

Prepared on behalf of



Jones Homes (Yorkshire) Ltd

**Bloomhouse Lane
Darton, Barnsley**

Transport Assessment

Acknowledgements:

The TRICS database has been used in this report to calculate traffic generations.

Accident data has been obtained from Barnsley Metropolitan Borough Council

Traffic surveys have been carried out by Nationwide Data Collection (NDC)

Disclaimer

The methodology adopted and the sources of information used by Sanderson Associates (Consulting Engineers) Ltd in providing its services are outlined within this Report.

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Report Ref:	9169/KS/001/03	July 2017	
Author:	Brett Littlewood		
Checked & Approved:	Karen Smith MIHE	Date:	14 July 2017

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1 Introduction

- 1.1 Sanderson Associates (Consulting Engineers) Limited has been appointed by Jones Homes Ltd, to advise on traffic and transportation issues relating to a full planning application for 214 dwellings at Bloomhouse Lane in Darton, Barnsley. The location of the development is shown on **Figure 1, Appendix A** of this report.
- 1.2 Land adjacent to the application site beyond Manor House Farm is currently Green Belt land, which extends west to Woolley Colliery Road. This land will form part of a separate planning application for up to 83 dwellings, which will form a second phase of development. This application will only be submitted following adoption of the emerging Local Plan which seeks to allocate this land for housing.
- 1.3 The proposed road which forms part of this planning application will also bisect this Green Belt land, creating a new junction onto Woolley Colliery Road.
- 1.4 The application site has been the subject of pre-submission discussions with the Council and this report includes references to issues identified by the Council during that process.
- 1.5 This Transport Assessment will consider the following aspects in detail:
- the local highway network and its road traffic accident record
 - the access arrangements to the proposed development
 - the proposed development and its operational characteristics
 - the impact of the development on the local highway network in terms of highway safety and capacity
 - the accessibility of the site in relation to sustainable transport and local facilities and means to encourage the use of sustainable transport
 - the compliance of the proposed development in relation to local and national planning policies

1.6 National Planning Policy

1.6.1 On 27 March 2012 the National Planning Policy Framework (NPPF) was published, which sets out the Government's planning policies for England and how these are expected to be applied. The NPPF supersedes a number of documents, including Planning Policy Guidance 13: Transport.

1.6.2 At paragraph 14 it is stated that:

'At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking.'

1.6.3 Section 4 of NPPF outlines the Government's planning policies for promoting sustainable transport. The section begins at paragraph 29, which states:

'Transport policies have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives. Smarter use of technologies can reduce the need to travel. The transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel. However, the Government recognises that different policies and measures will be required in different communities and opportunities to maximise sustainable transport solutions will vary from urban to rural areas.'

1.6.4 Paragraph 32 states that; 'All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether':

- the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- safe and suitable access to the site can be achieved for all people; and

-
- improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

1.7 The development site and its surroundings have been visited on a number of occasions and measurements and photographs taken to validate statements and assertions made in this report.

1.8 Given the scale of the proposed development a Travel Plan has also been prepared in support of this application and this report contains reference to measures designed to increase the use of sustainable modes of travel.

2 Existing Situation

2.1 Site and Surrounding Area

- 2.1.1 The application site lies on land to the south of Bloomhouse Lane between its junction with the Woolley Colliery Road and Sackup Lane. It is currently undeveloped and has various vehicular accesses, including accesses from Bloomhouse Lane, Woolley Colliery Road, Howden Close and Sackup Lane.

2.2 Local Highway Network

Bloomhouse Lane

- 2.2.1 Bloomhouse Lane forms the sites northern boundary and runs between Woolley Colliery Road in the west to Sackup Lane in the east. It is a single carriageway road subject to a 30mph speed limit with a footway running along its northern edge. Street lighting is present for approximately 180m to the west of the junction with Sackup Lane.

Woolley Colliery Road

- 2.2.2 Woolley Colliery Road to the west of the site commences at Woolley Grange to the north west of the site and continues to the south where it changes name to Station Road. Woolley Colliery Road is a single carriageway road subject to a 30mph speed limit. A combined cycle footway is present on its eastern edge running from Woolley Grange to approximately 270m south of Bloomhouse Lane after which point there is footway on the western side which continues approximately 50m to the south where it becomes a public right of way running to the west of houses on Woolley Colliery Road and links to Darton Train Station.
- 2.2.3 Footways are also present on both sides of the road for approximately 100m to the north of the point where Woolley Colliery Road becomes Station Road. Street lighting is present along the length of Woolley Colliery Road

Sackup Lane

- 2.2.4 Sackup Lane to the east of the site runs between Windhill Lane and Station Road, it is a single carriageway road subject to a 30mph speed limit. Footways are present on both sides of the road from Station Road extending approximately 135m north of Bloomhouse Lane after which a footway is only present on the western side. Parking restrictions, in the form of single yellow lines are in place on both sides of the road between Bloomhouse Lane and Station Road and there are also traffic calming measures in the form speed cushions/humps along the length of the road.

Station Road

- 2.2.5 Station Road to the south of the site runs between Woolley Colliery Road and Sackup Lane and is a single carriageway road subject to a 30mph speed limit. Approximately 120m east of Woolley Colliery Road there is a priority T junction, in which Station Road forms the minor road to the west and major road to the east with B6131 Church Street following the major road to the south. Between Sackup Lane and Church Street there are footways and street lighting present on both sides of the road and between Church Street and Woolley Colliery Road a footway and street lighting is present on the northern side only.
- 2.2.6 Parking restrictions are in place in the form of 'School Keep Clear' markings on both side of the road in the vicinity of the junction with Sackup Lane and on the southern side in the vicinity of Darton Primary school. Double yellow lines are also present on both sides between Orchard Croft and Bridge Street.
- 2.2.7 All footways on the roads detailed have dropped kerbs at crossing points with tactile paving also provided at certain road crossings.

2.3 Accident Data

2.4 Personal injury accident data has been requested from Barnsley Council which identifies all recorded incidents that have occurred within the study area in the latest 5 year period.

2.5 For the purpose of this assessment, the study area comprises of Bloomhouse Lane, Woolley Colliery Road, and Sackup Lane.

2.6 A full copy of the data provided by Barnsley Council is included at **Appendix B**, and is summarised below.

2.7 The data provided identifies that in the last 5 years, a total of 14 incidents have occurred. Of these, 11 were classified as being 'slight' in severity, 3 were 'serious' incidents with no fatal accidents being recorded within the 5 year period. The accidents have been analysed and broken down into categories and these are summarised in the table below.

	All incidents in study area													
	2011		2012		2013		2014		2015		2016		Total	
	SL	SE	SL	SE	SL	SE	SL	SE	SL	SE	SL	SE	SL	SE
Rear shunt							1						1	
Right Turn														
Fall in vehicle														
Overtaking									1				1	
Pedestrian					2		1						3	
Cyclist						1	2			1			2	2
Motorcyclist														
Overshoot/Restart														
Failed to Give Way	1						1						2	
Driver Error										1				1
Other	1								1				2	
Total	2				2	1	5		2	2			11	3

2.7.1 As can be seen from the previous table, the frequency of incidents have been between 2 to 5 incidents per year (for the full years 2011, 2012, 2013, 2014 & 2015). The serious accidents that occurred are detailed overleaf:-

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- 2.7.2 The serious accident ref B-0049-13 occurred on 20 August 2013 at 15.15 in light conditions on a dry road surface. This accident occurred on Huddersfield Road at its junction with Churchfield Lane. The cyclist was travelling along Huddersfield Road when a car emerged from a junction causing the cyclist to swerve and fall off their bicycle. Contributory factors indicate that it is very likely that the car driver disobeyed give-way markings and was careless/reckless/in a hurry.
- 2.7.3 The serious accident ref B-00754-15 occurred on 16 August 2015 at 20.30 in light conditions on a dry road surface. This accident occurred on Station Road at its junction with School Street. The cyclist was travelling along Station Road towards Darton when a vehicle approached from behind causing the rider to wobble and cause a collision. Contributory factors indicate that it is very likely that the car driver was passing too close to the cyclist.
- 2.7.4 The serious accident ref B-00862-15 occurred on 16 September 2015 at 01.50 in dark conditions on a dry road surface. This accident occurred on Barnsley Road at its junction with Church Street. The vehicle was travelling along Barnsley Road from Barnsley towards Haigh. The vehicle collided with the nearside kerb and veered across the carriageway and rolled into a field. Contributory factors indicate that it is possible that the car driver was distracted by something outside the vehicle.

Summary

- 2.7.5 From the data provided from the last 5 years no accidents have occurred within the vicinity of the site, Bloomhouse Lane and Sackup Lane. It is concluded that the general pattern of accidents that have occurred within the study area appear to be as a result of driver error and do not appear to be associated with the layout of the highway.

2.8 Traffic Surveys

2.8.1 Traffic Surveys have been carried out by Nationwide Data Collection (NDC) on Thursday 30 June 2016. Surveys were undertaken between the hours of 08:30-09:30 and 16:30-18:30. Parking was observed at the following junctions:

- Bloomhouse Lane / Woolley Colliery Road
- The Grange / Woolley Edge Lane
- Bloomhouse Lane / Sackup Lane
- Sackup Lane / Station Road / Darton Lane / Darton Primary School Access
- Station Road / Church Street

2.8.2 From the survey data, network peak hours have been identified as 07:45-08:45hrs and 17:00-18:00hrs.

2.8.3 An additional survey was carried out on the 8 December 2016 at the junction Huddersfield Road / Barnsley Road / Churchfield Lane / B6131 Church Street.

2.8.4 **Figure 5** at **Appendix A** illustrates the surveyed traffic flows at each of the aforementioned junctions. A copy of all survey data is included at **Appendix C**.

2.9 Speed Surveys

2.9.1 In order to establish the speed of vehicles travelling along Bloomhouse Lane ATC equipment was deployed. The table below summarises the results of this exercise.

Location.	Direction.	Start Date.	End Date.	Total Vehicles.	Mean Speed	85%ile Speed
Bloomhouse Lane between Sackup Lane and Woolley Colliery Road - Attached to fence - N53.58967, W1.52393	Eastbound	Wednesday 27 April 2016	Tuesday 03 May 2016	1919	33.9	39.8
	Westbound	Wednesday 27 April 2016	Tuesday 03 May 2016	1978	34.1	40.0
	Both Directions	Wednesday 27 April 2016	Tuesday 03 May 2016	3897	34.0	40.0

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- 2.9.2 As can be seen from the previous table 85th percentile speeds are in the region of 40mph which are considered to be appropriate as part of Bloomhouse Lane is not street lit and, therefore, subject to the national speed limit.

3 Development Proposals

- 3.1 This assessment supports a full planning application for 214 dwellings. Land adjacent to the application site beyond Manor House Farm is currently Green Belt land, which extends west to Woolley Colliery Road. This land will form part of a separate planning application for up to 83 dwellings, which will form a second phase of development. This application will only be submitted following adoption of the emerging Local Plan which seeks to allocate this land for housing.
- 3.2 The development will provide a range of accommodation of 2 – 5 bedroom properties in town house, semi-detached and detached styles.
- 3.3 A Masterplan and detailed layout for the 214 property development has been produced and is included in **Appendix D** of this report.
- 3.4 The main vehicular access to the residential site is from a new link road which will run from Woolley Colliery Road in the west to the junction of Station Road / Sackup Lane / Darton Lane in the East. The junction of Station Road / Sackup Lane / Darton Lane will be replaced by a four arm roundabout. The link road will provide vehicle access for 199 dwellings with the remaining 15 dwellings taking direct access from Bloomhouse Lane.
- 3.5 Pedestrian and cycle links to the site will also be available direct from Howden Close, Bloomhouse Lane and Bridge Street.
- 3.6 The proposed residential spine road forms a link between Darton Lane / Station Road and Woolley Colliery Village and will replace the current Woolley Colliery Road, which connects to Station Road immediately adjacent to the railway overbridge. The spine road will have a carriageway width of 6.0m, with pedestrian and cycleway facilities to its flanks. Although it is designed to accommodate the movement of service buses it is designed to Manual for Streets standards as this is considered appropriate, especially given the nature and layout of the spine road through the adjacent Woolley Colliery Village.

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- 3.7 The existing connection, Woolley Colliery Road, continues via the Woolley Colliery Village development north via The Grange to Woolley Edge Road. Although The Grange and the estate roads within Woolley Colliery Village are to modern standards, Woolley Colliery Road reflects the traditional road pattern of the area and its junction with Station Road is particularly challenging in a number of respects.
- 3.8 Initial discussions with the Council indicate that as part of the proposed development consideration should be given to either the complete closure of Woolley Colliery Road as a through route or to retain access along it in a northerly direction only once the established development served by it has been accessed.
- 3.9 Woolley Colliery Road would connect to the new estate spine road by a simple priority junction and initial suggestions would seek to restrict vehicle movements to exit only from Woolley Colliery Road by the introduction of a “bus gate” with associated physical measures, and a Traffic Regulation Order to legalise the control.
- 3.10 Woolley Colliery Road, however, is a public service bus route and provides both a connection to Darton Station and an important facility for the residents of existing dwellings along/adjacent to its route.
- 3.11 It is therefore proposed that at this point in time the junction of Woolley Colliery Road with the new spine road would be available for all vehicle movements. Prior to opening of the new spine road vehicle movements on Woolley Colliery Road would be established by a 24/7 traffic count and once the proposed development is complete and fully occupied a second count would be taken to establish the changes in traffic patterns. If the scale of the reduction does not achieve the Council's aspirations the approach of Woolley Colliery Road to the proposed junction with the new estate road has been designed such that if needed the bus gate and associated works could be retro fitted. The implementation of these works and the TRO to accompany the changes could be provided via a 106 Agreement with the Council if this suggestion is acceptable.

