

The Meadway Precinct Honey End Lane, Tilehurst Revised Scheme – Transport Assessment

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1.0 Introduction

- 1.1** This Transport Assessment (TA) analyses the potential impacts of proposals to redevelop the Meadway Precinct site, which is located at the following address:

The Meadway Precinct
Honey End Lane,
Tilehurst,
Reading

A site location plan is provided at Appendix A.

- 1.2** The Meadway Precinct comprises a purpose-built Shopping Centre of 34 units including Boots and Simply Gym, with a large car park to the side and rear. A number of the units are currently empty. There are also 27 two-bed flats above existing shops, which are provided with 14 garages, not all of which are used. The site is in need of regeneration to improve its character and attract new businesses to provide a more attractive facility.
- 1.3** The existing site has a total of 2,776m² retail space and 186 marked parking spaces, plus further unmarked parking capacity, including parking areas for the businesses. The proposal which was approved in 2017 was for a total of 5,988m² of retail space with a total of 200 dedicated parking spaces (180 customer, 20 staff) and another 14 parking spaces for the residents to replace the existing garages.
- 1.4** The new proposals provide a total of 3,753.7m² of retail, but with a significant increase in residential development to 266 dwellings. An underground car park will be created in order to provide residential car parking, while at ground floor level staff and customer parking will be provided. There will also be an element of residents parking at mezzanine level. All of this will be set out in more detail in Section 5 of the report.
- 1.5** Previous discussions with the local highway authority indicated that traffic flow counts should be undertaken at the main junctions at either end of Honey End Lane and at the access to the precinct. Parking beat counts were also previously requested for the precinct car park. New versions of all these surveys have been completed to form the basis of the Assessment; in addition TRICS trip rates have been sourced for the proposed increase in residential properties at the site.

2.0 Site Audit

2.1 Context and Local Highway Network

- 2.1.1 The Meadway Precinct is located in Tilehurst, a western suburb of Reading. The purpose-built precinct contains retail and leisure uses and 27 flats, with an area of car parking to the north, south and west of the precinct. Directly to the south of the precinct is an Asda superstore and its car park.
- 2.1.2 The site lies close to Prospect Park, approximately 3km west of the centre of Reading, and 3km east of Junction 12 of the M4. It serves a residential area around the streets of Honey End Lane, the Meadway, Cockney Hill and Usk Road.
- 2.1.3 In total there are 186 pay & display (P&D) parking spaces and 14 garage spaces (some of which are unused), with 6 cycle stands. Of these P&D spaces, 89 are located in the side car park at the western end of the site, 79 at the south car park adjacent to the access road and 18 plus the garages at the rear along the north service road. Observations show that some casual parking also takes place in the shop service areas and along the service road. The ASDA car park has approximately 156 spaces. Drivers who use the precinct side car park can redeem the cost of parking in the ASDA store.
- 2.1.4 Vehicle access to the Precinct is from two access points off Honey End Lane. At the northern end of the site a service road runs behind the back of the units to the side car park from a simple priority junction. At the southern end a 4-arm roundabout provides a shared private access road to the development site and to the ASDA store car parks on the opposite side. Vehicles can enter or leave by either route as they are connected at the Precinct's west-side car park. The roundabout arm opposite the precinct serves the Prospect Park Hospital (NHS Mental Health Services) and terminates in a cul-de-sac at the hospital car park. The other two arms connect Honey End Lane to The Meadway and Bath Road (A4). There are splitter islands on three arms but not on the access road to the development site.
- 2.1.5 The south precinct car park runs alongside the carriageway, without any physical segregation between the end bays and passing traffic. There is a footpath to the main entrance, linked to the ASDA store by a (rather faded) zebra crossing. The zebra has no controlled zone markings or belisha beacons, which is permissible on a private road but would be unacceptable on the adopted highway. Immediately beyond the crossing is the access to the main ASDA car park opposite the precinct.
- 2.1.6 The Meadway and Bath Road are distributor roads which converge at the western edge of Reading town centre. Both are main bus routes. Bath Road connects to the M4 and The Meadway leads to the centre of Tilehurst. There is a traffic signalled junction between The Meadway and Honey End Lane. There are traffic calming speed humps in the vicinity of the development site and pedestrian guard railing adjacent to the edge of the carriageway. There is a zebra crossing north of the Precinct access roundabout with guard railing on all sides. South of the roundabout is Prospect School; south of Cockney Hill the

speed limit on Honey End Lane is reduced to 20 mph. A humped zebra crossing is located adjacent to the school, south of these are bus stops on both sides of the road. There is a shared pedestrian/cycle path along the east side of the road. The junction with Bath Road is formed by a mini roundabout.

- 2.1.7 Bath Road and The Meadway are two of the three main roads connecting Reading town centre with the areas to the west of the town. According to the count data available from the Department for Transport (DfT), there are annual average daily traffic flows (AADTF) on these major routes as shown in the following table; note that traffic flows on the A4 Bath Road have not significantly increased over the last 5 years:

Location	AADTF (2013, Original TA)	AADTF (2018, Latest Data)
A4 Bath Rd, East of Honey End La	20,292	20,597
The Meadway, West of Honey End La	18,000	Not Available

2.2 Public Transport Services

- 2.2.1 The nearest railway station to the site is Reading West, which is approximately a 1.5 mile walk to the east of the site. This station is on the branch line between Reading and Basingstoke, and it is possible to change at either station to reach a wide variety of destinations. Alternatively, Tilehurst Station is approximately 2.2 miles to the north of the site, and is on the Great Western Main Line, served by stopping services towards London Paddington, or towards destinations including Oxford, Swindon, Bristol, Worcester, Birmingham and South Wales.
- 2.2.2 Reading also has a comprehensive bus network, in which services have been extensively upgraded with main routes re-branded as Premier Routes. New, low-floor vehicles have been introduced and bus stop infrastructure has been improved. These measures offer a high quality, inclusive service, with frequent, colour-coded buses that are tracked by satellite technology.
- Bus service 1 ("Jetblack") operates between Newbury and Reading seven days a week from early morning until late at night and runs up to every half hour, passing Prospect Park on Bath Road.
 - Bus service 2/2a operates between Mortimer and Reading (Central) Station seven days a week from 5.40 am – midnight at frequencies of up to every half hour. Buses stop at Bath Road adjacent to Prospect Park.
 - Bus service 33 operates between Central Reading and Turnham's Farm via Tilehurst seven days a week from early morning to late night and runs at frequencies of up to every ten minutes. Buses stop on The Meadway close to the junction with Honey End Lane.

2.2.3 There are bus stops along Honey End Lane on both sides of the road adjacent to the precinct but there are no details to show that any services are currently using this route. It does demonstrate that the infrastructure is already in place for direct bus service access and the regeneration of the precinct will make provision of bus services more viable.

2.2.4 A bus network map is provided at Appendix B.

2.3 Cycle Routes

2.3.1 Reading's cycle network connects all the town's major public facilities, employment and leisure areas with almost 37 miles of principal routes, of which 17 miles are segregated from general traffic. A cycling and walking map is provided at Appendix C.

2.3.2 The proposal site sits at the junction of the R6 (Coley Park and Southcote) and the R50 (Tilehurst and Prospect Park) Reading Cycle Routes. There are direct Linking Routes to the R5 and R60 Routes and to the Town Centre Route.

2.3.3 The R50 uses many quiet, traffic-calmed roads and a route through Prospect Park with destinations including Prospect School and the Meadway along the way. The R6 is a quiet, on-road route between Coley and Southcote, avoiding Reading's busy main roads via a path along and under the railway, which has been recently widened to provide a more attractive link to schools and other local destinations. Access to the town centre and South Reading routes is via the off-road cycle path under the Inner Distribution Road (IDR). The R60 gives priority to cyclists from south-west Reading to Reading Station via the shared path on Bath Road, toucan crossings of Bath Road and Oxford Road and a link through quiet streets like Downshire Square and Great Knollys Street.

2.4 Road Safety Review

2.4.1 The latest Personal Injury Collision Data has been sought for the same search area as the previous scheme. This includes an area from the junction between Tilehurst Road and Water Road in the east to the junction between The Meadway and Usk Road to the west, and south along Honey End Lane as far as Cockney Hill.

2.4.2 The search area did not include the junction between Honey End Lane and the A4 Bath Road, but an online search demonstrates that this only adds two additional incidents which have not been fully interpreted.

2.4.3 Since January 2015, there have been mercifully few collisions causing injury in the vicinity of the proposal site; a total of 13 incidents were recorded within the search area, none of which led to fatal or serious injuries.

2.4.4 In the interests of completeness, the 13 incidents found in the RBC data and the 2 incidents found via online sources are all discussed below.

- In January 2015, two cars collided at the roundabout junction between Tilehurst Road and Water Road. It is recorded that the car which entered the roundabout struck the car which was already turning, and then drove off without providing details. There are no engineering measures which could reasonably have prevented this from occurring.
- In April 2015, a pedal cyclist and a pedestrian collided on Tilehurst Road, slightly injuring the pedestrian. It is recorded that the bicycle had defective brakes and the cyclist was considered responsible for the collision by virtue of failure to judge the other person's path or speed and general carelessness. No engineering measures would be merited to prevent an incident of this kind.
- In July 2015, a car driver and a child pedal cyclist collided on Honey End Lane. It is recorded that the cyclist crossed the carriageway close to but not on the pedestrian crossing, but also that the motorist was at error in failing to judge the path or speed of the other vehicle. There is extensive pedestrian guard-railing (PGR) on the western side of Honey End Lane adjacent to the Precinct, but on the eastern side there are only low posts to prevent cars parking on the verge. However, it is not suggested that additional PGR is required in response to this solitary incident.
- In November 2015, a car driver and a child pedal cyclist collided on Cockney Hill. As with the incident above, the child was crossing the road and was struck by the car. It is likely given the time of the incident that the child was travelling to school. There are no formal crossing points on this section of Cockney Hill but as with the incident above, there is no suggestion that engineering interventions are required.
- Also in November 2015, a child pedestrian ran into the road at Honey End Lane and was struck by a car driver. It is likely given the time of the incident that the child was travelling home from school. This incident, coupled with the two children in cycling collisions above, does seem to suggest that road safety education needs to be improved in the locality; albeit no similar incidents have occurred since these.
- Also in November 2015, a pedestrian crossed Tilehurst Road at the junction with Honey End Lane and was struck by a goods vehicle turning from HEL towards Tilehurst Road. The pedestrian was fortunate to escape worse injury as it is recorded that they failed to look properly or judge the vehicle's path or speed.
- In April 2016, it would appear that in a Police pursuit incident, the civilian car attempted to escape and having driven on the wrong side of the road, struck a third car head-on at the junction between The Meadway and Honey End Lane. Clearly no engineering measures can counteract criminal behaviour.
- In May 2016, a car driver and a pedal cyclist collided on Tilehurst Road, close to the junction with Peg's Green Close. It is likely that the trees along the northern edge of Prospect Park reduced the motorist's visibility of the cyclist, who appears to have cycled out of the park and into the road, causing the incident. It is not considered that any engineering measures could have adequately prevented this from occurring.
- In November 2016, two car drivers collided at the junction between Tilehurst Road and Peg's Green Close. It is likely that the driver emerging from the minor road failed

to look properly as they entered the major road, causing the incident. There are no engineering measures which could reasonably have prevented this from occurring.

- In February 2017, two car drivers collided at the junction between Tilehurst Road and Park Grove. It appears that the driver turning into Park Grove turned across the path of the other vehicle, causing the collision. No engineering measures could reasonably have prevented this from occurring.
- In June 2017, a car driver struck a parked car on Honey End Lane. It appears that the car was parking, but that the driver accidentally pressed the accelerator instead of the brake. No engineering measures could have prevented this incident.
- In October 2017, a car driver collided with a motorcyclist at the roundabout between Tilehurst Road and Water Road. It is recorded that the car driver failed to give way, probably due to failing to look properly. Again, there are no engineering measures which could reasonably have prevented this from occurring.
- In July 2018, a car driver and a motor scooter rider collided at the roundabout between Tilehurst Road and Water Road. In this case, the scooter rider failed to give way and entered the roundabout when the car driver was already on the roundabout. The incident is recorded as a result of carelessness and inexperience. Again, there are no engineering measures which could reasonably have prevented this from occurring.

2.4.5 As for the two incidents noted adjacent to the junction between Bath Road and Honey End Lane, these are recorded as follows:

- In January 2016, a goods vehicle and a car collided on the eastern approach to the roundabout; it is likely that either one vehicle was following the other too closely or failed to look properly. No engineering measures could reasonably have prevented this incident.
- In July 2017, a child was slightly injured when two cars collided in the middle of the mini-roundabout. Clearly one of the vehicles should have given way, but these types of incident often occur at roundabouts and the sole incident recorded here in the last four years does not demonstrate a significant safety issue.

2.4.6 The collision record demonstrates that the number of incidents within the search area has decreased each year, while the severity of incidents remains low. Although there was a regrettable cluster of incidents involving schoolchildren in 2015, it would appear that in more recent years the safety record has improved, and there is no reason to believe that children walking or cycling in the locality would be at greater than average risk. It is also apparent that there are no safety reasons which would prevent development in the proposed location, and there are no remedial measures required to enable said development.

3.0 Policy Review

3.1 The National Planning Policy Framework (NPPF), revised February 2019

- 3.1.1 The NPPF, updated as of February 2019 remains the key policy document at the national level relating to development. It sets out the Government's planning policies for England and how these are expected to be applied.
- 3.1.2 It requires that transport issues should be considered from the earliest stages of development proposals, so that:
- The potential impacts of development on transport networks can be addressed;
 - Opportunities from existing or proposed transport infrastructure are realised;
 - Opportunities to promote walking, cycling and public transport use are pursued;
 - Environmental impacts of traffic and transport infrastructure can be taken into account;
 - Patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.
- 3.1.3 Planning decisions should take account of the following issues;
- Appropriate opportunities to promote sustainable transport modes can be or have been taken up, given the type of development and its location;
 - safe and suitable access to the site can be achieved for all users; and
 - Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety can be cost effectively mitigated to an acceptable degree.
- 3.1.4 This section of the NPPF concludes by stating that
“Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.”
- 3.1.5 The NPPF also states that development should:
- give priority first to pedestrian and cycle movements, and second to facilitating access to high quality public transport;
 - address the needs of people with disabilities and reduced mobility;
 - create places that are safe, secure and attractive, which minimise the scope for conflict between pedestrians, cyclists and vehicles, avoid unnecessary street clutter and respond to local character and design standards;
 - allow for the efficient delivery of goods, and access by service and emergency vehicles
 - be designed to enable charging of plug-in and other ultra-low emission vehicles.

3.2 Reading Borough Council Core Strategy (2015)

- 3.2.1 The Borough Council's Core Strategy Vision states; "The district and local centres will perform an increasing role of providing services to local populations."
- 3.2.2 The strategy also refers to existing district retail centres; "The vitality and viability of these District centres (this includes Meadway) should be maintained and enhanced, including widening the range of uses, environmental enhancements and access improvements."

3.3 The Meadway Centre Planning Brief (2013)

- 3.3.1 The planning brief prepared by the Borough Council set out key principles related to transport and travel issues. An increase in overall number of trips to the Centre is anticipated, and is acknowledged as a sign of a successful development. However, it is stressed that impacts upon the transport network are to be fully mitigated, in line with policy. This will mean that the development, if it generates additional trips, will need to incorporate enhanced provision for non-car modes of transport.
- 3.3.2 Honey End Lane is a classified road, and the Council's policy is that there should be no new entrances onto classified roads. The roundabout at the junction of Honey End Lane and the entrance to the Meadway Centre should be retained as it provides an important highways function for u-turns. It also provides a convenient point for buses to turn, if a more direct bus service were to be provided.
- 3.3.3 Car parking should be provided in line with the Council's Parking Standards and Design Supplementary Planning Document 5. New areas of public car parking should represent an improvement over the current public parking area. In particular, it should avoid significant slopes, and pedestrian movement within the car park should be safe. Terracing of car parking may be one means to deal with the slope issue.
- 3.3.4 Redevelopment of the site should enhance the facilities and access for cycling. Cycle access to the site should be planned into any development from the outset, and should be safe and secure. Cycle parking should be also provided in line with the Council's Parking Standards and Design SPD.
- 3.3.5 Provision should be made to ensure good quality pedestrian access to bus stops on The Meadway and Honey End Lane.
- 3.3.6 The centre should benefit from good quality pedestrian access to and from Prospect Park, which would include signage. Improved lighting along Honey End Lane is one measure which will be important to improve both pedestrian and cycle access to the centre. Lighting should be to the most recent standards of the highways authority.
- 3.3.7 Servicing arrangements will need to be in compliance with the policy set out in the Council's Parking Standards and Design SPD. Development should avoid servicing arrangements that are directly adjacent to residential gardens, in particular those along the north side of Cockney Hill.

4.0 Existing Trip Generation and Impact

4.1 June 2019 Baseline

- 4.1.1 Traffic surveys were undertaken during weekday morning, afternoon and Saturday as directed by the Council to capture the busiest periods of site activity and traffic peaks. It should be noted that the traffic survey counted all vehicles entering the site access road, including those which parked at the precinct and those which parked at ASDA.

Table 1; Access road Traffic Survey results summary (2019);

Time period	Arrivals	Departures	Total Movements
Fri 12.00-13.00	258	309	567
Fri 17.00-18.00	299	350	649
Sat 12.00-13.00	328	344	672
Mon 08:00-09:00	149	96	245

- 4.1.2 A car parking survey undertaken at the precinct recorded the number of people who parked in the Precinct car park but also visited the ASDA store. This demonstrated the following extent of "linked trips";

Table 2; Precinct car park survey summary (2019);

Time period	Linked Visitors	Total Visitors	% Linked
Fri 12.00-13.00	33	85	39%
Fri 17.00-18.00	37	143	26%
Sat 12.00-13.00	54	125	43%
Mon 08:00-09:00	13	72	18%

- 4.1.3 The 2015 car park survey also included a driver/passenger destination survey. This revealed that some drivers use the precinct car park to visit ASDA rather than the precinct itself; up to 36% at times but at a rate *averaging* 18%. It was agreed with the Council that these 18% can be discounted from the survey data to reflect this, as not all of the trips to the precinct car park are generated by the precinct itself but constitute overspill parking from ASDA, as shown in the table below;

Table 3; Existing Trips generated by the precinct, excluding ASDA customers (2019);

Time period	Arrivals	Departures	Total Movements
Fri 12.00-13.00	211.56	253.38	464.94
Fri 17.00-18.00	245.18	287.00	532.18
Sat 12.00-13.00	268.96	282.08	551.04
Mon 08:00-09:00	122.18	78.72	200.90

4.1.4 The parking accumulation survey reveals that during peak occupancy (11am Friday) the Precinct car park was 63% occupied, with 125 vehicles parked. A survey of the ASDA car park, also undertaken during the same period demonstrated that the ASDA car park reaches up to 100% occupancy at peak times (11:15 Saturday and 98% at 12:15 Friday).

4.1.5 Some of the existing Precinct units are currently unoccupied and it was suggested at the time of the original scheme that potential trip rates could be higher if more were in use. Therefore SWH undertook a TRICS analysis to test this. As requested by the Council separate surveys were calculated for Saturday only and for weekdays only. For a local shopping centre of 2,776m² retail floor area, the following site peak and daily trip rates were estimated via TRICS;

Table 4: Daily vehicle trip rates for Existing Precinct, (TRICS 2015 data)

Time period	Arrivals	Departures	Total Movements
Saturday Peak 12:00-13:00	147	138	286
Weekday 12.00-13.00	205	205	410
Weekday 17.00-18.00	169	181	351
Weekday 08:00-09:00	135	129	264

4.1.6 It is acknowledged that actual survey data is always preferable to TRICS predictions, which will never be as accurate. However it is interesting that the difference between the survey results and the TRICS predictions varies at different times of the day/week. There are likely to be a combination of reasons and factors for this;

- The occupancy rate at Meadway is actually typical of most other local precincts, with a proportion of units always empty. This suggests that Meadway, like other precincts, could generate a significant number of additional trips under existing planning consent if it was fully occupied and this must be taken into account when assessing the impact of the proposal.
- The TRICS surveys were undertaken across the week whereas the survey data is for a Friday lunchtime, which is likely to be one of the busier periods for a local precinct.
- The presence of the ASDA store distorts the travel profile of the precinct; most local precincts are not sharing a site with a major supermarket and this would not be reflected in the TRICS surveys.

4.1.7 A TRICS analysis was also run for the existing flats in 2015. This demonstrated that the 27 flats generate a maximum of 80 vehicle movements per day. As would be expected these are split equally between arrivals and departures. It is known that these trips were reflected in the previous parking survey which was undertaken.

4.2 Traffic Flow Analysis 2019

4.2.1 Traffic counts were undertaken at each junction at the ends of Honey End Lane and at the roundabout leading to the site access. These were taken over a 27-hour period to include the Friday evening peak and the peak-customer period of Saturday lunchtime, as directed by the Borough Council, as well as the following Monday AM peak.

4.2.2 Honey End Lane Roundabout – Friday Afternoon

The data shows that during the Friday afternoon peak period (17:00 – 18:00 hrs) a total of 1260 vehicles passed through the roundabout junction and of these 377 entered from the Precinct/ASDA access road. During the same period 322 vehicles drove into the access road from the other 3 arms, demonstrating roughly equal rates of arrival and departure.

It is also evident that traffic enters the precinct access road in roughly equal proportions from the northern and southern arms of Honey End Lane; 161 and 152 vehicles respectively.

It can therefore be deduced that approximately 55% of the Friday PM peak-hour traffic passing through the roundabout junction is generated by the precinct and/or ASDA.

4.2.3 Honey End Lane Roundabout – Saturday Lunchtime

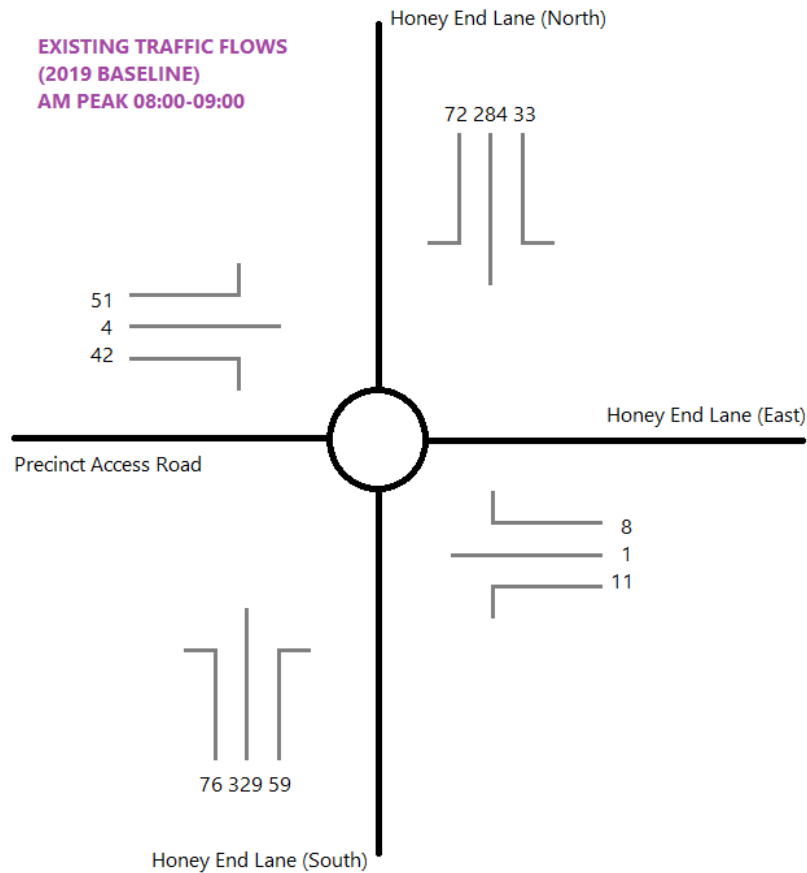
Traffic flows for the peak-customer period (Saturday 12:00 – 13:00 hrs) demonstrate that 1099 vehicles passed through the roundabout, and of these 344 entered from the Precinct/ASDA access road. During the same period 328 vehicles drove into the access road from the other 3 arms, again demonstrating similar rates of arrival and departure.

Traffic enters the precinct access road in slightly less equal proportions than on Fridays, with 184 vehicles arriving from the north and 144 from the south.

In the case of the Saturday lunchtime flows, approximately 61% of traffic passing through this roundabout junction is generated by the precinct and/or ASDA.

4.2.4 Models were produced to examine the existing performance of the junctions nearest to the proposal site. The following flow diagrams, origin-destination matrices and model outputs demonstrate the existing junction performance during the Mon-Fri AM peak, PM peak and Saturday lunchtime peak times. These models will then be used in Section 5 of this report to demonstrate future year scenarios with and without the proposed development.

