



PROPOSED RESIDENTIAL
DEVELOPMENT
LAND SOUTH OF DARTON
LANE, DARTON, STAINCROSS

TRANSPORT ASSESSMENT

SEPTEMBER 2019

PROPOSED RESIDENTIAL DEVELOPMENT LAND SOUTH OF DARTON LANE, DARTON, STAINCROSS

TRANSPORT ASSESSMENT

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1 INTRODUCTION

1.1 OVERVIEW

- 1.1.1 Andrew Moseley Associates (AMA) have been commissioned by Church Commissioners for England (CCE) to produce this Transport Assessment (TA) and Interim Travel Plan (ITP) in connection with the submission of an outline planning application for a residential development of up to 73 dwellings on Land South of Darton Lane, Darton, Staincross. A copy of the Parameter Plan is contained in **Appendix A**.
- 1.1.2 The holistic site is identified in the Local Plan to provide up to a maximum of 86 dwellings, therefore this TA undertakes a robust analysis and as such is based upon 86 dwellings.
- 1.1.3 The Local Planning Authority (LPA) and the Local Highway Authority (LHA) is Barnsley Metropolitan Borough Council (BMBC).
- 1.1.4 The site is located on grazing land to the south of Darton Lane, approximately 800m to the west of Staincross centre and approximately 1.2km to the south east of Darton Railway Station. The site is bound to the north by Darton Lane and the residential settlement of Staincross; To the east by residential dwellings and associated gardens; to the south by grazing land; and to the west by grazing land and later Darton Primary School. The location of the site is shown at **Figure 1**.
- 1.1.5 It is proposed that the development will be accessed via a new dedicated priority T-junction with Darton Lane by all modes of transport. The main site access, situated between Oaks Farm Drive and Oaks Wood Drive will provide access to a total of 65 dwellings. Two additional access points are proposed to the east of the site, both providing a shared surface access for four dwellings via private drives. A detailed Parameter Plan is attached at **Appendix A** and described the access arrangements are described in more detail later in this document.
- 1.1.6 The purpose of this report is to review the local highway network, the sustainable accessibility of the proposed development and to assess the development proposals in a local transport context.
- 1.1.7 This TA has been prepared with reference to the Department for Communities and Local Government National Planning Policy Framework (NPPF) which was revised in July 2018 and Planning Practice Guidance (PPG).
- 1.1.8 This TA will demonstrate that the site is well served by existing transport provision and is accessible to a range of key services and facilities and that the traffic generated by the proposals will not result in a detrimental impact on the surrounding road network.
- 1.1.9 This TA will also demonstrate that the traffic associated with the development proposals can be accommodated on the surround highway network without any severe impact in accordance with NPPF.
- 1.1.10 An ITP has also been prepared which sets out measures to encourage sustainable travel patterns and reduce the reliance on private car use.

1.2 REPORT STRUCTURE

1.2.1 The structure of the report is set out as follows;

- ▶ Section 2 provides a review of the local and national transportation planning policy in relation to the site.
- ▶ Section 3 provides a description of the highway network surrounding the site, details of the existing traffic flows, parking provision, review of the personal injury accident records and the results of the baseline capacity assessments within the study area.
- ▶ Section 4 examines the accessibility of the site by a number of travel modes and also considers the accessibility of a range of key services and facilities.
- ▶ Section 5 describes the site location and development proposals with regard to the proposed quantum of development and broad layout of the site, the proposed means of access to the site and also the proposed parking provision and servicing requirements.
- ▶ Section 6 summarises the assessment parameters that have been adopted within this Transport Assessment.
- ▶ Section 7 examines the impact of development traffic on the local highway network and presents the results of the future year junction assessments to determine the potential impact of the proposals.
- ▶ The report summary and conclusions are drawn together in Section 8.

2 POLICY BACKGROUND

2.1 NATIONAL POLICY

- 2.1.1 The National Planning Policy Framework (NPPF) came into effect in 2012. The document was designed to supersede and simplify previous national planning documents and their policies. A revised version of the NPPF was published in July 2018. The revision implements around 85 reforms announced previously through the Housing White Paper, the planning for the right homes in the right places consultation and the draft revised NPPF consultation.
- 2.1.2 The preparation of this TA is consistent with national transport policy guidance set out in the NPPF which advocates the submission of such documents to support applications for new developments which generate traffic movements.
- 2.1.3 The NPPF states under the subheading 'Considering development proposals' that:

'In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- b) safe and suitable access to the site can be achieved for all users; and*
- c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree (Paragraph 108).*

Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe (Paragraph 109).

Within this context, applications for development should:

- a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*
- b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
- c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*

d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and

e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations (Paragraph 110).

All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed Paragraph 111).'

- 2.1.4 Section 3 of this report highlights the existing sustainable travel modes within the vicinity of the site and demonstrates that the development will be well suited to this location.
- 2.1.5 Section 7 of this report assesses the traffic associated with the development on the surrounding road network and will identify mitigation measures where necessary to ensure that the impact of the development is not severe.
- 2.1.6 The Government's objectives set out in the revised NPPF are to ensure that new developments are provided in sustainable locations, where the need to travel is minimised and the use of sustainable modes can be maximised.

2.2 LOCAL POLICY

Sheffield City Region Transport Strategy

- 2.2.1 The Sheffield City Region Transport Strategy 2018 – 2040 is a statutory document which sets out the transport strategy and policies for South Yorkshire to 2040. It was produced by the South Yorkshire LTP partnership comprising; Barnsley, Doncaster, Rotherham, Sheffield and the South Yorkshire Passenger Transport Executive.
- 2.2.2 The Transport Strategy updates and supersedes the policies and measures of the previous Transport Strategy, published in 2011. This document forms part of the Local Transport Plan (LTP) and is adopted by the SCR Combined Authority, as part of the Local Transport Body for South Yorkshire.
- 2.2.3 Four key goals have been identified for achieving the transport strategy over the next 22 years which include;
 - Support inclusive economic growth
 - Create healthy streets where people feel safe
 - Improve the quality of our outdoors
 - Promote, enable and adapt different technologies
- 2.2.4 The SCR Transport Strategy acknowledges that travel and transport are essential to almost every aspect of daily life. The Transport Vision has been defined by SCR as:

"We will continue to be a forward-looking city region with integrated transport connections that support economic growth and improve quality of life for all."

3 EXISTING CONDITIONS

3.1 SITE LOCATION

- 3.1.1 The site is located on grazing land to the south of Darton Lane, approximately 800m to the west of Staincross centre and approximately 1.2km to the south east of Darton Railway Station. The site is bound to the north by Darton Lane and the residential settlement of Staincross; To the east by residential dwellings and associated gardens; to the south by grazing land; and to the west by grazing land and later Darton Primary School. The location of the site is shown at **Figure 1**.

3.2 LOCAL HIGHWAY NETWORK

- 3.2.1 The B6131 Darton Lane, from which the site would be accessed to the north, is a single carriageway two-way road. Darton Lane is subject to a 30mph speed restriction, is street lit and has a footways present along both sides of the carriageway. The B6131 provides access to a number of residential streets as well as the A61 (circa 2.3km) in the east and to the A637 (circa 1.1km) in the west.
- 3.2.2 Approximately 1.3k to the east of the proposed site access, the B6131 Darton Lane forms the main arm to the staggered crossroad junction. The B6131 / B6428 staggered crossroad junction is subject to a 20mph speed restriction. Footways are present on both sides of each arm and pedestrian crossings with dropped kerbs, tactile paving and central refuge islands are present on the minor arms. An uncontrolled zebra crossing is present across the B6131 Main Road, between the two minor arms.
- 3.2.3 Forming the southern arm to the staggered crossroad junction, the B6428 Spark Lane runs in a north east / south west alignment providing access to the residential settlement of Barugh Green and the industrial park. The B6428 Spark Lane is a single carriageway two-way road which is street lit, has a footway present along the entirety of the southbound carriageway and is subject to a 30mph speed restriction.
- 3.2.4 Forming the northern arm to the staggered crossroad junction, the B6428 Greenside is a single carriageway two-way road which provides access to a number of residential streets and the A61. The B6428 is subject to a 30mph speed restriction, is street lit and has footways present along both sides of the carriageway.
- 3.2.5 Approximately 2km to the east of the proposed site, the B6428 forms a priority T-junction with the A61. At its junction with the B6428, the A61 is subject to a 40mph speed restriction, is street lit and has a footway present along the northbound carriageway. An uncontrolled pedestrian crossing is present across the minor arm, with the provision of dropped kerbs, tactile paving and a central refuge island.
- 3.2.6 The A61 is a single carriageway two-way road which runs in a north / south alignment providing access to Wakefield in the north (circa 11.5km) and to Barnsley in the south (circa 5km). Approximately 45m to the north of the A61 / B6428 priority T-junction, the A61 increases in speed to a 50mph limit.
- 3.2.7 To the west of the site, the B6131 continues for approximately 1km before forming a priority T-junction with the A637. Footways are present on both sides of each arm and pedestrian crossings with dropped kerbs, tactile paving and central refuge islands are present on all arms.
- 3.2.8 The A637 is a single a carriageway two-way road which runs in a north / south alignment providing access to the M1 Junction 38 in the north and to Barnsley in the south.

- 3.2.9 At a strategic level the M1 provides access to Wakefield to the north and to areas such as Barnsley and Rotherham to the south.

3.3 PERSONAL INJURY COLLISION RECORDS

- 3.3.1 Personal Injury Collision (PIC) data for the local highway network in the vicinity of the site for the period 2014 – 2018 has been obtained from Crashmap providing the latest five years accident data available.
- 3.3.2 The reviewed area of interest includes approximately 600m on B6131 Darton Lane between the Sackup Lane / B6131 / School Road crossroad junction and the B6131 Darton Lane / Darton Lane priority T-junction.
- 3.3.3 A total of three collisions recorded were on B6131 Darton Lane between the Sackup Lane / B6131 / School Road crossroad junction and the B6131 Darton Lane / Darton Lane priority T-junction during the assessment:
- ▶ A collision resulting in slight injury involving two vehicles at the Oaks Farm Drive junction;
 - ▶ A collision resulting in slight injury involving two vehicles at the Sackup Lane / B6131 / School Road crossroad junction; and
 - ▶ A collision resulting in slight injury involving two vehicles at the Sackup Lane / B6131 / School Road crossroad junction.
- 3.3.4 Across a five year study period three collisions occurred on the B6131 Darton Lane. Due to a low level of collisions on Darton Lane and zero collisions resulting in serious injury, it is considered that there are no existing road safety issues.
- 3.3.5 The PIC data demonstrates that there are no extant road safety issues on the highway network in the vicinity of the development site. The frequency of collisions that occurred on the wider network assessed within this TA are considered to be low and no mitigation measures are necessary.

4 EXISTING SUSTAINABLE TRANSPORT PROVISION

4.1 INTRODUCTION

- 4.1.1 The Government's objectives set out in the NPPF are to ensure that new developments are provided in sustainable locations, where the need to travel is minimised and the use of sustainable modes can be maximised.
- 4.1.2 The site has a good level of accessibility by sustainable modes of transport which will encourage the use of alternative modes of travel. A Travel Plan has been written for the site which will encourage the use of alternative modes of travel and incentives to use local public transport services. This is anticipated to reduce the overall travel demands of the site, particularly those trips by single occupancy vehicles.
- 4.1.3 This section outlines the existing walking, cycling and public transport facilities within the vicinity of the development site and describes the accessibility of the site in terms of its proximity to key services and destinations.

4.2 WALKING ACCESSIBILITY

- 4.2.1 Whilst superseded by the NPPF, the transport policies set out in the former PPG13 set out specific guidance related to walking:

"Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2 kilometres" (Para 74)
- 4.2.2 These potential walking catchments have been used in the consideration of the accessibility of the site as set out below.
- 4.2.3 Walking is recognised as the most important mode of travel at a local level and it offers the greatest potential to replace short car trips, particularly under two kilometres. **Figure 2** shows a 2km walking catchment area from the centre of the site.
- 4.2.4 The plan attached at **Figure 2** shows that areas within the 2km catchment area includes the entirety of Staincross, Darton and the eastern extents of Kexbrough. The 2km catchment area also provides access to a range of local facilities and services including; several primary schools, supermarkets, GP surgeries, a dental practice, post offices, areas of employment and a range of local shops and restaurants.
- 4.2.5 Footways are present along the entire length of the B6131, providing pedestrians with access to the local services and facilities in Staincross as well as Darton Railway Station, which is located approximately 1km to the west of the site.
- 4.2.6 The site is therefore considered to be accessible on foot and is within an acceptable walking distance of key destinations across the local area.

4.3 CYCLING ACCESSIBILITY

- 4.3.1 Whilst superseded by the NPPF, the transport policies set out in the former PPG13 set out specific guidance related to cycling:

“Cycling also has potential to substitute for short car trips, particularly those under 5 kilometres, and to form part of a longer journey by public transport” (Para 77)

- 4.3.2 Cycling has the potential to substitute for short car trips, particularly less than five kilometres. As such, all areas and facilities within a reasonable walking distance can also be considered to be within a reasonable cycling distance.
- 4.3.3 The plan attached at **Figure 3** shows the 5km cycling catchment from the site. The plan identifies that the following areas are situated within 5km catchment area of the proposed development: Royston, Carlton and Carlton Industrial Estate, Smithies, Barugh Green, Cawthorne, Woolley and northern extents of Barnsley.
- 4.3.4 The National Cycle Network (NCN) Route 67 runs approximately 6km to the east of the site. The NCN Route 67 runs in a north / south direction, providing access to Starfoot in the south areas of Wakefield in the north, via both on-road and traffic-free routes. Details of the cycle route plan are provided at **Figure 4**.
- 4.3.5 The site is therefore considered to be accessible by bike and is within an acceptable walking distance of key destinations across the local area.

