aberdare
Site number	
Date	30/09/2022
Version	
Status	Preliminary
Identifier	DS
Client	Xurbia Developments
Jobnumber	F20029
Enumerator	BANCROFT\dscott
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023	AM	ONE HOUR	08:00	09:30	15	✓
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓
D3	2028 Design Year	AM	ONE HOUR	08:00	09:30	15	✓
D4	2028 Design Year	PM	ONE HOUR	17:00	18:30	15	✓
D5	2028 Design Year + Dev	AM	ONE HOUR	08:00	09:30	15	✓
D6	2028 Design Year + Dev	PM	ONE HOUR	17:00	18:30	15	✓
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓
D9	2038 Future Year + Dev	AM	ONE HOUR	08:00	09:30	15	✓
D10	2038 Future Year + Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2023, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4233 (Tesco) - 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	untitled	Standard Roundabout		1, 2, 3	5.48	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A4059 (N)	
2	A4059 (S)	
3	A4233 (Tesco)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A4059 (N)	3.75	7.50	28.0	45.0	32.0	35.0	
2 - A4059 (S)	3.75	7.15	75.0	35.0	32.0	21.5	
3 - A4233 (Tesco)	5.50	7.75	90.0	25.0	32.0	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A4059 (N)	0.710	1951
2 - A4059 (S)	0.761	2139
3 - A4233 (Tesco)	0.772	2280

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
2 - A4059 (S)	Percentage		100.00
3 - A4233 (Tesco)	Percentage		70.00

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	2023	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	854	100.000
2 - A4059 (S)		ONE HOUR	✓	1045	100.000
3 - A4233 (Tesco)		ONE HOUR	✓	640	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	622	232
	2 - A4059 (S)	585	1	459
	3 - A4233 (Tesco)	207	431	2

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	2	2
	2 - A4059 (S)	3	0	3
	3 - A4233 (Tesco)	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.58	5.47	1.4	A	784	1175
2 - A4059 (S)	0.59	4.68	1.5	A	959	1438
3 - A4233 (Tesco)	0.56	6.78	1.3	A	587	881

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	643	161	325	1720	0.374	641	594	0.0	0.6	3.395	A
2 - A4059 (S)	787	197	176	2005	0.392	784	790	0.0	0.7	3.030	A
3 - A4233 (Tesco)	482	120	440	1359	0.355	480	520	0.0	0.6	4.180	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	768	192	390	1674	0.459	767	711	0.6	0.9	4.043	A
2 - A4059 (S)	939	235	210	1979	0.475	938	946	0.7	0.9	3.560	A
3 - A4233 (Tesco)	575	144	526	1312	0.439	574	622	0.6	0.8	4.987	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	940	235	476	1612	0.583	938	870	0.9	1.4	5.428	A
2 - A4059 (S)	1151	288	257	1943	0.592	1148	1157	0.9	1.5	4.652	A
3 - A4233 (Tesco)	705	176	644	1248	0.564	703	761	0.8	1.3	6.723	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	940	235	478	1611	0.584	940	872	1.4	1.4	5.470	A
2 - A4059 (S)	1151	288	258	1943	0.592	1151	1160	1.5	1.5	4.680	A
3 - A4233 (Tesco)	705	176	645	1248	0.565	705	763	1.3	1.3	6.781	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	768	192	392	1673	0.459	770	714	1.4	0.9	4.078	A
2 - A4059 (S)	939	235	211	1978	0.475	942	950	1.5	0.9	3.586	A
3 - A4233 (Tesco)	575	144	528	1311	0.439	577	625	1.3	0.8	5.036	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	643	161	327	1718	0.374	644	597	0.9	0.6	3.420	A
2 - A4059 (S)	787	197	176	2004	0.393	788	795	0.9	0.7	3.049	A
3 - A4233 (Tesco)	482	120	442	1358	0.355	483	522	0.8	0.6	4.214	A

2023, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4233 (Tesco) - 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	untitled	Standard Roundabout		1, 2, 3	8.02	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
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1085	100.000
2 - A4059 (S)		ONE HOUR	✓	1066	100.000
3 - A4233 (Tesco)		ONE HOUR	✓	762	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	760	325
	2 - A4059 (S)	583	0	483
	3 - A4233 (Tesco)	263	499	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	2	3
	2 - A4059 (S)	2	0	2
	3 - A4233 (Tesco)	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.77	10.03	3.3	B	996	1493
2 - A4059 (S)	0.63	5.30	1.7	A	978	1467
3 - A4233 (Tesco)	0.67	8.96	2.1	A	699	1049

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	817	204	374	1685	0.485	813	634	0.0	1.0	4.203	A
2 - A4059 (S)	803	201	244	1953	0.411	800	943	0.0	0.7	3.174	A
3 - A4233 (Tesco)	574	143	437	1360	0.422	571	606	0.0	0.7	4.652	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	975	244	448	1633	0.597	973	759	1.0	1.5	5.565	A
2 - A4059 (S)	958	240	292	1917	0.500	957	1129	0.7	1.0	3.820	A
3 - A4233 (Tesco)	685	171	523	1313	0.522	684	725	0.7	1.1	5.836	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1195	299	547	1562	0.765	1188	929	1.5	3.2	9.662	A
2 - A4059 (S)	1174	293	356	1868	0.628	1171	1379	1.0	1.7	5.247	A
3 - A4233 (Tesco)	839	210	640	1250	0.671	835	886	1.1	2.0	8.797	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1195	299	549	1561	0.765	1194	931	3.2	3.3	10.028	B
2 - A4059 (S)	1174	293	358	1867	0.629	1174	1386	1.7	1.7	5.299	A
3 - A4233 (Tesco)	839	210	642	1250	0.671	839	890	2.0	2.1	8.965	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	975	244	451	1630	0.598	982	763	3.3	1.5	5.739	A
2 - A4059 (S)	958	240	294	1915	0.500	961	1139	1.7	1.0	3.860	A
3 - A4233 (Tesco)	685	171	526	1312	0.522	689	730	2.1	1.1	5.942	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	817	204	377	1683	0.485	819	638	1.5	1.0	4.272	A
2 - A4059 (S)	803	201	245	1952	0.411	804	950	1.0	0.7	3.200	A
3 - A4233 (Tesco)	574	143	440	1359	0.422	575	610	1.1	0.8	4.710	A

2028 Design Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4233 (Tesco) - 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	untitled	Standard Roundabout		1, 2, 3	6.07	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
D3	2028 Design Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	892	100.000
2 - A4059 (S)		ONE HOUR	✓	1115	100.000
3 - A4233 (Tesco)		ONE HOUR	✓	669	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	651	241
	2 - A4059 (S)	625	1	489
	3 - A4233 (Tesco)	215	452	2

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	2	2
	2 - A4059 (S)	3	0	3
	3 - A4233 (Tesco)	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.62	5.99	1.6	A	819	1228
2 - A4059 (S)	0.63	5.24	1.8	A	1023	1535
3 - A4233 (Tesco)	0.60	7.55	1.5	A	614	921

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	672	168	341	1709	0.393	669	630	0.0	0.7	3.523	A
2 - A4059 (S)	839	210	182	2000	0.420	836	828	0.0	0.7	3.179	A
3 - A4233 (Tesco)	504	126	470	1343	0.375	501	549	0.0	0.6	4.366	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	802	200	408	1661	0.483	801	754	0.7	0.9	4.265	A
2 - A4059 (S)	1002	251	218	1973	0.508	1001	991	0.7	1.1	3.811	A
3 - A4233 (Tesco)	601	150	562	1293	0.465	600	657	0.6	0.9	5.311	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	982	246	499	1596	0.615	979	922	0.9	1.6	5.929	A
2 - A4059 (S)	1228	307	267	1936	0.634	1225	1212	1.1	1.8	5.195	A
3 - A4233 (Tesco)	737	184	688	1225	0.601	734	804	0.9	1.5	7.467	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	982	246	501	1595	0.616	982	925	1.6	1.6	5.990	A
2 - A4059 (S)	1228	307	268	1935	0.634	1228	1215	1.8	1.8	5.240	A
3 - A4233 (Tesco)	737	184	689	1224	0.602	737	806	1.5	1.5	7.553	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	802	200	411	1659	0.483	805	758	1.6	1.0	4.309	A
2 - A4059 (S)	1002	251	219	1972	0.508	1005	996	1.8	1.1	3.846	A
3 - A4233 (Tesco)	601	150	564	1291	0.466	604	660	1.5	0.9	5.376	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	672	168	343	1707	0.393	673	633	1.0	0.7	3.556	A
2 - A4059 (S)	839	210	183	1999	0.420	841	833	1.1	0.7	3.203	A
3 - A4233 (Tesco)	504	126	472	1341	0.376	505	552	0.9	0.6	4.410	A

2028 Design Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4233 (Tesco) - 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	untitled	Standard Roundabout		1, 2, 3	9.94	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	2028 Design Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1144	100.000
2 - A4059 (S)		ONE HOUR	✓	1135	100.000
3 - A4233 (Tesco)		ONE HOUR	✓	806	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	806	338
	2 - A4059 (S)	621	0	514
	3 - A4233 (Tesco)	276	530	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	2	3
	2 - A4059 (S)	2	0	2
	3 - A4233 (Tesco)	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.82	13.18	4.5	B	1050	1575
2 - A4059 (S)	0.67	6.06	2.1	A	1041	1562
3 - A4233 (Tesco)	0.72	10.83	2.6	B	740	1109

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	861	215	397	1669	0.516	857	672	0.0	1.1	4.512	A
2 - A4059 (S)	854	214	253	1946	0.439	851	1001	0.0	0.8	3.344	A
3 - A4233 (Tesco)	607	152	466	1345	0.451	603	639	0.0	0.8	4.949	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1028	257	475	1613	0.638	1026	805	1.1	1.8	6.237	A
2 - A4059 (S)	1020	255	303	1908	0.535	1019	1198	0.8	1.2	4.122	A
3 - A4233 (Tesco)	725	181	557	1295	0.559	723	764	0.8	1.3	6.416	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1260	315	580	1539	0.819	1249	984	1.8	4.3	12.315	B
2 - A4059 (S)	1250	312	369	1858	0.673	1246	1460	1.2	2.1	5.968	A
3 - A4233 (Tesco)	887	222	682	1228	0.723	882	933	1.3	2.6	10.503	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1260	315	583	1536	0.820	1259	987	4.3	4.5	13.181	B
2 - A4059 (S)	1250	312	372	1856	0.673	1250	1470	2.1	2.1	6.055	A
3 - A4233 (Tesco)	887	222	684	1227	0.723	887	938	2.6	2.6	10.825	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1028	257	480	1610	0.639	1039	810	4.5	1.8	6.565	A
2 - A4059 (S)	1020	255	307	1905	0.536	1024	1212	2.1	1.2	4.184	A
3 - A4233 (Tesco)	725	181	560	1294	0.560	730	771	2.6	1.3	6.594	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	861	215	400	1666	0.517	864	677	1.8	1.1	4.606	A
2 - A4059 (S)	854	214	255	1944	0.439	856	1009	1.2	0.8	3.377	A
3 - A4233 (Tesco)	607	152	468	1343	0.452	609	643	1.3	0.9	5.029	A

2028 Design Year + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4233 (Tesco) - 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	untitled	Standard Roundabout		1, 2, 3	6.35	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	2028 Design Year + Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	901	100.000
2 - A4059 (S)		ONE HOUR	✓	1161	100.000
3 - A4233 (Tesco)		ONE HOUR	✓	671	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	660	241
	2 - A4059 (S)	661	0	500
	3 - A4233 (Tesco)	215	454	2

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	2	2
	2 - A4059 (S)	3	0	3
	3 - A4233 (Tesco)	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.62	6.09	1.7	A	827	1240
2 - A4059 (S)	0.66	5.64	2.0	A	1065	1598
3 - A4233 (Tesco)	0.61	7.93	1.6	A	616	924

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	678	170	342	1708	0.397	676	657	0.0	0.7	3.548	A
2 - A4059 (S)	874	219	182	2000	0.437	871	835	0.0	0.8	3.274	A
3 - A4233 (Tesco)	505	126	496	1328	0.380	503	557	0.0	0.6	4.447	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	810	202	409	1660	0.488	809	786	0.7	1.0	4.306	A
2 - A4059 (S)	1044	261	218	1973	0.529	1042	1000	0.8	1.1	3.980	A
3 - A4233 (Tesco)	603	151	593	1276	0.473	602	667	0.6	0.9	5.459	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	992	248	500	1596	0.622	989	962	1.0	1.6	6.029	A
2 - A4059 (S)	1278	320	267	1936	0.660	1275	1223	1.1	2.0	5.584	A
3 - A4233 (Tesco)	739	185	726	1204	0.614	736	816	0.9	1.6	7.823	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	992	248	502	1594	0.622	992	964	1.6	1.7	6.094	A
2 - A4059 (S)	1278	320	268	1935	0.661	1278	1226	2.0	2.0	5.642	A
3 - A4233 (Tesco)	739	185	728	1203	0.614	739	818	1.6	1.6	7.927	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	810	202	412	1658	0.488	813	790	1.7	1.0	4.357	A
2 - A4059 (S)	1044	261	219	1972	0.529	1047	1005	2.0	1.2	4.024	A
3 - A4233 (Tesco)	603	151	596	1274	0.473	606	670	1.6	0.9	5.532	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	678	170	344	1706	0.398	680	661	1.0	0.7	3.579	A
2 - A4059 (S)	874	219	183	1999	0.437	876	840	1.2	0.8	3.305	A
3 - A4233 (Tesco)	505	126	498	1327	0.381	506	560	0.9	0.6	4.496	A