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- 3.12 By the introduction of the proposed spine road a new high-quality route to Darton / Station Lane will be provided which will be significantly better for users than the present Woolley Colliery Road, and should be the natural choice of drivers. As such the use of Woolley Colliery Road would be naturally reduced and to a degree self-regulating. In addition, it would be beneficial for this route to be retained as it would provide an alternative means of access to the development site and Woolley Colliery Village for emergency use, and be a useful link to the station and existing dwellings in proximity to it.
- 3.13 With reference to the emerging Local Plan for Barnsley, this acknowledges the requirement for the proposed link road as part of the allocation of the site for housing under Policy H3 – Site H20, which states:
- “The development will be expected to: ensure that the internal road layout will allow access to housing allocation H83 and provide a spine road through the site linking Station Road with Woolley Colliery Road that is capable of taking through traffic.”
- 3.14 Indeed, the Council have previously supported the principle of this link road and the benefits it will bring having previously prepared detailed highway engineering drawings to safeguard this route.
- 3.15 Therefore, it is considered that the Council acknowledge that the proposal for a new link road, which would likely only ever be facilitated as part of this residential development, will address a number of highway safety concerns that exist on the existing local highway network.
- 3.16 Delivery of the aforementioned highway link also appears to be required to facilitate the development of other proposed housing allocations on either side of Woolley Colliery Road (Policy H3 – Site AC1), proposed through the emerging Local Plan. We consider that this confirms the strategic importance of the link road as a local transport scheme.

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- 3.17 Whilst part of the site occupied by the link road is currently designated as Green Belt, it comprises "local transport infrastructure which can demonstrate a requirement for a Green Belt location", consistent with the requirements of the NPPF, therefore, it is not deemed inappropriate development in the Green Belt.
- 3.18 In terms of the limited development that is proposed to be accessed directly from Bloomhouse Lane it is considered that highway conditions are such that the proposed arrangement of three private drives, each serving 5 dwellings will be acceptable.
- 3.19 Traffic flows along Bloomhouse Lane are light and speeds are known to be at a level where adequate visibility can be achieved from the proposed private driveways.
- 3.20 There are already a number of properties served directly from Bloomhouse Lane many of which have the benefit of in-curtilage turning facilities. This feature will be incorporated into the three private drive arrangements proposed as part of the development which will enable drivers to enter Bloomhouse Lane in a forward gear thereby having the best possible visibility of on-coming traffic.

4 Sustainable Travel

4.1 Overview

4.1.1 In order to accord with the aspirations for promoting sustainable travel any new proposals should extend the choice in transport and secure mobility in a way that supports sustainable development.

4.1.2 This section of the report considers the accessibility of the development by the following modes of transport.

- Accessibility on foot;
- Accessibility by cycle;
- Accessibility by bus; and
- Accessibility by rail;

4.1.3 The non-car accessibility of the site is important to provide a viable alternative to the private car when considering travel to and from the site.

4.2 Walking

4.2.1 Walking is the most important mode of transport in the local level and can replace short car trips in journeys under 2km, which contribute to congestion and pollution, and the need for car parking. People walking are also travelling at a pace that gives them a greater connection with their surroundings and can have positive benefits in relation to a community's security through increased surveillance.

4.2.2 Walking stimulates both personal health and the health of communities and local economies. Government health improvement advice states that just 30 minutes brisk walking 5 times a week can bring about significant reductions in the risk of coronary heart disease, high blood pressure and diabetes.

4.2.3 In relation to acceptable walking distances, Manual for Streets (MfS) is the latest national guidance on the design of residential roads and offers the following guidance in Section 4.4 "The walkable neighbourhood".

“Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes (up to about 800m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPG13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km. MfS encourages a reduction in the need to travel by car through the creation of mixed-use neighbourhoods with interconnected street patterns, where daily needs are within walking distance of most residents.”

- 4.2.4 The IHT publication "Providing for Journeys on Foot" identifies suggested walking distances for commuting, school and sight-seeing as follows, with times based on a walking speed of (1.4m/s).

Desirable 500m	6 minutes
Acceptable 1000m	12 minutes
Preferred maximum 2000m	24 minutes

- 4.2.5 The plan attached at **Appendix A (Figure 2)** indicates destinations which lie within 800m and 2000m radius of the application site. It is noted that walking routes will not follow the simple radius of this plan and the plan is provided as an indication of where destinations lie and the general extent to which the local area can be accessed on foot.

- 4.2.6 The following amenities and facilities are all located within an 800m walking distance of the site:-

Bus Stops along Station Road	Darton Train Stations
Darton Primary School	Pharmacy
The Parish Church of All Saints	Hair Salon
Café	Chinese Takeaway
Post Office	Playing Fields (Woolley Colliery Rd.)
Scout Hut	Beauticians
Pet Shop	Balti Palace Restaurant
The Co-operative Food Store	Bus Stops along Sackup Lane

4.2.7 The following amenities and facilities are all located within an 2000m walking distance of the site:-

Bus stops within Mapplewell and Staincross

Mapplewell Primary School

Wellgate Primary School

Mapplewell Village

Staincross Village

4.2.8 Within the Mapplewell and Staincross village areas there are a wide range of facilities including Pharmacy, Post Office, Public Houses, Supermarket, Convenience Store, Hair Salons, Butchers, Takeaways, Building Society and Café.

4.2.9 Public Rights of Way Data obtained from the Barnsley Metropolitan Borough Council website has identified various pedestrian routes in the vicinity of the site. A Bridleway is provide through the site between Bloomhouse Lane and Woolley Colliery Road. A public footpath is provided to the south west of the site which runs from Church Street in a north western direction

4.3 Cycling

4.3.1 Like walking, cycling has an important part to play in reducing congestion, improving accessibility and reducing pollution. A further benefit of cycling is linked to increased general health and fitness which has personal benefits as well as economic benefits for the nation in terms of health service costs. The bicycle is generally more affordable than the car and hence there are social equity benefits to the promotion of cycling. Cycling may also allow people without cars to reach destinations that they may otherwise be unable to reach.

4.3.2 In relation to the application site; cycling distances from local residential centres within 5km, along with the corresponding cycle time based on 12 km per hour are as follows. A 5km radius of possible destinations can be found on the plan attached at **Appendix A (Figure 3)**. It is noted that cycling will not follow the simple radius of this plan and the plan is provided as an indication of where destinations lie and the general extent to which the site is accessible by cycle.

Origin/Destination	Distance	Time
Darton Train Station	0.7km	3½ minutes
Mapplewell	1.2km	6 minutes
Woolley Grange	1.2km	6 minutes
Staincross	1.9km	9½ minutes
Kexbrough	2.1km	10½ minutes
Borough Green	2.6km	13 minutes
Higham	3.6km	18 minutes
Redbrook	3.8km	19 minutes
Cawthorne	4.0km	20 minutes
Athersley North	4.2km	21 minutes
Woolley	4.5km	22½ minutes
Gawber	4.6km	23 minutes
Open College of Arts	4.8km	24 minutes
Smithies	5.0km	25 minutes

4.3.3 It is therefore considered that the site is readily accessible by cycle.

4.3.4 Combined cycle/footway links are provided through the adjacent housing areas.

4.4 Bus Travel

4.4.1 Existing bus stops are located nearby within the recommended 400m walking distance of the centre of the site, along Woolley Colliery Road, Station Road, Sackup Lane and Darton Lane. The location of these stops are shown on **Figure 4 (Appendix A)**. Details of the facilities provided at each of the existing stops along with the available services are provided below:-

Woolley Colliery Road

Location:	adj Fountain Square (37055510)
Distance to stop:	350m from centre of site
Direction of travel:	Northbound
Facilities:	Unmarked
Bus services:	93, 95A, 97, 490

Location: adj Fountain Square (37050879)
Distance to stop: 350m from centre of site
Direction of travel: Southbound
Facilities: Lighting pole with flag and timetable information
Bus services: 93, 95A, 97

Station Road

Location: adj School Street (37055266)
Distance to stop: 400m from centre of site
Direction of travel: Westbound
Facilities: Pole with flag & timetable information
Bus services: 93a, 97, 420, 444, 451, 485, 488

Location: adj School Street (37050887)
Distance to stop: 400m from centre of site
Direction of travel: Westbound
Facilities: Lighting pole with flag
Bus services: 93a, 97, 420, 444, 451, 471, 485, 488

Sackup Lane

Location: adj Station Road (37050883)
Distance to stop: 360m from centre of site
Direction of travel: Northbound
Facilities: Pole with flag & timetable information
Bus services: 1, 444, 451, 488

Location: adj Station Road (37055512)
Distance to stop: 360m from centre of site
Direction of travel: Southbound
Facilities: Unmarked
Bus services: 444, 451, 488

Darton Lane

Location: adj Sackup Lane (37055264)
Distance to stop: 400m from centre of site
Direction of travel: Westbound
Facilities: Shelter with seating & timetable information
Bus services: 1, 93a, 97, 420, 485

Location: adj Sackup Lane (37050437)
Distance to stop: 400m from centre of site
Direction of travel: Eastbound
Facilities: Pole with flag & timetable information
Bus services: 93a, 97, 420, 471, 485

4.4.2 A summary of the bus services which operate at these stops is provided below.

		Approximate Peak Frequencies (Buses per hour)			
Nº	Route	Mon-Fri Day	Mon-Fri Evening	Saturday	Sunday
1	Barnsley to Staincross Circular	10 mins	30 – 60 mins	10 mins	30 mins
93	Barnsley to Woolley Grange	20 – 50 mins	60 mins	20 – 60 mins	60 mins
93a	Barnsley to Mapplewell	60 mins	No Service	60 mins	No Service
95a	Barnsley to Kexborough/Woolley Grange	No Service	2302	0840, 1725, 1750, 2302	1902, 2002, 2102, 2202, 2302
	Woolley Grange/Kexborough to Barnsley	No Service	No Service	No Service	1920, 2020, 2120, 2220
97	Barnsley (Ripley Grove) to Wakefield	0730, 0930, 1333	No Service	No Service	No Service
	Wakefield to Barnsley (Ripley Grove)	1332, 1552, 1817	No Service	No Service	No Service
420	Mapplewell – Penistone Grammar (School Service)	0735	No Service	No Service	No Service
	Penistone Grammar – Mapplewell (School Service)	15:22			
444	Staincross – Darton High School (School Service)	0810	No Service	No Service	No Service
	Darton High School – Staincross (School Service)	1540			

451	Darton – Holy Trinity School (School Service)	0810	No Service	No Service	No Service
	Holy Trinity School – Darton (School Service)	1536			
471	Darton High School – Barnsley (School Service)	1535	No Service	No Service	No Service
485	Barnsley (Eastfield Arms) to Darton High School (School Service)	0830	No Service	No Service	No Service
	Darton High School to Barnsley (Eastfield Arms) (School Service)	1541	No Service	No Service	No Service
488	Barnsley Interchange – Darton High School (School Service)	0840	No Service	No Service	No Service
	Darton High School – Barnsley Interchange (School Service)	1540	No Service	No Service	No Service
490	Darton High School – Mapplewell	1535	No Service	No Service	No Service

4.5 Rail Accessibility

4.5.1 The nearest rail station to the site is Darton Train Station which is located approximately 0.7km south east of the site.

4.5.2 This unstaffed station is managed by Northern and facilities at the station include a 10 space car park CCTV monitored cycle parking stands with spaces for 18 cycles and ramps are present to provide mobility access to both platforms.

4.5.3 A summary of the train service frequency from these stations is as follows:

Route	Monday to Friday Frequency		Saturday Frequency	Sunday Frequency
	Daytime	Evening		
Leeds to Sheffield	60 mins	60 mins	60 mins	120 mins

4.6 Sustainable Travel Summary

4.6.1 It is considered that the site has good access by both “active transport” to local facilities and to public passenger transport arrangements. As such residents and visitors to the development will have a realistic choice of sustainable travel options.

5 Multi Modal Assessment

- 5.1 Multimodal trip generations for the proposed residential development of 214 dwellings have been estimated using the TRICS 7.4.1 database. The TRICS search parameters have been refined to closely match the location and characteristics of the development site. The selection criteria is summarised below:

Land Use: 03 – Residential

Category: A – Houses privately owned

Selected Regions and Areas: Greater London and Ireland excluded

Parameter: Number of dwellings

Range: 75 – 491 dwellings

Date Range: 01/01/09 – 29/11/16

Selected Survey Days: Weekends excluded

Selected Locations: Suburban Area, Edge of Town and Edge of Town Centre

Travel Plans: 4 of the 49 surveys were undertaken with a Travel Plan in place

- 5.2 A full copy of the TRICS output is contained within **Appendix E** to the rear of this report.
- 5.3 The Table 5.3 overleaf provides details of the multimodal two-way trip rates along with the corresponding modal percentage split and generated trips based on the proposed development quantum of 214 dwellings. Trip rates for the weekday AM/PM peak periods and a 24 hour modal trip rate have been considered:

	Mode of Travel	Trip Rate Per Dwelling	Modal Split %	Generations for 214 Dwellings
AM Peak Period	Pedestrians	0.22	23.6%	47
	Cyclists	0.02	2.1%	4
	Public Transport Users	0.01	1.1%	2
	Vehicle Occupants	0.683	73.1%	146
	Total People Trips	0.934	100.0%	199
PM Peak Period	Pedestrians	0.146	17.8%	31
	Cyclists	0.022	2.7%	5
	Public Transport Users	0.013	1.6%	3
	Vehicle Occupants	0.638	78.0%	137
	Total People Trips	0.818	100.0%	176
Daily	Pedestrians	1.567	20.8%	335
	Cyclists	0.157	2.1%	34
	Public Transport Users	0.114	1.5%	24
	Vehicle Occupants	5.698	75.6%	1219
	Total People Trips	7.537	100.0%	1612

Table 5.3 – Multimodal Trip Generations (214 Dwellings)

- 5.4 Based on the TRICS data the development could be expected to generate 26.9% travel by walking, cycling and public transport modes in the AM peak hour and 22.0% in the PM peak hour. Over a 24 hour weekday period, 24.4% of travel could be by sustainable modes.
- 5.5 The anticipated peak hour demand from the development for walking, cycling and public transport is modest and at a level which can readily be accommodated within the existing infrastructure provision.