4.4 PUBLIC TRANSPORT

Bus Services

- 4.4.1 The proposed development site is well located in terms of its proximity to public transport services which provide access to the proposed site.
- 4.4.2 A total of nine bus stops are situated within a 400m walking distance of the proposed development; seven bus stops on the B6131 Darton Lane and two bus stops on Sackup Lane. All bus stops can be accessed via the footways provided on the B6131 Darton Lane. A plan showing these bus stop locations is attached at **Figure 5**.
- 4.4.3 The bus stops are served by the buses summarised in Table 4-1.

Table 4-1 Local Bus Services

SERVICE	ROUTE	MONDAY – FRIDAY	SATURDAY	SUNDAY
1	Barnsley – Staincross Circular	Every 10 minutes	Every 12 minutes	Every 30 minutes
93a	Barnsley - Mapplewell	Every hour	Every hour	No Service
97	Darton - Wakefield	3 per day	No Service	No Service
420	Mapplewell – Penistone Grammar	School Service Only	No Service	No Service
485	Barnsley Eastfield Arms – Darton High School	School Service Only	No Service	No Service
X10	Barnsley - Leeds	Every hour	Every hour	Every hour

- 4.4.4 As set out in Table 4-1, the bus services provide a combined frequency of eight buses per hour on weekdays, seven buses per hour on Saturday and two buses per hour on Sundays. These buses provide access from the site to Barnsley, Leeds, Wakefield and other local destinations, providing a feasible means of access to and from the site by bus.

Rail Services

- 4.4.5 The nearest rail station is Darton Station which is located approximately 1km to the west of the proposed site, which is situated within the recommended walking and cycling distances. The rail station is equipped with cycle parking for 18 spaces. The station is situated on the northern line providing direct hourly services to both Leeds City Centre and Sheffield City Centre.
- 4.4.6 It is considered that Darton Station is of suitable distance from the site to encourage modal interchange and commuting to and from the site to regional destinations, particularly for employment and commuting purposes.

4.5 TRAVEL PATTERNS AND KEY DESTINATIONS

- 4.5.1 The surrounding area has a range of services and facilities which can be accessed by future residents of the site. These are summarised below:
- ▶ **Darton** - has a range of facilities including food stores, schools, health facilities and leisure facilities. All of these services and amenities are within a reasonable walking distance of the proposed site;
 - ▶ **Employment** - there are a number of employment areas located within a 5km distance of the proposed development site including Darton Business Park to the south west of the site, Junction 38 Business Park to the west of the site, Carlton Industrial Estate to the east of the site and Redbrook Industrial Estate to the south of the site all within the recommended cycling distance of the site;

- ▶ **Education provision** – a number of primary schools are situated with a 2km walking distance from the proposed development; Darton Primary School (300m), Wellgate Primary School (1.6km), Mapplewell Primary School (1.6km). Situated outside of the 2km walking catchment area Darton College (2.1km) provides secondary education services;
- ▶ **Health facilities** – Numerous GP surgeries, pharmacists and dental practises are situated within a 2km walking distance of the proposed development. Additional health facilities are located across Barnsley including Hospitals, GPs practices, dentists and opticians which can be accessed via public transport;
- ▶ **Food shopping** – a Co-op Food convenience store is situated approximately 750m to the west of the site, a Metro convenience food store, Mapplewell Stores, Budgens and Co-op Food are situated approximately 1.2km to the west of the site. Although outside of the walking distance supermarkets such as Aldi are within the recommended cycling distance of the site and are also accessible via public transport;

4.6 SUMMARY

- 4.6.1 Overall, it is concluded that a range of key facilities and services, including employment, retail, health and education uses are readily accessible from the site. It is therefore considered that the location of the site is consistent with national and local policy objectives.

5 DEVELOPMENT PROPOSALS

5.1 SITE LAYOUT PROPOSALS

- 5.1.1 The development proposals are for a total of 73 dwellings with associated parking, this has been developed with consideration of the South Yorkshire Residential Design Guide ensuring that good design principles are promoted on the site. A copy of the Site Layout Plan is attached in **Appendix A**.
- 5.1.2 The holistic site is identified in the Local Plan to provide up to a maximum of 86 dwellings, therefore this TA undertakes a robust analysis and as such is based upon 86 dwellings.
- 5.1.3 The layout shows the hierarchy of access roads within the site and beyond the principal network of roads a number of shared surfaces and private drives providing access to individual properties.
- 5.1.4 The internal access roads have been designed to achieve low vehicle speeds within the site, incorporating appropriate changes in the road alignment which assist in providing a safe environment for pedestrians and cyclists including a network of footways across the site.
- 5.1.5 The proposed internal footways across the development will connect into the existing pedestrian facilities along Darton Lane to the north. The pedestrian provision is illustrated on the Site Layout Plan attached at **Appendix A**.

5.2 PROPOSED ACCESS AND SERVICING ARRANGEMENTS

- 5.2.1 Vehicular, walking and cycling access to and from the site is proposed via a new priority T-junction with Darton Lane to the north of the site. The main access point is centrally situated between Oaks Farm Drive and Oaks Wood Drive at suitable offsets and provides access for up to 78 residential dwellings. This application proposes 65 dwellings of site's holistic provision of 78 dwellings off this point of access, with the remaining 8 dwellings located to the eastern extent of the allocated site via private drives. The proposed access plan is detailed in **Appendix B**.
- 5.2.2 The main site access will serve up to 78 dwellings containing a mixture of housing styles and sizes, therefore in line with the residential design guide, the access road is proposed with a 5.5m road width, 6m radii and 2 x 2.0m footways. The road width is maintained across the site providing footways on either side of the road, apart from those locations where shared surfaces and private drives are proposed and would adopt the required BMBC standards.
- 5.2.3 The access junction visibility splays for the proposed access are provided in line with the 30mph speed limit in accordance with Manual for Streets (MfS) at 2.4m x 43m are achievable and are detailed on AMA Drawing No. 20276-SK-003 in **Appendix B**.
- 5.2.4 The proposed main access is considered to be positioned in the optimum location due to a number of constraints and contributory factors including; the required offset from existing adopted residential streets (minimum offset requirements by DMRB at 30m opposite and 60m same side of the road); the difference in levels between Darton Lane and the site across the site frontage and achieving a suitable gradient; ensuring the LPA's housing numbers and desired quantum can be achieved on such a linear site as the spine road reduces developable area in the narrowest sections.
- 5.2.5 In addition to the main access, the development proposes two further access points which both provide access to four dwellings separately. Both access points are situated to the east of the development off Darton Lane and consists of a 6.0m wide shared surface private drive.

- 5.2.6 Visibility splays for the two private drives, to the east of the site, can be achieved at 2.4m x 43m in line with MfS guidance for a 30mph. Details of the private drive visibility splays are provided in AMA Drawing No. 20276-SK-004 in **Appendix B**.
- 5.2.7 It is also proposed that an area of public open space will be provided, separating the site into two parcels of land; the western parcel with up to 78 residential dwellings and the eastern parcel with eight dwellings. The area of public space will retain and enhance the existing path providing access from Darton Lane to the dismantled railway in the south providing additional pedestrian and cycle access points to / from the site.
- 5.2.8 The site would be serviced by a BMBC standard refuse vehicle, therefore a vehicle swept path analysis of the site will be undertaken at the reserved matters stage once the site layout has been finalised. Collections from proposed private drives will be undertaken from the road side, on a weekly basis, which mirrors the collections for all existing adjacent residential land uses. Therefore, the servicing arrangements are considered to be appropriate for the development.

5.3 PARKING

- 5.3.1 Parking for the residential units would be provided on site in line with BMBC's Local Development Framework "Supplementary Planning Document: Parking".
- 5.3.2 The parking standards are as follows:
- ▶ 1 -2 Bedrooms – 1 space per dwelling; and
 - ▶ 3 or more Bedrooms – 2 spaces per dwelling;
- 5.3.3 Where garages are provided, as detailed above these would have minimal internal dimensions in line with BMBC requirements.
- 5.3.4 Secure cycle parking will be provided across the site. Where garages are proposed with (or within) a property this will accommodate the provision, those without garages will have secure cycle storage provided within the curtilage of the property.
- 5.3.5 The level of car and cycle parking provision will be agreed at the reserved matters stage.

6 ASSESSMENT PARAMETERS

6.1 INTRODUCTION

- 6.1.1 This section sets out the methodology and parameters used in assessing the proposed development and its potential impact on the highway network.

6.2 TRAFFIC BASE FLOWS

- 6.2.1 A review of the recently submitted residential development for 214 dwellings at Bloomhouse Lane planning application (reference number: 2017/0990) has been undertaken.
- 6.2.2 It is concluded that the worst case scenario presented in its TA for the proposed residential development “2022 Base + 85th percentile Development” will be included as part of the base traffic flows as this represents a worst case scenario of base and committed development flows for the proposed site to be assessed against and this robust approach was agreed with BMBC Highways.
- 6.2.3 This TA therefore bases its baseline scenario on Figure 8 “Development Traffic Flows (85thile Trip Rates)” and Figure 11 “2022 Redistributed Base Traffic Flows” of the 2017/0990 planning application. Details of the combined flows are attached at **Figure 6**.
- 6.2.4 As the development is included within the baseline scenario and proposes 214 dwellings, it is considered that the requirement to growth base flows using the National Traffic Model (NTM) within the TEMPRO software package is not required as the base + committed flows would be well in excess of local growth rates for a horizon period of 2019 – 2024 will not be required. This is considered to be an overly robust approach to the capacity analysis of the local highway network when considering the proposed development.

6.3 DEVELOPMENT TRAFFIC GENERATION

- 6.3.1 The TRICS trip rates have been obtained from the previously submitted and agreed trip rates by Sanderson for the development located at Bloomhouse Lane, Darton, planning application (reference number: 2017/0990).
- 6.3.2 These are considered to be robust trip rates based on the parameters of the TRICS assessment and are therefore applied to the 86 residential dwelling development. The vehicle TRICS trip rates derived are summarised in Table 6-1 and factored against the 86 units. Details of the trip rates are detailed in **Appendix C**.

Table 6-1 Proposed Development - Vehicle Trip Rates and Generation

	AM PEAK		PM PEAK	
	ARRIVALS	DEPARTURES	ARRIVALS	DEPARTURES
Trip Rates	0.14	0.356	0.313	0.174
Trip Generation	12	31	27	15

6.3.3 Table 6-1 demonstrates that the development proposals are forecast to generate the following vehicular trips during the highway network peak hours:

- AM Peak – 12 Arrivals and 31 Departures – 43 Two-Way Trips; and
- PM Peak – 27 Arrivals and 15 Departures – 42 Two-Way Trips.

6.4 DEVELOPMENT TRAFFIC DISTRIBUTION AND ASSIGNMENT

6.4.1 Development traffic distribution has been undertaken based upon existing (2011) NOMIS 'Journey to Work Data' for the 'Barnsley 005 Middle Layer Super Output Area' (MSOA), in which the site is situated. This method uses Office of National Statistics data and can be considered a robust approach.

6.4.2 The traffic distribution has been applied to the forecast trip generations to estimate the change in traffic flows on the highway network as a result of the development at the site. Consideration of the traffic distribution exercise shows the total change in traffic flows that is forecast on the road network as a result of the development proposals.

6.4.3 The distribution exercise is summarised in Tables 6-2 to 6-3 which considers traffic distribution at two junctions, are further detailed in **Figure 7**.

Table 6-2 Site Accesses Distribution

DESTINATION	DISTRIBUTION %
Darton Lane (E)	70%
Darton Lane (W)	30%
TOTAL	100%

6.4.4 As set out in Table 6-2 the anticipated distribution is expected to depart from / arrive at the site with 70% traveling eastbound and 30% travelling westbound along Darton Lane.

6.4.5 Although the four arm roundabout, proposed within the Sanderson (2017/0990) report, has not been approved or constructed at this stage this TA assesses the distribution at the junction and assumes it is in place for capacity assessment purposes.

6.4.6 The gravity model has assumed that all traffic will continue eastbound along the Station Road before approaching the A637 Huddersfield Road. Details of the anticipated distribution of the proposed four-armed roundabout is set out in Table 6-3.

Table 6-3 Station Road / Sackup Lane / Darton Lane / Proposed Link Road – New Roundabout Junction Distribution

DESTINATION	DEPARTURES
Sackup Lane	0%
Darton Lane	0%
Station Road	70%
Proposed Link Road	0%
TOTAL	70%

- 6.4.7 The development trip generation identified at Table 6-3 has been assigned to the surrounding road network based on the distribution above and is shown on the network flow diagrams at **Figure 7**. The Development Generated Flows at **Figure 8** have been added to the 2022 Base flows at **Figure 6**. The resultant 2022 Base + Development flows are at **Figure 9**.

