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Assessment (TA) has been prepared to support the planning application and has been developed with cognisance of the now superseded Department for Transports (DfT's) March 2007 *"Guidance on Transport Assessment"* document and gives due regard to the National Planning Practice Guidance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 A previous version of this Transport Assessment was submitted in September with the application; this updated version has been prepared to address comments by the local highway authority and provide additional information requested. This information comprises clarifications on some of the assessments provided in the previous version and additional junction capacity modelling based on new traffic count data, which has been adjusted to reflect the ongoing variation to traffic conditions in the wake of the response to COVID-19.

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

Structure of Report

1.7 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.

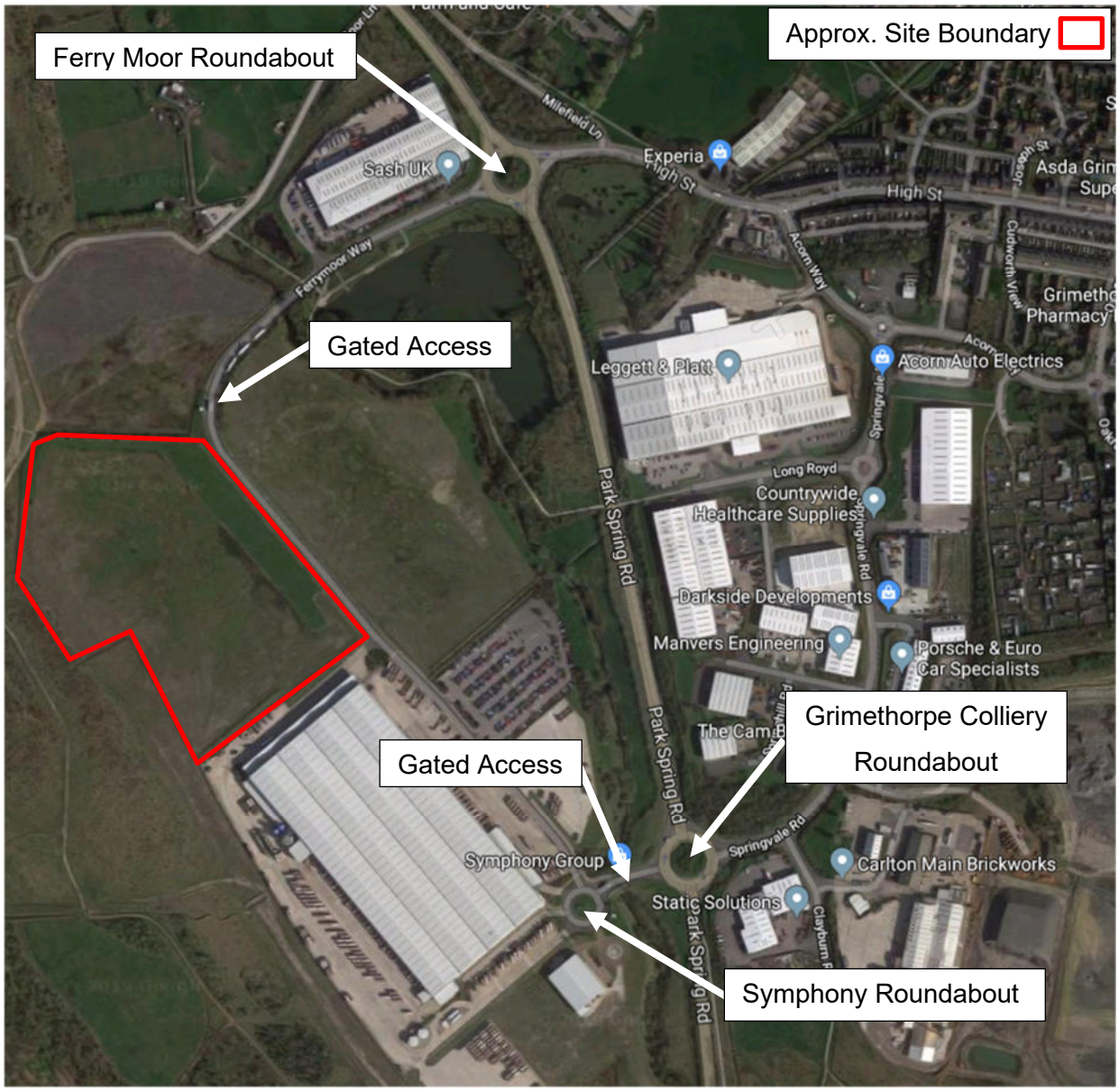
2.4 The location of the site in relation to the wider highway network is shown on **Figure 2.1** below.

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 Further traffic counts were undertaken of the Engine Lane and Shafton Roundabouts together with a recount of the Ferry Moor Roundabout on Thursday 3rd December between the hours of 07:30 to 09:30 and 16:00 to 18:00. The AM and PM peak hours for the network were identified as being between 07:30 to 08:30 and 16:00 to 17:00. The Ferry Moor Roundabout was recounted as a comparison to the 2019 counts and to derive a pre/post COVID-19 factor.

2.25 The raw traffic survey results are presented in **Appendix A**, with the peak hour traffic flows shown diagrammatically in **Traffic Flow Figure 2**.

2.26 **Traffic Flow Figure 3** shows a comparison of the 2019 and 2020 traffic counts at the Ferry Moor Way Roundabout, identifying that the 2019 flows were 17% and 15% higher in the AM and PM peak hours respectively. The 2020 traffic flows at the Engine Lane and Shafton Roundabouts have therefore been increased by these proportions to reflect the ongoing impact of measures in response to COVID-19 on traffic flows as shown on the flow diagram. The 2019 traffic flows have been retained for the assessment of the Ferry Moor Roundabout.

Road Safety

2.27 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".*

2.28 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**

2.29 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 Local Plan

3.8 The Barnsley Local Plan was adopted in January 2019 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:

- *Provide opportunities for the creation of new jobs and protection of existing jobs*
- *Improve the conditions in which people live, work, travel and take leisure*
- *Widen the choice of high quality homes*
- *Improve the design of development*
- *Protect and enhance Barnsley's natural assets and achieve net gains in biodiversity*

To be achieved by:

- *Providing the opportunity to grow the economy by 28,840 jobs*
- *Encouraging significant inward investment to generate this additional employment*

- *Providing the space to allow existing businesses to grow*
- *Creating a vibrant and attractive Town Centre*
- *Enabling the delivery of at least 21,546 homes that provide housing for all, including affordable*
- *housing, and maintaining at least a rolling 5 year deliverable supply of new housing*
- *Enabling the provision of critical infrastructure to support sustainable communities*
- *Protecting and enhancing the natural, built and historic environment*

*Respecting the cultural identity and local character of Barnsley***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.

3.11 Particular emphasis is placed providing opportunities for new jobs and the growth of the economy.

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 30-50 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
- Powered Two-Wheeler Parking – 1 space per 20 car parking spaces
- 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 recommended standard for the site would be 207 for the B2 element of the proposals (based on the lower end of the threshold range) and 174 for the B8 element of the proposals (including ancillary office space), which is a total of 381 car parking spaces.

4.6 The site proposes:

- Total Spaces - 292
- Powered Two-Wheeler Spaces - 12

- Electrical Vehicle Spaces – 30
- Car Sharing Spaces – 15
- Disabled Spaces – 15

4.7 The proposed car parking provision is therefore within the recommended standards and has been agreed as being acceptable with the local highway authority.

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

4.9 With regard to cyclecar parking the Council's parking standards require the following:

- Cycle parking - 1 short stay space per 1,000 m2 gross floor area for visitors; and 1 long stay space per 40 staff (this is based on storage and distribution as no standard for industrial units is provided).

4.10 It is understood that approximately 150 staff are to be employed at the proposed unit and therefore 34 spaces are required and 40 are shown on the proposed site layout plan.

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.

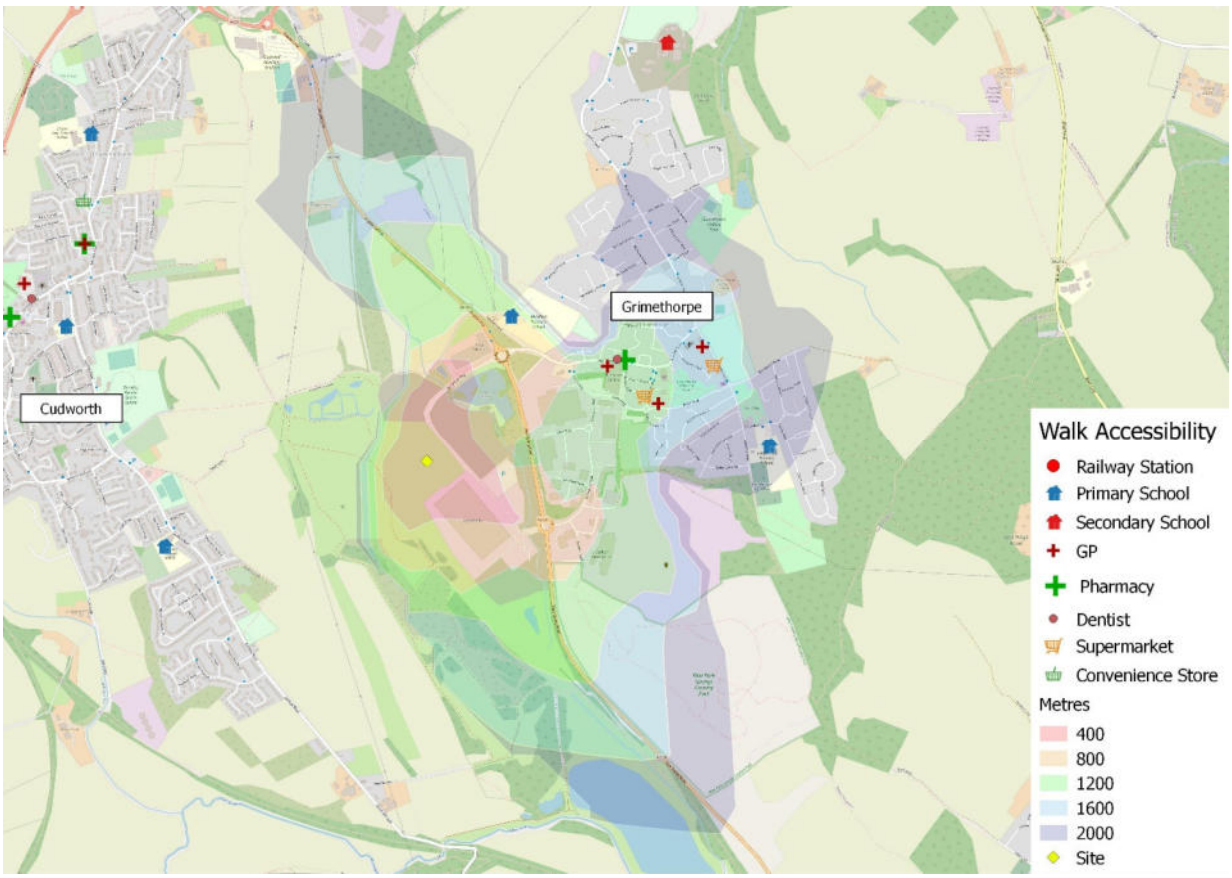
5.4 Symphony's private road can be accessed from the Ferry Moor Roundabout and the Grimethorpe Colliery Roundabout where the nearest bus stops are located between these two roundabouts.

