LARKFLEET GROUP

PROPOSED RESIDENTIAL DEVELOPMENT ON LAND EAST OF HIGH BUNGAY ROAD, LODDON, NORFOLK

TRANSPORT STATEMENT

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CONTENTS

1.0 INTRODUCTION

1.1 Larkfleet Group commissioned ADC Infrastructure Ltd to produce a Transport Statement in support of an outline planning application for residential development on land to the east of High Bungay Road, in Loddon, south Norfolk. The general and detailed site locations are shown in **Figures 1 and 2** respectively, and an aerial photograph is shown in **Figure 3.**

1.2 The development proposals comprise up to 61 dwellings, and a new scout hut, with associated parking, accessed via a new priority-controlled T-junction on High Bungay Road. A copy of the illustrative masterplan is contained in **Appendix A**.

1.3 This Transport Statement has been prepared to support the outline planning application:

- Section 2 describes the existing conditions in the vicinity of the site. The site location and existing use is detailed. The local highway network is described, including the results of traffic counts and an accident analysis, and the existing opportunities for travel to the site by sustainable modes are examined.
- Section 3 describes the development proposals, including the parking provision, the vehicular access proposals, and the new infrastructure that would be provided to encourage the use of sustainable travel modes.
- Section 4 summarises the forecast trip generation of the development using robust trip rates from the TRICS database and the 2011 Census.
- Section 5 details the likely distribution pattern and assignment of development traffic on the local highway network, based on 2011 Census data.
- Section 6 presents the 2020 assessment year traffic flows.
- Section 7 assesses the impact of the development on the operation and safety of the study area junctions and proposes mitigation where necessary.
- Section 8 presents the summary and conclusions.

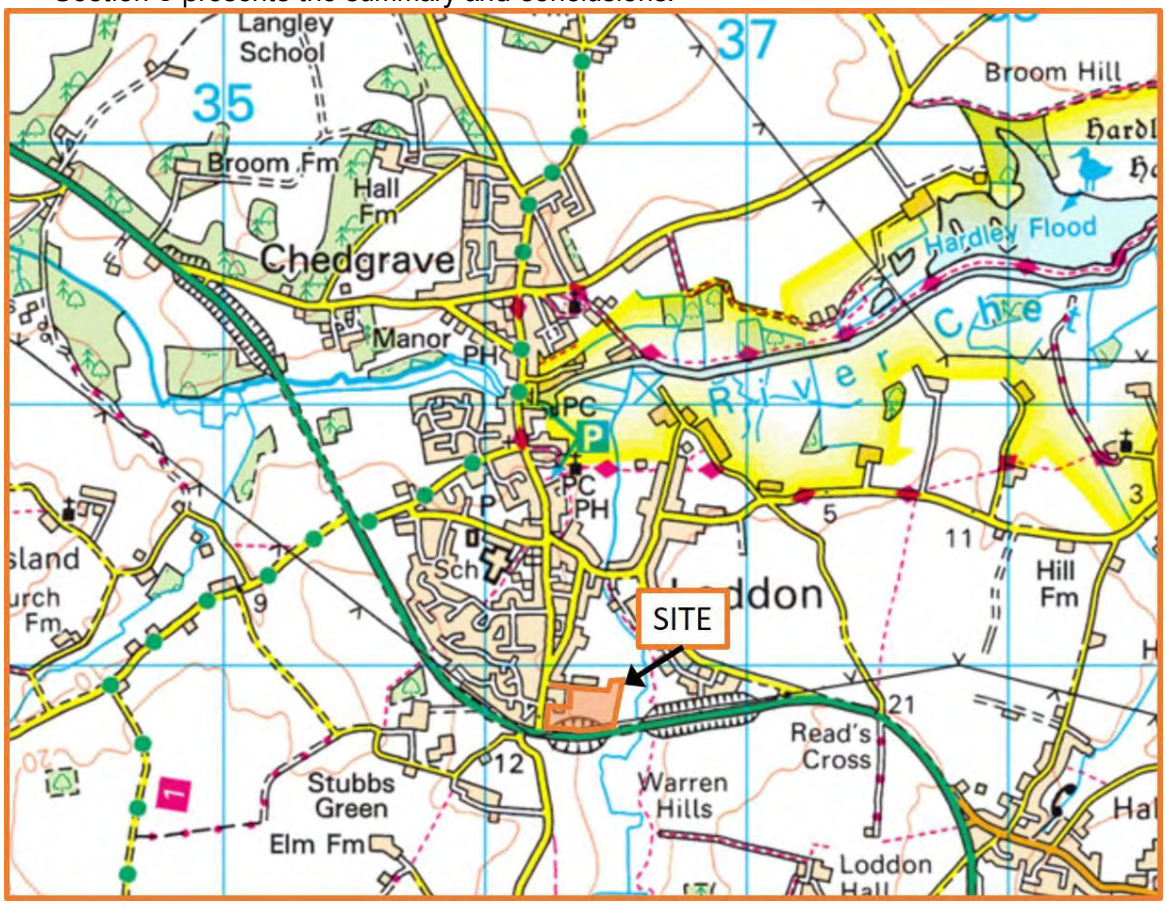


Figure 1: General site location

Figure 2: Detailed site location

Figure 3: Aerial photograph

1.4 This report has been produced in accordance with Norfolk County Council's (NCC) design guidance, and the *Travel plans, transport assessments and statements in decision-taking*[1]. It also examines the transport implications of the proposed development taking into account the following objectives from paragraph 32 of the National Planning Policy Framework (NPPF):

- *"the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure*
- *safe and suitable access to the site can be achieved for all people, and*
- *improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."*

2.0 EXISTING CONDITIONS

Site location and existing use

2.1 As shown in **Figures 1 and 2**, the development site is located off High Bunghay Road, to the south of Loddon. It is bound by fields to the north and east, the A146 to the south, and High Bungay Road to the west. The site is currently a field with a dropped kerb, gated access on High Bungay Road at the north-western edge of the site.

Highway network

2.2 The proposed development would be accessed from High Bungay Road. High Bungay Road is one of three arterial routes connecting Loddon to the A146, with George Lane to the west and Beccles Road to the east forming the other two routes.

2.3 In the vicinity of the site, High Bungay Road is a wide single carriageway road, measuring approximately 7.3 metres in width. High Bungay Road is subject to a 30mph speed limit, and has no parking restrictions. No on-street parking was observed in the vicinity of the site, but some parking occurs further north. Along the site frontage, High Bungay Road provides direct frontage access to the dwellings on the western side of the road.

2.4 To the north, High Bungay Road joins Gunton Road and Leman Grove via simple priority-controlled T-junctions on the western side of the carriageway. Gunton Road and Leman Grove both provide individual accesses to the residential estates to the south-west of Loddon. There are pedestrian connections between the two estates, but no vehicular connections. Gunton Road serves approximately 290 residential dwellings from the single point of access, and Leman Grove serves approximately 140 residential dwellings. The High Bungay Road/Gunton Road junction is designed to standard with appropriate visibility. However, the High Bungay Road/Leman Grove junction has restricted visibility, and there are 'stop' signs instead of give-way markings at the junction.

2.5 High Bungay Road also joins Low Bungay Road at a priority-controlled T-junction on the eastern side of the road. Low Bungay Road is a narrow residential road, and provides direct frontage access to the bungalows along it.

2.6 Further north, High Bungay Road joins High Street and Kittens Lane at a priority-controlled T-junction on the outside of the bend. From the junction, Kittens Lane is one-way in a westbound direction and provides access to residential dwellings and the Hobart High School. The junction, and the section of one-way road are subject to a traffic regulation order with double yellow lines on both sides of the roads.

[1] Travel plans, transport assessments and statements in decision-taking, National Planning Practice Guidance, March 2014

2.7 High Street joins High Street and Beccles Road at a split priority-controlled T-junction. High Street forms the main road through the centre of Loddon, and includes on-street parking bays.

2.8 To the south of the site, High Bungay Road joins the A146 and Bungay Road at a large priority-controlled staggered crossroads. The A146 and the junction are subject to the national speed limit. The junction includes diverge lanes for vehicles turning left, as well as right turn lanes with associated tapers for vehicles turning right onto High Bungay Road and Bungay Road. The left turn diverge lanes must give-way to the right turning traffic.

2.9 The A146 runs between Norwich to the west, and the A42 along the Norfolk coast. It also provides access to the A143 running between the A14 at Bury St Edmunds and Great Yarmouth.

Traffic flows

2.10 A morning and evening peak period traffic count was undertaken at the A146/High Bungay Road/Bungay Road staggered crossroads on Thursday 17th September 2015. All vehicles turning at, and travelling through, the junction were recorded in 15 minute intervals between 0730 and 0930 hours, and 1630 and 1830 hours. The traffic count results are contained in **Appendix B**. The peak hours were found to be 0730 to 0830 hours and 1645 to 1745 hours, and the recorded morning and evening peak hour traffic flows are shown in **Diagrams 1 to 4 in Appendix C**.

2.11 The traffic flows past the site frontage were calculated from the traffic count, and are summarised in the table below. As shown, the flows on High Bungay Road are tidal, with traffic leaving Loddon to travel south in the morning peak hour, and returning in the evening peak hour.

	northbound	southbound	two-way
AM peak hour	68	108	176
PM peak hour	125	56	181

Accident analysis

2.12 An examination of the Crashmap database (www.crashmap.co.uk) confirms that there have been three accidents on the A146 and one accident on High Bungay Road in the last available consecutive three year period (from 2012 to 2014).

2.13 The location of the recorded accidents is shown in **Figure 4** below. The accidents include:

1. A car colliding with a 10yr old pedestrian crossing from behind a stationary vehicle on High Bungay Road. The accident occurred on Thursday 10 July 2014 at 1550 hours and was slight in nature.
2. Three cars collided at the A146/High Bungay Road/Bungay Road junction. The accident occurred on Saturday 13 July 2013 at 1915 hours and was slight in nature.
3. Three cars collided on the A146. The accident occurred on Thursday 17 April 2014 at 1640 hours. The accident resulted in a fatality and several serious casualties.
4. One car lost control on the A146 to the east of the High Bungay Road junction. The accident occurred at 0226 hours on Tuesday 11 December 2012.

2.14 There are therefore no trends in the location, type or cause of accidents on the local highway network in the vicinity of the site.

Figure 4: Location of recorded accidents

Opportunities for pedestrian travel

2.15 *Guidelines for Providing for Journeys on Foot*[2] describe acceptable walking distances for pedestrians without mobility impairment. They suggest that for commuters and school pupils, up to 500 metres is the desirable walking distance, up to 1,000 metres is an acceptable walking distance, and up to 2,000 metres is the preferred maximum walking distance.

2.16 **Figure 5** shows the pedestrian catchment area based on a 2,000 metres walking distance from the centre of the site, via footways along the local highway network and traffic-free public footpaths. As shown, the pedestrian catchment area covers the education, health and retail facilities within Loddon and Chedgrave. It also includes the employment opportunities within the industrial estate to the east.

2.17 The pedestrian catchment area includes the Loddon Nursery School, the Loddon Infant and Nursery School, Loddon Junior School and Hobart High School. In addition, the pedestrian catchment area includes the Loddon post office, Co-op foodstore, and Boots pharmacy, amongst other retail units within the village. The Chet Valley Medical Practice and Church Plane surgery are also within walking distance.

2.18 With regards to pedestrian infrastructure, as shown in **Figure 6**, there are footways on both sides of High Bungay Road extending from the northern site boundary. From the junction with Gunton Road, there is a footway on the western side of High Bungay Road only. This extends up to the junction with Kittens Lane, although the width reduces to approximately one metre on the approach to the junction. From the junction, there is a narrow footway on the northern side of Kittens Lane providing access to the schools, and footways on both sides of High Street.

2.19 There are currently no crossing facilities on High Bungay Road or Kittens Lane.

[2] Guidelines for Providing for Journeys on Foot, Institution of Highways and Transportation, 2000

2.20 Pedestrians walking between the site and the schools or medical centre on Kittens Lane could route via the footway on High Bungay Road, or follow an alternative route via the footways on Gunton Road/Cannell Road or Leman Grove and via the public footpath that connects to the Hobart High School as shown in **Figure 6**. There is a well used short-cut across the grassed area between Leman Grove and the surfaced public footpath, as shown by the green dashed line in **Figure 6**.

2.21 Pedestrians walking between the site and the industrial estate could route via Low Bungay Road. Whilst there are no footways, the narrow carriageway results in low vehicle speeds and acts as a shared surface environment.

2.22 As detailed in section 2.12, there are no trends in accidents involving pedestrians, suggesting that there are no problematic locations for pedestrian travel.

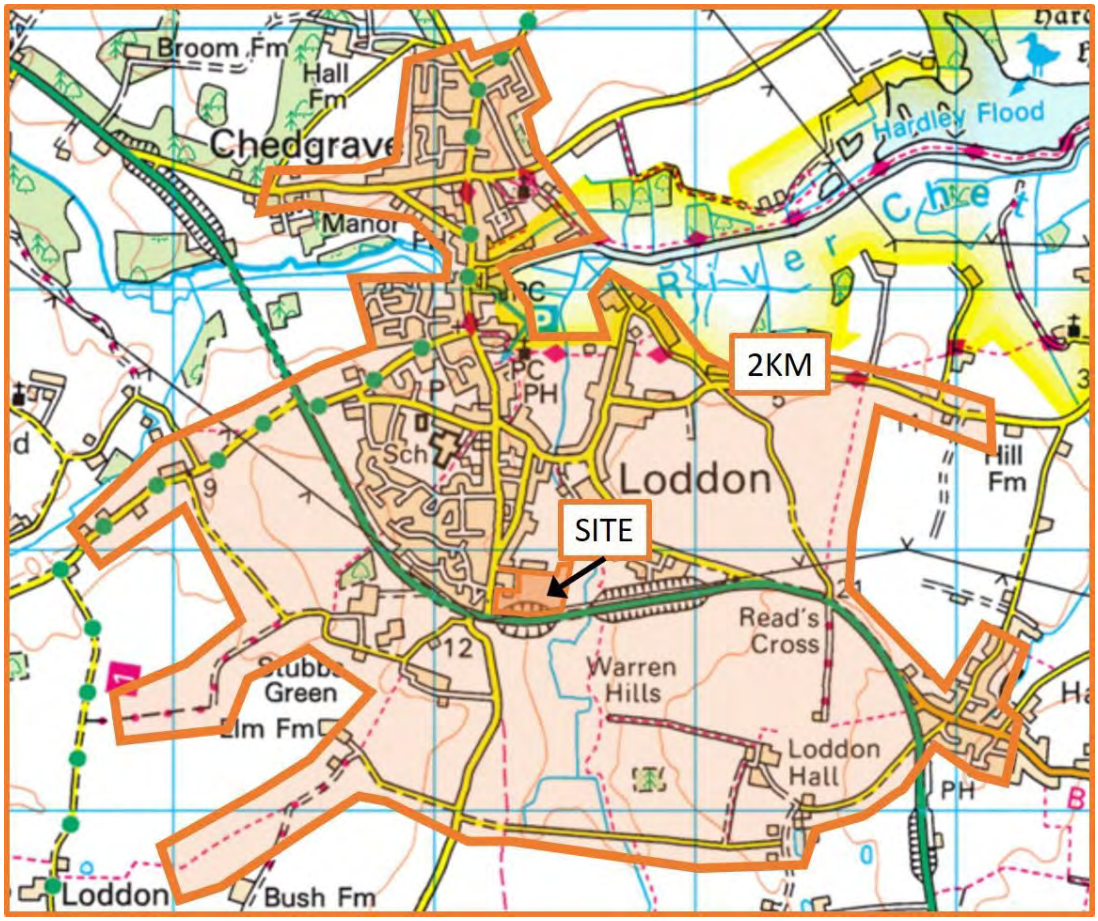


Figure 5: 2km pedestrian catchment area

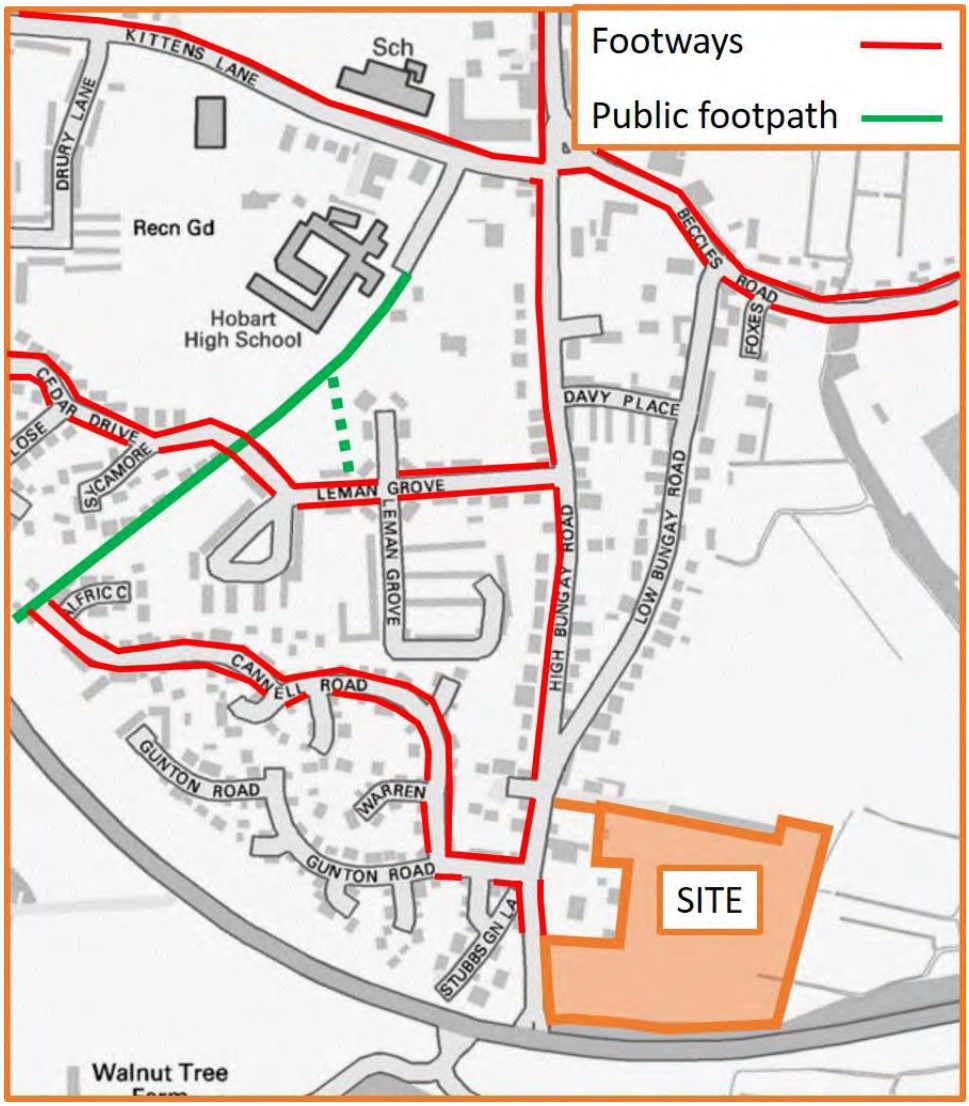


Figure 6: Pedestrian infrastructure

Opportunities for cycle travel

2.23 Cyclists are typically prepared to cycle up to 5km for non-leisure journeys, such as those to school or work. **Figure 7** shows the cycle catchment area based on a 5km distance from the centre of the site. As shown, the cycle catchment area includes Loddon and Chedgrave as well as a number of smaller villages.

2.24 There are no designated cycle paths through Loddon, although George Lane and Bridge Street to the north of the village form part of National Cycle Route One, which is a long distance route connecting Dover to the Shetland Islands. Nevertheless, given the lightly trafficked nature of the roads surrounding the site, cyclists could cycle on the roads.

Figure 7: Cycle catchment area

Opportunities for bus travel

2.25 As shown in **Figure 8**, the nearest bus stops to the site are on High Bungay Road just north of the site frontage. These provide access to Service X2, which runs between Lowestoft and Norwich, approximately every 20 minutes from Monday to Saturday and hourly on Sundays. The northbound bus stop includes a shelter with seating, whilst the southbound bus stop includes a flag and pole with raised kerbs to facilitate access.

2.26 There are other bus services running through the village, including Service 86 and 146, but these are infrequent.

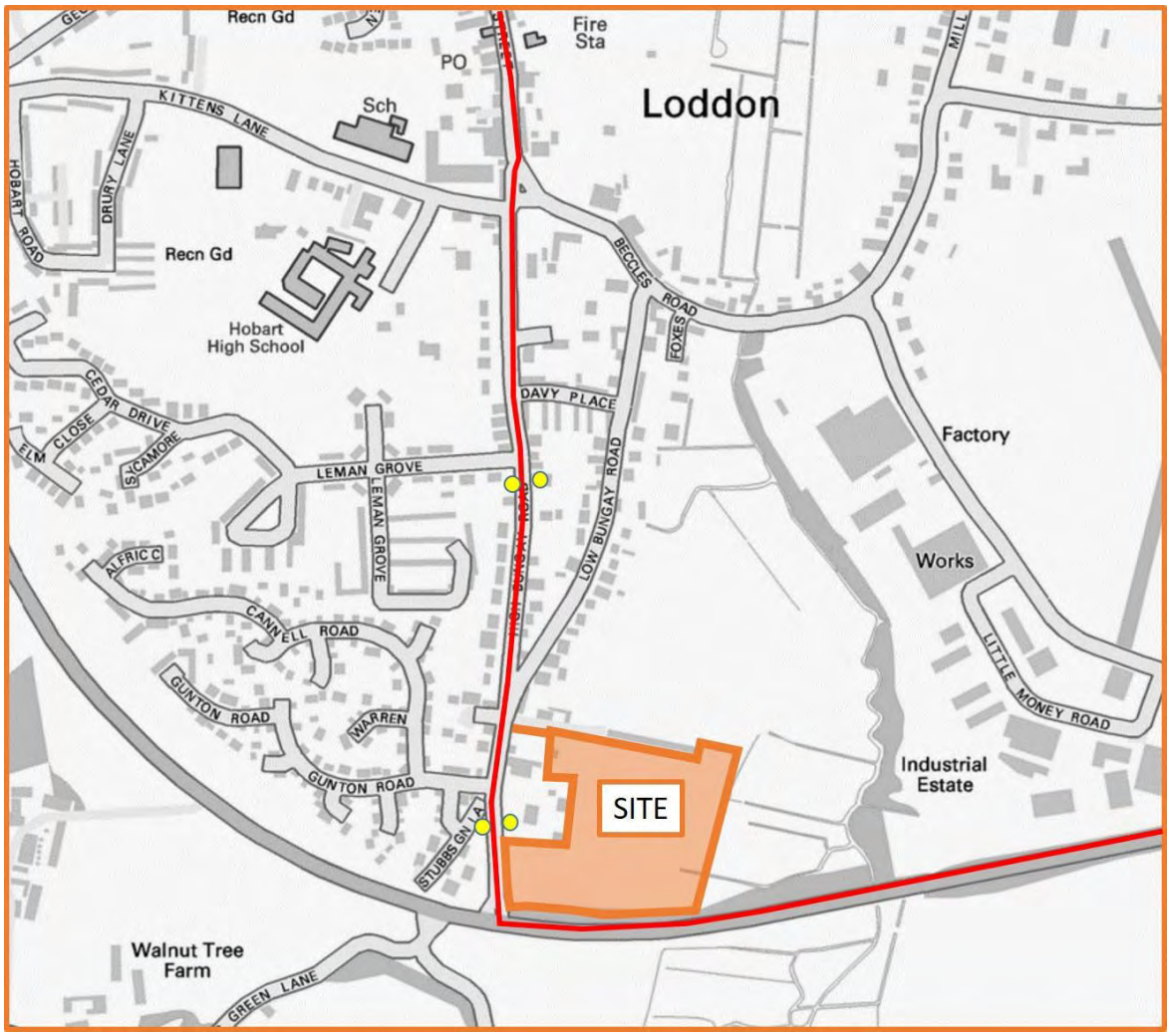


Figure 8: Local bus services

Summary

2.27 The site is located on the eastern side of High Bungay Road in Loddon. It is accessible by all modes of transport and is therefore well located for residential development.

2.28 The site is well connected to the local highway network within Loddon, as well as the wider highway network via the A146. High Bungay Road is lightly trafficked, and only one accident has been recorded in the last three years.