2028 Design Year + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4233 (Tesco) - 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	untitled	Standard Roundabout		1, 2, 3	11.22	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
D6	2028 Design Year + Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1180	100.000
2 - A4059 (S)		ONE HOUR	✓	1159	100.000
3 - A4233 (Tesco)		ONE HOUR	✓	816	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	842	338
	2 - A4059 (S)	639	0	520
	3 - A4233 (Tesco)	276	540	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	2	3
	2 - A4059 (S)	2	0	2
	3 - A4233 (Tesco)	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.85	15.78	5.5	C	1083	1624
2 - A4059 (S)	0.69	6.33	2.2	A	1064	1595
3 - A4233 (Tesco)	0.74	11.56	2.8	B	749	1123

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	888	222	404	1664	0.534	884	686	0.0	1.2	4.695	A
2 - A4059 (S)	873	218	253	1946	0.448	869	1035	0.0	0.8	3.400	A
3 - A4233 (Tesco)	614	154	479	1337	0.459	611	643	0.0	0.9	5.049	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1061	265	484	1607	0.660	1058	821	1.2	1.9	6.665	A
2 - A4059 (S)	1042	260	303	1908	0.546	1040	1239	0.8	1.2	4.223	A
3 - A4233 (Tesco)	734	183	574	1286	0.570	732	770	0.9	1.3	6.619	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1299	325	591	1531	0.848	1286	1003	1.9	5.2	14.326	B
2 - A4059 (S)	1276	319	368	1858	0.687	1272	1509	1.2	2.2	6.224	A
3 - A4233 (Tesco)	898	225	701	1217	0.738	893	939	1.3	2.8	11.156	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1299	325	594	1529	0.850	1298	1007	5.2	5.5	15.777	C
2 - A4059 (S)	1276	319	372	1856	0.688	1276	1521	2.2	2.2	6.330	A
3 - A4233 (Tesco)	898	225	703	1216	0.739	898	944	2.8	2.8	11.555	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1061	265	489	1603	0.662	1074	827	5.5	2.0	7.138	A
2 - A4059 (S)	1042	260	308	1905	0.547	1046	1256	2.2	1.2	4.295	A
3 - A4233 (Tesco)	734	183	577	1285	0.571	739	777	2.8	1.4	6.825	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	888	222	408	1661	0.535	892	690	2.0	1.2	4.809	A
2 - A4059 (S)	873	218	255	1944	0.449	874	1044	1.2	0.8	3.438	A
3 - A4233 (Tesco)	614	154	482	1336	0.460	616	648	1.4	0.9	5.135	A

2038 Future Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4233 (Tesco) - 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	untitled	Standard Roundabout		1, 2, 3	7.23	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	960	100.000
2 - A4059 (S)		ONE HOUR	✓	1198	100.000
3 - A4233 (Tesco)		ONE HOUR	✓	719	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	700	260
	2 - A4059 (S)	671	1	526
	3 - A4233 (Tesco)	231	486	2

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	2	2
	2 - A4059 (S)	3	0	3
	3 - A4233 (Tesco)	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.67	7.17	2.1	A	881	1321
2 - A4059 (S)	0.69	6.17	2.2	A	1099	1649
3 - A4233 (Tesco)	0.66	9.09	2.0	A	660	990

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	723	181	366	1691	0.428	720	676	0.0	0.8	3.772	A
2 - A4059 (S)	902	225	196	1989	0.453	899	890	0.0	0.8	3.390	A
3 - A4233 (Tesco)	541	135	504	1324	0.409	538	591	0.0	0.7	4.672	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	863	216	439	1639	0.526	862	810	0.8	1.1	4.713	A
2 - A4059 (S)	1077	269	235	1960	0.550	1075	1065	0.8	1.2	4.185	A
3 - A4233 (Tesco)	646	162	603	1270	0.509	645	707	0.7	1.0	5.876	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1057	264	536	1570	0.673	1053	990	1.1	2.1	7.054	A
2 - A4059 (S)	1319	330	287	1920	0.687	1315	1302	1.2	2.2	6.092	A
3 - A4233 (Tesco)	792	198	738	1198	0.661	788	865	1.0	1.9	8.913	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1057	264	538	1568	0.674	1057	993	2.1	2.1	7.172	A
2 - A4059 (S)	1319	330	288	1919	0.687	1319	1307	2.2	2.2	6.174	A
3 - A4233 (Tesco)	792	198	740	1197	0.662	792	868	1.9	2.0	9.086	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	863	216	442	1637	0.527	867	814	2.1	1.2	4.790	A
2 - A4059 (S)	1077	269	237	1959	0.550	1081	1072	2.2	1.3	4.241	A
3 - A4233 (Tesco)	646	162	606	1269	0.509	650	711	2.0	1.1	5.985	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	723	181	369	1689	0.428	724	680	1.2	0.8	3.812	A
2 - A4059 (S)	902	225	198	1988	0.454	904	896	1.3	0.9	3.425	A
3 - A4233 (Tesco)	541	135	507	1322	0.409	543	594	1.1	0.7	4.734	A

2038 Future Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4233 (Tesco) - 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	untitled	Standard Roundabout		1, 2, 3	14.83	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
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1227	100.000
2 - A4059 (S)		ONE HOUR	✓	1216	100.000
3 - A4233 (Tesco)		ONE HOUR	✓	864	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	864	363
	2 - A4059 (S)	665	0	551
	3 - A4233 (Tesco)	296	568	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	2	3
	2 - A4059 (S)	2	0	2
	3 - A4233 (Tesco)	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.90	22.34	7.9	C	1126	1689
2 - A4059 (S)	0.73	7.39	2.7	A	1116	1674
3 - A4233 (Tesco)	0.79	14.65	3.8	B	793	1189

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	924	231	425	1649	0.560	919	720	0.0	1.3	5.008	A
2 - A4059 (S)	915	229	272	1932	0.474	912	1072	0.0	0.9	3.586	A
3 - A4233 (Tesco)	650	163	499	1327	0.490	647	685	0.0	1.0	5.386	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1103	276	509	1589	0.694	1099	862	1.3	2.3	7.454	A
2 - A4059 (S)	1093	273	325	1891	0.578	1091	1283	0.9	1.4	4.578	A
3 - A4233 (Tesco)	777	194	597	1274	0.610	774	820	1.0	1.6	7.340	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1351	338	620	1511	0.894	1331	1052	2.3	7.2	18.763	C
2 - A4059 (S)	1339	335	394	1839	0.728	1334	1557	1.4	2.7	7.193	A
3 - A4233 (Tesco)	951	238	729	1202	0.791	943	998	1.6	3.6	13.794	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1351	338	625	1507	0.896	1348	1058	7.2	7.9	22.336	C
2 - A4059 (S)	1339	335	399	1835	0.730	1339	1574	2.7	2.7	7.387	A
3 - A4233 (Tesco)	951	238	732	1201	0.792	951	1005	3.6	3.8	14.652	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1103	276	516	1584	0.696	1125	870	7.9	2.4	8.385	A
2 - A4059 (S)	1093	273	333	1885	0.580	1098	1308	2.7	1.4	4.694	A
3 - A4233 (Tesco)	777	194	601	1272	0.611	785	831	3.8	1.6	7.699	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	924	231	429	1646	0.561	928	725	2.4	1.3	5.160	A
2 - A4059 (S)	915	229	275	1930	0.474	917	1083	1.4	0.9	3.636	A
3 - A4233 (Tesco)	650	163	502	1325	0.491	653	690	1.6	1.0	5.503	A

2038 Future Year + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4233 (Tesco) - 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	untitled	Standard Roundabout		1, 2, 3	7.68	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
D9	2038 Future Year + Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	969	100.000
2 - A4059 (S)		ONE HOUR	✓	1246	100.000
3 - A4233 (Tesco)		ONE HOUR	✓	722	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	709	260
	2 - A4059 (S)	708	1	537
	3 - A4233 (Tesco)	231	489	2

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	2	2
	2 - A4059 (S)	3	0	3
	3 - A4233 (Tesco)	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.68	7.35	2.2	A	889	1334
2 - A4059 (S)	0.71	6.77	2.5	A	1143	1715
3 - A4233 (Tesco)	0.68	9.69	2.1	A	663	994

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	730	182	368	1689	0.432	726	704	0.0	0.8	3.801	A
2 - A4059 (S)	938	235	196	1989	0.472	934	898	0.0	0.9	3.504	A
3 - A4233 (Tesco)	544	136	532	1309	0.415	541	599	0.0	0.7	4.777	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	871	218	441	1637	0.532	870	843	0.8	1.1	4.773	A
2 - A4059 (S)	1120	280	235	1960	0.572	1118	1076	0.9	1.4	4.398	A
3 - A4233 (Tesco)	649	162	636	1252	0.518	648	717	0.7	1.1	6.074	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1067	267	539	1568	0.680	1063	1030	1.1	2.1	7.215	A
2 - A4059 (S)	1372	343	287	1920	0.715	1367	1315	1.4	2.5	6.652	A
3 - A4233 (Tesco)	795	199	778	1176	0.676	791	877	1.1	2.1	9.471	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1067	267	542	1566	0.681	1067	1034	2.1	2.2	7.348	A
2 - A4059 (S)	1372	343	288	1919	0.715	1372	1320	2.5	2.5	6.768	A
3 - A4233 (Tesco)	795	199	781	1175	0.677	795	880	2.1	2.1	9.687	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	871	218	445	1635	0.533	875	848	2.2	1.2	4.857	A
2 - A4059 (S)	1120	280	237	1959	0.572	1125	1083	2.5	1.4	4.470	A
3 - A4233 (Tesco)	649	162	640	1251	0.519	653	721	2.1	1.1	6.203	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	730	182	371	1687	0.432	731	708	1.2	0.8	3.849	A
2 - A4059 (S)	938	235	198	1988	0.472	940	905	1.4	0.9	3.542	A
3 - A4233 (Tesco)	544	136	535	1307	0.416	545	603	1.1	0.7	4.841	A

2038 Future Year + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	2 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4233 (Tesco) - 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	untitled	Standard Roundabout		1, 2, 3	18.15	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
D10	2038 Future Year + Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1263	100.000
2 - A4059 (S)		ONE HOUR	✓	1241	100.000
3 - A4233 (Tesco)		ONE HOUR	✓	875	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	900	363
	2 - A4059 (S)	684	0	557
	3 - A4233 (Tesco)	296	579	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - A4059 (S)	3 - A4233 (Tesco)
From	1 - A4059 (N)	0	2	3
	2 - A4059 (S)	2	0	2
	3 - A4233 (Tesco)	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.93	29.73	10.8	D	1159	1738
2 - A4059 (S)	0.74	7.81	2.9	A	1139	1708
3 - A4233 (Tesco)	0.81	16.11	4.2	C	803	1204

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	951	238	433	1643	0.579	945	734	0.0	1.4	5.237	A
2 - A4059 (S)	934	234	272	1932	0.484	930	1107	0.0	0.9	3.653	A
3 - A4233 (Tesco)	659	165	513	1319	0.499	655	689	0.0	1.0	5.512	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1135	284	519	1582	0.718	1131	879	1.4	2.5	8.075	A
2 - A4059 (S)	1116	279	325	1891	0.590	1114	1325	0.9	1.4	4.708	A
3 - A4233 (Tesco)	787	197	614	1265	0.622	784	825	1.0	1.6	7.624	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1391	348	631	1502	0.926	1363	1073	2.5	9.4	22.977	C
2 - A4059 (S)	1366	342	392	1841	0.742	1361	1603	1.4	2.8	7.564	A
3 - A4233 (Tesco)	963	241	750	1191	0.809	954	1003	1.6	4.0	14.978	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1391	348	637	1498	0.928	1385	1079	9.4	10.8	29.734	D
2 - A4059 (S)	1366	342	398	1836	0.744	1366	1624	2.8	2.9	7.807	A
3 - A4233 (Tesco)	963	241	753	1190	0.810	963	1011	4.0	4.2	16.115	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1135	284	527	1577	0.720	1168	887	10.8	2.7	9.673	A
2 - A4059 (S)	1116	279	336	1883	0.592	1121	1359	2.9	1.5	4.854	A
3 - A4233 (Tesco)	787	197	618	1262	0.623	796	839	4.2	1.7	8.062	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	951	238	438	1640	0.580	956	740	2.7	1.4	5.423	A
2 - A4059 (S)	934	234	275	1930	0.484	936	1119	1.5	1.0	3.707	A
3 - A4233 (Tesco)	659	165	516	1317	0.500	662	695	1.7	1.0	5.641	A