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.

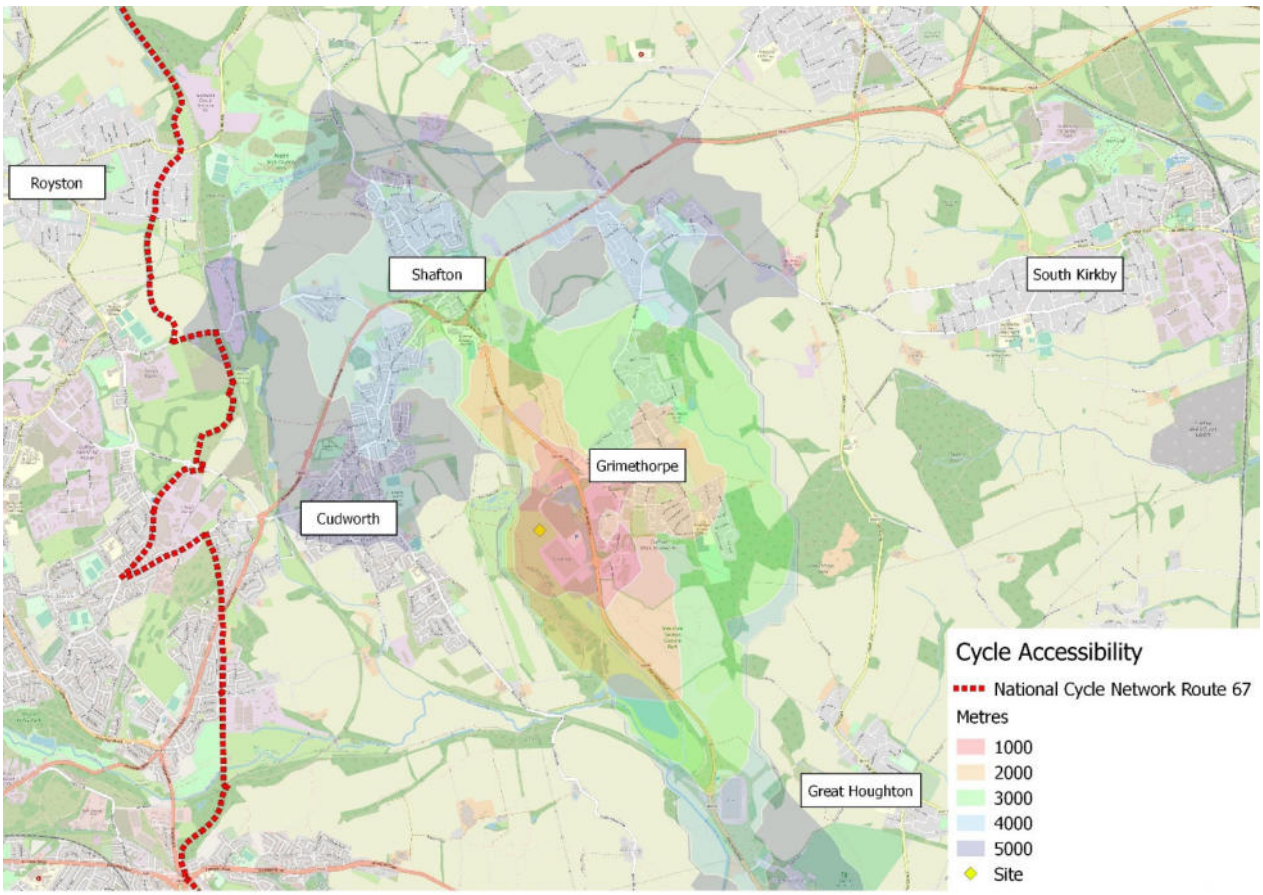
Accessibility by Non-Car Modes: Cycling

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

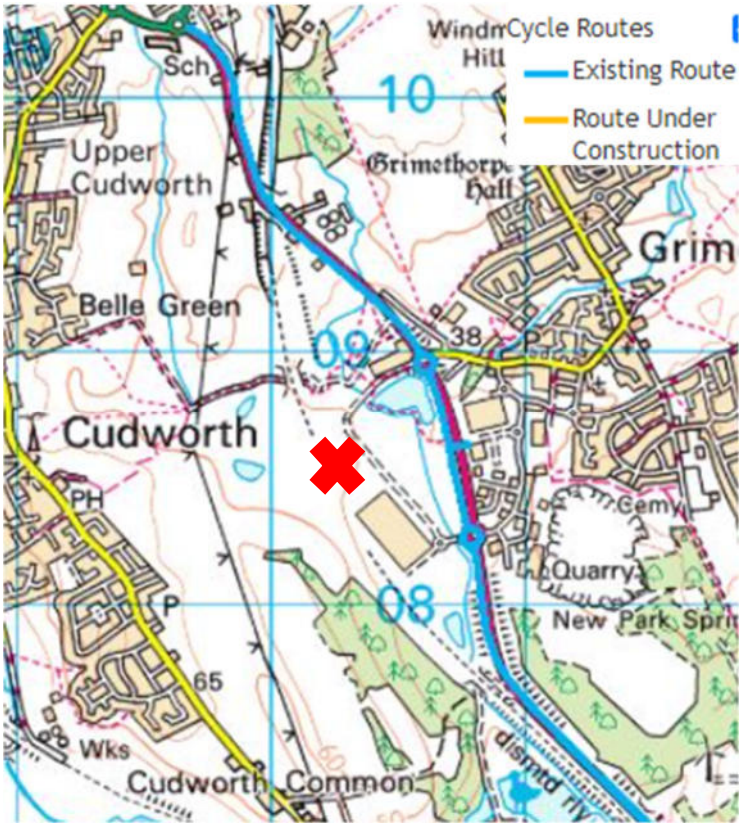


5.13 **Figure 5.2** illustrates that the site is accessible by bicycle from several surrounding towns and villages, such as Cudworth, Shafton, Royston and Great Houghton.

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.

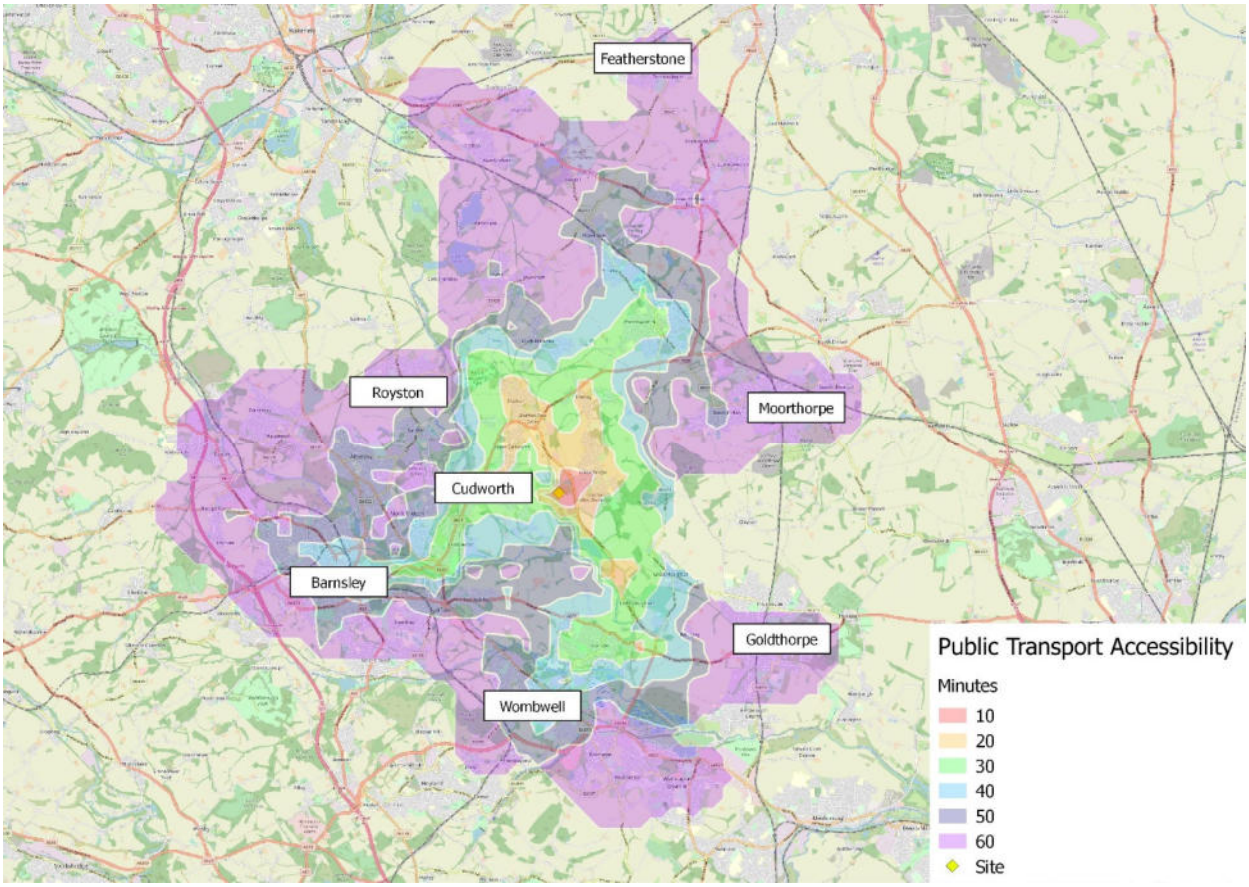
Table 5.2 – Bus Service Summary

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 have been undertaken in assessment years of 2020 (baseline) and 2027 (future), to reflect the anticipated construction period.

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 - 2027	1.1595	1.1547
Committed Development 2018 - 2020	1.0166	1.0157
Committed Development 2018 - 2027	1.1025	1.1012
SCP Counts 2019 - 2020	1.0314	1.0308
SCP Counts 2019 - 2027	1.1399	1.1363

7.5 The above growth factors have been applied to the surveyed traffic flows to obtain the 2020 and 2027 adjusted surveyed traffic flows, as shown in **Traffic Flow Figures 4 & 5**. The growth factors from 2019 have been applied to the 2020 traffic flows at the Engine Lane and Shafton Roundabouts, which have effectively been adjusted to 2019 levels using the factors derived from the recount of the Ferry Moor Roundabout.

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. 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.

8.7 Furthermore the proposed staff shift patterns are 06.00 – 1400, 1400 - 2200 and 2200 – 0600 meaning that in practice staff trips for the proposed use would occur outside of the network peak hours. The vehicle trip generation methodology is therefore 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 traffic distribution has been calculated using the combined existing turning proportions at the arms providing access to the site of the Ferry Moor and Grimethorpe Colliery Roundabouts.

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 6**.

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 Census 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 In terms of the site access point used by traffic 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 7.**

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
- Shafton Roundabout
- Engine Lane Roundabout

Assessment Methodology

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

9.3 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).

