Proposed Residential Development
Plas Newydd, Prestatyn

October 2024

TRANSPORT ASSESSMENT

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REPORT

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1 INTRODUCTION

1.1 Preamble

1.1.1 Eddisons has been instructed by Castle Green Homes to advise on traffic and transport matters relating to a planning application for a proposed residential development on land at Plas Newydd in Prestatyn, Denbighshire.

1.1.2 This report provides information on the traffic and transport planning aspects of the proposed development to assist the local planning authority in the positive determination of the planning application.

1.1.3 The application site is located southwest of Prestatyn centre, its location is shown in **Plan 1**.

1.1.4 The site occupies an area of undeveloped land. Further details regarding the existing area around the site are provided in Section 2 of this report.

1.1.5 The proposed development would provide 390 dwellings comprising one, two, three and four-bedroom layouts, with new residential vehicular and pedestrian accesses via Ffordd Pant Y Celyn and Ffordd Ffynnon. Further detail on the proposed development is provided in Section 3.

1.1.6 The relevant planning policy is discussed in Section 4 of the report, with Section 5 providing an assessment of the site's accessibility by non-car modes of travel, before Section 6 discusses the Travel Plan Framework.

1.1.7 The implications of the proposed development on the local highway network are considered at Section 7, Section 8 draws together the conclusions of this report.

2 EXISTING CONDITIONS

2.1 Existing Site Information

2.1.1 The development site is located approximately 2km from Prestatyn town centre. The site lies to the north of Ffordd Ffynnon.

2.1.2 To the east of the site is an existing residential area served off Ffordd Penrhwylfa; Plas Newydd Caravan Park is also to the east of the site. To the north and south of the site lies undeveloped land.

2.2 Local Highway Network

2.2.1 Ffordd Ffynnon runs in an east-west direction connecting with Bryn Newydd to the east and the B5119 to the west. It is a single carriageway road with street lighting and footways on both sides of the carriageway (when within the existing residential area).

2.2.2 To the east, Ffordd Ffynnon forms a priority crossroad junction with Fforddisa and Ffrordd Penrhwylfa. Fforddisa continues in an eastward direction, linking the site with Prestatyn centre. Fforddisa is a single carriageway road with streetlighting and footways on both sides of the carriageway.

2.2.3 Ffordd Penrhwylfa runs north at the crossroads, from there it becomes Ceg Y Ffordd and continues in a northern direction for around 1.4km until it reaches a signal-controlled junction with the A548 Victoria Road West. The A548 runs in an east-west direction, providing access to nearby towns to the north including Rhyl, Towyn, and Pensarn.

2.2.4 To the east, the A548 provides access to nearby villages including Gronant, Ffynnongroyw and Mostyn. In the vicinity of the site, the A548 Victoria Road West is a single carriageway road with streetlighting and footways along both sides.

2.3 Baseline Transport Data

2.3.1 The site currently comprises undeveloped land and does not generate any traffic movements onto the local highway network accordingly.

3 DEVELOPMENT PROPOSALS

3.1 Introduction

3.1.1 This section of the report provides detail on the development proposals, including the proposed access arrangements and car parking.

3.2 Proposed Development

3.2.1 The proposal would deliver a residential development that would be accessed via two access points, one from Ffordd Pant Y Celyn and one via a new three-arm priority junction with Ffordd Ffynnon. The locations of the site access points are shown in **Plan 2**.

3.2.2 The development would consist of 390 dwellings comprising:

- 12 no. one-bedroom affordable units,
- 65 no. two-bedroom affordable units,
- 32 no. three-bedroom affordable units;
- 8 no. four-bedroom affordable units;
- 26 no. two-bedroom open market units,
- 196 no. three-bedroom open market units; and
- 51 no. four-bedroom open market units.

3.3 Pedestrian and Cycle Access

3.3.1 The site would provide access for pedestrians and cyclists via the vehicular access points off Ffordd Pant Y Celyn and Ffordd Ffynnon.

3.3.2 The site's internal layout has been designed to provide a safe environment for pedestrians and cyclists. It includes clearly defined walkways and crossing

points and in some places provides shared surfacing to create a pedestrian-dominant low-speed environment. Secure, sheltered, cycle parking would also be provided at each dwelling in accordance with the relevant Local Authority guidance.

3.3.3 To the east, the proposed development would be accessed via the existing residential area and its routes towards Ffordd Pant Y Celyn and Prestatyn centre. Those residential routes are served by footways on both sides of the carriageway and have streetlighting.

3.3.4 To the south, the proposed development would provide a new footway along the northern side of Ffordd Ffynnon that would run east from the proposed site access to connect with the existing pedestrian network to the east. This would be delivered using adopted highway land and land to the north of Ffordd Ffynnon, which is within the applicant's control. The new footway is shown in **Plan 2**.

3.3.5 The new footway would not negatively impact on the carriageway width of Ffordd Ffynnon in the vicinity of the site; **Plan 2** shows a 5.5 metre wide carriageway in the vicinity of the site access.

3.4 Parking Standards

3.4.1 Denbighshire County Council's (DCC's) current maximum car parking standards specify a maximum provision of '1 space per bedroom (maximum requirement 3 spaces) and '1 space per 5 units' for visitor parking. The proposed development layout would be consistent with those standards.

3.5 Vehicular Access

3.5.1 The site would provide two vehicular access points; one via Ffordd Pant Y Celyn to the east and a new access off Ffordd Ffynnon to the south. The route via Ffordd Pant Y Celyn would access the site via an extension of an existing access stub off Ffordd Cae Felin.

3.5.2 The Ffordd Ffynnon access would comprise a 5.5-metre-wide carriageway, with 6-metre entry radii. Two metre wide footways would be provided along both

sides of the site access road. As discussed above, the site access arrangements would also provide a new footway along the north of Ffordd Ffynnon, which would connect to the existing Ffordd Ffynnon pedestrian network to the east. Further information on the site's accessibility by non-car modes is set out in the **Section 5**.

3.5.3 The proposed site access junctions would provide appropriate means of access for non-car and vehicular modes of transport. The operational analyses of the access junctions are discussed in more detail later in **Section 7** of this report.

3.6 Refuse and Emergency Vehicle Access

3.6.1 Refuse vehicles would be able to access the site via both proposed access junctions. As shown in **Plan 3**, refuse vehicles would be able to access all parts of the residential development and would also be able to leave the site in a forward gear.

3.6.2 Emergency vehicles would also access the site via the proposed vehicle access junctions. These vehicle movements would all be suitably accommodated, as shown in **Plan 4**.

4 RELEVANT TRANSPORT PLANNING POLICY

4.1 Introduction

4.1.1 This section of the TA reviews the relevant national and local transport planning policy and guidance documents in the context of the proposed development.

4.1.2 The proposed development has been developed to accord with the aims these policies, this section provides a review of the following documents and summarises the strategies therein:

- Planning Policy Wales, Edition 11 – Section 4.1, Transport
- Planning Policy Wales – Technical Advice Note 18: Transport
- The Wales Transport Strategy 2021
- North Wales Joint Local Transport Plan (2015-2020)
- Denbighshire Local Development Plan (2006 – 2021)

4.2 Planning Policy Wales, Edition 11 - Transport

4.2.1 The aims of the Policy are to ensure that the Planning system support sustainable development that "increases physical activity, improves health and helps to tackle the causes of climate change and airborne pollution". It seeks to achieve this 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.

4.2.2 This document identifies that the Welsh Government *"is committed to reducing reliance on the private car and supporting a modal shift to walking, cycling and public transport. Delivering this objective will make an important contribution to decarbonisation, improving air quality, increasing physical activity, improving the health of the nation and realising the goals of the Well-being of Future Generations Act."*

4.2.3 With regards to active travel, the document states that *"Walking and cycling are good for our health and well-being. They support valuable social and recreational opportunities and are integral to placemaking, creating life and activity in public places and providing the opportunity to meet people. Sustainable places invite people to walk and cycle as part of their everyday routine"* and also that *"The Active Travel (Wales) Act 201323 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".*

4.3 Planning Policy Wales – Technical Advice Note 18: Transport

4.3.1 This document identifies the aims of undertaking a Transport Assessment as part of a planning application. This includes to:

- *"understand the transport impacts of the development;*
- *clearly communicate the impacts to assist the decision making process;*
- *demonstrate the development is sited in a location that will produce a desired and predicted output (for example in terms of target modal split);*
- *mitigate negative transport impacts through the design process and secured through planning conditions or obligations;*
- *maximise the accessibility of the development by non-car modes;*
- *contribute to relevant development plan and RTP objectives relating to accessibility of services and modal share."*

4.4 The Wales Transport Strategy 2021

4.4.1 This strategy sets out how the transport system can help deliver a more prosperous, green and equal society.

4.4.2 It seeks to bring services to people in order to reduce the need to travel. By providing *"better physical and digital connectivity to support access to more local services, more home and remote working. If more people can walk and cycle for everyday trips, we will reduce our dependency on cars".*

4.4.3 The strategy also seeks *"to allow people and goods to move easily from door-to-door by accessible, sustainable and efficient transport services and infrastructure".* This will be achieved by making sure that *"transport infrastructure is safe, accessible, well-maintained and future-proofed, to adapt to climate change".*

4.4.4 The approach of the strategy is to adopt a Transport Hierarchy to *"give priority to meeting the demand for travel by walking, cycling and public transport ahead of private motor vehicles".*

4.4.5 These measures seek to make *"low-carbon sustainable transport more attractive and more affordable, and seek to adopt innovations that make it easier to use".*

4.4.6 The design of the proposed development has been considered on the basis of the user hierarchy and the site's Travel Plan document will seek to maximise travel by sustainable modes of transport.

4.5 North Wales Joint Local Transport Plan (2015-2020)

4.5.1 The North Wales Joint Local Transport Plan (January 2015) has been produced by the six North Wales Local Authorities to create a detailed programme from 2015 to 2020, with a further framework scheme continuing to 2030.

4.5.2 The Plan aims to *"improve connections to key destinations and markets, enhance access to employment and services, increase levels of walking and*

cycling, bring improved safety and security and at the same time bring benefits and minimised impacts on the environment."

4.5.3 DCC have included within the plan a number of infrastructure improvements to facilitate greater levels of walking and cycling. Those measures connect existing routes and provide higher quality active travel routes to key local destinations.

4.5.4 The proposed development has been designed to connect with the surrounding active travel network.

4.6 Denbighshire Local Development Plan 2006-2021

4.6.1 The Local Development Plan seeks to achieve sustainable accessibility with "new development sites demonstrating high levels of sustainable development and seeking to achieve low, or even zero, carbon status."

4.6.2 Policy ASA2 discusses provision of sustainable transport facilities. It states that *"schemes may be required to provide or contribute to capacity improvements or connection to the cycle network, provision of walking and cycling links with public transport facilities and improvement of public transport services."*

4.6.3 It also identifies the justification of the implementation of the policy, which includes:

- *"Improved walking, cycling and public transport facilities increase peoples' health and wellbeing from the outset."*
- *"It is an important element in ensuring that developments assist in mitigating carbon emissions, whilst improving accessibility for those unable to use a car."*

4.7 Planning Policy Summary

4.7.1 This Transport Assessment has been prepared following liaison with the Local Planning Authority to ensure that its content suitably addresses their requirements and is in accordance with local and national policy.

4.7.2 The proposed development will reduce the need to travel by car in part due to its location close to a range of services and amenities. Further details on the accessibility of the proposed development by non-car modes is provided in **Section 5** of this Transport Assessment.

4.7.3 The site has been designed to promote the use of active travel, it also provides connections to the public transport network, which will also facilitate non-car travel to and from the proposed development.

4.7.4 This planning application is also supported by a Travel Plan document, which seeks to maximise travel by sustainable means and reduce car travel, particularly for single occupancy journeys. The Travel Plan is discussed in more detail in **Section 6**.

5 ACCESSIBILITY BY NON CAR MODES

5.1 Introduction

5.1.1 In order to accord with the aspirations of the Planning Policy for Wales (PPW), any new proposals should extend the choice in transport and secure mobility in a way that supports sustainable development.

5.1.2 As set out in the above section, the principle of the PPW policy is to encourage sustainable travel. This includes:

- *"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."*

5.1.3 New development should therefore seek to influence the predominant mode of travel in order to achieve a shift in mode split towards non-car modes, thus assisting in meeting the aspirations of current national and local planning policy.

5.1.4 The accessibility of the proposed site has been considered by the following modes of transport:

- access on foot;
- access by cycle;
- access by bus; and
- access by rail.

5.2 Access on Foot

5.2.1 It is important to create a choice of direct, safe and attractive routes between where people live and where they need to travel in their day-to-day life. This philosophy clearly encourages the opportunity to walk whatever the journey purpose and also helps to create more active streets and a more vibrant neighbourhood.

5.2.2 Existing footways are provided along Ffordd Ffynnon, Ffordd Penrhwylfa and Fforddisa. These link to the wider pedestrian network.

5.2.3 DCC are developing their Active Travel Integrated Network. The aim of the network is to encourage people to walk or cycle for short journeys to access a workplace or educational establishment or to access health, leisure or other services or facilities and to ultimately make Wales a walking and cycling nation.

5.2.4 Included in the Integrated Walking Network are Active Travel Routes DB-PRE-P002b and INM-Den-Pre-P016 & C016 which are located to the east of the development site and shown in Figure 5.1 below. These routes run along Fforddisa and Ffordd Penrhwylfa (the orange and blue routes below respectively) and provide links with Prestatyn Town Centre.

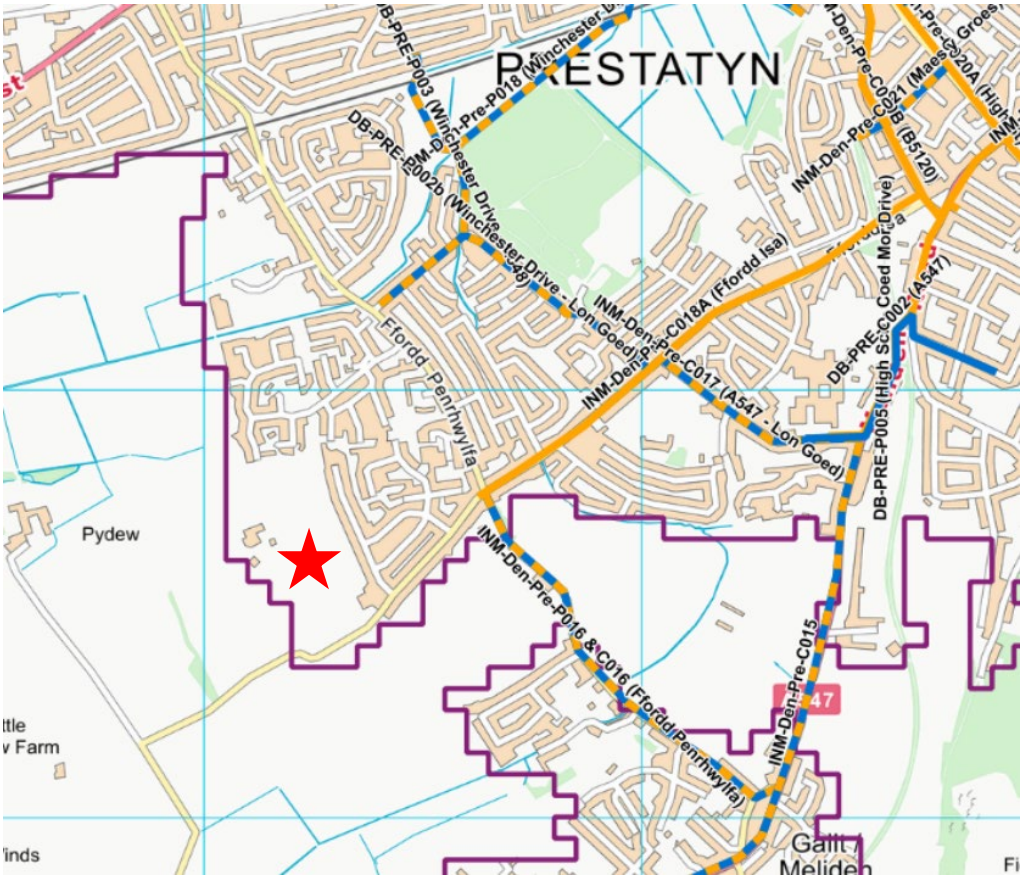


Figure 5.1 – Map of Integrated Walking Network

5.2.5 The above figure shows that the site is well placed to connect with the Integrated Walking Network surrounding the site. This will promote the use of active travel between the site and the leisure, health and employment facilities within the town centre. It will also provide access to the surrounding countryside areas for leisure and well-being activities.

5.2.6 The Department For Transport National Travel Survey of 2018 confirms that 80% of all trips less than a mile (1.6km) are carried out on foot.

5.2.7 The Institute of Highways and Transportation (IHT) document 'Guidelines for Providing for Journeys on Foot', provides information on acceptable walking distances. Table 3.2 suggests distances for desirable, acceptable and preferred maximum walks to 'town centres', 'commuting/schools' and 'elsewhere'. The 'preferred maximum' distances are shown below in **Table 5.1**.

Suggested Preferred Maximum Walk		
Town Centre	**Commuting/School**	**Elsewhere**
800m	2,000m	1,200m

Table 5.1 IHT 'Providing for Journeys on Foot' Walk Distances

5.2.8 The Government introduced advice on walking distances in the 2001 revision to Planning Policy Guidance (PPG) 13 Transport, now withdrawn, which advised that *'Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly those under two kilometres.'*

5.2.9 Manual for Streets (MfS) continues the theme of the acceptability of the 2,000 metre distance in paragraph 4.4.1. This states that '*walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPS13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km*'.

5.2.10 **Table 5.2** below summarises this guidance in tabular form.

'Comfortable' Walk	'Preferred Maximum' Walk
800m	2,000m

Table 5.2 Manual for Streets Walk Distances

5.2.11 Further evidence that people will walk further than the suggested 'preferred maximum' distances in the IHT 'Providing for Journeys on Foot' is contained in a WYG Report entitled 'Accessibility – How Far Do People Walk and Cycle'. This report refers to National Travel Survey (NTS) data for the UK as a whole, excluding London, and confirms the following 85th percentile walk distances:

- All journey purposes – 1,930 metres;

- Commuting – 2,400 metres;
- Shopping – 1,600 metres;
- Personal business – 1,600 metres.

5.2.12 Overall, in Table 5.1, the document states that 1,950 square metres is the 85th percentile distance for walking as the main mode of travel. **Table 5.3** below summarises the various 85th percentile walk distances suggested as guidelines in the WYG Study.

85th Percentile Walk Distances				Overall Recommended Preferred Max
All Journeys	Commuting	Shopping	Personal	
1,950m	2,100m	1,600m	1,600m	1,950m

Table 5.3 WYG Report/NTS Data Walk Distances

5.2.13 In summary, the distance of 1,950 metres, or around 2 kilometres, represents an acceptable maximum walking distance for the majority of land uses.

5.2.14 Section 3.1 of the CIHT guidance 'Planning for Walking' mentioned earlier in this report provides a useful reminder of the health benefits of walking. This states that:

'A brisk 20 minute walk each day could be enough to reduce an individual's risk of an early death.'

5.2.15 A 20-minute walk equates to a walking distance of around 1,600 metres.

5.2.16 In light of the above, a pedestrian catchment of 2 kilometres from the centre of the site, using all usable pedestrian routes, has been provided in **Plan 5**.

5.2.17 The 2,000-metre pedestrian catchment illustrates that a large area to the southwest of Prestatyn town Centre falls within the 2km catchment. Clearly, this represents a key destination for potential employment, retail and leisure trips.

5.2.18 In a recent 2023 YouGov poll, respondents were asked to identify the local amenities they valued the most within a 15 minute walk of their home. The poll results highlight amenities that people consider essential for their day to day lives, such as, grocery stores, healthcare facilities and public transportation. The results of the YouGov Poll are displayed in **Figure 5.2** below:

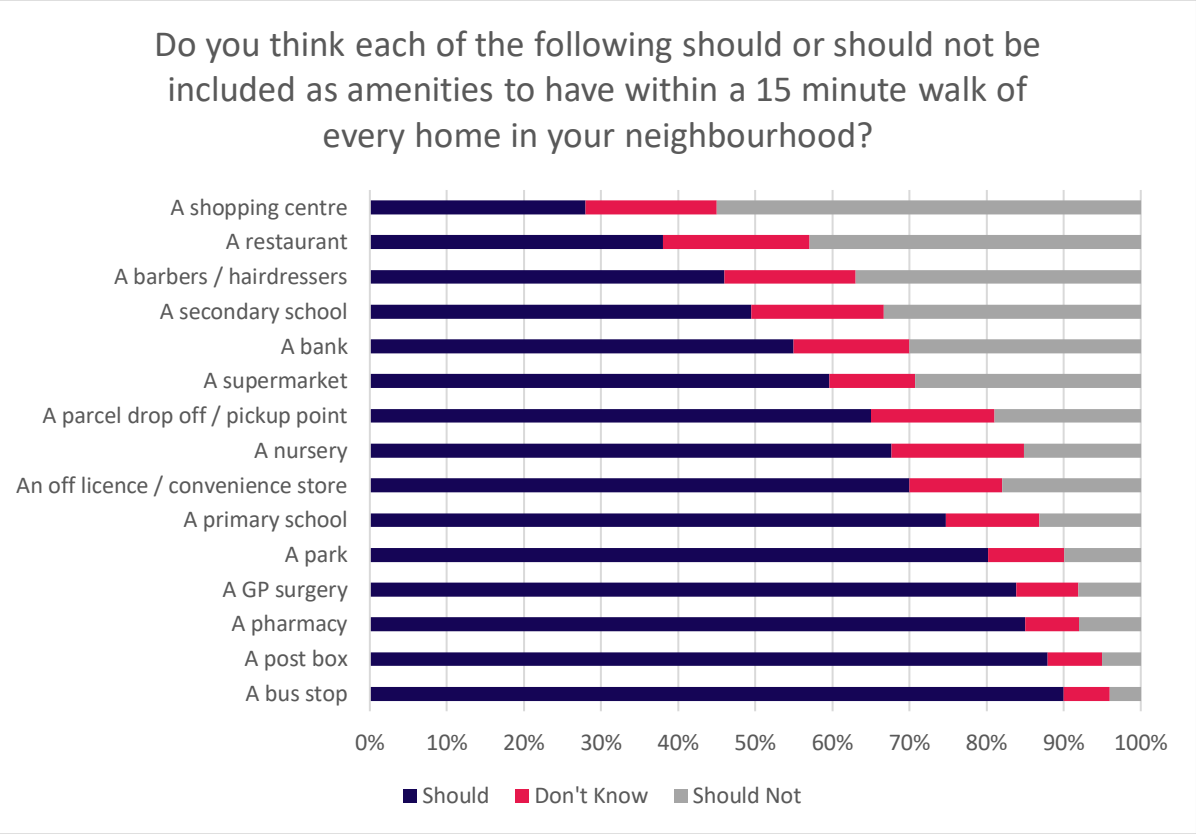


Figure 5.2 YouGov Poll Results (Source YouGov)

5.2.19 **Figure 5.2** shows that the majority of respondents, approximately nine in ten, believe that having a bus stop (90%) and a post box (87%) within a short walk of their home is most important. Similarly, a significant proportion of Britons think that medical facilities like a pharmacy (85%) and a GP surgery (83%) should be easily accessible. Less than half of the respondents see the need for a shopping centre (28%), restaurant (38%), or hairdressers (46%) to be located nearby.

5.2.20 **Plan 5** provides an illustrative indication of the areas that can be reached based on a leisurely walk from the site. The plan also displays nearby local amenities, as per those identified within the findings of the YouGov poll.

5.2.21 As can be seen in **Plan 5**, the site is located in close proximity to a number of a local amenities, including a bus stop, a post box, a pharmacy / GP surgery, and a local convenience store.

5.2.22 **Table 5.4** below, shows the walking distance from the centre of the site to several of the local key amenities in the immediate vicinity of the site. The table also confirms whether the particular amenity is within the 'preferred maximum' walk distances using the above guideline criteria.

Local Amenity	Distance	Guidance Criteria	Meets with Guidance?
One Stop	700m	1,950m	**YES**
Penrhwylfa Crossroads Bus Stop	750m	1,950m	**YES**
Ysgol y Llys (Primary School)	1,400m	1,950m	**YES**
Prestatyn Nature Reserve	1,500m	1,950m	**YES**
Prestatyn High School	1,600m	1,950m	**YES**
Prestatyn Leisure	1,600m	1,950m	**YES**
Ysgol Clawdd Offa (Primary School)	1,700m	1,950m	**YES**
Saints Health & Fitness	1,700m	1,950m	**YES**
Meliden Community Association (GP)	1,700m	1,950m	**YES**
ALDI	1,900m	1,950m	**YES**
Meliden Road Sub Post Office	1,950m	1,950m	**YES**

Table 5.4 Distance from Site to Local Facilities

5.2.23 Based on the review, it is considered that the existing pedestrian infrastructure will facilitate safe and direct pedestrian linkages between the site and numerous local services and amenities.

5.3 Access by Cycle

5.3.1 Cycling represents an alternative mode of travel to the site.

5.3.2 The new advice contained within the Highway Code, which was updated on 29th January 2022, will improve the safety of vulnerable road users including cyclists, pedestrians, and horse-riders. Most of the new advice relates to where cyclists should position themselves within the lane in various traffic conditions and motorists being required to give cyclists priority in slow moving traffic and locations where there is insufficient room for vehicles to overtake cyclists safely, allowing 1.5-metres for cyclists when overtaking them.

5.3.3 A distance of 5 kilometres is generally accepted as a distance where cycling has the potential to replace short car journeys. This distance equates to a journey of around 25 minutes based on a leisurely cycle speed of 12 kilometres per hour. The site's cycle catchment would encompass Prestatyn, Rhyl, Dyserth, Rhuddlan, Towyn and St Asaph.

5.3.4 National Cycle Route 5 is located just to the north of the site along the A548. It runs from the Flint area to the northeast of the site up north to Prestatyn via Holywell and Gwespyr. From here it runs west via Rhyl, Towyn, and Abergele. It is both an on and off-road cycle route, located approximately 1.2km from the centre of the site.

5.3.5 Also, as part of the Active Travel Integrated Network there are numerous cycle networks located in the vicinity of the site. As can be seen in **Figure 5.3** below, the orange and blue striped line represents a shared cycle and walking network while the orange shows a cycle network.

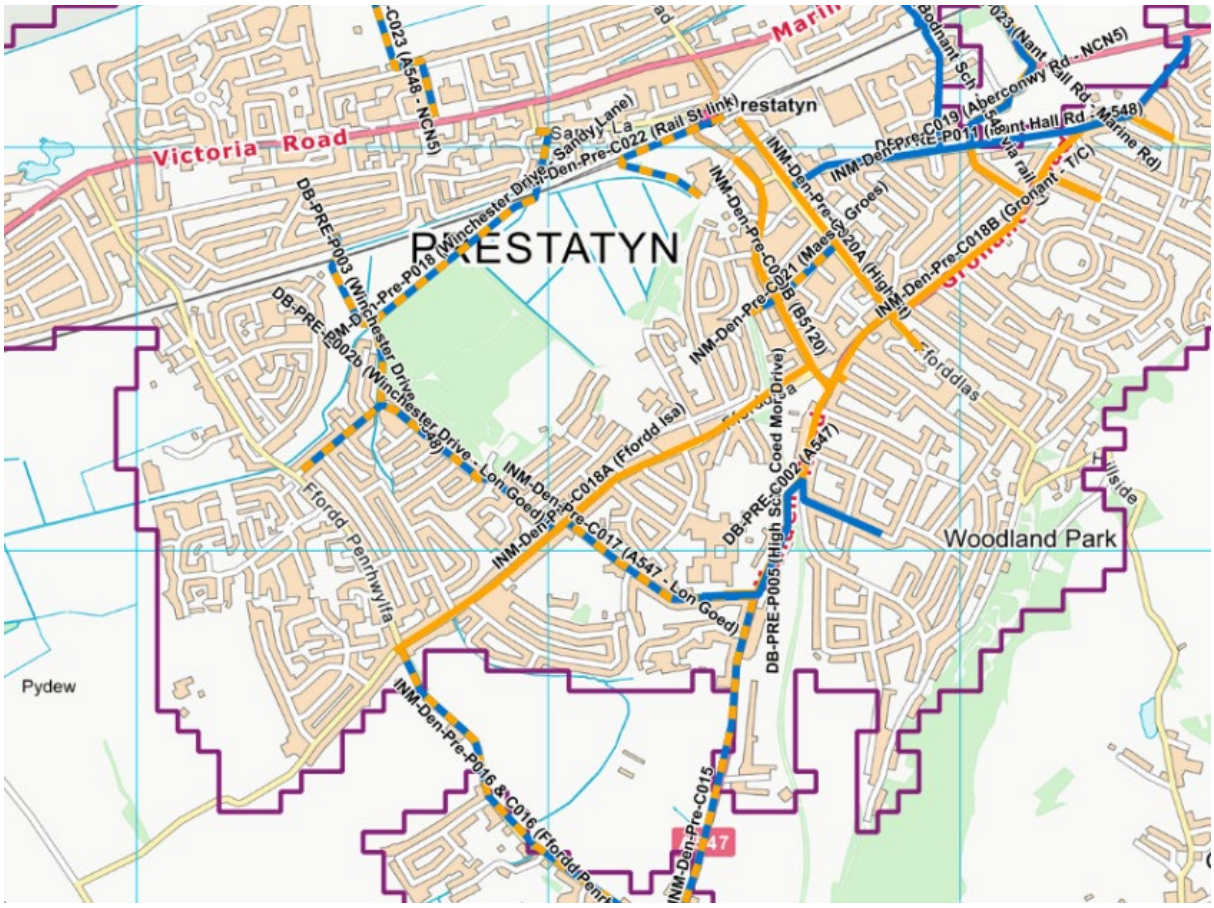


Figure 5.3 – Map of nearby cycle routes

5.3.6 The site can, therefore, be considered as being accessible by cycle.

5.4 Access by Bus

5.4.1 An effective public transport system is essential in providing good accessibility for large parts of the population to opportunities for work, education, shopping, leisure and healthcare in the town and beyond.