4.3 Precinct Access Roundabout Performance - Existing

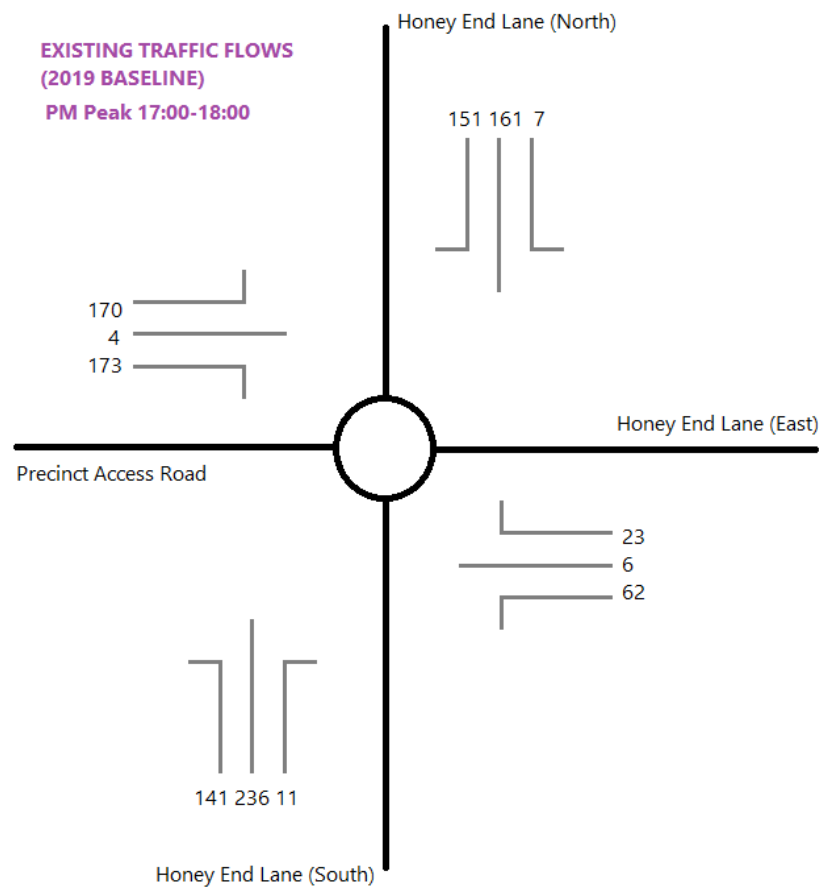


Summary Results					
Mode Columns					
8-9					
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
A1 - AM					
Arm N	0.44	4.04	0.29	A	5.02
Arm E	0.05	8.44	0.03	A	
Arm S	0.73	5.66	0.40	A	
Arm Asda	0.14	5.20	0.11	A	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

Fig. 1: Existing Traffic Flows (2019) AM Peak, Precinct Access Roundabout

- 4.3.1 This junction operates within capacity at present, as evidenced by the RFC (Rate of Flow to Capacity) below 0.85 on all arms, and by the queues of less than 1 vehicle..



Summary Results

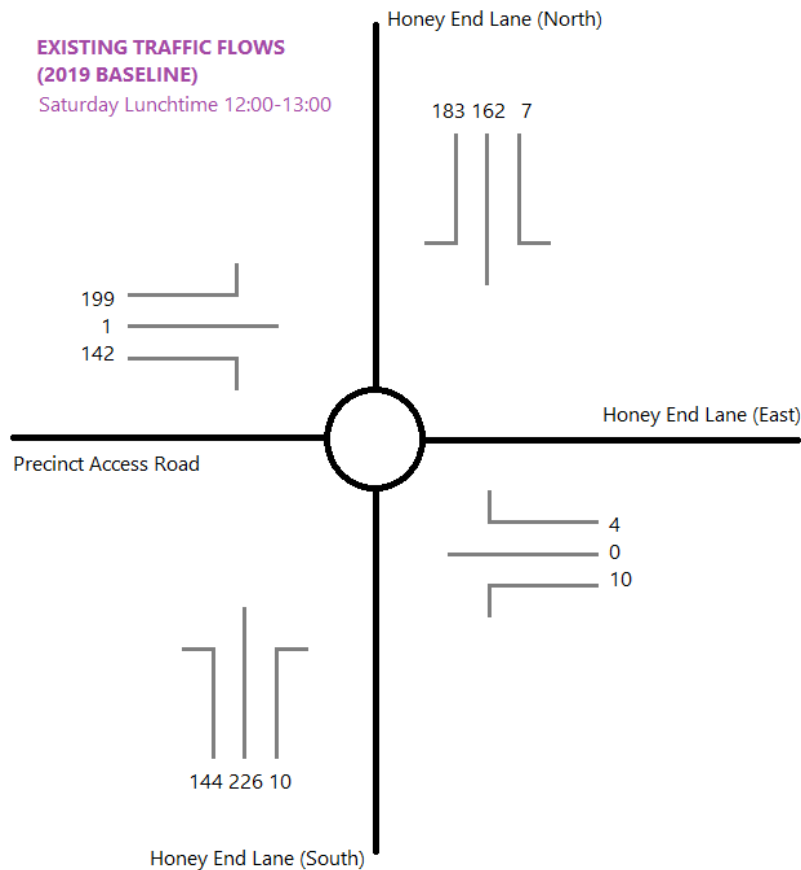
Mode Columns

	5-6				
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
A1 - PM					
Arm N	0.35	3.97	0.24	A	5.51
Arm E	0.17	6.65	0.14	A	
Arm S	0.59	5.45	0.35	A	
Arm Asda	0.65	6.69	0.38	A	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

Fig. 2: Existing Traffic Flows (2019) PM Peak, Precinct Access Roundabout

- 4.3.2 This junction operates within capacity at present, as evidenced by the RFC (Rate of Flow to Capacity) below 0.85 on all arms, and by the queues of less than 1 vehicle.



Summary Results

Mode Columns

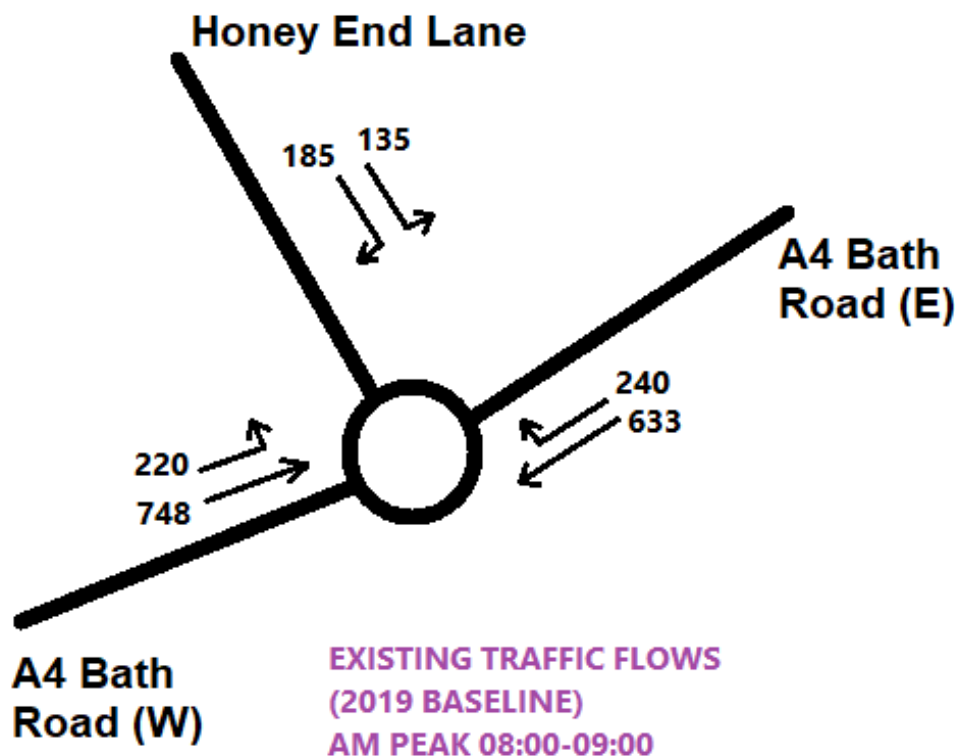
	12-13				
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
A1 - Sat Lunch					
Arm N	0.39	3.95	0.27	A	5.27
Arm E	0.03	6.97	0.02	A	
Arm S	0.57	5.33	0.35	A	
Arm Asda	0.62	6.51	0.37	A	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

Fig. 3: Existing Traffic Flows (2019) Saturday Lunch Peak, Precinct Access Roundabout

- 4.3.3 This junction operates within capacity at present, as evidenced by the RFC (Rate of Flow to Capacity) below 0.85 on all arms, and by the queues of less than 1 vehicle.

4.4 Honey End Lane and Bath Road Roundabout Performance – Existing



Summary Results

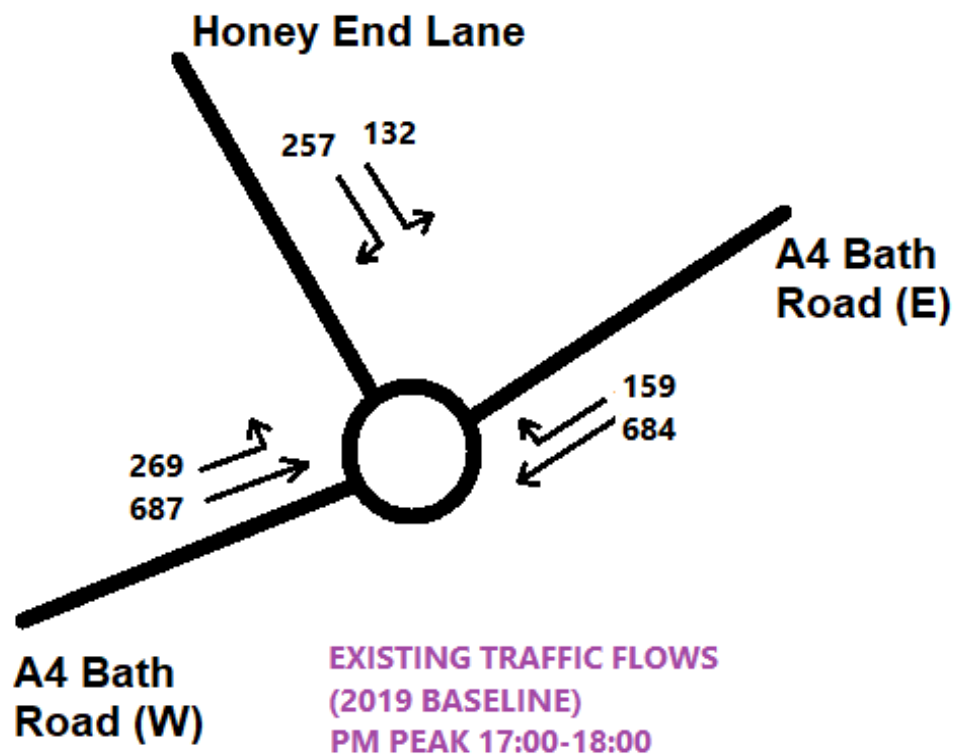
Mode ▾ Columns ▾

	AM 8-9				
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
	A1 - Current				
Arm 1	0.75	6.98	0.40	A	7.86
Arm 2	1.25	8.44	0.52	A	
Arm 3	1.26	7.90	0.52	A	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

Fig. 4: Existing Traffic Flows (2019) AM Peak, Honey End Lane & Bath Road Roundabout

- 4.4.1 This junction operates within capacity at present, as evidenced by the RFC (Rate of Flow to Capacity) below 0.85 on all arms, and by the queues of less than 2 vehicles.

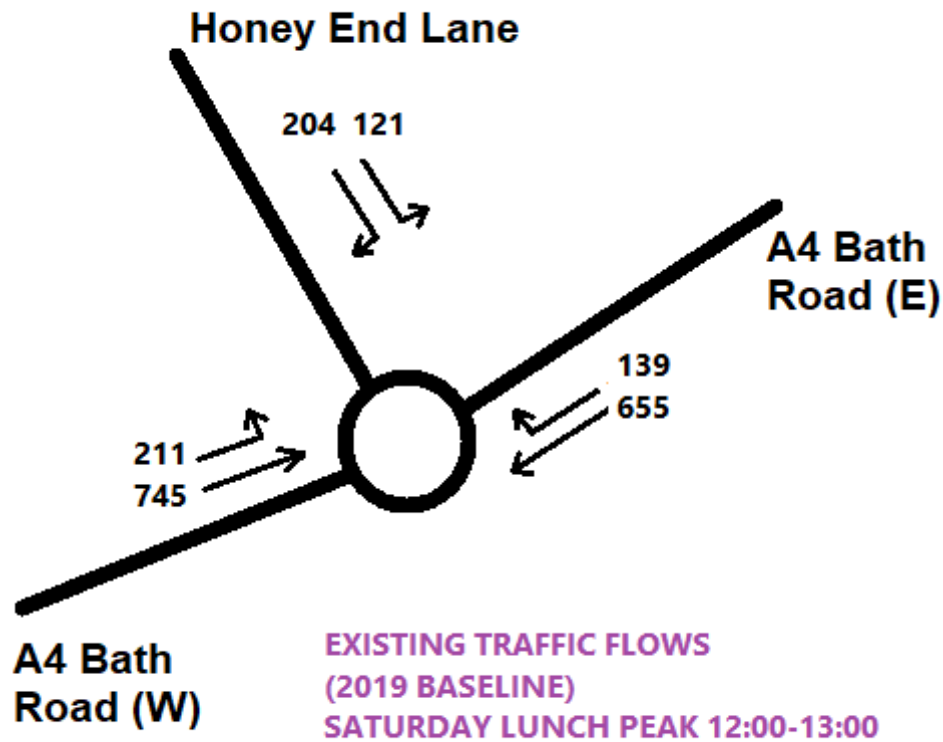


Summary Results					
Mode Columns					
PM 5-6					
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
A1 - Current					
Arm 1	0.98	9.09	0.47	A	22.80
Arm 2	5.59	23.29	0.84	C	
Arm 3	7.75	27.94	0.88	D	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

Fig. 5: Existing Traffic Flows (2019) PM Peak, Honey End Lane & Bath Road Roundabout

- 4.4.2 This junction operates with an existing capacity problem during the PM peak, as evidenced by the RFC (Rate of Flow to Capacity) above 0.85 on Bath Road (West), and by the queues of up to 8 vehicles.



Summary Results					
Mode Columns					
Sat 12-13					
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
A1 - Current					
Arm 1	0.76	8.47	0.41	A	18.82
Arm 2	3.49	15.65	0.77	C	
Arm 3	6.86	24.98	0.87	C	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

Fig. 6: Existing Traffic Flows (2019) Saturday Lunchtime Peak, Honey End Lane & Bath Road Roundabout

- 4.4.3 This junction operates with an existing capacity problem during the Saturday lunchtime peak, as evidenced by the RFC (Rate of Flow to Capacity) above 0.85 on Bath Road (West), and by the queues of up to 7 vehicles.

4.5 The Meadway and Honey End Lane Signals Performance – Existing

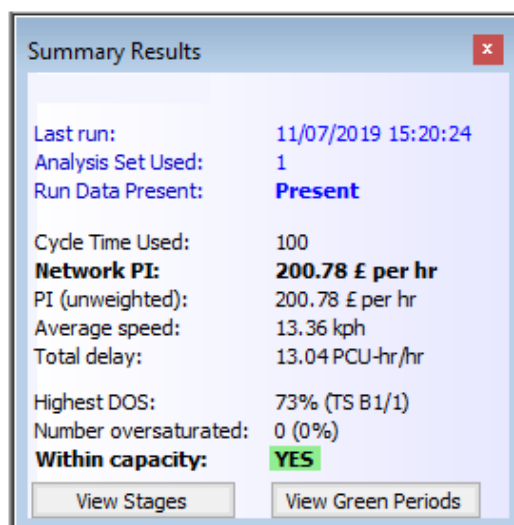
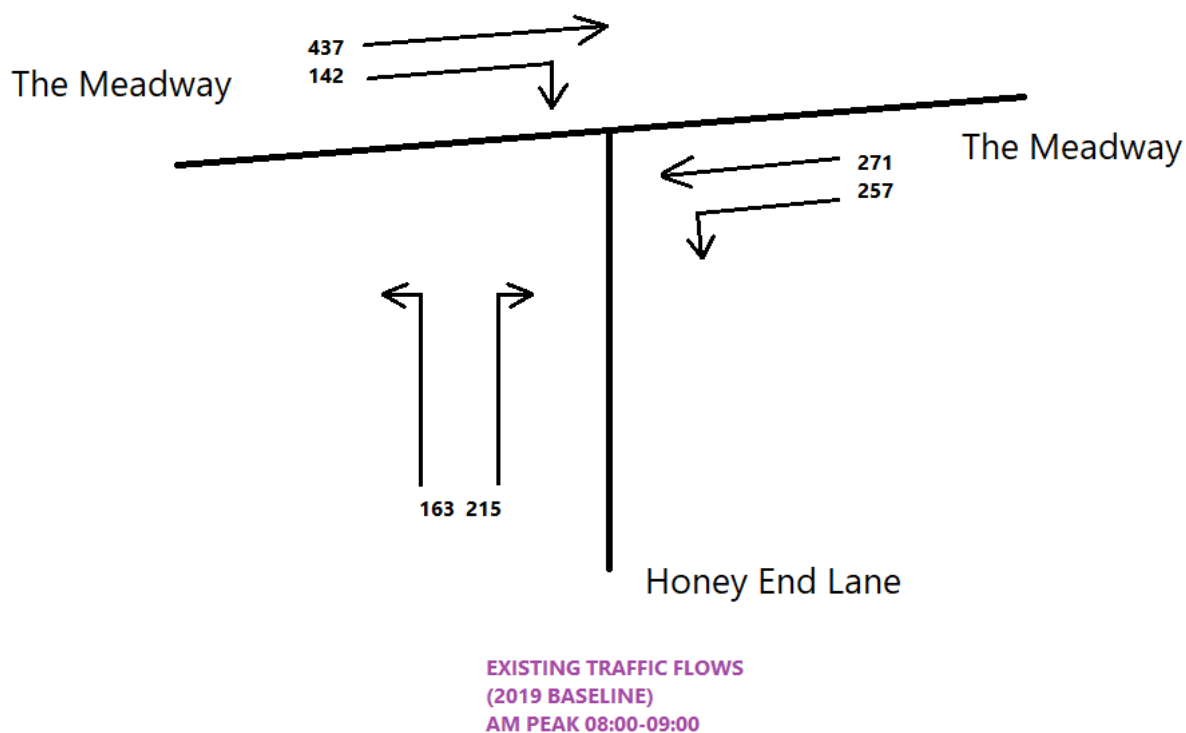


Fig. 7: Existing Traffic Flows (2019) AM Peak, The Meadway & Honey End Lane Signals

- 4.5.1 This junction operates within capacity at present, as evidenced by the DOS (Degree of Saturation) below 90%. In the case of traffic signals, signal timings can be optimised to smooth any peaks and troughs in traffic flow on particular links.

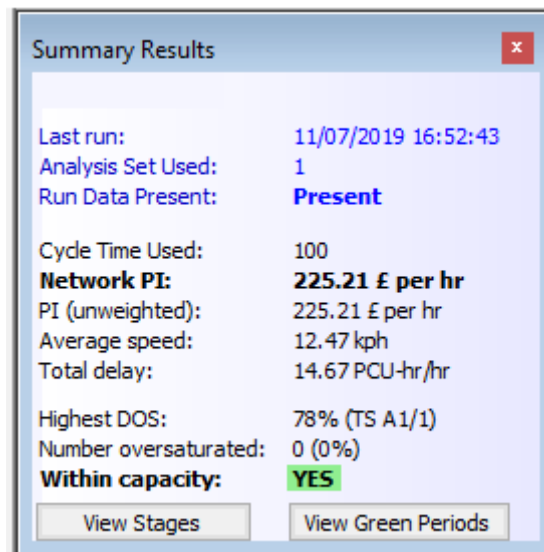
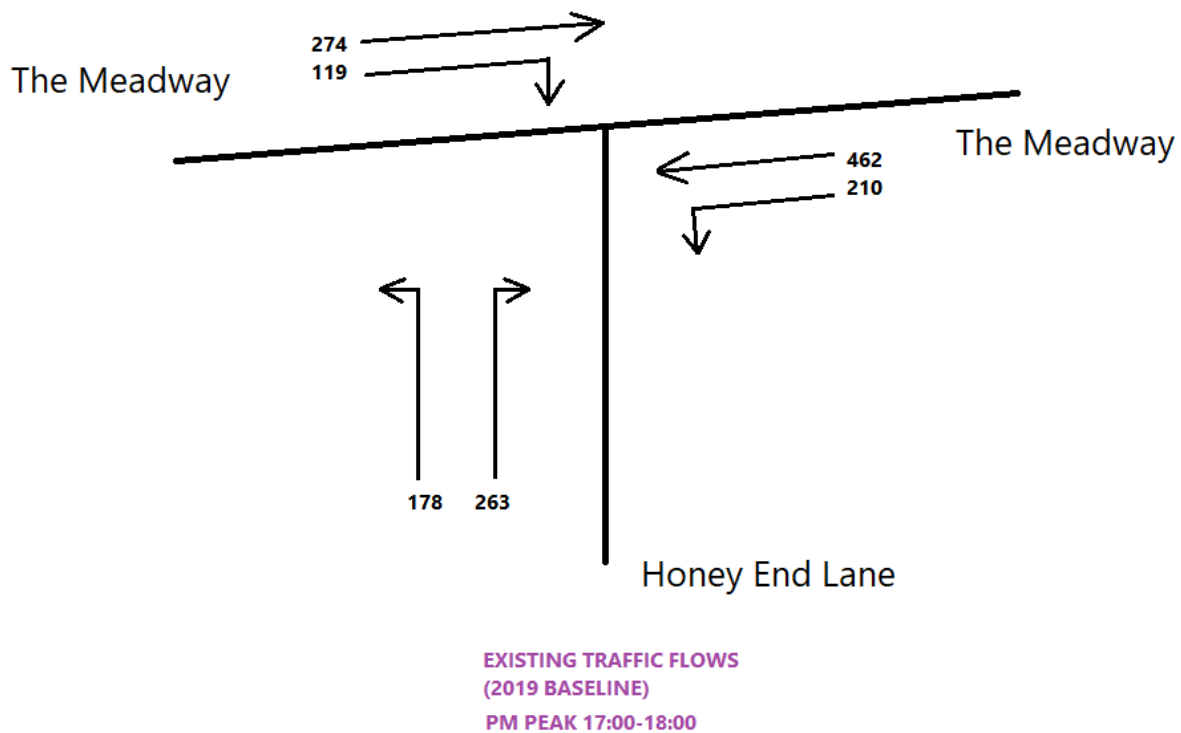
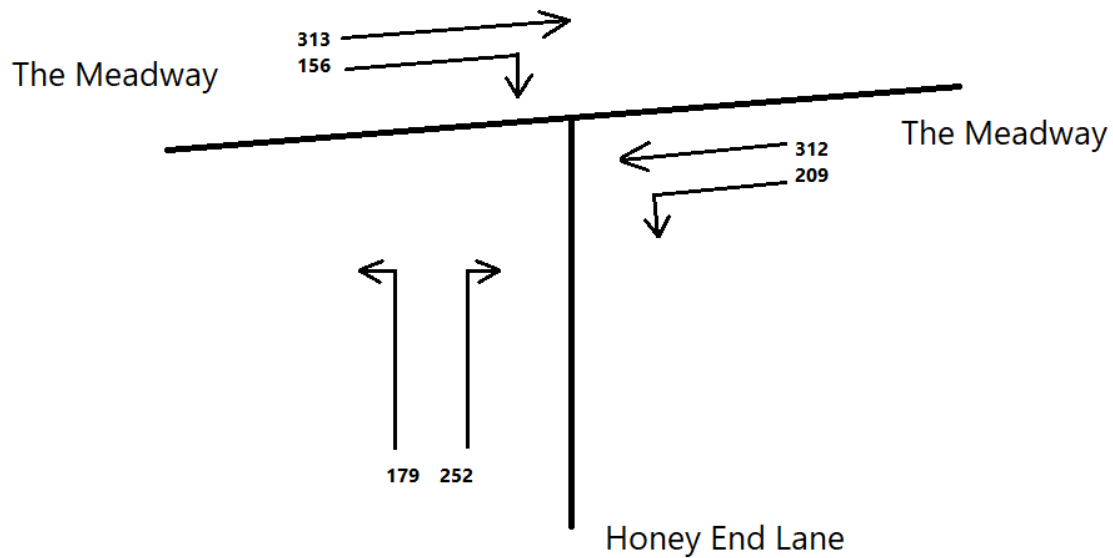


Fig. 8: Existing Traffic Flows (2019) PM Peak, The Meadway & Honey End Lane Signals

4.5.2 This junction operates within capacity at present, as evidenced by the DOS (Degree of Saturation) below 90%.



EXISTING TRAFFIC FLOWS
(2019 BASELINE)
SATURDAY LUNCHTIME PEAK 12:00-13:00

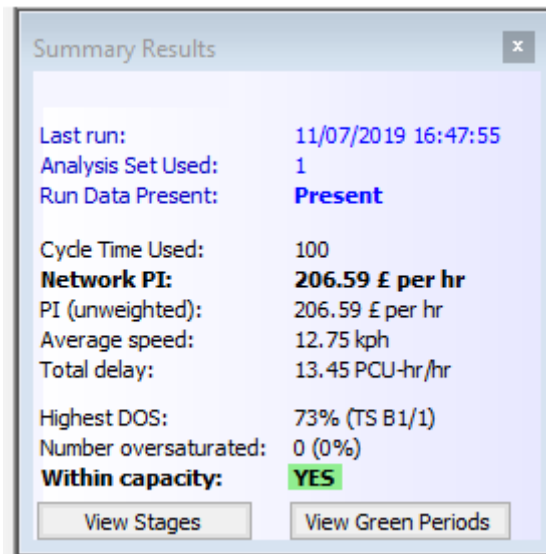


Fig. 9: Existing Traffic Flows (2019) Saturday Lunchtime Peak, The Meadway & Honey End Lane Signals

4.5.3 This junction operates within capacity at present, as evidenced by the DOS (Degree of Saturation) below 90%.

5.0 Proposed Trip Generation and Projected Impact

5.1 Proposed Site Access and Layout

- 5.1.1 As per the previous scheme, the existing vehicle access points will be retained but the connection between them will be severed, which will remove the existing hazard and nuisance. The northern access will be for residents and service & delivery vehicles only. The southern access will serve the car parks with some limited access for service vehicles to the rear of the adjacent units. This will achieve significantly greater segregation of cars and service vehicles, which will improve safety and convenience for all concerned.
- 5.1.2 The proposed site layout plans are provided at Appendix G.