9.4 Capacity assessments have been undertaken in the future assessment year of 2020 and 2027 in the 'with' and 'without' development scenarios. The 2020 and 2027 'without development' baseline traffic flows are equal to 2020 and 2027 growthed surveyed traffic flows, as shown on **Traffic Flow Figure 4 and 5**.

9.5 The 2020 and 2027 '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 8 and 9**.

Grimethorpe Colliery Roundabout

9.6 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 & 2027 'With Development' ARCADY Results

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2020 'Without Development' Assessment				
Symphony Access	0.00	0.0	0.16	0.2
Park Spring Rd North	0.27	0.4	0.25	0.3
Springvale Rd	0.13	0.2	0.16	0.2
Park Spring Rd North	0.42	0.7	0.41	0.7
2020 'With Development' Assessment				
Symphony Access	0.01	0.0	0.19	0.2
Park Spring Rd North	0.27	0.4	0.25	0.3
Springvale Rd	0.13	0.2	0.16	0.2
Park Spring Rd North	0.45	0.8	0.41	0.7

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2027 'Without Development' Assessment				
Symphony Access	0.00	0.0	0.20	0.2
Park Spring Rd North	0.27	0.5	0.30	0.4
Springvale Rd	0.16	0.2	0.19	0.2
Park Spring Rd North	0.49	1.0	0.47	0.9
2027 'With Development' Assessment				
Symphony Access	0.01	0.0	0.22	0.3
Park Spring Rd North	0.32	0.5	0.30	0.4
Springvale Rd	0.16	0.2	0.19	0.2
Park Spring Rd North	0.52	1.1	0.47	0.9

9.7 The above results demonstrate that the roundabout providing access to the site will operate within practical capacity in the assessment years of 2020 and 2027 in the AM and PM peak hour, without material queuing and delay.

Ferry Moor Roundabout

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

Table 9.2 – Ferry Moor Roundabout 2020 & 2027 'With Development' ARCADY Results

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2020 'Without Development' Assessment				
Symphony Access	0.02	0.0	0.07	0.1
Engine Lane	0.45	0.8	0.41	0.8
High Street	0.24	0.3	0.20	0.2
Park Spring Rd	0.28	0.4	0.38	0.0
2020 'With Development' Assessment				
Symphony Access	0.03	0.0	0.20	0.2
Engine Lane	0.51	1.0	0.43	0.7
High Street	0.26	0.4	0.20	0.3
Park Spring Rd	0.32	0.5	0.39	0.6

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2027 'Without Development' Assessment				
Symphony Access	0.02	0.0	0.08	0.1
Engine Lane	0.50	1.0	0.46	0.8
High Street	0.27	0.4	0.22	0.3
Park Spring Rd	0.32	0.5	0.42	0.7
2027 'With Development' Assessment				
Symphony Access	0.04	0.0	0.22	0.3
Park Spring Rd North	0.56	1.2	0.47	0.9
Springvale Rd	0.29	0.4	0.23	0.3
Park Spring Rd North	0.35	0.5	0.43	0.7

9.9 The above results demonstrate that the roundabout providing access to the site will operate within practical capacity in the assessment years of 2020 and 2027 in the AM and PM peak hour, without material queuing and delay.

Rotherham Road Roundabout

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

Table 9.3 – Rotherham Road Roundabout 2020 & 2027 '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	0.28	0.4	0.42	0.7
Rotherham Road South	0.56	1.2	0.62	1.6
2020 'With Development' Assessment				
Park Spring Rd	0.30	0.4	0.52	1.1
Rotherham Road North	0.28	0.4	0.43	0.7
Rotherham Road South	0.6	1.5	0.63	2.6

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2027 'Without Development' Assessment				
Park Spring Rd	0.36	0.6	0.55	1.2
Rotherham Road North	0.33	0.5	0.43	1.0
Rotherham Road South	0.65	1.8	0.63	2.6
2027 'With Development' Assessment				
Park Spring Rd	0.36	0.6	0.60	1.5
Rotherham Road North	0.33	0.5	0.52	1.1
Rotherham Road South	0.70	2.3	0.73	2.6

9.11 The above results demonstrate that the roundabout will operate within practical capacity in the assessment years of 2020 and 2027 in the AM and PM peak hour, without significant queuing and delay.

Cathill Roundabout

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 G** with the results summarised in **Table 9.4** below.

Table 9.4 – Cathill Roundabout 2020 & 2027 'With Development' ARCADY Results

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2020 'Without Development' Assessment				
Doncaster Road West	0.59	1.4	0.53	1.1
Rotherham Road North	0.34	0.5	0.45	0.8
Doncaster Road East	0.54	1.2	0.64	1.8
Rotherham Road South	0.47	0.9	0.59	1.4
2020 'With Development' Assessment				
Doncaster Road West	0.62	1.6	0.53	1.1
Rotherham Road North	0.34	0.5	0.49	0.9
Doncaster Road East	0.56	1.2	0.65	1.9
Rotherham Road South	0.48	0.9	0.59	1.4

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2027 'Without Development' Assessment				
Doncaster Road West	0.68	2.1	0.66	1.9
Rotherham Road North	0.39	0.6	0.55	1.2
Doncaster Road East	0.61	1.6	0.77	3.3
Rotherham Road South	0.53	1.1	0.71	2.4
2027 'With Development' Assessment				
Doncaster Road West	0.71	2.4	0.66	1.9
Rotherham Road North	0.39	0.6	0.59	1.4
Doncaster Road East	0.63	1.7	0.78	3.5
Rotherham Road South	0.55	1.2	0.72	2.5

9.12 The above results demonstrate that the roundabout providing access to the site will operate within practical capacity in the assessment years of 2020 and 2027 in the AM and PM peak hour, without material queuing and delay.

9.13 These results have improved from the previous version of the Transport Assessment submitted following corrections made to the geometry within the capacity model.

Engine Lane Roundabout

9.14 ARCADY software has been used in the assessment of the priority controlled roundabout. The ARCADY results are presented in **Appendix H** with the results summarised in **Table 9.5** below.

Table 9.5 – Engine Lane Roundabout 2020 & 2027 'With Development' ARCADY Results

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2020 'Without Development' Assessment				
Engine Lane	0.58	1.4	0.67	2.0
Academy Access	0.33	0.5	0.07	0.1
Collier Road (West)	0.77	3.3	0.64	1.8
Collier Road (North)	0.80	3.9	0.69	2.2
2020 'With Development' Assessment				
Engine Lane	0.59	1.4	0.67	2.0
Academy Access	0.33	0.5	0.07	0.1
Collier Road (West)	0.85	4.5	0.64	1.8
Collier Road (North)	0.87	5.8	0.69	2.2
Approach	**AM PEAK**		**PM PEAK**	
	RFC	**MMQ**	**RFC**	**MMQ**
2027 'Without Development' Assessment				
Engine Lane	0.67	2.0	0.76	3.0
Academy Access	0.39	0.6	0.09	0.1
Collier Road (West)	0.85	5.6	0.71	2.4
Collier Road (North)	0.95	10.8	0.79	3.5
2027 'With Development' Assessment				
Engine Lane	0.67	2.0	0.83	4.7
Academy Access	0.39	0.6	0.09	0.1
Collier Road (West)	0.91	8.7	0.72	2.5
Collier Road (North)	1.02	22.2	0.79	3.6

9.15 The above results demonstrate that the roundabout currently operates at capacity in the AM peak hour at 2020 levels both with and without the development flows and the addition of traffic growth to 2027 levels results in the Collier Road approaches exceeding capacity in the with and without development scenarios.

9.16 The largest increases occur on the Collier Road North approach where the development is calculated to generate 8 vehicle movements in the AM peak hour, one every 7 minutes and 30 seconds and none in the PM peak hour, which is not considered to represent a material impact.

9.17 It is noted that the maximum queue increases on Collier Road North are in excess of the number of vehicles generated by the development at over 10PCUs; this is typical where having exceeded a ratio of flow to capacity of 1.0 the software is unable from that point to accurately predict how the junction would cope with additional traffic flows and the introduction of such flows, very often results in an exponential increase in RFC, queuing and delay, which is not commensurate with the actual number of vehicles being added to the approach flows.

9.18 The effect on the Collier Road West approach is an increase in queuing of 4 PCUS and it is not considered that the development proposal would have a severe impact on the operation of this approach.

9.19 The local highway authority noted the predicted increases in delay on the Collier Road (North) approach and requested that mitigation is considered. To this end a preliminary scheme to widen the entry width to 7m to provide two lanes has been design to identify what could be achieved, as shown on drawing SCP/190657F03 at **Appendix I**. A comparison of the existing and proposed geometry to the standards contained within CD116 of the Design Manual for Roads and Bridges 'Geometric Design of Roundabouts' is also included and shows that the proposed layout complies with the required standards.

9.20 The ARCADY model has been revised based on the proposed mitigation layout and is included at **Appendix I** with the results for the 2027 with development scenario shown in Table 9.6. Intercept adjustments have been made to the model to reflect the potential unequal lane usage based on the ARCADY Health Warning Paper by Barbara Chard and the calculations are included at **Appendix I**, Separate calculations are made for the AM and PM peak hours and subsequently separate sets of results for the two peak hours are included based on the respective intercept adjustments.

Table 9.6 – Engine Lane Roundabout 2027 'With Development' Interception Adjustment Mitigation ARCADY Results

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2027 'With Development' Assessment				
Engine Lane	0.68	2.1	0.83	4.7
Academy Access	0.40	0.6	0.09	0.1
Collier Road (West)	0.91	8.7	0.72	2.5
Collier Road (North)	0.95	11.1	0.72	2.4

9.21 The results show that the mitigation scheme would result in the RFC, queue and delay being similar to the 2027 without development scenario and whilst the RFC and queue on the Collier Road (west) arm would increase slightly, this would be by 6% and 3PCUs respectively, so would not represent a severe impact. Any increase in capacity to the Collier Road (west) arm is likely to reduce capacity on the Collier Road (north) arm, which gives way to the former.

9.22 It is understood that it has been agreed that the applicant will provide a S106 contribution towards future off-site highway improvements to improve the operation of both this junction and the Shafton Roundabout (see below).

Shafton Roundabout

9.23 ARCADY has been used in the assessment of the priority controlled roundabout. The ARCADY results are presented in **Appendix J** with the results summarised in **Table 9.7** as follows.

Table 9.7 – Shafton Roundabout 2020 & 2027 'With Development' ARCADY Results

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2020 'Without Development' Assessment				
Collier Road	1.11	66.2	1.17	105.2
Pontefract Road (South)	0.70	2.3	0.48	0.9
Cudworth Parkway	0.76	3.1	0.76	3.0
Pontefract Road (North)	0.78	3.3	0.54	1.2
2020 'With Development' Assessment				
Collier Road	1.11	68.9	1.24	148.6
Pontefract Road (South)	0.72	2.5	0.48	0.9
Cudworth Parkway	0.80	3.9	0.77	3.2
Pontefract Road (North)	0.86	5.2	0.55	1.2

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2027 'Without Development' Assessment				
Collier Road	1.24	137.5	1.31	202.3
Pontefract Road (South)	0.78	3.3	0.52	1.1
Cudworth Parkway	0.86	5.8	0.85	5.2
Pontefract Road (North)	0.94	9.8	0.64	1.7
2027 'With Development' Assessment				
Collier Road	1.24	140.9	1.38	269.9
Pontefract Road (South)	0.80	3.7	0.53	1.1
Cudworth Parkway	0.91	8.4	0.86	5.6
Pontefract Road (North)	1.04	22.5	0.65	1.8

9.24 The above results show that the Collier Road approach operates in excess of theoretical capacity with significant queuing, which is exacerbated by the addition of both development traffic and background traffic growth.

