

Project number: 19198
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Subject: Response to TA Audit prepared by Redstart

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File name: 19198 TN01

1 Introduction

1.1 Background

- 1.1.1 This technical note has been prepared in response to an audit of the Twynyrodyn, Merthyr Tydfil Transport Assessment (October 2021) produced in support of the planning application (P/21/0358) for the construction of 131 dwellings on land to the west of Elm Tree Grove, Merthyr Tydfil.
- 1.1.2 It should be noted that since the submission of the planning application, the scale of the proposed development has been reduced from 131 dwellings to 121 dwellings. The revised development proposals are presented in **Figure 1.1** over the page.



Figure 1.1 Revised development proposals

1.2 Structure of this technical note

1.2.1 Following this introductory section, the report is structured as follows:

- Section 2 details the walking and cycling infrastructure to serve the proposed development, including Public Rights of Way;
- Section 3 discusses off-site infrastructure;
- Section 4 describes on-site car parking provision;
- Section 5 details trip generation, distribution and assignment; and,
- Section 6 outlines the impact of the proposed development;

2 Access

2.1 Access to Wallhead Road

2.1.1 As discussed at the meeting on 6th December 2021, this access is already used as an informal route for pedestrians between Elm Tree Grove/the play area and Wallhead Road.

2.1.2 The lane (to the rear of properties fronting Penheolferthyr) does not incorporate any dedicated pedestrian facilities but, as the lane only serves approximately eight garages, the volume of traffic using the lane is low, and it acts as a shared surface road.

2.1.3 There is lighting along Wallhead Road, adjacent to the lane, which provides a level of overspill lighting, and there is an element of overlooking and overspill lighting from the properties along the northern edge of the lane (fronting Penheolferthyr).

2.1.4 As part of the development, it is proposed to provide a footpath link within the red-line boundary, from the garages to the main access road, thereby improving pedestrian and cycle links to the north-west of the site. Whilst it is not possible to widen the link between the two garages, the proposed footpath link within the site will be provided with a metalled surface, and a width of 2.5m. It should also be noted that the width of the pathway between the garages doesn't preclude its use as a footpath.

2.1.5 It is also possible to provide low level lighting along the footpath link within the site, and to provide directional lighting at the end of the footpath to light the route between the two garages, thereby improving the existing facility.

2.2 Access to Aneurin Crescent

2.2.1 As discussed at the meeting, it is proposed to remove the link to the north of the garages on to Aneurin Crescent, and to improve the surfacing of the existing Public Right of Way (within the red-line boundary) with crushed aggregate surfacing to provide a year-round route for pedestrians to Aneurin Crescent.

2.2.2 It is also anticipated that Community Infrastructure Levy (CIL) contributions can be utilised to improve the surfacing of the Public Right of Way outside the red-line boundary.

2.3 Public Rights of Way (PRoW)

2.3.1 It is not intended to extinguish any existing Public Rights of Way within the site, but to improve and enhance their provision.

2.3.2 However, it is acknowledged that PRoW 108/13 will possibly need to be diverted to follow the on-site layout, and this would be achieved by widening the main footpath through the site to create a shared-use route with a width of 2.5m (see **Figure 2.1** below).

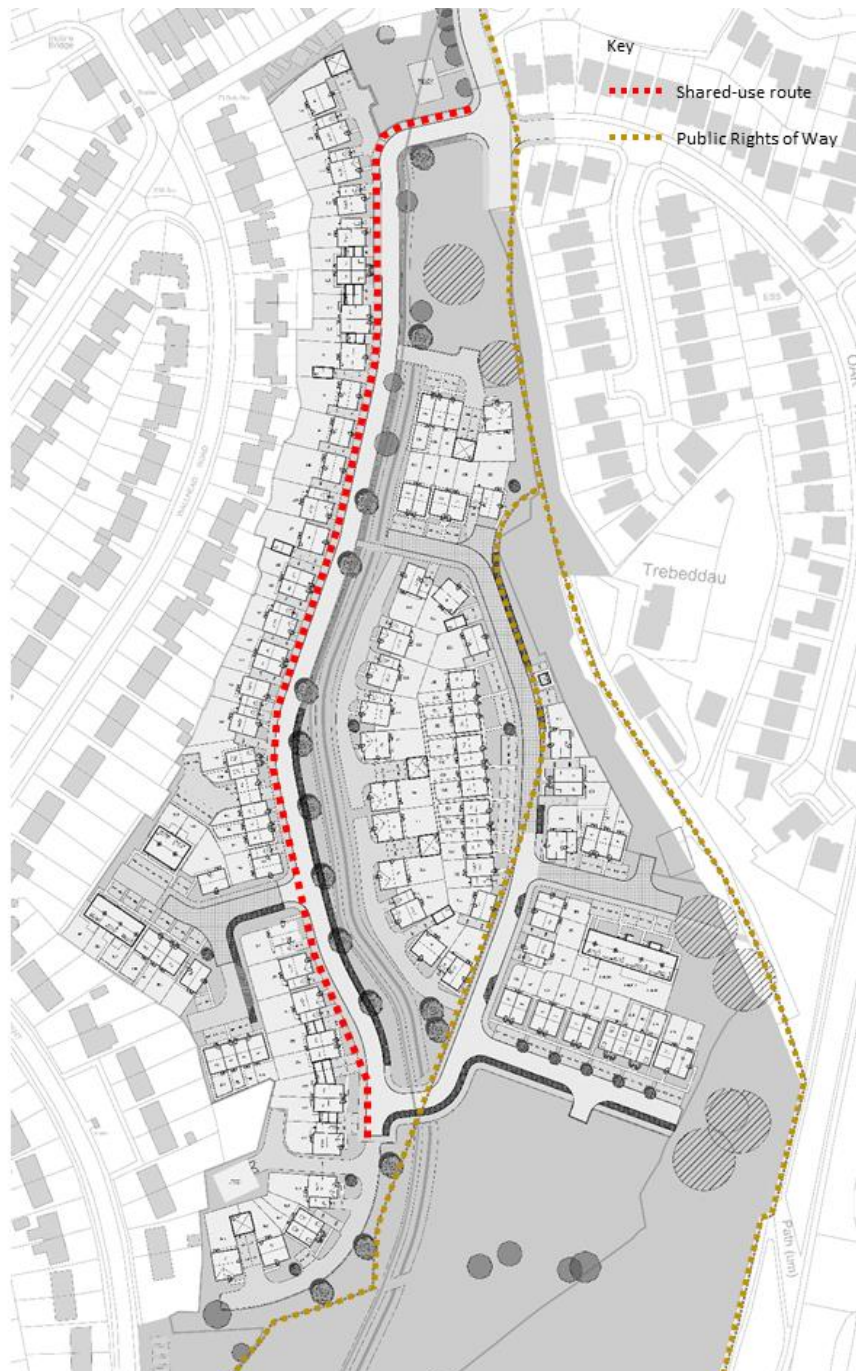


Figure 2.1 PRoW within the site

2.4 Cycling

- 2.4.1 The Merthyr Tydfil Replacement Local Plan 2016 to 2031 was adopted on 29th January 2020, and as stated in the Local Plan, *'car parking standards will be updated and will be available within the next two years'*. Unfortunately, updated parking standards have not yet been produced, and therefore the previous standards apply.
- 2.4.2 The adopted standards are based on the County Surveyors Society (CSS) Wales Parking Standards 2008, and in relation to residential dwellings, there is no requirement to provide cycle parking for houses, as it is anticipated that cycle parking can be accommodated within garages or within the rear gardens of properties (without garages).
- 2.4.3 However, as part of the development, it is proposed to provide visitor parking (in the form of Sheffield stands) dispersed throughout the development, to encourage visitors to cycle to the site. The exact number and location(s) for visitor cycle parking will be agreed with the Local Planning Authority prior to first occupation of the site.

2.5 Active Travel

- 2.5.1 As far as we are aware, the Merthyr Tydfil Integrated Network Map has not yet been approved, and therefore it is inappropriate to include provision for a shared-use route through the site. However, this site was allocated in the previous LDP and is allocated in the Replacement Local Plan 2016-2031, so it is anticipated that the provision of a shared-use route through the site would have been proposed on the basis that the site would be re-developed for housing.
- 2.5.2 Notwithstanding the above, the proposed scheme incorporates a 2.5m wide shared-use route through the site linking Penheolferthyr with Aneurin Crescent, which could form part of the Approved Integrated Network Map – see Figure 2.1 above.

2.6 Emergency access

- 2.6.1 In their Audit, Redstart states that *'only a single point of access to the site is shown. As the number of dwellings is in excess of 100, a second emergency access would be beneficial'*. There is no recent guidance to suggest that a development of more than 100 dwellings requires a second/emergency access.
- 2.6.2 Manual for Streets states
- (Para 6.7.1) *'The requirements for emergency vehicles are generally dictated by the fire service requirements'*
 - (Para 6.7.2) *'There should be a minimum carriageway width of 3.7m between kerbs'*
 - (Para 6.7.3 1st bullet) *'Simply to reach the fire, the access route could be reduced to 2.75m over short distances';*
 - (Para 6.7.3 3rd bullet) *'The number of dwellings have been used by local authorities as criteria for limiting the size of a development served by a single access route. Authorities have often argued that the larger the site, the more likely it is that a single access could be blocked for whatever reason. The fire services adopt a less numbers driven approach and consider each application based on a risk assessment and response time requirements.'*

2.6.3 The carriageway width through the site is 5.5m, and even with cars parked on-street, the available width of carriageway would still be more than 3.5m (over short distances), which is sufficient for a fire tender to reach a fire within the site.

2.6.4 It is, therefore, considered that there is no requirement to provide a second emergency access.

3 Off-site infrastructure

3.1 Public Transport

3.1.1 Pedestrian access to the existing bus stops on Wallhead Road and Aneurin Crescent was discussed at length at the meeting on 9th December 2021, as summarised above.

3.1.2 Also, as discussed at the meeting, it is anticipated that improvements to the passenger waiting infrastructure at these bus stops can be funded through the CIL contribution.

3.2 Off-site improvements and Transport Implementation strategy

3.2.1 In their Audit, Redstart has suggested that '*contributions to further improve sustainable transport outside the site would be beneficial*', and it is anticipated that any further improvements to off-site infrastructure/sustainable transport can be secured through the CIL contribution.

4 Car parking

4.1 Ultra-low emissions vehicles

4.1.1 Planning Policy Wales 11th Edition requires 10% of all new dwellings to be provided with Electric Vehicle charging facilities. It is anticipated that as a minimum the proposed development will include the required number of EV charging points in accordance with the adopted standards.

4.2 Parking

4.2.1 In accordance with Manual for Streets (Figure 7.1, page 79) a carriageway width of 4.8m is wide enough to allow a HGV (such as a refuse vehicle) to pass a car. The proposed access has a carriageway width of 5.5m and can, therefore, accommodate large vehicles such as a refuse vehicle, delivery vehicle or even a fire tender passing visitors' cars parked on-street.

4.2.2 In addition, the volume of large vehicles generated by a residential development is relatively low. A refuse vehicle will access the site once a week, whereas the maximum size of delivery vehicle (to residential developments) is a 10m rigid, and more likely an 8m rigid vehicle, with the majority of deliveries undertaken by cars, and small vans (up to 4.6tonnes). It is therefore considered that on-street parking, with a carriageway width of 5.5m is entirely appropriate within a residential setting.

5 Trip generation, distribution and assignment

5.1 Trip generation

AM peak

- 5.1.1 Based on the surveys undertaken by Redstart on 1st December 2021 (during the AM peak only), the number of vehicle arrivals and vehicle departures generated by the existing residential dwellings on Elm Tree Grove, Oak Tree Rise, Cedar Close and Hawthorn Drive are set out in **Table 5.1** below.

Table 5.1 Existing vehicle trip rates

	Arrive	Depart	Total
AM peak	19	48	67

- 5.1.2 Assuming there are 98 dwellings on Elm Tree Grove, Oak Tree Rise, Cedar Close and Hawthorn Drive, and the proposed development comprises 121 dwellings, the number of arrivals and departures generated by the proposed development in the AM peak period are set out in **Table 5.2** below.

Table 5.2 Vehicle trip rates – proposed development

	Arrive	Depart	Total
Previous TA (Oct 2021)	17	45	62
AM peak (based on the December surveys)	23	59	82
Change	+6	+14	+20

- 5.1.3 Table 5.2 also provides a comparison with the vehicle trip rates from the previous TA (October 2021), and it can be seen that the revised trip rates result in an increase of 20 vehicle movements (two-way) in the AM peak, which equates to an increase of one vehicle every three minutes.

PM peak

- 5.1.4 Turning to the PM peak, based on the 2019 surveys at the Penheolferthyr/Elm Tree Grove roundabout, the number of vehicle arrivals and vehicle departures generated by the existing residential dwellings on Elm Tree Grove, Oak Tree Rise, Cedar Close and Hawthorn Drive are set out in **Table 5.3** below.

Table 5.3 Existing vehicle trip rates (2019 survey)

	Arrive	Depart	Total
PM peak	42	38	80

- 5.1.5 Assuming there are 98 dwellings on Elm Tree Grove, Oak Tree Rise, Cedar Close and Hawthorn Drive, and the proposed development comprises 121 dwellings, the number of arrivals and departures generated by the proposed development in the PM peak period are set out in **Table 5.4** over the page.

Table 5.4 Vehicle trip rates – proposed development

	Arrive	Depart	Total
Previous TA (Oct 2021)	40	23	63
PM peak (based on the 2019 surveys)	52	46	98
Change	+12	+23	+35

5.1.6 Table 5.4 also provides a comparison with the vehicle trip rates from the previous TA (October 2021), and it can be seen that the revised trip rates result in an increase of 35 vehicle movements (two-way) in the PM peak, which equates to an increase of approximately one vehicle every two minutes.

5.1.7 However, it can also be seen from the survey undertaken by Redstart, on 1st December 2021, that the number of vehicle arrivals and vehicle departures generated by the existing residential dwellings on Elm Tree Grove, Oak Tree Rise, Cedar Close and Hawthorn Drive are significantly lower than the number of vehicles generated by the same residential dwellings in 2019 (from the 2019 surveys). **Table 5.5** below provides a comparison of the number of vehicles travelling along Elm Tree Grove in 2019 and 2021.

Table 5.5 Comparison of volume of vehicles along Elm Tree Grove

	Northbound	Southbound	Total
2019 AM peak	78	42	120
2021 AM peak	53	30	83
Change	-32%	-29%	-31%

5.1.8 It can be seen from the table above that the AM peak hour trips generated by the existing residential dwellings on Elm Tree Grove, Oak Tree Rise, Cedar Close and Hawthorn Drive have reduced by on average 31% between 2019 and 2021, which reflects the Welsh Government target of 30% of Welsh workers to work from home (or close to home) – announcement in September 2020.

5.1.9 It is therefore considered that, as with the AM peak period, trips generated by the existing dwellings on Elm Tree Grove, Oak Tree Rise, Cedar Close and Hawthorn Drive during the PM peak period could be up to 30% lower than they were in 2019 to reflect the fact that more people are working from home (either all of the time or some of the time).

5.1.10 Applying a 30% reduction to the PM peak hour trips outlined in Table 5.4 above, results in the vehicle arrivals and vehicle departures set out in **Table 5.6** below.

Table 5.6 PM peak vehicle trip rates – proposed development

	Arrive	Depart	Total
Previous TA (Oct 2021)	40	23	63
PM peak (30% reduction)	36	32	68
Change	-4	+9	+5

Distribution

5.1.11 It can be seen from the results of the 2021 surveys undertaken by Redstart that basing the trip distribution on turning proportions at the Penheolferthyr/Elm Tree Grove junction can provide widely different results on different days.

5.1.12 For example, **Table 5.7** below compares the distribution based on the turning counts from the 2019 survey with the turning counts from the 2021 survey.

