WYG Transport

Persimmon Homes Limited

Proposed Residential Development at Land off Lundhill Road, Wombwell, Barnsley

Transport Assessment

Report No. A098689

Date: April 2017

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REPORT CONTROL

Document:	Transport Assessment
Project:	Proposed Residential Development at Land off Lundhill Road, Wombwell, Barnsley
Client:	Persimmon Homes Limited
Job Number:	A098689

Document Checking:

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Issue	Date	Status	Checked for Issue
1	24.04.2017	ISSUE1	JAB
2			
3			
4			

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1 INTRODUCTION

1.1 WYG Transport Planning has been appointed by Persimmon Homes Limited to produce a Transport Assessment in support of a full planning application for a proposed residential development at land off Lundhill Road in Wombwell, Barnsley.

1.2 The site lies within the jurisdiction of Barnsley Metropolitan Borough Council and is located approximately 1km to the south of Wombwell Town Centre.

1.3 In the emerging Barnsley Metropolitan Borough Council Local Plan, the site is referred to as Site H70 and is allocated for 160 dwellings.

1.4 This Transport Assessment report has been prepared in accordance with the guidance set out in the National Planning Policy Framework which states at Chapter 4, paragraph 32,

> "Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."

1.5 The purpose of this Transport Assessment is to set out the transport issues relating to the development proposals. It will identify measures, where appropriate, to deal with the anticipated transport impact of the scheme and to improve accessibility and safety for all modes of travel, particularly for alternatives to the car.

1.6 The remainder of this report is structured as follows:

- Chapter 2 describes the existing conditions within the vicinity of the site;
- Chapter 3 describes the facilities for Sustainable Travel to the site;
- Chapter 4 describes the operation of the existing highway network;
- Chapter 5 outlines the development proposals;
- Chapter 6 determines the traffic impact of the proposals;
- Chapter 7 considers the safety of the local highway network; and
- Chapter 8 provides a summary and sets out the conclusions.

2 THE EXISTING SITE AND HIGHWAY NETWORK

The Site

2.1 The site is located approximately 1km to the south of Wombwell Town Centre. The development site is agricultural land, located to the east of Lundhill Road. The site is bounded to the north by residential properties off Lundhill Grove and Dove Road, to the west by Lundhill Road, to the south by a farm track off Lundhill Road, and to the east by the disused Elsecar Canal.

2.2 The site is served by two gated accesses from Lundhill Road.

2.3 The location of the site in relation to the strategic highway network is shown on the drawing included at Appendix A.

Adjacent Highway Network

2.4 The highway network in the vicinity of the site considered for this appraisal consists of: -

- Lundhill Road/Beech House Road;
- Park Street;
- Wath Road;
- A633 Valley Way; and
- A6195 Dearne Valley Parkway.

2.5 Lundhill Road lies on a north/south alignment and provides access to the centre of Wombwell via Park Street or the A633. To the north it forms a staggered priority junction with Park Street, Wath Road and Everill Gate Lane. To the south, Lundhill Road passes under the A6195 Dearne Valley Parkway, south of this it becomes Beech House Road which continues on into Hemingfield Village.

2.6 Lundhill Road is a single carriageway road which, to the north of the site, is lit and to the south of the site is unlit. Along the site frontage and to the south of the site there is a footway provided on the western side, to the north of the site there is a footway provided on the eastern side. Approximately 200m north of the site there are footways on both sides of Lundhill Road.

2.7 Lundhill Road is subject to a 30mph speed limit for its entirety.

2.8 Park Street is located approximately 700m north of the site and forms a priority junction with Lundhill Road. It lies on a southeast/northwest alignment from the junction with Lundhill Road to the signalised junction with Mayflower Way and High Street. To the northwest it provides access to the centre of Wombwell and its associated facilities.

2.9 Park Street is a single carriageway road which is lit along its length. Footways are provided along both sides. It is subject to a 30mph speed limit along its entire length.

2.10 To the south of the junction between Park Street and Lundhill Road is Wath Road. Wath Road is a continuation of Park Street to the southeast. It lies on an east west alignment and links Park Street with the A633 Valley Way / Brampton Road roundabout.

2.11 Footways are provided on both sides of Wath Road and they are lit. Wath Road is subject to a 30mph speed limit.

2.12 A633 Valley Way is located to the north east of the site originating at the A633 / B6089 / Wath Road roundabout. It is a single carriageway road that is lit. It runs north west to the A633 / B6096 / Station Road / Mayflower Way roundabout to the north of Wombwell Centre and is subject to ta 50mph speed limit.

2.13 A6195 Dearne Valley Parkway is a dual carriageway road that is subject to the national speed limit. It runs from the Wath Road Roundabout to the east of the site round to the south of Wombwell via the Cortonwood Roundabout and Hemingfield Road Roundabout to the A61. Footways are provided on both sides of the road. It provides a direct link between Wombwell and the M1 motorway at junction 36.

2.14 The location of the site in relation to the local highway network is shown on the drawing included at Appendix B.

3 ACCESSIBILITY

Introduction

3.1 In March 2012 NPPF replaced a number of national policy documents, including Planning Policy Guidance Note 13 (PPG13). Prior to its deletion, PPG13 provided guidance on the length of journeys which could reasonably expect to be undertaken on foot or on a bike; these distances were 2km for walking and 5km for cycling. There is now no government guidance on reasonable walk or cycle distances.

3.2 The IHT in "Providing for Journeys on Foot", suggested a range of walking distances for various journey purposes, however these distances were not supported by evidence or background research. There is no published guidance on cycle distances for various journey purposes.

3.3 WYG have analysed walking and cycling for all purposes as the main mode of travel (from home) by interrogating data collected through the 2010 National Travel Survey (NTS), to calculate the average and 85th percentile distances travelled. The research report is attached at Appendix C.

3.4 Using the NTS data the average distance people walk is 1.2km and the 85th percentile distance is 1.9km. The 85th percentile walk distance is considered the "upper threshold" distance, and is similar to the 2km walk distance in the now withdrawn PPG13.

3.5 The NTS data showed that the average distance people cycle is 4.5km and the 85th percentile distance is 7.2km. The 85th percentile cycle distance is considered the "upper threshold" distance, which is significantly longer than the 5km cycle distance previously in PPG13.

3.6 In this report we have used the NTS walk and cycle distances to assess the accessibility of the proposed development.

Pedestrian Facilities

3.7 In the general vicinity of the site, the footways are generally 2m in width, are well maintained and are lit.

3.8 There are a number of Public Rights of Ways close to the site, footpath 43 lies to the south of the site forming part of the sites southern boundary. To the east it connects to The Trans Pennine Trail, National Cycle Network number 67 and to the west it connects to footpath number 15. An extract of Barnsley Councils Public Rights of Way plan can be seen at Appendix D.

3.9 The Wath Road / B6089 / A633 Roundabout junction which is to the north east of the site has pedestrian refuge islands with dropped kerbs at all four entries to aid pedestrians crossing the roundabout.

3.10 There is also a controlled crossing facility along Park Street at the signalised junction with Mayflower Way to the north west of the site.

3.11 There are residential developments and local facilities situated within 1.2km walking distance of the site and are therefore within a comfortable walking distance.

3.12 Accessibility on foot from the development site to local facilities and amenities within the 1.2km and 1.9km walk distances has been assessed, and they are identified in Appendix D. The site has the benefit of being within a reasonable walking distance of a variety of local facilities, shops, and school.

3.13 Wombwell High School, Wombwell Park Street Primary School and Kings Oak Primary School all lie to the north of the site. While The Ellis CE Primary School Lies to the south west of the site.

3.14 A plan showing the location of these facilities is included at Appendix D.

Cycling Facilities

3.15 There are a number of advisory cycle, signed cycle and traffic free routes in the vicinity of the site. In addition to this, the residential nature of the highway network around the site provides some level of encouragement for journeys by cycle to local facilities and amenities.

3.16 The Trans Pennine Trail, National Cycle Network number 67 lies to the south of the site running in a roughly southwest/northeast alignment. It can be accessed from Smithy Bridge Lane to the south of the site. It provides traffic free access to the surrounding area and provides links into the wider cycle network.

3.17 Accessibility by bike from the development site to local facilities and amenities within the 4.5km and 7.2km cycle distances has been assessed.

3.18 The plan included at Appendix E shows the 4.5km and 7.2km cycle catchment area around the site.

3.19 This shows that Wombwell, Darfield, Hoyland, Wath-upon-Dearne, Swinton, Bolton-upon-Dearne, Goldthorpe, Thurnscoe and Worsbrough are accessible by cycle.

3.20 It is considered that there is a fairly high provision of cycle facilities around the site which promote access by cycle into the wider community. The site can therefore be said to be sustainable in these terms.

Bus Services

3.21 As part of the research into walking distances using the NTS, the walk distances to a bus stop as the first stage of bus journeys from home were analysed, Appendix C refers.

3.22 The analysis showed that, outside of London, the average distance people walk to a bus stop is 640m (8 mins) and the 85th percentile distance is 970m (12 mins).

3.23 The IHT publication Guidelines on Planning for Public Transport in New Developments advises that new development should be within 400m (5min) walk of a bus stop, and cites a reference to DoE Circular 82/73 which is understood to have been withdrawn for some considerable time.

3.24 There are a number of bus service routes that pass by or near to the site. Services 22x, 203, 220, 222, 226, 649, 662, 680 and X20 all pass along Park Street. Details of the bus services are set out in Table 3.1.

Table 3.1: Bus Service Frequencies

Service No.	Route	Frequency (0800 – 1800)	
		Mon – Sat Daytime	Sun and Evenings
22x	Rotherham – Rawmarsh – Swinton – Wath upon Dearne – West Melton – Wombwell – Stairfoot – Barnsley	15 mins	60mins
203	Barnsley – Hunningley – Wombwell – Broomhill – Middlecliffe – Billingley – Goldthorpe – Highgate – Clayton – Brodsworth – Scawthorpe – Doncaster	60 mins	N/A
220	Mexborough – Swinton – Wath upon Dearne – West Melton – Wombwell – Stairfoot – Barnsley	30 mins	60 mins
222	Barnsley – Hunningley – Wombwell – Brampton – West Melton – Rotherham – Wath upon Dearne – Dearne Valley – Swinton – Mexborough	30 mins	60 mins
226	Thurnscoe – Goldthorpe – Bolton-upon-Dearne – Manvers – Wath upon Dearne – West Melton – Wombwell – Stairfoot - Barnsley	30 mins	60 mins
649	Wath Comprehensive School – West Melton – Brampton – Wombwell	1 service (school service)	N/A
662	Wath upon Dearne – Brampton – Wombwell – Hemingfield – Hoyland – Elsecar	1 service (school service)	N/A
680	Moorgate – Parkgate – Rawmarsh – Swinton – Wath upon Dearne – West Melton – Brampton – Wombwell – Darfield – Highgate – Goldthorpe – Bolton-upon-Dearne – Manvers – Mexborough – Conisbrough	2 services daily (school service)	N/A
X20	Barnsley – Wombwell – Old Moor – Manvers – Mexborough – Denaby Main – Conisbrough – Warmsworth – Balby – Doncaster	60 mins	N/A

3.25 Table 3.1 shows that the site is served by nine bus services with a minimum overall frequency of 12 buses per hour during the day from Monday to Saturday and the routes extend from Mexborough, Rotherham, Swinton, Doncaster, Wath upon Dearne and Bolton-upon-Dearne.

3.26 There are bus stops located on Park Street to the north of the site on both sides of the carriageway. The nearest bus stop is a walk distance of 800m from the centre of the site.

3.27 This level of frequency of buses that operate within the vicinity of the site means that the site is well located for travel by bus and there are sufficient services within walking distance of the site.

3.28 The drawing at Appendix D shows the location of bus stops in the vicinity of the site.

3.29 Table 3.2 describes the facilities available at the bus stops which the above bus routes serve and are located along Park Street.

Table 3.2: Bus Stop Facilities

Bus Stop Ref	Description / Facilities	Walk Distance From the centre of the Site
37050000	South side of Park Street. It has a bus shelter with flag and timetable information.	800m
37050001	North side of Park Street. It has a bus shelter with flag and timetable information.	850m

Rail Services

3.30 The site is approximately 2.7km from Wombwell railway station. This is not within the normally accepted walking distance of the site for commuter journeys but it is readily accessible to other sustainable modes i.e. cycle, bus and taxi.

3.31 There are sheltered storage spaces for up to 12 bicycles at Wombwell Station including CCTV of the storage areas for security.

3.32 Wombwell railway station is on the Hallam Line and the Penistone Line. Both lines offer direct and convenient routes to many regional and national destinations.

3.33 The details of the services provided on both lines Huddersfield Line are shown in Table 3.3.

Table 3.3: Train Service Frequencies on from Wombwell Railway Station

Route	Mon - Sat		Sun
	Daytime	Late Evening	
Sheffield – Meadowhall – Elsecar – Wombwell – Barnsley – Darton – Wakefield Kirkgate – Castleford – Leeds	60 mins	60 mins	120 mins
Huddersfield – Lockwood – Brockholes – Stocksmoor – Shepley – Penistone – Dodworth – Barnsley – Wombwell – Meadowhall – Sheffield	30 mins	60 mins	60 mins
Sheffield – Meadowhall – Wombwell – Barnsley – Penistone – Shepley – Brockholes – Lockwood – Huddersfield	60 mins	60 mins	120 mins

3.34 There is therefore a good level of service provision at Wombwell Station with good linkages to Leeds, Wakefield, Barnsley, Sheffield and Huddersfield.

3.35 The location of Wombwell railway station in relation to the site can be seen on the plan at Appendix D.

Conclusion

3.36 The development site is accessible on foot or by bike to a range of useful local destinations, and there are public transport options available for journeys further afield for commuter trips.

4 OPERATION OF THE EXISTING HIGHWAY NETWORK

Existing Traffic Flows

4.1 Manual Classified Turning Count surveys were carried out on Tuesday 28th June 2016 at the Wath Road / Lundhill Road junction, the A633 / B6089 / Wath Road roundabout junction and the Hemingfield Road / A6195 roundabout junction.

4.2 The survey data is provided at Appendix F.

Assessment Periods

4.3 By reference to the results of the traffic survey, the weekday AM and weekday PM peaks have been identified. The AM peak has been identified as 07:30 - 08:30 and the PM peak as 17:00 – 18:00.

4.4 The 2016 surveyed flows are shown in Appendix G for the weekday AM and PM peaks. These show the existing levels of traffic, converted into passenger car units (PCUs).

Capacity Analysis

4.5 The Wath Road / Lundhill Road junction, the A633 / B6089 / Wath Road roundabout junction and the Hemingfield Road / A6195 roundabout junctions have been analysed using the Junctions 9 software programme.

4.6 The junction models have been validated by reference to the queue lengths observed at the junctions during the surveyed periods.

4.7 The geometric parameters used in the analyses have been taken from Ordnance Survey maps.

Wath Road / Lundhill Road Junction / Park Street Junction

4.8 The results of the existing traffic analysis for the Wath Road / Lundhill Road priority junction are summarised in Table 4.1.

Table 4.1: 2016 Surveyed Flows Results Summary

Entry Arm	AM		PM	
	RFC	Q	RFC	Q
Wath Road	0.14	0.2	0.13	0.1
Lundhill Road	0.21	0.3	0.22	0.3
Park Street	0.08	0.1	0.14	0.2

4.9 The analysis shows that the junction is currently operating well below capacity on all arms with a maximum RFC of 0.21 in the AM peak and 0.22 in the PM peak, both on Lundhill Road.

4.10 The base model is therefore considered representative of existing conditions at the junction during the AM and PM peak.

4.11 The junction assessment output files are included at Appendix H.

A633 / B6089 / Wath Road Roundabout

The results of the existing traffic analysis for the A633 / B6089 / Wath Road roundabout junction are summarised in Table 4.2.

Table 4.2: 2016 Surveyed Flows Results Summary

Entry Arm	AM		PM	
	RFC	Q	RFC	Q
A633 (E)	0.39	0.6	0.57	1.3
B6089 Brampton Rd	0.26	0.4	0.27	0.4
Wath Rd	0.27	0.4	0.27	0.4
A633 Valley Way	0.54	1.2	0.55	1.2

4.12 The analysis shows that the junction is currently operating below capacity on all approaches with a maximum RFC of 0.54 in the AM peak on the A633 Valley Way approach and 0.57 in the PM peak on the A633 (E) approach.

4.13 The base model is therefore considered representative of existing conditions at the junction during the AM and PM peak.

4.14 The junction assessment output files are included at Appendix H.

Hemingfield Road / A6195 Roundabout

The results of the existing traffic analysis for the Hemingfield Road / A6195 roundabout are summarised in Table 4.3.

Table 4.3: 2016 Surveyed Flows Results Summary

Entry Arm	AM		PM	
	RFC	Q	RFC	Q
A6195 Dearne Valley Parkway (E)	0.44	0.8	0.59	1.4
Hemingfield Road (S)	0.15	0.2	0.16	0.2
A6195 Dearne Valley Parkway (W)	0.38	0.6	0.39	0.6
Hemingfield Road (N)	0.18	0.2	0.27	0.4

4.15 The analysis shows that the junction is currently operating below capacity on all approaches with a maximum RFC of 0.44 in the AM peak and 0.59 in the PM peak both on the A6195 Dearne Valley Parkway (E) approach.

4.16 The base model is therefore considered representative of existing conditions at the junction during the AM and PM peak.

4.17 The junction assessment output files are included at Appendix H.

5 THE PROPOSED DEVELOPMENT

5.1 The proposed development will provide up to 150 residential units, consisting of two, three and four bedroom houses.

5.2 The layout of the proposed development is shown on the plan at Appendix I.

Access

5.3 There will be a single point of access onto Lundhill Road at the western end of the site.

5.4 The site access will be onto Lundhill Road and will provide a visibility splay of 2.4m by 43m in both directions in accordance with South Yorkshire Residential Design Guide.

5.5 The carriageway widths for the site access will be 5.5m wide with 2m wide footways on either side of the carriageway.

5.6 The junction layouts can be seen at Appendix I.

Proposed Parking

5.7 The proposed development will comply with Barnsley Metropolitan Borough Council Parking Supplementary Planning Document.

6 THE TRAFFIC IMPACT OF THE DEVELOPMENT

6.1 Barnsley Metropolitan Borough Council emerging Local Plan shows that site H70 is allocated for 160 dwellings (the proposals are currently for 150 dwellings). However, the capacity assessment has been based on 160 dwellings to provide a robust assessment.

Generated Traffic

6.2 The Trip Rate Information Computer System (TRICS) database has been used to derive suitable multi-modal trip generation rates for the development site of up to 160 homes.

6.3 The following criteria were applied to the TRICS category "Houses Privately Owned":

- Sites in London, Republic of Ireland, Northern Ireland were excluded;
- Suburban and Edge of Town sites were included;
- Only surveys on a Weekday were included; and
- Sites of less than 50 and more than 250 dwellings were excluded.

