SCP

Transportation Planning : Infrastructure Design

Transport Assessment

Proposed Employment Site Extension

Pen Hill Estate, Grimethorpe, Barnsley

Symphony Group

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1.0 INTRODUCTION

Overview

1.1 SCP have been appointed by Symphony Group to provide transport consultancy services in relation to a proposed development on land located to the west of Park Spring Road, Grimethorpe.

1.2 The proposed development will provide a 30,416m^2 extension of Symphony's existing industrial and warehousing operations at the site. Further details on the proposed development are provided in Chapter 4 of this report.

1.3 This Transport Assessment (TA) has been prepared to support the planning application and has been developed with cognisance of the now superseded Department for Transports (DfT's) March 2007 *"Guidance on Transport Assessment"* document and gives due regard to the National Planning Practice Guidance (NPPG)..

1.4 A Scoping Study was prepared in December 2019 and a meeting was held at the site with officer's from Barnsley Metropolitan Borough Council (BMBC) including those representing the local highway authority. The scope of this Transport Assessment was subsequently agreed with the highway case officer.

1.5 This TA can be read in conjunction with the Full Travel Plan submitted alongside the planning application, also prepared by SCP.

Structure of Report

1.6 The structure of the TA is set out as follows: -

- Chapter 2 - describes in detail the site location and existing uses, surrounding area, local highway network, existing traffic conditions and road safety record;
- Chapter 3 – defines the development proposals including the proposed access, servicing and car parking arrangements;
- Chapter 4 – summarises the national, regional and local transport policies and describes how the proposed development accords with these;
- Chapter 5 – considers the location of the site with regard to the existing local sustainable transport infrastructure;

- Chapter 6 – describes the future baseline traffic conditions on the local highway network in relation to traffic flows and traffic growth;
- Chapter 7 – estimates the number of multimodal trips generated by the development and distributes and assigns the vehicular trips on the local highway network;
- Chapter 8 – presents an assessment of the impact of the development on the operational performance of the local highway network;
- Chapter 9 – sets out the proposals in relation to BREEAM criteria; and
- Chapter 10 – provides summary and conclusions to this TA derived from the analysis presented in the above Chapters.

2.0 EXISTING CONDITIONS

General

2.1 This chapter provides a detailed description of the location of the site, local highway network, existing traffic conditions and road safety record.

Site Location

2.2 The application site comprises an area of undeveloped land and is approximately of 6.97 hectares.

2.3 Symphony Group are the owners of the existing 46,000m^2 warehouse which neighbours the proposed development to the immediate south. The site is situated to the west of the village of Grimethorpe, approximately 6.0km north east of Barnsley town centre.

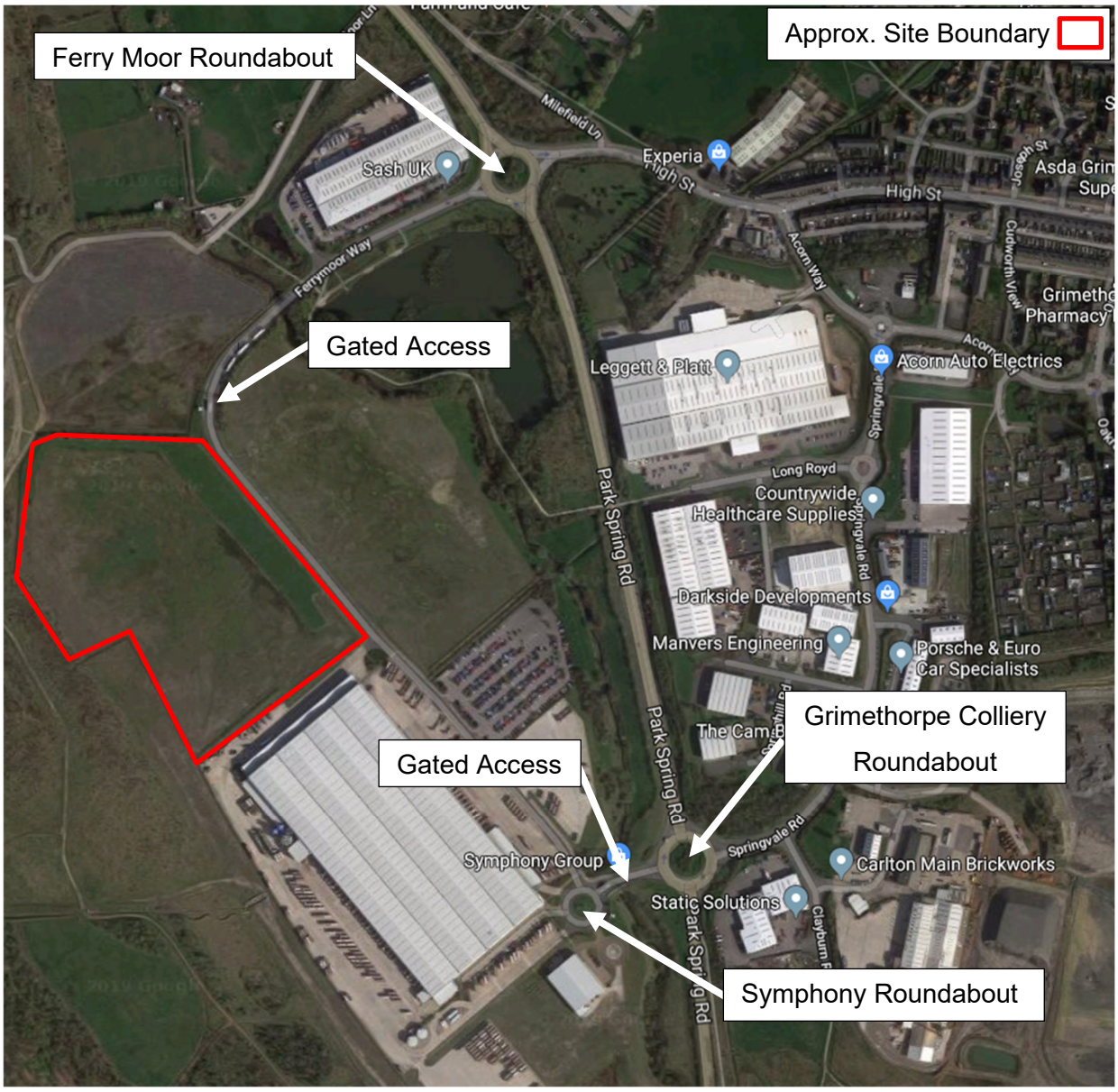
2.4 The location of the site in relation to the wider highway network is shown on **Figure 2.1** below.

Figure 2.1 – Site Location in Relation to Wider Highway Network



2.5 The location of the site in relation to the local highway network is shown on **Figure 2.2** below

Figure 2.2 – Site Location in relation to Local Highway Network



Local Highway Network

Symphony Group Private Road / Ferrymoor Way

2.6 The proposed development fronts Symphony's private access road which is gated to the north and south of the existing unit. The private road is an extension of Ferrymoor Way whilst the gated access to the south is located on the western arm of the Grimethorpe Colliery Roundabout.

2.7 The private access road and Ferrymoor Way have a carriageway width of 7.3m and benefit from footways on both sides and regularly spaced street lighting columns. There are pedestrian crossing facilities in place within the vicinity of the existing warehouse in the form of the zebra crossing at either end of the building frontage.

2.8 Ferrymoor Way forms the western arm of Ferry Moor Roundabout and the private road forms the northern arm of the internal Roundabout within the site.

2.9 Grimethorpe Colliery Roundabout and Ferry Moor Roundabout both form junctions on the A6195 Park Spring Road to either end of the wider Symphony site.

Park Spring Road

2.10 Park Spring Road has a carriageway width of approximately 9.0m with an approximate 2m central hatching and benefits from a cycle-footway on both sides of the carriageway and regular spaced street lighting columns. Within the vicinity of the site Park Spring Road connects Grimethorpe Colliery Roundabout and Ferry Moor Roundabout. The Scoping Study applied a preliminary study area including the following junctions in order to identify the existing traffic flows / distribution at the site and subsequently the offsite junction capacity modelling to be undertaken as part of the Transport Assessment, as shown in **Figure 2.2**:-

- Grimethorpe Colliery Roundabout;
- Ferry Moor Roundabout;
- Symphony Roundabout

2.11 A description of the junctions within the preliminary TASS study area are provided below:

Grimethorpe Colliery Roundabout

2.12 The Grimethorpe Colliery Roundabout takes the form of a 4-arm roundabout and is located to the south-east of the application site. All four arms on the circulatory operate under priority control and all approaches provide two lanes at entry with exception of Springvale Road which is a single lane at entry.

Ferry Moor Roundabout

2.13 The Ferry Moor Roundabout takes the form of a 4-arm roundabout located to the north-east of the proposed development. Ferrymoor Way serves an industrial unit and provides access to the existing Symphony site. All arms of the roundabout operate under priority control and all approaches provide two lanes at entry.

Internal Private Roundabout

2.14 The private roundabout is within the gated access to the south of the proposed development. The roundabout forms a 5-arm roundabout and all arms of the roundabout operate under priority control and all approaches provide single lanes at entry. The roundabout links the main site access road with the servicing yard and parking areas to the south of the existing building and separate marketing suite building at the south of the site.

2.15 Following the Scoping Study it was agreed with the local highway authority that the study area for this Transport Assessment would additionally include the following junctions:

- Engine Lane Roundabout
- Shafton Roundabout
- Rotherham Road Roundabout
- Cathill Roundabout

Engine Lane Roundabout

2.16 The Engine Lane Roundabout takes the form of a 4-arm roundabout and is located approximately 2km to the north of the application site. All four arms on the circulatory operate under priority control and all approaches provide one lane at entry with exception of Collier Road east which has two lanes at entry.

Shafton Roundabout

2.17 The Shafton Roundabout takes the form of a 4-arm roundabout and is located approximately 250m west of the Engine Lane Roundabout. All four arms on the circulatory operate under priority control. Collier Road and Pontefract Road north provide one lane at entry and Cudworth Parkway and Pontefract Road south have two lanes at entry.

Rotherham Road Roundabout

2.18 The Rotherham Road Roundabout takes the form of a 3-arm roundabout and is located approximately 4.5km to the south east of the application site. All three arms on the circulatory operate under priority control and all approaches provide one lane at entry.

Cathill Roundabout

2.19 The Cahill Roundabout is located approximately 350m south of the Rotherham Road roundabout and is currently undergoing improvements. The improvement scheme will increase the diameter of the roundabout and increase the length of two-lane approaches on the A6195 north and south arms.

Traffic Flow Data

2.20 In order to establish the existing traffic movement at the study area mentioned above, a manual classified turning count traffic flow survey was undertaken on Tuesday 22nd October 2019, between the hours of 07:30 to 09:30 and 16:00 to 18:00.

2.21 The AM and PM peak hours for the network were identified as being between 07:30 to 08:30 and 16:15 to 17:15.

2.22 Furthermore, traffic counts undertaken by BMBC at the Houghton Main Colliery Roundabout and the traffic flows at Cathill Roundabout from the Houghton Main Energy Centre TA have been obtained.

2.23 The raw traffic survey results are presented in **Appendix A**, with the peak hour traffic flows shown diagrammatically in **Traffic Flow Figure 1**.

2.24 It has not been possible to obtain representative traffic flows at the Engine Lane and Shafton Roundabouts as existing data is not available and new counts are not possible due to the effects of the COVID-19 pandemic.

Road Safety

2.25 The Planning Practice Guidance (PPG) 'Transport evidence bases in plan making and decision taking' document states that, *"Critical locations on the road network with poor accident records should be identified. This is to determine if the proposed development will exacerbate existing problems or, if proposed, whether highway mitigation works or traffic management measures will help to alleviate the problems".*

2.26 The personal injury accident data for the junctions within the TA preliminary study area has been obtained from the Crashmap online database for the most recently available 5-year period. A summary of the number and severity of the accidents at each junction in the study area is presented in **Table 2.1** below.

Table 2.1 – Accident Summary

Location	Fatal	Serious	Slight	Total
Grimethorpe Colliery Roundabout	0	0	3	**3**
Ferry Moor Roundabout	0	0	1	**1**
Private Roundabout	0	0	0	**0**
Engine Lane Roundabout	0	1	1	**2**
Shafton Roundabout	0	0	3	**3**
Rotherham Road Roundabout	0	0	3	**3**
Cathill Roundabout	0	2	10	**12**

2.27 As can be seen from the above accident analysis, there are a total of 21 ‘slight’ severity accidents occurred the entire study area and only 3 ‘serioust’ severity accidents occurred across the whole network over the five-year period. This equates to approximately 5 accidents a yearover a five-year period which is considered to be a relatively low number of accidents to what would typically be expected at junctions of this nature and given the scale of the study area.

3.0 PLANNING POLICY CONTEXT

Introduction

3.1 This chapter provides a summary of relevant national, regional and local transport policies and provides a brief analysis of how the proposed development will contribute towards their aims and objectives.

National Planning Policy Framework (NPPF)

3.2 NPPF was published in February 2019 by the Ministry of Housing, Communities and Local Government. The overall theme of the document is 'achieving sustainable development' which applies to all aspects of planning, including transport. In particular:

"Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."

3.3 In reference to supporting documentation with planning applications:

"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."

3.4 In reference to the planning of developments paragraphs 108 - 110:

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

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

3.6 *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.*

Sheffield City Region Transport Strategy 2018-2040 (SCRTS 2040)

3.7 The SCRTS 2040 was published in November 2017 and sets out a sustainable urban mobility plan for the future. The vision for the Sheffield City Region is to have "*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"* and the four key elements of this vision are outlined below:

- Support inclusive economic growth;
- Create healthy streets where people feel safe;
- Improve the quality of our outdoors; and,
- Promote, enable and adapt different technologies

Barnsley Core Strategy

3.8 The Barnsley Core Strategy was adopted in September 2011 and sets out the long-term spatial strategy for future development of Barnsley Borough up to 2026.

3.9 The following five strategic objectives have been identified in order to deliver their vision for the borough by 2026:

- *To be the spatial interpretation of the Sustainable Community Strategy;*
- *To improve access, movement and connectivity with sustainable travel;*
- *To secure safe, healthy and inclusive communities and promote wellbeing;*
- *To make efficient use of land and infrastructure;*
- *To accelerate economic growth;*
- *To ensure all new development is sustainably designed and built to the highest standards;*
- *To deliver a sufficient supply of housing to provide balanced mixed communities and support economic growth; and,*
- *To protect and improve the countryside and natural environment*

Summary and Policy Analysis / Compliance

3.10 In general, the national and local transport planning policies set out above follow similar themes and promote common aims. These are to provide sustainable development with good access to jobs and facilities, to encourage non-car modes of transport, to ensure that the highways impact of new developments is acceptable or mitigated against and to promote good site / highway design.

4.0 PROPOSED DEVELOPMENT

Overview

4.1 The development proposals consist of the construction of a 30,416m^2 B2 (10,360m^2) industrial and B8 (17,176m^2) warehousing unit with ancillary office space on land located to the west of Park Spring Road, Grimethorpe immediately to the north of the existing Symphony unit. The extension provides 2,880m^2 of office use, this is less than 10% of the overall floor area and for the purposes of this TA it will be considered as ancillary use (see site layout plan).

4.2 The application is in full and the proposed site layout plan is contained in **Appendix B**.

Access Arrangements

4.3 Vehicular and pedestrian access to the development will be provided from three points. There will be two accesses along the site frontage which will provide access to the service yard. A third access is proposed at the northern limit of the site frontage and will accommodate vehicles and pedestrians.

Parking

4.4 BMBC's maximum parking standards for General Industry and Warehousing land uses are detailed below and will be taken into account in the detailed design of the site layout:-

- B2 General Industry – 1 space per 60 m2
- B8 Warehousing - 1 space per 3 staff or 1 space per 60 m2 gross floor area up to 300 m2 and 1 space per 100 m2 gross floor area thereafter
- Electric Vehicle Spaces for Commercial / Retail or Industrial – 10% of parking
- Disabled Spaces for Commercial / Retail or Industrial – 5% of parking

4.5 BMBC's parking standards indicate that the site would require a maximum total of 173 for the B2 element of the proposals and a maximum total of 174 for the B8 element of the proposals (including ancillary office space), which is a total maximum of 347 car parking spaces.

4.6 The site proposes:

- Total Spaces - 292
- Electrical Vehicle Spaces – 30
- Car Sharing Spaces – 15

- Disabled Spaces – 15

4.7 The site also proposes 49 HGV parking spaces in the east service yard

4.8 The proposed car parking provision therefore complies with the maximum parking standards set out by BMBC.

5.0 SUSTAINABLE TRANSPORT APPRAISAL

General

5.1 This Chapter presents a review of the accessibility of the site by walking, cycling and public transport modes. Policies to encourage travel by sustainable modes are developed further within the Full Travel Plan for the development that accompanies this application.

Accessibility by Non-Car Modes: Walking

5.2 Walking is the most important mode of travel at local level and offers the greatest potential to replace short car trips, particularly those under 2km.

5.3 Symphony's private road has footways on both side of the carriageway, dropped kerbs and tactile paving as well as street lighting.

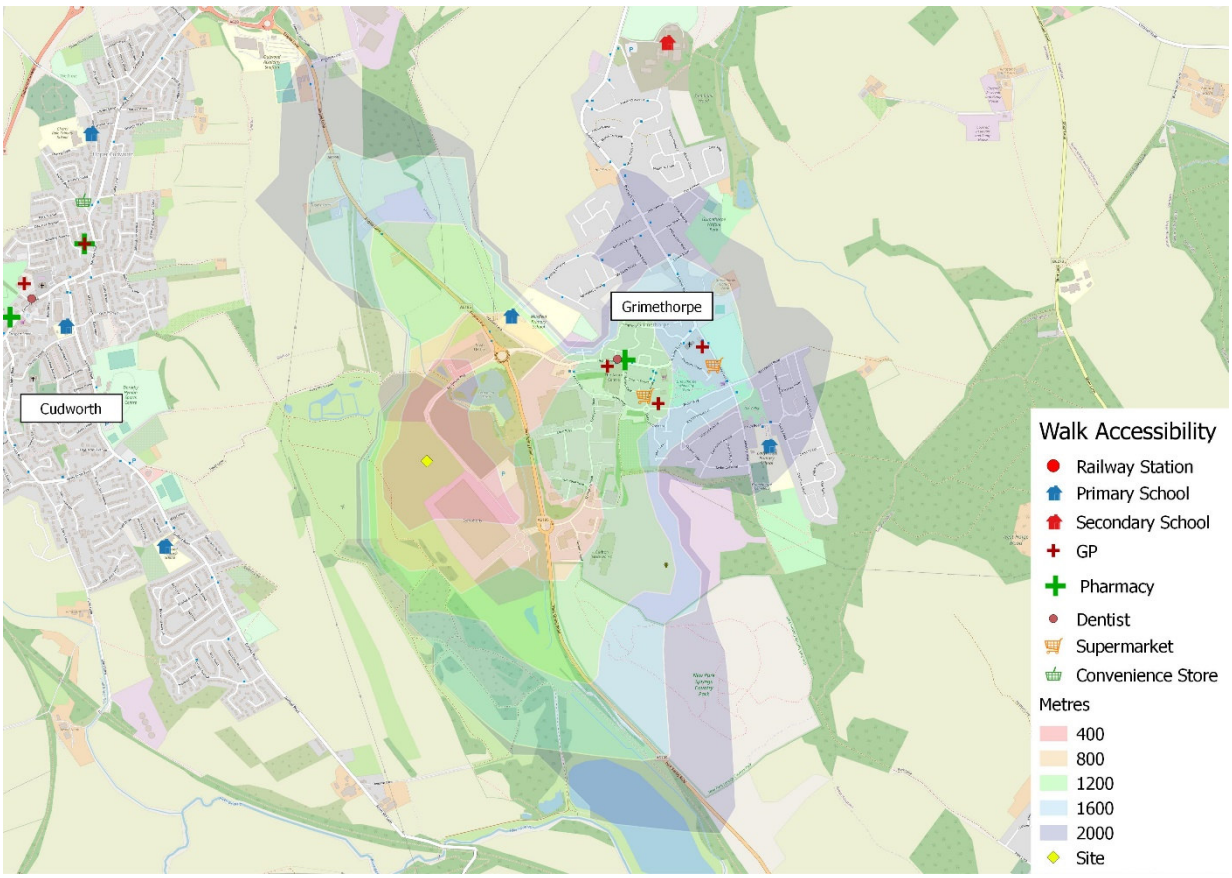
5.4 Symphony's private road can be accessed from the Ferry Moor Roundabout and the Grimethorpe Colliery Roundabout where the nearest bus stops are located between these two roundabouts.

5.5 The street lighting provided along these two roads makes it suitable for those members of staff who will be commuting in the early hours or late at night due to shift pattern work.

5.6 Pedestrian and cycle access will be provided at the same location as the vehicular access from the private road

5.7 The pedestrian accessibility of the development has been modelled using Geographical Information System (GIS) software to produce isochrones mapping. The purpose of the isochrones is to demonstrate the areas within an acceptable walk distance of the site, as shown on **Figure 5.1** overleaf.

Figure 5.1 – 2km Walking Accessibility Isochrone



5.8 **Table 5.1** below demonstrated the facilities which are with a 2km walk of the site.

Table 5.1 – Facilities within 2km Walk Distance of the site

Facility	Name	Distance from Site (km)
Bus Stop	Park Spring Road	0.85
Primary School	Milefield Lane Primary School	0.95
Doctor	Saxena Dr I R	1
Dentist	The Grimethorpe Dental	1
Cafe	Old Colliers Cafe	1.2
Supermarket	Asda Grimethorpe	1.2
Pharmacy	Grimethorpe Pharmacy	1.3
Convenience Store	Grimethorpe Convenience	1.6

5.9 The above demonstrates that the site is within acceptable walking distance of the nearby local facilities such as convenience stores as well as being with walking distance of surrounding residential areas. Generally, the pedestrian facilities within the area are good with footways provided along both sides of Park Spring Road and High Street, with dropped kerbs provided at most junctions and street lighting provided.

5.10 Overall, these represent a range of facilities within a short walk. These facilities will be useful for staff members during lunchtimes/breaks and for visitors.

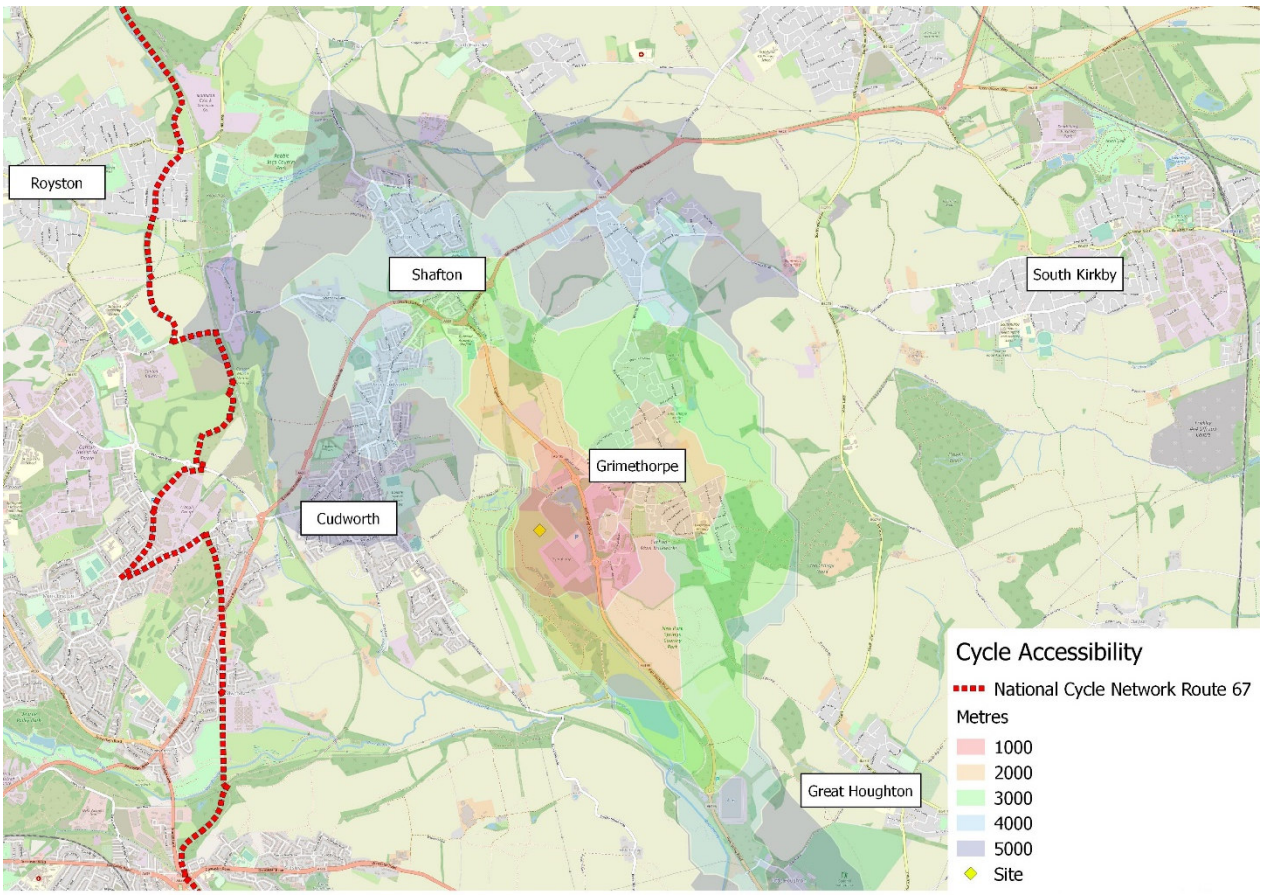
Accessibility by Non-Car Modes: Cycling

5.11 Cycling is an inexpensive, efficient and healthy way to travel. Cycling also provides a predictable arrival time which is often quicker than driving or using public transport and is subject to fewer traffic and congestion delays.

5.12 Transport Policy identifies that cycling represents a realistic and healthy alternative to the use of the private car for making journeys up to 5000m as a whole journey or as part of a longer journey by public transport.

GIS software has been used to model 5km cycle catchment from the site and is shown on **Figure 5.2** below.

Figure 5.2 – Cycling Accessibility Isochrone

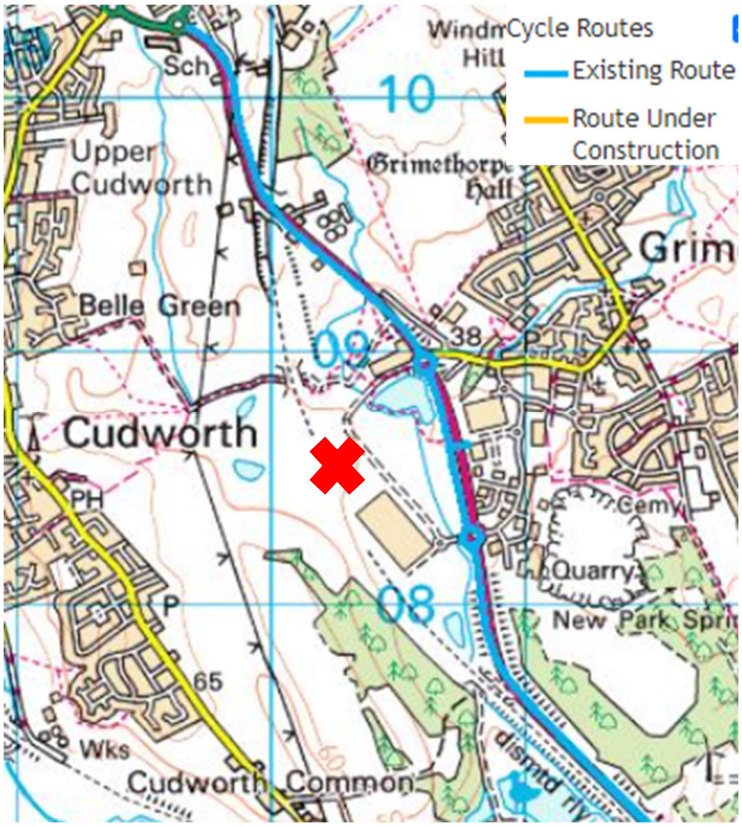


5.13 **Figure 5.2** illustrates that the site is accessible by bicycle from several surrounding towns and villages, such as Cudworth, Shafton, Royston and Great Houghton.