5.4.2 The nearest bus stop to the site is located along Fforddisa to the east of the development site. This stop consists of a bus stop pole, shelter and timetable. Additional bus stops are located further along Fforddisa and Ffordd Penrhwylfa. All the nearest bus stops to the site are shown on **Plan 5**.

5.4.3 A summary of the services available from the nearest bus stops from the development site is provided in **Table 5.5** below.

Service No	Route	Monday - Friday			Saturday			Sun
		Pre 08:00	08:00-17:00	Post 17:00	Pre 08:00	08:00-17:00	Post 17:00	
35	Rhyl - Rhyl via Prestatyn	2 services	30 mins	6 services	2 services	30 mins	6 services	120 mins
36	Rhyl - Rhyl via Prestatyn	3 services	30 mins	6 services	3 services	30 mins	6 services	120 mins

Table 5.5 Existing Bus Services Operating in the Vicinity of the Site

5.4.4 As can be seen from **Table 5.5**, the nearest bus stops to the site provides various services throughout the day to destinations such as Rhyl, Prestatyn and Rhuddlan

5.4.5 It is noted that the above services provide a choice of how people travel with the bus services operating from around 06:40am to around 23:30pm, making travel by public transport a realistic alternative to travelling by car for commuting trips.

5.4.6 In order to demonstrate the level of accessibility, some example journey times by bus are presented below **Table 5.6** below.

Destination	Duration
Rhuddlan	24 mins
Rhyl	14 mins

Table 5.6 Example Bus Journey Times from the Site

5.4.1 The above table demonstrates that Rhuddlan is just a 24-minute bus journey from the site and Rhyl is just a 14-minute bus journey.

5.4.2 It is therefore concluded that the proposed development site is accessible by bus.

5.5 Access by Rail

5.5.1 The nearest train station to the site is Prestatyn, which can be accessed via a 7-minute bus journey on the 35 service. This train station is managed by Transport for Wales and has 2 platforms, offering 7 services per hour to destinations such as Llandudno, Manchester Airport, Cardiff Central, and London Euston.

5.5.2 This provides opportunities for both commuting and leisure rail travel from the site.

5.6 Access Summary

5.6.1 The proposed development has been considered in terms of accessibility by non-car modes of transport.

5.6.2 The following conclusions can be drawn from this section of the report:

- The site would be well located to cater for trips on foot and provides potential for a high degree of pedestrian trips between the development and the surrounding area;
- It has been demonstrated that the site would be accessible by cycle, with a number of national cycle routes being located within close proximity of the site;
- The bus services from the stops on Fforddisa and Ffordd Ffynnon, travelling to destinations such as Rhyl and Rhuddlan, shows that the proposed development can be considered as accessible by bus; and
- The site would be accessible via rail, with Prestatyn station located a short bus journey away.

5.6.3 In light of the above, it is considered that the site would be accessible by non-car modes of transport and would cater for the needs of both residents and visitors of the development. This will assist in promoting a choice of travel modes other than the private car.

6 PROMOTING SMARTER CHOICES VIA TRAVEL PLANS

6.1 Introduction

6.1.1 To encourage residents and visitors to travel to the site by non-car modes, the site will be supported by a Travel Plan.

6.2 Travel Plan

6.2.1 A Framework Travel Plan is included at **Appendix 1**. The Travel Plan seeks to deliver the objectives of National Planning Policy, i.e. to encourage residents to travel by non-car modes of travel. The Travel Plan outlines physical and management measures that are designed to achieve this objective.

6.2.2 The effectiveness of a Travel Plan is linked to the site's accessibility by non-car modes of travel. The above shows that the proposed development would benefit from good non-car accessibility, the Travel Plan is therefore expected to be effective in achieving its aims.

7 TRAFFIC IMPACT ANALYSIS

7.1 Introduction

7.1.1 Having established that the proposed development site would be accessible by modes of travel other than the private car, and would be in general accordance with transport policies, the following section considers the traffic impact of the development proposals on the local highway network.

7.2 Periods of Assessment

7.2.1 Given the proposed residential land use, it is reasonable to consider the AM and PM weekday peak hours as being the periods when the highway network will be most sensitive to proposed development trips.

7.3 Existing Traffic Flows

7.3.1 To establish existing levels of traffic on the surrounding highway network, traffic surveys were undertaken on Thursday 16th May 2024. The morning surveys were undertaken between the hours of 07:00 and 10:00 and evening surveys between the hours of 14:00 and 17:00.

7.3.2 The survey data has been analysed to determine the periods of peak activity on the local highway network. The AM peak occurs between the hours of 0800-0900, with the PM peak occurring between 1700 and 1800 hours.

7.3.3 Flow diagrams showing the existing peak hour traffic flows on the local highway network are shown in **Figures 1 and 2**.

7.4 Future Year Traffic Growth

7.4.1 For the purposes of this TA, assessments have been undertaken for the application year of 2024 and a future assessment year of 2030, which represents a period of 5 years after planning application submission.

7.4.2 The surveyed flows have been growthed using the Department for Transport's National Traffic Model (NTM) factors adjusted by using the Trip End Model Program (TEMPro) local growth factors.

7.4.3 The growth rates, and the resultant growthed AM and PM peak hour traffic flows, are shown in **Figures 3 and 4** respectively**.**

7.5 Committed Development

7.5.1 The assessment flows also take into account trips from known local Committed Developments. The flows include vehicle trips from the recently consented development for 102 affordable dwellings on land adjacent to Alexandra Drive (application reference 44/2019/0629).

7.5.2 We are aware that the Alexandra Drive consent took into account trips from a potential residential development at Mindale Farm, Meliden, as part of its Committed Development considerations, however, we also understand that the application did not achieve planning consent. As a consequence, the flows from that development have not been considered by this Note.

7.5.3 The Committed Development trip making is shown in **Figures 5 and 6** for the morning and evening peak hours respectively.

7.6 Base Flows

7.6.1 The Future Year Base traffic flow scenarios have been produced by combining the total Committed Development trips (**Figures 5 and 6**) with the future year traffic count data (**Figures 3 and 4**). The Future Year Base flows are shown in **Figures 7 and 8** for the AM and PM peak hour respectively.

7.7 Trip Distribution

7.7.1 The trips from the proposed development have been assigned to the local highway network following reference to local Census data. Information from the National Travel Survey has been reviewed to obtain 'Travel to Work' data for the local area.

7.7.2 The site is located within the census 'Middle layer Super Output Area Denbighshire 003'. The routes between the site and employment destinations have been established by reference to Google Maps journey planning software. The software has considered journeys taking place during the AM and PM peak hours.

7.7.3 The site's trip distribution is shown in **Figures 9 and 10**. The information shows that 22% of trips are expected to route north towards the Ceg Y Ffordd / A548 Victoria Road / A548 Victoria Road West traffic signal junction. With the remaining trips routeing to southern destinations.

7.7.4 As discussed above, the proposed site layout would provide two points of access on to the local highway network; one to the east of the site and one to the south. The access point used by a site vehicle trip would depend upon the location of the journey origin / destination within the site and its route when on the local highway network. For the purposes of assessment within this TA, it has been assumed that all site trips would make use of the eastern site access in order to ensure a robust assessment of the local junctions.

7.7.5 We are aware from the assessment work undertaken for the adjacent planning consent (Ref: 43/2020/0521), that the nearby crossroads junction of Ffordd Penrhwylfa / Ffordd Ffynnon / Ffordd Isa / Ffordd Penrhwylfa is a sensitive location on the local highway network. The above approach to routeing will maximise the number proposed development trips through this junction, ensuring a robust assessment.

7.7.6 The site's southern access junction will also be subject to an individual robust assessment. For the purposes of its assessment, it will be assumed that all trips to / from southern destinations will route via the southern access junction, which is unlikely. Clearly both of the above routeing scenarios cannot coincide in reality, but it represents a robust assessment for the purposes of junction assessment.

7.8 Proposed Development Trips

7.8.1 As discussed above, the proposed development would provide 390 dwellings comprising one, two, three and four-bedroom arrangements.

7.8.2 The TRICS database has been used to obtain trip information from existing sites that have similar characteristics to those of the proposed development. The TRICS category 'Residential - Houses Privately Owned' has been used to forecast the number vehicle trips generated by the proposed development. The following parameters were applied to the database:

- Range between 300 and 500 units;
- Edge of town residential zone only;
- Weekday surveys only; and
- Greater London and Eire sites excluded.

7.8.3 A summary of the resulting trip rates is shown in **Table 7.1** below, with the TRICS output provided at **Appendix 2**.

Time	Trip Rates		Trip Generation		
	Arrival	Departure	Arrival	Departure	2-Way
08:00-09:00	0.108	0.349	43	140	183
17:00-18:00	0.339	0.151	136	60	196

Table 7.1 Proposed Development Trip Rates and Trips

7.8.4 The above table shows that the proposed development is predicted to generate just under 200 two-way trips during each peak hour.

7.8.5 Applying the site trip distribution information (**Figure 9**) to the above trip generation data distributes the site's trip generation over the local highway network. These are shown in **Figures 10 and 11** for the AM and PM peak respectively.

7.8.6 In order to calculate the 'Base with Development' flows, the development flows (**Figures 10 and 11**) have been added to the Future Year Base Flows (**Figures 7 and 8**). The resulting 'Future Year Base with Development' flows are shown in **Figures 12 and 13** for the AM and PM Peak Hour respectively, with the southern site access flows shown in **Figure 14 and 15**.

7.9 Scope of Junction Assessment

7.9.1 The scope of junction assessment for this TA has been informed by that previously required for the adjacent planning consent. The following junctions have therefore been considered:

- The site's eastern access point onto the main highway network (the Ffordd Pant Y Celyn / Ffordd Penrhwylfa priority junction);
- The southern site access onto Ffordd Ffynnon;
- Ceg Y Ffordd / A548 Victoria Road West traffic signals junction; and
- Ffordd Penrhwylfa / Ffordd Ffynnon priority crossroads junction.

7.10 Junction Assessments

7.10.1 The implication of trips from the proposed development on the local highway network have been considered by undertaking operational assessments of the local junctions identified above. The results from that analysis are summarised for each junction below.

Eastern Site Access - Ffordd Pant Y Celyn / Ffordd Penrhwylfa Priority Junction

7.10.2 This junction has been assessed using TRL's PICADY software. A summary of the junction's ''Future Year Base with Development' results are shown in **Table 7.2** below, with the full PICADY output included at **Appendix 3**.

Approach	2030 Base + Development Flows			
	Weekday AM		Weekday PM	
	RFC	Queue	RFC	Queue
Pant Y Celyn (Site Access)	0.40	0.6	0.18	0.2
Ffordd Penrhwylfa (N)	0.69	2.1	0.35	0.5
Ffordd Penrhwylfa (S)	0.11	0.2	0.25	0.4

Table 7.2 PICADY Results Summary: Ffordd Pant Y Celyn (Site Access) / Ffordd Penrhwylfa Priority Junction – 2030 Base with Development Flows

7.10.3 The above shows that the site access junction would be busiest during the AM peak, but the junction would still operate with significant spare capacity during the future year 'Base + Development' scenario. The maximum RFC would not exceed 0.69 during either peak period and the maximum queue would not exceed 2.1 PCUs.

Southern Site Access / Ffordd Ffynnon Junction

7.10.4 This junction has been assessed using the PICADY software package produced by TRL. A summary of the results is shown below, with a copy of the output provided in **Appendix 4**.

Approach	2030 Base + Development Flows			
	Weekday AM		Weekday PM	
	RFC	Queue	RFC	Queue
Site Access	0.23	0.3	0.10	0.10
Ffordd Ffynnon (E)	0.05	0.1	0.16	0.16

Table 7.3 PICADY Results Summary: Southern Site Access / Ffordd Ffynnon Priority Junction – 2030 Base with Development Flows

7.10.5 The above shows that the site access junction would be busiest during the AM peak, but the junction would still operate with significant spare capacity during the future year 'Base + Development' scenario. The maximum RFC would not exceed 0.23 during either peak period and the maximum queue would not exceed 0.16 PCUs.

Ceg Y Ffordd / A548 Victoria Road / A548 Victoria Road West Signalised Junction

7.10.6 The operation of this junction has been assessed using the LINSIG software package produced by JCT Consultancy. A summary of the results is provided below, with the full output provided in **Appendix 5**.

Approach	2024 Surveyed Flows					
	Weekday AM			Weekday PM		
	DoS (%)	MMQ (pcu)	Delay (pcu/hr)	DoS (%)	MMQ (pcu)	Delay (pcu/hr)
A548 Victoria Rd - East (Ahead Left)	70.2	12.2	4.4	67.5	13.2	4.0
Ceg y Ffordd (Right)	69.8	8.9	3.8	67.6	6.2	3.1
A548 Victoria Rd – West (Right Ahead)	44.6	5.9	2.1	49.6	7.7	2.1

Table 7.5 - LINSIG Results Summary: Ceg Y Ffordd / A548 Victoria Road Traffic Signal Junction 2024 Surveyed Flows

7.10.7 The above shows that the AM peak period is busier that the PM, but that the junction is operating with spare capacity during the existing traffic scenario. The maximum Degree of Saturation (DoS) of 70.2% occurs on the A548 East approach; that approach also has the greatest Mean Maximum Queue (MMQ) of 13.2 PCUs during the PM peak. The junction's operation during the future year Base traffic scenario is discussed below.

Approach	2030 Base Flows					
	Weekday AM			Weekday PM		
	DoS (%)	MMQ (pcu)	Delay (pcu/hr)	DoS (%)	MMQ (pcu)	Delay (pcu/hr)
A548 Victoria Rd - East (Ahead Left)	74.5	13.1	5.0	71.5	14.5	1.5
Ceg y Ffordd (Right)	73.7	9.6	4.2	69.9	6.5	3.3
A548 Victoria Rd – West (Right Ahead)	47.4	6.3	2.3	53.1	8.5	2.4

Table 7.6 - LINSIG Results Summary: Ceg Y Ffordd / A548 Victoria Road Traffic Signal Junction 2024 Surveyed Flows

7.10.8 When considering the Base scenario, the above summary shows that both peak periods would have a relatively similar junction operation, but the PM Peak would have slightly greater spare capacity than the AM peak.

7.10.9 The characteristics of the junction's operation during the base are similar to those seen during the existing flow scenario, albeit with a slight reduction in capacity given the greater trip throughput of the future year flows.

7.10.10 The implication of proposed development trips on junction operation is established by comparing the results of the 'Base' and 'Base + Development' junction models. The results of the latter scenario will now be discussed

Approach	2030 Base + Development Flows					
	Weekday AM			Weekday PM		
	DoS (%)	MMQ (pcu)	Delay (pcu/hr)	DoS (%)	MMQ (pcu)	Delay (pcu/hr)
A548 Victoria Rd - East (Ahead Left)	76.8	13.8	5.3	72.7	14.8	3.4
Ceg y Ffordd (Right)	77.3	10.4	4.8	71.9	7.3	2.3
A548 Victoria Rd – West (Right Ahead)	49.2	6.8	2.4	55.5	8.9	1.9

Table 7.7 LINSIG Summary: A550 / A494 / B5129 Signalised Junction - 2024

7.10.11 When compared to the Base scenario, the above shows that the addition of development trips would not result in any significant change to the junction operation.

7.10.12 All of the approaches would continue to operate within capacity. The approach with the greatest DoS would be the A548 East, with a DoS of 76.8%. With regards to the degree of change from the Base results, the greatest increase in DoS would be on Ceg y Ffordd, with an increase of 3.6% during the AM peak. The greatest increase in queue would be 0.8PCUs, which would occur on Ceg y Ffordd during both the AM and PM peak.

7.10.13 The magnitude of change in the junction's DoS, and the change in MMQ of less than 1 PCU, does not represent a significant change in the junction's operation. It would still be operating with spare reserve capacity during the future year 'Base plus Development Flow' scenario.

Ffordd Penrhwylfa / Ffordd Ffynnon / Ffordd Isa Crossroads Junction

7.10.14 This junction has been assessed using the PICADY software package produced by TRL. A summary of the results is shown below, with a copy of the full output provided at **Appendix 6**.

Approach	Future Year Base Flows				Future Year With Development Flows			
	Weekday AM		Weekday PM		Weekday AM		Weekday PM	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Ffordd Penrhwylfa (S) – Ahead / Left	0.14	0.2	0.22	0.3	0.17	0.2	0.31	0.4
Ffordd Penrhwylfa (S) – Ahead / Right	0.21	0.3	0.22	0.3	0.24	0.3	0.29	0.4
Ffordd Isa (E)	0.29	0.5	0.21	0.3	0.30	0.5	0.25	0.4
Ffordd Penrhwylfa (N) – Ahead / Left	0.55	1.2	0.30	0.4	0.85	4.6	0.37	0.6
Ffordd Penrhwylfa (N) – Ahead / Right	0.36	0.6	0.17	0.2	0.74	2.4	0.25	0.3
Ffordd Ffynnon (W)	0.03	0	0.02	0	0.03	0	0.03	0

Table 7.8 PICADY Results Summary: Ffordd Penrhwylfa / Ffordd Ffynnon / Ffordd Isa Crossroads Junction

7.10.15 When considering the future year Base scenario, the above results show that the junction would operate within capacity during both the AM and PM scenarios. The northern arm of the junction, Ffordd Penrhwylfa, is the busiest approach during the AM peak, with an RFC of 0.55 for the Ahead / Left movement. During the PM peak, all approaches would have a relatively similar level of operation.

7.10.16 When considering the 'Future Year with Development Flow' scenario, the northern arm continues to be the arm with greatest RFC. The maximum RFC would be 0.85 in the AM and 0.37 in the PM, so that approach would still be operating with reserve operational capacity.

7.10.17 When comparing the 'Base' and 'Base + Development' output of the remaining arms, the change in junction operation during the PM peak would be minimal. The maximum increase in RFC would be less than 0.1 and the maximum increase in queue would be 0.2 PCUs. During the AM peak, the change in

junction operation would be minimal, with no increase in queue and a maximum increase in RFC of 0.03.

7.10.18 The above shows that the junction would continue operate within capacity during the 'future year with development' scenario and that the change in junction operation compared to the base scenario would be minimal. This is despite the robust approach to assessment for this junction, which assumed that all southbound development trips would route through this junction, which would not happen in reality.

7.10.19 We understand that a previous planning application considered an alteration to this junction, to provide a mini-roundabout arrangement. That alteration could still be physically implemented, but it is not a requirement based on the results of the above analysis

7.11 Capacity Assessments Summary

7.11.1 This section of the Report has considered the vehicle trip implications of the proposed development.

7.11.2 The operational assessment results have shown that the local junctions would continue to operate within capacity during the 'Base + Development' assessment scenario, and that the degree of change in junction operation as a consequence of proposed development trips would not be significant.

7.11.3 The local highway network would therefore operate efficiently and within its design capacity following the inclusion of proposed development trips. The proposed development would therefore not have a severe traffic impact on the local highway network.

8 ACCIDENT ANALYSIS

8.1 Introduction

8.1.1 In order to consider the potential impact of the development on road safety, a review of the local accident history has been undertaken by reference to the Crashmap website (www.crashmap.co.uk). The information on the website covers the latest 5-year period available; 2018 to 2022. The study area used within the analysis is shown in Figure 8.1 below

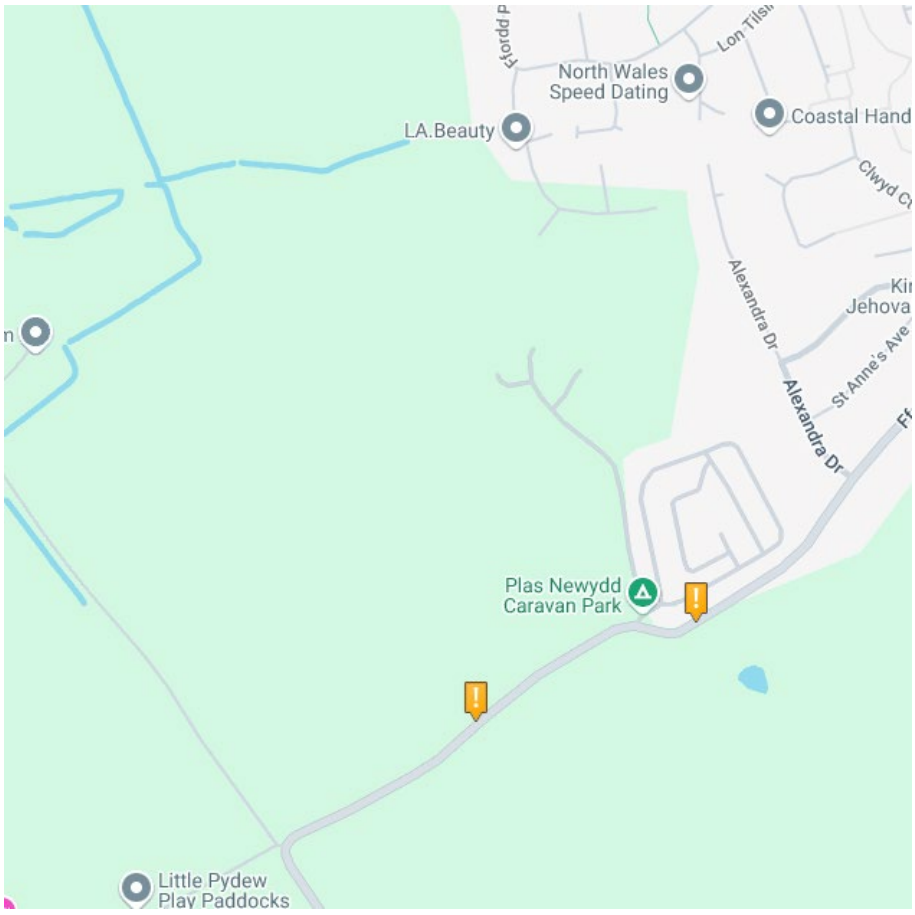


Figure 8.1 – Crashmap Analysis Area

8.2 Analysis

8.2.1 According to the data, there has been a total of two accidents in the vicinity of the site, the detail of which is summarised in Table 8.1 below.

Date	Severity	Light Conditions	Weather	Road Conditions	Manoeuvre
16/12/2021	Slight	Darkness: No Streetlights	Fine	Dry	Car strikes pedestrian walking along carriageway
26/05/2022	Slight	Daylight	Fine	Dry	2 vehicle collision

Table 5.1 – Accident Summary

8.2.2 While no further detail is available, such incidents would suggest that the drivers (or other road users) were not paying sufficient attention to other road users or drivers were travelling in excess of the speed limit or road conditions and failed to react in time to the situation.

8.2.3 It should be noted that the proposed development would extend the existing pedestrian provision along Ffordd Ffynnon to provide a new continuous footway to the proposed development access.

8.2.4 It is considered that the proposed development would not have a detrimental impact on the characteristics and nature of the surrounding highway network or give rise to any road safety issues.

9 CONCLUSIONS

9.1.1 Eddisons has been instructed by Castle Green Homes to advise on traffic and transport matters relating to a planning application for a proposed residential development on land at Plas Newydd in Prestatyn, Denbighshire.

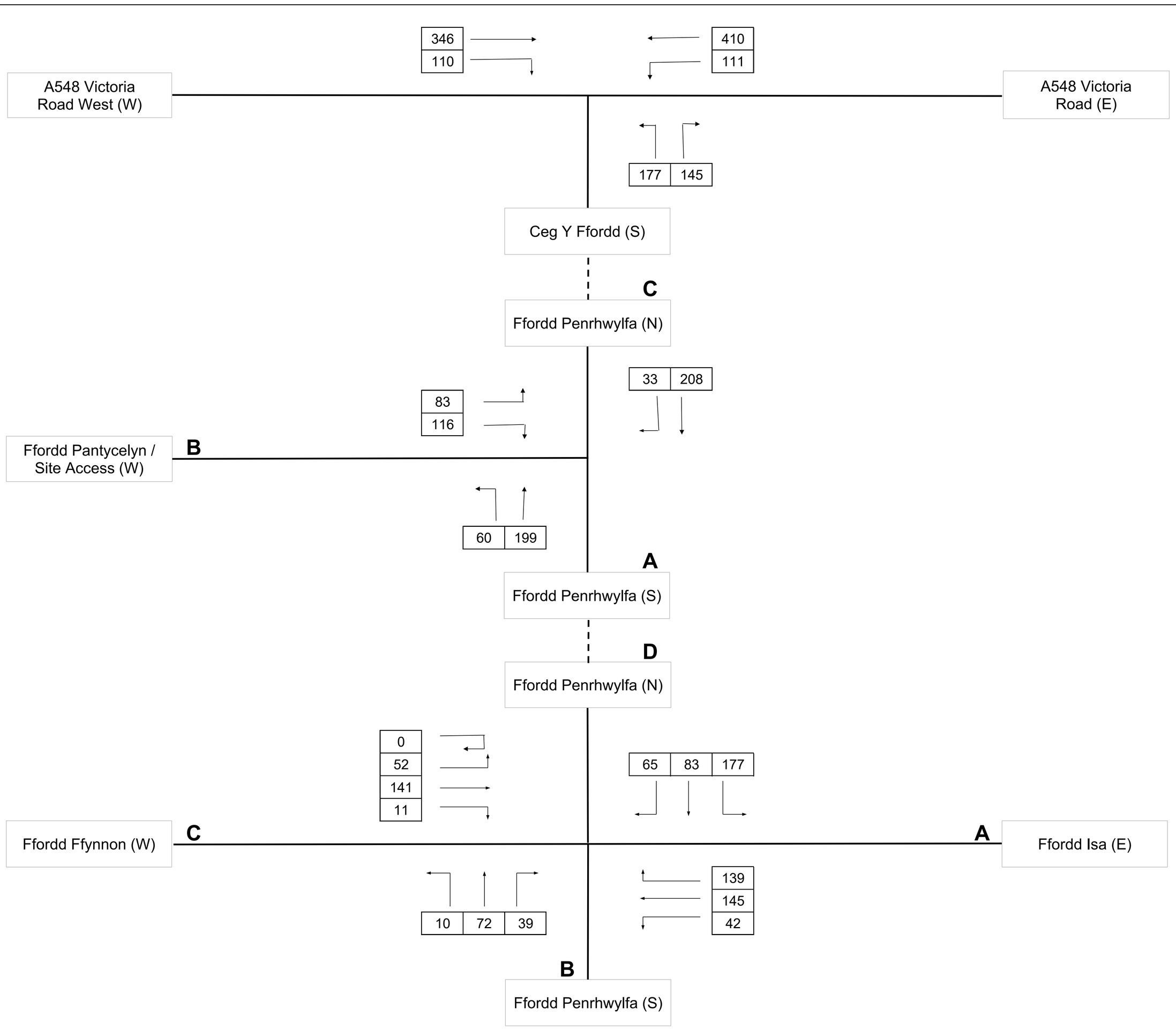
9.1.2 The proposed development would provide up to 390 dwellings with a mix of house sizes and types. The development would be served via Ffordd Pant Y Celyn to the east of the site and via a new access to the south of the site off Ffordd Ffynnon.

9.1.3 The information provided by this Transport Assessment enables the following conclusions to be drawn:

- The proposed development would be accessible by non-car travel modes, including walking, cycling and public transport;
- The proposed development would be well located to encourage active travel into Prestatyn and for bus journeys to access surrounding local destinations;
- The site's internal layout would be designed in accordance with Manual for Streets guidance and its cycle and car parking provision would comply with current local standards;
- The proposed development would be supported by a Framework Travel Plan to encourage the use of non-car modes;
- The proposed development would provide a safe and efficient vehicular access arrangement; and
- The junction assessment results show that the vehicle trips generated by the proposed development would be suitably accommodated by the local highway network.