6.4 A total of 15 sites remained in the dataset, and person trip rates determined. Vehicle trip rates for the AM and PM peak hours extracted from that sample are shown at Table 6.1 below, used to predict the traffic generated by up to 160 homes on site. TRICS output files are in Appendix J.

Table 6.1: Average Trip Rates and Travel Volumes by Mode for 160 Homes

Time Period	Arrivals		Departures	
	TRICS Rate	Trips	TRICS Rate	Trips
Car Driver Trips				
Weekday AM Peak Hour 07:30 to 08:30	0.142	23	0.370	59
Weekday PM Peak Hour 17:00 to 18:00	0.331	53	0.184	29
Car Passenger Trips				
Weekday AM Peak Hour 07:30 to 08:30	0.180	29	0.534	85
Weekday PM Peak Hour 17:00 to 18:00	0.430	69	0.238	38
Pedestrian Trips				
Weekday AM Peak Hour 07:30 to 08:30	0.050	8	0.166	27
Weekday PM Peak Hour 17:00 to 18:00	0.157	25	0.076	12
Cycle Trips				
Weekday AM Peak Hour 07:30 to 08:30	0.002	0	0.018	3
Weekday PM Peak Hour 17:00 to 18:00	0.018	3	0.011	2
Public Transport Trips				
Weekday AM Peak Hour 07:30 to 08:30	0.003	0	0.013	2
Weekday PM Peak Hour 17:00 to 18:00	0.013	2	0.002	0
Total People Trips				
Weekday AM Peak Hour 07:30 to 08:30	0.236	38	0.731	117
Weekday PM Peak Hour 17:00 to 18:00	0.577	92	0.340	54

Trip rates are per dwelling

6.5 The Department for Transport has provided WYG with a table summarising the results of their analysis of data taken from the NTS for the 5 years between 2006 and 2010. The category analysed was "Trip Start Time by Trip Purpose (Monday to Friday Only)". The data reveals journey purpose per hour for the AM peak period (07:00 to 09:00) and the PM peak period (16:00 to 18:00). The table obtained from the DfT marked up by WYG for ease of reference is in Appendix K.

6.6 The 07:30 to 08:30 hour has been used for the AM peak hour, and the average of the 17:00 to 18:00 hour has been used for the PM peak hour. WYG then simplified the data as follows:

- Journeys for Work were estimated by summing the Commuting and Business columns, i.e. yellow.
- Journeys for Education were estimated by summing the Education and Escort Education columns, i.e. blue.
- Journeys for Other Purposes were estimated by summing the Shopping, Other Personal Business/ Escort, Visiting Friends/ Entertainment/ Sport and Holiday/ Day Trip/ Other columns, i.e. red.

6.7 It has been assumed this distribution is representative of that which could be expected at the development site.

6.8 Table 6.2 below shows the proportions for each of those journey purposes among car driver trips during the AM and PM peak hours separately. These proportions have been applied to those predicted for the site.

Table 6.2: Car Driver Trips by Journey Purpose

Time Period	Journey Purpose			
	Work	Education	Other	Total
Weekday AM Peak Hour (%)	45%	23%	32%	**100%**
Car Trips - Arrivals	10	5	7	**23**
Car Trips - Departures	27	14	19	**59**
Time Period	**Work**	**Education**	**Other**	**Total**
Weekday PM Peak Hour (%)	47%	2%	51%	**100%**
Car Trips - Arrivals	25	1	27	**53**
Car Trips - Departures	14	1	15	**29**

Note: Other = Shopping, Other Personal Business/ Escort, Visiting Friends, Entertainment, Sport, Holiday/ Day Trip and Other.

Distribution of the Generated Traffic

6.9 Census Journey to Work data has been used to assign work related trips and a local assignment has been developed for education and non-work trips which was based on the distribution of likely destinations.

Journey to Work Distribution

6.10 Vehicle trips for work purposes have been distributed onto the local road network using an assignment based on Journey to Work data for car based trips among residents of Barnsley 026 (E02001534). Table 6.3 shows the distribution pattern to be applied to the Journey to Work trips.

Table 6.3: Journey to Work Distribution Pattern

Cordon	Distribution Pattern
A – Park Street north	2.0%
B – A633 north	14.5%
C – A633 east	27.0%
D – B6089 south	4.0%
E – Smithy Bridge Lane south	21.5%
F – Tingle Bridge Lane south	0.0%
G – A6195 west	26.0%
H – Hemingfield Road north	5.0%
Total	**100%**

6.11 The distributed travel to work trips can be seen at Appendix L.

Education Distribution

6.12 It has been assumed pupils from the proposed development will attend the local Schools in the area and the schools to be considered are as follows: -

- Wombwell Park Street Primary School;
- Brampton 'The Ellis' C of E Primary School;
- The Ellis C of E Primary School; and
- Netherwood Advanced Learning Centre.

6.13 The distribution pattern to be applied to the education car trips is detailed in the Table 6.4. The mode share by car for education trips for each school is from 2011 School Census data.

Table 6.4: Education Car Trip Distribution Pattern

School	No of Pupils	% Car Users	No. Of Cars	Distribution Pattern
Wombwell Park Street Primary School	280	32.7%	92	20.5%
Brampton 'The Ellis' C of E Primary School	255	33.9%	86	19.2%
The Ellis C of E Primary School	190	39.8%	76	16.9%
Netherwood Advanced Learning Centre	1100	17.7%	195	43.4%

6.14 The distributed education trips can be seen at Appendix L.

Other Journey Purpose Distribution

6.15 It is reasonable to assume these trips are to / from local facilities and have been distributed between Cortonwood Retail Park, Wombwell and Barnsley.

6.16 Table 6.5 shows the proportions for each of those journey purposes among car driver trips during the AM peak period and the PM peak period separately. These proportions have been applied to the car driver trips predicted for the proposed development in the Trip Generation Table 6.1.

Table 6.5: Other Journey Purposes Distribution Pattern

Local Facility Areas	Distribution Pattern
Cortonwood Retail Park	50.00%
Wombwell	25.00%
Barnsley	25.00%

6.17 The distributed other journey purpose trips and the total distributed development trips can be seen at Appendix L.

Committed Developments

6.18 It is appropriate to take account of committed developments in the vicinity of the site which were not operating at the time of the surveys.

6.19 WYG has undertaken a review of committed developments from Barnsley Metropolitan Borough Council and Rotherham Metropolitan Borough Councils planning portals. The committed developments identified do not have an impact on the highway network

analysed in this Transport Assessment. The application numbers can be seen in Table 6.6 below.

Table 6.6: Barnsley and Rotherham Committed Developments

Application Number - Barnsley
B/04/0487/WW
2006/0064 (2009/0189)
2009/1039
B/04/1311/WW
2013/0866
2015/1302
2013/0203
2006/1171
2005/1643
B/04/1496/WW
2005/1980
B/05/0608/WW
Application Number - Rotherham
RB1999/1349
RB2003/0104
RB2008/1326
RB2011/1119

Traffic Growth

6.20 Due to the scale of the development it would be sensible to assume a 'build out' rate of 35 houses per year which would equate to a period of approximately five years.

6.21 Therefore, for this assessment, analyses will be undertaken across a five-year horizon to 2022.

6.22 Traffic flows surveyed in 2016 have be projected to 2022 by applying factors extracted from the DfT's TEMPRO v7.0 program using the definitive NTEM v7.0 database and the current NTM AF09 dataset in line with WebTAG Unit 3.15.2 Use of TEMPRO Data. Barnsley 026 has been selected as the defined area.

6.23 The NTEM projection for Barnsley 026 includes for an increase of 180 households from 2016 to 2022. To account for the proposed development the future houses have been reduced by 150 houses to avoid double-counting.

6.24 The selected area chosen was "urban" and "principal" was selected as the road type, the growth factors for the AM and PM peaks are: -

- AM Peak Growth Factor 2016 to 2022 is 6.6%; and
- PM Peak Growth Factor 2016 to 2022 is 6.1%.

6.25 The growth figure calculation can be seen at Appendix M.

2022 Base No Development Traffic Flows

6.26 The 2022 Base traffic flows used in the analysis are the 2016 surveyed flows growthed to 2022 which can be seen at Appendix N.

2022 Base With Development Traffic Flows

6.27 2022 Base plus generated flows are simply the 2022 Base flows and the generated flows added together. The resultant 2022 Base plus Generated flows are detailed on the traffic flow diagrams shown at Appendix O.

National Planning Policy Framework

6.28 The future junction assessments will be undertaken for 2022 and the impact will be reviewed against NPPF which states at Chapter 4, paragraph 32: -

"Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."

6.29 Therefore, the impact of the development has been compared against the 2022 Base flows.

Wath Road / Lundhill Road Junction / Park Street Junction

6.30 The results of the 2022 traffic analysis for the Wath Road / Lundhill Road priority junction are summarised in Table 6.7.

Table 6.7: 2022 Base plus Development Flows Results Summary

Entry Arm	AM				PM			
	2022 No Dev		2022 With Dev		2022 No Dev		2022 With Dev	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Wath Road	0.15	0.2	0.18	0.2	0.14	0.2	0.15	0.2
Lundhill Road	0.23	0.3	0.31	0.4	0.24	0.3	0.28	0.4
Park Street	0.08	0.1	0.09	0.1	0.15	0.2	0.16	0.2

6.31 The analysis shows that the junction is predicted to operate within capacity on all arms with a maximum RFC of 0.31 in the AM peak and 0.28 in the PM peak both on the Lundhill Road approach. The maximum predicted queue is 0.4 in the AM peak and 0.4 in the PM peak both on the Lundhill Road approach.

6.32 The junction assessment output files are included at Appendix P.

A633 / B6089 / Wath Road Roundabout

6.33 The results of the 2022 traffic analysis for the A633 / B6089 / Wath Road roundabout are summarised in Table 6.8.

Table 6.8: 2022 Base plus Development Results Summary

Entry Arm	AM				PM			
	2022 No Dev		2022 With Dev		2022 No Dev		2022 With Dev	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A633 (E)	0.43	0.7	0.43	0.8	0.62	1.6	0.63	1.7
B6089 Brampton Rd	0.29	0.4	0.29	0.4	0.30	0.4	0.30	0.4
Wath Rd	0.29	0.4	0.32	0.5	0.29	0.4	0.30	0.4
A633 Valley Way	0.58	1.4	0.59	1.4	0.59	1.4	0.60	1.5

6.34 The analysis shows that the junction is predicted to operate within capacity on all arms with a maximum RFC of 0.59 in the AM peak and 0.63 in the PM peak. The maximum predicted queue is 1.4 in the AM peak and 1.7 in the PM peak.

6.35 The junction assessment output files are included at Appendix P.

Hemingfield Road / A6195 Roundabout

6.36 The results of the 2022 traffic analysis for the Hemingfield Road / A6195 roundabout are summarized in Table 6.9.

Table 6.9: 2022 Base plus Development Results Summary

Entry Arm	AM				PM			
	2022 No Dev		2022 With Dev		2022 No Dev		2022 With Dev	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A6195 Dearne Valley Parkway (E)	0.46	0.9	0.47	0.9	0.63	1.7	0.63	1.7
Hemingfield Road (S)	0.16	0.2	0.17	0.2	0.18	0.2	0.19	0.2
A6195 Dearne Valley Parkway (W)	0.40	0.7	0.41	0.7	0.42	0.7	0.42	0.7
Hemingfield Road (N)	0.20	0.3	0.20	0.3	0.30	0.4	0.30	0.4

6.37 The analysis shows that the junction is predicted to operate within capacity on all arms with a maximum RFC of 0.47 in the AM peak and 0.63 in the PM peak. The maximum predicted queue is 0.9 in the AM peak and 1.7 in the PM peak, there is no increase in queue from the No Development scenario to the Development scenario.

6.38 The junction assessment output files are included at Appendix P.

7 ROAD SAFETY

7.1 The road safety implications of the proposals have been assessed with reference to the STATS19 data collected by the Police. This data is collected from all police forces to a national standard for all accidents involving a personal injury.

7.2 Barnsley Metropolitan Borough Council have provided the most recent summary information of the personal injury road traffic accidents reported to the Police which was for the period from 1st January 2013 to 27th July 2016 for part of Lundhill Road, Beech House Road, Wath Road and Hemingfield Road Roundabout. Details of the accidents are attached at Appendix Q.

7.3 In the three-year period ending 27th July 2016 there has been a total of 17 reported accidents in the study area (and two outside the study area, on Dearne Valley Parkway) of these, three occurred at Brampton Roundabout, two occurred at the Lundhill Road / Wath Road / Park Street junction, nine occurred at the Hemingfield Road Roundabout and three occurred at sections in between. Fifteen of the accidents involved a slight injury, two of the accidents involved a serious injury and there were no fatal accidents.

7.4 A review of the accident patterns on the sections of Lundhill Road, Wath Road, Beech House Road, School Street and Hemingfield Road Roundabout has been undertaken to identify any significant cluster accidents.

7.5 Other than at the Hemingfield Road Roundabout, which had a cluster of nine accidents, there are no large clusters within the study area. The largest cluster was a group of three accidents in the vicinity of the Brampton Roundabout.

Lundhill Road / Park Street / Wath Road / Everill Gate Lane

7.6 At the Lundhill Road / Park Street / Wath Road / Everill Gate junction there were two reported accidents all of which were slight. Table 7.1 provides a summary of the accidents.

Table 7.1: Accident Summary at Lundhill Road / Park Street / Wath Road / Everill Gate Lane Junction

Ref No	Location	Lighting	Severity	Casualties
132299	Lundhill Road at Junction with Park Street	Daylight	Slight	1 Pedestrian
V1 turning right form Park Road onto Lundhill Road collides with child pedestrian crossing the junction without looking. Factors: Failed to look properly				
B-00643-13	Wath Road junction with Lundhill Road	Daylight	Slight	1 Driver & 1 Passenger
V1 turning right out of the junction collides with V2 which is overtaking a bus prior to the junction. Factors: Careless, reckless or in a hurry, Failed to look properly				

7.1 Two isolated incidents during the study period resulting in slight injuries are not considered to represent a significant road safety issue as they were un-related.

Wath Road / B6089 / A633 / Brampton Roundabout

7.2 At the Wath Road / B6089 / A633 / Brampton roundabout junction there were four reported accidents all of which were slight. Table 7.2 provides a summary of the accidents.

Table 7.2: Accident Summary at Lundhill Road / Park Street / Wath Road / Everill Gate Lane Junction

Ref No	Location	Lighting	Severity	Casualties
B-00545-14	Wath Road, Wombwell	Daylight	Slight	1 Driver
V1 pulled out of junction into the path of V2. Factors: Junction overshoot, Failed to look properly				
B-00116-14	Valley Way junction with Wath Road	Dark with streetlights	Slight	1 Driver
V2 approaching roundabout followed by V1. V2 stops at roundabout. V1 anticipating traffic to have cleared roundabout continues and runs into the rear of V2. Factors: Failed to judge other person's path or speed				
B-00324-15	Brampton roundabout junction with Wath Road	Daylight	Slight	1 Driver
V1 entered roundabout but fails to see V2 and collides with it. Factors: Failed to look properly				
B-00044-15	Wath Road junction with Brampton Road	Dark with streetlights	Slight	1 Driver & 1 Pedestrian
Pedestrian was hit by V1 whilst crossing on the pedestrian crossing. Factors: Failed to look properly, Impaired by alcohol				

7.3 As the four accidents were unrelated and occurred at different locations at the roundabout they are not considered to represent a significant road safety issue.

Beech House Road / School Street

7.4 Along Beech House Road / School Street there were two reported accidents all of which were slight. Table 7.3 provides a summary of the accidents.

Table 7.3: Accident Summary at Lundhill Road / Park Street / Wath Road / Everill Gate Lane Junction

Ref No	Location	Lighting	Severity	Casualties
B-00218-13	Beech House Road, Hemingfield	Daylight	Slight	1 Driver
Rider of V1 under the influence of drink fails to negotiate a bend at excessive speed and falls off injuring himself. Factors: Junction overshoot, Loss of control				
B-00159-15	Hemingfield Road junction with Cemetery Road	Daylight	Slight	1 Driver
V1 travelling along Hemingfield Road approaching a right hand bend when V2 approached from opposite direction on wrong side of road and collided with V1. Factors: Poor turn or manoeuvre, Swerved, Loss of control				

7.5 Two isolated incidents during the study period resulting in slight injuries are not considered to represent a significant road safety issue as they were un-related incidents.

Hemingfield Road Roundabout

7.6 At the Hemingfield Road Roundabout there were nine reported accidents all of which seven were slight and two were severe. Table 7.4 provides a summary of the accidents.

Table 7.4: Accident Summary at Hemingfield Road Roundabout

Ref No	Location	Lighting	Severity	Casualties
B-00334-13	Dearne Valley Parkway Hemingfield Road Roundabout	Daylight	Slight	1 Driver
V1 in lane 1 intending to take the third exit, V2 in lane 2 intending to take the second exit, V1 carried on round and collided with the nearside of V2 Factors: Poor turn or manoeuvre				
B-00509-14	Dearne Valley Parkway junction with Hemingfield Road	Daylight	Slight	1 Cyclist
V2 pedal cyclist turning right from Dearne Valley Parkway onto Hemingfield Road. Whilst negotiating the roundabout they are struck by V1 entering roundabout from Dearne Valley Parkway travelling in the opposite direction. Factors: Failed to look properly				
B-00723-13	Dearne Valley Parkway junction with Hemingfield Road	Daylight	Serious	1 Driver
V1 westbound on A6195 enters roundabout at speed and fails to negotiate roundabout. Vehicle clips kerb and rider is thrown from machine. Factors: Poor turn or manoeuvre, Learner or inexperienced driver/rider, Loss of control				
B-01318-14	Dearne Valley Parkway junction with Hemingfield Road Roundabout	Daylight	Slight	1 Driver & 1 Passenger
V2 collides with V1 whilst stationary at roundabout. Factors: Failed to look properly				
B-00783-14	Hemingfield Road Roundabout	Daylight	Serious	1 Driver, 1 Passenger & 1 Rider
V1 and V2 travelling along dual carriageway from Cortonwood. V1 is in lane 1, V2 is in lane 2. On getting to Hemingfield V1 is still in lane 1 which is norked for Hemingfield and A6195. V2 in lane 2 for the A6195 and Wombwell Railway Station. V1 continues on roundabout towards 3rd exit. Factors: Poor turn or manoeuvre, Failed to look properly				
B-01070-15	Hemingfield Road Roundabout	Daylight	Slight	1 Cyclist
V1 and V2 collide on roundabout Factors: Defective brakes, Passing too close to cyclist, horse rider or pedestrian				
133206	Hemingfield Road Roundabout	Daylight	Slight	1 Driver
V1 travels along Dearne Valley Parkway towards Doncaster whilst travelling around Hemingfield Roundabout in lane 1 vehicle overturns onto nearside armco barrier and railings, driver claims wind played a factor. Factors: Travelling too fast for conditions, Junction overshoot, Other				
B-01021-15	Hemingfield Road Roundabout	Dark with streetlights	Slight	2 Drivers
V1 travelling on Dearne Valley Parkway enters roundabout and collides with nearside of V2. Factors: Failed to look properly, Failed to judge other person's path or speed				
B-00954-15	Hemingfield Road Roundabout	Daylight	Slight	1 Passenger
V1 on roundabout turning right, V2 enters roundabout in front of V1 causing collision. Factors: Failed to look properly, Failed to judge other person's path or speed, Inexperienced driver/rider, Visor or windscreen dirty or scratched.				