5.2 Car Parking Provision

- 5.2.1 The precinct is located within Zone 3 of the Reading parking hierarchy, also known as the Secondary Core Area. The maximum parking provision standards for this zone which are relevant to the proposal are as follows;
- | | |
|--|------------------------------|
| ▪ A1 Food Retail | 1 space per 30m ² |
| ▪ A1 Non-Food Retail Up to 1,000m ² | 1 space per 40m ² |
| ▪ A1 Non-Food Retail Over 1,000m ² | 1 space per 30m ² |
| ▪ A5 Hot Food Take-Away | 1 space per 40m ² |
| ▪ D2 Health Clubs/Gymnasiums | 1 space per 30m ² |
| ▪ C3 Dwelling; Flats 1-2 bed | 1.5 spaces |
| ▪ C3 Dwelling; Flats 3+ beds | 2 spaces |
| ▪ Visitor Parking | 1 space per 4 dwellings |
- 5.2.2 As the final end users of the units are not all known it has been assumed that there will be a 50:50 split between food and non-food retail with some hot food takeaway use retained. An 'average' parking requirement of 1 space per 30 m² for the commercial premises has been assumed, as previously agreed with the Council. On this basis, a provision of up to 125 car spaces could be permitted for the commercial parts of the development. In fact, a provision of 134 spaces has been proposed, but this figure includes disabled car parking at an appropriate level of 7%.
- 5.2.3 For the residential properties, there will be 251 dwellings which are 1 or 2 bed, and 15 dwellings which are 3-bed. For this mix, a provision of up to 407 car spaces could be permitted, whereas 304 spaces are proposed. This provision does however provide in excess of 1 car space per dwelling, plus visitor parking and is considered to provide a measure of car parking restraint, encouraging sustainable travel choices.
- 5.2.4 Cycle parking standards are for 1 per 6 staff (retail and leisure uses) and 1 per 300m² while for residential uses it should be provided as 1 space per 2 flats in a communal store. This translates to an approximate provision of 18 cycle stands for the commercial premises and 133 residential cycle parking facilities.

- 5.2.5 There are also delivery and service vehicle requirements; for the proposed precinct as a whole (3753m²) a provision of up at least 8 loading bays would be required (3 per 1500m² and 2 per 500 to 1500m²); this would clearly be seen as preferable to providing one bay for each individual shop unit (34 loading bays).

5.3 Impact Analysis – Commercial Uses

- 5.3.1 The proposal is to increase the retail area in the precinct from 2776m² to 3753m², an increase of approximately 35%. This is significantly less than the approved scheme.
- 5.3.2 However, for the purposes of trip generation the three proposed larger units (990m², 582m² and 438m²) will again be treated separately for the purposes of TRICS analysis, to demonstrate the likely trip rates for these units, based on floor-space.
- 5.3.3 As with the smaller units, the TRICS rates have been reduced by 18% to reflect the impact of linked trips between ASDA, the small retail units and the large units, based on observations of the car park occupancy survey. In reality this is probably an underestimate as the proportion of linked trips will almost certainly increase as more units are developed;

Table 5; Predicted trips for the larger proposed units (total of 2,010m²)

Time Period	Arrivals	Departures	Total Movements
Saturday 12.00-13.00	121	119	240
Weekday 12.00-13.00	93	93	186
Weekday 17.00-18.00	89	93	182
Weekday 08.00-09.00	52	38	90

- 5.3.4 The remaining proposed retail units (1743m²) are assumed to generate trips in the same proportions as the current units. Thus the existing trip rates are reduced to 62.8% of the existing retail floor area. That would equate to projected trip rates as follows;

Table 6; Predicted trips for the smaller units (total of 1,743m²)

Time Period	Arrivals	Departures	Total Movements
Saturday 12.00-13.00	92	87	179
Weekday 12.00-13.00	129	129	258
Weekday 17.00-18.00	106	114	220
Weekday 08.00-09.00	85	81	166

- 5.3.5 The trip generation impact of the commercial development proposal can be ascertained by adding the trips generated by the large and small units, and subtracting the trips generated by the existing commercial precinct;

Table 7; Additional commercial trips generated by development

Time Period	Arrivals	Departures	Total Movements
Saturday 12.00-13.00	66	68	134
Weekday 12.00-13.00	17	17	34
Weekday 17.00-18.00	26	26	52
Weekday 08.00-09.00	2	-10	-8

- 5.3.6 This evidence suggests that the impact of the proposed commercial development will be more significant at the weekend peak than during the working week, where the increase in commercial trips will be modest.

5.4 Impact Analysis - Residential

- 5.4.1 One of the key ways in which the current proposals differ from the previous proposals is the significantly greater number of residential properties which will be provided following development. A TRICS report was produced to reflect the proposed residential development, with the following parameters:

- Use Category: 03K (Residential – Mixed Private Housing, Flats and Houses)
- Excluding Inner Urban and Rural Locations
- Excluding areas with the highest and lowest population densities
- Excluding areas with particularly low car ownership

This left a total of 7 sites, in line with TRICS Good Practice guidelines.

- 5.4.2 The following outputs were recorded for the proposed 266 dwellings:

Table 9: Proposed Residential Trip Rates (TRICS 2019 data)

Mode	AM Peak (08-09)			Lunch Peak (12-13)			PM Peak (17-18)			Daily Total		
	A	D	T	A	D	T	A	D	T	A	D	T
Vehicles	33	109	142	51	51	102	92	48	140	598	643	1241
Cyclists	2	6	8	3	1	4	3	3	6	24	22	46
Pedestrians	3	22	25	8	7	15	20	15	35	154	159	313
Bus Users	0	3	3	3	1	4	2	2	4	19	17	36
Goods Veh	0.5	0	0.5	0.5	0	0.5	0	0	0	6	6	12
Service Veh	2	0	2	2	1	3	0	0	0	11	11	22

- 5.4.3 In order to calculate the increase in residential vehicle trips, the movements associated with the existing 27 flats should be subtracted from the total; this gives an estimate of an additional 558 vehicles arriving and 603 vehicles departing the site each day. In terms of the impact on peak traffic, the calculation is set out below:

Table 10: Additional residential trips generated by development

Mode	AM Peak (08-09)			Lunch Peak (12-13)			PM Peak (17-18)		
	Arr.	Dep.	Total	A	D	T	A	D	T
Vehicles	31	106	137	48	48	96	89	46	135

- 5.4.4 It will be important to reflect the changes in the access to the Precinct in the modelling of traffic impact from these new proposals; the residential properties will not access the site using the precinct's existing access road shared with ASDA, but instead will use the priority junction to the north of the roundabout. **This will necessitate a separate model.**

5.5 Network Trip Assignment – Residential Priority Junction

- 5.5.1 The residential trips will be assumed to take similar routes to existing traffic, but will head through the precinct access roundabout via a different route than existing due to their separate point of vehicular access to the site.
- 5.5.2 In order to work out the impact of proposed residential trips on the highway network, a new model needed to be produced for the priority junction between the residential (and service vehicle) access to the Precinct and Honey End Lane.
- 5.5.3 As shown in the diagrams below, the existing turning counts are too small to require modelling; however once the development traffic is added to the projected 2024 scenario this does give sufficient turning traffic to be worth examining in greater detail. The larger traffic flows have been assigned 50% in either direction as the residential trip origins and destinations are uncertain.

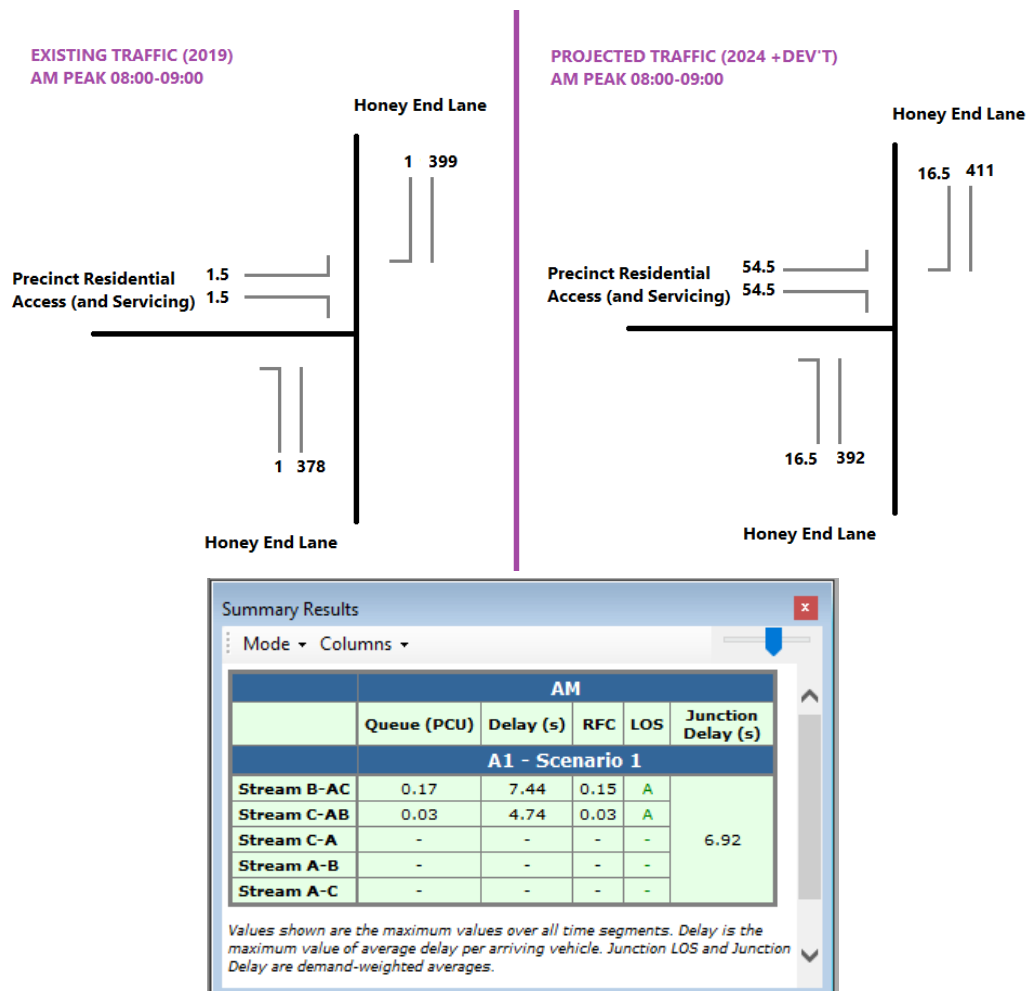


Fig. 10: Residential Junction AM Peak, Existing and 2024 + Dev't

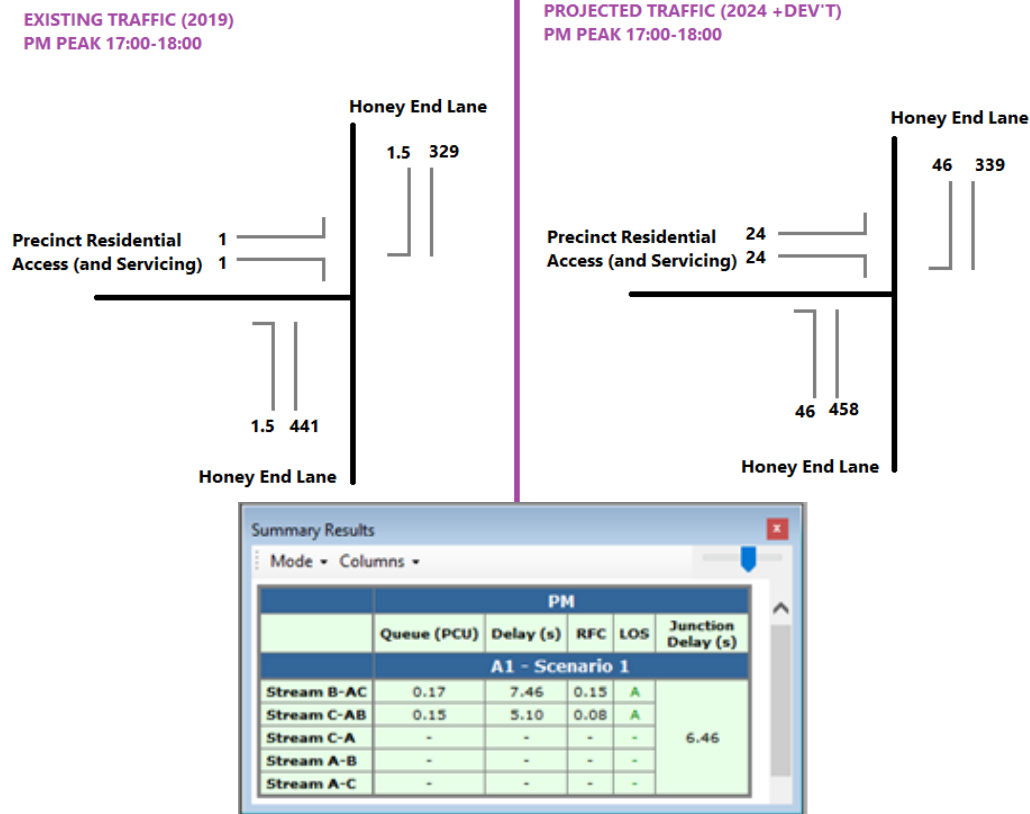


Fig. 11: Residential Junction PM Peak, Existing and 2024 + Dev't

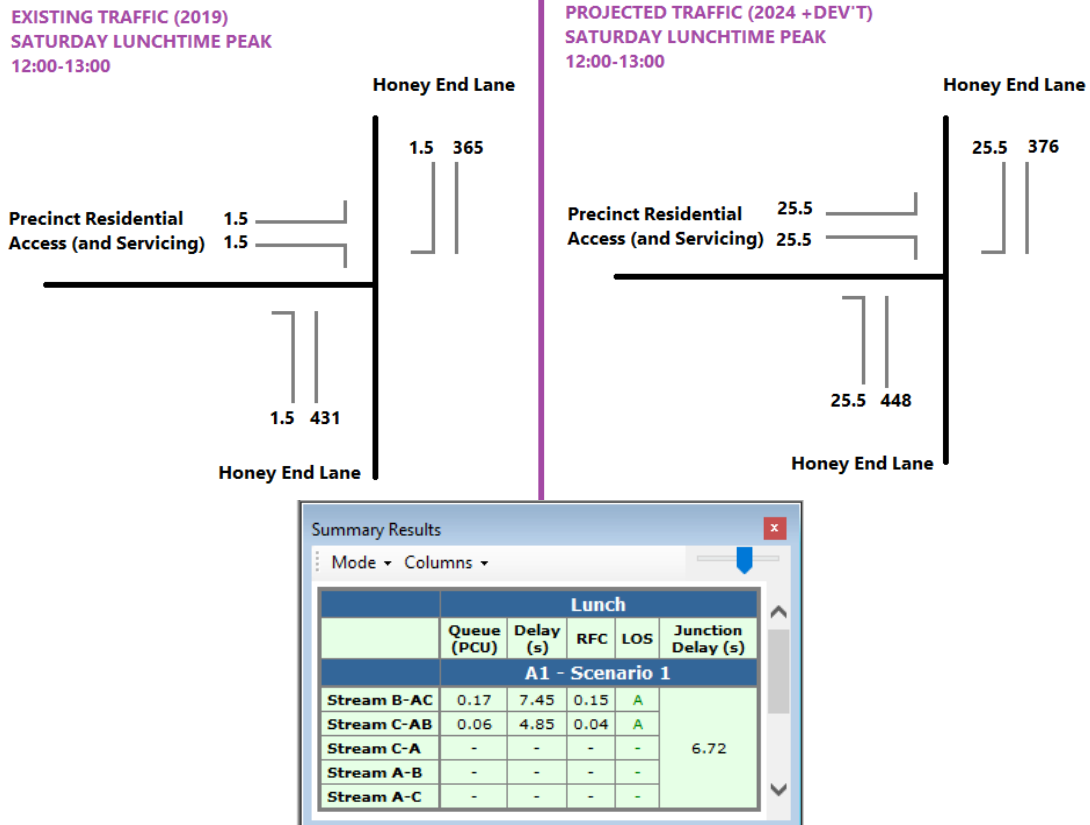


Fig. 12: Residential Junction Saturday Lunchtime Peak, Existing and 2024 + Dev't

5.5.4 The evidence from the models in Figures 10, 11 and 12 demonstrates that the projected residential traffic will have minimal impact on the priority junction even at peak times, which is perhaps surprising but welcome. The report for these models is provided at Appendix D.

5.6 Network Trip Assignment – Precinct Access Roundabout

5.6.1 The total arrival and departure flows calculated above relating to the commercial uses can be distributed around the precinct access roundabout according to the turning proportions recorded in the traffic surveys carried out in June 2019.

5.6.2 The following diagrams show the projected turning counts associated with the precinct site. The counts have been projected to a future year of 2024, and then the projected development traffic added.

5.6.3 These figures are combined with the survey data for traffic passing through the junction, in order to complete the junction model in ARCADY. The full modelling output reports are provided at Appendix E.

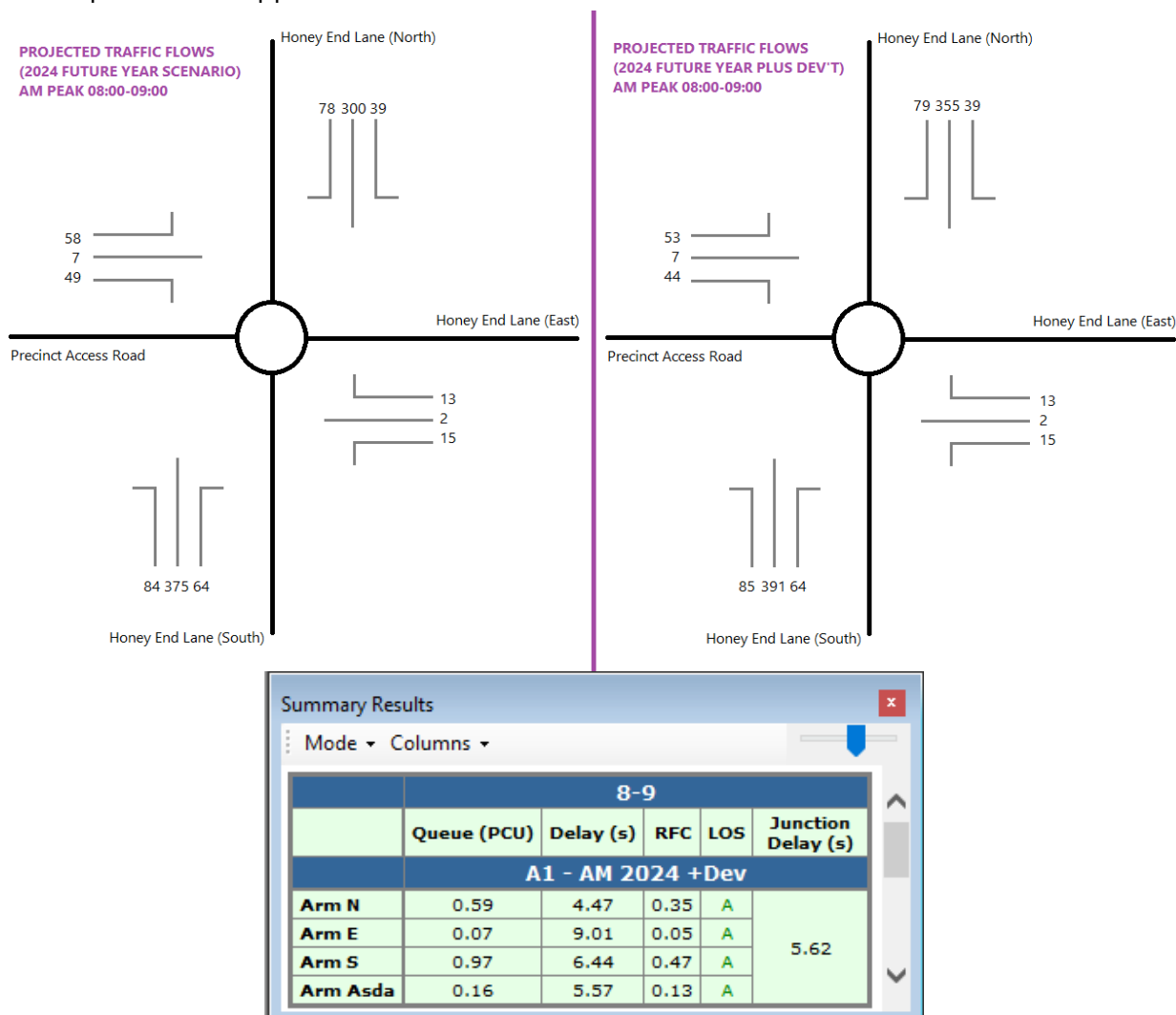
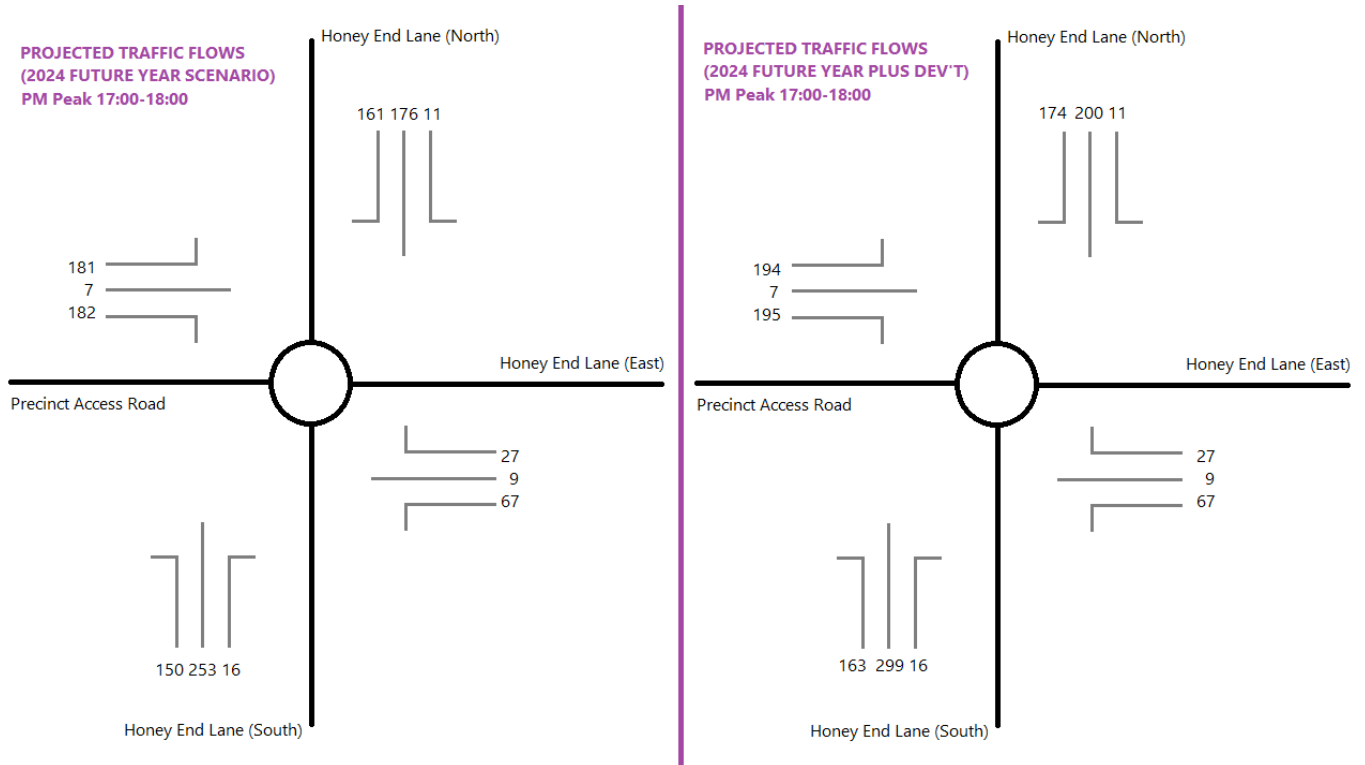


Fig. 13: Weekday 08:00-09:00 Turning Counts, Projected and Plus Dev't



Summary Results

Mode Columns

	5-6				
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
	A1 - PM 2024 +Dev				
Arm N	0.46	4.30	0.30	A	6.71
Arm E	0.33	11.54	0.17	B	
Arm S	0.86	6.45	0.44	A	
Arm Asda	0.89	8.11	0.46	A	

Fig. 14: Weekday 17:00-18:00 Turning Counts, Projected and Plus Dev't

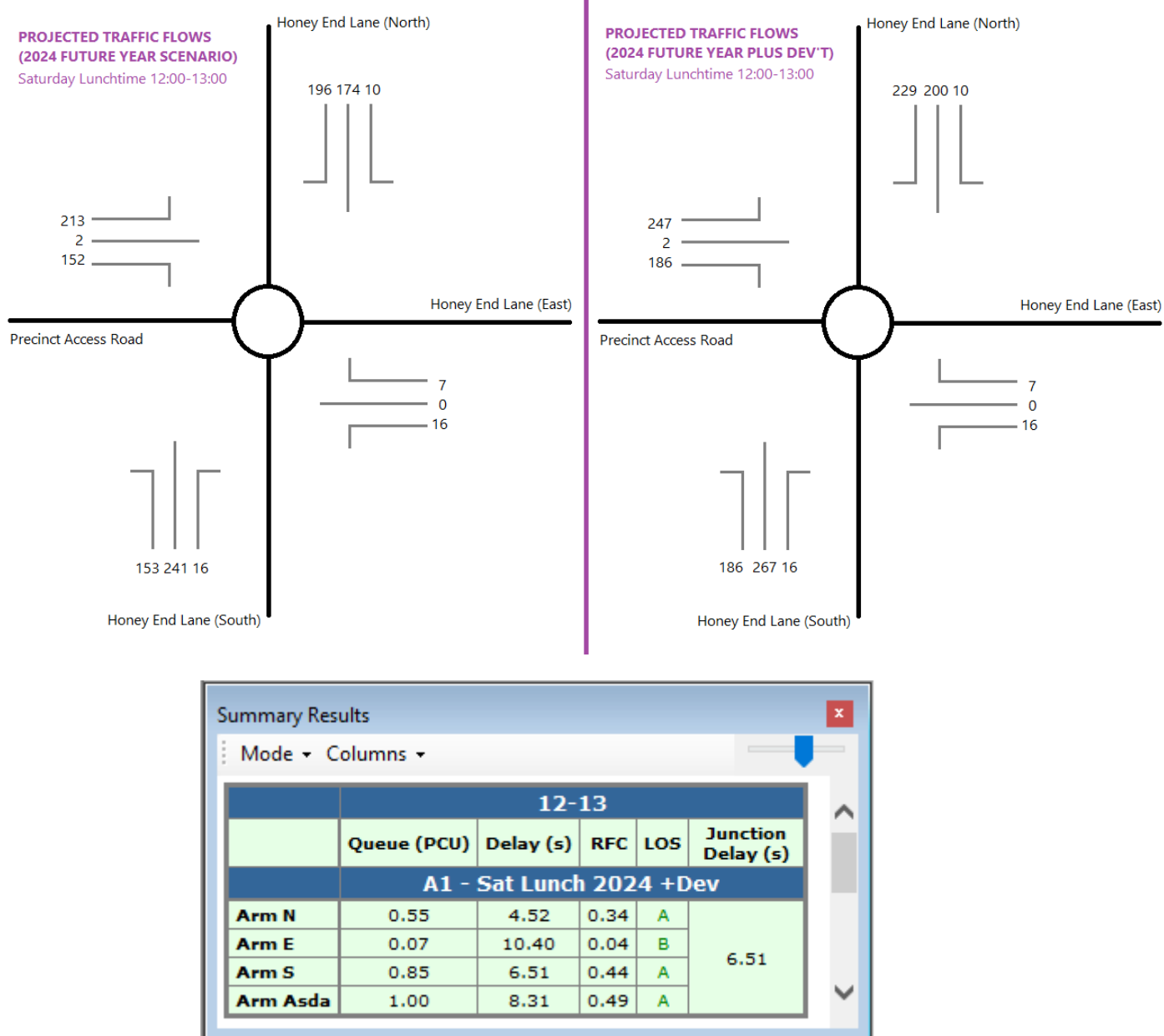


Fig. 15: Saturday 12:00-13:00 Turning Counts, Projected and Plus Dev't

5.6.4 As can be seen from the outputs in Figures 13, 14 and 15, the Precinct access roundabout will remain within capacity on all arms following development, according to our assessment. This is shown by the RFC (Rate of Flow to Capacity) levels being below 0.85, which is the point at which capacity issues start to occur. Short queues of at most one vehicle may occur at peak times, but these will not cause significant delays.