2.29 There are good opportunities for pedestrian and cycle travel to and from the site, with a number of facilities within walking and cycling distance, and appropriate infrastructure provided along the desire lines. There are two routes between the site and the nearby schools - via High Bungay Road and Kittens Lane, or via Leman Grove and the traffic-free public footpath.

2.30 There are also excellent opportunities for bus travel, with a regular bus service to Norwich running past the site every 20 minutes and bus stops within walking distance of the site.

2.31 Measures to improve the accessibility of the site would be provided as part of the development proposals, as detailed in Section 3.

3.0 PROPOSED DEVELOPMENT

Development proposals

3.1 The development proposals comprise up to 61 residential dwellings with associated parking. In addition, the proposals include a new scout hut. A copy of the illustrative layout is contained in **Appendix A**.

3.2 The site potentially forms the first phase of a wider development, with the potential for a further 60 dwellings to be provided on land to the north. Therefore, a total of approximately 120 dwellings could be served from the site access junction. This Transport Statement has been prepared to support the application for 61 dwellings only, although the potential future development has been taken into account in the design and assessment of the proposed site access junction.

Car and cycle parking

3.3 The planning application is in outline, and therefore the number of car parking spaces that would be provided cannot be confirmed at this stage. Nevertheless, the residential car parking spaces would be provided in line with the car parking standards, to avoid the development leading to on-street parking both within the site and on the local highway network.

3.4 NCC's parking standards require a maximum of: one parking space for one-bed dwellings; two parking spaces for two and three-bed dwellings; and three parking spaces for dwellings with four or more bedrooms. For garages to be counted as a parking space, they must have an internal dimension of 7x3m.

3.5 Space for secure cycle parking will be provided within the garages associated with each dwelling.

Access

3.6 The proposed development would primarily be accessed via a new simple priority-controlled T-junction on High Bungay Road. The proposed junction layout is shown in **Drawing ADC1303/001a.** As shown, the preliminary design of the site access junction includes a 5.5 metres wide carriageway and 6 metres kerb radii.

3.7 The site access junction design includes visibility splays of 2.4x43 metres, which is the requirement based on the 30mph speed limit. As shown, the visibility splays are achievable in both directions.

3.8 Furthermore, appropriate forward visibility is achievable from the A146 junction towards any vehicles waiting at the site access junction, as shown in **Drawing ADC1303/001a**. Vehicles turning left to travel northbound on High Bungay Road should stop to give-way where the diverge lane meets High Bungay Road. However, if there are no right turning vehicles travelling northbound, drivers may not completely stop at the give-way line, and will therefore proceed through the junction as if it were a bend. The drawing therefore shows a forward visibility splay envelope of 25 metres, which relates to a driving speed of 20mph. As shown, sufficient forward visibility is achievable towards a vehicle waiting to turn into the site access junction.

3.9 The proposed access junction would therefore be designed to the relevant standards and would provide sufficient visibility, such that it would be a safe and suitable access for the development.

3.10 Furthermore, the proposed junction layout would be safe and suitable for access to the potential wider residential development on land to the north, which could provide approximately 60

residential dwellings, resulting in approximately 120 dwellings in total served from the site access junction.

3.11 The operation of the junction, and the interaction with the A146 junction is assessed in Section 7, with both the proposed development traffic, and the potential wider residential development traffic as a sensitivity test.

3.12 In addition, as shown in the masterplan contained in **Appendix A,** there would be direct frontage access on to High Bungay Road for two dwellings. This should be acceptable given the existing direct frontage access on the western side of the carriageway.

Internal layout

3.13 The internal layout of the development would be designed to ensure that service vehicles can enter, manoeuvre and exit the site in a forward gear, with the provision of appropriate turning heads. The layout would ensure that the carry distance to the refuse vehicle will be no more than 25 metres.

3.14 The layout would also ensure that dwellings are no more than 45 metres from the edge of highway, to allow access by fire appliances. Where the length is longer than 45 metres, the roads will be constructed to adoptable standard to ensure that they can accommodate the weight of the vehicles.

Accessibility

3.15 In order to encourage pedestrian travel, 2 metres wide footways would be provided on both sides of the site access carriageway, into the site and along the internal road. Away from the main road, footways and shared space environments would be provided in accordance with Manual for Streets. A separate pedestrian only access would also be provided to High Bungay Road along the northern boundary of the site.

3.16 A new 2 metres wide footpath would also be provided on the eastern side of High Bunghay Road along the site frontage, to connect to the existing footpath further north. A pedestrian crossing, with dropped kerbs and tactile paving would also be provided on High Bungay Road to encourage pedestrians to cross onto the footway on the western side of the road in an appropriate location.

3.17 Cyclists will be encouraged to cycle on the carriageways throughout the development, and it is not necessary to provide designated cycle lanes.

3.18 With regards to bus travel, the existing bus stops on High Bungay Road are within walking distance and provide access to the frequent service X2.

4.0 TRIP GENERATION

Proposed traffic generation

4.1 The forecast traffic generation of the proposed residential development was calculated using the 'privately owned houses' category of the TRICS 7.2.2 database. All sites located in England, with the exception of Greater London, were selected. To obtain trip rates from comparable sites, only sites with 30 to 150 dwellings were selected, and only edge of town and suburban sites were selected. All weekend surveys were deselected. The TRICS outputs are contained in **Appendix D**, and the 85th percentile trip rates and resultant traffic generation of 61 dwellings are shown in the table below.

Proposed vehicle trip rates and traffic generation		arrive	depart	two-way
trip rates (per dwelling)	AM peak hour	0.225	0.450	0.675
	PM peak hour	0.475	0.250	0.725
vehicle trips (61 dwellings)	AM peak hour	14	27	41
	PM peak hour	29	15	44

4.2 The proposed development also includes a new scout hut for the local scout group. The scouts currently meet every Friday evening between 7pm and 9pm at the Loddon Junior School on Kittens Lane. It is not necessary to calculate the likely trip generation of the scout hut, given that it will not generate trips in the highway network peak hours, and that all trips will simply be diverted trips from the existing school rather than new trips to the highway network. The location of the new scout hut within the proposed development site will facilitate access by sustainable travel modes.

Modal split and person trip generation

4.3 The proportion of trips by each mode was calculated using the 2011 National Census 'Method of travel to Work' data (dataset QS701EW). The site is located in the ward of Loddon, and it would be reasonable to use this data given that new residents at the development are likely to display similar travel patterns to existing residents in the area.

4.4 Therefore, data for the ward was examined, and a copy of the dataset is contained in **Appendix E**. The resultant modal split and person trip generation is summarised below.

	on foot	bicycle	bus	train	m/cycle	car driver	passenger
	12.6%	3.4%	5.3%	1.1%	1.1%	71.2%	5.1%
AM peak hour	7	2	3	1	1	41	3
PM peak hour	8	2	3	1	1	44	3

4.5 Section 2 details the existing infrastructure in the vicinity of the site, and Section 3 details the proposed infrastructure, including new footways and a new pedestrian crossing. It is concluded that the existing and proposed infrastructure has the capacity to accommodate the above additional trips, and no further infrastructure is required.

5.0 VEHICLE DISTRIBUTION AND ASSIGNMENT

5.1 In order to determine the likely distribution pattern of the proposed development traffic shown in the table at paragraph 4.1, reference was made to the 2011 National Census 'Location of usual residence and place of work by method of travel to work' dataset (reference WU03EW). The data provides information on the in moves and out moves to and from each middle layer super output area (MSOA) associated with journeys to work by car.

5.2 The site is located in the 'South Norfolk 008' MSOA, which includes Loddon, Chadgrave Thurton, Yelverton and Bramerton. Therefore, the data was examined to identify where people living within the South Norfolk 008 MSOA travel to. From this information, the travel route was estimated using maps, and the proportion using each highway route was identified. A copy of the Census data is contained in **Appendix F**. This approach is appropriate given that it is likely that new residents within the development will display similar travel patterns to existing residents in the area.

5.3 **Diagram 5 in Appendix C** shows the resultant distribution pattern of the traffic generated by the proposed residential development.

5.4 As shown, the majority of the development traffic will route to and from the A146, with 94.3% of traffic travelling to and from the south, and only 5.7% of traffic travelling to and from the north through Loddon. This distribution pattern assumes that only trips within the South Norfolk 008 MSOA route north into Loddon. All other destinations, including trips to the Broadland 017 MSOA (containing Brundall) to the north route to and from the A146.

5.5 At the A146/High Bungay Road/Bungay Road junction, 74.3% of traffic will travel to and from the west, 14.8% will travel to and from the east, and 5.3% will travel to and from the south.

5.6 The development traffic in the table at paragraph 4.1 was assigned to the local highway network in accordance with the distribution pattern shown in **Diagram 5**. The morning and evening peak hour development traffic assignment is shown in **Diagrams 6 and 7 in Appendix C** respectively.

6.0 ASSESSMENT TRAFFIC FLOWS

Study area

6.1 Based on the likely increase in traffic as a result of the proposed development, the study area for assessment comprises the High Bungay Road/site access junction, and the A146/High Bungay Road/Bungay Road staggered crossroad junction.

6.2 It is not necessary to assess the impact of the development traffic at any junctions to the north of the site and within Loddon, given the minimal increase in traffic flows. As shown in **Diagrams 6 and 7 in Appendix C**, the development will result in an additional three two-way flows in the morning and evening peak hours on High Bungay Road to the north of the site. As detailed in paragraph 2.11, the existing background flows are approximately 180 two-way, and therefore the increase as a result of the development is less than 2% and likely to be within the daily fluctuations. The additional development traffic to the north of the site will therefore not result in a material impact and requires no further assessment.

Observed traffic flows

6.3 As detailed in Section 2, traffic flows at the junctions were obtained from traffic counts undertaken on Thursday 17 September 2015. The observed morning and evening peak hour traffic flows are shown in **Diagrams 1 to 4 in Appendix C**.

Assessment year traffic flows

6.4 It is appropriate to use an assessment year of five years after the date of registration of the planning application. As the planning application will be made in 2015, this would mean an assessment year of 2020.

6.5 The observed traffic flows were therefore growthed to 2020 levels using TEMPRO (version 6.2, dataset 62), which includes links to the National Traffic Model. The TEMPRO output is contained in **Appendix G** and shows the growth rates for 'all roads' in Loddon. The growth rates are as follows:

- 2015 to 2020 (AM) 1.1079
- 2015 to 2020 (PM) 1.1127

6.6 These growth rates were applied to the observed traffic flows. The '2020 background' traffic flows are shown in **Diagrams 8 to 13 in Appendix C** for the morning and evening peak hours.

Committed development

6.7 In accordance with guidance, traffic flows associated with any committed developments should be included within the 2020 assessment year traffic flows. The NPPG states that *"it is important to give appropriate consideration to the cumulative impacts arising from other committed development (i.e. development that is consented or allocated where there is a reasonable degree of certainty will proceed within the next three years). At the decision-taking stage this may require the developer to carry out an assessment of the impact of those adopted Local Plan allocations which have the potential to impact on the same sections of transport network as well as other relevant local sites benefitting from as yet unimplemented planning approval."*

6.8 However, there are no committed developments in the vicinity of the site that need to be taken into account.

2020 with development traffic flows

6.9 The proposed development traffic flows, shown in **Diagrams 6 and 7** for the morning and evening peak hours, were added to the 2020 background traffic flows shown in **Diagrams 8 to 13**. The '2020 with development' traffic flows are shown in **Diagrams 14 to 17 in Appendix C** for the morning and evening peak hours respectively.

2020 sensitivity assessment flows

6.10 As detailed in Section 3.2, whilst it does not form part of the current planning application, further residential development may be progressed on land to the north of the site in the future. Therefore, it is necessary to ensure that the proposed site access junction is designed with capacity to accommodate any further development.

6.11 It is estimated that the land to the north could accommodate a similar number of dwellings as the proposed development, meaning that the access junction could serve approximately 120 dwellings in total.

6.12 Therefore, as part of a sensitivity assessment, the trip rates used in the table at paragraph 4.1 were used to calculate the sensitivity assessment traffic flows assuming 120 dwellings. This is shown in the table below.

Proposed vehicle trip rates and traffic generation		arrive	depart	two-way
trip rates (per dwelling)	AM peak hour	0.225	0.450	0.675
	PM peak hour	0.475	0.250	0.725
vehicle trips (120 dwellings)	AM peak hour	27	54	81
	PM peak hour	57	30	87

6.13 The sensitivity traffic flows were assigned at the site access junction in accordance with the distribution pattern in **Diagram 5**. The sensitivity assignment in shown in **Diagram 18**. The sensitivity traffic flows were added to the 2020 background flows, to provide '2020 with development sensitivity' flows, as shown in **Diagrams 19 and 20 in Appendix C**.

7.0 HIGHWAY IMPACT

High Bungay Road/site access junction

7.1 The proposed junction layout is shown in **Drawing ADC1303/001a**. Capacity assessments were undertaken using Junctions 8 PICADY software and the '2020 with development' traffic flows. The junction was also modelled with the sensitivity traffic flows. The results are

summarised below, and the PICADY outputs are contained in **Appendix H.** As shown, the proposed junction layout is forecast to operate well below the 85% design threshold for ratio of flow to capacity (RFC), even with the sensitivity flows, and is therefore suitable to accommodate the forecast traffic flows.

7.2 As shown, the junction is forecast to operate with minimal queueing and delay, and there would be no queues associated with vehicles waiting to turn right into the site from High Bungay Road – even with the potential future development. Therefore, the proposed development would not result in any queueing back to the A146 junction, or increase the potential for rear end shunts as vehicles exit the A146 junction and travel northbound on High Bungay Road. As detailed in Section 3.8 , there is sufficient forward visibility from the A146 junction towards any vehicles waiting to turn right into the site access junction.

	peak		site access left turn	site access right turn	High Bungay Road
2020 with development	AM	RFC	4%	0%	3%
		max queue (veh)	0.05	0.00	0.03
		max delay (secs)	5.98	7.42	5.67
	PM	RFC	2%	0%	5%
		max queue (veh)	0.02	0.00	0.08
		max delay (secs)	5.72	7.41	5.43
2020 with development SENSITIVITY	AM	RFC	9%	1%	5%
		max queue (veh)	0.10	0.01	0.06
		max delay (secs)	6.29	7.51	5.80
	PM	RFC	5%	0%	11%
		max queue (veh)	0.05	0.00	0.15
		max delay (secs)	5.87	7.59	5.65

A146/High Bungay Road/Bungay Road junction

7.3 The layout of the junction is shown in the aerial photograph in **Figure 9** below.

Figure 9: Existing A146/High Bungay Road/Bungay Road junction

7.4 The operation of the junction was modelled using Junctions 8 PICADY software, and the '2020 background' and '2020 with development' traffic flow scenarios. The PICADY geometry was scaled from OS mapping, although the separate diverge lanes for left turning traffic were not taken into account. The junction was modelled using the direct flow input. The results are summarised in the table below, and the direct traffic flow calculations, PICADY measurements and outputs are contained in **Appendix I.**

7.5 As shown, the junction is forecast to operate well below the 85% ratio of flow to capacity (RFC), in both the morning and evening peak hours in the 2020 background scenario, although there is some delay for drivers exiting the minor arms to travel ahead or right. The forecast delay is likely to be less than the model suggests, given that the model does not include the left-turn diverge lanes, which increase the capacity of the minor arms. Nevertheless, as shown in the table, the addition of the proposed development traffic has a limited impact on the operation of the junction, which continues to operate well below the 85% RFC. The proposed development traffic results in an additional delay of approximately 6 seconds on High Bungay Road and 10 seconds on Bungay Road in the morning peak hour, and approximately three seconds on High Bungay Road and two seconds on Bungay Road in the evening peak hour. The existing junction layout therefore has the capacity to accommodate the additional development traffic and no mitigation measures are required.

7.6 Furthermore, there is minimal queuing on High Bungay Road, with a maximum queue of approximately two vehicles. Assuming a vehicle length of approximately five metres, this equates to a queue length of approximately 10-12 metres. The proposed site access junction is approximately 43 metres from the A146 junction. Therefore, the forecast queue on High Bungay Road will not extend back and to the proposed site access junction. The proximity of the site access junction to the A146 junction should therefore be acceptable.

	peak		High Bungay Rd left turn	High Bungay Rd ahead and right	A146 (W) right turn	Bungay Road left turn	Bungay Road ahead and right turn	A146 (E) right turn
2020 background	AM	RFC	16%	61%	8%	17%	37%	6%
		max queue (veh)	0.18	1.35	0.09	0.20	0.55	0.06
		max delay (secs)	12.42	49.96	10.55	11.08	65.86	9.67
	PM	RFC	15%	41%	12%	7%	22%	22%
		max queue (veh)	0.17	0.63	0.13	0.08	0.27	0.27
		max delay (secs)	13.99	59.60	7.96	7.80	38.57	12.43
2020 with development	AM	RFC	17%	66%	8%	17%	38%	6%
		max queue (veh)	0.20	1.60	0.09	0.20	0.57	0.06
		max delay (secs)	13.63	55.62	10.60	11.38	76.03	9.89
	PM	RFC	15%	44%	12%	7%	22%	22%
		max queue (veh)	0.18	0.71	0.13	0.08	0.28	0.28
		max delay (secs)	14.25	62.57	7.98	7.84	40.51	12.46

8.0 SUMMARY AND CONCLUSIONS

8.1 Larkfleet Group commissioned ADC Infrastructure Ltd to provide transport and highways advice in support of an outline planning application for residential development on land east of High Bungay Road, in Loddon, south Norfolk.

8.2 The development proposals comprise up to 61 dwellings, and a new scout hut. The development would be accessed via a new simple priority-controlled T-junction on High Bungay Road, designed to standard and with appropriate visibility splays.

8.3 The development site is accessible by a range of sustainable travel modes, and is therefore suitable for residential development. It is well connected to the local highway network within Loddon, as well as the wider highway network via the A146. There are also good opportunities for pedestrian and cycle travel to and from the site, with a number of facilities within walking and cycling distance, and appropriate infrastructure provided along the desire lines. There are two routes between the site and the nearby schools - via High Bungay Road and Kittens Lane, or via Leman Grove and the traffic-free public footpath. There are also excellent opportunities for bus travel, with a regular bus service to Norwich running past the site every 20 minutes and bus stops within walking distance of the site.

8.4 As part of the proposed development, footways would be provided throughout the site. A new footway would also be provided along the eastern side of High Bungay Road along the site frontage, to connect to the existing footway further north. A new pedestrian crossing with dropped kerbs and tactile paving would also be provided on High Bungay Road, to encourage pedestrians to cross in an appropriate location.

8.5 The proposed residential dwellings would generate eight pedestrian journeys, two cycle journeys and three bus journeys. The scout hut would also generate some internal trips within the development and within the village, but these would not occur in the peak periods. The additional trips can be accommodated by the existing infrastructure and the proposed measures.

8.6 The proposed residential dwellings would generate up to 44 two-way vehicle trips in a peak hour. The majority of traffic would travel to and from the south, and travel to and from the west on the A146. The increase in traffic through Loddon would be minimal, with approximately three two-way trips in the peak hours.

8.7 The operation of the site access junction and the A146/High Bungay Road/Bungay Road staggered crossroads junction was modelled using 2020 traffic flows, both without and with the development. The site access junction was also modelled using sensitivity traffic flows that take into account potential future residential development on land to the north of the site.

8.8 These assessments confirmed that the junctions have capacity to accommodate the proposed development traffic without the need for mitigation. There is minimal queuing and delay forecast at the proposed site access junction, and the proposed layout would operate with spare capacity. There is also minimal queuing forecast at the A146 junction. Even with the potential wider development in place, there would be a queue of approximately two vehicles on High Bungay Road at the A146 junction. This equates to a length of approximately 12 metres, and will therefore not queue back to the proposed site access junction, which is approximately 43 metres from the A146 junction. Thus there will be no severe impact on the operation or safety of the highway network associated with the additional traffic as a result of the proposed development. There will also be no adverse interaction between the proposed site access junction and the A146/High Bungay Road/Bungay Road junction, and the distance between the two junctions should be acceptable.

8.9 Overall, the proposed development would accord with the aims of the NPPF. The opportunities for sustainable travel would be improved as part of the proposals, and thus safe and suitable access can be achieved for all people, without any severe impacts. Therefore it would be unreasonable to prevent the development on transport grounds.

Rev	Description	Date
A	Revised following comments	23/10/15

Project:

Proposed Residential Development
High Bunghay Road, Loddon

Title:

Proposed Access Junction Layout

Client:

Larkfleet Homes

ADC INFRASTRUCTURE

Drg Size:	Scale:	Date:
A3	1:500	29/09/2015

Drawing No: ADC1303/001

Rev: A

APPENDIX A

ILLUSTRATIVE DEVELOPMENT MASTERPLAN

THIS DRAWING IS FOR THE PURPOSE OF OBTAINING PLANNING PERMISSION ONLY

CDM NOTE:

The design has been undertaken as far as possible to avoid risks to health and safety or to reduce and control the effects of any unavoidable risks.

All relevant information identifying the unavoidable risks has been passed to the planning supervisor for inclusion in the Health & Safety plan.

The Health & Safety plan will be issued by the planning supervisor with these drawings.

Bungalows

Houses

0 10 20 30 40 50m

Rev.	By	Notes	Date
A	WW	Bungalows indicated along southern boundary. Scout hut moved.	16/09/15

rdc Robert Doughty Consultancy
32 High Street, Helpringham
© Sleaford, Lincolnshire NG34 ORA
Tel: 01529 421646
Fax: 01529 421358
Email: admin@rdc-landplan.co.uk
Web: www.rdc-landplan.co.uk

Client: Gin Property

Project: Loddon

Drawing title: Masterplan

Drawing No.	Rev.	Drawn
606-11-MP01	A	WW

Scale	Date	Checked
1:1250 @ A3	30/07/15	RJCD

APPENDIX B

TRAFFIC COUNT RESULTS

ATC — ARCA Traffic & Construction Ltd.