6 Traffic Generations

- 6.1 In order to predict the vehicle traffic generation potential of the proposed 214 dwellings the TRICS database has been interrogated using the same search parameters as the Multimodal TRICS search as described in paragraph 5.1.
- 6.2 Given the easily accessible nature of the site to local facilities and to public transport it is considered appropriate to use average trip rates to predict the traffic impact of the development, however vehicular trip rates based on higher 85th percentile values are included for comparison purposes.
- 6.3 The resultant traffic generation for the proposed development are tabulated as follows for the typical network peaks in the AM and PM periods. Full copies of the TRICS output are included at **Appendix E** and **F**.

	Trip Rate Per Dwelling		Traffic Generation for 214 Dwellings		
	Arrivals	Departure	Arrivals	Departure	Total
0800-0900	0.14	0.356	30	76	106
1700-1800	0.313	0.174	67	37	104

Table 6.3a: Average Trip Rates and Generations

	Trip Rate Per Dwelling		Traffic Generation for 214 Dwellings		
	Arrivals	Departure	Arrivals	Departure	Total
0800-0900	0.183	0.366	39	78	117
1700-1800	0.388	0.233	83	50	133

Table 6.3b: 85th Percentile Trip Rates and Generations

- 6.4 Based on the above average trip rates the proposed development would result in 106 vehicle movements (two-way) in the AM peak and 104 vehicle movements (two-way) in the PM peak.
- 6.5 Using 85th percentile values the proposed development would result in 117 vehicle movements (two-way) in the AM peak and 133 vehicle movements (two-way) in the PM peak.

7 Traffic Distribution

7.1 In order to determine the impact of the proposed residential development at junctions on the local highway network a traffic distribution assessment has been undertaken using 2011 Census: Origin / Destination statistics (Dataset: WU03EW) which identifies 'Location of usual residence and place of work by method of travel to work' at Middle Super Output Area (MSOA) level. This data identifies the existing travel to work patterns of people who reside within the sites representative MSA, which for reference is 'Barnsley 005'. The extent of this MSA is illustrated in the figure below;

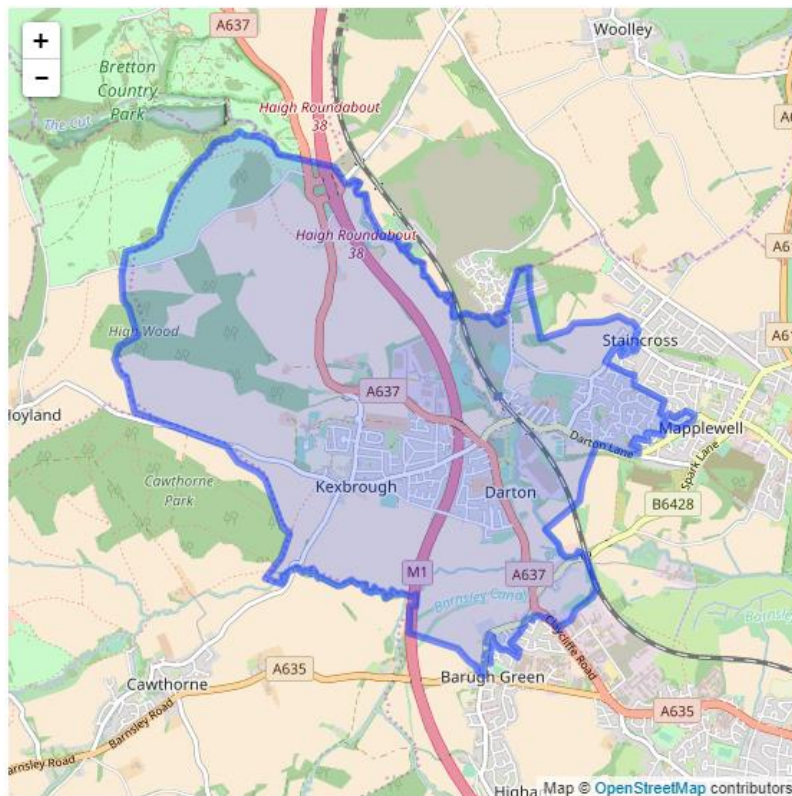


Figure 7.1 – Barnsley 005 MSA boundary

7.2 As the MSA data includes all nationwide destinations, the results of the search have been refined to exclude all MSA's which generate less than 10 trips which equates to less than 0.6% of the overall sample. It is considered that this excluded information is not relevant in terms of establishing a 'likely' distribution of traffic.

7.3 A summary of the 'Barnsley 005' car driver travel to work census data is as follows:

place of work : 2011 super output area - middle layer	Usual Residence - E02001513 : Barnsley 005	%
E02001521 : Barnsley 013	272	15.2%
E02001520 : Barnsley 012	209	11.7%
E02001513 : Barnsley 005	148	8.3%
E02001523 : Barnsley 015	92	5.2%
E02001512 : Barnsley 004	77	4.3%
E02001518 : Barnsley 010	71	4.0%
E02001510 : Barnsley 002	67	3.8%
E02006875 : Leeds 111	45	2.5%
E02002454 : Wakefield 017	42	2.4%
E02001515 : Barnsley 007	38	2.1%
E02001524 : Barnsley 016	38	2.1%
E02002327 : Kirklees 057	36	2.0%
E02001527 : Barnsley 019	35	2.0%
E02001628 : Sheffield 018	34	1.9%
E02002456 : Wakefield 019	34	1.9%
E02002475 : Wakefield 038	34	1.9%
E02001579 : Rotherham 002	32	1.8%
E02001536 : Barnsley 028	30	1.7%
E02006876 : Leeds 112	30	1.7%
E02001529 : Barnsley 021	24	1.3%
E02002467 : Wakefield 030	24	1.3%
E02001525 : Barnsley 017	22	1.2%
E02002474 : Wakefield 037	22	1.2%
E02006843 : Sheffield 073	21	1.2%
E02002473 : Wakefield 036	21	1.2%
E02001531 : Barnsley 023	19	1.1%
E02001516 : Barnsley 008	18	1.0%
E02001514 : Barnsley 006	16	0.9%
E02001594 : Rotherham 017	16	0.9%
E02001519 : Barnsley 011	15	0.8%
E02001535 : Barnsley 027	15	0.8%
E02002451 : Wakefield 014	15	0.8%
E02005818 : Selby 010	14	0.8%
E02001517 : Barnsley 009	14	0.8%

E02001632 : Sheffield 022	14	0.8%
E02001532 : Barnsley 024	13	0.7%
E02001534 : Barnsley 026	13	0.7%
E02002450 : Wakefield 013	13	0.7%
E02002472 : Wakefield 035	13	0.7%
E02001509 : Barnsley 001	12	0.7%
E02001637 : Sheffield 027	12	0.7%
E02002465 : Wakefield 028	12	0.7%
E02002470 : Wakefield 033	12	0.7%
E02001560 : Doncaster 022	11	0.6%
E02001522 : Barnsley 014	10	0.6%
E02002458 : Wakefield 021	10	0.6%
Total	1,785	100.0%

Table 7.3: 2011 Census Origin Destination Statistics for 'Barnsley 005' MSOA

- 7.4 The likely route assignments between the site and the qualifying MSOA's have been determined using online route mapping and Population Centroid Data which identifies the centre of each MSOA based upon its residential population.
- 7.5 The predicted distribution of development traffic is illustrated on the local highway network on **Figure 6 (Appendix A)**.
- 7.6 Using the trip generation information provided in Section 6 of this report and the distribution assessment described above, the proposed development traffic flows are shown on **Figure 7 (Appendix A)** based on the average trip rates, whilst **Figure 8 (Appendix A)** shows the development traffic flows based on the 85th percentile trip rates.

8 Traffic Impact

8.1 *Base Traffic Flows*

8.1.1 As stated in Section 2.9, traffic surveys have been carried out at the following junctions:

- Bloomhouse Lane / Woolley Colliery Road
- The Grange / Woolley Edge Lane
- Bloomhouse Lane / Sackup Lane
- Sackup Lane / Station Road / Darton Lane / Darton Primary School Access
- Station Road / Church Street
- Huddersfield Road / Barnsley Road / Churchfield Lane / B6131 Church Lane

8.1.2 Whilst the surveyed traffic flows are shown on Figure 5, it is considered that as a result of the proposed spine road through the site, there will be an element of non-development traffic which will divert through the site to avoid Woolley Colliery Village.

8.1.3 Therefore, the 2016 surveyed traffic flows have been redistributed to account for the presence of the spine road and these flows are shown on **Figure 9** at **Appendix A**.

8.2 *Growth Rates*

8.2.1 This Transport Assessment considers the effect of the proposed development for an opening year of 2017 and a future year of 2022. These relate to a potential start of development in 2017.

8.2.2 To establish the likely growth in traffic flow the computer program TEMPRO 7.2 with Data Set 7.2 has been utilised in conjunction with Data Set AF15 of the National Transport Model.

8.2.3 The growth factors obtained from a base year of 2016 to future years of 2017 and 2022 can be summarised as follows:-

	2016-2017	2016-2022
AM	1.014	1.0886
PM	1.0132	1.0846

Table 8.2.3 – Temporo 7.2 growth factors

8.2.4 The above growth factors have been applied to the 2016 redistributed base traffic flows detailed on Figure 9, to provide base flows for assessing the impact of the development on the network in 2017 and 2022. **Figures 10 and 11 (Appendix A)** show the resultant future year base flows.

8.3 Traffic Modelling

8.3.1 In order to ascertain the level of impact the proposed development will have on the local highway network, the computer programs 'ARCADY 6' and 'PICADY 5' have been used to model these junctions in order to assess the capacity, queuing and delay experienced at the respective junctions.

8.3.2 The following junctions have been assessed using a base year of 2017 to coincide with the application year of the site, and a design year of 2022;

- Existing Station Road / Sackup Lane / Darton Lane / School Access priority crossroad junction (PICADY)
- Proposed Link Road / Sackup Lane / Station Road / Darton Lane / roundabout junction (ARCADY)
- Bloomhouse Lane / Woolley Colliery Road priority T-junction (PICADY)
- The Grange / Woolley Edge Lane priority T-junction (PICADY)
- Bloomhouse Lane / Sackup Lane priority T-junction (PICADY)
- Station Road / Church Street priority T-junction (PICADY)
- Huddersfield Road / Barnsley Road / Churchfield Lane / B6131 Church Lane priority staggered crossroad junction (PICADY)

8.4 **PICADY Assessment of the existing Station Road / Sackup Lane / Darton Lane / School Access crossroad junction**

Arm A – Darton Lane

Arm B – School Access

Arm C – Station Road

Arm D – Sackup Lane

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-ACD	0.038	0.04	0.138	0.16
A-BCD	0.072	0.13	0.076	0.14
D-AB	0.074	0.08	0.097	0.11
D-BC	0.237	0.31	0.309	0.44
C-ABD	0.096	0.18	0.072	0.13

2016 Base

- 8.4.1 From the above results it can be seen that in the 2016 base scenario the junction operates significantly within capacity having Ratio of Flow to Capacity (RFC) values of less than 0.85, which is the accepted operational threshold for priority type junctions.
- 8.4.2 The maximum RFC value of 0.309 occurs in the PM peak. At this point, the maximum queue is anticipated to be 0.44 vehicles.
- 8.4.3 The full PICADY output for this junction is attached at **Appendix G**.

8.5 **ARCADY Assessment of Proposed Roundabout Junction**

Arm A – Sackup Lane

Arm B – Darton Lane

Arm C – Station Road

Arm D – Proposed Link Road

Arm	Weekday AM (07:45-08:45)		Weekday PM (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
A	0.206	0.3	0.281	0.4
B	0.406	0.7	0.374	0.6
C	0.348	0.5	0.656	1.9
D	0.029	0	0.051	0.1

2017 Base

Arm	Weekday AM (07:45-08:45)		Weekday PM (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
A	0.226	0.3	0.308	0.4
B	0.422	0.7	0.398	0.7
C	0.361	0.6	0.692	2.2
D	0.108	0.1	0.099	0.1

2017 Base + Average Development

Arm	Weekday AM (07:45-08:45)		Weekday PM (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
A	0.228	0.3	0.315	0.5
B	0.425	0.7	0.405	0.7
C	0.366	0.6	0.7	2.3
D	0.111	0.1	0.118	0.1

2017 Base + 85% Development

Arm	Weekday AM (07:45-08:45)		Weekday PM (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
A	0.226	0.3	0.312	0.4
B	0.439	0.8	0.403	0.7
C	0.373	0.6	0.704	2.3
D	0.032	0	0.057	0.1

2022 Base

Arm	Weekday AM (07:45-08:45)		Weekday PM (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
A	0.246	0.3	0.34	0.5
B	0.456	0.8	0.427	0.7
C	0.386	0.6	0.74	2.8
D	0.113	0.1	0.107	0.1

2022 Base + Average Development

Arm	Weekday AM (07:45-08:45)		Weekday PM (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
A	0.249	0.3	0.348	0.5
B	0.459	0.8	0.434	0.8
C	0.391	0.6	0.749	2.9
D	0.116	0.1	0.127	0.1

2022 Base + 85% Development

- 8.5.1 It is generally accepted that the practical capacity threshold for a standard roundabout junction is represented by a ratio of flow to capacity of 0.850.
- 8.5.2 The results of this assessment show that the proposed roundabout junction with Sackup Lane / Darton Lane / Station Road is predicted to operate with reserve capacity in all scenarios, including worst case (85th Percentile) development traffic and future base traffic growth.
- 8.5.3 The maximum RFC value of 0.749 occurs in the PM peak of the '2022 Base + 85% Development' scenario. At this point, the maximum queue is anticipated to be 2.9 vehicles.
- 8.5.4 The full ARCADY output for this junction can be found at **Appendix H**.

