London Borough of Enfield

Meridian Water Masterplan

Ikea and Tesco Access Study

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1 Introduction

1.1 Background context

Arup has been appointed by London Borough of Enfield (LBE) to provide transport planning and highways advice in relation to the proposed Meridian Water masterplan development.

The Meridian Water masterplan area includes the existing Ikea and Tesco retail stores and the extent of the area, as identified in LBE's Core Strategy and Edmonton Leeside Proposed Submission Area Action Plan (AAP), is shown in Figure 1.

Figure 1 – Extent of Meridian Water Masterplan Area

Meridian Water is the largest regeneration priority area in the council's adopted Core Strategy (2010). As set out in the Edmonton Leeside Proposed Submission Area Action Plan (January 2017), the long-term aspiration is to provide around 10,000 homes and 6,000 jobs. The masterplan is currently being developed in more detail.

Phase 1 of the masterplan, located to the west of the railway lines and south of the A406, was granted consent in June 2016 for 725 residential units. It also includes the delivery of a new Meridian Water railway station on the West Anglian Main Line (WAML) which is due to open in 2019. This will improve accessibility to both Tesco and Ikea for both customers and staff which should to some extent help to reduce reliance on the private car.

A bid for Housing Infrastructure Fund (HIF) is being submitted this summer to deliver infrastructure to unlock development on the eastern part of the site. This

would include items such as flood alleviation, land remediation, as well as highway infrastructure.

The highway infrastructure will include bridges over the Pymmes Brook and Lea Navigation, a new road between Glover Drive and Harbet Road (known as The Causeway), and a road link between Leeside Road and The Causeway. These links are expected to significantly improve severance issues across the site and improve accessibility.

The planning application for Phase 2 of the masterplan is expected to be submitted, including HIF infrastructure as well as housing development. The exact scope of this application is currently being defined.

1.2 Report purpose

The Meridian Water masterplan development is proposed to have strong sustainability principles, with very low car parking provision and designed in accordance with Healthy Streets principles. The long-term aspiration of The Causeway is to be a walking, cycling and public transport connection, with limited access for general traffic. Consideration has been given on the phasing of highway infrastructure, proposed development and interaction with existing uses on site.

It is recognised that both Ikea and Tesco have successful businesses operating within the area identified for the Meridian Water regeneration. As the Meridian Water development progresses, LBE and their consultant team are very aware that maintaining this successful operation as the masterplan progresses will be very important. Issues such as maintaining store visibility, and the quality of the customer journey and continuation of servicing and deliveries are important retail issues. Where possible, the masterplan team will try to identify solutions that take into account these issues whilst also meeting the objective of delivering a successful new urban neighbourhood centre. It is also recognised that the retail business is changing and will continue to change over the lifetime of the Meridian Water masterplan and that solutions need to be flexible and capable of adapting over time.

The opening of The Causeway will result in some changes to the existing access strategy for Ikea and Tesco. A number of access options have been considered, supported by preliminary design and junction capacity modelling work, that endeavour to balance the delivery of the objectives of Meridian Water with the customer and business access requirements for Tesco and Ikea.

In terms of the traffic modelling work, the options have been initially tested based on manual assignment of existing traffic based on June 2018 surveys, and junction capacity models (LINSIG and Junctions 8). This gives an indicative level of traffic impact and will be further refined as part of the Phase 2 planning application. The process for the full suite of traffic modelling work for the whole masterplan has begun with TfL and this will include strategic and microsimulation modelling work. This will better inform the wider impacts and redistribution of traffic and the timescales for this work to be completed is Summer 2019.

Therefore, this report sets out the proposed junction designs and some initial junction modelling work and these will be refined as the design and modelling work progresses with the masterplan.

This report is structured as follows:

- **Chapter 2 – 2018 Base Case**: This provides a summary of the existing access strategy for Ikea and Tesco.
- **Chapter 3 – 2023 HIF Scenario**: This sets out the scenario when the HIF highways infrastructure is in place, prior to significant housing development, and assess the impact and provide possible solutions for Ikea and Tesco.
- **Chapter 4 – Summary and Next Steps**: Provides a summary and sets out the next steps in progressing with the proposals.

2 Base Case

2.1 Introduction

This chapter sets out the existing access to the Ikea and Tesco stores and provides an assessment of the existing traffic conditions.

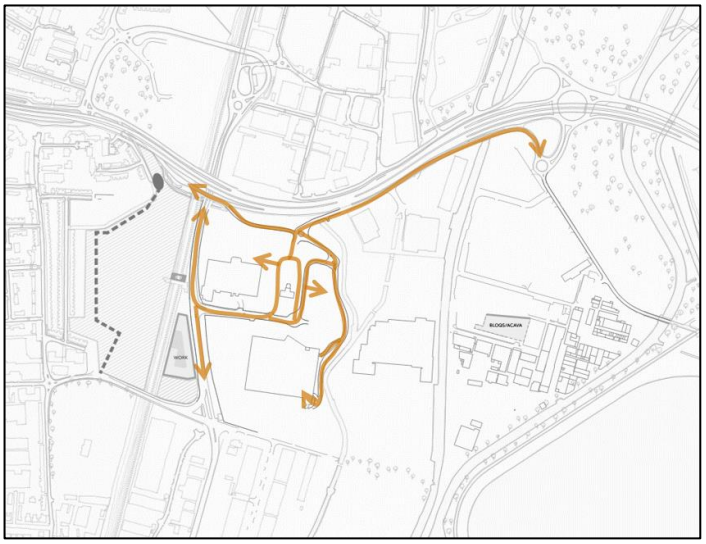
2.2 Existing highways access

Ikea and Tesco are well located to access the strategic highway network. Argon Road provides a route between the A406 North Circular and Ikea and Tesco. A roundabout provides access to both the Ikea and Tesco traffic, with Ikea traffic travelling to the south east to access the surface level and undercroft car parks, and Tesco traffic travelling west to access the surface level car park and petrol filling station (PFS). Argon Road also continues to the west to join with another off-slip from the A406 which terminates at the junction with Montagu Road.

Meridian Way provides a north-south route and Glover Drive provides a connection between Meridian Way and Ikea and Tesco.

Access to both Ikea and Tesco stores is currently via a network of private internal roads.

Figure 2 – Existing highway access routes

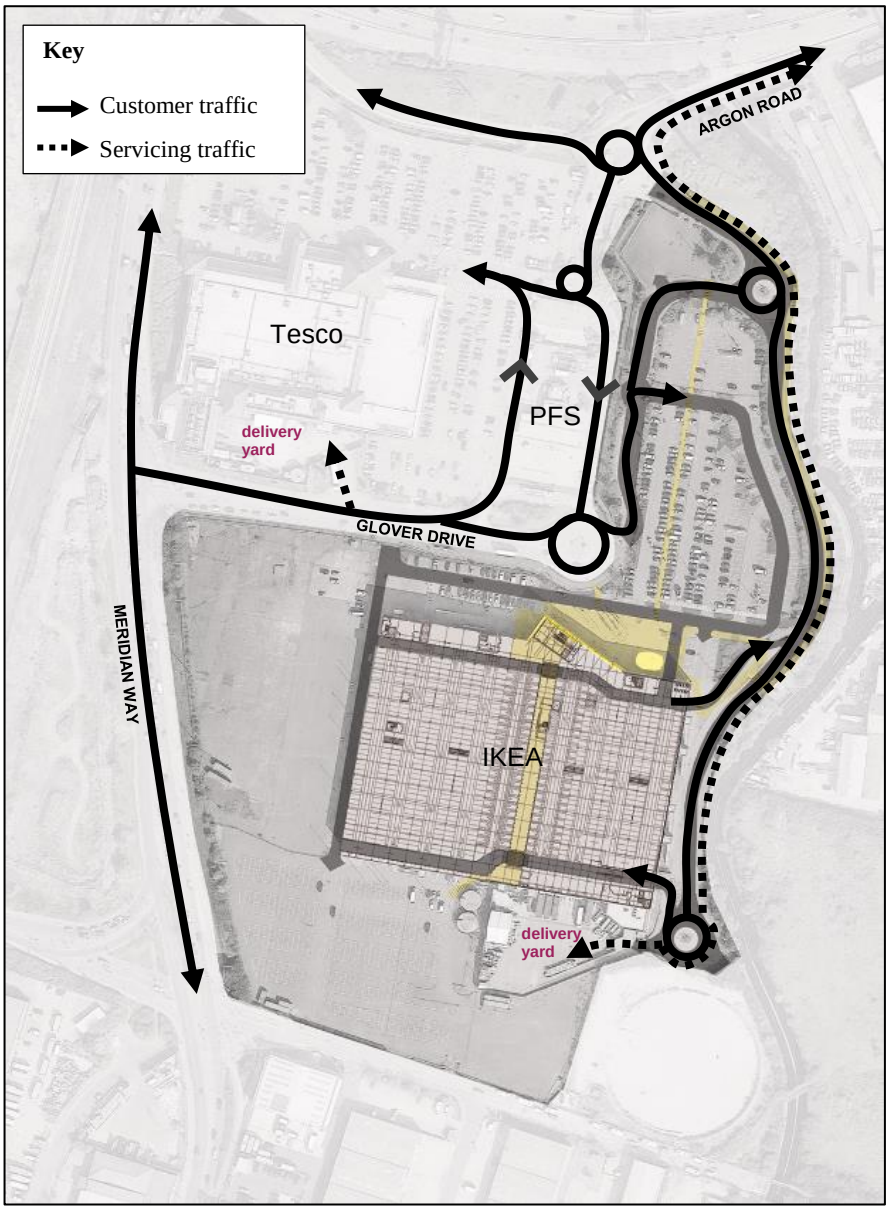


2.3 Car parks

The Ikea site contains a number of car parking areas. Not all of the parking areas and access points are currently in use. The northern surface level car park can be accessed from the internal road between Glover Drive and Argon Road. The undercroft car park can be accessed from the eastern access road and a mini roundabout by the southeastern corner of the store. Connections are provided between the undercroft and surface level car parking.

The Tesco site contains car parking to the north and east of the store. There is one entry and exit from the internal road and the car park access at the northwest corner of the Ikea site, off Glover Drive, is not currently in use. The existing access points are illustrated below.

Figure 3 – Existing access points and routes



2.4 Servicing

The servicing area for Ikea is located to the rear of the store which is accessed from the eastern access road and the roundabout with the undercroft car park. Tesco's servicing area is accessed from Glover Drive.

The entrance to the Ikea service yard is signed to be open from 4am to 10am (6 hours) and there appears to be a traffic signal system in place to manage vehicle movements (shown on right hand gate post in Figure 4).

Figure 4 - Existing access to the service yard

2.5 Highway capacity

The surrounding highway network can be congested during peak times and some of the local junctions currently operate close to or at capacity.

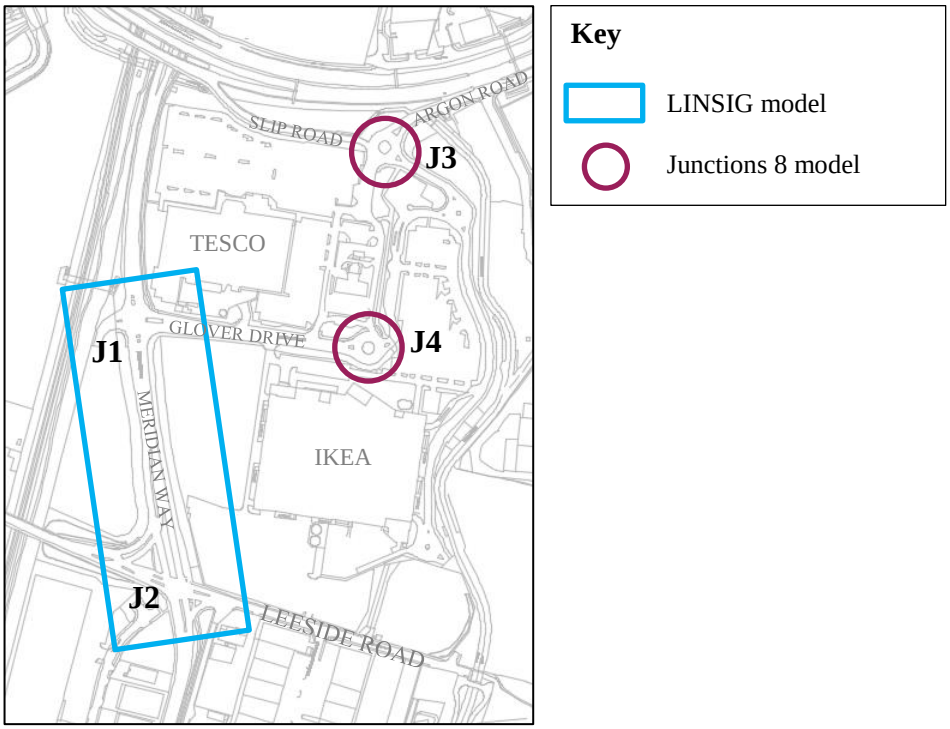
Junction turning counts were undertaken in June 2018 to establish the base situation and inform the modelling work. Survey data shows that the highway network has noticeably higher flows for the weekday PM peak (17:00-18:00) and Saturday peak (13:15-14:15) and therefore these two peak hours have been assessed.

It should be noted that the existing Tesco / Ikea accesses are known to be used for through-traffic ("rat-running") to avoid the congestion on the A406. Therefore, a proportion of the existing traffic does not visit the existing retail uses and should be on the strategic highways rather than local access roads. The level of through-traffic will be determined once the results from the Automatic Number Plate Recognition (ANPR) survey are available.

The junctions which have been modelled are as follows and shown in Figure 5:

- Meridian Way / Leeside Road signal-controlled junction.
- Meridian Way / Glover Drive signal-controlled junction.
- Argon Road / Ikea eastern access road / Tesco access / Argon slip road roundabout.
- Glover Drive / Ikea access / Tesco Petrol Filling Station (PFS) access roundabout.

Figure 5 – Local junction modelling extent



The results from the LINSIG model are shown in Table 1 and the results for the two roundabouts are shown in Table 2 and Table 3. The model outputs are included in Appendix A.

The LINSIG model is being submitted to TfL for Model Auditing Process (MAP) Stage 2/3 approval as part of a separate workstream. Therefore, it should be noted that there may be some refinements which could lead to minor changes to the results.

Table 1 – 2018 Meridian Way LINSIG results (J1 and J2)

Item	Lane Description	PM Peak (1700-1800)		Saturday Peak (1315-1415)	
		DOS	Queue	DOS	Queue
Network	**-**	**94.7%**	**-**	**98.1%**	**-**
J1	**Meridian Way / Glover Drive**	**94.7%**	**-**	**98.1%**	**-**
1/2+1/1	Meridian Way SB Left Ahead	91.2 : 91.2%	15.9	98.1 : 98.1%	24.3
1/3	Meridian Way SB Ahead Ahead2	88.9%	15.6	95.6%	20.2
2/1	Glover Drive Left Left2	62.5%	12.1	66.0%	13.2
2/2+2/3	Glover Drive Right Left	15.2 : 15.2%	1.0	31.8 : 31.8%	2.3
3/1	Meridian Way NB Ahead	92.1%	35.2	48.7%	15.1
3/2	Meridian Way NB Ahead	30.8%	0.5	48.4%	8.0
3/3	Meridian Way NB Right	94.7%	23.2	87.5%	18.3
Ped Link: P1	Unnamed Ped Link	0.0%	0.0	0.0%	0.0
Ped Link: P2	Unnamed Ped Link	0.0%	0.0	0.0%	0.0
J2	**Meridian Way / Leeside Road**	**94.2%**	**-**	**81.0%**	**-**
1/1	Meridian Way SB Right Right	66.3%	13.8	78.4%	17.4
2/1+2/2	Meridian Way SB A/L Left Ahead	74.2 : 74.2%	31.5	75.2 : 75.2%	34.1
3/1+3/2	Leeside Road WB Right Ahead Left	33.2 : 33.2%	1.4	10.6 : 9.2%	0.4
4/1	Meridian Way NB Ahead Left	91.1%	20.6	79.8%	15.2
4/2+4/3	Meridian Way NB Ahead Right	88.2 : 88.2%	18.7	75.7 : 75.7%	13.8
5/1	Leeside Road EB A/R Ahead	11.0%	1.3	14.2%	1.8
6/1+6/2	Leeside Road EB Left Left	94.2 : 94.2%	24.1	81.0 : 81.0%	14.0
7/1	Leeside Road EB A/R Ahead	4.2%	0.2	0.7%	0.0
7/2	Leeside Road EB A/R Right	17.6%	2.1	24.2%	2.9
8/1	Meridian Way NB Internal Ahead	67.8%	1.8	55.4%	1.0
8/2	Meridian Way NB Internal Ahead	81.4%	14.9	67.2%	10.4
9/1	Leeside Road WB Internal Ahead	16.9%	0.4	17.4%	0.3
10/1	Meridian Way SB RT Internal Ahead	61.8%	0.2	73.0%	0.3

The above table shows that the Meridian Way junction currently operates close to capacity with a maximum Degree of Saturation (DOS) of 98%. This occurred on the Saturday at the junction with Glover Drive, at the southbound Meridian Way arm. It should be noted that the Glover Drive arm operates with ample capacity during this time period.

Table 2 – 2018 Argon Road roundabout results (J3)

Lane Description	PM Peak (1700-1800)		Saturday Peak (1315-1415)	
	RFC	Queue (PCUS)	RFC	Queue (PCUS)
Ikea access	0.20	0.24	0.36	0.56
Tesco access	0.27	0.38	0.53	1.13
Slip road	Exit only			
Argon Road	0.54	1.16	0.65	1.85

The above results show that the existing Argon Road roundabout operates within capacity with a maximum Ratio Flow to Capacity (RFC) of 0.65. This occurs on the Argon Road approach arm in the Saturday peak.

Table 3 – 2018 Glover Drive roundabout results (J4)

Lane Description	PM Peak (1700-1800)		Saturday Peak (1315-1415)	
	RFC	Queue (PCUS)	RFC	Queue (PCUS)
Ikea access	0.08	0.09	0.14	0.16
Glover Drive	0.12	0.13	0.16	0.19
Tesco access (one-way)	0.68	2.05	0.76	3.09

The above results show that the existing Glover Drive roundabout operates within capacity with a maximum RFC of 0.76. This occurs at the Tesco access, and the other arms operate below a RFC of 0.16.

Although traffic flows on the wider highway network is higher during the weekday PM and Saturday peak hours, a review of the traffic surveys shows that Ikea generates more trips during the Sunday peak hour (12:45-13:45). This time period has also been assessed for the Glover Drive junction.

Table 4 – 2018 Glover Drive roundabout results (Sunday) (J4)

Lane Description	Sunday Peak (1245-1345)	
	RFC	Queue (PCUS)
Ikea access	0.15	0.18
Glover Drive	0.19	0.23
Tesco access (one-way)	0.75	2.89

The above shows that the junction operates within capacity during the Sunday peak hour, at a similar level to the Saturday peak hour.

2.6 Summary

Ikea and Tesco are well located to access the strategic highway network with access to the A406 via Argon Road and a network of private roads.

Junction modelling work has been undertaken for the existing local junctions using June 2018 survey data. The model results show that the existing junctions along Meridian Way currently operate at capacity during peak times.

The two internal access roundabouts currently operate within capacity, with the maximum RFC of 0.65 for the Argon Road roundabout and 0.76 for the Glover Drive roundabout.

3 2023 HIF Scenario

3.1 Introduction

The 2023 HIF scenario reflects the conditions when the HIF infrastructure is in place but no residential developments will be occupied.

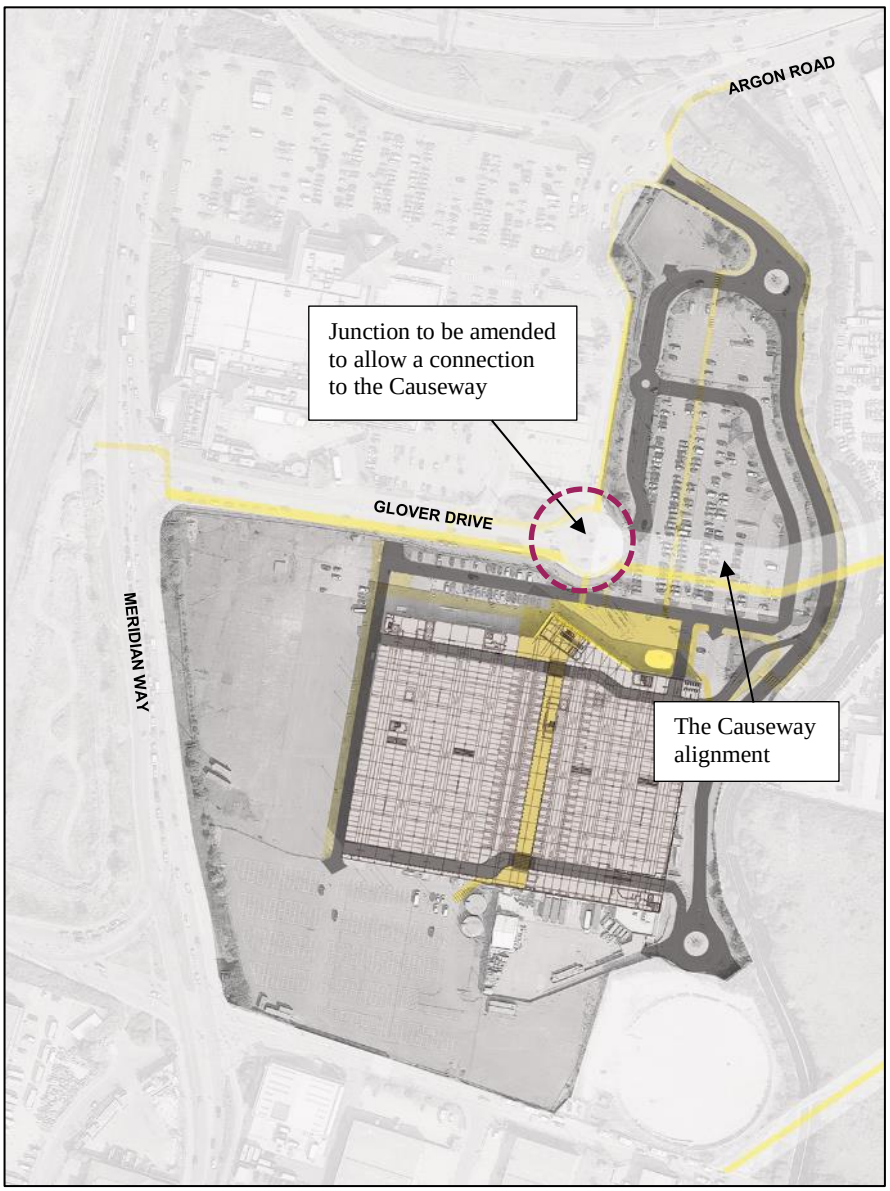
The HIF infrastructure will enable subsequent development (and much needed housing) to come forward. However, The Causeway is not expected to be open to general traffic as a through-route and therefore no additional development traffic will be expected to be drawn through the area as a result of the HIF infrastructure.

There will be a physical impact of The Causeway connecting to Glover Drive which cuts across Ikea land.

3.2 Impact on Ikea and Tesco

The Causeway will connect to the end of Glover Driver and from the roundabout to the east, it would be bus only across the rivers/watercourses to the industrial estate. The challenge with the introduction of the Causeway is that it would run through the Ikea car park and sever the existing access route that runs along the east of the Ikea site and there will be an impact on Ikea's northern surface level car park This is shown in Figure 6.

Figure 6 – HIF impact



The key impacts on Ikea are:

- **Servicing** – The existing route for servicing vehicles along the eastern access road is severed.
- **Car parking** – The Causeway will result in the removal of some surface level car parking. Vehicular access to the undercroft car park via the eastern access road is severed.
- **Customer journey –** There would be changes to customer vehicular access to the car parks and pedestrian routes between the car parks and entrance to the store.

There will be limited impact on Tesco as the servicing arrangement, car parking and customer access remains as per the existing situation

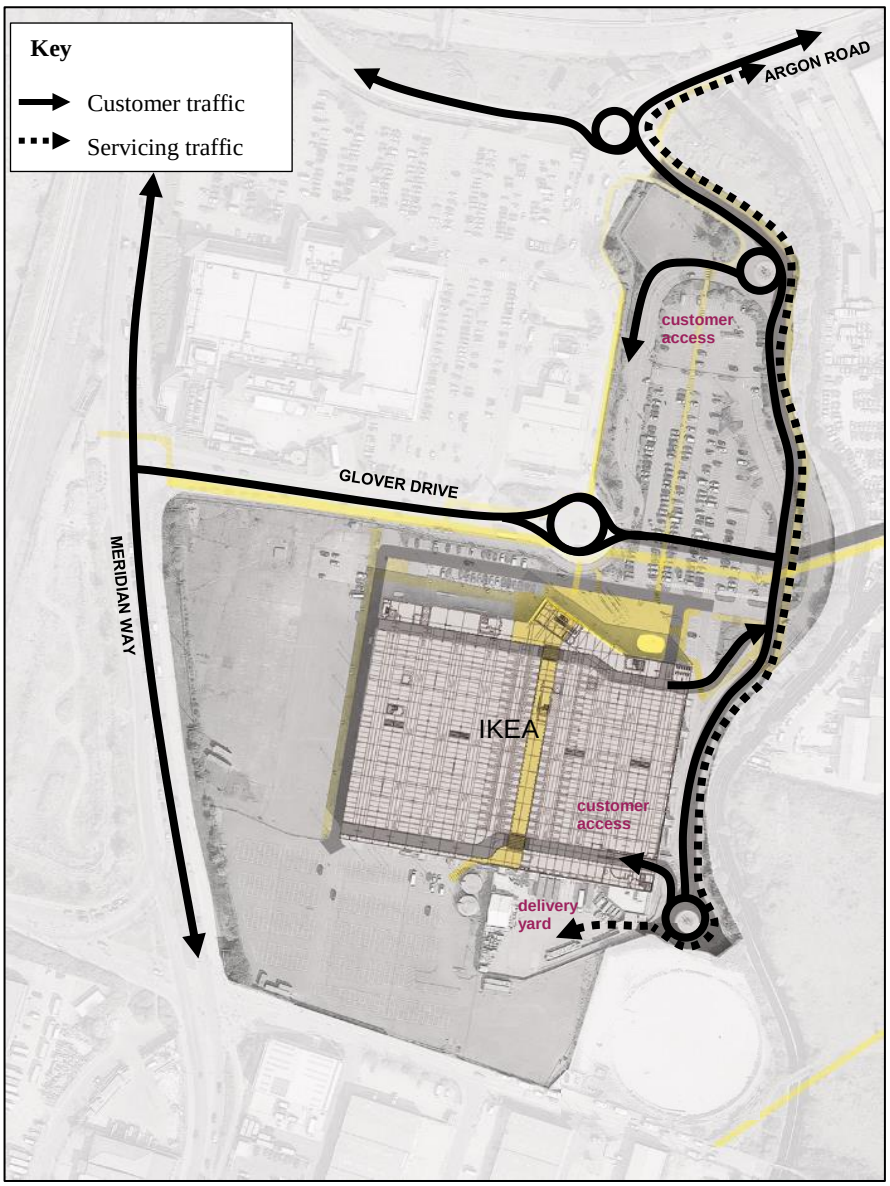
To minimise the above impacts as much as possible, a number of highway layout options were explored. Three options are set out in the next section which are:

- Signalised crossroad.
- Elongated roundabout (preferred).
- Elongated roundabout with Leeside Road link (preferred).