Place: Loddon **Weather:** Overcast / Dry **Client:** ADC Infrastructrue **Page:** 1
Date: 17.09.2015 **Junction Ref:** A146 / High Bunghay Road / Bungay Road **Survey Ref. No:** ADC1303 **of:** 1

Time	Entering on: Bunghay Road Northbound													Entering on: A146 Eastbound													Entering on: High Bunghay Road Southbound													Entering on: A146 Westbound													Grand
	Left turn to: A146 WB			Straight on to: High Bunghay Rd NB			Right turn to: A146 EB			U turn to: Bunghay Rd SB			Total		Left turn to: High Bunghay Rd NB			Straight on to: A146 EB			Right turn to: Bunghay Rd SB			U turn to: A146 WB			Total		Left turn to: A146 EB			Straight on to: Bunghay Rd SB			Right turn to: A146 EB			U turn to: High Bunghay Rd NB			Total		Left turn to: Bunghay Rd SB			Straight on to: A146 WB			Right turn to: High Bunghay Rd NB			U turn to: A146 EB			Total		Totals
Begin	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Vehs	PCUs	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Vehs	PCUs	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Vehs	PCUs	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Vehs	PCUs	
0730	7	0	7	2	0	2	3	0	3	0	0	0	12		7	0	7	172	11	183	5	1	6	1	0	1	197		12	0	12	0	0	0	22	0	22	0	0	0	34		0	0	0	252	16	268	1	1	2	0	0	0	270		513
0745	14	0	14	1	0	1	2	0	2	0	0	0	17		6	1	7	165	12	177	8	0	8	0	0	0	192		9	1	10	1	0	1	15	0	15	0	0	0	26		0	0	0	215	17	232	1	1	2	0	0	0	234		469
0800	9	0	9	7	1	8	1	0	1	0	0	0	18		12	0	12	151	13	164	8	0	8	0	0	0	184		12	1	13	2	0	2	8	0	8	0	0	0	23		3	0	3	214	8	222	3	2	5	0	0	0	230		455
0815	15	0	15	10	0	10	0	0	0	0	0	0	25		8	1	9	156	16	172	7	0	7	0	0	0	188		11	1	12	2	0	2	11	0	11	0	0	0	25		2	0	2	221	19	240	3	0	3	0	0	0	245		483
0830	4	0	4	11	0	11	0	0	0	0	0	0	15		6	0	6	165	29	194	10	0	10	0	0	0	210		8	0	8	4	0	4	12	0	12	0	0	0	24		1	0	1	193	18	211	2	1	3	0	0	0	215		464
0845	6	0	6	3	0	3	1	0	1	0	0	0	10		12	0	12	136	17	153	10	1	11	0	0	0	176		7	1	8	1	0	1	5	0	5	0	0	0	14		0	0	0	137	18	155	2	0	2	0	0	0	157		357
0900	4	0	4	4	0	4	0	0	0	0	0	0	8		9	0	9	118	16	134	8	0	8	0	0	0	151		1	0	1	2	0	2	3	0	3	0	0	0	6		1	0	1	133	16	149	3	1	4	0	0	0	154		319
0915	3	0	3	3	0	3	0	0	0	0	0	0	6		7	0	7	84	14	98	5	0	5	0	0	0	110		6	1	7	2	1	3	7	0	7	0	0	0	17		0	0	0	141	17	158	5	0	5	0	0	0	163		296
0730-0830	**45**	**0**	**45**	**20**	**1**	**21**	**6**	**0**	**6**	**0**	**0**	**0**			**33**	**2**	**35**	**644**	**52**	**696**	**28**	**1**	**29**	**1**	**0**	**1**			**44**	**3**	**47**	**5**	**0**	**5**	**56**	**0**	**56**	**0**	**0**	**0**			**5**	**0**	**5**	**902**	**60**	**962**	**8**	**4**	**12**	**0**	**0**	**0**			**0**
1630	8	0	8	8	0	8	2	0	2	0	0	0	18		11	0	11	196	8	204	11	0	11	1	0	1	227		5	0	5	2	0	2	5	0	5	0	0	0	12		0	0	0	199	13	212	8	1	9	0	0	0	221		478
1645	7	1	8	6	0	6	0	0	0	0	0	0	14		12	2	14	231	1	232	14	0	14	0	0	0	260		5	2	7	5	0	5	3	0	3	0	0	0	15		2	0	2	167	13	180	8	0	8	0	0	0	190		479
1700	8	0	8	3	0	3	1	0	1	0	0	0	12		16	0	16	255	14	269	12	0	12	0	0	0	297		2	1	3	5	0	5	4	0	4	0	0	0	12		2	0	2	185	8	193	7	0	7	0	0	0	202		523
1715	8	0	8	8	0	8	1	0	1	0	0	0	17		13	0	13	236	6	242	6	0	6	0	0	0	261		1	1	2	4	0	4	4	0	4	0	0	0	10		2	0	2	160	7	167	9	1	10	0	0	0	179		467
1730	7	0	7	3	0	3	0	0	0	0	0	0	10		19	0	19	260	3	263	7	0	7	2	0	2	291		10	0	10	6	1	7	2	0	2	0	0	0	19		0	0	0	171	5	176	16	2	18	0	0	0	194		514
1745	3	0	3	6	0	6	2	0	2	0	0	0	11		16	0	16	210	5	215	0	0	0	0	0	0	231		3	1	4	3	0	3	0	0	0	0	0	0	7		0	0	0	152	3	155	10	0	10	0	0	0	165		414
1800	5	0	5	9	0	9	0	0	0	0	0	0	14		14	0	14	189	5	194	7	0	7	0	0	0	215		8	1	9	4	0	4	7	0	7	0	0	0	20		1	0	1	148	6	154	7	1	8	0	0	0	163		412
1815	3	0	3	1	0	1	2	0	2	0	0	0	6		8	0	8	166	2	168	4	0	4	0	0	0	180		7	2	9	3	0	3	8	0	8	0	0	0	20		1	0	1	114	3	117	3	0	3	0	0	0	121		327
1645-1745	**30**	**1**	**31**	**20**	**0**	**20**	**2**	**0**	**2**	**0**	**0**	**0**			**60**	**2**	**62**	**982**	**24**	**###**	**39**	**0**	**39**	**2**	**0**	**2**			**18**	**4**	**22**	**20**	**1**	**21**	**13**	**0**	**13**	**0**	**0**	**0**			**6**	**0**	**6**	**683**	**33**	**716**	**40**	**3**	**43**	**0**	**0**	**0**			**0**

	Lights	HGVs	Total	
0730	484	29	513	
0745	437	32	469	
0800	430	25	455	
0815	446	37	483	1920
0830	416	48	464	1871
0845	320	37	357	1759
0900	286	33	319	1623
0915	263	33	296	1436
1630	456	22	478	
1645	460	19	479	
1700	500	23	523	
1715	452	15	467	1947
1730	503	11	514	1983
1745	405	9	414	1918
1800	399	13	412	1807
1815	320	7	327	1667

APPENDIX C

TRAFFIC FLOW DIAGRAMS

High Bunghay Road

	A	B	C	
A			108	**108**
B				
C	68			**68**
	68		**108**	

A

B

SITE

C

High Bunghay Road

A146(W)

A146 (E)

	A	B	C	D	
A		35	696	29	**760**
B	56		47	5	**108**
C	962	12		5	**979**
D	45	21	6		**72**
	1063	**68**	**749**	**39**	

A

B

C

D

Bunghay Road

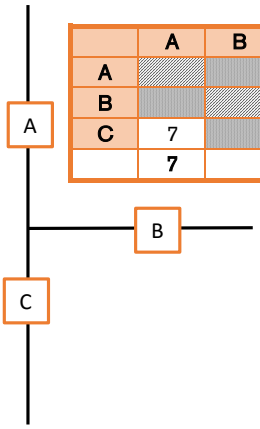
ADC INFRASTRUCTURE

HIGH BUNGAY ROAD,
LODDON

DIAGRAM 1

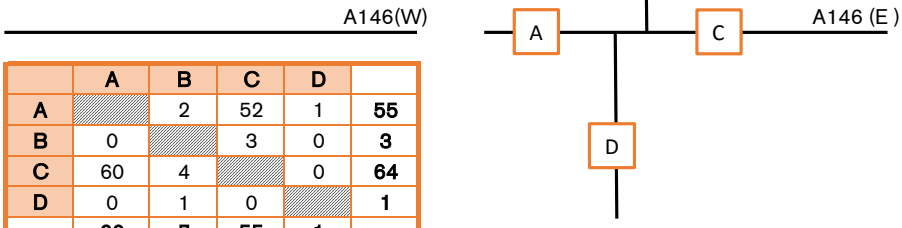
2015 OBSERVED TRAFFIC FLOWS
TOTAL VEHICLES
AM PEAK HOUR

High Bunghay Road



	A	B	C	
A			3	3
B				
C	7			7
	7		3	

High Bunghay Road



	A	B	C	D	
A		2	52	1	55
B	0		3	0	3
C	60	4		0	64
D	0	1	0		1
	60	7	55	1	

Bunghay Road

ADC INFRASTRUCTURE

HIGH BUNGAY ROAD, LODDON

DIAGRAM 2

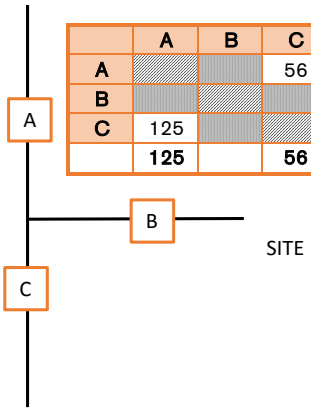
2015 OBSERVED TRAFFIC FLOWS

HGVs

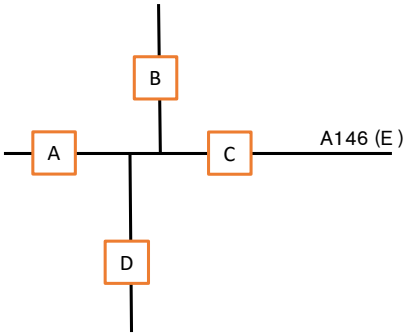
AM PEAK HOUR

High Bunghay Road

	A	B	C	
A			56	**56**
B				
C	125			**125**
	125		**56**	



High Bunghay Road



A146(W)

	A	B	C	D	
A		62	1006	39	**1107**
B	13		22	21	**56**
C	716	43		6	**765**
D	31	20	2		**53**
	760	**125**	**1030**	**66**	

Bunghay Road

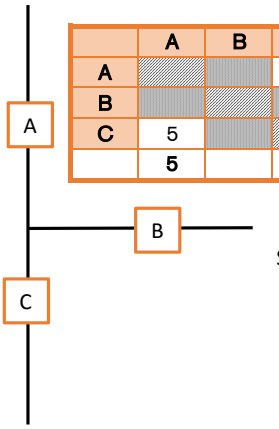
ADC INFRASTRUCTURE

HIGH BUNGAY ROAD,
LODDON

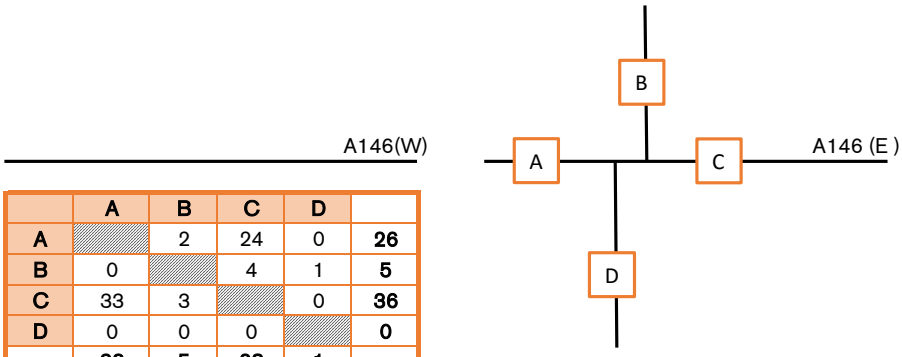
DIAGRAM 3
2015 OBSERVED TRAFFIC FLOWS
TOTAL VEHICLES
PM PEAK HOUR

High Bunghay Road

	A	B	C	
A			5	5
B				
C	5			5
	5		5	



High Bunghay Road



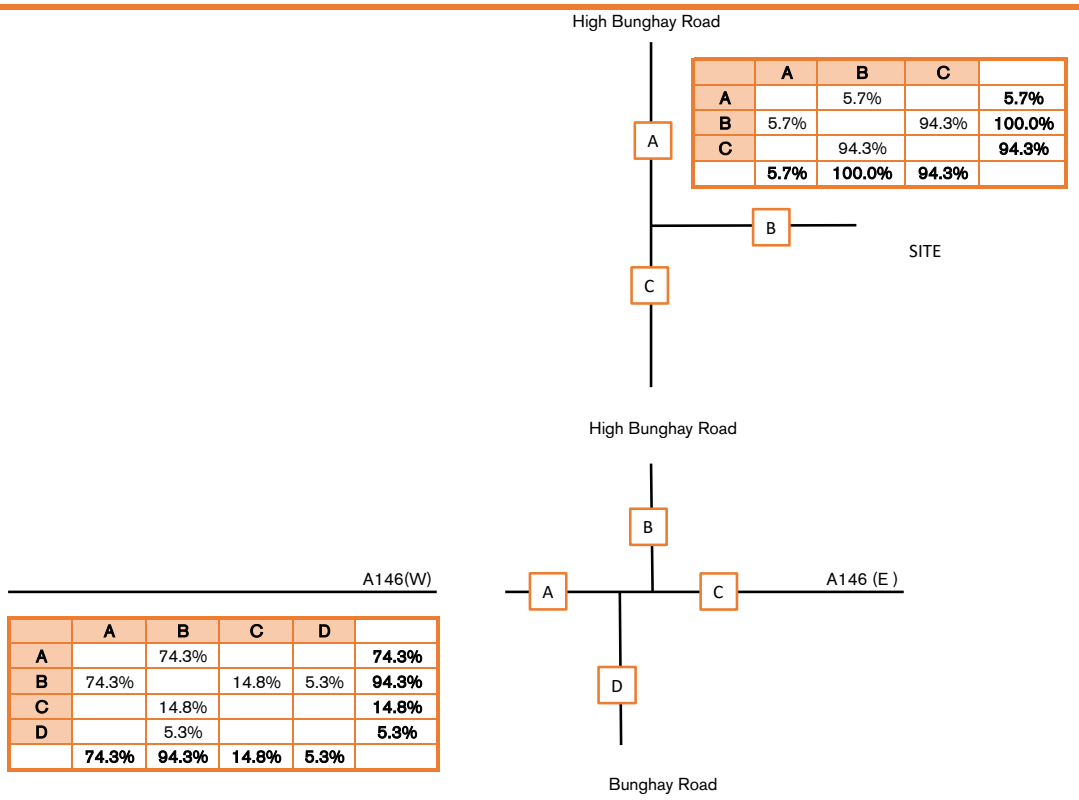
	A	B	C	D	
A		2	24	0	26
B	0		4	1	5
C	33	3		0	36
D	0	0	0		0
	33	5	28	1	

Bunghay Road

ADC INFRASTRUCTURE

HIGH BUNGAY ROAD,
LODDON

DIAGRAM 4
2015 OBSERVED TRAFFIC FLOWS
HGVs
PM PEAK HOUR



	A	B	C	
A		5.7%		**5.7%**
B	5.7%		94.3%	**100.0%**
C		94.3%		**94.3%**
	5.7%	**100.0%**	**94.3%**	

	A	B	C	D	
A		74.3%			**74.3%**
B	74.3%		14.8%	5.3%	**94.3%**
C		14.8%			**14.8%**
D		5.3%			**5.3%**
	74.3%	**94.3%**	**14.8%**	**5.3%**	

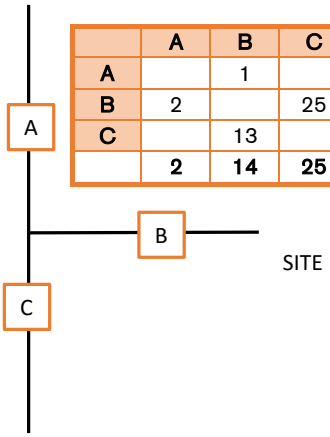
ADC INFRASTRUCTURE

HIGH BUNGAY ROAD,
LODDON

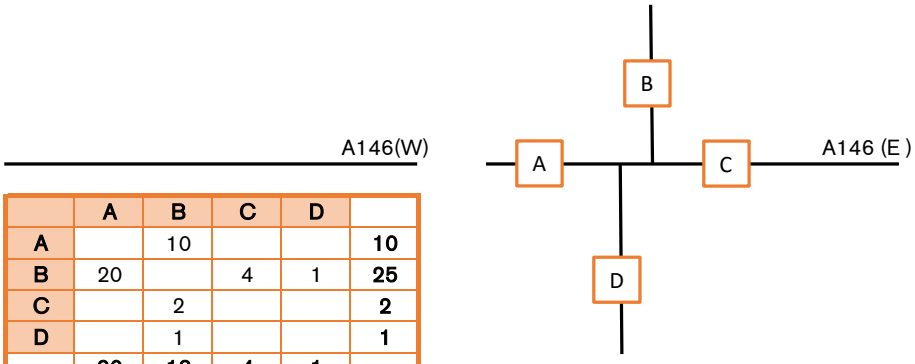
DIAGRAM 5
DEVELOPMENT TRAFFIC DISTRIBUTION

High Bunghay Road

	A	B	C	
A		1		**1**
B	2		25	**27**
C		13		**13**
	2	**14**	**25**	



High Bunghay Road



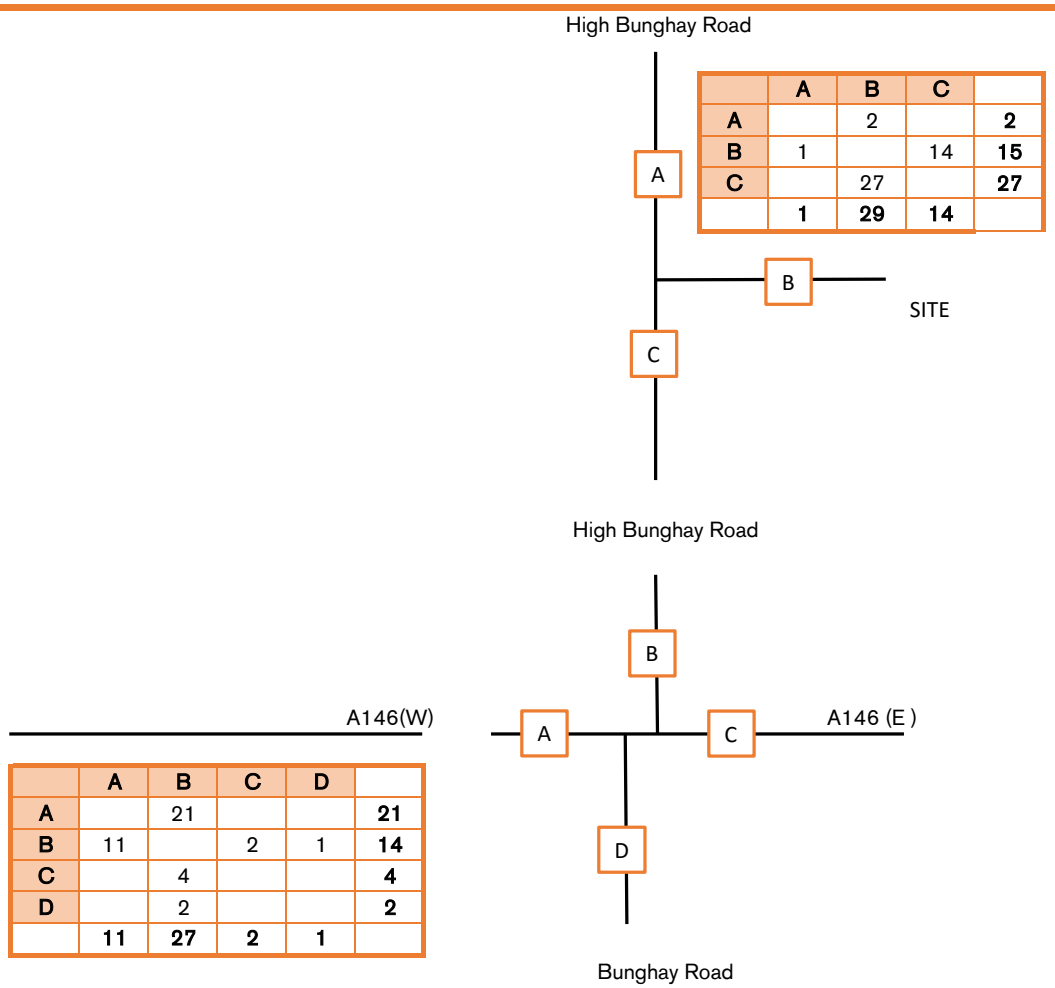
	A	B	C	D	
A		10			**10**
B	20		4	1	**25**
C		2			**2**
D		1			**1**
	20	**13**	**4**	**1**	

Bunghay Road

ADC INFRASTRUCTURE

HIGH BUNGAY ROAD,
LODDON

DIAGRAM 6
DEVELOPMENT ASSIGNMENT
AM PEAK HOUR



	A	B	C	
A		2		2
B	1		14	15
C		27		27
	1	29	14	

	A	B	C	D	
A		21			21
B	11		2	1	14
C		4			4
D		2			2
	11	27	2	1	

ADC INFRASTRUCTURE

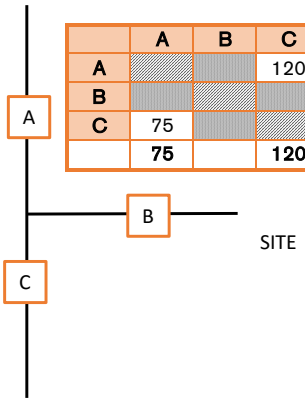
HIGH BUNGAY ROAD,
LODDON

DIAGRAM 7
DEVELOPMENT ASSIGNMENT
PM PEAK HOUR

2015 to 2020 growth rate 1.108

High Bunghay Road

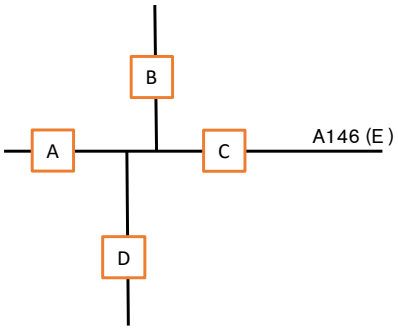
	A	B	C	
A			120	**120**
B				
C	75			**75**
	75		**120**	



High Bunghay Road

A146(W)

	A	B	C	D	
A		39	771	32	**842**
B	62		52	6	**120**
C	1066	13		6	**1085**
D	50	23	7		**80**
	1178	**75**	**830**	**44**	



Bunghay Road

ADC INFRASTRUCTURE

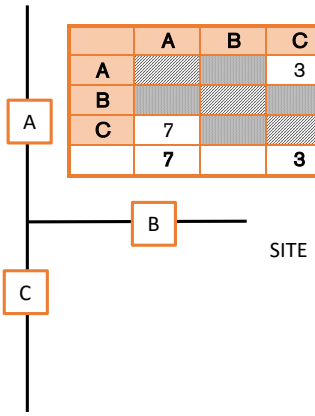
HIGH BUNGAY ROAD, LODDON

DIAGRAM 8
2020 BACKGROUND
TOTAL VEHICLES
AM PEAK HOUR

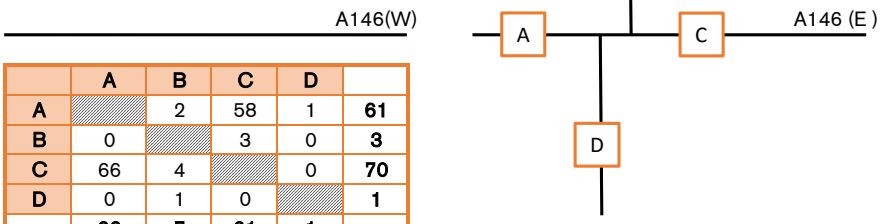
2015 to 2020 growth rate 1.108

High Bunghay Road

	A	B	C	
A			3	3
B				
C	7			7
	7		3	



High Bunghay Road



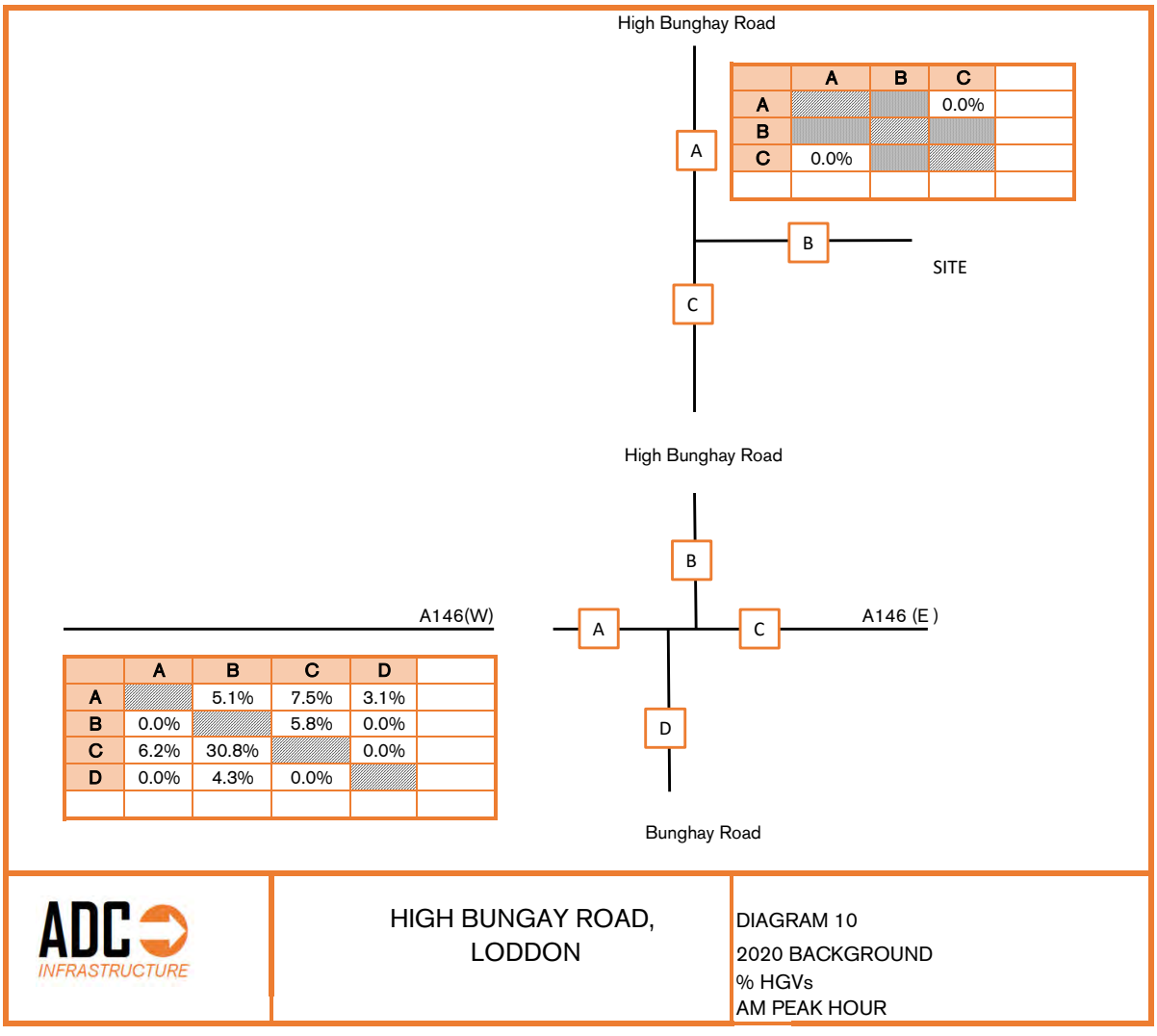
	A	B	C	D	
A		2	58	1	61
B	0		3	0	3
C	66	4		0	70
D	0	1	0		1
	66	7	61	1	