6.5 SUMMARY

- 6.5.1 Trip generation for the proposed development has been derived from TRICS for the 8am to 9am and 5pm to 6pm peak hours which mirror the network peaks and, therefore is considered robust.
- 6.5.2 Trip distribution for the development has been derived based on a gravity model for the Barnsley 005 MSOA employment, education and other journeys data in order to determine route choice and turning proportions. Again, this is considered a robust method for assessing traffic movements to and from the site and where these trips may impact on the local highway network.
- 6.5.3 It should be noted that the assessments of the trip generation of the site have not taken account of potential reductions as a result of Travel Plan measures which upon implementation will reduce the number of estimated car based trips.
- 6.5.4 In summary, the trip generation and distribution methodology adopted in this TA is considered appropriate and robust.

7 FUTURE DEVELOPMENT IMPACTS

7.1 INTRODUCTION

- 7.1.1 This TA assesses the impact that the proposed residential development will have on the following junctions on the local highways network:
- ▶ Proposed Site Access / B6131 Darton Lane priority T-junction; and
 - ▶ “Proposed Roundabout” Junction (Sackup Lane / Darton Lane / Station Road / Proposed Link Road).
- 7.1.2 Based on the network distribution at **Figure 7** and the proposed assignment at **Figure 8**, it is calculated that more than 30 two-way trips would approach the Site Access / Darton Lane priority T-junction and the Proposed Roundabout Junction in the AM and PM peaks.
- 7.1.3 The following scenarios have been tested:
- ▶ **2022 Base** – 2022 Base Flows + 85th Percentile Committed Development (2017/0990); and
 - ▶ **2022 Base + Development.**

7.2 JUNCTION CAPACITY ASSESSMENTS

- 7.2.1 JUNCTIONS 9 software has been used to assess the capacity of the two junctions. This analyses the maximum Ratio of Flow to Capacity (RFC) values for the peak periods and the maximum queue length in passenger car units (PCUs).
- 7.2.2 The detailed modelling outputs are provided in **Appendix D** and the findings from the scenarios are set out in this section.

Site Access / B6131 Darton Lane Junction – Junction 9 Results

7.2.3 Table 7-1 sets out the operational capacity at the Site Access / B6131 Darton Lane priority T-junction.

Table 7-1 Site Access / B6131 Darton Lane Junction – 2022 Base & 2022 Base + Development Scenario Results

ARM	AM PEAK		PM PEAK	
	MAX RFC	QUEUE (PCU's)	MAX RFC	QUEUE (PCU's)
2022 Base				
Site Access	0.00	0	0.00	0.0
Darton Lane (W)	0.00	0	0.00	0.0
2022 Base + Development				
Site Access	0.08	0	0.04	0
Darton Lane (W)	0.02	0	0.06	0

7.2.4 Table 7-1 sets the traffic capacity of the Site Access / B6131 Darton Lane priority T-Junction. The results show that the junction operates well within its theoretical capacity in all scenarios with minimal queuing occurring in all of the 2022 scenarios. The inclusion of the development traffic results in a negligible impact on the 2022 Base scenario.

“Proposed Roundabout” – Junction 9 Results

7.2.5 Table 7-2 sets out the operational capacity at the “Proposed Roundabout” junction.

Table 7-2 “Proposed Roundabout” - 2022 Base & 2022 Base + Development Scenario Results

ARM	AM PEAK		PM PEAK	
	MAX RFC	QUEUE (PCU's)	MAX RFC	QUEUE (PCU's)
2022 Base				
Sackup Lane	0.24	0	0.34	1
B6131 Darton Lane	0.43	1	0.43	1
B6131 Station Road	0.37	1	0.73	3
Proposed Link Road	0.08	0	0.16	0
2022 Base + Development				
Sackup Lane	0.24	0	0.34	1
B6131 Darton Lane	0.46	1	0.44	1
B6131 Station Road	0.38	1	0.75	3
Proposed Link Road	0.09	0	0.16	0

7.2.6 Table 7-2 sets out the predicted operational capacity of the Proposed Roundabout junction in the 2022 Base and 2022 Base + Development scenario. The results show that the roundabout is expected to operate within capacity in all of the proposed scenarios. Given the scale of development proposed and the associated level of traffic generation, the impact of the proposed development would be negligible, with a small increase in RFC at the junction as a result of the additional traffic.

7.3 SUMMARY

7.3.1 The impact of the development generated traffic on the surrounding area has been shown to be minimal and it is therefore concluded that the proposals could be accommodated without resulting in a detrimental or severe impact on the capacity of the highway network.

8 SUMMARY AND CONCLUSIONS

- 8.1.1 Andrew Moseley Associates (AMA) have been commissioned by Church Commissioners for England to produce this Transport Assessment (TA) and Interim Travel Plan (ITP) in connection with the a residential development of up to 86 dwellings on Land South of Darton Lane, Darton, Staincross.
- 8.1.2 This TA supports the planning application for a residential development of 73 dwellings, however to future proof the site for potential development of the western parcel of land as identified in the local plan allocation, this TA has undertaken a robust analysis for the maximum 86 dwellings on site.
- 8.1.3 The Local Planning Authority (LPA) and the Local Highway Authority (LHA) is Barnsley Metropolitan Borough Council (BMBC).
- 8.1.4 The site is located on grazing land to the south of Darton Lane, approximately 800m to the west of Staincross centre and approximately 1.2km to the south east of Darton Railway Station. The site is bound to the north by Darton Lane and residential settlement of Staincross; To the east by residential dwellings and associated gardens; to the south by grazing land; and to the west by grazing land and later Darton Primary School.
- 8.1.5 It is proposed that the development will be accessed via a new dedicated priority T-junction with Darton Lane by all modes of transport. The main site access, situated between Oaks Farm Drive and Oaks Wood Drive will provide access to a total of 78 dwellings. Two additional access points are proposed to the east of the site as private drives, both providing a shared surface access for four dwellings each.
- 8.1.6 The TA has shown that the development proposals will be accessible by a range of travel modes and have been developed to accord with current national and local transport policies, including those set out within the revised NPPF.
- 8.1.7 It is concluded that a range of key facilities and services, including employment, retail, health and education uses, can be accessed from the site supporting residential development.
- 8.1.8 The development proposals based on 86 private dwellings are forecast to generate some 43 and 42 two-way vehicle trips during the weekday AM and PM peak hours respectively.
- 8.1.9 The impact of the development generated traffic on the surrounding area has been shown to be negligible and it is therefore concluded that the proposals could be accommodated without resulting in a detrimental or severe impact upon the capacity local highway network or road safety.
- 8.1.10 A Travel Plan has also been prepared which sets out measures to encourage sustainable travel patterns and reduce the reliance on private car use.
- 8.1.11 In Summary, it is considered that the site is in a suitable location for the proposed residential development and that there are no overriding highways or transport reasons that should prevent the granting of planning consent for the proposals.

FIGURES

Figure 1 – Site Location Plan

Figure 2 – 2km Walking Catchment Plan

Figure 3 – 5km Cycling Catchment Plan

Figure 4 – Cycle Route Plan

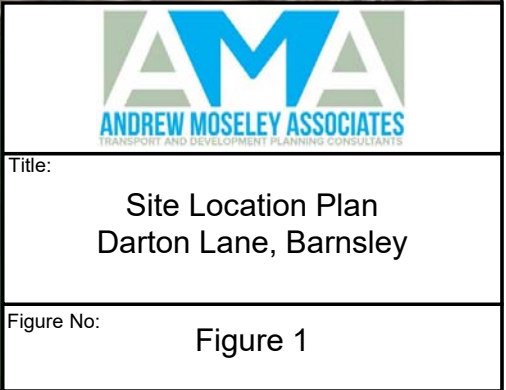
Figure 5 – Bus Stop Location Plan

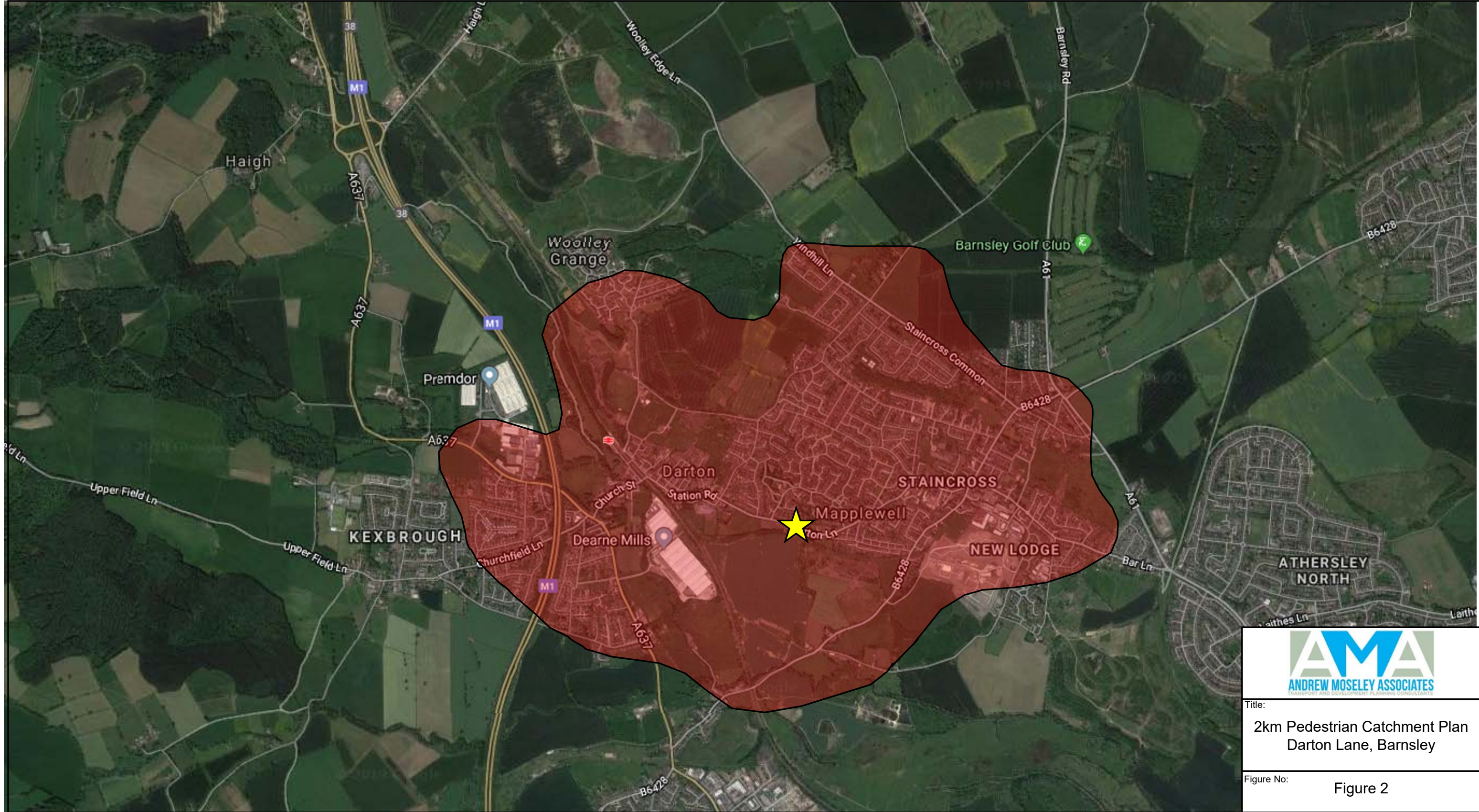
Figure 6 – 2022 Base Flows

Figure 7 – Development Traffic Distribution

Figure 8 – Assigned Development Flows

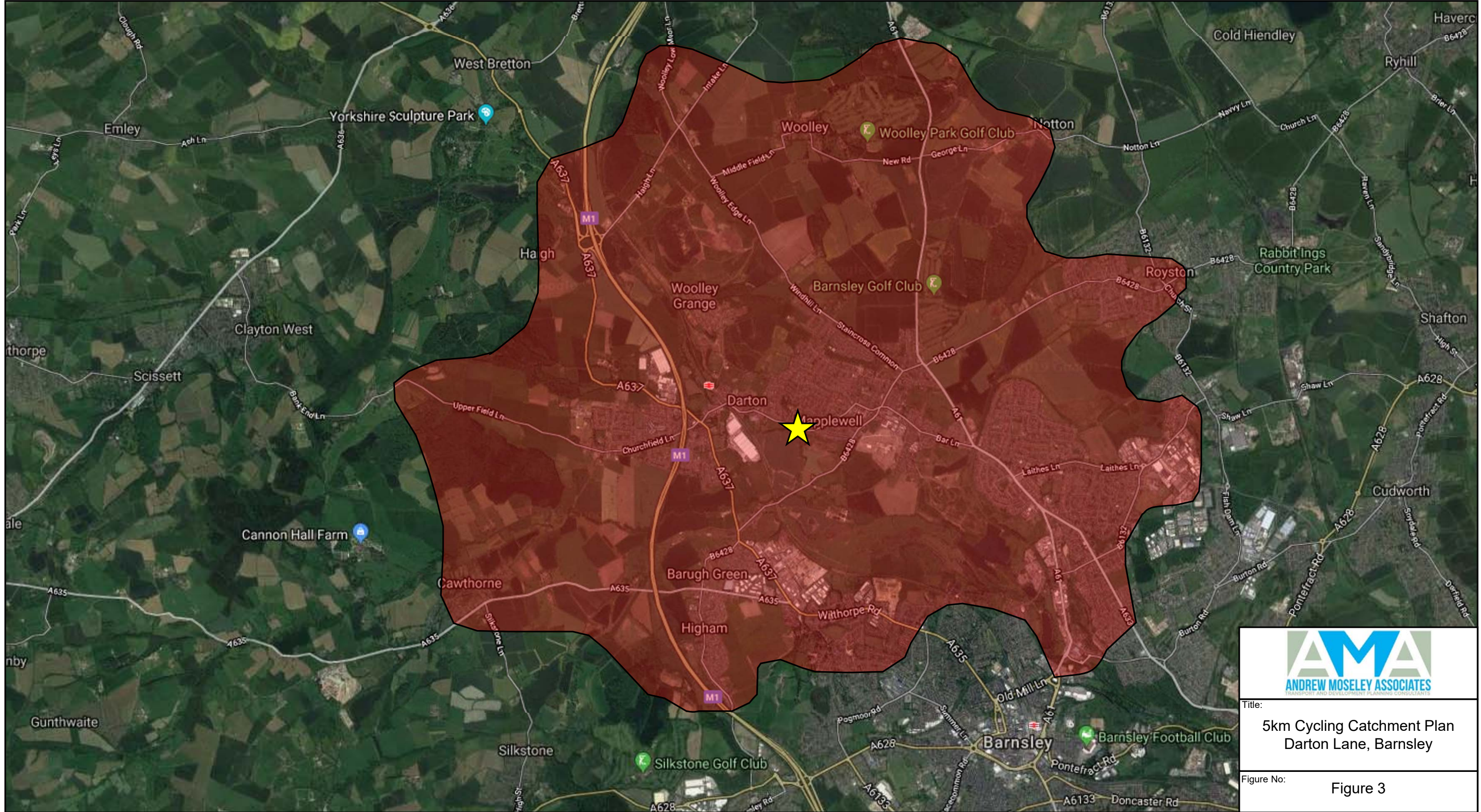
Figure 9 – 2022 Base + Development Flows