APPENDIX P – ARCADY OUTPUT DATA (JUNCTION 6)

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.0.6896

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

Filename: J6 - A4059 (N)_Aberdare College_A4059 (S)_B4275_Cardiff St.j9
Path: Z:\2020 Projects\F20029 Land at Abernant Road\Capacity Analysis\August 2023\J6 - A4059 (N)_Aberdare College_A4059 (S)_B4275_Cardiff St\SS
Report generation date: 07/08/2023 16:19:38

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023							
1 - A4059 (N)	1.4	5.53	0.57	A	2.0	7.05	0.67	A
2 - Aberdare College	0.4	7.86	0.30	A	0.2	7.42	0.15	A
3 - A4059 (S)	1.8	7.43	0.64	A	2.7	9.90	0.73	A
4 - B4275	1.1	7.14	0.53	A	0.9	6.46	0.47	A
5 - Cardiff Street	1.2	9.16	0.55	A	1.4	9.30	0.57	A
	2028 Design Year							
1 - A4059 (N)	1.5	5.83	0.60	A	2.4	7.78	0.70	A
2 - Aberdare College	0.5	8.57	0.33	A	0.2	8.01	0.16	A
3 - A4059 (S)	2.1	8.27	0.67	A	3.3	11.74	0.77	B
4 - B4275	1.3	7.84	0.56	A	1.0	7.03	0.50	A
5 - Cardiff Street	1.4	10.12	0.58	B	1.6	10.37	0.61	B
	2028 Design Year + Proposed Dev							
1 - A4059 (N)	1.6	5.94	0.60	A	2.4	7.87	0.70	A
2 - Aberdare College	0.5	8.67	0.33	A	0.2	8.05	0.17	A
3 - A4059 (S)	2.1	8.36	0.68	A	3.4	11.84	0.77	B
4 - B4275	1.3	7.87	0.56	A	1.1	7.19	0.51	A
5 - Cardiff Street	1.4	10.14	0.58	B	1.6	10.50	0.61	B
	2038 Future Year							
1 - A4059 (N)	1.9	6.60	0.64	A	3.0	9.38	0.75	A
2 - Aberdare College	0.6	10.08	0.38	B	0.3	9.27	0.20	A
3 - A4059 (S)	2.7	10.33	0.73	B	5.1	17.02	0.84	C
4 - B4275	1.7	9.52	0.62	A	1.3	8.23	0.56	A
5 - Cardiff Street	1.9	12.62	0.65	B	2.1	12.86	0.67	B
	2038 Future Year + Proposed Dev							
1 - A4059 (N)	1.9	6.72	0.65	A	3.1	9.51	0.75	A
2 - Aberdare College	0.6	10.22	0.39	B	0.3	9.33	0.20	A
3 - A4059 (S)	2.8	10.48	0.74	B	5.2	17.23	0.84	C
4 - B4275	1.7	9.57	0.63	A	1.4	8.44	0.57	A
5 - Cardiff Street	1.9	12.66	0.65	B	2.1	13.06	0.68	B

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	A4059 (N)/Aberdare College/A4059 (S)/B4275/Cardiff Street
Location	Aberdare
Site number	
Date	30/09/2022
Version	
Status	Preliminary
Identifier	DS
Client	Xurbia Developments
Jobnumber	F20029
Enumerator	BANCROFT\dscott
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023	AM	ONE HOUR	08:00	09:30	15	✓
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓
D3	2028 Design Year	AM	ONE HOUR	08:00	09:30	15	✓
D4	2028 Design Year	PM	ONE HOUR	17:00	18:30	15	✓
D5	2028 Design Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓
D6	2028 Design Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓
D9	2038 Future Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓
D10	2038 Future Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2023, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4275 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - Cardiff Street - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	1 - A4059 (N) - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - B4275 - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	5 - Cardiff Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	7.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A4059 (N)	
2	Aberdare College	
3	A4059 (S)	
4	B4275	
5	Cardiff Street	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A4059 (N)	3.25	12.00	110.0	25.0	60.0	35.0	
2 - Aberdare College	2.75	5.65	10.0	35.0	60.0	35.0	
3 - A4059 (S)	3.10	7.90	50.0	10.0	60.0	35.0	
4 - B4275	3.50	6.90	40.0	50.0	60.0	35.0	
5 - Cardiff Street	3.10	6.90	37.5	15.0	60.0	35.0	

Pelican/Puffin Crossings

Arm	Space between crossing and junc. entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
1 - A4059 (N)	25.00	3.00	2.90	1.00	6.00	6.00	7.00
4 - B4275	13.50	3.00	2.90	1.00	6.00	6.00	7.00
5 - Cardiff Street	13.50	3.00	2.90	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A4059 (N)	0.793	3075
2 - Aberdare College	0.488	1294
3 - A4059 (S)	0.577	1916
4 - B4275	0.594	1893
5 - Cardiff Street	0.557	1748

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A4059 (N)	Percentage		85.00
2 - Aberdare College	Percentage		100.00
3 - A4059 (S)	Percentage		85.00
4 - B4275	Percentage		85.00
5 - Cardiff Street	Percentage		75.00

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	2023	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	817	100.000
2 - Aberdare College		ONE HOUR	✓	184	100.000
3 - A4059 (S)		ONE HOUR	✓	789	100.000
4 - B4275		ONE HOUR	✓	530	100.000
5 - Cardiff Street		ONE HOUR	✓	443	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059 (N)	[ONEHOUR]	0.00
2 - Aberdare College		
3 - A4059 (S)		
4 - B4275	[ONEHOUR]	0.00
5 - Cardiff Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	4	77	495	187	54
	2 - Aberdare College	62	0	61	31	30
	3 - A4059 (S)	460	45	0	44	240
	4 - B4275	225	46	68	4	187
	5 - Cardiff Street	71	23	223	124	2

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	0	3	2	19	0
	2 - Aberdare College	3	0	2	3	0
	3 - A4059 (S)	2	2	0	2	0
	4 - B4275	10	3	2	0	0
	5 - Cardiff Street	10	3	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.57	5.53	1.4	A	750	1125
2 - Aberdare College	0.30	7.86	0.4	A	169	253
3 - A4059 (S)	0.64	7.43	1.8	A	724	1086
4 - B4275	0.53	7.14	1.1	A	486	730
5 - Cardiff Street	0.55	9.16	1.2	A	407	610

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	615	154	401	0.00	1585	0.388	612	616	0.0	0.7	3.891	A
2 - Aberdare College	139	35	870		870	0.159	138	143	0.0	0.2	5.021	A
3 - A4059 (S)	594	149	373		1446	0.411	591	635	0.0	0.7	4.258	A
4 - B4275	399	100	672	0.00	1270	0.314	397	292	0.0	0.5	4.303	A
5 - Cardiff Street	334	83	685	0.00	1025	0.325	332	384	0.0	0.5	5.314	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	734	184	480	0.00	1585	0.463	734	738	0.7	0.9	4.451	A
2 - Aberdare College	165	41	1042		786	0.211	165	171	0.2	0.3	5.925	A
3 - A4059 (S)	709	177	447		1409	0.503	708	760	0.7	1.0	5.194	A
4 - B4275	476	119	805	0.00	1203	0.396	476	350	0.5	0.7	5.172	A
5 - Cardiff Street	398	100	820	0.00	969	0.411	397	460	0.5	0.7	6.461	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	900	225	587	0.00	1585	0.568	898	902	0.9	1.4	5.505	A
2 - Aberdare College	203	51	1275		672	0.301	202	210	0.3	0.4	7.812	A
3 - A4059 (S)	869	217	547		1360	0.639	866	930	1.0	1.8	7.335	A
4 - B4275	584	146	984	0.00	1112	0.525	582	428	0.7	1.1	7.071	A
5 - Cardiff Street	488	122	1003	0.00	892	0.547	486	563	0.7	1.2	9.047	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	900	225	589	0.00	1585	0.568	899	905	1.4	1.4	5.533	A
2 - Aberdare College	203	51	1278		670	0.302	203	210	0.4	0.4	7.861	A
3 - A4059 (S)	869	217	548		1360	0.639	869	932	1.8	1.8	7.430	A
4 - B4275	584	146	988	0.00	1111	0.525	583	429	1.1	1.1	7.140	A
5 - Cardiff Street	488	122	1006	0.00	891	0.547	488	565	1.2	1.2	9.163	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	734	184	483	0.00	1585	0.463	736	742	1.4	0.9	4.479	A
2 - Aberdare College	165	41	1047		783	0.211	166	172	0.4	0.3	5.969	A
3 - A4059 (S)	709	177	449		1408	0.504	712	764	1.8	1.0	5.267	A
4 - B4275	476	119	810	0.00	1200	0.397	478	352	1.1	0.7	5.227	A
5 - Cardiff Street	398	100	825	0.00	967	0.412	400	463	1.2	0.7	6.547	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	615	154	404	0.00	1585	0.388	616	620	0.9	0.7	3.920	A
2 - Aberdare College	139	35	876		867	0.160	139	144	0.3	0.2	5.055	A
3 - A4059 (S)	594	149	376		1444	0.411	595	639	1.0	0.7	4.305	A
4 - B4275	399	100	677	0.00	1267	0.315	400	294	0.7	0.5	4.342	A
5 - Cardiff Street	334	83	690	0.00	1023	0.326	334	387	0.7	0.5	5.373	A

2023, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4275 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - Cardiff Street - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	1 - A4059 (N) - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - B4275 - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	5 - Cardiff Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	8.24	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	2023	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	958	100.000
2 - Aberdare College		ONE HOUR	✓	79	100.000
3 - A4059 (S)		ONE HOUR	✓	907	100.000
4 - B4275		ONE HOUR	✓	466	100.000
5 - Cardiff Street		ONE HOUR	✓	484	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059 (N)	[ONEHOUR]	0.00
2 - Aberdare College		
3 - A4059 (S)		
4 - B4275	[ONEHOUR]	0.00
5 - Cardiff Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	9	43	615	255	36
	2 - Aberdare College	19	0	43	7	10
	3 - A4059 (S)	531	5	1	57	313
	4 - B4275	199	13	49	1	204
	5 - Cardiff Street	93	31	211	147	2

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	0	3	2	10	0
	2 - Aberdare College	3	0	2	3	0
	3 - A4059 (S)	2	2	0	2	0
	4 - B4275	10	3	2	0	0
	5 - Cardiff Street	10	3	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.67	7.05	2.0	A	879	1319
2 - Aberdare College	0.15	7.42	0.2	A	72	109
3 - A4059 (S)	0.73	9.90	2.7	A	832	1248
4 - B4275	0.47	6.46	0.9	A	428	641
5 - Cardiff Street	0.57	9.30	1.4	A	444	666

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	721	180	344	0.00	1585	0.455	718	637	0.0	0.9	4.298	A
2 - Aberdare College	59	15	993		809	0.073	59	69	0.0	0.1	4.895	A
3 - A4059 (S)	683	171	364		1450	0.471	679	688	0.0	0.9	4.710	A
4 - B4275	351	88	694	0.00	1259	0.279	349	350	0.0	0.4	4.123	A
5 - Cardiff Street	364	91	619	0.00	1052	0.346	362	423	0.0	0.5	5.350	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	861	215	413	0.00	1585	0.543	860	763	0.9	1.2	5.149	A
2 - Aberdare College	71	18	1190		713	0.100	71	83	0.1	0.1	5.716	A
3 - A4059 (S)	815	204	436		1415	0.576	814	825	0.9	1.4	6.066	A
4 - B4275	419	105	831	0.00	1190	0.352	418	419	0.4	0.6	4.865	A
5 - Cardiff Street	435	109	742	0.00	1001	0.435	434	507	0.5	0.8	6.520	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1055	264	504	0.00	1585	0.665	1052	933	1.2	2.0	6.973	A
2 - Aberdare College	87	22	1455		584	0.149	87	101	0.1	0.2	7.383	A
3 - A4059 (S)	999	250	533		1367	0.731	993	1009	1.4	2.6	9.630	A
4 - B4275	513	128	1014	0.00	1097	0.468	512	512	0.6	0.9	6.402	A
5 - Cardiff Street	533	133	907	0.00	933	0.571	531	620	0.8	1.3	9.163	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1055	264	506	0.00	1585	0.665	1055	937	2.0	2.0	7.053	A
2 - Aberdare College	87	22	1460		582	0.149	87	101	0.2	0.2	7.424	A
3 - A4059 (S)	999	250	535		1366	0.731	998	1012	2.6	2.7	9.901	A
4 - B4275	513	128	1019	0.00	1095	0.469	513	514	0.9	0.9	6.459	A
5 - Cardiff Street	533	133	910	0.00	931	0.572	533	622	1.3	1.4	9.297	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	861	215	416	0.00	1585	0.543	864	769	2.0	1.3	5.217	A
2 - Aberdare College	71	18	1197		710	0.100	71	83	0.2	0.1	5.756	A
3 - A4059 (S)	815	204	439		1413	0.577	821	829	2.7	1.4	6.205	A
4 - B4275	419	105	838	0.00	1186	0.353	420	422	0.9	0.6	4.914	A
5 - Cardiff Street	435	109	747	0.00	999	0.436	437	510	1.4	0.8	6.621	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	721	180	347	0.00	1585	0.455	723	642	1.3	0.9	4.348	A
2 - Aberdare College	59	15	1001		806	0.074	60	69	0.1	0.1	4.924	A
3 - A4059 (S)	683	171	367		1449	0.471	685	693	1.4	0.9	4.785	A
4 - B4275	351	88	699	0.00	1256	0.279	351	352	0.6	0.4	4.156	A
5 - Cardiff Street	364	91	624	0.00	1050	0.347	365	426	0.8	0.6	5.415	A