9.1.4 It can therefore be concluded that the proposed development is acceptable in highway terms.

FIGURES



Flows in PCUs

Figure 1 2024 Surveyed Flows - AM Peak (0800-0900 hours)

Eddisons

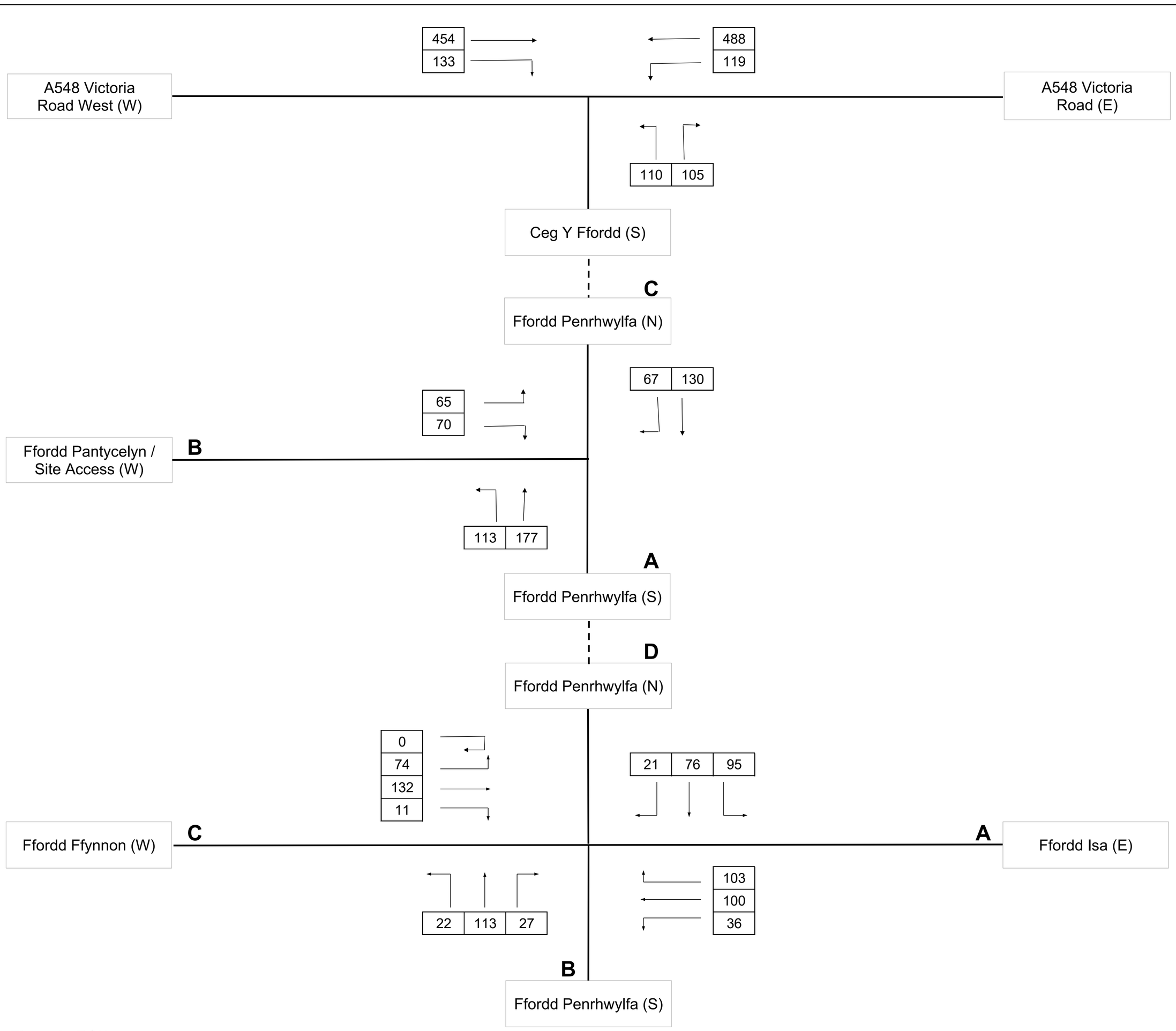


Figure 2 2024 Surveyed Flows - PM Peak (1700-1800 hours)

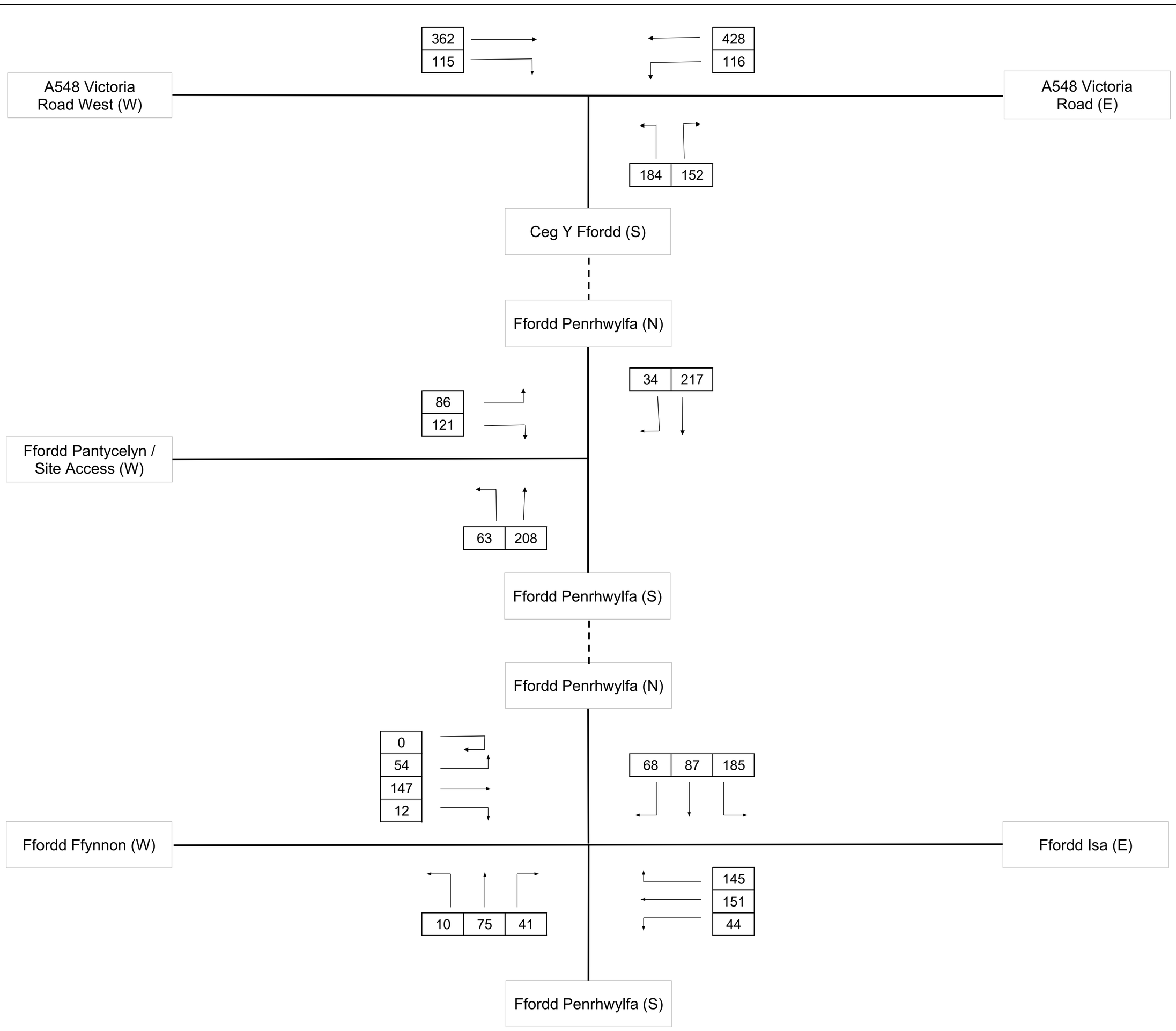
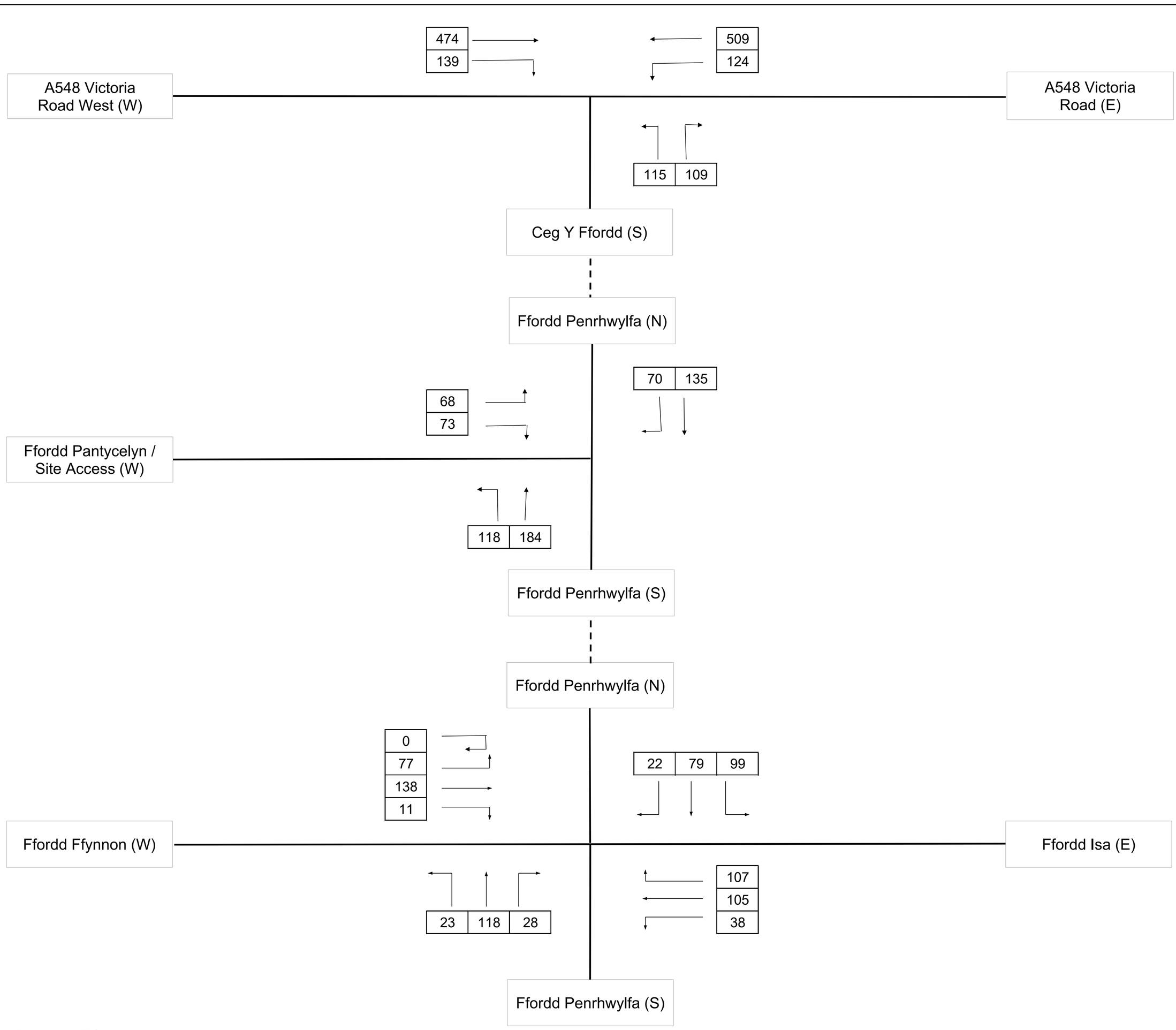


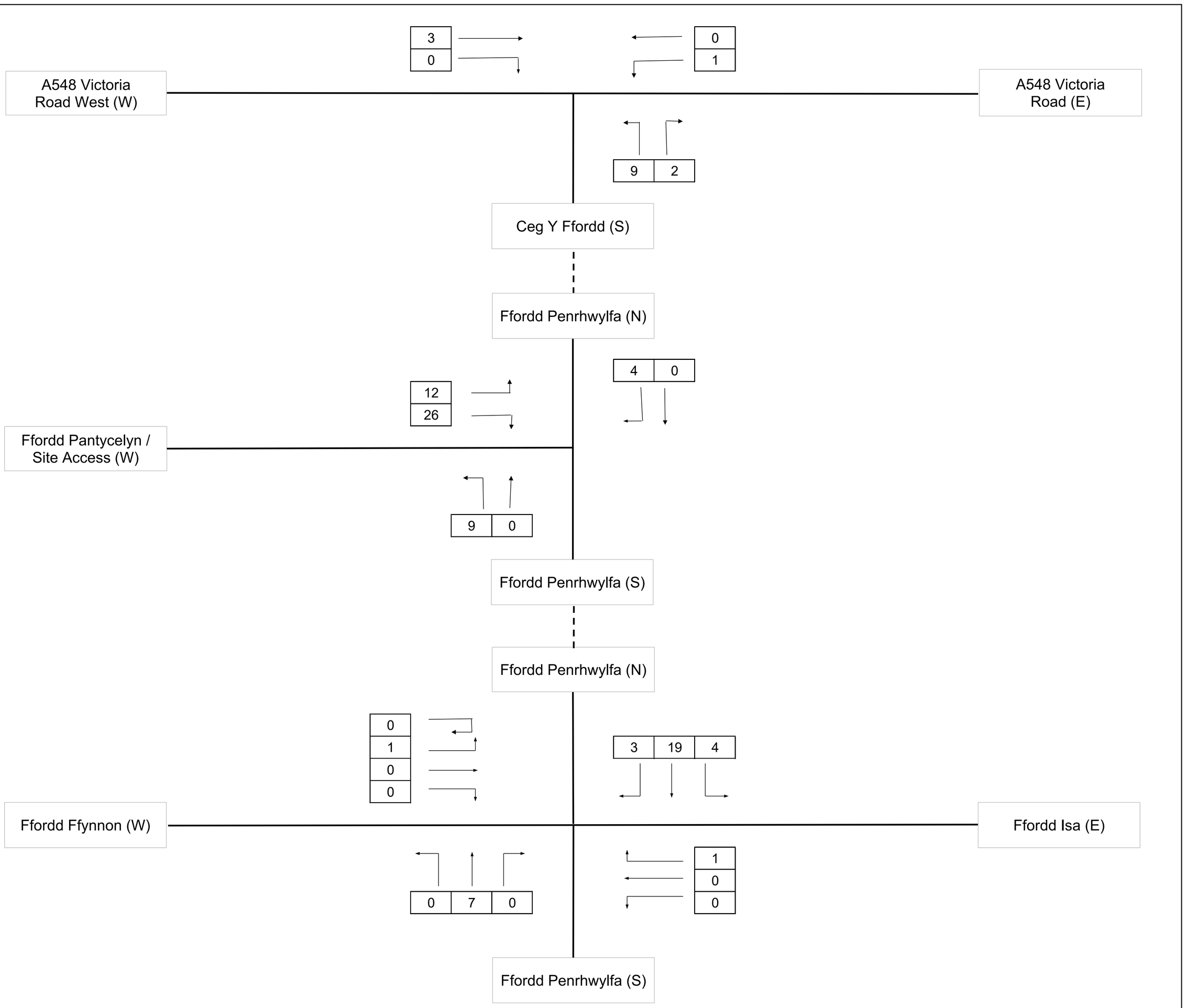
Figure 3 2030 Growthed Flows - AM Peak (0800-0900 hours)



Flows in PCUs

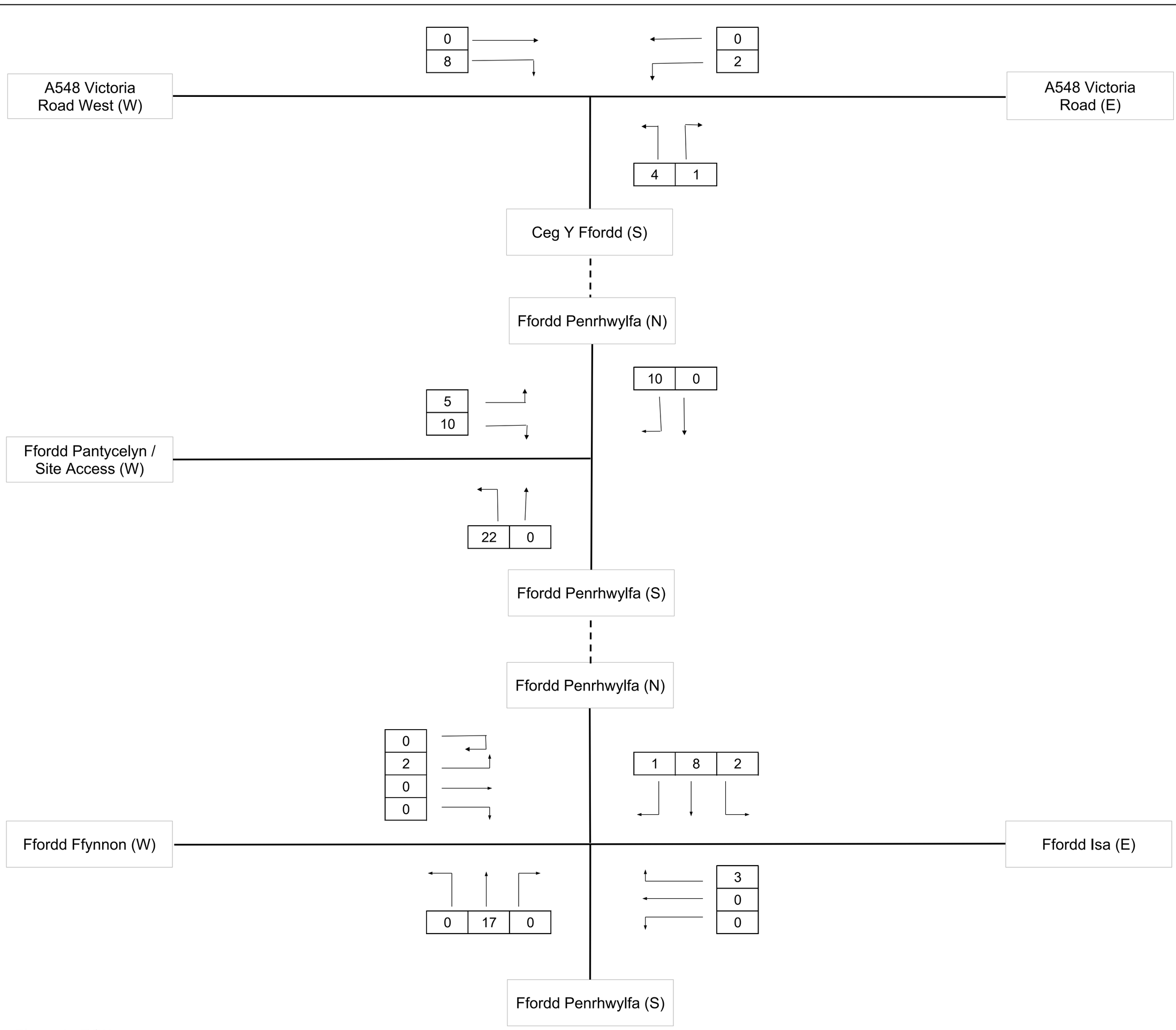
PM Growth Factor 1.0436

Figure 4 2030 Growthed Flows - PM Peak (1700-1800 hours)



Flows in PCUs

Figure 5 Commited Development Flows - AM Peak (0800-0900 hours)



Flows in PCUs

Figure 6 Commited Development Flows - PM Peak (1700-1800 hours)

Eddisons

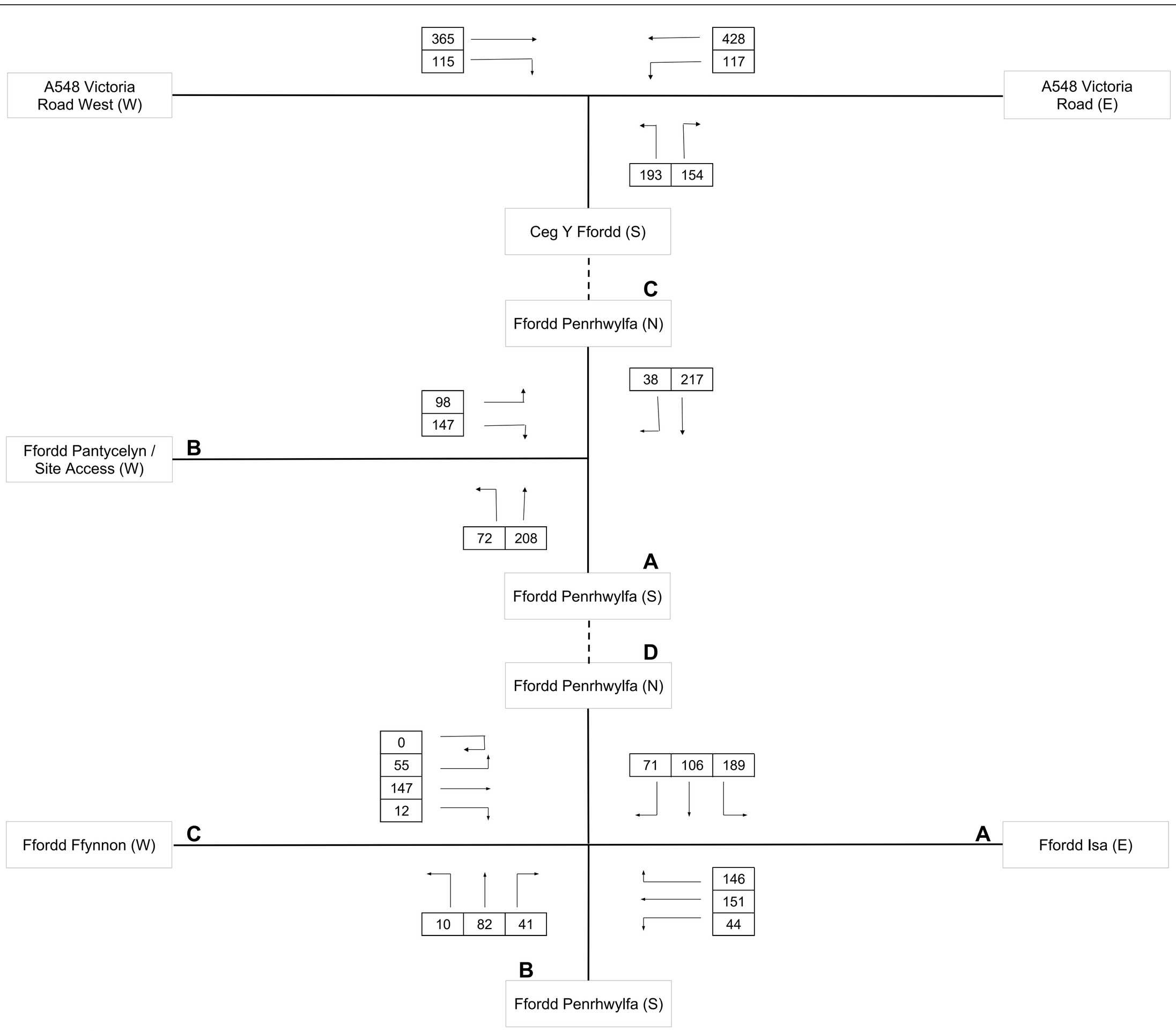


Figure 7 2030 Base Flows - AM Peak (0800-0900 hours)

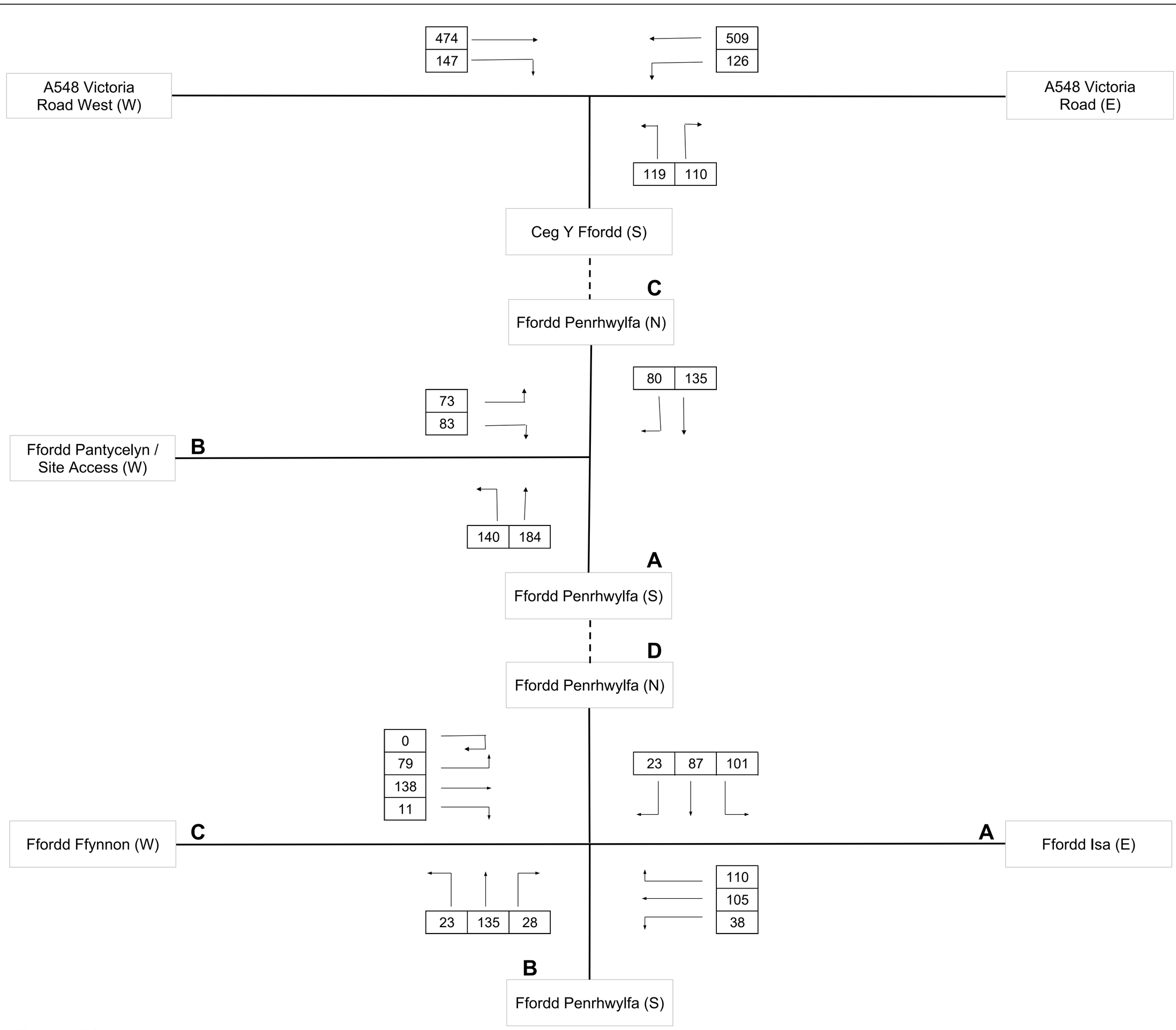
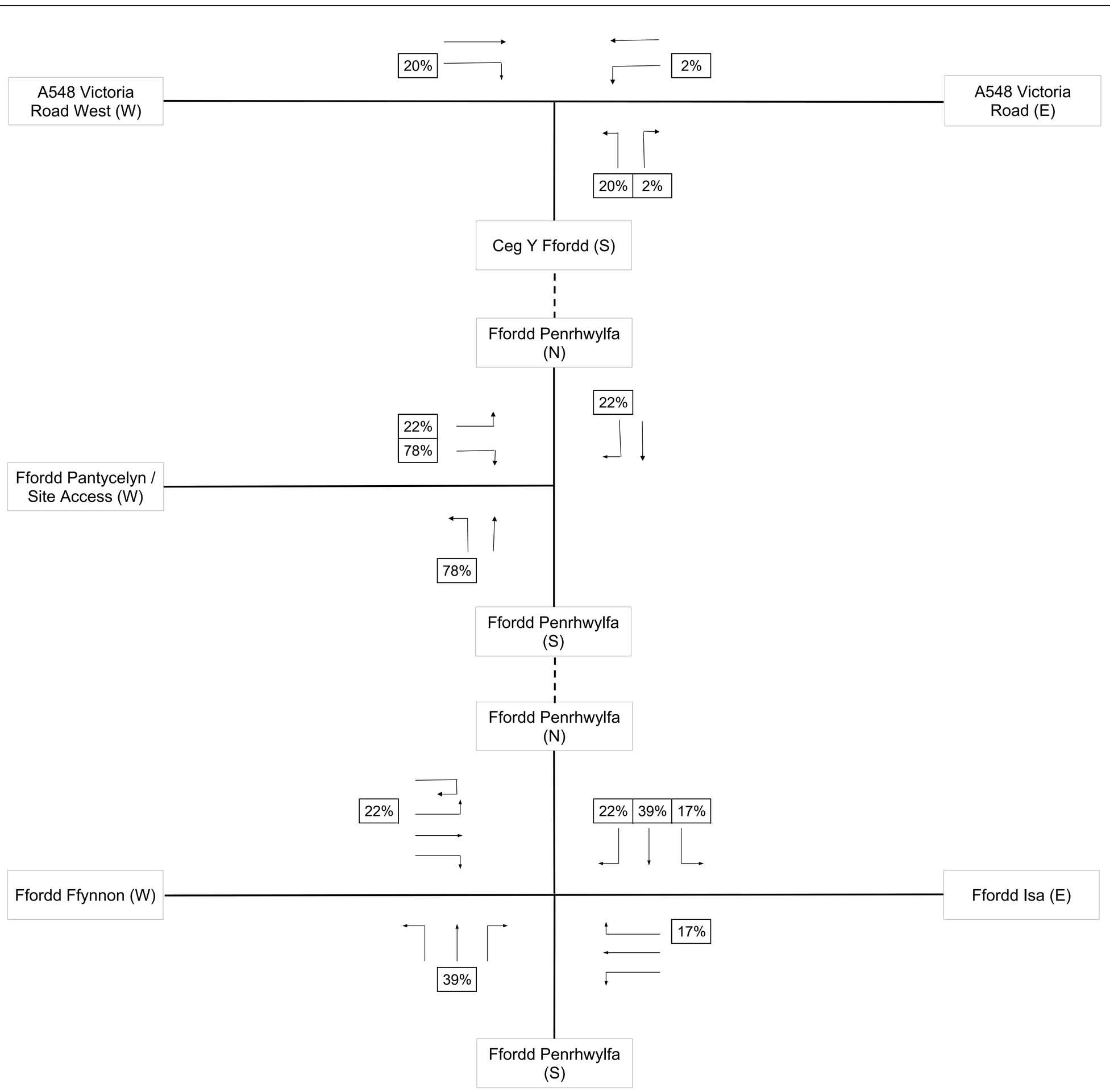


Figure 8 2030 Base Flows - PM Peak (1700-1800 hours)