5.7 Honey End Lane junction with Bath Road

- 5.7.1 The projected turning movements have also been modelled through the mini-roundabout junction with the A4 Bath Road to the south of the site, to ensure robustness in assessing traffic impacts.
- 5.7.2 The following turning proportions and counts have been calculated for this junction based on the flows to and from the Precinct, and other traffic and turning count data sourced as part of the June 2019 traffic surveys.

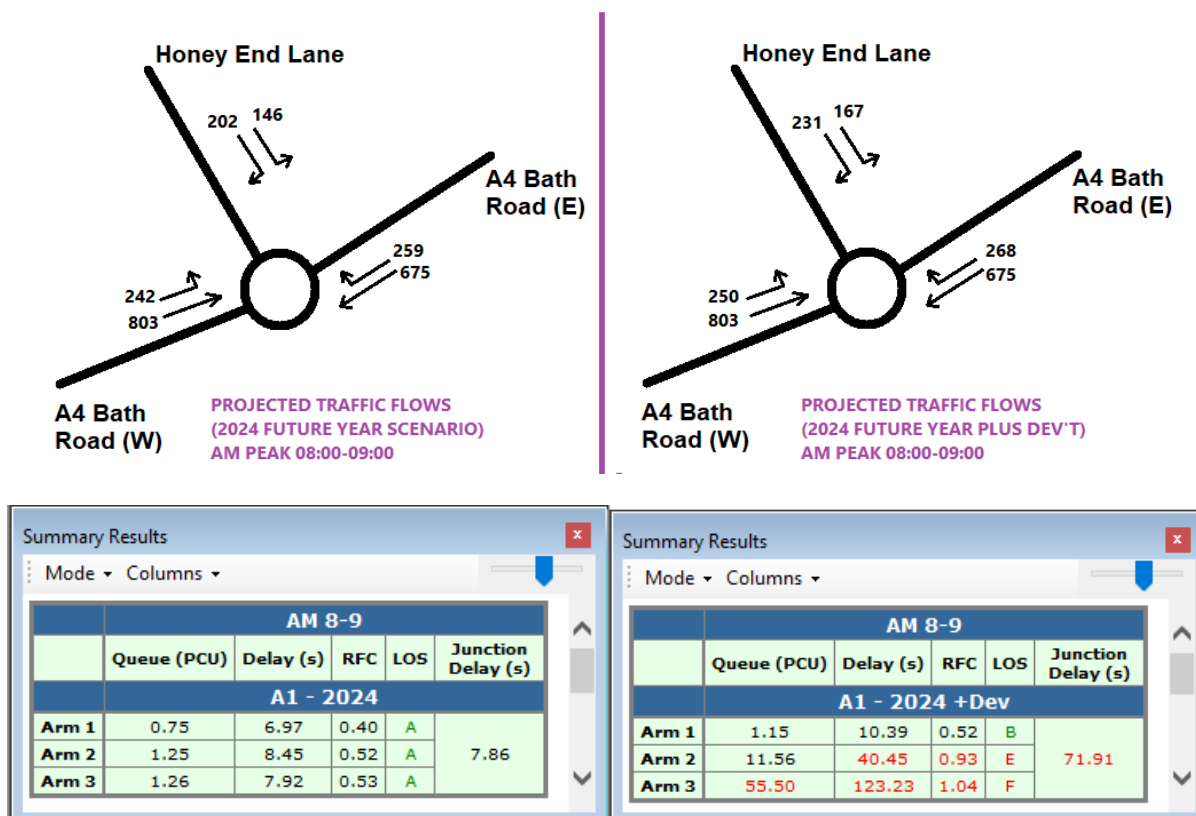


Fig. 16; Bath Road Junction, 2024 + Dev't AM Peak - Projected Turning Counts

- 5.7.3 When run through ARCADY, the turning counts in Fig. 16 demonstrate that junction capacity will be exceeded, and that significant queues will be created at peak times on the western arm of the A4 Bath Road approaching the junction, following development. There will also be a reduced but still unacceptable level of queuing on the eastern arm of the A4 Bath Road approaching the junction.
- 5.7.4 This impact is evident in comparison with the 2024 projection above as well as the existing model output shown in Figure 4 of this report. The developer will be aware therefore that the Local Authority are likely to seek financial contributions towards improvements to this junction to increase capacity.

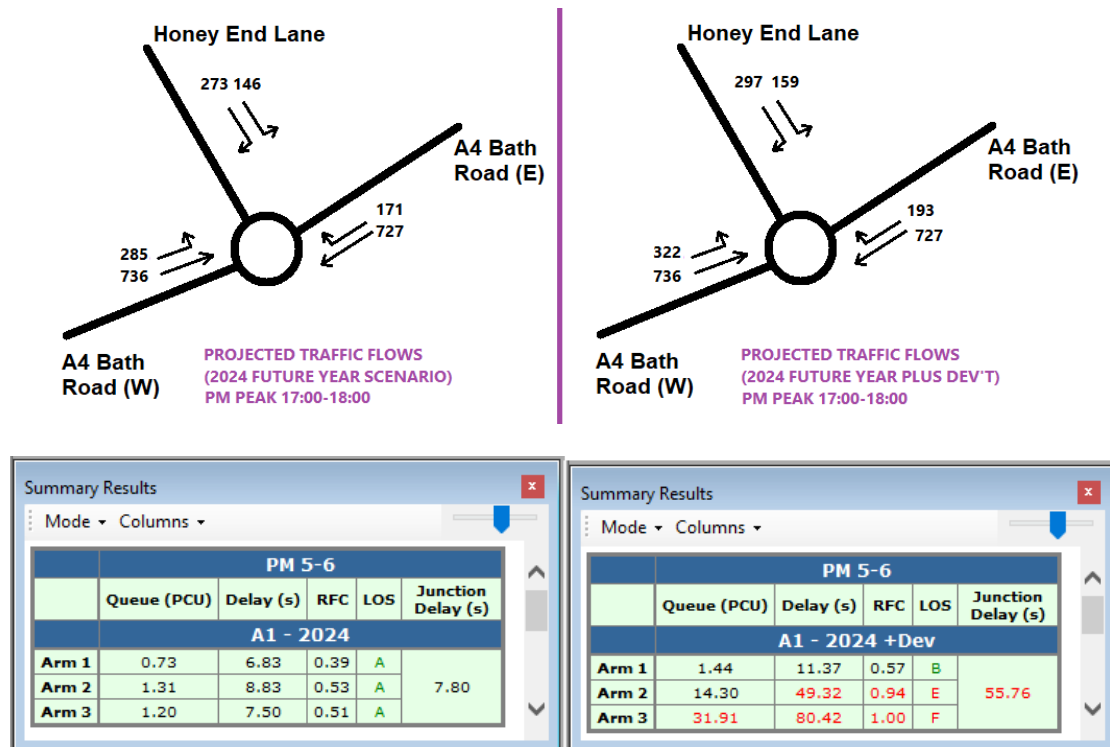


Fig. 17, Bath Road Junction, 2024 + Dev't PM Peak – Projected Turning Counts

5.7.5 Curiously, in contrast to the existing scenario set out in Figure 5, the 2024 quantum of traffic through the junction balances in such a way that the existing roundabout would not be at capacity without development. However, as before adding the significant new development means that there will be queues in both directions on the A4 Bath Road at this junction during the PM Peak in 2024; the queues on the western approach will be significantly worse but both directions will experience traffic flows in excess of their capacity, with queues and average delays per vehicle of over 1 minute to negotiate the junction.

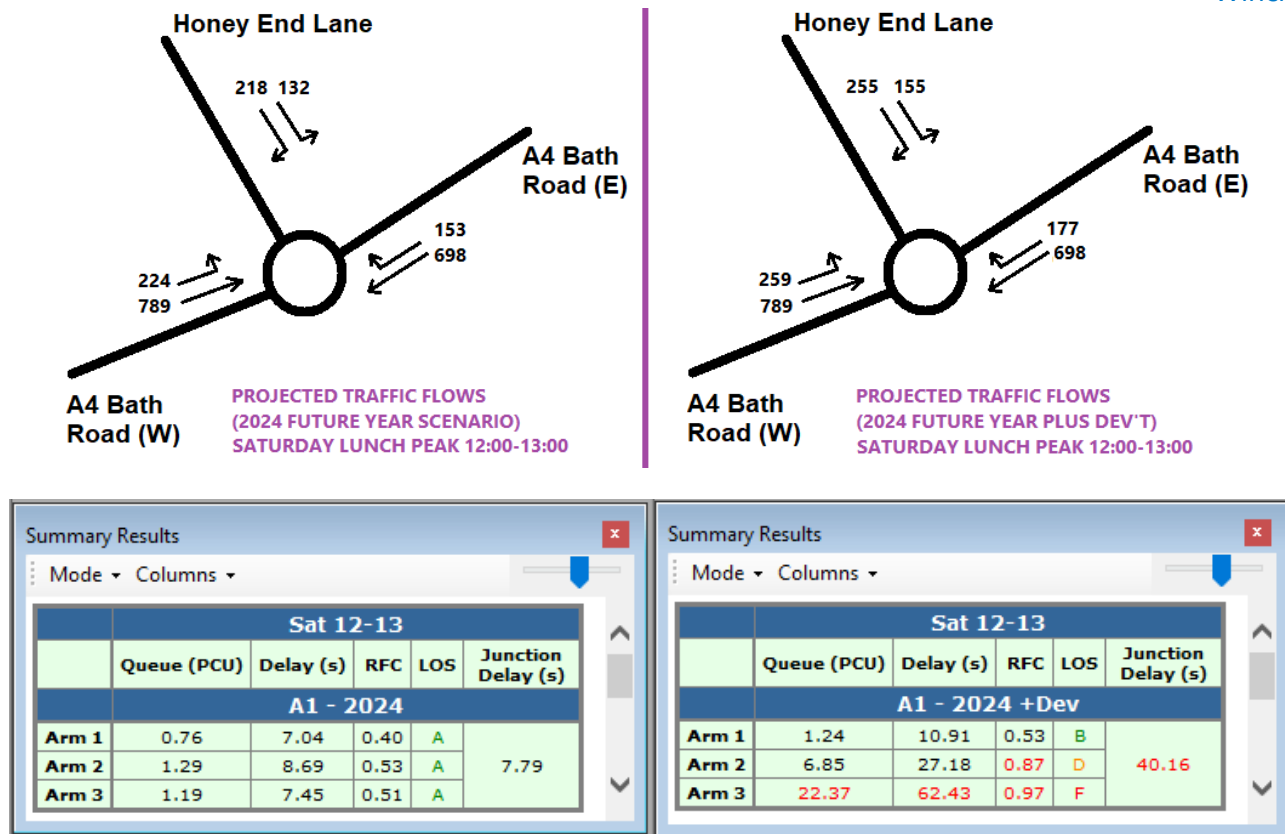


Fig. 18, Bath Road Junction, 2024 + Dev't
Saturday Lunchtime Peak – Projected Turning Counts

- 5.7.6 As with the PM Peak outputs, in 2024 minus development the balance of flows is such that the junction will remain within capacity at Saturday lunchtime. However, again the development is instrumental in causing congestion on the western arm of Bath Road approaching the junction. There will also be smaller queues on the eastern arm of Bath Road, as this will also exceed an RFC of 0.85.
- 5.7.7 Full junction modelling reports for this junction are provided at Appendix F.

5.8 Honey End Lane signalled junction with The Meadway

5.8.1 The projected turning movements have also been modelled through the signalled junction with The Meadway to the north of the Precinct site. The following counts have been calculated for this junction based on the survey data available and updated flow information to and from the Precinct.

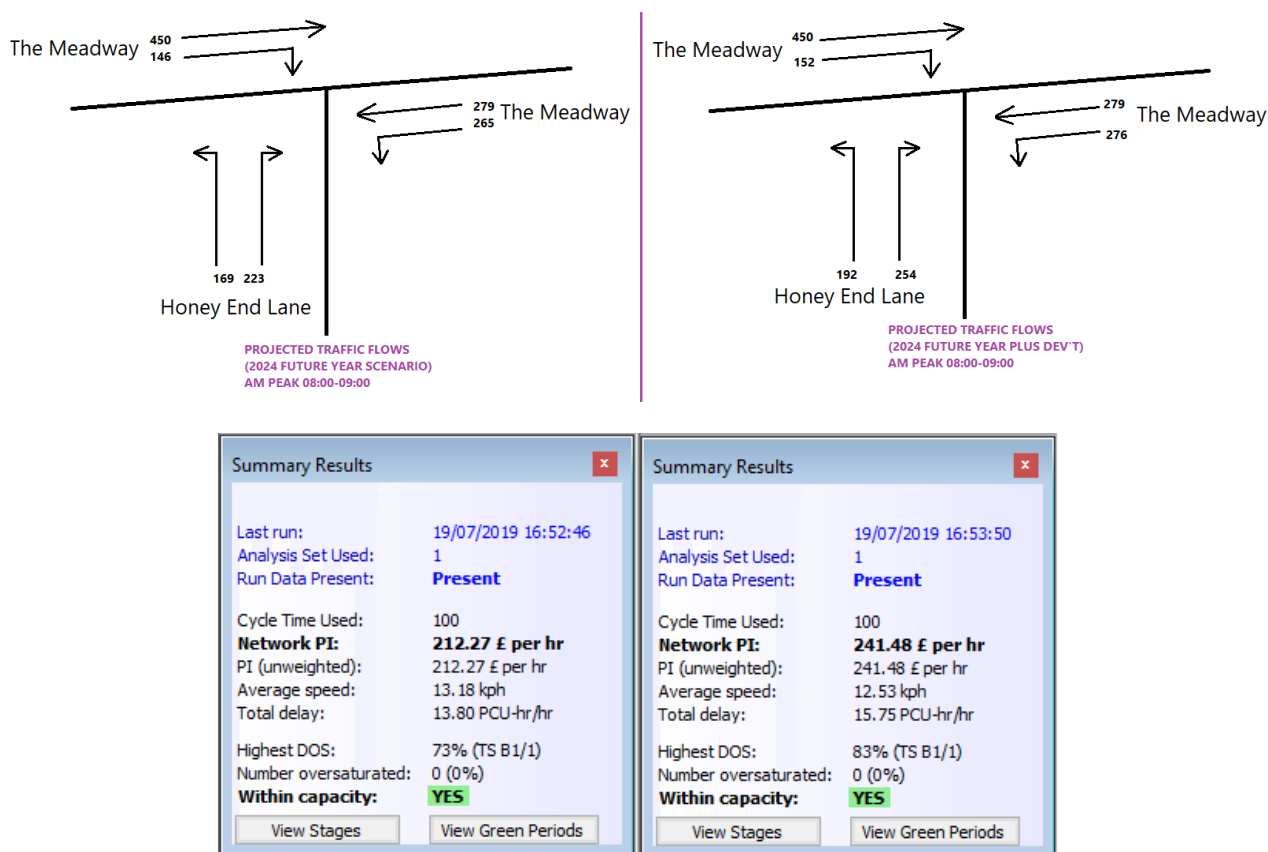
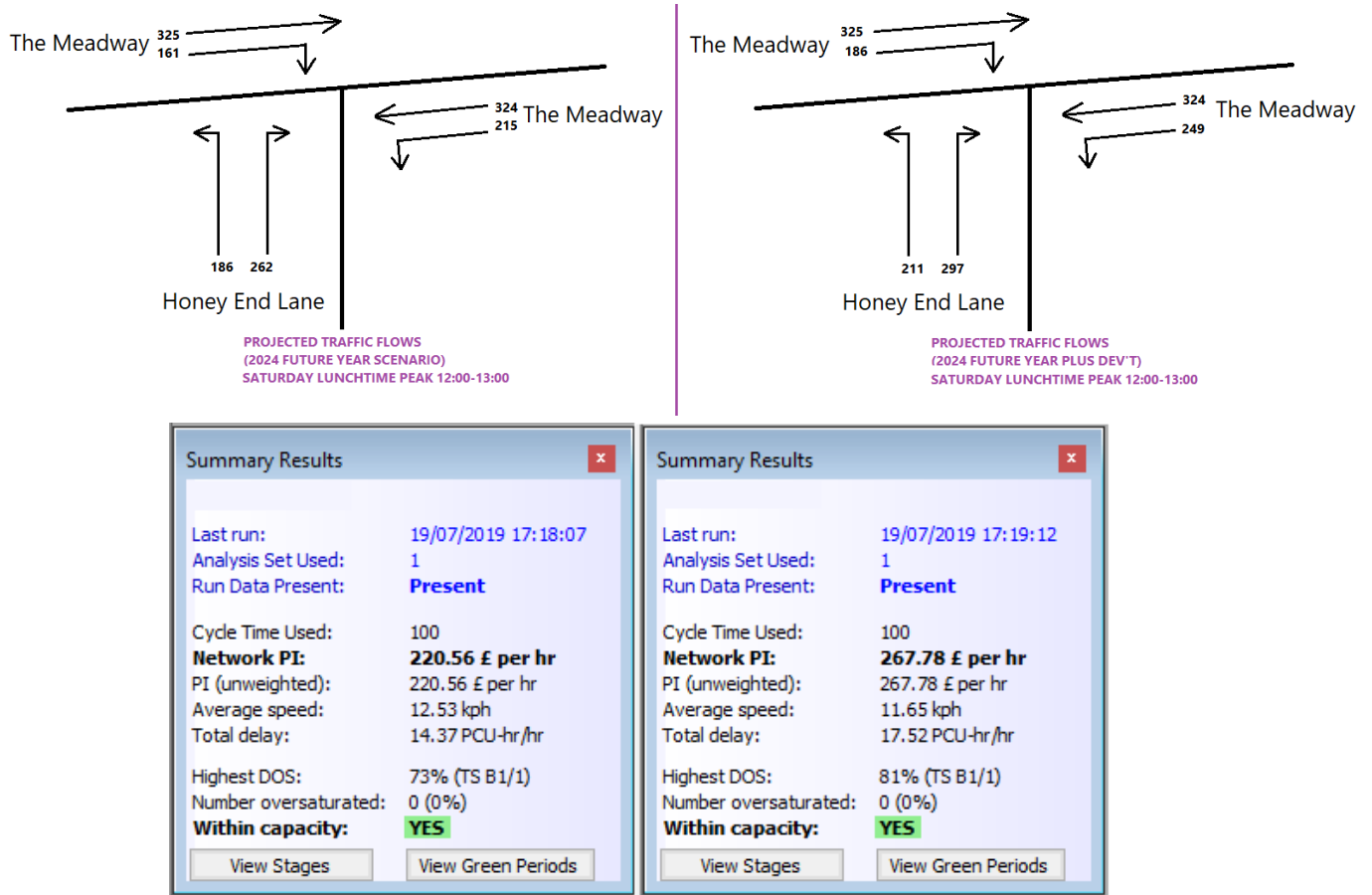


Fig. 19; The Meadway junction; 2024 +Dev't AM Peak - Projected Turning Counts

5.8.2 As the evidence demonstrates, provided the traffic signals are suitably programmed, there will be no capacity issues at this junction during the AM traffic peak. The crucial measurement here is the DOS (Degree of Saturation) which needs to remain below 90% in order for the junction's operation to remain safe and efficient.



**Fig. 20; The Meadway junction; 2024 +Dev't
Saturday Lunchtime Peak - Projected Turning Counts**

5.8.3 Again, during the Saturday lunchtime scenario, 2024 plus Development there will remain no issue with capacity at this signal-controlled junction.

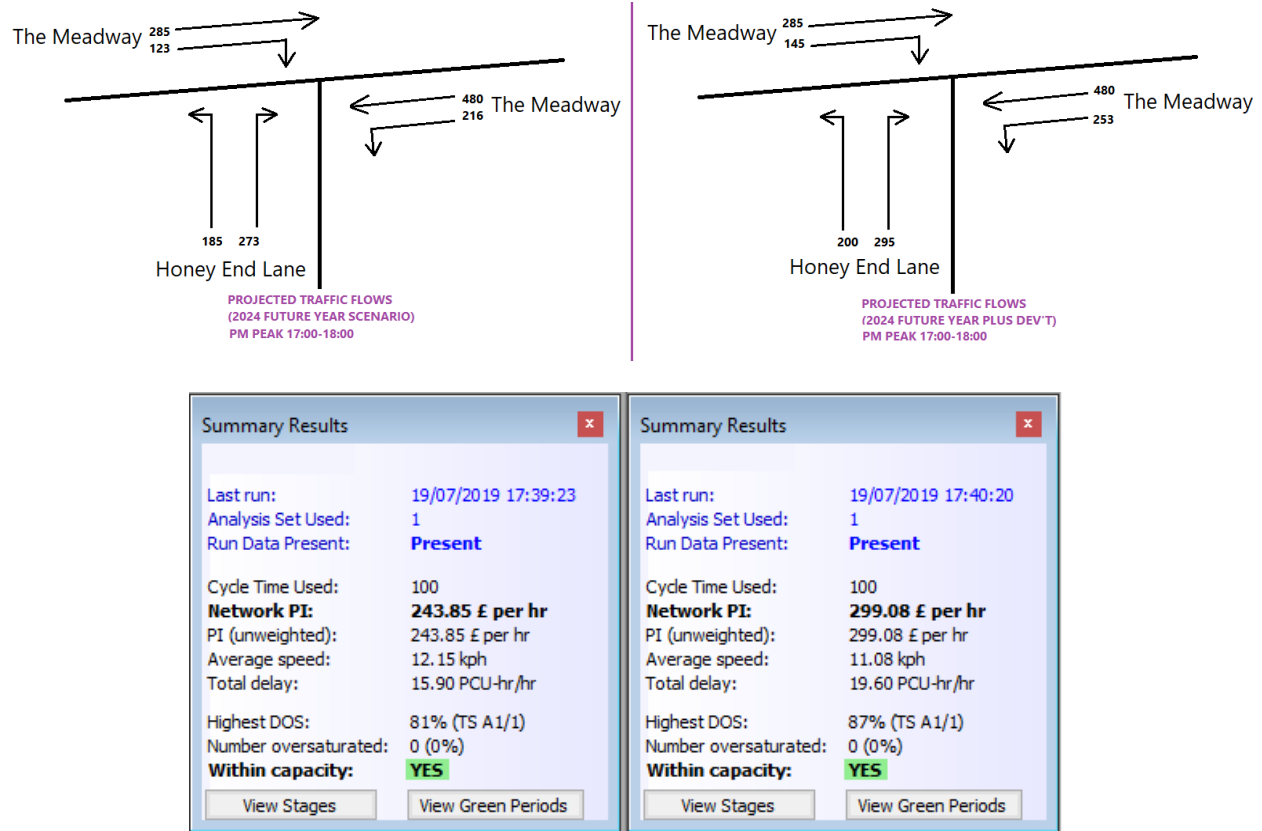


Fig. 21; The Meadway junction; 2024 +Dev't PM Peak - Projected Turning Counts

- 5.8.4 This information in Fig 21 demonstrates that even during the afternoon peak period, the junction will still operate within capacity following development and in the 2024 future year scenario.