Dearne Valley Parkway

7.7 Dearne Valley Parkway is outside of the study area defined however two accidents were included in the information received from Barnsley Metropolitan Borough Council. Both accidents resulted in slight injuries. Table 7.5 provides a summary of the accidents.

Table 7.5: Accident Summary at Dearne Valley Parkway

Ref No	Location	Lighting	Severity	Casualties
B-00610-15	Dearne Valley Parkway	Daylight	Slight	1 Driver
V2 emerged from a side road and collided with V1. Factors: Disobeyed 'Give Way' or 'Stop' sign, Junction overshoot, Failed to look properly, Careless, reckless or in a hurry, Aggressive driving				
B-01151-14	Dearne Valley Parkway	Dark with streetlights	Slight	1 Driver
V1 moves into lane 2. V2 approaches rear of V1, V1 tries to move into lane 1 causing V2 to brake heavily, loses control and collides with central reservation and V1. Factors: Failed to judge other person's path or speed				

7.8 Two isolated incidents during the study period resulting in slight injuries are not considered to represent a significant road safety issue as they were un-related incidents.

8 SUMMARY AND CONCLUSIONS

8.1 This Transport Assessment considers the highway and traffic issues raised by proposals to develop up to 150 new homes on a site off Lundhill Road, Wombwell.

8.2 The highway network in the vicinity of the site has been described.

8.3 The proposed development will be accessed from a new simple priority junction on Lundhill Road. At the junction, the available visibility from a 2.4m set-back is in excess of that required by the local highway authority.

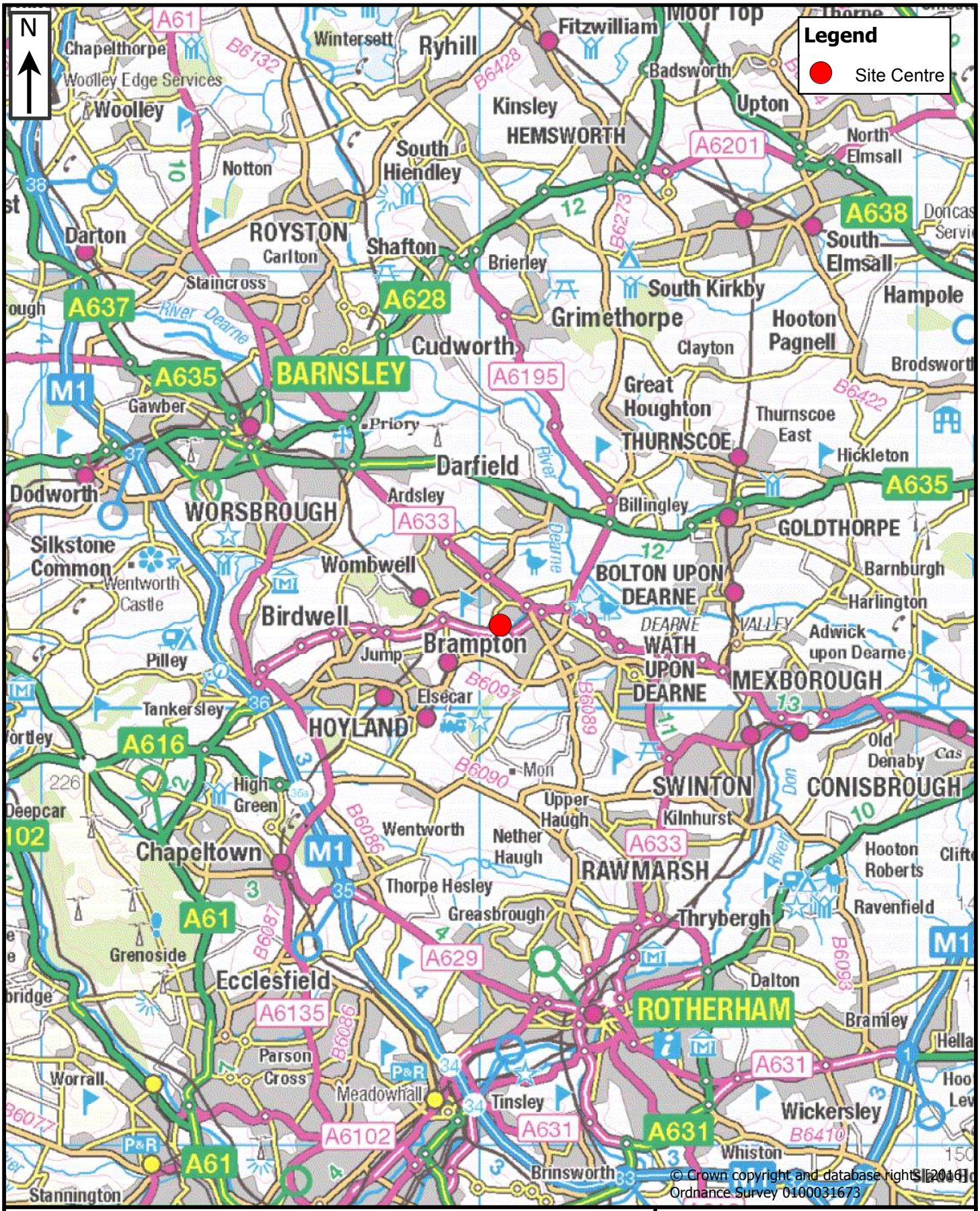
8.4 The site is accessible to a range of useful local destinations by walking, cycling and public transport. There are good bus services on Park Street which provide frequent services to Mexborough, Rotherham, Doncaster and Wath upon Dearne.

8.5 The capacity assessment has been based on 160 dwellings as detailed the Barnsley Metropolitan Borough Council emerging Local Plan.

8.6 The traffic flows associated with a development of up to 160 residential units is 82 trips in both the AM and PM peak periods which will have a negligible impact and no mitigation measures will be required.

8.7 In conclusion, it has been shown that the development can be accessed in a safe manner and the impact of the scheme on nearby junctions is considered as negligible. It is therefore concluded that there is no material highways or traffic reason why planning permission should not be granted.

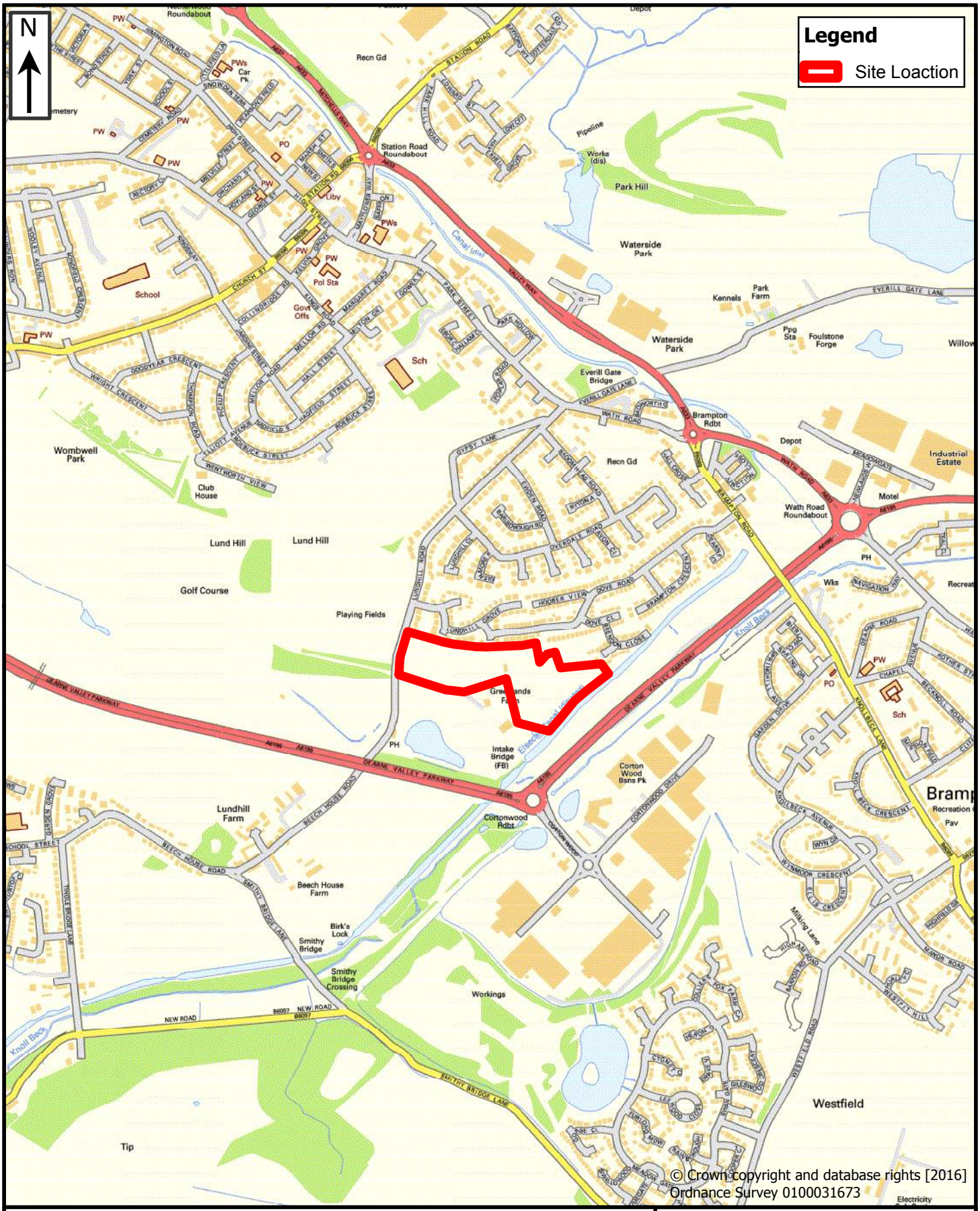
APPENDIX A



A098689 - Lundhill Road, Wombwell

Strategic Highway Network

APPENDIX B



A098689 - Lundhill Road, Wombwell

Local Highway Network

APPENDIX C

Transport Research Note

Accessibility – How Far Do People Walk and Cycle

Gareth Wakenshaw BSc(Hons)
Dr N Bunn BSc(Hons), MSc, PhD, MCIT,CMILT

Date: 7 July 2013

Introduction

Accessibility can be defined as the number of useful destinations which can be reached within a reasonable travel distance. Locations with high levels of accessibility mean that people have the choice of walking, cycling or using public transport to get to the places they want to travel to, rather than having to use a car. The more people who can walk, cycle or use the bus, rather than driving, the fewer cars there will be our roads leading to less congestion and pollution.

As a result, accessibility is an important consideration in allocating sites for development in local plans and in determining planning applications. So, how we determine what is and what is not accessible can have long lasting effects on the shape of our towns and cities.

Before the adoption of the National Planning Policy Framework[1] (NPPF), the Government set out its advice on walking and cycling distances in Planning Policy Guidance Note 13 "Transport" [2], which advised that walking trips under 2km and cycling trips under 5km have the greatest potential to replace short car trips. These distances have been used for many years to define the areas within which facilities are considered accessible on foot or by bike. NPPF replaced PPG13 and deleted the advice on walking and cycling distances, leaving local authorities and practitioners to devise their own estimates.

We have analysed walk and cycle distance data collected through the 2010 National Travel Survey (NTS) to calculate the average and 85th percentile walk and cycle distances. The survey data is collected from 7,700 households, covering over 18,000 individuals and so provides a large sample which can be analysed for variations between UK regions and variations between different reasons for travelling. The 85th percentile distance gives a good measure of the "reasonable maximum" walk or cycle distance and is reported in this paper.

We have also used the NTS data to assess how far on average public transport users walk to the bus stops or rail station.

Methodology

For journeys where walking and cycling were the single mode of travel, the journey distance (recorded to the nearest 0.1 mile), was extracted from the 2010 NTS data and cross referenced to UK region and journey purpose. In addition, NTS data provides information on the length of different stages within trips, thus enabling the walking distance from home to bus stops and rail stations to be assessed for journeys where public transport was the main mode of travel.

The reported journey distances were ranked in length order and the 85th percentile travel distance was determined as the distance not exceeded by more than 15% of the distribution.

Walk and Cycle Distances in the UK

Table 1 below shows the 85th percentile walking and cycling distances for different regions of the UK.

[1] National Planning Policy Framework; Department for Communities and Local Government, 2012
[2] Planning Policy Guidance Note 13 Transport; Department for Environment Transport and the Regions, 2000. Revised 2011 by the Department for Communities and Local Government.

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Table 1 – 85th Percentile Walk & Cycle Distances by Region

	All Journey Purposes			
	Walk		Cycle	
	Sample Size	Distance (miles)	Sample Size	Distance (miles)
UK	11492	1.2	4892	4.5
UK excluding London	9927	1.2	4185	4.0
North East	482	1.5	133	4.0
NW & Merseyside	1382	1.2	552	4.0
Yorkshire & Humberside	1022	1.2	365	6.0
East Midlands	813	1.2	356	4.0
West Midlands	1056	1.2	335	4.8
Eastern	1016	1.5	549	4.5
Greater London	1565	1.0	707	5.0
South East	1619	1.2	774	3.0
South West	1013	1.5	623	4.5
Wales	551	1.0	185	6.0
Scotland	973	1.2	313	5.0
Rural	1230	1.2	471	7.0

For the UK as a whole, the 85th percentile walk distance is 1.2 miles (1.93km) which is quite similar to the 2km previously stated in PPG13. The walking distance shows small regional variations of ±0.3 miles (0.48km) with shortest distances of 1.0 mile (1.6km) in London and Wales, and the longest distances of 1.5 miles (2.4km) in the North East, Eastern and South Western regions.

For the UK as a whole, the 85th percentile cycle distance is 4.5 miles (7.24km) which is significantly longer than the 5km previously stated in PPG13. It should be noted that the cycling sample size is small, and for the North East and Wales is below 300, which the DfT advise is the smallest sample size for reliable results. The variation in cycle distances between regions is ±1.5 miles (2.41km), with the shortest cycle distance of 3.0 miles (4.82km) in the South East and the longest cycle distance of 6.0 miles (9.65km) in Wales, although the Welsh sample is less than 300 and may be unreliable. Excluding London reduces the 85th percentile cycling distance to 4.0 miles (6.43km) for the rest of the UK.

In rural areas (population less than 3,000) it is notable that the walking distance is the same as that for the UK as a whole, but that the cycle distance is much longer at 7.0 miles (11.2km).

Walking and Cycle Distance by Journey Purpose

Table 2 below shows the 85th percentile walking and cycling distances associated with journey purpose.

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Table 2 – 85th Percentile Walk & Cycle Distances by Journey Purpose

	Walk		Cycle	
	Sample	Distance (miles)	Sample	Distance (miles)
Commuting	694	1.5	1458	6.0
Business	81	1.7	131	5.5
Education/ Escort Education	2193	1.0	455	3.0
Shopping	2291	1.0	571	2.0
Other Escort	501	1.5	78	3.0
Personal Business	1128	1.0	317	3.0
Leisure	2108	1.2	1882	5.0
Other incl. just Walk	2496	1.5	n/a	n/a

Table 2 shows that walking mainly used for education, shopping and leisure. The walking distance for education is 1.0 mile (1.6km), and for commuting is 1.5 miles (2.4km). In the Guidelines for Providing for Journeys on Foot[3], the preferred maximum walking distance for school and commuting is 2.0km, which lies between the observed 85th percentile distances for these journey purposes. It is notable that the 85th percentile walk distance for shopping is 1.0 mile (1.6km).

Cycling is mainly used for commuting and leisure journey purposes. In the Local Transport Note 2/08 Cycle Infrastructure Design[4] it is stated that the trip length for commuting by bike exceeds 3.1 miles (5km). In Table 2 it can be seen that the 85th percentile cycle distance for commuting is significantly longer at 6 miles (9.6km). The 85th percentile cycle distance for shopping trips is 2.0 miles (3.2km) and is 3.0 miles (4.8km) for education trips.

Walking Distances to Public Transport

For journeys where the main mode of travel was bus or rail, the distance of the first walk stage from home to the bus stop or to the rail station was extracted from the NTS data for the UK as a whole and is reported in Table 3, below.

Table 3 – Average and 85th Percentile Walk Distances To Public Transport

	Bus Stop		
	Sample	Average Walk Distance (miles)	85th Percentile Walk Distance (miles)
UK	755	0.35	0.5
London	315	0.28	0.4
UK excluding London	440	0.41	0.6
	Rail Station		
All Rail Stations	543	0.54	1.0
London Underground	180	0.4	0.6
Surface Rail	331	0.64	1.0

[3] Guidelines for Providing for Journeys on Foot; Institution of Highways and Transportation, 2000
[4] Local Transport Note 2/08 Cycle Infrastructure Design; Department for Transport, 2008

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Table 3 shows that the 85th percentile walk distance to a bus stop for the UK is 0.5 miles (0.8km) and to any rail station is 1.0 mile (1.6km). In the Guidelines for Planning for Public Transport in Developments[5] it is advised that new developments should be located so that public transport trips involve a walking distance of less than 400m from the nearest bus stop or 800m from the nearest railway station. In Table 3 it can be seen that the average walk distance to a bus stop is 0.35 miles (0.57km) or any rail station is 0.54 miles (0.86km) which are both greater than the recommended values. This means that over 50% of people will walk further than the distances recommended in the IHT Guidelines.

Table 3 also shows that the walk distance to bus stops in London is significantly shorter than that for the rest of the UK, which may arise from the denser public transport network. The average walk distance in the UK excluding London is 0.41 miles (0.64km), and the 85th percentile walk distance is 0.6 miles (0.97km). The situation is similar for rail stations in London, whereby the average walk distance to a London Underground station is 0.4 miles (0.64km), and the 85th percentile walk distance is 0.6 mile s(0.97km). In contrast the average walk distance to a surface railway station outside of London is 0.64 miles (1.03km), and the 85th percentile walk distance is 1.0 mile (1.6km).