2028 Design Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4275 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - Cardiff Street - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	1 - A4059 (N) - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - B4275 - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	5 - Cardiff Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	7.77	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
D3	2028 Design Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	860	100.000
2 - Aberdare College		ONE HOUR	✓	192	100.000
3 - A4059 (S)		ONE HOUR	✓	823	100.000
4 - B4275		ONE HOUR	✓	553	100.000
5 - Cardiff Street		ONE HOUR	✓	461	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059 (N)	[ONEHOUR]	0.00
2 - Aberdare College		
3 - A4059 (S)		
4 - B4275	[ONEHOUR]	0.00
5 - Cardiff Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	4	81	521	197	57
	2 - Aberdare College	65	0	64	32	31
	3 - A4059 (S)	480	47	0	46	250
	4 - B4275	235	48	71	4	195
	5 - Cardiff Street	74	24	232	129	2

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	0	0	2	10	0
	2 - Aberdare College	3	0	2	3	0
	3 - A4059 (S)	2	2	0	2	0
	4 - B4275	10	3	2	0	0
	5 - Cardiff Street	10	3	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.60	5.83	1.5	A	789	1184
2 - Aberdare College	0.33	8.57	0.5	A	176	264
3 - A4059 (S)	0.67	8.27	2.1	A	755	1133
4 - B4275	0.56	7.84	1.3	A	507	761
5 - Cardiff Street	0.58	10.12	1.4	B	423	635

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	647	162	417	0.00	1585	0.408	645	643	0.0	0.7	3.945	A
2 - Aberdare College	145	36	912		849	0.170	144	150	0.0	0.2	5.210	A
3 - A4059 (S)	620	155	390		1437	0.431	617	665	0.0	0.8	4.432	A
4 - B4275	416	104	701	0.00	1255	0.332	414	306	0.0	0.5	4.466	A
5 - Cardiff Street	347	87	715	0.00	1013	0.343	345	401	0.0	0.5	5.517	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	773	193	500	0.00	1585	0.488	772	770	0.7	1.0	4.572	A
2 - Aberdare College	173	43	1092		761	0.227	172	179	0.2	0.3	6.241	A
3 - A4059 (S)	740	185	468		1399	0.529	738	797	0.8	1.1	5.510	A
4 - B4275	497	124	840	0.00	1185	0.419	496	366	0.5	0.7	5.457	A
5 - Cardiff Street	414	104	856	0.00	954	0.435	413	480	0.5	0.8	6.829	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	947	237	611	0.00	1585	0.597	945	941	1.0	1.5	5.792	A
2 - Aberdare College	211	53	1336		642	0.329	211	219	0.3	0.5	8.505	A
3 - A4059 (S)	906	227	572		1348	0.672	903	975	1.1	2.0	8.125	A
4 - B4275	609	152	1027	0.00	1091	0.558	607	448	0.7	1.3	7.738	A
5 - Cardiff Street	508	127	1046	0.00	874	0.581	505	587	0.8	1.4	9.949	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	947	237	613	0.00	1585	0.597	947	945	1.5	1.5	5.830	A
2 - Aberdare College	211	53	1340		640	0.330	211	220	0.5	0.5	8.574	A
3 - A4059 (S)	906	227	574		1347	0.673	906	978	2.0	2.1	8.266	A
4 - B4275	609	152	1030	0.00	1089	0.559	609	449	1.3	1.3	7.837	A
5 - Cardiff Street	508	127	1050	0.00	873	0.582	507	589	1.4	1.4	10.117	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	773	193	503	0.00	1585	0.488	775	775	1.5	1.0	4.607	A
2 - Aberdare College	173	43	1098		758	0.228	173	181	0.5	0.3	6.297	A
3 - A4059 (S)	740	185	470		1398	0.529	743	801	2.1	1.2	5.608	A
4 - B4275	497	124	845	0.00	1182	0.420	499	368	1.3	0.8	5.528	A
5 - Cardiff Street	414	104	862	0.00	951	0.436	417	483	1.4	0.8	6.948	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	647	162	421	0.00	1585	0.408	649	648	1.0	0.7	3.979	A
2 - Aberdare College	145	36	918		846	0.171	145	151	0.3	0.2	5.250	A
3 - A4059 (S)	620	155	393		1436	0.432	621	670	1.2	0.8	4.488	A
4 - B4275	416	104	706	0.00	1252	0.332	417	308	0.8	0.5	4.512	A
5 - Cardiff Street	347	87	720	0.00	1010	0.343	348	404	0.8	0.5	5.588	A

2028 Design Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4275 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - Cardiff Street - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	1 - A4059 (N) - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - B4275 - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	5 - Cardiff Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	9.34	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	2028 Design Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1003	100.000
2 - Aberdare College		ONE HOUR	✓	82	100.000
3 - A4059 (S)		ONE HOUR	✓	949	100.000
4 - B4275		ONE HOUR	✓	487	100.000
5 - Cardiff Street		ONE HOUR	✓	504	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059 (N)	[ONEHOUR]	0.00
2 - Aberdare College		
3 - A4059 (S)		
4 - B4275	[ONEHOUR]	0.00
5 - Cardiff Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	10	44	645	267	37
	2 - Aberdare College	20	0	44	7	11
	3 - A4059 (S)	558	5	1	59	326
	4 - B4275	209	14	51	1	212
	5 - Cardiff Street	97	32	220	153	2

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	0	3	2	10	0
	2 - Aberdare College	3	0	2	3	0
	3 - A4059 (S)	2	2	0	2	0
	4 - B4275	10	3	2	0	0
	5 - Cardiff Street	10	3	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.70	7.78	2.4	A	920	1381
2 - Aberdare College	0.16	8.01	0.2	A	75	113
3 - A4059 (S)	0.77	11.74	3.3	B	871	1306
4 - B4275	0.50	7.03	1.0	A	447	670
5 - Cardiff Street	0.61	10.37	1.6	B	462	694

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	755	189	358	0.00	1585	0.476	751	669	0.0	0.9	4.470	A
2 - Aberdare College	62	15	1039		787	0.078	61	71	0.0	0.1	5.059	A
3 - A4059 (S)	714	179	380		1442	0.495	711	720	0.0	1.0	4.959	A
4 - B4275	367	92	726	0.00	1242	0.295	365	365	0.0	0.4	4.273	A
5 - Cardiff Street	379	95	651	0.00	1039	0.365	377	440	0.0	0.6	5.574	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	902	225	430	0.00	1585	0.569	900	802	0.9	1.4	5.450	A
2 - Aberdare College	74	18	1244		687	0.107	74	85	0.1	0.1	5.988	A
3 - A4059 (S)	853	213	456		1405	0.607	851	862	1.0	1.5	6.555	A
4 - B4275	438	109	870	0.00	1170	0.374	437	437	0.4	0.6	5.120	A
5 - Cardiff Street	453	113	779	0.00	986	0.460	452	527	0.6	0.9	6.926	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1104	276	525	0.00	1585	0.697	1100	979	1.4	2.3	7.659	A
2 - Aberdare College	90	23	1521		552	0.164	90	104	0.1	0.2	7.948	A
3 - A4059 (S)	1045	261	557		1355	0.771	1038	1054	1.5	3.2	11.258	B
4 - B4275	536	134	1061	0.00	1073	0.500	535	534	0.6	1.0	6.952	A
5 - Cardiff Street	555	139	952	0.00	914	0.607	552	644	0.9	1.5	10.166	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1104	276	527	0.00	1585	0.697	1104	984	2.3	2.4	7.776	A
2 - Aberdare College	90	23	1527		549	0.164	90	105	0.2	0.2	8.006	A
3 - A4059 (S)	1045	261	559		1354	0.772	1045	1058	3.2	3.3	11.738	B
4 - B4275	536	134	1068	0.00	1070	0.501	536	536	1.0	1.0	7.035	A
5 - Cardiff Street	555	139	957	0.00	912	0.609	555	647	1.5	1.6	10.369	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	902	225	433	0.00	1585	0.569	906	809	2.4	1.4	5.539	A
2 - Aberdare College	74	18	1253		683	0.108	74	86	0.2	0.1	6.037	A
3 - A4059 (S)	853	213	459		1403	0.608	860	868	3.3	1.6	6.795	A
4 - B4275	438	109	879	0.00	1165	0.376	439	440	1.0	0.6	5.188	A
5 - Cardiff Street	453	113	786	0.00	983	0.461	456	532	1.6	0.9	7.063	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	755	189	362	0.00	1585	0.476	757	675	1.4	1.0	4.527	A
2 - Aberdare College	62	15	1047		783	0.079	62	72	0.1	0.1	5.095	A
3 - A4059 (S)	714	179	383		1440	0.496	717	725	1.6	1.0	5.055	A
4 - B4275	367	92	733	0.00	1239	0.296	367	368	0.6	0.4	4.313	A
5 - Cardiff Street	379	95	656	0.00	1037	0.366	381	444	0.9	0.6	5.650	A

2028 Design Year + Proposed Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4275 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - Cardiff Street - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	1 - A4059 (N) - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - B4275 - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	5 - Cardiff Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	7.85	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
D5	2028 Design Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	869	100.000
2 - Aberdare College		ONE HOUR	✓	192	100.000
3 - A4059 (S)		ONE HOUR	✓	823	100.000
4 - B4275		ONE HOUR	✓	555	100.000
5 - Cardiff Street		ONE HOUR	✓	461	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059 (N)	[ONEHOUR]	0.00
2 - Aberdare College		
3 - A4059 (S)		
4 - B4275	[ONEHOUR]	0.00
5 - Cardiff Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	4	81	521	206	57
	2 - Aberdare College	65	0	64	32	31
	3 - A4059 (S)	480	47	0	46	250
	4 - B4275	237	48	71	4	195
	5 - Cardiff Street	74	24	232	129	2

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	0	3	2	10	0
	2 - Aberdare College	3	0	2	3	0
	3 - A4059 (S)	2	2	0	2	0
	4 - B4275	10	3	2	0	0
	5 - Cardiff Street	10	3	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.60	5.94	1.6	A	797	1196
2 - Aberdare College	0.33	8.67	0.5	A	176	264
3 - A4059 (S)	0.68	8.36	2.1	A	755	1133
4 - B4275	0.56	7.87	1.3	A	509	764
5 - Cardiff Street	0.58	10.14	1.4	B	423	635