9.25 It should be noted that queues of over 67 PCUs in the AM peak hour and 105 PCUs in the PM peak hour are shown for the 2020 baseline scenario, however queues were recorded during the 2020 traffic survey which recorded no more than 29 PCUs on this arm. It is acknowledged that the modelled flows have been adjusted from the surveyed flows to pre-COVID levels, however this adjustment was 15%-17% for the AM / PM peak hours and this comparison suggests that the model is underestimating the capacity of the Collier Road approach.

9.26 Furthermore, the ratio of flow to capacity exceeds 1.0 in all scenarios and having reached this "theoretical capacity" level the software is unable from that point to accurately predict how the junction would cope with additional traffic flows and the introduction of such flows, very often results in an exponential increase in RFC and queuing, which is not commensurate with the actual number of vehicles being added to the approach flows.

9.27 Notwithstanding this, mitigation has been considered to improve the operation of this approach by providing a widened single lane entry using highway taken from the existing central hatching and an increased flare length.

9.28 This mitigation scheme is shown on drawing SCP/190657F04 at **Appendix J** to identify what could be achieved and the roundabout has been modelled to reflect the potential mitigation layout as follows. A comparison of the existing and proposed geometry to the standards contained within CD116 of the Design Manual for Roads and Bridges 'Geometric Design of Roundabouts' is also included and shows that the proposed layout complies with the required standards.

Shafton Roundabout Mitigation

9.29 ARCADY software has been used in the assessment of the priority-controlled roundabout. The ARCADY results are presented in **Appendix J** with the results summarised in **Table 9.8** below.

Table 9.8 – Shafton Roundabout Mitigation 2020 & 2027 'With Development' ARCADY Results

Approach	AM PEAK		PM PEAK	
	RFC	MMQ	RFC	MMQ
2027 'With Development' Assessment				
Collier Road	1.15	95.7	1.29	196.7
Pontefract Road (South)	0.83	4.5	0.55	1.2
Cudworth Parkway	0.91	8.7	0.86	5.8
Pontefract Road (North)	1.04	22.3	0.65	1.8

9.30 The above results demonstrate that the mitigation considered would significantly improve the operation of the Collier Road approach and whilst there would be more minor queuing increases on other approaches, there would be a significant overall betterment from the improvement scheme that would mitigate the impact of development traffic on the junction and benefit existing users.

9.31 It is understood that it has been agreed that the applicant will provide a S106 contribution towards future off-site highway improvements to improve the operation of both this junction and the Engine Lane Roundabout (see above).

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, 12 spaces for powered two-wheelers, 15 disabled spaces, whilst 40 cycle parking spaces are proposed. These provisions are within the Council's recommended standards and have been agreed as being acceptable with the local highway authority.

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.

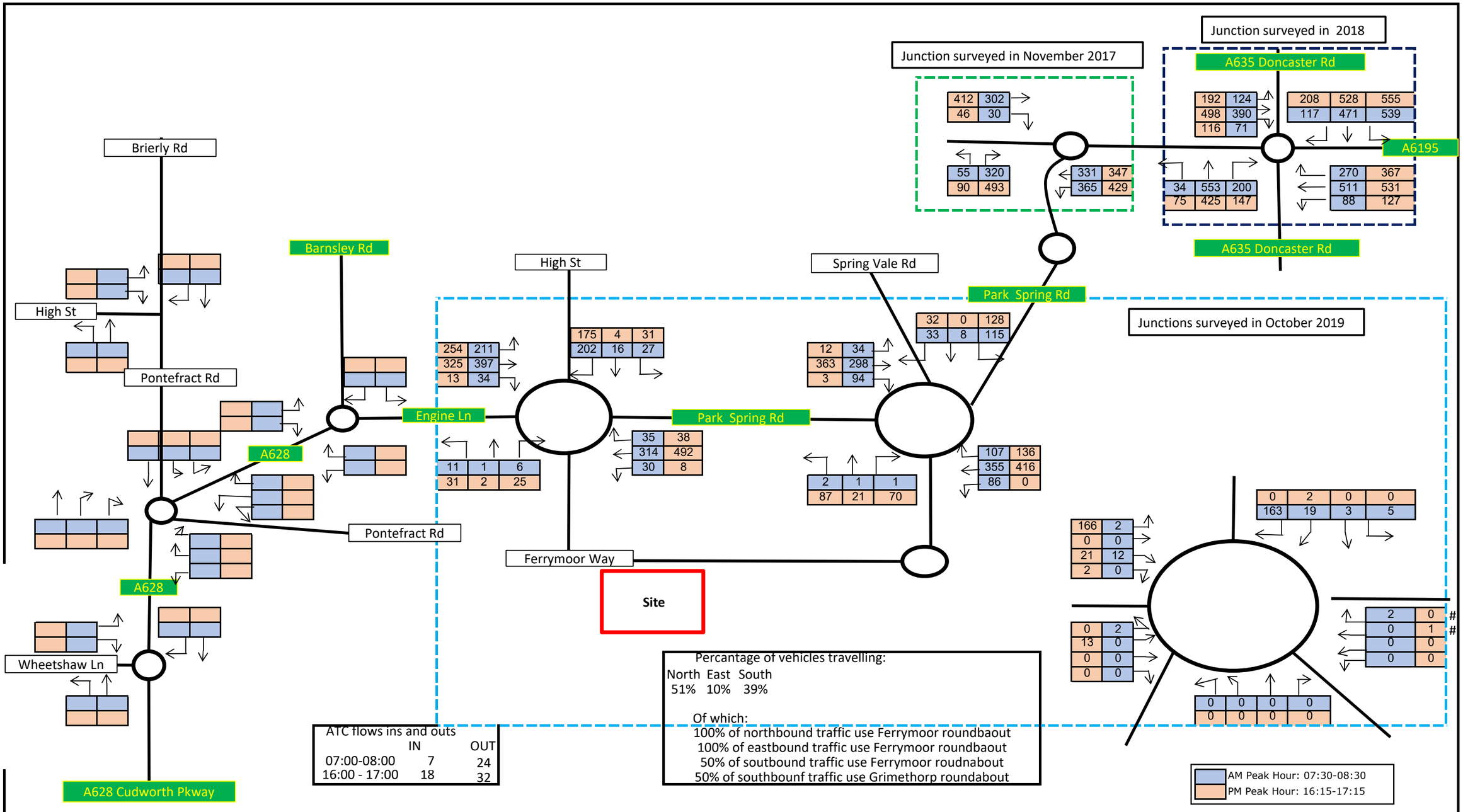
10.6 It has been demonstrated that the development is accessible by sustainable transport modes. Policies to encourage travel by sustainable modes are developed further within the Full Travel Plan that accompanies this application, including those to meet BREEAM requirements.

10.7 Based on a robust methodology, 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 Engine Lane and Shafton Roundabouts. Potential mitigation at these junction has been considered and a financial contribution will be provided towards future off-site highway improvements at both junctions.

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

S|C|P

FIGURES



S|C|P
Transportation Planning : Infrastructure Design

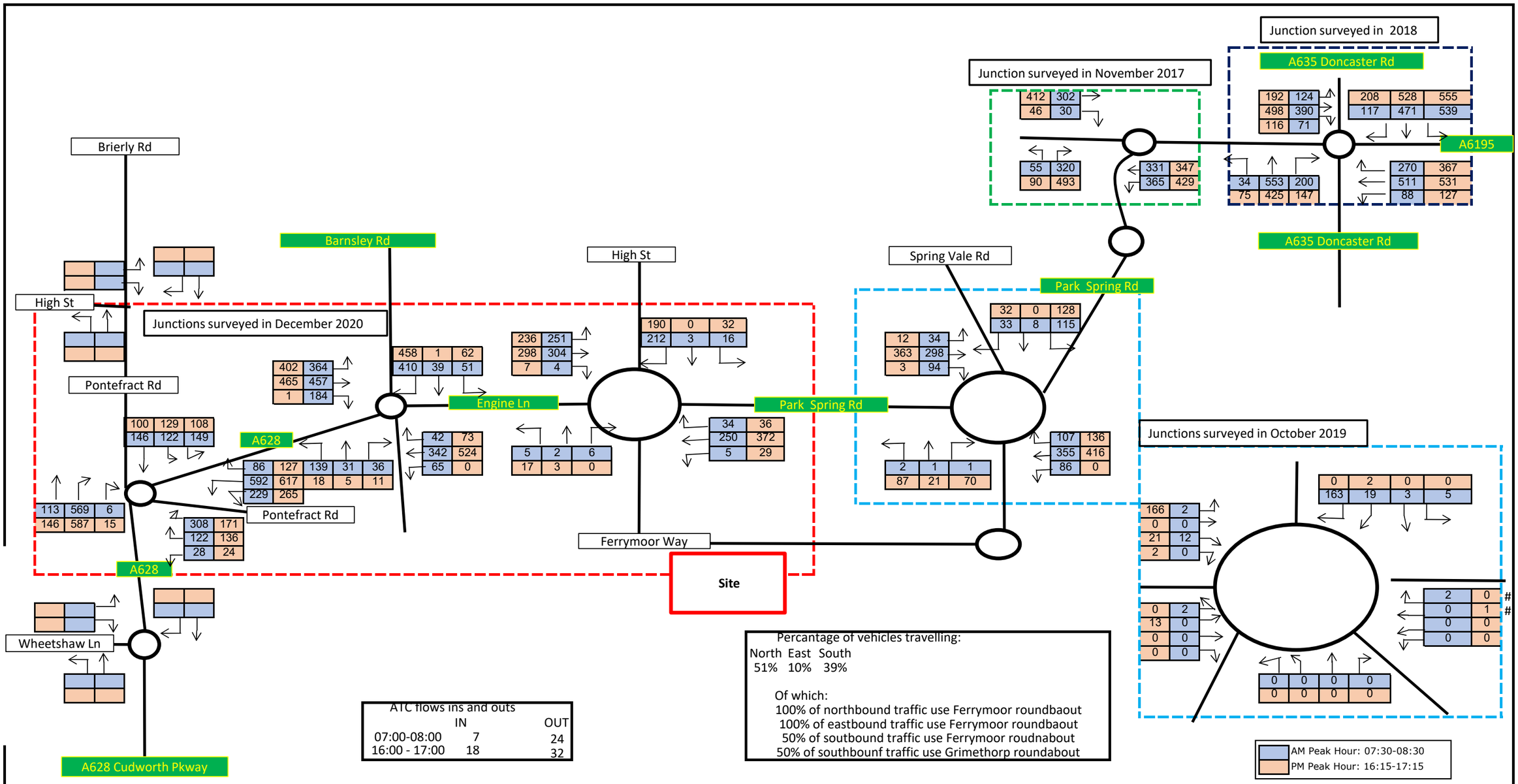
2019 Surveyed Flows

Proposed Employment Development , Grimethorpe, Barnsley

14 December 2020

Job Number - SCP/190657

Traffic Figure 1



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Transportation Planning : Infrastructure Design