8.6 PICADY Assessment of The Grange / Woolley Edge Lane

Arm A – Woolley Edge Lane (South)

Arm B – The Grange

Arm C – Woolley Edge Lane (North)

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.319	0.46	0.038	0.04
B-A	0.039	0.04	0.015	0.02
C-AB	0.033	0.03	0.159	0.19

2017 Base

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.329	0.49	0.043	0.05
B-A	0.039	0.04	0.015	0.02
C-AB	0.038	0.04	0.168	0.2

2017 Base + Average Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.329	0.49	0.043	0.05
B-A	0.039	0.04	0.015	0.02
C-AB	0.04	0.04	0.17	0.2

2017 Base + 85% Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.351	0.53	0.042	0.04
B-A	0.044	0.05	0.016	0.02
C-AB	0.036	0.04	0.171	0.21

2022 Base

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.361	0.56	0.047	0.05
B-A	0.045	0.05	0.016	0.02
C-AB	0.041	0.04	0.181	0.22

2022 Base + Average Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.361	0.56	0.047	0.05
B-A	0.045	0.05	0.016	0.02
C-AB	0.043	0.04	0.183	0.22

2022 Base + 85% Development

8.6.1 From the above results it can be seen that in all scenarios the junction operates significantly within capacity having Ratio of Flow to Capacity (RFC) values of less than 0.85, which is the accepted operational threshold for priority type junctions.

8.6.2 The maximum RFC value of 0.361 occurs in the AM peak of the '2022 Base + 85% Development' scenario. At this point, the maximum queue is anticipated to be 0.56 vehicles.

8.6.3 The full PICADY output for this junction is attached at **Appendix I**.

8.7 PICADY Assessment of Woolley Colliery Road / Bloomhouse Lane

Arm A – Woolley Colliery Road (North)

Arm B – Bloomhouse Lane

Arm C – Woolley Colliery Road (South)

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.016	0.02	0.022	0.02
B-A	0.028	0.03	0.035	0.04
C-AB	0.011	0.01	0.018	0.02

2017 Base

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.018	0.02	0.022	0.02
B-A	0.029	0.03	0.037	0.04
C-AB	0.013	0.01	0.02	0.02

2017 Base + Average Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.018	0.02	0.024	0.02
B-A	0.029	0.03	0.037	0.04
C-AB	0.013	0.01	0.02	0.02

2017 Base + 85% Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.018	0.02	0.024	0.02
B-A	0.031	0.03	0.037	0.04
C-AB	0.013	0.01	0.02	0.02

2022 Base

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.019	0.02	0.024	0.02
B-A	0.031	0.03	0.039	0.04
C-AB	0.015	0.02	0.022	0.03

2022 Base + Average Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.019	0.02	0.025	0.03
B-A	0.031	0.03	0.039	0.04
C-AB	0.015	0.02	0.022	0.03

2022 Base + 85% Development

- 8.7.1 From the above results it can be seen that in all scenarios the junction operates significantly within capacity having Ratio of Flow to Capacity (RFC) values of less than 0.85, which is the accepted operational threshold for priority type junctions.
- 8.7.2 The maximum RFC value of 0.037 occurs in the PM peak of the '2022 Base + 85% Development' scenario. At this point, the maximum queue is anticipated to be 0.04 vehicles.
- 8.7.3 The full PICADY output for this junction is attached at **Appendix J**.

8.8 PICADY Assessment of Sackup Lane / Bloomhouse Lane

Arm A – Sackup Lane (South)

Arm B – Bloomhouse Lane

Arm C – Sackup Lane (North)

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.062	0.07	0.043	0.05
B-A	0.007	0.01	0.013	0.01
C-AB	0.034	0.04	0.056	0.08

2017 Base

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.065	0.07	0.044	0.05
B-A	0.015	0.01	0.018	0.02
C-AB	0.036	0.05	0.058	0.08

2017 Base + Average Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.065	0.07	0.44	0.05
B-A	0.015	0.01	0.18	0.02
C-AB	0.034	0.04	0.59	0.08

2017 Base + 85% Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.066	0.07	0.047	0.05
B-A	0.008	0.01	0.013	0.01
C-AB	0.034	0.04	0.062	0.09

2022 Base

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.068	0.07	0.047	0.05
B-A	0.015	0.02	0.018	0.02
C-AB	0.036	0.05	0.064	0.09

2022 Base + Average Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.068	0.07	0.047	0.05
B-A	0.015	0.02	0.018	0.02
C-AB	0.034	0.04	0.064	0.09

2022 Base + 85% Development

8.8.1 From the above results it can be seen that in all scenarios the junction operates significantly within capacity having Ratio of Flow to Capacity (RFC) values of less than 0.85, which is the accepted operational threshold for priority type junctions.

8.8.2 The maximum RFC value of 0.066 occurs in the AM peak of the '2022 Base + 85% Development' scenario. The maximum queuing is anticipated to occur in the PM peak however this is only 0.09 vehicles.

8.8.3 The full PICADY output for this junction is attached at **Appendix K**.

8.9 PICADY Assessment of Church Street – Station Road

Arm A – Church Street

Arm B – Station Road (North)

Arm C – Station Road (South)

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-A	0.191	0.24	0.151	0.17

2017 Base

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-A	0.232	0.3	0.178	0.21

2017 Base + Average Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-A	0.235	0.31	0.186	0.23

2017 Base + 85% Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-A	0.21	0.26	0.168	0.2

2022 Base

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-A	0.252	0.33	0.197	0.24

2022 Base + Average Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-A	0.256	0.34	0.206	0.26

2022 Base + 85% Development

- 8.9.1 From the above results it can be seen that in all scenarios the junction operates significantly within capacity having Ratio of Flow to Capacity (RFC) values of less than 0.85, which is the accepted operational threshold for priority type junctions.
- 8.9.2 The maximum RFC value of 0.256 occurs in the AM peak of the '2022 Base + 85% Development' scenario. At this point, the maximum queue is anticipated to be 0.34 vehicles.
- 8.9.3 The full PICADY output for this junction is attached at **Appendix L**.

8.10 *PICADY Assessment of Church Street – A637 – Churchfield Lane staggered priority crossroad junction*

Arm A – A637 (South)

Arm B – Churchfield Lane

Arm C – A637 (North)

Arm D – Church Street

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.009	0.01	0.018	0.02
B-AD	0.433	0.75	0.409	0.68
A-BCD	0.215	0.27	0.578	1.38
D-A	0.457	0.82	0.393	0.64
D-BC	0.867	5.11	0.615	1.53
C-ABD	0.005	0	0.004	0

2017 Base

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.009	0.01	0.018	0.02
B-AD	0.437	0.76	0.411	0.69
A-BCD	0.239	0.31	0.634	1.77
D-A	0.539	1.14	0.431	0.75
D-BC	0.908	6.55	0.65	1.76
C-ABD	0.005	0	0.004	0

2017 Base + Average Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.009	0.01	0.018	0.02
B-AD	0.438	0.76	0.412	0.69
A-BCD	0.247	0.33	0.648	1.89
D-A	0.542	1.15	0.444	0.79
D-BC	0.912	6.71	0.663	1.85
C-ABD	0.005	0	0.004	0

2017 Base + 85% Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.01	0.01	0.022	0.02
B-AD	0.496	0.96	0.46	0.84
A-BCD	0.238	0.31	0.636	1.8
D-A	0.514	1.04	0.442	0.78
D-BC	0.984	10.76	0.709	2.24
C-ABD	0.005	0	0.005	0

2022 Base

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.01	0.01	0.022	0.02
B-AD	0.503	0.98	0.463	0.85
A-BCD	0.262	0.35	0.695	2.39
D-A	0.59	1.4	0.483	0.92
D-BC	1.028	14.4	0.751	2.7
C-ABD	0.005	0.1	0.005	0

2022 Base + Average Development

Movement	AM Weekday (07:45-08:45)		PM Weekday (17:00-18:00)	
	Max RFC	Max Queue	Max RFC	Max Queue
B-C	0.01	0.01	0.022	0.02
B-AD	0.504	0.98	0.464	0.85
A-BCD	0.271	0.37	0.708	2.56
D-A	0.593	1.41	0.498	0.97
D-BC	1.032	14.8	0.765	2.89
C-ABD	0.005	0.01	0.005	0

2022 Base + 85% Development

- 8.10.1 From the above results it can be seen that in all 'AM Peak' scenarios the junction is predicted to operate over its theoretical capacity with the 'D-BC' movement having Ratio of Flow to Capacity (RFC) values in excess of 0.85, which is the accepted operational threshold for priority type junctions.

-
- 8.10.2 In the '2017 Base' scenario (without development) the model estimates a maximum RFC of 0.867 and a maximum queue of 5.11 vehicles. With development traffic (85th percentile trip rates assumed to provide a worst case assessment) the RFC increases marginally to 0.912 and the maximum queue increases by 1.6 vehicles to 6.71.
- 8.10.3 A more significant factors in terms of its adverse effect on the operation of the junction is the predicted growth in base traffic flows. In the '2022 Base' scenario (without development) the model estimates a maximum RFC of 0.984 and a maximum queue of 10.76 vehicles. With development traffic (85th percentile trip rates assumed to provide a worst case assessment) the RFC increases to 1.032 and the maximum queue increases by approximately 4 vehicles to 14.8.
- 8.10.4 The full PICADY output for this junction is attached at **Appendix M**.

9 Conclusion

- 9.1 Sanderson Associates (Consulting Engineers) Limited has been appointed by Jones Homes Ltd, to advise on traffic and transportation issues relating to a proposed housing development at Bloomhouse Lane in Darton, Barnsley which consists of the construction of up to 214 dwellings.
- 9.2 The development will provide a range of accommodation of 2 – 5 bedroom properties in town house, semi-detached and detached styles.
- 9.3 The main vehicular access to the residential site is from a new link road which will run from Woolley Colliery Road in the west to the junction of Station Road / Sackup Lane / Darton Lane in the east which will be replaced by a four arm roundabout. The link road will provide vehicle access for 199 dwellings with the remaining 15 dwellings taking direct access from Bloomhouse Lane.
- 9.4 Pedestrian and cycle links to the site will also be available direct from Howden Close, Bloomhouse Lane and Bridge Street.
- 9.5 The site is accessible by a various transport modes and a Travel Plan has been prepared to encourage sustainable travel.
- 9.6 With regard to accident records, three incidents have occurred within the study area over the last five years due to a variety of factors. It is considered that this does not represent an inherent accident issue.
- 9.7 It is not considered that the proposed development would have a material traffic impact on the local highway network, relative to baseline flows. Junction capacity assessments have been undertaken within the study area which support this.
- 9.8 The vehicles assessments were based on 85th percentile and make no allowance for the effect of the Travel Plan.

-
- 9.9 The test for this proposal in highway terms relates to paragraph 32 of the *National Planning Policy Framework*, which is:
- “All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:*
- the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;*
 - safe and suitable access to the site can be achieved for all people; and*
 - improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe”.*
- 9.10 It is considered that a suitable access can be developed to the site and that opportunities for sustainable travel are available. In summary it is concluded that a robust analysis of the effect of the development has been undertaken and the development traffic can be accommodated on the network without severe detriment.
- 9.11 The proposals are therefore considered acceptable with regard to transport.

APPENDIX A

Figure 1 - Site Location Plan

Figure 2 - 2km Walking Plan

Figure 3 - 5km Walking Plan

Figure 4 - Public Transport Plan

Figure 5 - 2016 Surveyed Traffic Flows

Figure 6 - Development Traffic Distribution %

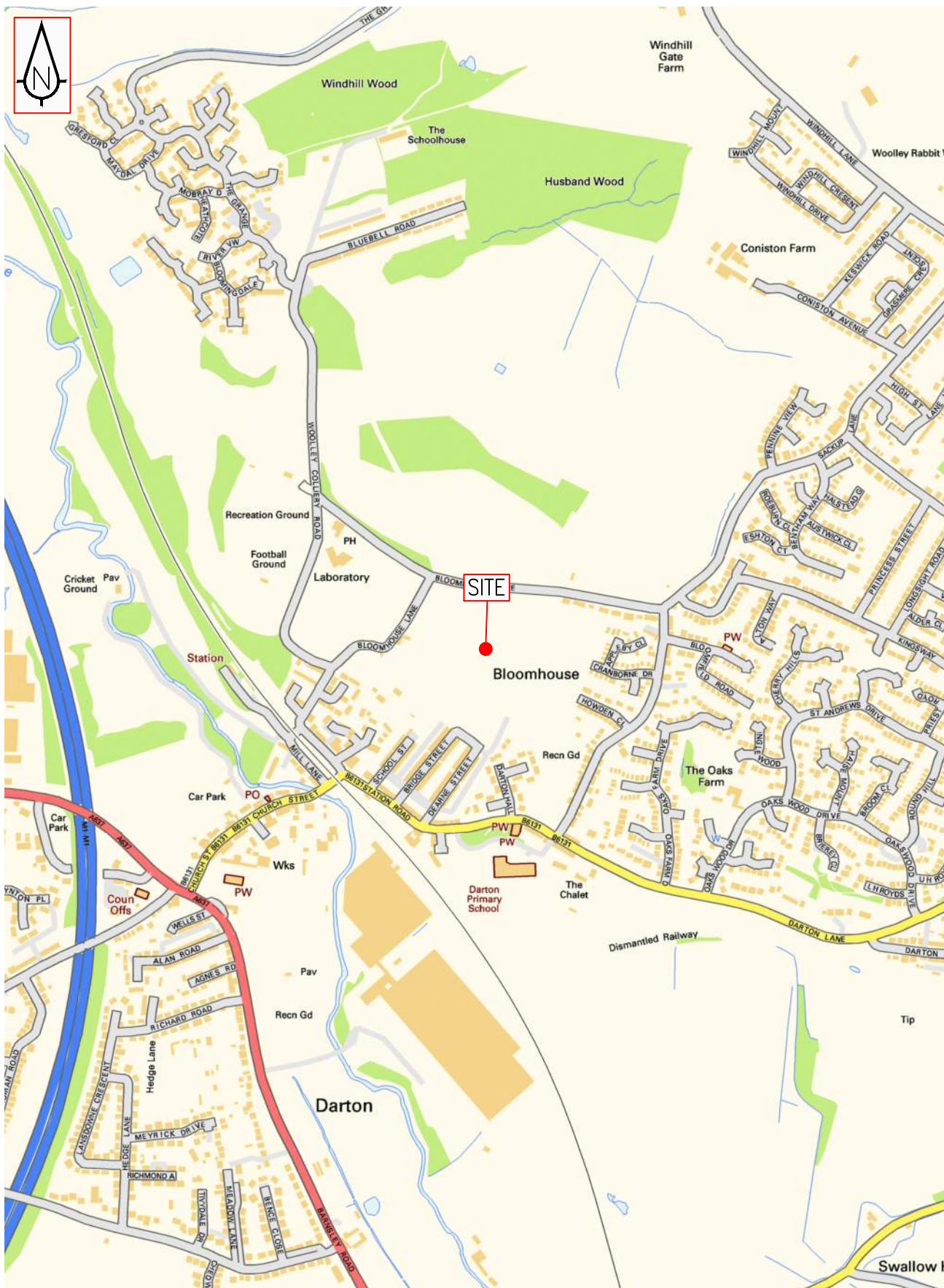
Figure 7 - Development Traffic Flows (Average Trip Rates)