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	654	164	417	0.00	1585	0.413	651	644	0.0	0.7	3.988	A
2 - Aberdare College	145	36	918		846	0.171	144	150	0.0	0.2	5.232	A
3 - A4059 (S)	620	155	397		1434	0.432	617	665	0.0	0.8	4.450	A
4 - B4275	418	104	701	0.00	1255	0.333	416	312	0.0	0.5	4.475	A
5 - Cardiff Street	347	87	716	0.00	1012	0.343	345	401	0.0	0.5	5.522	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	781	195	500	0.00	1585	0.493	780	772	0.7	1.0	4.632	A
2 - Aberdare College	173	43	1100		757	0.228	172	179	0.2	0.3	6.283	A
3 - A4059 (S)	740	185	476		1395	0.530	738	797	0.8	1.1	5.544	A
4 - B4275	499	125	840	0.00	1185	0.421	498	374	0.5	0.8	5.471	A
5 - Cardiff Street	414	104	858	0.00	953	0.435	413	480	0.5	0.8	6.838	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	957	239	611	0.00	1585	0.604	955	943	1.0	1.6	5.901	A
2 - Aberdare College	211	53	1346		638	0.332	211	219	0.3	0.5	8.599	A
3 - A4059 (S)	906	227	582		1343	0.675	902	975	1.1	2.0	8.212	A
4 - B4275	611	153	1027	0.00	1091	0.560	609	458	0.8	1.3	7.773	A
5 - Cardiff Street	508	127	1049	0.00	873	0.581	505	587	0.8	1.4	9.973	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	957	239	613	0.00	1585	0.604	957	947	1.6	1.6	5.943	A
2 - Aberdare College	211	53	1350		636	0.333	211	220	0.5	0.5	8.671	A
3 - A4059 (S)	906	227	583		1342	0.675	906	978	2.0	2.1	8.358	A
4 - B4275	611	153	1030	0.00	1089	0.561	611	459	1.3	1.3	7.874	A
5 - Cardiff Street	508	127	1052	0.00	872	0.582	507	589	1.4	1.4	10.143	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	781	195	503	0.00	1585	0.493	783	777	1.6	1.0	4.672	A
2 - Aberdare College	173	43	1106		754	0.229	173	181	0.5	0.3	6.340	A
3 - A4059 (S)	740	185	478		1394	0.531	744	801	2.1	1.2	5.644	A
4 - B4275	499	125	845	0.00	1182	0.422	501	376	1.3	0.8	5.544	A
5 - Cardiff Street	414	104	863	0.00	951	0.436	417	483	1.4	0.8	6.958	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	654	164	421	0.00	1585	0.413	655	649	1.0	0.7	4.021	A
2 - Aberdare College	145	36	925		843	0.172	145	151	0.3	0.2	5.276	A
3 - A4059 (S)	620	155	400		1432	0.433	621	670	1.2	0.8	4.508	A
4 - B4275	418	104	706	0.00	1252	0.334	419	315	0.8	0.5	4.521	A
5 - Cardiff Street	347	87	721	0.00	1010	0.344	348	404	0.8	0.5	5.594	A

2028 Design Year + Proposed Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4275 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - Cardiff Street - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	1 - A4059 (N) - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - B4275 - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	5 - Cardiff Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	9.44	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
D6	2028 Design Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1008	100.000
2 - Aberdare College		ONE HOUR	✓	82	100.000
3 - A4059 (S)		ONE HOUR	✓	949	100.000
4 - B4275		ONE HOUR	✓	497	100.000
5 - Cardiff Street		ONE HOUR	✓	504	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059 (N)	[ONEHOUR]	0.00
2 - Aberdare College		
3 - A4059 (S)		
4 - B4275	[ONEHOUR]	0.00
5 - Cardiff Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	10	44	645	272	37
	2 - Aberdare College	20	0	44	7	11
	3 - A4059 (S)	558	5	1	59	326
	4 - B4275	219	14	51	1	212
	5 - Cardiff Street	97	32	220	153	2

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	0	3	2	10	0
	2 - Aberdare College	3	0	2	3	0
	3 - A4059 (S)	2	2	0	2	0
	4 - B4275	10	3	2	0	0
	5 - Cardiff Street	10	3	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.70	7.87	2.4	A	925	1387
2 - Aberdare College	0.17	8.05	0.2	A	75	113
3 - A4059 (S)	0.77	11.84	3.4	B	871	1306
4 - B4275	0.51	7.19	1.1	A	456	684
5 - Cardiff Street	0.61	10.50	1.6	B	462	694

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	759	190	358	0.00	1585	0.479	755	677	0.0	0.9	4.489	A
2 - Aberdare College	62	15	1042		785	0.079	61	71	0.0	0.1	5.072	A
3 - A4059 (S)	714	179	384		1440	0.496	711	720	0.0	1.0	4.971	A
4 - B4275	374	94	726	0.00	1242	0.301	372	368	0.0	0.4	4.314	A
5 - Cardiff Street	379	95	658	0.00	1036	0.366	377	440	0.0	0.6	5.598	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	906	227	430	0.00	1585	0.572	904	811	0.9	1.4	5.487	A
2 - Aberdare College	74	18	1249		685	0.108	74	85	0.1	0.1	6.009	A
3 - A4059 (S)	853	213	460		1403	0.608	851	862	1.0	1.5	6.581	A
4 - B4275	447	112	870	0.00	1170	0.382	446	441	0.4	0.6	5.189	A
5 - Cardiff Street	453	113	788	0.00	982	0.461	452	527	0.6	0.9	6.975	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1110	277	525	0.00	1585	0.700	1106	990	1.4	2.4	7.747	A
2 - Aberdare College	90	23	1527		549	0.164	90	104	0.1	0.2	7.994	A
3 - A4059 (S)	1045	261	563		1353	0.772	1038	1054	1.5	3.3	11.346	B
4 - B4275	547	137	1061	0.00	1073	0.510	545	539	0.6	1.1	7.102	A
5 - Cardiff Street	555	139	963	0.00	909	0.610	552	644	0.9	1.6	10.292	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1110	277	527	0.00	1585	0.700	1110	995	2.4	2.4	7.869	A
2 - Aberdare College	90	23	1532		546	0.165	90	105	0.2	0.2	8.053	A
3 - A4059 (S)	1045	261	565		1352	0.773	1045	1058	3.3	3.4	11.839	B
4 - B4275	547	137	1068	0.00	1070	0.511	547	542	1.1	1.1	7.190	A
5 - Cardiff Street	555	139	968	0.00	907	0.612	555	647	1.6	1.6	10.505	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	906	227	433	0.00	1585	0.572	910	818	2.4	1.4	5.579	A
2 - Aberdare College	74	18	1257		681	0.108	74	86	0.2	0.1	6.059	A
3 - A4059 (S)	853	213	463		1401	0.609	860	868	3.4	1.6	6.825	A
4 - B4275	447	112	879	0.00	1165	0.383	449	445	1.1	0.7	5.260	A
5 - Cardiff Street	453	113	795	0.00	979	0.463	456	532	1.6	0.9	7.119	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	759	190	362	0.00	1585	0.479	761	683	1.4	1.0	4.551	A
2 - Aberdare College	62	15	1051		781	0.079	62	72	0.1	0.1	5.108	A
3 - A4059 (S)	714	179	387		1439	0.497	717	725	1.6	1.0	5.068	A
4 - B4275	374	94	733	0.00	1239	0.302	375	371	0.7	0.5	4.355	A
5 - Cardiff Street	379	95	664	0.00	1034	0.367	381	444	0.9	0.6	5.678	A

2038 Future Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4275 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - Cardiff Street - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	1 - A4059 (N) - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - B4275 - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	5 - Cardiff Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	9.41	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	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	926	100.000
2 - Aberdare College		ONE HOUR	✓	205	100.000
3 - A4059 (S)		ONE HOUR	✓	884	100.000
4 - B4275		ONE HOUR	✓	595	100.000
5 - Cardiff Street		ONE HOUR	✓	497	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059 (N)	[ONEHOUR]	0.00
2 - Aberdare College		
3 - A4059 (S)		
4 - B4275	[ONEHOUR]	0.00
5 - Cardiff Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	5	88	560	212	61
	2 - Aberdare College	70	0	68	34	33
	3 - A4059 (S)	516	50	0	49	269
	4 - B4275	253	51	76	5	210
	5 - Cardiff Street	80	26	250	139	2

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	0	3	2	10	0
	2 - Aberdare College	3	0	2	3	0
	3 - A4059 (S)	2	2	0	2	0
	4 - B4275	10	3	2	0	0
	5 - Cardiff Street	10	3	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.64	6.60	1.9	A	850	1275
2 - Aberdare College	0.38	10.08	0.6	B	188	282
3 - A4059 (S)	0.73	10.33	2.7	B	811	1217
4 - B4275	0.62	9.52	1.7	A	546	819
5 - Cardiff Street	0.65	12.62	1.9	B	456	684

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	697	174	448	0.00	1585	0.440	694	692	0.0	0.8	4.173	A
2 - Aberdare College	154	39	981		815	0.189	153	161	0.0	0.2	5.549	A
3 - A4059 (S)	666	166	420		1423	0.468	662	714	0.0	0.9	4.777	A
4 - B4275	448	112	753	0.00	1229	0.365	446	329	0.0	0.6	4.792	A
5 - Cardiff Street	374	94	768	0.00	990	0.378	372	431	0.0	0.6	5.951	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	832	208	537	0.00	1585	0.525	831	829	0.8	1.1	4.943	A
2 - Aberdare College	184	46	1175		721	0.256	184	193	0.2	0.3	6.847	A
3 - A4059 (S)	795	199	503		1382	0.575	793	856	0.9	1.4	6.177	A
4 - B4275	535	134	902	0.00	1154	0.464	534	394	0.6	0.9	6.061	A
5 - Cardiff Street	447	112	920	0.00	927	0.482	445	516	0.6	0.9	7.658	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1020	255	656	0.00	1585	0.643	1017	1012	1.1	1.8	6.534	A
2 - Aberdare College	226	56	1437		593	0.381	225	236	0.3	0.6	9.953	A
3 - A4059 (S)	973	243	615		1327	0.734	968	1046	1.4	2.7	10.021	B
4 - B4275	655	164	1102	0.00	1053	0.622	652	481	0.9	1.7	9.315	A
5 - Cardiff Street	547	137	1124	0.00	842	0.650	544	630	0.9	1.8	12.247	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1020	255	659	0.00	1585	0.643	1019	1017	1.8	1.9	6.596	A
2 - Aberdare College	226	56	1442		590	0.382	226	237	0.6	0.6	10.081	B
3 - A4059 (S)	973	243	618		1326	0.734	973	1050	2.7	2.7	10.333	B
4 - B4275	655	164	1107	0.00	1050	0.624	655	483	1.7	1.7	9.519	A
5 - Cardiff Street	547	137	1129	0.00	840	0.652	547	633	1.8	1.9	12.619	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	832	208	543	0.00	1585	0.525	835	836	1.9	1.2	4.996	A
2 - Aberdare College	184	46	1183		717	0.257	185	194	0.6	0.4	6.939	A
3 - A4059 (S)	795	199	507		1380	0.576	800	862	2.7	1.4	6.350	A
4 - B4275	535	134	910	0.00	1150	0.465	538	397	1.7	0.9	6.187	A
5 - Cardiff Street	447	112	928	0.00	923	0.484	450	520	1.9	1.0	7.870	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	697	174	453	0.00	1585	0.440	698	698	1.2	0.8	4.217	A
2 - Aberdare College	154	39	989		812	0.190	155	162	0.4	0.2	5.604	A
3 - A4059 (S)	666	166	423		1421	0.468	668	720	1.4	0.9	4.858	A
4 - B4275	448	112	760	0.00	1226	0.365	449	331	0.9	0.6	4.855	A
5 - Cardiff Street	374	94	775	0.00	988	0.379	376	434	1.0	0.6	6.052	A

2038 Future Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4275 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - Cardiff Street - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	1 - A4059 (N) - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - B4275 - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	5 - Cardiff Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	12.17	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
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1078	100.000
2 - Aberdare College		ONE HOUR	✓	89	100.000
3 - A4059 (S)		ONE HOUR	✓	1020	100.000
4 - B4275		ONE HOUR	✓	522	100.000
5 - Cardiff Street		ONE HOUR	✓	541	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059 (N)	[ONEHOUR]	0.00
2 - Aberdare College		
3 - A4059 (S)		
4 - B4275	[ONEHOUR]	0.00
5 - Cardiff Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	10	48	693	287	40
	2 - Aberdare College	22	0	48	8	11
	3 - A4059 (S)	599	6	1	64	350
	4 - B4275	224	15	54	1	228
	5 - Cardiff Street	104	34	236	165	2

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	0	3	2	10	0
	2 - Aberdare College	3	0	2	3	0
	3 - A4059 (S)	2	2	0	2	0
	4 - B4275	10	3	2	0	0
	5 - Cardiff Street	10	3	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.75	9.38	3.0	A	989	1484
2 - Aberdare College	0.20	9.27	0.3	A	82	123
3 - A4059 (S)	0.84	17.02	5.1	C	936	1404
4 - B4275	0.56	8.23	1.3	A	479	718
5 - Cardiff Street	0.67	12.86	2.1	B	496	745