6.0 Conclusions

- 6.1 The proposed commercial redevelopment in this revised scheme is significantly smaller than the previously approved scheme; there will be no junction capacity issues at the precinct access road as a result of development.
- 6.2 The proposed residential development will take its access from the existing rear entrance to the precinct; the modelling undertaken demonstrates that the existing priority junction onto Honey End Lane will not experience any capacity issues following development.
- 6.3 The existing signal-controlled junction between The Meadway and Honey End Lane will also remain within capacity following development.
- 6.4 The mini roundabout at the Honey End Lane and Bath Road junction has been evaluated and it is evident that existing problems of queuing and congestion occur on the western approach (i.e. traffic heading north towards the precinct or east towards central Reading) at peak times. This is not a surprise as the same evidence was presented at the time of the previously approved scheme. It is noted that at the time of the previously approved scheme, Reading Borough Council sought financial contributions from the developer towards improvements to cycling and pedestrian infrastructure and it is presumed that this will remain the priority, in order to encourage modal shift.
- 6.5 Regeneration of the Meadway Precinct will provide people in Tilehurst with improved local facilities. It is highly likely that local people will be able to make shorter trips when the new centre opens than they currently make to alternative retail facilities further away. In addition, those who live within walking or cycling distance of the premises will be able to reduce the number of car trips they currently make.
- 6.6 Given that the development will not have a severe cumulative impact on the local highway network and that measures can be put in place to cost-effectively mitigate any impacts of development, **Planning permission should again be granted for redevelopment of the Meadway Precinct.**

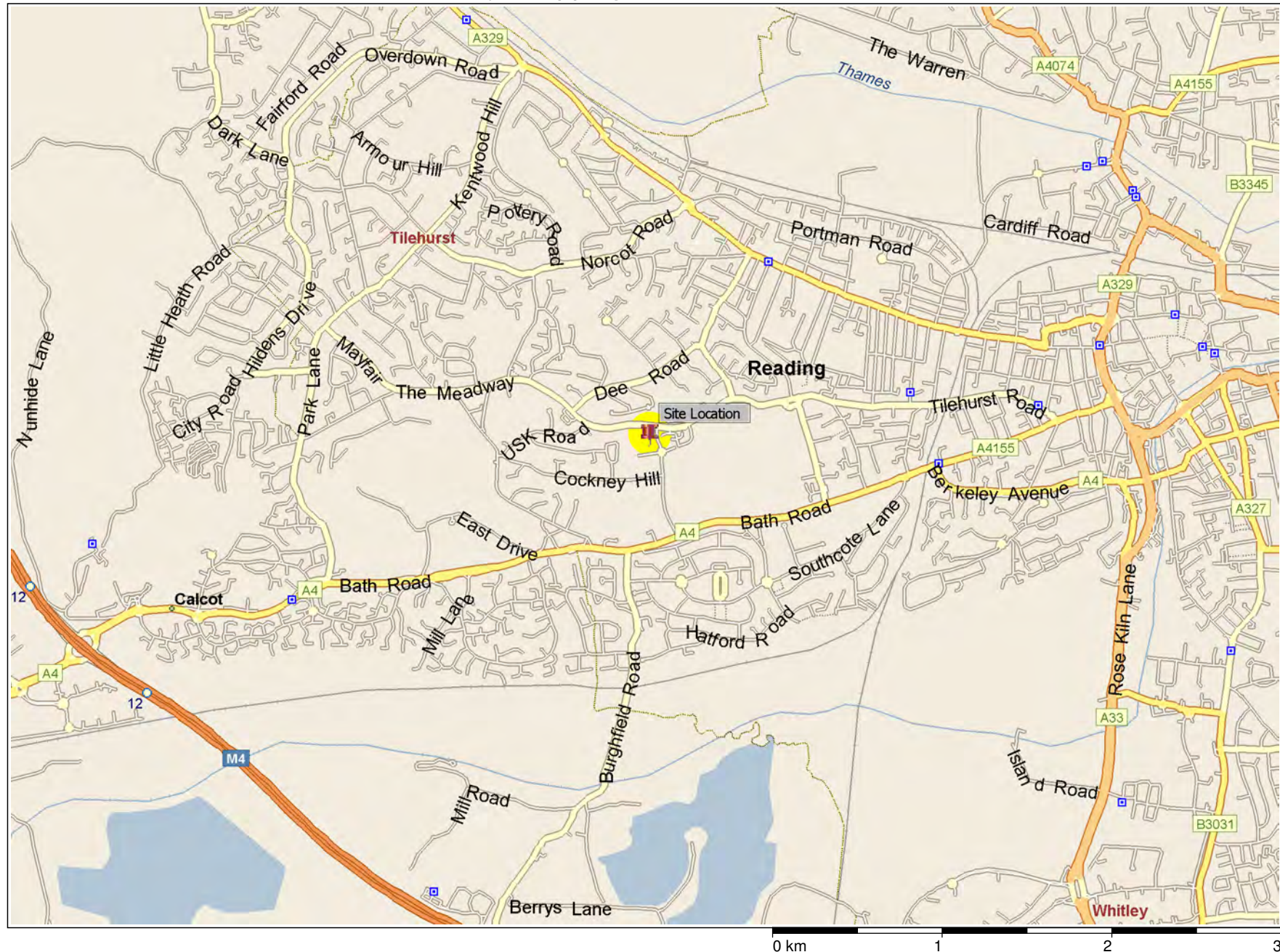
7.0 Appendices

- A. Site Location Plan**
- B. Bus Network Map**
- C. Walking and Cycling Map**
- D. Precinct Residential Access – Junction Modelling Report**
- E. Precinct Commercial Access - Junction Modelling Report**
- F. Bath Road Roundabout - Junction Modelling Report**
- G. Proposed Site Layout Plans**

Appendix A

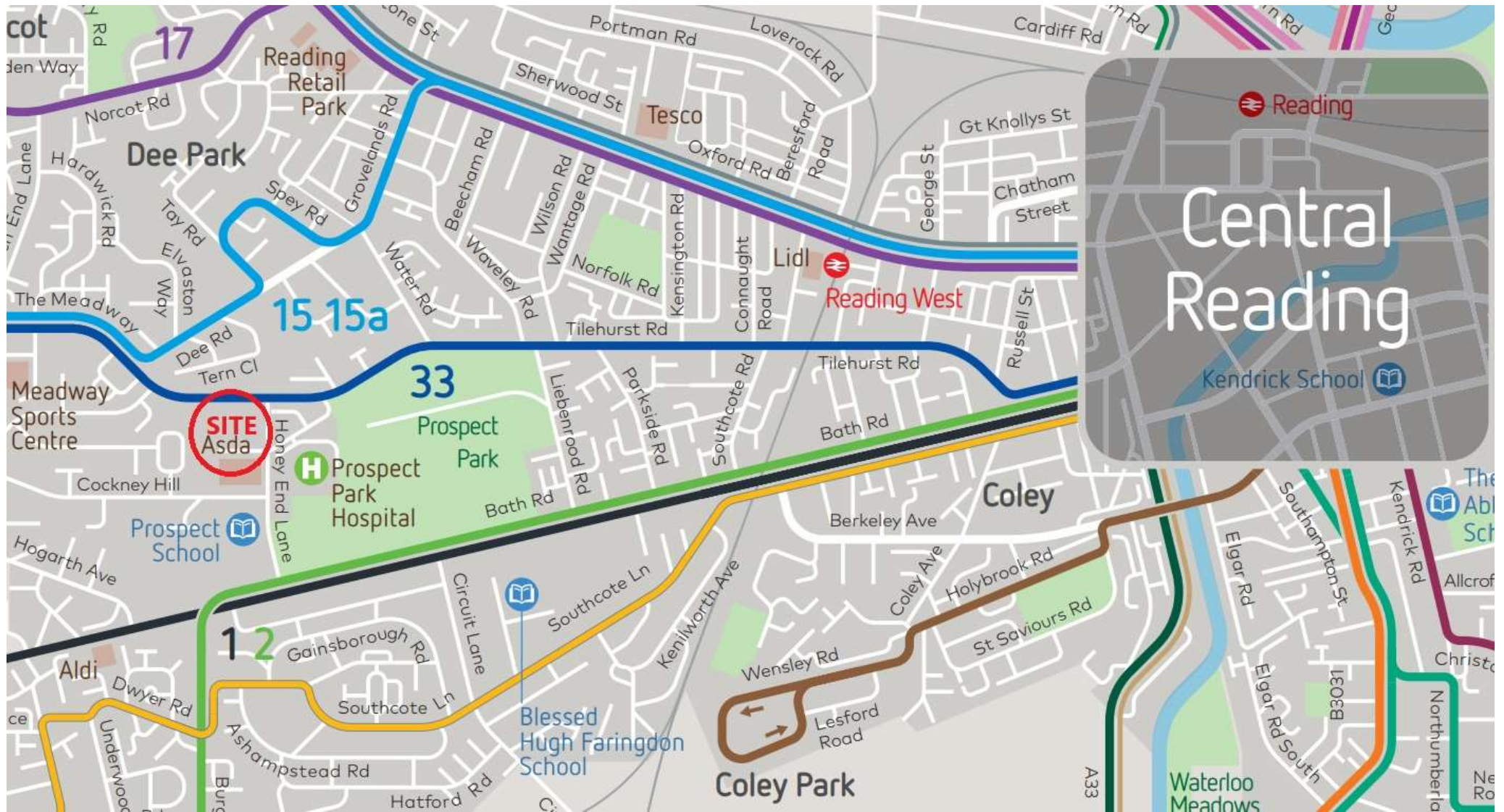
Site Location Plan

The Meadway Shopping Precinct Site Location Plan



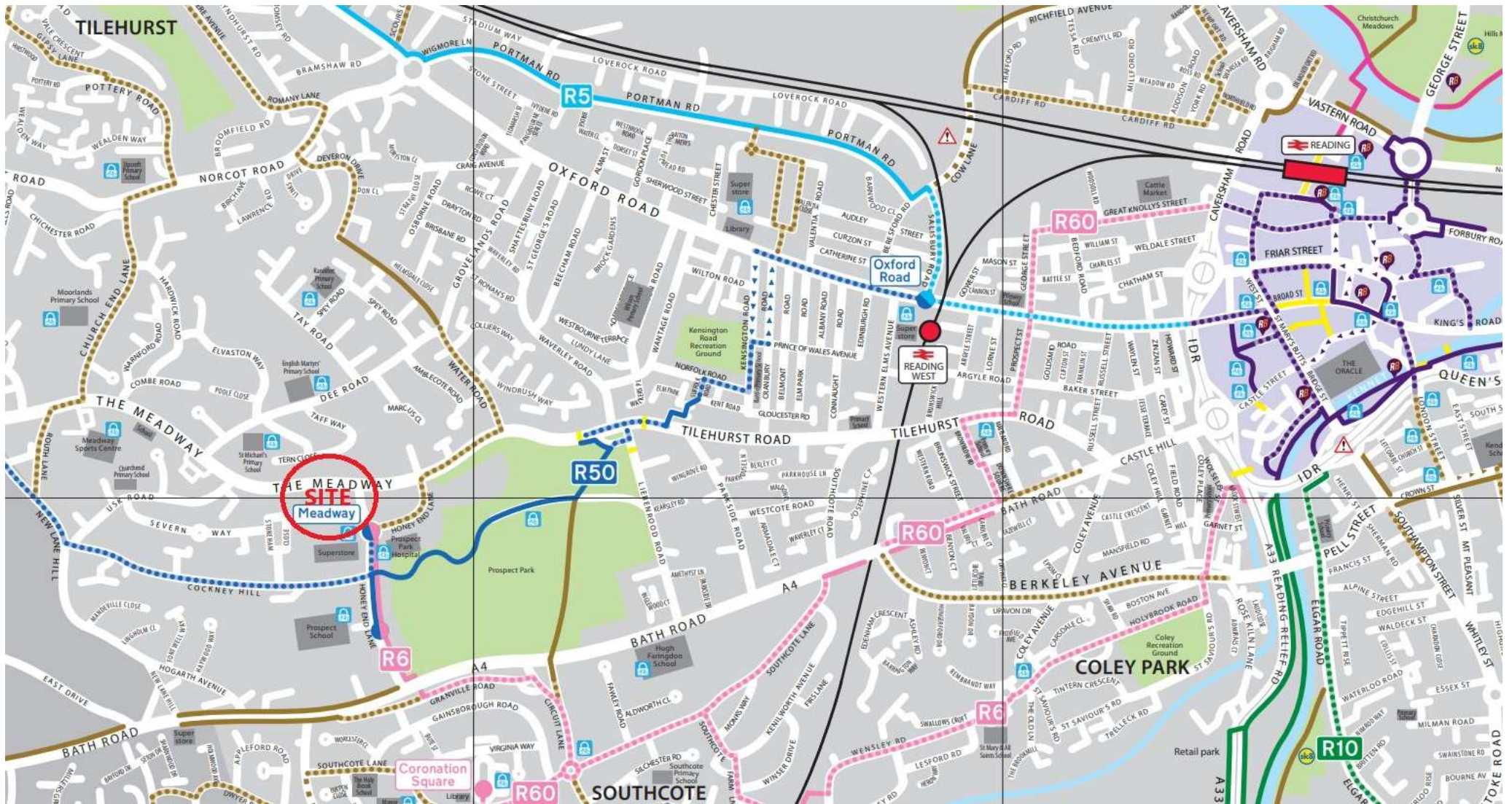
Appendix B

Bus Network Map



Appendix C

Walking and Cycling Map



Appendix D

Precinct Residential Access – Junction Modelling Report

Junctions 8	
PICADY 8 - Priority Intersection Module	
Version: 8.0.6.541 [19821,26/11/2015] © Copyright TRL Limited, 2019	
For sales and distribution information, program advice and maintenance, contact TRL: Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk	
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution	

Filename: W01810 Precinct Resi Access.arc8

Path: H:\Winchester Jobs\W Jobs\01000 - 01999\01800 - 01899\W01810 - Meadway Precinct, Tilehurst

Report generation date: 19/07/2019 12:38:24

- » (Default Analysis Set) - Scenario 1, AM
- » (Default Analysis Set) - Scenario 1, PM
- » (Default Analysis Set) - Scenario 1, Lunch

Summary of junction performance

	AM				
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
	A1 - Scenario 1				
Stream B-AC	0.17	7.44	0.15	A	6.92
Stream C-AB	0.03	4.74	0.03	A	
Stream C-A	-	-	-	-	
Stream A-B	-	-	-	-	
Stream A-C	-	-	-	-	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

"D1 - Scenario 1, AM " model duration: 08:00 - 09:00

"D2 - Scenario 1, PM" model duration: 17:00 - 18:00

"D3 - Scenario 1, Lunch" model duration: 12:00 - 13:00

Run using Junctions 8.0.6.541 at 19/07/2019 12:38:23

File summary

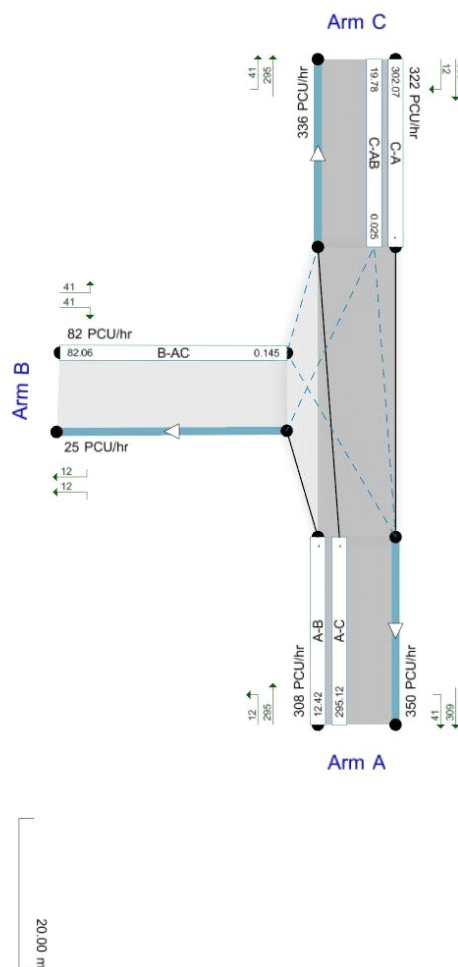
Title	(untitled)
Location	
Site Number	
Date	19/07/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	j hudson
Description	

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



Showing modelled flow through junction (PCU/hr).
Streams (upstreams) show Total Demand (PCU/hr); Streams (downstreams) show RFC ()
Time Segment: (08:00-09:00)
Showing Analysis Set "A1 "; Demand Set "D1 - Scenario 1, AM "

The junction diagram reflects the last run of ARCADY.

(Default Analysis Set) - Scenario 1, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometric Delay	Arm A - Geometric Delay	Geometric delay: Distance included up/down-stream should be increased to 95.87 m to allow for acceleration/deceleration to/from junction speed, otherwise results may be unreliable.
Warning	Geometric Delay	Arm B - Geometric Delay	Geometric delay: Distance included up/down-stream should be increased to 80.26 m to allow for acceleration/deceleration to/from junction speed, otherwise results may be unreliable.
Warning	Geometric Delay	Arm C - Geometric Delay	Geometric delay: Distance included up/down-stream should be increased to 78.66 m to allow for acceleration/deceleration to/from junction speed, otherwise results may be unreliable.

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)	N/A		✓				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	Relation
Scenario 1, AM	Scenario 1	AM		DIRECT	08:00	09:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Visibilities conform to TD 42/95	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C	✓	✓	6.92	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	(untitled)		Major
B	B	(untitled)		Minor
C	C	(untitled)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	12.16		0.00		2.20	93.84	✓	0.00

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

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	4.08										51	71

Geometric Delay Data for Priority Intersections

Arm	Entry speed (kph)	Exit speed (kph)	Entry radius from arm (m)	Exit radius into arm (m)	Stagger length (m)	Distance included upstream (m)	Distance included downstream (m)
A	48.00	48.00	0.00			10.00	10.00
B	48.00	48.00	0.00	0.00		10.00	10.00
C	48.00	48.00				10.00	10.00

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	586.329	0.078	0.198	0.124	0.282
1	B-C	740.903	0.083	0.210	-	-
1	C-B	628.307	0.178	0.178	-	-

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

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

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

Traffic 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 (%)
A	DIRECT		N/A	100.000
B	DIRECT		N/A	100.000
C	DIRECT		N/A	100.000

Turning Proportions

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

	To			
		A	B	C
From	A	0.000	16.500	392.000
	B	54.500	0.000	54.500
	C	411.000	16.500	0.000

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

	To			
		A	B	C
From	A	0.00	0.04	0.96
	B	0.50	0.00	0.50
	C	0.96	0.04	0.00

Vehicle Mix

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

	To			
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		A	B	C
From	A	0.0	0.0	0.0
	B	0.0	0.0	0.0
	C	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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)
B-AC	0.15	7.44	0.17	A	82.06	82.06	10.04	7.34	0.17	10.04	7.34
C-AB	0.03	4.74	0.03	A	19.78	19.78	1.91	5.80	0.03	1.91	5.80
C-A	-	-	-	-	302.07	302.07	-	-	-	-	-
A-B	-	-	-	-	12.42	12.42	-	-	-	-	-
A-C	-	-	-	-	295.12	295.12	-	-	-	-	-

Geometric Delay Results for modelled period

Geometric Delay per light vehicle (s) - Junction 1

	To			
		A	B	C
From	A	0.00	11.07	0.00
	B	8.36	0.00	11.07
	C	0.00	11.07	0.00

Inclusive Geometric Delay (PCU-min) - Junction 1

	To			
		A	B	C
From	A	0.00	2.29	0.00
	B	5.71	0.00	7.57
	C	0.00	2.29	0.00

Point to Point Journey Times Summary (s) - Junction 1

	To			
		A	B	C
From	A	0.00	12.57	1.50
	B	17.20	0.00	19.91
	C	7.30	18.37	0.00

Main Results for each time segment

Main results: (08:00-09:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	82.06	82.06	81.89	0.00	565.49	0.145	0.00	0.17	7.442	A
C-AB	19.78	19.78	19.75	0.00	779.15	0.025	0.00	0.03	4.740	A
C-A	302.07	302.07	302.07	0.00	-	-	-	-	-	-
A-B	12.42	12.42	12.42	0.00	-	-	-	-	-	-
A-C	295.12	295.12	295.12	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-09:00)

Stream	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
B-AC	10.04	0.17	7.442	A	A
C-AB	1.91	0.03	4.740	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Geometric Delay Results for each time segment

Geometric Delay results: (08:00-09:00)

Stream	Geometric Total Delay (PCU-min)	Geometric Rate Of Delay (PCU-min/min)
B-AC	13.26	0.22
C-AB	2.29	0.04
C-A	0.00	0.00
A-B	2.29	0.04
A-C	0.00	0.00

Total Geometric Delay By Turn (PCU-min) - Junction 1 - (08:00-09:00)

From	To			
	A	B	C	
A	0.00	2.29	0.00	
B	5.70	0.00	7.55	
C	0.00	2.29	0.00	

Point to Point Journey Times By Turn (s) - Junction 1 - (08:00-09:00)

From	To			
	A	B	C	
A	0.00	12.57	1.50	
B	17.30	0.00	20.01	
C	6.24	17.31	0.00	

(Default Analysis Set) - Scenario 1, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometric Delay	Arm A - Geometric Delay	Geometric delay: Distance included up/down-stream should be increased to 95.87 m to allow for acceleration/deceleration to/from junction speed, otherwise results may be unreliable.
Warning	Geometric Delay	Arm B - Geometric Delay	Geometric delay: Distance included up/down-stream should be increased to 80.26 m to allow for acceleration/deceleration to/from junction speed, otherwise results may be unreliable.
Warning	Geometric Delay	Arm C - Geometric Delay	Geometric delay: Distance included up/down-stream should be increased to 78.66 m to allow for acceleration/deceleration to/from junction speed, otherwise results may be unreliable.

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)	N/A		✓				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	Relation
Scenario 1, PM	Scenario 1	PM		DIRECT	17:00	18:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Visibilities conform to TD 42/95	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C	✓	✓	6.46	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	(untitled)		Major
B	B	(untitled)		Minor
C	C	(untitled)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	12.16		0.00		2.20	93.84	✓	0.00

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

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	4.08										51	71

Geometric Delay Data for Priority Intersections

Arm	Entry speed (kph)	Exit speed (kph)	Entry radius from arm (m)	Exit radius into arm (m)	Stagger length (m)	Distance included upstream (m)	Distance included downstream (m)
A	48.00	48.00	0.00			10.00	10.00
B	48.00	48.00	0.00	0.00		10.00	10.00
C	48.00	48.00				10.00	10.00

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	586.329	0.078	0.198	0.124	0.282
1	B-C	740.903	0.083	0.210	-	-
1	C-B	628.307	0.178	0.178	-	-

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

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

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

Traffic 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 (%)
A	DIRECT		N/A	100.000
B	DIRECT		N/A	100.000
C	DIRECT		N/A	100.000

Turning Proportions

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

	To			
		A	B	C
	A	0.000	46.000	458.000
	B	24.000	0.000	24.000
	C	339.000	46.000	0.000

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

	To			
		A	B	C
	A	0.00	0.09	0.91
	B	0.50	0.00	0.50
	C	0.88	0.12	0.00

Vehicle Mix

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

	To			
		A	B	C
	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		A	B	C
From	A	0.0	0.0	0.0
	B	0.0	0.0	0.0
	C	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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)
B-AC	0.15	7.46	0.17	A	82.06	82.06	10.06	7.35	0.17	10.06	7.35
C-AB	0.08	5.10	0.15	A	60.72	60.72	8.77	8.66	0.15	8.77	8.66
C-A	-	-	-	-	261.13	261.13	-	-	-	-	-
A-B	-	-	-	-	28.07	28.07	-	-	-	-	-
A-C	-	-	-	-	279.47	279.47	-	-	-	-	-

Geometric Delay Results for modelled period

Geometric Delay per light vehicle (s) - Junction 1

	To			
		A	B	C
From	A	0.00	11.07	0.00
	B	8.36	0.00	11.07
	C	0.00	11.07	0.00

Inclusive Geometric Delay (PCU-min) - Junction 1

	To			
		A	B	C
From	A	0.00	5.18	0.00
	B	5.71	0.00	7.57
	C	0.00	7.09	0.00

Point to Point Journey Times Summary (s) - Junction 1

	To			
		A	B	C
From	A	0.00	12.57	1.50
	B	17.21	0.00	19.92
	C	10.16	21.23	0.00

Main Results for each time segment

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

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	82.06	82.06	81.89	0.00	564.65	0.145	0.00	0.17	7.455	A
C-AB	60.72	60.72	60.57	0.00	765.97	0.079	0.00	0.15	5.104	A
C-A	261.13	261.13	261.13	0.00	-	-	-	-	-	-
A-B	28.07	28.07	28.07	0.00	-	-	-	-	-	-
A-C	279.47	279.47	279.47	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

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

Stream	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
B-AC	10.06	0.17	7.455	A	A
C-AB	8.77	0.15	5.104	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Geometric Delay Results for each time segment

Geometric Delay results: (17:00-18:00)

Stream	Geometric Total Delay (PCU-min)	Geometric Rate Of Delay (PCU-min/min)
B-AC	13.26	0.22
C-AB	7.08	0.12
C-A	0.00	0.00
A-B	5.18	0.09
A-C	0.00	0.00

Total Geometric Delay By Turn (PCU-min) - Junction 1 - (17:00-18:00)

	To			
From		A	B	C
	A	0.00	5.18	0.00
	B	5.70	0.00	7.55
	C	0.00	7.08	0.00

Point to Point Journey Times By Turn (s) - Junction 1 - (17:00-18:00)

	To			
From		A	B	C
	A	0.00	12.57	1.50
	B	17.31	0.00	20.02
	C	6.60	17.67	0.00

(Default Analysis Set) - Scenario 1, Lunch

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometric Delay	Arm A - Geometric Delay	Geometric delay: Distance included up/down-stream should be increased to 95.87 m to allow for acceleration/deceleration to/from junction speed, otherwise results may be unreliable.
Warning	Geometric Delay	Arm B - Geometric Delay	Geometric delay: Distance included up/down-stream should be increased to 80.26 m to allow for acceleration/deceleration to/from junction speed, otherwise results may be unreliable.
Warning	Geometric Delay	Arm C - Geometric Delay	Geometric delay: Distance included up/down-stream should be increased to 78.66 m to allow for acceleration/deceleration to/from junction speed, otherwise results may be unreliable.