Figure 8 - Development Traffic Flows (85th Percentile Trip Rates)

Figure 9 - Redistributed Base Traffic Flows

Figure 10 - 2017 Base Traffic Flows

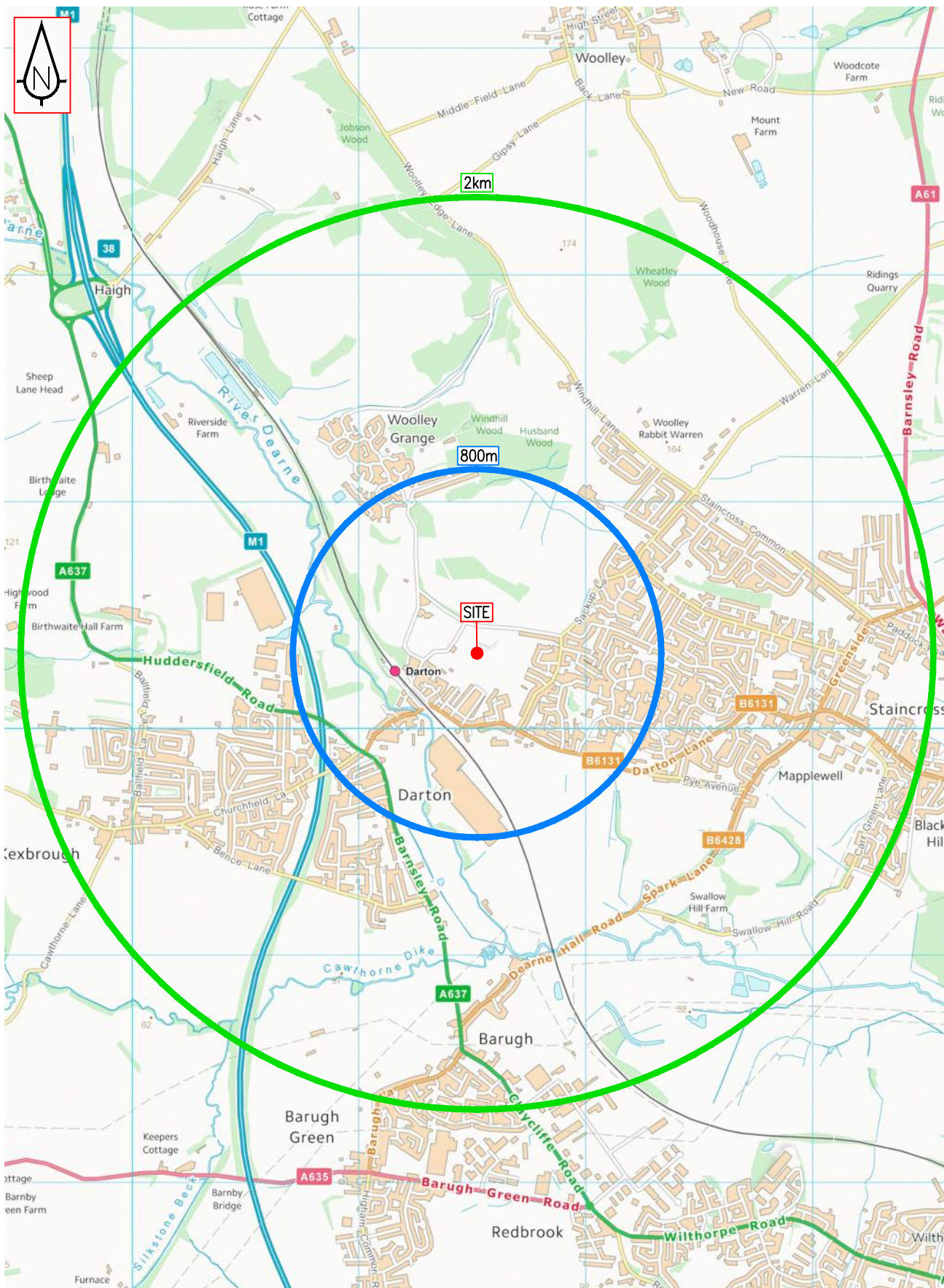
Figure 11 - 2022 Base traffic Flows

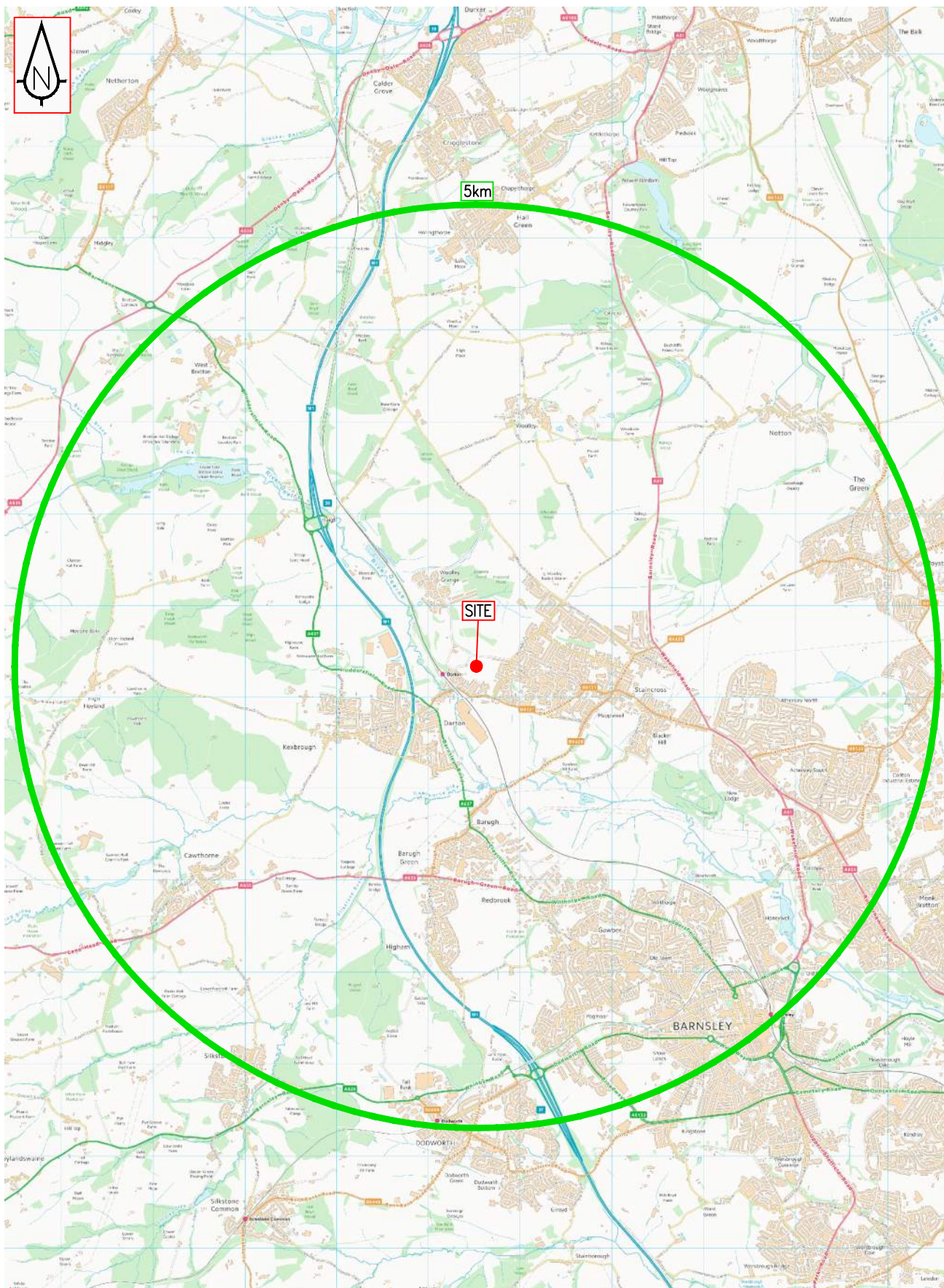


Site Location Plan

Proposed Residential Development Bloomhouse Lane, Darton

Drawn CC	Scale NTS	 ISO 9001 REGISTERED FIRM
Checked SB	Date July 2017	
Approved SB	Drawing Number Figure 1	Size A4