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	812	203	384	0.00	1585	0.512	807	718	0.0	1.1	4.787	A
2 - Aberdare College	67	17	1115		750	0.089	67	77	0.0	0.1	5.374	A
3 - A4059 (S)	768	192	409		1428	0.538	763	773	0.0	1.2	5.447	A
4 - B4275	393	98	779	0.00	1216	0.323	391	393	0.0	0.5	4.544	A
5 - Cardiff Street	407	102	698	0.00	1020	0.399	405	472	0.0	0.7	5.993	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	969	242	461	0.00	1585	0.611	967	860	1.1	1.6	6.034	A
2 - Aberdare College	80	20	1335		643	0.125	80	92	0.1	0.1	6.529	A
3 - A4059 (S)	917	229	490		1388	0.660	914	926	1.2	1.9	7.637	A
4 - B4275	469	117	933	0.00	1138	0.412	468	471	0.5	0.7	5.600	A
5 - Cardiff Street	486	122	835	0.00	962	0.505	485	566	0.7	1.0	7.736	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1187	297	562	0.00	1585	0.749	1181	1047	1.6	3.0	9.144	A
2 - Aberdare College	98	24	1631		498	0.197	98	113	0.1	0.2	9.159	A
3 - A4059 (S)	1123	281	598		1335	0.841	1111	1131	1.9	4.8	15.533	C
4 - B4275	575	144	1135	0.00	1036	0.555	573	575	0.7	1.3	8.063	A
5 - Cardiff Street	596	149	1018	0.00	886	0.672	592	690	1.0	2.0	12.410	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1187	297	566	0.00	1585	0.749	1187	1055	3.0	3.0	9.378	A
2 - Aberdare College	98	24	1639		494	0.198	98	113	0.2	0.3	9.268	A
3 - A4059 (S)	1123	281	601		1334	0.842	1122	1136	4.8	5.1	17.017	C
4 - B4275	575	144	1145	0.00	1031	0.557	575	578	1.3	1.3	8.228	A
5 - Cardiff Street	596	149	1025	0.00	883	0.675	595	694	2.0	2.1	12.858	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	969	242	466	0.00	1585	0.611	975	871	3.0	1.7	6.183	A
2 - Aberdare College	80	20	1347		637	0.126	80	93	0.3	0.1	6.611	A
3 - A4059 (S)	917	229	494		1386	0.661	929	933	5.1	2.0	8.185	A
4 - B4275	469	117	948	0.00	1131	0.415	471	475	1.3	0.7	5.717	A
5 - Cardiff Street	486	122	847	0.00	958	0.508	490	573	2.1	1.1	7.991	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	812	203	388	0.00	1585	0.512	814	725	1.7	1.1	4.868	A
2 - Aberdare College	67	17	1124		745	0.090	67	78	0.1	0.1	5.421	A
3 - A4059 (S)	768	192	412		1426	0.538	771	779	2.0	1.2	5.594	A
4 - B4275	393	98	787	0.00	1212	0.324	394	397	0.7	0.5	4.599	A
5 - Cardiff Street	407	102	704	0.00	1017	0.400	409	477	1.1	0.7	6.104	A

2038 Future Year + Proposed Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4275 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - Cardiff Street - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	1 - A4059 (N) - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - B4275 - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	5 - Cardiff Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	9.51	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
D9	2038 Future Year + Proposed Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	935	100.000
2 - Aberdare College		ONE HOUR	✓	205	100.000
3 - A4059 (S)		ONE HOUR	✓	884	100.000
4 - B4275		ONE HOUR	✓	597	100.000
5 - Cardiff Street		ONE HOUR	✓	497	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059 (N)	[ONEHOUR]	0.00
2 - Aberdare College		
3 - A4059 (S)		
4 - B4275	[ONEHOUR]	0.00
5 - Cardiff Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	5	88	560	221	61
	2 - Aberdare College	70	0	68	34	33
	3 - A4059 (S)	516	50	0	49	269
	4 - B4275	255	51	76	5	210
	5 - Cardiff Street	80	26	250	139	2

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	0	3	2	10	0
	2 - Aberdare College	3	0	2	3	0
	3 - A4059 (S)	2	2	0	2	0
	4 - B4275	10	3	2	0	0
	5 - Cardiff Street	10	3	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.65	6.72	1.9	A	858	1287
2 - Aberdare College	0.39	10.22	0.6	B	188	282
3 - A4059 (S)	0.74	10.48	2.8	B	811	1217
4 - B4275	0.63	9.57	1.7	A	548	822
5 - Cardiff Street	0.65	12.66	1.9	B	456	684

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	704	176	448	0.00	1585	0.444	701	693	0.0	0.8	4.207	A
2 - Aberdare College	154	39	988		812	0.190	153	161	0.0	0.2	5.576	A
3 - A4059 (S)	666	166	427		1419	0.469	662	714	0.0	0.9	4.798	A
4 - B4275	449	112	753	0.00	1229	0.366	447	335	0.0	0.6	4.802	A
5 - Cardiff Street	374	94	770	0.00	990	0.378	372	431	0.0	0.6	5.957	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	841	210	537	0.00	1585	0.530	839	830	0.8	1.2	4.997	A
2 - Aberdare College	184	46	1183		717	0.257	184	193	0.2	0.4	6.897	A
3 - A4059 (S)	795	199	511		1378	0.577	793	856	0.9	1.4	6.219	A
4 - B4275	537	134	902	0.00	1154	0.465	535	402	0.6	0.9	6.077	A
5 - Cardiff Street	447	112	922	0.00	926	0.482	445	516	0.6	0.9	7.670	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1029	257	655	0.00	1585	0.649	1027	1014	1.2	1.9	6.651	A
2 - Aberdare College	226	56	1446		588	0.384	225	236	0.4	0.6	10.081	B
3 - A4059 (S)	973	243	625		1322	0.736	968	1046	1.4	2.7	10.150	B
4 - B4275	657	164	1102	0.00	1053	0.624	654	491	0.9	1.7	9.365	A
5 - Cardiff Street	547	137	1126	0.00	841	0.651	544	630	0.9	1.8	12.281	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1029	257	659	0.00	1585	0.649	1029	1019	1.9	1.9	6.717	A
2 - Aberdare College	226	56	1452		586	0.385	226	237	0.6	0.6	10.216	B
3 - A4059 (S)	973	243	627		1321	0.737	973	1050	2.7	2.8	10.476	B
4 - B4275	657	164	1107	0.00	1050	0.626	657	493	1.7	1.7	9.573	A
5 - Cardiff Street	547	137	1132	0.00	839	0.653	547	633	1.8	1.9	12.656	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	841	210	543	0.00	1585	0.530	843	838	1.9	1.2	5.053	A
2 - Aberdare College	184	46	1192		713	0.259	185	194	0.6	0.4	6.992	A
3 - A4059 (S)	795	199	515		1376	0.578	800	862	2.8	1.4	6.397	A
4 - B4275	537	134	910	0.00	1150	0.467	540	405	1.7	0.9	6.205	A
5 - Cardiff Street	447	112	930	0.00	923	0.484	450	520	1.9	1.0	7.884	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	704	176	453	0.00	1585	0.444	705	699	1.2	0.8	4.251	A
2 - Aberdare College	154	39	996		808	0.191	155	162	0.4	0.2	5.634	A
3 - A4059 (S)	666	166	430		1418	0.470	668	720	1.4	0.9	4.880	A
4 - B4275	449	112	760	0.00	1226	0.367	451	338	0.9	0.6	4.867	A
5 - Cardiff Street	374	94	776	0.00	987	0.379	376	434	1.0	0.6	6.058	A

2038 Future Year + Proposed Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (S) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - B4275 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	5 - Cardiff Street - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	1 - A4059 (N) - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	4 - B4275 - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	5 - Cardiff Street - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	12.33	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
D10	2038 Future Year + Proposed Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1083	100.000
2 - Aberdare College		ONE HOUR	✓	89	100.000
3 - A4059 (S)		ONE HOUR	✓	1020	100.000
4 - B4275		ONE HOUR	✓	532	100.000
5 - Cardiff Street		ONE HOUR	✓	541	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - A4059 (N)	[ONEHOUR]	0.00
2 - Aberdare College		
3 - A4059 (S)		
4 - B4275	[ONEHOUR]	0.00
5 - Cardiff Street	[ONEHOUR]	0.00

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	10	48	693	292	40
	2 - Aberdare College	22	0	48	8	11
	3 - A4059 (S)	599	6	1	64	350
	4 - B4275	234	15	54	1	228
	5 - Cardiff Street	104	34	236	165	2

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - A4059 (N)	2 - Aberdare College	3 - A4059 (S)	4 - B4275	5 - Cardiff Street
From	1 - A4059 (N)	0	3	2	10	0
	2 - Aberdare College	3	0	2	3	0
	3 - A4059 (S)	2	2	0	2	0
	4 - B4275	10	3	2	0	0
	5 - Cardiff Street	10	3	2	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.75	9.51	3.1	A	994	1491
2 - Aberdare College	0.20	9.33	0.3	A	82	123
3 - A4059 (S)	0.84	17.23	5.2	C	936	1404
4 - B4275	0.57	8.44	1.4	A	488	732
5 - Cardiff Street	0.68	13.06	2.1	B	496	745

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	815	204	384	0.00	1585	0.514	811	725	0.0	1.1	4.809	A
2 - Aberdare College	67	17	1118		748	0.090	67	77	0.0	0.1	5.388	A
3 - A4059 (S)	768	192	412		1426	0.538	763	773	0.0	1.2	5.463	A
4 - B4275	401	100	779	0.00	1216	0.329	398	397	0.0	0.5	4.590	A
5 - Cardiff Street	407	102	705	0.00	1017	0.401	405	472	0.0	0.7	6.024	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	974	243	461	0.00	1585	0.614	971	869	1.1	1.6	6.078	A
2 - Aberdare College	80	20	1340		640	0.125	80	92	0.1	0.1	6.555	A
3 - A4059 (S)	917	229	494		1386	0.661	914	926	1.2	1.9	7.671	A
4 - B4275	478	120	933	0.00	1138	0.420	477	475	0.5	0.7	5.682	A
5 - Cardiff Street	486	122	844	0.00	958	0.507	485	566	0.7	1.0	7.795	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1192	298	562	0.00	1585	0.752	1187	1058	1.6	3.0	9.266	A
2 - Aberdare College	98	24	1636		496	0.198	98	113	0.1	0.2	9.219	A
3 - A4059 (S)	1123	281	603		1333	0.843	1111	1130	1.9	4.9	15.691	C
4 - B4275	586	146	1135	0.00	1036	0.565	583	580	0.7	1.3	8.260	A
5 - Cardiff Street	596	149	1029	0.00	882	0.676	592	689	1.0	2.1	12.594	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1192	298	566	0.00	1585	0.752	1192	1066	3.0	3.1	9.512	A
2 - Aberdare College	98	24	1645		492	0.199	98	113	0.2	0.3	9.331	A
3 - A4059 (S)	1123	281	607		1331	0.844	1122	1136	4.9	5.2	17.225	C
4 - B4275	586	146	1145	0.00	1031	0.568	586	583	1.3	1.4	8.439	A
5 - Cardiff Street	596	149	1036	0.00	878	0.678	595	694	2.1	2.1	13.064	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	974	243	466	0.00	1585	0.614	979	880	3.1	1.7	6.237	A
2 - Aberdare College	80	20	1352		635	0.126	80	93	0.3	0.1	6.638	A
3 - A4059 (S)	917	229	499		1384	0.663	929	934	5.2	2.0	8.233	A
4 - B4275	478	120	948	0.00	1131	0.423	481	480	1.4	0.8	5.805	A
5 - Cardiff Street	486	122	856	0.00	954	0.510	490	573	2.1	1.1	8.061	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	815	204	388	0.00	1585	0.514	818	732	1.7	1.1	4.891	A
2 - Aberdare College	67	17	1128		744	0.090	67	78	0.1	0.1	5.434	A
3 - A4059 (S)	768	192	416		1424	0.539	771	779	2.0	1.2	5.610	A
4 - B4275	401	100	787	0.00	1212	0.331	402	400	0.8	0.5	4.647	A
5 - Cardiff Street	407	102	712	0.00	1014	0.402	409	477	1.1	0.7	6.136	A

APPENDIX Q – ARCADY OUTPUT DATA (JUNCTION 7)

Junctions 9

ARCADY 9 - Roundabout Module

Filename: A4059 (N)_A4059 (S)_Canal Street.j9
Path: Z:\2020 Projects\F20029 Land at Abernant Road\Capacity Analysis\August 2023\J7 A4059 (N)_A4059 (S)_Canal Street
Report generation date: 07/08/2023 17:20:12

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023							
1 - A4059 (N)	1.1	4.59	0.53	A	1.7	5.94	0.62	A
2 - Canal Street	1.4	7.81	0.58	A	1.0	6.80	0.49	A
3 - A4059 (S)	1.1	4.27	0.51	A	2.4	7.03	0.71	A
	2028 Design Year							
1 - A4059 (N)	1.3	4.92	0.56	A	2.0	6.75	0.66	A
2 - Canal Street	1.7	9.04	0.63	A	1.2	7.56	0.54	A
3 - A4059 (S)	1.2	4.55	0.54	A	3.1	8.53	0.76	A
	2028 Design Year + Dev							
1 - A4059 (N)	1.3	4.94	0.56	A	2.1	6.98	0.67	A
2 - Canal Street	1.9	9.63	0.65	A	1.2	7.77	0.55	A
3 - A4059 (S)	1.2	4.58	0.54	A	3.4	9.06	0.77	A
	2038 Future Year							
1 - A4059 (N)	1.6	5.57	0.61	A	2.6	8.20	0.72	A
2 - Canal Street	2.3	11.26	0.69	B	1.5	8.89	0.59	A
3 - A4059 (S)	1.4	5.09	0.58	A	4.4	11.35	0.82	B
	2038 Future Year + Dev							
1 - A4059 (N)	1.6	5.61	0.61	A	2.7	8.53	0.73	A
2 - Canal Street	2.6	12.19	0.72	B	1.6	9.18	0.61	A
3 - A4059 (S)	1.4	5.12	0.58	A	4.9	12.34	0.83	B