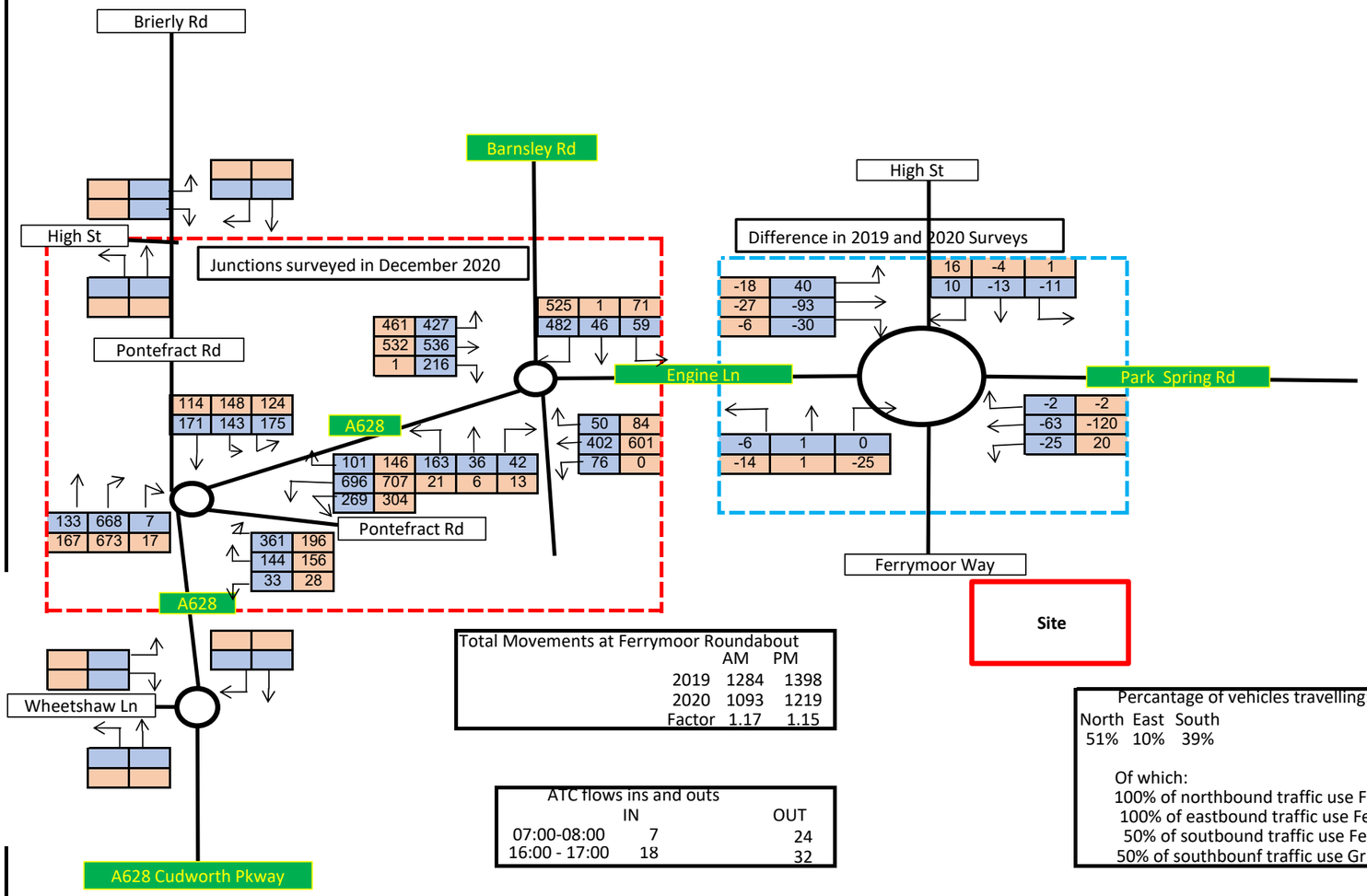
2020 Surveyed Flows

Proposed Employment Development , Grimethorpe, Barnsley

14 December 2020

Job Number - SCP/190657

Traffic Figure 2



Total Movements at Ferrymoor Roundabout	AM	PM
2019	1284	1398
2020	1093	1219
Factor	1.17	1.15

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

AM Peak Hour: 07:30-08:30
PM Peak Hour: 16:15-17:15

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Transportation Planning : Infrastructure Design

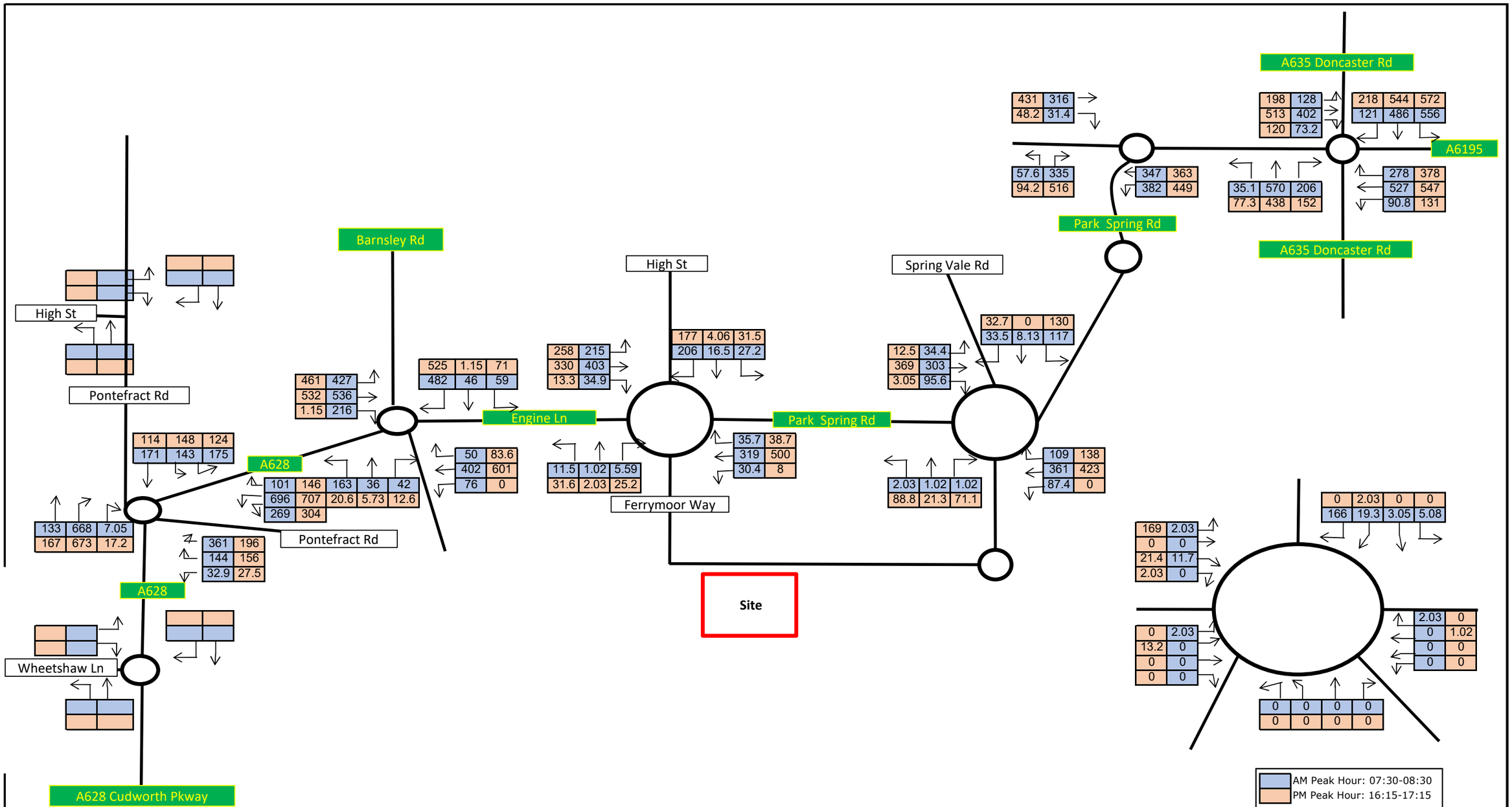
Base 2020 Factored up to Pre-COVID Flows