Conclusions

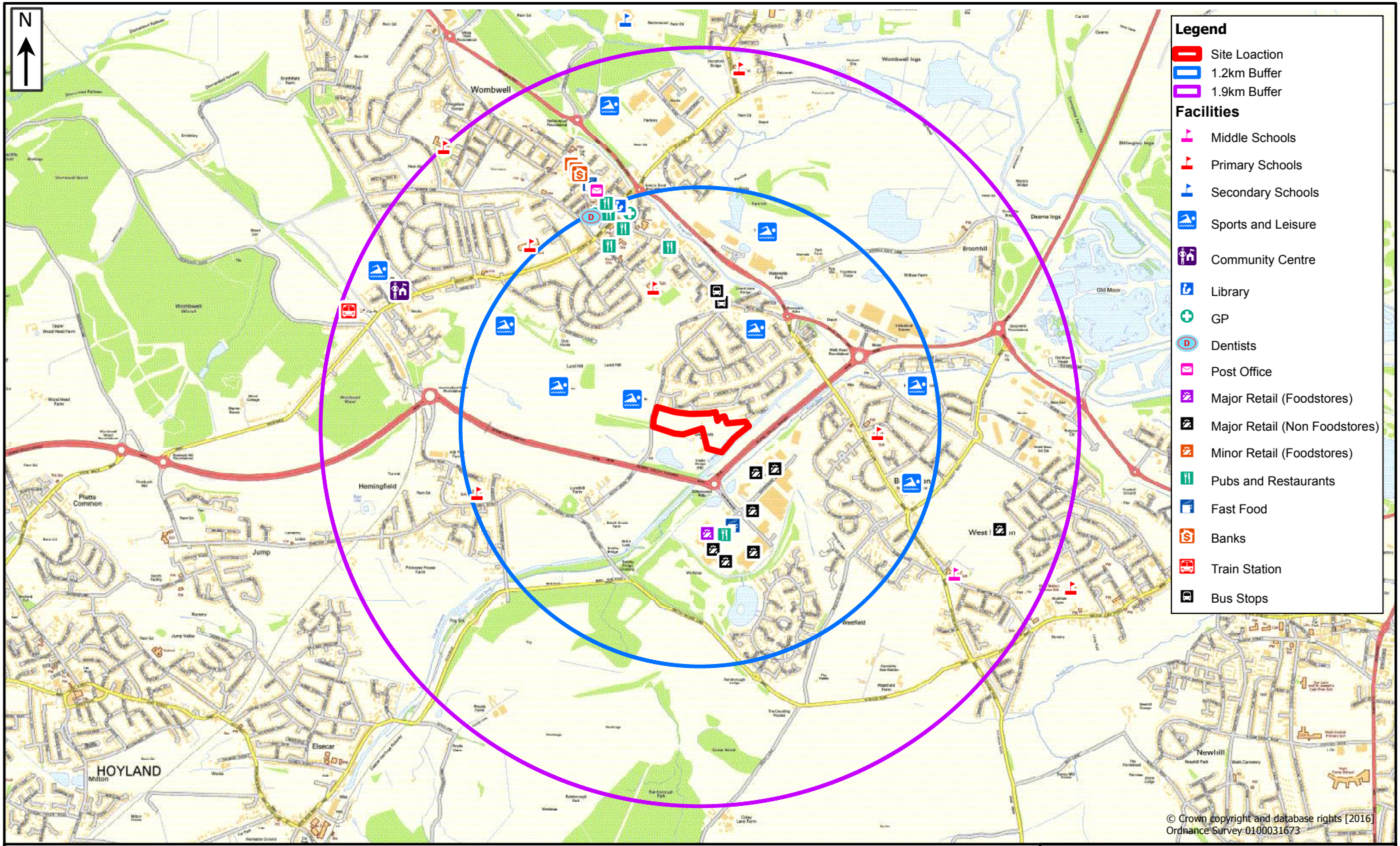
From analysis of the NTS data, the 85th percentile walk distance for all journey purposes across the UK is similar to the 2km walk distance advised in PPG 13. However the 85th percentile cycle distance for all journey purposes across the UK is significantly longer than the 5km cycle distance advised in PPG13. It would therefore seem that using the PPG13 cycle distance underestimates the destinations available to cyclists. It is considered that for accessibility planning purposes a 2km walk distance and a 7km cycle distance would be appropriate.

There are some regional variations in walk and cycle distances and differences related to journey purpose. It might be appropriate to take these into account when assessing accessibility in particular areas or for particular journey purposes.

The NTS data shows that more than 50% of people walk further to a bus stop or any rail station than the distances advised by the IHT Guidelines. Outside London, 50% of people will walk 0.64km to a bus stop and the 85th percentile distance is 0.97km. To surface rail stations outside of London, 50% of people will walk 1.03km and the 85th percentile is 1.6km. It is considered that the average walk distance should be used as the desirable walk distance to public transport, and the 85th percentile walk distance as the limit of accessibility.

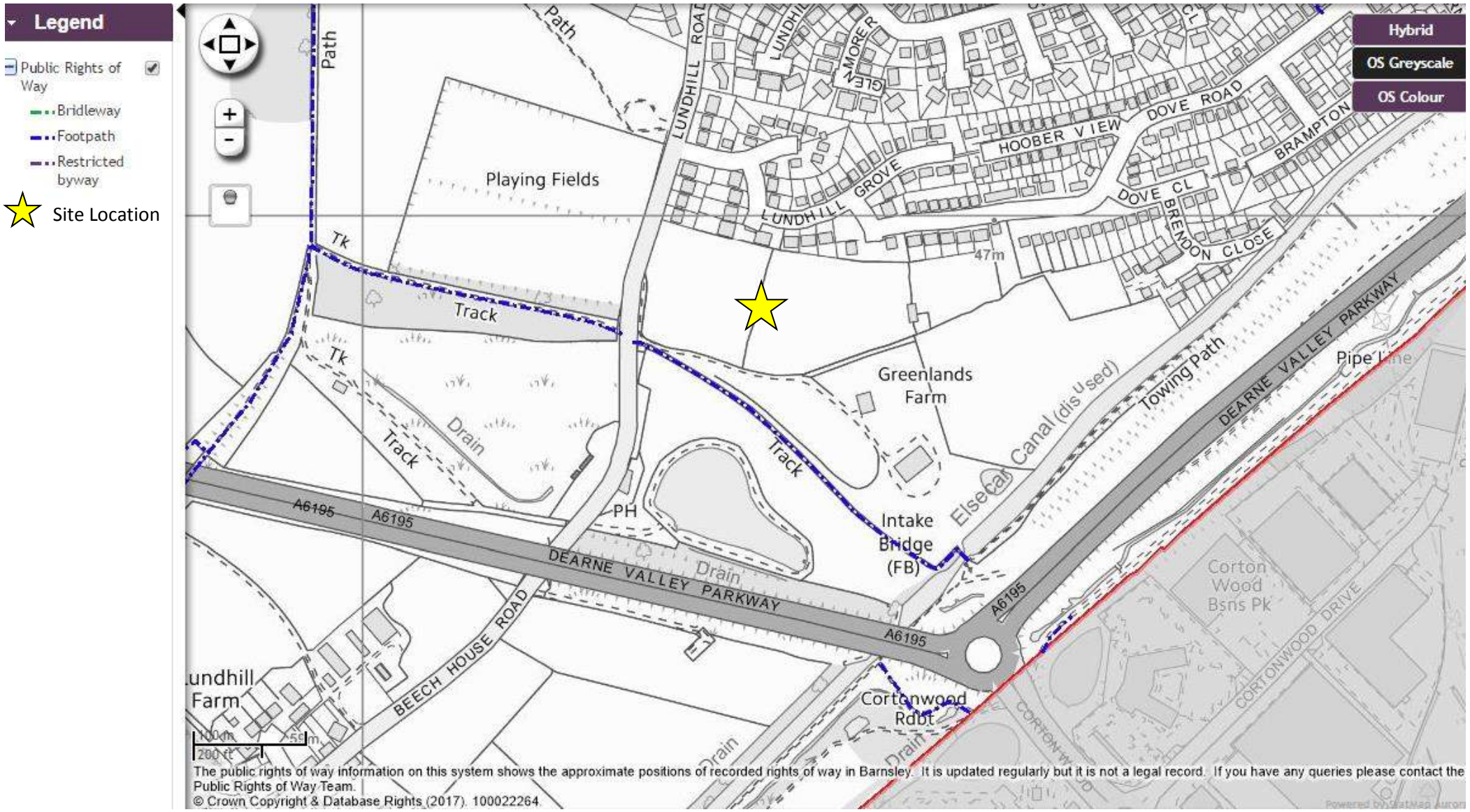
[5] Guidelines for Planning for Public Transport in Developments, Institution of Highways and Transportation, 1999,

APPENDIX D



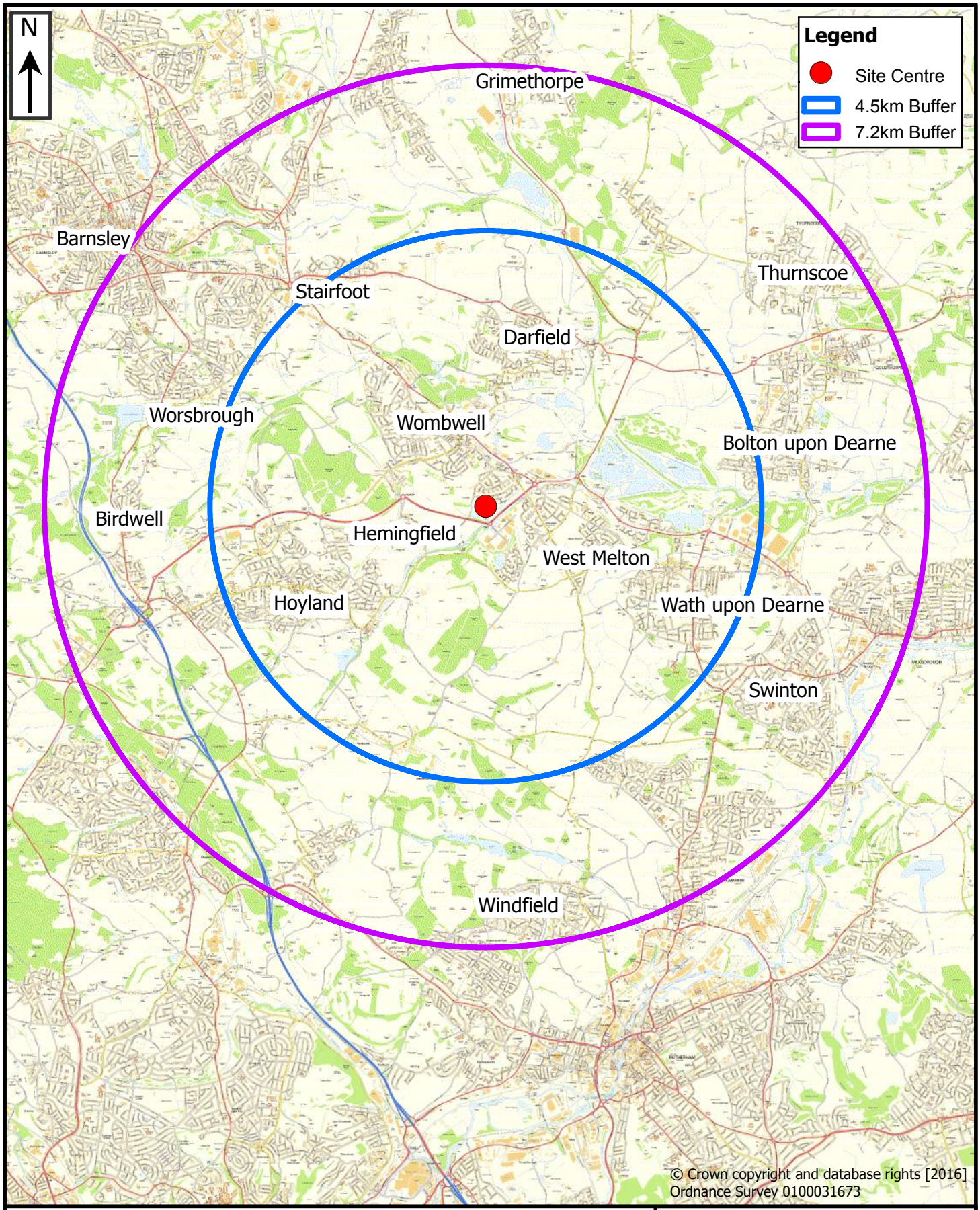
A098689 - Lundhill Road, Wombwell

Walking Catchment



Extract from Barnsley Metropolitan Borough Council Public Rights of Way Map

APPENDIX E



A098689 - Lundhill Road, Wombwell

Cycling Catchment

APPENDIX F

TRANSPORT Data Collection

DATE: TUESDAY 28th JUNE 2016

TURNING COUNT LOCATION: WATH ROAD / LUNDHILL ROAD

APPROACHING FROM: WATH ROAD (EAST)

TIME / CLASS	LEFT TO LUNDHILL ROAD								STRAIGHT TO WATH ROAD (WEST)								U-TURN TO WATH ROAD (EAST)								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:00 - 07:15	0	0	4	0	0	0	0	4	1	0	21	2	2	0	4	30	0	0	0	0	0	0	0	0	34
07:15 - 07:30	0	0	3	1	1	0	0	5	0	0	20	1	1	0	1	23	0	0	0	0	0	0	0	0	28
07:30 - 07:45	0	0	7	0	0	0	0	7	0	0	29	8	3	0	4	44	0	0	0	0	0	0	0	0	51
07:45 - 08:00	0	1	5	0	0	0	0	6	0	0	37	7	2	0	3	49	0	0	0	0	0	0	0	0	55
HOURLY TOTAL	0	1	19	1	1	0	0	22	1	0	107	18	8	0	12	146	0	0	0	0	0	0	0	0	168
08:00 - 08:15	0	0	9	2	0	0	0	11	0	0	51	7	4	1	3	66	0	0	0	0	0	0	0	0	77
08:15 - 08:30	0	0	8	2	0	0	0	10	0	0	77	7	3	0	2	89	0	0	0	0	0	0	0	0	99
08:30 - 08:45	0	0	6	1	0	0	0	7	0	0	50	6	1	1	3	61	0	0	0	0	0	0	0	0	68
08:45 - 09:00	0	0	9	3	1	1	0	14	0	1	51	5	3	0	1	61	0	0	0	0	0	0	0	0	75
HOURLY TOTAL	0	0	32	8	1	1	0	42	0	1	229	25	11	2	9	277	0	0	0	0	0	0	0	0	319
09:00 - 09:15	0	0	8	1	0	0	0	9	0	1	57	7	5	0	6	76	0	0	0	0	0	0	0	0	85
09:15 - 09:30	0	0	5	2	0	0	0	7	0	0	45	7	1	0	1	54	0	0	0	0	0	0	0	0	61
1/2 HOUR TOTAL	0	0	13	3	0	0	0	16	0	1	102	14	6	0	7	130	0	0	0	0	0	0	0	0	146
PERIOD TOTAL	0	1	64	12	2	1	0	80	1	2	438	57	25	2	28	553	0	0	0	0	0	0	0	0	633
16:30 - 16:45	0	0	20	2	0	0	0	22	0	0	63	10	0	0	2	75	0	0	0	0	0	0	0	0	97
16:45 - 17:00	0	0	18	4	0	0	0	22	1	1	62	8	0	0	3	75	0	0	0	0	0	0	0	0	97
17:00 - 17:15	0	0	24	3	0	0	0	27	0	2	56	7	0	0	4	69	0	0	0	0	0	0	0	0	96
17:15 - 17:30	1	0	17	1	0	0	0	19	1	1	83	6	0	0	2	93	0	0	0	0	0	0	0	0	112
HOURLY TOTAL	1	0	79	10	0	0	0	90	2	4	264	31	0	0	11	312	0	0	0	0	0	0	0	0	402
17:30 - 17:45	0	0	20	0	0	0	0	20	1	3	67	5	0	0	2	78	0	0	0	0	0	0	0	0	98
17:45 - 18:00	0	0	18	4	0	0	0	22	1	0	68	3	1	0	4	77	0	0	0	0	0	0	0	0	99
18:00 - 18:15	1	1	18	2	0	0	0	22	1	0	62	7	2	0	1	73	0	0	0	0	0	0	0	0	95
18:15 - 18:30	0	0	10	1	0	0	0	11	0	2	40	7	1	0	2	52	0	0	0	0	0	0	0	0	63
HOURLY TOTAL	1	1	66	7	0	0	0	75	3	5	237	22	4	0	9	280	0	0	0	0	0	0	0	0	355
PERIOD TOTAL	2	1	145	17	0	0	0	165	5	9	501	53	4	0	20	592	0	0	0	0	0	0	0	0	757

TRANSPORT Data Collection

DATE: TUESDAY 28th JUNE 2016

TURNING COUNT LOCATION: WATH ROAD / LUNDHILL ROAD

APPROACHING FROM: LUNDHILL ROAD

TIME / CLASS	LEFT TO WATH ROAD (WEST)								RIGHT TO WATH ROAD (EAST)								U-TURN TO LUNDHILL ROAD								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:00 - 07:15	0	0	9	1	0	0	0	10	0	0	14	2	0	0	0	16	0	0	0	0	0	0	0	0	26
07:15 - 07:30	0	0	6	0	0	0	0	6	0	0	20	6	1	0	0	27	0	0	0	0	0	0	0	0	33
07:30 - 07:45	0	0	10	3	0	0	0	13	0	0	12	2	0	0	0	14	0	0	0	0	0	0	0	0	27
07:45 - 08:00	0	0	18	1	0	0	0	19	0	0	14	1	0	0	0	15	0	0	0	0	0	0	0	0	34
HOURLY TOTAL	0	0	43	5	0	0	0	48	0	0	60	11	1	0	0	72	0	0	0	0	0	0	0	0	120
08:00 - 08:15	0	0	17	3	0	0	0	20	1	0	23	5	0	0	0	29	0	0	0	0	0	0	0	0	49
08:15 - 08:30	0	0	11	2	1	0	0	14	0	0	13	2	0	0	0	15	0	0	0	0	0	0	0	0	29
08:30 - 08:45	0	0	8	0	0	0	0	8	0	0	16	0	0	0	0	16	0	0	0	0	0	0	0	0	24
08:45 - 09:00	0	0	8	0	2	0	0	10	0	0	18	0	0	0	0	18	0	0	0	0	0	0	0	0	28
HOURLY TOTAL	0	0	44	5	3	0	0	52	1	0	70	7	0	0	0	78	0	0	0	0	0	0	0	0	130
09:00 - 09:15	0	0	9	2	0	0	0	11	0	0	17	1	0	0	0	18	0	0	0	0	0	0	0	0	29
09:15 - 09:30	0	0	11	1	0	0	0	12	0	0	10	1	0	0	0	11	0	0	0	0	0	0	0	0	23
HOURLY TOTAL	0	0	20	3	0	0	0	23	0	0	27	2	0	0	0	29	0	0	0	0	0	0	0	0	52
PERIOD TOTAL	0	0	107	13	3	0	0	123	1	0	157	20	1	0	0	179	0	0	0	0	0	0	0	0	302
16:30 - 16:45	0	0	10	1	0	0	0	11	0	0	3	4	1	0	0	8	0	0	0	0	0	0	0	0	19
16:45 - 17:00	0	0	12	0	0	0	0	12	0	0	9	1	0	0	0	10	0	0	0	0	0	0	0	0	22
17:00 - 17:15	1	0	8	1	1	0	0	11	0	0	11	1	0	0	0	12	0	0	0	0	0	0	0	0	23
17:15 - 17:30	0	0	13	1	0	0	0	14	0	0	13	1	0	0	0	14	0	0	0	0	0	0	0	0	28
HOURLY TOTAL	1	0	43	3	1	0	0	48	0	0	36	7	1	0	0	44	0	0	0	0	0	0	0	0	92
17:30 - 17:45	0	0	13	2	1	0	0	16	0	0	15	1	1	0	0	17	0	0	0	0	0	0	0	0	33
17:45 - 18:00	0	0	14	0	1	0	0	15	0	1	25	1	0	0	0	27	0	0	0	0	0	0	0	0	42
18:00 - 18:15	0	0	12	0	0	0	0	12	0	0	15	0	1	0	0	16	0	0	0	0	0	0	0	0	28
18:15 - 18:30	0	0	9	1	0	0	0	10	0	0	22	0	1	0	0	23	0	0	0	0	0	0	0	0	33
HOURLY TOTAL	0	0	48	3	2	0	0	53	0	1	77	2	3	0	0	83	0	0	0	0	0	0	0	0	136
PERIOD TOTAL	1	0	91	6	3	0	0	101	0	1	113	9	4	0	0	127	0	0	0	0	0	0	0	0	228