Bunghay Road

ADC INFRASTRUCTURE

HIGH BUNGAY ROAD, LODDON

DIAGRAM 9
2020 BACKGROUND
HGVs
AM PEAK HOUR



	A	B	C	
A			0.0%	
B				
C	0.0%			

	A	B	C	D	
A		5.1%	7.5%	3.1%	
B	0.0%		5.8%	0.0%	
C	6.2%	30.8%		0.0%	
D	0.0%	4.3%	0.0%		

ADC INFRASTRUCTURE

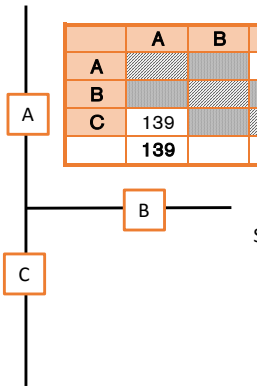
HIGH BUNGAY ROAD,
LODDON

DIAGRAM 10
2020 BACKGROUND
% HGVs
AM PEAK HOUR

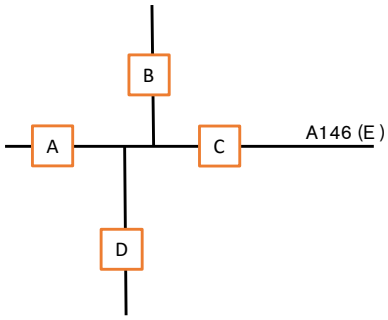
2015 to 2020 growth rate 1.113

High Bunghay Road

	A	B	C	
A			61	**61**
B				
C	139			**139**
	139		**61**	



High Bunghay Road



A146(W)

	A	B	C	D	
A		69	1119	43	**1231**
B	14		24	23	**61**
C	797	48		7	**852**
D	34	22	2		**58**
	845	**139**	**1145**	**73**	

Bunghay Road

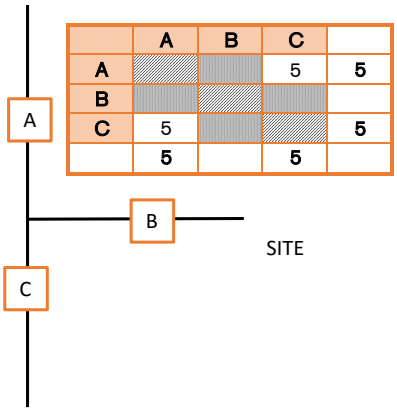
ADC INFRASTRUCTURE

HIGH BUNGAY ROAD,
LODDON

DIAGRAM 11
2020 BACKGROUND
TOTAL VEHICLES
PM PEAK HOUR

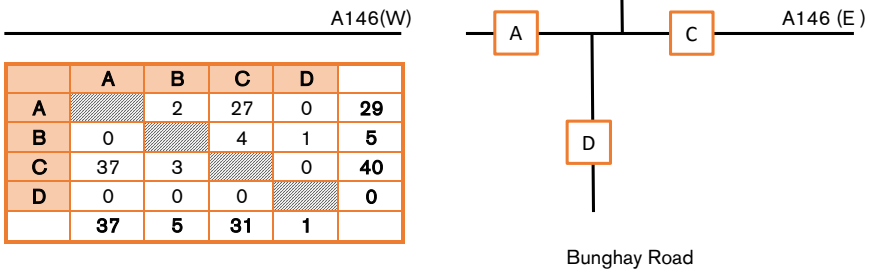
2015 to 2020 growth rate 1.113

High Bunghay Road



	A	B	C	
A			5	5
B				
C	5			5
	5		5	

High Bunghay Road



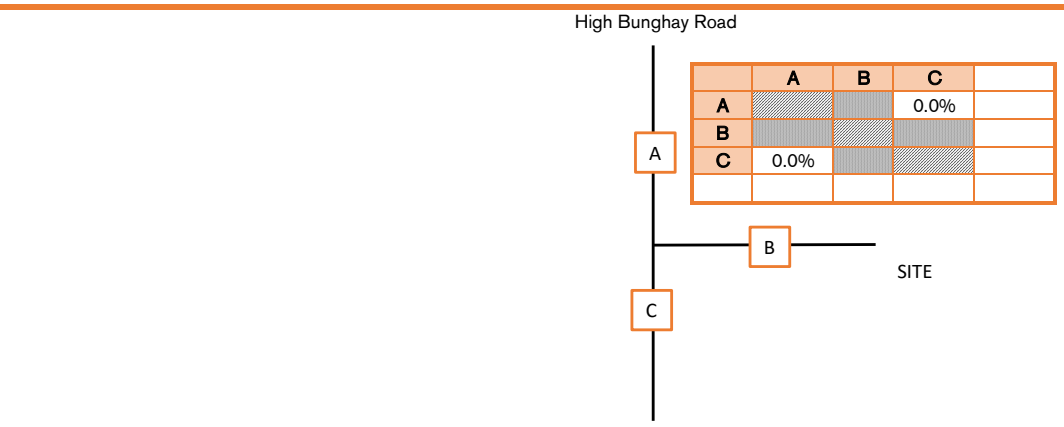
	A	B	C	D	
A		2	27	0	29
B	0		4	1	5
C	37	3		0	40
D	0	0	0		0
	37	5	31	1	

Bunghay Road

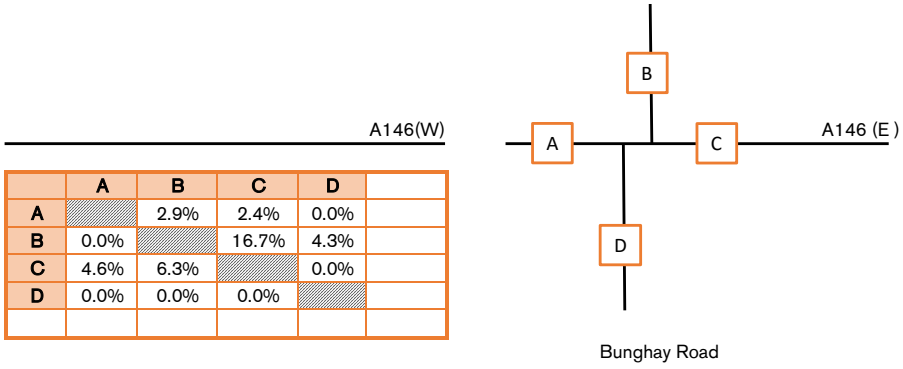
ADC INFRASTRUCTURE

HIGH BUNGAY ROAD, LODDON

DIAGRAM 12
2020 BACKGROUND
HGVs
PM PEAK HOUR



	A	B	C	
A			0.0%	
B				
C	0.0%			



	A	B	C	D	
A		2.9%	2.4%	0.0%	
B	0.0%		16.7%	4.3%	
C	4.6%	6.3%		0.0%	
D	0.0%	0.0%	0.0%		

ADC INFRASTRUCTURE

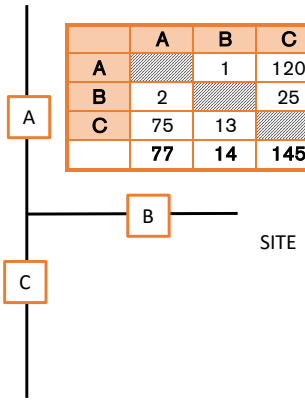
HIGH BUNGAY ROAD,
LODDON

DIAGRAM 13
2020 BACKGROUND
% HGVs
PM PEAK HOUR

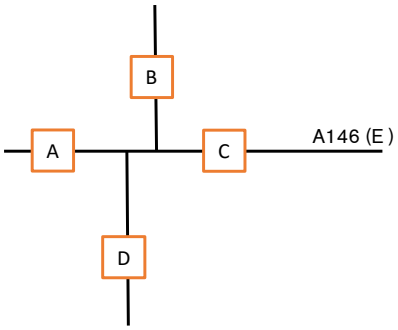
2015 to 2020 growth rate 1.108

High Bunghay Road

	A	B	C	
A		1	120	**121**
B	2		25	**27**
C	75	13		**88**
	77	**14**	**145**	



High Bunghay Road



A146(W)

	A	B	C	D	
A		49	771	32	**852**
B	82		56	7	**145**
C	1066	15		6	**1087**
D	50	24	7		**81**
	1198	**88**	**834**	**45**	

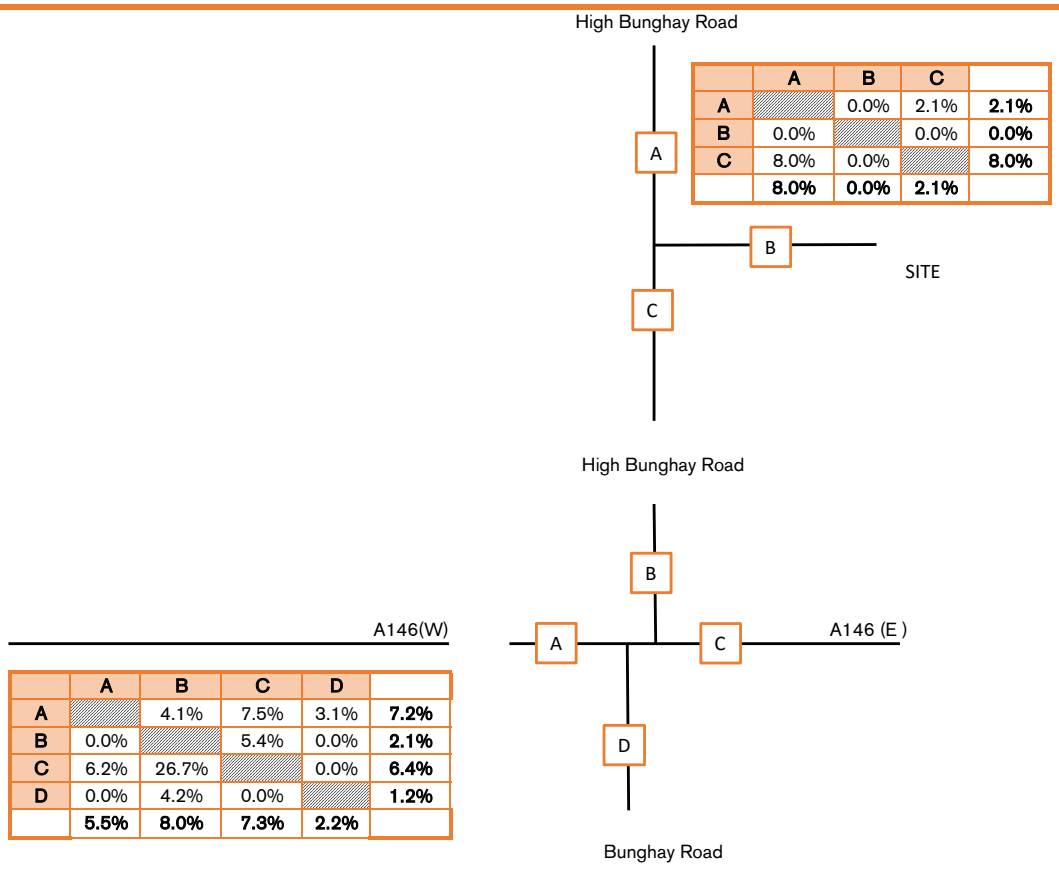
Bunghay Road

ADC INFRASTRUCTURE

HIGH BUNGAY ROAD, LODDON

DIAGRAM 14

2020 WITH DEVELOPMENT
TOTAL VEHICLES
AM PEAK HOUR



	A	B	C	
A		0.0%	2.1%	**2.1%**
B	0.0%		0.0%	**0.0%**
C	8.0%	0.0%		**8.0%**
	8.0%	**0.0%**	**2.1%**	

	A	B	C	D	
A		4.1%	7.5%	3.1%	**7.2%**
B	0.0%		5.4%	0.0%	**2.1%**
C	6.2%	26.7%		0.0%	**6.4%**
D	0.0%	4.2%	0.0%		**1.2%**
	5.5%	**8.0%**	**7.3%**	**2.2%**	

ADC INFRASTRUCTURE

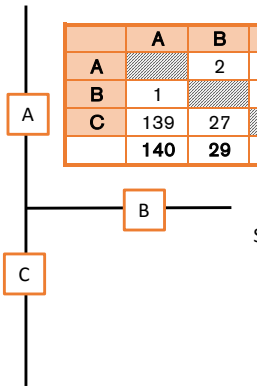
HIGH BUNGAY ROAD,
LODDON

DIAGRAM 15
2020 WITH DEVELOPMENT
% HGVs
AM PEAK HOUR

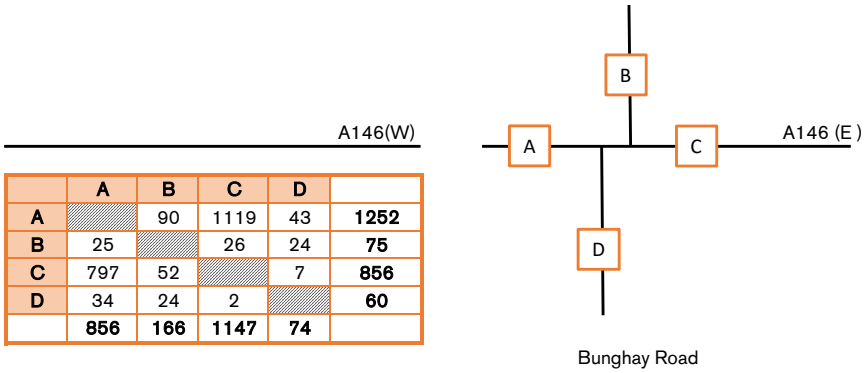
2015 to 2020 growth rate 1.113

High Bunghay Road

	A	B	C	
A		2	61	**63**
B	1		14	**15**
C	139	27		**166**
	140	**29**	**75**	



High Bunghay Road



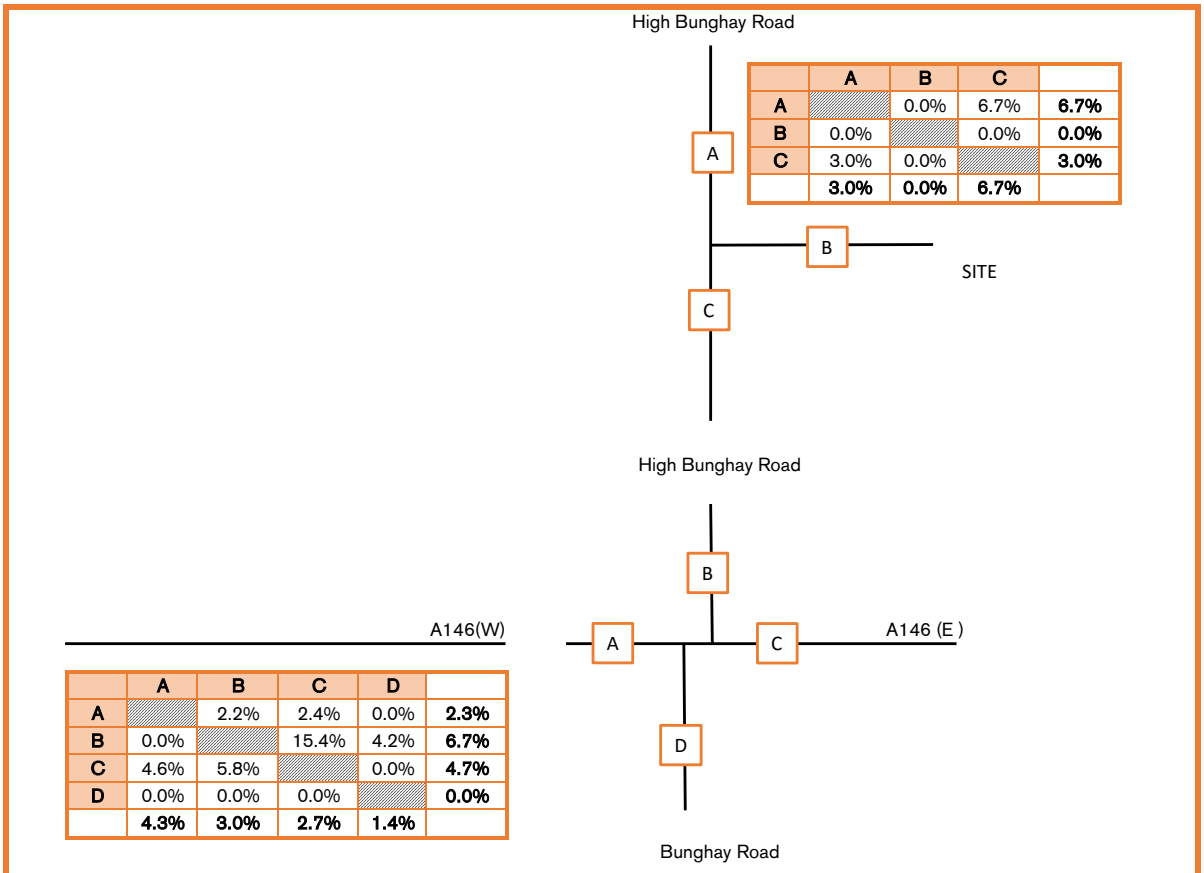
	A	B	C	D	
A		90	1119	43	**1252**
B	25		26	24	**75**
C	797	52		7	**856**
D	34	24	2		**60**
	856	**166**	**1147**	**74**	

ADC INFRASTRUCTURE

HIGH BUNGAY ROAD,
LODDON

DIAGRAM 16

2020 WITH DEVELOPMENT
TOTAL VEHICLES
PM PEAK HOUR



	A	B	C	
A		0.0%	6.7%	**6.7%**
B	0.0%		0.0%	**0.0%**
C	3.0%	0.0%		**3.0%**
	3.0%	**0.0%**	**6.7%**	

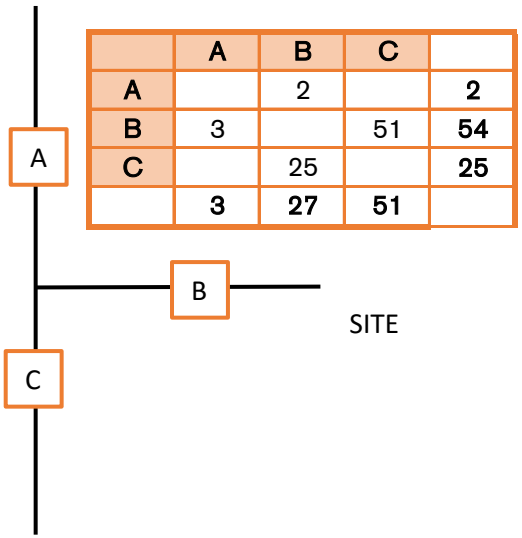
	A	B	C	D	
A		2.2%	2.4%	0.0%	**2.3%**
B	0.0%		15.4%	4.2%	**6.7%**
C	4.6%	5.8%		0.0%	**4.7%**
D	0.0%	0.0%	0.0%		**0.0%**
	4.3%	**3.0%**	**2.7%**	**1.4%**	

ADC INFRASTRUCTURE

HIGH BUNGAY ROAD,
LODDON

DIAGRAM 17
2020 WITH DEVELOPMENT
% HGVs
PM PEAK HOUR

High Bunghay Road

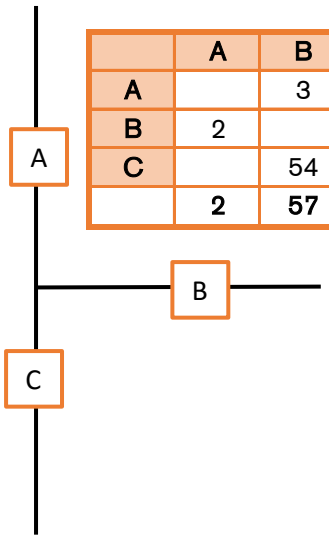


	A	B	C	
A		2		2
B	3		51	54
C		25		25
	3	27	51	

High Bunghay Road

AM PEAK HOUR

High Bunghay Road



	A	B	C	
A		3		3
B	2		28	30
C		54		54
	2	57	28	

High Bunghay Road

PM PEAK HOUR

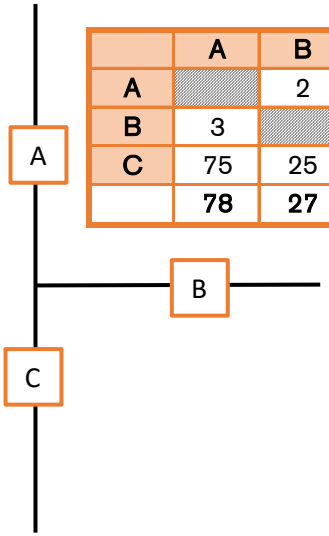
ADC INFRASTRUCTURE

HIGH BUNGAY ROAD, LODDON

DIAGRAM 18

SENSITIVITY TRAFFIC ASSIGNMENT
TOTAL VEHICLES

High Bunghay Road



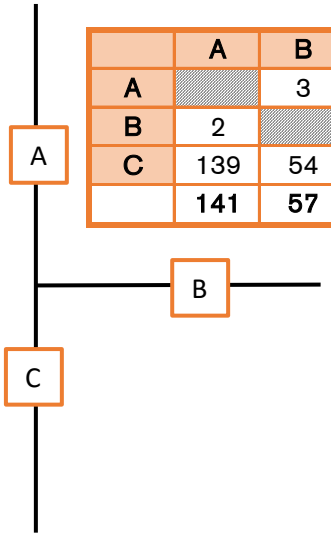
	A	B	C	
A		2	120	**122**
B	3		51	**54**
C	75	25		**100**
	78	**27**	**171**	