Table 5.7 Comparison of distribution from the 2019 and 2021 surveys

	To Penheolferthyr (w)	To Penheolferthyr (e)	From Penheolferthyr (w)	From Penheolferthyr (e)
2019	53%	46%	38%	62%
2021	40%	60%	41%	59%
Difference	-25%	+30%	+8%	-5%

5.1.13 It can be seen that the differences, particularly for traffic leaving the site, are significant, and the same could be true for the PM peak period, albeit no additional surveys were undertaken by Redstart.

5.1.14 A more appropriate methodology, which was applied in the October 2021 TA, is to use Census data to determine the usual place of work for existing residents within the vicinity of the site (usually Lower Super Output Area), and then assign traffic to the most suitable routes.

5.1.15 However, notwithstanding the comments above, the latest assessments have been undertaken on the distribution identified by Redstart.

Growth rates

5.1.16 Redstart agree that the growth rates used in the assessment are acceptable. However, it is considered that applying growth rates to base traffic flows, which are based on recent planning data (i.e. known or allocated sites), will result in double-counting and overstating the impact of the proposed development.

5.1.17 Also, as noted above, comparing the 2019 traffic surveys (on Elm Tree Grove) with the 2021 survey undertaken by Redstart, it can be seen that AM peak hour traffic flows have reduced between 29-32%. This is in line with the Welsh Government target for 30% of Welsh workers to work from home or close to home.

5.1.18 However, for the purposes of this assessment, the original growth rates have been applied to the base surveyed flows to determine future base traffic flows in 2024, 2029 and 2034.

6 Junction capacity analysis

6.1 Percentage impact analysis

6.1.1 In accordance with Technical Advice Note (TAN) 18:

‘an increase in turning movements in the order of 5% as material in most cases..’

And,

‘Where the capacity of the junction is, or is near to being exceeded, a smaller percentage increase on a link would normally be material’

6.1.2 **Table 6.1** over the page outlines the percentage increase in traffic flows at each junction within the study area.

Table 6.1 Percentage impact assessment

		Junction 1				Junction 2				Junction 3			
		Base	Dev	Base + Dev	%inc.	Base	Dev	Base + Dev	%inc.	Base	Dev	Base + Dev	%inc.
2019	AM	1719				782		782		786		786	
	PM	1904		1904		746		746		773		773	
2024	AM	1808	28	1836	1.52	823	34	857	3.97	827	82	909	9.02
	PM	2001	15	2016	0.73	784	26	810	3.15	813	68	881	7.76
2029	AM	1885	28	1913	1.46	857	34	892	3.82	862	82	944	8.69
	PM	2086	15	2101	0.70	817	26	843	3.03	843	68	915	7.46
2034	AM	1966	28	1994	1.40	895	34	929	3.67	929	82	981	8.36
	PM	2176	15	2191	0.67	853	26	878	2.91	878	68	952	7.18
		Junction 4				Junction 5				Junction 6			
		Base	Dev	Base + Dev	%inc.	Base	Dev	Base + Dev	%inc.	Base	Dev	Base + Dev	%inc.
2019	AM	1598		1598		2414		2414		3404		3404	
	PM	1739		1739		2629		2629		4270		4270	
2024	AM	1681	46	1727	2.64	2540	28	2568	1.10	3581	28	3609	0.77
	PM	1828	43	1871	2.29	2764	29	2793	1.03	4488	12	4500	0.26
2029	AM	1752	46	1798	2.53	2647	28	2675	1.06	3733	28	3761	0.74
	PM	1905	43	1948	2.20	2881	29	2910	0.99	4678	12	4690	0.25
2034	AM	1828	46	1874	2.43	2761	28	2790	1.01	3894	28	3922	0.71
	PM	1988	43	2030	2.11	3005	29	3034	0.95	4880	12	4892	0.24
		Junction 7											
		Base	Dev	Base + Dev	%inc.								
2019	AM	1076		1076									
	PM	1270		1270									
2024	AM	1132	9	1140	0.75								
	PM	1335	4	1339	0.32								
2029	AM	1180	9	1188	0.72								
	PM	1463	4	1467	0.29								
2034	AM	1231	9	1239	0.69								
	PM	1672	4	1676	0.25								

6.1.3 It can be seen from the table above, that with the amended trip rates and revised distribution, the percentage increase at six out of seven junctions is well below the 5% threshold outlined in TAN18.

6.1.4 As discussed at the meeting on 6th December 2021, the Highway Authority indicated that the network was already congested and that any increase in traffic would be considered material. However, the Highway Authority were not able to provide any data to demonstrate the existing congestion.

6.1.5 **Appendix A** presents the results of queue length surveys undertaken at Junction 1 (Twynyrodyn Road/Court Street/Tramroadside N/Tesco Extra roundabout) and Junction 6 (Lower High Street/High Street/A4102/ A4054 Avenue De Clichy roundabout). It can be seen from the results of the surveys that the queue lengths were relatively minor, which indicates that there is no significant congestion at either of these two junctions.

6.1.6 Also, as set out in section 5 above, traffic generated by the existing residential dwellings on Elm Tree Grove, Oak Tree Rise, Cedar Close and Hawthorn Drive has reduced by on average 31% between 2019 and 2021. This reflects the Welsh Government target of 30% of Welsh workers to work from home (or close to home) and is likely to be reflected across the borough.

6.1.7 It should also be noted that a 'predict and provide' approach to junction capacity analysis and mitigation measures is contrary to Welsh Government Policy, which seeks to prioritise Active Travel and Public transport at the expense of motor vehicle traffic.

6.1.8 Notwithstanding the above and based on the percentage increases in traffic flows identified in Table 6.1 above, full capacity analysis has been undertaken at Junction 2 (Gilfach Cynon/Wallhead Road/Penheolferthyr roundabout) and Junction 3 (Penheolferthyr/Elm Tree Grove roundabout) as set out below.

6.2 Junction 2 - Gilfach Cynon/Wallhead Road/Penheolferthyr roundabout

6.2.1 The operation of the existing junction has been assessed for both the AM and PM peak periods, and calibrated based on observed queues on each approach to the junction.

Queue lengths

6.2.2 The observed queue lengths, on each approach to the junction are outlined in **Table 6.2** below.

Table 6.2 Observed queue length

Average maximum queue									
Time	AM peak				Time	AM peak			
	Penheol'	Wallhead Road	Gilfach Cynon	School access		Penheol'	Wallhead Road	Gilfach Cynon	School access
08:00	0	0	1	0	17:00	1	0	0	0
08:05	0	1	1	0	17:05	1	1	1	0
08:10	0	0	0	0	17:10	0	0	0	0
08:15	1	0	0	0	17:15	0	0	0	0
08:20	0	0	1	0	17:20	1	1	1	0
08:25	0	1	0	0	17:25	0	1	0	0
08:30	0	1	0	0	17:30	0	0	1	0
08:35	1	0	1	0	17:35	0	0	1	0
08:40	0	1	1	0	17:40	1	1	1	0
08:45	0	0	0	0	17:45	1	1	0	0
08:50	1	0	0	0	17:50	0	1	1	0
08:55	0	0	1	0	17:55	0	0	1	0

6.2.3 The operation of the junction has been undertaken using Junctions 9 – ARCADY, based on the surveyed flows. After an initial model run, the capacities of each arm at each junction were manually adjusted (increased or decreased), and the model re-run until the modelled queues replicated the observed queues (iterative process).

6.2.4 The results of the analysis, together with the junction dimensions, are presented in full in **Appendix B** and summarised in **Table 6.3** over the page.

Table 6.3 Junction capacity analysis – Junction 2

	Base				Base + development			
	8am-9am		5pm-6pm		8am-9am		5pm-6pm	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
2019								
Penheolferthyr	0.53	1	0.43	<1				
Wallhead Road	0.57	1	0.39	<1				
Gilfach Cynon	0.26	<1	0.37	<1				
Twynyrodyn Community Sch	0.05	<1	0.00	<1				
2024								
Penheolferthyr	0.55	1	0.43	<1	0.59	1	0.47	1
Wallhead Road	0.60	1	0.39	<1	0.65	2	0.42	1
Gilfach Cynon	0.27	<1	0.37	<1	0.28	<1	0.40	1
Twynyrodyn Community Sch	0.06	<1	0.00	<1	0.06	<1	0.00	0
2029								
Penheolferthyr	0.58	1	0.47	<1	0.61	2	0.49	1
Wallhead Road	0.65	1	0.43	<1	0.68	2	0.44	1
Gilfach Cynon	0.28	<1	0.41	<1	0.29	<1	0.42	1
Twynyrodyn Community Sch	0.06	<1	0.00	<1	0.06	<1	0.00	0
2034								
Penheolferthyr	0.61	1	0.48	<1	0.64	2	0.51	1
Wallhead Road	0.68	1	0.45	<1	0.71	2	0.46	1
Gilfach Cynon	0.29	<1	0.45	<1	0.30	<1	0.43	1
Twynyrodyn Community Sch	0.06	<1	0.00	<1	0.06	<1	0.00	0

6.2.5 It can be seen from the table above that the existing junction operates within its theoretical capacity up to (and including) the 2034 with development scenarios, with a maximum RFC of 0.71 and queue of two vehicles on the Wallhead Road approach to the junction in the AM peak period for the 2034 'with development' scenarios. This is well below the practical reserve capacity of the junction (which is generally accepted to be 0.85 RFC).

6.2.6 It can also be seen that the proposed development (with the amended trip rates and revised trip distribution) will have a marginal impact on the operation of the junction.

6.3 Junction 3 - Penheolferthyr/Elm Tree Grove roundabout

6.3.1 An assessment of the operation of the existing junction has been assessed for both the AM and PM peak periods, based on observed queues on each approach to the junction.

Queue lengths

6.3.2 The observed queue lengths, on each approach to the junction are outlined in **Table 6.4** below.

Table 6.4 Observed queue length

Average maximum queue							
AM peak				PM peak			
Time	Penheol-ferthyr (e)	Elm Tree Grove	Penheol-ferthyr (w)	Time	Penheol-ferthyr (e)	Elm Tree Grove	Penheol-ferthyr (w)
08:00	0	0	0	17:00	0	0	1
08:05	0	1	0	17:05	0	0	1
08:10	0	0	1	17:10	0	0	0
08:15	1	1	0	17:15	0	1	1
08:20	0	0	0	17:20	0	0	0
08:25	0	0	1	17:25	1	0	0
08:30	1	0	0	17:30	1	1	0
08:35	1	1	0	17:35	1	0	1
08:40	0	1	0	17:40	0	1	1
08:45	0	0	1	17:45	0	0	0
08:50	1	1	0	17:50	1	0	1
08:55	0	1	0	17:55	0	1	1

6.3.3 The operation of the junction has been undertaken using Junctions 9 – ARCADY, based on the surveyed flows. After an initial model run, the capacities of each arm at each junction were manually adjusted (increased or decreased), and the model re-run until the modelled queues replicated the observed queues (iterative process).

6.3.4 The results of the analysis are presented in full in **Appendix C** and a summary of the results are shown in **Table 6.5** below.

Table 6.5 Junction capacity analysis – Junction 3

	Base				Base + development			
	8am-9am		5pm-6pm		8am-9am		5pm-6pm	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
2019								
Penheolferthyr (E)	0.37	<1	0.33	<1				
Elm Tree Grove	0.32	<1	0.15	<1				
Penheolferthyr (W)	0.44	<1	0.58	<1				
Unnamed road	0.00	<1	0.00	<1				
2024								
Penheolferthyr (E)	0.39	<1	0.35	<1	0.41	1	0.38	1
Elm Tree Grove	0.34	<1	0.16	<1	0.59	1	0.30	<1
Penheolferthyr (W)	0.46	<1	0.62	<1	0.49	1	0.63	2
Unnamed road	0.00	<1	0.00	<1	0.00	<1	0.00	0

2029								
Penheolferthyr (E)	0.42	<1	0.36	<1	0.43	1	0.39	1
Elm Tree Grove	0.36	<1	0.17	<1	0.61	2	0.31	<1
Penheolferthyr (W)	0.48	<1	0.64	1	0.51	1	0.65	2
Unnamed road	0.00	<1	0.00	<1	0.00	0	0.00	0
2034								
Penheolferthyr (E)	0.44	<1	0.38	<1	0.45	1	0.41	1
Elm Tree Grove	0.38	<1	0.18	<1	0.64	2	0.32	1
Penheolferthyr (W)	0.50	<1	0.50	1	0.53	1	0.68	2
Unnamed road	0.00	<1	0.00	<1	0.00	0	0.00	0

- 6.3.5 It can be seen from the table above that the existing junction has sufficient capacity to accommodate traffic growth to 2034 together with development generated traffic, with a maximum RFC of 0.64, and a queue of two vehicles on the Elm Tree Grove approach to the junction in the PM peak period for the 2034 with development scenarios. This is well below the practical reserve capacity of the junction (which is generally accepted to be 0.85 RFC).
- 6.3.6 It can also be seen that the proposed development (with the amended trip rates and revised trip distribution) will have a marginal impact on the operation of the junction.

Appendices



Appendix A



Queue length survey data

2019

AM 08:00 - 09:00, PM 17:00-18:00

JUNCTION 6: Avenue De Clichy roundabout

Avenue De Clichy		A4102		High Street		Lower High Street	
TIME	QUEUE LENGTH	TIME	QUEUE LENGTH	TIME	QUEUE LENGTH	TIME	QUEUE LENGTH
08:00	0	08:00	0	08:00	3	08:00	2
08:05	3	08:05	4	08:05	3	08:05	3
08:10	6	08:10	3	08:10	5	08:10	2
08:15	4	08:15	7	08:15	4	08:15	2
08:20	3	08:20	2	08:20	5	08:20	6
08:25	4	08:25	4	08:25	4	08:25	4
08:30	4	08:30	5	08:30	3	08:30	4
08:35	6	08:35	5	08:35	4	08:35	5
08:40	5	08:40	7	08:40	3	08:40	2
08:45	7	08:45	6	08:45	6	08:45	2
08:50	4	08:50	5	08:50	4	08:50	3
08:55	9	08:55	3	08:55	4	08:55	5
09:00	7	09:00	0	09:00	3	09:00	3
62		51		51		43	

Avenue De Clichy		A4102		High Street		Lower High Street	
TIME	QUEUE LENGTH	TIME	QUEUE LENGTH	TIME	QUEUE LENGTH	TIME	QUEUE LENGTH
17:00	0	17:00	0	17:00	0	17:00	0
17:05	0	17:05	0	17:05	0	17:05	0
17:10	0	17:10	0	17:10	0	17:10	0
17:15	0	17:15	0	17:15	0	17:15	0
17:20	0	17:20	0	17:20	0	17:20	0
17:25	2	17:25	2	17:25	0	17:25	3
17:30	13	17:30	4	17:30	0	17:30	7
17:35	5	17:35	4	17:35	0	17:35	6
17:40	6	17:40	8	17:40	0	17:40	2
17:45	6	17:45	4	17:45	0	17:45	4
17:50	6	17:50	4	17:50	0	17:50	3
17:55	8	17:55	4	17:55	0	17:55	2
18:00	6	18:00	4	18:00	0	18:00	2

Queue length survey data

2019

AM 08:00-09:00

JUNCTION 1: Tesco roundabout

Tramroadside N		Twynyrodyn Road		Court Street		Tesco superstore	
TIME	QUEUE LENGTH	TIME	QUEUE LENGTH	TIME	QUEUE LENGTH	TIME	QUEUE LENGTH
08:00	0	08:00	2	08:00	0	08:00	0
08:05	0	08:05	2	08:05	1	08:05	0
08:10	0	08:10	1	08:10	2	08:10	0
08:15	0	08:15	1	08:15	0	08:15	0
08:20	0	08:20	4	08:20	2	08:20	0
08:25	0	08:25	4	08:25	4	08:25	0
08:30	0	08:30	3	08:30	4	08:30	0
08:35	0	08:35	3	08:35	2	08:35	0
08:40	0	08:40	3	08:40	2	08:40	0
08:45	0	08:45	1	08:45	4	08:45	0
08:50	0	08:50	5	08:50	2	08:50	0
08:55	0	08:55	1	08:55	3	08:55	0
09:00	0	09:00	0	09:00	0	09:00	0
0		30		26		0	