Queue Lengths, Wombwell

DATE: TUESDAY 28th JUNE 2016

LOCATION: WATH ROAD / LUNDHILL ROAD

ARM:	WATH ROAD (EAST)			LUNDHILL ROAD			WATH ROAD (WEST)		
spot Q on 5th min intervals	LANE 1			LANE 1			LANE 1		
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)
07:00	0	0	0	1	0	6	0	0	0
07:05	0	0	0	0	0	0	0	0	0
07:10	0	0	0	0	0	0	0	0	0
07:15	0	0	0	1	0	6	0	0	0
07:20	0	0	0	1	0	6	0	0	0
07:25	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0
07:35	0	0	0	2	0	11	0	0	0
07:40	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0
07:50	0	0	0	0	0	0	0	0	0
07:55	0	0	0	1	0	6	0	0	0
08:00	0	0	0	0	0	0	0	0	0
08:05	0	0	0	0	0	0	0	0	0
08:10	0	0	0	0	0	0	0	0	0
08:15	0	0	0	1	0	6	0	0	0
08:20	0	0	0	1	0	6	0	0	0
08:25	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0
08:35	0	0	0	0	0	0	0	0	0
08:40	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0
08:50	0	0	0	0	0	0	0	0	0
08:55	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0
09:05	2	0	11	0	0	0	0	0	0
09:10	0	0	0	1	0	6	0	0	0
09:15	0	0	0	0	0	0	0	0	0
09:20	0	0	0	0	0	0	0	0	0
09:25	0	0	0	0	0	0	0	0	0

Queue Lengths, Wombwell

DATE: TUESDAY 28th JUNE 2016

LOCATION: WATH ROAD / LUNDHILL ROAD

ARM:	WATH ROAD (EAST)			LUNDHILL ROAD			WATH ROAD (WEST)		
spot Q on 5th min intervals	LANE 1			LANE 1			LANE 1		
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)
16:30	0	0	0	0	0	0	0	0	0
16:35	0	0	0	0	0	0	0	0	0
16:40	0	0	0	1	0	6	0	0	0
16:45	0	0	0	0	0	0	0	0	0
16:50	0	0	0	1	0	6	0	0	0
16:55	0	0	0	1	0	6	0	0	0
17:00	0	0	0	1	0	6	0	0	0
17:05	0	0	0	1	0	6	0	0	0
17:10	0	0	0	0	0	0	0	0	0
17:15	0	0	0	1	0	6	0	0	0
17:20	0	0	0	1	0	6	0	0	0
17:25	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0
17:35	0	0	0	0	0	0	0	0	0
17:40	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0
17:50	0	0	0	0	0	0	0	0	0
17:55	0	0	0	1	0	6	0	0	0
18:00	0	0	0	1	0	6	0	0	0
18:05	1	0	6	1	1	21	0	0	0
18:10	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0
18:20	0	0	0	0	0	0	0	0	0
18:25	0	0	0	1	0	6	0	0	0

TRANSPORT Data Collection

DATE: TUESDAY 28th JUNE 2016

TURNING COUNT LOCATION: WATH ROAD / LUNDHILL ROAD

APPROACHING FROM: WATH ROAD (WEST)

TIME / CLASS	STRAIGHT TO WATH ROAD (EAST)								RIGHT TO LUNDHILL ROAD								U-TURN TO WATH ROAD (WEST)								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:00 - 07:15	0	0	19	5	3	0	3	30	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	33
07:15 - 07:30	0	0	29	6	2	0	2	39	0	0	4	2	0	0	0	6	0	0	0	0	0	0	0	0	45
07:30 - 07:45	0	0	48	6	1	0	3	58	0	0	4	1	0	0	0	5	0	0	0	0	0	0	0	0	63
07:45 - 08:00	1	1	36	5	3	0	5	51	0	0	7	3	0	0	0	10	0	0	0	0	0	0	0	0	61
HOURLY TOTAL	1	1	132	22	9	0	13	178	0	0	18	6	0	0	0	24	0	0	0	0	0	0	0	0	202
08:00 - 08:15	0	0	52	9	0	0	0	61	0	0	9	3	3	0	0	15	0	0	0	0	0	0	0	0	76
08:15 - 08:30	0	0	60	5	1	0	5	71	0	0	9	2	0	0	0	11	0	0	0	0	0	0	0	0	82
08:30 - 08:45	1	1	56	5	2	1	3	69	0	0	9	2	0	0	0	11	0	0	0	0	0	0	0	0	80
08:45 - 09:00	0	0	57	6	2	0	2	67	0	0	17	3	0	0	0	20	0	0	0	0	0	0	0	0	87
HOURLY TOTAL	1	1	225	25	5	1	10	268	0	0	44	10	3	0	0	57	0	0	0	0	0	0	0	0	325
09:00 - 09:15	0	1	31	4	2	0	3	41	0	0	8	1	0	0	0	9	0	0	0	0	0	0	0	0	50
09:15 - 09:30	0	0	50	10	1	2	3	66	0	0	10	2	0	0	0	12	0	0	0	0	0	0	0	0	78
HOURLY TOTAL	0	1	81	14	3	2	6	107	0	0	18	3	0	0	0	21	0	0	0	0	0	0	0	0	128
PERIOD TOTAL	2	3	438	61	17	3	29	553	0	0	80	19	3	0	0	102	0	0	0	0	0	0	0	0	655
16:30 - 16:45	0	1	44	6	0	0	1	52	0	0	8	0	1	0	0	9	0	0	0	0	0	0	0	0	61
16:45 - 17:00	0	0	53	9	1	0	2	65	0	0	15	1	1	0	0	17	0	0	0	0	0	0	0	0	82
17:00 - 17:15	0	2	68	5	0	0	5	80	0	0	15	2	0	0	0	17	0	0	0	0	0	0	0	0	97
17:15 - 17:30	1	1	53	2	1	0	3	61	0	0	13	1	1	0	0	15	0	0	0	0	0	0	0	0	76
HOURLY TOTAL	1	4	218	22	2	0	11	258	0	0	51	4	3	0	0	58	0	0	0	0	0	0	0	0	316
17:30 - 17:45	1	0	45	2	1	0	2	51	0	0	14	1	0	0	0	15	0	0	0	0	0	0	0	0	66
17:45 - 18:00	0	0	55	9	0	0	2	66	0	0	23	4	0	0	0	27	0	0	0	0	0	0	0	0	93
18:00 - 18:15	2	0	39	2	1	0	3	47	2	0	11	3	1	0	0	17	0	0	0	0	0	0	0	0	64
18:15 - 18:30	0	1	40	1	0	0	1	43	0	0	14	0	0	0	0	14	0	0	0	0	0	0	0	0	57
HOURLY TOTAL	3	1	179	14	2	0	8	207	2	0	62	8	1	0	0	73	0	0	0	0	0	0	0	0	280
PERIOD TOTAL	4	5	397	36	4	0	19	465	2	0	113	12	4	0	0	131	0	0	0	0	0	0	0	0	596

DATE: TUESDAY 28th JUNE 2016

TURNING COUNT LOCATION: A633 / B6089 / WATH ROAD

APPROACHING FROM: A633 (NORTH)

TIME / CLASS	LEFT TO A633 (EAST)								STRAIGHT TO B6089								RIGHT TO WATH ROAD								U-TURN TO A633 (NORTH)								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:00 - 07:15	0	0	52	14	4	2	1	73	0	1	19	4	1	0	0	25	1	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	101
07:15 - 07:30	0	0	71	10	3	1	1	86	0	1	41	4	1	1	0	48	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	135
07:30 - 07:45	0	0	101	11	1	2	0	115	0	3	61	13	3	0	0	80	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	196
07:45 - 08:00	0	0	66	10	4	2	1	83	0	1	48	10	5	0	0	64	0	1	3	0	0	0	2	6	0	0	0	0	0	0	0	0	153
HOURLY TOTAL	0	0	290	45	12	7	3	357	0	6	169	31	10	1	0	217	1	1	7	0	0	0	2	11	0	0	0	0	0	0	0	0	585
08:00 - 08:15	0	0	93	15	2	3	0	113	0	0	54	11	1	1	0	67	0	0	5	1	0	0	0	6	0	0	0	0	0	0	0	0	186
08:15 - 08:30	0	0	99	13	2	1	0	115	0	0	47	9	4	0	0	60	0	0	13	1	0	0	0	14	0	0	0	0	0	0	0	0	189
08:30 - 08:45	0	1	74	7	4	1	0	87	0	0	38	3	1	0	0	42	0	0	4	2	0	0	0	6	0	0	0	0	0	0	0	0	135
08:45 - 09:00	0	0	77	13	4	3	0	97	0	0	30	7	5	2	0	44	0	0	3	0	2	1	0	6	0	0	0	0	0	0	0	0	147
HOURLY TOTAL	0	1	343	48	12	8	0	412	0	0	169	30	11	3	0	213	0	0	25	4	2	1	0	32	0	0	0	0	0	0	0	0	657
09:00 - 09:15	0	0	78	9	5	1	0	93	0	0	31	5	0	0	0	36	0	0	5	1	0	0	1	7	0	0	0	0	0	0	0	0	136
09:15 - 09:30	0	0	67	10	4	1	0	82	0	1	27	3	0	0	0	31	0	0	3	1	1	0	0	5	0	0	0	0	0	0	0	0	118
J/2 HOUR TOTAL	0	0	145	19	9	2	0	175	0	1	58	8	0	0	0	67	0	0	8	2	1	0	1	12	0	0	0	0	0	0	0	0	254
PERIOD TOTAL	0	1	778	112	33	17	3	944	0	7	396	69	21	4	0	497	1	1	40	6	3	1	3	55	0	0	0	0	0	0	0	0	1496
16:30 - 16:45	0	0	103	10	3	2	0	118	0	0	57	13	1	0	0	71	0	1	7	0	0	0	0	8	0	0	0	0	0	0	0	0	197
16:45 - 17:00	0	0	82	15	1	0	0	98	0	0	40	5	2	1	0	48	0	0	8	1	0	0	0	9	0	0	1	0	0	0	0	1	156
17:00 - 17:15	0	1	103	14	1	1	0	120	1	0	64	6	2	0	0	73	0	0	9	0	0	0	1	10	0	0	1	0	0	0	0	1	204
17:15 - 17:30	0	1	98	13	1	0	0	113	0	0	48	10	0	0	0	58	0	0	11	0	0	0	0	11	0	0	0	0	0	0	0	0	182
HOURLY TOTAL	0	2	386	52	6	3	0	449	1	0	209	34	5	1	0	250	0	1	35	1	0	0	1	38	0	0	2	0	0	0	0	2	739
17:30 - 17:45	2	0	106	10	3	3	0	124	1	3	64	6	0	0	0	74	0	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	203
17:45 - 18:00	0	0	70	13	0	1	0	84	0	1	63	5	1	0	1	71	0	0	6	2	0	0	0	8	0	0	0	0	0	0	0	0	163
18:00 - 18:15	0	0	82	4	2	2	0	90	0	5	49	5	0	0	1	60	1	0	6	0	0	0	0	7	0	0	1	0	0	0	0	1	158
18:15 - 18:30	0	0	78	6	1	0	0	85	0	1	43	4	0	0	0	48	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	137
HOURLY TOTAL	2	0	336	33	6	6	0	383	1	10	219	20	1	0	2	253	1	0	21	2	0	0	0	24	0	0	1	0	0	0	0	1	661
PERIOD TOTAL	2	2	722	85	12	9	0	832	2	10	428	54	6	1	2	503	1	1	56	3	0	0	1	62	0	0	3	0	0	0	0	3	1400

DATE: TUESDAY 28th JUNE 2016

TURNING COUNT LOCATION: A633 / B6089 / WATH ROAD

APPROACHING FROM: A633 (EAST)

TIME / CLASS	LEFT TO B6089								STRAIGHT TO WATH ROAD								RIGHT TO A633 (NORTH)								U-TURN TO A633 (EAST)								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:00 - 07:15	1	0	4	1	0	0	0	6	0	0	10	1	1	0	1	13	0	1	35	15	2	4	0	57	0	0	0	0	0	0	0	0	76
07:15 - 07:30	0	0	3	1	0	0	0	4	0	0	13	1	1	0	0	15	0	0	49	10	1	2	0	62	0	0	0	0	0	0	0	0	81
07:30 - 07:45	0	0	4	1	0	0	0	5	0	0	18	0	2	0	2	22	0	0	65	10	2	1	0	78	0	0	0	0	0	0	0	0	105
07:45 - 08:00	0	0	6	0	0	0	0	6	0	0	23	4	1	0	0	28	0	1	92	13	4	3	0	113	0	0	0	0	0	0	0	0	147
HOURLY TOTAL	1	0	17	3	0	0	0	21	0	0	64	6	5	0	3	78	0	2	241	48	9	10	0	310	0	0	0	0	0	0	0	0	409
08:00 - 08:15	0	0	7	2	0	1	0	10	0	0	41	8	3	1	1	54	0	0	66	8	3	2	0	79	0	0	0	0	0	0	0	0	143
08:15 - 08:30	0	0	3	0	0	0	0	3	0	0	47	5	3	0	0	55	0	0	68	7	6	1	0	82	0	0	0	0	0	0	0	0	140
08:30 - 08:45	0	0	5	3	1	0	0	9	0	0	38	5	1	1	1	46	0	0	52	8	5	1	0	66	0	0	0	0	0	0	0	0	121
08:45 - 09:00	0	0	12	0	0	0	0	12	0	1	40	3	1	0	0	45	0	1	66	13	4	1	0	85	0	0	0	0	0	0	0	0	142
HOURLY TOTAL	0	0	27	5	1	1	0	34	0	1	166	21	8	2	2	200	0	1	252	36	18	5	0	312	0	0	0	0	0	0	0	0	546
9:00 - 9:15	0	0	10	1	0	0	0	11	0	1	33	5	3	0	2	44	0	0	63	9	2	2	0	76	0	0	0	0	0	0	0	0	131
9:15 - 9:30	0	0	7	2	0	0	0	9	0	0	30	5	2	0	0	37	0	0	53	10	2	1	0	66	0	0	2	1	0	0	0	3	115
/2 HOUR TOTAL	0	0	17	3	0	0	0	20	0	1	63	10	5	0	2	81	0	0	116	19	4	3	0	142	0	0	2	1	0	0	0	3	246
PERIOD TOTAL	1	0	61	11	1	1	0	75	0	2	293	37	18	2	7	359	0	3	609	103	31	18	0	764	0	0	2	1	0	0	0	3	1201
16:30 - 16:45	0	0	23	3	0	0	0	26	0	0	55	10	0	0	1	66	0	0	75	13	3	2	0	93	0	0	0	0	0	0	0	0	185
16:45 - 17:00	0	0	13	4	1	0	0	18	0	0	66	8	0	0	1	75	0	0	83	10	2	2	0	97	0	0	0	0	0	0	0	0	190
17:00 - 17:15	0	0	30	3	0	0	0	33	0	2	53	7	0	0	0	62	0	1	113	8	1	1	0	124	0	0	0	0	0	0	0	0	219
17:15 - 17:30	0	1	25	0	1	0	0	27	1	0	70	6	1	0	1	79	0	2	98	7	0	2	0	109	0	0	1	1	0	0	0	2	217
HOURLY TOTAL	0	1	91	10	2	0	0	104	1	2	244	31	1	0	3	282	0	3	369	38	6	7	0	423	0	0	1	1	0	0	0	2	811
17:30 - 17:45	0	0	23	4	0	0	0	27	1	2	60	4	0	0	1	68	0	1	97	6	2	1	0	107	0	0	0	0	0	0	0	0	202
17:45 - 18:00	0	3	17	4	0	0	0	24	1	0	59	3	1	0	1	65	0	0	84	2	1	0	0	87	0	0	0	0	0	0	0	0	176
18:00 - 18:15	0	0	25	3	0	0	0	28	0	1	49	5	2	0	0	57	0	1	95	7	2	1	1	107	0	0	0	0	0	0	0	0	192
18:15 - 18:30	0	0	29	1	1	0	0	31	0	2	36	6	0	0	1	45	0	1	88	4	2	0	0	95	0	0	0	0	0	0	0	0	171
HOURLY TOTAL	0	3	94	12	1	0	0	110	2	5	204	18	3	0	3	235	0	3	364	19	7	2	1	396	0	0	0	0	0	0	0	0	741
PERIOD TOTAL	0	4	185	22	3	0	0	214	3	7	448	49	4	0	6	517	0	6	733	57	13	9	1	819	0	0	1	1	0	0	0	2	1552