5.14 As the application site is within an acceptable cycle distance of a range of areas and associated facilities, cycling is considered to be a viable alternative to private car use for prospective employees and visitors to the site.

5.15 There are a number of designated cycle routes around the proposed site, as shown on **Figure 5.3** below: -

Figure 5.3 – Cycle Routes in Barnsley



5.16 The cycle-footway to the east of the site along Park Spring Road provides safe and secure travel for cyclists travelling northbound and southbound.

Public Transport

5.17 Guidance published by the IHT 'Planning for Public Transport in Developments' (1999), recommends that the maximum walking distance to a bus stop should be 400 metres, equating approximately to a five-minute walk.

5.18 Several services will operate from within a short distance of the site at the bus stops located on Finney Lane to the south of the site.

5.19 These services are summarised in **Table 5.2** below.

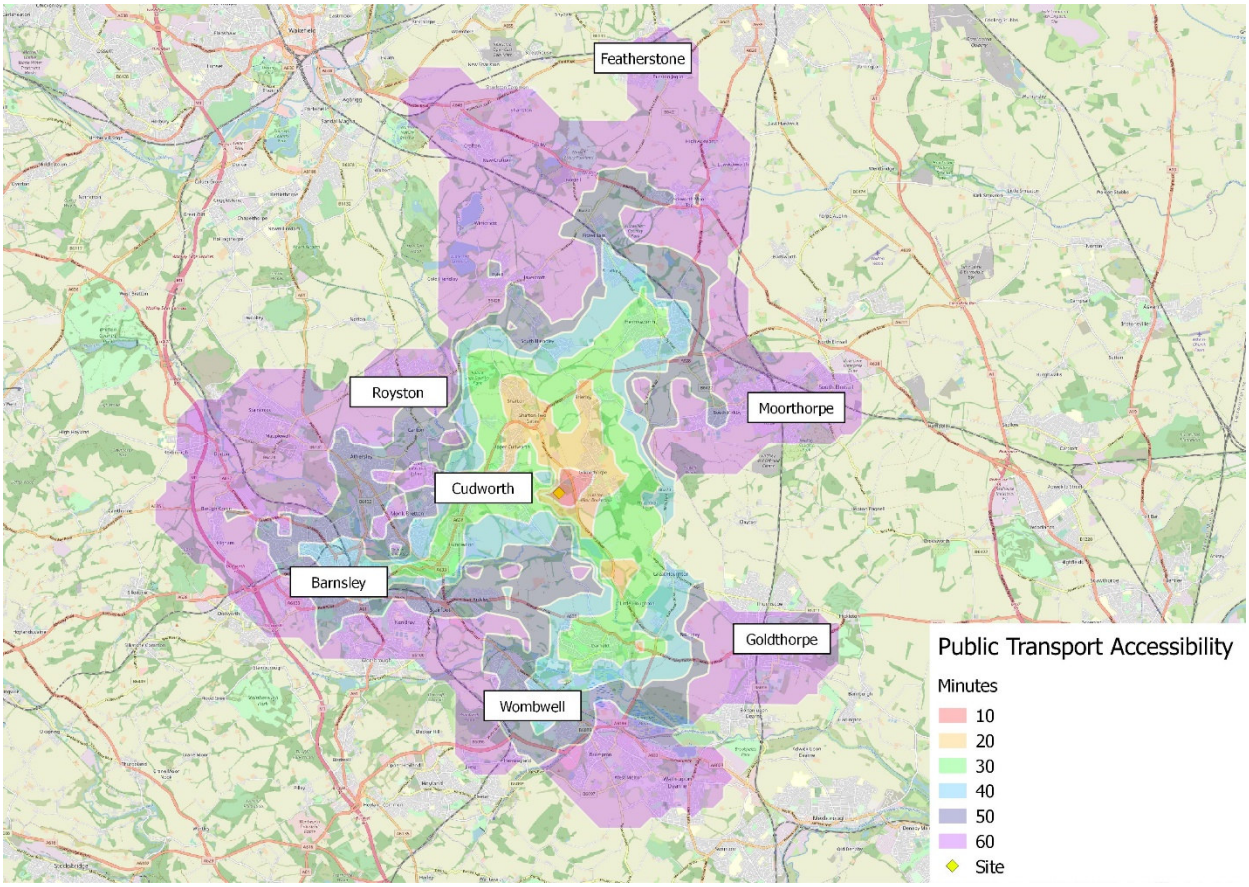
Table 5.2 – Bus Service Summary

Service No.	Route	Operator	Avg. Service Headway (mins)		
			Mon - Fri	Sat	Sun
27	Barnsley – Shafton – Brierley – Grimethorpe - Darfield	Stagecoach	30	30	60
28/28a/28c	Barnsley – Cudworth - Shafton – Grimethorpe – Brierly – Hemsworth - Pontefract	Stagecoach	30	30	60
37	Barnsley - Honeywell - Monk Bretton - Cudworth - Shafton - Grimethorpe	Waterson Coaches	60	-	-
38	Barnsley - Cundy Cross - Lundwood - Cudworth - Shafton - Grimethorpe - Brierley - Hemsworth	Waterson Coaches	60	60	-
208	Rotherham - Rawmarsh - Warren Vale - Swinton - Mexborough - Bolton upon Dearne - Goldthorpe - Billingley - Grimethorpe	Stagecoach	3 services all day	3 services all day	3 services all day

5.20 The above demonstrates that prospective employees will have access to bus services stopping close to the site which will provide a viable option for employees to travel by bus from key destinations, including Pontefract and Barnsley town centre, at a reasonable frequency.

5.21 **Figure 5.4** overleaf indicates several locations which are within a 60-minute public transport (bus and rail) commute from the proposed site. The time includes the walk to the bus stops / railway station. The analysis demonstrates that it is possible to reach areas such as Barnsley and Featherstone, amongst others, in a 60-minute commute time.

Figure 5.6 – 60-minute public transport Accessibility



5.22 With consideration to the above, it is considered that the site is well located to be accessed by sustainable modes of transport; namely walking, cycling and public transport. The site is located within walking distance of several residential areas meaning the need to travel by private car is reduced for members of staff.

5.23 There is also ample opportunity for staff to walk, use a mobility scooter or public transport to reach health, leisure, and shopping facilities.

6.0 BREEAM CRITERIA

6.1 Sections TRA01 & 02 of the BREEAM UK New Construction Measures 2018 set out the requirements to gain credits in relation to transport modes and facilities. This Chapter sets out how the site meets the requirements.

6.2 10% of parking on site, or 30 spaces, will be for electric charging of vehicles. This complies with the current standards set by BMBC.

6.3 For the purposes of BREEAM assessment, the site has been categorised as a Office/Industrial establishment. The Accessibility Index has been calculated based on the site being a campus. As such, measurements to both transport nodes and amenities have been calculated from the main site entrance onto West Way.

6.4 The Accessibility Index has revealed a score of 2.55. The spreadsheet is included at **Appendix 1** of the Travel Plan.

6.5 The travel methods from existing members of staff have been obtained which is set out below:

Table 6.1- Staff Method of Travel to Work

Method of Travel to Work	Results	
Mode	Percentage	412 Responses
Car Driver	44%	183
Car with others	39%	161
Public Transport	7%	27
Walking	6%	23
Cycling	4%	17

6.6 The Travel Plan sets out measures which will encourage staff and visitors/trainees to reach the site by means other than the private car and sets out a marketing strategy, targets for multimodal travel and monitoring schedule.

6.7 The minimum measures to be considered as part of BREEAM are set out in Chapter 7 of the Travel Plan, submitted under separate cover as part of the planning application.

7.0 FUTURE BASELINE TRAFFIC CONDITIONS

Introduction

7.1 This chapter describes the future baseline traffic conditions on the local highway network in relation to traffic growth.

Committed Developments

7.2 Development flows from the Houghton Main Energy Centre development have been obtained, however these do not have a significant impact at only 6 movements in the AM peak hour and 3 in the PM peak hour.

Future Baseline Traffic Flows

7.3 The capacity assessments in this TA will be undertaken in the future assessment years of 2020 and 2025, which is consistent with the application year plus 5 years.

Traffic Growth

7.4 In order to quantify the level of background traffic growth that could occur on the local network between the date of the traffic surveys and the assessment years, National Traffic Model (NTM) growth factors, modified by TEMPRO local growth factors, have been used as summarised in **Table 7.1** below:-

Table 7.1 – Traffic Growth Factors

Period	AM Peak	PM Peak
BMBC Counts 2017 - 2020	1.0478	1.0469
BMBC Counts 2017 - 2025	1.1328	1.1319
Committed Development 2018 - 2020	1.0314	1.0308
Committed Development 2018 - 2025	1.1150	1.1145
SCP Counts 2019 - 2020	1.0166	1.0157
SCP Counts 2019 - 2025	1.1007	1.0984

7.5 The above growth factors have been applied to the surveyed traffic flows to obtain the 2020 and 2025 adjusted surveyed traffic flows, as shown in **Traffic Flow Figure 2 & 3**.

8.0 TRIP GENERATION, DISRIBUTION AND ASSIGNMENT

Introduction

8.1 This chapter provides an estimation of the likely trip-generating potential of the proposed site uses during the weekday peak hours, along with the distribution and assignment of the vehicular trips on the local highway network.

Trip Generation

Industrial Estate

8.2 In order to estimate the trip generating potential of the industrial estate, average trip rates from the industry-standard TRICS Database (V7.4.4) have been obtained. The selection criteria for the TRICS based trip rates is as follows:-

i) Employment;

ii) Industrial Estate;

iii) Multi modal surveys;

iv) Selection by Gross Floor Area;

v) Sites in Greater London and Ireland not selected; and,

vi) Only sites in 'Edge of Town' locations have been selected.

8.3 The multi modal TRICS outputs for the proposed industrial site are presented in **Appendix C** and are summarised in **Table 8.1** below:-

Table 8.1 - Estimated Trip Rates (Per 100m^2) Associated with the Proposed Extension

Mode	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Arrivals	Departures	Arrivals	Departures
Vehicles	0.197	0.081	0.056	0.180
Cycles	0.004	0.001	0.002	0.006
Pedestrians	0.008	0.004	0.004	0.009
Pub. Trans.	0.010	0.001	0.001	0.006

8.4 When applied to the approximate GFA of the proposed development (27,870m^2 GFA), this results in the following estimated level of trip generation:-

Table 8.2 – Estimated Trip Generation – 27,870m² Proposed Extension				
Mode	**Weekday AM Peak Hour**		**Weekday PM Peak Hour**	
	Arrivals	**Departures**	**Arrivals**	**Departures**
Vehicles	55	23	16	50
Cycles	1	0	1	2
Pedestrians	2	1	1	3
Pub. Trans.	3	0	0	2

Vehicle Trips Derived from Traffic Survey

8.5 Vehicle trip rates have also been calculated using the 47,750m² footprint of Symphony's existing buildings (comprising the main building and smaller marketing suite to the south, in relation to the peak hour traffic flows into and out of the site, as recorded by the traffic surveys.

Table 8.3 - Estimated Trip Rates (Per 100m²) Associated with the Proposed Extension				
Mode	**Weekday AM Peak Hour**		**Weekday PM Peak Hour**	
	Arrivals	**Departures**	**Arrivals**	**Departures**
Vehicles	0.561	0.046	0.059	0.494

8.6 The trip rates are significantly higher than those from the TRICS database and are to be retained to provide a robust assessment.

8.7 It should also be noted that the trip rates are based on the footprint of the buildings and therefore do not make any allowance for multiple-storey sections of the site, ensuring they are robust.

8.8 When applied to the approximate GFA of the proposed development (27,870m² GFA), this results in the following estimated level of trip generation:-

Table 8.4 - Estimated Trip Generation – 27,870m² Proposed Extension				
Mode	**Weekday AM Peak Hour**		**Weekday PM Peak Hour**	
	Arrivals	**Departures**	**Arrivals**	**Departures**
Vehicles	171	14	18	150

Trip Distribution

8.9 The methodology used to estimate the trip distribution of the development-related traffic routing through the preliminary TA study area is based on the traffic flows taken from the fully classified all movement traffic count, in the context of the location of the main proposed site access.

8.10 The trip distribution percentages are presented in **Table 8.5** below:-

Table 8.5 – Development Trip Distribution Percentages

	Route	% Assigned to Each Route
A	Northbound	51%
B	Eastbound	10%
C	Southbound	39%

8.11 This methodology has been adopted to distribute trips for the proposed scheme. The percentage distribution of vehicular trips generated by the proposed development is also presented diagrammatically in **Traffic Flow Figure 4**.

8.12 The wider distribution of traffic within the local highway network was conducted using census data.

8.13 The methodology used to estimate the wider trip distribution of the development-related traffic routing through the preliminary study area is based on information from the 2011 Census.

8.14 Location of place of work and usual residence data from the national census for all “in-moves” towards the Barnsley 008 Middle Super Output Area (MSOA) have been obtained from Nomis for the purposes of determining a suitable and localised trip distribution model. The trip distribution percentages are presented in **Table 8.6** below:-

Table 8.6 – Development Trip Distribution Percentages

	Route	% Assigned to Each Route
A	Park Spring Road	1%
B	High street (Grimethorpe)	6%
C	Barnsley Road	5%
D	Cudworth Parkway	14%
E	Weetshaw Lane	13%
F	A635 Doncaster Road	20%
G	A6195	12%
H	High Street	18%
I	Pontefract Road	12%

8.15 In-moves provide an indication of the numbers and destinations (on a MSOA basis) of people who work in Barnsley 008 MSOA and who live elsewhere.

8.16 Having determined the distribution in the immediate vicinity of the site, Census Data has been used to distribute development on the wider highway network; although the Cencus Data was broadly similar to the distribution of traffic flows at the proposed site access, slight adjustments were made to the Census distribution to tie in with that recorded at the site access.

Traffic Assignment

8.17 At this stage it has been assumed that of the traffic travelling south from the proposed site that 50% of trips would use Ferry Moor Roundabout and 50% of trips would use Grimethorpe Colliery Roundabout. Whilst all northbound trips would use the Ferry Moor Roundabout, given the proximity of the proposed site access to the junction.

8.18 The traffic assignment of the scheme has been obtained by applying the relevant estimated trip distribution proportions to the relevant estimated traffic generation figures. The traffic assignment for the proposed scheme is presented diagrammatically in **Traffic Flow Figure 5.**

9.0 ANTICIPATED HIGHWAY IMPACT

General

9.1 This Chapter describes the impact of the additional trips generated by the proposed development on the operation of the local highway network. The study area includes the following junctions:

- Grimethorpe Colliery Roundabout;
- Ferry Moor Roundabout;
- Rotherham Road Roundabout
- Cathill Roundabout

9.2 As detailed at Chapter 2 it has not been possible to obtain traffic flows for the Engine Lane and Shafton Roundabouts as existing data is not available and new counts are not possible due to the effects of the measures to deal with the COVID-19 pandemic.

9.3 This has been discussed with the local highway authority, who agree that it is not possible to undertake representative traffic counts whilst the effects of the measures to deal with the pandemic are still in place and advised that the situation was to be reviewed in the intervening months between the pandemic arriving and the submission of the planning application.

9.4 Traffic conditions have yet to return to being typical and will not do so for the foreseeable future, therefore it is not possible to obtain representative traffic count data within the timescales for the planning application and the target determination date in August.

9.5 Based on a robust traffic generation methodology it has been calculated that the proposed extension to the site would generate 94 vehicle movements in the AM peak hour and 86 in the PM peak hour, which would disperse at the Engine Lane and Shafton Roundabouts. These movements equate to a vehicle movement every 40 seconds, which is not considered to represent a material impact, particularly at these large roundabout junctions and given that they are not included in the roundabout improvements being progressed locally at the Cathill, Broomhill and Wath Road junctions, do not appear to be sensitive.

9.6 It should be noted that the long-term effects of the coronavirus pandemic are currently unknown. At the present time there is evidence to suggest that traffic flows have reduced by up to 70% since 23rd March 2020, when the Government effectively implemented a ban on non-essential travel. Since that time a significant proportion of the population has been working from home and there is speculation that travel will be significantly reduced in the future, as new travel and working habits have been formed.

9.7 It is subsequently unlikely that traffic conditions will return to previous levels with clear benefits to the available capacity on the highway network and the reduction in traffic demand is likely to outweigh the additional traffic generated by the development proposals.

9.8 Therefore in the current unprecedented circumstances, it is considered that an indefinite delay to the application to await traffic conditions returning to previous levels is not feasible and it is appropriate to determine the planning application without capacity assessments at these junctions.

Assessment Methodology

9.9 Assessments of the priority controlled roundabout junctions within the study area have been undertaken using Junctions 9 (ARCADY) software.

9.10 With the Junctions 9 models the results generated provide a Ratio to Flow capacity (RFC) along with an estimate of the likely traffic queues. RFC values between 0.00 and 0.85 are generally accepted as representing stable and acceptable operating conditions. Values between 0.85 and 1 represents variable operation (i.e. possible queues building up at the junction during the period under consideration and increases in vehicular delay moving through the junction). RFC values in excess of 1 represents overloaded conditions (i.e. congested conditions).

9.11 Capacity assessments have been undertaken in the future assessment year of 2020 and 2025 in the 'with' and 'without' development scenarios. The 2020 and 2025 'without development' baseline traffic flows are equal to 2020 and 2025 growthed surveyed traffic flows, as shown on **Traffic Flow Figure 2 and 3**.

9.12 The 2020 and 2025 'with development' assessment traffic flows are equal to the sum of the baseline traffic flows and the proposed development traffic flows, as shown on **Traffic Flow Figure 6 and 7**.

Grimethorpe Colliery Roundabout

9.13 ARCADY software has been used in the assessment of the proposed priority controlled roundabout. The ARCADY results are presented in **Appendix D** with the results summarised in **Table 9.1** below.

Table 9.1 – Grimethorpe Colliery Roundabout 2020 & 2025 'With Development' ARCADY Results

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2020 'Without Development' Assessment				
Symphony Access	0.00	0.0	0.06	0.1
Park Spring Rd North	0.28	0.4	0.39	0.6
Springvale Rd	0.14	0.2	0.21	0.3
Park Spring Rd North	0.46	0.8	0.46	0.8
2020 'With Development' Assessment				
Symphony Access	0.01	0.0	0.20	0.3
Park Spring Rd North	0.29	0.4	0.27	0.4
Springvale Rd	0.14	0.2	0.17	0.2
Park Spring Rd North	0.49	0.9	0.44	0.8

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2025 'Without Development' Assessment				
Symphony Access	0.00	0.0	0.19	0.2
Park Spring Rd North	0.31	0.4	0.29	0.4
Springvale Rd	0.15	0.2	0.18	0.2
Park Spring Rd North	0.50	1.0	0.48	0.9
2025 'With Development' Assessment				
Symphony Access	0.01	0.0	0.22	0.3
Park Spring Rd North	0.31	0.4	0.29	0.4
Springvale Rd	0.15	0.2	0.18	0.2
Park Spring Rd North	0.52	1.1	0.48	0.9

9.14 The above results demonstrate that the roundabout providing access to the site will operate within practical capacity in the assessment years of 2020 and 2025 in the AM and PM peak hour, without material queuing and delay.

Ferry Moor Roundabout

9.15 ARCADY software has been used in the assessment of the proposed priority controlled roundabout. The ARCADY results are presented in **Appendix D** with the results summarised in **Table 9.2** below.

Table 9.2 – Ferry Moor Roundabout 2020 & 2025 'With Development' ARCADY Results

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2020 'Without Development' Assessment				
Symphony Access	0.02	0.0	0.06	0.1
Engine Lane	0.40	0.7	0.37	0.6
High Street	0.21	0.3	0.18	0.2
Park Spring Rd	0.25	0.3	0.34	0.5
2020 'With Development' Assessment				
Symphony Access	0.03	0.2	0.18	0.2
Engine Lane	0.45	0.6	0.38	0.6
High Street	0.24	0.2	0.18	0.2
Park Spring Rd	0.28	0.5	0.35	0.5

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2025 'Without Development' Assessment				
Symphony Access	0.02	0.0	0.18	0.2
Engine Lane	0.43	0.8	0.38	0.6
High Street	0.24	0.3	0.18	0.2
Park Spring Rd	0.27	0.4	0.35	0.5
2025 'With Development' Assessment				
Symphony Access	0.03	0.0	0.19	0.2
Park Spring Rd North	0.48	0.9	0.41	0.7
Springvale Rd	0.26	0.4	0.20	0.2
Park Spring Rd North	0.30	0.4	0.37	0.6

9.16 The above results demonstrate that the roundabout providing access to the site will operate within practical capacity in the assessment years of 2020 and 2025 in the AM and PM peak hour, without material queuing and delay.

Rotherham Road Roundabout

9.17 ARCADY software has been used in the assessment of the priority controlled roundabout. The ARCADY results are presented in **Appendix D** with the results summarised in **Table 9.3** below.

Table 9.3 – Rotherham Road Roundabout 2020 & 2025 'With Development' ARCADY Results

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2020 'Without Development' Assessment				
Park Spring Rd	0.30	0.4	0.47	0.9
Rotherham Road North	0.27	0.4	0.41	0.7
Rotherham Road South	0.59	1.4	0.66	1.9
2020 'With Development' Assessment				
Park Spring Rd	0.31	0.4	0.52	1.1
Rotherham Road North	0.27	0.4	0.42	0.7
Rotherham Road South	0.65	1.8	0.67	2.0

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2025 'Without Development' Assessment				
Park Spring Rd	0.33	0.5	0.52	1.1
Rotherham Road North	0.30	0.4	0.45	0.8
Rotherham Road South	0.64	1.8	0.72	2.5
2025 'With Development' Assessment				
Park Spring Rd	0.34	0.5	0.57	1.3
Rotherham Road North	0.30	0.4	0.46	0.9
Rotherham Road South	0.70	2.3	0.73	2.6

9.18 The above results demonstrate that the roundabout will operate within practical capacity in the assessment years of 2020 and 2025 in the AM and PM peak hour, without significant queuing and delay.

Cathill Roundabout

9.19 ARCADY software has been used in the assessment of the roundabout junction including the improvements currently being undertaken to the junction. The ARCADY results are presented in **Appendix D** with the results summarised in **Table 9,4** below.

Table 9.4 – Cathill Roundabout 2020 & 2025 'With Development' ARCADY Results

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2020 'Without Development' Assessment				
Doncaster Road West	0.84	4.8	0.75	2.9
Rotherham Road North	0.33	0.5	0.44	0.8
Doncaster Road East	0.55	1.2	0.65	1.8
Rotherham Road South	0.48	0.9	0.61	1.5
2020 'With Development' Assessment				
Doncaster Road West	0.87	6.3	0.75	2.9
Rotherham Road North	0.37	0.5	0.48	0.9
Doncaster Road East	0.60	1.3	0.66	1.9
Rotherham Road South	0.53	1.0	0.61	1.6

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2025 'Without Development' Assessment				
Doncaster Road West	0.93	10.3	0.84	4.9
Rotherham Road North	0.37	0.6	0.49	1.0
Doncaster Road East	0.60	1.5	0.71	2.5
Rotherham Road South	0.53	1.1	0.67	2.0
2025 'With Development' Assessment				
Doncaster Road West	0.97	16.1	0.84	5.0
Rotherham Road North	0.37	0.6	0.53	1.1
Doncaster Road East	0.61	1.6	0.73	2.6
Rotherham Road South	0.55	1.2	0.68	2.1

9.20 The above results demonstrate that the roundabout will operate within practical capacity in the assessment years of 2020 and 2025 in the AM and PM peak hour, without significant queuing and delay with the exception of the A635 Doncaster Road West approach, which is shown to exceed the 0.85 RFC threshold in the AM peak hour in both the without and with development scenarios. The capacity assessment identifies an increase in queuing of 6 PCUs, whilst the RFC remains within the theoretical capacity of 1.0 and the impact is therefore not considered to be severe.

9.21 It should be noted that results are based on the Cathill Roundabout proposed improvement scheme, which does not include any works to the Doncaster Road West approach. If this approach was considered to be sensitive and/or worthwhile improvements were achievable it is likely that they would have been proposed as part of the junction improvement works.

9.22 Furthermore, as detailed at paragraphs 8.6-8.7 the long-term effects of the COVID-19 pandemic are likely to result in reduced traffic levels, which would improve the operation of the roundabout when compared to the assessment based on previous traffic levels, which should therefore be considered highly robust.

10.0 SUMMARY AND CONCLUSIONS

10.1 SCP have been appointed by Symphony Group to provide transport planning consultancy services in relation to the extension of their industrial operations on land located to the east of Park Spring Road, Grimethorpe.

10.2 The proposed development will provide 30,416m^2 of floor area as an extension of Symphony's existing operations at the site.

10.3 A total of 292 spaces are proposed including 30 electric vehicle charging points, 15 disabled spaces, which is in line with the Council's car parking standards

10.4 The scope of this Transport Assessment has been agreed with the local highway authority.

10.5 The personal injury accident data for the most recently available five-year period has been reviewed and does not represent a material concern in the context of the proposed development.

10.6 It has been demonstrated that the development is accessible by sustainable transport modes. Policies to encourage travel by sustainable modes are developed further within the Full Travel Plan that accompanies this application, including those to meet BREEAM requirements.

10.7 It has not been possible to obtain traffic data at two of the junctions that were included within he preliminary study area. In the current unprecedented circumstances, it is considered that an indefinite delay to the application to await traffic conditions returning to previous levels is not feasible and it is appropriate to determine the planning application without capacity assessments at these junctions.