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)	N/A		✓				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	Relation
Scenario 1, Lunch	Scenario 1	Lunch		DIRECT	12:00	13:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Visibilities conform to TD 42/95	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C	✓	✓	6.72	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	(untitled)		Major
B	B	(untitled)		Minor
C	C	(untitled)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	12.16		0.00		2.20	93.84	✓	0.00

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

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	4.08										51	71

Geometric Delay Data for Priority Intersections

Arm	Entry speed (kph)	Exit speed (kph)	Entry radius from arm (m)	Exit radius into arm (m)	Stagger length (m)	Distance included upstream (m)	Distance included downstream (m)
A	48.00	48.00	0.00			10.00	10.00
B	48.00	48.00	0.00	0.00		10.00	10.00
C	48.00	48.00				10.00	10.00

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	586.329	0.078	0.198	0.124	0.282
1	B-C	740.903	0.083	0.210	-	-
1	C-B	628.307	0.178	0.178	-	-

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

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

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

Traffic 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 (%)
A	DIRECT		N/A	100.000
B	DIRECT		N/A	100.000
C	DIRECT		N/A	100.000

Turning Proportions

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

	To			
		A	B	C
From	A	0.000	25.500	448.000
	B	25.500	0.000	25.500
	C	376.000	25.500	0.000

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

	To			
		A	B	C
From	A	0.00	0.05	0.95
	B	0.50	0.00	0.50
	C	0.94	0.06	0.00

Vehicle Mix

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

	To			
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		A	B	C
From	A	0.0	0.0	0.0
	B	0.0	0.0	0.0
	C	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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)
B-AC	0.15	7.45	0.17	A	82.06	82.06	10.05	7.34	0.17	10.05	7.35
C-AB	0.04	4.85	0.06	A	32.21	32.21	3.56	6.64	0.06	3.56	6.64
C-A	-	-	-	-	289.64	289.64	-	-	-	-	-
A-B	-	-	-	-	16.56	16.56	-	-	-	-	-
A-C	-	-	-	-	290.98	290.98	-	-	-	-	-

Geometric Delay Results for modelled period

Geometric Delay per light vehicle (s) - Junction 1

	To			
		A	B	C
From	A	0.00	11.07	0.00
	B	8.36	0.00	11.07
	C	0.00	11.07	0.00

Inclusive Geometric Delay (PCU-min) - Junction 1

	To			
		A	B	C
From	A	0.00	3.06	0.00
	B	5.71	0.00	7.57
	C	0.00	3.77	0.00

Point to Point Journey Times Summary (s) - Junction 1

	To			
		A	B	C
From	A	0.00	12.57	1.50
	B	17.20	0.00	19.91
	C	8.14	19.21	0.00

Main Results for each time segment

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

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	82.06	82.06	81.89	0.00	565.15	0.145	0.00	0.17	7.448	A
C-AB	32.21	32.21	32.15	0.00	774.06	0.042	0.00	0.06	4.852	A
C-A	289.64	289.64	289.64	0.00	-	-	-	-	-	-
A-B	16.56	16.56	16.56	0.00	-	-	-	-	-	-
A-C	290.98	290.98	290.98	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

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

Stream	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
B-AC	10.05	0.17	7.448	A	A
C-AB	3.56	0.06	4.852	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Geometric Delay Results for each time segment

Geometric Delay results: (12:00-13:00)

Stream	Geometric Total Delay (PCU-min)	Geometric Rate Of Delay (PCU-min/min)
B-AC	13.26	0.22
C-AB	3.76	0.06
C-A	0.00	0.00
A-B	3.06	0.05
A-C	0.00	0.00

Total Geometric Delay By Turn (PCU-min) - Junction 1 - (12:00-13:00)

	To			
		A	B	C
From	A	0.00	3.06	0.00
	B	5.70	0.00	7.55
	C	0.00	3.76	0.00

Point to Point Journey Times By Turn (s) - Junction 1 - (12:00-13:00)

	To			
		A	B	C
From	A	0.00	12.57	1.50
	B	17.30	0.00	20.02
	C	6.35	17.42	0.00

Appendix E

Precinct Commercial Access - Junction Modelling Report

Junctions 8					
ARCADY 8 - Roundabout Module					
Version: 8.0.6.541 [19821,26/11/2015] © Copyright TRL Limited, 2019					
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The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution					

Filename: W01810 Asda Roundabout.arc8

Path: H:\Winchester Jobs\W Jobs\01000 - 01999\01800 - 01899\W01810 - Meadway Precinct, Tilehurst\Junction Modelling\Commercial Precinct Junction

Report generation date: 01/08/2019 13:20:00

- » (Default Analysis Set) - AM, 8-9
- » (Default Analysis Set) - PM, 5-6
- » (Default Analysis Set) - Sat Lunch, 12-13
- » (Default Analysis Set) - AM 2024, 8-9
- » (Default Analysis Set) - PM 2024, 5-6
- » (Default Analysis Set) - Sat Lunch 2024, 12-13
- » (Default Analysis Set) - AM 2024 +Dev, 8-9
- » (Default Analysis Set) - PM 2024 +Dev, 5-6
- » (Default Analysis Set) - Sat Lunch 2024 +Dev, 12-13

Summary of junction performance

8-9					
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
A1 - AM					
Arm N	0.44	4.04	0.29	A	5.02
Arm E	0.05	8.44	0.03	A	
Arm S	0.73	5.66	0.40	A	
Arm Asda	0.14	5.20	0.11	A	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

- "D1 - AM, 8-9" model duration: 08:00 - 09:00
- "D2 - PM, 5-6" model duration: 17:00 - 18:00
- "D3 - Sat Lunch, 12-13" model duration: 12:00 - 13:00
- "D4 - AM 2024, 8-9" model duration: 08:00 - 09:00
- "D5 - PM 2024, 5-6" model duration: 17:00 - 18:00
- "D6 - Sat Lunch 2024, 12-13" model duration: 12:00 - 13:00
- "D7 - AM 2024 +Dev, 8-9" model duration: 08:00 - 09:00
- "D8 - PM 2024 +Dev, 5-6" model duration: 17:00 - 18:00
- "D9 - Sat Lunch 2024 +Dev, 12-13" model duration: 12:00 - 13:00

Run using Junctions 8.0.6.541 at 01/08/2019 13:19:58

File summary

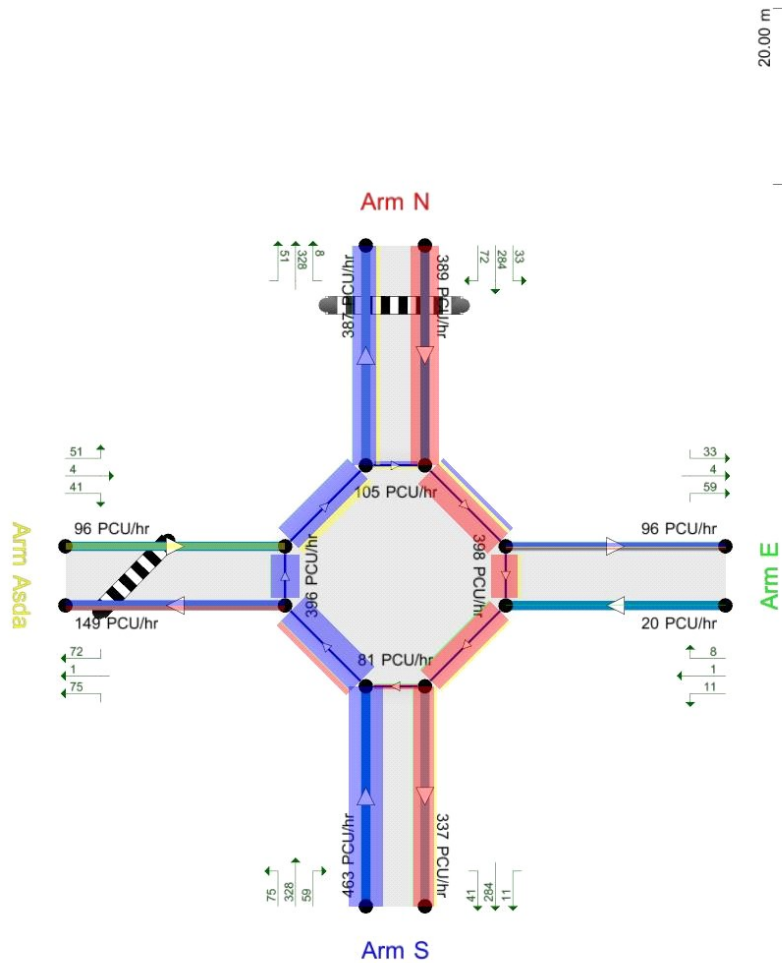
Title	(untitled)
Location	
Site Number	
Date	05/07/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	j hudson
Description	

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



Flow Overlay by Entry
Showing modelled flow through junction (PCU/hr).
Time Segment: (08:00-09:00)
Showing Analysis Set "A1"; Demand Set "D1 - AM, 8-9"

The junction diagram reflects the last run of ARCADY.

(Default Analysis Set) - AM, 8-9

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	Arm N - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Arm Asda - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?

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
AM, 8-9	AM	8-9		DIRECT	08:00	09:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	N,E,S,Asda				5.02	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
N	N	HEL N	
E	E	HEL E	
S	S	HEL S	
Asda	Asda	Asda	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
N	0.00	99999.00		0.00
E	0.00	99999.00		0.00
S	0.00	99999.00		0.00
Asda	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
N	3.47	4.65	24.30	11.75	23.80	7.00	
E	2.86	3.00	35.30	34.80	23.80	45.00	
S	3.76	4.41	10.70	11.53	23.80	41.00	
Asda	3.72	3.73	6.50	10.94	23.80	41.00	

Pedestrian Crossings

Arm	Crossing Type
N	Zebra
E	None
S	None
Asda	Zebra

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)
N	5.05	7.51		Distance	7.50	5.36				
Asda	16.15	18.50		Distance	10.00	7.14				

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)
N		(calculated)	(calculated)	0.620	1422.750
E		(calculated)	(calculated)	0.484	880.076
S		(calculated)	(calculated)	0.538	1207.546
Asda		(calculated)	(calculated)	0.502	1041.268

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 (%)
N	DIRECT	✓	N/A	100.000
E	DIRECT	✓	N/A	100.000
S	DIRECT	✓	N/A	100.000
Asda	DIRECT	✓	N/A	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
N	DIRECT	N/A
E	-	N/A
S	-	N/A
Asda	DIRECT	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
08:00-09:00	N	389.20	389.20		0.00
08:00-09:00	E	20.10	20.10		
08:00-09:00	S	464.10	464.10		
08:00-09:00	Asda	96.50	96.50		0.00

Turning Proportions

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

	To				
		N	E	S	Asda
From	N	0.000	33.000	284.200	72.000
	E	8.000	0.000	10.900	1.200
	S	328.600	59.000	1.000	75.500
	Asda	51.000	4.000	41.500	0.000

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

	To				
		N	E	S	Asda
From	N	0.00	0.08	0.73	0.18
	E	0.40	0.00	0.54	0.06
	S	0.71	0.13	0.00	0.16
	Asda	0.53	0.04	0.43	0.00

Vehicle Mix

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

	To				
		N	E	S	Asda
From	N	1.000	1.061	1.101	1.056
	E	1.375	1.000	1.750	1.500
	S	1.122	1.017	1.000	1.093
	Asda	1.059	1.500	1.073	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To				
		N	E	S	Asda
	N	0.0	6.1	10.1	5.6
	E	37.5	0.0	75.0	50.0
	S	12.2	1.7	0.0	9.3
From	Asda	5.9	50.0	7.3	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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)
N	0.29	4.04	0.44	A	389.20	389.20	26.00	4.01	0.43	26.01	4.01
E	0.03	8.44	0.05	A	20.10	20.10	2.79	8.32	0.05	2.79	8.32
S	0.40	5.66	0.73	A	464.10	464.10	43.21	5.59	0.72	43.22	5.59
Asda	0.11	5.20	0.14	A	96.50	96.50	8.28	5.15	0.14	8.28	5.15

Main Results for each time segment

Main results: (08:00-09:00)

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
N	389.20	389.20	388.76	386.99	105.34	0.00	1357.47	1176.70	0.287	0.00	0.44	4.045	A
E	20.10	20.10	20.05	95.86	398.24	0.00	687.37	241.46	0.029	0.00	0.05	8.440	A
S	464.10	464.10	463.37	337.19	81.10	0.00	1163.91	1030.97	0.399	0.00	0.73	5.659	A
Asda	96.50	96.50	96.36	148.50	395.97	0.00	842.36	559.37	0.115	0.00	0.14	5.203	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-09:00)

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
N	26.00	0.43	4.045	A	A
E	2.79	0.05	8.440	A	A
S	43.21	0.72	5.659	A	A
Asda	8.28	0.14	5.203	A	A

(Default Analysis Set) - PM, 5-6

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	Arm N - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Arm Asda - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?

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
PM, 5-6	PM	5-6		DIRECT	17:00	18:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	N,E,S,Asda				5.51	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
N	N	HEL N	
E	E	HEL E	
S	S	HEL S	
Asda	Asda	Asda	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
N	0.00	99999.00		0.00
E	0.00	99999.00		0.00
S	0.00	99999.00		0.00
Asda	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
N	3.47	4.65	24.30	11.75	23.80	7.00	
E	2.86	3.00	35.30	34.80	23.80	45.00	
S	3.76	4.41	10.70	11.53	23.80	41.00	
Asda	3.72	3.73	6.50	10.94	23.80	41.00	

Pedestrian Crossings

Arm	Crossing Type
N	Zebra
E	None
S	None
Asda	Zebra

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)
N	5.05	7.51		Distance	7.50	5.36				
Asda	16.15	18.50		Distance	10.00	7.14				

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)
N		(calculated)	(calculated)	0.620	1422.750
E		(calculated)	(calculated)	0.484	880.076
S		(calculated)	(calculated)	0.538	1207.546
Asda		(calculated)	(calculated)	0.502	1041.268

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 (%)
N	DIRECT	✓	N/A	100.000
E	DIRECT	✓	N/A	100.000
S	DIRECT	✓	N/A	100.000
Asda	DIRECT	✓	N/A	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
N	DIRECT	N/A
E	-	N/A
S	-	N/A
Asda	DIRECT	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
17:00-18:00	N	318.90	318.90		0.00
17:00-18:00	E	91.20	91.20		
17:00-18:00	S	392.70	392.70		
17:00-18:00	Asda	347.40	347.40		0.00

Turning Proportions

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

	To				
		N	E	S	Asda
From	N	0.000	7.000	160.900	151.000
	E	23.200	0.000	62.000	6.000
	S	236.100	11.200	4.000	141.400
	Asda	170.400	4.200	172.800	0.000

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

	To				
		N	E	S	Asda
From	N	0.00	0.02	0.50	0.47
	E	0.25	0.00	0.68	0.07
	S	0.60	0.03	0.01	0.36
	Asda	0.49	0.01	0.50	0.00

Vehicle Mix

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

	To				
		N	E	S	Asda
From	N	1.000	1.000	1.150	1.033
	E	1.042	1.000	1.016	1.000
	S	1.127	1.167	1.000	1.028
	Asda	1.035	1.500	1.029	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To				
		N	E	S	Asda
From	N	0.0	0.0	15.0	3.3
	E	4.2	0.0	1.6	0.0
	S	12.7	16.7	0.0	2.8
	Asda	3.5	50.0	2.9	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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)
N	0.24	3.97	0.35	A	318.90	318.90	20.94	3.94	0.35	20.94	3.94
E	0.14	6.65	0.17	A	91.20	91.20	9.98	6.57	0.17	9.98	6.57
S	0.35	5.45	0.59	A	392.70	392.70	35.24	5.38	0.59	35.25	5.39
Asda	0.38	6.69	0.65	A	347.40	347.40	38.16	6.59	0.64	38.18	6.59

Main Results for each time segment

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

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
N	318.90	318.90	318.55	428.98	191.85	0.00	1303.86	1168.42	0.245	0.00	0.35	3.975	A
E	91.20	91.20	91.03	22.37	488.03	0.00	643.92	145.03	0.142	0.00	0.17	6.649	A
S	392.70	392.70	392.11	399.08	179.98	0.00	1110.71	884.91	0.354	0.00	0.59	5.450	A
Asda	347.40	347.40	346.75	298.01	274.08	0.00	903.59	738.28	0.384	0.00	0.65	6.690	A

Queueing Delay Results for each time segment

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

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
N	20.94	0.35	3.975	A	A
E	9.98	0.17	6.649	A	A
S	35.24	0.59	5.450	A	A
Asda	38.16	0.64	6.690	A	A

(Default Analysis Set) - Sat Lunch, 12-13

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	Arm N - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Arm Asda - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?

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
Sat Lunch, 12-13	Sat Lunch	12-13		DIRECT	12:00	13:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	N,E,S,Asda				5.27	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
N	N	HEL N	
E	E	HEL E	
S	S	HEL S	
Asda	Asda	Asda	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
N	0.00	99999.00		0.00
E	0.00	99999.00		0.00
S	0.00	99999.00		0.00
Asda	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
N	3.47	4.65	24.30	11.75	23.80	7.00	
E	2.86	3.00	35.30	34.80	23.80	45.00	
S	3.76	4.41	10.70	11.53	23.80	41.00	
Asda	3.72	3.73	6.50	10.94	23.80	41.00	

Pedestrian Crossings

Arm	Crossing Type
N	Zebra
E	None
S	None
Asda	Zebra

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)
N	5.05	7.51		Distance	7.50	5.36				
Asda	16.15	18.50		Distance	10.00	7.14				

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)
N		(calculated)	(calculated)	0.620	1422.750
E		(calculated)	(calculated)	0.484	880.076
S		(calculated)	(calculated)	0.538	1207.546
Asda		(calculated)	(calculated)	0.502	1041.268

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 (%)
N	DIRECT	✓	N/A	100.000
E	DIRECT	✓	N/A	100.000
S	DIRECT	✓	N/A	100.000
Asda	DIRECT	✓	N/A	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
N	DIRECT	N/A
E	-	N/A
S	-	N/A
Asda	DIRECT	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
12:00-13:00	N	355.90	355.90		0.00
12:00-13:00	E	14.00	14.00		
12:00-13:00	S	383.40	383.40		
12:00-13:00	Asda	342.80	342.80		0.00

Turning Proportions

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

	To				
		N	E	S	Asda
From	N	4.000	7.000	161.500	183.400
	E	4.000	0.000	10.000	0.000
	S	226.000	10.400	3.000	144.000
	Asda	199.400	1.000	142.400	0.000

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

	To				
		N	E	S	Asda
From	N	0.01	0.02	0.45	0.52
	E	0.29	0.00	0.71	0.00
	S	0.59	0.03	0.01	0.38
	Asda	0.58	0.00	0.42	0.00

Vehicle Mix

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

	To				
		N	E	S	Asda
From	N	1.000	1.000	1.086	1.049
	E	1.250	1.000	1.200	1.000
	S	1.084	1.000	1.330	1.049
	Asda	1.050	1.000	1.028	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To				
		N	E	S	Asda
From	N	0.0	0.0	8.6	4.9
	E	25.0	0.0	20.0	0.0
	S	8.4	0.0	33.0	4.9
	Asda	5.0	0.0	2.8	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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)
N	0.27	3.95	0.39	A	355.90	355.90	23.20	3.91	0.39	23.20	3.91
E	0.02	6.97	0.03	A	14.00	14.00	1.61	6.88	0.03	1.61	6.88
S	0.35	5.33	0.57	A	383.40	383.40	33.66	5.27	0.56	33.67	5.27
Asda	0.37	6.51	0.62	A	342.80	342.80	36.65	6.42	0.61	36.67	6.42

Main Results for each time segment

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

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
N	355.90	355.90	355.51	432.69	156.52	0.00	1325.75	1210.43	0.268	0.00	0.39	3.945	A
E	14.00	14.00	13.97	18.38	493.66	0.00	641.20	152.18	0.022	0.00	0.03	6.966	A
S	383.40	383.40	382.83	316.44	191.19	0.00	1104.68	841.24	0.347	0.00	0.57	5.330	A
Asda	342.80	342.80	342.18	326.99	247.03	0.00	917.18	748.73	0.374	0.00	0.62	6.508	A

Queueing Delay Results for each time segment

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

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
N	23.20	0.39	3.945	A	A
E	1.61	0.03	6.966	A	A
S	33.66	0.56	5.330	A	A
Asda	36.65	0.61	6.508	A	A

(Default Analysis Set) - AM 2024, 8-9

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	Arm N - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Arm Asda - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?

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
AM 2024, 8-9	AM 2024	8-9		DIRECT	08:00	09:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	N,E,S,Asda				5.47	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
N	N	HEL N	
E	E	HEL E	
S	S	HEL S	
Asda	Asda	Asda	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
N	0.00	99999.00		0.00
E	0.00	99999.00		0.00
S	0.00	99999.00		0.00
Asda	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
N	3.47	4.65	24.30	11.75	23.80	7.00	
E	2.86	3.00	35.30	34.80	23.80	45.00	
S	3.76	4.41	10.70	11.53	23.80	41.00	
Asda	3.72	3.73	6.50	10.94	23.80	41.00	

Pedestrian Crossings

Arm	Crossing Type
N	Zebra
E	None
S	None
Asda	Zebra

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)
N	5.05	7.51		Distance	7.50	5.36				
Asda	16.15	18.50		Distance	10.00	7.14				

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)
N		(calculated)	(calculated)	0.620	1422.750
E		(calculated)	(calculated)	0.484	880.076
S		(calculated)	(calculated)	0.538	1207.546
Asda		(calculated)	(calculated)	0.502	1041.268

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 (%)
N	DIRECT		N/A	100.000
E	DIRECT		N/A	100.000
S	DIRECT		N/A	100.000
Asda	DIRECT		N/A	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
N	DIRECT	N/A
E	-	N/A
S	-	N/A
Asda	DIRECT	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
08:00-09:00	N	417.00	417.00		0.00
08:00-09:00	E	30.00	30.00		
08:00-09:00	S	524.80	524.80		
08:00-09:00	Asda	114.00	114.00		0.00

Turning Proportions

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

	To				
		N	E	S	Asda
	N	0.000	39.000	300.000	78.000
	E	13.000	0.000	14.800	2.200
	S	374.800	64.000	2.000	84.000
	Asda	58.000	7.000	49.000	0.000

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

	To				
		N	E	S	Asda
	N	0.00	0.09	0.72	0.19
	E	0.43	0.00	0.49	0.07
	S	0.71	0.12	0.00	0.16
	Asda	0.51	0.06	0.43	0.00

Vehicle Mix

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

	To				
		N	E	S	Asda
	N	1.000	1.061	1.101	1.056
	E	1.375	1.000	1.750	1.500
	S	1.122	1.017	1.000	1.093
	Asda	1.059	1.500	1.073	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To				
		N	E	S	Asda
	N	0.0	6.1	10.1	5.6
	E	37.5	0.0	75.0	50.0
	S	12.2	1.7	0.0	9.3
	Asda	5.9	50.0	7.3	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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)
N	0.31	4.21	0.49	A	417.00	417.00	28.97	4.17	0.48	28.97	4.17
E	0.04	8.67	0.07	A	30.00	30.00	4.27	8.54	0.07	4.27	8.54
S	0.45	6.26	0.91	A	524.80	524.80	53.92	6.17	0.90	53.95	6.17
Asda	0.14	5.58	0.18	A	114.00	114.00	10.48	5.52	0.17	10.48	5.52

Main Results for each time segment

Main results: (08:00-09:00)

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
N	417.00	417.00	416.51	445.03	121.80	0.00	1347.27	1173.78	0.310	0.00	0.49	4.208	A
E	30.00	30.00	29.93	109.83	428.48	0.00	672.73	247.63	0.045	0.00	0.07	8.669	A
S	524.80	524.80	523.89	365.33	93.07	0.00	1157.47	1021.92	0.453	0.00	0.91	6.257	A
Asda	114.00	114.00	113.82	163.96	453.00	0.00	813.72	556.20	0.140	0.00	0.18	5.577	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-09:00)

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
N	28.97	0.48	4.208	A	A
E	4.27	0.07	8.669	A	A
S	53.92	0.90	6.257	A	A
Asda	10.48	0.17	5.577	A	A

(Default Analysis Set) - PM 2024, 5-6

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	Arm N - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Arm Asda - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?

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
PM 2024, 5-6	PM 2024	5-6		DIRECT	17:00	18:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	N,E,S,Asda				6.27	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
N	N	HEL N	
E	E	HEL E	
S	S	HEL S	
Asda	Asda	Asda	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
N	0.00	99999.00		0.00
E	0.00	99999.00		0.00
S	0.00	99999.00		0.00
Asda	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
N	3.47	4.65	24.30	11.75	23.80	7.00	
E	2.86	3.00	35.30	34.80	23.80	45.00	
S	3.76	4.41	10.70	11.53	23.80	41.00	
Asda	3.72	3.73	6.50	10.94	23.80	41.00	

Pedestrian Crossings

Arm	Crossing Type
N	Zebra
E	None
S	None
Asda	Zebra

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)
N	5.05	7.51		Distance	7.50	5.36				
Asda	16.15	18.50		Distance	10.00	7.14				

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)
N		(calculated)	(calculated)	0.620	1422.750
E		(calculated)	(calculated)	0.484	880.076
S		(calculated)	(calculated)	0.538	1207.546
Asda		(calculated)	(calculated)	0.502	1041.268

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 (%)
N	DIRECT	✓	N/A	100.000
E	DIRECT	✓	N/A	100.000
S	DIRECT	✓	N/A	100.000
Asda	DIRECT	✓	N/A	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
N	DIRECT	N/A
E	-	N/A
S	-	N/A
Asda	DIRECT	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
17:00-18:00	N	348.40	348.40		0.00
17:00-18:00	E	103.20	103.20		
17:00-18:00	S	425.20	425.20		
17:00-18:00	Asda	371.00	371.00		0.00

Turning Proportions

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

	To				
		N	E	S	Asda
From	N	0.000	11.000	176.400	161.000
	E	27.200	0.000	67.000	9.000
	S	252.600	16.200	6.000	150.400
	Asda	181.400	7.200	182.400	0.000

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

	To				
		N	E	S	Asda
From	N	0.00	0.03	0.51	0.46
	E	0.26	0.00	0.65	0.09
	S	0.59	0.04	0.01	0.35
	Asda	0.49	0.02	0.49	0.00

Vehicle Mix

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

	To				
		N	E	S	Asda
From	N	1.000	1.061	1.101	1.056
	E	1.375	1.000	1.750	1.500
	S	1.122	1.017	1.000	1.093
	Asda	1.059	1.500	1.073	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To				
		N	E	S	Asda
From	N	0.0	6.1	10.1	5.6
	E	37.5	0.0	75.0	50.0
	S	12.2	1.7	0.0	9.3
	Asda	5.9	50.0	7.3	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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)
N	0.27	4.11	0.40	A	348.40	348.40	23.66	4.07	0.39	23.67	4.08
E	0.16	11.08	0.32	B	103.20	103.20	18.69	10.87	0.31	18.69	10.87
S	0.39	5.87	0.69	A	425.20	425.20	41.05	5.79	0.68	41.07	5.80
Asda	0.42	7.42	0.76	A	371.00	371.00	45.11	7.29	0.75	45.13	7.30

Main Results for each time segment

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

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
N	348.40	348.40	348.00	460.33	211.37	0.00	1291.76	1162.15	0.270	0.00	0.40	4.112	A
E	103.20	103.20	102.88	34.35	525.03	0.00	626.01	155.25	0.165	0.00	0.32	11.078	B
S	425.20	425.20	424.51	431.01	196.91	0.00	1101.61	889.31	0.386	0.00	0.69	5.870	A
Asda	371.00	371.00	370.24	319.94	301.47	0.00	889.83	732.01	0.417	0.00	0.76	7.416	A

Queueing Delay Results for each time segment

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

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
N	23.66	0.39	4.112	A	A
E	18.69	0.31	11.078	B	B
S	41.05	0.68	5.870	A	A
Asda	45.11	0.75	7.416	A	A

(Default Analysis Set) - Sat Lunch 2024, 12-13

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	Arm N - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Arm Asda - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?