Flows in PCUs

Figure 9 Proposed Development Trip Distribution

Eddisons

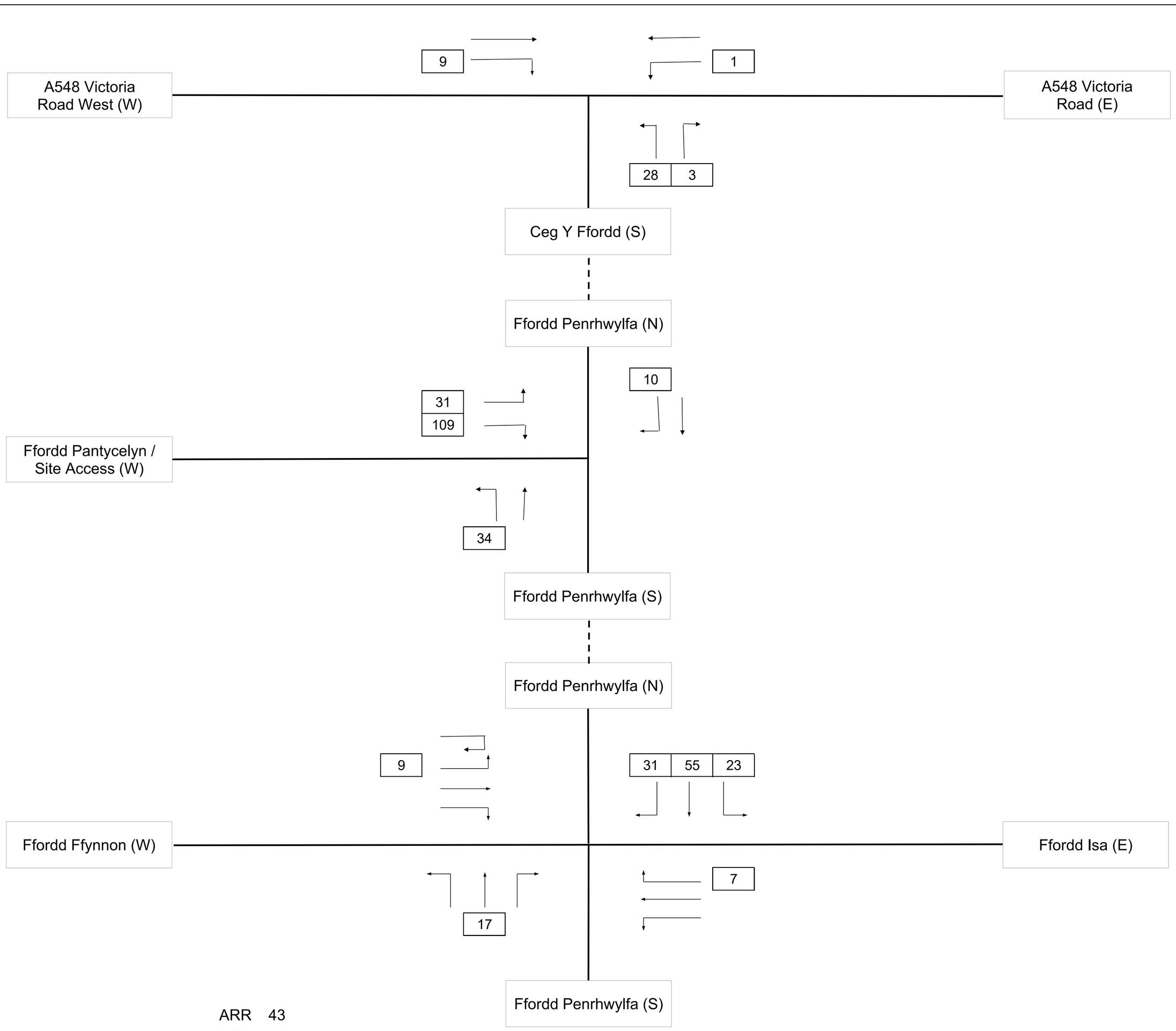


Figure 10 Proposed Development Flows - AM Peak (0800-0900 hours)

Eddisons

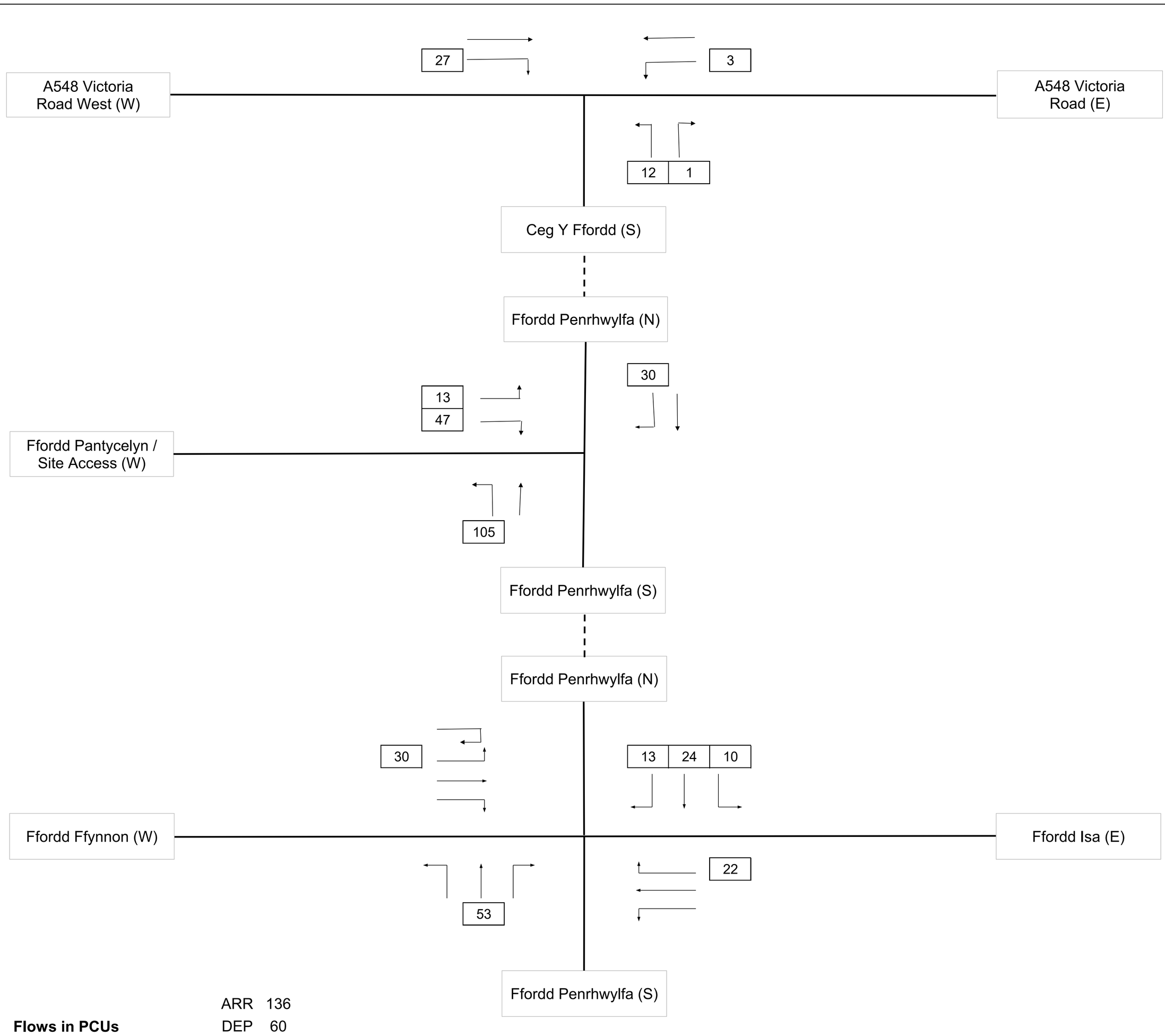
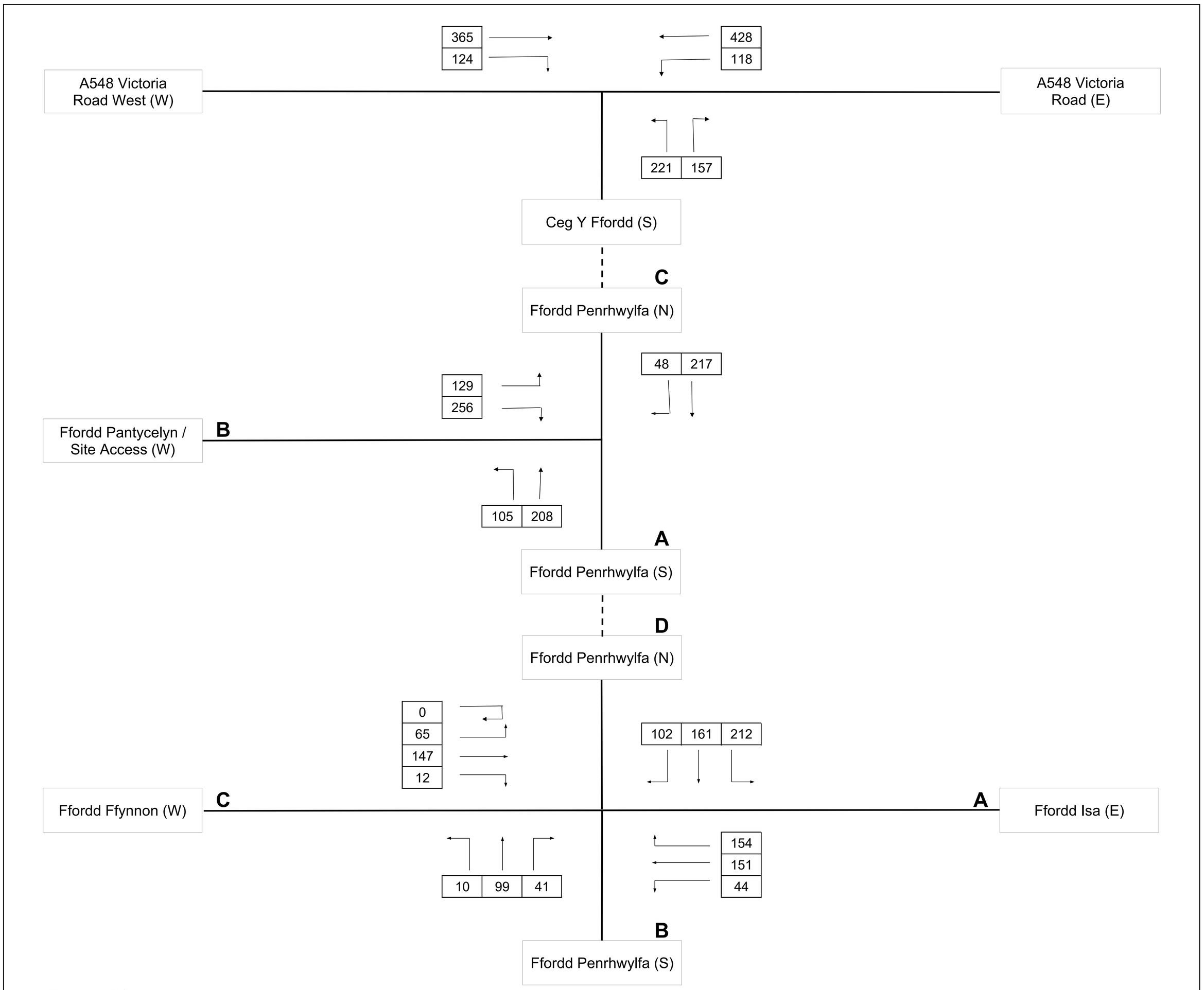


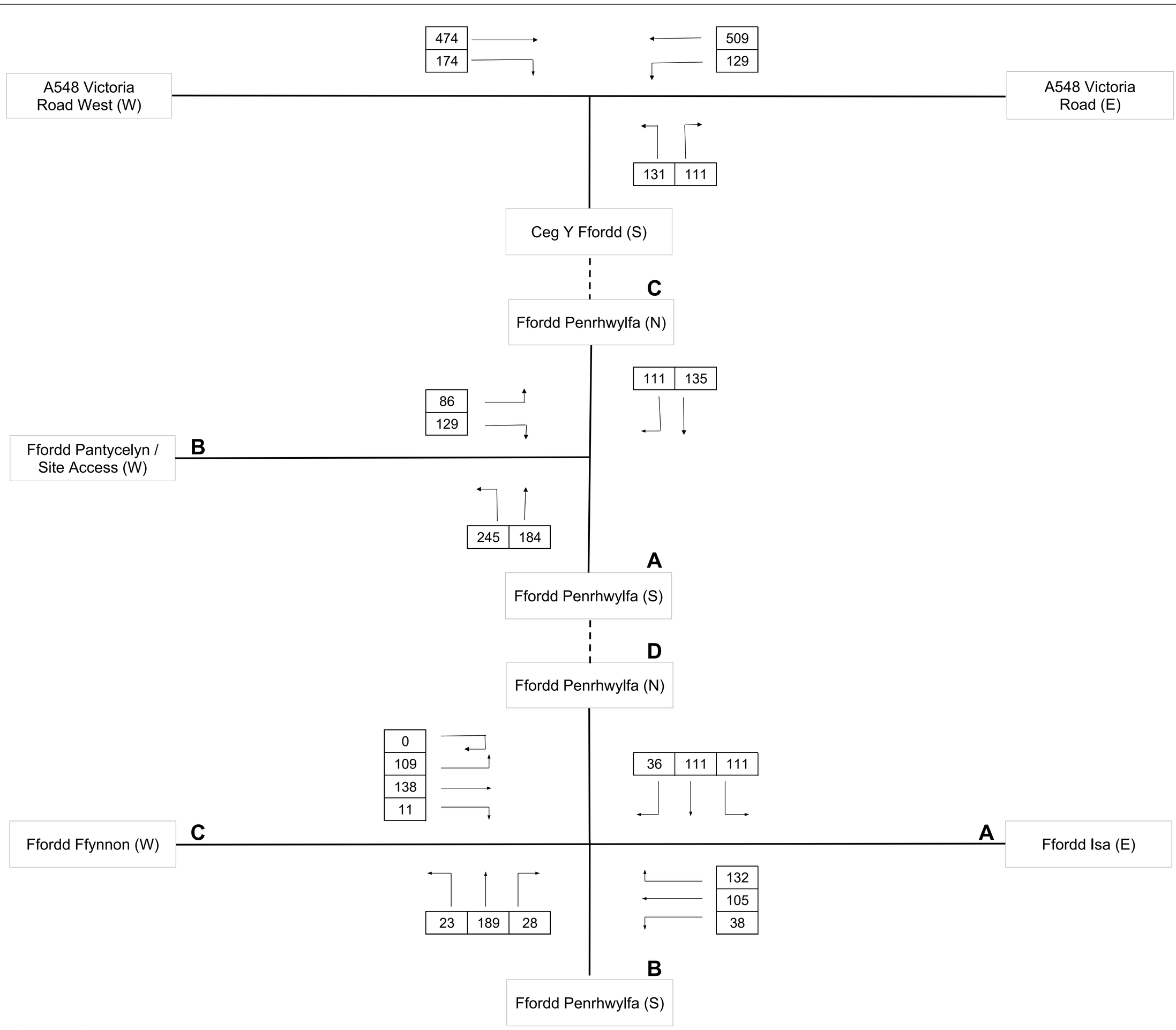
Figure 11 Proposed Development Flows - PM Peak (1700-1800 hours)



Flows in PCUs

Figure 12 2030 with Development Flows - AM Peak (0800-0900 hours)

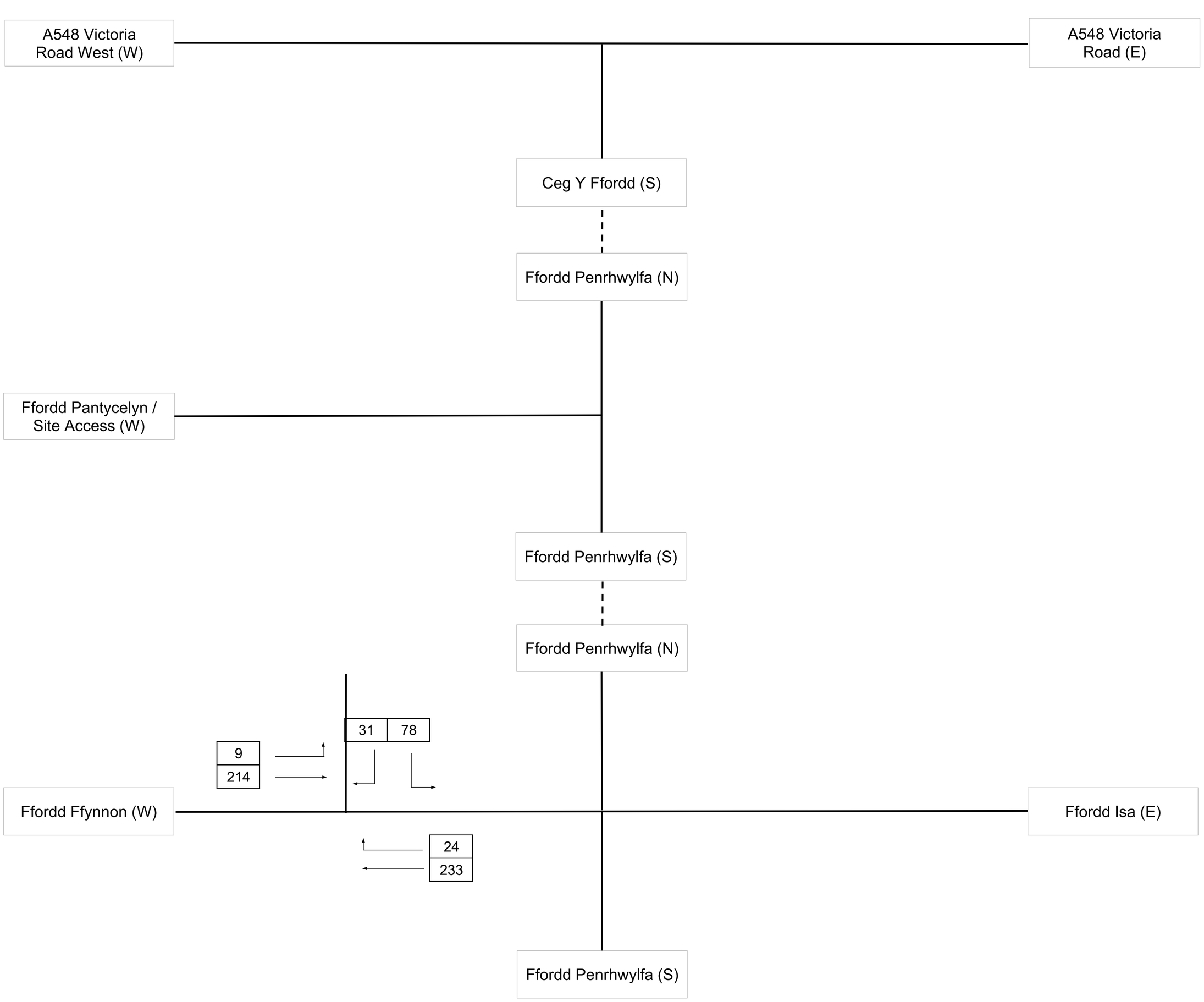
Eddisons



Flows in PCUs

Figure 13 2030 with Development Flows - PM Peak (1700-1800 hours)

Eddisons



Flows in PCUs

Figure 14 2030 With Development Flow, Southern Access
AM Peak (0800-0900 hours)

Eddisons

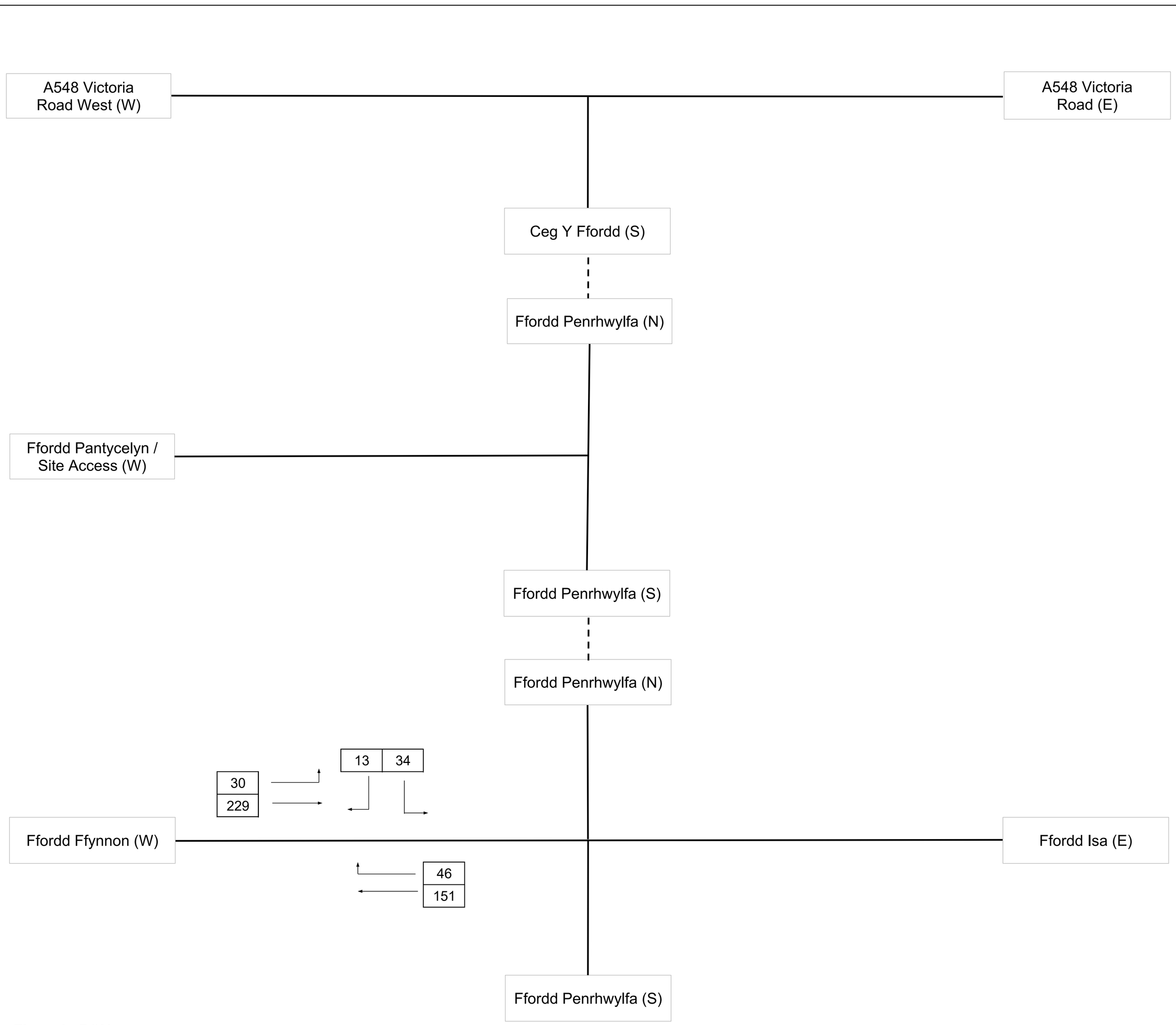
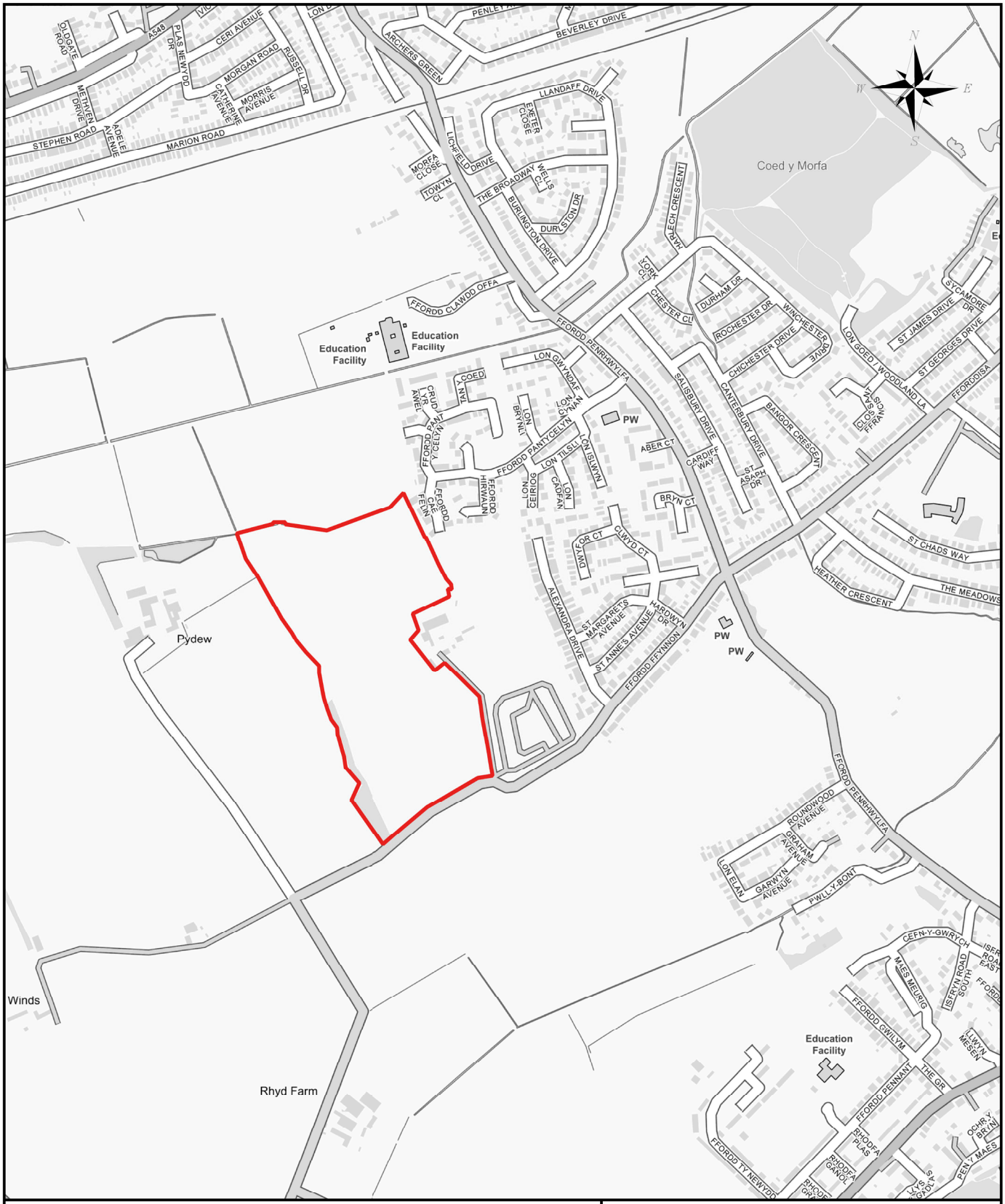


Figure 15 2030 With Development Flows, Southern Access
PM Peak (1700-1800 hours)

Eddisons

PLANS



CLIENT:

CASTLE GREEN

DRAWING TITLE:

SITE LOCATION:
PLAS NEWYDD, PRESTAYN

DRAWN:	DATE:	CHECKED:	DATE:	SCALES:
GW	12.09.24	JE	12.09.24	NTS @ A4

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340 Deansgate
Manchester
M3 4LY

Email: info@croftts.co.uk
Tel: 0161 837 7380
Web: www.eddisons.com/services/transport-planning

DRAWING NUMBER: 4433-01

REVISION: -

Eddisons

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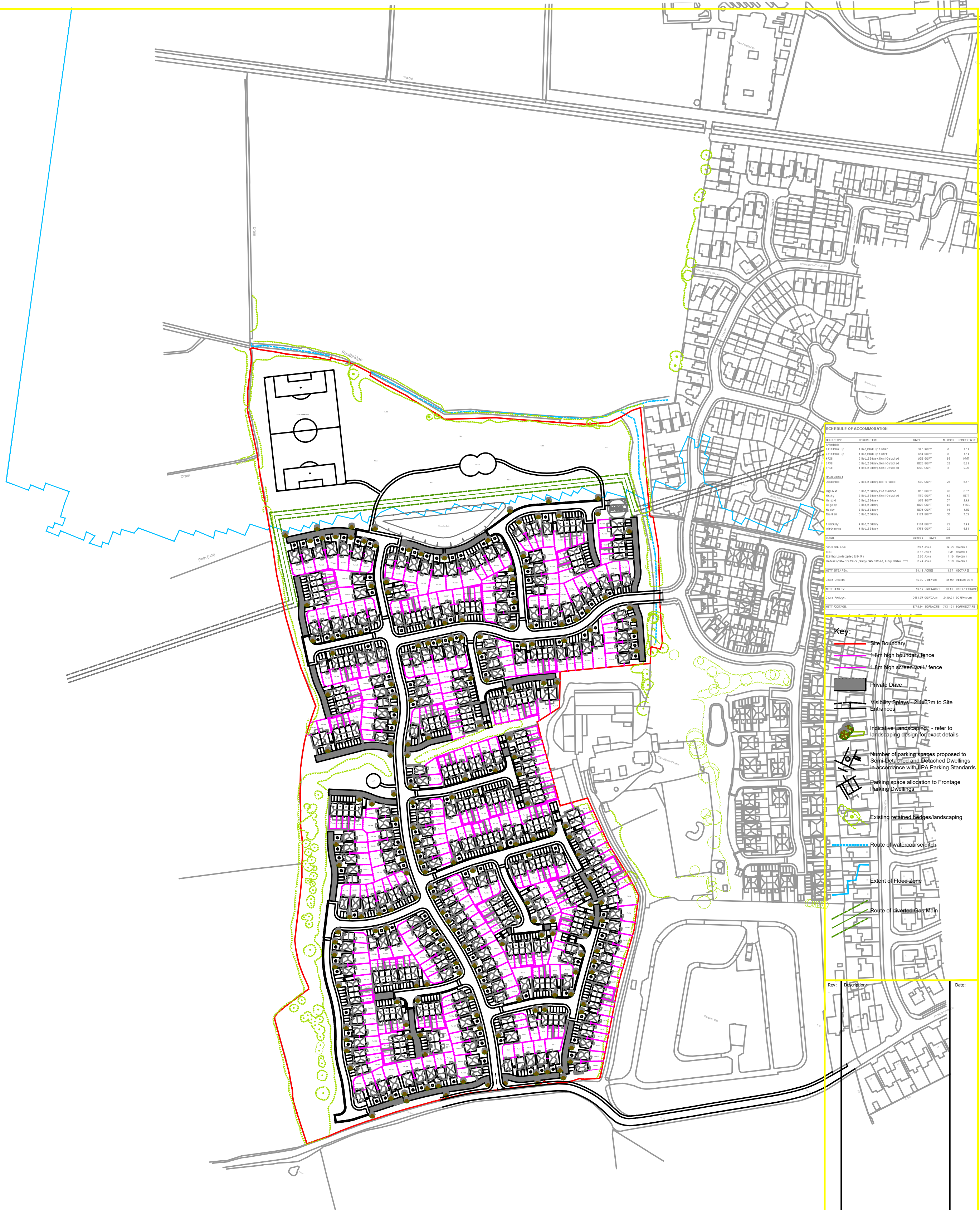