Proposed Employment Development , Grimethorpe, Barnsley

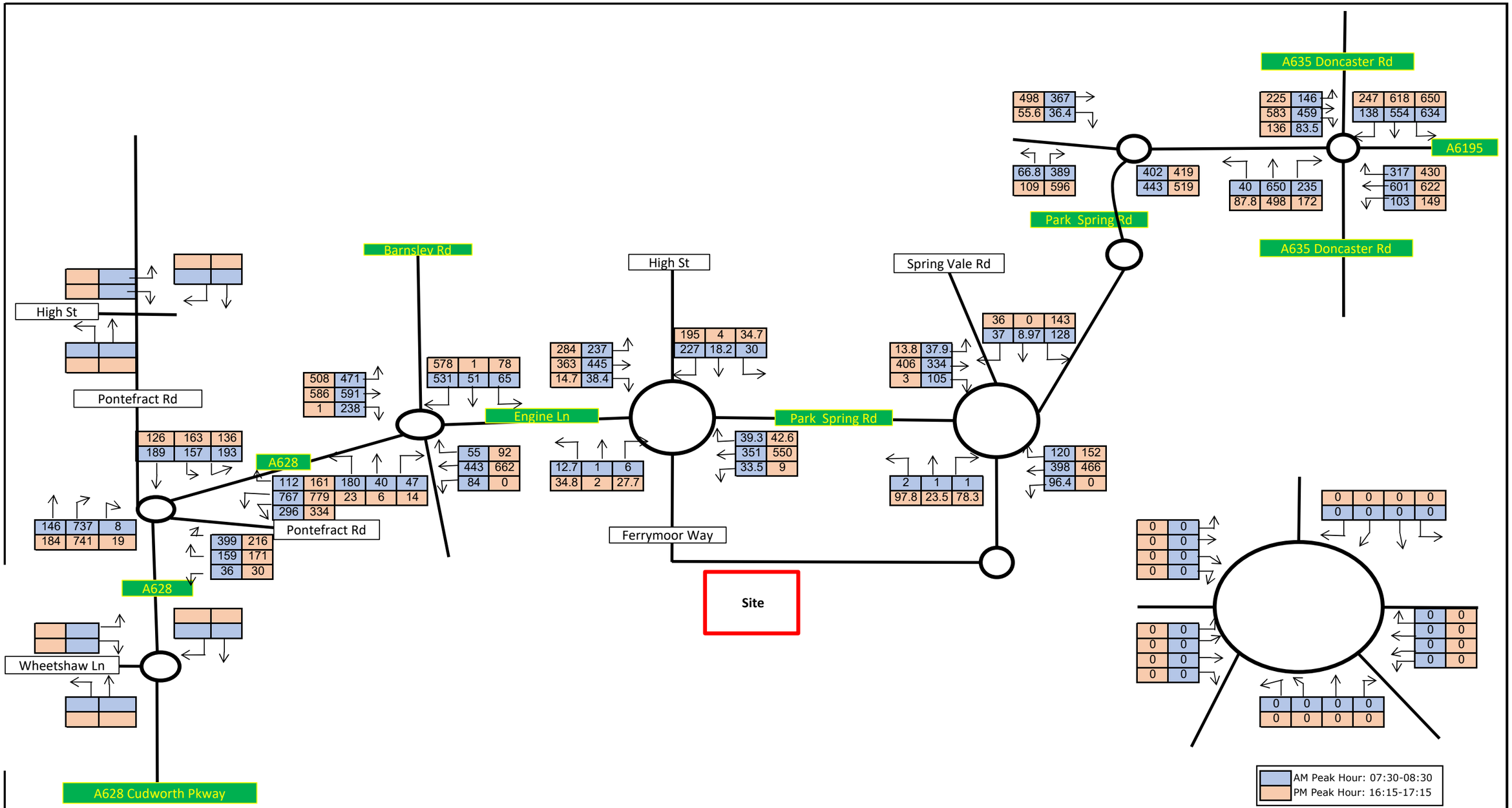
14 December 2020

Job Number - SCP/190657

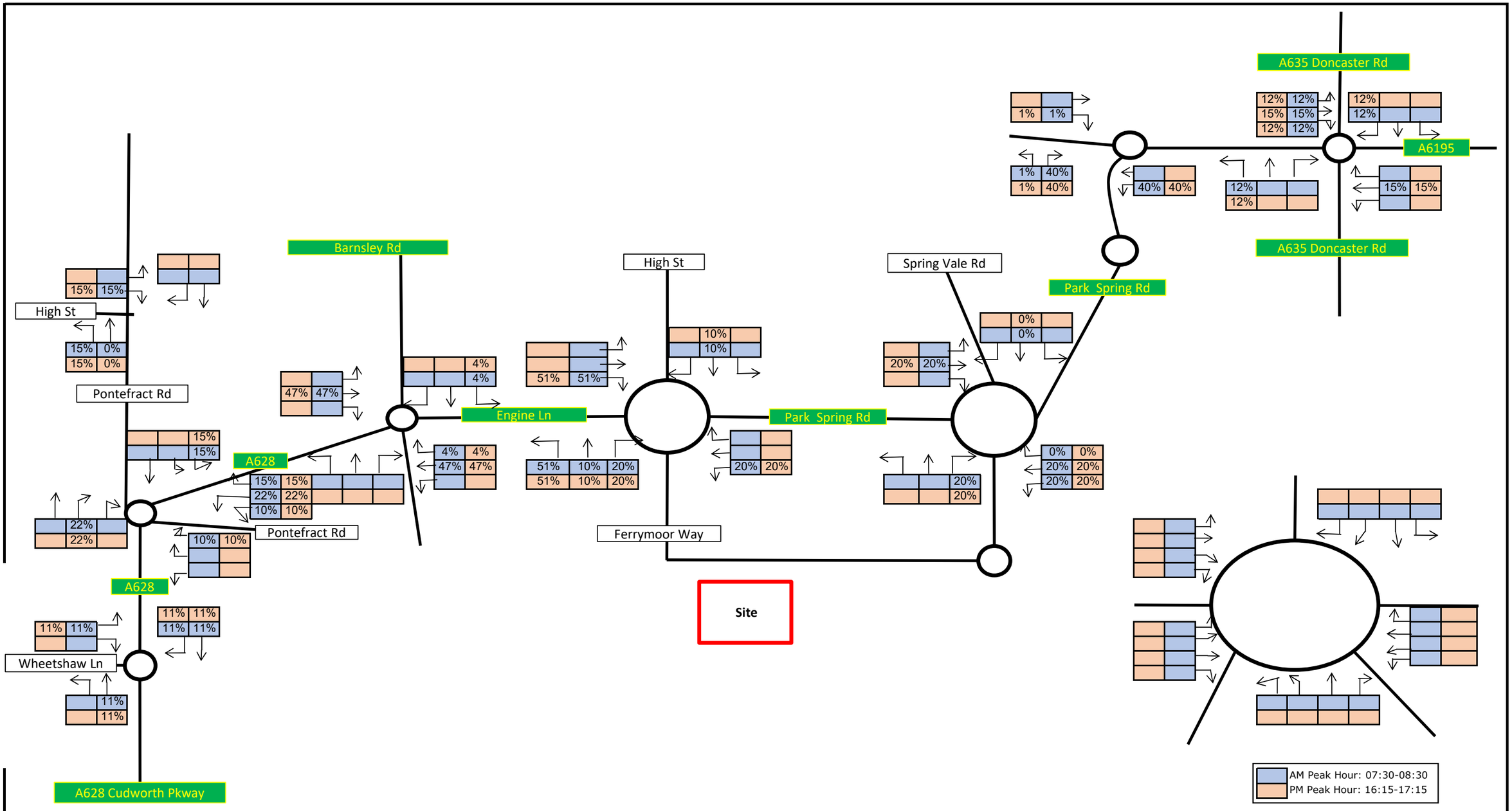
Traffic Figure 3



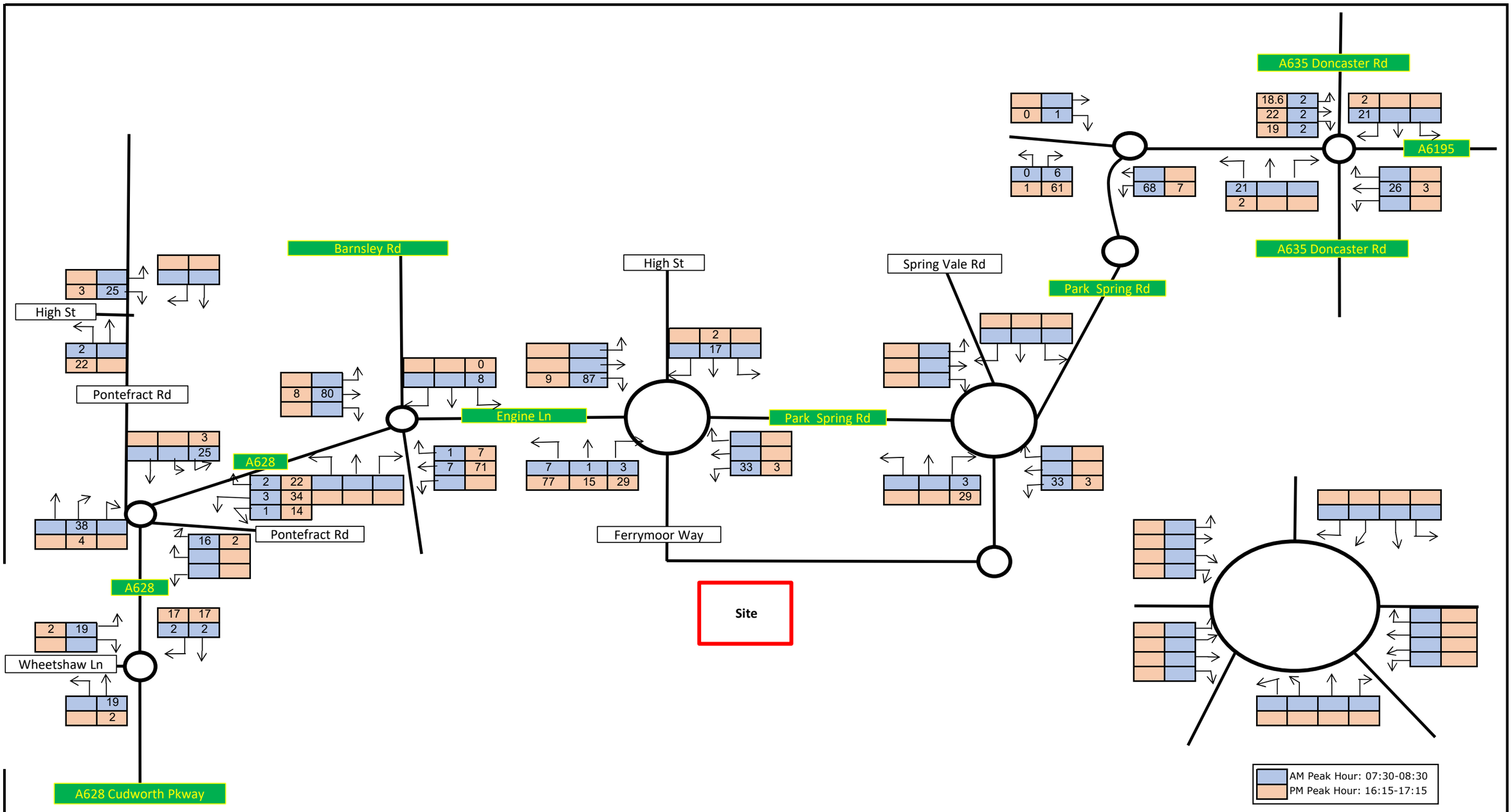
S C P Transportation Planning : Infrastructure Design	**Growthed 2020**	**14 December 2020**
		Job Number - SCP/190657
	Proposed Employment Development , Grimethorpe, Barnsley	**Traffic Figure 4**