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	A4059 (N)/A4059 (S)/Canal Street
Location	Aberdare
Site number	
Date	30/09/2022
Version	
Status	Preliminary
Identifier	DS
Client	Xurbia Developments
Jobnumber	
Enumerator	BANCROFT\dscott
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2023	AM	ONE HOUR	08:00	09:30	15	✓
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓
D3	2028 Design Year	AM	ONE HOUR	08:00	09:30	15	✓
D4	2028 Design Year	PM	ONE HOUR	17:00	18:30	15	✓
D5	2028 Design Year + Dev	AM	ONE HOUR	08:00	09:30	15	✓
D6	2028 Design Year + Dev	PM	ONE HOUR	17:00	18:30	15	✓
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓
D9	2038 Future Year + Dev	AM	ONE HOUR	08:00	09:30	15	✓
D10	2038 Future Year + Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2023, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3	5.32	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A4059 (N)	
2	Canal Street	
3	A4059 (S)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A4059 (N)	3.38	7.00	40.0	50.0	34.0	35.0	
2 - Canal Street	3.75	7.75	30.0	35.0	34.0	35.0	
3 - A4059 (S)	3.75	7.00	45.0	35.0	34.0	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A4059 (N)	0.697	1897
2 - Canal Street	0.714	1993
3 - A4059 (S)	0.704	1943

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - A4059 (N)	Percentage		100.00
2 - Canal Street	Percentage		75.00
3 - A4059 (S)	Percentage		100.00

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	2023	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	824	100.000
2 - Canal Street		ONE HOUR	✓	588	100.000
3 - A4059 (S)		ONE HOUR	✓	815	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	194	630
	2 - Canal Street	228	1	359
	3 - A4059 (S)	569	239	7

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	2	2
	2 - Canal Street	3	0	2
	3 - A4059 (S)	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.53	4.59	1.1	A	756	1134
2 - Canal Street	0.58	7.81	1.4	A	540	809
3 - A4059 (S)	0.51	4.27	1.1	A	748	1122

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	620	155	185	1768	0.351	618	598	0.0	0.5	3.188	A
2 - Canal Street	443	111	478	1239	0.357	440	326	0.0	0.6	4.603	A
3 - A4059 (S)	614	153	172	1822	0.337	611	747	0.0	0.5	3.056	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	741	185	222	1743	0.425	740	716	0.5	0.7	3.658	A
2 - Canal Street	529	132	572	1189	0.445	528	390	0.6	0.8	5.569	A
3 - A4059 (S)	733	183	205	1799	0.407	732	894	0.5	0.7	3.474	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	907	227	272	1708	0.531	906	876	0.7	1.1	4.567	A
2 - Canal Street	647	162	700	1120	0.578	645	477	0.8	1.4	7.726	A
3 - A4059 (S)	897	224	251	1766	0.508	896	1094	0.7	1.1	4.252	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	907	227	272	1708	0.531	907	877	1.1	1.1	4.587	A
2 - Canal Street	647	162	701	1119	0.578	647	478	1.4	1.4	7.806	A
3 - A4059 (S)	897	224	252	1766	0.508	897	1097	1.1	1.1	4.268	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	741	185	222	1742	0.425	742	718	1.1	0.8	3.680	A
2 - Canal Street	529	132	574	1188	0.445	531	391	1.4	0.8	5.630	A
3 - A4059 (S)	733	183	207	1798	0.408	734	898	1.1	0.7	3.491	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	620	155	186	1767	0.351	621	601	0.8	0.6	3.205	A
2 - Canal Street	443	111	480	1238	0.358	444	327	0.8	0.6	4.649	A
3 - A4059 (S)	614	153	173	1822	0.337	614	751	0.7	0.5	3.074	A

2023, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3	6.59	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2023	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	934	100.000
2 - Canal Street		ONE HOUR	✓	480	100.000
3 - A4059 (S)		ONE HOUR	✓	1143	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	228	706
	2 - Canal Street	210	0	270
	3 - A4059 (S)	822	308	13

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	2	3
	2 - Canal Street	3	0	2
	3 - A4059 (S)	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.62	5.94	1.7	A	857	1286
2 - Canal Street	0.49	6.80	1.0	A	440	661
3 - A4059 (S)	0.71	7.03	2.4	A	1049	1573

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	703	176	241	1729	0.407	700	774	0.0	0.7	3.586	A
2 - Canal Street	361	90	539	1206	0.300	360	402	0.0	0.4	4.347	A
3 - A4059 (S)	861	215	157	1832	0.470	857	741	0.0	0.9	3.749	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	840	210	288	1696	0.495	838	926	0.7	1.0	4.305	A
2 - Canal Street	432	108	645	1149	0.375	431	481	0.4	0.6	5.127	A
3 - A4059 (S)	1028	257	188	1811	0.568	1026	888	0.9	1.3	4.668	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1028	257	352	1652	0.623	1026	1133	1.0	1.7	5.884	A
2 - Canal Street	528	132	790	1072	0.493	527	588	0.6	1.0	6.745	A
3 - A4059 (S)	1258	315	231	1781	0.707	1254	1086	1.3	2.4	6.913	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1028	257	353	1651	0.623	1028	1136	1.7	1.7	5.941	A
2 - Canal Street	528	132	792	1071	0.493	528	590	1.0	1.0	6.796	A
3 - A4059 (S)	1258	315	231	1780	0.707	1258	1089	2.4	2.4	7.026	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	840	210	290	1695	0.495	842	931	1.7	1.0	4.351	A
2 - Canal Street	432	108	648	1148	0.376	433	484	1.0	0.6	5.172	A
3 - A4059 (S)	1028	257	189	1810	0.568	1032	892	2.4	1.4	4.743	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	703	176	242	1728	0.407	704	779	1.0	0.7	3.618	A
2 - Canal Street	361	90	542	1204	0.300	362	404	0.6	0.4	4.382	A
3 - A4059 (S)	861	215	158	1832	0.470	862	746	1.4	0.9	3.793	A

2028 Design Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3	5.89	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	2028 Design Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	863	100.000
2 - Canal Street		ONE HOUR	✓	630	100.000
3 - A4059 (S)		ONE HOUR	✓	853	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	202	661
	2 - Canal Street	244	1	385
	3 - A4059 (S)	593	253	7

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	2	2
	2 - Canal Street	3	0	2
	3 - A4059 (S)	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.56	4.92	1.3	A	792	1188
2 - Canal Street	0.63	9.04	1.7	A	578	867
3 - A4059 (S)	0.54	4.55	1.2	A	783	1174

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	650	162	196	1761	0.369	647	628	0.0	0.6	3.291	A
2 - Canal Street	474	119	501	1227	0.387	472	342	0.0	0.6	4.866	A
3 - A4059 (S)	642	161	183	1814	0.354	640	789	0.0	0.6	3.152	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	776	194	234	1734	0.447	775	751	0.6	0.8	3.825	A
2 - Canal Street	566	142	600	1174	0.483	565	409	0.6	0.9	6.044	A
3 - A4059 (S)	767	192	220	1788	0.429	766	945	0.6	0.8	3.621	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	950	238	287	1697	0.560	948	919	0.8	1.3	4.891	A
2 - Canal Street	694	173	734	1102	0.630	691	501	0.9	1.7	8.899	A
3 - A4059 (S)	939	235	269	1754	0.535	938	1156	0.8	1.2	4.530	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	950	238	287	1697	0.560	950	921	1.3	1.3	4.916	A
2 - Canal Street	694	173	735	1101	0.630	694	502	1.7	1.7	9.039	A
3 - A4059 (S)	939	235	270	1753	0.536	939	1159	1.2	1.2	4.552	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	776	194	235	1733	0.448	778	755	1.3	0.8	3.849	A
2 - Canal Street	566	142	602	1173	0.483	569	411	1.7	1.0	6.142	A
3 - A4059 (S)	767	192	221	1787	0.429	768	950	1.2	0.8	3.643	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	650	162	197	1760	0.369	651	631	0.8	0.6	3.314	A
2 - Canal Street	474	119	504	1225	0.387	476	344	1.0	0.7	4.926	A
3 - A4059 (S)	642	161	185	1813	0.354	643	794	0.8	0.6	3.172	A

2028 Design Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3	7.70	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	2028 Design Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	977	100.000
2 - Canal Street		ONE HOUR	✓	511	100.000
3 - A4059 (S)		ONE HOUR	✓	1217	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	237	740
	2 - Canal Street	224	0	287
	3 - A4059 (S)	860	343	14

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	2	3
	2 - Canal Street	3	0	2
	3 - A4059 (S)	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.66	6.75	2.0	A	897	1345
2 - Canal Street	0.54	7.56	1.2	A	469	703
3 - A4059 (S)	0.76	8.53	3.1	A	1117	1675

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	736	184	268	1711	0.430	732	812	0.0	0.8	3.771	A
2 - Canal Street	385	96	565	1192	0.323	383	435	0.0	0.5	4.545	A
3 - A4059 (S)	916	229	168	1825	0.502	912	780	0.0	1.0	4.004	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	878	220	320	1674	0.525	877	973	0.8	1.1	4.632	A
2 - Canal Street	459	115	677	1132	0.406	459	520	0.5	0.7	5.465	A
3 - A4059 (S)	1094	274	201	1802	0.607	1092	934	1.0	1.6	5.156	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1076	269	391	1625	0.662	1072	1188	1.1	2.0	6.657	A
2 - Canal Street	563	141	828	1052	0.535	561	636	0.7	1.2	7.482	A
3 - A4059 (S)	1340	335	246	1770	0.757	1334	1142	1.6	3.1	8.300	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1076	269	393	1623	0.663	1076	1193	2.0	2.0	6.751	A
2 - Canal Street	563	141	830	1050	0.536	563	639	1.2	1.2	7.559	A
3 - A4059 (S)	1340	335	247	1770	0.757	1340	1146	3.1	3.1	8.526	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	878	220	323	1672	0.525	882	980	2.0	1.1	4.698	A
2 - Canal Street	459	115	680	1130	0.406	461	524	1.2	0.7	5.524	A
3 - A4059 (S)	1094	274	202	1801	0.608	1100	940	3.1	1.6	5.284	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	736	184	269	1709	0.430	737	818	1.1	0.8	3.808	A
2 - Canal Street	385	96	569	1190	0.323	386	438	0.7	0.5	4.589	A
3 - A4059 (S)	916	229	169	1824	0.502	918	785	1.6	1.0	4.064	A

2028 Design Year + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3	6.10	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
D5	2028 Design Year + Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	863	100.000
2 - Canal Street		ONE HOUR	✓	653	100.000
3 - A4059 (S)		ONE HOUR	✓	858	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	202	661
	2 - Canal Street	244	1	408
	3 - A4059 (S)	593	258	7

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	2	2
	2 - Canal Street	3	0	2
	3 - A4059 (S)	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.56	4.94	1.3	A	792	1188
2 - Canal Street	0.65	9.63	1.9	A	599	899
3 - A4059 (S)	0.54	4.58	1.2	A	787	1181

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	650	162	200	1758	0.370	647	628	0.0	0.6	3.299	A
2 - Canal Street	492	123	501	1227	0.401	489	346	0.0	0.7	4.978	A
3 - A4059 (S)	646	161	183	1814	0.356	644	807	0.0	0.6	3.162	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	776	194	239	1731	0.448	775	751	0.6	0.8	3.839	A
2 - Canal Street	587	147	600	1174	0.500	586	414	0.7	1.0	6.254	A
3 - A4059 (S)	771	193	220	1789	0.431	770	966	0.6	0.8	3.637	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	950	238	292	1693	0.561	948	919	0.8	1.3	4.916	A
2 - Canal Street	719	180	734	1102	0.653	716	507	1.0	1.9	9.456	A
3 - A4059 (S)	945	236	268	1754	0.539	943	1181	0.8	1.2	4.560	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	950	238	293	1693	0.561	950	921	1.3	1.3	4.942	A
2 - Canal Street	719	180	735	1101	0.653	719	508	1.9	1.9	9.635	A
3 - A4059 (S)	945	236	270	1753	0.539	945	1185	1.2	1.2	4.583	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	776	194	240	1730	0.448	778	755	1.3	0.8	3.863	A
2 - Canal Street	587	147	602	1173	0.501	590	415	1.9	1.0	6.369	A
3 - A4059 (S)	771	193	222	1787	0.432	773	971	1.2	0.8	3.659	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	650	162	201	1757	0.370	651	631	0.8	0.6	3.322	A
2 - Canal Street	492	123	504	1225	0.401	493	348	1.0	0.7	5.044	A
3 - A4059 (S)	646	161	185	1813	0.356	647	812	0.8	0.6	3.180	A