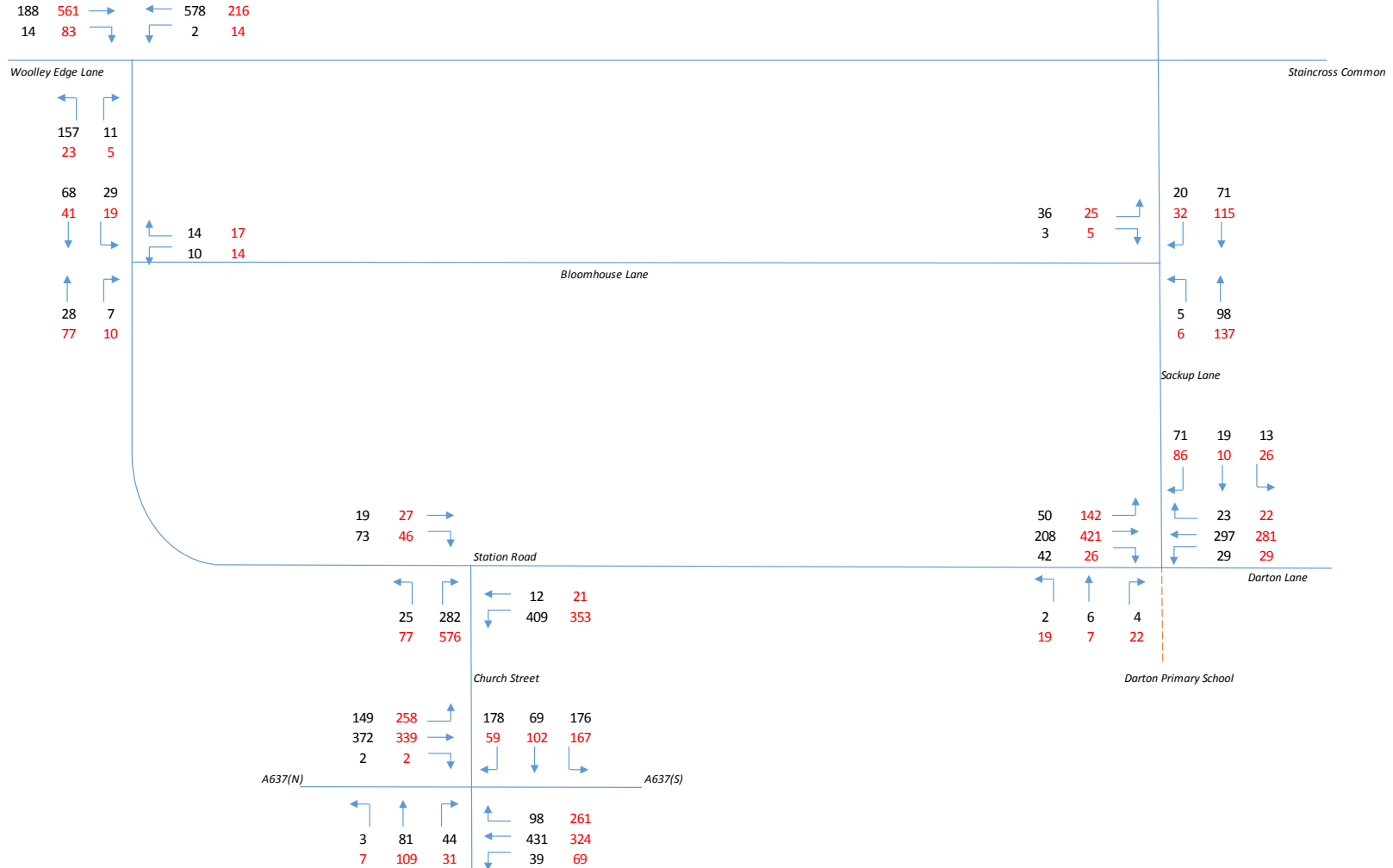


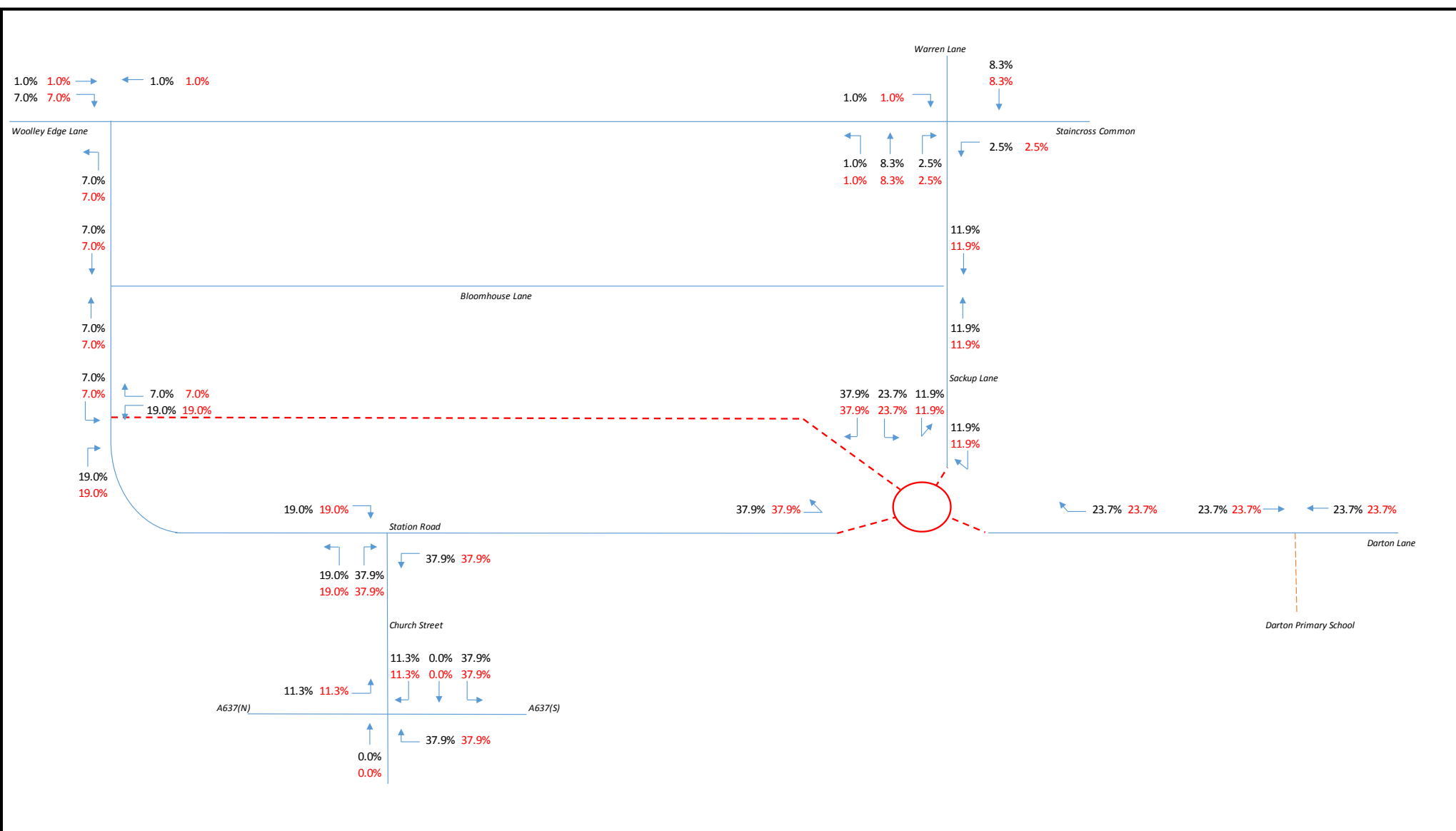


2016 Surveyed Flows

0745 - 0845

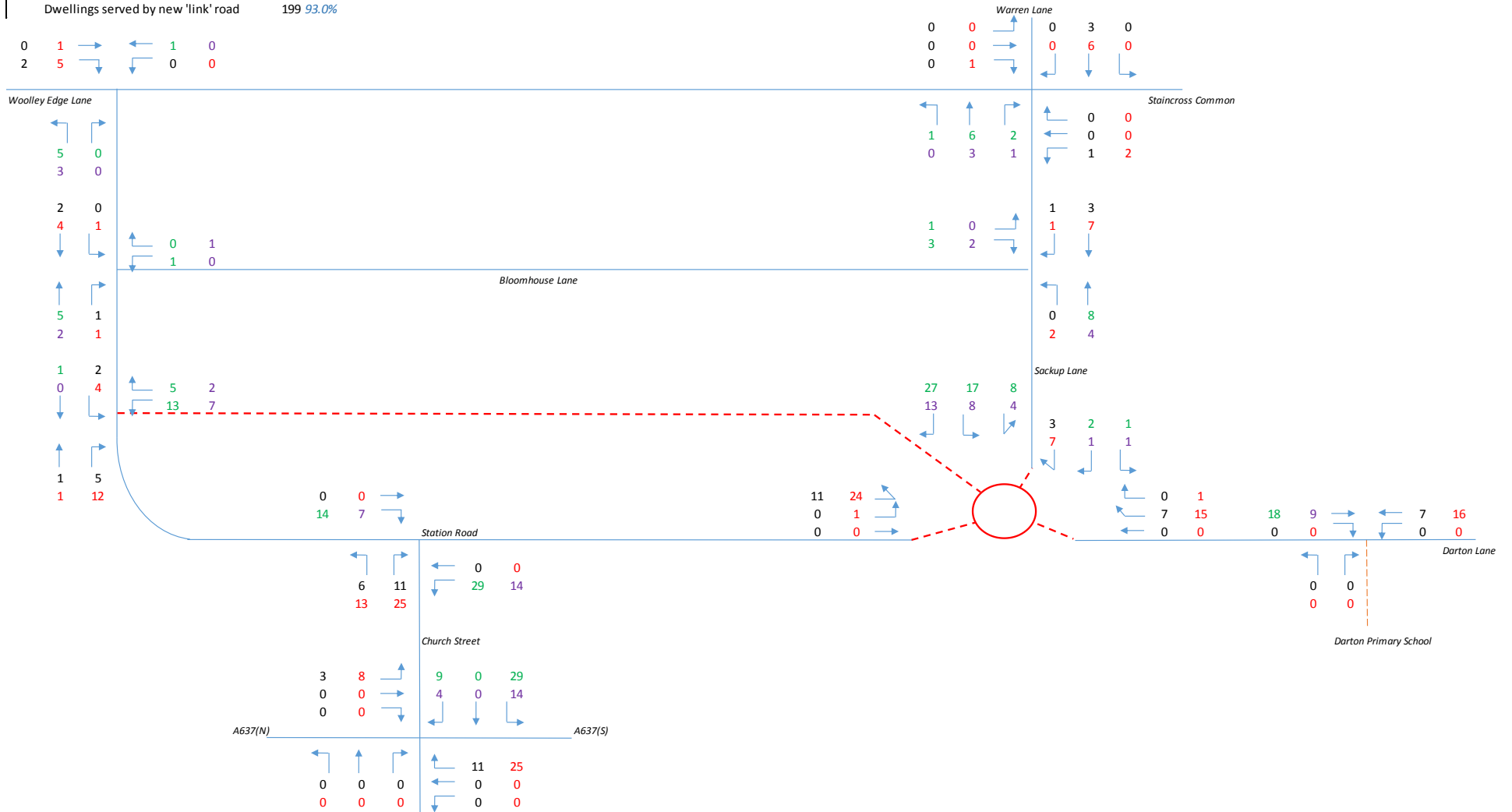
1700 - 1800



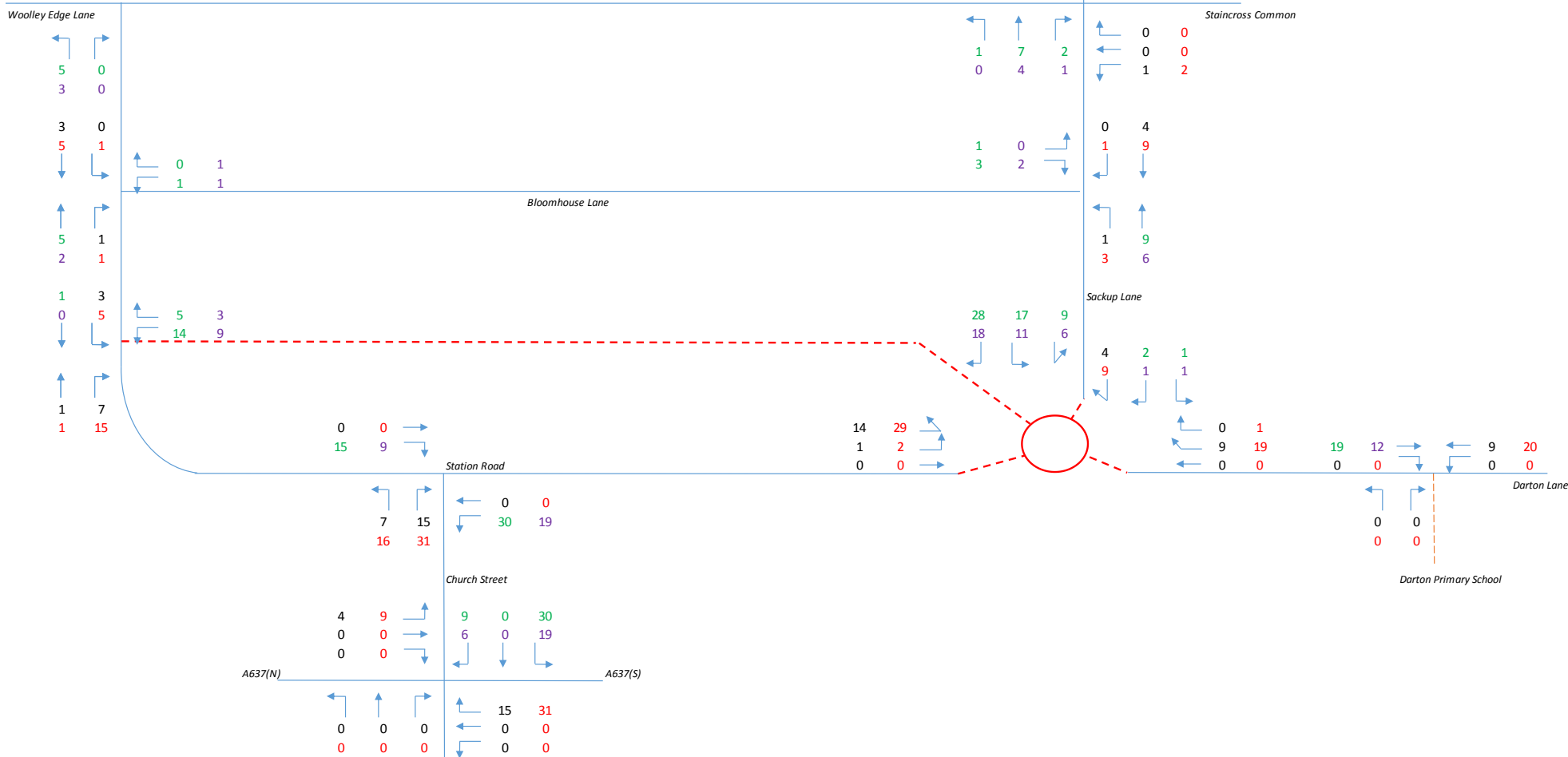


Sa sanderson[®] associates (consulting engineers) ltd Highways Traffic Transportation Water T 01924 844080 mail@sandersonassociates.co.uk F 01924 844081 www.sandersonassociates.co.uk	Proposed Residential Development Bloomhouse Lane, Darton, Barnsley							Scale NTS		Draw by BL	
								Drawing Size A3		Checked by KS	
								Date June 2017		Approved by KS	
								Drawing Number		Rev.	
								FIGURE 6			
Development Traffic Distribution %		Rev	Amendment	Drawn	Date	Checked					

Dwellings served by Bloomhouse Lane 15 7.0%
Dwellings served by new 'link' road 199 93.0%



0 1 → ← 1 0
3 6 ↘ ↙ 0 0



Proposed Residential Development Bloomhouse Lane, Darton, Barnsley

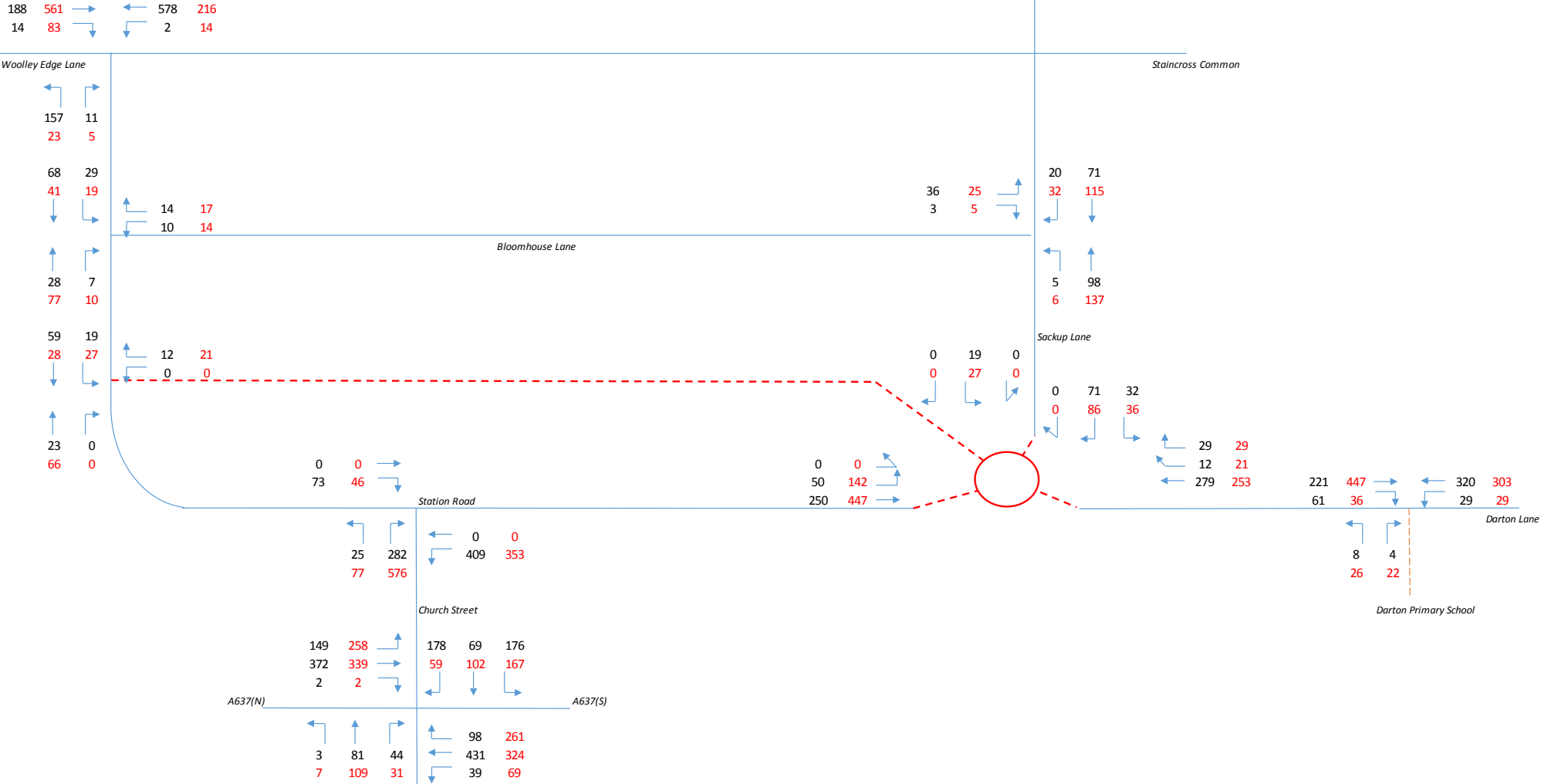
Development Traffic Flows (85%ile Trip Rates)