SITE

High Bunghay Road

AM PEAK HOUR

High Bunghay Road



	A	B	C	
A		3	61	**64**
B	2		28	**30**
C	139	54		**193**
	141	**57**	**89**	

SITE

High Bunghay Road

PM PEAK HOUR

ADC INFRASTRUCTURE

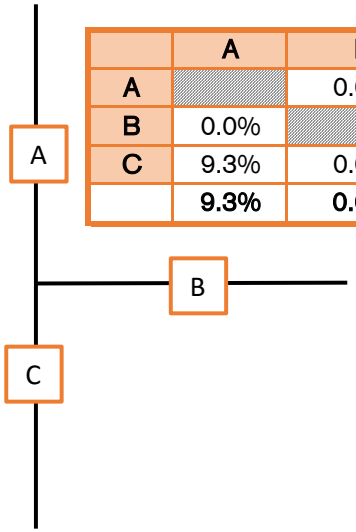
HIGH BUNGAY ROAD, LODDON

DIAGRAM 19

2020 WITH DEVELOPMENT (SENSITIVITY)
TOTAL VEHICLES

High Bunghay Road

	A	B	C	
A		0.0%	2.5%	**2.5%**
B	0.0%		0.0%	**0.0%**
C	9.3%	0.0%		**9.3%**
	9.3%	**0.0%**	**2.5%**	

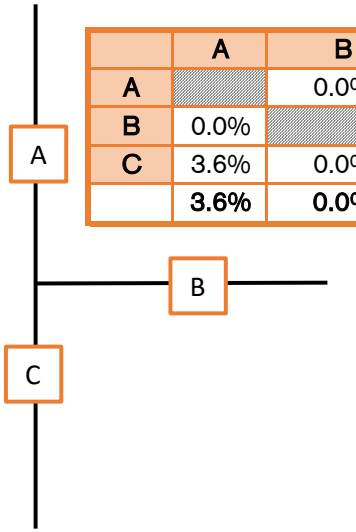


High Bunghay Road

AM PEAK HOUR

High Bunghay Road

	A	B	C	
A		0.0%	8.2%	**8.2%**
B	0.0%		0.0%	**0.0%**
C	3.6%	0.0%		**3.6%**
	3.6%	**0.0%**	**8.2%**	



High Bunghay Road

PM PEAK HOUR

ADC INFRASTRUCTURE

HIGH BUNGAY ROAD,
LODDON

DIAGRAM 20

2020 WITH DEVELOPMENT (SENSITIVITY)
% HGVS

APPENDIX D

TRICS OUTPUTS

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	**SOUTH EAST**		
	ES	EAST SUSSEX	1 days
	SC	SURREY	1 days
03	**SOUTH WEST**		
	CW	CORNWALL	1 days
	DC	DORSET	1 days
04	**EAST ANGLIA**		
	NF	NORFOLK	1 days
	SF	SUFFOLK	1 days
05	**EAST MIDLANDS**		
	LN	LINCOLNSHIRE	1 days
06	**WEST MIDLANDS**		
	SH	SHROPSHIRE	2 days
	WM	WEST MIDLANDS	1 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	NY	NORTH YORKSHIRE	3 days
	SY	SOUTH YORKSHIRE	1 days
08	**NORTH WEST**		
	CH	CHESHIRE	1 days
09	**NORTH**		
	CB	CUMBRIA	2 days

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

Filtering Stage 2 selection:

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

Parameter: Number of dwellings
Actual Range: 37 to 150 (units:)
Range Selected by User: 30 to 150 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/07 to 23/01/14

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

Selected survey days:

Monday	3 days
Tuesday	4 days
Wednesday	3 days
Thursday	4 days
Friday	3 days

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

Selected survey types:

Manual count	17 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	9
Edge of Town	8

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and

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

Filtering Stage 3 selection:

Use Class:

C3	17 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	3 days
5,001 to 10,000	5 days
10,001 to 15,000	1 days
15,001 to 20,000	5 days
20,001 to 25,000	2 days
25,001 to 50,000	1 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	3 days
75,001 to 100,000	5 days
100,001 to 125,000	3 days
125,001 to 250,000	2 days
250,001 to 500,000	3 days

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

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	14 days

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

Travel Plan:

Yes	1 days
No	16 days

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

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

VEHICLES

Ranking Type: **TOTALS** Time Range: 08:00-09:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. **14** SY-03-A-01 Tot: 0.445

85th Percentile = No. **4** CB-03-A-03 Tot: 0.675

Median Values		Mean Values	
Arrivals:	0.096	Arrivals:	0.156
Departures:	0.400	Departures:	0.381
Totals:	0.496	Totals:	0.536

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces
								Arrivals	Departures	Totals	Per Dwelling
1	SH-03-A-04	TERRACED	SHREWSBURY	SHROPSHIRE	108	Thu	11/06/09	0.287	0.454	0.741	1.86
2	WM-03-A-03	MIXED HOUSING	COVENTRY	WEST MIDLANDS	84	Mon	24/09/07	0.321	0.405	0.726	2.60
3	NY-03-A-10	HOUSES AND FLA	RIPON	NORTH YORKSHIRE	71	Tue	17/09/13	0.183	0.521	0.704	0.83
4	**CB-03-A-03**	**SEMI DETACHED**	**WORKINGTON**	**CUMBRIA**	**40**	**Thu**	**20/11/08**	**0.225**	**0.450**	**0.675**	**3.10**
5	LN-03-A-01	MIXED HOUSES	LINCOLN	LINCOLNSHIRE	150	Tue	15/05/07	0.187	0.440	0.627	4.91
6	CB-03-A-04	SEMI DETACHED	WORKINGTON	CUMBRIA	82	Fri	24/04/09	0.183	0.366	0.549	1.74
7	SF-03-A-01	SEMI DETACHED	IPSWICH	SUFFOLK	77	Wed	23/05/07	0.104	0.416	0.520	2.22
8	SH-03-A-05	SEMI-DETACHED/	TELFORD	SHROPSHIRE	54	Thu	24/10/13	0.130	0.370	0.500	1.17
9	NY-03-A-06	BUNGALOWS & SE	BOROUGHBRIDGE	NORTH YORKSHIRE	115	Fri	14/10/11	0.096	0.400	0.496	3.50
10	SC-03-A-04	DETACHED & TER	BYFLEET	SURREY	71	Thu	23/01/14	0.141	0.352	0.493	2.49
11	ES-03-A-02	PRIVATE HOUSIN	PEACEHAVEN	EAST SUSSEX	37	Fri	18/11/11	0.081	0.405	0.486	1.59
12	DC-03-A-01	DETACHED	POOLE	DORSET	51	Wed	16/07/08	0.098	0.373	0.471	3.00
13	NF-03-A-02	HOUSES & FLATS	NORWICH	NORFOLK	98	Mon	22/10/12	0.122	0.347	0.469	2.24
14	**SY-03-A-01**	**SEMI DETACHED**	**DONCASTER**	**SOUTH YORKSHIRE**	**54**	**Wed**	**18/09/13**	**0.056**	**0.389**	**0.445**	**1.13**
15	CW-03-A-02	SEMI D./DETATC	TRURO	CORNWALL	73	Tue	18/09/07	0.096	0.329	0.425	3.73
16	CH-03-A-06	SEMI-DET./BUNG	CREWE	CHESHIRE	129	Tue	14/10/08	0.163	0.240	0.403	2.59
17	NY-03-A-09	MIXED HOUSING	NORTHALLERTON	NORTH YORKSHIRE	52	Mon	16/09/13	0.173	0.212	0.385	2.60

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceeding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	ES	EAST SUSSEX	1 days
	SC	SURREY	1 days
03	**SOUTH WEST**		
	CW	CORNWALL	1 days
	DC	DORSET	1 days
04	**EAST ANGLIA**		
	NF	NORFOLK	1 days
	SF	SUFFOLK	1 days
05	**EAST MIDLANDS**		
	LN	LINCOLNSHIRE	1 days
06	**WEST MIDLANDS**		
	SH	SHROPSHIRE	2 days
	WM	WEST MIDLANDS	1 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	NY	NORTH YORKSHIRE	3 days
	SY	SOUTH YORKSHIRE	1 days
08	**NORTH WEST**		
	CH	CHESHIRE	1 days
09	**NORTH**		
	CB	CUMBRIA	2 days

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

Filtering Stage 2 selection:

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

Parameter:	Number of dwellings
Actual Range:	37 to 150 (units:)
Range Selected by User:	30 to 150 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/07 to 23/01/14

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

Selected survey days:

Monday	3 days
Tuesday	4 days
Wednesday	3 days
Thursday	4 days
Friday	3 days

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

Selected survey types:

Manual count	17 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	9
Edge of Town	8

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and

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

Filtering Stage 3 selection:

Use Class:

C3	17 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	3 days
5,001 to 10,000	5 days
10,001 to 15,000	1 days
15,001 to 20,000	5 days
20,001 to 25,000	2 days
25,001 to 50,000	1 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	3 days
75,001 to 100,000	5 days
100,001 to 125,000	3 days
125,001 to 250,000	2 days
250,001 to 500,000	3 days

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

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	14 days

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

Travel Plan:

Yes	1 days
No	16 days

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

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

VEHICLES

Ranking Type: **TOTALS** Time Range: 17:00-18:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. **14** SH-03-A-05 Tot: 0.371

85th Percentile = No. **4** CB-03-A-03 Tot: 0.725

Median Values		Mean Values	
Arrivals:	0.296	Arrivals:	0.349
Departures:	0.174	Departures:	0.182
Totals:	0.470	Totals:	0.531

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces
								Arrivals	Departures	Totals	Per Dwelling
1	DC-03-A-01	DETACHED	POOLE	DORSET	51	Wed	16/07/08	0.510	0.333	0.843	3.00
2	WM-03-A-03	MIXED HOUSING	COVENTRY	WEST MIDLANDS	84	Mon	24/09/07	0.405	0.369	0.774	2.60
3	SH-03-A-04	TERRACED	SHREWSBURY	SHROPSHIRE	108	Thu	11/06/09	0.463	0.296	0.759	1.86
4	**CB-03-A-03**	**SEMI DETACHED**	**WORKINGTON**	**CUMBRIA**	**40**	**Thu**	**20/11/08**	**0.475**	**0.250**	**0.725**	**3.10**
5	CW-03-A-02	SEMI D./DETATC	TRURO	CORNWALL	73	Tue	18/09/07	0.425	0.219	0.644	3.73
6	LN-03-A-01	MIXED HOUSES	LINCOLN	LINCOLNSHIRE	150	Tue	15/05/07	0.413	0.213	0.626	4.91
7	NY-03-A-10	HOUSES AND FLA	RIPON	NORTH YORKSHIRE	71	Tue	17/09/13	0.479	0.099	0.578	0.83
8	CB-03-A-04	SEMI DETACHED	WORKINGTON	CUMBRIA	82	Fri	24/04/09	0.354	0.207	0.561	1.74
9	NY-03-A-06	BUNGALOWS & SE	BOROUGHBRIDGE	NORTH YORKSHIRE	115	Fri	14/10/11	0.296	0.174	0.470	3.50
10	SC-03-A-04	DETACHED & TER	BYFLEET	SURREY	71	Thu	23/01/14	0.366	0.099	0.465	2.49
11	NY-03-A-09	MIXED HOUSING	NORTHALLERTON	NORTH YORKSHIRE	52	Mon	16/09/13	0.269	0.192	0.461	2.60
12	SF-03-A-01	SEMI DETACHED	IPSWICH	SUFFOLK	77	Wed	23/05/07	0.247	0.169	0.416	2.22
13	NF-03-A-02	HOUSES & FLATS	NORWICH	NORFOLK	98	Mon	22/10/12	0.235	0.143	0.378	2.24
14	**SH-03-A-05**	**SEMI-DETACHED/**	**TELFORD**	**SHROPSHIRE**	**54**	**Thu**	**24/10/13**	**0.241**	**0.130**	**0.371**	**1.17**
15	ES-03-A-02	PRIVATE HOUSIN	PEACEHAVEN	EAST SUSSEX	37	Fri	18/11/11	0.351	0.000	0.351	1.59
16	SY-03-A-01	SEMI DETACHED	DONCASTER	SOUTH YORKSHIRE	54	Wed	18/09/13	0.278	0.056	0.334	1.13
17	CH-03-A-06	SEMI-DET./BUNG	CREWE	CHESHIRE	129	Tue	14/10/08	0.132	0.140	0.272	2.59

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceeding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.

APPENDIX E

2011 CENSUS MODAL SPLIT

Method of Travel to Work (QS701EW)

				Loddon Ward
All Usual Residents Aged 16 to 74	Count	Persons	Mar-11	1861
Work Mainly at or From Home	Count	Persons	Mar-11	89
Underground, Metro, Light Rail, Tram	Count	Persons	Mar-11	1
Train	Count	Persons	Mar-11	12
Bus, Minibus or Coach	Count	Persons	Mar-11	61
Taxi	Count	Persons	Mar-11	1
Motorcycle, Scooter or Moped	Count	Persons	Mar-11	13
Driving a Car or Van	Count	Persons	Mar-11	821
Passenger in a Car or Van	Count	Persons	Mar-11	59
Bicycle	Count	Persons	Mar-11	39
On Foot	Count	Persons	Mar-11	145
Other Method of Travel to Work	Count	Persons	Mar-11	11
Not in Employment	Count	Persons	Mar-11	609

APPENDIX F

2011 CENSUS DISTRIBUTION

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

population	All usual residents aged 16 and over in employment the week before the census
units	Persons
date	2011
method of travel to work	Driving a car or van

place of work	usual residence South Norfolk 008	
Great Yarmouth	99	A
Ipswich	5	A
Mid Suffolk	25	A
South Norfolk 010	36	A
South Norfolk 013	11	A
South Norfolk 014	6	A
South Norfolk 015	22	A
St Edmundsbury	12	A
Suffolk Coastal	9	A
Tendring	1	A
Waveney	202	A/B
South Norfolk 012	30	B/C
Bedford	1	C
Birmingham	1	C
Bradford	1	C
Braintree	1	C
Breckland	61	C
Broadland	236	C
Broxbourne	1	C
Cambridge	5	C
Central Bedfordshire	1	C
Charnwood	1	C
Cherwell	2	C
East Cambridgeshire	1	C
Forest Heath	4	C
Hackney	1	C
Hart	2	C
Herefordshire, County of	1	C
Hillingdon	1	C
Huntingdonshire	1	C
King's Lynn and West Norfolk	7	C
Luton	2	C
Medway	1	C
North Hertfordshire	1	C
North Lincolnshire	1	C
North Norfolk	27	C
Northampton	1	C
Norwich	731	C
Reigate and Banstead	1	C
Rotherham	1	C
Rutland	1	C
Slough	1	C
South Cambridgeshire	2	C
South Kesteven	2	C
South Norfolk 001	24	C
South Norfolk 002	123	C
South Norfolk 003	17	C
South Norfolk 004	9	C
South Norfolk 005	4	C
South Norfolk 006	95	C
South Norfolk 007	46	C
South Norfolk 009	37	C
South Norfolk 011	31	C
South Somerset	1	C
St Albans	2	C
Three Rivers	2	C
Tower Hamlets	1	C
Trafford	1	C
Uttlesford	1	C
Warwick	1	C
Westminster,City of London	3	C
Weymouth and Portland	1	C
Windsor and Maidenhead	1	C
South Norfolk 008	**250**	**C/D**

A	226		327	14.8%
B			116	5.3%
C	1,501		1,641	74.3%
D			125	5.7%
A/B	202	101		
B/C	30	15		
C/D	250	125		
	2,209		2,209	

A146 (E)	14.8%
Bunghay Road	5.3%
A146(W)	74.3%
High Bunghay Road	5.7%

APPENDIX G

TEMPRO OUTPUT

Dataset Version:	62		
Result Type:	Trip ends by time period		
Base Year:	2015		
Future Year:	2020		
Trip Purpose Group:	All purposes		
Time Period:	Weekday AM peak period (0700 - 0959)		
Trip End Type:	Origin/Destination		
Alternative Assumptions applied:	No		

Growth Factor

Area Description		All purposes	
Level	Name	Origin	Destination
33UH11	Loddon	1.0706	1.0565

Base Year - Future Year

Area Description		All purposes	
Level	Name	Origin	Destination
33UH11	Loddon	83	73

Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
33UH11	Loddon	1169	1287

Future Year

Area Description		All purposes	
Level	Name	Origin	Destination
33UH11	Loddon	1252	1360

ALL ROADS

Level	Area	Local Growth Figure
33UH11	Loddon	1.107853909

Dataset Version:	62		
Result Type:	Trip ends by time period		
Base Year:	2015		
Future Year:	2020		
Trip Purpose Group:	All purposes		
Time Period:	Weekday PM peak period (1600 - 1859)		
Trip End Type:	Origin/Destination		
Alternative Assumptions applied:	No		

Growth Factor

Area Description		All purposes	
Level	Name	Origin	Destination
33UH11	Loddon	1.0633	1.0732

Base Year - Future Year

Area Description		All purposes	
Level	Name	Origin	Destination
33UH11	Loddon	94	102

Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
33UH11	Loddon	1485	1396

Future Year

Area Description		All purposes	
Level	Name	Origin	Destination
33UH11	Loddon	1579	1498

ALL ROADS

Level	Area	Local Growth Figure
33UH11	Loddon	1.112749695

APPENDIX G

HIGH BUNGAY ROAD ROAD/SITE ACCESS PICADY

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.4.487 [15039,24/03/2014]

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

Filename: High Bunghay Road-Site Access PICADY Model.arc8
Path: C:\Users\David\Dropbox (ADC Infrastructure 2)\!!! ADC Projects\ADC1303 Loddon\Calculations
Report generation date: 14/10/2015 12:01:11

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2020 Traffic Flows - 2020 Sensitivity					
Stream B-C	0.10	6.29	0.09	0.05	5.87	0.05
Stream B-A	0.01	7.51	0.01	0.00	7.59	0.00
Stream C-AB	0.06	5.80	0.05	0.15	5.65	0.11
Stream C-A	-	-	-	-	-	-
Stream A-B	-	-	-	-	-	-
Stream A-C	-	-	-	-	-	-
	2020 Traffic Flows - 2020 WD					
Stream B-C	0.05	5.98	0.04	0.02	5.72	0.02
Stream B-A	0.00	7.42	0.00	0.00	7.41	0.00
Stream C-AB	0.03	5.67	0.03	0.08	5.43	0.05
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.

"D1 - 2020 WD, AM " model duration: 07:45 - 09:15
"D2 - 2020 WD, PM" model duration: 16:45 - 18:15
"D3 - 2020 Sensitivity, AM" model duration: 07:45 - 09:15
"D4 - 2020 Sensitivity, PM" model duration: 16:45 - 18:15

Run using Junctions 8.0.4.487 at 14/10/2015 12:01:09

File summary

Title	(untitled)
Location	
Site Number	
Date	14/10/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	David
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	Veh	Veh	perHour	s	-Min	perMin

2020 Traffic Flows - 2020 WD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Arm B - Minor Arm Geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.

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
2020 Traffic Flows	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	Relationship
2020 WD, AM	2020 WD	AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	High Bunghay Road-Site Access	T-Junction	Two-way	A,B,C		5.94	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	High Bunghay Road (N)		Major
B	B	Site Access		Minor
C	C	High Bunghay Road (S)		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	7.53		0.00		2.20	100.00	✓	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 plus flare				8.60	2.85	2.85	2.75	2.75	✓	1.00	33	36

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	536.378	0.091	0.231	0.145	0.329
1	B-C	662.072	0.095	0.239	-	-
1	C-B	631.874	0.229	0.229	-	-

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 (Veh/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	121.00	100.000
B	ONE HOUR	✓	27.00	100.000
C	ONE HOUR	✓	88.00	100.000

Turning Proportions

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

		To		
		A	B	C
From	A	0.000	1.000	120.000
	B	2.000	0.000	25.000
	C	75.000	13.000	0.000

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

		To		
		A	B	C
From	A	0.00	0.01	0.99
	B	0.07	0.00	0.93
	C	0.85	0.15	0.00

Vehicle Mix

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

		To		
		A	B	C
From	A	1.000	1.000	1.021
	B	1.000	1.000	1.000
	C	1.080	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.0	0.0	2.1
	B	0.0	0.0	0.0
	C	8.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-C	0.04	5.98	0.05	A	22.94	34.41	3.36	5.86	0.04	3.36	5.86
B-A	0.00	7.42	0.00	A	1.84	2.75	0.33	7.26	0.00	0.33	7.26
C-AB	0.03	5.67	0.03	A	13.37	20.05	2.24	6.72	0.02	2.24	6.72
C-A	-	-	-	-	67.38	101.07	-	-	-	-	-
A-B	-	-	-	-	0.92	1.38	-	-	-	-	-
A-C	-	-	-	-	110.11	165.17	-	-	-	-	-

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	18.82	4.71	18.70	0.00	639.43	0.029	0.00	0.03	5.800	A
B-A	1.51	0.38	1.49	0.00	502.97	0.003	0.00	0.00	7.178	A
C-AB	10.71	2.68	10.63	0.00	646.41	0.017	0.00	0.02	5.662	A
C-A	55.54	13.88	55.54	0.00	-	-	-	-	-	-
A-B	0.75	0.19	0.75	0.00	-	-	-	-	-	-
A-C	90.34	22.59	90.34	0.00	-	-	-	-	-	-

Main results: (08:00-08:15)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	22.47	5.62	22.45	0.00	635.03	0.035	0.03	0.04	5.876	A
B-A	1.80	0.45	1.80	0.00	496.46	0.004	0.00	0.00	7.276	A
C-AB	13.03	3.26	13.01	0.00	649.37	0.020	0.02	0.02	5.653	A
C-A	66.08	16.52	66.08	0.00	-	-	-	-	-	-
A-B	0.90	0.22	0.90	0.00	-	-	-	-	-	-
A-C	107.88	26.97	107.88	0.00	-	-	-	-	-	-

Main results: (08:15-08:30)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	27.53	6.88	27.49	0.00	628.95	0.044	0.04	0.05	5.985	A
B-A	2.20	0.55	2.20	0.00	487.47	0.005	0.00	0.00	7.417	A
C-AB	16.35	4.09	16.33	0.00	653.56	0.025	0.02	0.03	5.644	A
C-A	80.54	20.13	80.54	0.00	-	-	-	-	-	-
A-B	1.10	0.28	1.10	0.00	-	-	-	-	-	-
A-C	132.12	33.03	132.12	0.00	-	-	-	-	-	-

Main results: (08:30-08:45)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	27.53	6.88	27.52	0.00	628.95	0.044	0.05	0.05	5.985	A
B-A	2.20	0.55	2.20	0.00	487.46	0.005	0.00	0.00	7.417	A
C-AB	16.36	4.09	16.36	0.00	653.55	0.025	0.03	0.03	5.649	A
C-A	80.53	20.13	80.53	0.00	-	-	-	-	-	-
A-B	1.10	0.28	1.10	0.00	-	-	-	-	-	-
A-C	132.12	33.03	132.12	0.00	-	-	-	-	-	-

Main results: (08:45-09:00)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	22.47	5.62	22.51	0.00	635.03	0.035	0.05	0.04	5.877	A
B-A	1.80	0.45	1.80	0.00	496.44	0.004	0.00	0.00	7.277	A
C-AB	13.03	3.26	13.06	0.00	649.35	0.020	0.03	0.02	5.665	A
C-A	66.08	16.52	66.08	0.00	-	-	-	-	-	-
A-B	0.90	0.22	0.90	0.00	-	-	-	-	-	-
A-C	107.88	26.97	107.88	0.00	-	-	-	-	-	-

Main results: (09:00-09:15)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	18.82	4.71	18.85	0.00	639.43	0.029	0.04	0.03	5.802	A
B-A	1.51	0.38	1.51	0.00	502.94	0.003	0.00	0.00	7.178	A
C-AB	10.72	2.68	10.74	0.00	646.37	0.017	0.02	0.02	5.667	A
C-A	55.53	13.88	55.53	0.00	-	-	-	-	-	-
A-B	0.75	0.19	0.75	0.00	-	-	-	-	-	-
A-C	90.34	22.59	90.34	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (07:45-08:00)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.44	0.03	5.800	A	A
B-A	0.04	0.00	7.178	A	A
C-AB	0.29	0.02	5.662	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:00-08:15)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.54	0.04	5.876	A	A
B-A	0.05	0.00	7.276	A	A
C-AB	0.36	0.02	5.653	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:15-08:30)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.67	0.04	5.985	A	A
B-A	0.07	0.00	7.417	A	A
C-AB	0.47	0.03	5.644	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:30-08:45)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.68	0.05	5.985	A	A
B-A	0.07	0.00	7.417	A	A
C-AB	0.47	0.03	5.649	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:45-09:00)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.56	0.04	5.877	A	A
B-A	0.06	0.00	7.277	A	A
C-AB	0.36	0.02	5.665	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (09:00-09:15)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.47	0.03	5.802	A	A
B-A	0.05	0.00	7.178	A	A
C-AB	0.29	0.02	5.667	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

2020 Traffic Flows - 2020 WD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Arm B - Minor Arm Geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.