SCHEDULE OF ACCOMMODATION

HOUSETYPE	DESCRIPTION	SQFT	NUMBER	PERCENTAGE
Affordable				
2P1B Walk Up	1 Bed, Walk Up Flat GF	575 SQFT	6	1.54
2P1B Walk Up	1 Bed, Walk Up Flat FF	654 SQFT	6	1.54
4P2B	2 Bed, 2 Storey, Semi-Detached	906 SQFT	65	16.67
5P3B	3 Bed, 2 Storey, Semi-Detached	1026 SQFT	32	8.21
6P4B	4 Bed, 2 Storey, Semi-Detached	1209 SQFT	8	2.05
Open Market				
Oakley Mid	2 Bed, 2 Storey, Mid Terraced	699 SQFT	26	6.67
Highfield	3 Bed, 2 Storey, End Terraced	810 SQFT	26	6.67
Huxley	3 Bed, 2 Storey, Semi-Detached	882 SQFT	42	10.77
Hartford	3 Bed, 2 Storey	962 SQFT	37	9.49
Kingsley	3 Bed, 2 Storey	1023 SQFT	45	11.54
Henley	3 Bed, 2 Storey	1034 SQFT	16	4.10
Evesham	3 Bed, 2 Storey	1121 SQFT	30	7.69
Broadway	4 Bed, 2 Storey	1161 SQFT	29	7.44
Windermere	4 Bed, 2 Storey	1385 SQFT	22	5.64
TOTAL		380988 SQFT	390	

Gross Site Area	35.7 Acres	14.45 Hectares
POS	8.18 Acres	3.31 Hectares
Existing Landscaping & Buffer	2.93 Acres	1.19 Hectares
Undevelopable: Entrance, Single Sided Road, Pump Station ETC	0.44 Acres	0.18 Hectares
NETT SITE AREA:	24.15 ACRES	9.77 HECTARES
Gross Density:	10.92 Units/Acre	26.99 Units/Hectare
NETT DENSITY:	16.15 UNITS/ACRE	39.90 UNITS/HECTARE
Gross Footage:	10671.93 SQFT/Acre	2449.91 SQM/Hectare
NETT FOOTAGE:	15775.90 SQFT/ACRE	3621.61 SQM/HECTARE

Key:

- Site Boundary
- 1.8m high boundary fence
- 1.8m high screen wall / fence
- Private Drive
- Visibility Splays - 2.4x2?m to Site Entrances
- Indicative Landscaping - refer to landscaping design for exact details
- Number of parking spaces proposed to Semi-Detached and Detached Dwellings in accordance with LPA Parking Standards
- Parking space allocation to Frontage Parking Dwellings
- Existing retained hedges/landscaping
- Route of watercourse/ditch
- Extent of Flood Zone
- Route of diverted Gas Main

Rev:	Description:	Date:

Castle Green,
Unit 20,
St. Asaph Business Park,
St Asaph,
Denbighshire. LL17 0LJ.
Tel. 01745 536677

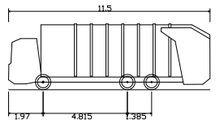
Site: Plas Newydd Phase 2 & 3, Prestatyn

Title: Proposed Master Plan

Scale: 1:1000@A0 | Date: 24.07.24

Ref: PLS2&3-PRES-SP02 | Rev: -

NOTES



Refuse Vehicle	
Overall Length	11.500m
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

REV	DETAILS	DRAWN	CHECKED	DATE
-	-	-	-	-

CLIENT:

CASTLE GREEN

PROJECT:

PLAS NEWYDD, PRESTATYN

DRAWING TITLE:

REFUSE SWEPT PATH ANALYSIS

SCALES:

1:1000 @ A3

DRAWN:	CHECKED:	DATE:
LG	JE	OCT 24

Eddisons
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Manchester
M3 4LY

Email: info@croftts.co.uk
Tel: 0161 837 7380
Web: www.eddisons.com/services/transport-planning

DRAWING NUMBER: 4433-SP01

REVISION: -

Eddisons

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NOTES

FIRE ACCESS - DISTANCES TO BUILDINGS (Metres)

REVERSING DISTANCE (Metres)

FIRE TENDER HIGHWAY DESIGN CHECKLIST - BUILDING REGS PART B		
DESIGN FEATURE	DESIGN REQUIREMENTS	*NOTES*
TURNING FACILITIES	FIRE SERVICE VEHICLES SHOULD NOT HAVE TO REVERSE MORE THAN 20m FROM THE END OF AN ACCESS ROAD.	Complies
ACCESS ROUTE	MINIMUM WIDTH OF ROAD BETWEEN KERBS - 3.7m	Complies
ACCESS TO BUILDINGS	THERE SHOULD BE VEHICULAR ACCESS FOR A PUMP APPLIANCE TO SMALL BUILDINGS TO EITHER: A) 15% OF THE PERIMETER; OR B) WITHIN 45m OF EVERY POINT ON THE PROJECTED PLAN AREA (OR FOOTPRINT) OF THE BUILDING	Complies

REV	DETAILS	DRAWN	CHECKED	DATE
-	-	-	-	-

CLIENT:

CASTLE GREEN

PROJECT:

PLAS NEWYDD, PRESTATYN

DRAWING TITLE:

FIRE TENDER SWEPT PATH ANALYSIS

SCALES: 1:1000 @ A3

DRAWN:	CHECKED:	DATE:
LG	JE	OCT 24

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DRAWING NUMBER:	REVISION:
4433-SP02	-

Eddisons

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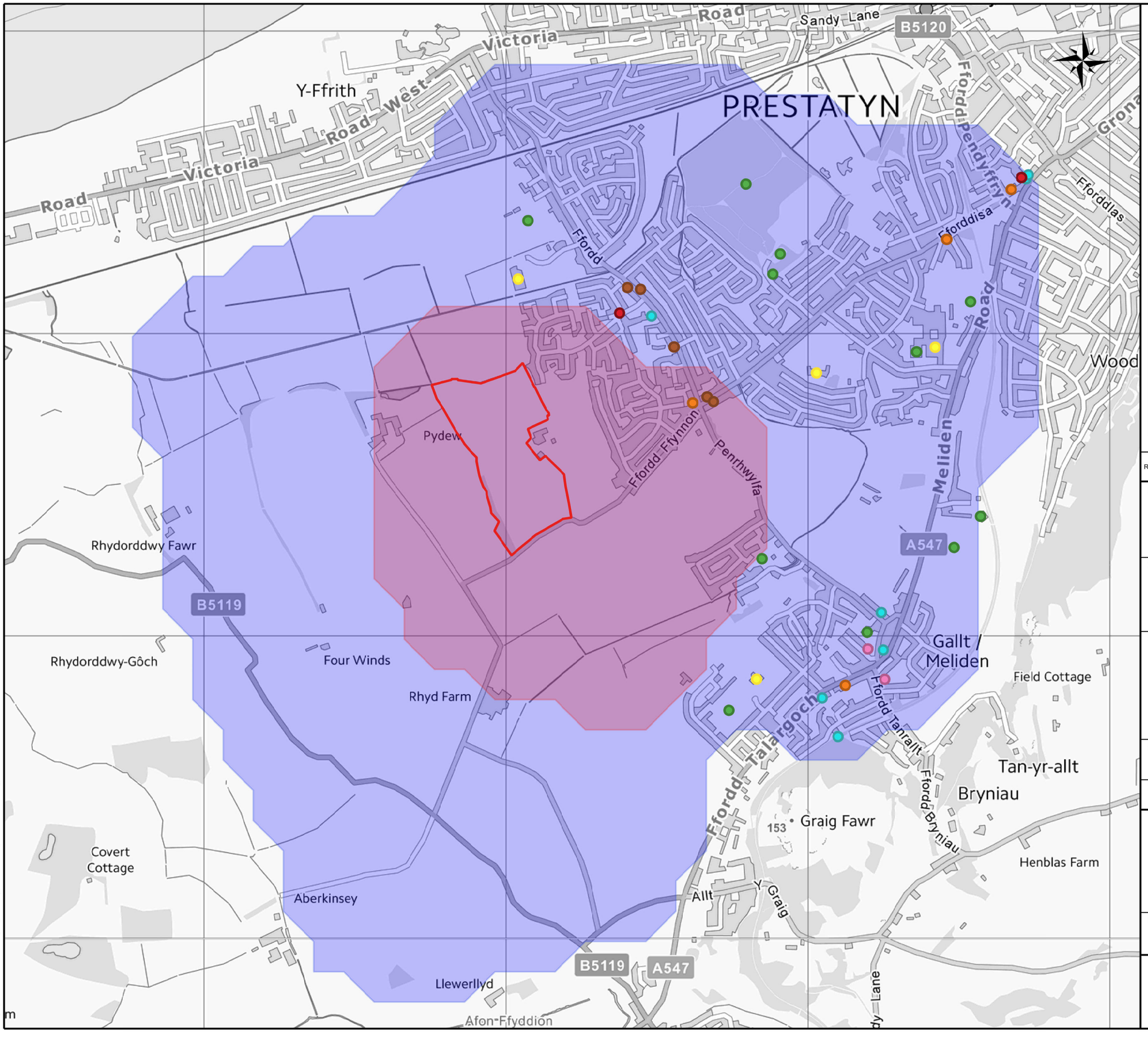

NOTES

- Site Location
- 800m Pedestrian Catchment
- 2km Pedestrian Catchment
- Nearest Train Station
- Nearest Bus Stops
- Education
- Sport/Leisure/Park
- Medical/Healthcare
- Post Box/Post Office
- Café/Takeaway/Public House
- Supermarket/Local Food Store

REV	DETAILS	DRAWN	CHECKED	DATE

CLIENT:

CASTLE GREEN

PROJECT:

PLAS NEWYDD, PRESTAYN

DRAWING TITLE:

800M & 2KM PEDESTRIAN CATCHMENT WITH AMENITIES

SCALES: NTS @ A3

DRAWN:	CHECKED:	DATE:
GW	JE	12.09.24

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DRAWING NUMBER: 4433-03

REVISION: -

Eddisons

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APPENDIX

Proposed Residential Development
Plas Newydd, Prestatyn

October 2024

RESIDENTIAL TRAVEL PLAN

eddisons.com

Eddisons

REPORT

DOCUMENT:	Residential Travel Plan
PROJECT:	Proposed Residential Development, Plas Newydd, Prestatyn
CLIENT:	Castle Green Homes
JOB NUMBER:	4433
FILE ORIGIN:	Z:\projects\4433 Plas Newydd, Prestatyn\Docs\Reports\4433TP.01.docx

DOCUMENT CHECKING:

Primary Author:	JE	**Initialled:**	JE
Contributor	LG	**Initialled:**	LG
Review By:	JE	**Initialled:**	JE

Issue	Date	Status	Checked for Issue
1	31-10-24	First Draft	JE
2			
3			
4			

CONTENTS

PLANS

See Transport Assessment Document

1 INTRODUCTION

1.1 Introduction

1.1.1 Eddisons has been instructed by Castle Green Homes to prepare a Travel Plan to support a proposed residential development on land at Plas Newydd in Prestatyn, Denbighshire.

1.1.2 This Travel Plan will set out the principal strategies that will be put in place once the development is open and residents are occupying the dwellings, to encourage sustainable travel to the development.

1.2 Structure of the Travel Plan

1.2.1 Following this introduction, Section 2 details Travel Plan Policy and guidance and presents the 'Travel Plan Pyramid'.

1.2.2 Section 3 sets out a series of management measures that will be implemented as part of the Travel Plan.

1.2.3 Section 4 of the Travel Plan considers the accessibility of the site by non-car modes of transport, including walking, cycling and public transport. Section 5 discusses targets for reducing trips by the private car while Section 6 details the monitoring of the Travel Plan.

1.2.4 Section 7 draws together the findings and conclusions.

1.3 Site Location

1.3.1 The development site is located approximately 2km from the town centre of Prestatyn. The site lies to the north of Ffordd Ffynnon.

1.3.2 To the east of the site is an existing residential area served off Ffordd Penrhwylfa; Plas Newydd Caravan Park is also to the east of the site. To the north and south of the site lies undeveloped land.

1.3.3 The development would be accessed via a new three-arm priority junction, taking access from Ffordd Ffynnon and an extension of an existing junction, taking access from Ffordd Pant Y Celyn.

1.4 Travel Plan Aims

1.4.1 The Travel Plan is a long-term strategy that seeks to reduce the dependence of residents on travel by private car.

1.4.2 The aims of the Travel Plans are as follows:

- To encourage residents and visitors to use alternatives to the private car;
- To increase awareness of the potential to travel by more environmentally friendly modes and the advantages that can bring; and
- To introduce a package of management measures that will facilitate travel by modes of transport other than the private car.

1.4.3 A Travel Plan is effectively a combination of information, proposals and incentives designed to promote the different means of travel available to residents.

1.4.4 This document will set out the principal strategies of the Travel Plan, which will evolve into a formally agreed document once residents are occupying dwellings.

1.5 Residents Travel Pack

1.5.1 The principal measure will comprise a Residents Travel Pack, which will contain relevant material to promote non-car modes of travel. This is discussed further in Section 3.

2 TRAVEL PLANNING POLICY AND GUIDANCE

2.1 Travel Planning Policy

2.1.1 The need to manage transport in new developments is identified within national and local policy. The need to reduce car dependency, increase travel choices and encourage sustainable distribution is supported by Planning Policy Wales (PPW), which states that the planning system should support sustainable development that: "*increases physical activity, improves health and helps to tackle the causes of climate change and airborne pollution*". It seeks to achieve this 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.

2.2 Travel Planning Guidance

2.2.1 The preparation and adoption of a Travel Plan is an important element of managing the demand for travel to all modern developments.

2.2.2 Guidance identifies a Travel Plan as "a long-term management strategy for an occupier or site that seeks to deliver sustainable transport objectives through positive action and is articulated in a document that is regularly reviewed."

2.2.3 The concept of the 'Travel Plan Pyramid' helps to demonstrate how successful plans are built on the firm foundations of a good location and site design. The pyramid is presented in **Figure 2.1** below:

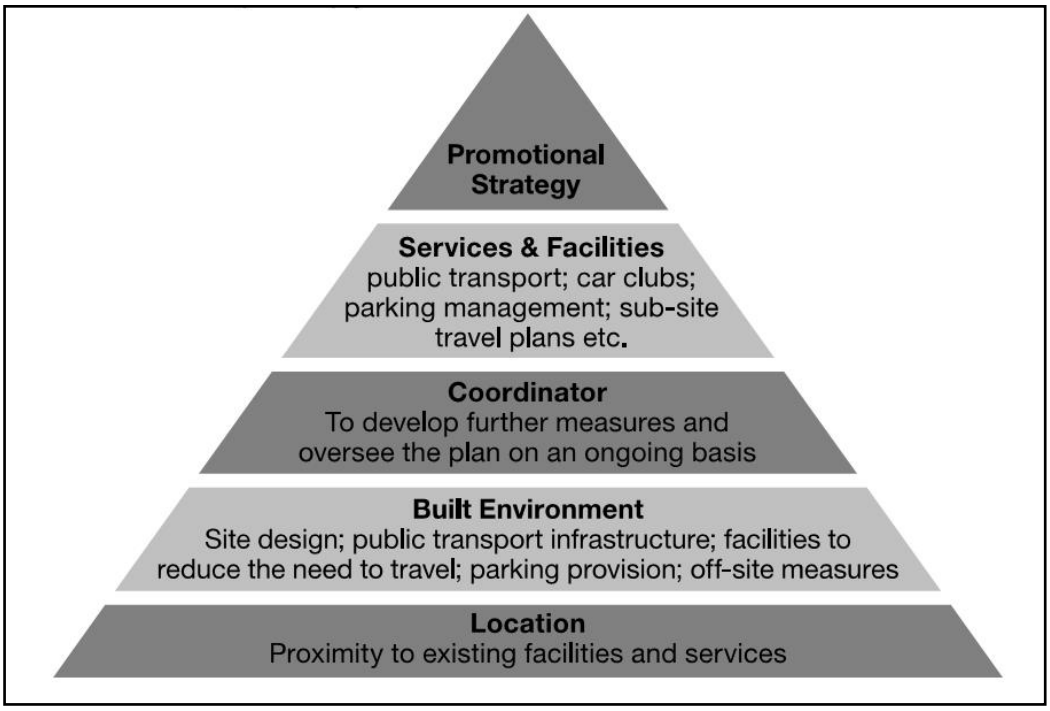

Figure 2.1 – The Travel Plan Pyramid

2.2.4 The hierarchy of 5 tiers of measures and criteria are well illustrated in pyramid form since the concept presented within that "good practice" is that each higher layer builds upon the more important foundations of the criteria and initiatives below it.

2.2.5 The most important layer of the pyramid is considered to be the base. This shows the key to making Travel Plans work is the actual location of the development and its proximity to local facilities and services essential to everyday life.

2.2.6 The second layer of the pyramid refers to how the layout of the site can assist in reducing the need to travel, which in this instance is again linked to the existing level of provision to facilitate sustainable travel.

2.2.7 As indicated in level 3 of the pyramid, the Travel Plan Coordinator will be free to develop further measures to maximise the sustainability of the site.

2.2.8 The fourth layer of the pyramid looks at how parking management and public transport can influence travel choice, while the top layer of the pyramid relates to how the Travel Plan will be marketed and how the measures within are to be promoted.

3 ACCESSIBILITY BY NON-CAR MODES

3.1 Introduction

3.1.1 In order to accord with the aspirations of the Planning Policy for Wales (PPW), any new proposals should extend the choice in transport and secure mobility in a way that supports sustainable development.

3.1.2 As set out in the above section, the principle of the PPW policy is to encourage sustainable travel. This includes:

- *"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."*

3.1.3 New development should therefore seek to influence the predominant mode of travel in order to achieve a shift in mode split towards non-car modes, thus assisting in meeting the aspirations of current national and local planning policy.

3.1.4 The accessibility of the proposed site has been considered by the following modes of transport:

- access on foot;
- access by cycle;
- access by bus; and
- access by rail.

3.2 Access on Foot

3.2.1 It is important to create a choice of direct, safe and attractive routes between where people live and where they need to travel in their day-to-day life. This philosophy clearly encourages the opportunity to walk whatever the journey purpose and also helps to create more active streets and a more vibrant neighbourhood.

3.2.2 Existing footways are provided along Ffordd Ffynnon, Ffordd Penrhwylfa and Fforddisa. These link to the wider pedestrian network.

3.2.3 Denbighshire County Council (DCC) are developing their Active Travel Integrated Network. The aim of the network is to encourage people to walk or cycle for short journeys to access a workplace or educational establishment or to access health, leisure or other services or facilities and to ultimately make Wales a walking and cycling nation.

3.2.4 Included in the Integrated Walking Network are Active Travel Routes DB-PRE-P002b and INM-Den-Pre-P016 & C016 which are located to the east of the development site. These routes run along Fforddisa and Ffordd Penrhwylfa (orange and blue) and provide links with Prestatyn Town Centre as shown in Figure 5.1 below.

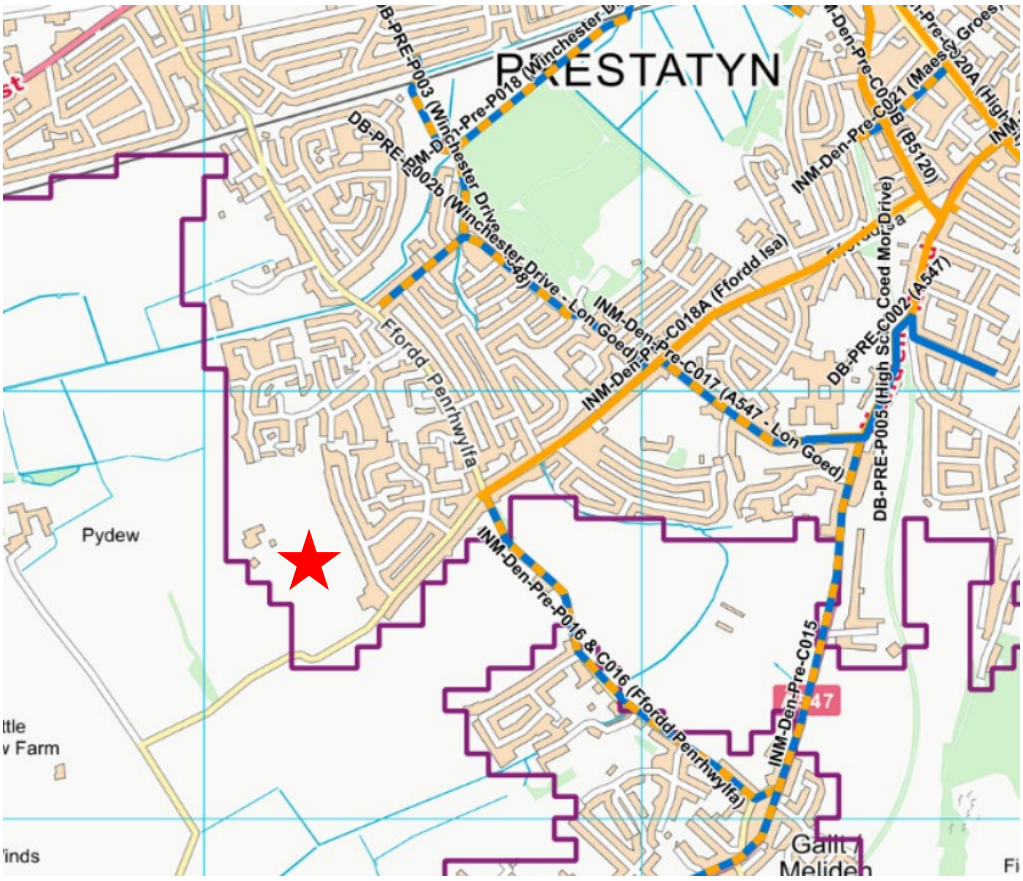

Figure 5.1 – Map of Integrated Walking Network

3.2.5 The above figure shows that the site is well placed to connect with the Integrated Walking Network surrounding the site. This will promote the use of active travel between the site and the leisure, health and employment facilities within the town centre. It will also provide access to the surrounding countryside areas for leisure and well-being activities.

3.2.6 The DFT National Travel Survey of 2018 confirms that 80% of all trips less than a mile (1.6km) are carried out on foot.

3.2.7 The Institute of Highways and Transportation (IHT) document 'Guidelines for Providing for Journeys on Foot', provides information on acceptable walking distances. Table 3.2 suggests distances for desirable, acceptable and preferred maximum walks to 'town centres', 'commuting/schools' and 'elsewhere'. The 'preferred maximum' distances are shown below in **Table 5.1**.

Suggested Preferred Maximum Walk		
Town Centre	**Commuting/School**	**Elsewhere**
800m	2,000m	1,200m

Table 5.1 IHT 'Providing for Journeys on Foot' Walk Distances

3.2.8 The Government introduced advice on walking distances in the 2001 revision to Planning Policy Guidance (PPG) 13 Transport, now withdrawn, which advised that *'Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly those under two kilometres.'*

3.2.9 Manual for Streets (MfS) continues the theme of the acceptability of the 2,000 metre distance in paragraph 4.4.1. This states that '*walkable neighbourhoods are typically characterised* by *having a range of facilities within 10 minutes' (up to about 800m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPS13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km*'.

3.2.10 **Table 5.2** below summarises this guidance in tabular form.

'Comfortable' Walk	'Preferred Maximum' Walk
800m	2,000m

Table 5.2 Manual for Streets Walk Distances

3.2.11 Further evidence that people will walk further than the suggested 'preferred maximum' distances in the IHT 'Providing for Journeys on Foot' is contained in a WYG Report entitled 'Accessibility – How Far Do People Walk and Cycle'. This report refers to National Travel Survey (NTS) data for the UK as a whole, excluding London, and confirms the following 85th percentile walk distances:

- All journey purposes – 1,930 metres;
- Commuting – 2,400 metres;
- Shopping – 1,600 metres;
- Personal business – 1,600 metres.

3.2.12 Overall, in Table its 5.1, the document states that 1,950 square metres is the 85th percentile distance for walking as the main mode of travel. **Table 5.3** below summarises the various 85th percentile walk distances suggested as guidelines in the WYG Study.

85th Percentile Walk Distances				Overall Recommended Preferred Max
All Journeys	Commuting	Shopping	Personal	
1,950m	2,100m	1,600m	1,600m	1,950m

Table 5.3 WYG Report/NTS Data Walk Distances

3.2.13 In summary, the distance of 1,950 metres, or around 2 kilometres, represents an acceptable maximum walking distance for the majority of land uses.

3.2.14 Section 3.1 of the CIHT guidance 'Planning for Walking' mentioned earlier in this report provides a useful reminder of the health benefits of walking. This states that:

'A brisk 20 minute walk each day could be enough to reduce an individual's risk of an early death.'

3.2.15 A 20-minute walk equates to a walking distance of around 1,600 metres.

3.2.16 In light of the above, a pedestrian catchment of 2 kilometres from the centre of the site, using all usable pedestrian routes, has been provided in **Plan 3.**

3.2.17 The 2,000-metre pedestrian catchment illustrates that a large area to the southwest of Prestatyn town Centre, falls within the 2km catchment. Clearly, this represents a key destination for potential employment, retail and leisure trips.

3.2.18 In a recent 2023 YouGov poll, respondents were asked to identify the local amenities they valued the most within a 15 minute walk of their home. The poll results highlight amenities that people consider essential for their day to day lives, such as, grocery stores, healthcare facilities and public transportation. The results of the YouGov Poll are displayed in **Figure 5.2** below:

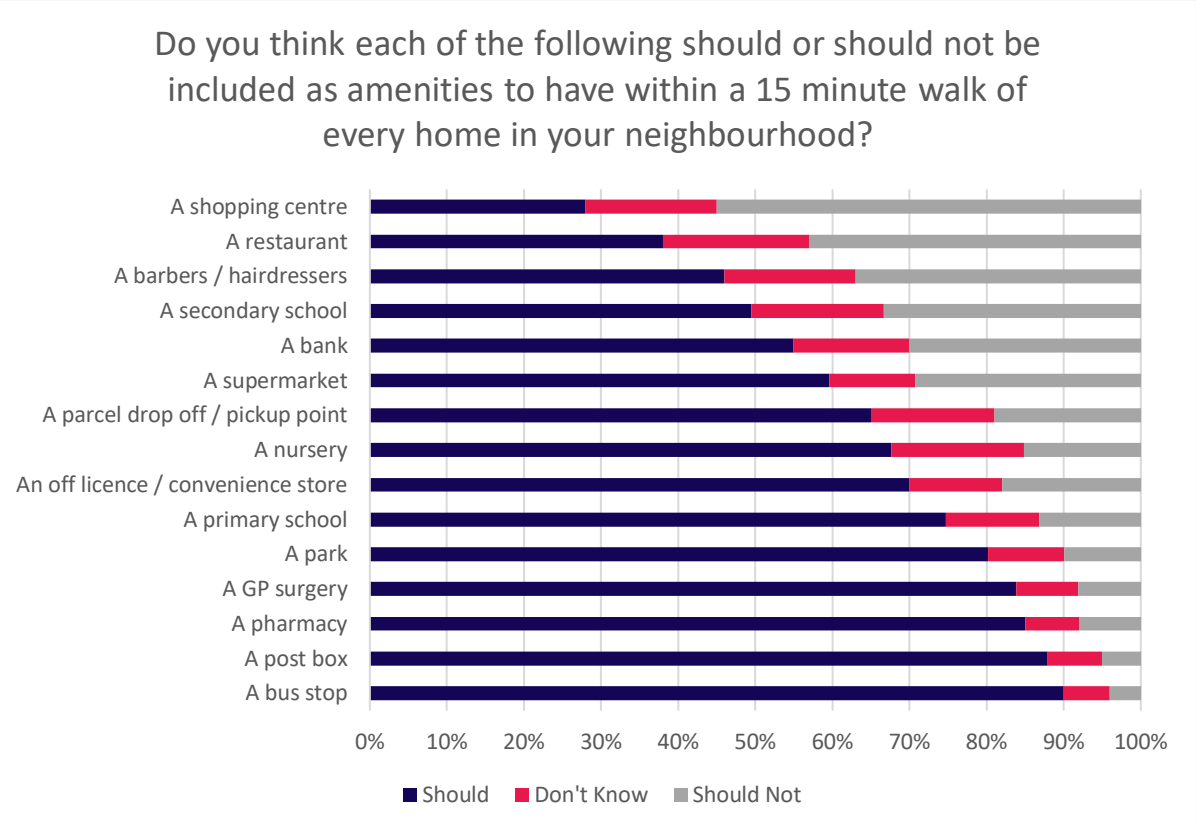

Figure 5.2 YouGov Poll Results (Source YouGov)

3.2.19 **Figure 5.2** shows that the majority of respondents, approximately nine in ten, believe that having a bus stop (90%) and a post box (87%) within a short walk of their home is most important. Similarly, a significant proportion of Britons

think that medical facilities like a pharmacy (85%) and a GP surgery (83%) should be easily accessible. Less than half of the respondents see the need for a shopping centre (28%), restaurant (38%), or hairdressers (46%) to be located nearby.

3.2.20 **Plan 5** of the Transport Assessment document provides an illustrative indication of the areas that can be reached based on a leisurely walk from the site. The plan also displays nearby local amenities, as per those identified within the findings of the YouGov poll.

3.2.21 That plan shows that the site is located in close proximity to a number of a local amenities, including a bus stop, a post box, a pharmacy / GP surgery, and a local convenience store.

3.2.22 **Table 5.4** below, shows the walking distance from the centre of the site to several of the local key amenities in the immediate vicinity of the site. The table also confirms whether the particular amenity is within the 'preferred maximum' walk distances using the above guideline criteria.

Local Amenity	Distance	Guidance Criteria	Meets with Guidance?
One Stop	700m	1,950m	**YES**
Penrhwylfa Crossroads Bus Stop	750m	1,950m	**YES**
Ysgol y Llys (Primary School)	1,400m	1,950m	**YES**
Prestatyn Nature Reserve	1,500m	1,950m	**YES**
Prestatyn High School	1,600m	1,950m	**YES**
Prestatyn Leisure	1,600m	1,950m	**YES**
Ysgol Clawdd Offa (Primary School)	1,700m	1,950m	**YES**
Saints Health & Fitness	1,700m	1,950m	**YES**
Meliden Community Association (GP)	1,700m	1,950m	**YES**

ALDI	1,900m	1,950m	**YES**
Meliden Road Sub Post Office	1,950m	1,950m	**YES**

Table 5.4 Distance from Site to Local Facilities

3.2.23 Based on the review, it is considered that the existing pedestrian infrastructure will facilitate safe and direct pedestrian linkages between the site and numerous local services and amenities.