3.3 Signalised crossroad option

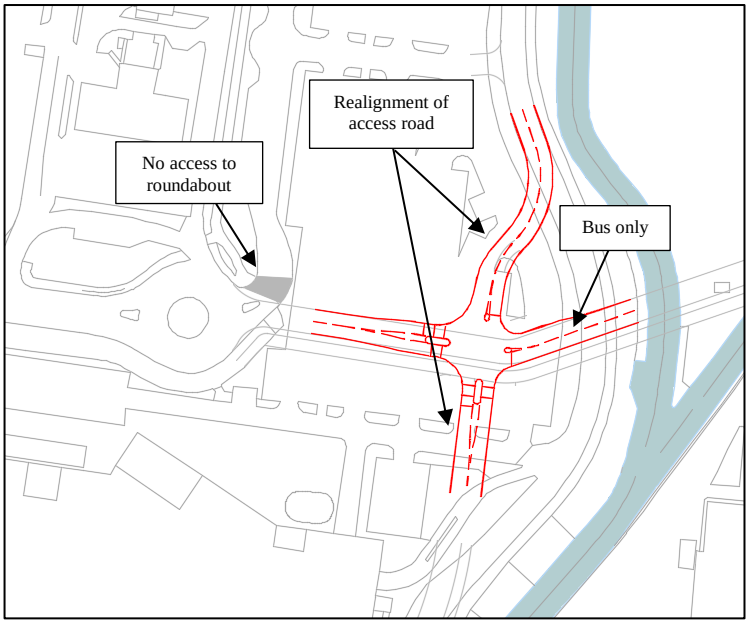
The signalised crossroad option would connect Ikea's eastern access road with the Causeway, with some realignment of the access road to take into account levels on the approach to the bridge over the Pymmes Brook.

Figure 7 – Signalised crossroad option



In terms of highway access, there is a concern that the crossroads will need to accommodate high volumes of conflicting movements as all customer traffic from Meridian Way, customer traffic to the undercroft car park, and servicing vehicles will need to travel through this junction which could lead to delays and queueing. An indicative signal junction layout is shown in Figure 8.

Figure 8 – Indicative junction layout



The key points are:

- **Servicing** – The eastern access road is retained for servicing access but there is potential for delays to be experienced due to vehicles having to pass through the signal controlled junction.
- **Car parking** – The eastern access road is retained for access to the surface level and undercroft car parks. The western access road from the Glover Road roundabout will be severed. Again, there are potential for delays to be experienced for vehicles accessing the car park.
- **Customer journey –** There will be a less direct route from Meridian Way to the northern surface level car park. Customers from Meridian Way will need to travel through the signal controlled junction to access the car parks so potentially greater delays. Signal controlled pedestrian crossings can be provided at the junction.

In terms of land-take and future land values, due to levels along The Causeway the eastern access road will need to be realigned to be further west than currently. This could make it more difficult to utilise the land between the realigned eastern access road and Pymmes Brook. In terms of phasing of any potential development on Ikea's land in the future, retaining the eastern access road may prevent more valuable waterside land being released for development, compared to alternative options.

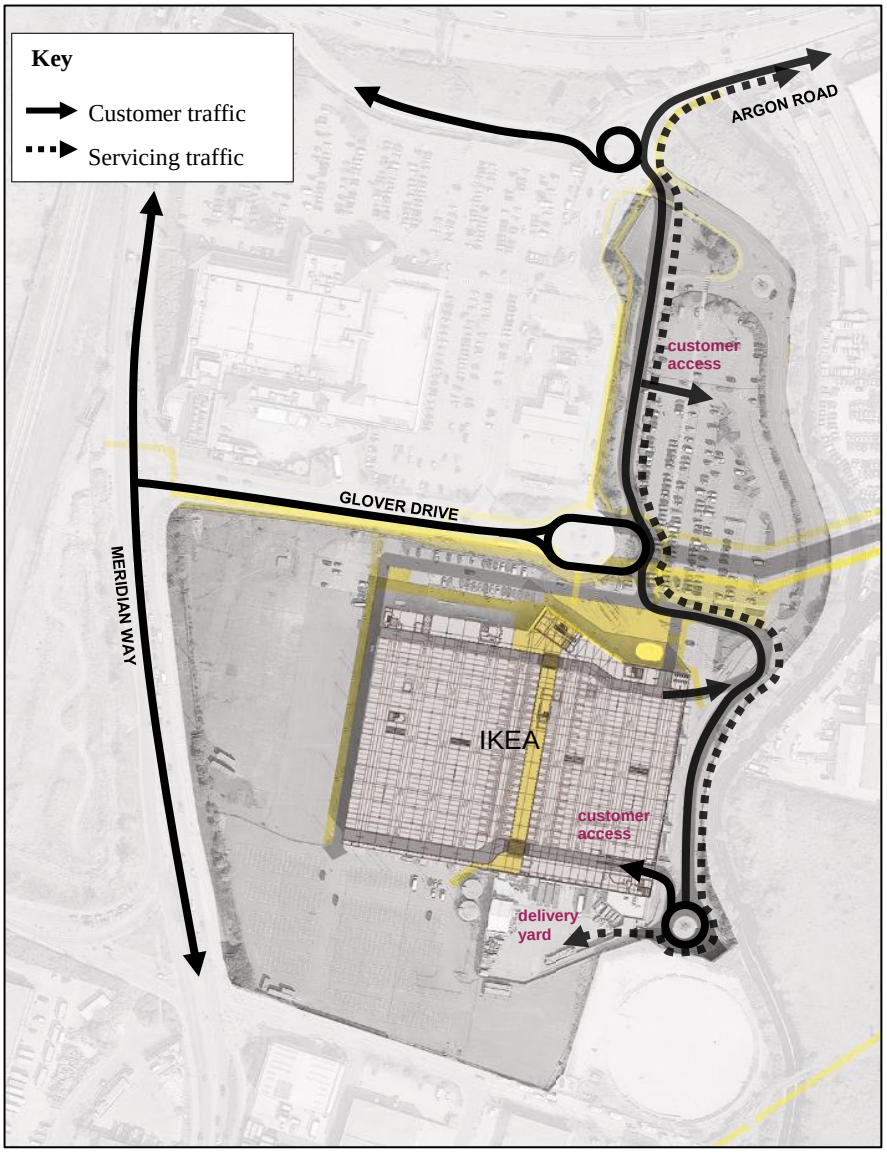
Although the signalised crossroad option helps to address some of the issues, the elongated roundabout option (described below) is considered to deliver relatively

better improvements and therefore the signalised crossroad option has not been progressed further.

3.4 Elongated roundabout option (preferred)

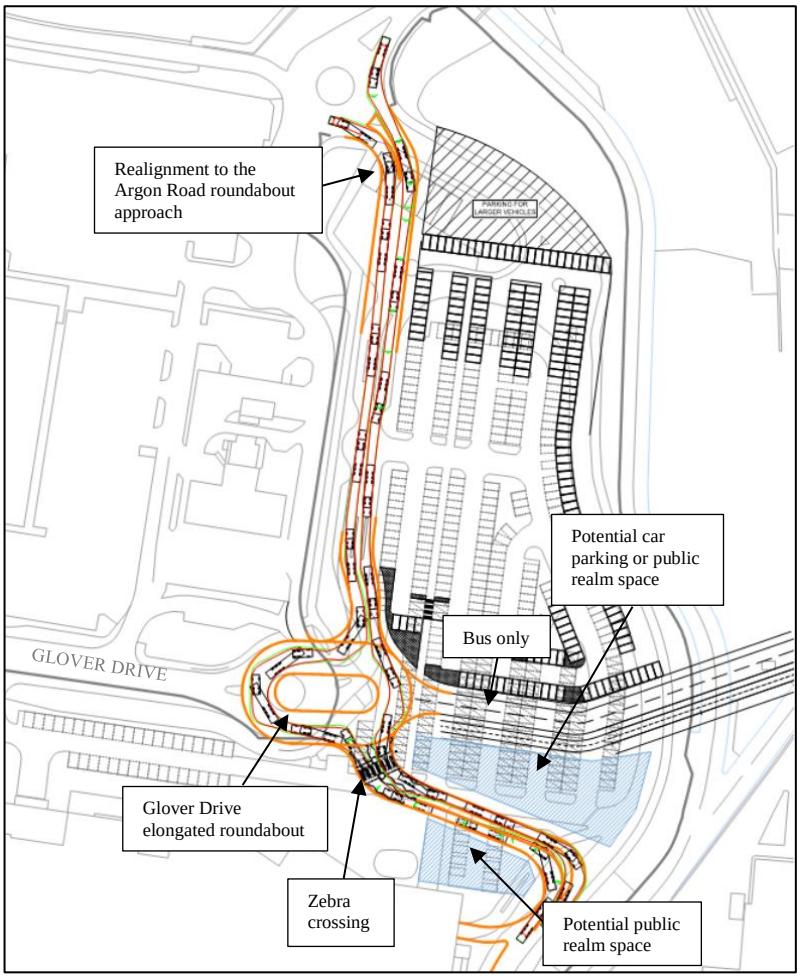
The proposed solution is to elongate the existing Glover Drive roundabout so that the existing western Ikea access route still connects to the Glover Drive roundabout at its southern end, with the Causeway forming the new eastern arm of the junction. An additional arm would be provided to the south to access the undercroft car park and servicing area. This would be delivered together with the realignment of the approach to the Argon Road roundabout. This option is shown in Figure 9.

Figure 9 – Elongated roundabout option



Although this option can be considered to have a more direct impact on the entrance to the Ikea store, it is a much more attractive option than a signal-controlled junction in terms of layout and delays. The proposed highway layout is shown in Figure 10.

Figure 10 – Proposed changes to Glover Drive and Argon Road roundabouts



There would be two Ikea areas of parking, one north of the Causeway and then the undercroft car park to the south. The Causeway would be for bus services and cycle / pedestrian movements only and therefore would be easy to cross for customers accessing the store. Designated crossing locations will be designed into the scheme.

Customers approaching the site from Glover Drive would be able to access the northern area of parking as easily as the current access arrangements. Access from Glover Drive to the undercroft car park would be much easier and less convoluted than at present. Similarly, any deliveries approaching from Glover Drive would have a much less circuitous access arrangement.

In order to improve the customer journey to the store for customers approaching from Argon Road, the Argon Road roundabout has been connected directly to the western access road, bypassing the (now redundant) internal roundabout with the severed eastern access road. Customers leaving the Argon Road roundabout would therefore have a direct route towards the Ikea store with visibility of the store entrance allowing easy orientation and wayfinding. Customers could choose to turn left at the retained mini roundabout halfway along the western access road to access into the northern car park, or alternatively if they proceed to the elongated Glover Drive roundabout they simply drive ahead to access the southern area of car parking.

The masterplan team believe that the connection of the western access road directly to the Argon Road roundabout will be seen as positive measure to address access concerns and consequently improve the quality of the customer journey from the north. In addition, the masterplan team believe that this strategy together with the improved access from Glover Drive to the main car park, helps to mitigate the severance of the two areas of Ikea car parking resulting from the introduction of The Causeway.

It should be noted that negotiations are underway with TfL to amend the existing bus network in the area, and more specially to introduce bus services along The Causeway consequently improve accessibility of the area. There is potential therefore for customers and staff to be able to access the site by bus more readily which may result in a change in mode of travel for both groups, helping to reduce to some extent pressure on car parking and traffic movements.

The key points are:

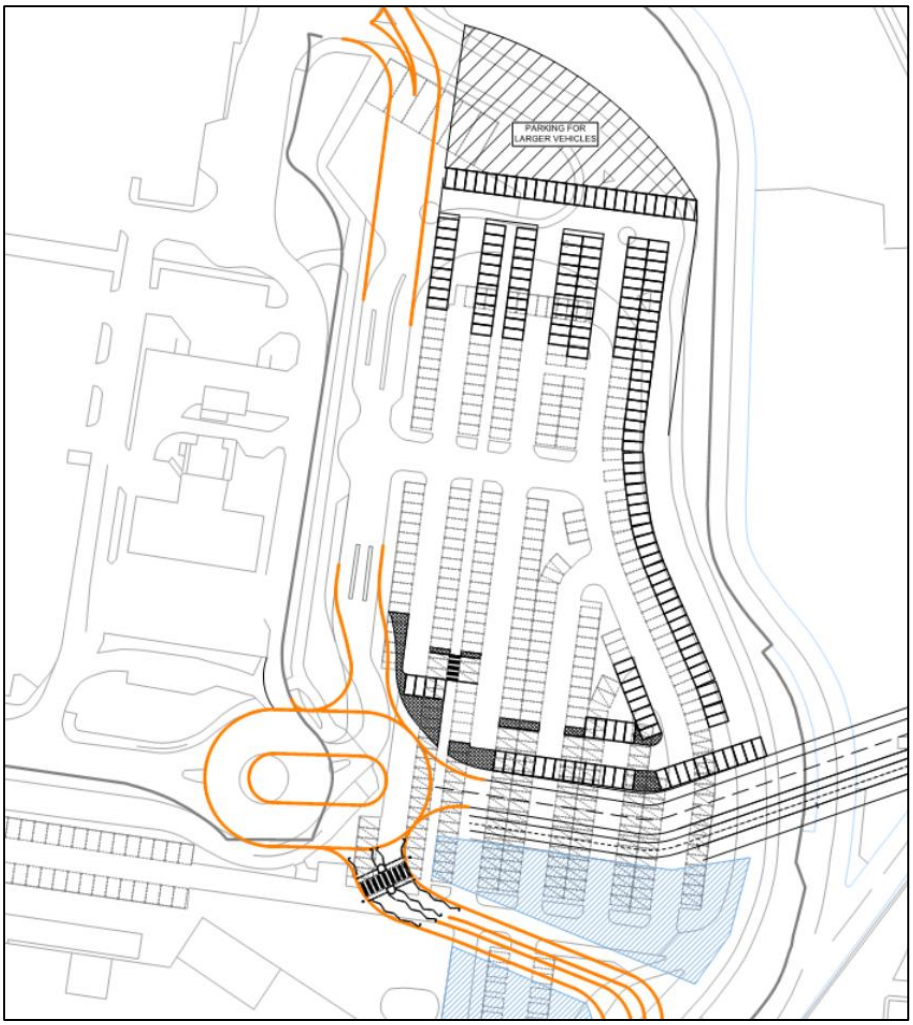
- **Servicing** – Access to the servicing area will be via the elongated roundabout. The design of the elongated roundabout takes into account access for a standard 16.5m articulated vehicle (see swept path contained in Appendix B). The route is approximately the same distance.

  Travelling through the elongated roundabout is not expected to cause significant delays and the highway capacity for the junction during peak times has been assessed in this report. The existing Ikea servicing area is signed to be open from 4am to 10am which is outside of the peak periods for customer traffic and therefore there would be limited delays at the junction.

  Car parking – Further work has been undertaken on the design of the car park layout to determine the impact on car parking numbers and pedestrian movements. Figure 11 illustrates an option for the northern surface car park layout, making use of the eastern access road and the mini roundabout which will no longer be used, and providing dedicated pedestrian routes.

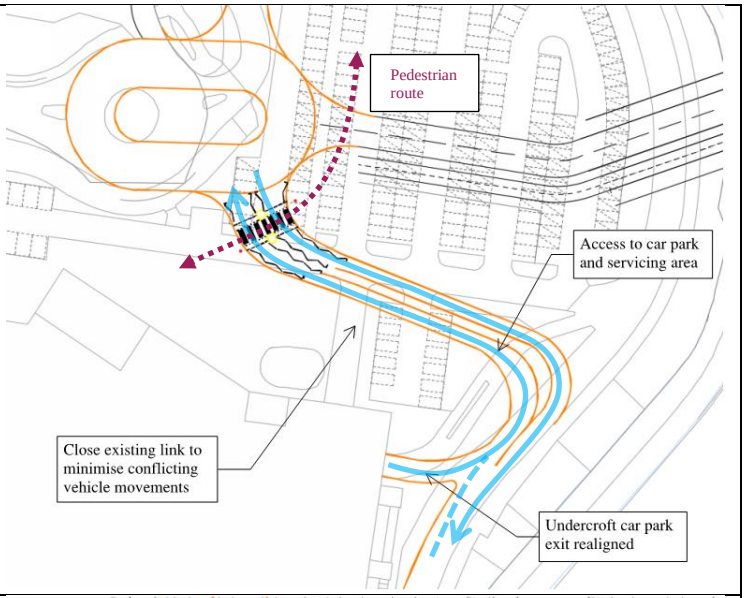
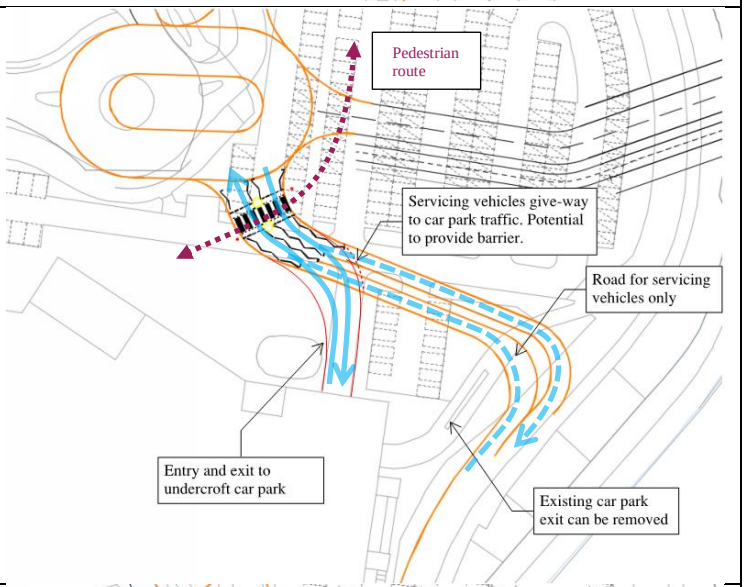
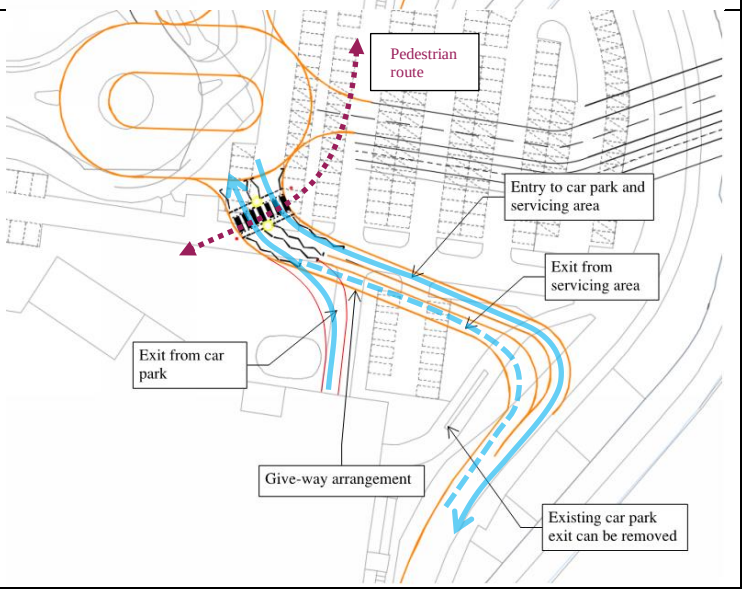
  In this option, there is no net loss in car parking.

Figure 11 – Ikea amended car park layout option



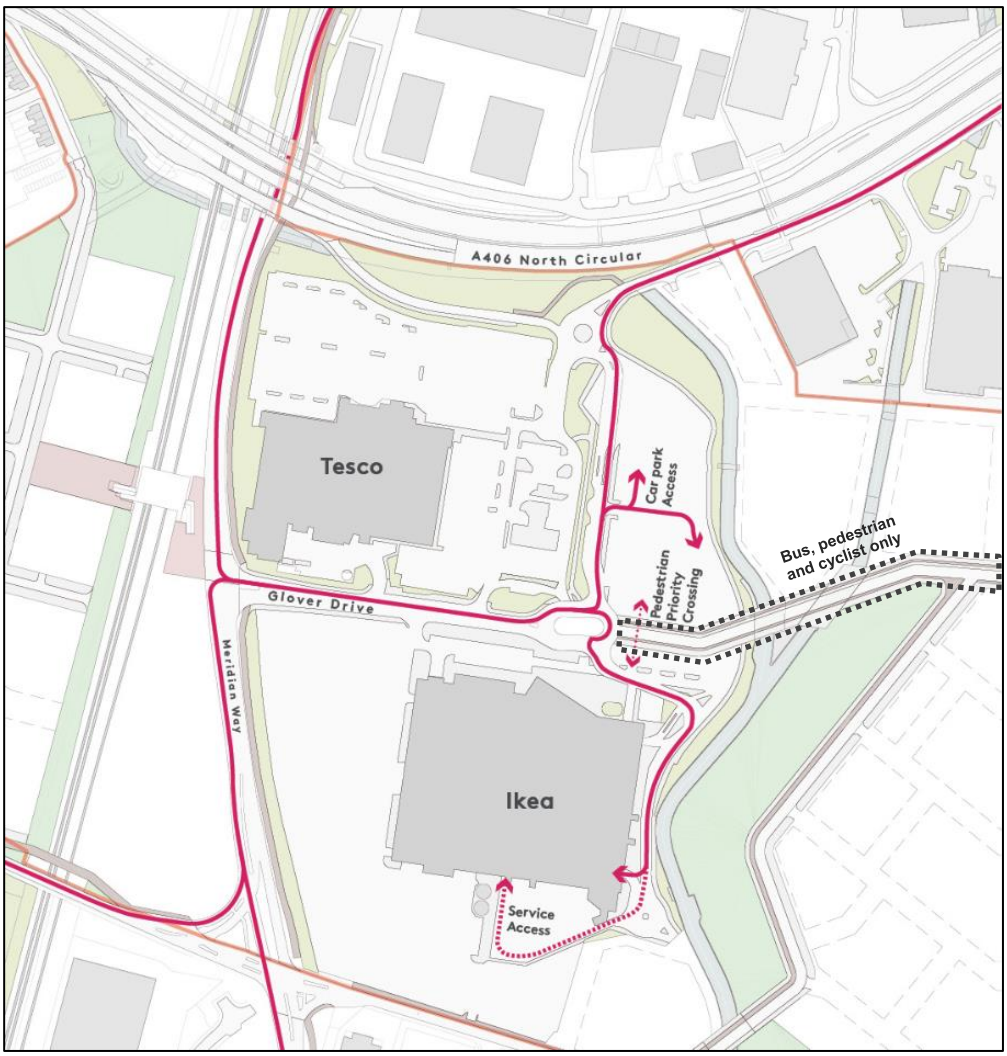
Consideration has also been given to the area in front of the store and the possible arrangements to access to the undercroft car park. This will be subject to further discussions with Ikea but Table 5 provides a number of options setting out how access could be achieved.

Table 5 – Options for accessing undercroft car park and servicing area

Option 1 Use eastern access road	
Option 2 Use existing front access	
Option 3 Entry via eastern access road and exit via front access	

- **Customer journey** – Detailed consideration has been given to the customer vehicle routes to the car parks. This is further illustrated in Figure 12. Dedicated and direct pedestrian movements will be provided to the entrance to the store.

Figure 12 – Proposed Ikea access routes

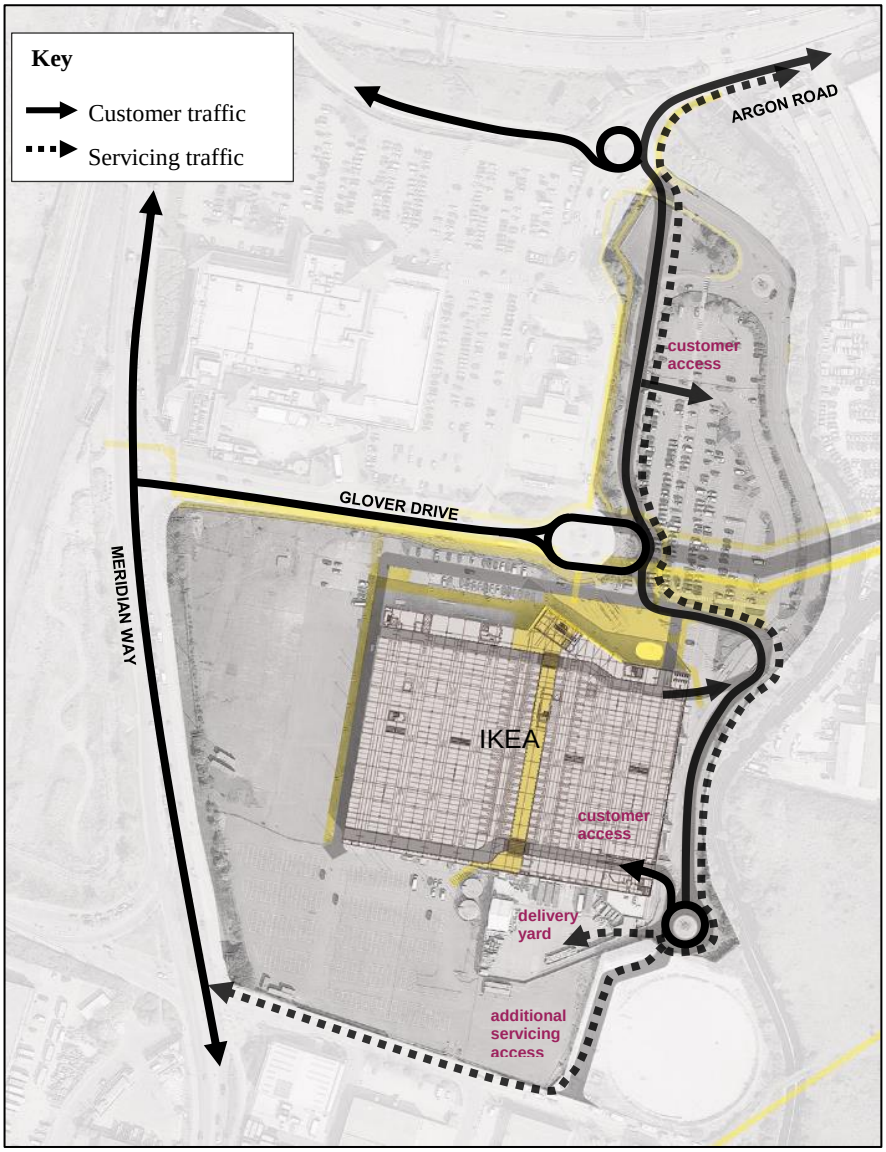


Furthermore, in terms of land-take and future land values, maintaining the western access road would free up an enlarged parcel of Ikea land for potential future development compared to other options and the existing situation

3.5 Elongated roundabout option with Leeside Road link (preferred)

This is the same as the elongated roundabout option, but with the inclusion of an additional link between Leeside Road and the internal Ikea roundabout. This option is shown in Figure 13.