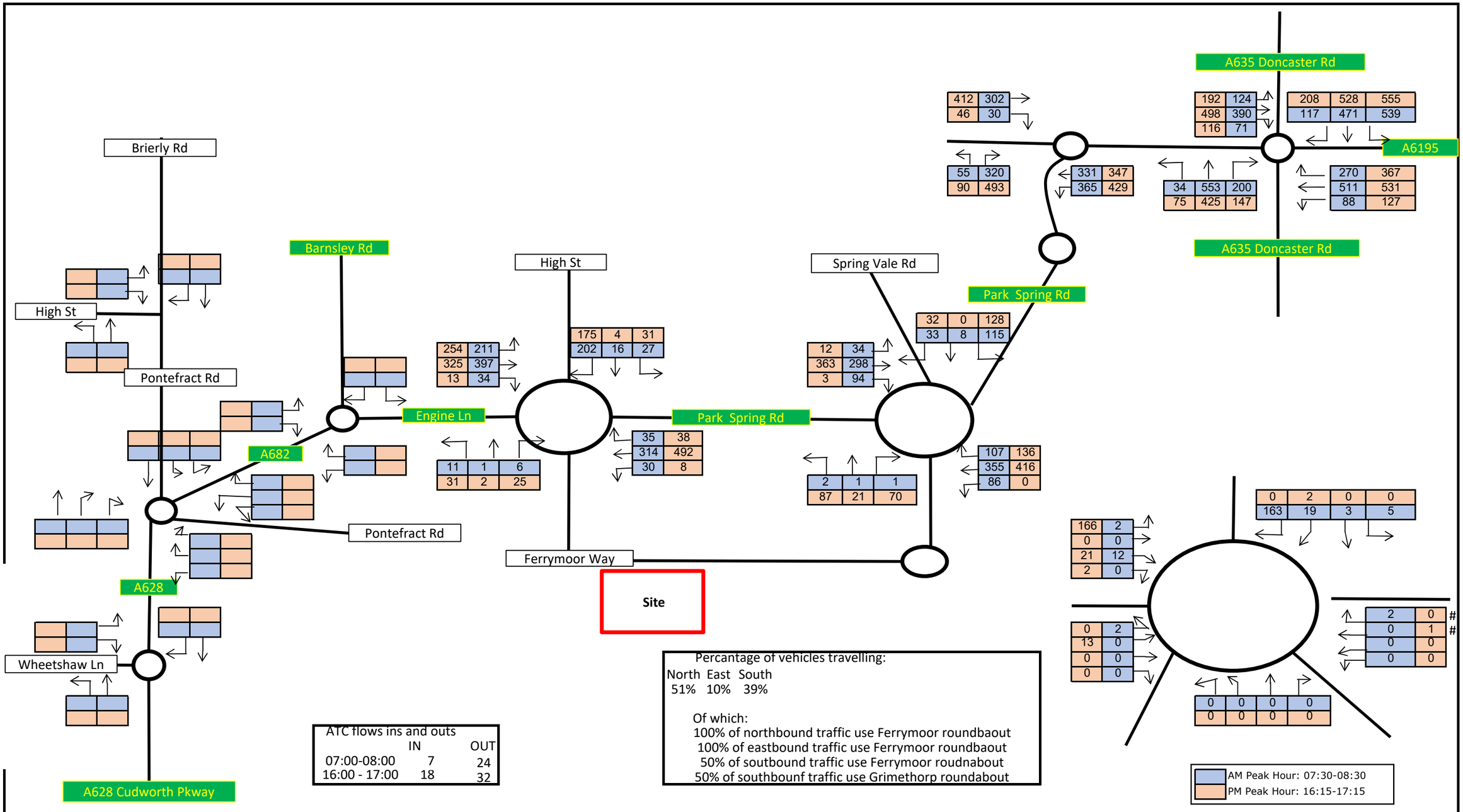
10.8 Junction capacity assessments show that that the junctions within the study area will continue to operate within capacity without significant queuing, with the exception of the Doncaster Road West approach to the Catill Roundabout junction, where although queuing would increase along the Doncaster Road West arm, this would not represent a severe impact on the operation of the local highway network.

10.9 It should also be noted that the long-term effects of the COVID-19 pandemic are likely to result in reduced traffic levels, which would improve the operation of the local highway network when compared to the assessment based on previous traffic levels and is likely to more than off-set the impact of the application proposals.

10.10 The proposed development is therefore considered acceptable with regard to transport.

S|C|P

FIGURES



ATC flows ins and outs

	IN	OUT
07:00-08:00	7	24
16:00 - 17:00	18	32

Percantage of vehicles travelling:

North	East	South
51%	10%	39%

Of which:
100% of northbound traffic use Ferrymoor roundbaout
100% of eastbound traffic use Ferrymoor roundbaout
50% of soutbound traffic use Ferrymoor roudnabout
50% of southbounf traffic use Grimethorp roundabout

S|C|P
Transportation Planning : Infrastructure Design

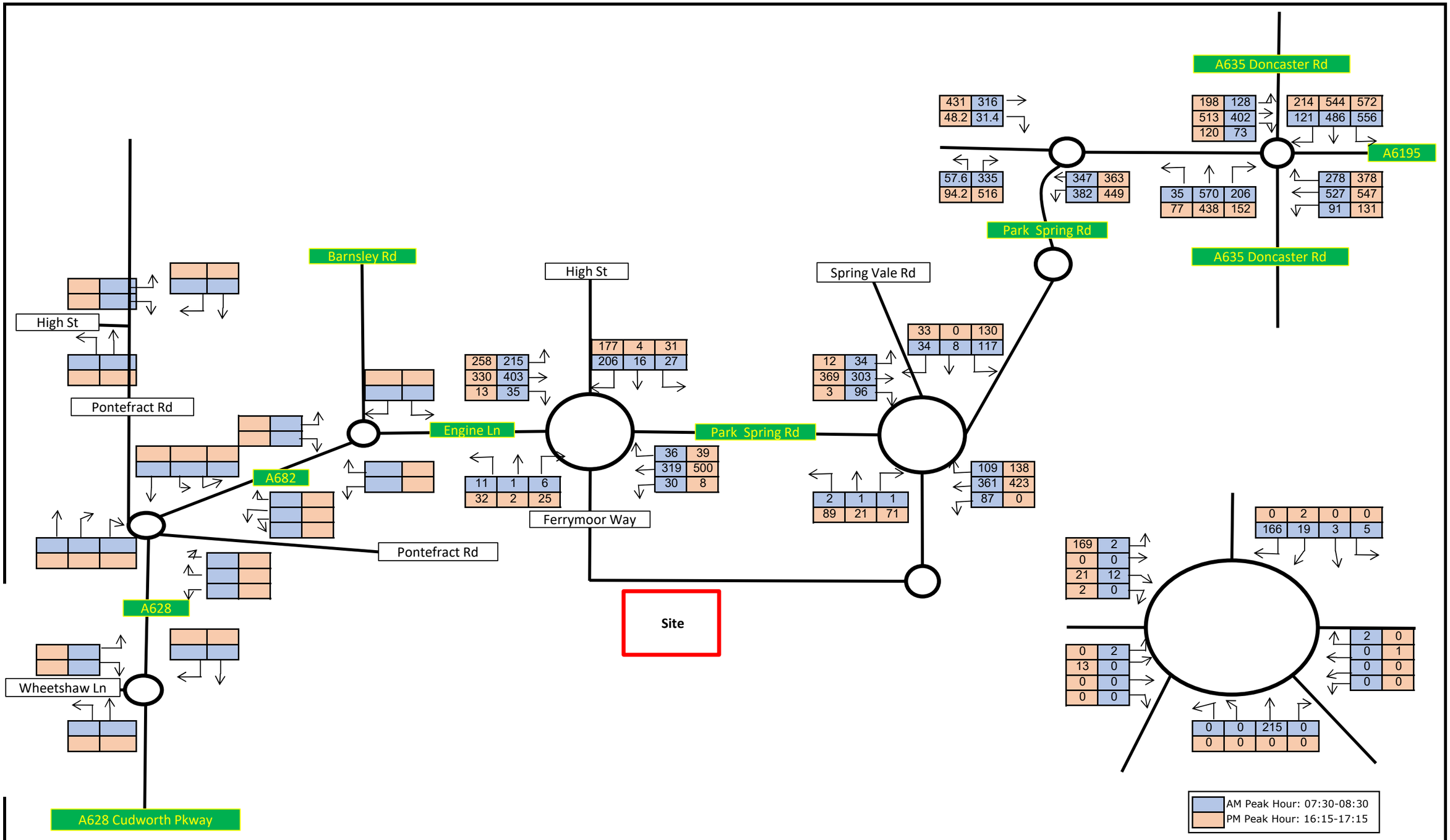
Base 2019

Proposed Warehouse , Grimethorpe, Barnsley

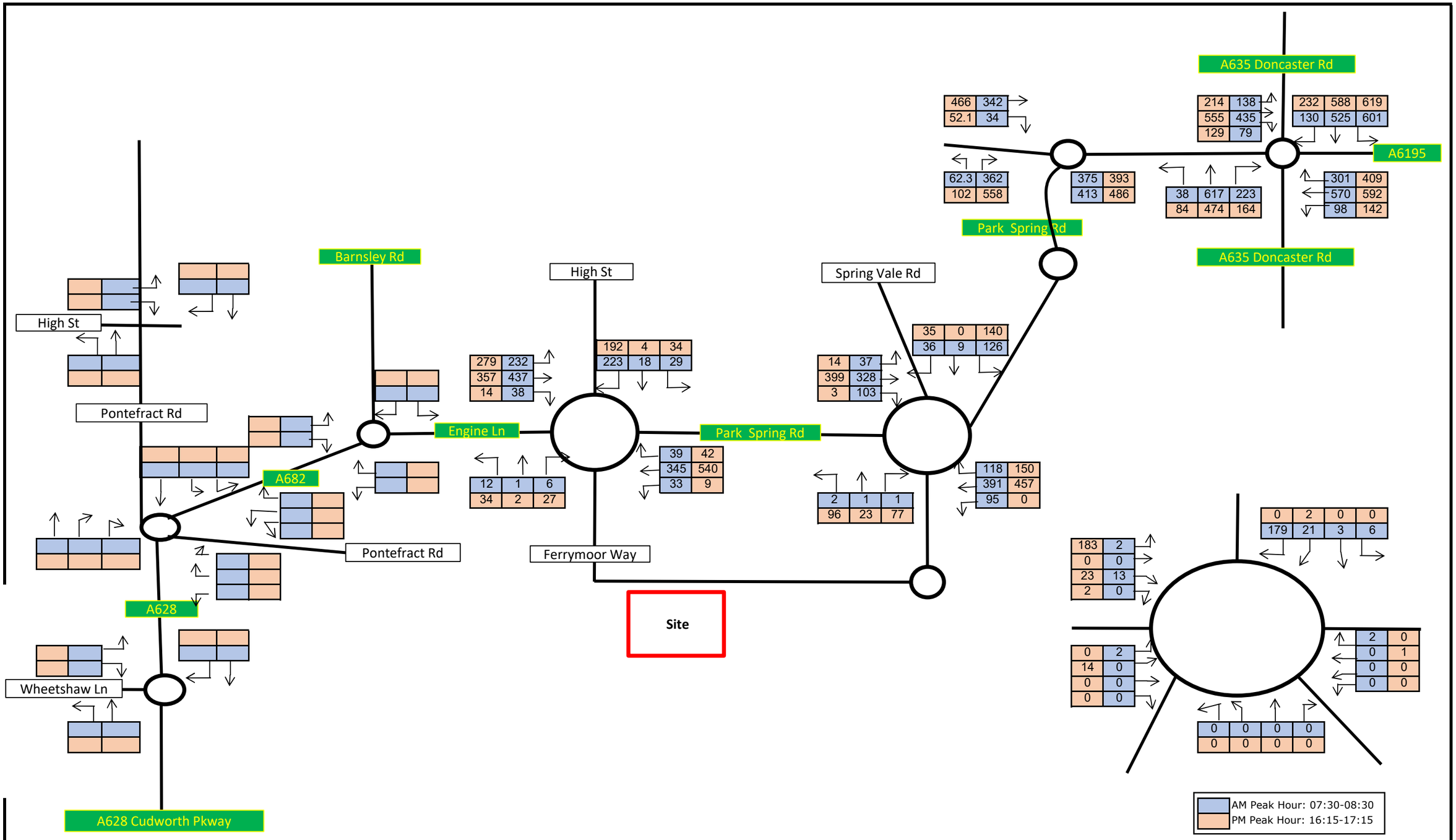
17 June 2020

Job Number - SCP/190675

Traffic Figure 1



S C P Transportation Planning : Infrastructure Design	**Growthed 2020** **Proposed Warehouse , Grimethorpe, Barnsley**	**17 June 2020** Job Number - SCP/190675 **Traffic Figure 2**



S|C|P
Transportation Planning : Infrastructure Design

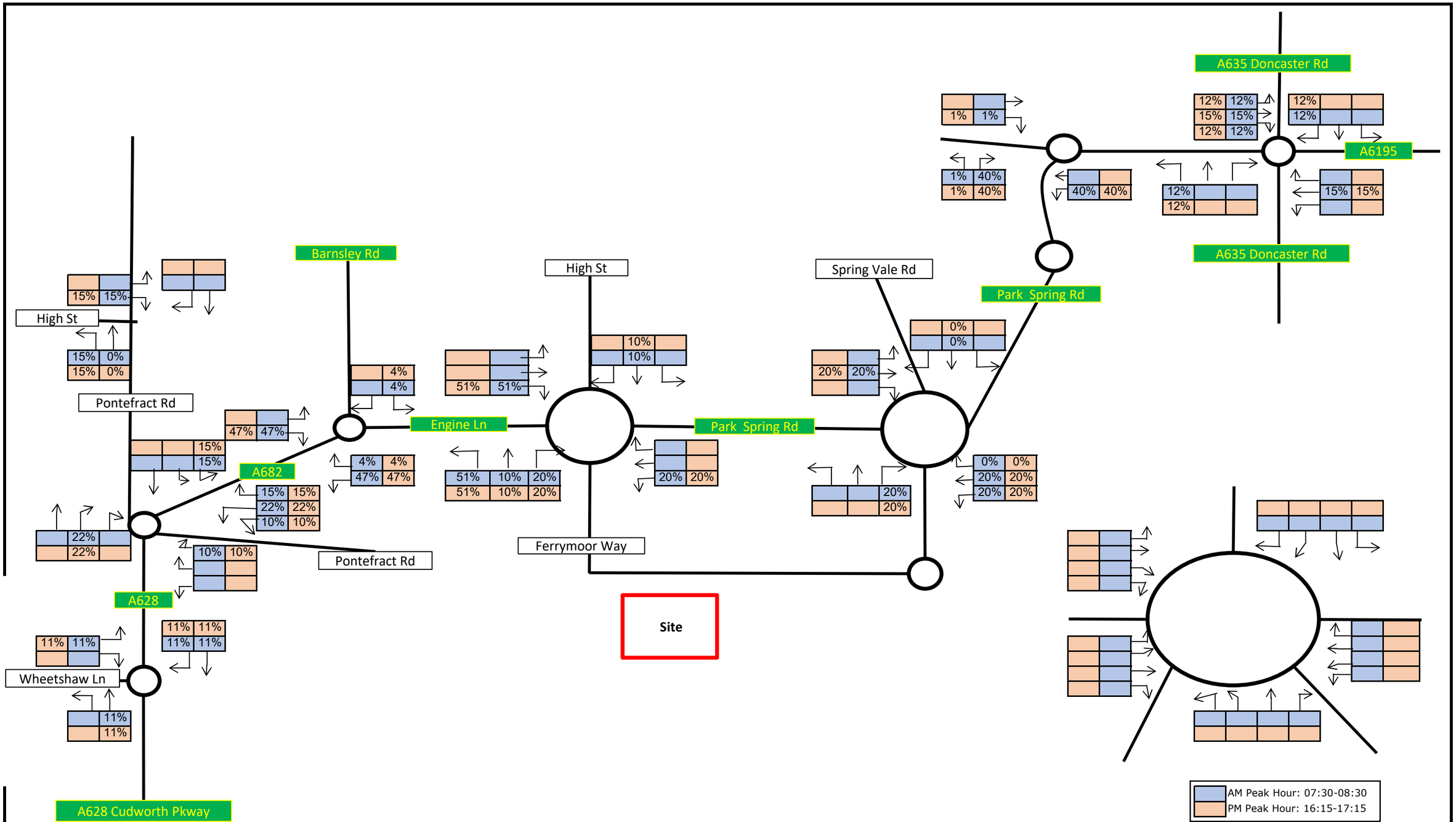
Growthed 2025

Proposed Warehouse , Grimethorpe, Barnsley

17 June 2020

Job Number - SCP/190675

Traffic Figure 3



S C P

Transportation Planning : Infrastructure Design

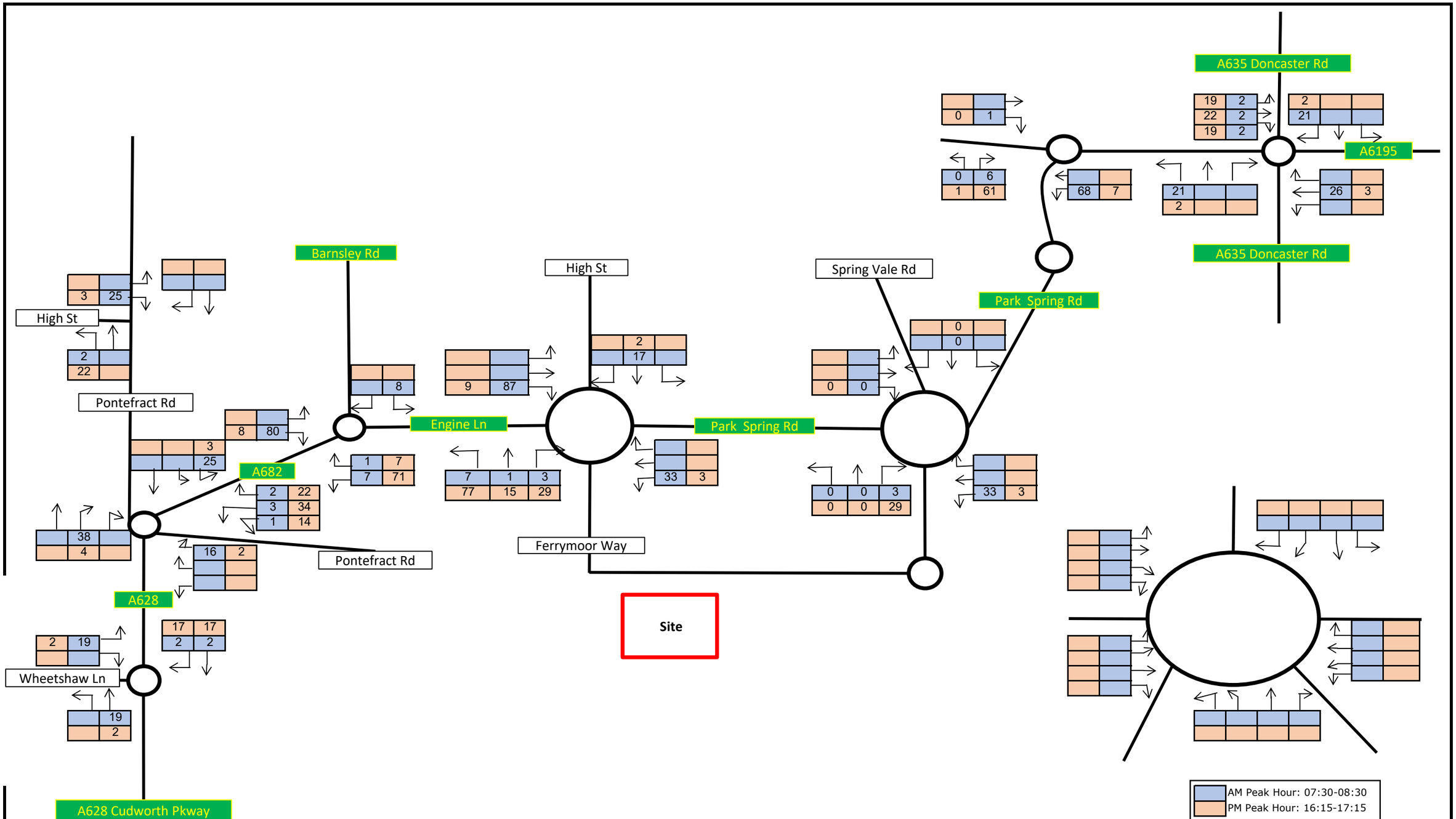
Percentage Distribution

Proposed Warehouse , Grimethorpe, Barnsley

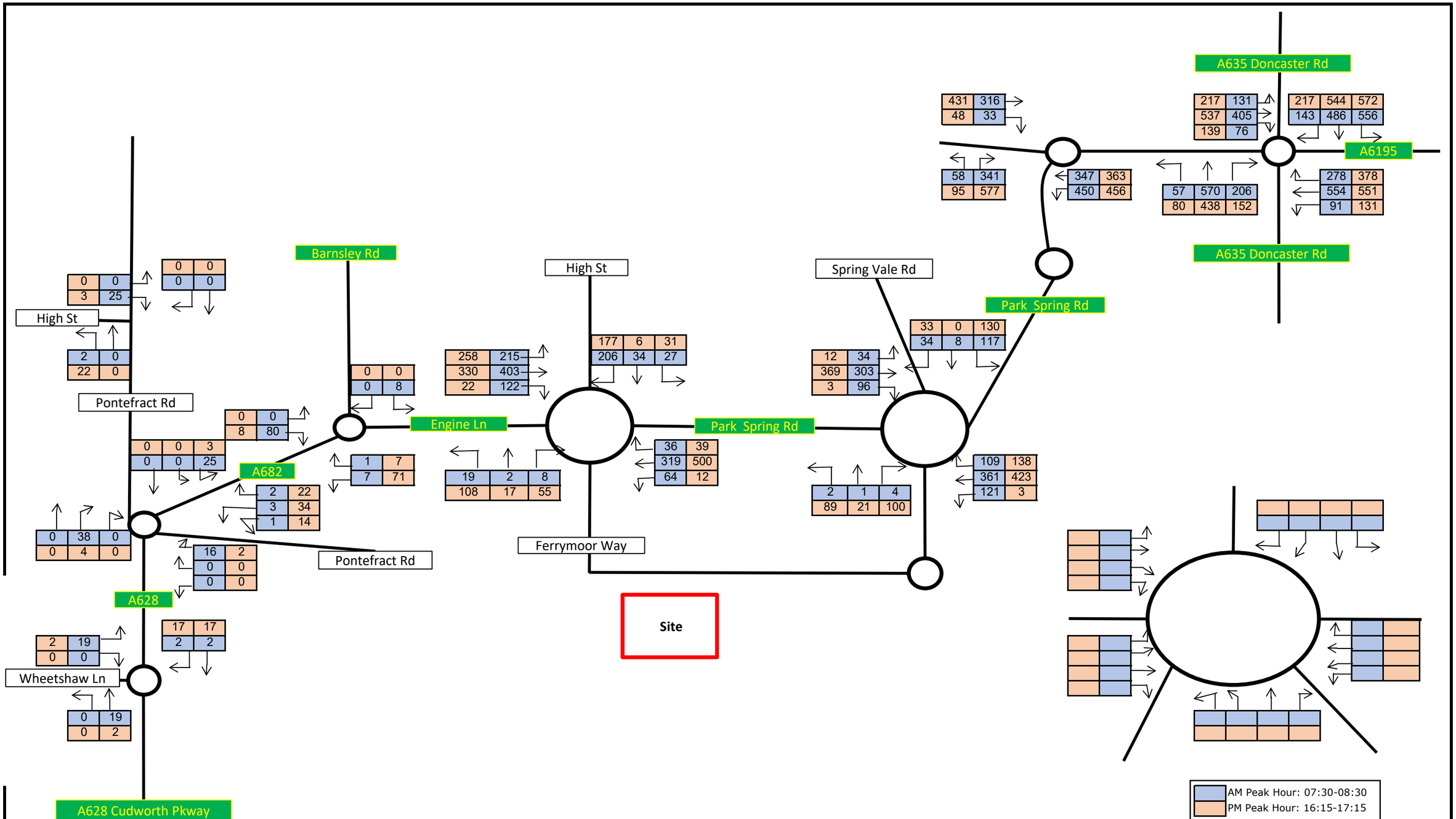
17 June 2020

Job Number - SCP/190675

Traffic Figure 4



S|C|P Transportation Planning : Infrastructure Design	**Trip Generation**	**17 June 2020**
		Job Number - SCP/190675
	Proposed Warehouse , Grimethorpe, Barnsley	**Traffic Figure 5**



S C P

Transportation Planning : Infrastructure Design

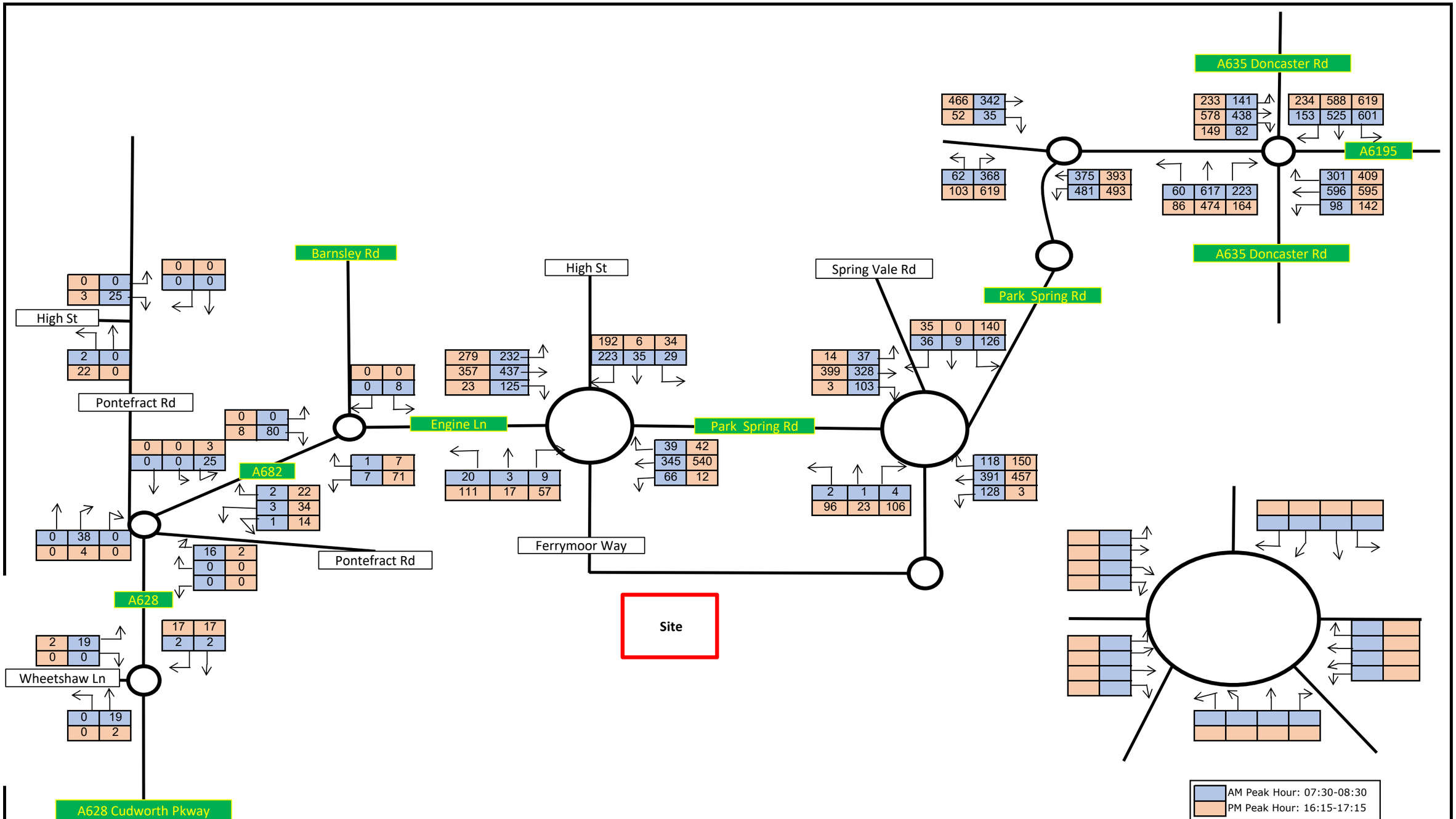
Assement 2020

Proposed Warehouse , Grimethorpe, Barnsley

17 June 2020

Job Number - SCP/190675

Traffic Figure 6



S C P

Transportation Planning : Infrastructure Design

Assessment 2025

Proposed Warehouse , Grimethorpe, Barnsley

17 June 2020

Job Number - SCP/190675

Traffic Figure 7

S|C|P

APPENDIX A

Manual Classified Turning Counts, Barnsley

DATE: TUESDAY 22nd OCTOBER 2019

LOCATION: AS BELOW

ARM: A

TIME / CLASS	LEFT TO B								STRAIGHT TO C								STRAIGHT TO D								RIGHT TO E								U TURN								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	1	0	0	0	0	1	0	0	2	0	0	0	0	2	0	0	3	1	0	0	0	4	0	0	34	0	0	0	0	34	0	0	0	0	0	0	0	0	41
7:45 - 8:00	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	46	0	0	0	0	46	0	0	0	0	0	0	0	0	50
8:00 - 8:15	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	6	0	0	0	0	6	0	0	45	0	0	0	0	45	0	0	0	0	0	0	0	0	53
8:15 - 8:30	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	7	0	0	38	0	0	0	0	38	0	0	0	0	0	0	0	0	46
HOURLY TOTAL	0	0	5	0	0	0	0	5	0	0	3	0	0	0	0	3	0	0	18	1	0	0	0	19	0	0	163	0	0	0	0	163	0	0	0	0	0	0	0	0	190
8:30 - 8:45	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	6	0	0	0	0	6	0	0	0	0	0	1	0	1	9
8:45 - 9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	0	0	0	0	0	1	0	1	7
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	3
HOURLY TOTAL	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	2	1	0	0	0	3	0	0	13	1	0	0	0	14	0	0	0	0	0	2	0	2	21
PERIOD TOTAL	0	0	5	1	0	0	0	6	0	0	3	0	1	0	0	4	0	0	20	2	0	0	0	22	0	0	176	1	0	0	0	177	0	0	0	0	0	2	0	2	211
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	4
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	0	0	0	0	0	0	0	0	6
PERIOD TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3	0	0	6	0	0	0	0	6	0	0	0	0	0	0	0	0	9