DATE: TUESDAY 28th JUNE 2016

TURNING COUNT LOCATION: A633 / B6089 / WATH ROAD

APPROACHING FROM: B6089

TIME / CLASS	LEFT TO WATH ROAD								STRAIGHT TO A633 (NORTH)								RIGHT TO A633 (EAST)								U-TURN TO B6089								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:00 - 07:15	0	0	12	2	0	0	2	16	0	1	24	3	1	1	1	31	0	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	52
07:15 - 07:30	0	0	10	1	1	0	1	13	0	1	33	8	0	0	0	42	0	0	8	2	1	0	0	11	0	0	0	0	0	0	0	0	66
07:30 - 07:45	0	0	15	5	0	0	3	23	0	0	56	9	0	0	0	65	0	0	11	0	0	0	0	11	0	0	1	0	0	0	0	1	100
07:45 - 08:00	0	0	12	3	1	0	1	17	0	2	44	10	4	0	0	60	0	0	10	1	1	0	0	12	0	0	0	0	0	0	0	0	89
HOURLY TOTAL	0	0	49	11	2	0	7	69	0	4	157	30	5	1	1	198	0	0	34	3	2	0	0	39	0	0	1	0	0	0	0	1	307
08:00 - 08:15	0	0	14	2	1	0	2	19	0	0	57	10	0	1	0	68	0	0	8	0	1	0	0	9	0	0	0	0	0	0	0	0	96
08:15 - 08:30	0	0	24	1	0	0	3	28	0	2	34	6	2	0	0	44	0	0	9	2	2	0	0	13	0	0	0	0	0	0	0	0	85
08:30 - 08:45	0	0	14	2	0	0	1	17	0	0	37	3	4	0	0	44	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	68
08:45 - 09:00	0	0	15	3	1	0	1	20	0	0	32	12	2	1	0	47	0	0	12	1	1	0	0	14	0	0	0	0	0	0	0	0	81
HOURLY TOTAL	0	0	67	8	2	0	7	84	0	2	160	31	8	2	0	203	0	0	36	3	4	0	0	43	0	0	0	0	0	0	0	0	330
9:00 - 9:15	0	0	26	4	2	0	3	35	0	0	25	8	1	2	0	36	0	0	13	2	1	0	0	16	0	0	1	0	0	0	0	1	88
9:15 - 9:30	0	0	16	3	0	0	1	20	0	0	21	0	0	0	0	21	0	0	14	2	0	0	0	16	0	0	0	0	0	0	0	0	57
1/2 HOUR TOTAL	0	0	42	7	2	0	4	55	0	0	46	8	1	2	0	57	0	0	27	4	1	0	0	32	0	0	1	0	0	0	0	1	145
PERIOD TOTAL	0	0	158	26	6	0	18	208	0	6	363	69	14	5	1	458	0	0	97	10	7	0	0	114	0	0	2	0	0	0	0	2	782
16:30 - 16:45	0	0	15	1	0	0	2	18	1	1	36	7	1	0	1	47	0	0	5	2	0	0	0	7	0	0	0	0	0	0	0	0	72
16:45 - 17:00	1	1	10	2	0	0	1	15	0	0	38	5	3	0	1	47	0	0	9	2	0	0	0	11	0	0	0	0	0	0	0	0	73
17:00 - 17:15	0	0	19	4	0	0	3	26	0	1	38	4	0	0	0	43	0	1	11	1	1	0	0	14	0	0	0	0	0	0	0	0	83
17:15 - 17:30	1	0	29	1	0	0	1	32	0	1	39	4	0	0	0	44	0	1	7	0	0	1	0	9	0	0	0	0	0	0	0	0	85
HOURLY TOTAL	2	1	73	8	0	0	7	91	1	3	151	20	4	0	2	181	0	2	32	5	1	1	0	41	0	0	0	0	0	0	0	0	313
17:30 - 17:45	0	1	33	1	0	0	1	36	0	1	45	10	1	0	0	57	0	0	15	1	2	0	0	18	0	0	2	0	0	0	0	2	113
17:45 - 18:00	0	0	16	1	0	0	3	20	0	1	42	6	0	0	0	49	1	0	7	3	0	0	0	11	0	0	0	0	0	0	0	0	80
18:00 - 18:15	0	0	23	6	0	0	1	30	0	0	53	2	0	0	0	55	0	1	13	1	0	0	0	15	0	0	0	0	0	0	0	0	100
18:15 - 18:30	0	0	14	2	0	0	1	17	0	0	30	7	1	0	0	38	0	0	15	0	0	0	0	15	0	0	1	0	0	0	0	1	71
HOURLY TOTAL	0	1	86	10	0	0	6	103	0	2	170	25	2	0	0	199	1	1	50	5	2	0	0	59	0	0	3	0	0	0	0	3	364
PERIOD TOTAL	2	2	159	18	0	0	13	194	1	5	321	45	6	0	2	380	1	3	82	10	3	1	0	100	0	0	3	0	0	0	0	3	677

DATE: TUESDAY 28th JUNE 2016

TURNING COUNT LOCATION: A633 / B6089 / WATH ROAD

APPROACHING FROM: WATH ROAD

TIME / CLASS	LEFT TO A633 (NORTH)								STRAIGHT TO A633 (EAST)								RIGHT TO B6089								U-TURN TO WATH ROAD								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:00 - 07:15	0	0	3	0	0	0	0	3	0	0	23	8	1	0	1	33	0	0	8	0	0	0	2	10	0	0	0	0	0	0	0	0	46
07:15 - 07:30	0	0	5	1	0	0	0	6	0	0	34	10	3	0	1	48	0	0	11	0	1	0	1	13	0	0	0	0	0	0	0	0	67
07:30 - 07:45	0	0	5	1	0	0	0	6	0	0	39	5	0	0	0	44	0	0	16	3	1	0	3	23	0	0	0	0	0	0	0	0	73
07:45 - 08:00	0	0	5	0	0	0	1	6	0	0	34	5	2	0	1	42	0	1	13	2	1	0	4	21	0	0	1	0	0	0	0	1	70
HOURLY TOTAL	0	0	18	2	0	0	1	21	0	0	130	28	6	0	3	167	0	1	48	5	3	0	10	67	0	0	1	0	0	0	0	1	256
08:00 - 08:15	0	0	12	0	0	0	0	12	0	0	37	10	0	0	0	47	0	0	24	3	0	0	0	27	0	0	1	0	0	0	0	1	87
08:15 - 08:30	0	0	9	1	1	0	0	11	0	0	45	5	0	0	2	52	0	0	16	0	0	0	3	19	0	0	1	0	0	0	0	1	83
08:30 - 08:45	0	0	4	0	0	0	0	4	0	0	53	4	2	0	1	60	0	1	17	2	0	0	2	22	0	0	1	0	0	0	0	1	87
08:45 - 09:00	0	0	5	0	0	0	0	5	0	0	50	2	1	0	1	54	0	0	18	1	1	0	1	21	0	0	1	0	0	0	0	1	81
HOURLY TOTAL	0	0	30	1	1	0	0	32	0	0	185	21	3	0	4	213	0	1	75	6	1	0	6	89	0	0	4	0	0	0	0	4	338
9:00 - 9:15	0	0	5	0	0	0	1	6	0	0	29	4	3	0	0	36	0	1	14	1	0	0	2	18	0	0	0	0	0	0	0	0	60
9:15 - 9:30	0	0	4	0	0	0	0	4	0	0	38	8	1	2	1	50	0	0	18	5	0	0	2	25	0	0	2	0	0	0	0	2	81
1/2 HOUR TOTAL	0	0	9	0	0	0	1	10	0	0	67	12	4	2	1	86	0	1	32	6	0	0	4	43	0	0	2	0	0	0	0	2	141
PERIOD TOTAL	0	0	57	3	1	0	2	63	0	0	382	61	13	2	8	466	0	3	155	17	4	0	20	199	0	0	7	0	0	0	0	7	735
16:30 - 16:45	0	0	2	0	0	0	0	2	0	0	28	3	1	0	0	32	0	1	18	5	0	0	1	25	0	0	0	0	0	0	0	0	59
16:45 - 17:00	0	0	7	0	0	0	0	7	0	0	34	5	1	0	1	41	0	0	18	4	0	0	1	23	0	0	2	0	0	0	0	2	73
17:00 - 17:15	0	0	8	0	0	0	1	9	0	1	59	4	0	0	1	65	0	1	19	2	0	0	3	25	0	0	0	0	0	0	0	0	99
17:15 - 17:30	0	0	5	0	0	0	0	5	0	1	34	3	0	0	0	38	0	0	22	1	1	0	2	26	0	0	0	0	0	0	0	0	69
HOURLY TOTAL	0	0	22	0	0	0	1	23	0	2	155	15	2	0	2	176	0	2	77	12	1	0	7	99	0	0	2	0	0	0	0	2	300
17:30 - 17:45	0	0	7	0	0	0	0	7	0	0	33	3	1	0	1	38	0	0	25	1	2	0	2	30	0	0	0	0	0	0	0	0	75
17:45 - 18:00	0	0	9	0	0	0	1	10	0	1	42	5	0	0	0	48	0	0	31	4	0	0	1	36	0	0	1	0	0	0	0	1	95
18:00 - 18:15	0	0	4	0	0	0	0	4	2	0	33	1	0	0	1	37	0	0	16	1	1	0	2	20	0	0	0	0	0	0	0	0	61
18:15 - 18:30	0	0	8	0	0	0	0	8	0	1	40	1	1	0	0	43	0	0	18	0	0	0	1	19	0	0	0	0	0	0	0	0	70
HOURLY TOTAL	0	0	28	0	0	0	1	29	2	2	148	10	2	0	2	166	0	0	90	6	3	0	6	105	0	0	1	0	0	0	0	1	301
PERIOD TOTAL	0	0	50	0	0	0	2	52	2	4	303	25	4	0	4	342	0	2	167	18	4	0	13	204	0	0	3	0	0	0	0	3	601

Queue Lengths, Wombwell

DATE: TUESDAY 28th JUNE 2016

LOCATION: A633 / B6089 / WATH ROAD

ARM:	A633 (NORTH)						A633 (EAST)						B6089						WATH ROAD					
spot Q on 5th min intervals	LANE 1			LANE 2			LANE 1			LANE 2			LANE 1			LANE 2			LANE 1			LANE 2		
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:20	0	0	0	0	0	0	0	0	0	2	0	11	0	0	0	0	0	0	0	0	0	0	0	0
07:25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6
07:40	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6
07:50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0
07:55	0	0	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	17	0	0	0
08:10	3	0	17	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0	1	0	6	1	0	6
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0
08:20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:25	2	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:40	3	0	17	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:55	0	0	0	0	0	0	2	0	11	2	0	11	0	0	0	0	0	0	0	0	0	0	0	0
09:00	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6
09:05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Queue Lengths, Wombwell

DATE: TUESDAY 28th JUNE 2016

LOCATION: A633 / B6089 / WATH ROAD

ARM:	A633 (NORTH)						A633 (EAST)						B6089						WATH ROAD					
spot Q on 5th min intervals	LANE 1			LANE 2			LANE 1			LANE 2			LANE 1			LANE 2			LANE 1			LANE 2		
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:50	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:55	0	0	0	1	0	6	0	0	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:10	0	0	0	0	0	0	0	0	0	2	0	11	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:25	0	0	0	0	0	0	1	0	6	2	0	11	0	0	0	0	0	0	0	0	0	0	0	0
17:30	6	1	48	0	0	0	1	0	6	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0
17:35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6
17:40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6
17:50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	1	0	6
18:10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6
18:25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

DATE: TUESDAY 28th JUNE 2016

TURNING COUNT LOCATION: HEMINGFIELD ROAD / A6195

APPROACHING FROM: HEMINGFIELD ROAD (NORTH)

TIME / CLASS	LEFT TO A6195 (EAST)								STRAIGHT TO HEMINGFIELD ROAD (SOUTH)								RIGHT TO A6195 (WEST)								U-TURN TO HEMINGFIELD ROAD (NORTH)								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:00 - 07:15	0	0	18	4	0	0	1	23	0	0	4	0	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
07:15 - 07:30	0	0	16	6	1	0	0	23	0	0	8	2	0	0	1	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
07:30 - 07:45	0	0	23	3	0	0	0	26	0	1	4	3	0	0	0	8	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	36
07:45 - 08:00	0	0	28	2	0	0	2	32	0	0	6	3	1	0	0	10	0	0	2	2	0	0	0	4	0	0	0	0	0	0	0	0	46
HOURLY TOTAL	0	0	85	15	1	0	3	104	0	1	22	8	2	0	1	34	0	0	4	2	0	0	0	6	0	0	0	0	0	0	0	0	144
08:00 - 08:15	0	0	17	3	0	0	0	20	0	0	6	0	0	0	0	6	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	27
08:15 - 08:30	0	0	20	4	1	0	1	26	0	0	13	0	0	1	0	14	0	0	3	1	0	0	0	4	0	0	0	0	0	0	0	0	44
08:30 - 08:45	0	0	21	2	0	0	0	23	0	0	6	1	1	0	0	8	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	33
08:45 - 09:00	0	0	31	3	0	0	1	35	0	0	2	2	0	0	0	4	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	40
HOURLY TOTAL	0	0	89	12	1	0	2	104	0	0	27	3	1	1	0	32	0	0	6	1	1	0	0	8	0	0	0	0	0	0	0	0	144
09:00 - 09:15	0	0	15	2	0	0	1	18	0	0	5	1	0	0	0	6	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	25
09:15 - 09:30	0	0	20	4	1	0	1	26	0	0	7	1	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
/2 HOUR TOTAL	0	0	35	6	1	0	2	44	0	0	12	2	0	0	0	14	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	59
PERIOD TOTAL	0	0	209	33	3	0	7	252	0	1	61	13	3	1	1	80	0	0	11	3	1	0	0	15	0	0	0	0	0	0	0	0	347
16:30 - 16:45	0	0	29	1	0	0	1	31	0	0	9	0	0	0	0	9	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	42
16:45 - 17:00	0	0	30	2	0	0	0	32	0	0	14	1	1	0	0	16	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	51
17:00 - 17:15	0	0	28	3	0	0	2	33	0	0	16	3	0	0	0	19	0	0	3	1	0	0	0	4	0	0	0	0	0	0	0	0	56
17:15 - 17:30	0	0	35	2	0	0	0	37	0	0	14	2	1	0	0	17	0	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	57
HOURLY TOTAL	0	0	122	8	0	0	3	133	0	0	53	6	2	0	0	61	0	0	7	5	0	0	0	12	0	0	0	0	0	0	0	0	206
17:30 - 17:45	1	0	37	5	0	0	0	43	0	0	23	3	0	0	0	26	0	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	74
17:45 - 18:00	0	0	27	2	2	0	1	32	0	0	12	1	0	0	0	13	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	47
18:00 - 18:15	1	0	34	1	0	0	1	37	1	0	23	1	0	0	0	25	0	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	65
18:15 - 18:30	0	0	22	2	0	0	1	25	0	0	12	1	0	0	0	13	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	39
HOURLY TOTAL	2	0	120	10	2	0	3	137	1	0	70	6	0	0	0	77	0	0	8	3	0	0	0	11	0	0	0	0	0	0	0	0	225
PERIOD TOTAL	2	0	242	18	2	0	6	270	1	0	123	12	2	0	0	138	0	0	15	8	0	0	0	23	0	0	0	0	0	0	0	0	431

DATE: TUESDAY 28th JUNE 2016

TURNING COUNT LOCATION: HEMINGFIELD ROAD / A6195

APPROACHING FROM: A6195 (EAST)

TIME / CLASS	LEFT TO HEMINGFIELD ROAD (SOUTH)								STRAIGHT TO A6195 (WEST)								RIGHT TO HEMINGFIELD ROAD (NORTH)								U-TURN TO A6195 (EAST)								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:00 - 07:15	0	0	4	1	0	0	2	7	0	0	108	31	9	4	0	152	0	1	6	4	0	0	0	11	0	0	0	0	0	0	0	0	170
07:15 - 07:30	0	0	0	1	0	0	0	1	0	0	135	26	8	6	2	177	0	0	12	1	0	0	0	13	0	0	0	0	0	0	0	0	191
07:30 - 07:45	0	0	1	2	0	0	0	3	0	0	137	32	11	5	1	186	0	0	11	0	0	0	2	13	0	0	0	0	0	0	0	0	202
07:45 - 08:00	0	0	4	1	0	0	1	6	0	2	145	19	7	7	1	181	0	0	17	4	0	0	0	21	0	0	0	0	0	0	0	0	208
HOURLY TOTAL	0	0	9	5	0	0	3	17	0	2	525	108	35	22	4	696	0	1	46	9	0	0	2	58	0	0	0	0	0	0	0	0	771
08:00 - 08:15	0	0	4	2	0	0	0	6	0	1	157	32	10	4	0	204	0	0	8	3	0	0	1	12	0	0	0	0	0	0	0	0	222
08:15 - 08:30	0	0	3	1	0	0	1	5	0	1	147	26	9	4	0	187	0	0	11	2	0	0	0	13	0	0	0	0	0	0	0	0	205
08:30 - 08:45	0	0	5	0	0	0	0	5	0	1	161	22	11	9	0	204	0	0	4	1	0	0	1	6	0	0	0	0	0	0	0	0	215
08:45 - 09:00	0	0	3	2	0	0	0	5	0	3	126	18	6	12	0	165	0	0	10	1	0	0	1	12	0	0	0	1	0	0	0	1	183
HOURLY TOTAL	0	0	15	5	0	0	1	21	0	6	591	98	36	29	0	760	0	0	33	7	0	0	3	43	0	0	0	1	0	0	0	1	825
9:00 - 9:15	0	0	9	1	0	0	1	11	0	0	104	18	10	8	0	140	0	0	11	1	0	0	1	13	0	0	0	0	0	0	0	0	164
9:15 - 9:30	0	0	4	6	0	0	1	11	0	0	105	16	8	6	1	136	0	0	9	0	0	0	0	9	0	0	0	0	0	0	0	0	156
1/2 HOUR TOTAL	0	0	13	7	0	0	2	22	0	0	209	34	18	14	1	276	0	0	20	1	0	0	1	22	0	0	0	0	0	0	0	0	320
PERIOD TOTAL	0	0	37	17	0	0	6	60	0	8	1325	240	89	65	5	1732	0	1	99	17	0	0	6	123	0	0	0	1	0	0	0	1	1916
16:30 - 16:45	0	0	16	1	0	0	1	18	0	1	188	31	7	5	0	232	0	0	34	0	1	0	1	36	0	0	0	0	0	0	0	0	286
16:45 - 17:00	0	0	17	3	0	0	1	21	0	2	212	27	4	2	0	247	0	0	37	0	0	0	0	37	0	0	0	0	0	0	0	0	305
17:00 - 17:15	0	0	22	3	1	0	1	27	0	2	208	12	2	2	1	227	0	0	35	0	0	0	0	35	0	0	0	0	0	0	0	0	289
17:15 - 17:30	0	0	28	1	0	0	1	30	1	2	224	30	2	2	0	261	0	1	38	2	0	0	1	42	0	0	0	0	0	0	0	0	333
HOURLY TOTAL	0	0	83	8	1	0	4	96	1	7	832	100	15	11	1	967	0	1	144	2	1	0	2	150	0	0	0	0	0	0	0	0	1213
17:30 - 17:45	0	0	23	4	0	0	0	27	0	2	154	13	4	3	0	176	0	0	43	5	0	0	0	48	0	0	0	0	0	0	0	0	251
17:45 - 18:00	0	0	20	2	0	0	0	22	0	2	192	19	2	5	0	220	0	0	37	1	0	0	1	39	0	0	0	0	0	0	0	0	281
18:00 - 18:15	0	0	15	1	0	0	0	16	2	0	167	15	0	2	3	189	0	0	37	8	1	0	0	46	0	0	0	0	0	0	0	0	251
18:15 - 18:30	0	0	19	1	1	0	2	23	2	4	167	20	0	4	0	197	0	0	25	6	0	0	1	32	0	1	0	0	0	0	0	1	253
HOURLY TOTAL	0	0	77	8	1	0	2	88	4	8	680	67	6	14	3	782	0	0	142	20	1	0	2	165	0	1	0	0	0	0	0	1	1036
PERIOD TOTAL	0	0	160	16	2	0	6	184	5	15	1512	167	21	25	4	1749	0	1	286	22	2	0	4	315	0	1	0	0	0	0	0	1	2249