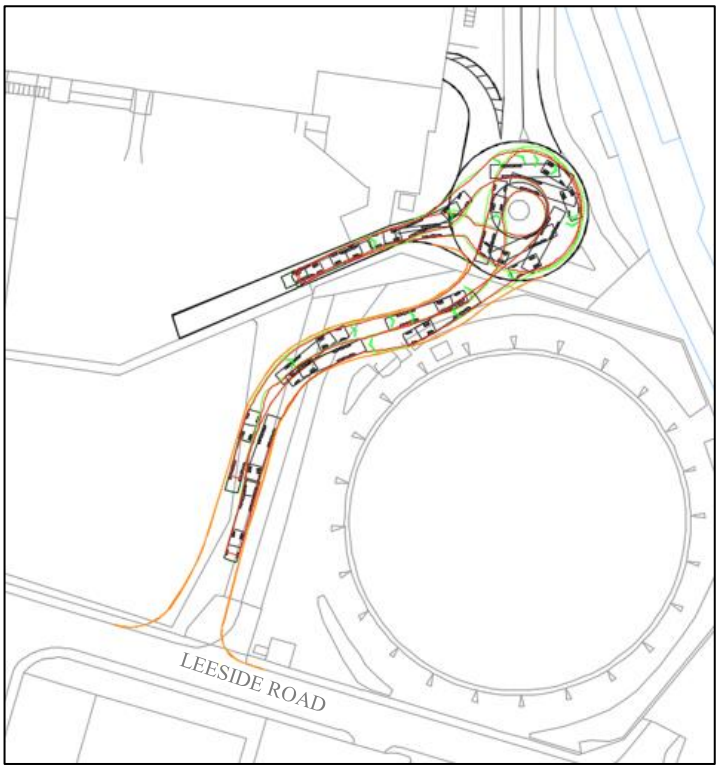
Figure 13 – Elongated roundabout with Leeside Road link option



The additional link could be delivered to provide direct access to Ikea's servicing area and undercroft car park from Leeside Road to minimise the risk of disruption to the store. This link could be a temporary solution during construction for Ikea servicing vehicles as well as customer trips, or a permanent arrangement subject to further discussions with Ikea.

The proposed arrangement is indicated in Figure 14. It uses Ikea's land and requires access across some of Enfield's land which LBE is happy to facilitate.

Figure 14 – Leeside Road connection



When The Causeway is completed, it is assumed that customers will continue with their existing routes and this connection will be controlled and potentially be used for Ikea servicing vehicles only. Therefore, the capacity of this roundabout would not alter appreciably, and has not been tested at this stage.

3.6 Highway capacity

Highway capacity assessments have been undertaken for the preferred elongated roundabout option. In the 2023 HIF scenario, the traffic flows will remain the same. The only changes will be the physical change to the approach to the Argon Road roundabout and the implementation of the elongated roundabout. Therefore, these two junctions have been modelled and the results are shown in Table 6 and Table 7. The modelling outputs are contained in Appendix C.

Table 6 – 2023 Argon Road roundabout results

Lane Description	PM Peak (1700-1800)		Saturday Peak (1315-1415)	
	RFC	Queue (PCUS)	RFC	Queue (PCUS)
Ikea access	0.17	0.20	0.31	0.31
Tesco access	0.27	0.38	0.53	1.13
Slip road	Exit only			
Argon Road	0.54	1.16	0.65	1.85

The results in Table 6 show that the proposed realignment of the approach to Argon Road results in minor improvements to the capacity of the Ikea access when compared to the base situation (Table 2).

Table 7 – 2023 elongated Glover Drive roundabout results

Lane Description	PM Peak (1700-1800)		Saturday Peak (1315-1415)		Saturday Peak (1315-1415) Balanced Flows	
	RFC	Queue	RFC	Queue	RFC	Queue
The Causeway	0.06	0.07	0.07	0.08	0.07	0.08
Ikea access (southern arm)	0.12	0.13	0.30	0.43	0.30	0.43
Glover Drive	0.14	0.16	0.19	0.23	0.19	0.23
Tesco access (one-way)	0.79	3.54	0.94	10.34	0.56	1.27
Ikea access (northern arm)	0.14	0.16	0.28	0.38	0.49	0.94

The results in Table 7 show that in the PM peak, the Glover Drive elongated roundabout operates within capacity with a maximum RFC of 0.79. This occurs at the Tesco access arm and is slightly higher than the existing situation.

In the Saturday peak, if traffic flows continue to use their existing routes, the maximum RFC is 0.94 which occurs at the Tesco access arm and is worse than the existing situation.

A review of the traffic flows indicates that the Tesco access suffers from a very high proportion of through-traffic, which needs to be discouraged. However, some through-trips are likely to reassign and use the Ikea access (northern arm). This reassignment undertaken as a sensitivity test which shows that the pressure on the Tesco egress could reduce to a RFC of 0.56, but the Ikea access would have a higher RFC of 0.49. It is expected that the level of performance and delay between the two junctions would be broadly balanced.

The Sunday peak hour has also been tested as traffic surveys show that Ikea generates more trips during this time period. This would have a greater impact on the elongated roundabout because more customer traffic would now go through this junction. The Sunday peak hour has also been tested and the results are shown in Table 8.

Table 8 – 2023 elongated Glover Drive roundabout results (Sunday)

Lane Description	Sunday Peak (1245-1345)		Sunday Peak (1245-1345) Balanced Flows	
	RFC	Queue	RFC	Queue
The Causeway	0.07	0.08	0.07	0.08
Ikea access (southern arm)	0.30	0.43	0.31	0.44
Glover Drive	0.22	0.28	0.22	0.28
Tesco access (one-way)	0.94	10.32	0.58	1.36
Ikea access (northern arm)	0.31	0.45	0.50	0.98

Similar to the Saturday peak, if the through traffic is not reassigned, the Tesco access arm has the highest RFC in this case of 0.94. If the likelihood that flows will reassign to the Ikea access rather than solely the Tesco access, then the junction will be more balanced across these arms, operating with the highest RFC modelled of 0.58.

The above assessment shows that the elongated roundabout can operate satisfactorily and further discussions with Ikea and Tesco will help to confirm the distribution and traffic flows across this junction.

3.7 Summary

The proposed HIF highway infrastructure will result in some changes to the highway network. These are expected to be localised and a number of highway layout options have been considered to mitigate the impact on access to Ikea, and in some part, improve on the current operation.

The options presented in this chapter are a signalised crossroad and an elongated roundabout (with and without the Leeside Road link). The impact on customer and servicing routes, subsequent delays and the impact on future development opportunities have been considered. The signalised crossroad option was considered to have a greater adverse impact, including delays to customer journeys and land-take. There are also issues with levels which would need to be resolved and would require the realignment of the eastern access road within Ikea.

The elongated roundabout option was considered to provide greater improvements, in particular in terms of minimising delays to customer's journeys, providing a direct route from Argon Road, visibility of the store, and freeing up a more significant parcel of land for future development for the land owner. This design has been progressed further, including possible highway layout options at the store frontage, and demonstrating that there could be no net loss in car parking. The masterplan team would welcome further discussions with Ikea in this regard.

In capacity terms, there will be no changes to the wider network as the result of the HIF highway infrastructure. The Causeway is proposed to be bus only along the central section and would not attract wider through-traffic. The Argon Road and elongated Glover Drive roundabouts have been tested due to likely reassignment of internal traffic and they are expected to continue to operate well within capacity, with a maximum RFC of 0.65 for the Argon Road roundabout and 0.58 for the elongated Glover Drive roundabout.

4 Summary and Next Steps

4.1 Summary

In advance of the full suite of traffic modelling work for the whole masterplan (due Summer 2019) being delivered, initial manual distribution and local junction modelling work has been undertaken to inform masterplanning of Meridian Water.

This report considers two scenarios:

- **Base Case** – The junctions along Meridian Way are currently operating at capacity. The two internal roundabout junctions have been tested and they are currently operating within capacity.
- **2023 HIF Scenario** – This scenario introduces the HIF highway infrastructure with no new housing occupied. There will be some changes to highway access to Ikea and limited impact on Tesco. A number of options have been considered in terms of the highway layout, and the preferred option involves elongating the Glover Drive roundabout, realigning the approach to the Argon Road roundabout and providing a link to Ikea from Leeside Road. These measures are proposed to minimise and potentially improve aspects of the existing access for Ikea. In capacity terms, there is minimal impact.

4.2 Next steps

In terms of next steps, the masterplan team would welcome discussions with Ikea and Tesco and their consultants on the work undertaken so far. The team are committed to working together with the land owners to ensure the best possible solutions are brought forward and that impacts and potential disruption to the everyday operation of Ikea and Tesco are minimised.

Appendix A

2018 Base Case Modelling Outputs

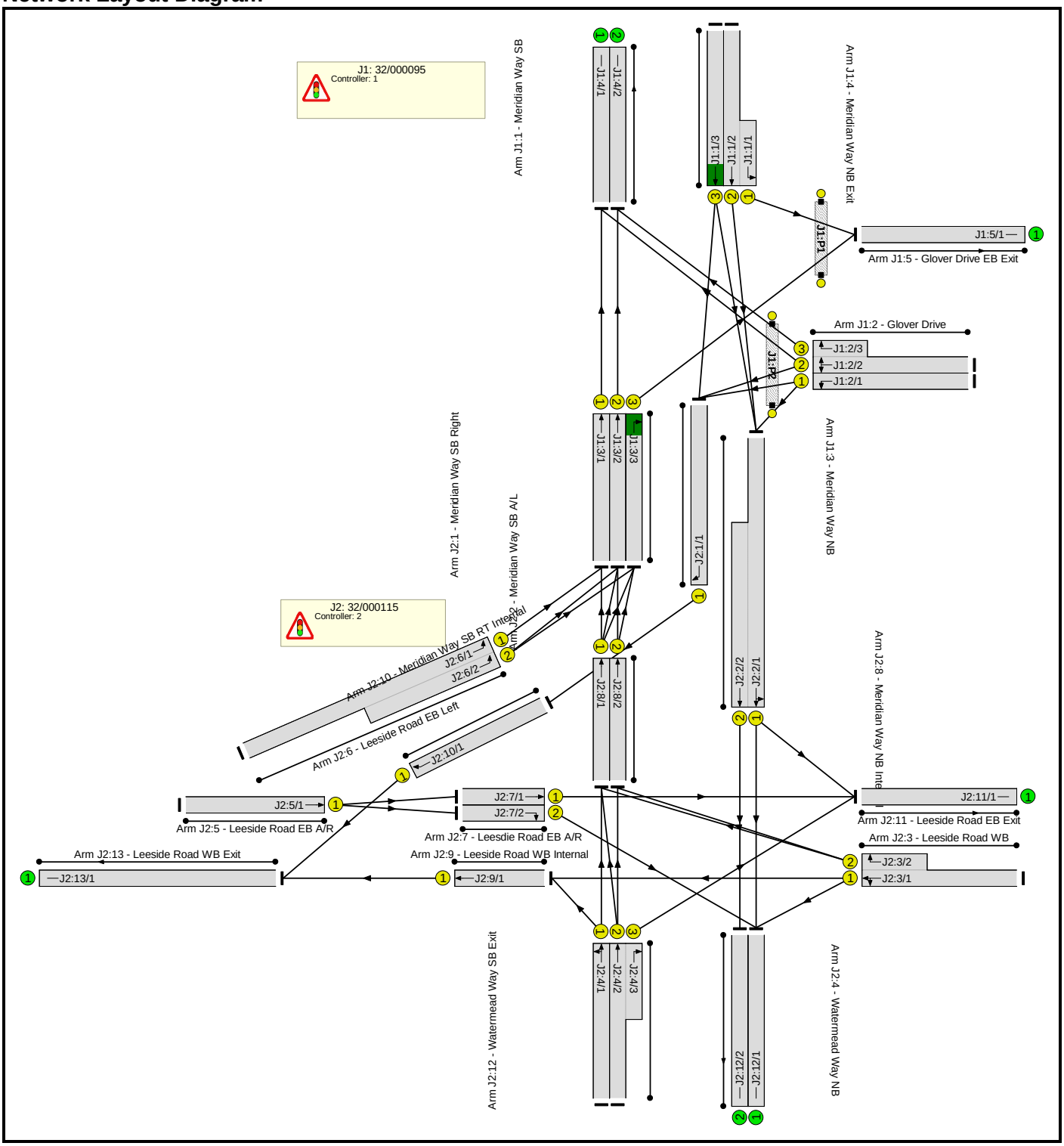
Full Input Data And Results

User and Project Details

Project:	**Meridian Water**
Title:	**Meridian Way**
Location:	Meridian Way / Glover Drive; Meridian Way / Leeside Road
Additional detail:	
File name:	Base Model_32-095_32-115_V6.lsg3x
Author:	
Company:	Arup
Address:	

Full Input Data And Results

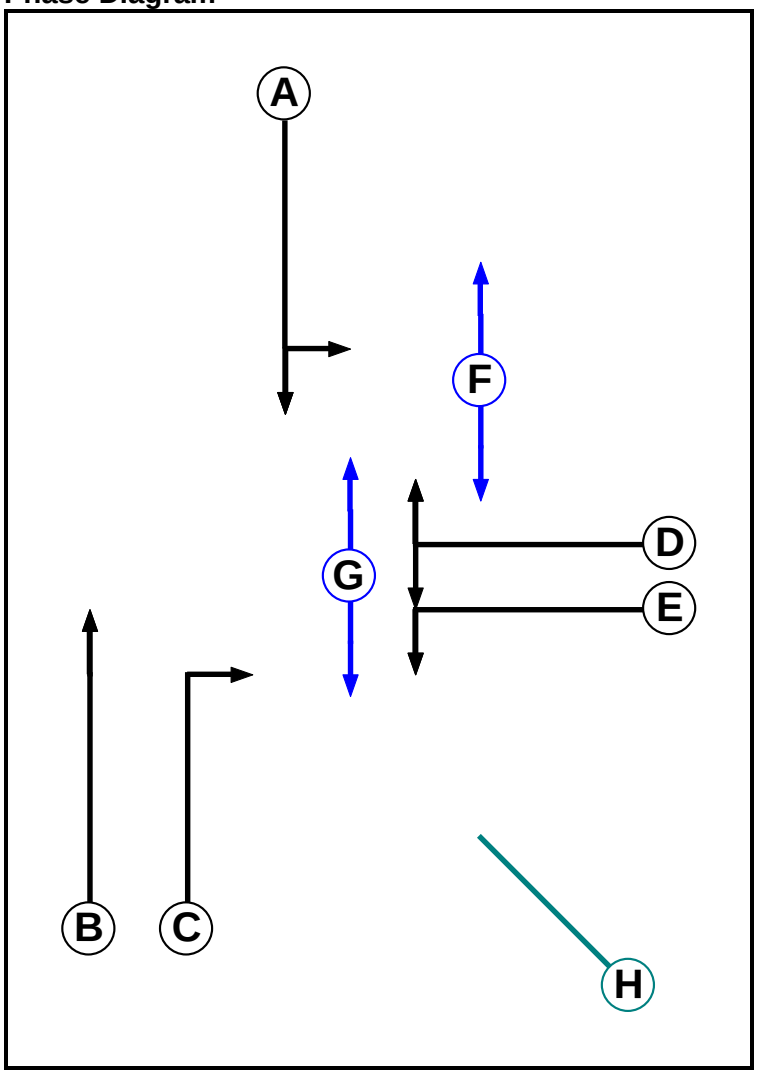
Network Layout Diagram



Full Input Data And Results

C1

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	6
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	2
E	Traffic		7	3
F	Pedestrian		6	6
G	Pedestrian		6	6
H	Dummy		3	3

Full Input Data And Results

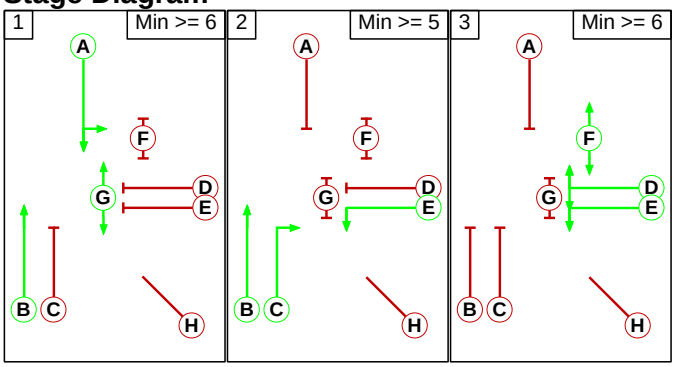
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H
A		-	7	8	9	10	-	3
B	-		-	7	-	-	-	3
C	9	-		7	-	13	-	3
D	5	5	5		-	-	5	3
E	5	-	-	-		-	5	3
F	10	-	10	-	-		-	4
G	-	-	-	11	11	-		5
H	2	2	2	2	2	2	2	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	A	Losing	2	2
1	3	A	Losing	1	1
1	3	B	Losing	4	4
2	1	E	Losing	4	4
3	1	D	Losing	5	5
3	1	E	Losing	5	5
3	2	D	Losing	5	5

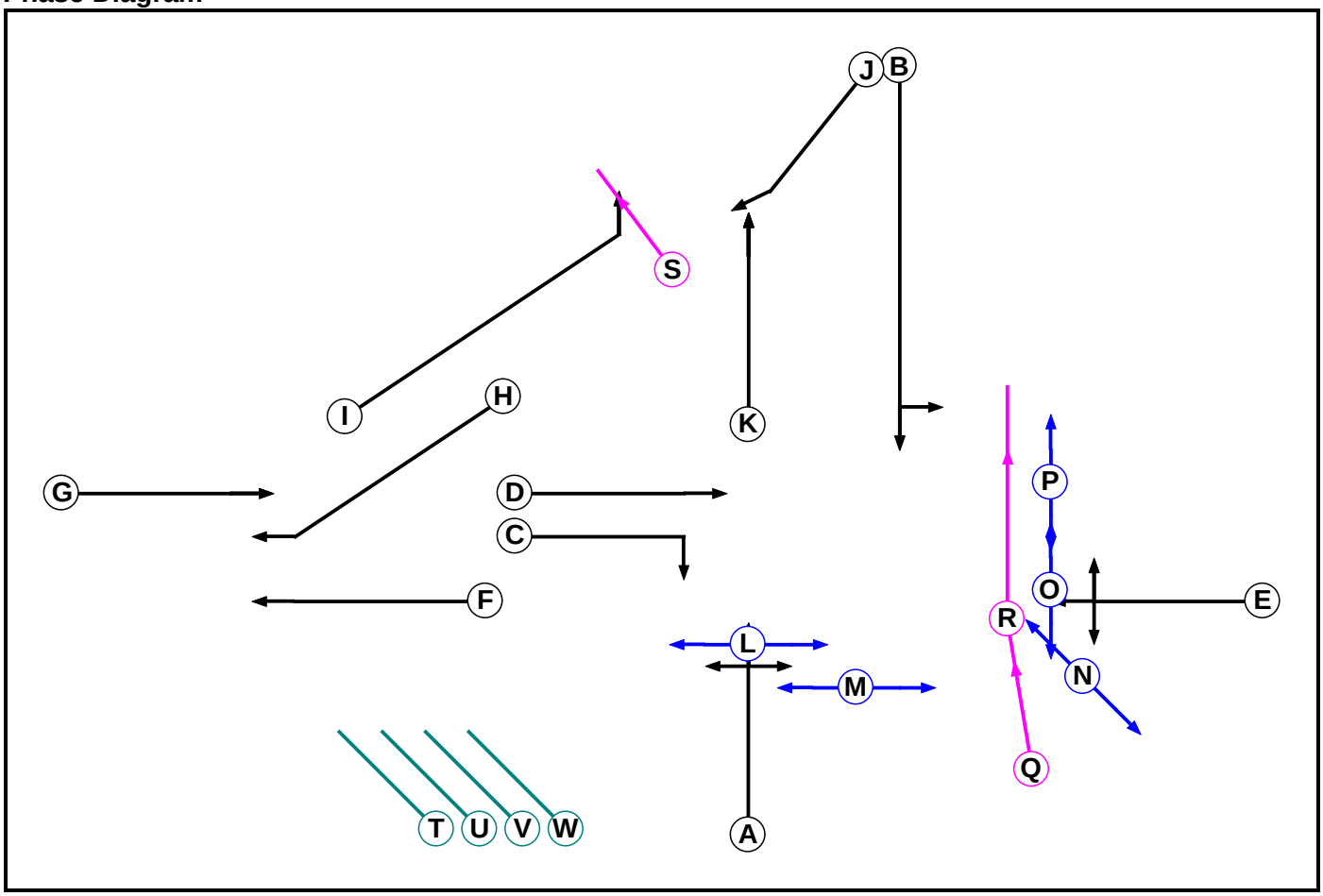
Full Input Data And Results

Prohibited Stage Change

From Stage	To Stage		
	1	2	3
1		11	11
2	9		13
3	10	10	

C2

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7
E	Traffic	1		7	7
F	Traffic	3		7	7
G	Traffic	3		7	7
H	Traffic	3		7	7
I	Traffic	2		7	7
J	Traffic	2		7	7
K	Traffic	2		7	7
L	Pedestrian	1		6	6
M	Pedestrian	1		6	6
N	Pedestrian	1		6	6
O	Pedestrian	1		6	6
P	Pedestrian	1		6	6
Q	Cycle	1		5	5
R	Cycle	1		5	5
S	Cycle	2		5	5
T	Dummy	1		1	1
U	Dummy	1		3	3
V	Dummy	2		3	3
W	Dummy	3		3	3

Full Input Data And Results

Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
A		-	8	10	8	-	-	-	-	-	-	7	-	-	-	13	-	11	-	3	3	-	-
B	-		8	8	8	-	-	-	-	-	-	-	10	-	-	10	-	10	-	-	3	-	-
C	6	6		-	10	-	-	-	-	-	-	-	11	-	-	-	-	-	-	6	3	-	-
D	7	7	-		8	-	-	-	-	-	-	-	-	-	-	9	-	8	-	7	3	-	-
E	6	6	8	10		-	-	-	-	-	-	-	-	5	5	-	6	6	-	6	3	-	-
F	-	-	-	-	-		-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
G	-	-	-	-	-	-		5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
H	-	-	-	-	-	7	6		-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
I	-	-	-	-	-	-	-	-		-	5	-	-	-	-	-	-	-	5	-	-	3	-
J	-	-	-	-	-	-	-	-	-		8	-	-	-	-	-	-	-	12	-	-	3	-
K	-	-	-	-	-	-	-	-	5	6		-	-	-	-	-	-	-	-	-	-	3	-
L	11	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	5	-	-
M	-	8	8	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	8	3	-	-
N	-	-	-	-	8	-	-	-	-	-	-	-	-		-	-	-	-	-	-	3	-	-
O	-	-	-	-	8	-	-	-	-	-	-	-	-	-		-	-	-	-	-	3	-	-
P	8	8	-	8	-	-	-	-	-	-	-	-	-	-	-		-	-	-	8	3	-	-
Q	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-		-	-	-	3	-	-
R	7	6	-	8	6	-	-	-	-	-	-	-	-	-	-	-	-		-	6	3	-	-
S	-	-	-	-	-	-	-	-	5	5	-	-	-	-	-	-	-	-		-	-	3	-
T	2	-	8	8	9	-	-	-	-	-	-	-	10	-	-	10	-	10	-		2	-	-
U	2	2	2	2	2	-	-	-	-	-	-	2	2	2	2	2	2	2	-	2		-	-
V	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	2	-	-		-
W	-	-	-	-	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

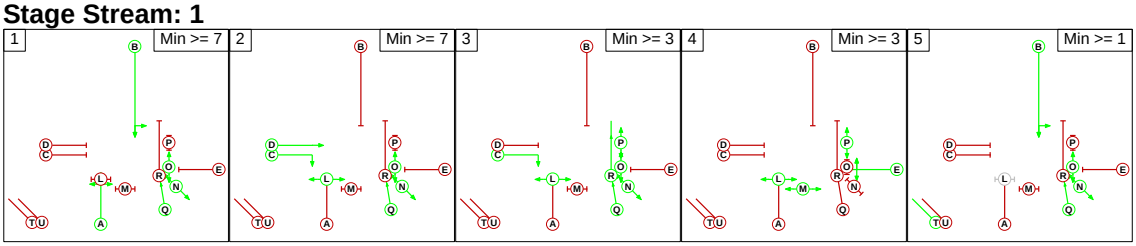
Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	A B N O Q
1	2	C D L N O Q
1	3	C L N O P Q R
1	4	E L M P
1	5	B N O Q T
2	1	I J
2	2	K S
3	1	H
3	2	F G

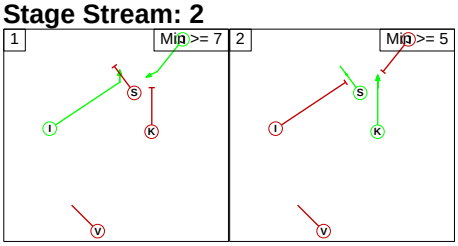
Full Input Data And Results

Stage Diagram

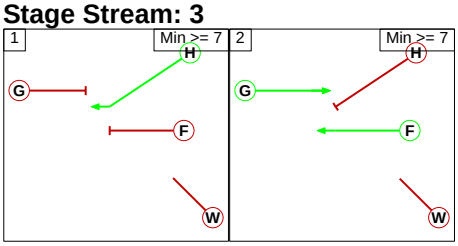
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Phase Delays

Stage Stream: 1

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

Stage Stream: 2

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

Stage Stream: 3

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

Prohibited Stage Change

Stage Stream: 1

	To Stage					
		1	2	3	4	5
From Stage	1		10	13	13	3
	2	11		9	11	7
	3	11	8		11	8
	4	11	10	8		8
	5	2	8	10	10	

Full Input Data And Results

Stage Stream: 2

	To Stage		
		1	2
From Stage	1		12
	2	6	

Stage Stream: 3

	To Stage		
		1	2
From Stage	1		7
	2	5	

Give-Way Lane Input Data

Junction: J1: 32/000095
There are no Opposed Lanes in this Junction

Junction: J2: 32/000115
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: J1: 32/000095

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J1:1/1 (Meridian Way SB)	U	A	2	3	6.0	User	1850	-	-	-	-	-
J1:1/2 (Meridian Way SB)	U	A	2	3	60.0	User	1850	-	-	-	-	-
J1:1/3 (Meridian Way SB)	U	A	2	3	60.0	User	1836	-	-	-	-	-
J1:2/1 (Glover Drive)	U	E	2	3	60.0	User	1760	-	-	-	-	-
J1:2/2 (Glover Drive)	U	D	2	3	60.0	User	1760	-	-	-	-	-
J1:2/3 (Glover Drive)	U	D	2	3	5.0	User	1761	-	-	-	-	-
J1:3/1 (Meridian Way NB)	U	B	2	3	33.0	User	1795	-	-	-	-	-
J1:3/2 (Meridian Way NB)	U	B	2	3	33.0	User	1795	-	-	-	-	-
J1:3/3 (Meridian Way NB)	U	C	2	3	60.0	User	1861	-	-	-	-	-
J1:4/1 (Meridian Way NB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:4/2 (Meridian Way NB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:5/1 (Glover Drive EB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J2: 32/000115