Tramroadside N		Twynyrodyn Road		Court Street		Tesco superstore	
TIME	QUEUE LENGTH	TIME	QUEUE LENGTH	TIME	QUEUE LENGTH	TIME	QUEUE LENGTH
17:00	0	17:00	0	17:00	0	17:00	0
17:05	0	17:05	0	17:05	0	17:05	0
17:10	0	17:10	0	17:10	0	17:10	0
17:15	0	17:15	0	17:15	0	17:15	0
17:20	1	17:20	0	17:20	4	17:20	0
17:25	2	17:25	2	17:25	3	17:25	0
17:30	1	17:30	4	17:30	5	17:30	0
17:35	0	17:35	2	17:35	3	17:35	0
17:40	0	17:40	2	17:40	2	17:40	0
17:45	0	17:45	3	17:45	2	17:45	0
17:50	0	17:50	1	17:50	4	17:50	0
17:55	0	17:55	1	17:55	3	17:55	0
18:00	0	18:00	0	18:00	2	18:00	0
4		15		28		0	
0.3		1.2		2.2		0.0	

Appendix B



Junctions 9	
ARCADY 9 - Roundabout Module	
Version: 9.5.0.6896 © Copyright TRL Limited, 2018	
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk	
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution	

Filename: Junction 2 Penheolferthyr - Wallhead Road B 2022.j9

Path: Z:\Lime\Projects\2019\19198 Twynrodyn, Merthyr Tydfil\Analysis\Junction 9 - Nov 2020

Report generation date: 28/01/2022 11:45:59

»2019 BASE , AM
 »2019 BASE, PM
 »2024 BASE, AM
 »2024 BASE, PM
 »2029 BASE, AM
 »2029 BASE, PM
 »2034 BASE, AM
 »2034 BASE, PM
 »2024 BASE+DEV, AM
 »2024 BASE+DEV, PM
 »2029 BASE+DEV, AM
 »2029 BASE+DEV, PM
 »2034 BASE+DEV, AM
 »2034 BASE+DEV, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2019 BASE							
1 - Penheolferthyr	1.1	8.01	0.53	A	0.7	6.37	0.43	A
2 - Wallhead Road	1.3	68.30	0.57	F	0.6	44.34	0.39	E
3 - Gilfach Cynon	0.3	5.47	0.26	A	0.6	6.29	0.37	A
4 - Twynyrodyn Community School	0.1	4.93	0.05	A	0.0	0.00	0.00	A
	2024 BASE							
1 - Penheolferthyr	1.2	8.42	0.55	A	0.8	6.63	0.45	A
2 - Wallhead Road	1.4	73.19	0.60	F	0.7	46.31	0.41	E
3 - Gilfach Cynon	0.4	5.55	0.27	A	0.7	6.57	0.39	A
4 - Twynyrodyn Community School	0.1	4.98	0.06	A	0.0	0.00	0.00	A
	2029 BASE							
1 - Penheolferthyr	1.4	9.01	0.58	A	0.9	6.87	0.47	A
2 - Wallhead Road	1.7	85.06	0.65	F	0.7	48.36	0.43	E
3 - Gilfach Cynon	0.4	5.69	0.28	A	0.7	6.69	0.41	A
4 - Twynyrodyn Community School	0.1	5.05	0.06	A	0.0	0.00	0.00	A
	2034 BASE							
1 - Penheolferthyr	1.6	9.67	0.61	A	1.0	7.14	0.49	A
2 - Wallhead Road	1.9	93.33	0.68	F	0.8	50.65	0.45	F
3 - Gilfach Cynon	0.4	5.80	0.29	A	0.7	6.90	0.43	A
4 - Twynyrodyn Community School	0.1	5.09	0.06	A	0.0	0.00	0.00	A
	2024 BASE+DEV							
1 - Penheolferthyr	1.4	9.14	0.59	A	0.9	6.91	0.47	A
2 - Wallhead Road	1.7	83.34	0.65	F	0.7	47.85	0.42	E
3 - Gilfach Cynon	0.4	5.66	0.28	A	0.7	6.57	0.40	A
4 - Twynyrodyn Community School	0.1	5.02	0.06	A	0.0	0.00	0.00	A
	2029 BASE+DEV							
1 - Penheolferthyr	1.6	9.73	0.61	A	1.0	7.17	0.49	A
2 - Wallhead Road	1.9	92.94	0.68	F	0.8	50.03	0.44	F
3 - Gilfach Cynon	0.4	5.78	0.29	A	0.7	6.76	0.42	A
4 - Twynyrodyn Community School	0.1	5.08	0.06	A	0.0	0.00	0.00	A
	2034 BASE+DEV							
1 - Penheolferthyr	1.8	10.50	0.64	B	1.0	7.47	0.51	A
2 - Wallhead Road	2.2	102.62	0.71	F	0.8	50.70	0.46	F
3 - Gilfach Cynon	0.4	5.90	0.30	A	0.8	6.98	0.43	A
4 - Twynyrodyn Community School	0.1	5.13	0.06	A	0.0	0.00	0.00	A

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

File summary

File Description

Title	
Location	
Site number	
Date	30/03/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-U7G8RPA\Rusne
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	2019 BASE	AM	ONE HOUR	08:00	09:30	15	✓
D2	2019 BASE	PM	ONE HOUR	17:00	18:30	15	✓
D3	2024 BASE	AM	ONE HOUR	08:00	09:30	15	✓
D4	2024 BASE	PM	ONE HOUR	17:00	18:30	15	✓
D5	2029 BASE	AM	ONE HOUR	08:00	09:30	15	✓
D6	2029 BASE	PM	ONE HOUR	17:00	18:30	15	✓
D7	2034 BASE	AM	ONE HOUR	08:00	09:30	15	✓
D8	2034 BASE	PM	ONE HOUR	17:00	18:30	15	✓
D9	2024 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓
D10	2024 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓
D11	2029 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓
D12	2029 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓
D13	2034 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓
D14	2034 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2019 BASE , AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	12.19	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Penheolferthyr	
2	Wallhead Road	
3	Gilfach Cynon	
4	Twynyrodyn Community School	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Penheolferthyr	3.48	3.48	0.0	11.4	15.8	35.7	
2 - Wallhead Road	3.63	3.63	0.0	12.5	15.8	21.4	
3 - Gilfach Cynon	3.30	3.63	4.1	5.5	15.8	31.0	
4 - Twynyrodyn Community School	3.54	3.54	0.0	5.2	15.8	30.6	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Percentage intercept adjustment (%)
1 - Penheolferthyr	Percentage		100.00
2 - Wallhead Road	None		
3 - Gilfach Cynon	None		
4 - Twynyrodyn Community School	None		

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Penheolferthyr	0.502	995
2 - Wallhead Road	0.542	1100
3 - Gilfach Cynon	0.466	937
4 - Twynyrodyn Community School	0.460	921

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
1 - Penheolferthyr	Percentage		100.00
2 - Wallhead Road	Percentage		15.00
3 - Gilfach Cynon	Percentage		100.00

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019 BASE	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	470	100.000
2 - Wallhead Road		ONE HOUR	✓	65	100.000
3 - Gilfach Cynon		ONE HOUR	✓	208	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	39	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
From	1 - Penheolferthyr	5	41	399	25
	2 - Wallhead Road	49	0	10	6
	3 - Gilfach Cynon	184	16	3	5
	4 - Twynyrodyn Community School	16	5	18	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
From	1 - Penheolferthyr	0	0	1	4
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	1	0	0	0
	4 - Twynyrodyn Community School	6	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.53	8.01	1.1	A	431	647
2 - Wallhead Road	0.57	68.30	1.3	F	60	89
3 - Gilfach Cynon	0.26	5.47	0.3	A	191	286
4 - Twynyrodyn Community School	0.05	4.93	0.1	A	36	54

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	354	88	31	979	0.361	352	189	0.0	0.6	5.778	A
2 - Wallhead Road	49	12	337	138	0.355	47	46	0.0	0.5	39.966	E
3 - Gilfach Cynon	157	39	62	908	0.173	156	321	0.0	0.2	4.826	A
4 - Twynyrodyn Community School	29	7	191	833	0.035	29	27	0.0	0.0	4.586	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	423	106	38	976	0.433	422	227	0.6	0.8	6.557	A
2 - Wallhead Road	58	15	404	132	0.442	58	56	0.5	0.8	48.962	E
3 - Gilfach Cynon	187	47	76	901	0.207	187	386	0.2	0.3	5.082	A
4 - Twynyrodyn Community School	35	9	230	815	0.043	35	32	0.0	0.0	4.725	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	517	129	46	972	0.533	516	278	0.8	1.1	7.960	A
2 - Wallhead Road	72	18	494	125	0.573	70	68	0.8	1.2	64.921	F
3 - Gilfach Cynon	229	57	92	894	0.256	229	472	0.3	0.3	5.459	A
4 - Twynyrodyn Community School	43	11	281	791	0.054	43	39	0.0	0.1	4.924	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	517	129	46	971	0.533	517	279	1.1	1.1	8.011	A
2 - Wallhead Road	72	18	495	125	0.573	71	68	1.2	1.3	68.300	F
3 - Gilfach Cynon	229	57	93	893	0.256	229	473	0.3	0.3	5.469	A
4 - Twynyrodyn Community School	43	11	283	791	0.054	43	40	0.1	0.1	4.928	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	423	106	38	976	0.433	424	230	1.1	0.8	6.610	A
2 - Wallhead Road	58	15	406	132	0.442	60	56	1.3	0.9	52.528	F
3 - Gilfach Cynon	187	47	78	900	0.208	187	388	0.3	0.3	5.098	A
4 - Twynyrodyn Community School	35	9	233	814	0.043	35	33	0.1	0.0	4.733	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	354	88	32	979	0.362	355	192	0.8	0.6	5.835	A
2 - Wallhead Road	49	12	340	137	0.356	50	47	0.9	0.6	42.946	E
3 - Gilfach Cynon	157	39	65	906	0.173	157	325	0.3	0.2	4.847	A
4 - Twynyrodyn Community School	29	7	195	831	0.035	29	27	0.0	0.0	4.598	A

2019 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2019 BASE	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	385	100.000
2 - Wallhead Road		ONE HOUR	✓	48	100.000
3 - Gilfach Cynon		ONE HOUR	✓	310	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon
	From			
	1 - Penheolferthyr	0	69	316
	2 - Wallhead Road	45	0	3
	3 - Gilfach Cynon	300	10	0
	4 - Twynyrodyn Community School	1	0	2

Vehicle Mix

Heavy Vehicle Percentages

	To			
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon
	From			
	1 - Penheolferthyr	0	0	0
	2 - Wallhead Road	4	0	0
	3 - Gilfach Cynon	0	0	0
	4 - Twynyrodyn Community School	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.43	6.37	0.7	A	353	530
2 - Wallhead Road	0.39	44.34	0.6	E	44	66
3 - Gilfach Cynon	0.37	6.29	0.6	A	284	427
4 - Twynyrodyn Community School	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	290	72	7	991	0.293	288	257	0.0	0.4	5.112	A
2 - Wallhead Road	36	9	237	146	0.248	35	59	0.0	0.3	33.287	D
3 - Gilfach Cynon	233	58	33	921	0.253	232	239	0.0	0.3	5.214	A
4 - Twynyrodyn Community School	0	0	265	799	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	346	87	9	990	0.350	346	309	0.4	0.5	5.585	A
2 - Wallhead Road	43	11	284	142	0.304	43	71	0.3	0.4	37.433	E
3 - Gilfach Cynon	279	70	40	918	0.304	278	286	0.3	0.4	5.625	A
4 - Twynyrodyn Community School	0	0	318	774	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	424	106	11	989	0.429	423	379	0.5	0.7	6.350	A
2 - Wallhead Road	53	13	347	137	0.386	52	87	0.4	0.6	43.664	E
3 - Gilfach Cynon	341	85	49	914	0.374	341	350	0.4	0.6	6.276	A
4 - Twynyrodyn Community School	0	0	390	742	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	424	106	11	989	0.429	424	380	0.7	0.7	6.367	A
2 - Wallhead Road	53	13	348	137	0.386	53	87	0.6	0.6	44.335	E
3 - Gilfach Cynon	341	85	49	913	0.374	341	351	0.6	0.6	6.291	A
4 - Twynyrodyn Community School	0	0	391	741	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	346	87	9	990	0.350	347	311	0.7	0.5	5.603	A
2 - Wallhead Road	43	11	285	142	0.304	44	71	0.6	0.5	38.297	E
3 - Gilfach Cynon	279	70	41	917	0.304	279	287	0.6	0.4	5.648	A
4 - Twynyrodyn Community School	0	0	320	773	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	290	72	8	991	0.293	290	261	0.5	0.4	5.144	A
2 - Wallhead Road	36	9	238	146	0.248	37	60	0.5	0.4	34.395	D
3 - Gilfach Cynon	233	58	34	921	0.254	234	241	0.4	0.3	5.244	A
4 - Twynyrodyn Community School	0	0	268	797	0.000	0	0	0.0	0.0	0.000	A

2024 BASE, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	12.82	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2024 BASE	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	489	100.000
2 - Wallhead Road		ONE HOUR	✓	67	100.000
3 - Gilfach Cynon		ONE HOUR	✓	216	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	41	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	5	43	415	26
	2 - Wallhead Road	51	0	10	6
	3 - Gilfach Cynon	191	17	3	5
	4 - Twynyrodyn Community School	17	5	19	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	0	1	4
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	1	0	0	0
	4 - Twynyrodyn Community School	6	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.55	8.42	1.2	A	449	673
2 - Wallhead Road	0.60	73.19	1.4	F	61	92
3 - Gilfach Cynon	0.27	5.55	0.4	A	198	297
4 - Twynyrodyn Community School	0.06	4.98	0.1	A	38	56

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	368	92	33	978	0.376	366	196	0.0	0.6	5.919	A
2 - Wallhead Road	50	13	350	137	0.369	48	49	0.0	0.6	41.029	E
3 - Gilfach Cynon	163	41	64	907	0.179	162	334	0.0	0.2	4.872	A
4 - Twynyrodyn Community School	31	8	198	829	0.037	31	28	0.0	0.0	4.614	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	440	110	40	975	0.451	439	236	0.6	0.8	6.774	A
2 - Wallhead Road	60	15	420	131	0.460	59	58	0.6	0.8	50.948	F
3 - Gilfach Cynon	194	49	78	900	0.216	194	401	0.2	0.3	5.142	A
4 - Twynyrodyn Community School	37	9	239	811	0.045	37	33	0.0	0.0	4.763	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	538	135	48	970	0.555	537	289	0.8	1.2	8.356	A
2 - Wallhead Road	74	18	514	123	0.598	72	71	0.8	1.3	68.977	F
3 - Gilfach Cynon	238	59	95	892	0.267	237	490	0.3	0.4	5.545	A
4 - Twynyrodyn Community School	45	11	292	786	0.057	45	40	0.0	0.1	4.973	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	538	135	48	970	0.555	538	290	1.2	1.2	8.418	A
2 - Wallhead Road	74	18	515	123	0.599	73	72	1.3	1.4	73.190	F
3 - Gilfach Cynon	238	59	97	891	0.267	238	492	0.4	0.4	5.555	A
4 - Twynyrodyn Community School	45	11	294	786	0.057	45	41	0.1	0.1	4.978	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	440	110	40	975	0.451	441	239	1.2	0.8	6.838	A
2 - Wallhead Road	60	15	422	131	0.461	62	59	1.4	1.0	55.289	F
3 - Gilfach Cynon	194	49	81	899	0.216	195	404	0.4	0.3	5.160	A
4 - Twynyrodyn Community School	37	9	242	810	0.046	37	34	0.1	0.0	4.771	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	368	92	33	978	0.376	369	200	0.8	0.6	5.984	A
2 - Wallhead Road	50	13	353	136	0.370	52	49	1.0	0.6	44.427	E
3 - Gilfach Cynon	163	41	67	905	0.180	163	337	0.3	0.2	4.895	A
4 - Twynyrodyn Community School	31	8	202	828	0.037	31	28	0.0	0.0	4.628	A