DATE: TUESDAY 28th JUNE 2016

TURNING COUNT LOCATION: HEMINGFIELD ROAD / A6195

APPROACHING FROM: HEMINGFIELD ROAD (SOUTH)

TIME / CLASS	LEFT TO A6195 (WEST)								STRAIGHT TO HEMINGFIELD ROAD (NORTH)								RIGHT TO A6195 (EAST)								U-TURN TO HEMINGFIELD ROAD (SOUTH)								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:00 - 07:15	0	0	7	1	0	0	0	8	0	0	4	2	0	0	0	6	0	0	8	1	0	0	0	9	0	0	0	0	0	0	0	0	23
07:15 - 07:30	0	0	14	1	0	0	0	15	0	0	11	4	1	0	0	16	0	0	6	4	0	0	0	10	0	0	0	0	0	0	0	0	41
07:30 - 07:45	0	0	5	2	0	0	0	7	0	0	13	1	0	0	0	14	0	0	8	2	1	0	2	13	0	0	0	0	0	0	0	0	34
07:45 - 08:00	0	0	11	4	0	0	0	15	0	0	12	1	0	0	0	13	0	0	7	1	0	0	0	8	0	0	0	0	0	0	0	0	36
HOURLY TOTAL	0	0	37	8	0	0	0	45	0	0	40	8	1	0	0	49	0	0	29	8	1	0	2	40	0	0	0	0	0	0	0	0	134
08:00 - 08:15	0	0	9	2	0	0	0	11	0	0	12	0	1	0	0	13	0	0	12	2	0	0	0	14	0	0	0	0	0	0	0	0	38
08:15 - 08:30	0	0	13	1	0	0	0	14	0	0	9	1	0	0	0	10	0	0	16	1	0	0	0	17	0	0	1	0	0	0	0	1	42
08:30 - 08:45	0	0	16	1	0	0	0	17	0	0	14	1	0	0	0	15	0	0	11	1	0	0	2	14	0	0	0	0	0	0	0	0	46
08:45 - 09:00	0	0	10	1	0	0	0	11	0	0	11	0	0	0	0	11	0	0	10	1	0	0	0	11	0	0	0	0	0	0	0	0	33
HOURLY TOTAL	0	0	48	5	0	0	0	53	0	0	46	2	1	0	0	49	0	0	49	5	0	0	2	56	0	0	1	0	0	0	0	1	159
9:00 - 9:15	0	0	9	0	0	0	0	9	0	0	12	0	1	0	0	13	0	1	8	1	1	0	0	11	0	0	0	0	0	0	0	0	33
9:15 - 9:30	0	0	8	0	0	0	0	8	0	0	8	2	0	0	0	10	0	0	13	2	1	0	0	16	0	0	0	0	0	0	0	0	34
1/2 HOUR TOTAL	0	0	17	0	0	0	0	17	0	0	20	2	1	0	0	23	0	1	21	3	2	0	0	27	0	0	0	0	0	0	0	0	67
PERIOD TOTAL	0	0	102	13	0	0	0	115	0	0	106	12	3	0	0	121	0	1	99	16	3	0	4	123	0	0	1	0	0	0	0	1	360
16:30 - 16:45	0	0	9	2	0	0	0	11	0	0	12	2	1	0	0	15	0	0	9	4	0	0	1	14	0	0	0	0	0	0	0	0	40
16:45 - 17:00	0	0	8	0	0	0	0	8	0	0	13	0	0	0	0	13	0	0	11	0	0	0	1	12	0	0	0	0	0	0	0	0	33
17:00 - 17:15	0	0	2	1	1	0	0	4	0	0	16	3	0	0	0	19	0	0	11	1	0	0	0	12	0	0	0	0	0	0	0	0	35
17:15 - 17:30	0	0	9	0	0	0	0	9	0	0	23	2	0	0	0	25	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	44
HOURLY TOTAL	0	0	28	3	1	0	0	32	0	0	64	7	1	0	0	72	0	0	41	5	0	0	2	48	0	0	0	0	0	0	0	0	152
17:30 - 17:45	0	0	3	1	0	0	0	4	0	0	15	2	0	0	0	17	0	0	14	1	0	0	0	15	0	0	0	0	0	0	0	0	36
17:45 - 18:00	0	0	8	1	0	0	0	9	0	0	13	5	0	0	0	18	0	0	10	0	0	0	2	12	0	0	0	0	0	0	0	0	39
18:00 - 18:15	0	0	6	1	0	0	0	7	0	0	13	1	0	0	0	14	0	0	11	1	0	0	0	12	0	0	0	0	0	0	0	0	33
18:15 - 18:30	0	0	7	0	0	0	0	7	0	0	14	4	0	0	0	18	0	0	11	0	0	0	0	11	0	0	0	0	0	0	0	0	36
HOURLY TOTAL	0	0	24	3	0	0	0	27	0	0	55	12	0	0	0	67	0	0	46	2	0	0	2	50	0	0	0	0	0	0	0	0	144
PERIOD TOTAL	0	0	52	6	1	0	0	59	0	0	119	19	1	0	0	139	0	0	87	7	0	0	4	98	0	0	0	0	0	0	0	0	296

DATE: TUESDAY 28th JUNE 2016

TURNING COUNT LOCATION: HEMINGFIELD ROAD / A6195

APPROACHING FROM: A6195 (WEST)

TIME / CLASS	LEFT TO HEMINGFIELD ROAD (NORTH)								STRAIGHT TO A6195 (EAST)								RIGHT TO HEMINGFIELD ROAD (SOUTH)								U-TURN TO A6195 (WEST)								TOTAL MOVEMENT FROM APPROACH
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV1	OGV2	BUS COACH	TOTAL	
07:00 - 07:15	0	0	0	0	0	0	0	0	0	1	105	29	6	7	2	150	0	1	1	2	0	0	0	4	0	0	1	0	0	0	0	1	155
07:15 - 07:30	0	0	0	1	0	0	0	1	0	1	172	28	5	4	0	210	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	214
07:30 - 07:45	0	0	0	0	1	0	0	1	1	0	174	21	8	3	0	207	0	0	2	2	1	0	0	5	0	0	0	0	0	0	0	0	213
07:45 - 08:00	0	0	0	0	0	0	0	0	1	2	192	24	8	8	0	235	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	236
HOURLY TOTAL	0	0	0	1	1	0	0	2	2	4	643	102	27	22	2	802	0	2	6	4	1	0	0	13	0	0	1	0	0	0	0	1	818
08:00 - 08:15	0	0	1	0	0	0	0	1	1	2	204	13	2	8	0	230	0	0	1	1	1	0	0	3	0	0	0	0	0	0	0	0	234
08:15 - 08:30	0	0	0	0	0	0	0	0	1	2	181	30	8	7	0	229	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	230
08:30 - 08:45	0	0	1	0	0	0	0	1	0	1	158	20	15	8	0	202	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	204
08:45 - 09:00	0	0	1	0	0	0	0	1	0	2	163	26	9	7	1	208	0	0	1	0	1	0	0	2	0	0	0	0	0	0	0	0	211
HOURLY TOTAL	0	0	3	0	0	0	0	3	2	7	706	89	34	30	1	869	0	0	3	1	3	0	0	7	0	0	0	0	0	0	0	0	879
9:00 - 9:15	0	0	2	0	0	0	1	3	0	0	163	22	7	3	0	195	0	0	4	0	0	0	0	4	0	0	1	0	0	0	0	1	203
9:15 - 9:30	0	0	3	2	0	0	0	5	0	1	151	27	9	5	0	193	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	199
J/2 HOUR TOTAL	0	0	5	2	0	0	1	8	0	1	314	49	16	8	0	388	0	0	5	0	0	0	0	5	0	0	1	0	0	0	0	1	402
PERIOD TOTAL	0	0	8	3	1	0	1	13	4	12	1663	240	77	60	3	2059	0	2	14	5	4	0	0	25	0	0	2	0	0	0	0	2	2099
16:30 - 16:45	0	0	0	0	0	0	0	0	0	2	160	38	9	4	0	213	0	0	7	1	0	0	0	8	0	0	0	0	0	0	0	0	221
16:45 - 17:00	0	0	3	0	0	0	0	3	0	0	180	28	4	5	0	217	0	0	3	2	1	0	0	6	0	0	0	0	0	0	0	0	226
17:00 - 17:15	0	0	0	0	0	0	0	0	0	1	262	19	2	4	0	288	0	0	5	2	0	0	0	7	0	0	0	0	0	0	0	0	295
17:15 - 17:30	0	0	2	0	0	0	0	2	1	0	175	22	5	2	0	205	0	0	4	0	0	0	0	4	0	0	0	0	1	0	0	1	212
HOURLY TOTAL	0	0	5	0	0	0	0	5	1	3	777	107	20	15	0	923	0	0	19	5	1	0	0	25	0	0	0	0	1	0	0	1	954
17:30 - 17:45	0	0	0	0	0	0	0	0	0	4	184	18	1	4	1	212	0	0	13	1	0	0	0	14	0	0	0	0	0	0	0	0	226
17:45 - 18:00	0	0	0	0	0	0	0	0	0	3	186	19	5	4	0	217	0	0	9	3	0	0	0	12	0	0	0	0	0	0	0	0	229
18:00 - 18:15	0	0	1	0	0	0	0	1	0	2	154	16	4	6	1	183	0	0	7	2	0	0	0	9	0	0	0	0	0	0	0	0	193
18:15 - 18:30	0	0	0	0	0	0	0	0	0	1	170	23	2	3	1	200	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	201
HOURLY TOTAL	0	0	1	0	0	0	0	1	0	10	694	76	12	17	3	812	0	0	30	6	0	0	0	36	0	0	0	0	0	0	0	0	849
PERIOD TOTAL	0	0	6	0	0	0	0	6	1	13	1471	183	32	32	3	1735	0	0	49	11	1	0	0	61	0	0	0	0	1	0	0	1	1803

Queue Lengths, Wombwell

DATE: TUESDAY 28th JUNE 2016

LOCATION: HEMINGFIELD ROAD / A6195

ARM:	HEMINGFIELD ROAD (NORTH)			A6195 (EAST)			HEMINGFIELD ROAD (SOUTH)						A6195 (SOUTH)					
spot Q on 5th min intervals	LANE 1			LANE 1			LANE 1			LANE 2			LANE 1			LANE 2		
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:10	0	0	0	0	0	0	2	0	11	0	0	0	0	0	0	0	0	0
07:15	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:25	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	1	0	6
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0
07:50	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0	0	0	0
07:55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:10	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:25	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0
08:35	2	0	11	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6
08:40	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:50	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0
08:55	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Queue Lengths, Wombwell

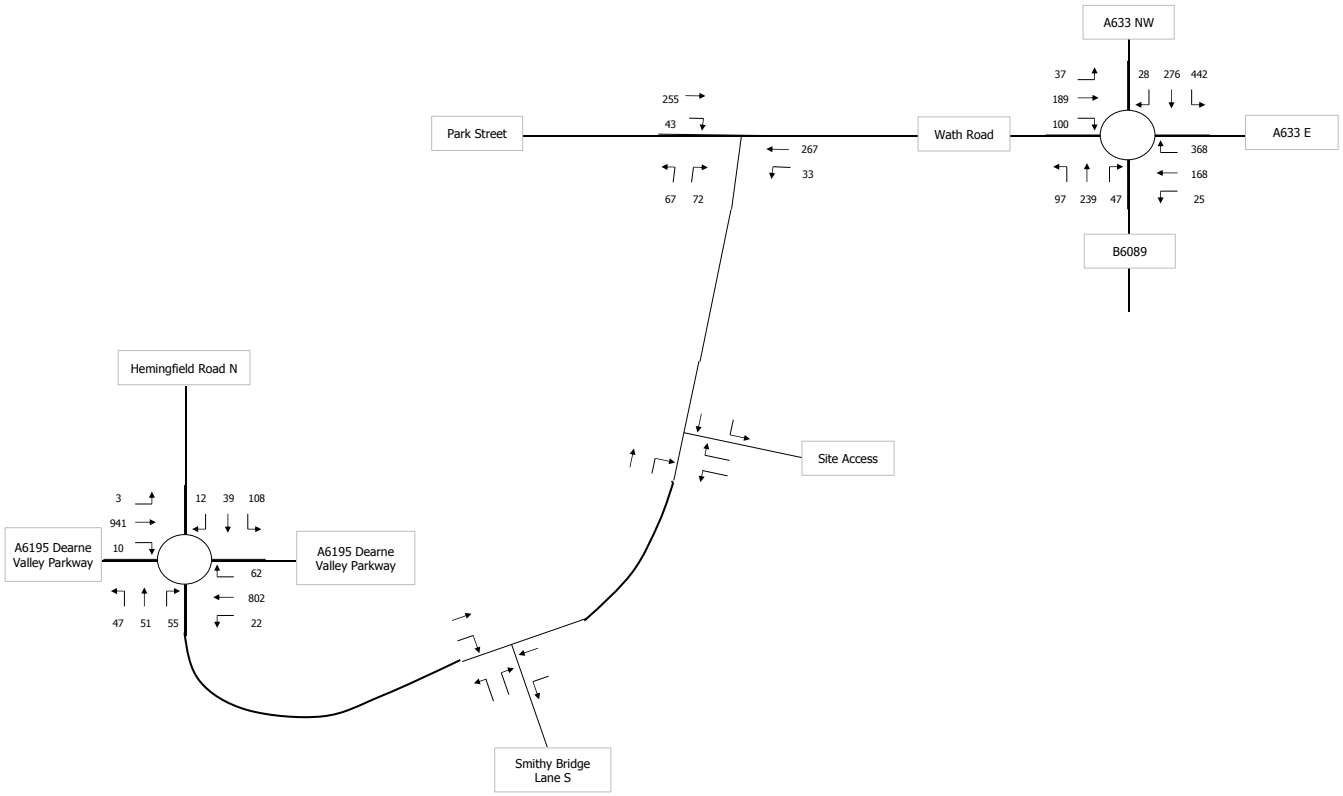
DATE: TUESDAY 28th JUNE 2016

LOCATION: HEMINGFIELD ROAD / A6195

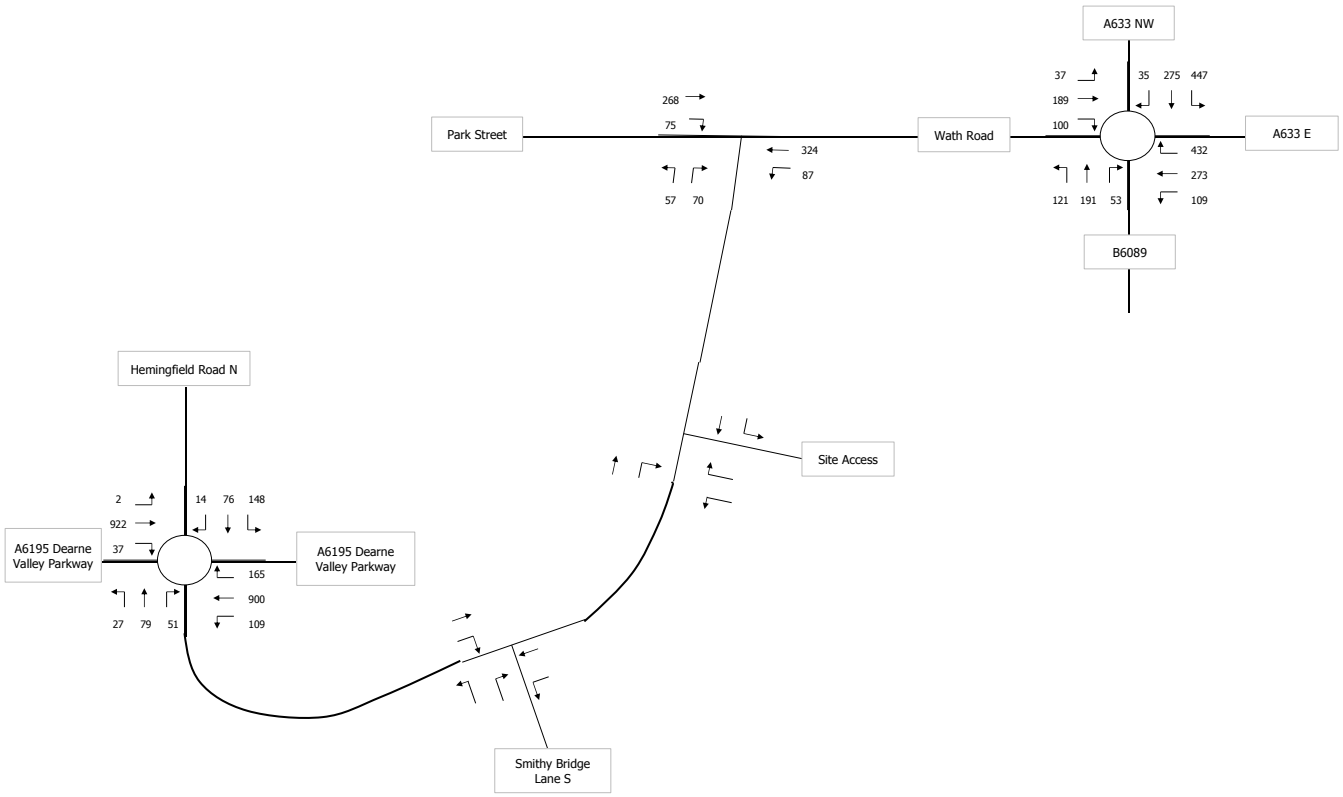
ARM:	HEMINGFIELD ROAD (NORTH)			A6195 (EAST)			HEMINGFIELD ROAD (SOUTH)						A6195 (SOUTH)					
spot Q on 5th min intervals	LANE 1			LANE 1			LANE 1			LANE 2			LANE 1			LANE 2		
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)	LIGHTS	HEAVIES	QUEUE LENGTH (M)
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:40	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:55	0	0	0	0	0	0	3	0	17	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6
17:05	1	0	6	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0
17:10	0	0	0	0	0	0	0	0	0	1	0	6	3	0	17	2	0	11
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:25	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0	0	0	0
17:30	1	0	6	0	0	0	1	0	6	1	0	6	0	0	0	0	0	0
17:35	4	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:40	3	0	17	0	0	0	0	0	0	0	0	0	3	0	17	0	0	0
17:45	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0
17:50	1	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:55	1	0	6	0	0	0	1	0	6	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0
18:05	1	0	6	0	0	0	1	0	6	1	0	6	0	0	0	0	0	0
18:10	1	0	6	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:20	2	0	11	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0
18:25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX G