Title:
2km Pedestrian Catchment Plan
Darton Lane, Barnsley

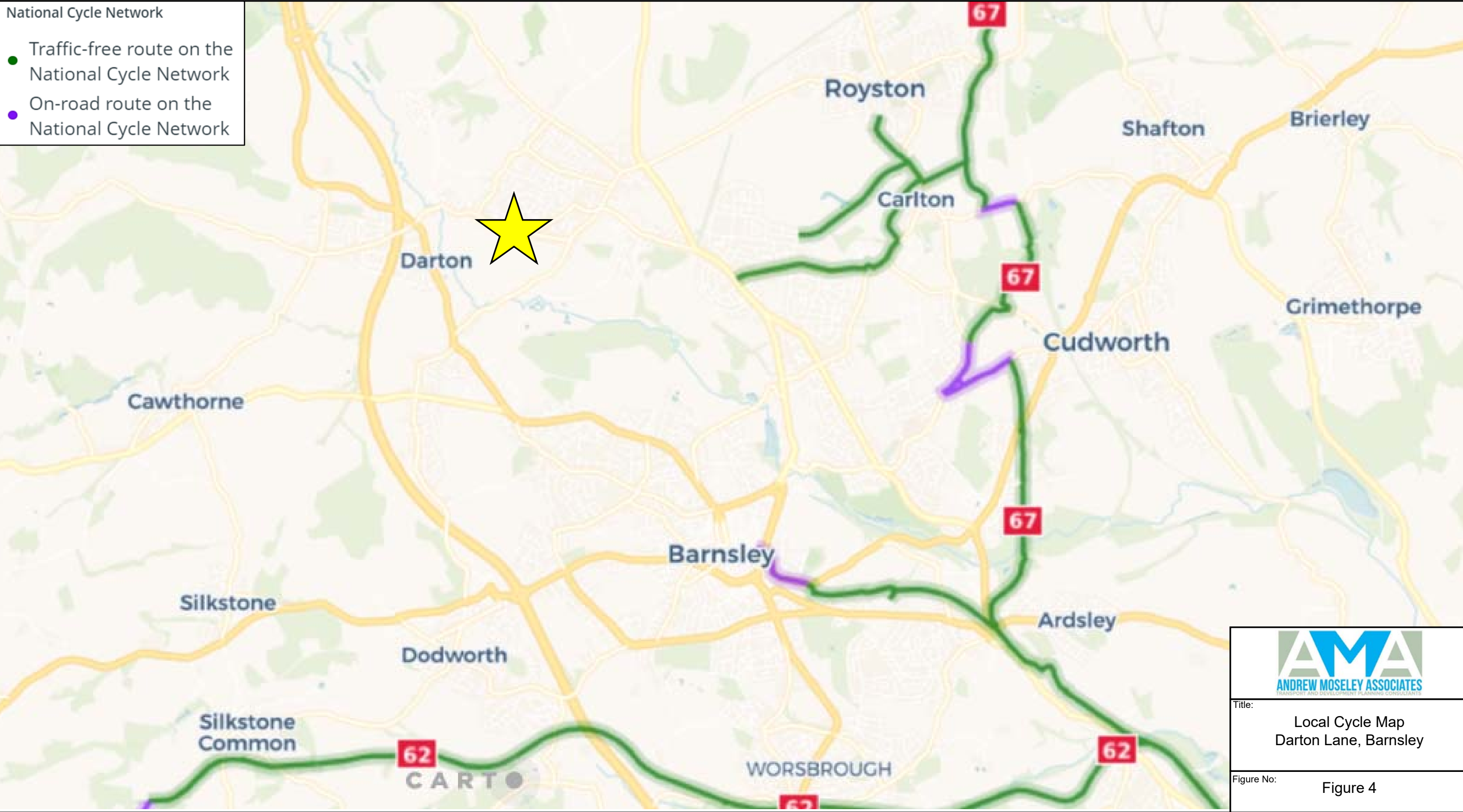
Figure No:
Figure 2



Title:
5km Cycling Catchment Plan
Darton Lane, Barnsley

Figure No: Figure 3

- National Cycle Network
- Traffic-free route on the National Cycle Network
 - On-road route on the National Cycle Network



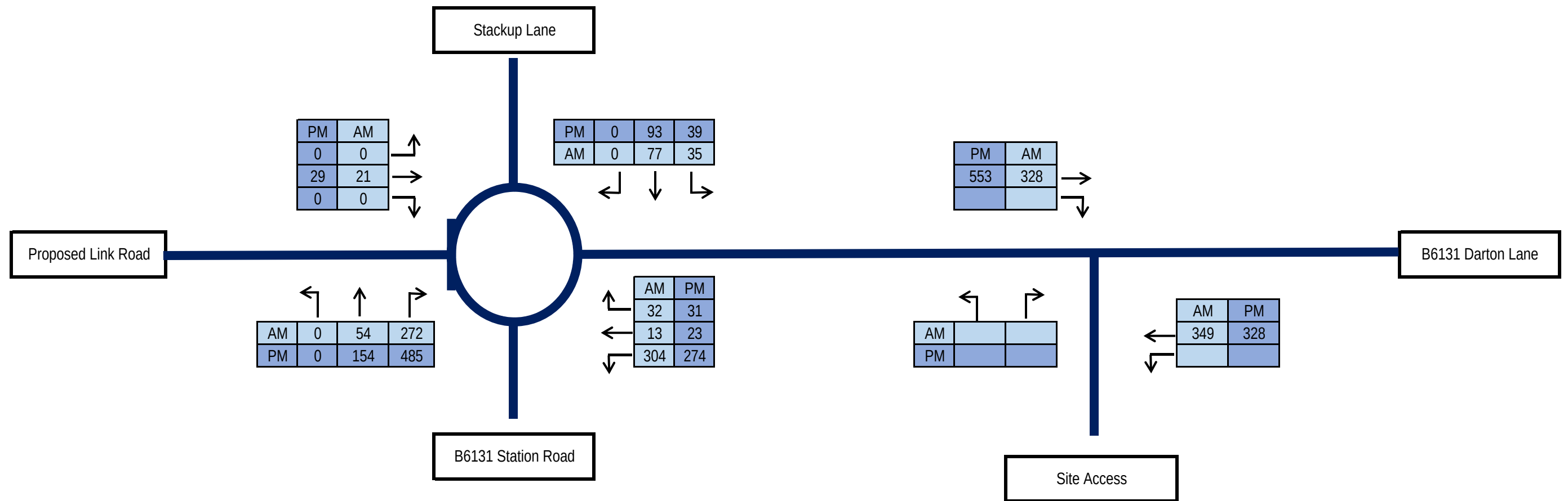
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Local Cycle Map
Darton Lane, Barnsley

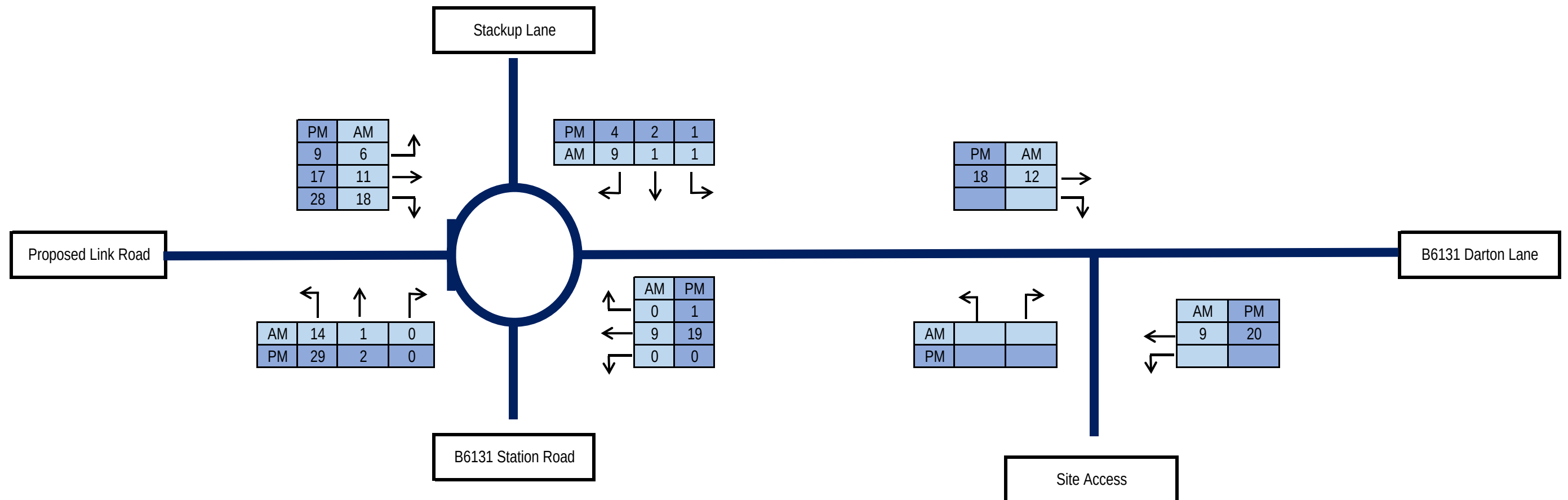
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Figure 4