2024 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2024 BASE	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	405	100.000
2 - Wallhead Road		ONE HOUR	✓	50	100.000
3 - Gilfach Cynon		ONE HOUR	✓	326	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	73	332	0
	2 - Wallhead Road	47	0	3	0
	3 - Gilfach Cynon	315	11	0	0
	4 - Twynyrodyn Community School	1	0	2	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	0	0	0
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	1	0	0	0
	4 - Twynyrodyn Community School	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.45	6.63	0.8	A	372	557
2 - Wallhead Road	0.41	46.31	0.7	E	46	69
3 - Gilfach Cynon	0.39	6.57	0.7	A	299	449
4 - Twynyrodyn Community School	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	305	76	8	991	0.308	303	270	0.0	0.4	5.225	A
2 - Wallhead Road	38	9	249	145	0.260	36	63	0.0	0.3	33.995	D
3 - Gilfach Cynon	245	61	34	921	0.267	244	251	0.0	0.4	5.361	A
4 - Twynyrodyn Community School	0	0	278	793	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	364	91	10	990	0.368	364	325	0.4	0.6	5.744	A
2 - Wallhead Road	45	11	298	141	0.319	44	75	0.3	0.5	38.547	E
3 - Gilfach Cynon	293	73	42	917	0.320	293	301	0.4	0.5	5.817	A
4 - Twynyrodyn Community School	0	0	334	767	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	446	111	12	989	0.451	445	397	0.6	0.8	6.611	A
2 - Wallhead Road	55	14	365	135	0.407	54	92	0.5	0.7	45.507	E
3 - Gilfach Cynon	359	90	51	913	0.393	358	368	0.5	0.6	6.547	A
4 - Twynyrodyn Community School	0	0	409	732	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	446	111	12	989	0.451	446	398	0.8	0.8	6.632	A
2 - Wallhead Road	55	14	366	135	0.407	55	92	0.7	0.7	46.311	E
3 - Gilfach Cynon	359	90	52	912	0.393	359	369	0.6	0.7	6.566	A
4 - Twynyrodyn Community School	0	0	411	732	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	364	91	10	990	0.368	365	327	0.8	0.6	5.772	A
2 - Wallhead Road	45	11	299	141	0.319	46	76	0.7	0.5	39.565	E
3 - Gilfach Cynon	293	73	43	917	0.320	294	302	0.7	0.5	5.842	A
4 - Twynyrodyn Community School	0	0	337	766	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	305	76	8	991	0.308	305	273	0.6	0.4	5.260	A
2 - Wallhead Road	38	9	250	145	0.260	38	63	0.5	0.4	35.238	E
3 - Gilfach Cynon	245	61	36	920	0.267	246	253	0.5	0.4	5.396	A
4 - Twynyrodyn Community School	0	0	282	791	0.000	0	0	0.0	0.0	0.000	A

2029 BASE, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	14.32	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2029 BASE	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	514	100.000
2 - Wallhead Road		ONE HOUR	✓	72	100.000
3 - Gilfach Cynon		ONE HOUR	✓	228	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	43	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	5	45	437	27
	2 - Wallhead Road	54	0	11	7
	3 - Gilfach Cynon	202	18	3	5
	4 - Twynyrodyn Community School	18	5	20	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	0	1	4
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	1	0	0	0
	4 - Twynyrodyn Community School	6	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.58	9.01	1.4	A	472	707
2 - Wallhead Road	0.65	85.06	1.7	F	66	99
3 - Gilfach Cynon	0.28	5.69	0.4	A	209	314
4 - Twynyrodyn Community School	0.06	5.05	0.1	A	39	59

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	387	97	34	977	0.396	384	207	0.0	0.7	6.107	A
2 - Wallhead Road	54	14	368	135	0.401	52	51	0.0	0.6	43.249	E
3 - Gilfach Cynon	172	43	68	905	0.190	171	352	0.0	0.2	4.940	A
4 - Twynyrodyn Community School	32	8	209	824	0.039	32	29	0.0	0.0	4.653	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	462	116	41	974	0.474	461	250	0.7	0.9	7.081	A
2 - Wallhead Road	65	16	441	129	0.501	64	61	0.6	0.9	55.314	F
3 - Gilfach Cynon	205	51	83	898	0.228	205	422	0.2	0.3	5.237	A
4 - Twynyrodyn Community School	39	10	252	805	0.048	39	35	0.0	0.1	4.813	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	566	141	51	969	0.584	564	305	0.9	1.4	8.932	A
2 - Wallhead Road	79	20	540	121	0.654	77	75	0.9	1.6	78.375	F
3 - Gilfach Cynon	251	63	100	890	0.282	251	516	0.3	0.4	5.677	A
4 - Twynyrodyn Community School	47	12	308	779	0.061	47	43	0.1	0.1	5.039	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	566	141	51	969	0.584	566	307	1.4	1.4	9.013	A
2 - Wallhead Road	79	20	542	121	0.655	79	75	1.6	1.7	85.055	F
3 - Gilfach Cynon	251	63	102	889	0.282	251	518	0.4	0.4	5.692	A
4 - Twynyrodyn Community School	47	12	310	778	0.061	47	43	0.1	0.1	5.045	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	462	116	41	974	0.474	464	253	1.4	0.9	7.160	A
2 - Wallhead Road	65	16	444	129	0.502	67	61	1.7	1.1	61.940	F
3 - Gilfach Cynon	205	51	86	897	0.229	205	425	0.4	0.3	5.258	A
4 - Twynyrodyn Community School	39	10	256	803	0.048	39	35	0.1	0.1	4.823	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	387	97	35	977	0.396	388	212	0.9	0.7	6.183	A
2 - Wallhead Road	54	14	371	135	0.402	56	51	1.1	0.7	47.775	E
3 - Gilfach Cynon	172	43	71	903	0.190	172	356	0.3	0.2	4.967	A
4 - Twynyrodyn Community School	32	8	214	822	0.039	32	30	0.1	0.0	4.669	A

2029 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2029 BASE	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	422	100.000
2 - Wallhead Road		ONE HOUR	✓	52	100.000
3 - Gilfach Cynon		ONE HOUR	✓	339	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	76	346	0
	2 - Wallhead Road	49	0	3	0
	3 - Gilfach Cynon	328	11	0	0
	4 - Twynyrodyn Community School	1	0	2	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	0	0	0
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	0	0	0	0
	4 - Twynyrodyn Community School	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.47	6.87	0.9	A	387	581
2 - Wallhead Road	0.43	48.36	0.7	E	48	72
3 - Gilfach Cynon	0.41	6.69	0.7	A	311	467
4 - Twynyrodyn Community School	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	318	79	8	991	0.321	316	281	0.0	0.5	5.320	A
2 - Wallhead Road	39	10	259	144	0.272	38	65	0.0	0.4	34.692	D
3 - Gilfach Cynon	255	64	36	920	0.277	254	261	0.0	0.4	5.391	A
4 - Twynyrodyn Community School	0	0	289	788	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	379	95	10	990	0.383	379	338	0.5	0.6	5.885	A
2 - Wallhead Road	47	12	311	140	0.334	46	78	0.4	0.5	39.672	E
3 - Gilfach Cynon	305	76	44	916	0.333	304	313	0.4	0.5	5.880	A
4 - Twynyrodyn Community School	0	0	348	761	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	465	116	12	989	0.470	464	414	0.6	0.9	6.842	A
2 - Wallhead Road	57	14	380	134	0.427	56	96	0.5	0.7	47.397	E
3 - Gilfach Cynon	373	93	53	912	0.409	372	383	0.5	0.7	6.666	A
4 - Twynyrodyn Community School	0	0	426	725	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	465	116	12	989	0.470	465	415	0.9	0.9	6.869	A
2 - Wallhead Road	57	14	381	134	0.427	57	96	0.7	0.7	48.357	E
3 - Gilfach Cynon	373	93	54	911	0.410	373	384	0.7	0.7	6.688	A
4 - Twynyrodyn Community School	0	0	427	724	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	379	95	10	990	0.383	380	340	0.9	0.6	5.917	A
2 - Wallhead Road	47	12	312	140	0.335	48	78	0.7	0.6	40.853	E
3 - Gilfach Cynon	305	76	45	916	0.333	305	315	0.7	0.5	5.906	A
4 - Twynyrodyn Community School	0	0	350	760	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	318	79	8	991	0.321	318	285	0.6	0.5	5.359	A
2 - Wallhead Road	39	10	261	144	0.272	40	66	0.6	0.4	36.082	E
3 - Gilfach Cynon	255	64	37	919	0.278	256	263	0.5	0.4	5.430	A
4 - Twynyrodyn Community School	0	0	293	786	0.000	0	0	0.0	0.0	0.000	A

2034 BASE, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	15.34	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2034 BASE	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	538	100.000
2 - Wallhead Road		ONE HOUR	✓	74	100.000
3 - Gilfach Cynon		ONE HOUR	✓	237	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	45	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	6	47	456	29
	2 - Wallhead Road	56	0	11	7
	3 - Gilfach Cynon	210	18	3	6
	4 - Twynyrodyn Community School	18	6	21	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	0	1	4
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	1	0	0	0
	4 - Twynyrodyn Community School	6	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.61	9.67	1.6	A	494	741
2 - Wallhead Road	0.68	93.33	1.9	F	68	102
3 - Gilfach Cynon	0.29	5.80	0.4	A	217	326
4 - Twynyrodyn Community School	0.06	5.09	0.1	A	41	62

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	405	101	36	977	0.415	402	215	0.0	0.7	6.304	A
2 - Wallhead Road	56	14	385	134	0.416	53	53	0.0	0.7	44.627	E
3 - Gilfach Cynon	178	45	71	903	0.198	177	367	0.0	0.2	4.998	A
4 - Twynyrodyn Community School	34	8	218	821	0.041	34	31	0.0	0.0	4.679	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	484	121	43	973	0.497	483	259	0.7	1.0	7.400	A
2 - Wallhead Road	67	17	462	128	0.522	65	64	0.7	1.0	58.101	F
3 - Gilfach Cynon	213	53	87	896	0.238	213	440	0.2	0.3	5.312	A
4 - Twynyrodyn Community School	40	10	262	800	0.051	40	38	0.0	0.1	4.848	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	592	148	53	968	0.612	590	317	1.0	1.6	9.562	A
2 - Wallhead Road	81	20	565	119	0.684	78	78	1.0	1.8	84.667	F
3 - Gilfach Cynon	261	65	105	888	0.294	261	538	0.3	0.4	5.789	A
4 - Twynyrodyn Community School	50	12	320	774	0.064	49	46	0.1	0.1	5.086	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	592	148	53	968	0.612	592	319	1.6	1.6	9.672	A
2 - Wallhead Road	81	20	567	119	0.685	81	78	1.8	1.9	93.327	F
3 - Gilfach Cynon	261	65	107	886	0.294	261	540	0.4	0.4	5.805	A
4 - Twynyrodyn Community School	50	12	322	773	0.064	50	46	0.1	0.1	5.093	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	484	121	43	973	0.497	486	263	1.6	1.0	7.504	A
2 - Wallhead Road	67	17	465	127	0.523	69	64	1.9	1.3	66.538	F
3 - Gilfach Cynon	213	53	91	894	0.238	213	444	0.4	0.3	5.337	A
4 - Twynyrodyn Community School	40	10	266	798	0.051	41	38	0.1	0.1	4.861	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	405	101	36	977	0.415	406	220	1.0	0.7	6.391	A
2 - Wallhead Road	56	14	389	133	0.417	58	54	1.3	0.8	49.927	E
3 - Gilfach Cynon	178	45	75	901	0.198	179	371	0.3	0.3	5.029	A
4 - Twynyrodyn Community School	34	8	222	818	0.041	34	32	0.1	0.0	4.694	A

2034 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2034 BASE	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	440	100.000
2 - Wallhead Road		ONE HOUR	✓	54	100.000
3 - Gilfach Cynon		ONE HOUR	✓	353	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	79	361	0
	2 - Wallhead Road	51	0	3	0
	3 - Gilfach Cynon	342	11	0	0
	4 - Twynyrodyn Community School	1	0	2	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	0	0	0
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	0	0	0	0
	4 - Twynyrodyn Community School	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.49	7.14	1.0	A	404	606
2 - Wallhead Road	0.45	50.65	0.8	F	50	74
3 - Gilfach Cynon	0.43	6.90	0.7	A	324	486
4 - Twynyrodyn Community School	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	331	83	8	991	0.334	329	293	0.0	0.5	5.427	A
2 - Wallhead Road	41	10	270	143	0.284	39	67	0.0	0.4	35.435	E
3 - Gilfach Cynon	266	66	37	919	0.289	264	272	0.0	0.4	5.482	A
4 - Twynyrodyn Community School	0	0	301	782	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	396	99	10	990	0.400	395	352	0.5	0.7	6.046	A
2 - Wallhead Road	49	12	324	139	0.350	48	81	0.4	0.5	40.884	E
3 - Gilfach Cynon	317	79	45	915	0.347	317	327	0.4	0.5	6.009	A
4 - Twynyrodyn Community School	0	0	362	754	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	484	121	12	989	0.490	483	431	0.7	0.9	7.108	A
2 - Wallhead Road	59	15	397	133	0.448	58	99	0.5	0.8	49.492	E
3 - Gilfach Cynon	389	97	55	911	0.427	388	400	0.5	0.7	6.872	A
4 - Twynyrodyn Community School	0	0	443	717	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	484	121	12	989	0.490	484	433	0.9	1.0	7.139	A
2 - Wallhead Road	59	15	397	133	0.448	59	99	0.8	0.8	50.647	F
3 - Gilfach Cynon	389	97	56	910	0.427	389	401	0.7	0.7	6.899	A
4 - Twynyrodyn Community School	0	0	445	716	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	396	99	10	990	0.400	397	355	1.0	0.7	6.081	A
2 - Wallhead Road	49	12	325	139	0.350	49	81	0.8	0.6	42.277	E
3 - Gilfach Cynon	317	79	47	915	0.347	318	328	0.7	0.5	6.044	A
4 - Twynyrodyn Community School	0	0	365	753	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	331	83	8	991	0.334	332	297	0.7	0.5	5.473	A
2 - Wallhead Road	41	10	272	143	0.284	41	68	0.6	0.4	36.992	E
3 - Gilfach Cynon	266	66	39	918	0.289	266	275	0.5	0.4	5.526	A
4 - Twynyrodyn Community School	0	0	305	780	0.000	0	0	0.0	0.0	0.000	A

2024 BASE+DEV, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	14.17	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2024 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	520	100.000
2 - Wallhead Road		ONE HOUR	✓	71	100.000
3 - Gilfach Cynon		ONE HOUR	✓	226	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	41	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	5	49	440	26
	2 - Wallhead Road	54	0	11	6
	3 - Gilfach Cynon	201	17	3	5
	4 - Twynyrodyn Community School	17	5	19	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	0	1	4
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	1	0	0	0
	4 - Twynyrodyn Community School	6	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.59	9.14	1.4	A	477	716
2 - Wallhead Road	0.65	83.34	1.7	F	65	98
3 - Gilfach Cynon	0.28	5.66	0.4	A	207	311
4 - Twynyrodyn Community School	0.06	5.02	0.1	A	38	56