					Scale NTS		Draw by BL	
					Drawing Size A3		Checked by KS	
					Date June 2017		Approved by KS	
						Drawing Number FIGURE 8		Rev.
Rev	Amendment	Drawn	Date	Checked				

2016 Redistributed Base Traffic Flows

0745 - 0845

1700 - 1800



Highways | Traffic | Transportation | Water

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Proposed Residential Development
Bloomhouse Lane, Darton, Barnsley

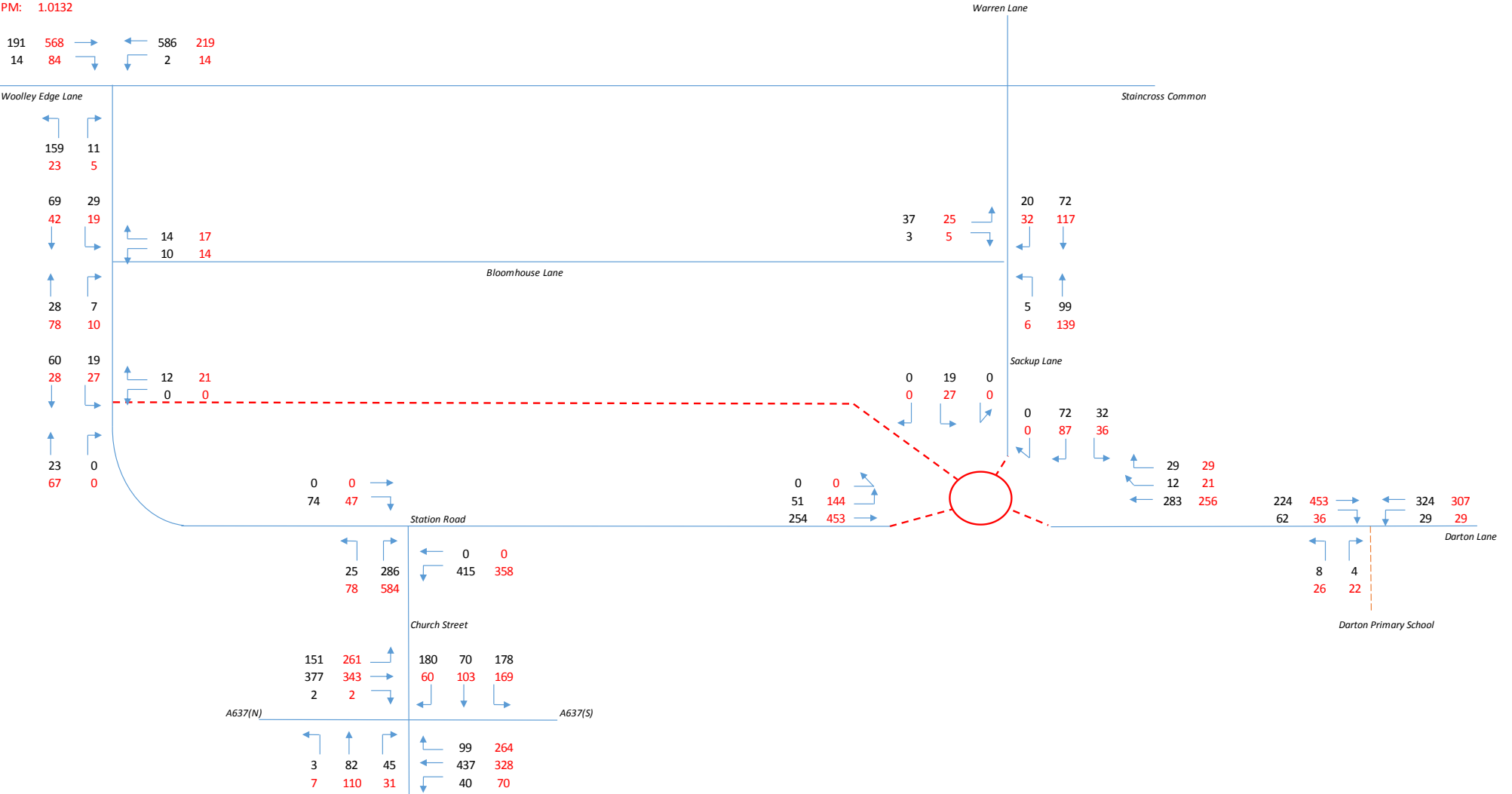
Redistributed Base Traffic Flows

Rev	Amendment	Drawn	Date	Checked

Scale	NTS	Draw by	BL
Drawing Size	A3	Checked by	KS
Date	June 2017	Approved by	KS
Drawing Number	FIGURE 9	Rev.	

2017 Redistributed Base

AM: 1.0140
PM: 1.0132



Highways | Traffic | Transportation | Water

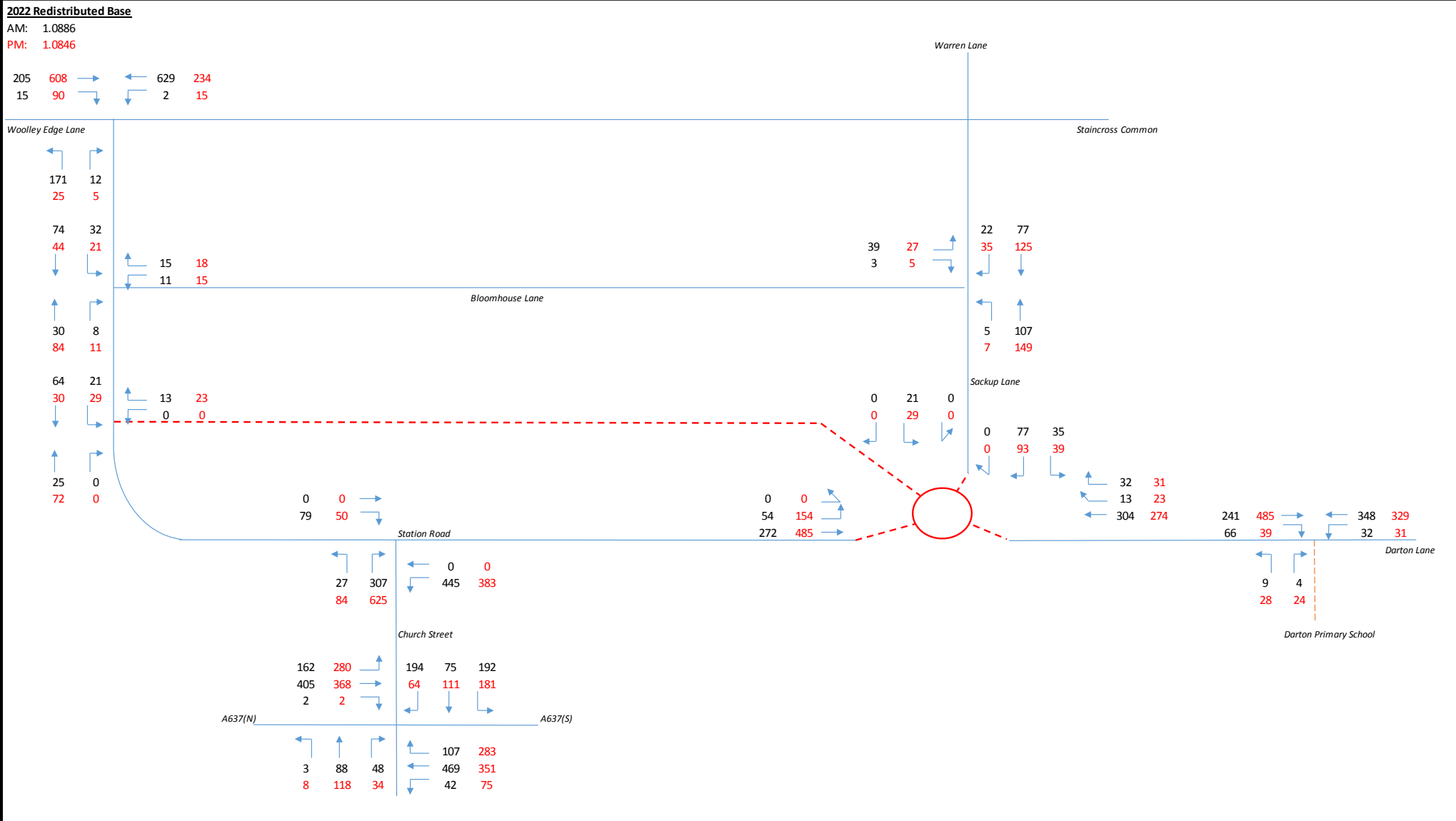
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Proposed Residential Development
Bloomhouse Lane, Darton, Barnsley

2017 Redistributed Base Traffic Flows

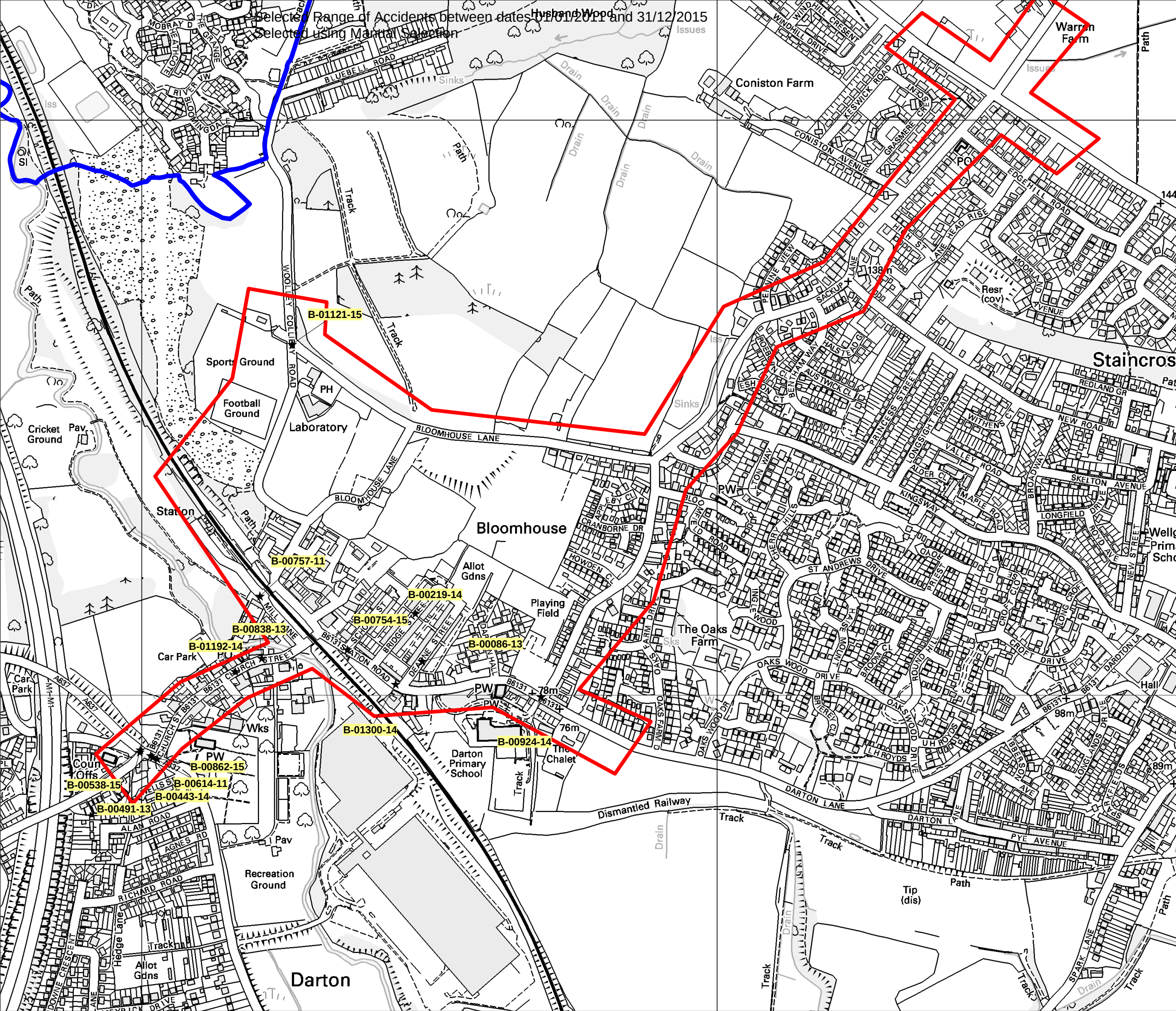
Rev	Amendment	Drawn	Date	Checked

Scale	NTS	Draw by	BL
Drawing Size	A3	Checked by	KS
Date	June 2017	Approved by	KS
Drawing Number	FIGURE 10	Rev.	