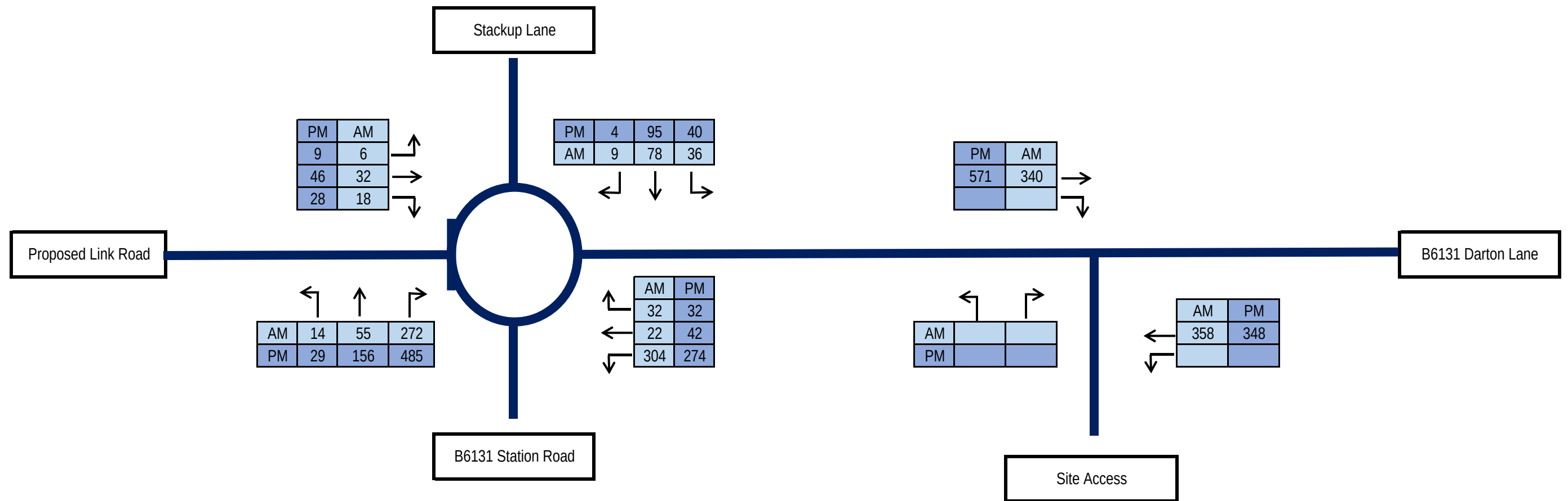


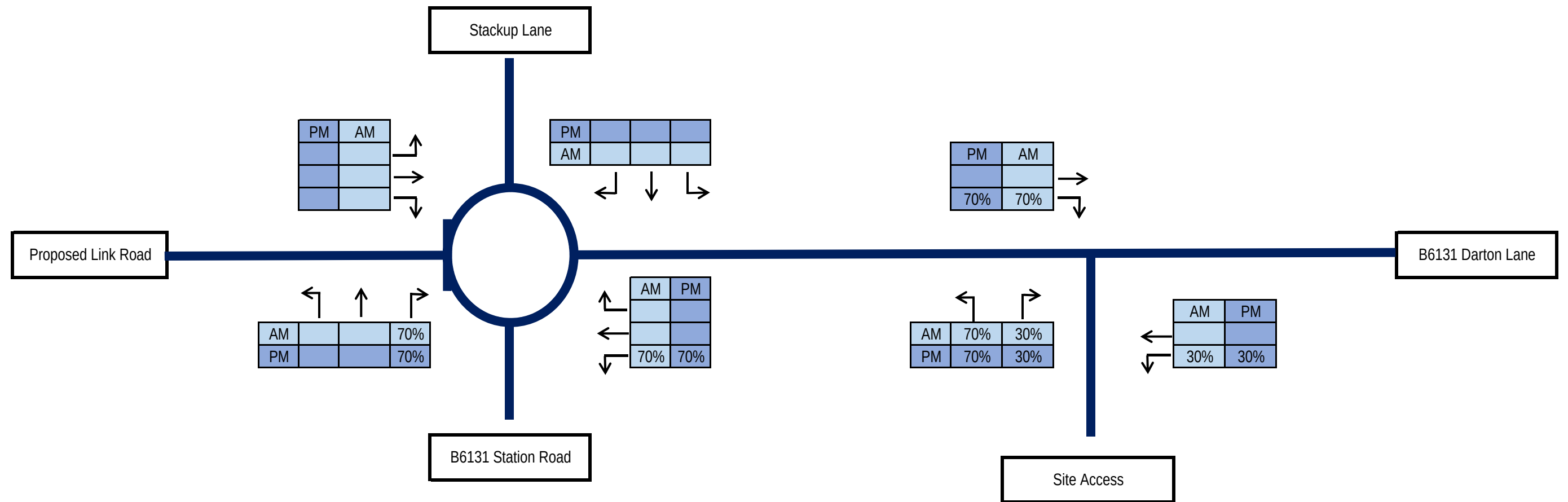
Title:
Bus Stop Location Plan
Darton Lane, Barnsley

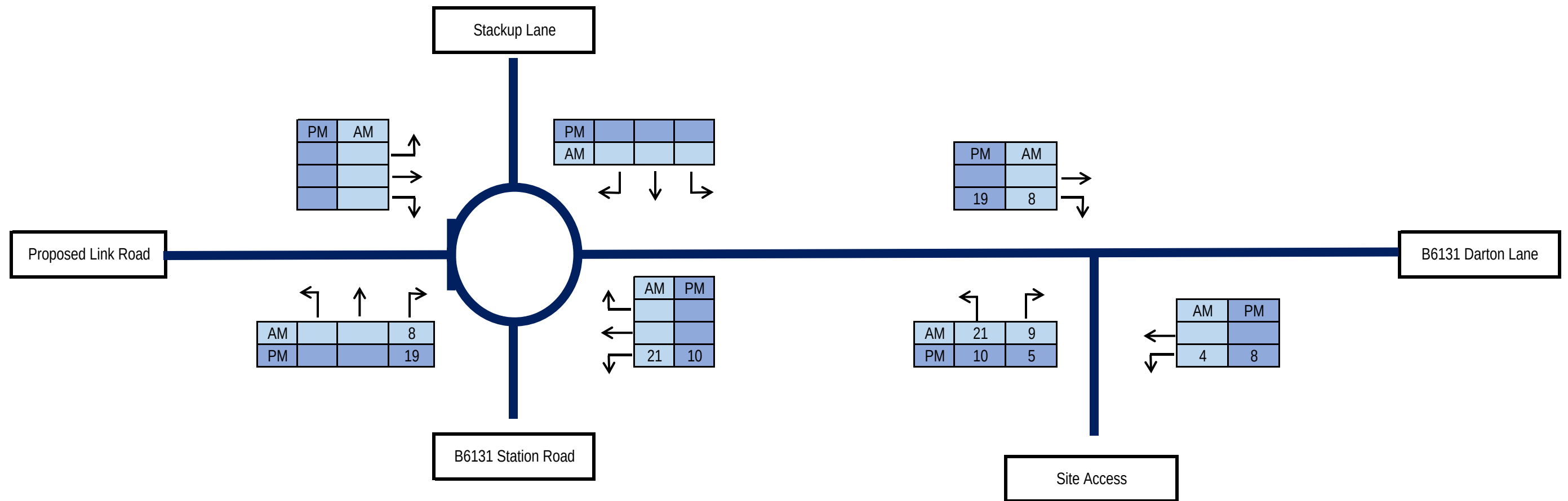
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Figure 5

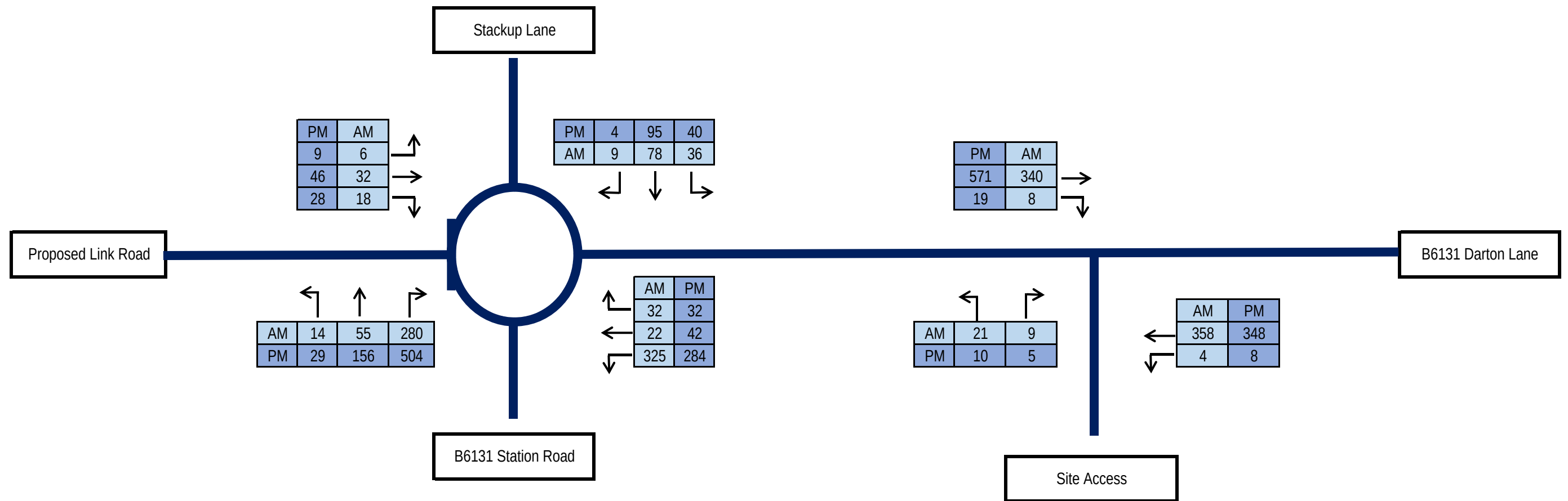












APPENDICES

[Appendix A](#) [Parameter Plan](#)

[Appendix B](#) [Site Access Proposals and Visibility Splays](#)

[Appendix C](#) [TRICS Data](#)

[Appendix D](#) [2022 Base & 2022 Base + Development Modelling Outputs](#)

Appendix A

PARAMETER PLAN

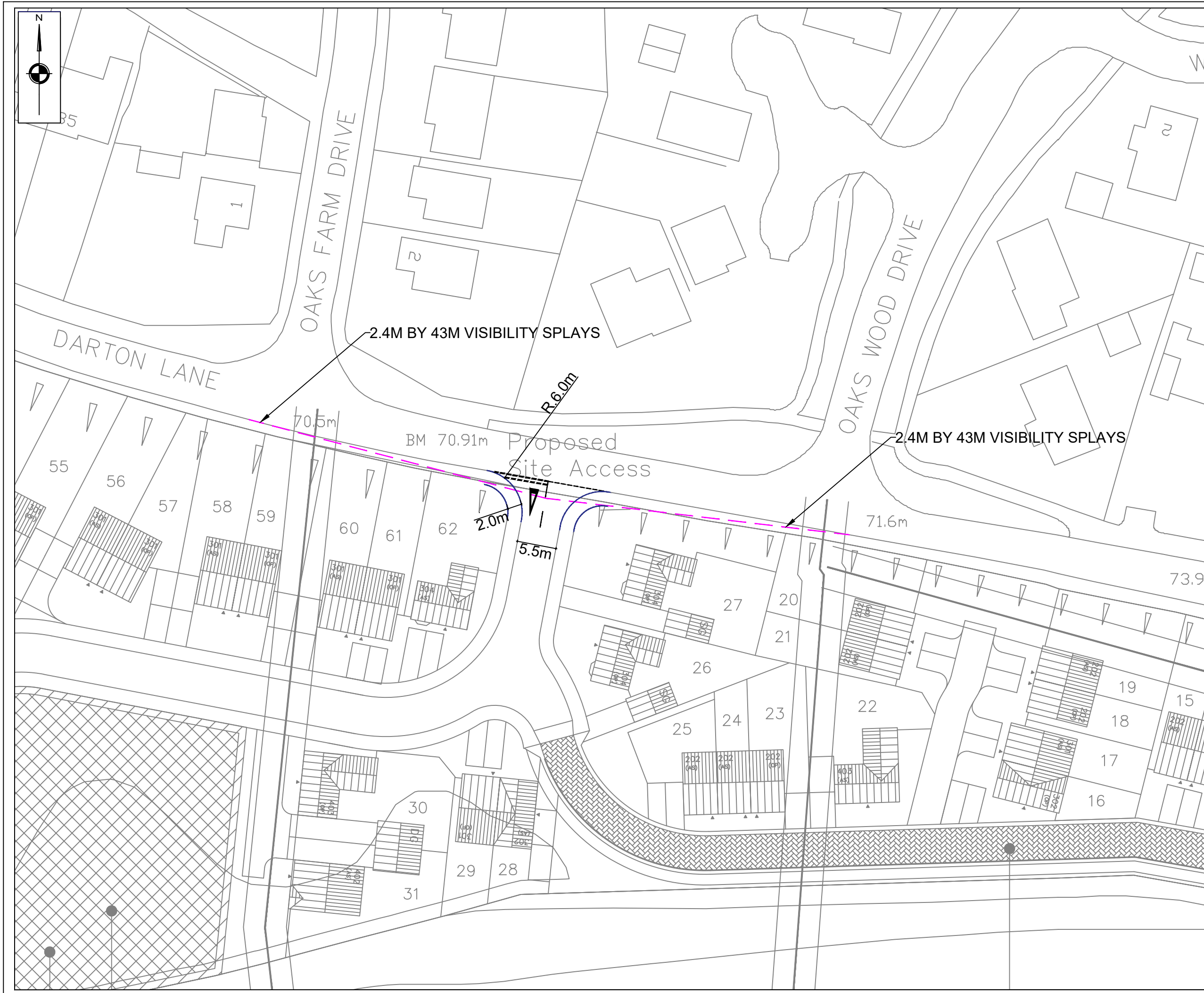
Land South of Darton Lane, Darton, Staincross

Parameter Plan



Appendix B

SITE ACCESS PROPOSALS AND VISIBILITY SPLAYS



NOTES

REVISIONS

REV	DESCRIPTION	DATE	BY
-	-	-	-



Project:

DEVELOPMENT DESCRIPTION

Client:

CHURCH COMMISSIONERS FOR ENGLAND

Drawing:

WESTERN ACCESS AND VISIBILITY SPLAYS

Drawn By:

RW

Date:

28/03/19

Checked:

ATM

Scale:

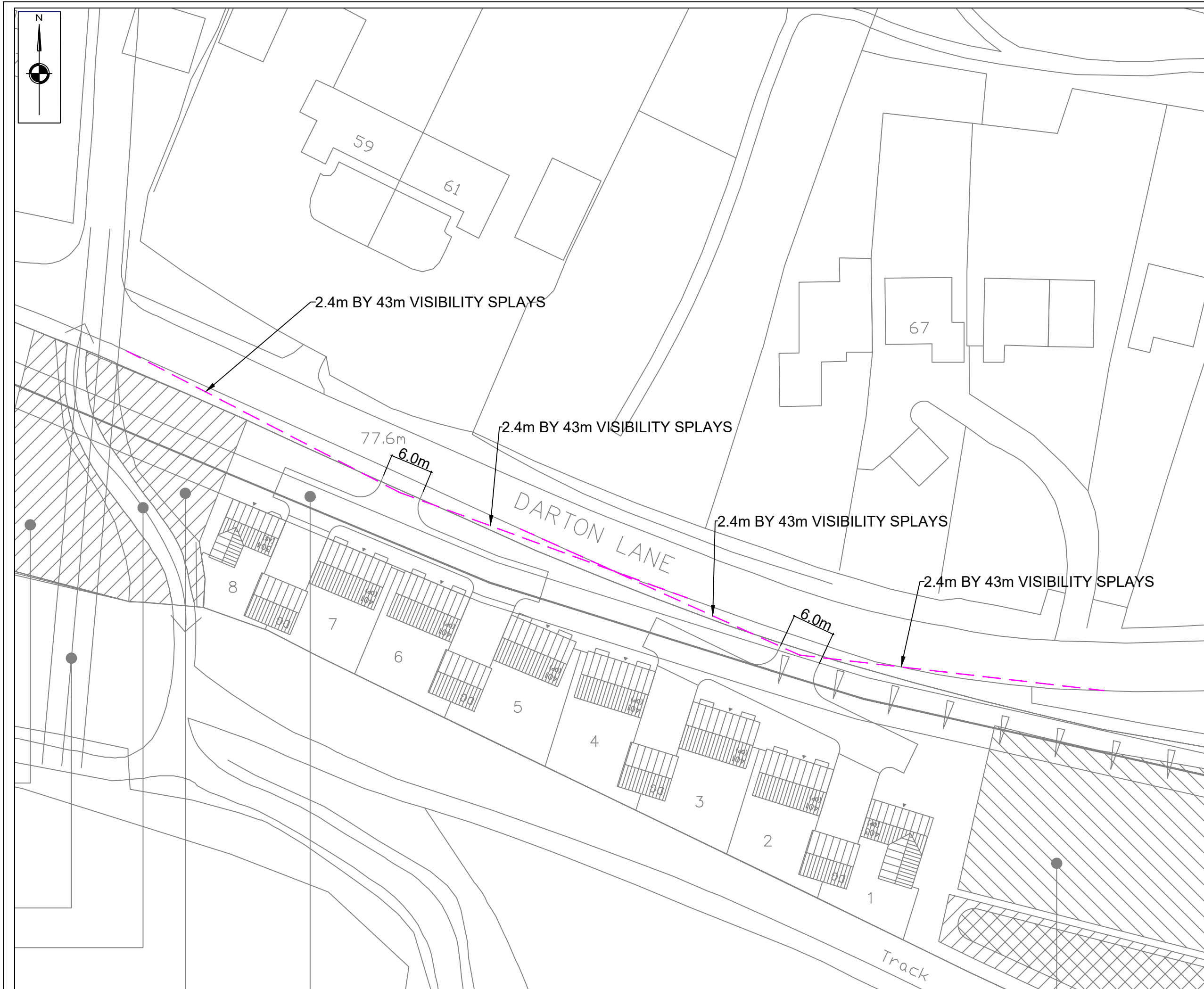
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Drawing No.

20276-SK-003

Rev.

-



NOTES

REVISIONS

REV	DESCRIPTION	DATE	BY
-	-	-	-



ANDREW MOSELEY ASSOCIATES
TRANSPORT AND DEVELOPMENT PLANNING CONSULTANTS

Project:

DEVELOPMENT DESCRIPTION

Client:

CHURCH COMMISSIONERS FOR ENGLAND

Drawing:

EASTERN ACCESS AND VISIBILITY SPLAYS

Drawn By:	RW	Date:	28/03/19
Checked:	ATM	Scale:	1:500 @ A3
Drawing No.	20276-SK-004	Rev.	-

Appendix C

TRICS DATA

Calculation Reference: AUDIT-109307-170712-0705

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	HC HAMPSHIRE	1 days
	SC SURREY	1 days
	WS WEST SUSSEX	2 days
03	SOUTH WEST	
	DC DORSET	1 days
	DV DEVON	3 days
	SM SOMERSET	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
	NF NORFOLK	3 days
	SF SUFFOLK	2 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	2 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	4 days
	ST STAFFORDSHIRE	1 days
	WK WARWICKSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	2 days
	NY NORTH YORKSHIRE	6 days
	SY SOUTH YORKSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	2 days
	GM GREATER MANCHESTER	1 days
	LC LANCASHIRE	1 days
	MS MERSEYSIDE	1 days
09	NORTH	
	CB CUMBRIA	1 days
	TW TYNE & WEAR	1 days
10	WALES	
	PS POWYS	2 days
11	SCOTLAND	
	AG ANGUS	1 days
	FA FALKIRK	2 days
	HI HIGHLAND	2 days
	PK PERTH & KINROSS	1 days

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

Secondary Filtering selection:

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

Parameter: Number of dwellings
Actual Range: 6 to 432 (units:)
Range Selected by User: 75 to 491 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/09 to 29/11/16

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

Selected survey days:

Monday	11 days
Tuesday	10 days
Wednesday	10 days
Thursday	9 days
Friday	9 days

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

Selected survey types:

Manual count	49 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town Centre	6
Suburban Area (PPS6 Out of Centre)	25
Edge of Town	18

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	43
No Sub Category	6

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

Secondary Filtering selection:

Use Class:

C1	1 days
C3	47 days

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

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	6 days
5,001 to 10,000	12 days
10,001 to 15,000	12 days
15,001 to 20,000	7 days
20,001 to 25,000	5 days
25,001 to 50,000	7 days

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

Population within 5 miles:

5,001 to 25,000	8 days
25,001 to 50,000	7 days
50,001 to 75,000	5 days
75,001 to 100,000	12 days
100,001 to 125,000	3 days
125,001 to 250,000	7 days
250,001 to 500,000	6 days
500,001 or More	1 days

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

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	16 days
1.1 to 1.5	32 days

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

Travel Plan:

Yes	4 days
No	45 days

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

PTAL Rating:

No PTAL Present	49 days
-----------------	---------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	AG-03-A-01	BUNGALOWS/DET.		ANGUS
	KEPTIE ROAD			
	ARBROATH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	7		
	Survey date: TUESDAY	22/05/12		Survey Type: MANUAL
2	CA-03-A-04	DETACHED		CAMBRIDGESHIRE
	THORPE PARK ROAD			
	PETERBOROUGH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	9		
	Survey date: TUESDAY	18/10/11		Survey Type: MANUAL
3	CB-03-A-04	SEMI DETACHED		CUMBRIA
	MOORCLOSE ROAD			
	SALTERBACK			
	WORKINGTON			
	Edge of Town			
	No Sub Category			
	Total Number of dwellings:	82		
	Survey date: FRIDAY	24/04/09		Survey Type: MANUAL
4	CH-03-A-08	DETACHED		CHESHIRE
	WHITCHURCH ROAD			
	BOUGHTON HEATH			
	CHESTER			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	11		
	Survey date: TUESDAY	22/05/12		Survey Type: MANUAL
5	CH-03-A-09	TERRACED HOUSES		CHESHIRE
	GREYSTOKE ROAD			
	HURDSFIELD			
	MACCLESFIELD			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	24		
	Survey date: MONDAY	24/11/14		Survey Type: MANUAL
6	DC-03-A-08	BUNGALOWS		DORSET
	HURSTDENE ROAD			
	CASTLE LANE WEST			
	BOURNEMOUTH			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	28		
	Survey date: MONDAY	24/03/14		Survey Type: MANUAL
7	DV-03-A-01	TERRACED HOUSES		DEVON
	BRONSHILL ROAD			
	TORQUAY			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	37		
	Survey date: WEDNESDAY	30/09/15		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	DV-03-A-02 MILLHEAD ROAD	HOUSES & BUNGALOWS	DEVON
	HONITON Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 116 Survey date: FRIDAY 25/09/15		Survey Type: MANUAL
9	DV-03-A-03 LOWER BRAND LANE	TERRACED & SEMI DETACHED	DEVON
	HONITON Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 70 Survey date: MONDAY 28/09/15		Survey Type: MANUAL
10	ES-03-A-02 SOUTH COAST ROAD	PRIVATE HOUSING	EAST SUSSEX
	PEACEHAVEN Edge of Town Residential Zone Total Number of dwellings: 37 Survey date: FRIDAY 18/11/11		Survey Type: MANUAL
11	FA-03-A-01 MANDELA AVENUE	SEMI-DETACHED/TERRACED	FALKIRK
	FALKIRK Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 37 Survey date: THURSDAY 30/05/13		Survey Type: MANUAL
12	FA-03-A-02 ROSEBANK AVENUE & SPRINGFIELD DRIVE	MIXED HOUSES	FALKIRK
	FALKIRK Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 161 Survey date: WEDNESDAY 29/05/13		Survey Type: MANUAL
13	GM-03-A-10 BUTT HILL DRIVE	DETACHED/SEMI	GREATER MANCHESTER
	PRESTWICH MANCHESTER Edge of Town Residential Zone Total Number of dwellings: 29 Survey date: WEDNESDAY 12/10/11		Survey Type: MANUAL
14	HC-03-A-18 CANADA WAY	HOUSES & FLATS	HAMPSHIRE
	LIPHOOK Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 62 Survey date: TUESDAY 29/11/16		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

15	HI-03-A-13	HOUSING		HIGHLAND
	KINGSMILLS ROAD			
	INVERNESS			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	9		
	Survey date: THURSDAY	21/05/09		Survey Type: MANUAL
16	HI-03-A-14	SEMI-DETACHED & TERRACED		HIGHLAND
	KING BRUDE ROAD			
	SCORGUIE			
	INVERNESS			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	40		
	Survey date: WEDNESDAY	23/03/16		Survey Type: MANUAL
17	LC-03-A-30	SEMI-DETACHED		LANCASHIRE
	WATSON ROAD			
	BLACKPOOL			
	Edge of Town Centre			
	Residential Zone			
	Total Number of dwellings:	24		
	Survey date: FRIDAY	14/06/13		Survey Type: MANUAL
18	LN-03-A-03	SEMI DETACHED		LINCOLNSHIRE
	ROOKERY LANE			
	BOULTHAM			
	LINCOLN			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	22		
	Survey date: TUESDAY	18/09/12		Survey Type: MANUAL
19	LN-03-A-04	DETACHED & SEMI-DETACHED		LINCOLNSHIRE
	EGERTON ROAD			
	LINCOLN			
	Edge of Town Centre			
	Residential Zone			
	Total Number of dwellings:	30		
	Survey date: MONDAY	29/06/15		Survey Type: MANUAL
20	MS-03-A-03	DETACHED		MERSEYSIDE
	BEMPTON ROAD			
	OTTERSPOOL			
	LIVERPOOL			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	15		
	Survey date: FRIDAY	21/06/13		Survey Type: MANUAL
21	NE-03-A-02	SEMI DETACHED & DETACHED		NORTH EAST LINCOLNSHIRE
	HANOVER WALK			
	SCUNTHORPE			
	Edge of Town			
	No Sub Category			
	Total Number of dwellings:	432		
	Survey date: MONDAY	12/05/14		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

22	NE-03-A-03 STATION ROAD	PRIVATE HOUSES	NORTH EAST LINCOLNSHIRE
	SCUNTHORPE Edge of Town Centre Residential Zone		
	Total Number of dwellings:	180	
	Survey date: TUESDAY	20/05/14	Survey Type: MANUAL
23	NF-03-A-01 YARMOUTH ROAD	SEMI DET. & BUNGALOWS	NORFOLK
	CAISTER-ON-SEA Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total Number of dwellings:	27	
	Survey date: TUESDAY	16/10/12	Survey Type: MANUAL
24	NF-03-A-02 DEREHAM ROAD	HOUSES & FLATS	NORFOLK
	NORWICH Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total Number of dwellings:	98	
	Survey date: MONDAY	22/10/12	Survey Type: MANUAL
25	NF-03-A-03 HALING WAY	DETACHED HOUSES	NORFOLK
	THETFORD Edge of Town Residential Zone		
	Total Number of dwellings:	10	
	Survey date: WEDNESDAY	16/09/15	Survey Type: MANUAL
26	NY-03-A-06 HORSEFAIR	BUNGALOWS & SEMI DET.	NORTH YORKSHIRE
	BOROUGHBRIDGE Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total Number of dwellings:	115	
	Survey date: FRIDAY	14/10/11	Survey Type: MANUAL
27	NY-03-A-08 NICHOLAS STREET	TERRACED HOUSES	NORTH YORKSHIRE
	YORK Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total Number of dwellings:	21	
	Survey date: MONDAY	16/09/13	Survey Type: MANUAL
28	NY-03-A-09 GRAMMAR SCHOOL LANE	MIXED HOUSING	NORTH YORKSHIRE
	NORTHALLERTON Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total Number of dwellings:	52	
	Survey date: MONDAY	16/09/13	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

29	NY-03-A-10	HOUSES AND FLATS		NORTH YORKSHIRE
	BOROUGHBRIDGE ROAD			
	RIPON			
	Edge of Town			
	No Sub Category			
	Total Number of dwellings:	71		
	Survey date: TUESDAY	17/09/13		Survey Type: MANUAL
30	NY-03-A-11	PRIVATE HOUSING		NORTH YORKSHIRE
	HORSEFAIR			
	BOROUGHBRIDGE			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	23		
	Survey date: WEDNESDAY	18/09/13		Survey Type: MANUAL
31	NY-03-A-12	TOWN HOUSES		NORTH YORKSHIRE
	RACECOURSE LANE			
	NORTHALLERTON			
	Edge of Town Centre			
	Residential Zone			
	Total Number of dwellings:	47		
	Survey date: TUESDAY	27/09/16		Survey Type: MANUAL
32	PK-03-A-01	DETAC. & BUNGALOWS		PERTH & KINROSS
	TULLYLUMB TERRACE			
	GORNHILL			
	PERTH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	36		
	Survey date: WEDNESDAY	11/05/11		Survey Type: MANUAL
33	PS-03-A-01	MIXED HOUSES		POWYS
	BRYN GLAS			
	WELSHPOOL			
	Edge of Town Centre			
	Residential Zone			
	Total Number of dwellings:	16		
	Survey date: MONDAY	11/05/15		Survey Type: MANUAL
34	PS-03-A-02	DETACHED / SEMI-DETACHED		POWYS
	GUNROG ROAD			
	WELSHPOOL			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	28		
	Survey date: MONDAY	11/05/15		Survey Type: MANUAL
35	SC-03-A-04	DETACHED & TERRACED		SURREY
	HIGH ROAD			
	BYFLEET			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	71		
	Survey date: THURSDAY	23/01/14		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