Manual Classified Turning Counts, Barnsley

DATE:

LOCATION: AS BELOW

ARM: B

TIME / CLASS	LEFT TO C								LEFT TO D								STRAIGHT TO E								RIGHT TO A								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
8:00 - 8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
8:15 - 8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2
8:30 - 8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1
8:45 - 9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	2
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	1	0	0	0	0	1	4
PERIOD TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	2	1	0	0	0	3	6
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERIOD TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1

Manual Classified Turning Counts, Barnsley

DATE:

LOCATION: AS BELOW

ARM: C

TIME / CLASS	LEFT TO D								LEFT TO E								STRAIGHT TO A								RIGHT TO B								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERIOD TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERIOD TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Manual Classified Turning Counts, Barnsley

DATE:

LOCATION: AS BELOW

ARM: D

TIME / CLASS	LEFT TO E								STRAIGHT TO A								RIGHT TO B								RIGHT TO C								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 - 8:15	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 - 8:30	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
HOURLY TOTAL	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 - 8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
PERIOD TOTAL	0	0	2	0	0	0	0	2	0	0	2	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
PERIOD TOTAL	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21

Manual Classified Turning Counts, Barnsley

DATE:

LOCATION: AS BELOW

ARM: E

TIME / CLASS	LEFT TO A								STRAIGHT TO B								RIGHT TO C								RIGHT TO D								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2
7:45 - 8:00	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	3
8:00 - 8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
8:15 - 8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
HOURLY TOTAL	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	0	7
8:30 - 8:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2
8:45 - 9:00	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	4
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	5
9:15 - 9:30	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	4
HOURLY TOTAL	0	0	2	1	0	0	0	3	0	0	3	0	0	0	0	3	0	0	0	1	0	8	0	9	0	0	0	0	0	0	0	0	15
PERIOD TOTAL	0	0	4	1	0	0	0	5	0	0	3	0	0	0	0	3	0	0	0	1	0	13	0	14	0	0	0	0	0	0	0	0	22
16:00 - 16:15	0	0	19	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	0	0	23
16:15 - 16:30	0	0	13	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	16
16:30 - 16:45	0	1	64	0	0	0	0	65	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	0	0	68
16:45 - 17:00	0	0	11	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	13
HOURLY TOTAL	0	1	107	0	0	0	0	108	0	0	0	0	0	0	0	0	0	0	0	0	4	7	0	11	0	0	1	0	0	0	0	1	120
17:00 - 17:15	0	0	78	0	0	0	0	78	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	4	0	0	1	0	0	0	0	1	83
17:15 - 17:30	0	0	10	1	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	14
17:30 - 17:45	0	0	15	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	17
17:45 - 18:00	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	4
HOURLY TOTAL	0	0	106	1	0	0	0	107	0	0	0	0	0	0	0	0	0	0	1	1	1	7	0	10	0	0	1	0	0	0	0	1	118
PERIOD TOTAL	0	1	213	1	0	0	0	215	0	0	0	0	0	0	0	0	0	0	1	1	5	14	0	21	0	0	2	0	0	0	0	2	238

Manual Classified Turning Counts, Barnsley

DATE: TUESDAY 22nd OCTOBER 2019

LOCATION: GRIMETHORPE COLLIERY ROUNDABOUT

ARM: PARK SPRING ROAD NORTH

TIME / CLASS	LEFT TO SPRINGVALE ROAD								STRAIGHT TO PARK SPRING ROAD SOUTH								RIGHT TO SYMPHONY								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	2	8	1	0	0	11	0	0	50	11	4	0	1	66	0	0	25	1	0	0	0	26	103
7:45 - 8:00	0	0	9	0	0	1	0	10	0	0	46	5	3	7	0	61	0	0	26	0	0	0	0	26	97
8:00 - 8:15	0	0	3	1	0	0	0	4	0	0	53	10	3	0	0	66	0	0	17	0	0	0	0	17	87
8:15 - 8:30	0	0	4	3	0	0	0	7	0	1	62	8	4	4	2	81	0	0	25	0	0	0	0	25	113
HOURLY TOTAL	0	0	18	12	1	1	0	32	0	1	211	34	14	11	3	274	0	0	93	1	0	0	0	94	400
8:30 - 8:45	0	0	5	1	0	0	0	6	0	0	65	7	7	1	1	81	0	0	6	1	0	0	0	7	94
8:45 - 9:00	0	0	4	3	1	0	0	8	0	0	48	11	1	3	0	63	0	0	3	0	0	0	0	3	74
9:00 - 9:15	0	1	5	1	0	1	0	8	3	0	53	13	0	1	1	71	0	0	1	0	0	0	0	1	80
9:15 - 9:30	0	0	2	1	0	0	0	3	0	0	48	10	1	7	0	66	0	0	1	0	0	0	0	1	70
HOURLY TOTAL	0	1	16	6	1	1	0	25	3	0	214	41	9	12	2	281	0	0	11	1	0	0	0	12	318
PERIOD TOTAL	0	1	34	18	2	2	0	57	3	1	425	75	23	23	5	555	0	0	104	2	0	0	0	106	718
16:00 - 16:15	0	0	3	0	0	1	0	4	0	1	62	12	0	0	1	76	0	0	0	0	0	0	0	0	80
16:15 - 16:30	0	0	2	0	0	0	0	2	0	1	71	12	1	2	1	88	0	0	0	1	0	0	0	1	91
16:30 - 16:45	0	0	1	0	0	0	0	1	0	0	70	7	0	5	2	84	0	0	1	0	0	0	0	1	86
16:45 - 17:00	0	0	2	1	0	1	0	4	0	1	60	15	3	3	1	83	0	0	1	0	0	0	0	1	88
HOURLY TOTAL	0	0	8	1	0	2	0	11	0	3	263	46	4	10	5	331	0	0	2	1	0	0	0	3	345
17:00 - 17:15	0	0	4	0	0	0	0	4	0	1	75	4	1	4	0	85	0	0	0	0	0	0	0	0	89
17:15 - 17:30	0	0	0	1	0	0	0	1	0	0	64	10	0	0	0	74	0	0	1	0	0	0	0	1	76
17:30 - 17:45	0	0	1	0	0	0	0	1	0	1	60	8	2	5	2	78	0	0	0	0	0	0	0	0	79
17:45 - 18:00	0	0	3	2	0	0	0	5	0	0	59	6	0	2	1	68	0	0	0	0	0	0	0	0	73
HOURLY TOTAL	0	0	8	3	0	0	0	11	0	2	258	28	3	11	3	305	0	0	1	0	0	0	0	1	317
PERIOD TOTAL	0	0	16	4	0	2	0	22	0	5	521	74	7	21	8	636	0	0	3	1	0	0	0	4	662

Manual Classified Turning Counts, Barnsley

DATE: TUESDAY 22nd OCTOBER 2019

LOCATION: GRIMETHORPE COLLIERY ROUNDABOUT

ARM: SPRINGVALE ROAD

TIME / CLASS	LEFT TO PARK SPRING ROAD SOUTH								STRAIGHT TO SYMPHONY								RIGHT TO PARK SPRING ROAD NORTH								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	18	7	0	0	0	25	0	0	1	0	0	0	0	2	0	0	6	2	0	0	0	8	35
7:45 - 8:00	1	0	18	5	0	2	0	26	0	0	4	0	0	0	0	4	0	0	6	3	0	0	0	9	39
8:00 - 8:15	0	0	23	6	0	1	0	30	0	0	1	0	0	0	0	4	0	0	8	1	0	0	0	9	43
8:15 - 8:30	0	0	24	3	1	0	1	29	0	0	2	0	0	0	0	4	0	0	6	1	0	0	0	7	40
HOURLY TOTAL	1	0	83	21	1	3	1	110	0	0	8	0	0	0	0	14	0	0	26	7	0	0	0	33	157
8:30 - 8:45	0	0	17	6	0	1	0	24	0	0	1	0	0	0	0	1	0	0	3	1	0	0	0	4	29
8:45 - 9:00	0	0	14	3	2	0	0	19	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	4	23
9:00 - 9:15	0	0	20	2	0	0	0	22	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	5	27
9:15 - 9:30	0	0	18	2	1	1	0	22	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	23
HOURLY TOTAL	0	0	69	13	3	2	0	87	0	0	1	0	0	0	0	1	0	0	7	7	0	0	0	14	102
PERIOD TOTAL	1	0	152	34	4	5	1	197	0	0	9	0	0	0	0	15	0	0	33	14	0	0	0	47	259
16:00 - 16:15	0	0	26	6	0	3	0	35	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	4	39
16:15 - 16:30	0	0	16	8	1	0	0	25	0	0	0	0	0	0	0	0	1	0	4	3	0	0	0	8	33
16:30 - 16:45	1	0	21	6	1	0	0	29	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	9	38
16:45 - 17:00	1	0	26	2	0	0	0	29	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	35
HOURLY TOTAL	2	0	89	22	2	3	0	118	0	0	0	0	0	0	0	0	1	0	22	4	0	0	0	27	145
17:00 - 17:15	0	1	43	2	0	0	0	46	0	0	0	0	0	0	0	0	0	0	9	1	0	0	0	10	56
17:15 - 17:30	0	0	21	2	0	1	0	24	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	3	28
17:30 - 17:45	0	0	13	4	0	0	0	17	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5	22
17:45 - 18:00	0	0	18	1	0	0	0	19	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	21
HOURLY TOTAL	0	1	95	9	0	1	0	106	0	0	0	0	0	0	0	1	0	0	19	1	0	0	0	20	127
PERIOD TOTAL	2	1	184	31	2	4	0	224	0	0	0	0	0	0	0	1	1	0	41	5	0	0	0	47	272

Manual Classified Turning Counts, Barnsley

DATE: TUESDAY 22nd OCTOBER 2019

LOCATION: GRIMETHORPE COLLIERY ROUNDABOUT

ARM: PARK SPRING ROAD SOUTH

TIME / CLASS	LEFT TO SYMPHONY								STRAIGHT TO PARK SPRING ROAD NORTH								RIGHT TO SPRINGVALE ROAD								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	13	0	0	0	0	13	0	0	81	14	2	5	4	106	0	0	15	2	2	0	0	19	138
7:45 - 8:00	0	0	21	0	0	0	0	21	0	0	80	20	3	8	0	111	0	0	33	4	2	0	0	39	171
8:00 - 8:15	0	0	33	0	0	0	0	33	0	0	51	6	2	5	0	64	0	0	19	2	0	0	0	21	118
8:15 - 8:30	0	0	19	0	0	0	0	19	0	0	36	7	0	0	0	43	0	0	21	2	2	0	0	25	87
HOURLY TOTAL	0	0	86	0	0	0	0	86	0	0	248	47	7	18	4	324	0	0	88	10	6	0	0	104	514
8:30 - 8:45	0	0	2	0	0	1	0	3	0	0	53	12	4	4	1	74	0	0	24	4	0	0	0	28	105
8:45 - 9:00	0	0	2	0	0	1	0	3	0	0	53	7	2	4	2	68	0	0	14	3	0	2	0	19	90
9:00 - 9:15	0	0	0	0	1	0	0	1	0	0	32	17	1	10	0	60	0	0	18	3	1	1	0	23	84
9:15 - 9:30	0	0	1	2	0	0	0	3	0	0	21	10	2	4	1	38	0	0	10	3	2	0	0	15	56
HOURLY TOTAL	0	0	5	2	1	2	0	10	0	0	159	46	9	22	4	240	0	0	66	13	3	3	0	85	335
PERIOD TOTAL	0	0	91	2	1	2	0	96	0	0	407	93	16	40	8	564	0	0	154	23	9	3	0	189	849
16:00 - 16:15	0	0	0	0	0	0	0	0	0	2	74	22	1	2	0	101	0	0	28	4	3	0	0	35	136
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	72	12	0	2	2	88	0	0	22	7	0	0	0	29	117
16:30 - 16:45	0	0	0	0	0	0	0	0	0	2	75	21	1	5	1	105	0	0	23	5	1	1	0	30	135
16:45 - 17:00	0	0	0	0	0	0	0	0	1	0	69	16	3	2	4	95	0	0	33	3	0	0	0	36	131
HOURLY TOTAL	0	0	0	0	0	0	0	0	1	4	290	71	5	11	7	389	0	0	106	19	4	1	0	130	519
17:00 - 17:15	0	0	0	0	0	0	0	0	0	1	85	18	1	2	0	107	0	0	33	5	1	0	0	39	146
17:15 - 17:30	0	0	3	0	0	0	0	3	0	1	66	8	0	1	1	77	0	0	45	6	0	0	0	51	131
17:30 - 17:45	0	0	1	0	0	0	0	1	0	1	77	10	0	0	0	88	0	0	31	5	0	0	0	36	125
17:45 - 18:00	0	0	1	0	0	0	0	1	1	0	84	13	0	2	1	101	0	0	26	2	0	0	0	28	130
HOURLY TOTAL	0	0	5	0	0	0	0	5	1	3	312	49	1	5	2	373	0	0	135	18	1	0	0	154	532
PERIOD TOTAL	0	0	5	0	0	0	0	5	2	7	602	120	6	16	9	762	0	0	241	37	5	1	0	284	1051

Manual Classified Turning Counts, Barnsley

DATE: TUESDAY 22nd OCTOBER 2019

LOCATION: GRIMETHORPE COLLIERY ROUNDABOUT

ARM: SYMPHONY

TIME / CLASS	LEFT TO PARK SPRING ROAD NORTH								STRAIGHT TO SPRINGVALE ROAD								RIGHT TO PARK SPRING ROAD SOUTH								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
7:45 - 8:00	0	0	1	1	0	0	0	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	3
8:00 - 8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	1	1	0	0	0	2	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	4
8:30 - 8:45	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 - 9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 - 9:15	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
9:15 - 9:30	0	0	0	2	0	0	0	2	0	0	1	0	0	0	0	1	0	0	2	1	0	0	0	3	6
HOURLY TOTAL	0	0	2	2	0	2	0	6	0	0	1	0	0	0	0	1	0	0	2	1	0	0	0	3	10
PERIOD TOTAL	0	0	3	3	0	2	0	8	0	0	2	0	0	0	0	2	0	0	3	1	0	0	0	4	14
16:00 - 16:15	0	0	13	0	0	0	0	13	0	0	3	0	0	0	0	3	0	0	6	0	0	0	0	6	22
16:15 - 16:30	0	0	11	0	0	0	0	11	0	0	1	0	0	0	0	1	0	0	2	0	0	0	0	2	14
16:30 - 16:45	0	1	29	0	0	0	0	30	0	0	8	0	0	0	0	8	0	0	28	0	0	0	0	28	66
16:45 - 17:00	0	0	11	0	0	0	0	11	0	0	1	0	0	0	0	1	0	0	2	0	0	0	0	2	14
HOURLY TOTAL	0	1	64	0	0	0	0	65	0	0	13	0	0	0	0	13	0	0	38	0	0	0	0	38	116
17:00 - 17:15	0	0	36	0	0	0	0	36	0	0	11	0	0	0	0	11	0	0	38	0	0	0	0	38	85
17:15 - 17:30	0	0	3	0	0	0	0	3	0	0	3	0	0	0	0	3	0	0	6	1	0	0	0	7	13
17:30 - 17:45	0	0	5	0	0	0	0	5	0	0	4	0	0	0	0	4	0	0	9	0	0	0	0	9	18
17:45 - 18:00	0	0	2	0	0	0	0	2	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	4
HOURLY TOTAL	0	0	46	0	0	0	0	46	0	0	19	0	0	0	0	19	0	0	54	1	0	0	0	55	120
PERIOD TOTAL	0	1	110	0	0	0	0	111	0	0	32	0	0	0	0	32	0	0	92	1	0	0	0	93	236

Manual Classified Turning Counts, Barnsley

DATE: TUESDAY 22nd OCTOBER 2019

LOCATION: FERRY MOOR ROUNDABOUT

ARM: ENGINE LANE

TIME / CLASS	LEFT TO HIGH STREET								STRAIGHT TO PARK SPRING ROAD								RIGHT TO FERRYMOOR WAY								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	1	22	3	0	0	2	28	0	0	71	18	5	1	1	96	0	0	9	1	0	1	0	11	135
7:45 - 8:00	0	0	50	6	0	0	1	57	0	0	79	4	3	7	0	93	0	0	15	0	1	0	0	16	166
8:00 - 8:15	0	0	51	9	1	0	0	61	0	0	66	12	3	1	0	82	0	0	2	0	0	0	0	2	145
8:15 - 8:30	0	0	53	7	0	1	0	61	0	1	84	9	2	4	1	101	0	0	2	0	1	0	0	3	165
HOURLY TOTAL	0	1	176	25	1	1	3	207	0	1	300	43	13	13	2	372	0	0	28	1	2	1	0	32	611
8:30 - 8:45	0	0	37	5	0	1	0	43	0	0	67	7	7	0	0	81	0	0	1	1	0	0	0	2	126
8:45 - 9:00	0	1	53	9	1	0	1	65	0	1	60	11	2	2	0	76	0	0	7	0	0	1	0	8	149
9:00 - 9:15	0	1	41	10	2	1	0	55	0	1	55	13	1	0	0	70	0	0	1	0	0	1	0	2	127
9:15 - 9:30	0	0	30	4	0	2	1	37	0	0	51	11	0	4	0	66	0	0	0	1	0	0	0	1	104
HOURLY TOTAL	0	2	161	28	3	4	2	200	0	2	233	42	10	6	0	293	0	0	9	2	0	2	0	13	506
PERIOD TOTAL	0	3	337	53	4	5	5	407	0	3	533	85	23	19	2	665	0	0	37	3	2	3	0	45	1117
16:00 - 16:15	0	0	44	10	0	0	1	55	0	1	52	12	1	1	0	67	0	0	1	1	0	0	0	2	124
16:15 - 16:30	0	1	56	12	2	0	0	71	0	1	63	11	0	2	0	77	0	0	2	1	0	1	0	4	152
16:30 - 16:45	0	1	51	7	1	0	0	60	0	0	57	8	0	6	0	71	0	0	1	0	0	0	0	1	132
16:45 - 17:00	0	0	51	15	0	0	0	66	0	1	59	12	3	3	1	79	0	0	0	0	0	1	0	1	146
HOURLY TOTAL	0	2	202	44	3	0	1	252	0	3	231	43	4	12	1	294	0	0	4	2	0	2	0	8	554
17:00 - 17:15	0	0	55	2	0	0	0	57	0	1	64	7	1	4	0	77	0	0	3	0	1	0	0	4	138
17:15 - 17:30	0	1	60	10	1	0	0	72	0	0	62	7	0	0	0	69	0	0	5	1	0	0	0	6	147
17:30 - 17:45	0	1	59	4	0	0	0	64	0	1	53	8	1	6	1	70	0	0	1	0	0	0	0	1	135
17:45 - 18:00	0	0	57	7	1	0	0	65	0	2	57	7	0	0	0	66	0	1	2	0	0	0	0	3	134
HOURLY TOTAL	0	2	231	23	2	0	0	258	0	4	236	29	2	10	1	282	0	1	11	1	1	0	0	14	554
PERIOD TOTAL	0	4	433	67	5	0	1	510	0	7	467	72	6	22	2	576	0	1	15	3	1	2	0	22	1108

Manual Classified Turning Counts, Barnsley

DATE: TUESDAY 22nd OCTOBER 2019

LOCATION: FERRY MOOR ROUNDABOUT

ARM: HIGH STREET

TIME / CLASS	LEFT TO PARK SPRING ROAD								STRAIGHT TO FERRYMOOR WAY								RIGHT TO ENGINE LANE								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	3	1	0	1	0	5	1	0	5	0	0	0	0	6	0	0	55	10	0	0	0	65	76
7:45 - 8:00	0	0	2	0	0	0	0	2	0	0	10	0	0	0	0	10	0	1	59	6	0	0	0	66	78
8:00 - 8:15	0	0	7	0	1	0	0	8	0	0	1	0	0	0	0	1	0	0	38	4	0	0	0	42	51
8:15 - 8:30	0	0	7	1	0	0	1	9	0	0	0	0	0	0	0	0	1	0	19	5	1	1	1	28	37
HOURLY TOTAL	0	0	19	2	1	1	1	24	1	0	16	0	0	0	0	17	1	1	171	25	1	1	1	201	242
8:30 - 8:45	0	0	1	1	0	1	1	4	0	0	1	0	0	0	0	1	0	1	23	2	2	0	0	28	33
8:45 - 9:00	0	0	2	0	0	0	0	2	0	0	5	0	0	0	0	5	0	0	47	9	0	0	0	56	63
9:00 - 9:15	2	0	2	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	48	6	0	1	1	56	61
9:15 - 9:30	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	35	6	1	1	1	44	46
HOURLY TOTAL	2	0	7	1	0	1	2	13	0	0	6	0	0	0	0	6	0	1	153	23	3	2	2	184	203
PERIOD TOTAL	2	0	26	3	1	2	3	37	1	0	22	0	0	0	0	23	1	2	324	48	4	3	3	385	445
16:00 - 16:15	0	0	2	0	0	0	0	2	0	0	0	2	0	0	0	2	0	2	61	9	0	0	0	72	76
16:15 - 16:30	0	0	4	1	0	0	1	6	0	0	1	1	0	0	0	2	0	0	29	3	0	0	0	32	40
16:30 - 16:45	0	0	9	0	0	0	2	11	0	0	1	0	0	0	0	1	0	1	41	3	0	0	0	45	57
16:45 - 17:00	0	0	3	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	40	5	0	0	1	46	50
HOURLY TOTAL	0	0	18	2	0	0	3	23	0	0	2	3	0	0	0	5	0	3	171	20	0	0	1	195	223
17:00 - 17:15	0	0	4	1	0	0	1	6	0	0	1	0	0	0	0	1	1	0	45	6	0	0	0	52	59
17:15 - 17:30	0	0	4	1	0	0	0	5	0	0	1	0	0	0	0	1	0	2	36	3	0	0	0	41	47
17:30 - 17:45	0	0	7	1	0	1	0	9	0	0	1	0	0	0	0	1	0	2	35	4	0	0	0	41	51
17:45 - 18:00	0	0	3	0	0	0	1	4	0	0	1	0	0	0	0	1	0	0	34	9	0	0	0	43	48
HOURLY TOTAL	0	0	18	3	0	1	2	24	0	0	4	0	0	0	0	4	1	4	150	22	0	0	0	177	205
PERIOD TOTAL	0	0	36	5	0	1	5	47	0	0	6	3	0	0	0	9	1	7	321	42	0	0	1	372	428

Manual Classified Turning Counts, Barnsley

DATE: TUESDAY 22nd OCTOBER 2019

LOCATION: FERRY MOOR ROUNDABOUT

ARM: PARK SPRING ROAD

TIME / CLASS	LEFT TO FERRYMOOR WAY								STRAIGHT TO ENGINE LANE								RIGHT TO HIGH STREET								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	3	0	0	1	0	4	0	0	73	16	0	2	3	94	0	0	4	2	0	0	0	6	104
7:45 - 8:00	0	0	6	3	1	1	0	11	0	0	76	16	2	5	0	99	0	0	7	1	1	2	0	11	121
8:00 - 8:15	0	0	6	1	0	1	0	8	0	0	38	6	2	5	0	51	0	0	9	2	0	0	0	11	70
8:15 - 8:30	0	0	1	0	1	0	0	2	0	0	36	10	2	0	0	48	0	0	4	0	0	0	0	4	54
HOURLY TOTAL	0	0	16	4	2	3	0	25	0	0	223	48	6	12	3	292	0	0	24	5	1	2	0	32	349
8:30 - 8:45	0	0	0	1	1	1	0	3	0	0	41	9	0	4	1	55	0	0	9	2	0	0	0	11	69
8:45 - 9:00	0	0	1	0	1	2	0	4	0	0	46	10	1	2	0	59	0	0	6	1	0	0	2	9	72
9:00 - 9:15	0	0	2	0	0	4	0	6	0	0	33	16	0	7	0	56	0	0	5	2	0	0	0	7	69
9:15 - 9:30	0	0	0	0	0	1	0	1	0	0	24	7	3	3	0	37	0	0	3	5	0	0	0	8	46
HOURLY TOTAL	0	0	3	1	2	8	0	14	0	0	144	42	4	16	1	207	0	0	23	10	0	0	2	35	256
PERIOD TOTAL	0	0	19	5	4	11	0	39	0	0	367	90	10	28	4	499	0	0	47	15	1	2	2	67	605
16:00 - 16:15	0	0	2	0	1	0	0	3	0	2	83	19	0	1	0	105	0	0	5	3	0	0	0	8	116
16:15 - 16:30	0	0	0	1	0	0	0	1	1	0	72	15	0	1	2	91	0	0	8	0	1	2	0	11	103
16:30 - 16:45	0	0	0	0	0	1	0	1	0	3	113	18	1	6	2	143	0	0	8	2	0	0	0	10	154
16:45 - 17:00	0	0	0	1	0	0	0	1	0	0	83	13	2	0	2	100	0	0	4	0	0	0	0	4	105
HOURLY TOTAL	0	0	2	2	1	1	0	6	1	5	351	65	3	8	6	439	0	0	25	5	1	2	0	33	478
17:00 - 17:15	0	0	0	0	1	1	0	2	1	0	122	16	1	1	1	142	0	0	8	2	0	0	0	10	154
17:15 - 17:30	0	0	1	0	0	0	0	1	0	1	67	8	2	1	0	79	0	0	7	1	0	0	1	9	89
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	88	9	0	0	0	97	0	0	5	0	0	0	0	5	102
17:45 - 18:00	0	0	0	0	0	1	0	1	1	0	77	11	0	0	2	91	0	0	3	2	0	1	0	6	98
HOURLY TOTAL	0	0	1	0	1	2	0	4	2	1	354	44	3	2	3	409	0	0	23	5	0	1	1	30	443
PERIOD TOTAL	0	0	3	2	2	3	0	10	3	6	705	109	6	10	9	848	0	0	48	10	1	3	1	63	921