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (Meridian Way SB Right)	U	J	2	3	36.5	User	2047	-	-	-	-	-
J2:2/1 (Meridian Way SB A/L)	U	B	2	3	47.0	User	1802	-	-	-	-	-
J2:2/2 (Meridian Way SB A/L)	U	B	2	3	17.0	User	1802	-	-	-	-	-
J2:3/1 (Leeside Road WB)	U	E	2	3	60.0	User	1700	-	-	-	-	-
J2:3/2 (Leeside Road WB)	U	E	2	3	6.0	User	1700	-	-	-	-	-
J2:4/1 (Watermead Way NB)	U	A	2	3	60.0	User	1834	-	-	-	-	-
J2:4/2 (Watermead Way NB)	U	A	2	3	60.0	User	1834	-	-	-	-	-
J2:4/3 (Watermead Way NB)	U	A	2	3	7.0	User	1753	-	-	-	-	-
J2:5/1 (Leeside Road EB A/R)	U	G	2	3	60.0	User	1700	-	-	-	-	-
J2:6/1 (Leeside Road EB Left)	U	I	2	3	60.0	User	1832	-	-	-	-	-
J2:6/2 (Leeside Road EB Left)	U	I	2	3	13.0	User	1832	-	-	-	-	-
J2:7/1 (Leesdie Road EB A/R)	U	D	2	3	7.0	User	1700	-	-	-	-	-
J2:7/2 (Leesdie Road EB A/R)	U	C	2	3	7.0	User	1700	-	-	-	-	-
J2:8/1 (Meridian Way NB Internal)	U	K	2	3	9.6	User	1798	-	-	-	-	-
J2:8/2 (Meridian Way NB Internal)	U	K	2	3	9.6	User	1753	-	-	-	-	-
J2:9/1 (Leeside Road WB Internal)	U	F	2	3	10.4	User	1800	-	-	-	-	-
J2:10/1 (Meridian Way SB RT Internal)	U	H	2	3	10.4	User	2047	-	-	-	-	-

J2:11/1 (Leeside Road EB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:12/1 (Watermead Way SB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:12/2 (Watermead Way SB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:13/1 (Leeside Road WB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
2: 'PM BASE'	17:00	18:00	01:00	
3: 'SAT BASE'	13:15	14:15	01:00	

Scenario 2: 'PM Base' (FG2: 'PM BASE', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination	
Origin		Tot.
	Tot.	-

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: PM Base
Junction: J1: 32/000095	
J1:1/1 (short)	202
J1:1/2 (with short)	579(In) 377(Out)
J1:1/3	476
J1:2/1	653
J1:2/2 (with short)	69(In) 42(Out)
J1:2/3 (short)	27
J1:3/1	1171
J1:3/2	391
J1:3/3	661
J1:4/1	823
J1:4/2	808
J1:5/1	863
Junction: J2: 32/000115	
J2:1/1	580
J2:2/1 (with short)	921(In) 520(Out)
J2:2/2 (short)	401
J2:3/1 (with short)	70(In) 23(Out)
J2:3/2 (short)	47
J2:4/1	644
J2:4/2 (with short)	620(In) 617(Out)
J2:4/3 (short)	3
J2:5/1	84
J2:6/1 (with short)	1047(In) 633(Out)
J2:6/2 (short)	414
J2:7/1	6
J2:7/2	78
J2:8/1	546
J2:8/2	639
J2:9/1	133
J2:10/1	580
J2:11/1	28
J2:12/1	592
J2:12/2	401

J2:13/1	713

Lane Saturation Flows

Junction: J1: 32/000095

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1 (Meridian Way SB Lane 1)	This lane uses a directly entered Saturation Flow						1850	1850
J1:1/2 (Meridian Way SB Lane 2)	This lane uses a directly entered Saturation Flow						1850	1850
J1:1/3 (Meridian Way SB Lane 3)	This lane uses a directly entered Saturation Flow						1836	1836
J1:2/1 (Glover Drive Lane 1)	This lane uses a directly entered Saturation Flow						1760	1760
J1:2/2 (Glover Drive Lane 2)	This lane uses a directly entered Saturation Flow						1760	1760
J1:2/3 (Glover Drive Lane 3)	This lane uses a directly entered Saturation Flow						1761	1761
J1:3/1 (Meridian Way NB Lane 1)	This lane uses a directly entered Saturation Flow						1795	1795
J1:3/2 (Meridian Way NB Lane 2)	This lane uses a directly entered Saturation Flow						1795	1795
J1:3/3 (Meridian Way NB Lane 3)	This lane uses a directly entered Saturation Flow						1861	1861
J1:4/1 (Meridian Way NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (Meridian Way NB Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Glover Drive EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: 32/000115

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Meridian Way SB Right Lane 1)	This lane uses a directly entered Saturation Flow						2047	2047
J2:2/1 (Meridian Way SB A/L Lane 1)	This lane uses a directly entered Saturation Flow						1802	1802
J2:2/2 (Meridian Way SB A/L Lane 2)	This lane uses a directly entered Saturation Flow						1802	1802
J2:3/1 (Leeside Road WB Lane 1)	This lane uses a directly entered Saturation Flow						1700	1700
J2:3/2 (Leeside Road WB Lane 2)	This lane uses a directly entered Saturation Flow						1700	1700
J2:4/1 (Watermead Way NB Lane 1)	This lane uses a directly entered Saturation Flow						1834	1834
J2:4/2 (Watermead Way NB Lane 2)	This lane uses a directly entered Saturation Flow						1834	1834
J2:4/3 (Watermead Way NB Lane 3)	This lane uses a directly entered Saturation Flow						1753	1753
J2:5/1 (Leeside Road EB A/R Lane 1)	This lane uses a directly entered Saturation Flow						1700	1700
J2:6/1 (Leeside Road EB Left Lane 1)	This lane uses a directly entered Saturation Flow						1832	1832
J2:6/2 (Leeside Road EB Left Lane 2)	This lane uses a directly entered Saturation Flow						1832	1832
J2:7/1 (Leesdie Road EB A/R Lane 1)	This lane uses a directly entered Saturation Flow						1700	1700
J2:7/2 (Leesdie Road EB A/R Lane 2)	This lane uses a directly entered Saturation Flow						1700	1700
J2:8/1 (Meridian Way NB Internal Lane 1)	This lane uses a directly entered Saturation Flow						1798	1798
J2:8/2 (Meridian Way NB Internal Lane 2)	This lane uses a directly entered Saturation Flow						1753	1753
J2:9/1 (Leeside Road WB Internal Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J2:10/1 (Meridian Way SB RT Internal Lane 1)	This lane uses a directly entered Saturation Flow						2047	2047
J2:11/1 (Leeside Road EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:12/1 (Watermead Way SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:12/2 (Watermead Way SB Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:13/1 (Leeside Road WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: 'SAT Base' (FG3: 'SAT BASE', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination	
Origin		Tot.
	Tot.	-

Traffic Lane Flows

Lane	Scenario 3: SAT Base
Junction: J1: 32/000095	
J1:1/1 (short)	281
J1:1/2 (with short)	693(In) 412(Out)
J1:1/3	512
J1:2/1	690
J1:2/2 (with short)	133(In) 92(Out)
J1:2/3 (short)	41
J1:3/1	619
J1:3/2	615
J1:3/3	594
J1:4/1	711
J1:4/2	656
J1:5/1	875
Junction: J2: 32/000115	
J2:1/1	685
J2:2/1 (with short)	931(In) 527(Out)
J2:2/2 (short)	404
J2:3/1 (with short)	28(In) 15(Out)
J2:3/2 (short)	13
J2:4/1	564
J2:4/2 (with short)	533(In) 529(Out)
J2:4/3 (short)	4
J2:5/1	108
J2:6/1 (with short)	855(In) 556(Out)
J2:6/2 (short)	299
J2:7/1	1
J2:7/2	107
J2:8/1	446

J2:8/2	528
J2:9/1	137
J2:10/1	685
J2:11/1	29
J2:12/1	620
J2:12/2	404
J2:13/1	822

Lane Saturation Flows

Junction: J1: 32/000095

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1 (Meridian Way SB Lane 1)	This lane uses a directly entered Saturation Flow						1850	1850
J1:1/2 (Meridian Way SB Lane 2)	This lane uses a directly entered Saturation Flow						1850	1850
J1:1/3 (Meridian Way SB Lane 3)	This lane uses a directly entered Saturation Flow						1836	1836
J1:2/1 (Glover Drive Lane 1)	This lane uses a directly entered Saturation Flow						1760	1760
J1:2/2 (Glover Drive Lane 2)	This lane uses a directly entered Saturation Flow						1760	1760
J1:2/3 (Glover Drive Lane 3)	This lane uses a directly entered Saturation Flow						1761	1761
J1:3/1 (Meridian Way NB Lane 1)	This lane uses a directly entered Saturation Flow						1795	1795
J1:3/2 (Meridian Way NB Lane 2)	This lane uses a directly entered Saturation Flow						1795	1795
J1:3/3 (Meridian Way NB Lane 3)	This lane uses a directly entered Saturation Flow						1861	1861
J1:4/1 (Meridian Way NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (Meridian Way NB Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Glover Drive EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

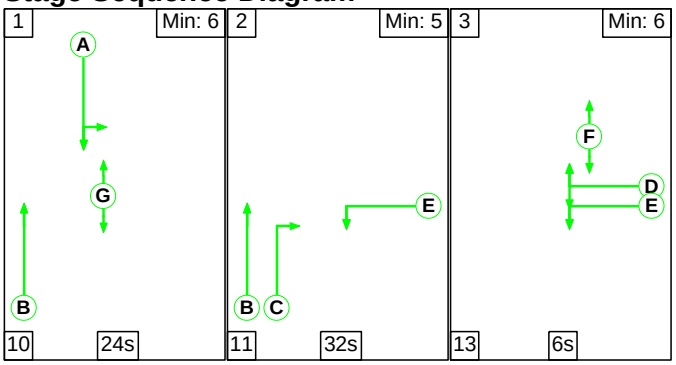
Full Input Data And Results

Junction: J2: 32/000115								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Meridian Way SB Right Lane 1)	This lane uses a directly entered Saturation Flow						2047	2047
J2:2/1 (Meridian Way SB A/L Lane 1)	This lane uses a directly entered Saturation Flow						1802	1802
J2:2/2 (Meridian Way SB A/L Lane 2)	This lane uses a directly entered Saturation Flow						1802	1802
J2:3/1 (Leeside Road WB Lane 1)	This lane uses a directly entered Saturation Flow						1700	1700
J2:3/2 (Leeside Road WB Lane 2)	This lane uses a directly entered Saturation Flow						1700	1700
J2:4/1 (Watermead Way NB Lane 1)	This lane uses a directly entered Saturation Flow						1834	1834
J2:4/2 (Watermead Way NB Lane 2)	This lane uses a directly entered Saturation Flow						1834	1834
J2:4/3 (Watermead Way NB Lane 3)	This lane uses a directly entered Saturation Flow						1753	1753
J2:5/1 (Leeside Road EB A/R Lane 1)	This lane uses a directly entered Saturation Flow						1700	1700
J2:6/1 (Leeside Road EB Left Lane 1)	This lane uses a directly entered Saturation Flow						1832	1832
J2:6/2 (Leeside Road EB Left Lane 2)	This lane uses a directly entered Saturation Flow						1832	1832
J2:7/1 (Leesdie Road EB A/R Lane 1)	This lane uses a directly entered Saturation Flow						1700	1700
J2:7/2 (Leesdie Road EB A/R Lane 2)	This lane uses a directly entered Saturation Flow						1700	1700
J2:8/1 (Meridian Way NB Internal Lane 1)	This lane uses a directly entered Saturation Flow						1798	1798
J2:8/2 (Meridian Way NB Internal Lane 2)	This lane uses a directly entered Saturation Flow						1753	1753
J2:9/1 (Leeside Road WB Internal Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J2:10/1 (Meridian Way SB RT Internal Lane 1)	This lane uses a directly entered Saturation Flow						2047	2047
J2:11/1 (Leeside Road EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:12/1 (Watermead Way SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:12/2 (Watermead Way SB Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:13/1 (Leeside Road WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 2: 'PM Base' (FG2: 'PM BASE', Plan 1: 'Network Control Plan 1')
C1

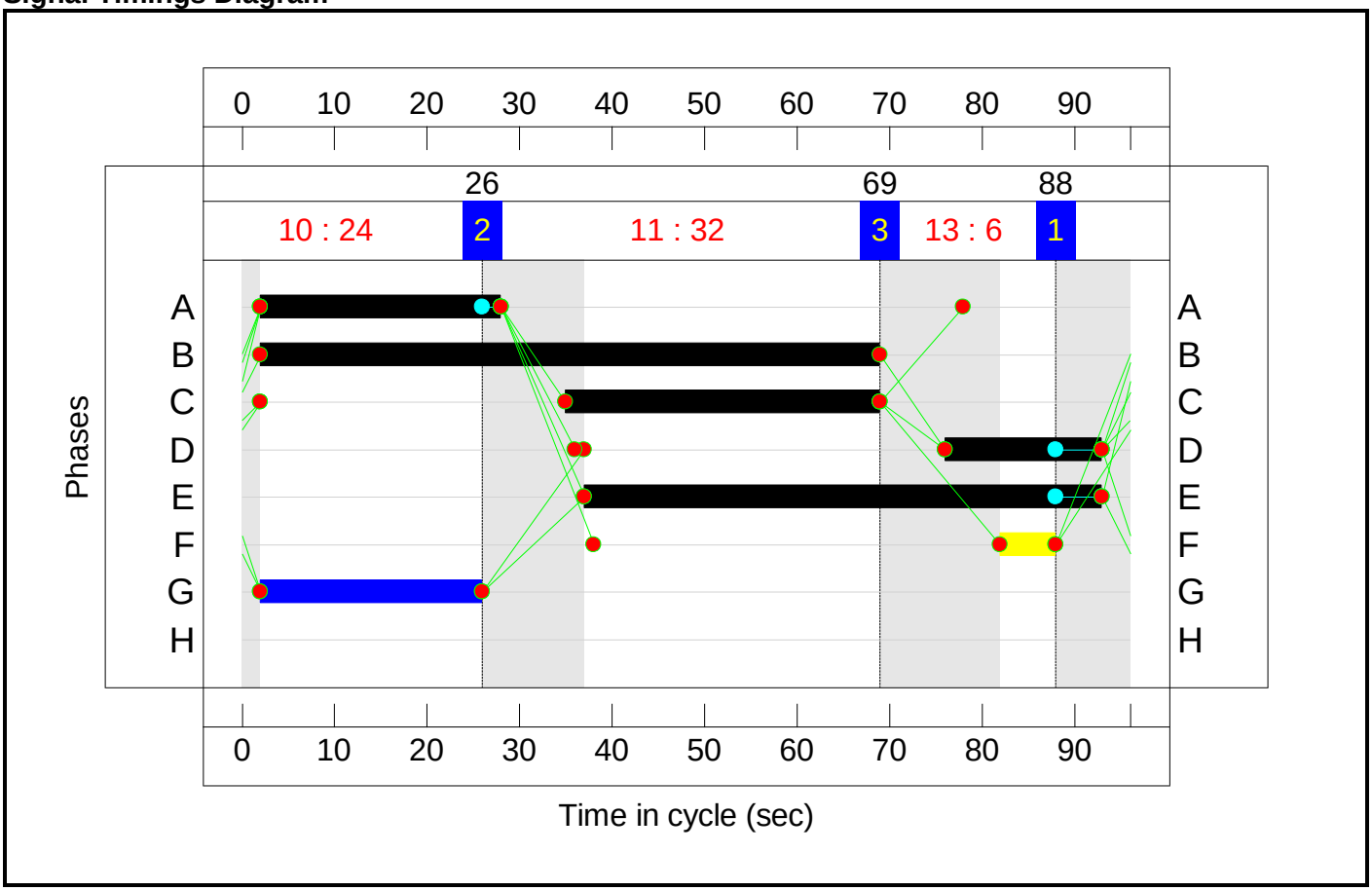
Stage Sequence Diagram



Stage Timings

Stage	1	2	3
Duration	24	32	6
Change Point	88	26	69

Signal Timings Diagram

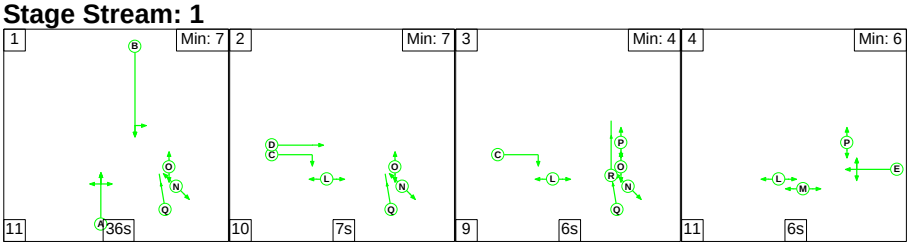


Full Input Data And Results

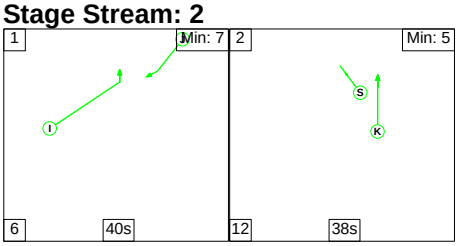
C2

Stage Sequence Diagram

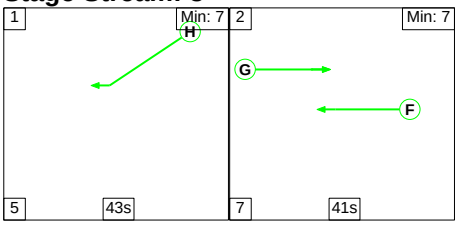
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2	3	4
Duration	36	7	6	6
Change Point	86	37	54	69

Stage Stream: 2

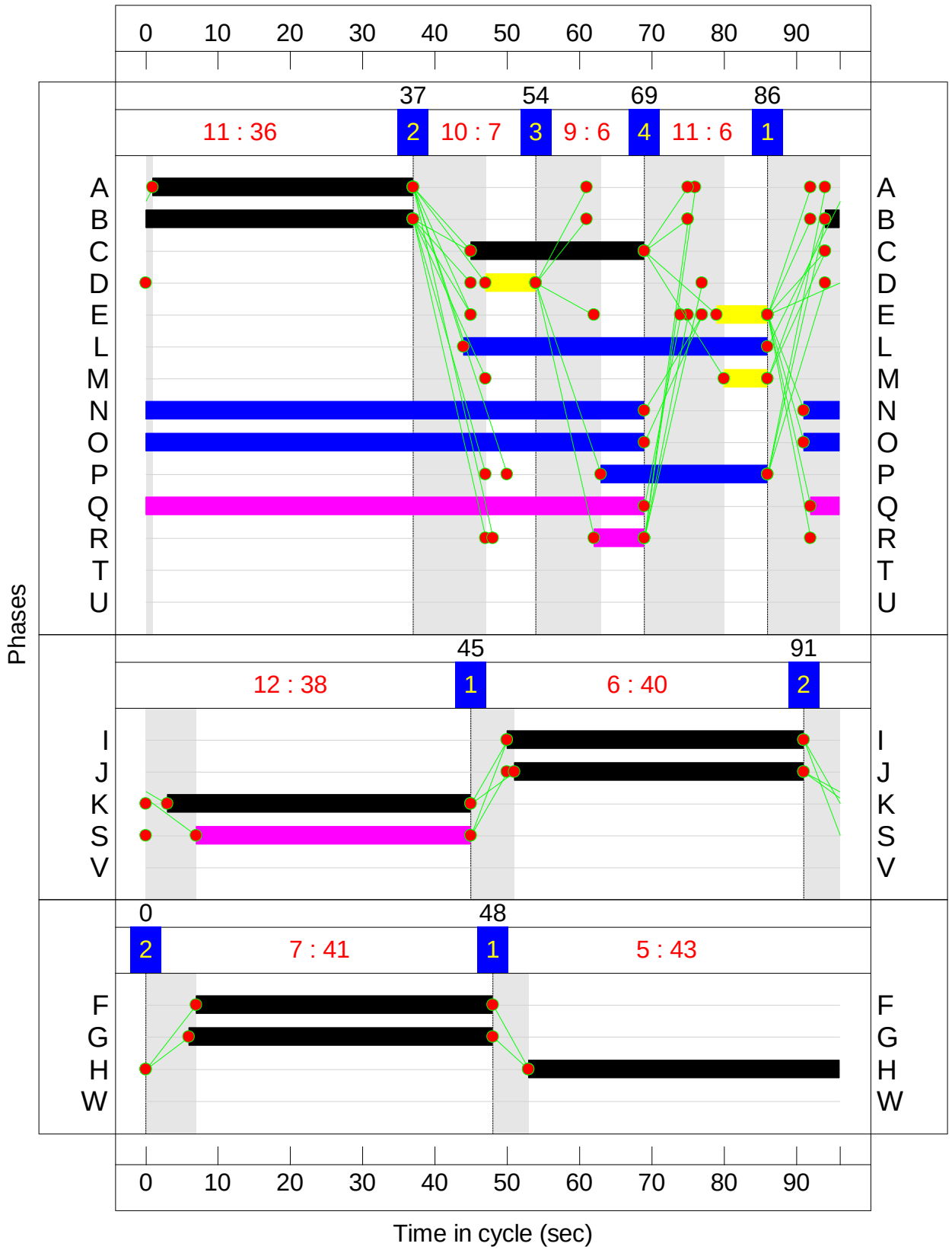
Stage	1	2
Duration	40	38
Change Point	45	91

Stage Stream: 3

Stage	1	2
Duration	43	41
Change Point	48	0

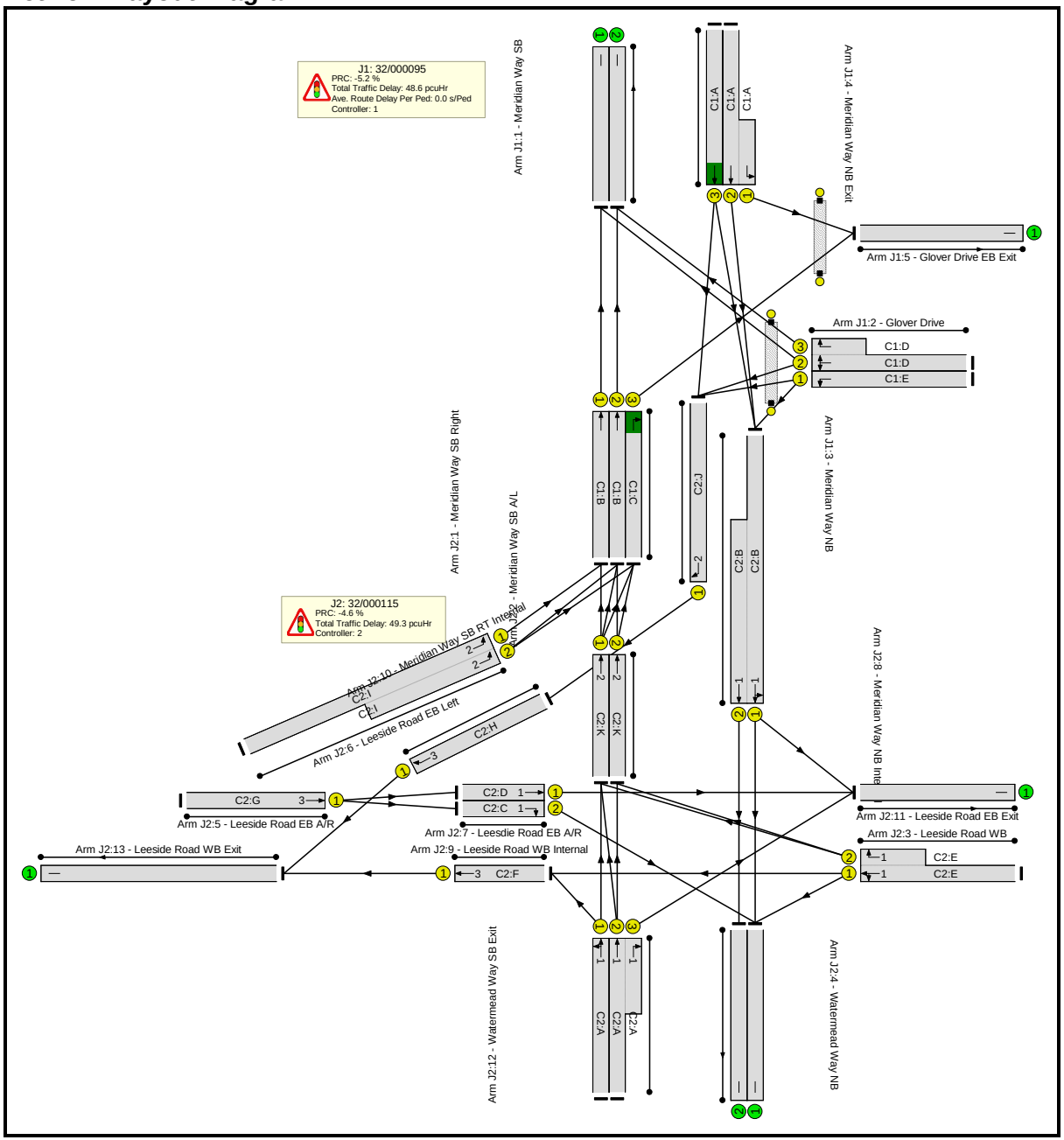
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**94.7%**
J1: 32/000095	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**94.7%**
1/2+1/1	Meridian Way SB Left Ahead	U	N/A	N/A	C1:A		1	26	-	579	1850:1850	413+221	91.2 : 91.2%
1/3	Meridian Way SB Ahead Ahead2	U	N/A	N/A	C1:A		1	26	-	476	1836	536	88.9%
2/1	Glover Drive Left Left2	U	N/A	N/A	C1:E		1	56	-	653	1760	1045	62.5%
2/2+2/3	Glover Drive Right Left	U	N/A	N/A	C1:D		1	17	-	69	1760:1761	277+178	15.2 : 15.2%
3/1	Meridian Way NB Ahead	U	N/A	N/A	C1:B		1	67	-	1171	1795	1271	92.1%
3/2	Meridian Way NB Ahead	U	N/A	N/A	C1:B		1	67	-	391	1795	1271	30.8%
3/3	Meridian Way NB Right	U	N/A	N/A	C1:C		1	34	-	661	1861	698	94.7%
4/1	Meridian Way NB Exit	U	N/A	N/A	-		-	-	-	823	Inf	Inf	0.0%
4/2	Meridian Way NB Exit	U	N/A	N/A	-		-	-	-	808	Inf	Inf	0.0%
5/1	Glover Drive EB Exit	U	N/A	N/A	-		-	-	-	863	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:F		1	6	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:G		1	24	-	0	-	0	0.0%
J2: 32/000115	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**94.2%**
1/1	Meridian Way SB Right Right	U	2:2	N/A	C2:J		1	40	-	580	2047	874	66.3%
2/1+2/2	Meridian Way SB A/L Left Ahead	U	2:1	N/A	C2:B		1	39	-	921	1802:1802	701+541	74.2 : 74.2%