3.3 Access by Cycle

3.3.1 Cycling also represents an alternative mode of travel to and from the site.

3.3.2 The new advice contained within the Highway Code, which was updated on 29th January 2022, will improve the safety of vulnerable road users including cyclists, pedestrians, and horse-riders. Most of the new advice relates to where cyclists should position themselves within the lane in various traffic conditions and motorists being required to give cyclists priority in slow moving traffic and locations where there is insufficient room for vehicles to overtake cyclists safely, allowing 1.5-metres for cyclists when overtaking them.

3.3.3 A distance of 5 kilometres is generally accepted as a distance where cycling has the potential to replace short car journeys. This distance equates to a journey of around 25 minutes based on a leisurely cycle speed of 12 kilometres per hour. The site's cycle catchment would encompass Prestatyn, Rhyl, Dyserth, Rhuddlan, Towyn and St Asaph.

3.3.4 National Cycle Route 5 is located just to the north of the site along the A548. It runs from the Flint area to the northeast of the site up north to Prestatyn via Holywell and Gwespyr. From here it runs west via Rhyl, Towyn, and Abergele. It is both an on and off-road cycle route, located approximately 1.2km from the centre of the site.

3.3.5 Also, as part of the Active Travel Integrated Network there are numerous cycle networks located in the vicinity of the site. As shown in Figure 5.3 below, the orange and blue striped line represents a shared cycle and walking network while the orange shows a cycle network.

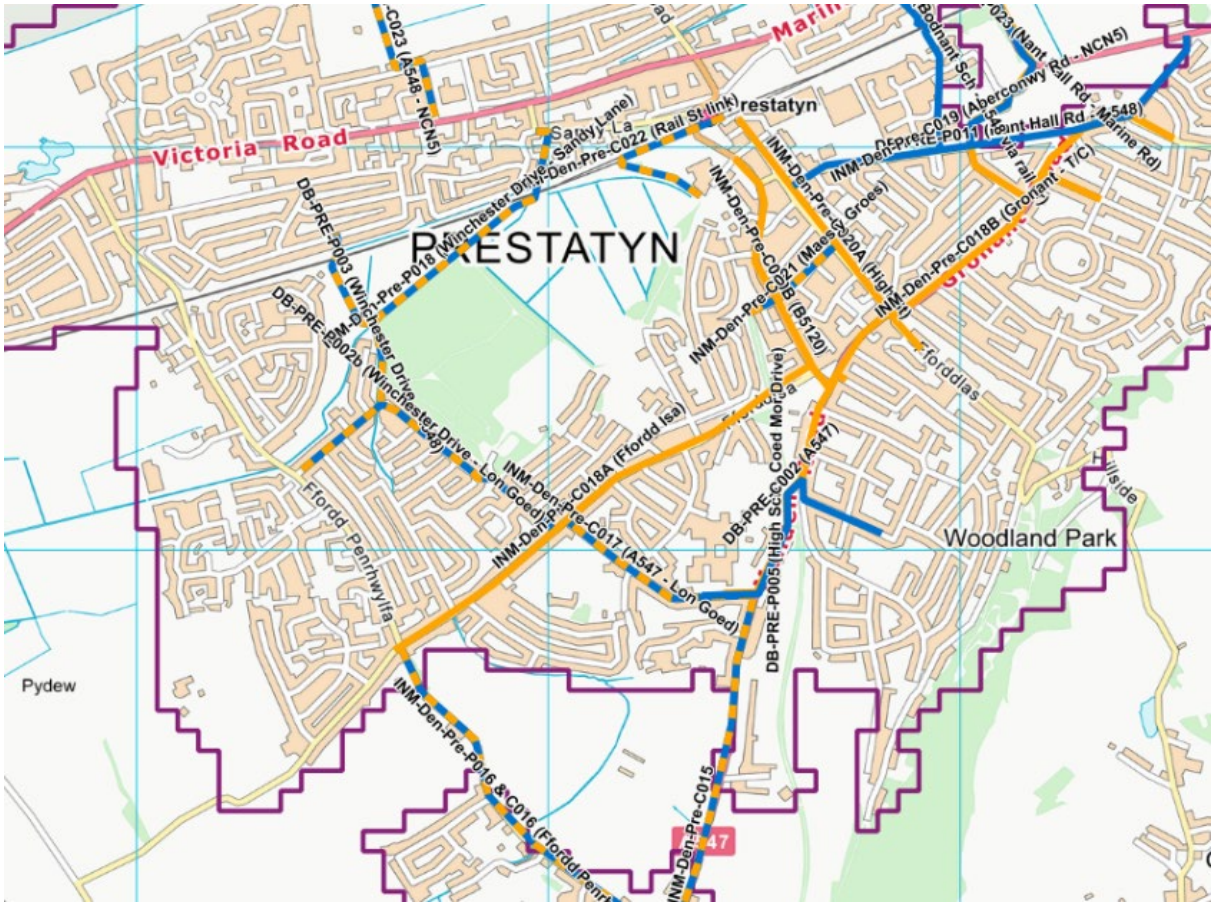

Figure 5.3 – Map of nearby cycle routes

3.3.6 The site can, therefore, be considered as being accessible by cycle.

3.4 Access by Bus

3.4.1 An effective public transport system is essential in providing good accessibility for large parts of the population to opportunities for work, education, shopping, leisure and healthcare in the town and beyond.

3.4.2 The nearest bus stop to the site is located along Fforddisa to the east of the development site. This stop consists of a bus stop pole, shelter and timetable. Additional bus stops are located further along Fforddisa and Ffordd Penrhwylfa. All the nearest bus stops to the site are shown on **Plan 3**.

3.4.3 A summary of the services available from the nearest bus stops from the development site is provided in **Table 5.5** below.

Service No	Route	Monday - Friday			Saturday			Sun
		Pre 08:00	08:00-17:00	Post 17:00	Pre 08:00	08:00-17:00	Post 17:00	
35	Rhyl - Rhyl via Prestatyn	2 services	30 mins	6 services	2 services	30 mins	6 services	120 mins
36	Rhyl - Rhyl via Prestatyn	3 services	30 mins	6 services	3 services	30 mins	6 services	120 mins

Table 5.5 Existing Bus Services Operating in the Vicinity of the Site

3.4.4 As can be seen from **Table 5.5**, the nearest bus stops to the site provide various services throughout the day to destinations such as Rhyl, Prestatyn and Rhuddlan.

3.4.5 It is noted that the above services provide a choice of how people travel with the bus services operating from around 06:40am to around 23:30pm, making travel by public transport a realistic alternative to travelling by car for commuting trips.

3.4.6 In order to demonstrate the level of accessibility some example journey times by bus are presented below **Table 5.6** below.

Destination	Duration
Ruddlan	24 mins
Rhyl	14 mins

Table 5.6 Example Bus Journey Times from the Site

3.4.7 The above table demonstrates that Ruddlan is just a 24-minute bus journey from the site and Rhyl is just a 14-minute bus journey.

3.4.8 It is therefore concluded that the proposed development site is accessible by bus.

3.5 Access by Rail

3.5.1 The nearest train station located to the site is Prestatyn, which can be accessed via an 7-minute bus journey on the 35 service. This train station is managed by Transport for Wales and has 2 platforms, offering 7 services per hour to destinations such as Llandudno, Manchester Airport, Cardiff Central, and London Euston.

3.5.2 This provides opportunities for commuting/leisure opportunities from the site via rail.

3.6 Access Summary

3.6.1 The proposed development has been considered in terms of accessibility by non-car modes of transport.

3.6.2 The following conclusions can be drawn from this section of the report:

- The site would be well located to cater for trips on foot and provides potential for a high degree of pedestrian trips between the development and the surrounding area;

- It has been demonstrated that the site is accessible by cycle, with a number of national cycle routes being located within close proximity of the site;
- The bus services from the stops on Fforddisa and Ffordd Ffynnon, travelling to destinations such as Rhyl and Rhuddlan, shows that the proposed development can be considered as accessible by bus; and
- The site is accessible via rail with Prestatyn station located a short bus journey away.

3.6.3 In light of the above, it is considered that the site is accessible by non-car modes of transport and would cater for the needs of both residents and visitors of the development. This will assist in promoting a choice of travel modes other than the private car.

4 MANAGEMENT MEASURES

4.1 Introduction

4.1.1 The following Travel Plan measures are proposed:

- Appointment of a Travel Plan Co-ordinator;
- Undertake a Residents' Travel Survey;
- Produce a Residents' Travel Pack;
- Promote Travel Awareness and Information;
- Promote a Lift Share Scheme;
- Encourage Walking/Cycling;
- Support Home Working and Home Delivery Services; and
- Encourage Travel by Public Transport.

4.2 Travel Plan Co-ordinator

4.2.1 It is anticipated that Eddisons (Lucy.Gretton@eddisons.com) will initially act as the Travel Plan Co-ordinator (TPC) for the development. The TPC will be responsible for all aspects of the Travel Plan.

4.2.2 The TPC's primary functions will be as follows;

- Liaison with the local planning and highways authorities;
- Provision of a Residents' Travel Pack containing travel information for residents;
- Promotion of the sustainable transport options available to residents, including public transport, cycle, walking and car sharing schemes; and

- Maintenance of all necessary systems, data and paperwork.

4.2.3 The role of the TPC will also be to develop and manage the Site's Travel Plan.

4.2.4 Their duties will include monitoring, reviewing targets and forming action plans if an area of the Travel Plan is underperforming. Annual progress reports will be prepared and submitted to the Council.

4.2.5 Details of the nominated TPC will be submitted to the Planning and Highway Authorities, and the appropriate local bus companies, at least one month prior to first occupation of the site. Similarly, the TPC will be advised of appropriate contact personnel at the Council.

4.3 Residents Travel Survey

4.3.1 In order to establish the travel modes of residents (within 3 months of the development reaching 75% occupancy) a Residents Travel Survey will be undertaken.

4.3.2 The resident's travel survey will be provided to all the residents as part of their 'Welcome Pack' when they purchase a property.

4.3.3 This information will be used to determine which modes of travel will need to be promoted and encouraged the most.

4.3.4 Repeat surveys may be used for the Travel Plan monitoring process in order to establish what may be required to further encourage travel by non-car modes.

4.4 Residents Travel Pack

4.4.1 It is an important principle in residential developments that where appropriate the implementation of travel plan type measures can establish a pattern of travel behaviour favouring sustainable modes from the inception of the development.

4.4.2 The proposed development is well placed for encouraging access on foot or by cycle to a wide range of facilities. Similarly, the existence of local bus services

and the close proximity of Buckley rail station will encourage choice of public transport as a primary means of travel for the development.

4.4.3 However, in order to further encourage sustainable travel, it is recommended that a Residents Travel Pack is provided for the occupants of each new residential dwelling.

4.4.4 The contents of such a travel pack will include information relating to walking and cycling routes in the area and the provision of up to date bus and rail timetable information, in addition to an identification of the location of nearby facilities.

4.4.5 The adoption of such travel packs is recognised as being an important element in ensuring that access by non-car modes is promoted from the earliest occupation of a residential development.

4.5 Travel Awareness and Information

4.5.1 Residents will be made aware of the existence of the Travel Plan and a copy of the plan will be made available to residents on purchasing a property.

4.5.2 As mentioned previously, Residents Travel Packs will be issued for new residents moving into the development and prospective buyers will be made aware of the travel plan when viewing properties.

4.6 Promotion of Car Share Scheme

4.6.1 The Travel Plan Co-ordinator will promote the use of car sharing via registering on the Liftshare website. It allows users to register their details, where they are travelling to in the area, if they are offering a lift, or need a lift to their destination.

4.6.2 The website can be found at the following location www.liftshare.com

4.7 Encouraging Walking / Cycling

4.7.1 Residents will be provided with information and advice concerning safe pedestrian and cycle routes to and from the site.

4.7.2 Information concerning walking and cycling in the area can be found at the following DCC website:

Cycling and walking | Denbighshire County Council

4.7.3 It provides information about Public Rights of Way (PRoW's), road safety, national events and interactive mapping, it also advises on the health benefits of Active Travel.

4.7.4 Additional information is provided on the following websites:

- *Free Journey Planner:* https://www.traveline.info/
- *Walking Routes and Initiatives*: http://www.livingstreets.org.uk/walk-with-us & http://www.walk4life.info/
- *Online Cycle Route Planner:* http://www.sustrans.org.uk/ncn/map
- *Bus Timetables, Leaflets and Maps:* http://www.traveline.info/
- *Bus Stop Finder:* https://www.nextbuses.mobi/WebView/BusStopSearch/Index
- *Rail Travel Information:* www.thetrainline.com & www.nationalrail.co.uk/

4.8 Encouraging Home Working and Delivery Services

4.8.1 All new properties will have the ability to have broadband internet connection points, enabling the residents to obtain the internet.

4.8.2 This supports the ability for home working and shopping, reducing the need to travel by car, especially during times of peak demand on the local highway network.

4.9 Encouraging Travel by Public Transport

4.9.1 The TPC will liaise with the local bus operators to promote the use of bus and rail services and ensure that up to date timetable information is readily available to residents.

4.9.2 Travel by public transport will be promoted and residents will be encouraged to access the public transport information provided on relevant websites, as well as utilising the Journey Planning tools available.

4.10 Marketing and Promotion

4.10.1 To ensure that potential residents of the site are informed about the Travel Plan and its goals from the earliest stage, the Travel Plan will have a significant presence within the sales suite of the development. This will include a display outlining the sustainable travel options available from the site and the travel measures being implemented to promote their use.

4.10.2 The sales staff will be given training to promote the Travel Plan as an asset and selling point of the development. Key concepts relating to the site's accessibility will also be included within marketing and sales particulars.

4.10.3 Travel by public transport will be promoted and residents will be encouraged to access the public transport information provided on relevant websites, as well as utilising the Journey Planning tools available.

5 TRAVEL PLAN TARGETS

5.1 Introduction

5.1.1 This section considers the operation of the Travel Plan once the development has been completed, occupied and the site is operational. The Travel Plan provides targets against which the success of the Plan in achieving its objectives will be measured.

5.1.2 The targets are designed to be quantifiable, relevant to both measures and objectives in the Plan and include a timescale.

5.1.3 In order to set the targets, further information may have to be obtained in order to establish against which to set the targets. This information will be related to existing patterns of movement (i.e. the proportion of residents who travel to their workplace by non-car mode) and may be obtained from sources such as the National Travel Survey and the National Census.

5.1.4 Site-specific baseline target information will be obtained by via a Residents' Travel Survey in due course, which will be undertaken within one month of the development being 75% occupied.

5.1.5 Suitable targets for reducing the need to travel by private car will be set against the baseline targets and agreed with the Council and included in the final Residential Travel Plan for the whole development.

5.2 Potential Targets

5.2.1 The Travel Plan targets are designed to be quantifiable, be relevant to both the Plan's measures and objectives and include a timescale within which they should be achieved.

5.2.2 Targets that can be included within a Travel Plan include:

- Car trips per household - targets set on the basis of predicted trip rates for the development.
- Uptake of alternatives to car travel - targets for bus patronage, registration and participation in the Liftshare car share scheme, cycle counts and pedestrian counts.
- Car ownership and mode of travel - trip based targets may be supplemented by targets related to car ownership, travel to work by mode and travel to school by mode.
- Travel Plan awareness targets - for example, a target can be established to ensure a significant percentage of residents are aware of the Travel Plan and its purpose.

5.3 Action Plan

5.3.1 **Table 5.1** below sets out the key tasks that will need to be undertaken by the Travel Plan Co-ordinator. The Action Plan includes timescales to assist the TPC with implementing the obligations of the Travel Plan.

Action	Target Date	Indicator/Measured by	Responsibility
Appointment of TPC	TPC appointed one month prior to first occupation of site	Appointment of TPC by target date	Housebuilder
Production of Residents Travel Pack	Upon Occupation	Resident travel survey	Housebuilder
Undertake initial travel surveys	Within 1 month of reaching 75% occupation of development	Receipt of survey results	TPC
Agree Travel Plan Targets	1 month after initial travel survey undertaken	Receipt of written agreements of targets	TPC
Achieve target car driver travel to work mode split	5 years after initial travel survey	Residents travel surveys conducted in years 1, 3 and 5	TPC

Table 5.1 – Travel Plan Action and Timescales

6 TRAVEL PLAN MONITORING AND ASSESSMENT

6.1.1 Travel Plan monitoring typically takes place on the following basis:

- Early on in the occupation period of the site - for example, triggered by 75% occupancy to provide the information base for the review of the plan;
- Annually, or at least every two years thereafter, to provide on-going information on the impact of the plan;
- Monitoring should take place over a wide range of time periods to review the different patterns of journeys that can be generated by residential development.

6.1.2 The monitoring could include items such as:

- 'Full residential surveys' to be completed in year 1, year 3 and year 5, with 'snapshot' surveys completed every 6 to 12 months.
- Feedback from bus operators to establish demand for local bus services and provide an understanding of how the demand might integrate with existing timetables.

6.1.3 A Final Travel Plan will be produced once planning permission has been granted. The production of that document will consider of how best to monitor and measure the success of the Travel Plan. Appropriate monitoring arrangements will also be agreed with the Local Planning Authorities.

6.1.4 Annual progress reports will be submitted as part of the monitoring and assessment process. This will summarise the results of the travel surveys with regards to targets, budgets, general effectiveness and current initiatives. The report will be submitted to the Local Authority no later than one month following the anniversary of the Travel Plan approval.

7 CONCLUSIONS

7.1.1 This Travel Plan has identified how the proposed development seeks to promote travel by sustainable modes and reduce the dependency of the private car. It has presented a series of measures that will be implemented to support a reduction in car usage, particularly for single car occupancy trips.

7.1.2 The aims of the Travel Plan are to:

- encourage residents to use sustainable modes of transport;
- reduce the reliance on single car occupancy journeys; and
- generally reduce traffic-related pollution and noise.

7.1.3 This Travel Plan provides information on the non-car modes of transport that will be available to residents and visitors of the Site.

7.1.4 The Travel Plan also identifies the wide range of measures and actions that will be used to encourage walking, cycling, public transport use and car sharing.

7.1.5 The Travel Plan will be managed by a Travel Plan Co-ordinator, who will ensure that the Travel Plan is implemented and operating effectively. They will also be a point of contact for residents and the Local Authority.

7.1.6 The Travel Plan Coordinator will conduct Resident Travel Surveys to establish the baseline travel characteristics of the site and consider how sustainable trip making could be enhanced. From that baseline, Travel Plan targets will be set and agreed with the Travel Plan team at the Council.

7.1.7 It is therefore concluded that the proposed development would be sustainable and should be considered as acceptable to the local highway authority.

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Eddisons

APPENDIX 2

Croft Transport Solutions 9 Jordan Street Manchester Licence No: 851401

Calculation Reference: AUDIT-851401-240708-0711

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	KC	KENT	2 days
04	EAST ANGLIA		
	NF	NORFOLK	3 days
05	EAST MIDLANDS		
	DY	DERBY	1 days

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

Primary Filtering selection:

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

Parameter:	No of Dwellings
Actual Range:	300 to 456 (units:)
Range Selected by User:	300 to 500 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 09/11/23

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

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	3 days
Thursday	1 days

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

Selected survey types:

Manual count	3 days
Directional ATC Count	3 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	5

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

Selected Location Sub Categories:

Residential Zone	5
No Sub Category	1

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

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	2 days - Selected
Servicing vehicles Excluded	10 days - Selected

Secondary Filtering selection:

Use Class:

C3	6 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

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

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

Population within 5 miles:

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

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

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	3 days

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

Travel Plan:

Yes	4 days
No	2 days

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

PTAL Rating:

No PTAL Present	6 days

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

LIST OF SITES relevant to selection parameters

1 DY-03-A-01 MIXED HOUSES DERBY
RADBOURNE LANE
DERBY

Edge of Town
Residential Zone
Total No of Dwellings: 371
Survey date: TUESDAY *10/07/18* *Survey Type: MANUAL*

2 KC-03-A-06 MIXED HOUSES & FLATS KENT
MARGATE ROAD
HERNE BAY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 363
Survey date: WEDNESDAY *27/09/17* *Survey Type: MANUAL*

3 KC-03-A-11 MIXED HOUSES & FLATS KENT
COLDHARBOUR ROAD
GRAVESEND

Edge of Town
No Sub Category
Total No of Dwellings: 375
Survey date: MONDAY *20/03/23* *Survey Type: MANUAL*

4 NF-03-A-29 MIXED HOUSES NORFOLK
BEAUFORT WAY
GREAT YARMOUTH
BRADWELL
Edge of Town
Residential Zone
Total No of Dwellings: 456
Survey date: WEDNESDAY *22/09/21* *Survey Type: DIRECTIONAL ATC COUNT*

5 NF-03-A-31 MIXED HOUSES NORFOLK
BRANDON ROAD
SWAFFHAM

Edge of Town
Residential Zone
Total No of Dwellings: 321
Survey date: THURSDAY *22/09/22* *Survey Type: DIRECTIONAL ATC COUNT*

6 NF-03-A-47 MIXED HOUSES & FLATS NORFOLK
BURGH ROAD
AYLSHAM

Edge of Town
Residential Zone
Total No of Dwellings: 300
Survey date: WEDNESDAY *21/09/22* *Survey Type: DIRECTIONAL ATC COUNT*

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	6	364	0.049	6	364	0.271	6	364	0.320
08:00 - 09:00	6	364	0.108	6	364	0.349	6	364	0.457
09:00 - 10:00	6	364	0.106	6	364	0.140	6	364	0.246
10:00 - 11:00	6	364	0.097	6	364	0.126	6	364	0.223
11:00 - 12:00	6	364	0.119	6	364	0.113	6	364	0.232
12:00 - 13:00	6	364	0.133	6	364	0.126	6	364	0.259
13:00 - 14:00	6	364	0.127	6	364	0.128	6	364	0.255
14:00 - 15:00	6	364	0.147	6	364	0.158	6	364	0.305
15:00 - 16:00	6	364	0.232	6	364	0.141	6	364	0.373
16:00 - 17:00	6	364	0.244	6	364	0.144	6	364	0.388
17:00 - 18:00	6	364	0.339	6	364	0.151	6	364	0.490
18:00 - 19:00	6	364	0.263	6	364	0.139	6	364	0.402
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.964			1.986			3.950

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

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

Parameter summary

Trip rate parameter range selected:	300 - 456 (units:)
Survey date date range:	01/01/16 - 09/11/23
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	6
Surveys manually removed from selection:	0

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

APPENDIX 3

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.2.1013

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

Filename: Ffordd Penrhwylfa - Ffordd Pant Y Celyn.j9
Path: Z:\projects\4433 Plas Newydd, Prestatyn\Picady\400 units
Report generation date: 06/09/2024 17:27:00

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2024 Surveyed Flows							
Stream B-C	0.2	7.85	0.17	A	0.1	6.99	0.12	A
Stream B-A	0.4	11.58	0.29	B	0.2	10.08	0.18	B
Stream C-AB	0.1	5.30	0.07	A	0.2	6.22	0.14	A
	2030 Base Flows							
Stream B-C	0.3	8.80	0.21	A	0.2	7.34	0.14	A
Stream B-A	0.6	13.45	0.38	B	0.3	10.81	0.21	B
Stream C-AB	0.1	5.34	0.08	A	0.3	6.50	0.17	A
	2030 With Development							
Stream B-C	0.6	16.54	0.40	C	0.2	8.58	0.18	A
Stream B-A	2.1	27.54	0.69	D	0.5	13.77	0.35	B
Stream C-AB	0.2	5.51	0.11	A	0.4	7.48	0.25	A

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

File summary

File Description

Title	Fford Penrhwylfa - Ffordd Pant Y Celyn
Location	Prestatyn
Site number	
Date	01/07/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EDD
Description	

Units

Distance	Speed	Traffic units	Traffic units	Flow	Average delay	Total delay	Rate of delay

units	units	input	results	units	units	units	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	2024 Surveyed Flows	AM	ONE HOUR	08:00	09:30	15	✓
D2	2024 Surveyed Flows	PM	ONE HOUR	17:00	18:30	15	✓
D3	2030 Base Flows	AM	ONE HOUR	08:00	09:30	15	✓
D4	2030 Base Flows	PM	ONE HOUR	17:00	18:30	15	✓
D5	2030 With Development	AM	ONE HOUR	08:00	09:30	15	✓
D6	2030 With Development	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

2024 Surveyed Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Pantycelyn/Ffordd Penrhwylfa (Site Access)	T-Junction	Two-way		3.19	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Ffordd Penrhwylfa (South)		Major
B	Ffordd Pantycelyn		Minor
C	Ffordd Penrhwylfa (North)		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 - Ffordd Penrhwylfa (North)	6.00			145.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Ffordd Pantycelyn	One lane plus flare	9.60	4.60	3.85	3.77	3.77		1.00	31	48

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	554	0.101	0.255	0.161	0.365
B-C	671	0.103	0.260	-	-
C-B	658	0.255	0.255	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2024 Surveyed Flows	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Ffordd Penrhwylfa (South)		ONE HOUR	✓	259	100.000
B - Ffordd Pantycelyn		ONE HOUR	✓	198	100.000
C - Ffordd Penrhwylfa (North)		ONE HOUR	✓	240	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	60	199
	B - Ffordd Pantycelyn	116	0	83
	C - Ffordd Penrhwylfa (North)	208	33	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	0	0
	B - Ffordd Pantycelyn	0	0	0
	C - Ffordd Penrhwylfa (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.17	7.85	0.2	A	76	114
B-A	0.29	11.58	0.4	B	106	160
C-AB	0.07	5.30	0.1	A	41	61
C-A					179	269
A-B					55	83
A-C					183	274

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	62	16	595	0.104	62	0.0	0.1	6.747	A
B-A	87	22	477	0.183	86	0.0	0.2	9.212	A
C-AB	31	8	712	0.044	31	0.0	0.1	5.294	A

C-A	149	37			149				
A-B	45	11			45				
A-C	150	37			150				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	74	19	577	0.128	74	0.1	0.1	7.158	A
B-A	104	26	461	0.226	104	0.2	0.3	10.083	B
C-AB	39	10	723	0.055	39	0.1	0.1	5.270	A
C-A	176	44			176				
A-B	54	13			54				
A-C	179	45			179				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	91	23	550	0.165	91	0.1	0.2	7.841	A
B-A	128	32	439	0.291	127	0.3	0.4	11.541	B
C-AB	52	13	739	0.070	52	0.1	0.1	5.241	A
C-A	212	53			212				
A-B	66	17			66				
A-C	219	55			219				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	91	23	550	0.165	91	0.2	0.2	7.853	A
B-A	128	32	439	0.291	128	0.4	0.4	11.576	B
C-AB	52	13	740	0.070	52	0.1	0.1	5.242	A
C-A	212	53			212				
A-B	66	17			66				
A-C	219	55			219				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	74	19	577	0.129	74	0.2	0.1	7.172	A
B-A	104	26	461	0.226	105	0.4	0.3	10.122	B
C-AB	39	10	723	0.055	40	0.1	0.1	5.273	A
C-A	176	44			176				
A-B	54	13			54				
A-C	179	45			179				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	62	16	595	0.104	62	0.1	0.1	6.769	A
B-A	87	22	477	0.183	88	0.3	0.2	9.266	A
C-AB	31	8	712	0.044	32	0.1	0.1	5.301	A
C-A	149	37			149				
A-B	45	11			45				
A-C	150	37			150				

2024 Surveyed Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Pantycelyn/Ffordd Penrhwylfa (Site Access)	T-Junction	Two-way		2.69	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	2024 Surveyed Flows	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Ffordd Penrhwylfa (South)		ONE HOUR	✓	289	100.000
B - Ffordd Pantycelyn		ONE HOUR	✓	135	100.000
C - Ffordd Penrhwylfa (North)		ONE HOUR	✓	197	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	113	177
	B - Ffordd Pantycelyn	70	0	65
	C - Ffordd Penrhwylfa (North)	130	67	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	0	0
	B - Ffordd Pantycelyn	0	0	0
	C - Ffordd Penrhwylfa (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.12	6.99	0.1	A	60	89
B-A	0.18	10.08	0.2	B	64	96
C-AB	0.14	6.22	0.2	A	76	114
C-A					105	158
A-B					104	155
A-C					162	243

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	49	12	620	0.079	49	0.0	0.1	6.304	A
B-A	52	13	470	0.111	52	0.0	0.1	8.610	A
C-AB	59	15	667	0.089	59	0.0	0.1	5.920	A
C-A	89	22			89				
A-B	85	21			85				
A-C	133	33			133				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	58	15	606	0.096	58	0.1	0.1	6.577	A
B-A	62	16	455	0.137	62	0.1	0.2	9.179	A
C-AB	73	18	670	0.110	73	0.1	0.2	6.040	A
C-A	104	26			104				
A-B	101	25			101				
A-C	159	40			159				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	72	18	587	0.122	71	0.1	0.1	6.985	A
B-A	77	19	434	0.176	76	0.2	0.2	10.068	B
C-AB	94	24	674	0.140	94	0.2	0.2	6.217	A
C-A	123	31			123				
A-B	124	31			124				
A-C	194	49			194				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	72	18	587	0.122	72	0.1	0.1	6.990	A
B-A	77	19	434	0.176	77	0.2	0.2	10.080	B
C-AB	94	24	674	0.140	94	0.2	0.2	6.220	A
C-A	123	31			123				
A-B	124	31			124				
A-C	194	49			194				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	58	15	606	0.096	59	0.1	0.1	6.586	A
B-A	62	16	455	0.137	63	0.2	0.2	9.195	A
C-AB	73	18	670	0.110	74	0.2	0.2	6.047	A
C-A	104	26			104				
A-B	101	25			101				
A-C	159	40			159				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	49	12	619	0.079	49	0.1	0.1	6.323	A
B-A	52	13	470	0.111	52	0.2	0.1	8.639	A
C-AB	60	15	667	0.089	60	0.2	0.1	5.931	A
C-A	89	22			89				
A-B	85	21			85				
A-C	133	33			133				