Manual Classified Turning Counts, Barnsley

DATE: TUESDAY 22nd OCTOBER 2019

LOCATION: FERRY MOOR ROUNDABOUT

ARM: FERRYMOOR WAY

TIME / CLASS	LEFT TO ENGINE LANE								STRAIGHT TO HIGH STREET								RIGHT TO PARK SPRING ROAD								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	1	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	5
7:45 - 8:00	0	0	2	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:00 - 8:15	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1	1	0	0	0	2	4
8:15 - 8:30	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
HOURLY TOTAL	0	0	4	2	2	1	0	9	0	0	1	0	0	0	0	1	0	0	3	1	1	0	0	5	15
8:30 - 8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
8:45 - 9:00	0	0	3	1	2	0	0	6	0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	4	10
9:00 - 9:15	0	0	1	0	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	5
9:15 - 9:30	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	4	5
HOURLY TOTAL	0	0	5	1	3	1	0	10	0	0	0	0	0	0	0	0	0	0	4	3	0	5	0	12	22
PERIOD TOTAL	0	0	9	3	5	2	0	19	0	0	1	0	0	0	0	1	0	0	7	4	1	5	0	17	37
16:00 - 16:15	0	0	1	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	6
16:15 - 16:30	0	1	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	5	7
16:30 - 16:45	0	1	20	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	8	0	1	0	0	9	30
16:45 - 17:00	0	0	4	0	0	0	0	4	0	0	1	0	0	0	0	1	0	0	2	0	0	0	0	2	7
HOURLY TOTAL	0	2	25	2	0	1	0	30	0	0	1	0	0	0	0	1	0	0	17	1	1	0	0	19	50
17:00 - 17:15	0	0	4	0	0	0	0	4	0	0	1	0	0	0	0	1	0	0	6	0	0	1	0	7	12
17:15 - 17:30	0	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	6
17:30 - 17:45	0	1	7	0	0	0	0	8	0	0	1	0	0	0	0	1	0	0	9	0	0	0	0	9	18
17:45 - 18:00	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	7
HOURLY TOTAL	0	1	17	1	0	0	0	19	0	0	2	0	0	0	0	2	0	0	21	0	0	1	0	22	43
PERIOD TOTAL	0	3	42	3	0	1	0	49	0	0	3	0	0	0	0	3	0	0	38	1	1	1	0	41	93

Site:	**A6195 Park Springs Rd/B6273 Rotherham Rd**	**A:**	**A6195 Sheffield**
Day:	**Wednesday**	**B:**	**A6195 Park Springs Road**
Date:	**8 November 2017**	**C:**	**B6273 Rotherham Road**
Weather:	**Fine & Sunny Periods**		

	A - B									A - C							
Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**		**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**
07:00	45	12	5	4	1	0	1	68		44	21	3	0	0	0	1	69
07:15	57	12	2	5	1	1	0	78		37	9	0	0	0	0	0	46
07:30	96	11	2	2	0	1	0	112		59	16	1	2	0	1	1	80
07:45	93	16	7	5	0	0	2	123		54	14	1	0	0	0	1	70
08:00	91	10	5	4	0	0	0	110		53	13	4	0	0	1	0	71
08:15	83	11	2	6	0	0	0	102		57	16	2	0	0	0	1	76
08:30	63	8	3	5	0	0	0	79		74	12	4	2	0	0	2	94
08:45	55	10	5	4	0	0	0	74	365	65	17	4	2	0	1	1	90
09:00	54	11	7	8	0	0	2	82		56	9	3	1	0	0	1	70
09:15	35	10	6	9	0	1	3	64		50	8	2	1	0	0	3	64
Total	**672**	**111**	**44**	**52**	**2**	**3**	**8**	**892**		**549**	**135**	**24**	**8**	**0**	**3**	**11**	**730**
16:00	70	15	3	5	0	0	0	93		83	17	2	1	0	0	4	107
16:15	92	18	5	5	0	1	0	121		62	12	1	1	0	0	0	76
16:30	73	14	3	2	0	1	1	94		84	7	1	0	0	0	1	93
16:45	90	12	3	6	0	2	1	114		69	13	0	0	0	0	0	82
17:00	89	16	0	6	0	0	0	111		73	17	1	1	0	0	1	93
17:15	84	11	3	2	0	1	0	101		74	11	0	0	0	0	1	86
17:30	83	25	0	2	0	0	2	112		73	6	0	0	0	0	1	80
17:45	85	13	3	2	0	1	1	105	429	78	7	1	0	1	1	0	88
18:00	75	11	4	4	0	0	0	94		85	11	0	0	0	2	1	99
18:15	72	8	2	3	0	0	0	85		89	7	0	0	0	1	1	98
Total	**813**	**143**	**26**	**37**	**0**	**6**	**5**	**1030**		**770**	**108**	**6**	**3**	**1**	**4**	**10**	**902**

	B - A									B - C							
Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**		**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**
07:00	110	18	1	2	0	1	0	132		23	11	0	0	0	0	1	35
07:15	57	9	2	2	0	1	4	75		18	6	0	1	0	0	0	25
07:30	72	7	0	7	0	0	1	87		19	4	1	0	0	0	0	24
07:45	56	14	3	4	1	0	0	78		10	4	1	0	0	0	0	15
08:00	61	13	4	6	0	1	0	85		9	4	1	0	0	0	0	14
08:15	52	18	3	6	0	1	0	80		11	2	0	0	0	0	0	13
08:30	56	12	0	3	0	0	0	71		10	3	1	0	0	0	0	14
08:45	66	10	5	3	0	0	0	84	320	10	3	0	0	0	0	1	14
09:00	100	17	1	5	0	0	0	123		7	2	0	0	2	0	1	12
09:15	83	12	4	11	0	0	2	112		8	1	1	0	0	0	1	11
Total	**713**	**130**	**23**	**49**	**1**	**4**	**7**	**927**		**125**	**40**	**5**	**1**	**2**	**0**	**4**	**177**
16:00	96	15	3	7	1	1	1	124		13	3	0	0	0	0	0	16
16:15	82	22	2	2	0	1	0	109		19	5	1	0	0	0	0	25
16:30	124	9	7	5	0	0	4	149		19	6	0	0	0	0	0	25
16:45	106	13	0	2	0	0	0	121		19	3	0	0	0	0	1	23
17:00	117	18	3	4	0	1	0	143		27	4	0	0	0	1	0	32
17:15	107	13	1	2	0	0	0	123		20	2	1	0	0	0	0	23
17:30	129	9	1	4	0	0	0	143		18	4	0	0	0	2	0	24
17:45	72	7	0	2	0	1	2	84	493	8	2	0	0	1	0	0	11
18:00	66	8	2	2	0	0	0	78		6	3	0	0	1	0	0	10
18:15	55	14	1	0	0	0	1	71		8	1	0	0	0	0	0	9
Total	**954**	**128**	**20**	**30**	**1**	**4**	**8**	**1145**		**157**	**33**	**2**	**0**	**2**	**3**	**1**	**198**

	C - A									C - B							
Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**		**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**
07:00	64	20	1	0	0	1	0	86		14	3	0	0	0	1	1	19
07:15	55	10	0	1	0	0	0	66		5	0	0	0	0	0	1	6
07:30	57	15	0	1	0	0	0	73		11	2	0	0	0	0	0	13
07:45	66	9	1	0	0	0	2	78		3	2	0	0	0	0	0	5
08:00	65	10	4	1	0	0	2	82		9	1	0	0	0	0	0	10
08:15	57	8	2	0	0	0	1	68		4	1	0	0	0	0	0	5
08:30	62	5	1	0	0	1	0	69		5	2	0	0	0	0	0	7
08:45	63	17	2	0	0	0	1	83	302	5	3	0	0	0	0	0	8
09:00	71	9	1	0	0	0	1	82		5	0	1	0	0	0	0	6
09:15	76	17	2	0	1	2	1	99		3	1	0	0	0	0	1	5
Total	**636**	**120**	**14**	**3**	**1**	**4**	**8**	**786**		**64**	**15**	**1**	**0**	**0**	**1**	**3**	**84**
16:00	79	22	1	1	0	0	3	106		8	1	0	0	0	1	0	10
16:15	80	24	2	0	0	1	2	109		6	0	0	0	0	1	1	8
16:30	81	18	1	1	0	3	1	105		5	0	0	0	0	1	0	6
16:45	83	12	3	0	0	1	0	99		10	1	0	0	0	0	0	11
17:00	84	19	1	0	0	1	1	106		8	0	0	0	0	0	0	8
17:15	72	16	3	0	0	0	0	91		8	2	0	0	0	1	0	11
17:30	85	17	3	1	0	1	1	108		11	3	0	1	0	2	2	19
17:45	86	20	0	0	0	0	1	107	412	8	0	0	0	0	0	0	8
18:00	62	6	0	0	0	1	0	69		3	1	0	0	0	0	0	4
18:15	85	4	1	0	0	0	1	91		5	0	0	0	0	0	0	5
Total	**797**	**158**	**15**	**3**	**0**	**8**	**10**	**991**		**72**	**8**	**0**	**1**	**0**	**6**	**3**	**90**

Houghton Main Colliery: Weekday Assessment Traffic

TEMPRO 2018-2023 AM 1.0653 PM 1.0667

TEMPRO 2014-2018 AM 1.036 PM 1.037

2018 Site Access Flows (in pcu)

	AM Peak: 7.30am- 8.30am				PM Peak: 4.30pm- 5.30pm			
	A6195 N	ASOS	A6195 S	Access	A6195 N	ASOS	A6195 S	Access
A6195 N	6	29	370	6	11	9	541	0
ASOS	12	0	27	2	15	0	28	0
A6195 S	496	77	8	3	526	6	0	1
Access	0	1	2	0	3	3	3	1

2018 Rotherham Road/Doncaster Road Flows (in pcu)

	AM Peak: 7.30am- 8.30am				PM Peak: 4.30pm- 5.30pm			
	A6195 N	A635 E	A6195 S	A635 W	A6195 N	A635 E	A6195 S	A635 W
A6195 N	0	124	390	71	0	192	498	116
A635 E	177	10	539	471	208	1	555	528
A6195 S	511	270	0	88	531	367	0	127
A635 W	34	553	200	0	75	425	147	0

2018 Manvers Road/Highgate Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A633	A6195 S	Highgate	A6195 N	A633	A6195 S	Highgate
A6195 N	0	596	572	0	0	552	677	20
A633	519	0	432	8	517	0	486	60
A6195 S	662	510	0	7	636	524	0	17
Highgate	13	20	12	0	0	1	0	0

2023 Site Access Background Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	ASOS	A6195 S	Access	A6195 N	ASOS	A6195 S	Access
A6195 N	6	31	394	6	12	10	577	0
ASOS	13	0	29	2	16	0	30	0
A6195 S	528	82	9	3	561	6	0	1
Access	0	1	2	0	3	3	3	1

2023 Rotherham Road/Doncaster Road Background Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A635 E	A6195 S	A635 W	A6195 N	A635 E	A6195 S	A635 W
A6195 N	0	132.0972	415.467	75.6363	0	204.8064	531.2166	123.7372
A635 E	188.5581	10.653	574.1967	501.7563	221.8736	1.0667	592.0185	563.2176
A6195 S	544.3683	287.631	0	93.7464	566.4177	391.4789	0	135.4709
A635 W	36.2202	589.1109	213.06	0	80.0025	453.3475	156.8049	0

2023 Manvers Road/Highgate Background Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A633	A6195 S	Highgate	A6195 N	A633	A6195 S	Highgate
A6195 N	0	635	609	0	0	588	722	22
A633	553	0	460	9	551	0	518	64
A6195 S	706	544	0	8	678	559	0	18
Highgate	14	21	13	0	0	1	0	0

Site Access TRRC Consented Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	ASOS	A6195 S	Access	A6195 N	ASOS	A6195 S	Access
A6195 N	0	0	0	5	0	0	0	0
ASOS	0	0	0	0	0	0	0	0
A6195 S	0	0	0	5	0	0	0	0
Access	2	0	3	0	3	0	3	0

Rotherham Road/Doncaster Road TRRC Consented Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A635 E	A6195 S	A635 W	A6195 N	A635 E	A6195 S	A635 W
A6195 N	0	1	1	1	0	1	1	1
A635 E	1	0	0	0	0	0	0	0
A6195 S	2	0	0	0	0	0	0	0
A635 W	1	0	0	0	0	0	0	0

Manvers Road/Highgate TRRC Consented Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A633	A6195 S	Highgate	A6195 N	A633	A6195 S	Highgate
A6195 N			1				1	
A633								
A6195 S	2				0			
Highgate								

Site Access ASOS Car Park Adjustment Main CP 553 New CP 370 Factor 40%

	AM Peak				PM Peak			
	A6195 N	ASOS	A6195 S	Access	A6195 N	ASOS	A6195 S	Access
A6195 N	6	12	394	19	12	4	577	4
ASOS	8	0	15	2	6	0	15	0
A6195 S	528	46	9	38	561	3	0	3
Access	5	0	14	0	10	1	15	0

2023 Rotherham Road/Doncaster Road Base Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A635 E	A6195 S	A635 W	A6195 N	A635 E	A6195 S	A635 W
A6195 N	0	133	417	76	0	206	532	125
A635 E	190	11	574	502	222	1	592	563
A6195 S	546	288	0	94	566	391	0	135
A635 W	38	589	213	0	80	453	157	0

2023 Manvers Road/Highgate Base Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A633	A6195 S	Highgate	A6195 N	A633	A6195 S	Highgate
A6195 N	0	635	610	0	0	588	723	22
A633	553	0	460	9	551	0	518	64
A6195 S	708	544	0	8	678	559	0	18
Highgate	14	21	13	0	0	1	0	0

2023 Site Access Base Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	ASOS	A6195 S	Access	A6195 N	ASOS	A6195 S	Access
A6195 N	6	12	394	23	12	4	577	4
ASOS	8	0	15	2	6	0	15	0
A6195 S	528	46	9	41	561	3	0	3
Access	8	0	16	0	12	1	18	0

Rotherham Road/Doncaster Road Development Distribution

	AM Peak				PM Peak			
	A6195 N	A635 E	A6195 S	A635 W	A6195 N	A635 E	A6195 S	A635 W
A6195 N	0%	12%	22%	16%	0%	12%	22%	16%
A635 E	12%	0%	0%	0%	12%	0%	0%	0%
A6195 S	22%	0%	0%	0%	22%	0%	0%	0%
A635 W	16%	0%	0%	0%	16%	0%	0%	0%

Manvers Road/Highgate Development Distribution Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A633	A6195 S	Highgate	A6195 N	A633	A6195 S	Highgate
A6195 N			22%				22%	
A633								
A6195 S	22%				22%			
Highgate								

Site Access Development Distribution

	AM Peak				PM Peak			
	A6195 N	ASOS	A6195 S	Access	A6195 N	ASOS	A6195 S	Access
A6195 N	0%	0%	0%	49%	0%	0%	0%	49%
ASOS	0%	0%	0%	0%	0%	0%	0%	0%
A6195 S	0%	0%	0%	51%	0%	0%	0%	51%
Access	49%	0%	51%	0%	49%	0%	51%	0%

Rotherham Road/Doncaster Road Development Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A635 E	A6195 S	A635 W	A6195 N	A635 E	A6195 S	A635 W
A6195 N		1	2	2		1	2	2
A635 E	2				0			
A6195 S	3				1			
A635 W	2				1			

Manvers Road/Highgate Development Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A633	A6195 S	Highgate	A6195 N	A633	A6195 S	Highgate
A6195 N			2				2	
A633								
A6195 S	3				1			
Highgate								

Site Access Development Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	ASOS	A6195 S	Access	A6195 N	ASOS	A6195 S	Access
A6195 N				7				2
ASOS								
A6195 S				7				2
Access	5		5		5		5	

Rotherham Road/Doncaster Road Net Change from Consented TRRC (in pcu)

	AM Peak				PM Peak			
	A6195 N	A635 E	A6195 S	A635 W	A6195 N	A635 E	A6195 S	A635 W
A6195 N	0	1	1	1	0	0	1	1
A635 E	1	0	0	0	0	0	0	0
A6195 S	1	0	0	0	1	0	0	0
A635 W	1	0	0	0	0	0	0	0

Manvers Road/Highgate Net Change from Consented TRRC (in pcu)

	AM Peak				PM Peak			
	A6195 N	A633	A6195 S	Highgate	A6195 N	A633	A6195 S	Highgate
A6195 N	0	0	1	0	0	0	1	0
A633	0	0	0	0	0	0	0	0
A6195 S	1	0	0	0	1	0	0	0
Highgate	0	0	0	0	0	0	0	0

Site Access Net Change from Consented TRRC (in pcu)

	AM Peak				PM Peak			
	A6195 N	ASOS	A6195 S	Access	A6195 N	ASOS	A6195 S	Access
A6195 N	0	0	0	2	0	0	0	1
ASOS	0	0	0	0	0	0	0	0
A6195 S	0	0	0	2	0	0	0	2
Access	2	0	2	0	2	0	2	0

Rotherham Road/Doncaster Road Base & Development Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A635 E	A6195 S	A635 W	A6195 N	A635 E	A6195 S	A635 W
A6195 N	0	133	418	77	0	206	533	125
A635 E	190	11	574	502	222	1	592	563
A6195 S	548	288	0	84	567	391	0	135
A635 W	38	589	213	0	81	453	157	0

Manvers Road/Highgate Base & Development Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	A633	A6195 S	Highgate	A6195 N	A633	A6195 S	Highgate
A6195 N	0	635	611	0	0	588	724	22
A633	553	0	460	9	551	0	518	64
A6195 S	709	544	0	8	679	559	0	18
Highgate	14	21	13	0	0	1	0	0

Net Change Summary

	Consented TRRC (in pcu)		Proposed (in pcu)		Net Change (in pcu)	
	AM	PM	AM	PM	AM	PM
Site Access	14	6	24	13	9	7
Rotherham Rd/Doncaster Rd	7	3	12	7	5	4
Manvers Rd/Highgate	3	1	5	3	2	2

2023 Site Access Base & Development Flows (in pcu)

	AM Peak				PM Peak			
	A6195 N	ASOS	A6195 S	Access	A6195 N	ASOS	A6195 S	Access
A6195 N	6	31	394	13	12	10	577	2
ASOS	13	0	29	2	16	0	30	0
A6195 S	528	82	9	10	561	6	0	3
Access	5	1	7	0	8	3	8	1

S|C|P

APPENDIX B

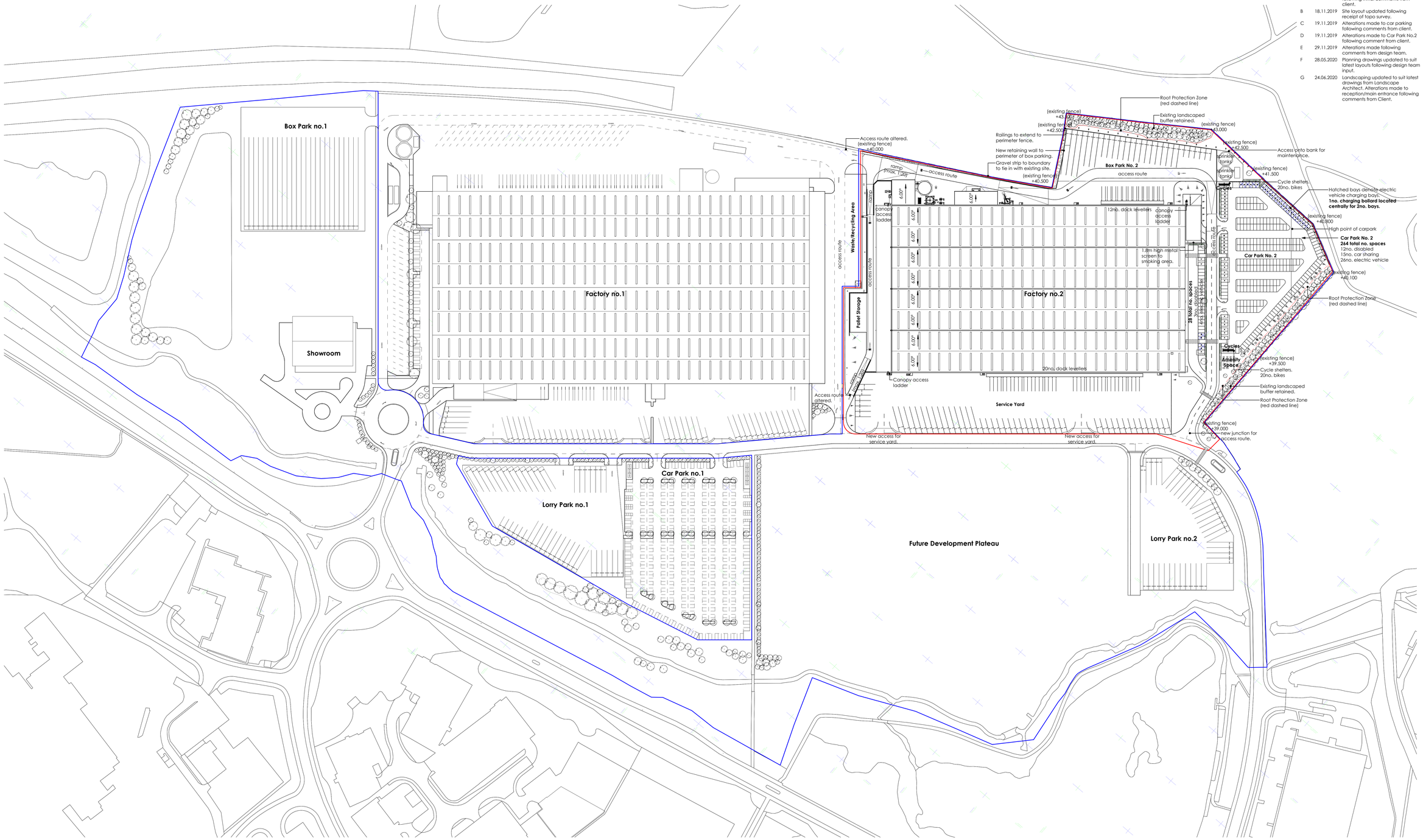
GENERAL NOTES
This drawing is to be read in conjunction with all related drawings.
Do not scale from this drawing.
All dimensions must be checked and verified on site before commencing any work or producing shop drawings.
The originator should be notified immediately of any discrepancy.
This drawing is copyright and remains the property of Garnett Netherwood Architects Ltd.

NORTH

SCALE
0 10 20 30 40 50 100m 1:1000

REVISIONS

Rev.	Date	Description	Issued By	Checked By
A	16.10.2019	Alterations made to external levels following initial comments from client.	NB	NDB
B	18.11.2019	Site layout updated following receipt of topo survey.	NB	NDB
C	19.11.2019	Alterations made to car parking following comments from client.	NB	NDB
D	19.11.2019	Alterations made to Car Park No.2 following comment from client.	NB	NDB
E	29.11.2019	Alterations made following comments from design team.	NB	NDB
F	28.05.2020	Planning drawings updated to suit latest layouts following design team input.	NB	NDB
G	24.06.2020	Landscaping updated to suit latest drawings from Landscape Architect. Alterations made to reception/main entrance following comments from Client.	NB	NDB



Proposed Site Plan
1 : 1000

Car Parking Schedule:
(Visitor Parking and Car Park No. 2)

15no. disabled spaces
15no. car sharing spaces
30no. electric vehicle spaces
232no. standard spaces
292 Total no. Spaces

Cycling Schedule:
40no. cycles

Box Park No. 2 Schedule:
57 Total no. Boxes

HGV Parking Schedule:
(East Service Yard)
49 Total no. Spaces

Area Schedule:

Site Area: *(red line boundary)*	69,700m²	(6.97Ha)
GEA:	29,060m²	(312,802ft²)
GIA:		
Office	2,880m²	(31,000ft²)
Production	10,360m²	(111,515ft²)
Warehouse	17,176m²	(184,882ft²)
Total	**30,416m²**	**(327,397ft²)**

Client
The Symphony Group plc.

Project No. Project
1711 Ashes Phase 3

Drawing Title
(P) PLANNING
Site Plan As Proposed

Scale @ A0 1 : 1000
Date 30.09.2019
Drawn by NB
Checked by NDB

Drawing Status
for Planning

Drawing Number Revision
(P) P01 G

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S|C|P

APPENDIX C

Calculation Reference: AUDIT-726001-191105-1134

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : D - INDUSTRIAL ESTATE

MULTI-MODAL VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	ES	EAST SUSSEX	1 days
	EX	ESSEX	3 days
	KC	KENT	1 days
03	**SOUTH WEST**		
	CW	CORNWALL	1 days
	DV	DEVON	1 days
	WL	WILTSHIRE	1 days
04	**EAST ANGLIA**		
	CA	CAMBRIDGESHIRE	1 days
	NF	NORFOLK	1 days
05	**EAST MIDLANDS**		
	NT	NOTTINGHAMSHIRE	1 days
06	**WEST MIDLANDS**		
	WK	WARWICKSHIRE	2 days
	WM	WEST MIDLANDS	1 days
	WO	WORCESTERSHIRE	1 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	KH	KINGSTON UPON HULL	1 days
	NY	NORTH YORKSHIRE	1 days
	WY	WEST YORKSHIRE	5 days
08	**NORTH WEST**		
	CH	CHESHIRE	1 days
	LC	LANCASHIRE	1 days
	MS	MERSEYSIDE	1 days
09	**NORTH**		
	CB	CUMBRIA	1 days
	NB	NORTHUMBERLAND	1 days
10	**WALES**		
	VG	VALE OF GLAMORGAN	1 days
11	**SCOTLAND**		
	AG	ANGUS	1 days
	ER	EAST RENFREWSHIRE	1 days
	HI	HIGHLAND	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:	Gross floor area
Actual Range:	1776 to 974258 (units: sqm)
Range Selected by User:	552 to 974258 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/00 to 12/03/19

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	9 days
Tuesday	6 days
Wednesday	8 days
Thursday	2 days
Friday	6 days

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

Selected survey types:

Manual count	31 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	31

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:

Industrial Zone	15
Development Zone	1
Residential Zone	3
Out of Town	2
No Sub Category	10

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:

n/a	1 days
Not Known	6 days
B1	7 days
B2	10 days
B8	5 days

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

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	3 days
5,001 to 10,000	8 days
10,001 to 15,000	7 days
15,001 to 20,000	3 days
20,001 to 25,000	3 days
25,001 to 50,000	6 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

5,001 to 25,000	4 days
25,001 to 50,000	5 days
50,001 to 75,000	3 days
75,001 to 100,000	3 days
100,001 to 125,000	1 days
125,001 to 250,000	12 days
250,001 to 500,000	3 days

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

Car ownership within 5 miles:

0.6 to 1.0	8 days
1.1 to 1.5	23 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:

Not Known	3 days
No	28 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	31 days

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

LIST OF SITES relevant to selection parameters

1 **AG-02-D-02** **INDUSTRIAL ESTATE** **ANGUS**
A933 WESTWAY
ARBROATH
HOSPITALFIELD
Edge of Town
No Sub Category
Total Gross floor area: 78500 sqm
Survey date: TUESDAY *25/04/17* *Survey Type: MANUAL*

2 **CA-02-D-02** **IND. ESTATE** **CAMBRIDGESHIRE**
COLDHAM'S ROAD
CAMBRIDGE
COLDHAM'S COMMON
Edge of Town
Industrial Zone
Total Gross floor area: 2063 sqm
Survey date: MONDAY *19/10/09* *Survey Type: MANUAL*

3 **CB-02-D-04** **INDUSTRIAL ESTATE** **CUMBRIA**
CARLISLE ROAD
BRAMPTON

Edge of Town
No Sub Category
Total Gross floor area: 17708 sqm
Survey date: WEDNESDAY *16/12/09* *Survey Type: MANUAL*

4 **CH-02-D-02** **INDUSTRIAL EST.** **CHESHIRE**
MANCHESTER ROAD
NORTHWICH
WINCHAM
Edge of Town
Industrial Zone
Total Gross floor area: 22000 sqm
Survey date: FRIDAY *15/06/07* *Survey Type: MANUAL*

5 **CW-02-D-02** **INDUSTRIAL ESTATE** **CORNWALL**
DRUIDS ROAD
CAMBORNE

Edge of Town
Industrial Zone
Total Gross floor area: 6515 sqm
Survey date: FRIDAY *21/09/07* *Survey Type: MANUAL*

6 **DV-02-D-07** **INDUSTRIAL ESTATE** **DEVON**
BITTERN ROAD
EXETER
SOWTON IND. ESTATE
Edge of Town
Industrial Zone
Total Gross floor area: 3600 sqm
Survey date: MONDAY *03/07/17* *Survey Type: MANUAL*

7 **ER-02-D-02** **INDUSTRIAL EST.** **EAST RENFREWSHIRE**
SPIERSBRIDGE AVENUE
NEAR GLASGOW
THORNLIEBANK
Edge of Town
Industrial Zone
Total Gross floor area: 4233 sqm
Survey date: WEDNESDAY *10/10/01* *Survey Type: MANUAL*