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
2020 Traffic Flows	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	Relationship
2020 WD, PM	2020 WD	PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	High Bunghay Road-Site Access	T-Junction	Two-way	A,B,C		5.55	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	High Bunghay Road (N)		Major
B	B	Site Access		Minor
C	C	High Bunghay Road (S)		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	7.53		0.00		2.20	100.00	✓	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 plus flare				8.60	2.85	2.85	2.75	2.75	✓	1.00	33	36

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	536.378	0.091	0.231	0.145	0.329
1	B-C	662.072	0.095	0.239	-	-
1	C-B	631.874	0.229	0.229	-	-

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 (Veh/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	63.00	100.000
B	ONE HOUR	✓	15.00	100.000
C	ONE HOUR	✓	166.00	100.000

Turning Proportions

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

		To		
		A	B	C
From	A	0.000	2.000	61.000
	B	1.000	0.000	14.000
	C	139.000	27.000	0.000

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

		To		
		A	B	C
From	A	0.00	0.03	0.97
	B	0.07	0.00	0.93
	C	0.84	0.16	0.00

Vehicle Mix

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

		To		
		A	B	C
From	A	1.000	1.000	1.067
	B	1.000	1.000	1.000
	C	1.030	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.0	0.0	6.7
	B	0.0	0.0	0.0
	C	3.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-C	0.02	5.72	0.02	A	12.85	19.27	1.81	5.64	0.02	1.81	5.64
B-A	0.00	7.41	0.00	A	0.92	1.38	0.17	7.25	0.00	0.17	7.25
C-AB	0.05	5.43	0.08	A	30.30	45.45	5.55	7.33	0.06	5.55	7.33
C-A	-	-	-	-	122.02	183.03	-	-	-	-	-
A-B	-	-	-	-	1.84	2.75	-	-	-	-	-
A-C	-	-	-	-	55.97	83.96	-	-	-	-	-

Main Results for each time segment

Main results: (16:45-17:00)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	10.54	2.63	10.47	0.00	649.95	0.016	0.00	0.02	5.629	A
B-A	0.75	0.19	0.75	0.00	502.62	0.002	0.00	0.00	7.172	A
C-AB	23.88	5.97	23.70	0.00	687.66	0.035	0.00	0.05	5.420	A
C-A	101.09	25.27	101.09	0.00	-	-	-	-	-	-
A-B	1.51	0.38	1.51	0.00	-	-	-	-	-	-
A-C	45.92	11.48	45.92	0.00	-	-	-	-	-	-

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	12.59	3.15	12.57	0.00	647.60	0.019	0.02	0.02	5.668	A
B-A	0.90	0.22	0.90	0.00	496.01	0.002	0.00	0.00	7.270	A
C-AB	29.43	7.36	29.38	0.00	698.55	0.042	0.05	0.06	5.379	A
C-A	119.80	29.95	119.80	0.00	-	-	-	-	-	-
A-B	1.80	0.45	1.80	0.00	-	-	-	-	-	-
A-C	54.84	13.71	54.84	0.00	-	-	-	-	-	-

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	15.41	3.85	15.40	0.00	644.34	0.024	0.02	0.02	5.723	A
B-A	1.10	0.28	1.10	0.00	486.94	0.002	0.00	0.00	7.408	A
C-AB	37.57	9.39	37.49	0.00	713.61	0.053	0.06	0.08	5.322	A
C-A	145.20	36.30	145.20	0.00	-	-	-	-	-	-
A-B	2.20	0.55	2.20	0.00	-	-	-	-	-	-
A-C	67.16	16.79	67.16	0.00	-	-	-	-	-	-

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	15.41	3.85	15.41	0.00	644.34	0.024	0.02	0.02	5.723	A
B-A	1.10	0.28	1.10	0.00	486.92	0.002	0.00	0.00	7.409	A
C-AB	37.58	9.39	37.58	0.00	713.61	0.053	0.08	0.08	5.328	A
C-A	145.19	36.30	145.19	0.00	-	-	-	-	-	-
A-B	2.20	0.55	2.20	0.00	-	-	-	-	-	-
A-C	67.16	16.79	67.16	0.00	-	-	-	-	-	-

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	12.59	3.15	12.60	0.00	647.59	0.019	0.02	0.02	5.671	A
B-A	0.90	0.22	0.90	0.00	495.98	0.002	0.00	0.00	7.270	A
C-AB	29.45	7.36	29.52	0.00	698.56	0.042	0.08	0.06	5.387	A
C-A	119.78	29.95	119.78	0.00	-	-	-	-	-	-
A-B	1.80	0.45	1.80	0.00	-	-	-	-	-	-
A-C	54.84	13.71	54.84	0.00	-	-	-	-	-	-

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	10.54	2.63	10.55	0.00	649.95	0.016	0.02	0.02	5.632	A
B-A	0.75	0.19	0.75	0.00	502.55	0.002	0.00	0.00	7.176	A
C-AB	23.92	5.98	23.97	0.00	687.66	0.035	0.06	0.05	5.427	A
C-A	101.06	25.26	101.06	0.00	-	-	-	-	-	-
A-B	1.51	0.38	1.51	0.00	-	-	-	-	-	-
A-C	45.92	11.48	45.92	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (16:45-17:00)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.24	0.02	5.629	A	A
B-A	0.02	0.00	7.172	A	A
C-AB	0.69	0.05	5.420	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.29	0.02	5.668	A	A
B-A	0.03	0.00	7.270	A	A
C-AB	0.89	0.06	5.379	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.36	0.02	5.723	A	A
B-A	0.03	0.00	7.408	A	A
C-AB	1.17	0.08	5.322	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.37	0.02	5.723	A	A
B-A	0.03	0.00	7.409	A	A
C-AB	1.18	0.08	5.328	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.30	0.02	5.671	A	A
B-A	0.03	0.00	7.270	A	A
C-AB	0.90	0.06	5.387	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.25	0.02	5.632	A	A
B-A	0.02	0.00	7.176	A	A
C-AB	0.71	0.05	5.427	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

2020 Traffic Flows - 2020 Sensitivity, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Arm B - Minor Arm Geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.

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
2020 Traffic Flows	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	Relati
2020 Sensitivity, AM	2020 Sensitivity	AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	High Bunghay Road-Site Access	T-Junction	Two-way	A,B,C		6.16	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	High Bunghay Road (N)		Major
B	B	Site Access		Minor
C	C	High Bunghay Road (S)		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	7.53		0.00		2.20	100.00	✓	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 plus flare				8.60	2.85	2.85	2.75	2.75	✓	1.00	33	36

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	536.378	0.091	0.231	0.145	0.329
1	B-C	662.072	0.095	0.239	-	-
1	C-B	631.874	0.229	0.229	-	-

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 (Veh/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	122.00	100.000
B	ONE HOUR	✓	54.00	100.000
C	ONE HOUR	✓	100.00	100.000

Turning Proportions

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

		To		
		A	B	C
From	A	0.000	2.000	120.000
	B	3.000	0.000	51.000
	C	75.000	25.000	0.000

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

		To		
		A	B	C
From	A	0.00	0.02	0.98
	B	0.06	0.00	0.94
	C	0.75	0.25	0.00

Vehicle Mix

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

		To		
		A	B	C
From	A	1.000	1.000	1.025
	B	1.000	1.000	1.000
	C	1.093	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.0	0.0	2.5
	B	0.0	0.0	0.0
	C	9.3	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-C	0.09	6.29	0.10	A	46.80	70.20	7.15	6.11	0.08	7.15	6.11
B-A	0.01	7.51	0.01	A	2.75	4.13	0.50	7.34	0.01	0.50	7.34
C-AB	0.05	5.80	0.06	A	25.71	38.56	4.51	7.02	0.05	4.51	7.02
C-A	-	-	-	-	66.05	99.08	-	-	-	-	-
A-B	-	-	-	-	1.84	2.75	-	-	-	-	-
A-C	-	-	-	-	110.11	165.17	-	-	-	-	-

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	38.40	9.60	38.14	0.00	639.03	0.060	0.00	0.06	5.988	A
B-A	2.26	0.56	2.24	0.00	499.65	0.005	0.00	0.00	7.236	A
C-AB	20.60	5.15	20.45	0.00	645.92	0.032	0.00	0.04	5.754	A
C-A	54.68	13.67	54.68	0.00	-	-	-	-	-	-
A-B	1.51	0.38	1.51	0.00	-	-	-	-	-	-
A-C	90.34	22.59	90.34	0.00	-	-	-	-	-	-

Main results: (08:00-08:15)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	45.85	11.46	45.79	0.00	634.55	0.072	0.06	0.08	6.114	A
B-A	2.70	0.67	2.69	0.00	492.41	0.005	0.00	0.01	7.350	A
C-AB	25.06	6.26	25.02	0.00	648.79	0.039	0.04	0.05	5.766	A
C-A	64.84	16.21	64.84	0.00	-	-	-	-	-	-
A-B	1.80	0.45	1.80	0.00	-	-	-	-	-	-
A-C	107.88	26.97	107.88	0.00	-	-	-	-	-	-

Main results: (08:15-08:30)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	56.15	14.04	56.07	0.00	628.35	0.089	0.08	0.10	6.290	A
B-A	3.30	0.83	3.30	0.00	482.42	0.007	0.01	0.01	7.512	A
C-AB	31.46	7.86	31.40	0.00	652.86	0.048	0.05	0.06	5.787	A
C-A	78.65	19.66	78.65	0.00	-	-	-	-	-	-
A-B	2.20	0.55	2.20	0.00	-	-	-	-	-	-
A-C	132.12	33.03	132.12	0.00	-	-	-	-	-	-

Main results: (08:30-08:45)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	56.15	14.04	56.15	0.00	628.35	0.089	0.10	0.10	6.290	A
B-A	3.30	0.83	3.30	0.00	482.40	0.007	0.01	0.01	7.513	A
C-AB	31.46	7.87	31.46	0.00	652.85	0.048	0.06	0.06	5.795	A
C-A	78.64	19.66	78.64	0.00	-	-	-	-	-	-
A-B	2.20	0.55	2.20	0.00	-	-	-	-	-	-
A-C	132.12	33.03	132.12	0.00	-	-	-	-	-	-

Main results: (08:45-09:00)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	45.85	11.46	45.93	0.00	634.54	0.072	0.10	0.08	6.118	A
B-A	2.70	0.67	2.70	0.00	492.38	0.005	0.01	0.01	7.350	A
C-AB	25.06	6.27	25.12	0.00	648.77	0.039	0.06	0.05	5.781	A
C-A	64.83	16.21	64.83	0.00	-	-	-	-	-	-
A-B	1.80	0.45	1.80	0.00	-	-	-	-	-	-
A-C	107.88	26.97	107.88	0.00	-	-	-	-	-	-

Main results: (09:00-09:15)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	38.40	9.60	38.45	0.00	639.03	0.060	0.08	0.06	5.994	A
B-A	2.26	0.56	2.26	0.00	499.58	0.005	0.01	0.00	7.237	A
C-AB	20.62	5.15	20.66	0.00	645.88	0.032	0.05	0.04	5.765	A
C-A	54.67	13.67	54.67	0.00	-	-	-	-	-	-
A-B	1.51	0.38	1.51	0.00	-	-	-	-	-	-
A-C	90.34	22.59	90.34	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (07:45-08:00)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.93	0.06	5.988	A	A
B-A	0.07	0.00	7.236	A	A
C-AB	0.58	0.04	5.754	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:00-08:15)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	1.14	0.08	6.114	A	A
B-A	0.08	0.01	7.350	A	A
C-AB	0.73	0.05	5.766	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:15-08:30)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	1.43	0.10	6.290	A	A
B-A	0.10	0.01	7.512	A	A
C-AB	0.94	0.06	5.787	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:30-08:45)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	1.46	0.10	6.290	A	A
B-A	0.10	0.01	7.513	A	A
C-AB	0.94	0.06	5.795	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:45-09:00)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	1.20	0.08	6.118	A	A
B-A	0.08	0.01	7.350	A	A
C-AB	0.74	0.05	5.781	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (09:00-09:15)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.98	0.07	5.994	A	A
B-A	0.07	0.00	7.237	A	A
C-AB	0.59	0.04	5.765	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

2020 Traffic Flows - 2020 Sensitivity, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Arm B - Minor Arm Geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.

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
2020 Traffic Flows	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	Relati
2020 Sensitivity, PM	2020 Sensitivity	PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	High Bunghay Road-Site Access	T-Junction	Two-way	A,B,C		5.75	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	High Bunghay Road (N)		Major
B	B	Site Access		Minor
C	C	High Bunghay Road (S)		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	7.53		0.00		2.20	100.00	✓	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 plus flare				8.60	2.85	2.85	2.75	2.75	✓	1.00	33	36

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	536.378	0.091	0.231	0.145	0.329
1	B-C	662.072	0.095	0.239	-	-
1	C-B	631.874	0.229	0.229	-	-

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 (Veh/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	64.00	100.000
B	ONE HOUR	✓	30.00	100.000
C	ONE HOUR	✓	193.00	100.000

Turning Proportions

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

		To		
		A	B	C
From	A	0.000	3.000	61.000
	B	2.000	0.000	28.000
	C	139.000	54.000	0.000

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

		To		
		A	B	C
From	A	0.00	0.05	0.95
	B	0.07	0.00	0.93
	C	0.72	0.28	0.00

Vehicle Mix

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

		To		
		A	B	C
From	A	1.000	1.000	1.082
	B	1.000	1.000	1.000
	C	1.036	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.0	0.0	8.2
	B	0.0	0.0	0.0
	C	3.6	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-C	0.05	5.87	0.05	A	25.69	38.54	3.71	5.77	0.04	3.71	5.77
B-A	0.00	7.59	0.00	A	1.84	2.75	0.34	7.40	0.00	0.34	7.40
C-AB	0.11	5.65	0.15	A	60.62	90.92	10.93	7.21	0.12	10.93	7.21
C-A	-	-	-	-	116.48	174.73	-	-	-	-	-
A-B	-	-	-	-	2.75	4.13	-	-	-	-	-
A-C	-	-	-	-	55.97	83.96	-	-	-	-	-

Main Results for each time segment

Main results: (16:45-17:00)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	21.08	5.27	20.95	0.00	649.47	0.032	0.00	0.03	5.726	A
B-A	1.51	0.38	1.49	0.00	495.60	0.003	0.00	0.00	7.285	A
C-AB	47.77	11.94	47.40	0.00	687.15	0.070	0.00	0.09	5.625	A
C-A	97.53	24.38	97.53	0.00	-	-	-	-	-	-
A-B	2.26	0.56	2.26	0.00	-	-	-	-	-	-
A-C	45.92	11.48	45.92	0.00	-	-	-	-	-	-

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	25.17	6.29	25.14	0.00	647.01	0.039	0.03	0.04	5.788	A
B-A	1.80	0.45	1.80	0.00	487.56	0.004	0.00	0.00	7.410	A
C-AB	58.86	14.72	58.77	0.00	697.96	0.084	0.09	0.12	5.629	A
C-A	114.64	28.66	114.64	0.00	-	-	-	-	-	-
A-B	2.70	0.67	2.70	0.00	-	-	-	-	-	-
A-C	54.84	13.71	54.84	0.00	-	-	-	-	-	-

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	30.83	7.71	30.79	0.00	643.61	0.048	0.04	0.05	5.874	A
B-A	2.20	0.55	2.20	0.00	476.57	0.005	0.00	0.00	7.588	A
C-AB	75.15	18.79	75.00	0.00	712.90	0.105	0.12	0.15	5.640	A
C-A	137.35	34.34	137.35	0.00	-	-	-	-	-	-
A-B	3.30	0.83	3.30	0.00	-	-	-	-	-	-
A-C	67.16	16.79	67.16	0.00	-	-	-	-	-	-

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	30.83	7.71	30.83	0.00	643.61	0.048	0.05	0.05	5.874	A
B-A	2.20	0.55	2.20	0.00	476.53	0.005	0.00	0.00	7.588	A
C-AB	75.17	18.79	75.17	0.00	712.91	0.105	0.15	0.15	5.646	A
C-A	137.32	34.33	137.32	0.00	-	-	-	-	-	-
A-B	3.30	0.83	3.30	0.00	-	-	-	-	-	-
A-C	67.16	16.79	67.16	0.00	-	-	-	-	-	-

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	25.17	6.29	25.21	0.00	647.01	0.039	0.05	0.04	5.791	A
B-A	1.80	0.45	1.80	0.00	487.49	0.004	0.00	0.00	7.414	A
C-AB	58.90	14.72	59.04	0.00	697.98	0.084	0.15	0.12	5.640	A
C-A	114.60	28.65	114.60	0.00	-	-	-	-	-	-
A-B	2.70	0.67	2.70	0.00	-	-	-	-	-	-
A-C	54.84	13.71	54.84	0.00	-	-	-	-	-	-

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	21.08	5.27	21.11	0.00	649.46	0.032	0.04	0.03	5.731	A
B-A	1.51	0.38	1.51	0.00	495.45	0.003	0.00	0.00	7.287	A
C-AB	47.84	11.96	47.94	0.00	687.16	0.070	0.12	0.09	5.636	A
C-A	97.46	24.37	97.46	0.00	-	-	-	-	-	-
A-B	2.26	0.56	2.26	0.00	-	-	-	-	-	-
A-C	45.92	11.48	45.92	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (16:45-17:00)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.49	0.03	5.726	A	A
B-A	0.04	0.00	7.285	A	A
C-AB	1.37	0.09	5.625	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.59	0.04	5.788	A	A
B-A	0.05	0.00	7.410	A	A
C-AB	1.75	0.12	5.629	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.74	0.05	5.874	A	A
B-A	0.07	0.00	7.588	A	A
C-AB	2.31	0.15	5.640	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.75	0.05	5.874	A	A
B-A	0.07	0.00	7.588	A	A
C-AB	2.32	0.15	5.646	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.62	0.04	5.791	A	A
B-A	0.06	0.00	7.414	A	A
C-AB	1.77	0.12	5.640	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.51	0.03	5.731	A	A
B-A	0.05	0.00	7.287	A	A
C-AB	1.40	0.09	5.636	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

APPENDIX H

A146/HIGH BUNGAY ROAD/BUNGAY ROAD PICADY OUTPUT

0730-0830		A	B	C	D	Total
	A	0	35	696	30	761
	B	56	0	47	5	108
	C	962	12	0	5	979
	D	46	21	6	0	73
	Total	1064	68	749	40	1921

0730-0745		A	B	C	D	Total
	A	0	7	183	7	197
	B	22	0	12	0	34
	C	268	2	0	0	270
	D	8	2	3	0	13
	Total	298	11	198	7	514

0745-0800		A	B	C	D	Total
	A	0	7	177	8	192
	B	15	0	10	1	26
	C	232	2	0	0	234
	D	14	1	2	0	17
	Total	261	10	189	9	469

0800-0815		A	B	C	D	Total
	A	0	12	164	8	184
	B	8	0	13	2	23
	C	222	5	0	3	230
	D	9	8	1	0	18
	Total	239	25	178	13	455

0815-0830		A	B	C	D	Total
	A	0	9	172	7	188
	B	11	0	12	2	25
	C	240	3	0	2	245
	D	15	10	0	0	25
	Total	266	22	184	11	483

Turning Counts

0730-0830		A	B	C	D	Total
	A	0	2	52	1	55
	B	0	0	3	0	3
	C	60	4	0	0	64
	D	0	1	0	0	1
	Total	60	7	55	1	123

0730-0830		A	B	C	D	Total
	A		5.7%	7.5%	3.3%	
	B	0.0%		6.4%	0.0%	
	C	6.2%	33.3%		0.0%	
	D	0.0%	4.8%	0.0%		
	Total					

HGVs

0730-0745		A	B	C	D	Total
	A	0	28	732	28	
	B	88	0	48	0	
	C	1072	8	0	0	
	D	32	8	12	0	
	Total					

0745-0800		A	B	C	D	Total
	A	0	28	708	32	
	B	60	0	40	4	
	C	928	8	0	0	
	D	56	4	8	0	
	Total					

0800-0815		A	B	C	D	Total
	A	0	48	656	32	
	B	32	0	52	8	
	C	888	20	0	12	
	D	36	32	4	0	
	Total					

0815-0830		A	B	C	D	Total
	A	0	36	688	28	
	B	44	0	48	8	
	C	960	12	0	8	
	D	60	40	0	0	
	Total					

2015 Base Flow - Vehicles / Hour

0730-0745		A	B	C	D	Total
	A	0	31	811	31	
	B	97	0	53	0	
	C	1188	9	0	0	
	D	35	9	13	0	
	Total					

0745-0800		A	B	C	D	Total
	A	0	31	784	35	
	B	66	0	44	4	
	C	1028	9	0	0	
	D	62	4	9	0	
	Total					

0800-0815		A	B	C	D	Total
	A	0	53	727	35	
	B	35	0	58	9	
	C	984	22	0	13	
	D	40	35	4	0	
	Total					

0815-0830		A	B	C	D	Total
	A	0	40	762	31	
	B	49	0	53	9	
	C	1064	13	0	9	
	D	66	44	0	0	
	Total					

2020 Base Flow - Vehicles / Hour

0730-0830		A	B	C	D	Total
	A		10			10
	B	20		4	1	25
	C		2			2
	D		1			1
	Total	20	13	4	1	38

0730-0745		A	B	C	D	Total
	A		2.5			2.5
	B	5		1	0.25	6.25
	C		0.5			0.5
	D		0.25			0.25
	Total	5	3.25	1	0.25	9.5

0745-0800		A	B	C	D	Total
	A		2.5			2.5
	B	5		1	0.25	6.25
	C		0.5			0.5
	D		0.25			0.25
	Total	5	3.25	1	0.25	9.5

0800-0815		A	B	C	D	Total
	A		2.5			2.5
	B	5		1	0.25	6.25
	C		0.5			0.5
	D		0.25			0.25
	Total	5	3.25	1	0.25	9.5

0815-0830		A	B	C	D	Total
	A		2.5			2.5
	B	5		1	0.25	6.25
	C		0.5			0.5
	D		0.25			0.25
	Total	5	3.25	1	0.25	9.5

Development Flows

0730-0745		A	B	C	D	Total
	A	0	33.5	811	31	
	B	102	0	54	0.25	
	C	1188	9.5	0	0	
	D	35	9.25	13	0	
	Total					

0745-0800		A	B	C	D	Total
	A	0	33.5	784	35	
	B	71	0	45	4.25	
	C	1028	9.5	0	0	
	D	62	4.25	9	0	
	Total					

0800-0815		A	B	C	D	Total
	A	0	55.5	727	35	
	B	40	0	59	9.25	
	C	984	22.5	0	13	
	D	40	35.25	4	0	
	Total					

0815-0830		A	B	C	D	Total
	A	0	42.5	762	31	
	B	54	0	54	9.25	
	C	1064	13.5	0	9	
	D	66	44.25	0	0	
	Total					

Adjusted Flows (to input into PICADY)
Vehicles / Hour

1645-1745

	A	B	C	D	Total
A	0	62	1006	41	1109
B	13	0	22	21	56
C	716	43	0	6	765
D	33	20	2	0	55
Total	762	125	1030	68	1985

1700-1715

	A	B	C	D	Total
A	0	16	269	12	297
B	4	0	3	5	12
C	193	7	0	2	202
D	8	3	1	0	12
Total	205	26	273	19	523

1715-1730

	A	B	C	D	Total
A	0	13	242	6	261
B	4	0	2	4	10
C	167	10	0	2	179
D	8	8	1	0	17
Total	179	31	245	12	467

1730-1745

	A	B	C	D	Total
A	0	19	263	9	291
B	2	0	10	7	19
C	176	18	0	0	194
D	9	3	0	0	12
Total	187	40	273	16	516

Turning Counts

1645-1745

	A	B	C	D	Total
A	0	2	24	0	26
B	0	0	4	1	5
C	33	3	0	0	36
D	1	0	0	0	1
Total	34	5	28	1	68

0730-0830

	A	B	C	D	Total
A		3.2%	2.4%	0.0%	
B	0.0%		18.2%	4.8%	
C	4.6%	7.0%		0.0%	
D	3.0%	0.0%	0.0%		
Total					