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	391	98	33	978	0.400	389	206	0.0	0.7	6.146	A
2 - Wallhead Road	53	13	369	135	0.396	51	53	0.0	0.6	42.966	E
3 - Gilfach Cynon	170	43	66	906	0.188	169	353	0.0	0.2	4.926	A
4 - Twynyrodyn Community School	31	8	208	825	0.037	31	27	0.0	0.0	4.639	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	467	117	40	975	0.480	466	248	0.7	0.9	7.140	A
2 - Wallhead Road	64	16	442	129	0.494	63	64	0.6	0.9	54.725	F
3 - Gilfach Cynon	203	51	81	899	0.226	203	424	0.2	0.3	5.218	A
4 - Twynyrodyn Community School	37	9	251	805	0.046	37	33	0.0	0.0	4.796	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	573	143	48	970	0.590	571	303	0.9	1.4	9.049	A
2 - Wallhead Road	78	20	541	121	0.646	76	78	0.9	1.6	77.066	F
3 - Gilfach Cynon	249	62	98	891	0.279	248	519	0.3	0.4	5.649	A
4 - Twynyrodyn Community School	45	11	306	780	0.058	45	40	0.0	0.1	5.016	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	573	143	48	970	0.590	572	305	1.4	1.4	9.137	A
2 - Wallhead Road	78	20	543	121	0.646	78	78	1.6	1.7	83.341	F
3 - Gilfach Cynon	249	62	100	890	0.280	249	521	0.4	0.4	5.663	A
4 - Twynyrodyn Community School	45	11	308	779	0.058	45	41	0.1	0.1	5.022	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	467	117	40	975	0.480	469	251	1.4	0.9	7.224	A
2 - Wallhead Road	64	16	445	129	0.495	66	64	1.7	1.1	60.970	F
3 - Gilfach Cynon	203	51	84	897	0.226	204	427	0.4	0.3	5.238	A
4 - Twynyrodyn Community School	37	9	254	804	0.046	37	34	0.1	0.0	4.806	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	391	98	33	978	0.400	393	210	0.9	0.7	6.223	A
2 - Wallhead Road	53	13	372	135	0.396	55	54	1.1	0.7	47.309	E
3 - Gilfach Cynon	170	43	70	904	0.188	170	357	0.3	0.2	4.954	A
4 - Twynyrodyn Community School	31	8	212	823	0.038	31	28	0.0	0.0	4.655	A

2024 BASE+DEV, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.36	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2024 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	425	100.000
2 - Wallhead Road		ONE HOUR	✓	51	100.000
3 - Gilfach Cynon		ONE HOUR	✓	331	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	76	349	0
	2 - Wallhead Road	48	0	3	0
	3 - Gilfach Cynon	320	11	0	0
	4 - Twynyrodyn Community School	1	0	2	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
	1 - Penheolferthyr	0	0	0	0
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	0	0	0	0
	4 - Twynyrodyn Community School	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.47	6.91	0.9	A	390	585
2 - Wallhead Road	0.42	47.85	0.7	E	47	70
3 - Gilfach Cynon	0.40	6.57	0.7	A	304	456
4 - Twynyrodyn Community School	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	320	80	8	991	0.323	318	274	0.0	0.5	5.338	A
2 - Wallhead Road	38	10	261	144	0.267	37	65	0.0	0.4	34.529	D
3 - Gilfach Cynon	249	62	35	920	0.271	248	263	0.0	0.4	5.340	A
4 - Twynyrodyn Community School	0	0	283	791	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	382	96	10	990	0.386	381	330	0.5	0.6	5.912	A
2 - Wallhead Road	46	11	313	140	0.328	45	78	0.4	0.5	39.395	E
3 - Gilfach Cynon	298	74	43	917	0.325	297	316	0.4	0.5	5.807	A
4 - Twynyrodyn Community School	0	0	340	764	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	468	117	12	989	0.473	467	404	0.6	0.9	6.886	A
2 - Wallhead Road	56	14	383	134	0.419	55	96	0.5	0.7	46.936	E
3 - Gilfach Cynon	364	91	52	912	0.399	364	387	0.5	0.7	6.555	A
4 - Twynyrodyn Community School	0	0	416	729	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	468	117	12	989	0.473	468	405	0.9	0.9	6.913	A
2 - Wallhead Road	56	14	384	134	0.420	56	96	0.7	0.7	47.851	E
3 - Gilfach Cynon	364	91	53	912	0.400	364	388	0.7	0.7	6.574	A
4 - Twynyrodyn Community School	0	0	417	729	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	382	96	10	990	0.386	383	332	0.9	0.6	5.946	A
2 - Wallhead Road	46	11	315	139	0.329	47	78	0.7	0.5	40.528	E
3 - Gilfach Cynon	298	74	44	916	0.325	298	317	0.7	0.5	5.835	A
4 - Twynyrodyn Community School	0	0	342	763	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	320	80	8	991	0.323	321	278	0.6	0.5	5.378	A
2 - Wallhead Road	38	10	263	144	0.267	39	66	0.5	0.4	35.870	E
3 - Gilfach Cynon	249	62	37	919	0.271	250	266	0.5	0.4	5.380	A
4 - Twynyrodyn Community School	0	0	286	789	0.000	0	0	0.0	0.0	0.000	A

2029 BASE+DEV, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	15.35	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
D11	2029 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	541	100.000
2 - Wallhead Road		ONE HOUR	✓	74	100.000
3 - Gilfach Cynon		ONE HOUR	✓	236	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	43	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
From	1 - Penheolferthyr	5	51	458	27
	2 - Wallhead Road	56	0	11	7
	3 - Gilfach Cynon	210	18	3	5
	4 - Twynyrodyn Community School	18	5	20	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
From	1 - Penheolferthyr	0	0	1	4
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	1	0	0	0
	4 - Twynyrodyn Community School	6	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.61	9.73	1.6	A	496	745
2 - Wallhead Road	0.68	92.94	1.9	F	68	102
3 - Gilfach Cynon	0.29	5.78	0.4	A	217	325
4 - Twynyrodyn Community School	0.06	5.08	0.1	A	39	59

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	407	102	34	977	0.417	404	215	0.0	0.7	6.317	A
2 - Wallhead Road	56	14	384	134	0.416	53	55	0.0	0.7	44.564	E
3 - Gilfach Cynon	178	44	69	904	0.196	177	367	0.0	0.2	4.986	A
4 - Twynyrodyn Community School	32	8	217	821	0.039	32	29	0.0	0.0	4.673	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	486	122	41	974	0.499	485	259	0.7	1.0	7.426	A
2 - Wallhead Road	67	17	460	128	0.521	65	66	0.7	1.0	57.977	F
3 - Gilfach Cynon	212	53	84	897	0.236	212	441	0.2	0.3	5.299	A
4 - Twynyrodyn Community School	39	10	261	801	0.048	39	35	0.0	0.1	4.839	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	596	149	51	969	0.615	593	315	1.0	1.6	9.614	A
2 - Wallhead Road	81	20	563	119	0.683	78	81	1.0	1.8	84.372	F
3 - Gilfach Cynon	260	65	102	889	0.292	259	539	0.3	0.4	5.765	A
4 - Twynyrodyn Community School	47	12	319	774	0.061	47	43	0.1	0.1	5.073	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	596	149	51	969	0.615	596	318	1.6	1.6	9.727	A
2 - Wallhead Road	81	20	565	119	0.684	81	81	1.8	1.9	92.944	F
3 - Gilfach Cynon	260	65	104	888	0.293	260	542	0.4	0.4	5.781	A
4 - Twynyrodyn Community School	47	12	321	773	0.061	47	43	0.1	0.1	5.080	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	486	122	41	974	0.499	489	262	1.6	1.0	7.532	A
2 - Wallhead Road	67	17	463	127	0.522	69	67	1.9	1.3	66.336	F
3 - Gilfach Cynon	212	53	88	896	0.237	213	445	0.4	0.3	5.320	A
4 - Twynyrodyn Community School	39	10	265	799	0.048	39	35	0.1	0.1	4.851	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	407	102	35	977	0.417	408	219	1.0	0.7	6.407	A
2 - Wallhead Road	56	14	387	134	0.417	58	56	1.3	0.8	49.836	E
3 - Gilfach Cynon	178	44	73	902	0.197	178	372	0.3	0.2	5.016	A
4 - Twynyrodyn Community School	32	8	221	819	0.040	32	30	0.1	0.0	4.690	A

2029 BASE+DEV, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.71	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2029 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	442	100.000
2 - Wallhead Road		ONE HOUR	✓	53	100.000
3 - Gilfach Cynon		ONE HOUR	✓	344	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
From	1 - Penheolferthyr	0	79	363	0
	2 - Wallhead Road	50	0	3	0
	3 - Gilfach Cynon	333	11	0	0
	4 - Twynyrodyn Community School	1	0	2	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
From	1 - Penheolferthyr	0	0	0	0
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	0	0	0	0
	4 - Twynyrodyn Community School	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.49	7.17	1.0	A	406	608
2 - Wallhead Road	0.44	50.03	0.8	F	49	73
3 - Gilfach Cynon	0.42	6.76	0.7	A	316	473
4 - Twynyrodyn Community School	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	333	83	8	991	0.336	331	285	0.0	0.5	5.440	A
2 - Wallhead Road	40	10	272	143	0.279	38	67	0.0	0.4	35.231	E
3 - Gilfach Cynon	259	65	36	920	0.282	257	274	0.0	0.4	5.425	A
4 - Twynyrodyn Community School	0	0	294	786	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	397	99	10	990	0.401	397	343	0.5	0.7	6.064	A
2 - Wallhead Road	48	12	326	139	0.344	47	81	0.4	0.5	40.565	E
3 - Gilfach Cynon	309	77	44	916	0.338	309	328	0.4	0.5	5.921	A
4 - Twynyrodyn Community School	0	0	353	758	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	487	122	12	989	0.492	485	420	0.7	1.0	7.137	A
2 - Wallhead Road	58	15	399	133	0.440	57	99	0.5	0.8	48.939	E
3 - Gilfach Cynon	379	95	54	911	0.416	378	402	0.5	0.7	6.741	A
4 - Twynyrodyn Community School	0	0	432	722	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	487	122	12	989	0.492	487	422	1.0	1.0	7.171	A
2 - Wallhead Road	58	15	400	133	0.440	58	99	0.8	0.8	50.033	F
3 - Gilfach Cynon	379	95	55	911	0.416	379	403	0.7	0.7	6.764	A
4 - Twynyrodyn Community School	0	0	434	721	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	397	99	10	990	0.401	398	346	1.0	0.7	6.100	A
2 - Wallhead Road	48	12	327	138	0.344	48	81	0.8	0.6	41.889	E
3 - Gilfach Cynon	309	77	46	915	0.338	310	330	0.7	0.5	5.957	A
4 - Twynyrodyn Community School	0	0	356	757	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	333	83	8	991	0.336	333	289	0.7	0.5	5.483	A
2 - Wallhead Road	40	10	274	143	0.279	41	68	0.6	0.4	36.746	E
3 - Gilfach Cynon	259	65	38	919	0.282	259	276	0.5	0.4	5.464	A
4 - Twynyrodyn Community School	0	0	298	784	0.000	0	0	0.0	0.0	0.000	A

2034 BASE+DEV, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	16.55	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
D13	2034 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	565	100.000
2 - Wallhead Road		ONE HOUR	✓	76	100.000
3 - Gilfach Cynon		ONE HOUR	✓	245	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	45	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
From	1 - Penheolferthyr	6	53	477	29
	2 - Wallhead Road	58	0	11	7
	3 - Gilfach Cynon	218	18	3	6
	4 - Twynyrodyn Community School	18	6	21	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
From	1 - Penheolferthyr	0	0	1	4
	2 - Wallhead Road	4	0	0	0
	3 - Gilfach Cynon	1	0	0	0
	4 - Twynyrodyn Community School	6	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.64	10.50	1.8	B	518	778
2 - Wallhead Road	0.71	102.62	2.2	F	70	105
3 - Gilfach Cynon	0.30	5.90	0.4	A	225	337
4 - Twynyrodyn Community School	0.06	5.13	0.1	A	41	62

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	425	106	36	977	0.436	422	223	0.0	0.8	6.528	A
2 - Wallhead Road	57	14	401	133	0.432	54	58	0.0	0.7	46.018	E
3 - Gilfach Cynon	184	46	73	903	0.204	183	382	0.0	0.3	5.042	A
4 - Twynyrodyn Community School	34	8	225	817	0.041	34	31	0.0	0.0	4.699	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	508	127	43	973	0.522	507	268	0.8	1.1	7.777	A
2 - Wallhead Road	68	17	481	126	0.542	67	69	0.7	1.1	61.013	F
3 - Gilfach Cynon	220	55	89	895	0.246	220	459	0.3	0.3	5.376	A
4 - Twynyrodyn Community School	40	10	271	796	0.051	40	38	0.0	0.1	4.874	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	622	156	53	968	0.643	619	327	1.1	1.8	10.344	B
2 - Wallhead Road	84	21	588	117	0.713	80	84	1.1	2.0	91.458	F
3 - Gilfach Cynon	270	67	107	887	0.304	269	561	0.3	0.4	5.879	A
4 - Twynyrodyn Community School	50	12	330	769	0.064	49	46	0.1	0.1	5.121	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	622	156	53	968	0.643	622	330	1.8	1.8	10.497	B
2 - Wallhead Road	84	21	590	117	0.715	83	85	2.0	2.2	102.622	F
3 - Gilfach Cynon	270	67	109	886	0.305	270	564	0.4	0.4	5.897	A
4 - Twynyrodyn Community School	50	12	333	768	0.065	50	46	0.1	0.1	5.129	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	508	127	43	973	0.522	511	273	1.8	1.1	7.911	A
2 - Wallhead Road	68	17	484	126	0.544	72	70	2.2	1.4	71.764	F
3 - Gilfach Cynon	220	55	93	893	0.247	221	463	0.4	0.3	5.403	A
4 - Twynyrodyn Community School	40	10	275	794	0.051	41	38	0.1	0.1	4.889	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	425	106	36	977	0.436	427	228	1.1	0.8	6.633	A
2 - Wallhead Road	57	14	405	132	0.433	59	58	1.4	0.9	52.230	F
3 - Gilfach Cynon	184	46	77	901	0.205	185	387	0.3	0.3	5.075	A
4 - Twynyrodyn Community School	34	8	230	815	0.042	34	32	0.1	0.0	4.716	A