8 **ES-02-D-06** **INDUSTRIAL ESTATE** **EAST SUSSEX**
COURTLANDS ROAD
EASTBOURNE

Edge of Town
Residential Zone
Total Gross floor area: 7525 sqm
Survey date: MONDAY *21/10/13* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

9 **EX-02-D-03** **INDUSTRIAL ESTATE** **ESSEX**
WYNCOLLS ROAD
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 4876 sqm
Survey date: FRIDAY *18/05/18* *Survey Type: MANUAL*

10 **EX-02-D-04** **INDUSTRIAL ESTATE** **ESSEX**
PASTURE ROAD
WITHAM

Edge of Town
Industrial Zone
Total Gross floor area: 37130 sqm
Survey date: THURSDAY *10/05/18* *Survey Type: MANUAL*

11 **EX-02-D-05** **INDUSTRIAL ESTATE** **ESSEX**
HECKWORTH CLOSE
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 7280 sqm
Survey date: FRIDAY *18/05/18* *Survey Type: MANUAL*

12 **HI-02-D-03** **IND. ESTATE & BUS. PARK** **HIGHLAND**
NORTH ROAD
FORT WILLIAM
INVERLOCHY
Edge of Town
No Sub Category
Total Gross floor area: 35000 sqm
Survey date: MONDAY *18/05/09* *Survey Type: MANUAL*

13 **KC-02-D-02** **INDUSTRIAL ESTATE** **KENT**
SOUTHWELL ROAD
DEAL

Edge of Town
Residential Zone
Total Gross floor area: 10715 sqm
Survey date: WEDNESDAY *28/11/12* *Survey Type: MANUAL*

14 **KH-02-D-02** **INDUSTRIAL ESTATE** **KINGSTON UPON HULL**
BOULEVARD STREET
KINGSTON UPON HULL

Edge of Town
Industrial Zone
Total Gross floor area: 2220 sqm
Survey date: THURSDAY *18/10/01* *Survey Type: MANUAL*

15 **LC-02-D-04** **INDUSTRIAL ESTATE** **LANCASHIRE**
GREEN LANE WEST
GARSTANG

Edge of Town
Industrial Zone
Total Gross floor area: 4555 sqm
Survey date: FRIDAY *16/06/06* *Survey Type: MANUAL*

16 **MS-02-D-05** **INDUSTRIAL ESTATE** **MERSEYSIDE**
BROADOAK ROAD
ST HELENS

Edge of Town
No Sub Category
Total Gross floor area: 2430 sqm
Survey date: TUESDAY *18/10/05* *Survey Type: MANUAL*

17 **NB-02-D-01** **INDUSTRIAL ESTATE** **NORTHUMBERLAND**
A695
HEXHAM

Edge of Town
Industrial Zone
Total Gross floor area: 10525 sqm
Survey date: MONDAY *23/05/05* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

18 **NF-02-D-02** **INDUSTRIAL ESTATE** **NORFOLK**
RASHES GREEN
DEREHAM
BRECKLAND
Edge of Town
No Sub Category
Total Gross floor area: 51000 sqm
Survey date: WEDNESDAY *22/11/00* *Survey Type: MANUAL*

19 **NT-02-D-01** **INDUSTRIAL ESTATE** **NOTTINGHAMSHIRE**
B6028 STONEYFORD ROAD
SUTTON-IN-ASHFIELD
STANTON HILL
Edge of Town
No Sub Category
Total Gross floor area: 26400 sqm
Survey date: FRIDAY *30/06/06* *Survey Type: MANUAL*

20 **NY-02-D-02** **INDUSTRIAL ESTATE** **NORTH YORKSHIRE**
RACECOURSE ROAD
RICHMOND

Edge of Town
Out of Town
Total Gross floor area: 35183 sqm
Survey date: TUESDAY *12/03/19* *Survey Type: MANUAL*

21 **VG-02-D-01** **INDUSTRIAL ESTATE** **VALE OF GLAMORGAN**
ARTHUR STREET
BARRY

Edge of Town
No Sub Category
Total Gross floor area: 13091 sqm
Survey date: MONDAY *08/05/17* *Survey Type: MANUAL*

22 **WK-02-D-01** **INDUSTRIAL ESTATE** **WARWICKSHIRE**
CASTLE MOUND WAY
RUGBY

Edge of Town
Industrial Zone
Total Gross floor area: 150564 sqm
Survey date: WEDNESDAY *27/06/18* *Survey Type: MANUAL*

23 **WK-02-D-02** **INDUSTRIAL ESTATE** **WARWICKSHIRE**
OVERVIEW WAY
RUGBY

Edge of Town
Industrial Zone
Total Gross floor area: 974258 sqm
Survey date: WEDNESDAY *27/06/18* *Survey Type: MANUAL*

24 **WL-02-D-01** **IND. ESTATE** **WILTSHIRE**
MARLBOROUGH ROAD
WOOTTON BASSETT

Edge of Town
Industrial Zone
Total Gross floor area: 7050 sqm
Survey date: TUESDAY *03/10/06* *Survey Type: MANUAL*

25 **WM-02-D-02** **INDUSTRIAL ESTATE** **WEST MIDLANDS**
DUNLOP WAY
BIRMINGHAM

Edge of Town
Residential Zone
Total Gross floor area: 23480 sqm
Survey date: WEDNESDAY *07/11/12* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

26 **WO-02-D-03** **INDUSTRIAL ESTATE** **WORCESTERSHIRE**
MILLENNIUM WAY
EVESHAM

Edge of Town
Out of Town
Total Gross floor area: 84575 sqm
Survey date: TUESDAY *26/06/18* *Survey Type: MANUAL*

27 **WY-02-D-02** **INDUSTRIAL EST.** **WEST YORKSHIRE**
A629 WAKEFIELD ROAD
HUDDERSFIELD
TANDEM
Edge of Town
No Sub Category
Total Gross floor area: 20824 sqm
Survey date: MONDAY *11/09/06* *Survey Type: MANUAL*

28 **WY-02-D-05** **INDUSTRIAL ESTATE** **WEST YORKSHIRE**
CARR WOOD ROAD
CASTLEFORD

Edge of Town
Development Zone
Total Gross floor area: 1776 sqm
Survey date: MONDAY *22/05/17* *Survey Type: MANUAL*

29 **WY-02-D-06** **INDUSTRIAL ESTATE (PART)** **WEST YORKSHIRE**
PIONEER WAY
CASTLEFORD

Edge of Town
Industrial Zone
Total Gross floor area: 4328 sqm
Survey date: TUESDAY *23/05/17* *Survey Type: MANUAL*

30 **WY-02-D-07** **INDUSTRIAL ESTATE** **WEST YORKSHIRE**
THUNDERHEAD RIDGE RD
CASTLEFORD
GLASSHOUGHTON
Edge of Town
No Sub Category
Total Gross floor area: 3191 sqm
Survey date: MONDAY *15/05/17* *Survey Type: MANUAL*

31 **WY-02-D-08** **INDUSTRIAL ESTATE** **WEST YORKSHIRE**
MILL LANE
HALIFAX

Edge of Town
No Sub Category
Total Gross floor area: 11305 sqm
Survey date: WEDNESDAY *17/10/18* *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 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

MULTI-MODAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	1	4233	0.071	1	4233	0.024	1	4233	0.095
07:00 - 08:00	31	53674	0.146	31	53674	0.045	31	53674	0.191
08:00 - 09:00	**31**	**53674**	**0.197**	31	53674	0.081	**31**	**53674**	**0.278**
09:00 - 10:00	31	53674	0.135	31	53674	0.096	31	53674	0.231
10:00 - 11:00	31	53674	0.114	31	53674	0.105	31	53674	0.219
11:00 - 12:00	31	53674	0.113	31	53674	0.113	31	53674	0.226
12:00 - 13:00	31	53674	0.118	31	53674	0.137	31	53674	0.255
13:00 - 14:00	31	53674	0.144	31	53674	0.126	31	53674	0.270
14:00 - 15:00	31	53674	0.104	31	53674	0.126	31	53674	0.230
15:00 - 16:00	31	53674	0.102	31	53674	0.129	31	53674	0.231
16:00 - 17:00	31	53674	0.098	31	53674	0.170	31	53674	0.268
17:00 - 18:00	31	53674	0.056	**31**	**53674**	**0.180**	31	53674	0.236
18:00 - 19:00	31	53674	0.037	31	53674	0.070	31	53674	0.107
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.435			1.402			2.837

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.*

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Parameter summary

Trip rate parameter range selected:	1776 - 974258 (units: sqm)
Survey date date range:	01/01/00 - 12/03/19
Number of weekdays (Monday-Friday):	31
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
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 show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

MULTI-MODAL CYCLISTS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	1	4233	0.000	1	4233	0.000	1	4233	0.000
07:00 - 08:00	**31**	**53674**	**0.006**	31	53674	0.001	31	53674	0.007
08:00 - 09:00	31	53674	0.004	31	53674	0.001	31	53674	0.005
09:00 - 10:00	31	53674	0.001	31	53674	0.001	31	53674	0.002
10:00 - 11:00	31	53674	0.001	31	53674	0.001	31	53674	0.002
11:00 - 12:00	31	53674	0.001	31	53674	0.000	31	53674	0.001
12:00 - 13:00	31	53674	0.001	31	53674	0.001	31	53674	0.002
13:00 - 14:00	31	53674	0.002	31	53674	0.001	31	53674	0.003
14:00 - 15:00	31	53674	0.001	31	53674	0.002	31	53674	0.003
15:00 - 16:00	31	53674	0.001	31	53674	0.003	31	53674	0.004
16:00 - 17:00	31	53674	0.001	31	53674	0.004	31	53674	0.005
17:00 - 18:00	31	53674	0.002	**31**	**53674**	**0.006**	**31**	**53674**	**0.008**
18:00 - 19:00	31	53674	0.002	31	53674	0.002	31	53674	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.023			0.023			0.046

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.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

MULTI-MODAL PEDESTRIANS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	**1**	**4233**	**0.071**	1	4233	0.000	**1**	**4233**	**0.071**
07:00 - 08:00	31	53674	0.008	31	53674	0.004	31	53674	0.012
08:00 - 09:00	31	53674	0.008	31	53674	0.004	31	53674	0.012
09:00 - 10:00	31	53674	0.004	31	53674	0.003	31	53674	0.007
10:00 - 11:00	31	53674	0.004	31	53674	0.003	31	53674	0.007
11:00 - 12:00	31	53674	0.002	31	53674	0.003	31	53674	0.005
12:00 - 13:00	31	53674	0.009	**31**	**53674**	**0.009**	31	53674	0.018
13:00 - 14:00	31	53674	0.009	31	53674	0.006	31	53674	0.015
14:00 - 15:00	31	53674	0.005	31	53674	0.006	31	53674	0.011
15:00 - 16:00	31	53674	0.004	31	53674	0.004	31	53674	0.008
16:00 - 17:00	31	53674	0.004	31	53674	0.007	31	53674	0.011
17:00 - 18:00	31	53674	0.004	31	53674	0.009	31	53674	0.013
18:00 - 19:00	31	53674	0.001	31	53674	0.004	31	53674	0.005
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.133			0.062			0.195

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.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

MULTI-MODAL PUBLIC TRANSPORT USERS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	1	4233	0.000	1	4233	0.000	1	4233	0.000
07:00 - 08:00	31	53674	0.006	31	53674	0.002	31	53674	0.008
08:00 - 09:00	**31**	**53674**	**0.010**	31	53674	0.001	**31**	**53674**	**0.011**
09:00 - 10:00	31	53674	0.003	31	53674	0.000	31	53674	0.003
10:00 - 11:00	31	53674	0.001	31	53674	0.001	31	53674	0.002
11:00 - 12:00	31	53674	0.003	31	53674	0.001	31	53674	0.004
12:00 - 13:00	31	53674	0.005	31	53674	0.005	31	53674	0.010
13:00 - 14:00	31	53674	0.008	31	53674	0.003	31	53674	0.011
14:00 - 15:00	31	53674	0.002	31	53674	0.006	31	53674	0.008
15:00 - 16:00	31	53674	0.002	**31**	**53674**	**0.008**	31	53674	0.010
16:00 - 17:00	31	53674	0.002	31	53674	0.005	31	53674	0.007
17:00 - 18:00	31	53674	0.001	31	53674	0.006	31	53674	0.007
18:00 - 19:00	31	53674	0.002	31	53674	0.002	31	53674	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.045			0.040			0.085

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.

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S|C|P

APPENDIX D

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.0.6896
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Filename: Ferrymoor Roundabout.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY
Report generation date: 12/06/2020 10:29:35

»Base 2020, AM
»Base 2020, PM
»Base 2025, AM
»Base 2025, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2025, AM
»Assessment 2025, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2020							
Arm 1	0.0	3.09	0.02	A	0.1	3.50	0.06	A
Arm 2	0.7	3.29	0.40	A	0.6	3.17	0.37	A
Arm 3	0.3	3.57	0.21	A	0.2	3.29	0.18	A
Arm 4	0.3	2.77	0.25	A	0.5	3.10	0.34	A
	Base 2025							
Arm 1	0.0	3.17	0.02	A	0.1	3.63	0.07	A
Arm 2	0.8	3.49	0.43	A	0.7	3.34	0.40	A
Arm 3	0.3	3.73	0.24	A	0.2	3.41	0.19	A
Arm 4	0.4	2.88	0.27	A	0.6	3.27	0.37	A
	Assessment 2020							
Arm 1	0.0	3.12	0.03	A	0.2	4.02	0.18	A
Arm 2	0.8	3.62	0.45	A	0.6	3.28	0.38	A
Arm 3	0.3	3.84	0.24	A	0.2	3.37	0.18	A
Arm 4	0.4	3.02	0.28	A	0.5	3.13	0.35	A
	Assessment 2025							
Arm 1	0.0	3.21	0.03	A	0.2	4.20	0.19	A
Arm 2	0.9	3.86	0.48	A	0.7	3.46	0.41	A
Arm 3	0.4	4.03	0.26	A	0.2	3.49	0.20	A
Arm 4	0.4	3.15	0.30	A	0.6	3.30	0.37	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	Ferry Moor Roundabout
Location	Grimethorpe
Site number	
Date	11/06/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	190657
Enumerator	SCP\Matthew Cross
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	Base 2020	AM	ONE HOUR	07:15	08:45	15
D2	Base 2020	PM	ONE HOUR	16:00	17:30	15
D3	Base 2025	AM	ONE HOUR	07:15	08:45	15
D4	Base 2025	PM	ONE HOUR	16:00	17:30	15
D5	Assessment 2020	AM	ONE HOUR	07:15	08:45	15
D6	Assessment 2020	PM	ONE HOUR	16:00	17:30	15
D7	Assessment 2025	AM	ONE HOUR	07:15	08:45	15
D8	Assessment 2025	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Base 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.19	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Ferrymoor Way	
2	Engine Lane	
3	High Street	
4	Park Spring Road	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.52	6.20	9.0	19.4	60.0	24.0	
2	4.74	7.14	6.9	17.0	60.0	18.0	
3	3.56	7.82	7.3	12.8	60.0	19.0	
4	5.00	7.50	6.3	15.9	60.0	20.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.529	1511
2	0.590	1840
3	0.533	1543
4	0.596	1890

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	Base 2020	AM	ONE HOUR	07:15	08:45	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		✓	18	100.000
2		✓	653	100.000
3		✓	249	100.000
4		✓	385	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	11	1	6
	2	35	0	215	403
	3	16	206	0	27
	4	30	319	36	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.02	3.09	0.0	A
2	0.40	3.29	0.7	A
3	0.21	3.57	0.3	A
4	0.25	2.77	0.3	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	14	421	1288	0.011	14	0.0	2.823	A
2	492	32	1821	0.270	490	0.4	2.703	A
3	187	333	1366	0.137	187	0.2	3.052	A
4	290	193	1775	0.163	289	0.2	2.422	A

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)	Unsignalised level of service
1	16	504	1244	0.013	16	0.0	2.930	A
2	587	39	1817	0.323	587	0.5	2.926	A
3	224	399	1331	0.168	224	0.2	3.251	A
4	346	231	1752	0.198	346	0.2	2.560	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)	Unsignalised level of service
1	20	617	1184	0.017	20	0.0	3.090	A
2	719	47	1812	0.397	718	0.7	3.290	A
3	274	488	1283	0.214	274	0.3	3.567	A
4	424	283	1721	0.246	424	0.3	2.774	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)	Unsignalised level of service
1	20	618	1184	0.017	20	0.0	3.091	A
2	719	47	1812	0.397	719	0.7	3.293	A
3	274	489	1283	0.214	274	0.3	3.568	A
4	424	283	1721	0.246	424	0.3	2.774	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)	Unsignalised level of service
1	16	505	1244	0.013	16	0.0	2.934	A
2	587	39	1817	0.323	588	0.5	2.929	A
3	224	400	1330	0.168	224	0.2	3.257	A
4	346	231	1752	0.198	346	0.2	2.563	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)	Unsignalised level of service
1	14	423	1287	0.011	14	0.0	2.827	A
2	492	32	1821	0.270	492	0.4	2.710	A
3	187	335	1365	0.137	188	0.2	3.057	A
4	290	194	1774	0.163	290	0.2	2.425	A

Base 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.18	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	Base 2020	PM	ONE HOUR	16:00	17:30	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		✓	59	100.000
2		✓	601	100.000
3		✓	212	100.000
4		✓	547	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	32	2	25
	2	13	0	258	330
	3	4	177	0	31
	4	8	500	39	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.06	3.50	0.1	A
2	0.37	3.17	0.6	A
3	0.18	3.29	0.2	A
4	0.34	3.10	0.5	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	44	537	1227	0.036	44	0.0	3.044	A
2	452	50	1810	0.250	451	0.3	2.646	A
3	160	276	1396	0.114	159	0.1	2.908	A
4	412	146	1803	0.228	411	0.3	2.583	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	53	643	1171	0.045	53	0.0	3.220	A
2	540	59	1805	0.299	540	0.4	2.846	A
3	191	331	1367	0.139	190	0.2	3.059	A
4	492	174	1786	0.275	491	0.4	2.781	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	65	788	1094	0.059	65	0.1	3.497	A
2	662	73	1797	0.368	661	0.6	3.168	A
3	233	405	1327	0.176	233	0.2	3.289	A
4	602	213	1762	0.342	602	0.5	3.099	A

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)	Unsignalised level of service
1	65	788	1094	0.059	65	0.1	3.498	A
2	662	73	1797	0.368	662	0.6	3.170	A
3	233	405	1327	0.176	233	0.2	3.290	A
4	602	214	1762	0.342	602	0.5	3.102	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)	Unsignalised level of service
1	53	644	1170	0.045	53	0.0	3.222	A
2	540	59	1805	0.299	541	0.4	2.849	A
3	191	331	1367	0.139	191	0.2	3.061	A
4	492	175	1786	0.275	492	0.4	2.784	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)	Unsignalised level of service
1	44	539	1225	0.036	44	0.0	3.050	A
2	452	50	1810	0.250	453	0.3	2.652	A
3	160	277	1395	0.114	160	0.1	2.915	A
4	412	146	1802	0.228	412	0.3	2.591	A

Base 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.35	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	Base 2025	AM	ONE HOUR	07:15	08:45	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		✓	19	100.000
2		✓	707	100.000
3		✓	270	100.000
4		✓	417	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	12	1	6
	2	38	0	232	437
	3	18	223	0	29
	4	33	345	39	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.02	3.17	0.0	A
2	0.43	3.49	0.8	A
3	0.24	3.73	0.3	A
4	0.27	2.88	0.4	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	14	456	1270	0.011	14	0.0	2.866	A
2	532	35	1819	0.293	531	0.4	2.789	A
3	203	361	1351	0.150	203	0.2	3.133	A
4	314	209	1765	0.178	313	0.2	2.478	A

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)	Unsignalised level of service
1	17	545	1222	0.014	17	0.0	2.986	A
2	636	41	1815	0.350	635	0.5	3.048	A
3	243	432	1313	0.185	243	0.2	3.362	A
4	375	251	1740	0.215	375	0.3	2.636	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)	Unsignalised level of service
1	21	668	1158	0.018	21	0.0	3.166	A
2	778	51	1810	0.430	778	0.7	3.484	A
3	297	529	1261	0.236	297	0.3	3.733	A
4	459	307	1707	0.269	459	0.4	2.884	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)	Unsignalised level of service
1	21	668	1157	0.018	21	0.0	3.167	A
2	778	51	1810	0.430	778	0.8	3.489	A
3	297	530	1261	0.236	297	0.3	3.734	A
4	459	307	1707	0.269	459	0.4	2.885	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)	Unsignalised level of service
1	17	546	1222	0.014	17	0.0	2.989	A
2	636	41	1815	0.350	636	0.5	3.057	A
3	243	433	1312	0.185	243	0.2	3.369	A
4	375	251	1740	0.215	375	0.3	2.638	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)	Unsignalised level of service
1	14	457	1269	0.011	14	0.0	2.871	A
2	532	35	1819	0.293	533	0.4	2.801	A
3	203	362	1350	0.151	203	0.2	3.142	A
4	314	210	1764	0.178	314	0.2	2.484	A

Base 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.33	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	Base 2025	PM	ONE HOUR	16:00	17:30	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		✓	63	100.000
2		✓	650	100.000
3		✓	230	100.000
4		✓	591	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	34	2	27
	2	14	0	279	357
	3	4	192	0	34
	4	9	540	42	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.07	3.63	0.1	A
2	0.40	3.34	0.7	A
3	0.19	3.41	0.2	A
4	0.37	3.27	0.6	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	47	581	1204	0.039	47	0.0	3.113	A
2	489	53	1808	0.271	488	0.4	2.724	A
3	173	299	1384	0.125	173	0.1	2.970	A
4	445	158	1796	0.248	444	0.3	2.660	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	57	695	1143	0.050	57	0.1	3.313	A
2	584	64	1802	0.324	584	0.5	2.955	A
3	207	358	1353	0.153	207	0.2	3.140	A
4	531	189	1777	0.299	531	0.4	2.888	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	69	851	1060	0.065	69	0.1	3.631	A
2	716	78	1794	0.399	715	0.7	3.336	A
3	253	438	1310	0.193	253	0.2	3.406	A
4	651	231	1752	0.371	650	0.6	3.265	A

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)	Unsignalised level of service
1	69	852	1060	0.065	69	0.1	3.633	A
2	716	78	1794	0.399	716	0.7	3.339	A
3	253	438	1310	0.193	253	0.2	3.406	A
4	651	231	1752	0.371	651	0.6	3.268	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)	Unsignalised level of service
1	57	697	1142	0.050	57	0.1	3.315	A
2	584	64	1802	0.324	585	0.5	2.959	A
3	207	358	1352	0.153	207	0.2	3.145	A
4	531	189	1777	0.299	532	0.4	2.892	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)	Unsignalised level of service
1	47	583	1202	0.039	47	0.0	3.119	A
2	489	54	1808	0.271	490	0.4	2.733	A
3	173	300	1383	0.125	173	0.1	2.974	A
4	445	158	1795	0.248	445	0.3	2.666	A

Assessment 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.48	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)
D5	Assessment 2020	AM	ONE HOUR	07:15	08:45	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		✓	29	100.000
2		✓	740	100.000
3		✓	267	100.000
4		✓	419	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	19	2	8
	2	122	0	215	403
	3	34	206	0	27
	4	64	319	36	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.03	3.12	0.0	A
2	0.45	3.62	0.8	A
3	0.24	3.84	0.3	A
4	0.28	3.02	0.4	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	22	421	1288	0.017	22	0.0	2.842	A
2	557	35	1819	0.306	555	0.4	2.844	A
3	201	400	1330	0.151	200	0.2	3.185	A
4	315	272	1728	0.183	315	0.2	2.546	A

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)	Unsignalised level of service
1	26	504	1244	0.021	26	0.0	2.954	A
2	665	41	1815	0.366	665	0.6	3.127	A
3	240	479	1288	0.186	240	0.2	3.434	A
4	377	325	1696	0.222	376	0.3	2.728	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)	Unsignalised level of service
1	32	617	1184	0.027	32	0.0	3.123	A
2	815	51	1810	0.450	814	0.8	3.611	A
3	294	586	1231	0.239	294	0.3	3.840	A
4	461	398	1652	0.279	461	0.4	3.021	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)	Unsignalised level of service
1	32	618	1184	0.027	32	0.0	3.123	A
2	815	51	1810	0.450	815	0.8	3.617	A
3	294	587	1231	0.239	294	0.3	3.843	A
4	461	399	1652	0.279	461	0.4	3.022	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)	Unsignalised level of service
1	26	505	1244	0.021	26	0.0	2.958	A
2	665	41	1815	0.366	666	0.6	3.134	A
3	240	480	1288	0.186	240	0.2	3.438	A
4	377	326	1695	0.222	377	0.3	2.730	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)	Unsignalised level of service
1	22	423	1287	0.017	22	0.0	2.846	A
2	557	35	1819	0.306	558	0.4	2.854	A
3	201	402	1329	0.151	201	0.2	3.191	A
4	315	273	1727	0.183	316	0.2	2.552	A

Assessment 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.33	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)
D6	Assessment 2020	PM	ONE HOUR	16:00	17:30	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		✓	180	100.000
2		✓	610	100.000
3		✓	214	100.000
4		✓	551	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	108	17	55
	2	22	0	258	330
	3	6	177	0	31
	4	12	500	39	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.18	4.02	0.2	A
2	0.38	3.28	0.6	A
3	0.18	3.37	0.2	A
4	0.35	3.13	0.5	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	136	537	1227	0.110	135	0.1	3.296	A
2	459	83	1791	0.256	458	0.3	2.699	A
3	161	305	1380	0.117	161	0.1	2.949	A
4	415	154	1798	0.231	414	0.3	2.598	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	162	643	1171	0.138	162	0.2	3.567	A
2	548	100	1781	0.308	548	0.4	2.920	A
3	192	366	1348	0.143	192	0.2	3.113	A
4	495	184	1780	0.278	495	0.4	2.802	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	198	788	1094	0.181	198	0.2	4.016	A
2	672	122	1768	0.380	671	0.6	3.281	A
3	236	448	1305	0.181	235	0.2	3.366	A
4	607	226	1755	0.346	606	0.5	3.131	A

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)	Unsignalised level of service
1	198	788	1094	0.181	198	0.2	4.019	A
2	672	122	1768	0.380	672	0.6	3.284	A
3	236	448	1304	0.181	236	0.2	3.367	A
4	607	226	1755	0.346	607	0.5	3.133	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)	Unsignalised level of service
1	162	644	1170	0.138	162	0.2	3.571	A
2	548	100	1781	0.308	549	0.4	2.923	A
3	192	366	1348	0.143	193	0.2	3.118	A
4	495	184	1780	0.278	496	0.4	2.804	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)	Unsignalised level of service
1	136	539	1225	0.111	136	0.1	3.305	A
2	459	84	1790	0.257	460	0.3	2.705	A
3	161	307	1380	0.117	161	0.1	2.956	A
4	415	154	1798	0.231	415	0.3	2.606	A

Assessment 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.67	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)
D7	Assessment 2025	AM	ONE HOUR	07:15	08:45	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		✓	32	100.000
2		✓	794	100.000
3		✓	287	100.000
4		✓	450	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	20	3	9
	2	125	0	232	437
	3	35	223	0	29
	4	66	345	39	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.03	3.21	0.0	A
2	0.48	3.86	0.9	A
3	0.26	4.03	0.4	A
4	0.30	3.15	0.4	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	24	456	1270	0.019	24	0.0	2.889	A
2	598	38	1817	0.329	596	0.5	2.942	A
3	216	428	1315	0.164	215	0.2	3.272	A
4	339	287	1718	0.197	338	0.2	2.606	A