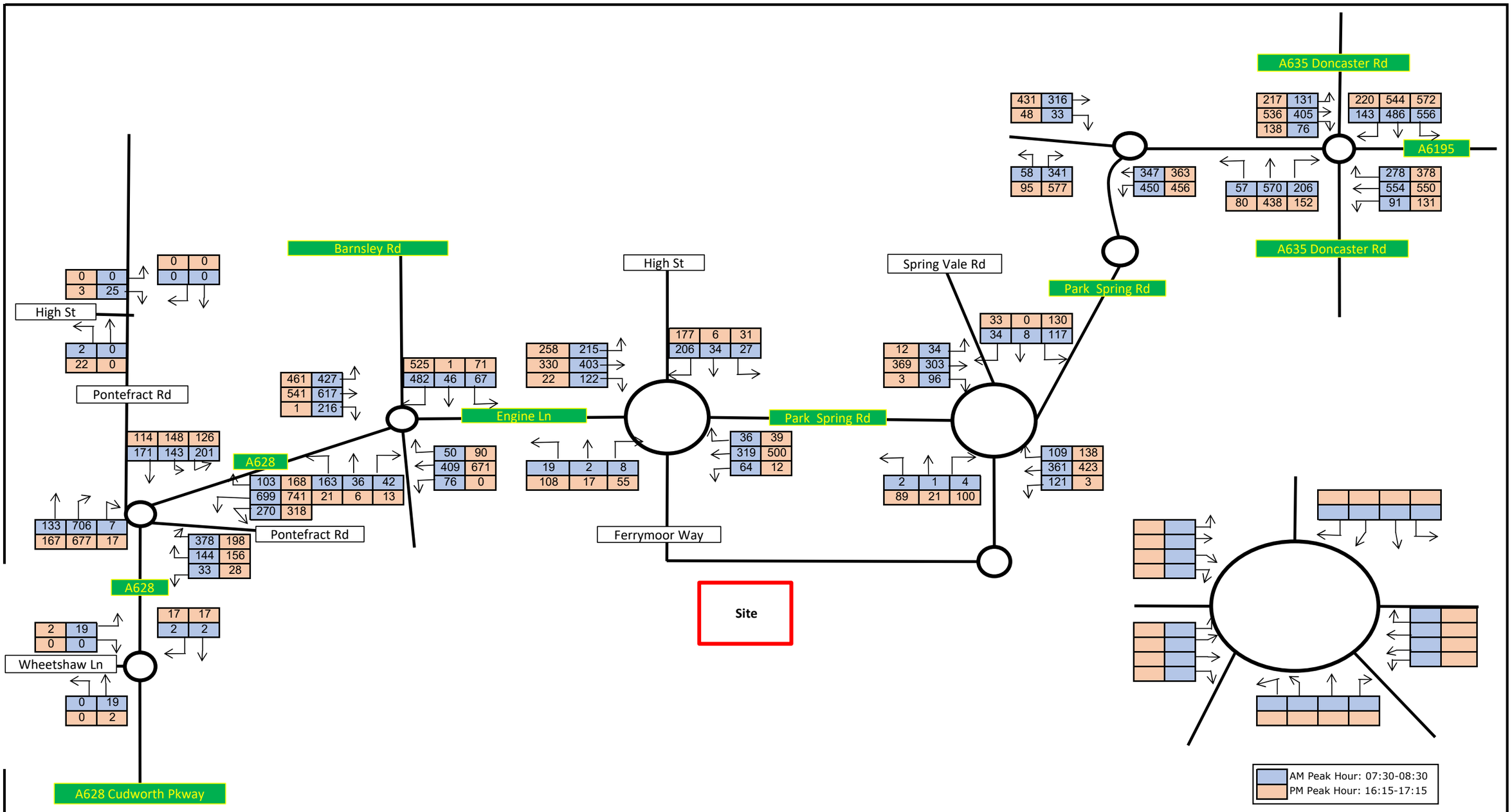
S|C|P Transportation Planning : Infrastructure Design	**Growthed 2027**	**14 December 2020**
	Proposed Employment Development , Grimethorpe, Barnsley	Job Number - SCP/190657
		Traffic Figure 5



S|C|P Transportation Planning : Infrastructure Design	**Development Traffic Distribution**	**14 December 2020**
		Job Number - SCP/190657
	Proposed Employment Development , Grimethorpe, Barnsley	**Traffic Figure 6**



S C P Transportation Planning : Infrastructure Design	**Development Traffic Assignment**	**14 December 2020**
		Job Number - SCP/190657
	Proposed Employment Development , Grimethorpe, Barnsley	**Traffic Figure 7**



Transportation Planning : Infrastructure Design

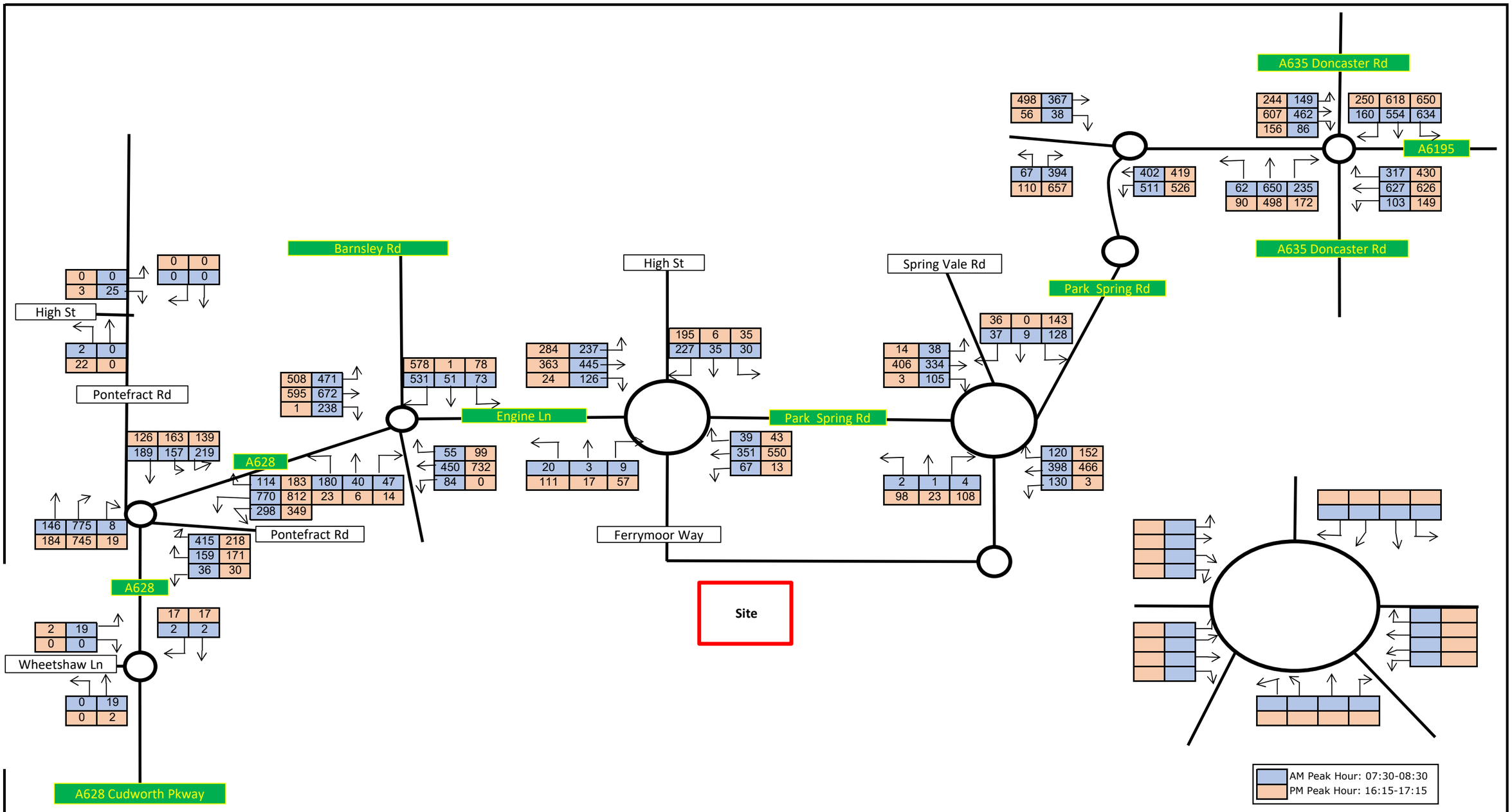
2020 Assessment Traffic Flows

Proposed Employment Development , Grimethorpe, Barnsley

14 December 2020

Job Number - SCP/190657

Traffic Figure 8



Transportation Planning : Infrastructure Design

2027 Assessment Traffic Flows

Proposed Employment Development , Grimethorpe, Barnsley

14 December 2020

Job Number - SCP/190657

Traffic Figure 9

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

survey and presentation by trafficsense Ltd.

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	9	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	9	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	36	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

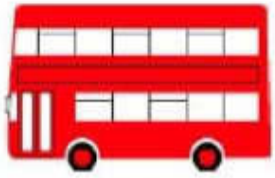
	Consented TRRC (in pcu)		Proposed (in pcu)		Net Change (in pcu)	
	AM	PM	AM	PM	AM	PM
Site Access	14	6	24	13	9	7
Rotherham Rd/Doncaster Rd	7	3	12	7	5	4
Manvers Rd/Highgate	3	1	5	3	2	2

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

APPENDIX A
Vehicle Categories

COBA VEHICLE CATEGORIES

CAR	 SALOON  ESTATE  PEOPLE CARRIER  CAR TOWING CARAVAN / TRAILER
LIGHT GOODS VEHICLE (LGV)	 VAN  <3.5 TONNES – single rear tyres  PICK-UP
OTHER GOODS VEHICLE (OGV1)	 > 3.5 TONNES – twin rear tyres  2-AXLES RIGID  2-AXLES RIGID  3 AXLES-RIGID
OTHER GOODS VEHICLE (OGV2)	 4 OR MORE AXLES RIGID  3-AXLES ARTIC  4 OR MORE AXLES ARTIC  OTHER GOODS VEHICLE WITH TRAILER
BUSES & COACHES (PSV)	 DOUBLE DECK BUS  SINGLE DECK BUS OR COACH

COBA VEHICLE CATEGORIES

Definition of Categories

The various components of traffic have different characteristics in terms of operating costs, growth and occupancy. The most common categories into which the traffic is split in COBA; these are defined as:

Cars (CARS)

Including taxis, estate cars, 'people carriers' and other passenger vehicles (for example, minibuses and camper vans) with a gross vehicle weight of less than 3.5 tonnes, normally ones which can accommodate not more than 15 seats. Three-wheeled cars, motor invalid carriages, Land Rovers, Range Rovers and Jeeps and smaller ambulances are included. Cars towing caravans or trailers are counted as one vehicle unless included as a separate class.

Light Goods Vehicles (LGV)

Includes all goods vehicles up to 3.5 tonnes gross vehicle weight (goods vehicles over 3.5 tonnes have sideguards fitted between axles), including those towing a trailer or caravan. This includes all car delivery vans and those of the next larger carrying capacity such as transit vans. Included here are small pickup vans, three-wheeled goods vehicles, milk floats and pedestrian controlled motor vehicles. Most of this group is delivery vans of one type or another.

Other Goods Vehicles (OGV 1)

Includes all rigid vehicles over 3.5 tonnes gross vehicle weight with two or three axles Includes larger ambulances, tractors (without trailers), road rollers for tarmac pressing, box vans and similar large vans. A two or three axle motor tractive unit without a trailer is also included.