2034 BASE+DEV, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.99	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
D14	2034 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr		ONE HOUR	✓	460	100.000
2 - Wallhead Road		ONE HOUR	✓	55	100.000
3 - Gilfach Cynon		ONE HOUR	✓	358	100.000
4 - Twynyrodyn Community School		ONE HOUR	✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
From	1 - Penheolferthyr	0	82	378	0
	2 - Wallhead Road	52	0	3	0
	3 - Gilfach Cynon	347	11	0	0
	4 - Twynyrodyn Community School	1	0	2	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr	2 - Wallhead Road	3 - Gilfach Cynon	4 - Twynyrodyn Community School
From	1 - Penheolferthyr	0	0	0	0
	2 - Wallhead Road	0	0	4	0
	3 - Gilfach Cynon	0	0	0	0
	4 - Twynyrodyn Community School	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr	0.51	7.47	1.0	A	422	633
2 - Wallhead Road	0.46	50.70	0.8	F	50	76
3 - Gilfach Cynon	0.43	6.98	0.8	A	329	493
4 - Twynyrodyn Community School	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	346	87	8	991	0.350	344	297	0.0	0.5	5.552	A
2 - Wallhead Road	41	10	283	142	0.291	40	70	0.0	0.4	34.806	D
3 - Gilfach Cynon	270	67	38	919	0.293	268	285	0.0	0.4	5.516	A
4 - Twynyrodyn Community School	0	0	306	780	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	414	103	10	990	0.418	413	358	0.5	0.7	6.232	A
2 - Wallhead Road	49	12	339	137	0.360	49	83	0.4	0.5	40.415	E
3 - Gilfach Cynon	322	80	46	915	0.352	321	342	0.4	0.5	6.059	A
4 - Twynyrodyn Community School	0	0	368	752	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	506	127	12	989	0.512	505	437	0.7	1.0	7.427	A
2 - Wallhead Road	61	15	415	131	0.461	60	102	0.5	0.8	49.453	E
3 - Gilfach Cynon	394	99	56	910	0.433	393	418	0.5	0.8	6.952	A
4 - Twynyrodyn Community School	0	0	450	714	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	506	127	12	989	0.512	506	439	1.0	1.0	7.465	A
2 - Wallhead Road	61	15	416	131	0.461	60	102	0.8	0.8	50.699	F
3 - Gilfach Cynon	394	99	57	910	0.433	394	419	0.8	0.8	6.979	A
4 - Twynyrodyn Community School	0	0	451	713	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	414	103	10	990	0.418	415	360	1.0	0.7	6.277	A
2 - Wallhead Road	49	12	341	137	0.360	50	84	0.8	0.6	41.882	E
3 - Gilfach Cynon	322	80	48	914	0.352	323	344	0.8	0.5	6.095	A
4 - Twynyrodyn Community School	0	0	370	750	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr	346	87	8	991	0.350	347	302	0.7	0.5	5.600	A
2 - Wallhead Road	41	10	285	142	0.292	42	70	0.6	0.4	36.384	E
3 - Gilfach Cynon	270	67	40	918	0.294	270	287	0.5	0.4	5.560	A
4 - Twynyrodyn Community School	0	0	310	778	0.000	0	0	0.0	0.0	0.000	A

Appendix C



Junctions 9	
ARCADY 9 - Roundabout Module	
Version: 9.5.0.6896 © Copyright TRL Limited, 2018	
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Filename: Junction 3 Penheolferthyr - Elm Tree Grove B 2022.j9

Path: Z:\Lime\Projects\2019\19198 Twynrodyn, Merthyr Tydfil\Analysis\Junction 9 - Nov 2020

Report generation date: 28/01/2022 11:46:45

»2019 BASE , AM
 »2019 BASE, PM
 »2024 BASE, AM
 »2024 BASE, PM
 »2029 BASE, AM
 »2029 BASE, PM
 »2034 BASE, AM
 »2034 BASE, PM
 »2024 BASE+DEV, AM
 »2024 BASE+DEV, PM
 »2029 BASE+DEV, AM
 »2029 BASE+DEV, PM
 »2034 BASE+DEV, AM
 »2034 BASE+DEV, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2019 BASE							
1 - Penheolferthyr Penheolferthyr east	0.6	4.43	0.37	A	0.5	4.14	0.33	A
2 - Elm Tree Grove	0.5	19.88	0.32	C	0.2	15.56	0.15	C
3 - Penheolferthyr West	0.8	10.24	0.44	B	1.4	13.55	0.58	B
4 - Unnamed road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2024 BASE							
1 - Penheolferthyr Penheolferthyr east	0.7	4.58	0.39	A	0.5	4.26	0.35	A
2 - Elm Tree Grove	0.5	20.69	0.34	C	0.2	15.94	0.16	C
3 - Penheolferthyr West	0.9	10.65	0.46	B	1.6	14.64	0.62	B
4 - Unnamed road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2029 BASE							
1 - Penheolferthyr Penheolferthyr east	0.7	4.76	0.42	A	0.6	4.35	0.36	A
2 - Elm Tree Grove	0.6	21.78	0.36	C	0.2	16.21	0.17	C
3 - Penheolferthyr West	0.9	11.22	0.48	B	1.8	15.68	0.64	C
4 - Unnamed road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2034 BASE							
1 - Penheolferthyr Penheolferthyr east	0.8	4.91	0.44	A	0.6	4.52	0.38	A
2 - Elm Tree Grove	0.6	22.85	0.38	C	0.2	16.61	0.18	C
3 - Penheolferthyr West	1.0	11.68	0.50	B	1.0	11.30	0.50	B
4 - Unnamed road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2024 BASE+DEV							
1 - Penheolferthyr Penheolferthyr east	0.7	4.74	0.41	A	0.6	4.45	0.38	A
2 - Elm Tree Grove	1.4	33.48	0.59	D	0.4	18.99	0.30	C
3 - Penheolferthyr West	1.0	11.51	0.49	B	1.7	15.23	0.63	C
4 - Unnamed road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2029 BASE+DEV							
1 - Penheolferthyr Penheolferthyr east	0.8	4.89	0.43	A	0.6	4.56	0.39	A
2 - Elm Tree Grove	1.5	35.63	0.61	E	0.4	19.39	0.31	C
3 - Penheolferthyr West	1.1	12.04	0.51	B	1.9	16.35	0.65	C
4 - Unnamed road	0.0	0.00	0.00	A	0.0	0.00	0.00	A
	2034 BASE+DEV							
1 - Penheolferthyr Penheolferthyr east	0.8	5.06	0.45	A	0.7	4.73	0.41	A
2 - Elm Tree Grove	1.7	38.50	0.64	E	0.5	19.95	0.32	C
3 - Penheolferthyr West	1.1	12.61	0.53	B	2.1	17.81	0.68	C
4 - Unnamed road	0.0	0.00	0.00	A	0.0	0.00	0.00	A

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

File summary

File Description

Title	
Location	
Site number	
Date	30/03/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-U7G8RPA\Rusne
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	2019 BASE	AM	ONE HOUR	08:00	09:30	15	✓
D2	2019 BASE	PM	ONE HOUR	17:00	18:30	15	✓
D3	2024 BASE	AM	ONE HOUR	08:00	09:30	15	✓
D4	2024 BASE	PM	ONE HOUR	17:00	18:30	15	✓
D5	2029 BASE	AM	ONE HOUR	08:00	09:30	15	✓
D6	2029 BASE	PM	ONE HOUR	17:00	18:30	15	✓
D7	2034 BASE	AM	ONE HOUR	08:00	09:30	15	✓
D8	2034 BASE	PM	ONE HOUR	17:00	18:30	15	✓
D9	2024 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓
D10	2024 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓
D11	2029 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓
D12	2029 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓
D13	2034 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓
D14	2034 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2019 BASE , AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	7.88	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Penheolferthyr Penheolferthyr east	
2	Elm Tree Grove	
3	Penheolferthyr West	
4	Unnamed road	Unnamed road

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Penheolferthyr Penheolferthyr east	3.51	5.18	5.2	34.1	23.9	32.9	
2 - Elm Tree Grove	3.91	5.01	1.6	6.8	23.9	39.1	
3 - Penheolferthyr West	3.21	3.99	5.5	10.9	23.9	31.0	
4 - Unnamed road	3.02	3.02	0.0	7.4	23.9	37.9	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Arm	Type	Reason	Percentage intercept adjustment (%)
1 - Penheolferthyr Penheolferthyr east	None		
2 - Elm Tree Grove	Percentage		100.00
3 - Penheolferthyr West	Percentage		100.00
4 - Unnamed road	None		

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Penheolferthyr Penheolferthyr east	0.589	1326
2 - Elm Tree Grove	0.505	1127
3 - Penheolferthyr West	0.522	1085
4 - Unnamed road	0.445	813

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

Arm Capacity Adjustments

Arm	Type	Reason	Percentage capacity adjustment (%)
2 - Elm Tree Grove	Percentage		30.00
3 - Penheolferthyr West	Percentage		60.00

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019 BASE	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	445	100.000
2 - Elm Tree Grove		ONE HOUR	✓	78	100.000
3 - Penheolferthyr West		ONE HOUR	✓	254	100.000
4 - Unnamed road		ONE HOUR	✓	2	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	26	417	2
	2 - Elm Tree Grove	36	1	41	0
	3 - Penheolferthyr West	231	16	7	0
	4 - Unnamed road	1	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	1	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	2	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.37	4.43	0.6	A	408	613
2 - Elm Tree Grove	0.32	19.88	0.5	C	72	107
3 - Penheolferthyr West	0.44	10.24	0.8	B	233	350
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

08:00 - 08:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	335	84	18	1315	0.255	334	199	0.0	0.3	3.697	A
2 - Elm Tree Grove	59	15	319	290	0.203	58	32	0.0	0.2	15.465	C
3 - Penheolferthyr West	191	48	29	642	0.298	190	348	0.0	0.4	8.073	A
4 - Unnamed road	0	0	217	716	0.000	0	1	0.0	0.0	0.000	A

08:15 - 08:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	400	100	22	1313	0.305	400	239	0.3	0.4	3.975	A
2 - Elm Tree Grove	70	18	383	280	0.250	70	39	0.2	0.3	17.102	C
3 - Penheolferthyr West	228	57	35	640	0.357	228	417	0.4	0.6	8.883	A
4 - Unnamed road	0	0	261	697	0.000	0	2	0.0	0.0	0.000	A

08:30 - 08:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	490	122	26	1310	0.374	489	293	0.4	0.6	4.419	A
2 - Elm Tree Grove	86	21	468	267	0.322	85	47	0.3	0.5	19.758	C
3 - Penheolferthyr West	280	70	43	637	0.439	279	511	0.6	0.8	10.191	B
4 - Unnamed road	0	0	319	671	0.000	0	2	0.0	0.0	0.000	A

08:45 - 09:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	490	122	26	1310	0.374	490	294	0.6	0.6	4.428	A
2 - Elm Tree Grove	86	21	469	267	0.322	86	47	0.5	0.5	19.876	C
3 - Penheolferthyr West	280	70	43	637	0.439	280	512	0.8	0.8	10.243	B
4 - Unnamed road	0	0	320	670	0.000	0	2	0.0	0.0	0.000	A

09:00 - 09:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	400	100	22	1313	0.305	401	241	0.6	0.4	3.984	A
2 - Elm Tree Grove	70	18	384	280	0.251	71	39	0.5	0.3	17.249	C
3 - Penheolferthyr West	228	57	35	640	0.357	229	419	0.8	0.6	8.947	A
4 - Unnamed road	0	0	263	696	0.000	0	2	0.0	0.0	0.000	A

09:15 - 09:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	335	84	18	1315	0.255	335	202	0.4	0.3	3.712	A
2 - Elm Tree Grove	59	15	321	289	0.203	59	32	0.3	0.3	15.658	C
3 - Penheolferthyr West	191	48	30	642	0.298	192	351	0.6	0.4	8.158	A
4 - Unnamed road	0	0	220	715	0.000	0	2	0.0	0.0	0.000	A

2019 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.86	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2019 BASE	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	393	100.000
2 - Elm Tree Grove		ONE HOUR	✓	38	100.000
3 - Penheolferthyr West		ONE HOUR	✓	342	100.000
4 - Unnamed road		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	5	36	352	0
	2 - Elm Tree Grove	14	0	24	0
	3 - Penheolferthyr West	305	6	31	0
	4 - Unnamed road	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	0	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	1	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.33	4.14	0.5	A	361	541
2 - Elm Tree Grove	0.15	15.56	0.2	C	35	52
3 - Penheolferthyr West	0.58	13.55	1.4	B	314	471
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	296	74	28	1310	0.226	295	241	0.0	0.3	3.544	A
2 - Elm Tree Grove	29	7	291	294	0.097	28	31	0.0	0.1	13.507	B
3 - Penheolferthyr West	257	64	14	646	0.398	255	305	0.0	0.7	9.216	A
4 - Unnamed road	0	0	269	693	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	353	88	33	1306	0.270	353	290	0.3	0.4	3.776	A
2 - Elm Tree Grove	34	9	348	285	0.120	34	38	0.1	0.1	14.330	B
3 - Penheolferthyr West	307	77	17	645	0.476	306	365	0.7	0.9	10.680	B
4 - Unnamed road	0	0	324	669	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	433	108	41	1302	0.332	432	355	0.4	0.5	4.137	A
2 - Elm Tree Grove	42	10	427	273	0.153	42	46	0.1	0.2	15.540	C
3 - Penheolferthyr West	377	94	21	644	0.584	375	447	0.9	1.4	13.370	B
4 - Unnamed road	0	0	396	637	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	433	108	41	1302	0.332	433	357	0.5	0.5	4.141	A
2 - Elm Tree Grove	42	10	427	273	0.153	42	46	0.2	0.2	15.556	C
3 - Penheolferthyr West	377	94	21	644	0.584	376	448	1.4	1.4	13.549	B
4 - Unnamed road	0	0	397	636	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	353	88	33	1306	0.270	354	293	0.5	0.4	3.783	A
2 - Elm Tree Grove	34	9	349	285	0.120	34	38	0.2	0.1	14.369	B
3 - Penheolferthyr West	307	77	17	645	0.476	309	367	1.4	0.9	10.862	B
4 - Unnamed road	0	0	326	668	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	296	74	28	1309	0.226	296	245	0.4	0.3	3.553	A
2 - Elm Tree Grove	29	7	292	294	0.097	29	32	0.1	0.1	13.594	B
3 - Penheolferthyr West	257	64	14	646	0.398	259	307	0.9	0.7	9.392	A
4 - Unnamed road	0	0	273	692	0.000	0	0	0.0	0.0	0.000	A

2024 BASE, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2024 BASE	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	469	100.000
2 - Elm Tree Grove		ONE HOUR	✓	81	100.000
3 - Penheolferthyr West		ONE HOUR	✓	264	100.000
4 - Unnamed road		ONE HOUR	✓	2	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	7	27	433	2
	2 - Elm Tree Grove	37	1	43	0
	3 - Penheolferthyr West	240	17	7	0
	4 - Unnamed road	1	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	1	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	2	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.39	4.58	0.7	A	430	646
2 - Elm Tree Grove	0.34	20.69	0.5	C	74	111
3 - Penheolferthyr West	0.46	10.65	0.9	B	242	363
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	353	88	19	1315	0.269	352	212	0.0	0.4	3.767	A
2 - Elm Tree Grove	61	15	337	287	0.213	60	34	0.0	0.3	15.788	C
3 - Penheolferthyr West	199	50	35	640	0.311	197	362	0.0	0.5	8.241	A
4 - Unnamed road	0	0	230	710	0.000	0	1	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	422	105	22	1313	0.321	421	255	0.4	0.5	4.073	A
2 - Elm Tree Grove	73	18	403	277	0.263	72	40	0.3	0.3	17.583	C
3 - Penheolferthyr West	237	59	42	638	0.372	237	434	0.5	0.6	9.130	A
4 - Unnamed road	0	0	277	690	0.000	0	2	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	516	129	27	1310	0.394	516	312	0.5	0.7	4.572	A
2 - Elm Tree Grove	89	22	494	263	0.339	89	49	0.3	0.5	20.557	C
3 - Penheolferthyr West	291	73	51	635	0.458	290	531	0.6	0.8	10.590	B
4 - Unnamed road	0	0	339	662	0.000	0	2	0.0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	516	129	28	1310	0.394	516	313	0.7	0.7	4.579	A
2 - Elm Tree Grove	89	22	494	263	0.339	89	50	0.5	0.5	20.691	C
3 - Penheolferthyr West	291	73	52	635	0.458	291	532	0.8	0.9	10.650	B
4 - Unnamed road	0	0	340	662	0.000	0	2	0.0	0.0	0.000	A

09:00 - 09:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	422	105	23	1313	0.321	422	256	0.7	0.5	4.083	A
2 - Elm Tree Grove	73	18	404	277	0.263	73	41	0.5	0.4	17.755	C
3 - Penheolferthyr West	237	59	43	638	0.372	238	435	0.9	0.6	9.204	A
4 - Unnamed road	0	0	279	689	0.000	0	2	0.0	0.0	0.000	A