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)	Unsignalised level of service
1	29	545	1222	0.024	29	0.0	3.015	A
2	714	46	1813	0.394	713	0.6	3.272	A
3	258	513	1270	0.203	258	0.3	3.556	A
4	405	344	1685	0.240	404	0.3	2.811	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)	Unsignalised level of service
1	35	668	1158	0.030	35	0.0	3.206	A
2	874	56	1807	0.484	873	0.9	3.851	A
3	316	628	1209	0.261	316	0.4	4.029	A
4	495	421	1639	0.302	495	0.4	3.145	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)	Unsignalised level of service
1	35	668	1157	0.030	35	0.0	3.207	A
2	874	56	1807	0.484	874	0.9	3.860	A
3	316	629	1208	0.262	316	0.4	4.034	A
4	495	422	1638	0.302	495	0.4	3.149	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)	Unsignalised level of service
1	29	546	1222	0.024	29	0.0	3.019	A
2	714	46	1813	0.394	715	0.7	3.282	A
3	258	514	1269	0.203	258	0.3	3.561	A
4	405	345	1684	0.240	405	0.3	2.817	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)	Unsignalised level of service
1	24	457	1269	0.019	24	0.0	2.891	A
2	598	38	1817	0.329	598	0.5	2.957	A
3	216	430	1314	0.164	216	0.2	3.279	A
4	339	289	1718	0.197	339	0.2	2.611	A

Assessment 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.49	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)
D8	Assessment 2025	PM	ONE HOUR	16:00	17:30	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		✓	185	100.000
2		✓	659	100.000
3		✓	232	100.000
4		✓	594	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	111	17	57
	2	23	0	279	357
	3	6	192	0	34
	4	12	540	42	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.19	4.20	0.2	A
2	0.41	3.46	0.7	A
3	0.20	3.49	0.2	A
4	0.37	3.30	0.6	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	139	581	1204	0.116	139	0.1	3.379	A
2	496	87	1788	0.277	495	0.4	2.778	A
3	175	328	1368	0.128	174	0.1	3.012	A
4	447	166	1791	0.250	446	0.3	2.674	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	166	695	1143	0.146	166	0.2	3.685	A
2	592	104	1778	0.333	592	0.5	3.032	A
3	209	393	1334	0.156	208	0.2	3.197	A
4	534	199	1771	0.301	534	0.4	2.908	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	204	851	1060	0.192	203	0.2	4.200	A
2	726	128	1764	0.411	725	0.7	3.461	A
3	255	481	1287	0.198	255	0.2	3.488	A
4	654	243	1745	0.375	653	0.6	3.297	A

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)	Unsignalised level of service
1	204	852	1060	0.192	204	0.2	4.204	A
2	726	128	1764	0.411	726	0.7	3.464	A
3	255	481	1287	0.199	255	0.2	3.489	A
4	654	243	1745	0.375	654	0.6	3.300	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)	Unsignalised level of service
1	166	697	1142	0.146	167	0.2	3.692	A
2	592	104	1778	0.333	593	0.5	3.039	A
3	209	393	1334	0.156	209	0.2	3.200	A
4	534	199	1771	0.302	535	0.4	2.914	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)	Unsignalised level of service
1	139	583	1202	0.116	139	0.1	3.386	A
2	496	87	1788	0.277	497	0.4	2.787	A
3	175	329	1368	0.128	175	0.1	3.017	A
4	447	167	1790	0.250	448	0.3	2.681	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.0.6896
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Filename: Grimethorpe Colliery Roundabout.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY
Report generation date: 12/06/2020 10:38:02

»Base 2020, AM
»Base 2020, PM
»Base 2025, AM
»Base 2025, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2025, AM
»Assessment 2025, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2020							
Arm 1	0.0	0.00	0.00	A	0.1	3.56	0.06	A
Arm 2	0.4	3.00	0.28	A	0.6	3.46	0.39	A
Arm 3	0.2	3.30	0.14	A	0.3	4.00	0.21	A
Arm 4	0.8	4.94	0.46	A	0.8	5.08	0.46	A
	Base 2025							
Arm 1	0.0	0.00	0.00	A	0.2	3.99	0.19	A
Arm 2	0.4	3.12	0.31	A	0.4	3.19	0.29	A
Arm 3	0.2	3.36	0.15	A	0.2	4.09	0.18	A
Arm 4	1.0	5.36	0.50	A	0.9	4.95	0.48	A
	Assessment 2020							
Arm 1	0.0	3.03	0.01	A	0.3	3.94	0.20	A
Arm 2	0.4	3.01	0.29	A	0.4	3.11	0.27	A
Arm 3	0.2	3.31	0.14	A	0.2	4.01	0.17	A
Arm 4	0.9	5.21	0.49	A	0.8	4.64	0.44	A
	Assessment 2025							
Arm 1	0.0	3.09	0.01	A	0.3	4.14	0.22	A
Arm 2	0.4	3.13	0.31	A	0.4	3.24	0.29	A
Arm 3	0.2	3.37	0.15	A	0.2	4.17	0.18	A
Arm 4	1.1	5.67	0.52	A	0.9	4.98	0.48	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	Grimethorpe Colliery Roundabout
Location	Grimethorpe
Site number	
Date	11/06/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	190657
Enumerator	SCP\Matthew Cross
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	Base 2020	AM	ONE HOUR	07:15	08:45	15
D2	Base 2020	PM	ONE HOUR	16:00	17:30	15
D3	Base 2025	AM	ONE HOUR	07:15	08:45	15
D4	Base 2025	PM	ONE HOUR	16:00	17:30	15
D5	Assessment 2020	AM	ONE HOUR	07:15	08:45	15
D6	Assessment 2020	PM	ONE HOUR	16:00	17:30	15
D7	Assessment 2025	AM	ONE HOUR	07:15	08:45	15
D8	Assessment 2025	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Base 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.99	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Symphony Arm	
2	Park Spring Rd North	
3	Springvale Rd	
4	Park Spring Road South	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	4.09	6.59	4.6	9.2	60.0	20.0	
2	4.76	7.14	3.7	17.5	60.0	17.0	
3	2.87	6.02	8.6	10.7	60.0	12.0	
4	3.84	7.00	6.4	8.5	60.0	33.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.513	1480
2	0.575	1744
3	0.499	1336
4	0.488	1415

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	Base 2020	AM	ONE HOUR	07:15	08:45	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		✓	4	100.000
2		✓	433	100.000
3		✓	159	100.000
4		✓	557	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	2	1	1
	2	96	0	303	34
	3	8	34	0	117
	4	87	361	109	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.00	0.00	0.0	A
2	0.28	3.00	0.4	A
3	0.14	3.30	0.2	A
4	0.46	4.94	0.8	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	0	378	1286	0.000	0	0.0	0.000	A
2	326	82	1697	0.192	325	0.2	2.623	A
3	120	98	1287	0.093	119	0.1	3.082	A
4	419	104	1365	0.307	418	0.4	3.794	A

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)	Unsignalised level of service
1	0	453	1248	0.000	0	0.0	0.000	A
2	389	98	1688	0.231	389	0.3	2.772	A
3	143	117	1278	0.112	143	0.1	3.171	A
4	501	124	1355	0.370	500	0.6	4.208	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)	Unsignalised level of service
1	0	554	1196	0.000	0	0.0	0.000	A
2	477	120	1675	0.285	476	0.4	3.003	A
3	175	143	1265	0.138	175	0.2	3.303	A
4	613	152	1341	0.457	612	0.8	4.929	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)	Unsignalised level of service
1	0	555	1195	0.000	0	0.0	0.000	A
2	477	120	1675	0.285	477	0.4	3.004	A
3	175	143	1265	0.138	175	0.2	3.303	A
4	613	152	1341	0.457	613	0.8	4.943	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)	Unsignalised level of service
1	0	454	1247	0.000	0	0.0	0.000	A
2	389	98	1687	0.231	390	0.3	2.774	A
3	143	117	1278	0.112	143	0.1	3.175	A
4	501	124	1355	0.370	502	0.6	4.225	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)	Unsignalised level of service
1	0	380	1285	0.000	0	0.0	0.000	A
2	326	82	1697	0.192	326	0.2	2.629	A
3	120	98	1287	0.093	120	0.1	3.086	A
4	419	104	1365	0.307	420	0.4	3.811	A

Base 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.17	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	Base 2020	PM	ONE HOUR	16:00	17:30	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		✓	59	100.000
2		✓	601	100.000
3		✓	212	100.000
4		✓	547	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	32	2	25
	2	13	0	258	330
	3	4	177	0	31
	4	8	500	39	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.06	3.56	0.1	A
2	0.39	3.46	0.6	A
3	0.21	4.00	0.3	A
4	0.46	5.08	0.8	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	44	537	1204	0.037	44	0.0	3.102	A
2	452	49	1715	0.264	451	0.4	2.845	A
3	160	276	1198	0.133	159	0.2	3.462	A
4	412	145	1345	0.306	410	0.4	3.845	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	53	643	1150	0.046	53	0.0	3.280	A
2	540	59	1710	0.316	540	0.5	3.077	A
3	191	331	1171	0.163	190	0.2	3.671	A
4	492	174	1331	0.370	491	0.6	4.286	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	65	787	1076	0.060	65	0.1	3.559	A
2	662	73	1702	0.389	661	0.6	3.456	A
3	233	405	1134	0.206	233	0.3	3.995	A
4	602	213	1311	0.459	601	0.8	5.061	A

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)	Unsignalised level of service
1	65	788	1075	0.060	65	0.1	3.561	A
2	662	73	1702	0.389	662	0.6	3.459	A
3	233	405	1134	0.206	233	0.3	3.998	A
4	602	214	1311	0.459	602	0.8	5.076	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)	Unsignalised level of service
1	53	645	1149	0.046	53	0.0	3.284	A
2	540	59	1710	0.316	541	0.5	3.083	A
3	191	331	1171	0.163	191	0.2	3.677	A
4	492	175	1330	0.370	493	0.6	4.304	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)	Unsignalised level of service
1	44	540	1203	0.037	44	0.0	3.109	A
2	452	50	1715	0.264	453	0.4	2.854	A
3	160	277	1198	0.133	160	0.2	3.468	A
4	412	146	1344	0.306	412	0.4	3.867	A

Base 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.24	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	Base 2025	AM	ONE HOUR	07:15	08:45	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		✓	4	100.000
2		✓	468	100.000
3		✓	171	100.000
4		✓	604	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	2	1	1
	2	103	0	328	37
	3	9	36	0	126
	4	95	391	118	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.00	0.00	0.0	A
2	0.31	3.12	0.4	A
3	0.15	3.36	0.2	A
4	0.50	5.36	1.0	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	0	409	1270	0.000	0	0.0	0.000	A
2	352	88	1693	0.208	351	0.3	2.683	A
3	129	105	1284	0.100	128	0.1	3.116	A
4	455	111	1361	0.334	453	0.5	3.953	A

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)	Unsignalised level of service
1	0	489	1229	0.000	0	0.0	0.000	A
2	421	106	1683	0.250	420	0.3	2.851	A
3	154	126	1273	0.121	154	0.1	3.215	A
4	543	133	1351	0.402	542	0.7	4.449	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)	Unsignalised level of service
1	0	599	1173	0.000	0	0.0	0.000	A
2	515	130	1669	0.309	515	0.4	3.116	A
3	188	154	1259	0.150	188	0.2	3.361	A
4	665	163	1336	0.498	664	1.0	5.345	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)	Unsignalised level of service
1	0	600	1172	0.000	0	0.0	0.000	A
2	515	130	1669	0.309	515	0.4	3.119	A
3	188	154	1259	0.150	188	0.2	3.361	A
4	665	163	1336	0.498	665	1.0	5.364	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)	Unsignalised level of service
1	0	491	1228	0.000	0	0.0	0.000	A
2	421	106	1683	0.250	421	0.3	2.856	A
3	154	126	1273	0.121	154	0.1	3.218	A
4	543	133	1351	0.402	544	0.7	4.471	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)	Unsignalised level of service
1	0	411	1269	0.000	0	0.0	0.000	A
2	352	89	1693	0.208	353	0.3	2.688	A
3	129	105	1283	0.100	129	0.1	3.117	A
4	455	112	1361	0.334	455	0.5	3.979	A

Base 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.18	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	Base 2025	PM	ONE HOUR	16:00	17:30	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		✓	196	100.000
2		✓	416	100.000
3		✓	175	100.000
4		✓	607	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	96	23	77
	2	3	0	14	399
	3	0	35	0	140
	4	0	457	150	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.19	3.99	0.2	A
2	0.29	3.19	0.4	A
3	0.18	4.09	0.2	A
4	0.48	4.95	0.9	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	148	481	1233	0.120	147	0.1	3.313	A
2	313	187	1636	0.191	312	0.2	2.718	A
3	132	359	1157	0.114	131	0.1	3.509	A
4	457	28	1402	0.326	455	0.5	3.795	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	176	577	1184	0.149	176	0.2	3.570	A
2	374	225	1615	0.232	374	0.3	2.900	A
3	157	430	1121	0.140	157	0.2	3.734	A
4	546	34	1399	0.390	545	0.6	4.214	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	216	706	1118	0.193	216	0.2	3.989	A
2	458	275	1586	0.289	458	0.4	3.191	A
3	193	527	1073	0.180	192	0.2	4.087	A
4	668	42	1395	0.479	667	0.9	4.939	A

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)	Unsignalised level of service
1	216	707	1117	0.193	216	0.2	3.993	A
2	458	275	1586	0.289	458	0.4	3.191	A
3	193	527	1073	0.180	193	0.2	4.090	A
4	668	42	1395	0.479	668	0.9	4.953	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)	Unsignalised level of service
1	176	578	1183	0.149	176	0.2	3.575	A
2	374	225	1614	0.232	374	0.3	2.905	A
3	157	431	1121	0.140	158	0.2	3.740	A
4	546	34	1399	0.390	547	0.6	4.230	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)	Unsignalised level of service
1	148	484	1232	0.120	148	0.1	3.323	A
2	313	188	1636	0.191	313	0.2	2.722	A
3	132	361	1156	0.114	132	0.1	3.515	A
4	457	29	1402	0.326	458	0.5	3.818	A

Assessment 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.14	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)
D5	Assessment 2020	AM	ONE HOUR	07:15	08:45	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		✓	7	100.000
2		✓	433	100.000
3		✓	159	100.000
4		✓	591	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	2	1	4
	2	96	0	303	34
	3	8	34	0	117
	4	121	361	109	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.01	3.03	0.0	A
2	0.29	3.01	0.4	A
3	0.14	3.31	0.2	A
4	0.49	5.21	0.9	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	5	378	1286	0.004	5	0.0	2.810	A
2	326	85	1695	0.192	325	0.2	2.627	A
3	120	101	1286	0.093	119	0.1	3.086	A
4	445	104	1365	0.326	443	0.5	3.897	A

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)	Unsignalised level of service
1	6	453	1248	0.005	6	0.0	2.899	A
2	389	102	1685	0.231	389	0.3	2.777	A
3	143	120	1276	0.112	143	0.1	3.176	A
4	531	124	1355	0.392	531	0.6	4.360	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)	Unsignalised level of service
1	8	554	1196	0.006	8	0.0	3.029	A
2	477	125	1672	0.285	476	0.4	3.011	A
3	175	147	1262	0.139	175	0.2	3.310	A
4	651	152	1341	0.485	650	0.9	5.194	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)	Unsignalised level of service
1	8	555	1195	0.006	8	0.0	3.030	A
2	477	126	1672	0.285	477	0.4	3.011	A
3	175	148	1262	0.139	175	0.2	3.310	A
4	651	152	1341	0.485	651	0.9	5.211	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)	Unsignalised level of service
1	6	454	1247	0.005	6	0.0	2.901	A
2	389	103	1685	0.231	390	0.3	2.779	A
3	143	121	1276	0.112	143	0.1	3.180	A
4	531	124	1355	0.392	532	0.7	4.384	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)	Unsignalised level of service
1	5	380	1285	0.004	5	0.0	2.812	A
2	326	86	1694	0.192	326	0.2	2.631	A
3	120	101	1286	0.093	120	0.1	3.087	A
4	445	104	1365	0.326	446	0.5	3.919	A

Assessment 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.01	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)
D6	Assessment 2020	PM	ONE HOUR	16:00	17:30	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		✓	210	100.000
2		✓	384	100.000
3		✓	163	100.000
4		✓	564	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	89	21	100
	2	3	0	12	369
	3	0	33	0	130
	4	3	423	138	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.20	3.94	0.3	A
2	0.27	3.11	0.4	A
3	0.17	4.01	0.2	A
4	0.44	4.64	0.8	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	158	445	1251	0.126	158	0.1	3.289	A
2	289	194	1632	0.177	288	0.2	2.677	A
3	123	354	1159	0.106	122	0.1	3.469	A
4	425	27	1402	0.303	423	0.4	3.669	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	189	533	1206	0.157	189	0.2	3.537	A
2	345	233	1610	0.214	345	0.3	2.845	A
3	147	424	1124	0.130	146	0.1	3.680	A
4	507	32	1400	0.362	506	0.6	4.027	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	231	653	1145	0.202	231	0.3	3.938	A
2	423	285	1580	0.268	422	0.4	3.109	A
3	179	519	1077	0.167	179	0.2	4.010	A
4	621	40	1396	0.445	620	0.8	4.632	A

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)	Unsignalised level of service
1	231	654	1144	0.202	231	0.3	3.942	A
2	423	285	1580	0.268	423	0.4	3.110	A
3	179	520	1077	0.167	179	0.2	4.012	A
4	621	40	1396	0.445	621	0.8	4.643	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)	Unsignalised level of service
1	189	535	1205	0.157	189	0.2	3.544	A
2	345	233	1610	0.214	346	0.3	2.847	A
3	147	425	1124	0.130	147	0.2	3.686	A
4	507	32	1400	0.362	508	0.6	4.042	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)	Unsignalised level of service
1	158	448	1250	0.126	158	0.1	3.299	A
2	289	195	1632	0.177	289	0.2	2.681	A
3	123	356	1158	0.106	123	0.1	3.478	A
4	425	27	1402	0.303	425	0.4	3.688	A

Assessment 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	Assessment 2025	AM	ONE HOUR	07:15	08:45	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		✓	7	100.000
2		✓	468	100.000
3		✓	171	100.000
4		✓	637	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	2	1	4
	2	103	0	328	37
	3	9	36	0	126
	4	128	391	118	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.01	3.09	0.0	A
2	0.31	3.13	0.4	A
3	0.15	3.37	0.2	A
4	0.52	5.67	1.1	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	5	408	1270	0.004	5	0.0	2.845	A
2	352	92	1691	0.208	351	0.3	2.687	A
3	129	108	1282	0.100	128	0.1	3.120	A
4	480	111	1361	0.352	477	0.5	4.063	A

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)	Unsignalised level of service
1	6	489	1229	0.005	6	0.0	2.944	A
2	421	110	1680	0.250	420	0.3	2.857	A
3	154	129	1271	0.121	154	0.1	3.220	A
4	573	133	1351	0.424	572	0.7	4.617	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)	Unsignalised level of service
1	8	599	1173	0.007	8	0.0	3.089	A
2	515	135	1666	0.309	515	0.4	3.124	A
3	188	158	1257	0.150	188	0.2	3.367	A
4	701	163	1336	0.525	700	1.1	5.646	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)	Unsignalised level of service
1	8	600	1172	0.007	8	0.0	3.091	A
2	515	135	1666	0.309	515	0.4	3.127	A
3	188	159	1257	0.150	188	0.2	3.368	A
4	701	163	1336	0.525	701	1.1	5.671	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)	Unsignalised level of service
1	6	491	1228	0.005	6	0.0	2.948	A
2	421	111	1680	0.250	421	0.3	2.862	A
3	154	130	1271	0.121	154	0.1	3.223	A
4	573	133	1351	0.424	574	0.7	4.644	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)	Unsignalised level of service
1	5	411	1269	0.004	5	0.0	2.850	A
2	352	93	1691	0.208	353	0.3	2.690	A
3	129	108	1282	0.100	129	0.1	3.124	A
4	480	112	1361	0.352	480	0.5	4.092	A

Assessment 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.24	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)
D8	Assessment 2025	PM	ONE HOUR	16:00	17:30	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		✓	225	100.000
2		✓	416	100.000
3		✓	175	100.000
4		✓	610	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	96	23	106
	2	3	0	14	399
	3	0	35	0	140
	4	3	457	150	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.22	4.14	0.3	A
2	0.29	3.24	0.4	A
3	0.18	4.17	0.2	A
4	0.48	4.98	0.9	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	169	481	1233	0.137	169	0.2	3.381	A
2	313	209	1624	0.193	312	0.2	2.744	A
3	132	381	1146	0.115	131	0.1	3.546	A
4	459	28	1402	0.328	457	0.5	3.804	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	202	576	1184	0.171	202	0.2	3.665	A
2	374	251	1600	0.234	374	0.3	2.936	A
3	157	456	1108	0.142	157	0.2	3.785	A
4	548	34	1399	0.392	548	0.6	4.227	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	248	706	1118	0.222	247	0.3	4.135	A
2	458	307	1568	0.292	458	0.4	3.243	A
3	193	559	1057	0.182	192	0.2	4.162	A
4	672	42	1395	0.481	671	0.9	4.961	A

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)	Unsignalised level of service
1	248	707	1117	0.222	248	0.3	4.139	A
2	458	307	1567	0.292	458	0.4	3.244	A
3	193	559	1057	0.182	193	0.2	4.165	A
4	672	42	1395	0.481	672	0.9	4.975	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)	Unsignalised level of service
1	202	578	1183	0.171	203	0.2	3.671	A
2	374	251	1599	0.234	374	0.3	2.941	A
3	157	457	1108	0.142	158	0.2	3.791	A
4	548	34	1399	0.392	549	0.6	4.245	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)	Unsignalised level of service
1	169	484	1232	0.138	170	0.2	3.389	A
2	313	210	1623	0.193	313	0.2	2.749	A
3	132	383	1145	0.115	132	0.1	3.553	A
4	459	29	1402	0.328	460	0.5	3.827	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.0.6896
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Filename: Rotherham Road Roundabout.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY
Report generation date: 12/06/2020 10:44:14

»Base 2020, AM
»Base 2020, PM
»Base 2025, AM
»Base 2025, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2025, AM
»Assessment 2025, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2020							
Arm 1	0.4	3.62	0.30	A	0.9	4.82	0.47	A
Arm 2	0.4	3.50	0.27	A	0.7	4.66	0.41	A
Arm 3	1.4	6.50	0.59	A	1.9	7.94	0.66	A
	Base 2025							
Arm 1	0.5	3.81	0.33	A	1.1	5.35	0.52	A
Arm 2	0.4	3.67	0.30	A	0.8	5.11	0.45	A
Arm 3	1.8	7.39	0.64	A	2.5	9.54	0.72	A
	Assessment 2020							
Arm 1	0.4	3.64	0.31	A	1.1	5.31	0.52	A
Arm 2	0.4	3.52	0.27	A	0.7	4.90	0.42	A
Arm 3	1.8	7.54	0.65	A	2.0	8.08	0.67	A
	Assessment 2025							
Arm 1	0.5	3.84	0.34	A	1.3	5.95	0.57	A
Arm 2	0.4	3.69	0.30	A	0.9	5.40	0.46	A
Arm 3	2.3	8.74	0.70	A	2.6	9.73	0.73	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	Rotherham Road Roundabout
Location	Grimethorpe
Site number	
Date	11/06/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	190657
Enumerator	SCP\Matthew Cross
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	Base 2020	AM	ONE HOUR	07:15	08:45	15
D2	Base 2020	PM	ONE HOUR	16:00	17:30	15
D3	Base 2025	AM	ONE HOUR	07:15	08:45	15
D4	Base 2025	PM	ONE HOUR	16:00	17:30	15
D5	Assessment 2020	AM	ONE HOUR	07:15	08:45	15
D6	Assessment 2020	PM	ONE HOUR	16:00	17:30	15
D7	Assessment 2025	AM	ONE HOUR	07:15	08:45	15
D8	Assessment 2025	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Base 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	5.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Park Spring Road	
2	Rotherham Rd North	
3	Rotherham Rd South	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	4.33	7.20	6.6	21.5	60.0	38.0	
2	3.93	6.91	5.7	45.6	60.0	21.0	
3	3.11	6.69	8.9	8.6	60.0	20.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.539	1633
2	0.558	1617
3	0.492	1373

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	Base 2020	AM	ONE HOUR	07:15	08:45	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		✓	393	100.000
2		✓	347	100.000
3		✓	729	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	58	335
	2	31	0	316
	3	382	347	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.30	3.62	0.4	A
2	0.27	3.50	0.4	A
3	0.59	6.50	1.4	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	296	260	1493	0.198	295	0.2	3.001	A
2	261	251	1477	0.177	260	0.2	2.958	A
3	549	23	1361	0.403	546	0.7	4.402	A

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)	Unsignalised level of service
1	353	311	1465	0.241	353	0.3	3.236	A
2	312	301	1449	0.215	312	0.3	3.164	A
3	655	28	1359	0.482	654	0.9	5.100	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)	Unsignalised level of service
1	433	381	1428	0.303	432	0.4	3.614	A
2	382	368	1411	0.271	382	0.4	3.496	A
3	803	34	1356	0.592	801	1.4	6.458	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)	Unsignalised level of service
1	433	382	1427	0.303	433	0.4	3.618	A
2	382	369	1411	0.271	382	0.4	3.496	A
3	803	34	1356	0.592	803	1.4	6.504	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)	Unsignalised level of service
1	353	313	1465	0.241	354	0.3	3.243	A
2	312	302	1449	0.215	312	0.3	3.170	A
3	655	28	1359	0.482	657	0.9	5.145	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)	Unsignalised level of service
1	296	262	1492	0.198	296	0.2	3.012	A
2	261	252	1476	0.177	261	0.2	2.965	A
3	549	23	1361	0.403	550	0.7	4.441	A

Base 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	6.11	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	Base 2020	PM	ONE HOUR	16:00	17:30	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		✓	610	100.000
2		✓	479	100.000
3		✓	812	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	94	516
	2	48	0	431
	3	449	363	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.47	4.82	0.9	A
2	0.41	4.66	0.7	A
3	0.66	7.94	1.9	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	459	272	1487	0.309	457	0.4	3.491	A
2	361	387	1401	0.257	359	0.3	3.450	A
3	611	36	1355	0.451	608	0.8	4.796	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	548	326	1458	0.376	548	0.6	3.954	A
2	431	463	1359	0.317	430	0.5	3.876	A
3	730	43	1352	0.540	729	1.2	5.765	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	672	398	1419	0.473	670	0.9	4.804	A
2	527	567	1301	0.406	527	0.7	4.646	A
3	894	53	1347	0.664	891	1.9	7.841	A

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)	Unsignalised level of service
1	672	400	1418	0.474	672	0.9	4.824	A
2	527	568	1300	0.406	527	0.7	4.658	A
3	894	53	1347	0.664	894	1.9	7.943	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)	Unsignalised level of service
1	548	328	1457	0.376	550	0.6	3.973	A
2	431	465	1358	0.317	431	0.5	3.891	A
3	730	43	1352	0.540	733	1.2	5.847	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)	Unsignalised level of service
1	459	274	1486	0.309	460	0.4	3.513	A
2	361	389	1400	0.258	361	0.3	3.468	A
3	611	36	1355	0.451	613	0.8	4.860	A

Base 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	5.55	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	Base 2025	AM	ONE HOUR	07:15	08:45	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		✓	424	100.000
2		✓	376	100.000
3		✓	788	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	62	362
	2	34	0	342
	3	413	375	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.33	3.81	0.5	A
2	0.30	3.67	0.4	A
3	0.64	7.39	1.8	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	319	281	1482	0.215	318	0.3	3.090	A
2	283	272	1466	0.193	282	0.2	3.039	A
3	593	26	1360	0.436	590	0.8	4.656	A