Full Input Data And Results

3/1+3/2	Leeside Road WB Right Ahead Left	U	2:1	N/A	C2:E		1	7	-	70	1700:1700	69+142	33.2 : 33.2%
4/1	Watermead Way NB Ahead Left	U	2:1	N/A	C2:A		1	36	-	644	1834	707	91.1%
4/2+4/3	Watermead Way NB Ahead Right	U	2:1	N/A	C2:A		1	36	-	620	1834:1753	700+3	88.2 : 88.2%
5/1	Leeside Road EB A/R Ahead	U	2:3	N/A	C2:G		1	42	-	84	1700	761	11.0%
6/1+6/2	Leeside Road EB Left Left	U	2:2	N/A	C2:I		1	41	-	1047	1832:1832	672+440	94.2 : 94.2%
7/1	Leesdie Road EB A/R Ahead	U	2:1	N/A	C2:D		1	7	-	6	1700	142	4.2%
7/2	Leesdie Road EB A/R Right	U	2:1	N/A	C2:C		1	24	-	78	1700	443	17.6%
8/1	Meridian Way NB Internal Ahead	U	2:2	N/A	C2:K		1	42	-	546	1798	805	67.8%
8/2	Meridian Way NB Internal Ahead	U	2:2	N/A	C2:K		1	42	-	639	1753	785	81.4%
9/1	Leeside Road WB Internal Ahead	U	2:3	N/A	C2:F		1	41	-	133	1800	788	16.9%
10/1	Meridian Way SB RT Internal Ahead	U	2:3	N/A	C2:H		1	43	-	580	2047	938	61.8%
11/1	Leeside Road EB Exit	U	N/A	N/A	-		-	-	-	28	Inf	Inf	0.0%
12/1	Watermead Way SB Exit	U	N/A	N/A	-		-	-	-	592	Inf	Inf	0.0%
12/2	Watermead Way SB Exit	U	N/A	N/A	-		-	-	-	401	Inf	Inf	0.0%
13/1	Leeside Road WB Exit	U	N/A	N/A	-		-	-	-	713	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**56.1**	**41.8**	**0.0**	**97.9**	**-**	**-**	**-**	**-**
J1: 32/000095	**-**	**-**	**0**	**0**	**0**	**27.6**	**21.1**	**0.0**	**48.6**	**-**	**-**	**-**	**-**
1/2+1/1	579	579	-	-	-	5.0	4.5	-	9.5 (6.3+3.3)	59.1 (59.7:58.1)	11.4	4.5	15.9
1/3	476	476	-	-	-	4.3	3.6	-	7.9	59.5	12.0	3.6	15.6
2/1	653	653	-	-	-	2.3	0.8	-	3.1	17.2	11.2	0.8	12.1
2/2+2/3	69	69	-	-	-	0.6	0.1	-	0.7 (0.4+0.3)	37.0 (37.1:36.9)	0.9	0.1	1.0
3/1	1171	1171	-	-	-	5.0	5.3	-	10.3	31.7	30.0	5.3	35.2
3/2	391	391	-	-	-	0.1	0.2	-	0.3	2.7	0.3	0.2	0.5
3/3	661	661	-	-	-	10.2	6.6	-	16.8	91.5	16.6	6.6	23.2
4/1	823	823	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	808	808	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	863	863	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: 32/000115	**-**	**-**	**0**	**0**	**0**	**28.5**	**20.7**	**0.0**	**49.3**	**-**	**-**	**-**	**-**
1/1	580	580	-	-	-	3.1	1.0	-	4.1	25.2	12.8	1.0	13.8
2/1+2/2	921	921	-	-	-	7.1	1.4	-	8.5 (5.3+3.3)	33.3 (36.4:29.2)	30.1	1.4	31.5
3/1+3/2	70	70	-	-	-	0.8	0.2	-	1.1 (0.3+0.7)	54.1 (53.7:54.2)	1.2	0.2	1.4
4/1	644	644	-	-	-	5.0	4.5	-	9.5	53.0	16.1	4.5	20.6
4/2+4/3	620	620	-	-	-	4.7	3.4	-	8.2 (8.1+0.0)	47.5 (47.5:44.8)	15.3	3.4	18.7
5/1	84	84	-	-	-	0.4	0.1	-	0.4	18.1	1.3	0.1	1.3
6/1+6/2	1047	1047	-	-	-	6.4	6.7	-	13.1 (8.2+5.0)	45.1 (46.5:43.1)	17.4	6.7	24.1

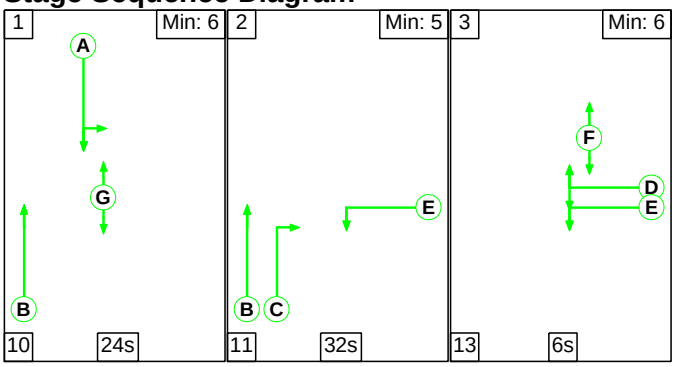
Full Input Data And Results

7/1	6	6	-	-	-	0.0	0.0	-	0.1	40.6	0.2	0.0	0.2
7/2	78	78	-	-	-	0.6	0.1	-	0.7	31.8	2.0	0.1	2.1
8/1	546	546	-	-	-	0.1	1.0	-	1.2	7.7	0.7	1.0	1.8
8/2	639	639	-	-	-	0.2	2.1	-	2.3	12.8	12.8	2.1	14.9
9/1	133	133	-	-	-	0.0	0.1	-	0.2	4.1	0.3	0.1	0.4
10/1	580	580	-	-	-	0.1	0.0	-	0.1	0.5	0.2	0.0	0.2
11/1	28	28	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	592	592	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	401	401	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	713	713	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1		PRC for Signalled Lanes (%):	-5.2	Total Delay for Signalled Lanes (pcuHr):	48.62	Cycle Time (s):	96
C2	Stream: 1	PRC for Signalled Lanes (%):	-1.2	Total Delay for Signalled Lanes (pcuHr):	27.98	Cycle Time (s):	96
C2	Stream: 2	PRC for Signalled Lanes (%):	-4.6	Total Delay for Signalled Lanes (pcuHr):	20.62	Cycle Time (s):	96
C2	Stream: 3	PRC for Signalled Lanes (%):	45.6	Total Delay for Signalled Lanes (pcuHr):	0.66	Cycle Time (s):	96
		PRC Over All Lanes (%):	-5.2	Total Delay Over All Lanes(pcuHr):	97.88		

Full Input Data And Results
Scenario 3: 'SAT Base' (FG3: 'SAT BASE', Plan 1: 'Network Control Plan 1')
C1

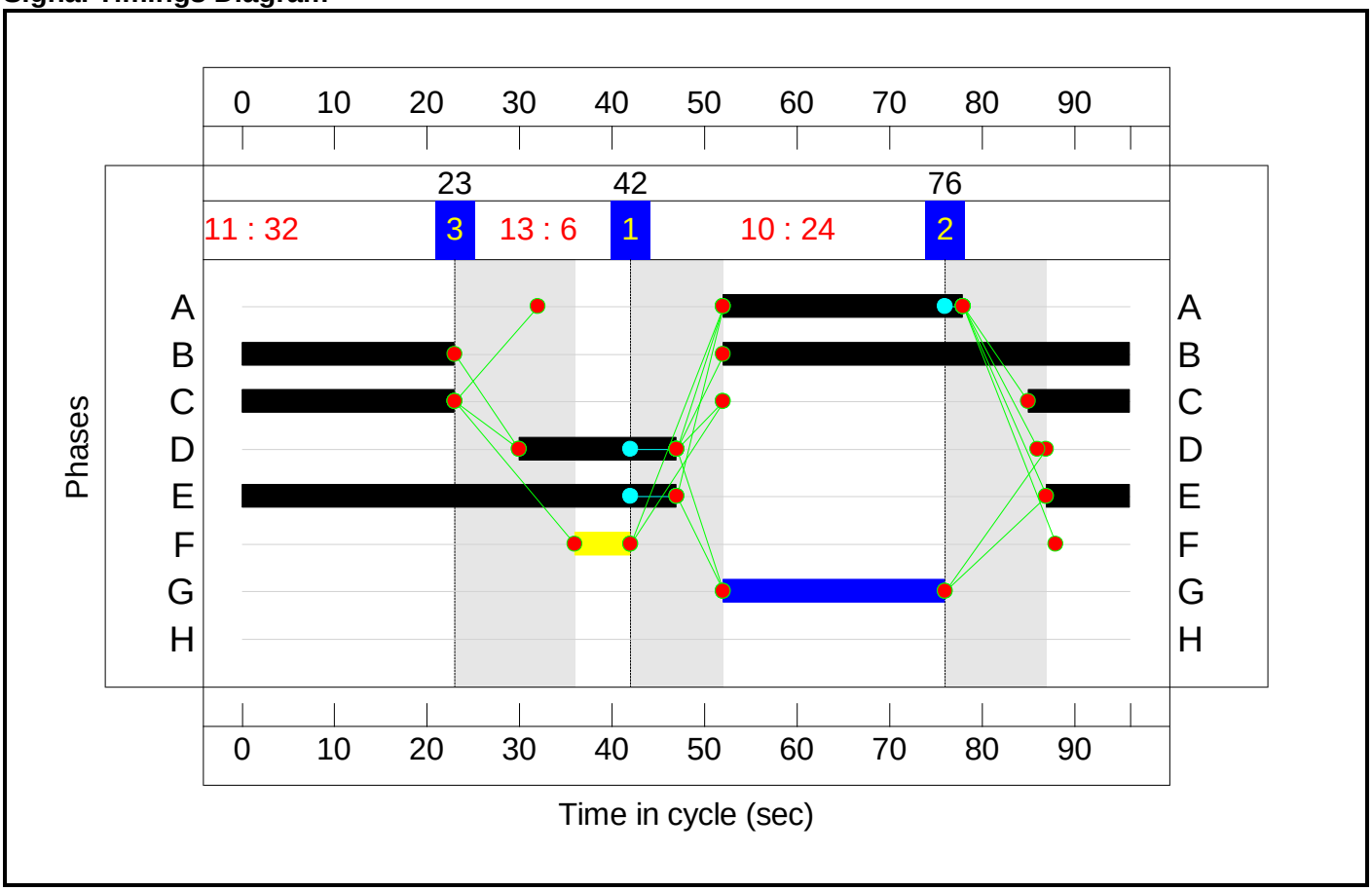
Stage Sequence Diagram



Stage Timings

Stage	1	2	3
Duration	24	32	6
Change Point	42	76	23

Signal Timings Diagram

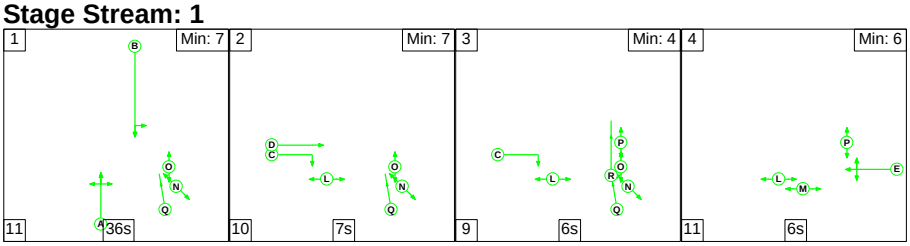


Full Input Data And Results

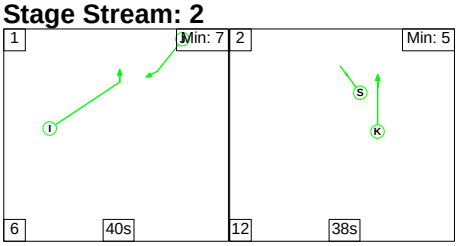
C2

Stage Sequence Diagram

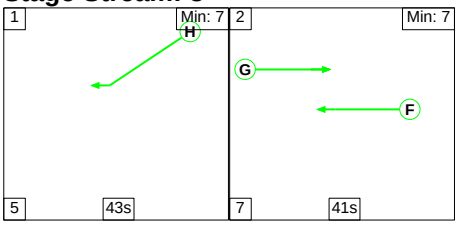
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2	3	4
Duration	36	7	6	6
Change Point	40	87	8	23

Stage Stream: 2

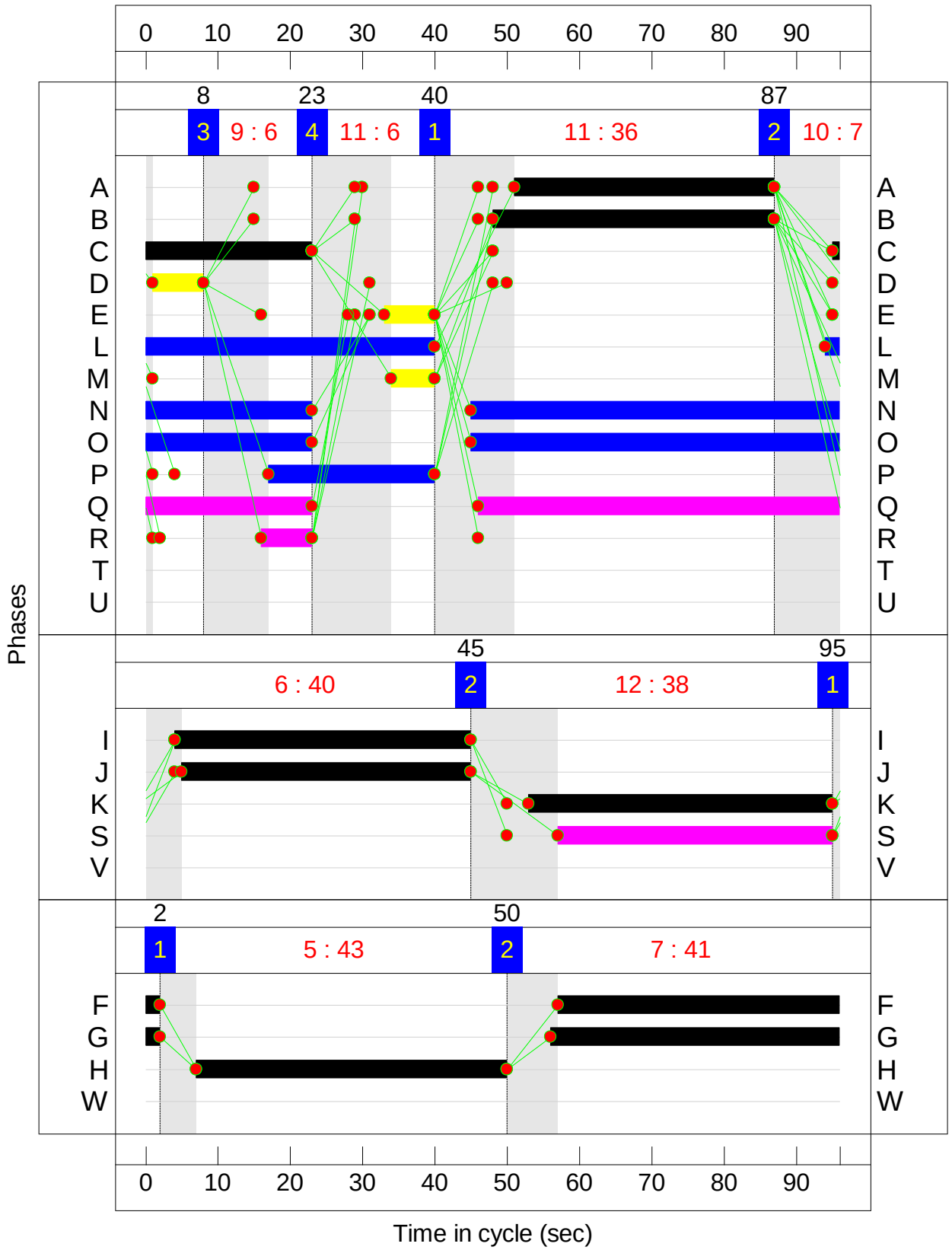
Stage	1	2
Duration	40	38
Change Point	95	45

Stage Stream: 3

Stage	1	2
Duration	43	41
Change Point	2	50

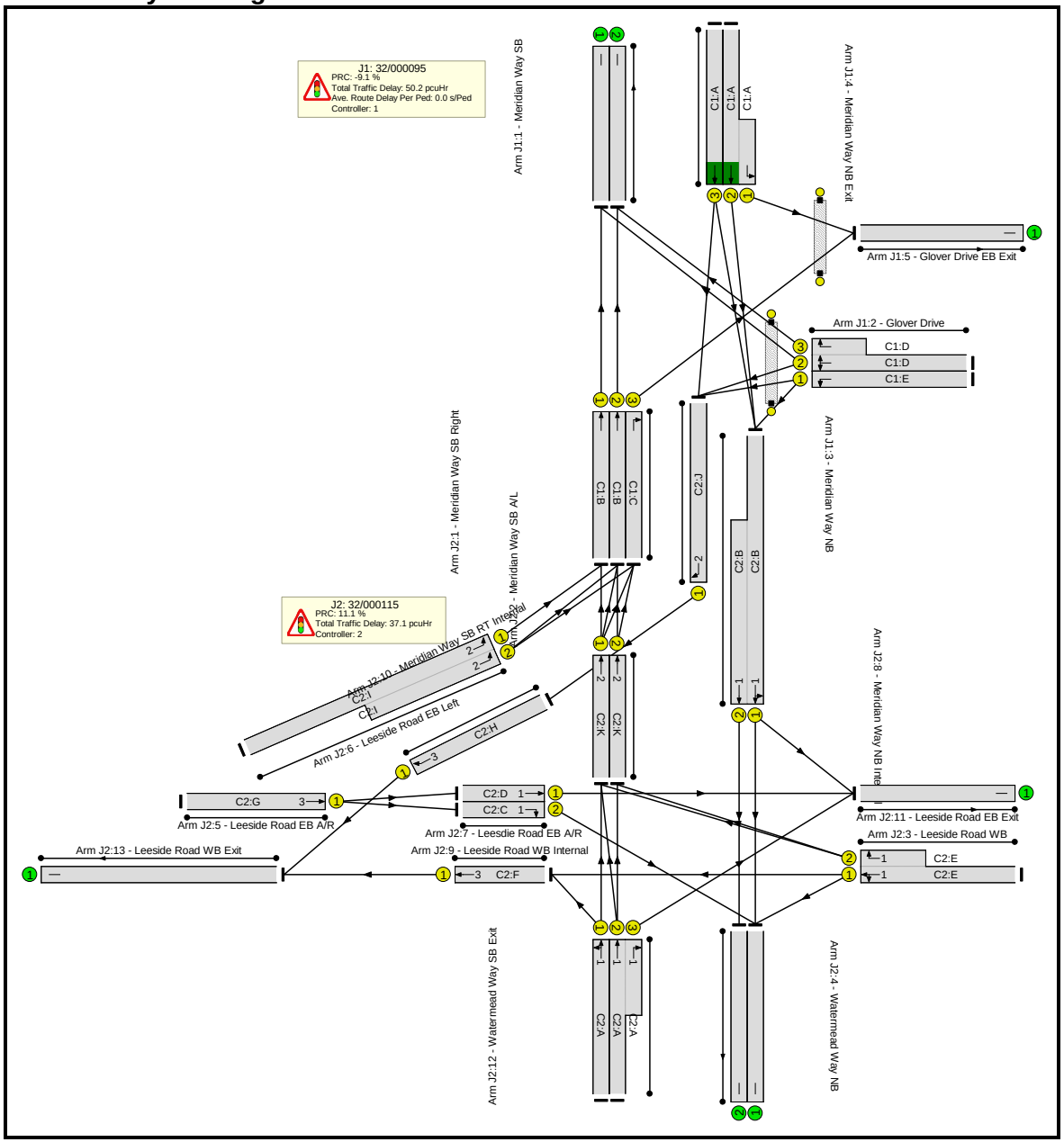
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**98.1%**
J1: 32/000095	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**98.1%**
1/2+1/1	Meridian Way SB Left Ahead	U	N/A	N/A	C1:A		1	26	-	693	1850:1850	420+286	98.1 : 98.1%
1/3	Meridian Way SB Ahead Ahead2	U	N/A	N/A	C1:A		1	26	-	512	1836	536	95.6%
2/1	Glover Drive Left Left2	U	N/A	N/A	C1:E		1	56	-	690	1760	1045	66.0%
2/2+2/3	Glover Drive Right Left	U	N/A	N/A	C1:D		1	17	-	133	1760:1761	289+129	31.8 : 31.8%
3/1	Meridian Way NB Ahead	U	N/A	N/A	C1:B		1	67	-	619	1795	1271	48.7%
3/2	Meridian Way NB Ahead	U	N/A	N/A	C1:B		1	67	-	615	1795	1271	48.4%
3/3	Meridian Way NB Right	U	N/A	N/A	C1:C		1	34	-	594	1861	678	87.5%
4/1	Meridian Way NB Exit	U	N/A	N/A	-		-	-	-	711	Inf	Inf	0.0%
4/2	Meridian Way NB Exit	U	N/A	N/A	-		-	-	-	656	Inf	Inf	0.0%
5/1	Glover Drive EB Exit	U	N/A	N/A	-		-	-	-	875	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:F		1	6	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:G		1	24	-	0	-	0	0.0%
J2: 32/000115	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.0%**
1/1	Meridian Way SB Right Right	U	2:2	N/A	C2:J		1	40	-	685	2047	874	78.4%
2/1+2/2	Meridian Way SB A/L Left Ahead	U	2:1	N/A	C2:B		1	39	-	931	1802:1802	701+538	75.2 : 75.2%

Full Input Data And Results

3/1+3/2	Leeside Road WB Right Ahead Left	U	2:1	N/A	C2:E		1	7	-	28	1700:1700	142+142	10.6 : 9.2%
4/1	Watermead Way NB Ahead Left	U	2:1	N/A	C2:A		1	36	-	564	1834	707	79.8%
4/2+4/3	Watermead Way NB Ahead Right	U	2:1	N/A	C2:A		1	36	-	533	1834:1753	698+5	75.7 : 75.7%
5/1	Leeside Road EB A/R Ahead	U	2:3	N/A	C2:G		1	42	-	108	1700	761	14.2%
6/1+6/2	Leeside Road EB Left Left	U	2:2	N/A	C2:I		1	41	-	855	1832:1832	686+369	81.0 : 81.0%
7/1	Leesdie Road EB A/R Ahead	U	2:1	N/A	C2:D		1	7	-	1	1700	142	0.7%
7/2	Leesdie Road EB A/R Right	U	2:1	N/A	C2:C		1	24	-	107	1700	443	24.2%
8/1	Meridian Way NB Internal Ahead	U	2:2	N/A	C2:K		1	42	-	446	1798	805	55.4%
8/2	Meridian Way NB Internal Ahead	U	2:2	N/A	C2:K		1	42	-	528	1753	785	67.2%
9/1	Leeside Road WB Internal Ahead	U	2:3	N/A	C2:F		1	41	-	137	1800	788	17.4%
10/1	Meridian Way SB RT Internal Ahead	U	2:3	N/A	C2:H		1	43	-	685	2047	938	73.0%
11/1	Leeside Road EB Exit	U	N/A	N/A	-		-	-	-	29	Inf	Inf	0.0%
12/1	Watermead Way SB Exit	U	N/A	N/A	-		-	-	-	620	Inf	Inf	0.0%
12/2	Watermead Way SB Exit	U	N/A	N/A	-		-	-	-	404	Inf	Inf	0.0%
13/1	Leeside Road WB Exit	U	N/A	N/A	-		-	-	-	822	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**53.8**	**33.4**	**0.0**	**87.3**	**-**	**-**	**-**	**-**
J1: 32/000095	**-**	**-**	**0**	**0**	**0**	**27.6**	**22.6**	**0.0**	**50.2**	**-**	**-**	**-**	**-**
1/2+1/1	693	693	-	-	-	6.2	10.3	-	16.5 (9.7+6.8)	85.6 (84.8:86.6)	14.0	10.3	24.3
1/3	512	512	-	-	-	4.8	6.9	-	11.6	81.7	13.4	6.9	20.2
2/1	690	690	-	-	-	2.5	1.0	-	3.5	18.1	12.3	1.0	13.2
2/2+2/3	133	133	-	-	-	1.2	0.2	-	1.5 (1.0+0.4)	39.5 (39.8:38.8)	2.1	0.2	2.3
3/1	619	619	-	-	-	3.5	0.5	-	4.0	23.1	14.6	0.5	15.1
3/2	615	615	-	-	-	0.1	0.5	-	0.6	3.3	7.5	0.5	8.0
3/3	594	594	-	-	-	9.3	3.3	-	12.6	76.4	15.0	3.3	18.3
4/1	711	711	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	656	656	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	875	875	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: 32/000115	**-**	**-**	**0**	**0**	**0**	**26.3**	**10.9**	**0.0**	**37.1**	**-**	**-**	**-**	**-**
1/1	685	685	-	-	-	3.6	1.8	-	5.4	28.4	15.6	1.8	17.4
2/1+2/2	931	931	-	-	-	8.0	1.5	-	9.5 (5.8+3.6)	36.7 (39.9:32.4)	32.7	1.5	34.1
3/1+3/2	28	28	-	-	-	0.3	0.1	-	0.4 (0.2+0.2)	47.8 (47.8:47.8)	0.4	0.1	0.4
4/1	564	564	-	-	-	4.1	1.9	-	6.0	38.5	13.3	1.9	15.2
4/2+4/3	533	533	-	-	-	3.8	1.5	-	5.3 (5.3+0.0)	35.9 (36.0:32.8)	12.2	1.5	13.8
5/1	108	108	-	-	-	0.5	0.1	-	0.6	18.4	1.7	0.1	1.8
6/1+6/2	855	855	-	-	-	4.9	2.1	-	7.0 (4.7+2.2)	29.3 (30.6:27.0)	11.9	2.1	14.0

Full Input Data And Results

7/1	1	1	-	-	-	0.0	0.0	-	0.0	39.9	0.0	0.0	0.0
7/2	107	107	-	-	-	0.8	0.2	-	1.0	32.7	2.8	0.2	2.9
8/1	446	446	-	-	-	0.1	0.6	-	0.7	5.6	0.4	0.6	1.0
8/2	528	528	-	-	-	0.1	1.0	-	1.1	7.3	9.4	1.0	10.4
9/1	137	137	-	-	-	0.0	0.1	-	0.1	3.5	0.2	0.1	0.3
10/1	685	685	-	-	-	0.1	0.0	-	0.1	0.7	0.3	0.0	0.3
11/1	29	29	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	620	620	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	404	404	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	822	822	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1		PRC for Signalled Lanes (%):	-9.1	Total Delay for Signalled Lanes (pcuHr):	50.16	Cycle Time (s):	96
C2	Stream: 1	PRC for Signalled Lanes (%):	12.8	Total Delay for Signalled Lanes (pcuHr):	22.18	Cycle Time (s):	96
C2	Stream: 2	PRC for Signalled Lanes (%):	11.1	Total Delay for Signalled Lanes (pcuHr):	14.13	Cycle Time (s):	96
C2	Stream: 3	PRC for Signalled Lanes (%):	23.3	Total Delay for Signalled Lanes (pcuHr):	0.82	Cycle Time (s):	96
		PRC Over All Lanes (%):	-9.1	Total Delay Over All Lanes(pcuHr):	87.28		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.1.305 [25 May 2012]