36	SF-03-A-04	DETACHED & BUNGALOWS		SUFFOLK
	NORMANSTON DRIVE			
	LOWESTOFT			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of dwellings:	7		
	Survey date: TUESDAY	23/10/12		Survey Type: MANUAL
37	SF-03-A-05	DETACHED HOUSES		SUFFOLK
	VALE LANE			
	BURY ST EDMUNDS			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	18		
	Survey date: WEDNESDAY	09/09/15		Survey Type: MANUAL
38	SH-03-A-03	DETACHED		SHROPSHIRE
	SOMERBY DRIVE			
	BICTON HEATH			
	SHREWSBURY			
	Edge of Town			
	No Sub Category			
	Total Number of dwellings:	10		
	Survey date: FRIDAY	26/06/09		Survey Type: MANUAL
39	SH-03-A-04	TERRACED		SHROPSHIRE
	ST MICHAEL'S STREET			
	SHREWSBURY			
	Suburban Area (PPS6 Out of Centre)			
	No Sub Category			
	Total Number of dwellings:	108		
	Survey date: THURSDAY	11/06/09		Survey Type: MANUAL
40	SH-03-A-05	SEMI-DETACHED/TERRACED		SHROPSHIRE
	SANDCROFT			
	SUTTON HILL			
	TELFORD			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	54		
	Survey date: THURSDAY	24/10/13		Survey Type: MANUAL
41	SH-03-A-06	BUNGALOWS		SHROPSHIRE
	ELLESMERE ROAD			
	SHREWSBURY			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	16		
	Survey date: THURSDAY	22/05/14		Survey Type: MANUAL
42	SM-03-A-01	DETACHED & SEMI		SOMERSET
	WEMBDON ROAD			
	NORTHFIELD			
	BRIDGWATER			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	33		
	Survey date: THURSDAY	24/09/15		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

43	ST-03-A-06	SEMI-DET. & TERRACED	STAFFORDSHIRE
	STANFORD ROAD		
	BLAKENHALL		
	WOLVERHAMPTON		
	Edge of Town Centre		
	No Sub Category		
	Total Number of dwellings:	17	
	Survey date: FRIDAY	09/05/14	Survey Type: MANUAL
44	SY-03-A-01	SEMI DETACHED HOUSES	SOUTH YORKSHIRE
	A19 BENTLEY ROAD		
	BENTLEY RISE		
	DONCASTER		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	54	
	Survey date: WEDNESDAY	18/09/13	Survey Type: MANUAL
45	TW-03-A-02	SEMI-DETACHED	TYNE & WEAR
	WEST PARK ROAD		
	GATESHEAD		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	16	
	Survey date: MONDAY	07/10/13	Survey Type: MANUAL
46	WK-03-A-01	TERRACED/SEMI /DET.	WARWICKSHIRE
	ARLINGTON AVENUE		
	LEAMINGTON SPA		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	6	
	Survey date: FRIDAY	21/10/11	Survey Type: MANUAL
47	WK-03-A-02	BUNGALOWS	WARWICKSHIRE
	NARBERTH WAY		
	POTTERS GREEN		
	COVENTRY		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	17	
	Survey date: THURSDAY	17/10/13	Survey Type: MANUAL
48	WS-03-A-04	MIXED HOUSES	WEST SUSSEX
	HILLS FARM LANE		
	BROADBRIDGE HEATH		
	HORSHAM		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	151	
	Survey date: THURSDAY	11/12/14	Survey Type: MANUAL
49	WS-03-A-05	TERRACED & FLATS	WEST SUSSEX
	UPPER SHOREHAM ROAD		
	SHOREHAM BY SEA		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	48	
	Survey date: WEDNESDAY	18/04/12	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	49	54	0.064	49	54	0.260	49	54	0.324
08:00 - 09:00	49	54	0.140	49	54	0.356	49	54	0.496
09:00 - 10:00	49	54	0.142	49	54	0.158	49	54	0.300
10:00 - 11:00	49	54	0.133	49	54	0.153	49	54	0.286
11:00 - 12:00	49	54	0.134	49	54	0.147	49	54	0.281
12:00 - 13:00	49	54	0.161	49	54	0.155	49	54	0.316
13:00 - 14:00	49	54	0.155	49	54	0.157	49	54	0.312
14:00 - 15:00	49	54	0.153	49	54	0.182	49	54	0.335
15:00 - 16:00	49	54	0.236	49	54	0.171	49	54	0.407
16:00 - 17:00	49	54	0.267	49	54	0.168	49	54	0.435
17:00 - 18:00	49	54	0.313	49	54	0.174	49	54	0.487
18:00 - 19:00	49	54	0.217	49	54	0.161	49	54	0.378
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.115			2.242			4.357

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	6 - 432 (units:)
Survey date range:	01/01/09 - 29/11/16
Number of weekdays (Monday-Friday):	49
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Appendix D

**2022 BASE & 2022 BASE + DEVELOPMENT MODELLING
OUTPUTS**

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.0.2.5947 © Copyright TRL Limited, 2017							
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 770558 software@trl.co.uk www.trlsoftware.co.uk							
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution							

Filename: Site Access - Darton Lane T-Junction.j9

Path: C:\Users\Andy\Dropbox\AMA Server\001 - Projects\20276 - Darton, Barnsley\Design and Analysis\Development\PICADY

Report generation date: 20/03/2019 15:37:08

- »2022 Base, AM
- »2022 Base, PM
- »2022 Base + Development, AM
- »2022 Base + Development, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 Base								
Stream B-AC	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2022 Base + Development								
Stream B-AC	0.1	8.99	0.08	A	0.0	9.23	0.04	A
Stream C-AB	0.0	4.78	0.02	A	0.1	4.23	0.06	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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	(untitled)
Location	
Site number	
Date	20/03/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-8HI15DV\Andy
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

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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)
D1	2022 Base	AM	ONE HOUR	07:30	09:00	15
D2	2022 Base	PM	ONE HOUR	16:45	18:15	15
D3	2022 Base + Development	AM	ONE HOUR	07:30	09:00	15
D4	2022 Base + Development	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2022 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Darton Lane (E)		Major
B	Site Access		Minor
C	Darton Lane (W)		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	6.25			145.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.20	33	33

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	464	0.084	0.211	0.133	0.302
1	B-C	593	0.090	0.227	-	-
1	C-B	658	0.252	0.252	-	-

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)
D1	2022 Base	AM	ONE HOUR	07:30	09:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	358	100.000
B		✓	0	100.000
C		✓	340	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	0	358
	B	0	0	0
	C	340	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	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
B-AC	0.00	0.00	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	439	0.000	0	0.0	0.000	A
C-AB	0	590	0.000	0	0.0	0.000	A
C-A	256			256			
A-B	0			0			
A-C	270			270			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	422	0.000	0	0.0	0.000	A
C-AB	0	577	0.000	0	0.0	0.000	A
C-A	306			306			
A-B	0			0			
A-C	322			322			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	399	0.000	0	0.0	0.000	A
C-AB	0	559	0.000	0	0.0	0.000	A
C-A	374			374			
A-B	0			0			
A-C	394			394			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	399	0.000	0	0.0	0.000	A
C-AB	0	559	0.000	0	0.0	0.000	A
C-A	374			374			
A-B	0			0			
A-C	394			394			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	422	0.000	0	0.0	0.000	A
C-AB	0	577	0.000	0	0.0	0.000	A
C-A	306			306			
A-B	0			0			
A-C	322			322			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	439	0.000	0	0.0	0.000	A
C-AB	0	590	0.000	0	0.0	0.000	A
C-A	256			256			
A-B	0			0			
A-C	270			270			

2022 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.00	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)
D2	2022 Base	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	348	100.000
B		✓	0	100.000
C		✓	571	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	0	348
	B	0	0	0
	C	571	0	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
B-AC	0.00	0.00	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	424	0.000	0	0.0	0.000	A
C-AB	0	592	0.000	0	0.0	0.000	A
C-A	430			430			
A-B	0			0			
A-C	262			262			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	404	0.000	0	0.0	0.000	A
C-AB	0	579	0.000	0	0.0	0.000	A
C-A	513			513			
A-B	0			0			
A-C	313			313			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	376	0.000	0	0.0	0.000	A
C-AB	0	561	0.000	0	0.0	0.000	A
C-A	629			629			
A-B	0			0			
A-C	383			383			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	376	0.000	0	0.0	0.000	A
C-AB	0	561	0.000	0	0.0	0.000	A
C-A	629			629			
A-B	0			0			
A-C	383			383			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	404	0.000	0	0.0	0.000	A
C-AB	0	579	0.000	0	0.0	0.000	A
C-A	513			513			
A-B	0			0			
A-C	313			313			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	424	0.000	0	0.0	0.000	A
C-AB	0	592	0.000	0	0.0	0.000	A
C-A	430			430			
A-B	0			0			
A-C	262			262			

2022 Base + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.45	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)
D3	2022 Base + Development	AM	ONE HOUR	07:30	09:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	362	100.000
B		✓	30	100.000
C		✓	348	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	4	358
	B	9	0	21
	C	340	8	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	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
B-AC	0.08	8.99	0.1	A
C-AB	0.02	4.78	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	23	470	0.048	22	0.0	8.030	A
C-AB	9	761	0.012	9	0.0	4.784	A
C-A	253			253			
A-B	3			3			
A-C	270			270			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	27	455	0.059	27	0.1	8.405	A
C-AB	12	784	0.015	12	0.0	4.663	A
C-A	301			301			
A-B	4			4			
A-C	322			322			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	33	434	0.076	33	0.1	8.981	A
C-AB	16	816	0.020	16	0.0	4.502	A
C-A	367			367			
A-B	4			4			
A-C	394			394			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	33	434	0.076	33	0.1	8.986	A
C-AB	16	816	0.020	16	0.0	4.503	A
C-A	367			367			
A-B	4			4			
A-C	394			394			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	27	455	0.059	27	0.1	8.412	A
C-AB	12	784	0.015	12	0.0	4.665	A
C-A	301			301			
A-B	4			4			
A-C	322			322			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	23	470	0.048	23	0.1	8.040	A
C-AB	9	761	0.012	9	0.0	4.785	A
C-A	253			253			
A-B	3			3			
A-C	270			270			

2022 Base + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.34	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)
D4	2022 Base + Development	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	356	100.000
B		✓	15	100.000
C		✓	590	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	8	348
	B	5	0	10
	C	571	19	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
B-AC	0.04	9.23	0.0	A
C-AB	0.06	4.23	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	11	452	0.025	11	0.0	8.164	A
C-AB	28	879	0.032	28	0.0	4.228	A
C-A	416			416			
A-B	6			6			
A-C	262			262			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	13	433	0.031	13	0.0	8.574	A
C-AB	38	926	0.042	38	0.1	4.055	A
C-A	492			492			
A-B	7			7			
A-C	313			313			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	17	407	0.041	16	0.0	9.226	A
C-AB	57	993	0.058	57	0.1	3.848	A
C-A	592			592			
A-B	9			9			
A-C	383			383			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	17	407	0.041	17	0.0	9.228	A
C-AB	57	993	0.058	57	0.1	3.849	A
C-A	592			592			
A-B	9			9			
A-C	383			383			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	13	433	0.031	14	0.0	8.576	A
C-AB	39	926	0.042	39	0.1	4.057	A
C-A	492			492			
A-B	7			7			
A-C	313			313			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	11	452	0.025	11	0.0	8.170	A
C-AB	28	879	0.032	28	0.0	4.231	A
C-A	416			416			
A-B	6			6			
A-C	262			262			

Junctions 9			
ARCADY 9 - Roundabout Module			
Version: 9.0.2.5947 © Copyright TRL Limited, 2017			
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Filename: Proposed Roundabout.j9

Path: C:\Users\Andy\Dropbox\AMA Server\001 - Projects\20276 - Darton, Barnsley\D Design and Analysis\Development\ARCADY

Report generation date: 20/03/2019 09:21:59

»2022 Base, AM

»2022 Base, PM

»2022 Base + Development, AM

»2022 Base + Development, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2022 Base								
1 - Sackup Lane	0.3	8.34	0.24	A	0.5	11.95	0.34	B
2 - B6131 Darton Lane	0.8	6.95	0.43	A	0.7	6.96	0.43	A
3 - B6131 Station Road	0.6	5.61	0.37	A	2.6	13.21	0.73	B
4 - Proposed Link Road	0.1	5.42	0.08	A	0.2	7.62	0.16	A
2022 Base + Development								
1 - Sackup Lane	0.3	8.42	0.24	A	0.5	12.32	0.34	B
2 - B6131 Darton Lane	0.8	7.28	0.46	A	0.8	7.11	0.44	A
3 - B6131 Station Road	0.6	5.69	0.38	A	2.9	14.29	0.75	B
4 - Proposed Link Road	0.1	5.45	0.09	A	0.2	7.78	0.16	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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	Proposed LINK road / Sackup Lane / Darton Lane / Station Road Roundabout Junction
Location	Darton, Barnsley
Site number	
Date	20/03/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-8H115DV\Andy
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