HGVs

1645-1700

	A	B	C	D	Total
A	0	56	928	56	
B	12	0	28	20	
C	720	32	0	8	
D	32	24	0	0	
Total					

1700-1715

	A	B	C	D	Total
A	0	64	1076	48	
B	16	0	12	20	
C	772	28	0	8	
D	32	12	4	0	
Total					

1715-1730

	A	B	C	D	Total
A	0	52	968	24	
B	16	0	8	16	
C	668	40	0	8	
D	32	32	4	0	
Total					

1730-1745

	A	B	C	D	Total
A	0	76	1052	36	
B	8	0	40	28	
C	704	72	0	0	
D	36	12	0	0	
Total					

2015 Base Flow - Vehicles / Hour

1645-1700

	A	B	C	D	Total
A	0	62	1033	62	
B	13	0	31	22	
C	801	36	0	9	
D	36	27	0	0	
Total					

1700-1715

	A	B	C	D	Total
A	0	71	1197	53	
B	18	0	13	22	
C	859	31	0	9	
D	36	13	4	0	
Total					

1715-1730

	A	B	C	D	Total
A	0	58	1077	27	
B	18	0	9	18	
C	743	45	0	9	
D	36	36	4	0	
Total					

1730-1745

	A	B	C	D	Total
A	0	85	1171	40	
B	9	0	45	31	
C	783	80	0	0	
D	40	13	0	0	
Total					

2020 Base Flow - Vehicles / Hour

1645-1745

	A	B	C	D	Total
A		21			21
B	11		2	1	14
C		4			4
D		2			2
Total	11	27	2	1	41

1645-1700

	A	B	C	D	Total
A		5.25			5.25
B	2.75		0.5	0.25	3.5
C		1			1
D		0.5			0.5
Total	2.75	6.75	0.5	0.25	10.25

1700-1715

	A	B	C	D	Total
A		5.25			5.25
B	2.75		0.5	0.25	3.5
C		1			1
D		0.5			0.5
Total	2.75	6.75	0.5	0.25	10.25

1715-1730

	A	B	C	D	Total
A		5.25			5.25
B	2.75		0.5	0.25	3.5
C		1			1
D		0.5			0.5
Total	2.75	6.75	0.5	0.25	10.25

1730-1745

	A	B	C	D	Total
A		5.25			5.25
B	2.75		0.5	0.25	3.5
C		1			1
D		0.5			0.5
Total	2.75	6.75	0.5	0.25	10.25

Development Flows

1645-1700

	A	B	C	D	Total
A	0	67.25	1033	62	
B	15.75	0	31.5	22.25	
C	801	37	0	9	
D	36	27.5	0	0	
Total					

1700-1715

	A	B	C	D	Total
A	0	76.25	1197	53	
B	20.75	0	13.5	22.25	
C	859	32	0	9	
D	36	13.5	4	0	
Total					

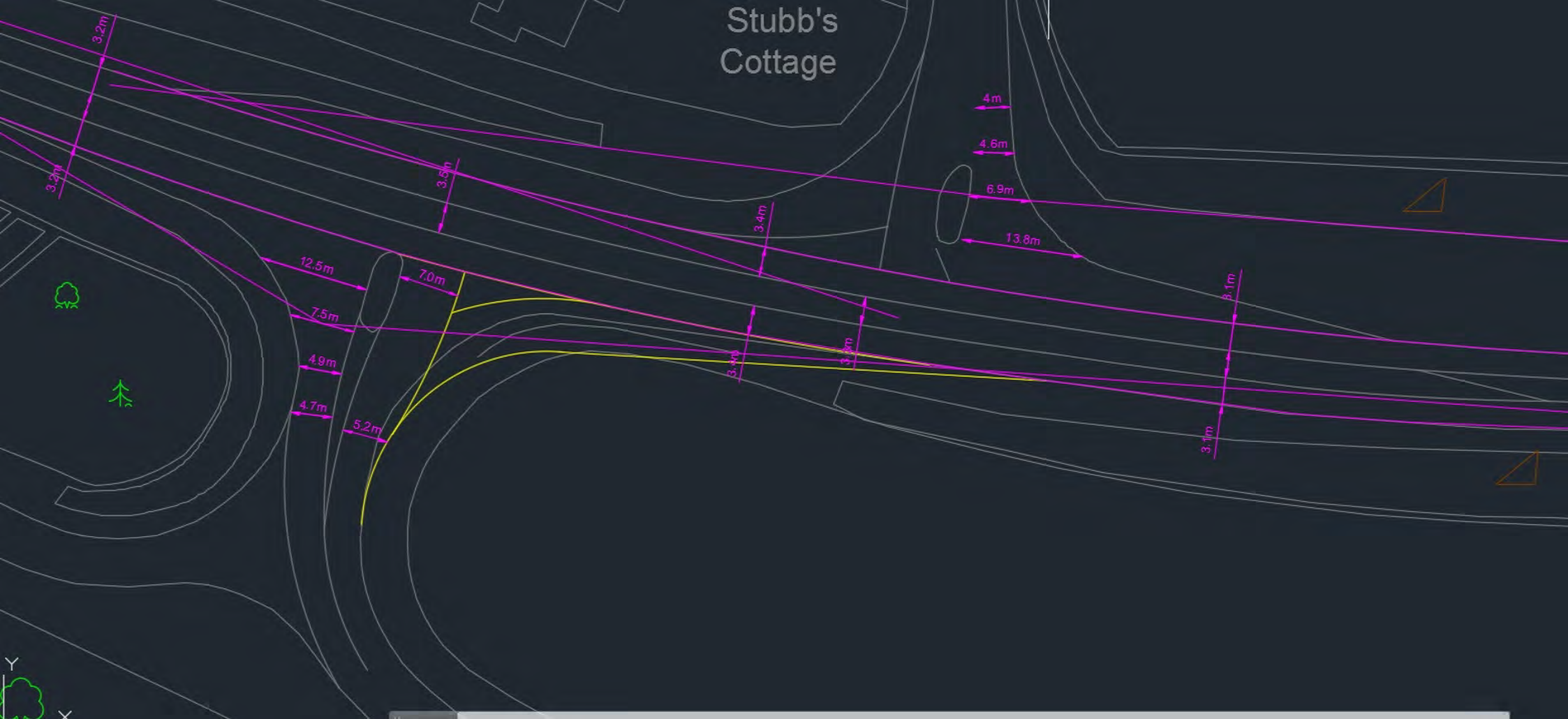
1715-1730

	A	B	C	D	Total
A	0	63.25	1077	27	
B	20.75	0	9.5	18.25	
C	743	46	0	9	
D	36	36.5	4	0	
Total					

1730-1745

	A	B	C	D	Total
A	0	90.25	1171	40	
B	11.75	0	45.5	31.25	
C	783	81	0	0	
D	40	13.5	0	0	
Total					

Adjusted Flows (to input into PICADY)
Vehicles / Hour


Stubb's
Cottage
3.2m
3.2m
3.6m
3.4m
4m
4.6m
6.9m
13.8m
12.5m
7.0m
7.5m
4.9m
4.7m
5.2m
3.1m
3.1m
3.1m
Y
X

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.4.487 [15039,24/03/2014]

For sales and distribution information, program advice and maintenance, contact TRL:
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Filename: A146-Bunghay Road PICADY Model (Direct Input Traffic Flows).arc8
Path: C:\Users\David\Dropbox (ADC Infrastructure 2)\!!! ADC Projects\ADC1303 Loddon\Calculations
Report generation date: 22/10/2015 17:31:10

Summary of junction performance

	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2020 Traffic Flows - 2020 Bkg					
Stream B-C	0.18	12.42	0.16	0.17	13.99	0.15
Stream B-AD	1.35	49.96	0.61	0.63	59.60	0.41
Stream A-B	-	-	-	-	-	-
Stream A-C	-	-	-	-	-	-
Stream A-D	0.09	10.55	0.08	0.13	7.96	0.12
Stream D-A	0.20	11.08	0.17	0.08	7.80	0.07
Stream D-BC	0.55	65.86	0.37	0.27	38.57	0.22
Stream C-D	-	-	-	-	-	-
Stream C-A	-	-	-	-	-	-
Stream C-B	0.06	9.67	0.06	0.27	12.43	0.22
	2020 Traffic Flows - 2020 WD					
Stream B-C	0.20	13.63	0.17	0.18	14.25	0.15
Stream B-AD	1.60	55.62	0.66	0.71	62.57	0.44
Stream A-B	-	-	-	-	-	-
Stream A-C	-	-	-	-	-	-
Stream A-D	0.09	10.60	0.08	0.13	7.98	0.12
Stream D-A	0.20	11.38	0.17	0.08	7.84	0.07
Stream D-BC	0.57	76.03	0.38	0.28	40.51	0.22
Stream C-D	-	-	-	-	-	-
Stream C-A	-	-	-	-	-	-
Stream C-B	0.06	9.89	0.06	0.28	12.46	0.22

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

"D1 - 2020 Bkg, AM " model duration: 07:30 - 08:30
"D2 - 2020 Bkg, PM" model duration: 16:45 - 17:45
"D3 - 2020 WD, AM" model duration: 07:30 - 08:30
"D4 - 2020 WD, PM" model duration: 16:45 - 17:45

Run using Junctions 8.0.4.487 at 22/10/2015 17:31:07

File summary

Title	A146-High Bunghay Road Staggered Crossroad
Location	Loddon
Site Number	1
Date	08/10/2015
Version	v1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1303
Enumerator	R Leconte
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	Veh	Veh	perHour	s	-Min	perMin

2020 Traffic Flows - 2020 Bkg, AM

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
2020 Traffic Flows	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	Relationship
2020 Bkg, AM	2020 Bkg	AM		DIRECT	07:30	08:30	60	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	A146-High Bunghay Road Staggered Crossroad	OS-NS Stagger (UK RL Stagger)	Two-way	A,B,C,D		27.85	D

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	A146 West		Major
B	B	High Bunghay Road		Minor
C	C	A146 East		Major
D	D	Bunghay Road		Minor

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)
A	6.60		0.00	✓	3.50	200.00		
C	6.50		0.00	✓	3.30	200.00		

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 plus flare				10.00	10.00	6.90	4.60	4.00	✓	2.00	216	105
D	One lane plus flare				10.00	10.00	7.50	4.90	4.70	✓	3.00	102	143

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-B	Slope for D-C
1	A-D	787.379	-	-	-	0.297	0.297	0.297	-	0.297	-	-
1	B-AD	683.638	0.122	0.308	-	-	-	0.194	0.440	0.194	0.122	0.308
1	B-C	728.253	0.109	0.276	-	-	-	-	-	-	0.109	0.276
1	C-B	772.365	0.293	0.293	-	-	-	-	-	-	0.293	0.293
1	D-A	815.326	-	-	-	0.308	0.122	0.308	-	0.122	-	-
1	D-BC	583.681	0.165	0.165	0.374	0.262	0.104	0.262	-	0.104	-	-

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 (Veh/hr)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000
D	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 - (07:30-07:45)

		To			
		A	B	C	D
From	A	0.000	31.000	811.000	31.000
	B	97.000	0.000	53.000	0.000
	C	1188.000	9.000	0.000	0.000
	D	35.000	9.000	3.000	0.000

Turning Proportions (Veh) - Junction 1 - (07:30-07:45)

		To			
		A	B	C	D
From	A	0.00	0.04	0.93	0.04
	B	0.65	0.00	0.35	0.00
	C	0.99	0.01	0.00	0.00
	D	0.74	0.19	0.06	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (07:45-08:00)

		To			
		A	B	C	D
From	A	0.000	31.000	784.000	35.000
	B	66.000	0.000	44.000	4.000
	C	1028.000	0.000	0.000	0.000
	D	62.000	4.000	9.000	0.000

Turning Proportions (Veh) - Junction 1 - (07:45-08:00)

		To			
		A	B	C	D
From	A	0.00	0.04	0.92	0.04
	B	0.58	0.00	0.39	0.04
	C	1.00	0.00	0.00	0.00
	D	0.83	0.05	0.12	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (08:00-08:15)

		To			
		A	B	C	D
From	A	0.000	53.000	727.000	35.000
	B	35.000	0.000	58.000	9.000
	C	984.000	22.000	0.000	13.000
	D	40.000	35.000	4.000	0.000

Turning Proportions (Veh) - Junction 1 - (08:00-08:15)

		To			
		A	B	C	D
From	A	0.00	0.07	0.89	0.04
	B	0.34	0.00	0.57	0.09
	C	0.97	0.02	0.00	0.01
	D	0.51	0.44	0.05	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (08:15-08:30)

		To			
		A	B	C	D
From	A	0.000	40.000	762.000	31.000
	B	49.000	0.000	53.000	9.000
	C	1064.000	13.000	0.000	9.000
	D	66.000	44.000	0.000	0.000

Turning Proportions (Veh) - Junction 1 - (08:15-08:30)

		To			
		A	B	C	D
From	A	0.00	0.05	0.91	0.04
	B	0.44	0.00	0.48	0.08
	C	0.98	0.01	0.00	0.01
	D	0.60	0.40	0.00	0.00

Vehicle Mix

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

		To			
		A	B	C	D
From	A	1.000	1.057	1.075	1.033
	B	1.000	1.000	1.058	1.000
	C	1.062	1.308	1.000	1.000
	D	1.000	1.043	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		A	B	C	D
From	A	0.0	5.7	7.5	3.3
	B	0.0	0.0	5.8	0.0
	C	6.2	30.8	0.0	0.0
	D	0.0	4.3	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-C	0.16	12.42	0.18	B	52.00	52.00	8.56	9.87	0.14	8.56	9.88
B-AD	0.61	49.96	1.35	E	67.25	67.25	36.60	32.66	0.61	36.63	32.68
A-B	-	-	-	-	38.75	38.75	-	-	-	-	-
A-C	-	-	-	-	771.00	771.00	-	-	-	-	-
A-D	0.08	10.55	0.09	B	33.00	33.00	5.17	9.40	0.09	5.17	9.41
D-A	0.17	11.08	0.20	B	50.75	50.75	8.29	9.80	0.14	8.29	9.80
D-BC	0.37	65.86	0.55	F	27.00	27.00	16.72	37.14	0.28	16.79	37.31
C-D	-	-	-	-	5.50	5.50	-	-	-	-	-
C-A	-	-	-	-	1066.00	1066.00	-	-	-	-	-
C-B	0.06	9.67	0.06	A	11.00	11.00	1.73	9.44	0.03	1.73	9.44

Main Results for each time segment

Main results: (07:30-07:45)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	53.00	13.25	52.28	0.00	341.44	0.155	0.00	0.18	12.419	B
B-AD	97.00	24.25	91.59	0.00	159.36	0.609	0.00	1.35	49.964	E
A-B	31.00	7.75	31.00	0.00	-	-	-	-	-	-
A-C	811.00	202.75	811.00	0.00	-	-	-	-	-	-
A-D	31.00	7.75	30.64	0.00	371.45	0.083	0.00	0.09	10.552	B
D-A	35.00	8.75	34.60	0.00	378.98	0.092	0.00	0.10	10.442	B
D-BC	12.00	3.00	11.17	0.00	65.12	0.184	0.00	0.21	65.862	F
C-D	0.00	0.00	0.00	0.00	-	-	-	-	-	-
C-A	1188.00	297.00	1188.00	0.00	-	-	-	-	-	-
C-B	9.00	2.25	8.91	0.00	385.26	0.023	0.00	0.02	9.563	A

Main results: (07:45-08:00)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	44.00	11.00	44.24	0.00	414.92	0.106	0.18	0.12	9.717	A
B-AD	70.00	17.50	73.23	0.00	204.13	0.343	1.35	0.54	28.111	D
A-B	31.00	7.75	31.00	0.00	-	-	-	-	-	-
A-C	784.00	196.00	784.00	0.00	-	-	-	-	-	-
A-D	35.00	8.75	35.00	0.00	426.54	0.082	0.09	0.09	9.196	A
D-A	62.00	15.50	61.77	0.00	449.36	0.138	0.10	0.16	9.282	A
D-BC	13.00	3.25	13.31	0.00	117.56	0.110	0.21	0.13	34.935	D
C-D	0.00	0.00	0.00	0.00	-	-	-	-	-	-
C-A	1028.00	257.00	1028.00	0.00	-	-	-	-	-	-
C-B	0.00	0.00	0.09	0.00	391.39	0.000	0.02	0.00	0.000	A

Main results: (08:00-08:15)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	58.00	14.50	57.92	0.00	470.64	0.123	0.12	0.14	8.723	A
B-AD	44.00	11.00	45.03	0.00	201.56	0.218	0.54	0.29	23.142	C
A-B	53.00	13.25	53.00	0.00	-	-	-	-	-	-
A-C	727.00	181.75	727.00	0.00	-	-	-	-	-	-
A-D	35.00	8.75	35.01	0.00	444.64	0.079	0.09	0.09	8.790	A
D-A	40.00	10.00	40.21	0.00	419.91	0.095	0.16	0.11	9.487	A
D-BC	39.00	9.75	38.21	0.00	151.40	0.258	0.13	0.33	31.348	D
C-D	13.00	3.25	13.00	0.00	-	-	-	-	-	-
C-A	984.00	246.00	984.00	0.00	-	-	-	-	-	-
C-B	22.00	5.50	21.77	0.00	393.86	0.056	0.00	0.06	9.669	A

Main results: (08:15-08:30)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	53.00	13.25	53.00	0.00	439.00	0.121	0.14	0.14	9.326	A
B-AD	58.00	14.50	57.41	0.00	186.18	0.312	0.29	0.43	27.824	D
A-B	40.00	10.00	40.00	0.00	-	-	-	-	-	-
A-C	762.00	190.50	762.00	0.00	-	-	-	-	-	-
A-D	31.00	7.75	31.02	0.00	417.63	0.074	0.09	0.08	9.312	A
D-A	66.00	16.50	65.62	0.00	390.28	0.169	0.11	0.20	11.076	B
D-BC	44.00	11.00	43.14	0.00	118.97	0.370	0.33	0.54	46.785	E
C-D	9.00	2.25	9.00	0.00	-	-	-	-	-	-
C-A	1064.00	266.00	1064.00	0.00	-	-	-	-	-	-
C-B	13.00	3.25	13.09	0.00	387.12	0.034	0.06	0.04	9.628	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:30-07:45)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.57	0.17	12.419	B	B
B-AD	16.70	1.11	49.964	E	D
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.29	0.09	10.552	B	B
D-A	1.44	0.10	10.442	B	B
D-BC	2.64	0.18	65.862	F	E
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	0.34	0.02	9.563	A	A

Queueing Delay results: (07:45-08:00)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	1.86	0.12	9.717	A	A
B-AD	9.14	0.61	28.111	D	C
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.35	0.09	9.196	A	A
D-A	2.30	0.15	9.282	A	A
D-BC	2.11	0.14	34.935	D	C
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	0.00	0.00	0.000	A	A

Queueing Delay results: (08:00-08:15)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.05	0.14	8.723	A	A
B-AD	4.64	0.31	23.142	C	C
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.31	0.09	8.790	A	A
D-A	1.65	0.11	9.487	A	A
D-BC	4.53	0.30	31.348	D	C
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	0.84	0.06	9.669	A	A

Queueing Delay results: (08:15-08:30)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.08	0.14	9.326	A	A
B-AD	6.12	0.41	27.824	D	C
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.23	0.08	9.312	A	A
D-A	2.90	0.19	11.076	B	B
D-BC	7.45	0.50	46.785	E	D
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	0.55	0.04	9.628	A	A

2020 Traffic Flows - 2020 Bkg, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
2020 Traffic Flows	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	Relationship
2020 Bkg, PM	2020 Bkg	PM		DIRECT	16:45	17:45	60	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	A146-High Bunghay Road Staggered Crossroad	OS-NS Stagger (UK RL Stagger)	Two-way	A,B,C,D		21.82	C

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	A146 West		Major
B	B	High Bunghay Road		Minor
C	C	A146 East		Major
D	D	Bunghay Road		Minor

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)
A	6.60		0.00	✓	3.50	200.00		
C	6.50		0.00	✓	3.30	200.00		

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 plus flare				10.00	10.00	6.90	4.60	4.00	✓	2.00	216	105
D	One lane plus flare				10.00	10.00	7.50	4.90	4.70	✓	3.00	102	143

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-B	Slope for D-C
1	A-D	787.379	-	-	-	0.297	0.297	0.297	-	0.297	-	-
1	B-AD	660.129	0.118	0.297	-	-	-	0.187	0.425	0.187	0.118	0.297
1	B-C	755.122	0.113	0.286	-	-	-	-	-	-	0.113	0.286
1	C-B	772.365	0.293	0.293	-	-	-	-	-	-	0.293	0.293
1	D-A	782.172	-	-	-	0.295	0.117	0.295	-	0.117	-	-
1	D-BC	610.781	0.172	0.172	0.391	0.274	0.108	0.274	-	0.108	-	-

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 (Veh/hr)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000
D	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 - (16:45-17:00)

		To			
		A	B	C	D
From	A	0.000	62.000	1033.000	62.000
	B	13.000	0.000	31.000	22.000
	C	801.000	36.000	0.000	9.000
	D	36.000	27.000	0.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:45-17:00)

		To			
		A	B	C	D
From	A	0.00	0.05	0.89	0.05
	B	0.20	0.00	0.47	0.33
	C	0.95	0.04	0.00	0.01
	D	0.57	0.43	0.00	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (17:00-17:15)

		To			
		A	B	C	D
From	A	0.000	71.000	1197.000	53.000
	B	18.000	0.000	13.000	22.000
	C	859.000	31.000	0.000	9.000
	D	36.000	13.000	0.000	0.000

Turning Proportions (Veh) - Junction 1 - (17:00-17:15)

		To			
		A	B	C	D
From	A	0.00	0.05	0.91	0.04
	B	0.34	0.00	0.25	0.42
	C	0.96	0.03	0.00	0.01
	D	0.73	0.27	0.00	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (17:15-17:30)

		To			
		A	B	C	D
From	A	0.000	58.000	1077.000	27.000
	B	18.000	0.000	9.000	18.000
	C	743.000	45.000	0.000	9.000
	D	36.000	36.000	4.000	0.000

Turning Proportions (Veh) - Junction 1 - (17:15-17:30)

		To			
		A	B	C	D
From	A	0.00	0.05	0.93	0.02
	B	0.40	0.00	0.20	0.40
	C	0.93	0.06	0.00	0.01
	D	0.47	0.47	0.05	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (17:30-17:45)

		To			
		A	B	C	D
From	A	0.000	85.000	1171.000	40.000
	B	9.000	0.000	45.000	31.000
	C	783.000	80.000	0.000	0.000
	D	40.000	13.000	0.000	0.000

Turning Proportions (Veh) - Junction 1 - (17:30-17:45)

		To			
		A	B	C	D
From	A	0.00	0.07	0.90	0.03
	B	0.11	0.00	0.53	0.36
	C	0.91	0.09	0.00	0.00
	D	0.75	0.25	0.00	0.00

Vehicle Mix

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

		To			
		A	B	C	D
From	A	1.000	1.029	1.024	1.000
	B	1.000	1.000	1.167	1.043
	C	1.046	1.063	1.000	1.000
	D	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		A	B	C	D
From	A	0.0	2.9	2.4	0.0
	B	0.0	0.0	16.7	4.3
	C	4.6	6.3	0.0	0.0
	D	0.0	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-C	0.15	13.99	0.17	B	24.50	24.50	5.03	12.33	0.08	5.04	12.34
B-AD	0.41	59.60	0.63	F	37.75	37.75	24.58	39.07	0.41	24.70	39.26
A-B	-	-	-	-	69.00	69.00	-	-	-	-	-
A-C	-	-	-	-	1119.50	1119.50	-	-	-	-	-
A-D	0.12	7.96	0.13	A	45.50	45.50	5.72	7.55	0.10	5.72	7.55
D-A	0.07	7.80	0.08	A	37.00	37.00	4.58	7.43	0.08	4.58	7.43
D-BC	0.22	38.57	0.27	E	23.25	23.25	10.62	27.40	0.18	10.62	27.40
C-D	-	-	-	-	6.75	6.75	-	-	-	-	-
C-A	-	-	-	-	796.50	796.50	-	-	-	-	-
C-B	0.22	12.43	0.27	B	48.00	48.00	8.54	10.67	0.14	8.54	10.68

Main Results for each time segment

Main results: (16:45-17:00)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	31.00	7.75	30.62	0.00	356.54	0.087	0.00	0.09	11.034	B
B-AD	35.00	8.75	33.89	0.00	156.08	0.224	0.00	0.28	29.217	D
A-B	62.00	15.50	62.00	0.00	-	-	-	-	-	-
A-C	1033.00	258.25	1033.00	0.00	-	-	-	-	-	-
A-D	62.00	15.50	61.47	0.00	525.09	0.118	0.00	0.13	7.756	A
D-A	36.00	9.00	35.70	0.00	504.58	0.071	0.00	0.08	7.673	A
D-BC	27.00	6.75	26.20	0.00	156.83	0.172	0.00	0.20	27.401	D
C-D	9.00	2.25	9.00	0.00	-	-	-	-	-	-
C-A	801.00	200.25	801.00	0.00	-	-	-	-	-	-
C-B	36.00	9.00	35.62	0.00	410.27	0.088	0.00	0.10	9.599	A