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 E-mail: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: (new file)
Path:
Report generation date: 25/07/2018 16:29:46

» (Default Analysis Set) - 2018 Base, PM
» (Default Analysis Set) - 2018 Base, Saturday

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2018 Base			
Arm 1	0.24	4.90	0.20	A
Arm 2	0.38	3.25	0.27	A
Arm 4	1.16	4.71	0.54	A

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

"D2 - 2018 Base, PM " model duration: 17:00 - 18:30
"D3 - 2018 Base, Saturday" model duration: 13:30 - 15:00

Run using Junctions 8.0.1.305 at 25/07/2018 16:29:45

File summary

File Description

Title	(untitled)
Location	
Site Number	
Date	05/07/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	GLOBAL\Katherine-S.Wong
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay 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

(Default Analysis Set) - 2018 Base, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base, PM	2018 Base	PM		ONE HOUR	17:00	18:30	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4				4.32	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Ikea Access	
2	Tesco Access	
3	Slip road	
4	Argon Road	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.20	8.20	8.30	32.40	9.00	
2	5.90	5.90	0.00	7.30	35.40	20.50	
3	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	✓
4	3.60	5.80	16.30	20.60	32.40	12.00	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.590	1375.561
2		(calculated)	(calculated)	0.634	1694.547
3		(calculated)	(calculated)	Exit-only	Exit-only
4		(calculated)	(calculated)	0.666	1655.760

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	162.00	100.000
2	ONE HOUR	✓	380.00	100.000
3	Exit-only	✓	Exit-only	Exit-only
4	ONE HOUR	✓	806.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	15.000	37.000	110.000
	2	3.000	3.000	223.000	151.000

	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	98.000	612.000	92.000	4.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Turning Proportions (PCU) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.09	0.23	0.68
	2	0.01	0.01	0.59	0.40
	3	0.25	0.25	0.25	0.25
	4	0.12	0.76	0.11	0.00

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	1.000	1.000	1.000	1.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	0.000	0.000	0.000	0.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

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)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.20	4.90	0.24	A	148.65	222.98	16.19	4.36	0.18	16.19	4.36
2	0.27	3.25	0.38	A	348.69	523.04	26.28	3.01	0.29	26.28	3.01
3	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
4	0.54	4.71	1.16	A	739.60	1109.40	74.89	4.05	0.83	74.90	4.05

(Default Analysis Set) - 2018 Base, Saturday

(Default Analysis Set) - 2018 Base, Saturday

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationsh
2018 Base, Saturday	2018 Base	Saturday		ONE HOUR	13:30	15:00	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4				5.99	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Ikea Access	
2	Tesco Access	
3	Slip road	
4	Argon Road	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.20	8.20	8.30	32.40	9.00	
2	5.90	5.90	0.00	7.30	35.40	20.50	
3	Exit only	Exit only	Exit only	Exit only	Exit only	Exit only	✓

3	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	✓
4	3.60	5.80	16.30	20.60	32.40	12.00	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.590	1375.561
2		(calculated)	(calculated)	0.634	1694.547
3		(calculated)	(calculated)	Exit-only	Exit-only
4		(calculated)	(calculated)	0.666	1655.760

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	286.00	100.000
2	ONE HOUR	✓	710.00	100.000
3	Exit-only	✓	Exit-only	Exit-only
4	ONE HOUR	✓	980.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	51.000	56.000	179.000
	2	10.000	1.000	205.000	494.000
	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	207.000	665.000	91.000	17.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Turning Proportions (PCU) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.18	0.20	0.63
	2	0.01	0.00	0.29	0.70
	3	0.25	0.25	0.25	0.25
	4	0.21	0.68	0.09	0.02

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	1.000	1.000	1.000	1.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	0.000	0.000	0.000	0.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

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)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.36	6.45	0.56	A	262.44	393.66	35.34	5.39	0.39	35.34	5.39
2	0.54	5.34	1.15	A	651.51	977.26	72.26	4.44	0.80	72.26	4.44
3	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
4	0.65	6.33	1.88	A	899.27	1348.90	113.53	5.05	1.26	113.54	5.05

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.1.305 [25 May 2012]

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 E-mail: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: (new file)
Path:
Report generation date: 25/07/2018 17:19:58

» (Default Analysis Set) - 2018 Base, PM
» (Default Analysis Set) - 2018 Base, Sunday
» (Default Analysis Set) - 2018 Base, Saturday

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2018 Base			
Arm 1	0.09	3.21	0.08	A
Arm 2	0.13	2.29	0.12	A
Arm 3	2.05	10.82	0.68	B

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

"D2 - 2018 Base, PM " model duration: 17:00 - 18:30
"D4 - 2018 Base, Sunday" model duration: 12:45 - 14:15
"D5 - 2018 Base, Saturday" model duration: 13:15 - 14:45

Run using Junctions 8.0.1.305 at 25/07/2018 17:19:56

File summary

File Description

Title	(untitled)
Location	
Site Number	
Date	05/07/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	GLOBAL\Katherine-S.Wong
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

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

(Default Analysis Set) - 2018 Base, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base, PM	2018 Base	PM		ONE HOUR	17:00	18:30	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3				8.30	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Ikea access	
2	Glover Drive	
3	Tesco access	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

	V - Approach road half-...	E - Entry width	l' - Effective flare ...	R - Entry radius	D - Inscribed circle ...	PHI - Conflict (entry) angle	Exit

Arm	V - Approach road half-width (m)	E - Entry width (m)	L - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Connect (entry) angle (deg)	Exit Only
1	3.70	5.30	30.00	257.00	30.80	4.00	
2	5.50	6.10	8.20	30.80	28.80	41.00	
3	3.60	3.80	2.50	30.00	32.00	35.50	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.708	1742.961
2		(calculated)	(calculated)	0.668	1775.676
3		(calculated)	(calculated)	0.540	1135.876

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	92.00	100.000
2	ONE HOUR	✓	186.00	100.000
3	ONE HOUR	✓	629.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	91.000	0.000
	2	131.000	55.000	0.000
	3	16.000	613.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

	To

		1	2	3
From	1	0.01	0.99	0.00
	2	0.70	0.30	0.00
	3	0.03	0.97	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.000	1.000
	2	1.000	1.000	1.000
	3	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	0.000	0.000
	2	0.000	0.000	0.000
	3	0.000	0.000	0.000

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)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.08	3.21	0.09	A	84.42	126.63	6.26	2.97	0.07	6.26	2.97
2	0.12	2.29	0.13	A	170.68	256.02	9.57	2.24	0.11	9.57	2.24
3	0.68	10.82	2.05	B	577.18	865.77	118.60	8.22	1.32	118.62	8.22

Main Results for each time segment

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	69.26	17.32	69.05	111.10	499.70	0.00	1389.31	1252.57	0.050	0.00	0.05	2.726	A
2	140.03	35.01	139.69	568.00	0.75	0.00	1775.17	1766.58	0.079	0.00	0.09	2.201	A
3	473.54	118.39	470.35	0.00	140.44	0.00	1060.07	174.96	0.447	0.00	0.80	6.072	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	82.71	20.68	82.65	132.96	599.09	0.00	1318.96	1252.57	0.063	0.05	0.07	2.911	A
2	167.21	41.80	167.14	680.84	0.90	0.00	1775.08	1766.58	0.094	0.09	0.10	2.238	A
3	565.46	141.36	564.01	0.00	168.04	0.00	1045.17	174.96	0.541	0.80	1.16	7.459	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	101.29	25.32	101.20	162.79	732.12	0.00	1224.81	1252.57	0.083	0.07	0.09	3.203	A
2	204.79	51.20	204.68	832.22	1.10	0.00	1774.94	1766.58	0.115	0.10	0.13	2.292	A
3	692.54	173.14	689.12	0.00	205.78	0.00	1024.80	174.96	0.676	1.16	2.01	10.614	B

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	101.29	25.32	101.29	162.95	735.35	0.00	1222.53	1252.57	0.083	0.09	0.09	3.210	A
2	204.79	51.20	204.79	835.54	1.10	0.00	1774.94	1766.58	0.115	0.13	0.13	2.292	A
3	692.54	173.14	692.41	0.00	205.89	0.00	1024.74	174.96	0.676	2.01	2.05	10.819	B

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	82.71	20.68	82.80	133.21	603.85	0.00	1315.59	1252.57	0.063	0.09	0.07	2.919	A
2	167.21	41.80	167.31	685.75	0.90	0.00	1775.07	1766.58	0.094	0.13	0.10	2.238	A
3	565.46	141.36	568.85	0.00	168.21	0.00	1045.08	174.96	0.541	2.05	1.20	7.614	A

Main results: (18:15-18:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	69.26	17.32	69.32	111.51	504.42	0.00	1385.96	1252.57	0.050	0.07	0.05	2.735	A
2	140.03	35.01	140.10	572.98	0.75	0.00	1775.17	1766.58	0.079	0.10	0.09	2.201	A
3	473.54	118.39	475.07	0.00	140.86	0.00	1059.84	174.96	0.447	1.20	0.82	6.174	A

Queueing Delay Results for each time segment

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.77	0.05	2.726	A	A
2	1.26	0.08	2.201	A	A
3	11.49	0.77	6.072	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.99	0.07	2.911	A	A
2	1.54	0.10	2.238	A	A
3	16.75	1.12	7.459	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.33	0.09	3.203	A	A
2	1.93	0.13	2.292	A	A
3	28.36	1.89	10.614	B	B

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service

1	1.35	0.09	3.210	A	A
2	1.95	0.13	2.292	A	A
3	30.51	2.03	10.819	B	B

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.02	0.07	2.919	A	A
2	1.58	0.11	2.238	A	A
3	18.84	1.26	7.614	A	A

Queueing Delay results: (18:15-18:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.80	0.05	2.735	A	A
2	1.30	0.09	2.201	A	A
3	12.66	0.84	6.174	A	A

(Default Analysis Set) - 2018 Base, Sunday

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base, Sunday	2018 Base	Sunday		ONE HOUR	12:45	14:15	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3				9.88	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arms

Arm	Name	Description
1	Ikea access	
2	Glover Drive	
3	Tesco access	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.70	5.30	30.00	257.00	30.80	4.00	
2	5.50	6.10	8.20	30.80	28.80	41.00	
3	3.60	3.80	2.50	30.00	32.00	35.50	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.708	1742.961
2		(calculated)	(calculated)	0.668	1775.676
3		(calculated)	(calculated)	0.540	1135.876

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	167.00	100.000
2	ONE HOUR	✓	301.00	100.000
3	ONE HOUR	✓	648.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	7.000	160.000	0.000
	2	255.000	46.000	0.000
	3	37.000	611.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.04	0.96	0.00
	2	0.85	0.15	0.00
	3	0.06	0.94	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.000	1.000
	2	1.000	1.000	1.000
	3	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	0.000	0.000
	2	0.000	0.000	0.000
	3	0.000	0.000	0.000

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)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.15	3.44	0.18	A	153.24	229.86	12.01	3.13	0.13	12.01	3.13
2	0.19	2.50	0.23	A	276.20	414.30	16.65	2.41	0.19	16.65	2.41
3	0.75	14.96	2.89	B	594.62	891.92	152.83	10.28	1.70	152.86	10.28

Main Results for each time segment

Main results: (12:45-13:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	125.73	31.43	125.33	224.38	491.07	0.00	1395.41	1444.12	0.090	0.00	0.10	2.834	A
2	226.61	56.65	226.02	611.15	5.25	0.00	1772.17	1735.24	0.128	0.00	0.15	2.328	A
3	487.85	121.96	484.17	0.00	231.28	0.00	1011.04	166.56	0.483	0.00	0.92	6.788	A

Main results: (13:00-13:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	150.13	37.53	150.02	268.56	588.76	0.00	1326.27	1444.12	0.113	0.10	0.13	3.060	A
2	270.59	67.65	270.46	732.49	6.29	0.00	1771.48	1735.24	0.153	0.15	0.18	2.398	A
3	582.54	145.63	580.58	0.00	276.75	0.00	986.49	166.56	0.591	0.92	1.41	8.824	A

Main results: (13:15-13:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	183.87	45.97	183.68	328.71	718.07	0.00	1234.75	1444.12	0.149	0.13	0.17	3.424	A
2	331.41	82.85	331.21	894.05	7.70	0.00	1770.53	1735.24	0.187	0.18	0.23	2.501	A
3	713.46	178.37	707.87	0.00	338.91	0.00	952.94	166.56	0.749	1.41	2.81	14.365	B

Main results: (13:30-13:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	183.87	45.97	183.87	329.19	723.06	0.00	1231.22	1444.12	0.149	0.17	0.18	3.436	A
2	331.41	82.85	331.41	899.22	7.71	0.00	1770.53	1735.24	0.187	0.23	0.23	2.501	A
3	713.46	178.37	713.14	0.00	339.11	0.00	952.83	166.56	0.749	2.81	2.89	14.962	B

Main results: (13:45-14:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	150.13	37.53	150.32	269.29	595.98	0.00	1321.16	1444.12	0.114	0.18	0.13	3.074	A
2	270.59	67.65	270.79	740.00	6.30	0.00	1771.47	1735.24	0.153	0.23	0.18	2.398	A
3	582.54	145.63	588.19	0.00	277.09	0.00	986.31	166.56	0.591	2.89	1.48	9.165	A

Main results: (14:00-14:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	125.73	31.43	125.84	225.34	496.64	0.00	1391.47	1444.12	0.090	0.13	0.10	2.844	A
2	226.61	56.65	226.74	617.21	5.27	0.00	1772.15	1735.24	0.128	0.18	0.15	2.331	A
3	487.85	121.96	489.97	0.00	232.02	0.00	1010.64	166.56	0.483	1.48	0.95	6.941	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:45-13:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.46	0.10	2.834	A	A
2	2.16	0.14	2.328	A	A
3	13.16	0.88	6.788	A	A

Queueing Delay results: (13:00-13:15)

Arm	Queueing Total Delay (PCU-	Queueing Rate Of Delay (PCU-	Average Delay Per Arriving	Unsignalised Level Of	Signalised Level Of

Arm	min)	min/min)	Vehicle (s)	Service	Service
1	1.88	0.13	3.060	A	A
2	2.67	0.18	2.398	A	A
3	20.20	1.35	8.824	A	A

Queueing Delay results: (13:15-13:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	2.58	0.17	3.424	A	A
2	3.40	0.23	2.501	A	A
3	38.43	2.56	14.365	B	B

Queueing Delay results: (13:30-13:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	2.62	0.17	3.436	A	A
2	3.45	0.23	2.501	A	A
3	42.84	2.86	14.962	B	B

Queueing Delay results: (13:45-14:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.96	0.13	3.074	A	A
2	2.74	0.18	2.398	A	A
3	23.46	1.56	9.165	A	A

Queueing Delay results: (14:00-14:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.51	0.10	2.844	A	A
2	2.23	0.15	2.331	A	A
3	14.75	0.98	6.941	A	A

(Default Analysis Set) - 2018 Base, Saturday

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationsh
2018 Base, Saturday	2018 Base	Saturday		ONE HOUR	13:15	14:45	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3				10.62	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Ikea access	
2	Glover Drive	
3	Tesco access	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.70	5.30	30.00	257.00	30.80	4.00	
2	5.50	6.10	8.20	30.80	28.80	41.00	
3	3.60	3.80	2.50	30.00	32.00	35.50	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.708	1742.961
2		(calculated)	(calculated)	0.668	1775.676
3		(calculated)	(calculated)	0.540	1135.876

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

Traffic Flows

Demand Set Data Options

Default	Vehicle	Vehicle	Vehicle Mix		PCU	Default	Estimate	Turning	Turning	Turning

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	Factor for a HV (PCU)	Default Turning Proportions	from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	153.00	100.000
2	ONE HOUR	✓	253.00	100.000
3	ONE HOUR	✓	681.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	2.000	151.000	0.000
	2	196.000	57.000	0.000
	3	25.000	656.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.01	0.99	0.00
	2	0.77	0.23	0.00
	3	0.04	0.96	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.000	1.000
	2	1.000	1.000	1.000
	3	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	0.000	0.000
	2	0.000	0.000	0.000
	3	0.000	0.000	0.000

Results

Results Summary for whole modelled period

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)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.14	3.53	0.16	A	140.40	210.59	11.24	3.20	0.12	11.24	3.20
2	0.16	2.41	0.19	A	232.16	348.24	13.56	2.34	0.15	13.56	2.34
3	0.76	15.26	3.09	C	624.90	937.35	162.60	10.41	1.81	162.63	10.41

Main Results for each time segment

Main results: (13:15-13:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	115.19	28.80	114.82	167.37	532.93	0.00	1365.78	1342.89	0.084	0.00	0.09	2.878	A
2	190.47	47.62	189.99	646.25	1.50	0.00	1774.67	1763.95	0.107	0.00	0.12	2.272	A
3	512.69	128.17	508.81	0.00	191.49	0.00	1032.51	174.26	0.497	0.00	0.97	6.824	A

Main results: (13:30-13:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	137.54	34.39	137.44	200.31	638.93	0.00	1290.76	1342.89	0.107	0.09	0.12	3.120	A
2	227.44	56.86	227.34	774.57	1.80	0.00	1774.48	1763.95	0.128	0.12	0.15	2.326	A
3	612.21	153.05	610.11	0.00	229.13	0.00	1012.20	174.26	0.605	0.97	1.49	8.906	A

Main results: (13:45-14:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	168.46	42.11	168.28	245.18	779.20	0.00	1191.49	1342.89	0.141	0.12	0.16	3.518	A
2	278.56	69.64	278.40	945.27	2.20	0.00	1774.21	1763.95	0.157	0.15	0.19	2.406	A
3	749.79	187.45	743.78	0.00	280.60	0.00	984.41	174.26	0.762	1.49	3.00	14.599	B

Main results: (14:00-14:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	168.46	42.11	168.45	245.51	784.67	0.00	1187.62	1342.89	0.142	0.16	0.16	3.531	A
2	278.56	69.64	278.56	950.92	2.20	0.00	1774.21	1763.95	0.157	0.19	0.19	2.406	A
3	749.79	187.45	749.43	0.00	280.76	0.00	984.33	174.26	0.762	3.00	3.09	15.258	C

Main results: (14:15-14:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	137.54	34.39	137.72	200.82	646.87	0.00	1285.14	1342.89	0.107	0.16	0.12	3.139	A
2	227.44	56.86	227.60	782.79	1.80	0.00	1774.47	1763.95	0.128	0.19	0.15	2.328	A
3	612.21	153.05	618.29	0.00	229.40	0.00	1012.05	174.26	0.605	3.09	1.57	9.280	A

Main results: (14:30-14:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	115.19	28.80	115.30	168.05	538.99	0.00	1361.49	1342.89	0.085	0.12	0.09	2.890	A

2	190.47	47.62	190.58	652.78	1.51	0.00	1774.67	1763.95	0.107	0.15	0.12	2.274	A
3	512.69	128.17	514.96	0.00	192.09	0.00	1032.19	174.26	0.497	1.57	1.00	6.989	A

Queueing Delay Results for each time segment

Queueing Delay results: (13:15-13:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.35	0.09	2.878	A	A
2	1.77	0.12	2.272	A	A
3	13.90	0.93	6.824	A	A

Queueing Delay results: (13:30-13:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.76	0.12	3.120	A	A
2	2.18	0.15	2.326	A	A
3	21.39	1.43	8.906	A	A

Queueing Delay results: (13:45-14:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	2.42	0.16	3.518	A	A
2	2.76	0.18	2.406	A	A
3	40.91	2.73	14.599	B	B

Queueing Delay results: (14:00-14:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	2.47	0.16	3.531	A	A
2	2.79	0.19	2.406	A	A
3	45.81	3.05	15.258	C	B

Queueing Delay results: (14:15-14:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.83	0.12	3.139	A	A
2	2.23	0.15	2.328	A	A
3	24.97	1.66	9.280	A	A

Queueing Delay results: (14:30-14:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.41	0.09	2.890	A	A
2	1.83	0.12	2.274	A	A
3	15.62	1.04	6.989	A	A

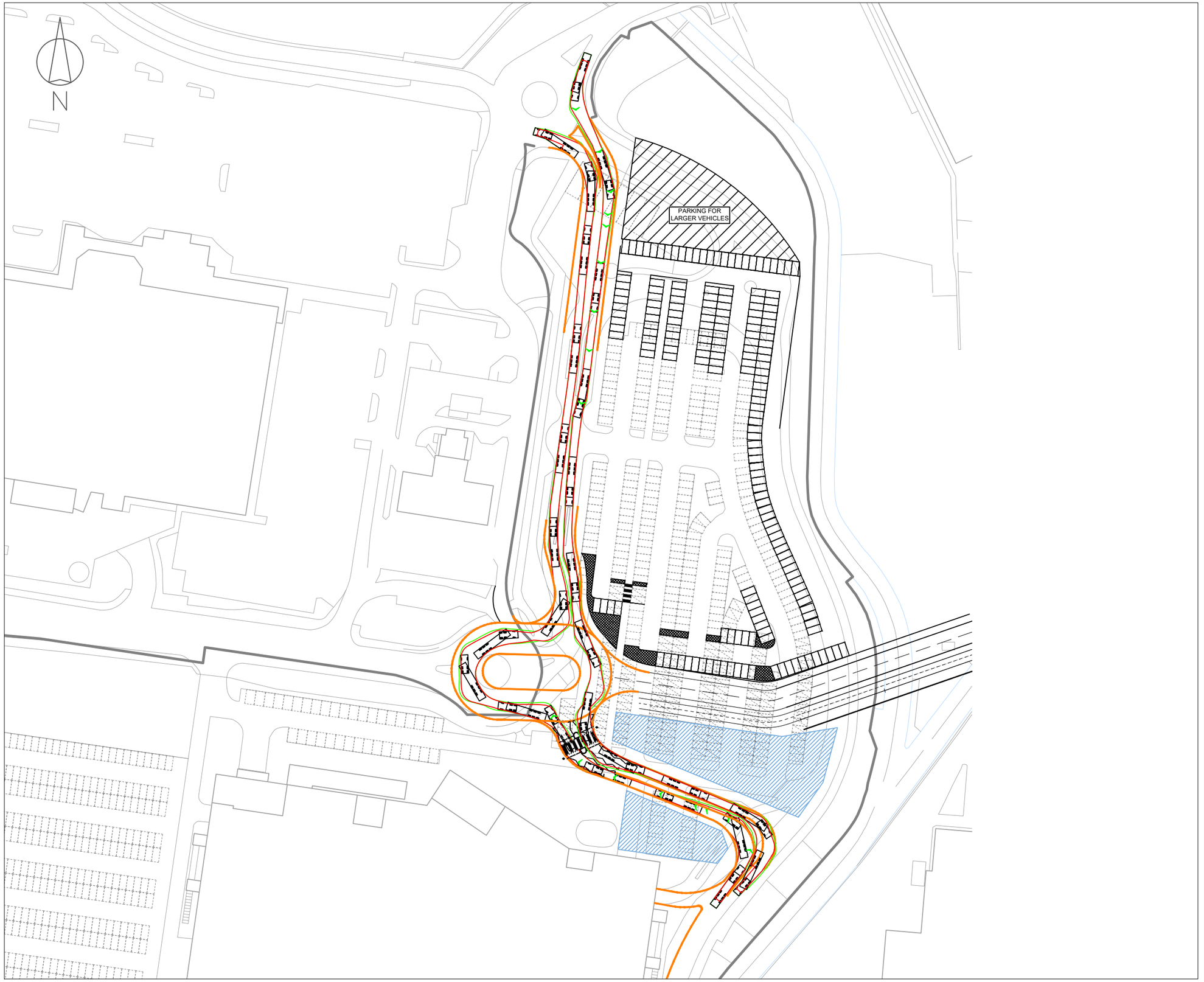
Appendix B

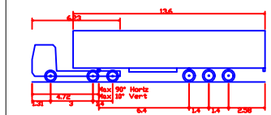
Swept path analysis

A3

A B C D E F G

1 2 3 4 5 6





Max Legal Length (UK) Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.450m
Min Body Ground Clearance	0.245m
Max Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	6.870m

Issue	Date	By	Chkd	Appd
1	26/07/18	ANW	KW	MS

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Client
London Borough Enfield

Job Title
Meridian Water Phase 2

Drawing Title
Proposed HIF Ikea access improvements
Swept path analysis of a 16.5m articulated vehicle

Scale at A3 1/1250

Discipline Transport

Drawing Status
For Information

Job No	Drawing No	Issue
260637-00	**SK-011**	**1**

Do not scale

Appendix C

2023 HIF Scenario Modelling Outputs

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.1.305 [25 May 2012]

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 E-mail: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: (new file)
Path:
Report generation date: 25/07/2018 16:47:04

» (Default Analysis Set) - 2018 Base, PM
» (Default Analysis Set) - 2018 Base, Saturday

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2018 Base			
Arm 1	0.20	4.05	0.17	A
Arm 2	0.38	3.25	0.27	A
Arm 4	1.16	4.71	0.54	A

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

"D2 - 2018 Base, PM " model duration: 17:00 - 18:30
"D5 - 2018 Base, Saturday" model duration: 13:15 - 14:45

Run using Junctions 8.0.1.305 at 25/07/2018 16:47:02

File summary

File Description

Title	(untitled)
Location	
Site Number	
Date	05/07/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	GLOBAL\Katherine-S.Wong
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay 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

(Default Analysis Set) - 2018 Base, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base, PM	2018 Base	PM		ONE HOUR	17:00	18:30	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4				4.22	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Ikea Access	
2	Tesco Access	
3	Slip road	
4	Argon Road	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	5.50	5.50	0.00	12.10	33.50	44.00	
2	5.90	5.90	0.00	7.30	35.40	20.50	
3	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	✓
4	3.60	5.80	16.30	20.60	32.40	12.00	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.595	1532.336
2		(calculated)	(calculated)	0.634	1694.547
3		(calculated)	(calculated)	Exit-only	Exit-only
4		(calculated)	(calculated)	0.666	1655.760

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	162.00	100.000
2	ONE HOUR	✓	380.00	100.000
3	Exit-only	✓	Exit-only	Exit-only
4	ONE HOUR	✓	806.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	15.000	37.000	110.000
	2	3.000	3.000	223.000	151.000

	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	98.000	612.000	92.000	4.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Turning Proportions (PCU) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.09	0.23	0.68
	2	0.01	0.01	0.59	0.40
	3	0.25	0.25	0.25	0.25
	4	0.12	0.76	0.11	0.00

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	1.000	1.000	1.000	1.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	0.000	0.000	0.000	0.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

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)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.17	4.05	0.20	A	148.65	222.98	13.63	3.67	0.15	13.63	3.67
2	0.27	3.25	0.38	A	348.69	523.04	26.28	3.01	0.29	26.28	3.01
3	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
4	0.54	4.71	1.16	A	739.60	1109.40	74.89	4.05	0.83	74.90	4.05

(Default Analysis Set) - 2018 Base, Saturday

(Default Analysis Set) - 2018 Base, Saturday

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationsh
2018 Base, Saturday	2018 Base	Saturday		ONE HOUR	13:15	14:45	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4				5.74	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Ikea Access	
2	Tesco Access	
3	Slip road	
4	Argon Road	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	5.50	5.50	0.00	12.10	33.50	44.00	
2	5.90	5.90	0.00	7.30	35.40	20.50	
3	Exit only	Exit only	Exit only	Exit only	Exit only	Exit only	✓

3	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	✓
4	3.60	5.80	16.30	20.60	32.40	12.00	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.595	1532.336
2		(calculated)	(calculated)	0.634	1694.547
3		(calculated)	(calculated)	Exit-only	Exit-only
4		(calculated)	(calculated)	0.666	1655.760

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	284.00	100.000
2	ONE HOUR	✓	703.00	100.000
3	Exit-only	✓	Exit-only	Exit-only
4	ONE HOUR	✓	976.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	49.000	58.000	177.000
	2	9.000	0.000	197.000	497.000
	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	199.000	667.000	87.000	23.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Turning Proportions (PCU) - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.17	0.20	0.62
	2	0.01	0.00	0.28	0.71
	3	0.25	0.25	0.25	0.25
	4	0.20	0.68	0.09	0.02

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	1.000	1.000	1.000	1.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	Exit-only	Exit-only	Exit-only	Exit-only
	4	0.000	0.000	0.000	0.000

Arm 3 is exit only and so the above grid should be ignored for this Arm.