09:15 - 09:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	353	88	19	1315	0.269	354	215	0.5	0.4	3.780	A
2 - Elm Tree Grove	61	15	338	287	0.213	61	34	0.4	0.3	16.004	C
3 - Penheolferthyr West	199	50	36	640	0.311	199	364	0.6	0.5	8.336	A
4 - Unnamed road	0	0	233	709	0.000	0	2	0.0	0.0	0.000	A

2024 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.43	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	2024 BASE	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	413	100.000
2 - Elm Tree Grove		ONE HOUR	✓	40	100.000
3 - Penheolferthyr West		ONE HOUR	✓	360	100.000
4 - Unnamed road		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	5	38	370	0
	2 - Elm Tree Grove	15	0	25	0
	3 - Penheolferthyr West	321	6	33	0
	4 - Unnamed road	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	0	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	1	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.35	4.26	0.5	A	379	568
2 - Elm Tree Grove	0.16	15.94	0.2	C	37	55
3 - Penheolferthyr West	0.62	14.64	1.6	B	330	496
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	311	78	29	1309	0.238	310	254	0.0	0.3	3.598	A
2 - Elm Tree Grove	30	8	306	292	0.103	30	33	0.0	0.1	13.719	B
3 - Penheolferthyr West	271	68	15	646	0.419	268	321	0.0	0.7	9.539	A
4 - Unnamed road	0	0	283	687	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	371	93	35	1305	0.284	371	306	0.3	0.4	3.852	A
2 - Elm Tree Grove	36	9	366	282	0.127	36	40	0.1	0.1	14.590	B
3 - Penheolferthyr West	324	81	18	645	0.502	323	384	0.7	1.0	11.214	B
4 - Unnamed road	0	0	340	661	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	455	114	43	1301	0.350	454	373	0.4	0.5	4.249	A
2 - Elm Tree Grove	44	11	449	270	0.163	44	48	0.1	0.2	15.906	C
3 - Penheolferthyr West	396	99	22	644	0.616	394	470	1.0	1.6	14.402	B
4 - Unnamed road	0	0	416	628	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	455	114	43	1301	0.350	455	375	0.5	0.5	4.255	A
2 - Elm Tree Grove	44	11	449	270	0.163	44	48	0.2	0.2	15.938	C
3 - Penheolferthyr West	396	99	22	644	0.616	396	471	1.6	1.6	14.644	B
4 - Unnamed road	0	0	418	627	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	371	93	35	1305	0.284	372	309	0.5	0.4	3.859	A
2 - Elm Tree Grove	36	9	367	282	0.127	36	40	0.2	0.1	14.639	B
3 - Penheolferthyr West	324	81	18	645	0.502	326	386	1.6	1.0	11.448	B
4 - Unnamed road	0	0	344	660	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	311	78	29	1309	0.238	311	258	0.4	0.3	3.613	A
2 - Elm Tree Grove	30	8	308	291	0.103	30	33	0.1	0.1	13.793	B
3 - Penheolferthyr West	271	68	15	646	0.419	272	323	1.0	0.7	9.745	A
4 - Unnamed road	0	0	287	685	0.000	0	0	0.0	0.0	0.000	A

2029 BASE, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.54	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2029 BASE	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	495	100.000
2 - Elm Tree Grove		ONE HOUR	✓	85	100.000
3 - Penheolferthyr West		ONE HOUR	✓	279	100.000
4 - Unnamed road		ONE HOUR	✓	2	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	8	28	457	2
	2 - Elm Tree Grove	39	1	45	0
	3 - Penheolferthyr West	253	18	8	0
	4 - Unnamed road	1	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	1	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	2	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.42	4.76	0.7	A	454	681
2 - Elm Tree Grove	0.36	21.78	0.6	C	78	117
3 - Penheolferthyr West	0.48	11.22	0.9	B	256	384
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	373	93	20	1314	0.284	371	224	0.0	0.4	3.847	A
2 - Elm Tree Grove	64	16	356	284	0.225	63	35	0.0	0.3	16.199	C
3 - Penheolferthyr West	210	53	37	639	0.329	208	382	0.0	0.5	8.464	A
4 - Unnamed road	0	0	244	705	0.000	0	1	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	445	111	24	1312	0.339	445	269	0.4	0.5	4.188	A
2 - Elm Tree Grove	76	19	427	273	0.280	76	42	0.3	0.4	18.211	C
3 - Penheolferthyr West	251	63	45	637	0.394	250	458	0.5	0.7	9.463	A
4 - Unnamed road	0	0	293	683	0.000	0	2	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	545	136	30	1308	0.417	544	329	0.5	0.7	4.749	A
2 - Elm Tree Grove	94	23	522	259	0.362	93	52	0.4	0.5	21.602	C
3 - Penheolferthyr West	307	77	55	634	0.485	306	560	0.7	0.9	11.145	B
4 - Unnamed road	0	0	359	653	0.000	0	2	0.0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	545	136	30	1308	0.417	545	330	0.7	0.7	4.758	A
2 - Elm Tree Grove	94	23	523	259	0.362	94	52	0.5	0.6	21.783	C
3 - Penheolferthyr West	307	77	55	634	0.485	307	561	0.9	0.9	11.223	B
4 - Unnamed road	0	0	360	653	0.000	0	2	0.0	0.0	0.000	A

09:00 - 09:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	445	111	24	1312	0.339	446	271	0.7	0.5	4.201	A
2 - Elm Tree Grove	76	19	428	273	0.280	77	42	0.6	0.4	18.421	C
3 - Penheolferthyr West	251	63	45	637	0.394	252	460	0.9	0.7	9.555	A
4 - Unnamed road	0	0	295	682	0.000	0	2	0.0	0.0	0.000	A

09:15 - 09:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	373	93	20	1314	0.284	373	227	0.5	0.4	3.863	A
2 - Elm Tree Grove	64	16	358	284	0.226	64	35	0.4	0.3	16.448	C
3 - Penheolferthyr West	210	53	38	639	0.329	211	385	0.7	0.5	8.571	A
4 - Unnamed road	0	0	247	703	0.000	0	2	0.0	0.0	0.000	A

2029 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.95	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	2029 BASE	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	429	100.000
2 - Elm Tree Grove		ONE HOUR	✓	41	100.000
3 - Penheolferthyr West		ONE HOUR	✓	375	100.000
4 - Unnamed road		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	5	39	385	0
	2 - Elm Tree Grove	15	0	26	0
	3 - Penheolferthyr West	334	7	34	0
	4 - Unnamed road	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	0	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	1	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.36	4.35	0.6	A	394	590
2 - Elm Tree Grove	0.17	16.21	0.2	C	38	56
3 - Penheolferthyr West	0.64	15.68	1.8	C	344	516
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	323	81	31	1308	0.247	322	264	0.0	0.3	3.645	A
2 - Elm Tree Grove	31	8	318	290	0.107	30	34	0.0	0.1	13.853	B
3 - Penheolferthyr West	282	71	15	646	0.437	279	333	0.0	0.8	9.819	A
4 - Unnamed road	0	0	294	682	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	386	96	37	1304	0.296	385	317	0.3	0.4	3.915	A
2 - Elm Tree Grove	37	9	381	280	0.132	37	41	0.1	0.1	14.774	B
3 - Penheolferthyr West	337	84	18	645	0.522	336	400	0.8	1.1	11.689	B
4 - Unnamed road	0	0	354	656	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	472	118	45	1299	0.363	472	387	0.4	0.6	4.346	A
2 - Elm Tree Grove	45	11	466	267	0.169	45	51	0.1	0.2	16.172	C
3 - Penheolferthyr West	413	103	22	644	0.641	410	489	1.1	1.7	15.365	C
4 - Unnamed road	0	0	432	621	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	472	118	45	1299	0.364	472	390	0.6	0.6	4.352	A
2 - Elm Tree Grove	45	11	467	267	0.169	45	51	0.2	0.2	16.209	C
3 - Penheolferthyr West	413	103	22	644	0.641	413	490	1.7	1.8	15.680	C
4 - Unnamed road	0	0	435	620	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	386	96	37	1304	0.296	386	321	0.6	0.4	3.926	A
2 - Elm Tree Grove	37	9	382	280	0.132	37	41	0.2	0.2	14.823	B
3 - Penheolferthyr West	337	84	18	645	0.523	340	401	1.8	1.1	11.985	B
4 - Unnamed road	0	0	358	654	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	323	81	31	1308	0.247	323	268	0.4	0.3	3.657	A
2 - Elm Tree Grove	31	8	320	290	0.107	31	35	0.2	0.1	13.934	B
3 - Penheolferthyr West	282	71	15	646	0.437	284	336	1.1	0.8	10.058	B
4 - Unnamed road	0	0	299	680	0.000	0	0	0.0	0.0	0.000	A

2034 BASE, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.89	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2034 BASE	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	517	100.000
2 - Elm Tree Grove		ONE HOUR	✓	89	100.000
3 - Penheolferthyr West		ONE HOUR	✓	290	100.000
4 - Unnamed road		ONE HOUR	✓	2	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	8	30	477	2
	2 - Elm Tree Grove	41	1	47	0
	3 - Penheolferthyr West	264	18	8	0
	4 - Unnamed road	1	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	1	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	2	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.44	4.91	0.8	A	474	712
2 - Elm Tree Grove	0.38	22.85	0.6	C	82	123
3 - Penheolferthyr West	0.50	11.68	1.0	B	266	399
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	389	97	20	1314	0.296	388	233	0.0	0.4	3.914	A
2 - Elm Tree Grove	67	17	371	282	0.238	66	37	0.0	0.3	16.581	C
3 - Penheolferthyr West	218	55	39	639	0.342	216	398	0.0	0.5	8.634	A
4 - Unnamed road	0	0	253	700	0.000	0	1	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	465	116	24	1312	0.354	464	281	0.4	0.5	4.284	A
2 - Elm Tree Grove	80	20	444	271	0.296	80	44	0.3	0.4	18.803	C
3 - Penheolferthyr West	261	65	47	636	0.410	260	478	0.5	0.7	9.723	A
4 - Unnamed road	0	0	305	677	0.000	0	2	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	569	142	30	1308	0.435	568	343	0.5	0.8	4.902	A
2 - Elm Tree Grove	98	24	544	255	0.384	97	54	0.4	0.6	22.630	C
3 - Penheolferthyr West	319	80	57	633	0.504	318	584	0.7	1.0	11.585	B
4 - Unnamed road	0	0	373	647	0.000	0	2	0.0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	569	142	30	1308	0.435	569	345	0.8	0.8	4.914	A
2 - Elm Tree Grove	98	24	545	255	0.384	98	54	0.6	0.6	22.850	C
3 - Penheolferthyr West	319	80	57	633	0.504	319	586	1.0	1.0	11.680	B
4 - Unnamed road	0	0	374	646	0.000	0	2	0.0	0.0	0.000	A

09:00 - 09:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	465	116	24	1312	0.354	466	283	0.8	0.6	4.300	A
2 - Elm Tree Grove	80	20	446	270	0.296	81	44	0.6	0.4	19.052	C
3 - Penheolferthyr West	261	65	47	636	0.410	262	479	1.0	0.7	9.828	A
4 - Unnamed road	0	0	307	676	0.000	0	2	0.0	0.0	0.000	A

09:15 - 09:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	389	97	20	1314	0.296	390	237	0.6	0.4	3.933	A
2 - Elm Tree Grove	67	17	373	281	0.238	67	37	0.4	0.3	16.862	C
3 - Penheolferthyr West	218	55	39	639	0.342	219	401	0.7	0.5	8.755	A
4 - Unnamed road	0	0	257	699	0.000	0	2	0.0	0.0	0.000	A

2034 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	7.70	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2034 BASE	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	449	100.000
2 - Elm Tree Grove		ONE HOUR	✓	43	100.000
3 - Penheolferthyr West		ONE HOUR	✓	290	100.000
4 - Unnamed road		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	6	41	402	0
	2 - Elm Tree Grove	16	0	27	0
	3 - Penheolferthyr West	248	7	35	0
	4 - Unnamed road	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	1	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	2	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.38	4.52	0.6	A	412	618
2 - Elm Tree Grove	0.18	16.61	0.2	C	39	59
3 - Penheolferthyr West	0.50	11.30	1.0	B	266	399
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	338	85	31	1307	0.259	337	201	0.0	0.3	3.737	A
2 - Elm Tree Grove	32	8	332	288	0.113	32	36	0.0	0.1	14.049	B
3 - Penheolferthyr West	218	55	16	646	0.338	216	348	0.0	0.5	8.500	A
4 - Unnamed road	0	0	233	709	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	404	101	38	1304	0.310	403	242	0.3	0.4	4.032	A
2 - Elm Tree Grove	39	10	398	278	0.139	39	43	0.1	0.2	15.043	C
3 - Penheolferthyr West	261	65	20	645	0.404	260	417	0.5	0.7	9.502	A
4 - Unnamed road	0	0	280	688	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	494	124	46	1299	0.381	494	296	0.4	0.6	4.507	A
2 - Elm Tree Grove	47	12	487	264	0.179	47	53	0.2	0.2	16.570	C
3 - Penheolferthyr West	319	80	24	643	0.496	318	510	0.7	1.0	11.216	B
4 - Unnamed road	0	0	342	661	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	494	124	46	1299	0.381	494	297	0.6	0.6	4.515	A
2 - Elm Tree Grove	47	12	488	264	0.179	47	53	0.2	0.2	16.610	C
3 - Penheolferthyr West	319	80	24	643	0.496	319	511	1.0	1.0	11.297	B
4 - Unnamed road	0	0	343	660	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	404	101	38	1304	0.310	404	244	0.6	0.5	4.043	A
2 - Elm Tree Grove	39	10	399	277	0.139	39	43	0.2	0.2	15.098	C
3 - Penheolferthyr West	261	65	20	645	0.404	262	418	1.0	0.7	9.596	A
4 - Unnamed road	0	0	282	688	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	338	85	32	1307	0.259	338	204	0.5	0.4	3.749	A
2 - Elm Tree Grove	32	8	334	287	0.113	33	36	0.2	0.1	14.137	B
3 - Penheolferthyr West	218	55	17	646	0.338	219	350	0.7	0.5	8.596	A
4 - Unnamed road	0	0	236	708	0.000	0	0	0.0	0.0	0.000	A

2024 BASE+DEV, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	11.28	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2024 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	488	100.000
2 - Elm Tree Grove		ONE HOUR	✓	141	100.000
3 - Penheolferthyr West		ONE HOUR	✓	277	100.000
4 - Unnamed road		ONE HOUR	✓	2	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	7	40	439	2
	2 - Elm Tree Grove	71	1	69	0
	3 - Penheolferthyr West	243	27	7	0
	4 - Unnamed road	1	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	1	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	2	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.41	4.74	0.7	A	448	672
2 - Elm Tree Grove	0.59	33.48	1.4	D	129	194
3 - Penheolferthyr West	0.49	11.51	1.0	B	254	381
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	367	92	26	1311	0.280	366	239	0.0	0.4	3.839	A
2 - Elm Tree Grove	106	27	341	286	0.371	104	51	0.0	0.6	19.510	C
3 - Penheolferthyr West	209	52	60	632	0.330	207	385	0.0	0.5	8.569	A
4 - Unnamed road	0	0	265	695	0.000	0	1	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	439	110	31	1307	0.336	438	288	0.4	0.5	4.177	A
2 - Elm Tree Grove	127	32	409	276	0.459	126	61	0.6	0.8	23.793	C
3 - Penheolferthyr West	249	62	72	628	0.396	248	462	0.5	0.7	9.626	A
4 - Unnamed road	0	0	319	671	0.000	0	2	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	537	134	38	1303	0.412	537	351	0.5	0.7	4.732	A
2 - Elm Tree Grove	155	39	500	262	0.592	153	75	0.8	1.3	32.358	D
3 - Penheolferthyr West	305	76	88	623	0.489	304	565	0.7	1.0	11.423	B
4 - Unnamed road	0	0	390	640	0.000	0	2	0.0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	537	134	39	1303	0.412	537	353	0.7	0.7	4.742	A
2 - Elm Tree Grove	155	39	501	262	0.592	155	75	1.3	1.4	33.476	D
3 - Penheolferthyr West	305	76	89	623	0.490	305	567	1.0	1.0	11.515	B
4 - Unnamed road	0	0	392	639	0.000	0	2	0.0	0.0	0.000	A