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	13.00	3.25	13.18	0.00	278.92	0.047	0.09	0.05	13.557	B
B-AD	40.00	10.00	38.85	0.00	105.21	0.380	0.28	0.56	53.475	F
A-B	71.00	17.75	71.00	0.00	-	-	-	-	-	-
A-C	1197.00	299.25	1197.00	0.00	-	-	-	-	-	-
A-D	53.00	13.25	53.06	0.00	505.25	0.105	0.13	0.12	7.962	A
D-A	36.00	9.00	36.00	0.00	510.93	0.070	0.08	0.08	7.582	A
D-BC	13.00	3.25	13.22	0.00	106.79	0.122	0.20	0.14	38.571	E
C-D	9.00	2.25	9.00	0.00	-	-	-	-	-	-
C-A	859.00	214.75	859.00	0.00	-	-	-	-	-	-
C-B	31.00	7.75	31.01	0.00	365.11	0.085	0.10	0.09	10.774	B

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	9.00	2.25	9.08	0.00	320.11	0.028	0.05	0.03	11.576	B
B-AD	36.00	9.00	37.03	0.00	158.81	0.227	0.56	0.31	29.833	D
A-B	58.00	14.50	58.00	0.00	-	-	-	-	-	-
A-C	1077.00	269.25	1077.00	0.00	-	-	-	-	-	-
A-D	27.00	6.75	27.26	0.00	542.19	0.050	0.12	0.05	6.993	A
D-A	36.00	9.00	35.99	0.00	497.75	0.072	0.08	0.08	7.796	A
D-BC	40.00	10.00	39.51	0.00	184.36	0.217	0.14	0.27	24.768	C
C-D	9.00	2.25	9.00	0.00	-	-	-	-	-	-
C-A	743.00	185.75	743.00	0.00	-	-	-	-	-	-
C-B	45.00	11.25	44.87	0.00	395.26	0.114	0.09	0.13	10.274	B

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	45.00	11.25	44.43	0.00	301.25	0.149	0.03	0.17	13.987	B
B-AD	40.00	10.00	38.72	0.00	97.39	0.411	0.31	0.63	59.595	F
A-B	85.00	21.25	85.00	0.00	-	-	-	-	-	-
A-C	1171.00	292.75	1171.00	0.00	-	-	-	-	-	-
A-D	40.00	10.00	39.89	0.00	531.39	0.075	0.05	0.08	7.322	A
D-A	40.00	10.00	39.99	0.00	542.28	0.074	0.08	0.08	7.166	A
D-BC	13.00	3.25	13.64	0.00	136.50	0.095	0.27	0.11	29.441	D
C-D	0.00	0.00	0.00	0.00	-	-	-	-	-	-
C-A	783.00	195.75	783.00	0.00	-	-	-	-	-	-
C-B	80.00	20.00	79.42	0.00	368.40	0.217	0.13	0.27	12.433	B

Queueing Delay Results for each time segment

Queueing Delay results: (16:45-17:00)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	1.35	0.09	11.034	B	B
B-AD	3.76	0.25	29.217	D	C
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.92	0.13	7.756	A	A
D-A	1.10	0.07	7.673	A	A
D-BC	2.74	0.18	27.401	D	C
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	1.37	0.09	9.599	A	A

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.78	0.05	13.557	B	B
B-AD	7.54	0.50	53.475	F	D
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.80	0.12	7.962	A	A
D-A	1.14	0.08	7.582	A	A
D-BC	2.31	0.15	38.571	E	D
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	1.41	0.09	10.774	B	B

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.46	0.03	11.576	B	B
B-AD	4.97	0.33	29.833	D	C
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	0.82	0.05	6.993	A	A
D-A	1.16	0.08	7.796	A	A
D-BC	3.77	0.25	24.768	C	C
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	1.85	0.12	10.274	B	B

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.45	0.16	13.987	B	B
B-AD	8.29	0.55	59.595	F	E
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.18	0.08	7.322	A	A
D-A	1.18	0.08	7.166	A	A
D-BC	1.80	0.12	29.441	D	C
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	3.91	0.26	12.433	B	B

2020 Traffic Flows - 2020 WD, AM

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
2020 Traffic Flows	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	Relationship
2020 WD, AM	2020 WD	AM		DIRECT	07:30	08:30	60	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	A146-High Bunghay Road Staggered Crossroad	OS-NS Stagger (UK RL Stagger)	Two-way	A,B,C,D		31.31	D

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	A146 West		Major
B	B	High Bunghay Road		Minor
C	C	A146 East		Major
D	D	Bunghay Road		Minor

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)
A	6.60		0.00	✓	3.50	200.00		
C	6.50		0.00	✓	3.30	200.00		

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 plus flare				10.00	10.00	6.90	4.60	4.00	✓	2.00	216	105
D	One lane plus flare				10.00	10.00	7.50	4.90	4.70	✓	3.00	102	143

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-B	Slope for D-C
1	A-D	787.379	-	-	-	0.297	0.297	0.297	-	0.297	-	-
1	B-AD	684.778	0.122	0.308	-	-	-	0.194	0.441	0.194	0.122	0.308
1	B-C	726.950	0.109	0.276	-	-	-	-	-	-	0.109	0.276
1	C-B	772.365	0.293	0.293	-	-	-	-	-	-	0.293	0.293
1	D-A	790.782	-	-	-	0.298	0.118	0.298	-	0.118	-	-
1	D-BC	603.743	0.170	0.170	0.387	0.271	0.107	0.271	-	0.107	-	-

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 (Veh/hr)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000
D	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 - (07:30-07:45)

		To			
		A	B	C	D
From	A	0.000	33.500	811.000	31.000
	B	102.000	0.000	54.000	0.250
	C	1188.000	9.500	0.000	0.000
	D	35.000	9.250	13.000	0.000

Turning Proportions (Veh) - Junction 1 - (07:30-07:45)

		To			
		A	B	C	D
From	A	0.00	0.04	0.93	0.04
	B	0.65	0.00	0.35	0.00
	C	0.99	0.01	0.00	0.00
	D	0.61	0.16	0.23	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (07:45-08:00)

		To			
		A	B	C	D
From	A	0.000	33.500	784.000	35.000
	B	71.000	0.000	45.000	4.250
	C	1028.000	9.500	0.000	0.000
	D	62.000	4.250	9.000	0.000

Turning Proportions (Veh) - Junction 1 - (07:45-08:00)

		To			
		A	B	C	D
From	A	0.00	0.04	0.92	0.04
	B	0.59	0.00	0.37	0.04
	C	0.99	0.01	0.00	0.00
	D	0.82	0.06	0.12	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (08:00-08:15)

		To			
		A	B	C	D
From	A	0.000	55.500	727.000	35.000
	B	40.000	0.000	59.000	9.250
	C	984.000	22.500	0.000	13.000
	D	40.000	32.250	4.000	0.000

Turning Proportions (Veh) - Junction 1 - (08:00-08:15)

		To			
		A	B	C	D
From	A	0.00	0.07	0.89	0.04
	B	0.37	0.00	0.55	0.09
	C	0.97	0.02	0.00	0.01
	D	0.52	0.42	0.05	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (08:15-08:30)

		To			
		A	B	C	D
From	A	0.000	42.500	762.000	31.000
	B	54.000	0.000	54.000	9.250
	C	1064.000	13.500	0.000	9.000
	D	66.000	44.250	0.000	0.000

Turning Proportions (Veh) - Junction 1 - (08:15-08:30)

		To			
		A	B	C	D
From	A	0.00	0.05	0.91	0.04
	B	0.46	0.00	0.46	0.08
	C	0.98	0.01	0.00	0.01
	D	0.60	0.40	0.00	0.00

Vehicle Mix

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

		To			
		A	B	C	D
From	A	1.000	1.057	1.075	1.033
	B	1.000	1.000	1.064	1.000
	C	1.062	1.333	1.000	1.000
	D	1.000	1.048	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		A	B	C	D
From	A	0.0	5.7	7.5	3.3
	B	0.0	0.0	6.4	0.0
	C	6.2	33.3	0.0	0.0
	D	0.0	4.8	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-C	0.17	13.63	0.20	B	53.00	53.00	9.15	10.36	0.15	9.15	10.36
B-AD	0.66	55.62	1.60	F	72.50	72.50	42.53	35.20	0.71	42.57	35.23
A-B	-	-	-	-	41.25	41.25	-	-	-	-	-
A-C	-	-	-	-	771.00	771.00	-	-	-	-	-
A-D	0.08	10.60	0.09	B	33.00	33.00	5.19	9.44	0.09	5.19	9.45
D-A	0.17	11.38	0.20	B	50.75	50.75	8.45	9.99	0.14	8.46	10.00
D-BC	0.38	76.03	0.57	F	29.01	29.01	19.67	40.70	0.33	19.76	40.87
C-D	-	-	-	-	5.50	5.50	-	-	-	-	-
C-A	-	-	-	-	1066.00	1066.00	-	-	-	-	-
C-B	0.06	9.89	0.06	A	13.75	13.75	2.22	9.68	0.04	2.22	9.68

Main Results for each time segment

Main results: (07:30-07:45)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	54.00	13.50	53.19	0.00	316.51	0.171	0.00	0.20	13.632	B
B-AD	102.25	25.56	95.85	0.00	155.73	0.657	0.00	1.60	55.621	F
A-B	33.50	8.38	33.50	0.00	-	-	-	-	-	-
A-C	811.00	202.75	811.00	0.00	-	-	-	-	-	-
A-D	31.00	7.75	30.64	0.00	369.94	0.084	0.00	0.09	10.599	B
D-A	35.00	8.75	34.56	0.00	350.60	0.100	0.00	0.11	11.378	B
D-BC	22.25	5.56	20.47	0.00	66.38	0.335	0.00	0.45	76.035	F
C-D	0.00	0.00	0.00	0.00	-	-	-	-	-	-
C-A	1188.00	297.00	1188.00	0.00	-	-	-	-	-	-
C-B	9.50	2.38	9.40	0.00	375.19	0.025	0.00	0.03	9.840	A

Main results: (07:45-08:00)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	45.00	11.25	45.30	0.00	402.41	0.112	0.20	0.13	10.090	B
B-AD	75.25	18.81	79.09	0.00	198.53	0.379	1.60	0.64	30.994	D
A-B	33.50	8.38	33.50	0.00	-	-	-	-	-	-
A-C	784.00	196.00	784.00	0.00	-	-	-	-	-	-
A-D	35.00	8.75	35.00	0.00	424.74	0.082	0.09	0.09	9.236	A
D-A	62.00	15.50	61.80	0.00	445.14	0.139	0.11	0.16	9.386	A
D-BC	13.25	3.31	14.49	0.00	115.71	0.114	0.45	0.14	36.044	E
C-D	0.00	0.00	0.00	0.00	-	-	-	-	-	-
C-A	1028.00	257.00	1028.00	0.00	-	-	-	-	-	-
C-B	9.50	2.38	9.50	0.00	383.20	0.025	0.03	0.03	9.634	A

Main results: (08:00-08:15)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	59.00	14.75	58.93	0.00	461.29	0.128	0.13	0.15	8.947	A
B-AD	49.25	12.31	50.48	0.00	202.20	0.244	0.64	0.33	23.910	C
A-B	55.50	13.88	55.50	0.00	-	-	-	-	-	-
A-C	727.00	181.75	727.00	0.00	-	-	-	-	-	-
A-D	35.00	8.75	35.01	0.00	443.02	0.079	0.09	0.09	8.823	A
D-A	40.00	10.00	40.22	0.00	422.21	0.095	0.16	0.11	9.431	A
D-BC	36.25	9.06	35.56	0.00	148.09	0.245	0.14	0.31	31.528	D
C-D	13.00	3.25	13.00	0.00	-	-	-	-	-	-
C-A	984.00	246.00	984.00	0.00	-	-	-	-	-	-
C-B	22.50	5.63	22.36	0.00	386.48	0.058	0.03	0.06	9.887	A

Main results: (08:15-08:30)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	54.00	13.50	54.00	0.00	429.35	0.126	0.15	0.14	9.590	A
B-AD	63.25	15.81	62.61	0.00	186.13	0.340	0.33	0.49	28.984	D
A-B	42.50	10.63	42.50	0.00	-	-	-	-	-	-
A-C	762.00	190.50	762.00	0.00	-	-	-	-	-	-
A-D	31.00	7.75	31.02	0.00	416.06	0.075	0.09	0.08	9.349	A
D-A	66.00	16.50	65.61	0.00	387.42	0.170	0.11	0.20	11.173	B
D-BC	44.25	11.06	43.23	0.00	116.68	0.379	0.31	0.56	48.169	E
C-D	9.00	2.25	9.00	0.00	-	-	-	-	-	-
C-A	1064.00	266.00	1064.00	0.00	-	-	-	-	-	-
C-B	13.50	3.38	13.59	0.00	379.19	0.036	0.06	0.04	9.850	A

Queueing Delay Results for each time segment

Queueing Delay results: (07:30-07:45)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.86	0.19	13.632	B	B
B-AD	19.34	1.29	55.621	F	E
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.30	0.09	10.599	B	B
D-A	1.56	0.10	11.378	B	B
D-BC	5.51	0.37	76.035	F	E
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	0.37	0.02	9.840	A	A

Queueing Delay results: (07:45-08:00)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	1.98	0.13	10.090	B	B
B-AD	10.88	0.73	30.994	D	C
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.35	0.09	9.236	A	A
D-A	2.33	0.16	9.386	A	A
D-BC	2.32	0.15	36.044	E	D
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	0.38	0.03	9.634	A	A

Queueing Delay results: (08:00-08:15)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.14	0.14	8.947	A	A
B-AD	5.38	0.36	23.910	C	C
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.31	0.09	8.823	A	A
D-A	1.64	0.11	9.431	A	A
D-BC	4.24	0.28	31.528	D	C
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	0.88	0.06	9.887	A	A

Queueing Delay results: (08:15-08:30)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.17	0.14	9.590	A	A
B-AD	6.93	0.46	28.984	D	C
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.24	0.08	9.349	A	A
D-A	2.92	0.19	11.173	B	B
D-BC	7.63	0.51	48.169	E	D
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	0.58	0.04	9.850	A	A

2020 Traffic Flows - 2020 WD, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
2020 Traffic Flows	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	Relationship
2020 WD, PM	2020 WD	PM		DIRECT	16:45	17:45	60	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	A146-High Bunghay Road Staggered Crossroad	OS-NS Stagger (UK RL Stagger)	Two-way	A,B,C,D		23.18	C

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	A146 West		Major
B	B	High Bunghay Road		Minor
C	C	A146 East		Major
D	D	Bunghay Road		Minor

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)
A	6.60		0.00	✓	3.50	200.00		
C	6.50		0.00	✓	3.30	200.00		

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 plus flare				10.00	10.00	6.90	4.60	4.00	✓	2.00	216	105
D	One lane plus flare				10.00	10.00	7.50	4.90	4.70	✓	3.00	102	143

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-B	Slope for D-C
1	A-D	787.379	-	-	-	0.297	0.297	0.297	-	0.297	-	-
1	B-AD	663.389	0.118	0.299	-	-	-	0.188	0.427	0.188	0.118	0.299
1	B-C	751.396	0.113	0.285	-	-	-	-	-	-	0.113	0.285
1	C-B	772.365	0.293	0.293	-	-	-	-	-	-	0.293	0.293
1	D-A	781.072	-	-	-	0.295	0.117	0.295	-	0.117	-	-
1	D-BC	611.680	0.173	0.173	0.392	0.274	0.108	0.274	-	0.108	-	-

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 (Veh/hr)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000
D	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - Junction 1 - (16:45-17:00)

		To			
		A	B	C	D
From	A	0.000	67.250	1033.000	62.000
	B	15.750	0.000	31.500	22.250
	C	801.000	37.000	0.000	9.000
	D	36.000	27.500	0.000	0.000

Turning Proportions (Veh) - Junction 1 - (16:45-17:00)

		To			
		A	B	C	D
From	A	0.00	0.06	0.89	0.05
	B	0.23	0.00	0.45	0.32
	C	0.95	0.04	0.00	0.01
	D	0.57	0.43	0.00	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (17:00-17:15)

		To			
		A	B	C	D
From	A	0.000	76.250	1197.000	53.000
	B	20.750	0.000	13.500	22.250
	C	859.000	32.000	0.000	9.000
	D	36.000	13.500	4.000	0.000

Turning Proportions (Veh) - Junction 1 - (17:00-17:15)

		To			
		A	B	C	D
From	A	0.00	0.06	0.90	0.04
	B	0.37	0.00	0.24	0.39
	C	0.95	0.04	0.00	0.01
	D	0.67	0.25	0.07	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (17:15-17:30)

		To			
		A	B	C	D
From	A	0.000	63.250	1077.000	27.000
	B	20.750	0.000	9.500	18.250
	C	743.000	46.000	0.000	9.000
	D	36.000	36.500	4.000	0.000

Turning Proportions (Veh) - Junction 1 - (17:15-17:30)

		To			
		A	B	C	D
From	A	0.00	0.05	0.92	0.02
	B	0.43	0.00	0.20	0.38
	C	0.93	0.06	0.00	0.01
	D	0.47	0.48	0.05	0.00

Turning Counts / Proportions (Veh/hr) - Junction 1 - (17:30-17:45)

		To			
		A	B	C	D
From	A	0.000	90.250	1171.000	40.000
	B	11.750	0.000	45.500	31.250
	C	783.000	81.000	0.000	0.000
	D	40.000	13.500	0.000	0.000

Turning Proportions (Veh) - Junction 1 - (17:30-17:45)

		To			
		A	B	C	D
From	A	0.00	0.07	0.90	0.03
	B	0.13	0.00	0.51	0.35
	C	0.91	0.09	0.00	0.00
	D	0.75	0.25	0.00	0.00

Vehicle Mix

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

		To			
		A	B	C	D
From	A	1.000	1.022	1.024	1.000
	B	1.000	1.000	1.154	1.042
	C	1.046	1.058	1.000	1.000
	D	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To			
		A	B	C	D
From	A	0.0	2.2	2.4	0.0
	B	0.0	0.0	15.4	4.2
	C	4.6	5.8	0.0	0.0
	D	0.0	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-C	0.15	14.25	0.18	B	25.00	25.00	5.20	12.48	0.09	5.20	12.49
B-AD	0.44	62.57	0.71	F	40.75	40.75	27.65	40.71	0.46	27.81	40.94
A-B	-	-	-	-	74.25	74.25	-	-	-	-	-
A-C	-	-	-	-	1119.50	1119.50	-	-	-	-	-
A-D	0.12	7.98	0.13	A	45.50	45.50	5.73	7.56	0.10	5.73	7.56
D-A	0.07	7.84	0.08	A	37.00	37.00	4.61	7.48	0.08	4.61	7.48
D-BC	0.22	40.51	0.28	E	24.75	24.75	11.71	28.39	0.20	11.71	28.40
C-D	-	-	-	-	6.75	6.75	-	-	-	-	-
C-A	-	-	-	-	796.50	796.50	-	-	-	-	-
C-B	0.22	12.46	0.28	B	49.00	49.00	8.73	10.69	0.15	8.74	10.70

Main Results for each time segment

Main results: (16:45-17:00)

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	31.50	7.88	31.12	0.00	356.14	0.088	0.00	0.10	11.064	B
B-AD	38.00	9.50	36.77	0.00	156.23	0.243	0.00	0.31	29.853	D
A-B	67.25	16.81	67.25	0.00	-	-	-	-	-	-
A-C	1033.00	258.25	1033.00	0.00	-	-	-	-	-	-
A-D	62.00	15.50	61.47	0.00	524.21	0.118	0.00	0.13	7.771	A
D-A	36.00	9.00	35.69	0.00	502.43	0.072	0.00	0.08	7.708	A
D-BC	27.50	6.88	26.67	0.00	155.43	0.177	0.00	0.21	27.792	D
C-D	9.00	2.25	9.00	0.00	-	-	-	-	-	-
C-A	801.00	200.25	801.00	0.00	-	-	-	-	-	-
C-B	37.00	9.25	36.61	0.00	410.71	0.090	0.00	0.10	9.613	A

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	13.50	3.38	13.67	0.00	274.54	0.049	0.10	0.05	13.808	B
B-AD	43.00	10.75	41.64	0.00	103.20	0.417	0.31	0.65	57.366	F
A-B	76.25	19.06	76.25	0.00	-	-	-	-	-	-
A-C	1197.00	299.25	1197.00	0.00	-	-	-	-	-	-
A-D	53.00	13.25	53.06	0.00	504.32	0.105	0.13	0.12	7.980	A
D-A	36.00	9.00	36.00	0.00	499.11	0.072	0.08	0.08	7.773	A
D-BC	17.50	4.38	17.52	0.00	106.45	0.164	0.21	0.20	40.505	E
C-D	9.00	2.25	9.00	0.00	-	-	-	-	-	-
C-A	859.00	214.75	859.00	0.00	-	-	-	-	-	-
C-B	32.00	8.00	32.00	0.00	364.24	0.088	0.10	0.10	10.837	B

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	9.50	2.38	9.59	0.00	320.54	0.030	0.05	0.03	11.582	B
B-AD	39.00	9.75	40.23	0.00	158.09	0.247	0.65	0.34	30.878	D
A-B	63.25	15.81	63.25	0.00	-	-	-	-	-	-
A-C	1077.00	269.25	1077.00	0.00	-	-	-	-	-	-
A-D	27.00	6.75	27.26	0.00	541.20	0.050	0.12	0.05	7.007	A
D-A	36.00	9.00	36.00	0.00	495.41	0.073	0.08	0.08	7.835	A
D-BC	40.50	10.13	40.21	0.00	182.85	0.221	0.20	0.28	25.176	D
C-D	9.00	2.25	9.00	0.00	-	-	-	-	-	-
C-A	743.00	185.75	743.00	0.00	-	-	-	-	-	-
C-B	46.00	11.50	45.87	0.00	395.55	0.116	0.10	0.13	10.295	B

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

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
B-C	45.50	11.38	44.91	0.00	297.01	0.153	0.03	0.18	14.248	B
B-AD	43.00	10.75	41.55	0.00	97.23	0.442	0.34	0.70	62.574	F
A-B	90.25	22.56	90.25	0.00	-	-	-	-	-	-
A-C	1171.00	292.75	1171.00	0.00	-	-	-	-	-	-
A-D	40.00	10.00	39.89	0.00	530.46	0.075	0.05	0.08	7.336	A
D-A	40.00	10.00	39.99	0.00	540.05	0.074	0.08	0.08	7.198	A
D-BC	13.50	3.38	14.14	0.00	135.12	0.100	0.28	0.11	29.902	D
C-D	0.00	0.00	0.00	0.00	-	-	-	-	-	-
C-A	783.00	195.75	783.00	0.00	-	-	-	-	-	-
C-B	81.00	20.25	80.41	0.00	368.67	0.220	0.13	0.28	12.464	B

Queueing Delay Results for each time segment

Queueing Delay results: (16:45-17:00)

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	1.37	0.09	11.064	B	B
B-AD	4.17	0.28	29.853	D	C
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.92	0.13	7.771	A	A
D-A	1.11	0.07	7.708	A	A
D-BC	2.83	0.19	27.792	D	C
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	1.41	0.09	9.613	A	A

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.83	0.06	13.808	B	B
B-AD	8.60	0.57	57.366	F	E
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.81	0.12	7.980	A	A
D-A	1.16	0.08	7.773	A	A
D-BC	3.06	0.20	40.505	E	D
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	1.46	0.10	10.837	B	B

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.48	0.03	11.582	B	B
B-AD	5.58	0.37	30.878	D	C
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	0.82	0.05	7.007	A	A
D-A	1.17	0.08	7.835	A	A
D-BC	3.93	0.26	25.176	D	C
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	1.90	0.13	10.295	B	B

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

Stream	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	2.52	0.17	14.248	B	B
B-AD	9.29	0.62	62.574	F	E
A-B	-	-	-	-	-
A-C	-	-	-	-	-
A-D	1.18	0.08	7.336	A	A
D-A	1.19	0.08	7.198	A	A
D-BC	1.89	0.13	29.902	D	C
C-D	-	-	-	-	-
C-A	-	-	-	-	-
C-B	3.97	0.26	12.464	B	B