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)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.31	5.06	0.44	A	260.60	390.91	28.45	4.37	0.32	28.45	4.37
2	0.53	5.29	1.13	A	645.09	967.63	71.05	4.41	0.79	71.06	4.41
3	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
4	0.65	6.26	1.85	A	895.59	1343.39	112.22	5.01	1.25	112.23	5.01

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.1.305 [25 May 2012]

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 E-mail: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: (new file)
Path:
Report generation date: 26/07/2018 17:25:28

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2018 + HIF			
Arm 1	0.07	5.66	0.06	A
Arm 2	0.13	6.12	0.12	A
Arm 3	0.16	2.35	0.14	A
Arm 4	3.54	19.08	0.79	C
Arm 5	0.16	4.01	0.14	A

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

"D1 - 2018 + HIF, PM " model duration: 17:00 - 18:30
"D2 - 2018 + HIF, Saturday" model duration: 13:15 - 14:45
"D3 - 2018 + HIF, Saturday (balance flows)" model duration: 13:15 - 14:45
"D4 - 2018+HIF, Sunday" model duration: 12:45 - 14:15
"D5 - 2018+HIF, Sunday (balance flows)" model duration: 12:45 - 14:15

Run using Junctions 8.0.1.305 at 26/07/2018 17:25:19

File summary

File Description

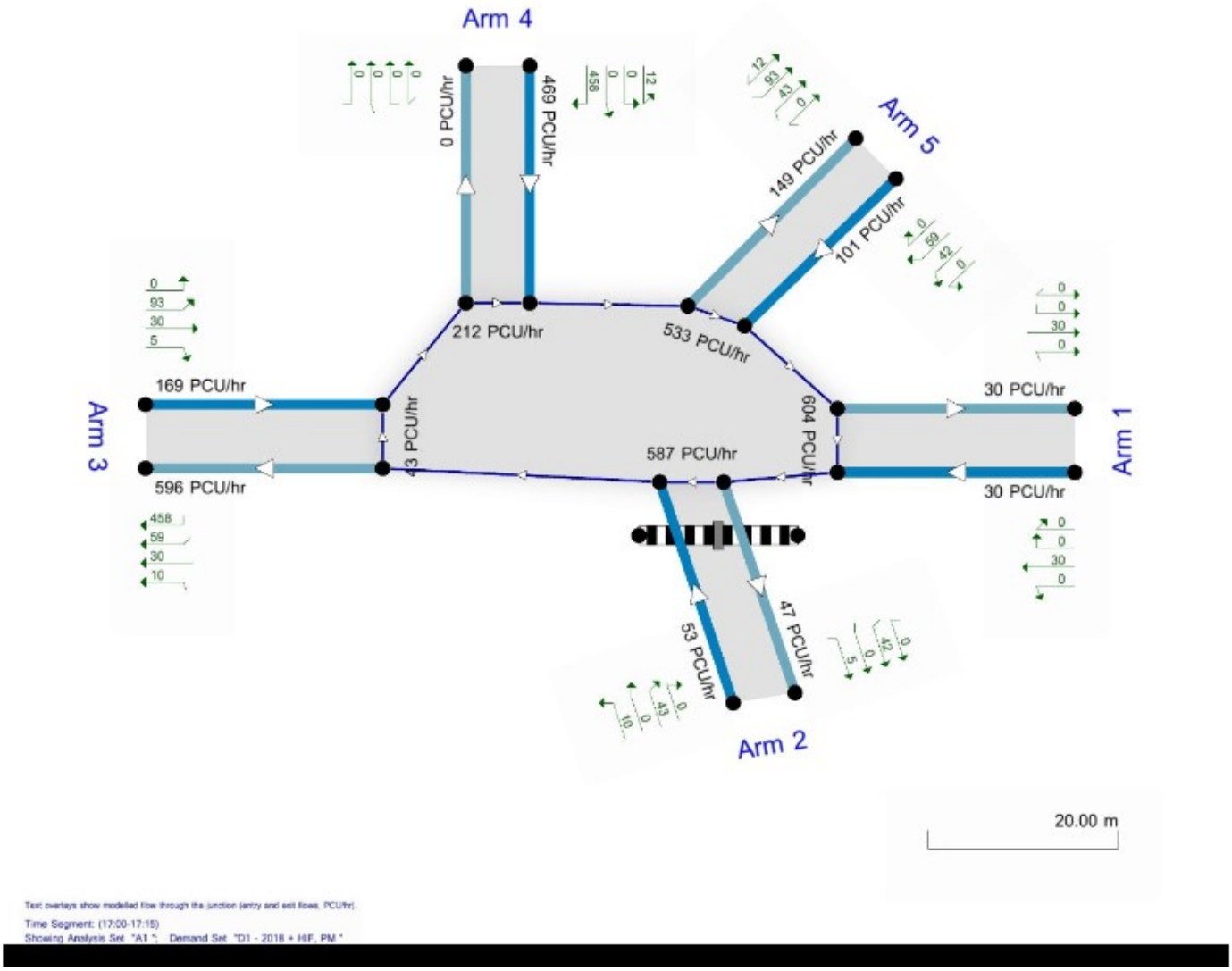
Title	Glover Drive elongated roundabout
Location	
Site Number	
Date	10/07/2018
Version	Drawing SK-007-P02
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	GLOBAL\Katherine-S.Wong
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of ARCADY.

(Default Analysis Set) - 2018 + HIF, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout	Description	Include In	Use Specific	Specific Demand Set	Locked	Network Flow Scaling Factor	Network Capacity	Reason For

Name	Capacity Model	Description	Report	Demand Set(s)	Demand Set (s)	Locked	Scaling Factor (%)	Scaling Factor (%)	Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 + HIF, PM	2018 + HIF	PM		ONE HOUR	17:00	18:30	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4,5				12.49	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	The Causeway	
2	(untitled)	Ikea southern access
3	(untitled)	Glover Drive
4	(untitled)	Tesco PFS
5	untitled	Ikea northern access

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00
5	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.10	2.20	15.00	53.80	56.00	
2	2.90	5.90	15.60	10.00	34.40	53.00	
3	5.50	6.10	8.20	30.80	53.80	34.00	
4	3.60	3.80	2.50	30.00	34.20	62.00	
5	5.00	6.20	1.40	19.50	32.80	47.00	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	Zebra
3	None
4	None
5	None

Zebra Crossings

Arm	Space between crossing and junction entry (PCU)	Vehicles queueing on exit (PCU)	Central Refuge	Crossing Data Type	Crossing length (m)	Crossing time (s)	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
2	1.00	2.00	✓	Distance			5.50	3.93	5.50	3.93

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.447	1077.720
2		(calculated)	(calculated)	0.523	1255.890
3		(calculated)	(calculated)	0.613	1819.734
4		(calculated)	(calculated)	0.488	1031.135
5		(calculated)	(calculated)	0.598	1515.023

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	40.00	100.000
2	ONE HOUR	✓	71.00	100.000
3	ONE HOUR	✓	225.00	100.000
4	ONE HOUR	✓	629.00	100.000
5	ONE HOUR	✓	134.00	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
1	-	-

2	ONE HOUR	500.00
3	-	-
4	-	-
5	-	-

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.000	0.000	40.000	0.000	0.000
	2	0.000	0.000	13.000	0.000	58.000
	3	40.000	7.000	54.000	0.000	124.000
	4	0.000	0.000	613.000	0.000	16.000
	5	0.000	56.000	78.000	0.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.00	0.00	1.00	0.00	0.00
	2	0.00	0.00	0.18	0.00	0.82
	3	0.18	0.03	0.24	0.00	0.55
	4	0.00	0.00	0.97	0.00	0.03
	5	0.00	0.42	0.58	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	1.000	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000	1.000
	5	1.000	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.000	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000	0.000
	5	0.000	0.000	0.000	0.000	0.000

Results

Results Summary for whole modelled period

										Inclusive

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Average Queueing Delay (s)
1	0.06	5.66	0.07	A	36.70	55.06	4.71	5.13	0.05	4.71	5.13
2	0.12	6.12	0.13	A	65.15	97.73	8.78	5.39	0.10	8.78	5.39
3	0.14	2.35	0.16	A	206.46	309.70	11.77	2.28	0.13	11.77	2.28
4	0.79	19.08	3.54	C	577.18	865.77	179.40	12.43	1.99	179.44	12.44
5	0.14	4.01	0.16	A	122.96	184.44	11.21	3.65	0.12	11.21	3.65

Main Results for each time segment

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	30.11	7.53	29.96	30.04	603.83	0.00	808.00	363.05	0.037	0.00	0.04	4.625	A
2	53.45	13.36	53.18	47.26	586.53	376.43	823.71	488.01	0.065	0.00	0.07	4.671	A
3	169.39	42.35	168.98	596.26	43.44	0.00	1793.09	1575.19	0.094	0.00	0.10	2.216	A
4	473.54	118.39	469.44	0.00	212.42	0.00	927.51	68.26	0.511	0.00	1.02	7.791	A
5	100.88	25.22	100.52	148.51	533.35	0.00	1195.84	1052.07	0.084	0.00	0.09	3.287	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	35.96	8.99	35.91	35.94	723.97	0.00	754.29	357.65	0.048	0.04	0.05	5.011	A
2	63.83	15.96	63.74	56.59	703.30	449.49	753.25	481.90	0.085	0.07	0.09	5.221	A
3	202.27	50.57	202.18	714.97	52.07	0.00	1787.79	1578.25	0.113	0.10	0.13	2.270	A
4	565.46	141.36	563.13	0.00	254.24	0.00	907.11	69.20	0.623	1.02	1.61	10.392	B
5	120.46	30.12	120.36	177.81	639.56	0.00	1132.29	1050.70	0.106	0.09	0.12	3.557	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	44.04	11.01	43.97	44.02	882.42	0.00	683.41	348.51	0.064	0.05	0.07	5.629	A
2	78.17	19.54	78.01	69.29	857.10	550.51	668.36	473.05	0.117	0.09	0.13	6.096	A
3	247.73	61.93	247.59	871.38	63.73	0.00	1780.64	1582.68	0.139	0.13	0.16	2.348	A
4	692.54	173.14	685.37	0.00	311.32	0.00	879.26	70.56	0.788	1.61	3.40	17.921	C
5	147.54	36.88	147.36	217.62	779.08	0.00	1048.79	1048.71	0.141	0.12	0.16	3.992	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	44.04	11.01	44.04	44.04	889.07	0.00	680.44	348.51	0.065	0.07	0.07	5.656	A
2	78.17	19.54	78.17	69.36	863.75	550.51	666.29	473.05	0.117	0.13	0.13	6.120	A
3	247.73	61.93	247.73	878.06	63.86	0.00	1780.56	1582.68	0.139	0.16	0.16	2.348	A
4	692.54	173.14	691.98	0.00	311.59	0.00	879.14	70.56	0.788	3.40	3.54	19.081	C
5	147.54	36.88	147.53	217.98	785.58	0.00	1044.90	1048.71	0.141	0.16	0.16	4.011	A

Main results: (18:00-18:15)

Arm	Total Demand	Junction Arrivals	Entry Flow	Exit Flow	Circulating Flow	Pedestrian Demand	Capacity	Saturation Capacity	RFC	Start Queue	End Queue	Delay	LOS

	(PCU/hr)	(PCU)				(Ped/hr)		(PCU/hr)		(PCU)	(PCU)		
1	35.96	8.99	36.03	35.98	733.75	0.00	749.93	357.65	0.048	0.07	0.05	5.044	A
2	63.83	15.96	63.98	56.71	713.06	449.49	750.00	481.90	0.085	0.13	0.09	5.250	A
3	202.27	50.57	202.40	724.78	52.27	0.00	1787.67	1578.25	0.113	0.16	0.13	2.272	A
4	565.46	141.36	572.80	0.00	254.67	0.00	906.90	69.20	0.624	3.54	1.71	11.001	B
5	120.46	30.12	120.64	178.38	649.09	0.00	1126.58	1050.70	0.107	0.16	0.12	3.581	A

Main results: (18:15-18:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	30.11	7.53	30.16	30.13	610.95	0.00	804.82	363.05	0.037	0.05	0.04	4.647	A
2	53.45	13.36	53.55	47.48	593.63	376.43	821.20	488.01	0.065	0.09	0.07	4.689	A
3	169.39	42.35	169.49	603.43	43.74	0.00	1792.90	1575.19	0.094	0.13	0.10	2.217	A
4	473.54	118.39	476.12	0.00	213.23	0.00	927.12	68.26	0.511	1.71	1.06	8.027	A
5	100.88	25.22	100.99	149.26	540.09	0.00	1191.81	1052.07	0.085	0.12	0.09	3.302	A

Queueing Delay Results for each time segment

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.56	0.04	4.625	A	A
2	1.01	0.07	4.671	A	A
3	1.54	0.10	2.216	A	A
4	14.58	0.97	7.791	A	A
5	1.35	0.09	3.287	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.73	0.05	5.011	A	A
2	1.36	0.09	5.221	A	A
3	1.89	0.13	2.270	A	A
4	22.86	1.52	10.392	B	B
5	1.75	0.12	3.557	A	A

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.01	0.07	5.629	A	A
2	1.93	0.13	6.096	A	A
3	2.39	0.16	2.348	A	A
4	45.54	3.04	17.921	C	B
5	2.40	0.16	3.992	A	A

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.03	0.07	5.656	A	A
2	1.98	0.13	6.120	A	A
3	2.42	0.16	2.348	A	A
4	52.29	3.49	19.081	C	B
5	2.45	0.16	4.011	A	A

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.77	0.05	5.044	A	A
2	1.43	0.10	5.250	A	A
3	1.94	0.13	2.272	A	A
4	27.49	1.83	11.001	B	B
5	1.83	0.12	3.581	A	A

Queueing Delay results: (18:15-18:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.60	0.04	4.647	A	A
2	1.07	0.07	4.689	A	A
3	1.58	0.11	2.217	A	A
4	16.65	1.11	8.027	A	A
5	1.41	0.09	3.302	A	A

(Default Analysis Set) - 2018 + HIF, Saturday

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationsh
2018 + HIF, Saturday	2018 + HIF	Saturday		ONE HOUR	13:15	14:45	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4,5				27.58	D

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description

1	The Causeway	
2	(untitled)	Ikea southern access
3	(untitled)	Glover Drive
4	(untitled)	Tesco PFS
5	untitled	Ikea northern access

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00
5	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.10	2.20	15.00	53.80	56.00	
2	2.90	5.90	15.60	10.00	34.40	53.00	
3	5.50	6.10	8.20	30.80	53.80	34.00	
4	3.60	3.80	2.50	30.00	34.20	62.00	
5	5.00	6.20	1.40	19.50	32.80	47.00	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	Zebra
3	None
4	None
5	None

Zebra Crossings

Arm	Space between crossing and junction entry (PCU)	Vehicles queueing on exit (PCU)	Central Refuge	Crossing Data Type	Crossing length (m)	Crossing time (s)	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
2	1.00	2.00	✓	Distance			5.50	3.93	5.50	3.93

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.447	1077.720
2		(calculated)	(calculated)	0.523	1255.890
3		(calculated)	(calculated)	0.613	1819.734
4		(calculated)	(calculated)	0.488	1031.135
5		(calculated)	(calculated)	0.598	1515.023

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	40.00	100.000
2	ONE HOUR	✓	176.00	100.000
3	ONE HOUR	✓	293.00	100.000
4	ONE HOUR	✓	681.00	100.000
5	ONE HOUR	✓	253.00	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
1	-	-
2	ONE HOUR	500.00
3	-	-
4	-	-
5	-	-

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.000	0.000	40.000	0.000	0.000
	2	0.000	0.000	39.000	0.000	137.000
	3	40.000	18.000	57.000	0.000	178.000
	4	0.000	0.000	656.000	0.000	25.000
	5	0.000	141.000	112.000	0.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.00	0.00	1.00	0.00	0.00
	2	0.00	0.00	0.22	0.00	0.78
	3	0.14	0.06	0.19	0.00	0.61
	4	0.00	0.00	0.96	0.00	0.04
	5	0.00	0.56	0.44	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	1.000	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000	1.000
	5	1.000	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.000	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000	0.000
	5	0.000	0.000	0.000	0.000	0.000

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)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.07	6.55	0.08	A	36.70	55.06	5.29	5.76	0.06	5.29	5.76
2	0.30	8.06	0.43	A	161.50	242.25	26.93	6.67	0.30	26.93	6.67
3	0.19	2.56	0.23	A	268.86	403.29	16.47	2.45	0.18	16.47	2.45
4	0.94	53.05	10.34	F	624.90	937.35	375.47	24.03	4.17	375.55	24.04
5	0.28	4.91	0.38	A	232.16	348.24	24.85	4.28	0.28	24.85	4.28

Main Results for each time segment

Main results: (13:15-13:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	30.11	7.53	29.95	30.04	734.56	0.00	748.90	303.59	0.040	0.00	0.04	5.006	A
2	132.50	33.13	131.72	119.24	645.27	376.43	802.78	605.25	0.165	0.00	0.20	5.359	A
3	220.59	55.15	220.01	674.45	102.53	0.00	1756.84	1530.73	0.126	0.00	0.14	2.342	A
4	512.69	128.17	507.16	0.00	322.54	0.00	873.79	54.59	0.587	0.00	1.38	9.680	A
5	190.47	47.62	189.70	254.81	574.89	0.00	1170.98	1124.01	0.163	0.00	0.19	3.663	A

Main results: (13:30-13:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	35.96	8.99	35.91	35.94	879.96	0.00	683.28	287.53	0.053	0.04	0.06	5.560	A
2	158.22	39.56	157.91	142.78	773.08	449.49	729.77	596.61	0.217	0.20	0.27	6.292	A
3	263.40	65.85	263.26	808.07	122.92	0.00	1744.33	1534.85	0.151	0.14	0.18	2.430	A
4	612.21	153.05	607.70	0.00	386.48	0.00	842.75	55.86	0.726	1.38	2.51	15.024	C

4	612.21	153.05	607.70	0.00	386.18	0.00	842.75	55.86	0.726	1.38	2.51	15.024	C
5	227.44	56.86	227.18	305.16	688.72	0.00	1102.87	1122.31	0.206	0.19	0.26	4.110	A

Main results: (13:45-14:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	44.04	11.01	43.95	44.01	1059.39	0.00	601.57	260.30	0.073	0.06	0.08	6.456	A
2	193.78	48.44	193.18	174.80	928.54	550.51	645.79	584.38	0.300	0.27	0.42	7.943	A
3	322.60	80.65	322.39	971.35	150.38	0.00	1727.49	1540.69	0.187	0.18	0.23	2.561	A
4	749.79	187.45	725.40	0.00	472.77	0.00	800.51	57.65	0.937	2.51	8.61	39.069	E
5	278.56	69.64	278.10	372.86	825.30	0.00	1021.13	1119.91	0.273	0.26	0.37	4.841	A

Main results: (14:00-14:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	44.04	11.01	44.04	44.04	1076.73	0.00	593.86	260.30	0.074	0.08	0.08	6.546	A
2	193.78	48.44	193.75	175.05	945.71	550.51	640.25	584.38	0.303	0.42	0.43	8.062	A
3	322.60	80.65	322.60	988.65	150.82	0.00	1727.22	1540.69	0.187	0.23	0.23	2.562	A
4	749.79	187.45	742.89	0.00	473.42	0.00	800.19	57.65	0.937	8.61	10.34	53.050	F
5	278.56	69.64	278.54	374.07	842.23	0.00	1011.00	1119.91	0.276	0.37	0.38	4.914	A

Main results: (14:15-14:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	35.96	8.99	36.05	35.99	913.99	0.00	668.10	287.53	0.054	0.08	0.06	5.698	A
2	158.22	39.56	158.80	143.20	806.85	449.49	718.18	596.61	0.220	0.43	0.29	6.444	A
3	263.40	65.85	263.60	842.03	123.61	0.00	1743.91	1534.85	0.151	0.23	0.18	2.431	A
4	612.21	153.05	642.21	0.00	387.22	0.00	842.24	55.86	0.727	10.34	2.83	20.298	C
5	227.44	56.86	227.88	307.33	722.10	0.00	1082.89	1122.31	0.210	0.38	0.27	4.212	A

Main results: (14:30-14:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	30.11	7.53	30.17	30.13	746.42	0.00	743.59	303.59	0.041	0.06	0.04	5.046	A
2	132.50	33.13	132.84	119.87	656.73	376.43	798.65	605.25	0.166	0.29	0.20	5.409	A
3	220.59	55.15	220.72	686.16	103.40	0.00	1756.30	1530.73	0.126	0.18	0.14	2.346	A
4	512.69	128.17	518.19	0.00	324.13	0.00	873.02	54.59	0.587	2.83	1.46	10.296	B
5	190.47	47.62	190.76	256.52	585.80	0.00	1164.46	1124.01	0.164	0.27	0.20	3.700	A

Queueing Delay Results for each time segment

Queueing Delay results: (13:15-13:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.61	0.04	5.006	A	A
2	2.86	0.19	5.359	A	A
3	2.12	0.14	2.342	A	A
4	19.37	1.29	9.680	A	A
5	2.84	0.19	3.663	A	A

Queueing Delay results: (13:30-13:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.81	0.05	5.560	A	A

2	4.02	0.27	6.292	A	A
3	2.63	0.18	2.430	A	A
4	34.57	2.30	15.024	C	B
5	3.81	0.25	4.110	A	A

Queueing Delay results: (13:45-14:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.15	0.08	6.456	A	A
2	6.16	0.41	7.943	A	A
3	3.39	0.23	2.561	A	A
4	98.67	6.58	39.069	E	D
5	5.47	0.36	4.841	A	A

Queueing Delay results: (14:00-14:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.19	0.08	6.546	A	A
2	6.42	0.43	8.062	A	A
3	3.44	0.23	2.562	A	A
4	143.66	9.58	53.050	F	D
5	5.65	0.38	4.914	A	A

Queueing Delay results: (14:15-14:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.88	0.06	5.698	A	A
2	4.39	0.29	6.444	A	A
3	2.71	0.18	2.431	A	A
4	55.92	3.73	20.298	C	C
5	4.09	0.27	4.212	A	A

Queueing Delay results: (14:30-14:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.65	0.04	5.046	A	A
2	3.07	0.20	5.409	A	A
3	2.18	0.15	2.346	A	A
4	23.27	1.55	10.296	B	B
5	3.00	0.20	3.700	A	A

(Default Analysis Set) - 2018 + HIF, Saturday (balance flows)

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationsh
2018 + HIF, Saturday (balance flows)	2018 + HIF	Saturday (balance flows)		ONE HOUR	13:15	14:45	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4,5				6.76	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	The Causeway	
2	(untitled)	Ikea southern access
3	(untitled)	Glover Drive
4	(untitled)	Tesco PFS
5	untitled	Ikea northern access

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00
5	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.10	2.20	15.00	53.80	56.00	
2	2.90	5.90	15.60	10.00	34.40	53.00	
3	5.50	6.10	8.20	30.80	53.80	34.00	
4	3.60	3.80	2.50	30.00	34.20	62.00	
5	5.00	6.20	1.40	19.50	32.80	47.00	

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

Pedestrian Crossings

Arm	Crossing Type
1	None

2	Zebra
3	None
4	None
5	None

Zebra Crossings

Arm	Space between crossing and junction entry (PCU)	Vehicles queueing on exit (PCU)	Central Refuge	Crossing Data Type	Crossing length (m)	Crossing time (s)	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
2	1.00	2.00	✓	Distance			5.50	3.93	5.50	3.93

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.447	1077.720
2		(calculated)	(calculated)	0.523	1255.890
3		(calculated)	(calculated)	0.613	1819.734
4		(calculated)	(calculated)	0.488	1031.135
5		(calculated)	(calculated)	0.598	1515.023

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	40.00	100.000
2	ONE HOUR	✓	176.00	100.000
3	ONE HOUR	✓	293.00	100.000
4	ONE HOUR	✓	409.00	100.000
5	ONE HOUR	✓	525.00	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
1	-	-
2	ONE HOUR	500.00
3	-	-
4	-	-
5		

5	-	-

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.000	0.000	40.000	0.000	0.000
	2	0.000	0.000	39.000	0.000	137.000
	3	40.000	18.000	57.000	0.000	178.000
	4	0.000	0.000	384.000	0.000	25.000
	5	0.000	141.000	384.000	0.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.00	0.00	1.00	0.00	0.00
	2	0.00	0.00	0.22	0.00	0.78
	3	0.14	0.06	0.19	0.00	0.61
	4	0.00	0.00	0.94	0.00	0.06
	5	0.00	0.27	0.73	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	1.000	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000	1.000
	5	1.000	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.000	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000	0.000
	5	0.000	0.000	0.000	0.000	0.000

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)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.07	6.58	0.08	A	36.70	55.06	5.30	5.78	0.06	5.30	5.78

2	0.30	8.10	0.43	A	161.50	242.25	27.01	6.69	0.30	27.01	6.69
3	0.19	2.56	0.23	A	268.86	403.29	16.47	2.45	0.18	16.47	2.45
4	0.56	10.28	1.27	B	375.31	562.96	76.48	8.15	0.85	76.49	8.15
5	0.49	5.92	0.94	A	481.75	722.62	59.28	4.92	0.66	59.29	4.92

Main Results for each time segment

Main results: (13:15-13:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	30.11	7.53	29.95	30.04	736.89	0.00	747.86	360.04	0.040	0.00	0.04	5.013	A
2	132.50	33.13	131.72	119.20	647.64	376.43	801.93	429.50	0.165	0.00	0.20	5.367	A
3	220.59	55.15	220.01	676.82	102.53	0.00	1756.84	1614.65	0.126	0.00	0.14	2.342	A
4	307.92	76.98	305.76	0.00	322.54	0.00	873.79	80.39	0.352	0.00	0.54	6.313	A
5	395.25	98.81	393.49	254.88	373.43	0.00	1291.55	1090.60	0.306	0.00	0.44	4.002	A