AM 07:30 - 08:30



PM 17:00 - 18:00



A098689 - Lunhill Road, Wombwell

2016 Base

Flows are in Passenger Car Units

APPENDIX H

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Park St Wath Rd Lundhill Rd.j9
Path: \\leeds2\EnvData\Projects\A090000 - A09999\A098689\calculations\Transport Planning\Junction Models\Park St _Wath Rd_ Lundhill Rd
Report generation date: 16/08/2016 11:47:26

»2016, AM
»2016, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2016							
Stream B-C	0.2	8.09	0.14	A	0.1	8.40	0.13	A
Stream B-A	0.3	12.21	0.21	B	0.3	13.17	0.22	B
Stream C-B	0.1	6.16	0.08	A	0.2	6.95	0.14	A

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

File summary

File Description

Title	Park St Wath Rd Lundhill Rd
Location	Wombwell
Site number	
Date	16/08/2016
Version	
Status	
Identifier	
Client	
Jobnumber	A098689
Enumerator	WYG\d.liddell-crewe
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	mph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016	AM	ONE HOUR	07:15	08:45	15	✓
D2	2016	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

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

2016, AM

Data Errors and Warnings
No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.29	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Wath Road		Major
B	Lundhill Road		Minor
C	Park Street		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	8.15			242.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	7.70	4.50	4.50	4.50	4.46	✓	3.00	17	41

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	486	0.080	0.203	0.128	0.290
1	B-C	616	0.086	0.216	-	-
1	C-B	714	0.251	0.251	-	-

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016	AM	ONE HOUR	07:15	08:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	300	100.000
B		ONE HOUR	✓	139	100.000
C		ONE HOUR	✓	298	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	33	267
	B	72	0	67
	C	255	43	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.14	8.09	0.2	A	61	92
B-A	0.21	12.21	0.3	B	66	99
C-A					234	351
C-B	0.08	6.16	0.1	A	39	59
A-B					30	45
A-C					245	368

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	50	13	551	0.092	50	0.0	0.1	7.174	A
B-A	54	14	409	0.132	54	0.0	0.2	10.102	B
C-A	192	48			192				
C-B	32	8	657	0.049	32	0.0	0.1	5.756	A
A-B	25	6			25				
A-C	201	50			201				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	60	15	538	0.112	60	0.1	0.1	7.536	A
B-A	65	16	395	0.164	65	0.2	0.2	10.903	B
C-A	229	57			229				
C-B	39	10	646	0.060	39	0.1	0.1	5.922	A
A-B	30	7			30				
A-C	240	60			240				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	74	18	519	0.142	74	0.1	0.2	8.078	A
B-A	79	20	374	0.212	79	0.2	0.3	12.191	B
C-A	281	70			281				
C-B	47	12	631	0.075	47	0.1	0.1	6.164	A

A-B	36	9			36				
A-C	294	73			294				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	74	18	519	0.142	74	0.2	0.2	8.086	A
B-A	79	20	374	0.212	79	0.3	0.3	12.213	B
C-A	281	70			281				
C-B	47	12	631	0.075	47	0.1	0.1	6.164	A
A-B	36	9			36				
A-C	294	73			294				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	60	15	537	0.112	60	0.2	0.1	7.550	A
B-A	65	16	395	0.164	65	0.3	0.2	10.928	B
C-A	229	57			229				
C-B	39	10	646	0.060	39	0.1	0.1	5.923	A
A-B	30	7			30				
A-C	240	60			240				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	50	13	550	0.092	51	0.1	0.1	7.204	A
B-A	54	14	410	0.132	54	0.2	0.2	10.143	B
C-A	192	48			192				
C-B	32	8	657	0.049	32	0.1	0.1	5.761	A
A-B	25	6			25				
A-C	201	50			201				

2016, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.18	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2016	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	411	100.000
B		ONE HOUR	✓	127	100.000

C		ONE HOUR	✓	343	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	87	324
	B	70	0	57
	C	268	75	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.13	8.40	0.1	A	52	78
B-A	0.22	13.17	0.3	B	64	96
C-A					246	369
C-B	0.14	6.95	0.2	A	69	103
A-B					80	120
A-C					297	446

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	43	11	529	0.081	43	0.0	0.1	7.397	A
B-A	53	13	396	0.133	52	0.0	0.2	10.450	B
C-A	202	50			202				
C-B	56	14	637	0.089	56	0.0	0.1	6.198	A
A-B	65	16			65				
A-C	244	61			244				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	51	13	513	0.100	51	0.1	0.1	7.788	A
B-A	63	16	377	0.167	63	0.2	0.2	11.451	B
C-A	241	60			241				
C-B	67	17	621	0.109	67	0.1	0.1	6.497	A
A-B	78	20			78				
A-C	291	73			291				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS

B-C	63	16	491	0.128	63	0.1	0.1	8.394	A
B-A	77	19	350	0.220	77	0.2	0.3	13.136	B
C-A	295	74			295				
C-B	83	21	601	0.137	82	0.1	0.2	6.945	A
A-B	96	24			96				
A-C	357	89			357				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	63	16	491	0.128	63	0.1	0.1	8.403	A
B-A	77	19	350	0.220	77	0.3	0.3	13.165	B
C-A	295	74			295				
C-B	83	21	601	0.137	83	0.2	0.2	6.948	A
A-B	96	24			96				
A-C	357	89			357				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	51	13	513	0.100	51	0.1	0.1	7.805	A
B-A	63	16	377	0.167	63	0.3	0.2	11.485	B
C-A	241	60			241				
C-B	67	17	621	0.109	68	0.2	0.1	6.500	A
A-B	78	20			78				
A-C	291	73			291				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-C	43	11	528	0.081	43	0.1	0.1	7.421	A
B-A	53	13	396	0.133	53	0.2	0.2	10.495	B
C-A	202	50			202				
C-B	56	14	637	0.089	57	0.1	0.1	6.207	A
A-B	65	16			65				
A-C	244	61			244				

Junctions 9

ARCADY 9 - Roundabout Module

Filename: A633 Brampton Rd Wath Rd 2016.j9
Path: \\leeds2\EnvData\Projects\A090000 - A09999\A098689\calculations\Transport Planning\Junction Models\A633 Valley Way_A633 Wath Rd_ B6089 Brampton Rd
Report generation date: 16/08/2016 12:24:23

»2016 Base, AM
»2016 Base, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2016 Base							
Arm 1	0.6	3.79	0.39	A	1.3	5.41	0.57	A
Arm 2	0.4	3.06	0.26	A	0.4	3.39	0.27	A
Arm 3	0.4	3.65	0.27	A	0.4	3.71	0.27	A
Arm 4	1.2	5.13	0.54	A	1.2	5.25	0.55	A

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

File summary

File Description

Title	A633 Valley Way / A633 / Wath Rd / Brampton Rd
Location	Wombwell
Site number	
Date	18/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	A098689
Enumerator	WYG\d.liddell-crewe
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016 Base	AM	ONE HOUR	07:15	08:45	15	✓
D2	2016 Base	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

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

2016 Base, AM

Data Errors and Warnings
No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1,2,3,4	4.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A633 E	
2	B6089 Brampton Rd	
3	Wath Rd	
4	A633 Valley Way	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	5.40	8.70	3.4	9.6	43.2	18.0	
2	5.24	8.07	9.0	11.6	43.2	17.0	
3	4.05	8.65	10.9	11.4	43.2	20.0	
4	3.53	8.00	11.8	17.1	43.2	13.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.662	1861
2	0.702	2034
3	0.655	1815
4	0.662	1768

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016 Base	AM	ONE HOUR	07:15	08:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	561	100.000
2		ONE HOUR	✓	383	100.000
3		ONE HOUR	✓	326	100.000
4		ONE HOUR	✓	746	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	25	168	368
	2	47	0	97	239
	3	189	100	0	37
	4	442	276	28	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.39	3.79	0.6	A	515	772
2	0.26	3.06	0.4	A	351	527
3	0.27	3.65	0.4	A	299	449
4	0.54	5.13	1.2	A	685	1027

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	422	106	303	1660	0.254	421	509	0.0	0.3	2.903	A
2	288	72	423	1737	0.166	288	301	0.0	0.2	2.483	A
3	245	61	491	1494	0.164	245	220	0.0	0.2	2.881	A
4	562	140	252	1601	0.351	559	483	0.0	0.5	3.448	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	504	126	363	1621	0.311	504	609	0.3	0.4	3.222	A
2	344	86	507	1678	0.205	344	360	0.2	0.3	2.698	A
3	293	73	587	1430	0.205	293	263	0.2	0.3	3.164	A
4	671	168	302	1568	0.428	670	578	0.5	0.7	4.003	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	618	154	444	1567	0.394	617	745	0.4	0.6	3.786	A
2	422	105	620	1599	0.264	421	441	0.3	0.4	3.058	A
3	359	90	719	1344	0.267	359	322	0.3	0.4	3.650	A
4	821	205	370	1524	0.539	820	708	0.7	1.2	5.101	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	618	154	445	1566	0.394	618	746	0.6	0.6	3.794	A
2	422	105	621	1598	0.264	422	441	0.4	0.4	3.059	A

3	359	90	720	1344	0.267	359	323	0.4	0.4	3.655	A
4	821	205	370	1523	0.539	821	709	1.2	1.2	5.127	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	504	126	364	1620	0.311	505	611	0.6	0.5	3.233	A
2	344	86	508	1677	0.205	345	361	0.4	0.3	2.701	A
3	293	73	589	1430	0.205	293	264	0.4	0.3	3.169	A
4	671	168	302	1568	0.428	672	580	1.2	0.8	4.025	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	422	106	305	1659	0.255	423	511	0.5	0.3	2.914	A
2	288	72	425	1735	0.166	289	302	0.3	0.2	2.489	A
3	245	61	493	1492	0.164	246	221	0.3	0.2	2.889	A
4	562	140	253	1601	0.351	562	485	0.8	0.5	3.472	A

2016 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1,2,3,4	4.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2016 Base	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	814	100.000
2		ONE HOUR	✓	365	100.000
3		ONE HOUR	✓	326	100.000
4		ONE HOUR	✓	757	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	109	273	432
	2	53	0	121	191
	3	189	100	0	37
	4	447	275	35	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.57	5.41	1.3	A	747	1120
2	0.27	3.39	0.4	A	335	502
3	0.27	3.71	0.4	A	299	449
4	0.55	5.25	1.2	A	695	1042

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	613	153	308	1657	0.370	610	517	0.0	0.6	3.433	A
2	275	69	555	1644	0.167	274	363	0.0	0.2	2.626	A
3	245	61	507	1483	0.165	245	322	0.0	0.2	2.905	A
4	570	142	257	1598	0.357	568	495	0.0	0.6	3.485	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	732	183	368	1617	0.453	731	619	0.6	0.8	4.058	A
2	328	82	664	1567	0.209	328	435	0.2	0.3	2.904	A
3	293	73	607	1418	0.207	293	385	0.2	0.3	3.200	A
4	681	170	307	1565	0.435	680	593	0.6	0.8	4.063	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	896	224	451	1562	0.574	894	757	0.8	1.3	5.371	A
2	402	100	813	1463	0.275	401	532	0.3	0.4	3.388	A
3	359	90	743	1329	0.270	358	471	0.3	0.4	3.709	A
4	833	208	376	1519	0.549	832	725	0.8	1.2	5.221	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	896	224	451	1562	0.574	896	759	1.3	1.3	5.407	A
2	402	100	815	1462	0.275	402	533	0.4	0.4	3.395	A

3	359	90	744	1328	0.270	359	472	0.4	0.4	3.715	A
4	833	208	377	1519	0.549	833	727	1.2	1.2	5.250	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	732	183	369	1616	0.453	734	621	1.3	0.8	4.089	A
2	328	82	667	1566	0.210	329	436	0.4	0.3	2.912	A
3	293	73	609	1416	0.207	293	387	0.4	0.3	3.206	A
4	681	170	308	1564	0.435	682	595	1.2	0.8	4.090	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	613	153	309	1656	0.370	614	519	0.8	0.6	3.459	A
2	275	69	558	1642	0.167	275	365	0.3	0.2	2.635	A
3	245	61	510	1481	0.166	246	323	0.3	0.2	2.915	A
4	570	142	258	1598	0.357	571	498	0.8	0.6	3.507	A

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Dearne Valley Prakway Hemingfield Road.j9
Path: \\leeds2\EnvData\Projects\A090000 - A09999\A098689\calculations\Transport Planning\Junction Models\Dearne Valley Parkway_Hemingfield Rd
Report generation date: 16/08/2016 12:31:33

»2016, AM
»2016, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2016							
Arm 1	0.8	2.85	0.44	A	1.4	3.97	0.59	A
Arm 2	0.2	3.63	0.15	A	0.2	4.07	0.16	A
Arm 3	0.6	2.08	0.38	A	0.6	2.20	0.39	A
Arm 4	0.2	4.57	0.18	A	0.4	5.15	0.27	A

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

File summary

File Description

Title	Hemingfield Road Roundabout
Location	Wombwell
Site number	
Date	19/07/2016
Version	
Status	
Identifier	
Client	
Jobnumber	A098689
Enumerator	WYG\d.liddell-crewe
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	mph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016	AM	ONE HOUR	07:15	08:45	15	✓
D2	2016	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

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

2016, AM

Data Errors and Warnings
No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1,2,3,4	2.69	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A6195 Dearne Valley Parkway E	
2	Hemingfield Road S	
3	A6195 Dearne Valley Parkway W	
4	Hemingfield Road N	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	7.70	7.70	0.0	9.2	80.2	20.5	
2	3.88	6.32	10.2	12.6	80.2	20.5	
3	9.36	9.36	0.0	11.9	80.2	13.5	
4	3.10	5.56	19.5	8.9	80.2	19.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.551	2276
2	0.458	1601
3	0.654	2904
4	0.428	1437

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016	AM	ONE HOUR	07:15	08:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	886	100.000
2		ONE HOUR	✓	153	100.000
3		ONE HOUR	✓	954	100.000
4		ONE HOUR	✓	159	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	22	802	62
	2	55	0	47	51
	3	941	10	0	3
	4	108	39	12	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.44	2.85	0.8	A	813	1220
2	0.15	3.63	0.2	A	140	211
3	0.38	2.08	0.6	A	875	1313
4	0.18	4.57	0.2	A	146	219

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	667	167	46	2251	0.296	665	829	0.0	0.4	2.269	A
2	115	29	658	1300	0.089	115	53	0.0	0.1	3.038	A
3	718	180	126	2822	0.255	717	647	0.0	0.3	1.710	A
4	120	30	756	1113	0.108	119	87	0.0	0.1	3.619	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	796	199	55	2246	0.355	796	992	0.4	0.5	2.483	A
2	138	34	787	1241	0.111	137	64	0.1	0.1	3.262	A
3	858	214	151	2805	0.306	857	774	0.3	0.4	1.847	A
4	143	36	904	1050	0.136	143	104	0.1	0.2	3.969	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	976	244	67	2239	0.436	975	1215	0.5	0.8	2.846	A
2	168	42	964	1160	0.145	168	78	0.1	0.2	3.631	A
3	1050	263	185	2783	0.377	1050	947	0.4	0.6	2.077	A
4	175	44	1107	963	0.182	175	128	0.2	0.2	4.566	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	976	244	67	2239	0.436	975	1216	0.8	0.8	2.848	A
2	168	42	964	1159	0.145	168	78	0.2	0.2	3.632	A

3	1050	263	185	2783	0.377	1050	948	0.6	0.6	2.077	A
4	175	44	1108	963	0.182	175	128	0.2	0.2	4.570	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	796	199	55	2246	0.355	797	993	0.8	0.6	2.488	A
2	138	34	788	1240	0.111	138	64	0.2	0.1	3.265	A
3	858	214	151	2805	0.306	858	775	0.6	0.4	1.848	A
4	143	36	905	1049	0.136	143	104	0.2	0.2	3.975	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	667	167	46	2251	0.296	668	832	0.6	0.4	2.276	A
2	115	29	660	1299	0.089	115	54	0.1	0.1	3.043	A
3	718	180	127	2821	0.255	719	649	0.4	0.3	1.714	A
4	120	30	758	1112	0.108	120	87	0.2	0.1	3.629	A

2016, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1,2,3,4	3.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2016	PM	ONE HOUR	16:45	18:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	1174	100.000
2		ONE HOUR	✓	157	100.000
3		ONE HOUR	✓	961	100.000
4		ONE HOUR	✓	238	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	109	900	165
	2	51	0	27	79
	3	922	37	0	2
	4	148	76	14	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.59	3.97	1.4	A	1077	1616
2	0.16	4.07	0.2	A	144	216
3	0.39	2.20	0.6	A	882	1323
4	0.27	5.15	0.4	A	218	328

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	884	221	95	2224	0.397	881	842	0.0	0.7	2.678	A
2	118	30	810	1230	0.096	118	167	0.0	0.1	3.236	A
3	723	181	221	2759	0.262	722	706	0.0	0.4	1.767	A
4	179	45	759	1112	0.161	178	185	0.0	0.2	3.853	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1055	264	114	2213	0.477	1054	1007	0.7	0.9	3.103	A
2	141	35	969	1157	0.122	141	199	0.1	0.1	3.542	A
3	864	216	265	2731	0.316	863	845	0.4	0.5	1.928	A
4	214	53	908	1048	0.204	214	221	0.2	0.3	4.312	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1293	323	140	2199	0.588	1291	1233	0.9	1.4	3.953	A
2	173	43	1186	1058	0.163	173	244	0.1	0.2	4.066	A
3	1058	265	324	2692	0.393	1057	1034	0.5	0.6	2.201	A
4	262	66	1111	961	0.273	262	270	0.3	0.4	5.143	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1293	323	140	2199	0.588	1293	1234	1.4	1.4	3.971	A
2	173	43	1188	1057	0.164	173	244	0.2	0.2	4.072	A

3	1058	265	325	2692	0.393	1058	1036	0.6	0.6	2.203	A
4	262	66	1112	961	0.273	262	271	0.4	0.4	5.151	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	1055	264	114	2213	0.477	1057	1009	1.4	0.9	3.119	A
2	141	35	972	1156	0.122	141	200	0.2	0.1	3.551	A
3	864	216	266	2730	0.316	865	848	0.6	0.5	1.931	A
4	214	53	909	1048	0.204	214	222	0.4	0.3	4.323	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
1	884	221	96	2223	0.398	885	845	0.9	0.7	2.691	A
2	118	30	813	1229	0.096	118	167	0.1	0.1	3.242	A
3	723	181	222	2759	0.262	724	709	0.5	0.4	1.768	A
4	179	45	761	1111	0.161	179	185	0.3	0.2	3.864	A

APPENDIX I