2030 Base Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Pantycelyn/Ffordd Penrhwylfa (Site Access)	T-Junction	Two-way		4.01	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	2030 Base Flows	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Ffordd Penrhwylfa (South)		ONE HOUR	✓	280	100.000
B - Ffordd Pantycelyn		ONE HOUR	✓	245	100.000
C - Ffordd Penrhwylfa (North)		ONE HOUR	✓	255	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	72	208
	B - Ffordd Pantycelyn	147	0	98
	C - Ffordd Penrhwylfa (North)	217	38	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	0	0
	B - Ffordd Pantycelyn	0	0	0
	C - Ffordd Penrhwylfa (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.21	8.80	0.3	A	90	135
B-A	0.38	13.45	0.6	B	135	202
C-AB	0.08	5.34	0.1	A	49	73
C-A					185	278
A-B					66	99
A-C					191	286

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	74	18	579	0.128	73	0.0	0.1	7.116	A
B-A	111	28	472	0.234	110	0.0	0.3	9.902	A
C-AB	37	9	713	0.052	37	0.0	0.1	5.331	A
C-A	155	39			155				
A-B	54	13			54				
A-C	157	39			157				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	88	22	556	0.159	88	0.1	0.2	7.701	A
B-A	132	33	455	0.291	132	0.3	0.4	11.138	B
C-AB	47	12	725	0.065	47	0.1	0.1	5.317	A
C-A	182	46			182				
A-B	64	16			64				
A-C	187	47			187				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	108	27	518	0.209	108	0.2	0.3	8.773	A
B-A	162	40	430	0.377	161	0.4	0.6	13.377	B
C-AB	62	15	741	0.083	62	0.1	0.1	5.303	A
C-A	219	55			219				
A-B	79	20			79				
A-C	229	57			229				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	108	27	518	0.209	108	0.3	0.3	8.799	A
B-A	162	40	430	0.377	162	0.6	0.6	13.450	B
C-AB	62	15	741	0.083	62	0.1	0.1	5.305	A
C-A	219	55			219				
A-B	79	20			79				
A-C	229	57			229				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	88	22	555	0.159	89	0.3	0.2	7.731	A
B-A	132	33	455	0.291	133	0.6	0.4	11.219	B
C-AB	47	12	725	0.065	47	0.1	0.1	5.323	A
C-A	182	46			182				
A-B	64	16			64				
A-C	187	47			187				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	74	18	578	0.128	74	0.2	0.1	7.149	A
B-A	111	28	472	0.235	111	0.4	0.3	9.994	A
C-AB	37	9	713	0.052	37	0.1	0.1	5.336	A
C-A	155	39			155				
A-B	54	13			54				
A-C	157	39			157				

2030 Base Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Pantycelyn/Ffordd Penrhwylfa (Site Access)	T-Junction	Two-way		2.98	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2030 Base Flows	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Ffordd Penrhwylfa (South)		ONE HOUR	✓	324	100.000
B - Ffordd Pantycelyn		ONE HOUR	✓	155	100.000
C - Ffordd Penrhwylfa (North)		ONE HOUR	✓	216	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	140	184
	B - Ffordd Pantycelyn	83	0	73
	C - Ffordd Penrhwylfa (North)	135	80	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	0	0
	B - Ffordd Pantycelyn	0	0	0
	C - Ffordd Penrhwylfa (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.14	7.34	0.2	A	67	100
B-A	0.21	10.81	0.3	B	76	114
C-AB	0.17	6.50	0.3	A	91	137
C-A					107	160
A-B					128	192
A-C					169	254

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	55	14	609	0.090	54	0.0	0.1	6.494	A
B-A	62	16	464	0.134	61	0.0	0.2	8.935	A
C-AB	71	18	664	0.108	71	0.0	0.1	6.071	A
C-A	91	23			91				
A-B	105	26			105				
A-C	139	35			139				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	65	16	594	0.110	65	0.1	0.1	6.822	A
B-A	74	19	447	0.166	74	0.2	0.2	9.645	A
C-AB	88	22	666	0.133	88	0.1	0.2	6.238	A
C-A	105	26			105				
A-B	126	31			126				
A-C	166	41			166				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	80	20	571	0.140	80	0.1	0.2	7.334	A
B-A	91	23	424	0.214	91	0.2	0.3	10.790	B
C-AB	114	28	669	0.170	114	0.2	0.3	6.488	A
C-A	124	31			124				
A-B	154	38			154				
A-C	203	51			203				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	80	20	571	0.140	80	0.2	0.2	7.340	A
B-A	91	23	424	0.214	91	0.3	0.3	10.811	B
C-AB	114	28	669	0.170	114	0.3	0.3	6.496	A
C-A	124	31			124				
A-B	154	38			154				
A-C	203	51			203				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	65	16	593	0.110	66	0.2	0.1	6.832	A
B-A	74	19	447	0.166	74	0.3	0.2	9.671	A
C-AB	89	22	666	0.133	89	0.3	0.2	6.249	A
C-A	105	26			105				
A-B	126	31			126				
A-C	166	41			166				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	55	14	609	0.090	55	0.1	0.1	6.509	A
B-A	62	16	464	0.134	62	0.2	0.2	8.973	A
C-AB	72	18	664	0.108	72	0.2	0.1	6.086	A
C-A	91	23			91				
A-B	105	26			105				
A-C	139	35			139				

2030 With Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Pantycelyn/Ffordd Penrhwylfa (Site Access)	T-Junction	Two-way		9.92	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	2030 With Development	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Ffordd Penrhwylfa (South)		ONE HOUR	✓	313	100.000
B - Ffordd Pantycelyn		ONE HOUR	✓	385	100.000
C - Ffordd Penrhwylfa (North)		ONE HOUR	✓	265	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	105	208
	B - Ffordd Pantycelyn	256	0	129
	C - Ffordd Penrhwylfa (North)	217	48	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	0	0
	B - Ffordd Pantycelyn	0	0	0
	C - Ffordd Penrhwylfa (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.40	16.54	0.6	C	118	178
B-A	0.69	27.54	2.1	D	235	352
C-AB	0.11	5.51	0.2	A	62	93
C-A					181	272
A-B					96	145
A-C					191	286

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	97	24	516	0.188	96	0.0	0.2	8.561	A
B-A	193	48	470	0.410	190	0.0	0.7	12.765	B
C-AB	47	12	707	0.066	47	0.0	0.1	5.455	A
C-A	152	38			152				
A-B	79	20			79				
A-C	157	39			157				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	116	29	463	0.250	116	0.2	0.3	10.358	B
B-A	230	58	447	0.514	229	0.7	1.0	16.367	C
C-AB	59	15	718	0.083	59	0.1	0.1	5.475	A
C-A	179	45			179				
A-B	94	24			94				
A-C	187	47			187				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	142	36	366	0.388	141	0.3	0.6	15.945	C
B-A	282	70	412	0.684	278	1.0	2.0	26.103	D
C-AB	79	20	733	0.107	78	0.1	0.2	5.505	A
C-A	213	53			213				
A-B	116	29			116				
A-C	229	57			229				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	142	36	360	0.395	142	0.6	0.6	16.545	C
B-A	282	70	411	0.685	282	2.0	2.1	27.538	D
C-AB	79	20	733	0.107	79	0.2	0.2	5.509	A
C-A	213	53			213				
A-B	116	29			116				
A-C	229	57			229				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	116	29	457	0.254	117	0.6	0.3	10.643	B
B-A	230	58	447	0.515	234	2.1	1.1	17.217	C
C-AB	59	15	718	0.083	60	0.2	0.1	5.480	A
C-A	179	45			179				
A-B	94	24			94				
A-C	187	47			187				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	97	24	512	0.190	98	0.3	0.2	8.696	A
B-A	193	48	469	0.411	194	1.1	0.7	13.172	B
C-AB	47	12	707	0.067	47	0.1	0.1	5.466	A
C-A	152	38			152				
A-B	79	20			79				
A-C	157	39			157				

2030 With Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Pantycelyn/Ffordd Penrhwylfa (Site Access)	T-Junction	Two-way		3.99	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	2030 With Development	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Ffordd Penrhwylfa (South)		ONE HOUR	✓	429	100.000
B - Ffordd Pantycelyn		ONE HOUR	✓	215	100.000
C - Ffordd Penrhwylfa (North)		ONE HOUR	✓	246	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	245	184
	B - Ffordd Pantycelyn	129	0	86
	C - Ffordd Penrhwylfa (North)	135	111	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Ffordd Penrhwylfa (South)	B - Ffordd Pantycelyn	C - Ffordd Penrhwylfa (North)
From	A - Ffordd Penrhwylfa (South)	0	0	0
	B - Ffordd Pantycelyn	0	0	0
	C - Ffordd Penrhwylfa (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.18	8.58	0.2	A	79	118
B-A	0.35	13.77	0.5	B	118	178
C-AB	0.25	7.48	0.4	A	127	191
C-A					99	148
A-B					225	337
A-C					169	254

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	65	16	576	0.112	64	0.0	0.1	7.039	A
B-A	97	24	454	0.214	96	0.0	0.3	10.038	B
C-AB	99	25	645	0.154	98	0.0	0.2	6.587	A
C-A	86	22			86				
A-B	184	46			184				
A-C	139	35			139				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	77	19	552	0.140	77	0.1	0.2	7.579	A
B-A	116	29	433	0.268	116	0.3	0.4	11.333	B
C-AB	123	31	644	0.191	123	0.2	0.3	6.924	A
C-A	98	25			98				
A-B	220	55			220				
A-C	166	41			166				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	95	24	515	0.184	94	0.2	0.2	8.555	A
B-A	142	36	404	0.352	141	0.4	0.5	13.690	B
C-AB	159	40	642	0.248	159	0.3	0.4	7.456	A
C-A	112	28			112				
A-B	270	67			270				
A-C	203	51			203				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	95	24	515	0.184	95	0.2	0.2	8.579	A
B-A	142	36	404	0.352	142	0.5	0.5	13.767	B
C-AB	160	40	642	0.248	160	0.4	0.4	7.475	A
C-A	112	28			112				
A-B	270	67			270				
A-C	203	51			203				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	77	19	552	0.140	78	0.2	0.2	7.603	A
B-A	116	29	433	0.268	117	0.5	0.4	11.416	B
C-AB	123	31	644	0.192	124	0.4	0.3	6.942	A
C-A	98	25			98				
A-B	220	55			220				
A-C	166	41			166				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	65	16	575	0.113	65	0.2	0.1	7.066	A
B-A	97	24	454	0.214	98	0.4	0.3	10.130	B
C-AB	99	25	645	0.154	100	0.3	0.2	6.613	A
C-A	86	22			86				
A-B	184	46			184				
A-C	139	35			139				

APPENDIX 4

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.2.1013

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

Filename: (new file)
Path:
Report generation date: 09/10/2024 15:20:09

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Southern Development Access - 2030 Base + Dev									
Stream B-AC	D1	0.3	8.80	0.23	A	D2	0.1	7.67	0.10	A
Stream C-AB		0.1	5.27	0.05	A		0.3	6.39	0.16	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	Souther Development Access
Location	Plas Newydd, Prestatyn
Site number	
Date	09/10/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	4433
Enumerator	EDD\Eddisons
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

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Southern Development Access	100.000

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	2030 Base + Dev	AM	ONE HOUR	08:00	09:30	15

Southern Development Access - 2030 Base + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.94	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		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	5.50			100.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.40	35	17

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	517	0.096	0.243	0.153	0.348
B-C	660	0.103	0.261	-	-
C-B	632	0.250	0.250	-	-

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

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		✓	223	100.000
B		✓	109	100.000
C		✓	257	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	9	214
	B	31	0	78
	C	233	24	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	A	168	168
	B	82	82
	C	193	193
08:15-08:30	A	200	200
	B	98	98
	C	231	231
08:30-08:45	A	246	246
	B	120	120
	C	283	283
08:45-09:00	A	246	246
	B	120	120
	C	283	283
09:00-09:15	A	200	200
	B	98	98
	C	231	231
09:15-09:30	A	168	168
	B	82	82
	C	193	193

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.23	8.80	0.3	A
C-AB	0.05	5.27	0.1	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	82	556	0.148	81	0.2	7.579	A
C-AB	24	708	0.034	24	0.0	5.262	A
C-A	169			169			
A-B	7			7			
A-C	161			161			

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	98	544	0.180	98	0.2	8.056	A
C-AB	30	724	0.042	30	0.1	5.193	A
C-A	201			201			
A-B	8			8			
A-C	192			192			

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	120	529	0.227	120	0.3	8.792	A
C-AB	40	746	0.054	40	0.1	5.103	A
C-A	243			243			
A-B	10			10			
A-C	236			236			

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	120	529	0.227	120	0.3	8.804	A
C-AB	40	746	0.054	40	0.1	5.106	A
C-A	243			243			
A-B	10			10			
A-C	236			236			

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	98	544	0.180	98	0.2	8.072	A
C-AB	30	724	0.042	31	0.1	5.197	A
C-A	201			201			
A-B	8			8			
A-C	192			192			

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	82	556	0.148	82	0.2	7.609	A
C-AB	24	708	0.034	24	0.0	5.265	A
C-A	169			169			
A-B	7			7			
A-C	161			161			

APPENDIX 5

LinSig V1 style report

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	A548 Victoria Road - Ceg Y Ffordd.lsg3x
Author:	
Company:	
Address:	

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		5	5
E	Pedestrian		5	5
F	Pedestrian		5	5
G	Ind. Arrow	B	4	4

Phase Intergreens Matrix

		Starting Phase						
		A	B	C	D	E	F	G
Terminating Phase	A		-	6	11	11	11	5
	B	-		7	11	11	11	-
	C	6	6		9	9	9	6
	D	10	10	10		-	-	-
	E	10	10	10	-		-	10
	F	10	10	10	-	-		10
	G	7	-	8	-	11	11	

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage			
		1	2	3	4
From Stage	1		5	7	11
	2	7		8	11
	3	6	6		9
	4	10	10	10	

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	B G
3	C
4	D E F

Give-Way Lane Input Data

Junction: Unnamed Junction
There are no Opposed Lanes in this Junction

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A548 Victoria Road (East))	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 4 Ahead	Inf
											Arm 5 Left	10.00
2/1 (Ceg Y Ffordd)	U	C	2	3	60.0	Geom	-	3.70	0.00	Y	Arm 4 Left	8.50
											Arm 6 Right	13.50
3/1 (A548 Victoria Road (West))	U	B	2	3	60.0	Geom	-	3.40	0.00	Y	Arm 6 Ahead	Inf
3/2 (A548 Victoria Road (West))	U	B G	2	3	5.0	Geom	-	3.40	0.00	Y	Arm 5 Right	12.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Lane Saturation Flows

Scenario 1: '2024 Surveyed Flows - AM Peak' (FG1: '2024 Surveyed Flows - AM Peak', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A548 Victoria Road (East))	3.00	0.00	Y	Arm 4 Ahead	Inf	78.7 %	1856	1856
				Arm 5 Left	10.00	21.3 %		
2/1 (Ceg Y Ffordd)	3.70	0.00	Y	Arm 4 Left	8.50	55.0 %	1731	1731
				Arm 6 Right	13.50	45.0 %		
3/1 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1955	1955
3/2 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 5 Right	12.00	100.0 %	1738	1738
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2024 Surveyed Flows - PM Peak' (FG2: '2024 Surveyed Flows - PM Peak', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A548 Victoria Road (East))	3.00	0.00	Y	Arm 4 Ahead	Inf	80.4 %	1860	1860
				Arm 5 Left	10.00	19.6 %		
2/1 (Ceg Y Ffordd)	3.70	0.00	Y	Arm 4 Left	8.50	51.2 %	1734	1734
				Arm 6 Right	13.50	48.8 %		
3/1 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1955	1955
3/2 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 5 Right	12.00	100.0 %	1738	1738
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2030 Base Flows - AM Peak' (FG3: '2030 Base Flows - AM Peak', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A548 Victoria Road (East))	3.00	0.00	Y	Arm 4 Ahead	Inf	78.5 %	1855	1855
				Arm 5 Left	10.00	21.5 %		
2/1 (Ceg Y Ffordd)	3.70	0.00	Y	Arm 4 Left	8.50	55.6 %	1730	1730
				Arm 6 Right	13.50	44.4 %		
3/1 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1955	1955
3/2 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 5 Right	12.00	100.0 %	1738	1738
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2030 Base Flows - PM Peak' (FG4: '2030 Base Flows - PM Peak', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A548 Victoria Road (East))	3.00	0.00	Y	Arm 4 Ahead	Inf	80.2 %	1860	1860
				Arm 5 Left	10.00	19.8 %		
2/1 (Ceg Y Ffordd)	3.70	0.00	Y	Arm 4 Left	8.50	52.0 %	1734	1734
				Arm 6 Right	13.50	48.0 %		
3/1 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1955	1955
3/2 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 5 Right	12.00	100.0 %	1738	1738
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2030 With Development - AM Peak' (FG5: '2030 With Development - AM Peak', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A548 Victoria Road (East))	3.00	0.00	Y	Arm 4 Ahead	Inf	78.4 %	1855	1855
				Arm 5 Left	10.00	21.6 %		
2/1 (Ceg Y Ffordd)	3.70	0.00	Y	Arm 4 Left	8.50	58.5 %	1727	1727
				Arm 6 Right	13.50	41.5 %		
3/1 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1955	1955
3/2 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 5 Right	12.00	100.0 %	1738	1738
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2030 With Development - PM Peak' (FG6: '2030 With Development - PM Peak', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A548 Victoria Road (East))	3.00	0.00	Y	Arm 4 Ahead	Inf	79.8 %	1859	1859
				Arm 5 Left	10.00	20.2 %		
2/1 (Ceg Y Ffordd)	3.70	0.00	Y	Arm 4 Left	8.50	54.1 %	1731	1731
				Arm 6 Right	13.50	45.9 %		
3/1 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1955	1955
3/2 (A548 Victoria Road (West))	3.40	0.00	Y	Arm 5 Right	12.00	100.0 %	1738	1738
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2024 Surveyed Flows - AM Peak'	08:00	09:00	01:00	
2: '2024 Surveyed Flows - PM Peak'	17:00	18:00	01:00	
3: '2030 Base Flows - AM Peak'	08:00	09:00	01:00	
4: '2030 Base Flows - PM Peak'	17:00	18:00	01:00	
5: '2030 With Development - AM Peak'	08:00	09:00	01:00	
6: '2030 With Development - PM Peak'	17:00	18:00	01:00	

Traffic Flows, Desired

FG1: '2024 Surveyed Flows - AM Peak'

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	111	410	521
	B	145	0	177	322
	C	346	110	0	456
	Tot.	491	221	587	1299

FG2: '2024 Surveyed Flows - PM Peak'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	119	488	607
	B	105	0	110	215
	C	454	133	0	587
	Tot.	559	252	598	1409

FG3: '2030 Base Flows - AM Peak'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	117	428	545
	B	154	0	193	347
	C	365	115	0	480
	Tot.	519	232	621	1372

FG4: '2030 Base Flows - PM Peak'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	126	509	635
	B	110	0	119	229
	C	474	147	0	621
	Tot.	584	273	628	1485

FG5: '2030 With Development - AM Peak'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	118	428	546
	B	157	0	221	378
	C	365	124	0	489
	Tot.	522	242	649	1413

FG6: '2030 With Development - PM Peak'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	129	509	638
	B	111	0	131	242
	C	474	174	0	648
	Tot.	585	303	640	1528

Stage Timings

Scenario 1: '2024 Surveyed Flows - AM Peak' (FG1: '2024 Surveyed Flows - AM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	1	2	3	4
Duration	31	4	33	39	4	13	5
Change Point	0	41	50	91	136	145	166

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.2%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.2%**
1/1	A548 Victoria Road (East) Ahead Left	U	N/A	N/A	A		2	70	-	521	1856	742	70.2%
2/1	Ceg Y Ffordd Left Right	U	N/A	N/A	C		2	46	-	322	1731	462	69.8%
3/1+3/2	A548 Victoria Road (West) Right Ahead	U	N/A	N/A	B	G	2	88	8	456	1955:1738	1023	44.6%
4/1		U	N/A	N/A	-		-	-	-	587	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	221	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	491	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**7.6**	**2.7**	**0.0**	**10.3**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**7.6**	**2.7**	**0.0**	**10.3**	**-**	**-**	**-**	**-**
1/1	521	521	-	-	-	3.3	1.2	-	4.4	30.6	11.0	1.2	12.2
2/1	322	322	-	-	-	2.7	1.1	-	3.8	42.6	7.8	1.1	8.9
3/1+3/2	456	456	-	-	-	1.7	0.4	-	2.1	16.5	5.5	0.4	5.9
4/1	587	587	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	221	221	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	491	491	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 28.2 Total Delay for Signalled Lanes (pcuHr): 10.32 Cycle Time (s): 180
PRC Over All Lanes (%): 28.2 Total Delay Over All Lanes(pcuHr): 10.32

Stage Timings

Scenario 2: '2024 Surveyed Flows - PM Peak' (FG2: '2024 Surveyed Flows - PM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	1	2	3	4
Duration	37	4	22	48	4	9	5
Change Point	0	47	56	86	140	149	166

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.6%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.6%**
1/1	A548 Victoria Road (East) Ahead Left	U	N/A	N/A	A		2	85	-	607	1860	899	67.5%
2/1	Ceg Y Ffordd Left Right	U	N/A	N/A	C		2	31	-	215	1734	318	67.6%
3/1+3/2	A548 Victoria Road (West) Right Ahead	U	N/A	N/A	B	G	2	103	8	587	1955:1738	1178	49.9%
4/1		U	N/A	N/A	-		-	-	-	598	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	252	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	559	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**6.7**	**2.6**	**0.0**	**9.2**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**6.7**	**2.6**	**0.0**	**9.2**	**-**	**-**	**-**	**-**
1/1	607	607	-	-	-	3.0	1.0	-	4.0	24.0	12.1	1.0	13.2
2/1	215	215	-	-	-	2.1	1.0	-	3.1	51.5	5.2	1.0	6.2
3/1+3/2	587	587	-	-	-	1.6	0.5	-	2.1	13.0	7.2	0.5	7.7
4/1	598	598	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	252	252	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	559	559	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 33.1 Total Delay for Signalled Lanes (pcuHr): 9.24 Cycle Time (s): 180
PRC Over All Lanes (%): 33.1 Total Delay Over All Lanes(pcuHr): 9.24

Stage Timings

Scenario 3: '2030 Base Flows - AM Peak' (FG3: '2030 Base Flows - AM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	1	2	3	4
Duration	28	4	32	41	4	15	5
Change Point	0	38	47	87	134	143	166

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.5%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.5%**
1/1	A548 Victoria Road (East) Ahead Left	U	N/A	N/A	A		2	69	-	545	1855	732	74.5%
2/1	Ceg Y Ffordd Left Right	U	N/A	N/A	C		2	47	-	347	1730	471	73.7%
3/1+3/2	A548 Victoria Road (West) Right Ahead	U	N/A	N/A	B	G	2	87	8	480	1955:1738	1012	47.4%
4/1		U	N/A	N/A	-		-	-	-	621	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	232	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	519	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**8.3**	**3.3**	**0.0**	**11.5**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**8.3**	**3.3**	**0.0**	**11.5**	**-**	**-**	**-**	**-**
1/1	545	545	-	-	-	3.5	1.4	-	5.0	32.9	11.7	1.4	13.1
2/1	347	347	-	-	-	2.9	1.4	-	4.2	44.1	8.2	1.4	9.6
3/1+3/2	480	480	-	-	-	1.8	0.5	-	2.3	17.1	5.9	0.5	6.3
4/1	621	621	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	232	232	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	519	519	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 20.8 Total Delay for Signalled Lanes (pcuHr): 11.51 Cycle Time (s): 180
PRC Over All Lanes (%): 20.8 Total Delay Over All Lanes(pcuHr): 11.51

Stage Timings

Scenario 4: '2030 Base Flows - PM Peak' (FG4: '2030 Base Flows - PM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	1	2	3	4
Duration	34	4	22	50	4	10	5
Change Point	0	44	53	83	139	148	166

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.5%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.5%**
1/1	A548 Victoria Road (East) Ahead Left	U	N/A	N/A	A		2	84	-	635	1860	889	71.5%
2/1	Ceg Y Ffordd Left Right	U	N/A	N/A	C		2	32	-	229	1734	328	69.9%
3/1+3/2	A548 Victoria Road (West) Right Ahead	U	N/A	N/A	B	G	2	102	8	621	1955:1738	1169	53.1%
4/1		U	N/A	N/A	-		-	-	-	628	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	273	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	584	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**7.3**	**2.9**	**0.0**	**10.2**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**7.3**	**2.9**	**0.0**	**10.2**	**-**	**-**	**-**	**-**
1/1	635	635	-	-	-	3.3	1.2	-	4.5	25.7	13.2	1.2	14.5
2/1	229	229	-	-	-	2.2	1.1	-	3.3	52.0	5.4	1.1	6.5
3/1+3/2	621	621	-	-	-	1.8	0.6	-	2.4	13.7	7.9	0.6	8.5
4/1	628	628	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	273	273	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	584	584	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 26.0 Total Delay for Signalled Lanes (pcuHr): 10.21 Cycle Time (s): 180
PRC Over All Lanes (%): 26.0 Total Delay Over All Lanes(pcuHr): 10.21

Stage Timings

Scenario 5: '2030 With Development - AM Peak' (FG5: '2030 With Development - AM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	1	2	3	4
Duration	25	4	32	42	4	17	5
Change Point	0	35	44	84	132	141	166

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.3%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.3%**
1/1	A548 Victoria Road (East) Ahead Left	U	N/A	N/A	A		2	67	-	546	1855	711	76.8%
2/1	Ceg Y Ffordd Left Right	U	N/A	N/A	C		2	49	-	378	1727	489	77.3%
3/1+3/2	A548 Victoria Road (West) Right Ahead	U	N/A	N/A	B	G	2	85	8	489	1955:1738	994	49.2%
4/1		U	N/A	N/A	-		-	-	-	649	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	242	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	522	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**8.7**	**3.8**	**0.0**	**12.5**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**8.7**	**3.8**	**0.0**	**12.5**	**-**	**-**	**-**	**-**
1/1	546	546	-	-	-	3.7	1.6	-	5.3	35.0	12.1	1.6	13.8
2/1	378	378	-	-	-	3.1	1.6	-	4.8	45.3	8.7	1.6	10.4
3/1+3/2	489	489	-	-	-	2.0	0.5	-	2.4	18.0	6.3	0.5	6.8
4/1	649	649	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	242	242	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	522	522	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 16.5 Total Delay for Signalled Lanes (pcuHr): 12.50 Cycle Time (s): 180
PRC Over All Lanes (%): 16.5 Total Delay Over All Lanes(pcuHr): 12.50

Stage Timings

Scenario 6: '2030 With Development - PM Peak' (FG6: '2030 With Development - PM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	1	2	3	4
Duration	38	4	23	45	4	10	5
Change Point	0	48	57	88	139	148	166

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.7%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.7%**
1/1	A548 Victoria Road (East) Ahead Left	U	N/A	N/A	A		2	83	-	638	1859	878	72.7%
2/1	Ceg Y Ffordd Left Right	U	N/A	N/A	C		2	33	-	242	1731	337	71.9%
3/1+3/2	A548 Victoria Road (West) Right Ahead	U	N/A	N/A	B	G	2	101	8	648	1955:1738	1167	55.5%
4/1		U	N/A	N/A	-		-	-	-	640	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	303	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	585	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**7.6**	**3.2**	**0.0**	**10.8**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**7.6**	**3.2**	**0.0**	**10.8**	**-**	**-**	**-**	**-**
1/1	638	638	-	-	-	3.4	1.3	-	4.7	26.6	13.5	1.3	14.8
2/1	242	242	-	-	-	2.3	1.2	-	3.5	52.7	6.0	1.2	7.3
3/1+3/2	648	648	-	-	-	1.9	0.6	-	2.6	14.2	8.2	0.6	8.9
4/1	640	640	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	303	303	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	585	585	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 23.8 Total Delay for Signalled Lanes (pcuHr): 10.80 Cycle Time (s): 180
PRC Over All Lanes (%): 23.8 Total Delay Over All Lanes(pcuHr): 10.80

APPENDIX 6

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.2.1013

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

Filename: Ffordd Penrhwylfa - Ffordd Ffynnon - Fforddisa.j9
Path: Z:\projects\4433 Plas Newydd, Prestatyn\Picady\400 units
Report generation date: 06/09/2024 17:32:27

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2024 Surveyed Flows							
Stream B-CD	0.1	8.81	0.12	A	0.2	8.93	0.18	A
Stream B-AD	0.2	10.74	0.19	B	0.2	9.64	0.19	A
Stream A-BCD	0.5	6.37	0.27	A	0.3	6.08	0.19	A
Stream D-AB	0.9	12.57	0.46	B	0.4	8.94	0.27	A
Stream D-BC	0.4	13.89	0.30	B	0.2	9.98	0.15	A
Stream C-ABD	0.0	5.39	0.03	A	0.0	5.21	0.02	A
	2030 Base Flows							
Stream B-CD	0.2	9.25	0.14	A	0.3	9.63	0.22	A
Stream B-AD	0.3	11.35	0.21	B	0.3	10.18	0.22	B
Stream A-BCD	0.5	6.49	0.29	A	0.3	6.18	0.21	A
Stream D-AB	1.2	16.00	0.55	C	0.4	9.55	0.30	A
Stream D-BC	0.6	16.50	0.36	C	0.2	10.52	0.17	B
Stream C-ABD	0.0	5.39	0.03	A	0.0	5.19	0.02	A
	2030 With Development							
Stream B-CD	0.2	9.87	0.17	A	0.4	11.71	0.31	B
Stream B-AD	0.3	12.36	0.24	B	0.4	11.69	0.29	B
Stream A-BCD	0.5	6.67	0.30	A	0.4	6.62	0.25	A
Stream D-AB	4.6	51.14	0.85	F	0.6	11.38	0.37	B
Stream D-BC	2.4	53.93	0.74	F	0.3	12.48	0.25	B
Stream C-ABD	0.0	5.36	0.03	A	0.0	5.12	0.03	A