Main results: (13:30-13:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	35.96	8.99	35.90	35.94	883.05	0.00	681.90	357.23	0.053	0.04	0.06	5.572	A
2	158.22	39.56	157.91	142.75	776.21	449.49	728.71	424.89	0.217	0.20	0.27	6.304	A
3	263.40	65.85	263.26	811.20	122.92	0.00	1744.33	1616.85	0.151	0.14	0.18	2.430	A
4	367.68	91.92	366.78	0.00	386.18	0.00	842.75	81.06	0.436	0.54	0.76	7.550	A
5	471.96	117.99	471.30	305.27	447.69	0.00	1247.11	1089.71	0.378	0.44	0.60	4.636	A

Main results: (13:45-14:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	44.04	11.01	43.94	44.01	1080.17	0.00	592.35	352.46	0.074	0.06	0.08	6.564	A
2	193.78	48.44	193.16	174.69	949.43	550.51	639.05	418.10	0.303	0.27	0.43	8.062	A
3	322.60	80.65	322.39	992.23	150.36	0.00	1727.50	1620.09	0.187	0.18	0.23	2.561	A
4	450.32	112.58	448.35	0.00	472.75	0.00	800.52	82.06	0.563	0.76	1.25	10.164	B
5	578.04	144.51	576.70	373.62	547.48	0.00	1187.39	1088.39	0.487	0.60	0.94	5.881	A

Main results: (14:00-14:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	44.04	11.01	44.04	44.04	1083.32	0.00	590.93	352.46	0.075	0.08	0.08	6.581	A
2	193.78	48.44	193.77	175.05	952.30	550.51	638.11	418.10	0.304	0.43	0.43	8.101	A
3	322.60	80.65	322.60	995.24	150.83	0.00	1727.21	1620.09	0.187	0.23	0.23	2.562	A
4	450.32	112.58	450.25	0.00	473.43	0.00	800.19	82.06	0.563	1.25	1.27	10.282	B
5	578.04	144.51	578.01	374.33	549.35	0.00	1186.27	1088.39	0.487	0.94	0.94	5.918	A

Main results: (14:15-14:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	35.96	8.99	36.06	35.99	887.78	0.00	679.78	357.23	0.053	0.08	0.06	5.594	A
2	158.22	39.56	158.83	143.30	780.53	449.49	727.23	424.89	0.218	0.43	0.28	6.342	A
3	263.40	65.85	263.60	815.73	123.64	0.00	1743.89	1616.85	0.151	0.23	0.18	2.431	A

4	367.68	91.92	369.62	0.00	387.24	0.00	842.23	81.06	0.437	1.27	0.79	7.647	A
5	471.96	117.99	473.28	306.37	450.49	0.00	1245.43	1089.71	0.379	0.94	0.62	4.671	A

Main results: (14:30-14:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	30.11	7.53	30.17	30.13	742.41	0.00	745.38	360.04	0.040	0.06	0.04	5.035	A
2	132.50	33.13	132.82	119.90	652.68	376.43	800.11	429.50	0.166	0.28	0.20	5.397	A
3	220.59	55.15	220.72	682.12	103.39	0.00	1756.31	1614.65	0.126	0.18	0.14	2.346	A
4	307.92	76.98	308.86	0.00	324.12	0.00	873.03	80.39	0.353	0.79	0.55	6.393	A
5	395.25	98.81	395.93	256.36	376.61	0.00	1289.64	1090.60	0.306	0.62	0.44	4.032	A

Queueing Delay Results for each time segment

Queueing Delay results: (13:15-13:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.61	0.04	5.013	A	A
2	2.87	0.19	5.367	A	A
3	2.12	0.14	2.342	A	A
4	7.77	0.52	6.313	A	A
5	6.41	0.43	4.002	A	A

Queueing Delay results: (13:30-13:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.82	0.05	5.572	A	A
2	4.03	0.27	6.304	A	A
3	2.63	0.18	2.430	A	A
4	11.08	0.74	7.550	A	A
5	8.87	0.59	4.636	A	A

Queueing Delay results: (13:45-14:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.17	0.08	6.564	A	A
2	6.24	0.42	8.062	A	A
3	3.39	0.23	2.561	A	A
4	17.89	1.19	10.164	B	B
5	13.62	0.91	5.881	A	A

Queueing Delay results: (14:00-14:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.20	0.08	6.581	A	A
2	6.48	0.43	8.101	A	A
3	3.44	0.23	2.562	A	A
4	18.96	1.26	10.282	B	B
5	14.12	0.94	5.918	A	A

Queueing Delay results: (14:15-14:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.86	0.06	5.594	A	A
2	4.33	0.29	6.342	A	A

3	2.71	0.18	2.431	A	A
4	12.26	0.82	7.647	A	A
5	9.47	0.63	4.671	A	A

Queueing Delay results: (14:30-14:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.65	0.04	5.035	A	A
2	3.06	0.20	5.397	A	A
3	2.18	0.15	2.346	A	A
4	8.50	0.57	6.393	A	A
5	6.80	0.45	4.032	A	A

(Default Analysis Set) - 2018+HIF, Sunday

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationsh
2018+HIF, Sunday	2018+HIF	Sunday		ONE HOUR	12:45	14:15	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4,5				23.41	C

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	The Causeway	
2	(untitled)	Ikea southern access
3	(untitled)	Glover Drive
4	(untitled)	Tesco PFS

5	untitled	Ikea northern access

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00
5	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.10	2.20	15.00	53.80	56.00	
2	2.90	5.90	15.60	10.00	34.40	53.00	
3	5.50	6.10	8.20	30.80	53.80	34.00	
4	3.60	3.80	2.50	30.00	34.20	62.00	
5	5.00	6.20	1.40	19.50	32.80	47.00	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	Zebra
3	None
4	None
5	None

Zebra Crossings

Arm	Space between crossing and junction entry (PCU)	Vehicles queueing on exit (PCU)	Central Refuge	Crossing Data Type	Crossing length (m)	Crossing time (s)	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
2	1.00	2.00	✓	Distance			5.50	3.93	5.50	3.93

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.447	1077.720
2		(calculated)	(calculated)	0.523	1255.890
3		(calculated)	(calculated)	0.613	1819.734
4		(calculated)	(calculated)	0.488	1031.135
5		(calculated)	(calculated)	0.598	1515.023

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	40.00	100.000
2	ONE HOUR	✓	182.00	100.000
3	ONE HOUR	✓	341.00	100.000
4	ONE HOUR	✓	648.00	100.000
5	ONE HOUR	✓	293.00	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
1	-	-
2	ONE HOUR	500.00
3	-	-
4	-	-
5	-	-

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.000	0.000	40.000	0.000	0.000
	2	0.000	0.000	45.000	0.000	137.000
	3	40.000	26.000	46.000	0.000	229.000
	4	0.000	0.000	611.000	0.000	37.000
	5	0.000	178.000	115.000	0.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.00	0.00	1.00	0.00	0.00
	2	0.00	0.00	0.25	0.00	0.75
	3	0.12	0.08	0.13	0.00	0.67
	4	0.00	0.00	0.94	0.00	0.06
	5	0.00	0.61	0.39	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

	To					
		1	2	3	4	5
	1	1.000	1.000	1.000	1.000	1.000

From	2	1.000	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000	1.000
	5	1.000	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.000	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000	0.000
	5	0.000	0.000	0.000	0.000	0.000

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)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.07	6.55	0.08	A	36.70	55.06	5.28	5.75	0.06	5.28	5.75
2	0.30	7.86	0.43	A	167.01	250.51	27.28	6.53	0.30	27.28	6.53
3	0.22	2.66	0.28	A	312.91	469.36	19.78	2.53	0.22	19.78	2.53
4	0.92	48.07	8.88	E	594.62	891.92	334.26	22.49	3.71	334.33	22.49
5	0.31	5.01	0.45	A	268.86	403.29	29.17	4.34	0.32	29.17	4.34

Main Results for each time segment

Main results: (12:45-13:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	30.11	7.53	29.95	30.03	728.86	0.00	750.61	266.53	0.040	0.00	0.04	4.994	A
2	137.02	34.25	136.22	152.98	605.83	376.43	816.88	674.58	0.168	0.00	0.20	5.285	A
3	256.72	64.18	256.04	639.51	102.54	0.00	1756.83	1508.24	0.146	0.00	0.17	2.397	A
4	487.85	121.96	482.68	0.00	358.58	0.00	856.21	47.68	0.570	0.00	1.29	9.512	A
5	220.59	55.15	219.68	302.04	539.21	0.00	1192.34	1191.67	0.185	0.00	0.23	3.697	A

Main results: (13:00-13:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	35.96	8.99	35.91	35.94	873.21	0.00	684.73	241.19	0.053	0.04	0.06	5.548	A
2	163.61	40.90	163.30	183.19	725.92	449.49	745.71	664.13	0.219	0.20	0.28	6.179	A
3	306.55	76.64	306.38	766.30	122.92	0.00	1744.33	1513.07	0.176	0.17	0.21	2.503	A
4	582.54	145.63	578.46	0.00	429.31	0.00	821.71	49.16	0.709	1.29	2.31	14.551	B
5	263.40	65.85	263.09	361.71	646.06	0.00	1128.40	1189.88	0.233	0.23	0.30	4.159	A

Main results: (13:15-13:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	44.04	11.01	43.95	44.01	1054.07	0.00	600.70	198.16	0.073	0.06	0.08	6.466	A
2	200.39	50.10	199.79	224.26	873.76	550.51	663.17	649.32	0.302	0.28	0.43	7.759	A
3	375.45	93.86	375.19	923.16	150.39	0.00	1727.48	1519.91	0.217	0.21	0.28	2.662	A
4	713.46	178.37	692.33	0.00	525.58	0.00	774.75	51.26	0.921	2.31	7.60	36.730	E
5	322.60	80.65	322.05	441.88	776.03	0.00	1050.62	1187.35	0.307	0.30	0.44	4.938	A

Main results: (13:30-13:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	44.04	11.01	44.04	44.04	1069.71	0.00	593.76	198.16	0.074	0.08	0.08	6.548	A
2	200.39	50.10	200.36	224.59	889.16	550.51	658.33	649.32	0.304	0.43	0.43	7.860	A
3	375.45	93.86	375.45	938.70	150.82	0.00	1727.22	1519.91	0.217	0.28	0.28	2.662	A
4	713.46	178.37	708.31	0.00	526.27	0.00	774.41	51.26	0.921	7.60	8.88	48.066	E
5	322.60	80.65	322.57	443.40	791.18	0.00	1041.55	1187.35	0.310	0.44	0.45	5.006	A

Main results: (13:45-14:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	35.96	8.99	36.05	35.99	901.76	0.00	672.01	241.19	0.054	0.08	0.06	5.660	A
2	163.61	40.90	164.20	183.74	754.07	449.49	736.23	664.13	0.222	0.43	0.29	6.301	A
3	306.55	76.64	306.80	794.67	123.60	0.00	1743.91	1513.07	0.176	0.28	0.21	2.505	A
4	582.54	145.63	607.75	0.00	430.40	0.00	821.18	49.16	0.709	8.88	2.58	18.603	C
5	263.40	65.85	263.94	364.34	673.81	0.00	1111.79	1189.88	0.237	0.45	0.31	4.248	A

Main results: (14:00-14:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	30.11	7.53	30.17	30.13	739.76	0.00	745.73	266.53	0.040	0.06	0.04	5.032	A
2	137.02	34.25	137.36	153.80	616.14	376.43	813.21	674.58	0.168	0.29	0.20	5.330	A
3	256.72	64.18	256.89	650.10	103.39	0.00	1756.31	1508.24	0.146	0.21	0.17	2.402	A
4	487.85	121.96	492.74	0.00	360.29	0.00	855.38	47.68	0.570	2.58	1.36	10.055	B
5	220.59	55.15	220.92	304.05	548.98	0.00	1186.49	1191.67	0.186	0.31	0.23	3.731	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:45-13:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.61	0.04	4.994	A	A
2	2.92	0.19	5.285	A	A
3	2.52	0.17	2.397	A	A
4	18.14	1.21	9.512	A	A
5	3.32	0.22	3.697	A	A

Queueing Delay results: (13:00-13:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.81	0.05	5.548	A	A
2	4.09	0.27	6.179	A	A
3	3.15	0.21	2.503	A	A
4	32.01	2.13	14.551	B	B
5	4.46	0.30	4.159	A	A

Queueing Delay results: (13:15-13:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.15	0.08	6.466	A	A
2	6.22	0.41	7.759	A	A
3	4.10	0.27	2.662	A	A
4	88.83	5.92	36.730	E	D
5	6.45	0.43	4.938	A	A

Queueing Delay results: (13:30-13:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.19	0.08	6.548	A	A
2	6.48	0.43	7.860	A	A
3	4.16	0.28	2.662	A	A
4	124.91	8.33	48.066	E	D
5	6.66	0.44	5.006	A	A

Queueing Delay results: (13:45-14:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.87	0.06	5.660	A	A
2	4.44	0.30	6.301	A	A
3	3.25	0.22	2.505	A	A
4	48.74	3.25	18.603	C	B
5	4.78	0.32	4.248	A	A

Queueing Delay results: (14:00-14:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.65	0.04	5.032	A	A
2	3.13	0.21	5.330	A	A
3	2.60	0.17	2.402	A	A
4	21.63	1.44	10.055	B	B
5	3.50	0.23	3.731	A	A

(Default Analysis Set) - 2018+HIF, Sunday (balance flows)

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relations

2018+HIF, Sunday (balance flows)	2018+HIF	Sunday (balance flows)		ONE HOUR	12:45	14:15	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
(untitled)	Roundabout	1,2,3,4,5				6.73	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	The Causeway	
2	(untitled)	Ikea southern access
3	(untitled)	Glover Drive
4	(untitled)	Tesco PFS
5	untitled	Ikea northern access

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00
4	0.00	99999.00		0.00
5	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.50	5.10	2.20	15.00	53.80	56.00	
2	2.90	5.90	15.60	10.00	34.40	53.00	
3	5.50	6.10	8.20	30.80	53.80	34.00	
4	3.60	3.80	2.50	30.00	34.20	62.00	
5	5.00	6.20	1.40	19.50	32.80	47.00	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	Zebra
3	None
4	None
5	None

Zebra Crossings

Arm	Space between crossing and junction entry (PCU)	Vehicles queueing on exit (PCU)	Central Refuge	Crossing Data Type	Crossing length (m)	Crossing time (s)	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
2	1.00	2.00	✓	Distance			5.50	3.93	5.50	3.93

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.447	1077.720
2		(calculated)	(calculated)	0.523	1255.890
3		(calculated)	(calculated)	0.613	1819.734
4		(calculated)	(calculated)	0.488	1031.135
5		(calculated)	(calculated)	0.598	1515.023

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	40.00	100.000
2	ONE HOUR	✓	182.00	100.000
3	ONE HOUR	✓	341.00	100.000
4	ONE HOUR	✓	400.00	100.000
5	ONE HOUR	✓	541.00	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
1	-	-
2	ONE HOUR	500.00
3	-	-
4	-	-
5	-	-

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.000	0.000	40.000	0.000	0.000
	2	0.000	0.000	45.000	0.000	137.000
	3	40.000	26.000	46.000	0.000	229.000
	4	0.000	0.000	363.000	0.000	37.000
	5	0.000	178.000	363.000	0.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.00	0.00	1.00	0.00	0.00
	2	0.00	0.00	0.25	0.00	0.75
	3	0.12	0.08	0.13	0.00	0.67
	4	0.00	0.00	0.91	0.00	0.09
	5	0.00	0.33	0.67	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	1.000	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000	1.000
	5	1.000	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To				
		1	2	3	4	5
From	1	0.000	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000	0.000
	5	0.000	0.000	0.000	0.000	0.000

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)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.07	6.57	0.08	A	36.70	55.06	5.29	5.77	0.06	5.29	5.77
2	0.31	7.89	0.44	A	167.01	250.51	27.34	6.55	0.30	27.34	6.55
3	0.22	2.66	0.28	A	312.91	469.36	19.78	2.53	0.22	19.78	2.53
4	0.57	10.77	1.30	B	367.05	550.57	77.38	8.43	0.86	77.39	8.43
5	0.50	5.94	0.98	A	496.43	744.65	61.22	4.93	0.68	61.22	4.93

Main Results for each time segment

Main results: (12:45-13:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	30.11	7.53	29.95	30.03	730.88	0.00	749.71	352.68	0.040	0.00	0.04	5.000	A
2	137.02	34.25	136.22	152.93	607.90	376.43	816.14	490.68	0.168	0.00	0.20	5.291	A
3	256.72	64.18	256.04	641.58	102.54	0.00	1756.83	1593.16	0.146	0.00	0.17	2.397	A
4	301.14	75.29	298.99	0.00	358.58	0.00	856.21	73.78	0.352	0.00	0.54	6.436	A
5	407.29	101.82	405.48	302.14	355.43	0.00	1302.32	1161.81	0.313	0.00	0.45	4.006	A

Main results: (13:00-13:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	35.96	8.99	35.90	35.94	875.85	0.00	683.56	346.87	0.053	0.04	0.06	5.558	A
2	163.61	40.90	163.30	183.15	728.60	449.49	744.81	484.79	0.220	0.20	0.28	6.188	A
3	306.55	76.64	306.38	768.98	122.92	0.00	1744.33	1595.88	0.176	0.17	0.21	2.503	A
4	359.59	89.90	358.67	0.00	429.31	0.00	821.71	74.62	0.438	0.54	0.77	7.759	A
5	486.35	121.59	485.66	361.85	426.12	0.00	1260.01	1160.82	0.386	0.45	0.62	4.645	A

Main results: (13:15-13:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	44.04	11.01	43.94	44.01	1071.29	0.00	593.10	336.99	0.074	0.06	0.08	6.555	A
2	200.39	50.10	199.77	224.14	891.10	550.51	657.72	476.26	0.305	0.28	0.43	7.851	A
3	375.45	93.86	375.19	940.49	150.38	0.00	1727.49	1599.82	0.217	0.21	0.28	2.662	A
4	440.41	110.10	438.34	0.00	525.57	0.00	774.75	75.83	0.568	0.77	1.28	10.634	B
5	595.65	148.91	594.27	442.88	521.03	0.00	1203.22	1159.39	0.495	0.62	0.97	5.899	A

Main results: (13:30-13:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	44.04	11.01	44.04	44.04	1074.50	0.00	591.64	336.99	0.074	0.08	0.08	6.573	A
2	200.39	50.10	200.37	224.60	893.94	550.51	656.82	476.26	0.305	0.43	0.44	7.886	A
3	375.45	93.86	375.45	943.49	150.83	0.00	1727.21	1599.82	0.217	0.28	0.28	2.662	A
4	440.41	110.10	440.34	0.00	526.28	0.00	774.41	75.83	0.569	1.28	1.30	10.769	B
5	595.65	148.91	595.62	443.69	522.92	0.00	1202.09	1159.39	0.496	0.97	0.98	5.935	A

Main results: (13:45-14:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	35.96	8.99	36.06	35.99	880.67	0.00	681.38	346.87	0.053	0.08	0.06	5.578	A
2	163.61	40.90	164.22	183.86	732.87	449.49	743.38	484.79	0.220	0.44	0.28	6.224	A
3	306.55	76.64	306.80	773.47	123.62	0.00	1743.90	1595.88	0.176	0.28	0.21	2.506	A
4	359.59	89.90	361.63	0.00	430.42	0.00	821.17	74.62	0.438	1.30	0.79	7.868	A
5	486.35	121.59	487.71	363.10	428.95	0.00	1258.32	1160.82	0.387	0.98	0.64	4.679	A

Main results: (14:00-14:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	30.11	7.53	30.17	30.13	736.40	0.00	747.22	352.68	0.040	0.06	0.04	5.020	A
2	137.02	34.25	137.34	153.83	612.74	376.43	814.42	490.68	0.168	0.28	0.20	5.321	A
3	256.72	64.18	256.89	646.70	103.38	0.00	1756.31	1593.16	0.146	0.21	0.17	2.400	A
4	301.14	75.29	302.11	0.00	360.28	0.00	855.38	73.78	0.352	0.79	0.55	6.519	A
5	407.29	101.82	408.00	303.85	358.54	0.00	1300.46	1161.81	0.313	0.64	0.46	4.038	A

Queueing Delay Results for each time segment

Queueing Delay results: (12:45-13:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.61	0.04	5.000	A	A
2	2.92	0.19	5.291	A	A
3	2.52	0.17	2.397	A	A
4	7.75	0.52	6.436	A	A
5	6.61	0.44	4.006	A	A

Queueing Delay results: (13:00-13:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.81	0.05	5.558	A	A
2	4.09	0.27	6.188	A	A
3	3.15	0.21	2.503	A	A
4	11.13	0.74	7.759	A	A
5	9.15	0.61	4.645	A	A

Queueing Delay results: (13:15-13:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.17	0.08	6.555	A	A
2	6.29	0.42	7.851	A	A
3	4.10	0.27	2.662	A	A
4	18.26	1.22	10.634	B	B
5	14.07	0.94	5.899	A	A

Queueing Delay results: (13:30-13:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	1.20	0.08	6.573	A	A
2	6.52	0.43	7.886	A	A
3	4.15	0.28	2.662	A	A
4	19.41	1.29	10.769	B	B
5	14.59	0.97	5.935	A	A

Queueing Delay results: (13:45-14:00)

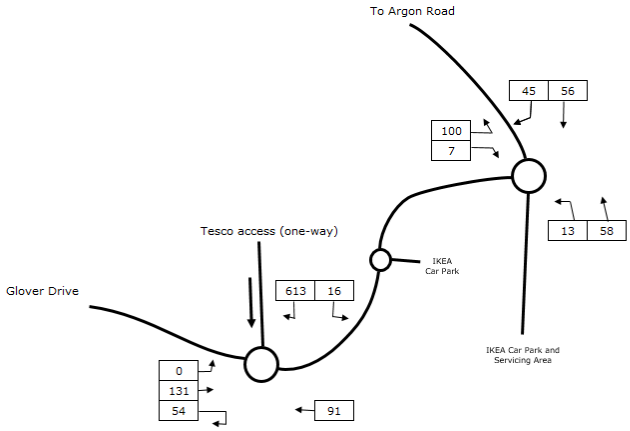
Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.86	0.06	5.578	A	A
2	4.39	0.29	6.224	A	A
3	3.25	0.22	2.506	A	A
4	12.35	0.82	7.868	A	A
5	9.78	0.65	4.679	A	A

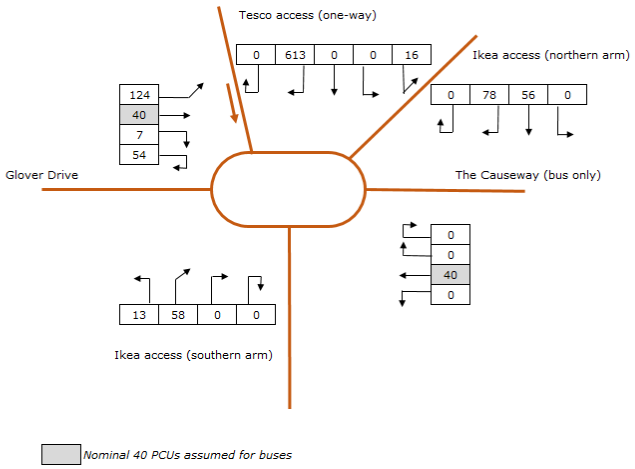
Queueing Delay results: (14:00-14:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	0.64	0.04	5.020	A	A
2	3.12	0.21	5.321	A	A
3	2.60	0.17	2.400	A	A
4	8.49	0.57	6.519	A	A
5	7.02	0.47	4.038	A	A

Glover Drive Elongated Roundabout Traffic Flows (PCUS)

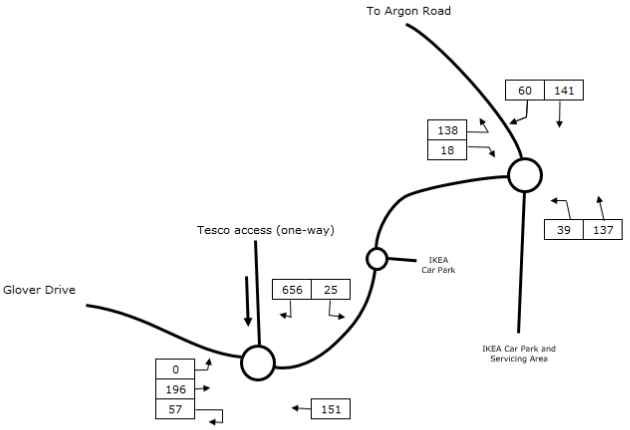
PM peak (17:00-18:00)

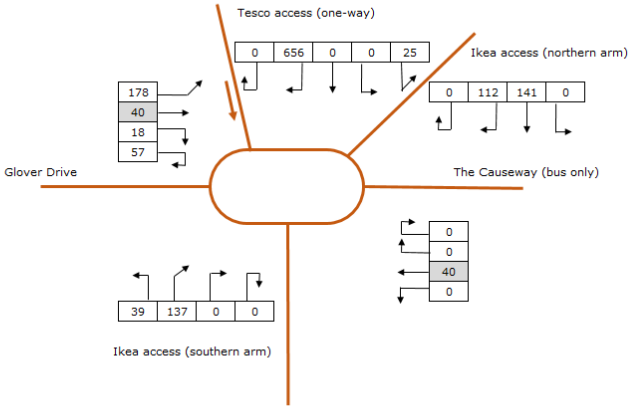




Nominal 40 PCUs assumed for buses

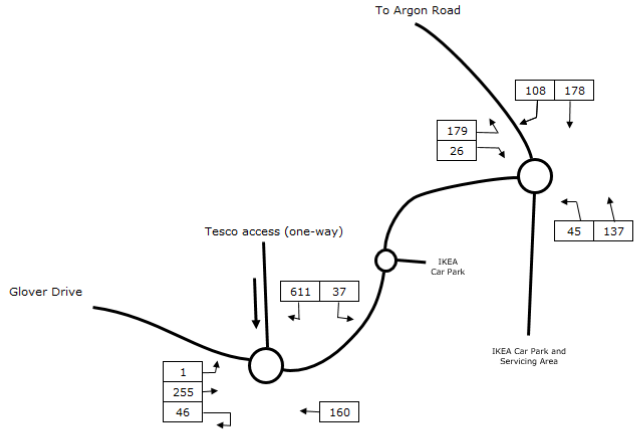
Saturday peak (13:15-14:15)

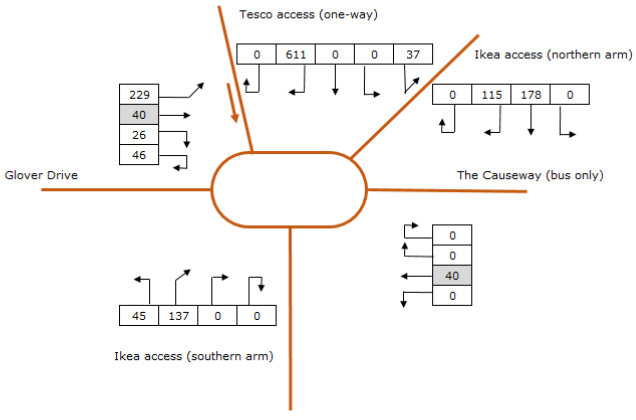




Nominal 40 PCUs assumed for buses

Sunday peak (12:45-13:45)





Nominal 40 PCUs assumed for buses