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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)
D1	2022 Base	AM	ONE HOUR	07:30	09:00	15
D2	2022 Base	PM	ONE HOUR	16:45	18:15	15
D3	2022 Base + Development	AM	ONE HOUR	07:30	09:00	15
D4	2022 Base + Development	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2022 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Proposed Roundabout	Standard Roundabout	1, 2, 3, 4	6.53	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Sackup Lane	
2	B6131 Darton Lane	
3	B6131 Station Road	
4	Proposed Link Road	

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 - Sackup Lane	2.00	4.20	2.6	10.0	28.8	40.0	
2 - B6131 Darton Lane	3.25	4.10	0.6	10.0	28.8	33.4	
3 - B6131 Station Road	3.65	4.84	1.2	10.0	28.8	50.0	
4 - Proposed Link Road	3.00	4.40	1.3	10.0	28.8	42.8	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Sackup Lane	0.432	720
2 - B6131 Darton Lane	0.490	969
3 - B6131 Station Road	0.489	1051
4 - Proposed Link Road	0.468	911

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)
D1	2022 Base	AM	ONE HOUR	07:30	09:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Sackup Lane		✓	123	100.000
2 - B6131 Darton Lane		✓	358	100.000
3 - B6131 Station Road		✓	341	100.000
4 - Proposed Link Road		✓	56	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Sackup Lane	2 - B6131 Darton Lane	3 - B6131 Station Road	4 - Proposed Link Road
	1 - Sackup Lane	0	36	78	9
	2 - B6131 Darton Lane	32	0	304	22
	3 - B6131 Station Road	55	272	0	14
	4 - Proposed Link Road	6	32	18	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Sackup Lane	2 - B6131 Darton Lane	3 - B6131 Station Road	4 - Proposed Link Road
	1 - Sackup Lane	0	0	0	0
	2 - B6131 Darton Lane	0	0	0	0
	3 - B6131 Station Road	0	0	0	0
	4 - Proposed Link Road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - Sackup Lane	0.24	8.34	0.3	A
2 - B6131 Darton Lane	0.43	6.95	0.8	A
3 - B6131 Station Road	0.37	5.61	0.6	A
4 - Proposed Link Road	0.08	5.42	0.1	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	93	241	616	0.150	92	0.2	6.862	A
2 - B6131 Darton Lane	270	78	930	0.290	268	0.4	5.422	A
3 - B6131 Station Road	257	47	1028	0.250	255	0.3	4.651	A
4 - Proposed Link Road	42	269	785	0.054	42	0.1	4.845	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	111	289	595	0.186	110	0.2	7.422	A
2 - B6131 Darton Lane	322	94	922	0.349	321	0.5	5.983	A
3 - B6131 Station Road	307	57	1024	0.299	306	0.4	5.016	A
4 - Proposed Link Road	50	322	760	0.066	50	0.1	5.074	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	135	354	567	0.239	135	0.3	8.326	A
2 - B6131 Darton Lane	394	115	912	0.432	393	0.8	6.927	A
3 - B6131 Station Road	375	69	1017	0.369	375	0.6	5.596	A
4 - Proposed Link Road	62	395	726	0.085	62	0.1	5.419	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	135	355	567	0.239	135	0.3	8.343	A
2 - B6131 Darton Lane	394	116	912	0.432	394	0.8	6.950	A
3 - B6131 Station Road	375	69	1017	0.369	375	0.6	5.607	A
4 - Proposed Link Road	62	395	726	0.085	62	0.1	5.421	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	111	290	595	0.186	111	0.2	7.447	A
2 - B6131 Darton Lane	322	95	922	0.349	323	0.5	6.014	A
3 - B6131 Station Road	307	57	1024	0.300	307	0.4	5.031	A
4 - Proposed Link Road	50	323	759	0.066	50	0.1	5.078	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	93	243	615	0.151	93	0.2	6.896	A
2 - B6131 Darton Lane	270	79	930	0.290	270	0.4	5.459	A
3 - B6131 Station Road	257	48	1028	0.250	257	0.3	4.671	A
4 - Proposed Link Road	42	271	784	0.054	42	0.1	4.853	A

2022 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Proposed Roundabout	Standard Roundabout	1, 2, 3, 4	10.94	B

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)
D2	2022 Base	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Sackup Lane		✓	139	100.000
2 - B6131 Darton Lane		✓	348	100.000
3 - B6131 Station Road		✓	670	100.000
4 - Proposed Link Road		✓	83	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Sackup Lane	2 - B6131 Darton Lane	3 - B6131 Station Road	4 - Proposed Link Road
	1 - Sackup Lane	0	40	95	4
	2 - B6131 Darton Lane	32	0	274	42
	3 - B6131 Station Road	156	485	0	29
	4 - Proposed Link Road	9	46	28	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Sackup Lane	2 - B6131 Darton Lane	3 - B6131 Station Road	4 - Proposed Link Road
	1 - Sackup Lane	0	0	0	0
	2 - B6131 Darton Lane	0	0	0	0
	3 - B6131 Station Road	0	0	0	0
	4 - Proposed Link Road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - Sackup Lane	0.34	11.95	0.5	B
2 - B6131 Darton Lane	0.43	6.96	0.7	A
3 - B6131 Station Road	0.73	13.21	2.6	B
4 - Proposed Link Road	0.16	7.62	0.2	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	105	418	540	0.194	104	0.2	8.240	A
2 - B6131 Darton Lane	262	95	922	0.284	260	0.4	5.426	A
3 - B6131 Station Road	504	58	1023	0.493	501	1.0	6.846	A
4 - Proposed Link Road	62	503	675	0.093	62	0.1	5.867	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	125	501	504	0.248	125	0.3	9.492	A
2 - B6131 Darton Lane	313	114	913	0.343	312	0.5	5.989	A
3 - B6131 Station Road	602	70	1017	0.592	600	1.4	8.602	A
4 - Proposed Link Road	75	603	628	0.119	74	0.1	6.499	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	153	612	456	0.336	152	0.5	11.843	B
2 - B6131 Darton Lane	383	139	900	0.426	382	0.7	6.937	A
3 - B6131 Station Road	738	86	1009	0.731	733	2.6	12.809	B
4 - Proposed Link Road	91	736	566	0.162	91	0.2	7.580	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	153	615	454	0.337	153	0.5	11.952	B
2 - B6131 Darton Lane	383	140	900	0.426	383	0.7	6.962	A
3 - B6131 Station Road	738	86	1009	0.731	737	2.6	13.210	B
4 - Proposed Link Road	91	741	564	0.162	91	0.2	7.619	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	125	506	501	0.249	126	0.3	9.599	A
2 - B6131 Darton Lane	313	115	912	0.343	314	0.5	6.022	A
3 - B6131 Station Road	602	70	1017	0.592	607	1.5	8.880	A
4 - Proposed Link Road	75	610	625	0.119	75	0.1	6.542	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	105	422	538	0.195	105	0.2	8.331	A
2 - B6131 Darton Lane	262	96	922	0.284	262	0.4	5.467	A
3 - B6131 Station Road	504	59	1023	0.493	506	1.0	7.004	A
4 - Proposed Link Road	62	509	673	0.093	63	0.1	5.903	A

2022 Base + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Proposed Roundabout	Standard Roundabout	1, 2, 3, 4	6.71	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)
D3	2022 Base + Development	AM	ONE HOUR	07:30	09:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Sackup Lane		✓	123	100.000
2 - B6131 Darton Lane		✓	379	100.000
3 - B6131 Station Road		✓	349	100.000
4 - Proposed Link Road		✓	56	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Sackup Lane	2 - B6131 Darton Lane	3 - B6131 Station Road	4 - Proposed Link Road
	1 - Sackup Lane	0	36	78	9
	2 - B6131 Darton Lane	32	0	325	22
	3 - B6131 Station Road	55	280	0	14
	4 - Proposed Link Road	6	32	18	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Sackup Lane	2 - B6131 Darton Lane	3 - B6131 Station Road	4 - Proposed Link Road
	1 - Sackup Lane	0	0	0	0
	2 - B6131 Darton Lane	0	0	0	0
	3 - B6131 Station Road	0	0	0	0
	4 - Proposed Link Road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - Sackup Lane	0.24	8.42	0.3	A
2 - B6131 Darton Lane	0.46	7.28	0.8	A
3 - B6131 Station Road	0.38	5.69	0.6	A
4 - Proposed Link Road	0.09	5.45	0.1	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	93	247	613	0.151	92	0.2	6.897	A
2 - B6131 Darton Lane	285	78	930	0.307	284	0.4	5.553	A
3 - B6131 Station Road	263	47	1028	0.256	261	0.3	4.685	A
4 - Proposed Link Road	42	275	782	0.054	42	0.1	4.863	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	111	296	592	0.187	110	0.2	7.470	A
2 - B6131 Darton Lane	341	94	922	0.369	340	0.6	6.175	A
3 - B6131 Station Road	314	57	1024	0.307	313	0.4	5.066	A
4 - Proposed Link Road	50	330	756	0.067	50	0.1	5.098	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	135	363	563	0.240	135	0.3	8.399	A
2 - B6131 Darton Lane	417	115	912	0.457	416	0.8	7.245	A
3 - B6131 Station Road	384	69	1017	0.378	384	0.6	5.673	A
4 - Proposed Link Road	62	403	722	0.085	62	0.1	5.452	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	135	363	563	0.241	135	0.3	8.418	A
2 - B6131 Darton Lane	417	116	912	0.458	417	0.8	7.275	A
3 - B6131 Station Road	384	69	1017	0.378	384	0.6	5.685	A
4 - Proposed Link Road	62	404	721	0.085	62	0.1	5.455	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	111	297	592	0.187	111	0.2	7.495	A
2 - B6131 Darton Lane	341	95	922	0.369	342	0.6	6.210	A
3 - B6131 Station Road	314	57	1024	0.307	314	0.4	5.080	A
4 - Proposed Link Road	50	331	756	0.067	50	0.1	5.103	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	93	249	613	0.151	93	0.2	6.928	A
2 - B6131 Darton Lane	285	79	930	0.307	286	0.4	5.595	A
3 - B6131 Station Road	263	48	1028	0.256	263	0.3	4.708	A
4 - Proposed Link Road	42	277	781	0.054	42	0.1	4.872	A

2022 Base + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Proposed Roundabout	Standard Roundabout	1, 2, 3, 4	11.63	B

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)
D4	2022 Base + Development	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Sackup Lane		✓	139	100.000
2 - B6131 Darton Lane		✓	358	100.000
3 - B6131 Station Road		✓	689	100.000
4 - Proposed Link Road		✓	83	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - Sackup Lane	2 - B6131 Darton Lane	3 - B6131 Station Road	4 - Proposed Link Road
	1 - Sackup Lane	0	40	95	4
	2 - B6131 Darton Lane	32	0	284	42
	3 - B6131 Station Road	156	504	0	29
	4 - Proposed Link Road	9	46	28	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Sackup Lane	2 - B6131 Darton Lane	3 - B6131 Station Road	4 - Proposed Link Road
	1 - Sackup Lane	0	0	0	0
	2 - B6131 Darton Lane	0	0	0	0
	3 - B6131 Station Road	0	0	0	0
	4 - Proposed Link Road	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1 - Sackup Lane	0.34	12.32	0.5	B
2 - B6131 Darton Lane	0.44	7.11	0.8	A
3 - B6131 Station Road	0.75	14.29	2.9	B
4 - Proposed Link Road	0.16	7.78	0.2	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	105	432	533	0.196	104	0.2	8.358	A
2 - B6131 Darton Lane	270	95	922	0.292	268	0.4	5.489	A
3 - B6131 Station Road	519	58	1023	0.507	515	1.0	7.032	A
4 - Proposed Link Road	62	517	669	0.093	62	0.1	5.931	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	125	518	496	0.252	125	0.3	9.677	A
2 - B6131 Darton Lane	322	114	913	0.353	321	0.5	6.080	A
3 - B6131 Station Road	619	70	1017	0.609	617	1.5	8.961	A
4 - Proposed Link Road	75	620	620	0.120	74	0.1	6.593	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	153	632	447	0.343	152	0.5	12.193	B
2 - B6131 Darton Lane	394	139	900	0.438	393	0.8	7.085	A
3 - B6131 Station Road	759	86	1009	0.752	753	2.9	13.768	B
4 - Proposed Link Road	91	757	556	0.164	91	0.2	7.734	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	153	636	445	0.344	153	0.5	12.321	B
2 - B6131 Darton Lane	394	140	900	0.438	394	0.8	7.113	A
3 - B6131 Station Road	759	86	1009	0.752	758	2.9	14.293	B
4 - Proposed Link Road	91	762	554	0.165	91	0.2	7.780	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	125	524	494	0.253	126	0.3	9.800	A
2 - B6131 Darton Lane	322	115	912	0.353	323	0.6	6.113	A
3 - B6131 Station Road	619	70	1017	0.609	625	1.6	9.301	A
4 - Proposed Link Road	75	627	617	0.121	75	0.1	6.642	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1 - Sackup Lane	105	437	531	0.197	105	0.2	8.453	A
2 - B6131 Darton Lane	270	96	922	0.292	270	0.4	5.528	A
3 - B6131 Station Road	519	59	1023	0.507	521	1.0	7.207	A
4 - Proposed Link Road	62	523	666	0.094	63	0.1	5.969	A



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