09:00 - 09:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	439	110	32	1307	0.336	439	291	0.7	0.5	4.190	A
2 - Elm Tree Grove	127	32	410	276	0.460	129	61	1.4	0.9	24.802	C
3 - Penheolferthyr West	249	62	74	628	0.397	250	465	1.0	0.7	9.732	A
4 - Unnamed road	0	0	322	670	0.000	0	2	0.0	0.0	0.000	A

09:15 - 09:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	367	92	26	1310	0.280	368	243	0.5	0.4	3.857	A
2 - Elm Tree Grove	106	27	343	286	0.371	107	51	0.9	0.6	20.270	C
3 - Penheolferthyr West	209	52	62	632	0.330	209	389	0.7	0.5	8.689	A
4 - Unnamed road	0	0	269	693	0.000	0	2	0.0	0.0	0.000	A

2024 BASE+DEV, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	10.12	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2024 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	444	100.000
2 - Elm Tree Grove		ONE HOUR	✓	73	100.000
3 - Penheolferthyr West		ONE HOUR	✓	365	100.000
4 - Unnamed road		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	5	69	370	0
	2 - Elm Tree Grove	27	0	46	0
	3 - Penheolferthyr West	321	11	33	0
	4 - Unnamed road	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	0	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	1	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.38	4.45	0.6	A	407	611
2 - Elm Tree Grove	0.30	18.99	0.4	C	67	100
3 - Penheolferthyr West	0.63	15.23	1.7	C	335	502
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	334	84	33	1307	0.256	333	263	0.0	0.3	3.692	A
2 - Elm Tree Grove	55	14	306	292	0.188	54	60	0.0	0.2	15.097	C
3 - Penheolferthyr West	275	69	24	643	0.427	272	336	0.0	0.7	9.699	A
4 - Unnamed road	0	0	296	681	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	399	100	39	1303	0.306	399	316	0.3	0.4	3.980	A
2 - Elm Tree Grove	66	16	366	282	0.232	65	72	0.2	0.3	16.560	C
3 - Penheolferthyr West	328	82	29	642	0.511	327	403	0.7	1.0	11.486	B
4 - Unnamed road	0	0	356	655	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	489	122	48	1298	0.377	488	386	0.4	0.6	4.444	A
2 - Elm Tree Grove	80	20	448	270	0.298	80	88	0.3	0.4	18.890	C
3 - Penheolferthyr West	402	100	35	640	0.628	399	493	1.0	1.6	14.949	B
4 - Unnamed road	0	0	435	620	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	489	122	48	1297	0.377	489	389	0.6	0.6	4.452	A
2 - Elm Tree Grove	80	20	449	270	0.298	80	88	0.4	0.4	18.988	C
3 - Penheolferthyr West	402	100	35	640	0.628	402	494	1.6	1.7	15.232	C
4 - Unnamed road	0	0	437	619	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	399	100	40	1302	0.306	400	320	0.6	0.4	3.990	A
2 - Elm Tree Grove	66	16	368	282	0.233	66	72	0.4	0.3	16.686	C
3 - Penheolferthyr West	328	82	29	642	0.511	330	405	1.7	1.1	11.754	B
4 - Unnamed road	0	0	359	653	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	334	84	33	1306	0.256	335	267	0.4	0.3	3.708	A
2 - Elm Tree Grove	55	14	308	291	0.189	55	60	0.3	0.2	15.269	C
3 - Penheolferthyr West	275	69	24	643	0.427	276	339	1.1	0.8	9.926	A
4 - Unnamed road	0	0	300	679	0.000	0	0	0.0	0.0	0.000	A

2029 BASE+DEV, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	11.79	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D11	2029 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	508	100.000
2 - Elm Tree Grove		ONE HOUR	✓	144	100.000
3 - Penheolferthyr West		ONE HOUR	✓	289	100.000
4 - Unnamed road		ONE HOUR	✓	2	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	8	41	457	2
	2 - Elm Tree Grove	72	1	71	0
	3 - Penheolferthyr West	253	28	8	0
	4 - Unnamed road	1	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	1	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	2	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.43	4.89	0.8	A	466	699
2 - Elm Tree Grove	0.61	35.63	1.5	E	132	198
3 - Penheolferthyr West	0.51	12.04	1.1	B	265	398
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	382	96	28	1310	0.292	381	248	0.0	0.4	3.903	A
2 - Elm Tree Grove	108	27	356	284	0.382	106	52	0.0	0.6	19.978	C
3 - Penheolferthyr West	218	54	61	632	0.344	215	401	0.0	0.5	8.759	A
4 - Unnamed road	0	0	275	691	0.000	0	1	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	457	114	33	1306	0.350	456	298	0.4	0.5	4.269	A
2 - Elm Tree Grove	129	32	427	273	0.474	128	63	0.6	0.9	24.646	C
3 - Penheolferthyr West	260	65	74	628	0.414	259	481	0.5	0.7	9.918	A
4 - Unnamed road	0	0	331	666	0.000	0	2	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	559	140	41	1302	0.430	558	364	0.5	0.8	4.881	A
2 - Elm Tree Grove	159	40	522	259	0.613	156	77	0.9	1.5	34.251	D
3 - Penheolferthyr West	318	80	90	623	0.511	317	588	0.7	1.0	11.926	B
4 - Unnamed road	0	0	405	633	0.000	0	2	0.0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	559	140	41	1302	0.430	559	366	0.8	0.8	4.891	A
2 - Elm Tree Grove	159	40	523	259	0.613	158	77	1.5	1.5	35.630	E
3 - Penheolferthyr West	318	80	91	622	0.511	318	590	1.0	1.1	12.038	B
4 - Unnamed road	0	0	407	632	0.000	0	2	0.0	0.0	0.000	A

09:00 - 09:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	457	114	33	1306	0.350	458	302	0.8	0.5	4.285	A
2 - Elm Tree Grove	129	32	428	273	0.474	132	63	1.5	0.9	25.849	D
3 - Penheolferthyr West	260	65	76	627	0.414	261	484	1.1	0.7	10.041	B
4 - Unnamed road	0	0	335	664	0.000	0	2	0.0	0.0	0.000	A

09:15 - 09:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	382	96	28	1309	0.292	383	252	0.5	0.4	3.924	A
2 - Elm Tree Grove	108	27	358	284	0.382	110	53	0.9	0.6	20.828	C
3 - Penheolferthyr West	218	54	63	631	0.345	218	405	0.7	0.5	8.890	A
4 - Unnamed road	0	0	280	688	0.000	0	2	0.0	0.0	0.000	A

2029 BASE+DEV, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	10.66	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2029 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	461	100.000
2 - Elm Tree Grove		ONE HOUR	✓	74	100.000
3 - Penheolferthyr West		ONE HOUR	✓	380	100.000
4 - Unnamed road		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	5	70	386	0
	2 - Elm Tree Grove	27	0	47	0
	3 - Penheolferthyr West	334	12	34	0
	4 - Unnamed road	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	0	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	1	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.39	4.56	0.6	A	423	635
2 - Elm Tree Grove	0.31	19.39	0.4	C	68	102
3 - Penheolferthyr West	0.65	16.35	1.9	C	349	523
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	347	87	34	1306	0.266	346	272	0.0	0.4	3.745	A
2 - Elm Tree Grove	56	14	318	290	0.192	55	61	0.0	0.2	15.266	C
3 - Penheolferthyr West	286	72	24	643	0.445	283	350	0.0	0.8	9.990	A
4 - Unnamed road	0	0	307	677	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	414	104	41	1302	0.318	414	328	0.4	0.5	4.054	A
2 - Elm Tree Grove	67	17	382	280	0.237	66	74	0.2	0.3	16.807	C
3 - Penheolferthyr West	342	85	29	642	0.532	340	419	0.8	1.1	11.988	B
4 - Unnamed road	0	0	369	649	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	508	127	50	1296	0.392	507	400	0.5	0.6	4.556	A
2 - Elm Tree Grove	81	20	467	267	0.305	81	90	0.3	0.4	19.281	C
3 - Penheolferthyr West	418	105	35	640	0.654	416	513	1.1	1.8	15.985	C
4 - Unnamed road	0	0	451	612	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	508	127	51	1296	0.392	508	403	0.6	0.6	4.565	A
2 - Elm Tree Grove	81	20	468	267	0.305	81	90	0.4	0.4	19.389	C
3 - Penheolferthyr West	418	105	35	640	0.654	418	514	1.8	1.9	16.355	C
4 - Unnamed road	0	0	453	611	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	414	104	42	1301	0.318	415	332	0.6	0.5	4.065	A
2 - Elm Tree Grove	67	17	383	280	0.238	67	74	0.4	0.3	16.941	C
3 - Penheolferthyr West	342	85	29	642	0.532	344	421	1.9	1.2	12.318	B
4 - Unnamed road	0	0	373	647	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	347	87	35	1305	0.266	347	277	0.5	0.4	3.761	A
2 - Elm Tree Grove	56	14	320	289	0.193	56	62	0.3	0.2	15.445	C
3 - Penheolferthyr West	286	72	24	643	0.445	288	352	1.2	0.8	10.251	B
4 - Unnamed road	0	0	312	674	0.000	0	0	0.0	0.0	0.000	A

2034 BASE+DEV, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	12.44	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D13	2034 BASE+DEV	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	530	100.000
2 - Elm Tree Grove		ONE HOUR	✓	148	100.000
3 - Penheolferthyr West		ONE HOUR	✓	301	100.000
4 - Unnamed road		ONE HOUR	✓	2	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	8	43	477	2
	2 - Elm Tree Grove	74	1	73	0
	3 - Penheolferthyr West	264	29	8	0
	4 - Unnamed road	1	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	1	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	2	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.45	5.06	0.8	A	486	730
2 - Elm Tree Grove	0.64	38.50	1.7	E	136	204
3 - Penheolferthyr West	0.53	12.61	1.1	B	276	414
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	399	100	28	1309	0.305	397	257	0.0	0.4	3.976	A
2 - Elm Tree Grove	111	28	371	282	0.395	109	55	0.0	0.6	20.550	C
3 - Penheolferthyr West	227	57	63	631	0.359	224	417	0.0	0.6	8.955	A
4 - Unnamed road	0	0	286	686	0.000	0	1	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	476	119	34	1306	0.365	476	310	0.4	0.6	4.374	A
2 - Elm Tree Grove	133	33	444	271	0.492	132	65	0.6	0.9	25.719	D
3 - Penheolferthyr West	271	68	76	627	0.432	270	501	0.6	0.8	10.228	B
4 - Unnamed road	0	0	344	660	0.000	0	2	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	584	146	42	1301	0.448	583	378	0.6	0.8	5.047	A
2 - Elm Tree Grove	163	41	544	256	0.638	160	80	0.9	1.6	36.720	E
3 - Penheolferthyr West	331	83	92	622	0.533	330	612	0.8	1.1	12.475	B
4 - Unnamed road	0	0	420	626	0.000	0	2	0.0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	584	146	42	1301	0.448	584	381	0.8	0.8	5.060	A
2 - Elm Tree Grove	163	41	545	255	0.638	163	80	1.6	1.7	38.505	E
3 - Penheolferthyr West	331	83	93	622	0.533	331	614	1.1	1.1	12.613	B
4 - Unnamed road	0	0	423	625	0.000	0	2	0.0	0.0	0.000	A

09:00 - 09:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	476	119	34	1306	0.365	477	314	0.8	0.6	4.391	A
2 - Elm Tree Grove	133	33	446	270	0.492	136	66	1.7	1.0	27.205	D
3 - Penheolferthyr West	271	68	78	626	0.432	272	504	1.1	0.8	10.375	B
4 - Unnamed road	0	0	348	658	0.000	0	2	0.0	0.0	0.000	A

09:15 - 09:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	399	100	29	1309	0.305	400	262	0.6	0.4	3.996	A
2 - Elm Tree Grove	111	28	373	281	0.396	113	55	1.0	0.7	21.519	C
3 - Penheolferthyr West	227	57	65	631	0.359	227	421	0.8	0.6	9.105	A
4 - Unnamed road	0	0	291	684	0.000	0	2	0.0	0.0	0.000	A

2034 BASE+DEV, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	11.39	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D14	2034 BASE+DEV	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Penheolferthyr Penheolferthyr east		ONE HOUR	✓	480	100.000
2 - Elm Tree Grove		ONE HOUR	✓	76	100.000
3 - Penheolferthyr West		ONE HOUR	✓	396	100.000
4 - Unnamed road		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	6	72	402	0
	2 - Elm Tree Grove	28	0	48	0
	3 - Penheolferthyr West	349	12	35	0
	4 - Unnamed road	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Penheolferthyr Penheolferthyr east	2 - Elm Tree Grove	3 - Penheolferthyr West	4 - Unnamed road
From	1 - Penheolferthyr Penheolferthyr east	0	0	1	0
	2 - Elm Tree Grove	0	0	0	0
	3 - Penheolferthyr West	1	0	0	0
	4 - Unnamed road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Penheolferthyr Penheolferthyr east	0.41	4.73	0.7	A	440	661
2 - Elm Tree Grove	0.32	19.95	0.5	C	70	105
3 - Penheolferthyr West	0.68	17.81	2.1	C	363	545
4 - Unnamed road	0.00	0.00	0.0	A	0	0

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	361	90	35	1305	0.277	360	285	0.0	0.4	3.833	A
2 - Elm Tree Grove	57	14	332	288	0.199	56	63	0.0	0.2	15.497	C
3 - Penheolferthyr West	298	75	25	643	0.464	295	363	0.0	0.9	10.332	B
4 - Unnamed road	0	0	320	671	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	432	108	42	1301	0.332	431	343	0.4	0.5	4.170	A
2 - Elm Tree Grove	68	17	398	278	0.246	68	75	0.2	0.3	17.144	C
3 - Penheolferthyr West	356	89	30	641	0.555	355	435	0.9	1.2	12.594	B
4 - Unnamed road	0	0	385	642	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	528	132	51	1296	0.408	528	419	0.5	0.7	4.722	A
2 - Elm Tree Grove	84	21	487	264	0.317	83	92	0.3	0.4	19.824	C
3 - Penheolferthyr West	436	109	37	639	0.682	433	533	1.2	2.0	17.302	C
4 - Unnamed road	0	0	470	604	0.000	0	0	0.0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	528	132	52	1295	0.408	528	421	0.7	0.7	4.732	A
2 - Elm Tree Grove	84	21	488	264	0.317	84	92	0.4	0.5	19.949	C
3 - Penheolferthyr West	436	109	37	639	0.682	436	534	2.0	2.1	17.808	C
4 - Unnamed road	0	0	473	602	0.000	0	0	0.0	0.0	0.000	A

18:00 - 18:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	432	108	43	1301	0.332	432	347	0.7	0.5	4.184	A
2 - Elm Tree Grove	68	17	399	277	0.246	69	76	0.5	0.3	17.294	C
3 - Penheolferthyr West	356	89	31	641	0.555	359	437	2.1	1.3	13.022	B
4 - Unnamed road	0	0	390	639	0.000	0	0	0.0	0.0	0.000	A

18:15 - 18:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Penheolferthyr Penheolferthyr east	361	90	36	1305	0.277	362	290	0.5	0.4	3.850	A
2 - Elm Tree Grove	57	14	334	287	0.199	58	63	0.3	0.3	15.690	C
3 - Penheolferthyr West	298	75	26	643	0.464	300	366	1.3	0.9	10.639	B
4 - Unnamed road	0	0	325	668	0.000	0	0	0.0	0.0	0.000	A