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

File summary

File Description

Title	Ffordd Penrhwylfa - Ffordd Ffynnon - Fforddisa
Location	
Site number	
Date	01/07/2024
Version	

Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EDD
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	2024 Surveyed Flows	AM	ONE HOUR	08:00	09:30	15	✓
D2	2024 Surveyed Flows	PM	ONE HOUR	17:00	18:30	15	✓
D3	2030 Base Flows	AM	ONE HOUR	08:00	09:30	15	✓
D4	2030 Base Flows	PM	ONE HOUR	17:00	18:30	15	✓
D5	2030 With Development	AM	ONE HOUR	08:00	09:30	15	✓
D6	2030 With Development	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

2024 Surveyed Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Penrhwylfa / Ffordd Flynnon / Ffordd Isa / Ffordd Penrhwylfa	Crossroads	Two-way		6.82	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Fforddisa (East)		Major
B	Ffordd Penrhwylfa (South)		Minor
C	Ffordd Ffynnon (West)		Major
D	Ffordd Penrhwylfa (North)		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - Fforddisa (East)	7.50			220.0	✓	0.00
C - Ffordd Ffynnon (West)	7.50			130.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Ffordd Penrhwylfa (South)	One lane plus flare	10.00	7.00	4.00	3.50	3.50	✓	1.00	35	50
D - Ffordd Penrhwylfa (North)	One lane plus flare	10.00	5.50	3.50	3.00	2.80	✓	1.00	31	37

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	701	-	-	-	-	-	-	0.254	0.363	0.254	-	-	-
B-A	578	0.098	0.249	0.249	-	-	-	0.156	0.355	-	0.249	0.249	0.124
B-C	737	0.106	0.267	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	578	0.098	0.249	0.249	-	-	-	0.156	0.355	0.156	-	-	-
B-D, offside lane	578	0.098	0.249	0.249	-	-	-	0.156	0.355	0.156	-	-	-

C-B	649	0.235	0.235	0.336	-	-	-	-	-	-	-	-	-
D-A	712	-	-	-	-	-	-	0.258	-	0.102	-	-	-
D-B, nearside lane	556	0.151	0.151	0.342	-	-	-	0.239	0.239	0.095	-	-	-
D-B, offside lane	544	0.147	0.147	0.334	-	-	-	0.234	0.234	0.093	-	-	-
D-C	544	-	0.147	0.334	0.117	0.234	0.234	0.234	0.234	0.093	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2024 Surveyed Flows	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fforddisa (East)		ONE HOUR	✓	326	100.000
B - Ffordd Penrhwylfa (South)		ONE HOUR	✓	121	100.000
C - Ffordd Ffynnon (West)		ONE HOUR	✓	204	100.000
D - Ffordd Penrhwylfa (North)		ONE HOUR	✓	325	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	42	145	139
	B - Ffordd Penrhwylfa (South)	39	0	10	72
	C - Ffordd Ffynnon (West)	141	11	0	52
	D - Ffordd Penrhwylfa (North)	177	83	65	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	0	0	0
	B - Ffordd Penrhwylfa (South)	0	0	0	0
	C - Ffordd Ffynnon (West)	0	0	0	0
	D - Ffordd Penrhwylfa (North)	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.12	8.81	0.1	A	45	68
B-AD	0.19	10.74	0.2	B	66	99
A-BCD	0.27	6.37	0.5	A	166	249
A-B					30	45

A-C					103	155
D-AB	0.46	12.57	0.9	B	206	309
D-BC	0.30	13.89	0.4	B	92	138
C-ABD	0.03	5.39	0.0	A	14	21
C-D					47	70
C-A					127	190

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	36	9	512	0.071	36	0.0	0.1	7.566	A
B-AD	55	14	468	0.117	54	0.0	0.1	8.692	A
A-BCD	129	32	751	0.172	128	0.0	0.2	5.782	A
A-B	26	7			26				
A-C	90	23			90				
D-AB	168	42	591	0.284	166	0.0	0.4	8.454	A
D-BC	77	19	440	0.174	76	0.0	0.2	9.880	A
C-ABD	11	3	679	0.016	10	0.0	0.0	5.387	A
C-D	39	10			39				
C-A	105	26			105				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	44	11	492	0.090	44	0.1	0.1	8.036	A
B-AD	65	16	446	0.145	65	0.1	0.2	9.453	A
A-BCD	161	40	761	0.211	160	0.2	0.3	6.003	A
A-B	30	7			30				
A-C	103	26			103				
D-AB	202	50	570	0.354	201	0.4	0.5	9.763	A
D-BC	91	23	413	0.219	90	0.2	0.3	11.165	B
C-ABD	13	3	686	0.019	13	0.0	0.0	5.354	A
C-D	46	11			46				
C-A	124	31			124				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	55	14	464	0.119	55	0.1	0.1	8.800	A
B-AD	78	20	414	0.189	78	0.2	0.2	10.711	B
A-BCD	209	52	775	0.269	208	0.3	0.5	6.355	A
A-B	34	8			34				
A-C	116	29			116				
D-AB	249	62	536	0.464	248	0.5	0.8	12.439	B
D-BC	109	27	369	0.295	108	0.3	0.4	13.795	B
C-ABD	17	4	697	0.025	17	0.0	0.0	5.304	A
C-D	56	14			56				
C-A	151	38			151				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	55	14	464	0.119	55	0.1	0.1	8.811	A
B-AD	78	20	414	0.189	78	0.2	0.2	10.738	B

A-BCD	209	52	776	0.269	209	0.5	0.5	6.365	A
A-B	34	8			34				
A-C	116	29			116				
D-AB	249	62	535	0.465	249	0.8	0.9	12.567	B
D-BC	109	27	368	0.296	109	0.4	0.4	13.888	B
C-ABD	17	4	697	0.025	17	0.0	0.0	5.308	A
C-D	56	14			56				
C-A	151	38			151				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	44	11	492	0.090	44	0.1	0.1	8.052	A
B-AD	65	16	445	0.145	65	0.2	0.2	9.489	A
A-BCD	161	40	761	0.211	161	0.5	0.3	6.018	A
A-B	30	7			30				
A-C	103	26			103				
D-AB	202	50	569	0.355	203	0.9	0.6	9.880	A
D-BC	91	23	412	0.220	91	0.4	0.3	11.246	B
C-ABD	13	3	686	0.019	13	0.0	0.0	5.358	A
C-D	46	11			46				
C-A	124	31			124				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	36	9	511	0.071	37	0.1	0.1	7.590	A
B-AD	55	14	467	0.117	55	0.2	0.1	8.736	A
A-BCD	129	32	751	0.172	129	0.3	0.3	5.805	A
A-B	26	7			26				
A-C	90	23			90				
D-AB	168	42	590	0.285	169	0.6	0.4	8.562	A
D-BC	77	19	439	0.175	77	0.3	0.2	9.967	A
C-ABD	11	3	679	0.016	11	0.0	0.0	5.392	A
C-D	39	10			39				
C-A	104	26			104				

2024 Surveyed Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Penrhwylfa / Ffordd Flynnon / Ffordd Isa / Ffordd Penrhwylfa	Crossroads	Two-way		5.08	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2024 Surveyed Flows	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fforddisa (East)		ONE HOUR	✓	239	100.000
B - Ffordd Penrhwylfa (South)		ONE HOUR	✓	162	100.000
C - Ffordd Ffynnon (West)		ONE HOUR	✓	217	100.000
D - Ffordd Penrhwylfa (North)		ONE HOUR	✓	192	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	36	100	103
	B - Ffordd Penrhwylfa (South)	27	0	22	113
	C - Ffordd Ffynnon (West)	132	11	0	74
	D - Ffordd Penrhwylfa (North)	95	76	21	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	0	0	0

	B - Ffordd Penrhwylfa (South)	0	0	0	0
	C - Ffordd Ffynnon (West)	0	0	0	0
	D - Ffordd Penrhwylfa (North)	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.18	8.93	0.2	A	75	112
B-AD	0.19	9.64	0.2	A	74	111
A-BCD	0.19	6.08	0.3	A	115	172
A-B					28	41
A-C					77	115
D-AB	0.27	8.94	0.4	A	124	185
D-BC	0.15	9.98	0.2	A	53	79
C-ABD	0.02	5.21	0.0	A	14	21
C-D					67	100
C-A					119	178

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	61	15	535	0.114	60	0.0	0.1	7.583	A
B-AD	61	15	500	0.122	61	0.0	0.1	8.183	A
A-BCD	90	23	724	0.125	90	0.0	0.2	5.678	A
A-B	24	6			24				
A-C	66	16			66				
D-AB	101	25	586	0.172	100	0.0	0.2	7.400	A
D-BC	43	11	467	0.093	43	0.0	0.1	8.485	A
C-ABD	11	3	703	0.015	11	0.0	0.0	5.207	A
C-D	55	14			55				
C-A	98	24			98				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	73	18	518	0.141	73	0.1	0.2	8.092	A
B-AD	72	18	484	0.149	72	0.1	0.2	8.742	A
A-BCD	111	28	729	0.153	111	0.2	0.2	5.835	A
A-B	27	7			27				
A-C	76	19			76				
D-AB	121	30	572	0.212	121	0.2	0.3	7.977	A
D-BC	52	13	449	0.115	51	0.1	0.1	9.052	A
C-ABD	13	3	714	0.019	13	0.0	0.0	5.144	A
C-D	65	16			65				
C-A	116	29			116				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	91	23	494	0.183	90	0.2	0.2	8.913	A

B-AD	88	22	462	0.190	87	0.2	0.2	9.623	A
A-BCD	143	36	736	0.194	142	0.2	0.3	6.071	A
A-B	32	8			32				
A-C	89	22			89				
D-AB	149	37	552	0.270	148	0.3	0.4	8.918	A
D-BC	63	16	424	0.148	62	0.1	0.2	9.970	A
C-ABD	18	4	730	0.024	18	0.0	0.0	5.058	A
C-D	80	20			80				
C-A	142	35			142				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	91	23	494	0.183	91	0.2	0.2	8.928	A
B-AD	88	22	462	0.190	88	0.2	0.2	9.638	A
A-BCD	143	36	736	0.194	143	0.3	0.3	6.075	A
A-B	32	8			32				
A-C	89	22			89				
D-AB	149	37	552	0.270	149	0.4	0.4	8.939	A
D-BC	63	16	423	0.148	63	0.2	0.2	9.985	A
C-ABD	18	4	730	0.024	18	0.0	0.0	5.061	A
C-D	80	20			80				
C-A	142	35			142				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	73	18	518	0.141	73	0.2	0.2	8.111	A
B-AD	72	18	484	0.150	73	0.2	0.2	8.761	A
A-BCD	111	28	729	0.153	112	0.3	0.2	5.846	A
A-B	27	7			27				
A-C	76	19			76				
D-AB	121	30	572	0.212	121	0.4	0.3	8.002	A
D-BC	52	13	449	0.115	52	0.2	0.1	9.070	A
C-ABD	13	3	714	0.019	13	0.0	0.0	5.146	A
C-D	65	16			65				
C-A	116	29			116				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	61	15	535	0.114	61	0.2	0.1	7.613	A
B-AD	61	15	500	0.122	61	0.2	0.1	8.217	A
A-BCD	90	23	724	0.125	91	0.2	0.2	5.695	A
A-B	24	6			24				
A-C	66	16			66				
D-AB	101	25	586	0.173	101	0.3	0.2	7.439	A
D-BC	43	11	467	0.093	44	0.1	0.1	8.514	A
C-ABD	11	3	702	0.015	11	0.0	0.0	5.209	A
C-D	55	14			55				
C-A	98	24			98				

2030 Base Flows, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Penrhwylfa / Ffordd Flynnon / Ffordd Isa / Ffordd Penrhwylfa	Crossroads	Two-way		8.20	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2030 Base Flows	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fforddisa (East)		ONE HOUR	✓	341	100.000
B - Ffordd Penrhwylfa (South)		ONE HOUR	✓	133	100.000
C - Ffordd Ffynnon (West)		ONE HOUR	✓	214	100.000
D - Ffordd Penrhwylfa (North)		ONE HOUR	✓	366	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	44	151	146
	B - Ffordd Penrhwylfa (South)	41	0	10	82
	C - Ffordd Ffynnon (West)	147	12	0	55
	D - Ffordd Penrhwylfa (North)	189	106	71	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	0	0	0

	B - Ffordd Penrhwylfa (South)	0	0	0	0
	C - Ffordd Ffynnon (West)	0	0	0	0
	D - Ffordd Penrhwylfa (North)	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.14	9.25	0.2	A	51	76
B-AD	0.21	11.35	0.3	B	72	107
A-BCD	0.29	6.49	0.5	A	177	265
A-B					31	46
A-C					106	158
D-AB	0.55	16.00	1.2	C	230	345
D-BC	0.36	16.50	0.6	C	106	159
C-ABD	0.03	5.39	0.0	A	15	23
C-D					49	74
C-A					132	198

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	41	10	503	0.081	40	0.0	0.1	7.778	A
B-AD	60	15	461	0.129	59	0.0	0.1	8.946	A
A-BCD	137	34	752	0.181	135	0.0	0.3	5.834	A
A-B	27	7			27				
A-C	93	23			93				
D-AB	187	47	570	0.328	185	0.0	0.5	9.313	A
D-BC	89	22	433	0.204	88	0.0	0.3	10.389	B
C-ABD	12	3	681	0.017	12	0.0	0.0	5.382	A
C-D	41	10			41				
C-A	109	27			109				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	49	12	482	0.102	49	0.1	0.1	8.323	A
B-AD	70	18	437	0.161	70	0.1	0.2	9.825	A
A-BCD	171	43	763	0.224	170	0.3	0.4	6.079	A
A-B	31	8			31				
A-C	105	26			105				
D-AB	225	56	545	0.413	224	0.5	0.7	11.208	B
D-BC	104	26	401	0.260	104	0.3	0.3	12.123	B
C-ABD	15	4	688	0.021	15	0.0	0.0	5.348	A
C-D	48	12			48				
C-A	129	32			129				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	62	15	452	0.137	62	0.1	0.2	9.230	A

B-AD	85	21	403	0.210	84	0.2	0.3	11.313	B
A-BCD	222	56	779	0.286	222	0.4	0.5	6.475	A
A-B	35	9			35				
A-C	119	30			119				
D-AB	278	70	504	0.552	276	0.7	1.2	15.677	C
D-BC	125	31	344	0.362	124	0.3	0.6	16.278	C
C-ABD	19	5	699	0.028	19	0.0	0.0	5.298	A
C-D	59	15			59				
C-A	157	39			157				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	62	15	451	0.137	62	0.2	0.2	9.246	A
B-AD	85	21	402	0.211	85	0.3	0.3	11.353	B
A-BCD	223	56	779	0.286	223	0.5	0.5	6.487	A
A-B	35	9			35				
A-C	118	30			118				
D-AB	278	70	503	0.553	278	1.2	1.2	16.005	C
D-BC	125	31	343	0.364	125	0.6	0.6	16.502	C
C-ABD	19	5	699	0.028	19	0.0	0.0	5.299	A
C-D	59	15			59				
C-A	157	39			157				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	49	12	481	0.102	49	0.2	0.1	8.344	A
B-AD	70	18	436	0.161	71	0.3	0.2	9.872	A
A-BCD	171	43	764	0.224	171	0.5	0.4	6.099	A
A-B	31	8			31				
A-C	105	26			105				
D-AB	225	56	544	0.414	227	1.2	0.7	11.453	B
D-BC	104	26	399	0.261	105	0.6	0.4	12.281	B
C-ABD	15	4	688	0.021	15	0.0	0.0	5.353	A
C-D	48	12			48				
C-A	129	32			129				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	41	10	503	0.081	41	0.1	0.1	7.804	A
B-AD	60	15	460	0.129	60	0.2	0.2	9.000	A
A-BCD	137	34	753	0.182	137	0.4	0.3	5.863	A
A-B	27	7			27				
A-C	93	23			93				
D-AB	187	47	569	0.329	188	0.7	0.5	9.482	A
D-BC	88	22	432	0.205	89	0.4	0.3	10.512	B
C-ABD	12	3	681	0.017	12	0.0	0.0	5.386	A
C-D	41	10			41				
C-A	109	27			109				

2030 Base Flows, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Penrhwylfa / Ffordd Flynnon / Ffordd Isa / Ffordd Penrhwylfa	Crossroads	Two-way		5.50	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	2030 Base Flows	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fforddisa (East)		ONE HOUR	✓	253	100.000
B - Ffordd Penrhwylfa (South)		ONE HOUR	✓	186	100.000
C - Ffordd Ffynnon (West)		ONE HOUR	✓	228	100.000
D - Ffordd Penrhwylfa (North)		ONE HOUR	✓	211	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	38	105	110
	B - Ffordd Penrhwylfa (South)	28	0	23	135
	C - Ffordd Ffynnon (West)	138	11	0	79
	D - Ffordd Penrhwylfa (North)	101	87	23	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	0	0	0

	B - Ffordd Penrhwylfa (South)	0	0	0	0
	C - Ffordd Ffynnon (West)	0	0	0	0
	D - Ffordd Penrhwylfa (North)	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.22	9.63	0.3	A	87	130
B-AD	0.22	10.18	0.3	B	84	126
A-BCD	0.21	6.18	0.3	A	124	186
A-B					29	43
A-C					79	119
D-AB	0.30	9.55	0.4	A	135	202
D-BC	0.17	10.52	0.2	B	59	88
C-ABD	0.02	5.19	0.0	A	14	21
C-D					71	107
C-A					124	186

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	70	18	525	0.134	70	0.0	0.2	7.914	A
B-AD	70	17	496	0.140	69	0.0	0.2	8.426	A
A-BCD	97	24	725	0.134	97	0.0	0.2	5.728	A
A-B	25	6			25				
A-C	68	17			68				
D-AB	110	28	578	0.190	109	0.0	0.2	7.669	A
D-BC	49	12	461	0.106	48	0.0	0.1	8.716	A
C-ABD	11	3	705	0.015	11	0.0	0.0	5.187	A
C-D	59	15			59				
C-A	102	26			102				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	85	21	506	0.167	85	0.2	0.2	8.548	A
B-AD	82	21	479	0.172	82	0.2	0.2	9.086	A
A-BCD	120	30	731	0.164	120	0.2	0.2	5.903	A
A-B	29	7			29				
A-C	79	20			79				
D-AB	132	33	562	0.234	132	0.2	0.3	8.358	A
D-BC	58	14	442	0.131	58	0.1	0.1	9.383	A
C-ABD	14	3	717	0.019	14	0.0	0.0	5.121	A
C-D	70	17			70				
C-A	122	30			122				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	105	26	479	0.219	105	0.2	0.3	9.607	A

B-AD	100	25	454	0.220	100	0.2	0.3	10.160	B
A-BCD	154	39	738	0.209	154	0.2	0.3	6.167	A
A-B	33	8			33				
A-C	91	23			91				
D-AB	162	41	540	0.300	162	0.3	0.4	9.517	A
D-BC	70	18	413	0.170	70	0.1	0.2	10.500	B
C-ABD	18	4	734	0.024	18	0.0	0.0	5.029	A
C-D	85	21			85				
C-A	148	37			148				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	105	26	479	0.219	105	0.3	0.3	9.628	A
B-AD	100	25	454	0.220	100	0.3	0.3	10.181	B
A-BCD	154	39	738	0.209	154	0.3	0.3	6.177	A
A-B	33	8			33				
A-C	91	23			91				
D-AB	162	41	540	0.301	162	0.4	0.4	9.547	A
D-BC	70	18	413	0.170	70	0.2	0.2	10.520	B
C-ABD	18	4	734	0.025	18	0.0	0.0	5.032	A
C-D	85	21			85				
C-A	148	37			148				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	85	21	506	0.168	85	0.3	0.2	8.576	A
B-AD	82	21	478	0.172	83	0.3	0.2	9.114	A
A-BCD	120	30	731	0.165	121	0.3	0.2	5.912	A
A-B	28	7			28				
A-C	79	20			79				
D-AB	132	33	562	0.235	132	0.4	0.3	8.391	A
D-BC	58	14	441	0.131	58	0.2	0.2	9.407	A
C-ABD	14	3	717	0.019	14	0.0	0.0	5.122	A
C-D	70	17			70				
C-A	122	30			122				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	70	18	524	0.134	71	0.2	0.2	7.952	A
B-AD	70	17	496	0.140	70	0.2	0.2	8.468	A
A-BCD	97	24	725	0.134	98	0.2	0.2	5.746	A
A-B	25	6			25				
A-C	68	17			68				
D-AB	110	28	578	0.191	110	0.3	0.2	7.717	A
D-BC	49	12	461	0.106	49	0.2	0.1	8.752	A
C-ABD	11	3	705	0.015	11	0.0	0.0	5.190	A
C-D	59	15			59				
C-A	102	26			102				

2030 With Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Penrhwylfa / Ffordd Flynnon / Ffordd Isa / Ffordd Penrhwylfa	Crossroads	Two-way		23.28	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	2030 With Development	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fforddisa (East)		ONE HOUR	✓	349	100.000
B - Ffordd Penrhwylfa (South)		ONE HOUR	✓	150	100.000
C - Ffordd Ffynnon (West)		ONE HOUR	✓	224	100.000
D - Ffordd Penrhwylfa (North)		ONE HOUR	✓	475	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	44	151	154
	B - Ffordd Penrhwylfa (South)	41	0	10	99
	C - Ffordd Ffynnon (West)	147	12	0	65
	D - Ffordd Penrhwylfa (North)	212	161	102	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	0	0	0

	B - Ffordd Penrhwylfa (South)	0	0	0	0
	C - Ffordd Ffynnon (West)	0	0	0	0
	D - Ffordd Penrhwylfa (North)	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.17	9.87	0.2	A	59	89
B-AD	0.24	12.36	0.3	B	78	117
A-BCD	0.30	6.67	0.5	A	186	280
A-B					30	45
A-C					104	155
D-AB	0.85	51.14	4.6	F	286	430
D-BC	0.74	53.93	2.4	F	149	224
C-ABD	0.03	5.36	0.0	A	16	23
C-D					58	87
C-A					132	198

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	48	12	494	0.096	47	0.0	0.1	8.055	A
B-AD	65	16	452	0.145	65	0.0	0.2	9.289	A
A-BCD	144	36	751	0.192	143	0.0	0.3	5.923	A
A-B	27	7			27				
A-C	92	23			92				
D-AB	231	58	526	0.439	228	0.0	0.8	11.970	B
D-BC	127	32	412	0.308	125	0.0	0.4	12.479	B
C-ABD	12	3	684	0.017	12	0.0	0.0	5.357	A
C-D	48	12			48				
C-A	109	27			109				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	58	14	471	0.123	58	0.1	0.1	8.708	A
B-AD	77	19	425	0.181	77	0.2	0.2	10.350	B
A-BCD	180	45	761	0.237	180	0.3	0.4	6.200	A
A-B	30	8			30				
A-C	103	26			103				
D-AB	279	70	486	0.574	277	0.8	1.3	17.026	C
D-BC	148	37	359	0.412	147	0.4	0.7	16.889	C
C-ABD	15	4	692	0.022	15	0.0	0.0	5.318	A
C-D	57	14			57				
C-A	129	32			129				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	73	18	439	0.166	73	0.1	0.2	9.840	A

B-AD	92	23	386	0.239	92	0.2	0.3	12.236	B
A-BCD	235	59	776	0.303	234	0.4	0.5	6.651	A
A-B	34	8			34				
A-C	116	29			116				
D-AB	348	87	419	0.830	338	1.3	3.9	40.006	E
D-BC	175	44	252	0.693	170	0.7	2.0	41.422	E
C-ABD	20	5	705	0.028	20	0.0	0.0	5.261	A
C-D	70	17			70				
C-A	157	39			157				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	73	18	438	0.166	73	0.2	0.2	9.870	A
B-AD	92	23	384	0.240	92	0.3	0.3	12.362	B
A-BCD	235	59	776	0.303	235	0.5	0.5	6.669	A
A-B	34	8			34				
A-C	116	29			116				
D-AB	349	87	412	0.848	346	3.9	4.6	51.145	F
D-BC	174	43	236	0.736	172	2.0	2.4	53.925	F
C-ABD	20	5	704	0.028	20	0.0	0.0	5.263	A
C-D	70	17			70				
C-A	157	39			157				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	58	14	471	0.123	58	0.2	0.1	8.742	A
B-AD	77	19	421	0.183	77	0.3	0.2	10.483	B
A-BCD	180	45	761	0.237	181	0.5	0.4	6.222	A
A-B	30	8			30				
A-C	103	26			103				
D-AB	280	70	478	0.586	293	4.6	1.5	20.613	C
D-BC	147	37	345	0.425	154	2.4	0.8	19.382	C
C-ABD	15	4	692	0.022	15	0.0	0.0	5.321	A
C-D	57	14			57				
C-A	129	32			129				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	48	12	493	0.097	48	0.1	0.1	8.090	A
B-AD	65	16	450	0.145	66	0.2	0.2	9.369	A
A-BCD	144	36	751	0.192	145	0.4	0.3	5.954	A
A-B	27	7			27				
A-C	92	23			92				
D-AB	231	58	523	0.442	234	1.5	0.8	12.570	B
D-BC	126	32	409	0.310	128	0.8	0.5	12.886	B
C-ABD	12	3	684	0.017	12	0.0	0.0	5.361	A
C-D	48	12			48				
C-A	109	27			109				

2030 With Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ffordd Penrhwylfa / Ffordd Flynnon / Ffordd Isa / Ffordd Penrhwylfa	Crossroads	Two-way		6.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2030 With Development	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fforddisa (East)		ONE HOUR	✓	275	100.000
B - Ffordd Penrhwylfa (South)		ONE HOUR	✓	240	100.000
C - Ffordd Ffynnon (West)		ONE HOUR	✓	258	100.000
D - Ffordd Penrhwylfa (North)		ONE HOUR	✓	258	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	38	105	132
	B - Ffordd Penrhwylfa (South)	28	0	23	189
	C - Ffordd Ffynnon (West)	138	11	0	109
	D - Ffordd Penrhwylfa (North)	111	111	36	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Fforddisa (East)	B - Ffordd Penrhwylfa (South)	C - Ffordd Ffynnon (West)	D - Ffordd Penrhwylfa (North)
From	A - Fforddisa (East)	0	0	0	0

	B - Ffordd Penrhwylfa (South)	0	0	0	0
	C - Ffordd Ffynnon (West)	0	0	0	0
	D - Ffordd Penrhwylfa (North)	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.31	11.71	0.4	B	113	170
B-AD	0.29	11.69	0.4	B	107	161
A-BCD	0.25	6.62	0.4	A	149	224
A-B					27	41
A-C					76	114
D-AB	0.37	11.38	0.6	B	157	236
D-BC	0.25	12.48	0.3	B	80	119
C-ABD	0.03	5.12	0.0	A	15	22
C-D					98	147
C-A					124	186

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	92	23	501	0.183	91	0.0	0.2	8.761	A
B-AD	89	22	487	0.183	88	0.0	0.2	9.008	A
A-BCD	117	29	720	0.162	116	0.0	0.2	5.961	A
A-B	24	6			24				
A-C	66	17			66				
D-AB	128	32	557	0.230	127	0.0	0.3	8.348	A
D-BC	66	17	446	0.149	66	0.0	0.2	9.463	A
C-ABD	11	3	715	0.016	11	0.0	0.0	5.116	A
C-D	81	20			81				
C-A	102	26			102				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	110	28	479	0.231	110	0.2	0.3	9.775	A
B-AD	105	26	467	0.226	105	0.2	0.3	9.955	A
A-BCD	144	36	724	0.199	144	0.2	0.3	6.215	A
A-B	27	7			27				
A-C	75	19			75				
D-AB	154	38	537	0.286	153	0.3	0.4	9.377	A
D-BC	78	20	421	0.186	78	0.2	0.2	10.498	B
C-ABD	14	4	730	0.020	14	0.0	0.0	5.037	A
C-D	96	24			96				
C-A	122	30			122				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	137	34	445	0.308	137	0.3	0.4	11.651	B

B-AD	127	32	436	0.292	127	0.3	0.4	11.663	B
A-BCD	186	46	731	0.254	185	0.3	0.4	6.608	A
A-B	31	8			31				
A-C	86	22			86				
D-AB	190	47	507	0.375	189	0.4	0.6	11.310	B
D-BC	94	24	383	0.246	94	0.2	0.3	12.424	B
C-ABD	19	5	750	0.025	19	0.0	0.0	4.929	A
C-D	117	29			117				
C-A	148	37			148				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	137	34	445	0.308	137	0.4	0.4	11.709	B
B-AD	127	32	435	0.292	127	0.4	0.4	11.693	B
A-BCD	186	46	731	0.254	186	0.4	0.4	6.620	A
A-B	31	8			31				
A-C	86	22			86				
D-AB	190	47	507	0.375	190	0.6	0.6	11.378	B
D-BC	94	24	383	0.246	94	0.3	0.3	12.477	B
C-ABD	19	5	750	0.025	19	0.0	0.0	4.930	A
C-D	117	29			117				
C-A	148	37			148				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	111	28	478	0.231	111	0.4	0.3	9.835	A
B-AD	105	26	466	0.226	106	0.4	0.3	10.008	B
A-BCD	145	36	724	0.200	145	0.4	0.3	6.231	A
A-B	27	7			27				
A-C	75	19			75				
D-AB	154	38	537	0.286	154	0.6	0.4	9.449	A
D-BC	78	20	420	0.186	79	0.3	0.2	10.552	B
C-ABD	14	4	729	0.020	14	0.0	0.0	5.041	A
C-D	96	24			96				
C-A	122	30			122				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	92	23	501	0.183	92	0.3	0.2	8.830	A
B-AD	89	22	487	0.183	89	0.3	0.2	9.074	A
A-BCD	117	29	720	0.163	117	0.3	0.2	5.986	A
A-B	24	6			24				
A-C	66	17			66				
D-AB	128	32	557	0.230	128	0.4	0.3	8.424	A
D-BC	66	17	445	0.149	66	0.2	0.2	9.528	A
C-ABD	11	3	715	0.016	11	0.0	0.0	5.120	A
C-D	81	20			81				
C-A	102	26			102				

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