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	2022 Redistributed Base Traffic Flows										Drawing Size A3		Checked by KS	
											Date June 2017		Approved by KS	
													Drawing Number	
											FIGURE 11			
					Rev	Amendment		Drawn	Date	Checked				

APPENDIX B
Personal Injury Accident Data



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**MAKING SOUTH YORKSHIRE
ROADS SAFER**

DRAWING TITLE
Selected map area

SCALE	1 : 6300
DATE	19/01/2017
DWG No.	
DRAWN BY	

Details of Personal Injury Accidents for Period - 01/01/2011 to 31/12/2015 (60) months

Selection:

Selected using Build Query : Local_auth = 'Barnsley'

Notes:

ashley armitage - darton area

Police Ref.	Day	Location Description	Vehicles					Casualties		
	Date		Veh No	Type	Manv	Dir	Class	Sex	Age	Sev
Road No.	Time									
2nd Road No.	D/L									
Grid Ref.	R.S.C									
	Weather									
	Speed									
	Account of Accident									
Causation Factor:										

B-00614-11 Tuesday HUDDERSFIELD RD DARTON Veh 1 Car Going ahead SE to NW Dri F 61 Slight
17/05/2011
R1: A 637 1345hrs
E 431,018 Dry
N 409,892 Fine without high winds
60 mph

Causation Factor:

Participant:

Confidence:

1st: Illness or disability, mental or physical

Vehicle 1

Very Likely

V1 YV ALONG A637 WHEN VEH SUDDENLY SWERVED ACROSS C/WAY & COLL WITH LAMP POST

B-00757-11 Tuesday MILL LN BARNSELEY AT J/W Veh 1 Car Turning right S to E
09/08/2011 BURYING LN Veh 2 Car Going ahead RH bend E to N FSP F 63 Slight
1135hrs
R1: U
R2: U
E 431,205 Dry
N 410,172 Fine without high winds
30 mph

Causation Factor:

Participant:

Confidence:

1st: Road layout (eg bend, hill crest)

Vehicle 1

Very Likely

2nd: Dazzling sun

Vehicle 1

Very Likely

V2 TR DOWN CARR WHEN V1 EMERGED FROM THE JCT INTO PATH OF V2 AND COLL OCC.

B-00086-13 Thursday DEARNE ST DARTON Veh 1 Car Going ahead NE to SW Ped F 7 Slight
28/03/2013
R1: U 1845hrs
Darkness: street lights present
E 431,487 Dry
N 410,059 Fine without high winds
30 mph

A YOUNG GIRL HAS RAN INTO THE RD INTO THE PATH OF ONCOMING V1, IT STRUCK HER AND FAILED TO STOP, ONLY DETAIL OF VEH WAS IT WAS BLUE

Details of Personal Injury Accidents for Period - 01/01/2011 to 31/12/2015 (60) months

Selection:

Selected using Build Query : Local_auth = 'Barnsley'

Notes:

ashley armitage - darton area

		Vehicles					Casualties			
Police Ref.	Day	Location Description	Veh No / Type / Manv / Dir / Class					Sex / Age / Sev		
	Date									
Road No.	Time									
2nd Road No.	D/L									
Grid Ref.	R.S.C									
	Weather									
	Speed									
	Account of Accident									
Causation Factor:										

B-00491-13 Tuesday HUDDERSFIELD ROAD, DARTON Veh 1 Car Turning left SW to NW
20/08/2013 BARNSELY J/W CHURCHFIELD LANE Veh 2 Pedal cycle Going ahead NW to SE Dri M 45 Serious
R1: A 637 1515hrs
R2: U Daylight:street lights present
E 430,996 Dry
N 409,901 Fine without high winds
30 mph

Causation Factor:

1st: Disobeyed Give Way or Stop sign or markings
2nd: Careless/Reckless/In a hurry

Participant:

Vehicle 1
Vehicle 1

Confidence:

Very Likely
Very Likely

A PEDAL CYCLIST (V2 / C1) WAS TRAV ON HUDDERSFIELD RD WHEN A CAR (V1) HAS EMERGED FROM THE JUNCTION CAUSING RIDER OF BIKE TO SWERVE AND FALL OFF TO AVOID A COLLISION

B-00838-13 Friday CHURCH STREET DARTON Veh 1 Car Going ahead W to E Ped M 68 Slight
06/12/2013
R1: B 6131 1915hrs
Darkness: street lights present
E 431,208 Dry
N 410,064 Unknown
30 mph

PED IN ROAD ASSISTING HGV REVERSING V1 DID NOT SEE HIM AND COLL WITH C001

B-00219-14 Thursday BRIDGE STREET DARTON 115 MTS Veh 1 Car Wait go ahead held up NE to SW
27/02/2014 STATION ROAD Veh 2 Pedal cycle Going ahead NW to SE Dri M 15 Slight
R1: U 1635hrs
Daylight:street lights present
E 431,475 Dry
N 410,142 Fine without high winds
30 mph

Causation Factor:

1st: Cyclist entering road from pavement
2nd: Failed to look properly
3rd: Careless/Reckless/In a hurry

Participant:

Vehicle 2
Vehicle 2
Vehicle 2

Confidence:

Very Likely
Very Likely

VEH TV DOWN BRIDGE ST WHEN DRIVER HAS CAUSE TO BRAKE AND STOP. PCYCLIST RIDES INTO SIDE OF VEH AND RIDER FALL TO FLOOR.

Details of Personal Injury Accidents for Period - 01/01/2011 to 31/12/2015 (60) months

Selection:

Selected using Build Query : Local_auth = 'Barnsley'

Notes:

ashley armitage - darton area

Police Ref.	Day	Location Description	Vehicles					Casualties		
			Veh No	Type	Manv	Dir	Class	Sex	Age	Sev
Road No.	Date									
2nd Road No.	Time									
Grid Ref.	D/L									
	R.S.C									
	Weather									
	Speed									
	Account of Accident									
Causation Factor:										

B-00443-14 Wednesday HUDDERSFIELD ROAD BARNSELY 5 Veh 1 Pedal cycle Going ahead E to W Dri M 58 Slight
14/05/2014 MTS CHURCH STREET Veh 2 Car Going ahead NW to SE
R1: A 637 2118hrs
R2: B 6131 Daylight:street lights present
E 431,015 Dry
N 409,895 Fine without high winds
30 mph

Causation Factor:

1st: Failed to look properly
2nd: Exceeding speed limit

Participant:

Vehicle 2
Vehicle 2

Confidence:

Very Likely
Very Likely

A CYCLIST (V1 / C1) HAS BEEN KNOCKED FROM HIS BICYCLE BY V2 WHICH APPEARS TO HAVE BEEN SPEEDING, DRIVER STOPPEI BUT GAVE NO DETAILS, NO VRM GAINED

B-00924-14 Tuesday DARTON LANE BARNSELY J/W Veh 1 Car Going ahead SE to NW Dri M 31 Slight
07/10/2014 SACKUP LANE Veh 2 Car Turning right NE to NW
R1: B 6131 1424hrs
R2: U Daylight:street lights present
E 431,694 Dry
N 409,997 Fine without high winds
30 mph

Causation Factor:

1st: Swerved
2nd: Stationary or parked vehicle

Participant:

Vehicle 1
Vehicle 1

Confidence:

Very Likely
Possible

V2 PULLED OUT OF JCT CAUSING V1 TO SWERVE AND COLL WITH WALL

B-01192-14 Thursday CHURCH STREET DARTON 18 MTS Veh 1 Car Going ahead NE to SW Ped F 13 Slight
04/12/2014 CHURCH CLOSE
R1: B 6131 1750hrs
R2: U Darkness: street lights present
E 431,162 Dry
N 410,041 Fine without high winds
30 mph

Causation Factor:

1st: Careless/Reckless/In a hurry
2nd: Crossed road masked by stationary veh

Participant:

Casualty 1
Casualty 1

Confidence:

Very Likely
Very Likely

YOUNG FEMALE RAN ACROSS ROAD FROM BEHIND A STATIONARY VAN INTO PATH OF V1, MINOR INJURIES. NO OFFENCES.

Details of Personal Injury Accidents for Period - 01/01/2011 to 31/12/2015 (60) months

Selection:

Selected using Build Query : Local_auth = 'Barnsley'

Notes:

ashley armitage - darton area

Police Ref.	Day	Location Description	Vehicles					Casualties		
	Date		Veh No	Type	Manv	Dir	Class	Sex	Age	Sev
Road No.	Time									
2nd Road No.	D/L									
Grid Ref.	R.S.C									
	Weather									
	Speed									
	Account of Accident									
Causation Factor:										

B-01300-14 Monday STATION ROAD DARTON 7 MTS Veh 1 Car Going ahead SE to NW
29/12/2014 DEARNE STREET Veh 2 Car Parked 0 to 0 FSP F 6 Slight
R1: B 6131 2204hrs
Darkness: street lights present
E 431,441 Dry
N 410,019 Unknown
30 mph

Causation Factor:

1st: Loss of control

2nd: Not displaying lights at night or in poor visibility

VEH1 TV STATION RD COLL WITH REAR OF VEH2 SEVERAL TIMES.

Participant:

Vehicle 1

Vehicle 1

Confidence:

Very Likely

Very Likely

B-00538-15 Thursday BARNSELEY ROAD DARTON J/W Veh 1 Car Going ahead SE to NW Dri M 46 Slight
18/06/2015 CHURCHFIELD LANE
R1: A 637 2040hrs
R2: U Daylight:street lights present
E 430,997 Dry
N 409,905 Fine without high winds
30 mph

Causation Factor:

1st: Dazzling sun

DRIVER OF V1 DAZZLED BY SUN AND COLL WITH BOLLARDS

Participant:

Vehicle 1

Confidence:

Very Likely

B-00754-15 Sunday STATION ROAD DARLTON J/W Veh 1 Pedal cycle Going ahead NWto SE Dri M 42 Serious
16/08/2015 SCHOOL STREET Veh 2 Car Going ahead NWto SE
R1: B 6131 2030hrs
R2: U Daylight:street lights present
E 431,357 Dry
N 410,079 Fine without high winds
30 mph

Causation Factor:

1st: Passing too close to cyclist, horse rider or pedestrian

P/CYCLIST TV STATION RD FROM DIRC OF DARTON. VEH APPROACHES FROM BEHIND CAUSING RIDER TO WOBBLE AND A COLL OCCURS.

Participant:

Vehicle 2

Confidence:

Very Likely

Details of Personal Injury Accidents for Period - 01/01/2011 to 31/12/2015 (60) months

Selection:

Selected using Build Query : Local_auth = 'Barnsley'

Notes:

ashley armitage - darton area

Police Ref.	Day	Location Description	Vehicles					Casualties		
	Date		Veh No	Type	Manv	Dir	Class	Sex	Age	Sev
Road No.	Time									
2nd Road No.	D/L									
Grid Ref.	R.S.C									
	Weather									
	Speed									
	Account of Accident									
Causation Factor:										

B-00862-15	Wednesday	BARNSELEY ROAD DARTON J/W CHURCH STREET	Veh 1	Car	Going ahead	SE to NW FSP	M	23	Serious
R1: A 637	16/09/2015		Veh 1	Car	Going ahead	SE to NW RSP	M	26	Slight
R2: B 6131	0150hrs		Veh 1	Car	Going ahead	SE to NW Dri	M	21	Serious
E 431,026		Darkness: street lights present							
N 409,889		Dry							
		Fine without high winds							
		30 mph							

Causation Factor:

1st: Distraction outside vehicle
2nd: Other

Participant:

Vehicle 1
Vehicle 1

Confidence:

Possible
Possible

VEH1 TV FROM BARNSELEY TW HAIGH COLL WITH N/S KERB VEERS ACROSS C/WAY AND ROLLS INTO FIELD.

B-01121-15	Thursday	WOLLEY COLLIERY ROAD DARTON J/W BLOOMHOUSE LANE	Veh 1	Car	O/take s/veh o/side	S to N Dri	M	38	Slight
R1: U	03/12/2015		Veh 2	Car	Turning right	S to SE			
R2: U	0835hrs								
E 431,261		Daylight:street lights present							
N 410,610		Dry							
		Unknown							
		30 mph							

V1 OVERTAKING V2 WHEN V2 TURNED RIGHT. V1 SWERVED TO AVOID V2 COLL WITH LAMP POST

Accidents between dates **01/01/2011 and 31/12/2015** (60) months

Selection: **Notes:**
Selected using Build Query : Local_auth = 'Barnsley' ashley armitage - darton area

Police Ref.	Date	Cas.	Sev.	P2W	Cycs	Peds	Ch	OAPs	Vis.	Manv.	Road Cond.	Time	Location
B-00614-11	17/05/2011	1	Slight	0	0	0	0	1	Light	No turn	Dry	1345	HUDDERSFIELD RD DARTON
B-00757-11	09/08/2011	1	Slight	0	0	0	0	1	Light	Right	Dry	1135	MILL LN BARNSELY AT J/W BURYING LN
B-00086-13	28/03/2013	1	Slight	0	0	1	1	0	Dark	No turn	Dry	1845	DEARNE ST DARTON
B-00491-13	20/08/2013	1	Serious	0	1	0	0	0	Light	Left	Dry	1515	HUDDERSFIELD ROAD, DARTON BARNSELY J/W CHURCHFIELD LAN
B-00838-13	06/12/2013	1	Slight	0	0	1	0	1	Dark	No turn	Dry	1915	CHURCH STREET DARTON
B-00219-14	27/02/2014	1	Slight	0	1	0	1	0	Light	No turn	Dry	1635	BRIDGE STREET DARTON 115 MTS STATION ROAD
B-00443-14	14/05/2014	1	Slight	0	1	0	0	0	Light	No turn	Dry	2118	HUDDERSFIELD ROAD BARNSELY 5 MTS CHURCH STREET
B-00924-14	07/10/2014	1	Slight	0	0	0	0	0	Light	Right	Dry	1424	DARTON LANE BARNSELY J/W SACKUP LANE
B-01192-14	04/12/2014	1	Slight	0	0	1	1	0	Dark	No turn	Dry	1750	CHURCH STREET DARTON 18 MTS CHURCH CLOSE
B-01300-14	29/12/2014	1	Slight	0	0	0	1	0	Dark	No turn	Dry	2204	STATION ROAD DARTON 7 MTS DEARNE STREET
B-00538-15	18/06/2015	1	Slight	0	0	0	0	0	Light	No turn	Dry	2040	BARNSELY ROAD DARTON J/W CHURCHFIELD LANE
B-00754-15	16/08/2015	1	Serious	0	1	0	0	0	Light	No turn	Dry	2030	STATION ROAD DARLTON J/W SCHOOL STREET
B-00862-15	16/09/2015	3	Serious	0	0	0	0	0	Dark	No turn	Dry	0150	BARNSELY ROAD DARTON J/W CHURCH STREET
B-01121-15	03/12/2015	1	Slight	0	0	0	0	0	Light	Right	Dry	0835	WOLLEY COLLIERY ROAD DARTON J/W BLOOMHOUSE LANE
Column Totals		16		0	4	3	4	3					
No. of Accidents				0	4	3	4	3					

Total number of accidents listed: 14