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)	Unsignalised level of service
1	381	337	1452	0.263	381	0.4	3.361	A
2	338	325	1436	0.235	338	0.3	3.279	A
3	708	31	1358	0.522	707	1.1	5.523	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)	Unsignalised level of service
1	467	412	1411	0.331	466	0.5	3.807	A
2	414	398	1395	0.297	414	0.4	3.666	A
3	868	37	1354	0.641	865	1.7	7.312	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)	Unsignalised level of service
1	467	413	1411	0.331	467	0.5	3.813	A
2	414	399	1395	0.297	414	0.4	3.669	A
3	868	37	1354	0.641	868	1.8	7.390	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)	Unsignalised level of service
1	381	338	1451	0.263	382	0.4	3.370	A
2	338	326	1435	0.236	338	0.3	3.285	A
3	708	31	1358	0.522	711	1.1	5.590	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)	Unsignalised level of service
1	319	283	1481	0.216	320	0.3	3.100	A
2	283	273	1465	0.193	283	0.2	3.049	A
3	593	26	1360	0.436	595	0.8	4.709	A

Base 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	7.08	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	Base 2025	PM	ONE HOUR	16:00	17:30	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		✓	660	100.000
2		✓	518	100.000
3		✓	879	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	102	558
	2	52	0	466
	3	486	393	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.52	5.35	1.1	A
2	0.45	5.11	0.8	A
3	0.72	9.54	2.5	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	497	294	1475	0.337	495	0.5	3.666	A
2	390	418	1384	0.282	388	0.4	3.617	A
3	662	39	1354	0.489	658	0.9	5.147	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	593	353	1443	0.411	593	0.7	4.228	A
2	466	501	1338	0.348	465	0.5	4.124	A
3	790	47	1350	0.585	788	1.4	6.391	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	727	431	1401	0.519	725	1.1	5.314	A
2	570	613	1275	0.447	569	0.8	5.094	A
3	968	57	1345	0.720	963	2.5	9.333	A

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)	Unsignalised level of service
1	727	433	1400	0.519	727	1.1	5.345	A
2	570	614	1274	0.448	570	0.8	5.113	A
3	968	57	1345	0.720	968	2.5	9.536	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)	Unsignalised level of service
1	593	355	1442	0.412	595	0.7	4.259	A
2	466	503	1336	0.348	467	0.5	4.144	A
3	790	47	1350	0.585	795	1.4	6.534	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)	Unsignalised level of service
1	497	297	1473	0.337	498	0.5	3.694	A
2	390	421	1382	0.282	391	0.4	3.631	A
3	662	39	1354	0.489	664	1.0	5.233	A

Assessment 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	5.62	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)
D5	Assessment 2020	AM	ONE HOUR	07:15	08:45	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		✓	399	100.000
2		✓	349	100.000
3		✓	797	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	58	341
	2	33	0	316
	3	450	347	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.31	3.64	0.4	A
2	0.27	3.52	0.4	A
3	0.65	7.54	1.8	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	300	260	1493	0.201	299	0.3	3.012	A
2	263	256	1474	0.178	262	0.2	2.968	A
3	600	25	1361	0.441	597	0.8	4.695	A

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)	Unsignalised level of service
1	359	311	1465	0.245	358	0.3	3.252	A
2	314	306	1446	0.217	314	0.3	3.178	A
3	716	30	1358	0.527	715	1.1	5.586	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)	Unsignalised level of service
1	439	381	1428	0.308	439	0.4	3.637	A
2	384	375	1408	0.273	384	0.4	3.516	A
3	878	36	1355	0.648	875	1.8	7.452	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)	Unsignalised level of service
1	439	382	1427	0.308	439	0.4	3.642	A
2	384	375	1408	0.273	384	0.4	3.517	A
3	878	36	1355	0.648	877	1.8	7.535	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)	Unsignalised level of service
1	359	313	1464	0.245	359	0.3	3.260	A
2	314	307	1446	0.217	314	0.3	3.183	A
3	716	30	1358	0.528	719	1.1	5.659	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)	Unsignalised level of service
1	300	262	1492	0.201	301	0.3	3.024	A
2	263	257	1474	0.178	263	0.2	2.975	A
3	600	25	1361	0.441	601	0.8	4.751	A

Assessment 2020, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	6.36	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)
D6	Assessment 2020	PM	ONE HOUR	16:00	17:30	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		✓	672	100.000
2		✓	479	100.000
3		✓	819	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	95	577
	2	48	0	431
	3	456	363	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.52	5.31	1.1	A
2	0.42	4.90	0.7	A
3	0.67	8.08	2.0	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	506	272	1487	0.340	504	0.5	3.655	A
2	361	433	1376	0.262	359	0.4	3.537	A
3	617	36	1355	0.455	613	0.8	4.831	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	604	326	1458	0.414	603	0.7	4.210	A
2	431	518	1328	0.324	430	0.5	4.008	A
3	736	43	1352	0.545	735	1.2	5.824	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	740	398	1419	0.522	738	1.1	5.281	A
2	527	634	1263	0.417	526	0.7	4.880	A
3	902	53	1347	0.669	899	2.0	7.972	A

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)	Unsignalised level of service
1	740	400	1418	0.522	740	1.1	5.309	A
2	527	635	1263	0.418	527	0.7	4.896	A
3	902	53	1347	0.670	902	2.0	8.080	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)	Unsignalised level of service
1	604	328	1457	0.415	606	0.7	4.239	A
2	431	520	1327	0.325	432	0.5	4.024	A
3	736	43	1352	0.545	739	1.2	5.909	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)	Unsignalised level of service
1	506	274	1486	0.341	507	0.5	3.682	A
2	361	435	1374	0.262	361	0.4	3.556	A
3	617	36	1355	0.455	618	0.8	4.895	A

Assessment 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	6.33	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)
D7	Assessment 2025	AM	ONE HOUR	07:15	08:45	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		✓	430	100.000
2		✓	377	100.000
3		✓	856	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	62	368
	2	35	0	342
	3	481	375	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.34	3.84	0.5	A
2	0.30	3.69	0.4	A
3	0.70	8.74	2.3	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	324	281	1482	0.218	323	0.3	3.102	A
2	284	276	1463	0.194	283	0.2	3.047	A
3	644	26	1360	0.474	641	0.9	4.981	A

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)	Unsignalised level of service
1	387	336	1452	0.266	386	0.4	3.378	A
2	339	331	1433	0.237	339	0.3	3.290	A
3	770	31	1357	0.567	768	1.3	6.089	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)	Unsignalised level of service
1	473	411	1412	0.335	473	0.5	3.833	A
2	415	405	1391	0.298	415	0.4	3.684	A
3	942	38	1354	0.696	939	2.2	8.591	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)	Unsignalised level of service
1	473	413	1411	0.336	473	0.5	3.840	A
2	415	405	1391	0.298	415	0.4	3.687	A
3	942	39	1354	0.696	942	2.3	8.739	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)	Unsignalised level of service
1	387	339	1451	0.266	387	0.4	3.388	A
2	339	331	1432	0.237	339	0.3	3.297	A
3	770	32	1357	0.567	773	1.3	6.203	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)	Unsignalised level of service
1	324	283	1481	0.219	324	0.3	3.115	A
2	284	277	1462	0.194	284	0.2	3.055	A
3	644	26	1360	0.474	646	0.9	5.056	A

Assessment 2025, 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. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	7.39	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)
D8	Assessment 2025	PM	ONE HOUR	16:00	17:30	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		✓	722	100.000
2		✓	518	100.000
3		✓	886	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	103	619
	2	52	0	466
	3	493	393	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.57	5.95	1.3	A
2	0.46	5.40	0.9	A
3	0.73	9.73	2.6	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	544	294	1475	0.369	541	0.6	3.848	A
2	390	464	1358	0.287	388	0.4	3.705	A
3	667	39	1354	0.493	663	1.0	5.181	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	649	352	1443	0.450	648	0.8	4.524	A
2	466	556	1307	0.356	465	0.5	4.273	A
3	796	47	1350	0.590	795	1.4	6.461	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	795	431	1401	0.567	793	1.3	5.901	A
2	570	680	1238	0.461	569	0.8	5.374	A
3	976	57	1345	0.725	971	2.5	9.514	A

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)	Unsignalised level of service
1	795	433	1400	0.568	795	1.3	5.948	A
2	570	681	1237	0.461	570	0.9	5.401	A
3	976	57	1345	0.725	975	2.6	9.733	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)	Unsignalised level of service
1	649	355	1442	0.450	651	0.8	4.565	A
2	466	558	1306	0.357	467	0.6	4.299	A
3	796	47	1350	0.590	801	1.5	6.611	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)	Unsignalised level of service
1	544	297	1473	0.369	545	0.6	3.881	A
2	390	467	1357	0.287	391	0.4	3.731	A
3	667	39	1354	0.493	669	1.0	5.274	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.0.6896
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Filename: Cathill Roundabout.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY
Report generation date: 12/06/2020 10:52:38

»Base 2020, AM
»Base 2020, PM
»Base 2025, AM
»Base 2025, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2025, AM
»Assessment 2025, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
Base 2020								
Arm 1	4.8	20.16	0.84	C	2.9	14.40	0.75	B
Arm 2	0.5	2.69	0.33	A	0.8	3.14	0.44	A
Arm 3	1.2	3.42	0.55	A	1.8	4.52	0.65	A
Arm 4	0.9	3.40	0.48	A	1.5	4.77	0.61	A
Base 2025								
Arm 1	10.3	41.07	0.93	E	4.9	23.23	0.84	C
Arm 2	0.6	2.93	0.37	A	1.0	3.53	0.49	A
Arm 3	1.5	3.95	0.60	A	2.5	5.68	0.71	A
Arm 4	1.1	3.82	0.53	A	2.0	5.87	0.67	A
Assessment 2020								
Arm 1	6.3	26.13	0.87	D	2.9	14.76	0.75	B
Arm 2	0.5	2.71	0.34	A	0.9	3.34	0.48	A
Arm 3	1.3	3.52	0.56	A	1.9	4.71	0.66	A
Arm 4	1.0	3.56	0.50	A	1.6	4.89	0.61	A
Assessment 2025								
Arm 1	16.1	61.05	0.97	F	5.0	23.83	0.84	C
Arm 2	0.6	2.94	0.37	A	1.1	3.78	0.53	A
Arm 3	1.6	4.08	0.61	A	2.6	5.98	0.73	A
Arm 4	1.2	4.01	0.55	A	2.1	6.04	0.68	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	Cathill Roundabout
Location	Grimethorpe
Site number	
Date	11/06/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	190657
Enumerator	SCP\Matthew Cross
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	Base 2020	AM	ONE HOUR	07:15	08:45	15
D2	Base 2020	PM	ONE HOUR	16:00	17:30	15
D3	Base 2025	AM	ONE HOUR	07:15	08:45	15
D4	Base 2025	PM	ONE HOUR	16:00	17:30	15
D5	Assessment 2020	AM	ONE HOUR	07:15	08:45	15
D6	Assessment 2020	PM	ONE HOUR	16:00	17:30	15
D7	Assessment 2025	AM	ONE HOUR	07:15	08:45	15
D8	Assessment 2025	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Base 2020, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	7.20	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Donaster Rd West	
2	Rotherham Rd North	
3	Doncaster Rd East	
4	Rotherham Rd South	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	6.02	8.44	5.2	3.0	80.0	43.0	
2	7.48	10.53	11.2	34.0	80.0	40.0	
3	8.00	11.16	13.6	25.1	80.0	50.0	
4	7.52	8.35	57.0	22.8	80.0	36.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.362	1437
2	0.619	2721
3	0.620	2796
4	0.584	2482

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	Base 2020	AM	ONE HOUR	07:15	08:45	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		✓	811	100.000
2		✓	603	100.000
3		✓	1163	100.000
4		✓	896	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	35	570	206
	2	73	0	128	402
	3	486	121	0	556
	4	91	527	278	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.84	20.16	4.8	C
2	0.33	2.69	0.5	A
3	0.55	3.42	1.2	A
4	0.48	3.40	0.9	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	611	695	1185	0.515	606	1.0	6.175	A
2	454	789	2232	0.203	453	0.3	2.022	A
3	876	511	2480	0.353	873	0.5	2.238	A
4	675	511	2183	0.309	673	0.4	2.379	A

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)	Unsignalised level of service
1	729	832	1136	0.642	726	1.7	8.727	A
2	542	945	2136	0.254	542	0.3	2.258	A
3	1046	611	2417	0.432	1045	0.8	2.621	A
4	805	611	2125	0.379	805	0.6	2.725	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)	Unsignalised level of service
1	893	1018	1068	0.836	882	4.5	18.279	C
2	664	1149	2009	0.330	663	0.5	2.673	A
3	1280	746	2334	0.549	1279	1.2	3.407	A
4	987	748	2045	0.482	985	0.9	3.391	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)	Unsignalised level of service
1	893	1020	1068	0.836	892	4.8	20.156	C
2	664	1160	2003	0.331	664	0.5	2.687	A
3	1280	750	2332	0.549	1280	1.2	3.423	A
4	987	749	2045	0.483	986	0.9	3.401	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)	Unsignalised level of service
1	729	834	1135	0.642	741	1.8	9.386	A
2	542	959	2127	0.255	543	0.3	2.272	A
3	1046	616	2415	0.433	1047	0.8	2.635	A
4	805	612	2124	0.379	807	0.6	2.736	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)	Unsignalised level of service
1	611	698	1184	0.516	614	1.1	6.339	A
2	454	797	2228	0.204	454	0.3	2.030	A
3	876	514	2478	0.353	876	0.5	2.250	A
4	675	512	2182	0.309	675	0.4	2.389	A

Base 2020, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.99	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	Base 2020	PM	ONE HOUR	16:00	17:30	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		✓	667	100.000
2		✓	831	100.000
3		✓	1330	100.000
4		✓	1056	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	77	438	152
	2	120	0	198	513
	3	544	214	0	572
	4	131	547	378	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.75	14.40	2.9	B
2	0.44	3.14	0.8	A
3	0.65	4.52	1.8	A
4	0.61	4.77	1.5	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	502	855	1128	0.445	499	0.8	5.699	A
2	626	725	2272	0.275	624	0.4	2.182	A
3	1001	589	2431	0.412	999	0.7	2.509	A
4	795	659	2097	0.379	793	0.6	2.756	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	600	1023	1067	0.562	598	1.3	7.645	A
2	747	868	2183	0.342	746	0.5	2.505	A
3	1196	705	2359	0.507	1194	1.0	3.088	A
4	949	788	2021	0.470	948	0.9	3.352	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	734	1251	984	0.746	728	2.8	13.756	B
2	915	1060	2065	0.443	914	0.8	3.124	A
3	1464	862	2262	0.647	1461	1.8	4.478	A
4	1163	965	1918	0.606	1160	1.5	4.731	A

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)	Unsignalised level of service
1	734	1254	983	0.747	734	2.9	14.401	B
2	915	1065	2061	0.444	915	0.8	3.139	A
3	1464	864	2261	0.648	1464	1.8	4.521	A
4	1163	967	1917	0.606	1163	1.5	4.770	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)	Unsignalised level of service
1	600	1027	1065	0.563	606	1.3	7.936	A
2	747	877	2178	0.343	748	0.5	2.520	A
3	1196	708	2357	0.507	1199	1.0	3.117	A
4	949	791	2020	0.470	952	0.9	3.378	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)	Unsignalised level of service
1	502	859	1126	0.446	504	0.8	5.807	A
2	626	731	2268	0.276	626	0.4	2.194	A
3	1001	592	2429	0.412	1003	0.7	2.527	A
4	795	662	2095	0.379	796	0.6	2.772	A

Base 2025, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	12.42	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)
D3	Base 2025	AM	ONE HOUR	07:15	08:45	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		✓	878	100.000
2		✓	652	100.000
3		✓	1256	100.000
4		✓	969	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	38	617	223
	2	79	0	138	435
	3	525	130	0	601
	4	98	570	301	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.93	41.07	10.3	E
2	0.37	2.93	0.6	A
3	0.60	3.95	1.5	A
4	0.53	3.82	1.1	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	661	752	1165	0.567	656	1.3	7.003	A
2	491	853	2192	0.224	490	0.3	2.113	A
3	946	553	2454	0.385	943	0.6	2.379	A
4	730	551	2160	0.338	727	0.5	2.510	A

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)	Unsignalised level of service
1	789	899	1112	0.710	785	2.4	10.882	B
2	586	1021	2089	0.281	586	0.4	2.395	A
3	1129	661	2386	0.473	1128	0.9	2.858	A
4	871	659	2097	0.415	870	0.7	2.934	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)	Unsignalised level of service
1	967	1100	1039	0.931	941	8.8	30.899	D
2	718	1231	1959	0.366	717	0.6	2.898	A
3	1383	804	2298	0.602	1380	1.5	3.914	A
4	1067	807	2011	0.531	1065	1.1	3.801	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)	Unsignalised level of service
1	967	1102	1038	0.931	961	10.3	41.066	E
2	718	1251	1947	0.369	718	0.6	2.928	A
3	1383	810	2294	0.603	1383	1.5	3.949	A
4	1067	808	2010	0.531	1067	1.1	3.816	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)	Unsignalised level of service
1	789	902	1111	0.711	820	2.6	13.614	B
2	586	1056	2067	0.284	587	0.4	2.434	A
3	1129	671	2380	0.474	1132	0.9	2.889	A
4	871	661	2096	0.416	873	0.7	2.949	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)	Unsignalised level of service
1	661	754	1164	0.568	666	1.3	7.300	A
2	491	864	2186	0.225	491	0.3	2.126	A
3	946	556	2451	0.386	947	0.6	2.395	A
4	730	553	2159	0.338	730	0.5	2.521	A

Base 2025, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.29	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	Base 2025	PM	ONE HOUR	16:00	17:30	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		✓	722	100.000
2		✓	898	100.000
3		✓	1439	100.000
4		✓	1143	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	84	474	164
	2	129	0	214	555
	3	588	232	0	619
	4	142	592	409	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.84	23.23	4.9	C
2	0.49	3.53	1.0	A
3	0.71	5.68	2.5	A
4	0.67	5.87	2.0	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	544	925	1102	0.493	540	1.0	6.359	A
2	676	784	2236	0.302	674	0.4	2.304	A
3	1083	636	2402	0.451	1080	0.8	2.716	A
4	861	712	2066	0.417	858	0.7	2.974	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	649	1107	1036	0.626	646	1.6	9.168	A
2	807	938	2140	0.377	807	0.6	2.698	A
3	1294	761	2324	0.557	1292	1.2	3.480	A
4	1028	852	1984	0.518	1026	1.1	3.753	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	795	1353	947	0.839	783	4.6	20.626	C
2	989	1141	2015	0.491	987	1.0	3.500	A
3	1584	930	2220	0.714	1580	2.4	5.579	A
4	1258	1042	1873	0.672	1255	2.0	5.783	A

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)	Unsignalised level of service
1	795	1357	946	0.841	794	4.9	23.230	C
2	989	1152	2008	0.492	989	1.0	3.531	A
3	1584	933	2218	0.714	1584	2.5	5.681	A
4	1258	1045	1872	0.672	1258	2.0	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)	Unsignalised level of service
1	649	1113	1034	0.628	662	1.7	9.969	A
2	807	954	2130	0.379	809	0.6	2.726	A
3	1294	766	2321	0.557	1298	1.3	3.537	A
4	1028	856	1982	0.518	1031	1.1	3.801	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)	Unsignalised level of service
1	544	930	1100	0.494	547	1.0	6.535	A
2	676	791	2231	0.303	677	0.4	2.318	A
3	1083	640	2400	0.451	1085	0.8	2.741	A
4	861	716	2064	0.417	862	0.7	2.998	A

Assessment 2020, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.69	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)
D5	Assessment 2020	AM	ONE HOUR	07:15	08:45	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		✓	833	100.000
2		✓	612	100.000
3		✓	1185	100.000
4		✓	923	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	57	570	206
	2	76	0	131	405
	3	486	143	0	556
	4	91	554	278	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.87	26.13	6.3	D
2	0.34	2.71	0.5	A
3	0.56	3.52	1.3	A
4	0.50	3.56	1.0	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	627	732	1172	0.535	623	1.1	6.500	A
2	461	789	2233	0.206	460	0.3	2.029	A
3	892	515	2477	0.360	890	0.6	2.265	A
4	695	529	2173	0.320	693	0.5	2.430	A

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)	Unsignalised level of service
1	749	876	1120	0.669	746	2.0	9.528	A
2	550	944	2136	0.258	550	0.3	2.269	A
3	1065	617	2414	0.441	1064	0.8	2.666	A
4	830	633	2112	0.393	829	0.6	2.805	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)	Unsignalised level of service
1	917	1072	1049	0.874	902	5.8	22.434	C
2	674	1146	2012	0.335	673	0.5	2.688	A
3	1305	752	2330	0.560	1303	1.3	3.499	A
4	1016	775	2029	0.501	1015	1.0	3.545	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)	Unsignalised level of service
1	917	1073	1048	0.875	915	6.3	26.130	D
2	674	1159	2004	0.336	674	0.5	2.706	A
3	1305	756	2328	0.561	1305	1.3	3.518	A
4	1016	776	2028	0.501	1016	1.0	3.555	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)	Unsignalised level of service
1	749	878	1119	0.669	766	2.1	10.635	B
2	550	964	2124	0.259	551	0.4	2.288	A
3	1065	622	2411	0.442	1067	0.8	2.685	A
4	830	635	2111	0.393	831	0.7	2.817	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)	Unsignalised level of service
1	627	735	1171	0.536	631	1.2	6.707	A
2	461	797	2227	0.207	461	0.3	2.038	A
3	892	518	2475	0.360	893	0.6	2.278	A
4	695	531	2171	0.320	696	0.5	2.441	A

Assessment 2020, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	6.15	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)
D6	Assessment 2020	PM	ONE HOUR	16:00	17:30	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		✓	670	100.000
2		✓	893	100.000
3		✓	1333	100.000
4		✓	1060	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	80	438	152
	2	139	0	217	537
	3	544	217	0	572
	4	131	551	378	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.75	14.76	2.9	B
2	0.48	3.34	0.9	A
3	0.66	4.71	1.9	A
4	0.61	4.89	1.6	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	504	860	1126	0.448	501	0.8	5.737	A
2	672	725	2272	0.296	671	0.4	2.246	A
3	1004	621	2411	0.416	1001	0.7	2.547	A
4	798	676	2087	0.382	796	0.6	2.783	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	602	1029	1065	0.566	600	1.3	7.724	A
2	803	868	2183	0.368	802	0.6	2.604	A
3	1198	743	2335	0.513	1197	1.0	3.157	A
4	953	808	2010	0.474	952	0.9	3.400	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	738	1259	981	0.752	731	2.9	14.057	B
2	983	1059	2065	0.476	982	0.9	3.318	A
3	1468	909	2233	0.657	1464	1.9	4.665	A
4	1167	989	1904	0.613	1164	1.6	4.847	A

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)	Unsignalised level of service
1	738	1262	980	0.752	737	2.9	14.757	B
2	983	1065	2061	0.477	983	0.9	3.338	A
3	1468	912	2231	0.658	1468	1.9	4.714	A
4	1167	991	1903	0.613	1167	1.6	4.890	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)	Unsignalised level of service
1	602	1033	1063	0.567	609	1.3	8.032	A
2	803	877	2178	0.369	804	0.6	2.622	A
3	1198	747	2333	0.514	1202	1.1	3.192	A
4	953	811	2008	0.475	956	0.9	3.430	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)	Unsignalised level of service
1	504	864	1124	0.449	506	0.8	5.845	A
2	672	731	2268	0.296	673	0.4	2.258	A
3	1004	624	2409	0.417	1005	0.7	2.567	A
4	798	678	2086	0.383	799	0.6	2.802	A

Assessment 2025, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	17.23	C

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)
D7	Assessment 2025	AM	ONE HOUR	07:15	08:45	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		✓	900	100.000
2		✓	661	100.000
3		✓	1279	100.000
4		✓	995	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	60	617	223
	2	82	0	141	438
	3	525	153	0	601
	4	98	596	301	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.97	61.05	16.1	F
2	0.37	2.94	0.6	A
3	0.61	4.08	1.6	A
4	0.55	4.01	1.2	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	678	788	1152	0.588	672	1.4	7.419	A
2	498	853	2193	0.227	496	0.3	2.121	A
3	963	557	2451	0.393	960	0.6	2.411	A
4	749	571	2148	0.349	747	0.5	2.566	A

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)	Unsignalised level of service
1	809	943	1096	0.738	804	2.7	12.127	B
2	594	1021	2089	0.284	594	0.4	2.407	A
3	1150	666	2383	0.482	1149	0.9	2.913	A
4	894	683	2083	0.429	894	0.7	3.025	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)	Unsignalised level of service
1	991	1154	1019	0.972	952	12.4	40.125	E
2	728	1219	1966	0.370	727	0.6	2.904	A
3	1408	808	2296	0.613	1406	1.6	4.034	A
4	1096	835	1994	0.549	1094	1.2	3.990	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)	Unsignalised level of service
1	991	1156	1019	0.973	976	16.1	61.051	F
2	728	1242	1952	0.373	728	0.6	2.940	A
3	1408	814	2291	0.615	1408	1.6	4.075	A
4	1096	837	1993	0.550	1095	1.2	4.010	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)	Unsignalised level of service
1	809	946	1095	0.739	862	3.0	18.588	C
2	594	1075	2055	0.289	595	0.4	2.466	A
3	1150	682	2374	0.484	1152	0.9	2.955	A
4	894	685	2082	0.430	896	0.8	3.040	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)	Unsignalised level of service
1	678	791	1151	0.589	684	1.5	7.810	A
2	498	865	2185	0.228	498	0.3	2.133	A
3	963	561	2448	0.393	964	0.7	2.428	A
4	749	573	2147	0.349	750	0.5	2.579	A

Assessment 2025, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.53	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)
D8	Assessment 2025	PM	ONE HOUR	16:00	17:30	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		✓	724	100.000
2		✓	960	100.000
3		✓	1441	100.000
4		✓	1146	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	86	474	164
	2	149	0	233	578
	3	588	234	0	619
	4	142	595	409	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.84	23.83	5.0	C
2	0.53	3.78	1.1	A
3	0.73	5.98	2.6	A
4	0.68	6.04	2.1	A

Main Results for each time segment

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	545	929	1101	0.495	541	1.0	6.391	A
2	723	784	2236	0.323	721	0.5	2.373	A
3	1085	668	2382	0.455	1082	0.8	2.761	A
4	863	729	2056	0.420	860	0.7	3.001	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	651	1111	1035	0.629	648	1.7	9.245	A
2	863	938	2140	0.403	862	0.7	2.816	A
3	1295	800	2301	0.563	1294	1.3	3.569	A
4	1030	872	1973	0.522	1029	1.1	3.809	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	797	1359	945	0.843	785	4.7	21.045	C
2	1057	1141	2015	0.525	1055	1.1	3.746	A
3	1587	977	2191	0.724	1581	2.6	5.861	A
4	1262	1066	1859	0.679	1258	2.1	5.945	A

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)	Unsignalised level of service
1	797	1363	944	0.845	796	5.0	23.834	C
2	1057	1152	2008	0.526	1057	1.1	3.784	A
3	1587	981	2188	0.725	1586	2.6	5.976	A
4	1262	1069	1858	0.679	1262	2.1	6.039	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)	Unsignalised level of service
1	651	1117	1033	0.630	664	1.8	10.090	B
2	863	954	2130	0.405	865	0.7	2.847	A
3	1295	805	2297	0.564	1301	1.3	3.633	A
4	1030	876	1970	0.523	1034	1.1	3.863	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)	Unsignalised level of service
1	545	934	1099	0.496	548	1.0	6.571	A
2	723	791	2231	0.324	724	0.5	2.389	A
3	1085	672	2380	0.456	1087	0.8	2.787	A
4	863	732	2054	0.420	864	0.7	3.031	A