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
Sat Lunch 2024, 12-13	Sat Lunch 2024	12-13		DIRECT	12:00	13:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	N,E,S,Asda				5.77	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
N	N	HEL N	
E	E	HEL E	
S	S	HEL S	
Asda	Asda	Asda	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
N	0.00	99999.00		0.00
E	0.00	99999.00		0.00
S	0.00	99999.00		0.00
Asda	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
N	3.47	4.65	24.30	11.75	23.80	7.00	
E	2.86	3.00	35.30	34.80	23.80	45.00	
S	3.76	4.41	10.70	11.53	23.80	41.00	
Asda	3.72	3.73	6.50	10.94	23.80	41.00	

Pedestrian Crossings

Arm	Crossing Type
N	Zebra
E	None
S	None
Asda	Zebra

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)
N	5.05	7.51		Distance	7.50	5.36				
Asda	16.15	18.50		Distance	10.00	7.14				

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)
N		(calculated)	(calculated)	0.620	1422.750
E		(calculated)	(calculated)	0.484	880.076
S		(calculated)	(calculated)	0.538	1207.546
Asda		(calculated)	(calculated)	0.502	1041.268

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 (%)
N	DIRECT	✓	N/A	100.000
E	DIRECT	✓	N/A	100.000
S	DIRECT	✓	N/A	100.000
Asda	DIRECT	✓	N/A	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
N	DIRECT	N/A
E	-	N/A
S	-	N/A
Asda	DIRECT	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
12:00-13:00	N	386.80	386.80		0.00
12:00-13:00	E	23.00	23.00		
12:00-13:00	S	415.30	415.30		
12:00-13:00	Asda	366.60	366.60		0.00

Turning Proportions

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

	To				
		N	E	S	Asda
From	N	7.000	10.000	174.000	195.800
	E	7.000	0.000	16.000	0.000
	S	240.500	15.800	6.000	153.000
	Asda	212.800	2.000	151.800	0.000

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

	To				
		N	E	S	Asda
From	N	0.02	0.03	0.45	0.51
	E	0.30	0.00	0.70	0.00
	S	0.58	0.04	0.01	0.37
	Asda	0.58	0.01	0.41	0.00

Vehicle Mix

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

	To				
		N	E	S	Asda
From	N	1.000	1.061	1.101	1.056
	E	1.375	1.000	1.750	1.500
	S	1.122	1.017	1.000	1.093
	Asda	1.059	1.500	1.073	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To				
		N	E	S	Asda
From	N	0.0	6.1	10.1	5.6
	E	37.5	0.0	75.0	50.0
	S	12.2	1.7	0.0	9.3
	Asda	5.9	50.0	7.3	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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)
N	0.29	4.17	0.45	A	386.80	386.80	26.62	4.13	0.44	26.63	4.13
E	0.04	9.71	0.06	A	23.00	23.00	3.66	9.56	0.06	3.66	9.56
S	0.38	5.84	0.67	A	415.30	415.30	39.91	5.77	0.67	39.92	5.77
Asda	0.41	7.14	0.73	A	366.60	366.60	42.95	7.03	0.72	42.97	7.03

Main Results for each time segment

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

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
N	386.80	386.80	386.35	466.46	175.26	0.00	1314.14	1203.26	0.294	0.00	0.45	4.168	A
E	23.00	23.00	22.94	27.76	533.85	0.00	621.74	158.94	0.037	0.00	0.06	9.713	A
S	415.30	415.30	414.63	347.24	209.55	0.00	1094.81	842.10	0.379	0.00	0.67	5.841	A
Asda	366.60	366.60	365.87	348.33	275.85	0.00	902.70	738.87	0.406	0.00	0.73	7.143	A

Queueing Delay Results for each time segment

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

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
N	26.62	0.44	4.168	A	A
E	3.66	0.06	9.713	A	A
S	39.91	0.67	5.841	A	A
Asda	42.95	0.72	7.143	A	A

(Default Analysis Set) - AM 2024 +Dev, 8-9

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	Arm N - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Arm Asda - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?

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
AM 2024 +Dev, 8-9	AM 2024 +Dev	8-9		DIRECT	08:00	09:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	N,E,S,Asda				5.62	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
N	N	HEL N	
E	E	HEL E	
S	S	HEL S	
Asda	Asda	Asda	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
N	0.00	99999.00		0.00
E	0.00	99999.00		0.00
S	0.00	99999.00		0.00
Asda	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
N	3.47	4.65	24.30	11.75	23.80	7.00	
E	2.86	3.00	35.30	34.80	23.80	45.00	
S	3.76	4.41	10.70	11.53	23.80	41.00	
Asda	3.72	3.73	6.50	10.94	23.80	41.00	

Pedestrian Crossings

Arm	Crossing Type
N	Zebra
E	None
S	None
Asda	Zebra

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)
N	5.05	7.51		Distance	7.50	5.36				
Asda	16.15	18.50		Distance	10.00	7.14				

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)
N		(calculated)	(calculated)	0.620	1422.750
E		(calculated)	(calculated)	0.484	880.076
S		(calculated)	(calculated)	0.538	1207.546
Asda		(calculated)	(calculated)	0.502	1041.268

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 (%)
N	DIRECT	✓	N/A	100.000
E	DIRECT	✓	N/A	100.000
S	DIRECT	✓	N/A	100.000
Asda	DIRECT	✓	N/A	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
N	DIRECT	N/A
E	-	N/A
S	-	N/A
Asda	DIRECT	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
08:00-09:00	N	473.00	473.00		0.00
08:00-09:00	E	30.00	30.00		
08:00-09:00	S	542.00	542.00		
08:00-09:00	Asda	104.00	104.00		0.00

Turning Proportions

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

	To				
		N	E	S	Asda
From	N	0.000	39.000	355.000	79.000
	E	13.000	0.000	14.800	2.200
	S	391.000	64.000	2.000	85.000
	Asda	53.000	7.000	44.000	0.000

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

	To				
		N	E	S	Asda
From	N	0.00	0.08	0.75	0.17
	E	0.43	0.00	0.49	0.07
	S	0.72	0.12	0.00	0.16
	Asda	0.51	0.07	0.42	0.00

Vehicle Mix

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

	To				
		N	E	S	Asda
From	N	1.000	1.061	1.101	1.056
	E	1.375	1.000	1.750	1.500
	S	1.122	1.017	1.000	1.093
	Asda	1.059	1.500	1.073	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To				
		N	E	S	Asda
From	N	0.0	6.1	10.1	5.6
	E	37.5	0.0	75.0	50.0
	S	12.2	1.7	0.0	9.3
	Asda	5.9	50.0	7.3	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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)
N	0.35	4.47	0.59	A	473.00	473.00	34.84	4.42	0.58	34.85	4.42
E	0.05	9.01	0.07	A	30.00	30.00	4.44	8.88	0.07	4.44	8.88
S	0.47	6.44	0.97	A	542.00	542.00	57.28	6.34	0.95	57.30	6.34
Asda	0.13	5.57	0.16	A	104.00	104.00	9.56	5.51	0.16	9.56	5.51

Main Results for each time segment

Main results: (08:00-09:00)

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
N	473.00	473.00	472.41	456.19	116.80	0.00	1350.37	1177.51	0.350	0.00	0.59	4.466	A
E	30.00	30.00	29.93	109.83	479.39	0.00	648.10	242.84	0.046	0.00	0.07	9.014	A
S	542.00	542.00	541.03	415.25	94.06	0.00	1156.94	1035.54	0.468	0.00	0.97	6.438	A
Asda	104.00	104.00	103.84	165.94	469.15	0.00	805.60	549.81	0.129	0.00	0.16	5.572	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-09:00)

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
N	34.84	0.58	4.466	A	A
E	4.44	0.07	9.014	A	A
S	57.28	0.95	6.438	A	A
Asda	9.56	0.16	5.572	A	A

(Default Analysis Set) - PM 2024 +Dev, 5-6

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	Arm N - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Arm Asda - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?

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
PM 2024 +Dev, 5-6	PM 2024 +Dev	5-6		DIRECT	17:00	18:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	N,E,S,Asda				6.71	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
N	N	HEL N	
E	E	HEL E	
S	S	HEL S	
Asda	Asda	Asda	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
N	0.00	99999.00		0.00
E	0.00	99999.00		0.00
S	0.00	99999.00		0.00
Asda	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
N	3.47	4.65	24.30	11.75	23.80	7.00	
E	2.86	3.00	35.30	34.80	23.80	45.00	
S	3.76	4.41	10.70	11.53	23.80	41.00	
Asda	3.72	3.73	6.50	10.94	23.80	41.00	

Pedestrian Crossings

Arm	Crossing Type
N	Zebra
E	None
S	None
Asda	Zebra

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)
N	5.05	7.51		Distance	7.50	5.36				
Asda	16.15	18.50		Distance	10.00	7.14				

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)
N		(calculated)	(calculated)	0.620	1422.750
E		(calculated)	(calculated)	0.484	880.076
S		(calculated)	(calculated)	0.538	1207.546
Asda		(calculated)	(calculated)	0.502	1041.268

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 (%)
N	DIRECT	✓	N/A	100.000
E	DIRECT	✓	N/A	100.000
S	DIRECT	✓	N/A	100.000
Asda	DIRECT	✓	N/A	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
N	DIRECT	N/A
E	-	N/A
S	-	N/A
Asda	DIRECT	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
17:00-18:00	N	385.00	385.00		0.00
17:00-18:00	E	103.00	103.00		
17:00-18:00	S	478.00	478.00		
17:00-18:00	Asda	396.00	396.00		0.00

Turning Proportions

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

	To				
		N	E	S	Asda
From	N	0.000	11.000	200.000	174.000
	E	27.000	0.000	67.000	9.000
	S	299.000	16.000	0.000	163.000
	Asda	194.000	7.000	195.000	0.000

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

	To				
		N	E	S	Asda
From	N	0.00	0.03	0.52	0.45
	E	0.26	0.00	0.65	0.09
	S	0.63	0.03	0.00	0.34
	Asda	0.49	0.02	0.49	0.00

Vehicle Mix

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

	To				
		N	E	S	Asda
From	N	1.000	1.061	1.101	1.056
	E	1.375	1.000	1.750	1.500
	S	1.122	1.017	1.000	1.093
	Asda	1.059	1.500	1.073	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To				
		N	E	S	Asda
From	N	0.0	6.1	10.1	5.6
	E	37.5	0.0	75.0	50.0
	S	12.2	1.7	0.0	9.3
	Asda	5.9	50.0	7.3	0.0

Results

Results Summary for whole modelled period

Arm	Max PCU	Max Delay	Max Queue	Max LOS	Average Demand	Total Junction Arrivals	Total Queueing Delay (PCU)	Average Queueing	Rate Of Queueing Delay	Inclusive Total Queueing Delay	Inclusive Average Queueing Delay
N	0.30	4.30	0.46	A	385.00	385.00	27.31	4.26	0.46	27.32	4.26
E	0.17	11.54	0.33	B	103.00	103.00	19.41	11.31	0.32	19.42	11.31
S	0.44	6.45	0.86	A	478.00	478.00	50.62	6.35	0.84	50.64	6.36
Asda	0.46	8.11	0.89	A	396.00	396.00	52.56	7.96	0.88	52.58	7.97

Main Results for each time segment

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

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
N	385.00	385.00	384.54	518.94	217.52	0.00	1287.95	1174.94	0.299	0.00	0.46	4.298	A
E	103.00	103.00	102.67	33.94	568.11	0.00	605.16	154.93	0.170	0.00	0.33	11.537	B
S	478.00	478.00	477.14	461.11	209.68	0.00	1094.74	892.72	0.437	0.00	0.86	6.449	A
Asda	396.00	396.00	395.11	345.47	341.35	0.00	869.80	725.35	0.455	0.00	0.89	8.110	A

Queueing Delay Results for each time segment

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

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
N	27.31	0.46	4.298	A	A
E	19.41	0.32	11.537	B	B
S	50.62	0.84	6.449	A	A
Asda	52.56	0.88	8.110	A	A

(Default Analysis Set) - Sat Lunch 2024 +Dev, 12-13

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Pedestrian Crossing	Arm N - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Arm Asda - Zebra Details	Pedestrian crossing uses default flow of 0. Is this correct?

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
Sat Lunch 2024 +Dev, 12-13	Sat Lunch 2024 +Dev	12-13		DIRECT	12:00	13:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	N,E,S,Asda				6.51	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description
N	N	HEL N	
E	E	HEL E	
S	S	HEL S	
Asda	Asda	Asda	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
N	0.00	99999.00		0.00
E	0.00	99999.00		0.00
S	0.00	99999.00		0.00
Asda	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
N	3.47	4.65	24.30	11.75	23.80	7.00	
E	2.86	3.00	35.30	34.80	23.80	45.00	
S	3.76	4.41	10.70	11.53	23.80	41.00	
Asda	3.72	3.73	6.50	10.94	23.80	41.00	

Pedestrian Crossings

Arm	Crossing Type
N	Zebra
E	None
S	None
Asda	Zebra

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)
N	5.05	7.51		Distance	7.50	5.36				
Asda	16.15	18.50		Distance	10.00	7.14				

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)
N		(calculated)	(calculated)	0.620	1422.750
E		(calculated)	(calculated)	0.484	880.076
S		(calculated)	(calculated)	0.538	1207.546
Asda		(calculated)	(calculated)	0.502	1041.268

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 (%)
N	DIRECT	✓	N/A	100.000
E	DIRECT	✓	N/A	100.000
S	DIRECT	✓	N/A	100.000
Asda	DIRECT	✓	N/A	100.000

Pedestrian Flows

General Flows Data

Arm	Profile Type	Average Pedestrian Flow (Ped/hr)
N	DIRECT	N/A
E	-	N/A
S	-	N/A
Asda	DIRECT	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
12:00-13:00	N	439.00	439.00		0.00
12:00-13:00	E	23.00	23.00		
12:00-13:00	S	471.00	471.00		
12:00-13:00	Asda	435.00	435.00		0.00

Turning Proportions

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

	To				
		N	E	S	Asda
From	N	0.000	10.000	200.000	229.000
	E	7.000	0.000	16.000	0.000
	S	267.000	16.000	2.000	186.000
	Asda	247.000	2.000	186.000	0.000

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

	To				
		N	E	S	Asda
From	N	0.00	0.02	0.46	0.52
	E	0.30	0.00	0.70	0.00
	S	0.57	0.03	0.00	0.39
	Asda	0.57	0.00	0.43	0.00

Vehicle Mix

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

	To				
		N	E	S	Asda
From	N	1.000	1.061	1.101	1.056
	E	1.375	1.000	1.750	1.500
	S	1.122	1.017	1.000	1.093
	Asda	1.059	1.500	1.073	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To				
		N	E	S	Asda
From	N	0.0	6.1	10.1	5.6
	E	37.5	0.0	75.0	50.0
	S	12.2	1.7	0.0	9.3
	Asda	5.9	50.0	7.3	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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)
N	0.34	4.52	0.55	A	439.00	439.00	32.72	4.47	0.55	32.72	4.47
E	0.04	10.40	0.07	B	23.00	23.00	3.92	10.23	0.07	3.92	10.23
S	0.44	6.51	0.85	A	471.00	471.00	50.35	6.41	0.84	50.37	6.42
Asda	0.49	8.31	1.00	A	435.00	435.00	59.11	8.15	0.99	59.15	8.16

Main Results for each time segment

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

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
N	439.00	439.00	438.45	519.93	205.53	0.00	1295.38	1199.00	0.339	0.00	0.55	4.518	A
E	23.00	23.00	22.93	27.95	616.03	0.00	581.98	153.98	0.040	0.00	0.07	10.404	B
S	471.00	471.00	470.15	403.27	235.69	0.00	1080.74	845.83	0.436	0.00	0.85	6.511	A
Asda	435.00	435.00	434.00	414.38	291.46	0.00	894.86	760.64	0.486	0.00	1.00	8.312	A

Queueing Delay Results for each time segment

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

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
N	32.72	0.55	4.518	A	A
E	3.92	0.07	10.404	B	B
S	50.35	0.84	6.511	A	A
Asda	59.11	0.99	8.312	A	A

Appendix F

Bath Road Roundabout - Junction Modelling Report

Junctions 8				
ARCADY 8 - Roundabout Module				
Version: 8.0.6.541 [19821,26/11/2015] © Copyright TRL Limited, 2019				
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The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution				

Filename: W01810 Bath Road Roundabout.arc8

Path: H:\Winchester Jobs\W Jobs\01000 - 01999\01800 - 01899\W01810 - Meadway Precinct, Tilehurst

Report generation date: 19/07/2019 16:34:25

- » (Default Analysis Set) - Current, AM 8-9
- » (Default Analysis Set) - Current, PM 5-6
- » (Default Analysis Set) - Current, Sat 12-13
- » (Default Analysis Set) - 2024, AM 8-9
- » (Default Analysis Set) - 2024, PM 5-6
- » (Default Analysis Set) - 2024, Sat 12-13
- » (Default Analysis Set) - 2024 +Dev, AM 8-9
- » (Default Analysis Set) - 2024 +Dev, PM 5-6
- » (Default Analysis Set) - 2024 +Dev, Sat 12-13

Summary of junction performance

AM 8-9					
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
A1 - Current					
Arm 1	0.75	6.98	0.40	A	7.86
Arm 2	1.25	8.44	0.52	A	
Arm 3	1.26	7.90	0.52	A	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

"D1 - Current, AM 8-9" model duration: 08:00 - 09:00

"D2 - Current, PM 5-6" model duration: 17:00 - 18:00

"D3 - Current, Sat 12-13" model duration: 12:00 - 13:00

"D4 - 2024, AM 8-9" model duration: 08:00 - 09:00

"D5 - 2024, PM 5-6" model duration: 17:00 - 18:00

"D6 - 2024, Sat 12-13" model duration: 12:00 - 13:00

"D7 - 2024 +Dev, AM 8-9" model duration: 08:00 - 09:00

"D8 - 2024 +Dev, PM 5-6" model duration: 17:00 - 18:00

"D9 - 2024 +Dev, Sat 12-13" model duration: 12:00 - 13:00

Run using Junctions 8.0.6.541 at 19/07/2019 16:34:23

File summary

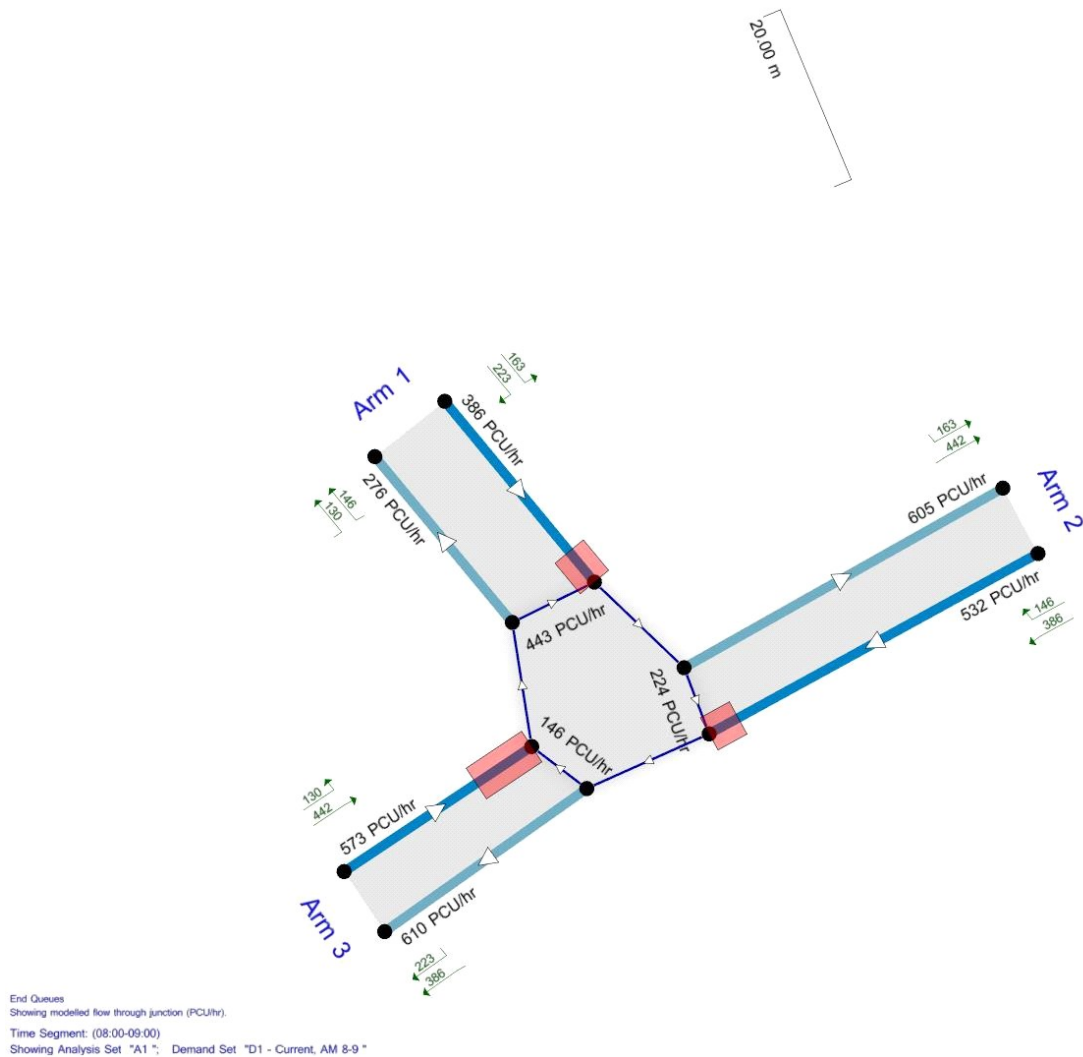
Title	(untitled)
Location	
Site Number	
Date	04/07/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	j hudson
Description	

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) - Current, AM 8-9

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
Current, AM 8-9	Current	AM 8-9		DIRECT	08:00	09:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Junction Delay (s)	Junction LOS
1	Honey End Land Roundabout	Mini-roundabout	1,2,3	7.86	A

Junction Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Arm	Name	Description
1	1	Honey End Ln	
2	2	Bath Rd East	Traffic heading westbound on left lane
3	3	Bath Road West	Traffic heading eastbound on left lane

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

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.37	3.30	6.04	12.45	5.00	2.00	0.00	
2	5.48	5.37	5.37	0.00	5.00	2.00	0.00	
3	5.65	5.50	5.54	14.73	5.00	2.00	0.00	

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)	0.599	1229.597
2		(calculated)	(calculated)	0.623	1163.398
3		(calculated)	(calculated)	0.631	1186.003

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	DIRECT		N/A	100.000
2	DIRECT		N/A	100.000
3	DIRECT		N/A	100.000

Turning Proportions

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

	To			
		1	2	3
From	1	0.000	134.500	184.800
	2	239.700	0.000	633.000
	3	219.800	747.700	1.000

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

	To			
		1	2	3
From	1	0.00	0.42	0.58
	2	0.27	0.00	0.73
	3	0.23	0.77	0.00

Vehicle Mix

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

	To			
		1	2	3
From	1	1.000	1.068	1.168
	2	1.084	1.000	1.185
	3	1.140	1.149	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	6.8	16.8
	2	8.4	0.0	18.5
	3	14.0	14.9	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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	0.40	6.98	0.75	A	386.60	386.60	44.31	6.88	0.74	44.33	6.88
2	0.52	8.44	1.25	A	533.50	533.50	73.53	8.27	1.23	73.57	8.27
3	0.52	7.90	1.26	A	573.80	573.80	74.13	7.75	1.24	74.17	7.76

Main Results for each time segment

Main results: (08:00-09:00)

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	386.60	386.60	385.85	276.13	442.60	0.00	964.27	751.62	0.401	0.00	0.75	6.985	A
2	533.50	533.50	532.25	604.55	223.91	0.00	1024.00	891.91	0.521	0.00	1.25	8.438	A
3	573.80	573.80	572.54	609.97	146.19	0.00	1093.75	1031.41	0.525	0.00	1.26	7.902	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-09:00)

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	44.31	0.74	6.985	A	A
2	73.53	1.23	8.438	A	A
3	74.13	1.24	7.902	A	A

(Default Analysis Set) - Current, PM 5-6

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
Current, PM5-6	Current	PM5-6		DIRECT	17:00	18:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Junction Delay (s)	Junction LOS
1	Honey End Land Roundabout	Mini-roundabout	1,2,3	22.80	C

Junction Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Arm	Name	Description
1	1	Honey End Ln	
2	2	Bath Rd East	Traffic heading westbound on left lane
3	3	Bath Road West	Traffic heading eastbound on left lane

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

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.37	3.30	6.04	12.45	5.00	2.00	0.00	
2	5.48	5.37	5.37	0.00	5.00	2.00	0.00	
3	5.65	5.50	5.54	14.73	5.00	2.00	0.00	

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)	0.599	1229.597
2		(calculated)	(calculated)	0.623	1163.398
3		(calculated)	(calculated)	0.631	1186.003

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	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

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

	To			
		1	2	3
From	1	0.000	132.100	256.800
	2	158.700	1.000	683.500
	3	268.800	687.000	2.000

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

	To			
		1	2	3
From	1	0.00	0.34	0.66
	2	0.19	0.00	0.81
	3	0.28	0.72	0.00

Vehicle Mix

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

	To			
		1	2	3
From	1	1.000	1.098	1.089
	2	1.063	1.000	1.111
	3	1.108	1.108	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	9.8	8.9
	2	6.3	0.0	11.1
	3	10.8	10.8	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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	0.47	9.09	0.98	A	388.90	388.90	57.74	8.91	0.96	57.78	8.91
2	0.84	23.29	5.59	C	843.20	843.20	307.04	21.85	5.12	307.97	21.91
3	0.88	27.94	7.75	D	957.80	957.80	413.21	25.88	6.89	414.86	25.99