2028 Design Year + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3	8.07	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
D6	2028 Design Year + Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	977	100.000
2 - Canal Street		ONE HOUR	✓	523	100.000
3 - A4059 (S)		ONE HOUR	✓	1240	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	237	740
	2 - Canal Street	224	0	299
	3 - A4059 (S)	860	366	14

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	2	3
	2 - Canal Street	3	0	2
	3 - A4059 (S)	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.67	6.98	2.1	A	897	1345
2 - Canal Street	0.55	7.77	1.2	A	480	720
3 - A4059 (S)	0.77	9.06	3.4	A	1138	1707

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	736	184	285	1699	0.433	732	812	0.0	0.8	3.816	A
2 - Canal Street	394	98	565	1192	0.330	392	452	0.0	0.5	4.596	A
3 - A4059 (S)	934	233	168	1825	0.512	929	789	0.0	1.1	4.080	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	878	220	341	1660	0.529	877	973	0.8	1.1	4.717	A
2 - Canal Street	470	118	677	1132	0.415	469	541	0.5	0.7	5.553	A
3 - A4059 (S)	1115	279	201	1802	0.619	1112	945	1.1	1.6	5.307	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1076	269	416	1607	0.669	1072	1188	1.1	2.0	6.868	A
2 - Canal Street	576	144	827	1052	0.547	574	661	0.7	1.2	7.682	A
3 - A4059 (S)	1365	341	246	1770	0.771	1359	1155	1.6	3.3	8.776	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1076	269	418	1606	0.670	1076	1193	2.0	2.1	6.976	A
2 - Canal Street	576	144	830	1050	0.548	576	664	1.2	1.2	7.766	A
3 - A4059 (S)	1365	341	247	1770	0.772	1365	1159	3.3	3.4	9.055	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	878	220	344	1658	0.530	882	980	2.1	1.2	4.791	A
2 - Canal Street	470	118	681	1130	0.416	472	545	1.2	0.7	5.619	A
3 - A4059 (S)	1115	279	202	1801	0.619	1121	951	3.4	1.7	5.457	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	736	184	287	1697	0.433	737	818	1.2	0.8	3.858	A
2 - Canal Street	394	98	569	1190	0.331	395	455	0.7	0.5	4.639	A
3 - A4059 (S)	934	233	169	1824	0.512	936	794	1.7	1.1	4.143	A

2038 Future Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3	6.92	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
D7	2038 Future Year	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	929	100.000
2 - Canal Street		ONE HOUR	✓	676	100.000
3 - A4059 (S)		ONE HOUR	✓	918	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	218	711
	2 - Canal Street	262	1	413
	3 - A4059 (S)	638	272	8

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	2	2
	2 - Canal Street	3	0	2
	3 - A4059 (S)	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.61	5.57	1.6	A	852	1279
2 - Canal Street	0.69	11.26	2.3	B	620	930
3 - A4059 (S)	0.58	5.09	1.4	A	842	1264

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	699	175	211	1750	0.400	697	675	0.0	0.7	3.476	A
2 - Canal Street	509	127	539	1206	0.422	506	368	0.0	0.7	5.242	A
3 - A4059 (S)	691	173	197	1805	0.383	689	848	0.0	0.6	3.315	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	835	209	252	1721	0.485	834	808	0.7	1.0	4.133	A
2 - Canal Street	608	152	646	1149	0.529	606	441	0.7	1.1	6.768	A
3 - A4059 (S)	825	206	236	1777	0.464	824	1016	0.6	0.9	3.886	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1023	256	309	1682	0.608	1020	988	1.0	1.6	5.530	A
2 - Canal Street	744	186	790	1072	0.694	740	539	1.1	2.2	10.952	B
3 - A4059 (S)	1011	253	288	1741	0.581	1009	1242	0.9	1.4	5.050	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1023	256	309	1682	0.608	1023	991	1.6	1.6	5.573	A
2 - Canal Street	744	186	792	1071	0.695	744	541	2.2	2.3	11.258	B
3 - A4059 (S)	1011	253	289	1739	0.581	1011	1246	1.4	1.4	5.086	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	835	209	253	1721	0.485	838	812	1.6	1.0	4.168	A
2 - Canal Street	608	152	648	1148	0.529	612	443	2.3	1.2	6.939	A
3 - A4059 (S)	825	206	238	1776	0.465	827	1022	1.4	0.9	3.917	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	699	175	212	1750	0.400	701	679	1.0	0.7	3.503	A
2 - Canal Street	509	127	542	1204	0.423	511	370	1.2	0.8	5.325	A
3 - A4059 (S)	691	173	199	1803	0.383	692	854	0.9	0.6	3.340	A

2038 Future Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3	9.75	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2038 Future Year	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1048	100.000
2 - Canal Street		ONE HOUR	✓	548	100.000
3 - A4059 (S)		ONE HOUR	✓	1305	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	254	794
	2 - Canal Street	240	0	308
	3 - A4059 (S)	923	367	15

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	2	3
	2 - Canal Street	3	0	2
	3 - A4059 (S)	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.72	8.20	2.6	A	962	1442
2 - Canal Street	0.59	8.89	1.5	A	503	754
3 - A4059 (S)	0.82	11.35	4.4	B	1197	1796

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	789	197	286	1698	0.465	785	871	0.0	0.9	4.040	A
2 - Canal Street	413	103	606	1170	0.353	410	465	0.0	0.6	4.840	A
3 - A4059 (S)	982	246	180	1817	0.541	978	837	0.0	1.2	4.352	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	942	236	343	1658	0.568	940	1043	0.9	1.3	5.139	A
2 - Canal Street	493	123	726	1106	0.445	492	557	0.6	0.8	5.991	A
3 - A4059 (S)	1173	293	215	1792	0.655	1170	1002	1.2	1.9	5.881	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1154	288	418	1606	0.718	1149	1273	1.3	2.5	8.009	A
2 - Canal Street	603	151	887	1020	0.592	601	680	0.8	1.4	8.744	A
3 - A4059 (S)	1437	359	263	1758	0.817	1427	1225	1.9	4.3	10.798	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1154	288	420	1604	0.719	1154	1280	2.5	2.6	8.202	A
2 - Canal Street	603	151	891	1018	0.593	603	684	1.4	1.5	8.887	A
3 - A4059 (S)	1437	359	264	1757	0.818	1436	1230	4.3	4.4	11.350	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	942	236	346	1656	0.569	947	1054	2.6	1.4	5.252	A
2 - Canal Street	493	123	731	1103	0.446	495	562	1.5	0.8	6.087	A
3 - A4059 (S)	1173	293	217	1791	0.655	1183	1009	4.4	2.0	6.135	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	789	197	288	1696	0.465	791	878	1.4	0.9	4.094	A
2 - Canal Street	413	103	611	1168	0.353	414	469	0.8	0.6	4.897	A
3 - A4059 (S)	982	246	181	1816	0.541	986	843	2.0	1.2	4.437	A

2038 Future Year + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3	7.24	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	2038 Future Year + Dev	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	929	100.000
2 - Canal Street		ONE HOUR	✓	699	100.000
3 - A4059 (S)		ONE HOUR	✓	923	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	218	711
	2 - Canal Street	262	1	436
	3 - A4059 (S)	638	277	8

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	2	2
	2 - Canal Street	3	0	2
	3 - A4059 (S)	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.61	5.61	1.6	A	852	1279
2 - Canal Street	0.72	12.19	2.6	B	641	962
3 - A4059 (S)	0.58	5.12	1.4	A	847	1270

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	699	175	215	1748	0.400	697	675	0.0	0.7	3.485	A
2 - Canal Street	526	132	539	1206	0.436	523	372	0.0	0.8	5.371	A
3 - A4059 (S)	695	174	197	1805	0.385	692	865	0.0	0.6	3.326	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	835	209	257	1718	0.486	834	808	0.7	1.0	4.148	A
2 - Canal Street	628	157	646	1149	0.547	627	445	0.8	1.2	7.028	A
3 - A4059 (S)	830	207	236	1777	0.467	829	1036	0.6	0.9	3.904	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1023	256	314	1678	0.609	1020	988	1.0	1.6	5.560	A
2 - Canal Street	770	192	790	1072	0.718	765	545	1.2	2.5	11.791	B
3 - A4059 (S)	1016	254	288	1741	0.584	1014	1267	0.9	1.4	5.086	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1023	256	315	1678	0.610	1023	991	1.6	1.6	5.606	A
2 - Canal Street	770	192	792	1071	0.719	769	546	2.5	2.6	12.191	B
3 - A4059 (S)	1016	254	289	1739	0.584	1016	1271	1.4	1.4	5.125	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	835	209	258	1718	0.486	838	812	1.6	1.0	4.185	A
2 - Canal Street	628	157	648	1148	0.548	634	447	2.6	1.3	7.236	A
3 - A4059 (S)	830	207	238	1775	0.467	832	1043	1.4	0.9	3.938	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	699	175	216	1747	0.400	701	679	1.0	0.7	3.512	A
2 - Canal Street	526	132	542	1204	0.437	528	374	1.3	0.8	5.462	A
3 - A4059 (S)	695	174	199	1803	0.385	696	872	0.9	0.6	3.352	A

2038 Future Year + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A4059 (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A4059 (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	untitled	Standard Roundabout		1, 2, 3	10.38	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
D10	2038 Future Year + Dev	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A4059 (N)		ONE HOUR	✓	1048	100.000
2 - Canal Street		ONE HOUR	✓	560	100.000
3 - A4059 (S)		ONE HOUR	✓	1328	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	254	794
	2 - Canal Street	240	0	320
	3 - A4059 (S)	923	390	15

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A4059 (N)	2 - Canal Street	3 - A4059 (S)
From	1 - A4059 (N)	0	2	3
	2 - Canal Street	3	0	2
	3 - A4059 (S)	2	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A4059 (N)	0.73	8.53	2.7	A	962	1442
2 - Canal Street	0.61	9.18	1.6	A	514	771
3 - A4059 (S)	0.83	12.34	4.9	B	1219	1828

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	789	197	303	1686	0.468	785	871	0.0	0.9	4.092	A
2 - Canal Street	422	105	606	1170	0.360	419	483	0.0	0.6	4.896	A
3 - A4059 (S)	1000	250	180	1817	0.550	995	846	0.0	1.2	4.440	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	942	236	363	1644	0.573	940	1043	0.9	1.4	5.242	A
2 - Canal Street	503	126	726	1106	0.455	502	578	0.6	0.8	6.095	A
3 - A4059 (S)	1194	298	215	1792	0.666	1191	1013	1.2	2.0	6.077	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1154	288	443	1589	0.726	1149	1272	1.4	2.6	8.311	A
2 - Canal Street	617	154	887	1020	0.604	614	705	0.8	1.5	9.016	A
3 - A4059 (S)	1462	366	263	1758	0.832	1451	1237	2.0	4.7	11.583	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	1154	288	446	1587	0.727	1154	1280	2.6	2.7	8.534	A
2 - Canal Street	617	154	891	1018	0.606	616	709	1.5	1.6	9.177	A
3 - A4059 (S)	1462	366	264	1757	0.832	1461	1243	4.7	4.9	12.335	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	942	236	367	1641	0.574	947	1054	2.7	1.4	5.371	A
2 - Canal Street	503	126	731	1103	0.456	506	583	1.6	0.9	6.204	A
3 - A4059 (S)	1194	298	217	1791	0.667	1205	1021	4.9	2.1	6.386	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A4059 (N)	789	197	306	1684	0.469	791	878	1.4	0.9	4.152	A
2 - Canal Street	422	105	611	1168	0.361	423	486	0.9	0.6	4.955	A
3 - A4059 (S)	1000	250	181	1816	0.551	1003	852	2.1	1.3	4.535	A

APPENDIX R – MODAL SPLIT OUTPUT DATA

Land at Abernant Road - National Statistics 'Method of Travel to Work' dataset (QS701EW) for Rhondda Cynon Taf 004 Middle Super Output Area (W02000255)

Mode			Peak	Daily
Work mainly at or from home	65	2.6%	5	41
Underground, Metro, Light Rail, Tram	1	0.0%	0	1
Train	98	3.9%	8	61
Bus, Minibus or Coach	90	3.5%	7	56
Taxi	7	0.3%	1	4
Motorcycle, Scooter or Moped	10	0.4%	1	6
Driving a Car or Van	1,865	73.4%	145	1164
Passenger in a Car or Van	216	8.5%	17	135
Bicycle	9	0.4%	1	6
On Foot	169	6.7%	13	105
Other Method of Travel to Work	10	0.4%	1	6
Of those who Travel (Total)	2,540	100%	197	1585

Max Peak	145
Vehicle %	73.4%
Total Vehicle Trips	1164

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