Main Results for each time segment

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

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	388.90	388.90	387.92	424.27	684.42	0.00	819.31	761.31	0.475	0.00	0.98	9.092	A
2	843.20	843.20	837.61	814.20	258.14	0.00	1002.69	849.01	0.841	0.00	5.59	23.291	C
3	957.80	957.80	950.05	937.10	158.64	0.00	1085.89	1084.53	0.882	0.00	7.75	27.940	D

Queueing Delay Results for each time segment

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

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	57.74	0.96	9.092	A	A
2	307.04	5.12	23.291	C	C
3	413.21	6.89	27.940	D	C

(Default Analysis Set) - Current, Sat 12-13

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
Current, Sat 12-13	Current	Sat 12-13		DIRECT	12:00	13:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Junction Delay (s)	Junction LOS
1	Honey End Land Roundabout	Mini-roundabout	1,2,3	18.82	C

Junction Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Arm	Name	Description
1	1	Honey End Ln	
2	2	Bath Rd East	Traffic heading westbound on left lane
3	3	Bath Road West	Traffic heading eastbound on left lane

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

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.37	3.30	6.04	12.45	5.00	2.00	0.00	
2	5.48	5.37	5.37	0.00	5.00	2.00	0.00	
3	5.65	5.50	5.54	14.73	5.00	2.00	0.00	

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)	0.599	1229.597
2		(calculated)	(calculated)	0.623	1163.398
3		(calculated)	(calculated)	0.631	1186.003

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	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

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

		To		
From		1	2	3
	1	0.000	121.000	203.700
	2	138.900	0.000	655.400
	3	210.900	745.200	0.000

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

		To		
From		1	2	3
	1	0.00	0.37	0.63
	2	0.17	0.00	0.83
	3	0.22	0.78	0.00

Vehicle Mix

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

		To		
From		1	2	3
	1	1.000	1.074	1.098
	2	1.087	1.000	1.084
	3	1.085	1.079	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
From	1	0.0	7.4	9.8
	2	8.7	0.0	8.4
	3	8.5	7.9	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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	0.41	8.47	0.76	A	324.70	324.70	45.00	8.31	0.75	45.02	8.32
2	0.77	15.65	3.49	C	794.30	794.30	198.38	14.99	3.31	198.73	15.01
3	0.87	24.98	6.86	C	956.10	956.10	370.90	23.28	6.18	372.18	23.36

Main Results for each time segment

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

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	324.70	324.70	323.94	347.68	739.85	0.00	786.08	720.93	0.413	0.00	0.76	8.469	A
2	794.30	794.30	790.81	860.57	203.22	0.00	1036.88	881.83	0.766	0.00	3.49	15.652	C
3	956.10	956.10	949.24	855.75	138.29	0.00	1098.73	1088.69	0.870	0.00	6.86	24.975	C

Queueing Delay Results for each time segment

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

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	45.00	0.75	8.469	A	A
2	198.38	3.31	15.652	C	B
3	370.90	6.18	24.975	C	C

(Default Analysis Set) - 2024, AM 8-9

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
2024, AM 8-9	2024	AM 8-9		DIRECT	08:00	09:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Junction Delay (s)	Junction LOS
1	Honey End Land Roundabout	Mini-roundabout	1,2,3	7.86	A

Junction Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Arm	Name	Description
1	1	Honey End Ln	
2	2	Bath Rd East	Traffic heading westbound on left lane
3	3	Bath Road West	Traffic heading eastbound on left lane

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

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.37	3.30	6.04	12.45	5.00	2.00	0.00	
2	5.48	5.37	5.37	0.00	5.00	2.00	0.00	
3	5.65	5.50	5.54	14.73	5.00	2.00	0.00	

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)	0.599	1229.597
2		(calculated)	(calculated)	0.623	1163.398
3		(calculated)	(calculated)	0.631	1186.003

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	DIRECT		N/A	100.000
2	DIRECT		N/A	100.000
3	DIRECT		N/A	100.000

Turning Proportions

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

	To			
		1	2	3
From	1	0.000	146.000	201.900
	2	259.400	0.000	675.200
	3	242.100	802.900	2.000

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

	To			
		1	2	3
From	1	0.00	0.42	0.58
	2	0.28	0.00	0.72
	3	0.23	0.77	0.00

Vehicle Mix

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

	To			
		1	2	3
From	1	1.000	1.068	1.168
	2	1.084	1.000	1.185
	3	1.140	1.149	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	6.8	16.8
	2	8.4	0.0	18.5
	3	14.0	14.9	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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	0.40	6.97	0.75	A	386.60	386.60	44.21	6.86	0.74	44.22	6.86
2	0.52	8.45	1.25	A	533.50	533.50	73.61	8.28	1.23	73.65	8.28
3	0.53	7.92	1.26	A	573.80	573.80	74.25	7.76	1.24	74.30	7.77

Main Results for each time segment

Main results: (08:00-09:00)

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	386.60	386.60	385.85	280.12	440.15	0.00	965.75	754.82	0.400	0.00	0.75	6.968	A
2	533.50	533.50	532.25	600.98	225.02	0.00	1023.31	889.45	0.521	0.00	1.25	8.448	A
3	573.80	573.80	572.54	609.54	147.73	0.00	1092.78	1030.22	0.525	0.00	1.26	7.915	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-09:00)

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	44.21	0.74	6.968	A	A
2	73.61	1.23	8.448	A	A
3	74.25	1.24	7.915	A	A

(Default Analysis Set) - 2024, PM 5-6

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
2024, PM 5-6	2024	PM 5-6		DIRECT	17:00	18:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Junction Delay (s)	Junction LOS
1	Honey End Land Roundabout	Mini-roundabout	1,2,3	7.80	A

Junction Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Arm	Name	Description
1	1	Honey End Ln	
2	2	Bath Rd East	Traffic heading westbound on left lane
3	3	Bath Road West	Traffic heading eastbound on left lane

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

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.37	3.30	6.04	12.45	5.00	2.00	0.00	
2	5.48	5.37	5.37	0.00	5.00	2.00	0.00	
3	5.65	5.50	5.54	14.73	5.00	2.00	0.00	

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)	0.599	1229.597
2		(calculated)	(calculated)	0.623	1163.398
3		(calculated)	(calculated)	0.631	1186.003

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	DIRECT		N/A	100.000
2	DIRECT		N/A	100.000
3	DIRECT		N/A	100.000

Turning Proportions

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

	To			
		1	2	3
From	1	0.000	146.200	273.200
	2	171.400	2.000	727.100
	3	284.600	735.900	4.000

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

	To			
		1	2	3
From	1	0.00	0.35	0.65
	2	0.19	0.00	0.81
	3	0.28	0.72	0.00

Vehicle Mix

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

	To			
		1	2	3
From	1	1.000	1.068	1.168
	2	1.084	1.000	1.185
	3	1.140	1.149	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	6.8	16.8
	2	8.4	0.0	18.5
	3	14.0	14.9	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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	0.39	6.83	0.73	A	386.60	386.60	43.37	6.73	0.72	43.38	6.73
2	0.53	8.83	1.31	A	533.50	533.50	76.86	8.64	1.28	76.91	8.65
3	0.51	7.50	1.20	A	573.80	573.80	70.44	7.37	1.17	70.48	7.37

Main Results for each time segment

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

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	386.60	386.60	385.87	260.36	414.72	0.00	980.99	759.85	0.394	0.00	0.73	6.833	A
2	533.50	533.50	532.19	547.00	253.59	0.00	1005.52	852.61	0.531	0.00	1.31	8.827	A
3	573.80	573.80	572.60	683.30	102.48	0.00	1121.33	1082.40	0.512	0.00	1.20	7.500	A

Queueing Delay Results for each time segment

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

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	43.37	0.72	6.833	A	A
2	76.86	1.28	8.827	A	A
3	70.44	1.17	7.500	A	A

(Default Analysis Set) - 2024, Sat 12-13

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
2024, Sat 12-13	2024	Sat 12-13		DIRECT	12:00	13:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Junction Delay (s)	Junction LOS
1	Honey End Land Roundabout	Mini-roundabout	1,2,3	7.79	A

Junction Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Arm	Name	Description
1	1	Honey End Ln	
2	2	Bath Rd East	Traffic heading westbound on left lane
3	3	Bath Road West	Traffic heading eastbound on left lane

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

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.37	3.30	6.04	12.45	5.00	2.00	0.00	
2	5.48	5.37	5.37	0.00	5.00	2.00	0.00	
3	5.65	5.50	5.54	14.73	5.00	2.00	0.00	

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)	0.599	1229.597
2		(calculated)	(calculated)	0.623	1163.398
3		(calculated)	(calculated)	0.631	1186.003

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	DIRECT		N/A	100.000
2	DIRECT		N/A	100.000
3	DIRECT		N/A	100.000

Turning Proportions

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

	To			
		1	2	3
From	1	0.000	132.000	218.000
	2	152.800	0.000	697.500
	3	223.800	789.000	0.000

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

	To			
		1	2	3
From	1	0.00	0.38	0.62
	2	0.18	0.00	0.82
	3	0.22	0.78	0.00

Vehicle Mix

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

	To			
		1	2	3
From	1	1.000	1.068	1.168
	2	1.084	1.000	1.185
	3	1.140	1.149	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
	1	0.0	6.8	16.8
	2	8.4	0.0	18.5
	3	14.0	14.9	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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	0.40	7.04	0.76	A	386.60	386.60	44.64	6.93	0.74	44.66	6.93
2	0.53	8.69	1.29	A	533.50	533.50	75.68	8.51	1.26	75.73	8.52
3	0.51	7.45	1.19	A	573.80	573.80	69.98	7.32	1.17	70.01	7.32

Main Results for each time segment

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

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	386.60	386.60	385.84	222.17	446.08	0.00	962.19	722.51	0.402	0.00	0.76	7.038	A
2	533.50	533.50	532.21	591.60	240.33	0.00	1013.78	883.23	0.526	0.00	1.29	8.689	A
3	573.80	573.80	572.61	676.90	95.64	0.00	1125.65	1085.84	0.510	0.00	1.19	7.452	A

Queueing Delay Results for each time segment

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

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	44.64	0.74	7.038	A	A
2	75.68	1.26	8.689	A	A
3	69.98	1.17	7.452	A	A

(Default Analysis Set) - 2024 +Dev, AM 8-9

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
2024 +Dev, AM 8-9	2024 +Dev	AM 8-9		DIRECT	08:00	09:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Junction Delay (s)	Junction LOS
1	Honey End Land Roundabout	Mini-roundabout	1,2,3	71.91	F

Junction Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Arm	Name	Description
1	1	Honey End Ln	
2	2	Bath Rd East	Traffic heading westbound on left lane
3	3	Bath Road West	Traffic heading eastbound on left lane

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

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.37	3.30	6.04	12.45	5.00	2.00	0.00	
2	5.48	5.37	5.37	0.00	5.00	2.00	0.00	
3	5.65	5.50	5.54	14.73	5.00	2.00	0.00	

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)	0.599	1229.597
2		(calculated)	(calculated)	0.623	1163.398
3		(calculated)	(calculated)	0.631	1186.003

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	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

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

		To		
From		1	2	3
	1	0.000	167.000	231.000
	2	268.000	0.000	675.000
	3	250.000	803.000	2.000

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

		To		
From		1	2	3
	1	0.00	0.42	0.58
	2	0.28	0.00	0.72
	3	0.24	0.76	0.00

Vehicle Mix

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

		To		
From		1	2	3
	1	1.000	1.074	1.098
	2	1.087	1.000	1.084
	3	1.085	1.079	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
From	1	0.0	7.4	9.8
	2	8.7	0.0	8.4
	3	8.5	7.9	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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	0.52	10.39	1.15	B	398.00	398.00	67.35	10.15	1.12	67.41	10.16
2	0.93	40.45	11.56	E	943.00	943.00	577.37	36.74	9.62	581.30	36.99
3	1.04	123.23	55.50	F	1055.00	1055.00	1958.54	111.39	32.64	2049.23	116.54

Main Results for each time segment

Main results: (08:00-09:00)

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	398.00	398.00	396.85	501.56	762.65	0.00	772.42	759.92	0.515	0.00	1.15	10.395	B
2	943.00	943.00	931.44	927.28	232.23	0.00	1018.82	887.60	0.926	0.00	11.56	40.452	E
3	1055.00	1055.00	999.50	898.95	264.71	0.00	1018.96	1026.82	1.035	0.00	55.50	123.234	F

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-09:00)

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	67.35	1.12	10.395	B	B
2	577.37	9.62	40.452	E	D
3	1958.54	32.64	123.234	F	F

(Default Analysis Set) - 2024 +Dev, PM 5-6

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
2024 +Dev, PM 5-6	2024 +Dev	PM 5-6		DIRECT	17:00	18:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Junction Delay (s)	Junction LOS
1	Honey End Land Roundabout	Mini-roundabout	1,2,3	55.76	F

Junction Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Arm	Name	Description
1	1	Honey End Ln	
2	2	Bath Rd East	Traffic heading westbound on left lane
3	3	Bath Road West	Traffic heading eastbound on left lane

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

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.37	3.30	6.04	12.45	5.00	2.00	0.00	
2	5.48	5.37	5.37	0.00	5.00	2.00	0.00	
3	5.65	5.50	5.54	14.73	5.00	2.00	0.00	

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)	0.599	1229.597
2		(calculated)	(calculated)	0.623	1163.398
3		(calculated)	(calculated)	0.631	1186.003

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	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

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

		To		
From		1	2	3
	1	0.000	159.000	297.000
	2	193.000	2.000	727.100
	3	322.000	735.900	4.000

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

		To		
From		1	2	3
	1	0.00	0.35	0.65
	2	0.21	0.00	0.79
	3	0.30	0.69	0.00

Vehicle Mix

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

		To		
From		1	2	3
	1	1.000	1.074	1.098
	2	1.087	1.000	1.084
	3	1.085	1.079	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
From	1	0.0	7.4	9.8
	2	8.7	0.0	8.4
	3	8.5	7.9	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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	0.57	11.37	1.44	B	456.00	456.00	84.11	11.07	1.40	84.19	11.08
2	0.94	49.32	14.30	E	922.10	922.10	682.85	44.43	11.38	689.13	44.84
3	1.00	80.42	31.91	F	1061.90	1061.90	1280.38	72.34	21.34	1309.08	73.97

Main Results for each time segment

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

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	456.00	456.00	454.56	502.33	719.63	0.00	798.21	780.20	0.571	0.00	1.44	11.366	B
2	922.10	922.10	907.80	874.25	299.94	0.00	976.66	844.52	0.944	0.00	14.30	49.320	E
3	1061.90	1061.90	1029.99	1015.77	191.98	0.00	1064.86	1073.30	0.997	0.00	31.91	80.419	F

Queueing Delay Results for each time segment

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

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	84.11	1.40	11.366	B	B
2	682.85	11.38	49.320	E	D
3	1280.38	21.34	80.419	F	F

(Default Analysis Set) - 2024 +Dev, Sat 12-13

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
2024 +Dev, Sat 12-13	2024 +Dev	Sat 12-13		DIRECT	12:00	13:00	60	60				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Junction Delay (s)	Junction LOS
1	Honey End Land Roundabout	Mini-roundabout	1,2,3	40.16	E

Junction Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Arm	Name	Description
1	1	Honey End Ln	
2	2	Bath Rd East	Traffic heading westbound on left lane
3	3	Bath Road West	Traffic heading eastbound on left lane

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

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.37	3.30	6.04	12.45	5.00	2.00	0.00	
2	5.48	5.37	5.37	0.00	5.00	2.00	0.00	
3	5.65	5.50	5.54	14.73	5.00	2.00	0.00	

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)	0.599	1229.597
2		(calculated)	(calculated)	0.623	1163.398
3		(calculated)	(calculated)	0.631	1186.003

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	DIRECT	✓	N/A	100.000
2	DIRECT	✓	N/A	100.000
3	DIRECT	✓	N/A	100.000

Turning Proportions

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

		To		
From		1	2	3
	1	0.000	155.000	255.000
	2	177.000	0.000	697.500
	3	259.000	789.000	0.000

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

		To		
From		1	2	3
	1	0.00	0.38	0.62
	2	0.20	0.00	0.80
	3	0.25	0.75	0.00

Vehicle Mix

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

		To		
From		1	2	3
	1	1.000	1.074	1.098
	2	1.087	1.000	1.084
	3	1.085	1.079	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
		1	2	3
From	1	0.0	7.4	9.8
	2	8.7	0.0	8.4
	3	8.5	7.9	0.0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	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	0.53	10.91	1.24	B	410.00	410.00	72.74	10.64	1.21	72.80	10.65
2	0.87	27.18	6.85	D	874.50	874.50	368.12	25.26	6.14	369.51	25.35
3	0.97	62.43	22.37	F	1048.00	1048.00	978.74	56.03	16.31	992.70	56.83

Main Results for each time segment

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

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	410.00	410.00	408.76	429.09	772.16	0.00	766.72	744.78	0.535	0.00	1.24	10.912	B
2	874.50	874.50	867.65	926.69	254.23	0.00	1005.12	875.01	0.870	0.00	6.85	27.184	D
3	1048.00	1048.00	1025.63	946.27	175.61	0.00	1075.18	1074.24	0.975	0.00	22.37	62.426	F

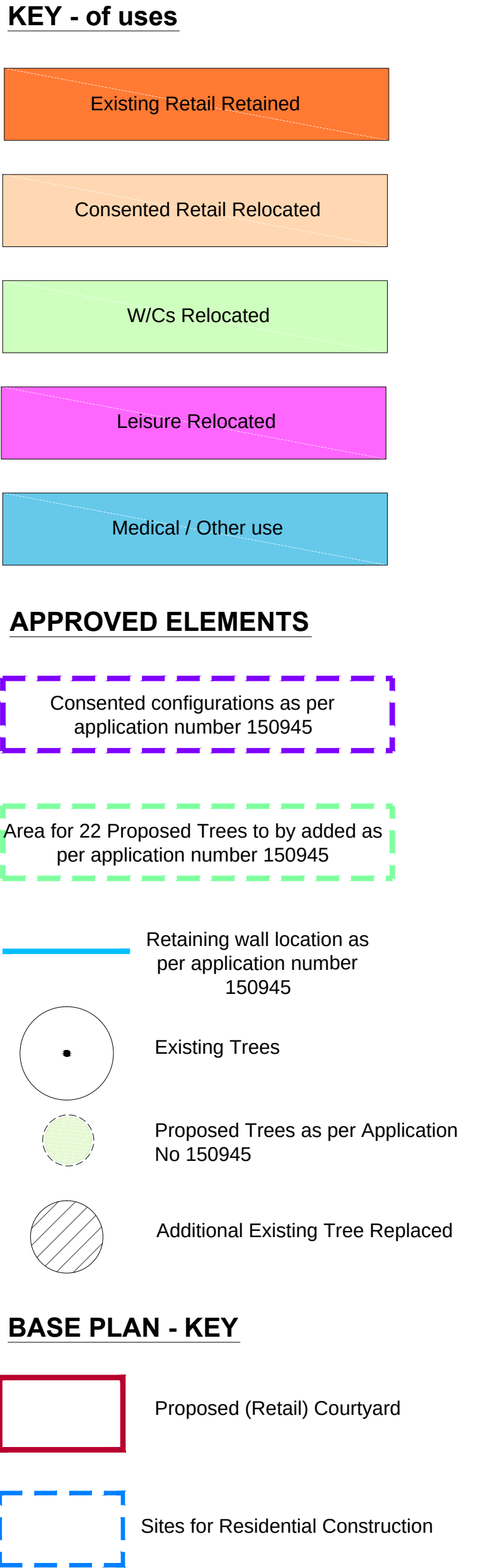
Queueing Delay Results for each time segment

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

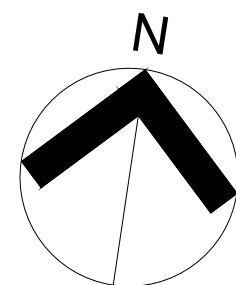
Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	72.74	1.21	10.912	B	B
2	368.12	6.14	27.184	D	C
3	978.74	16.31	62.426	F	E

Appendix G

Proposed Site Layout Plans



**This is the diagrammatic
BASE PLAN at Ground Floor
level with the APPROVED
ELEMENTS and (retail)
reconfigurations in place.**



Rev	Date	Dwn	Chkd	Description
Purpose of Issue:				
OUTLINE PLANNING				
client:				
Chillingham Ltd				
project:				
Tilehurst, Reading				
drawing title:				
Proposed Base Plans				
Ground floor				
scale of A1:				
1:500		date:		Jan 19
drawing number:		drawn by:		EC
1364A-OA1200		checked by:		IP
revision:		-		
a c c o r d				
a r c h i t e c t u r e				
www.a.c.c.o.r.d.a.r.c.h.i.t.e.c.t.u.r.e.c.o.m				
Compton House, Walnut Tree Close, Guildford, Surrey, GU1 4TX				
[t] 01483 455100 [f] 01483 455210 [e] design@accordarchitecture.com				

NOTES

Use figured dimensions only. Scale drawing only when a scale bar is present. All dimensions to be checked by user and any discrepancies, error or omissions to be reported to the architect before work commences. Read this drawing with all relevant materials.

KEY - of uses

Medical / Other uses - at First Floor
(Residential over)

Leisure Relocated

APPROVED ELEMENTS

Consented configurations as per
application number 150945

Area for 22 Proposed Trees to be added as
per application number 150945

Retaining wall location as
per application number
150945

Existing Trees

Proposed Trees as per Application
No 150945

BASE PLAN - KEY

Proposed Retail Courtyard

Sites for Residential Construction

Residential Amenity Area

Focal Building

Focal Corners

Gateway Feature

Retail Feature

Approach Visibility

This is the diagrammatic
BASE PLAN of upper parts to
identify the series of buildings
which constitute the
masterplan.

Rev Date Dwn Chkd Description

Purpose of Issue:
OUTLINE PLANNING

client:
Chillingham Ltd

project:
Tilehurst, Reading

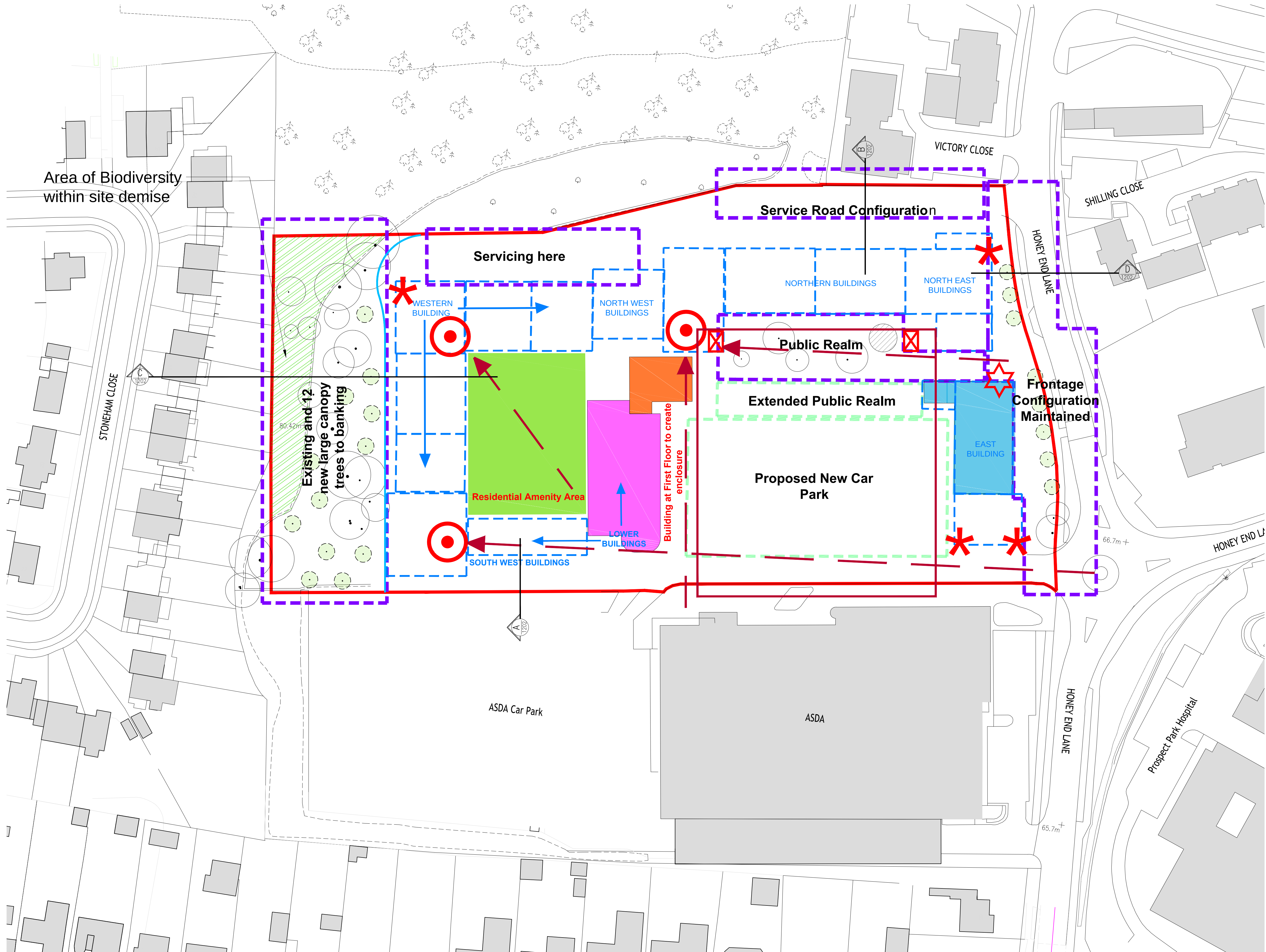
drawing title:
Proposed (Base) Site Plan
Upper Parts

scale at A1: 1:500 date: Jan 19 drawn by: EC checked by: IP

drawing number: 1364A-OA1201 revision: -

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Proposed (Base) Site Plan - Upper Parts
Scale - 1:500