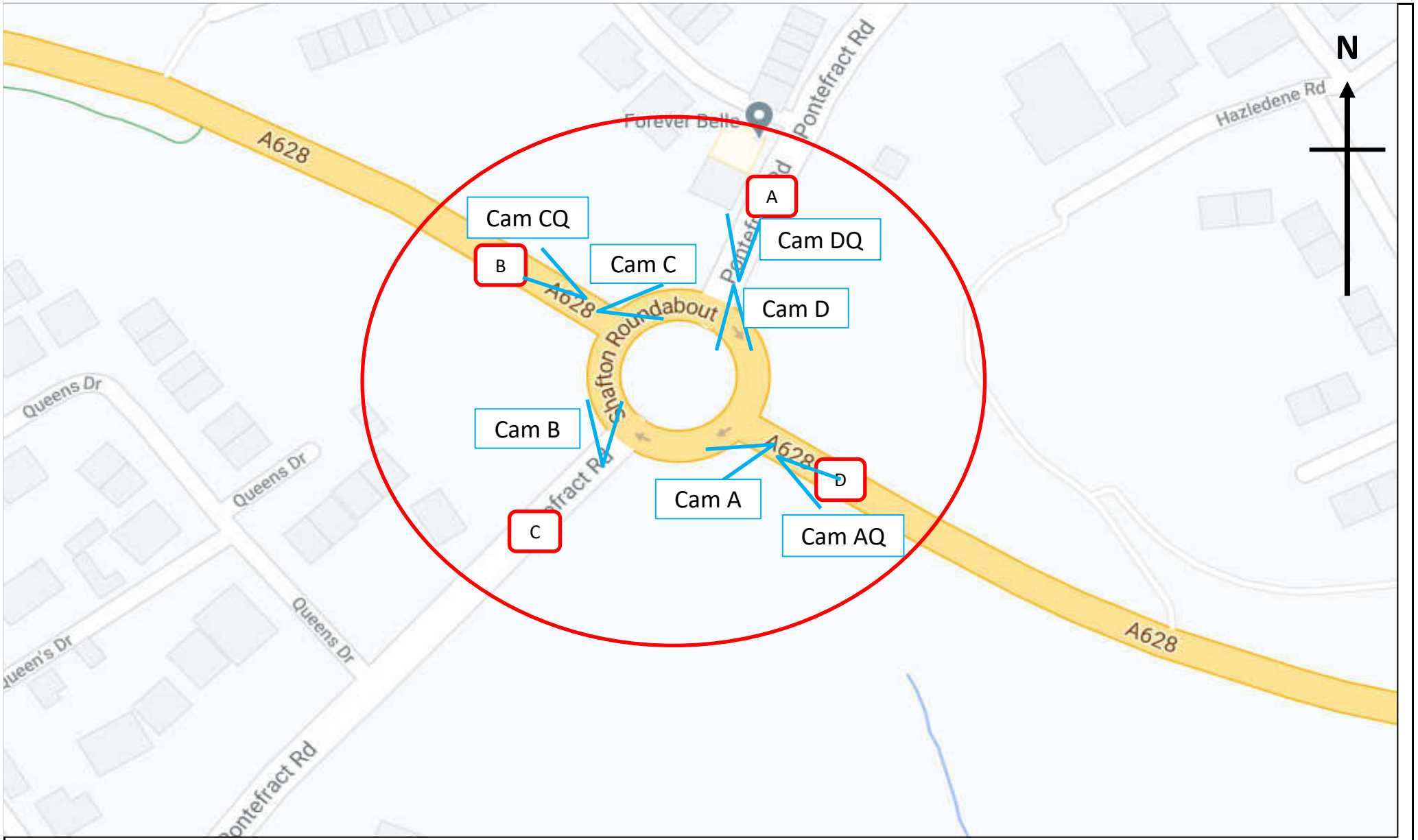
Other Goods Vehicles (OGV 2)

This category includes all rigid vehicles with four or more axles and all articulated vehicles. Also included in this class are OGV1 goods vehicles towing a caravan or trailer.

Buses and Coaches (PSV)

Includes all public service vehicles and works buses with a gross vehicle weight of 3.5 tonnes or more, usually vehicles with more than 16 seats.

APPENDIX B
Manual Classified Count



NDC NATIONWIDE DATA COLLECTION	**Site / Location:**	Site 1, Shafton Roundabout	**Project No:**	11359	**Drawing No:**	11359-01	**Drawn By:** EA
	Survey Date:	Thursday 3rd December 2020	**Project Name:**	Grimethorpe			
	Survey Times:	07:30 to 09:30 and 16:00 to 18:00	**Drawing Title:**	Site Layout and Observed Movements			

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	A to D								A to C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	25	4	0	1	0	0	0	30	17	0	0	0	2	0	0	19
07:45	36	8	2	0	0	0	0	46	16	8	2	0	3	0	0	29
H/TOT	61	12	2	1	0	0	0	76	33	8	2	0	5	0	0	48
08:00	28	3	0	1	0	0	0	32	22	1	0	0	3	0	0	26
08:15	28	5	3	0	0	0	0	36	26	5	1	0	3	0	0	35
08:30	27	5	0	0	0	0	0	32	38	7	1	0	3	0	0	49
08:45	18	3	1	0	0	0	0	22	26	4	0	0	1	0	1	32
H/TOT	101	16	4	1	0	0	0	122	112	17	2	0	10	0	1	142
09:00	18	4	1	0	0	0	0	23	20	2	1	0	1	1	0	25
09:15	18	3	1	0	0	0	0	22	25	3	0	0	4	0	0	32
H/TOT	36	7	2	0	0	0	0	45	45	5	1	0	5	1	0	57
P/TOT	198	35	8	2	0	0	0	243	190	30	5	0	20	1	1	247

	A to D								A to C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	18	9	0	0	0	0	0	27	18	2	0	0	1	0	0	21
16:15	24	4	3	0	0	1	0	32	21	6	0	0	2	0	0	29
16:30	19	7	0	0	0	0	0	26	34	6	0	0	2	0	0	42
16:45	20	2	0	0	0	0	0	22	26	3	2	0	0	0	0	31
H/TOT	81	22	3	0	0	1	0	107	99	17	2	0	5	0	0	123
17:00	22	6	0	0	0	0	0	28	27	5	2	0	1	0	0	35
17:15	24	8	0	0	0	0	1	33	30	5	0	0	2	0	0	37
17:30	30	2	2	0	0	0	0	34	28	3	0	0	1	0	0	32
17:45	14	2	0	0	0	0	0	16	18	6	1	0	2	0	0	27
H/TOT	90	18	2	0	0	0	1	111	103	19	3	0	6	0	0	131
P/TOT	171	40	5	0	0	1	1	218	202	36	5	0	11	0	0	254

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	A to B								A to A							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:30	28	4	1	0	0	1	0	34	0	0	0	0	0	0	0	0
07:45	41	8	0	0	0	0	0	49	0	0	0	0	0	0	0	0
H/TOT	69	12	1	0	0	1	0	83	0	0	0	0	0	0	0	0
08:00	27	5	0	1	0	0	0	33	0	0	0	0	0	0	0	0
08:15	22	6	0	0	0	1	0	29	0	0	0	0	0	0	0	0
08:30	30	3	1	0	0	0	0	34	0	0	0	0	0	0	0	0
08:45	27	2	2	0	0	0	0	31	0	0	0	0	0	0	0	0
H/TOT	106	16	3	1	0	1	0	127	0	0	0	0	0	0	0	0
09:00	21	1	1	0	0	0	0	23	0	0	0	0	0	0	0	0
09:15	23	9	2	0	0	0	0	34	0	0	0	0	0	0	0	0
H/TOT	44	10	3	0	0	0	0	57	0	0	0	0	0	0	0	0
P/TOT	219	38	7	1	0	2	0	267	0	0	0	0	0	0	0	0

	A to B								A to A							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
16:00	17	4	0	0	0	0	0	21	0	0	0	0	0	0	0	0
16:15	23	4	3	0	0	0	0	30	1	0	0	0	0	0	0	1
16:30	17	1	1	1	0	0	0	20	0	0	0	0	0	0	0	0
16:45	17	6	0	1	0	0	0	24	0	0	0	0	0	0	0	0
H/TOT	74	15	4	2	0	0	0	95	1	0	0	0	0	0	0	1
17:00	19	2	1	0	0	0	0	22	0	0	0	0	0	0	0	0
17:15	22	5	1	0	0	0	0	28	0	0	0	0	0	0	0	0
17:30	14	2	0	0	0	0	0	16	0	0	0	0	0	0	0	0
17:45	18	2	0	0	0	0	0	20	0	0	0	0	0	0	0	0
H/TOT	73	11	2	0	0	0	0	86	0	0	0	0	0	0	0	0
P/TOT	147	26	6	2	0	0	0	181	1	0	0	0	0	0	0	1

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	B to A								B to D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	8	5	0	0	0	0	0	13	111	15	5	7	0	0	0	138
07:45	23	4	1	0	0	0	1	29	111	20	5	3	5	1	0	145
H/TOT	31	9	1	0	0	0	1	42	222	35	10	10	5	1	0	283
08:00	14	7	4	0	1	0	7	33	86	15	5	5	3	0	3	117
08:15	25	5	2	3	0	1	2	38	90	17	6	9	0	0	0	122
08:30	12	3	2	1	0	0	0	18	73	18	8	2	0	0	0	101
08:45	17	4	1	0	1	0	0	23	74	11	6	10	1	0	0	102
H/TOT	68	19	9	4	2	1	9	112	323	61	25	26	4	0	3	442
09:00	16	1	1	0	0	0	0	18	64	13	8	5	1	0	0	91
09:15	13	6	1	0	0	0	0	20	52	21	4	4	1	0	0	82
H/TOT	29	7	2	0	0	0	0	38	116	34	12	9	2	0	0	173
P/TOT	128	35	12	4	2	1	10	192	661	130	47	45	11	1	3	898

	B to A								B to D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	27	6	2	1	0	0	0	36	102	31	3	5	1	0	0	142
16:15	31	5	1	0	1	0	0	38	105	25	5	7	0	0	0	142
16:30	26	6	1	0	0	0	0	33	101	22	2	4	0	0	0	129
16:45	23	9	0	0	1	0	1	34	105	23	1	7	1	0	0	137
H/TOT	107	26	4	1	2	0	1	141	413	101	11	23	2	0	0	550
17:00	40	8	0	0	0	0	0	48	109	14	2	3	0	2	0	130
17:15	26	7	0	0	1	1	0	35	111	12	1	4	1	0	2	131
17:30	33	1	0	0	0	2	0	36	95	14	0	1	0	0	0	110
17:45	25	2	0	0	0	0	0	27	92	11	2	0	0	0	0	105
H/TOT	124	18	0	0	1	3	0	146	407	51	5	8	1	2	2	476
P/TOT	231	44	4	1	3	3	1	287	820	152	16	31	3	2	2	1026

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CLASSIFIED TURNING COUNT

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	B to C								B to B							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
H/TOT	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
08:00	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1
08:15	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
08:30	1	1	0	0	1	0	0	3	1	0	0	0	0	0	0	1
08:45	12	1	1	0	0	0	0	14	0	0	0	0	0	0	0	0
H/TOT	18	2	1	0	1	0	0	22	2	0	0	0	0	0	0	2
09:00	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
09:15	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
H/TOT	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
P/TOT	23	2	1	0	1	0	0	27	2	0	0	0	0	0	0	2

	B to C								B to B							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
16:00	3	3	0	0	0	0	0	6	0	0	0	0	0	0	0	0
16:15	2	2	0	0	0	0	0	4	0	0	0	0	0	0	0	0
16:30	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
16:45	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0
H/TOT	9	6	0	0	0	0	0	15	0	0	0	0	0	0	0	0
17:00	6	0	0	0	0	0	0	6	1	0	0	0	0	0	0	1
17:15	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
17:30	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
17:45	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
H/TOT	14	0	0	0	0	0	0	14	1	0	0	0	0	0	0	1
P/TOT	23	6	0	0	0	0	0	29	1	0	0	0	0	0	0	1

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	C to B								C to A							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:30	1	0	1	0	0	0	0	2	20	4	0	0	2	1	0	27
07:45	4	0	1	0	0	0	0	5	23	6	0	0	1	0	1	31
H/TOT	5	0	2	0	0	0	0	7	43	10	0	0	3	1	1	58
08:00	6	2	1	0	0	0	0	9	18	6	0	0	2	0	7	33
08:15	8	1	1	0	0	0	0	10	23	8	0	0	1	0	2	34
08:30	12	0	1	0	0	0	0	13	17	3	1	0	1	0	0	22
08:45	5	1	0	0	0	0	0	6	32	4	2	0	1	0	0	39
H/TOT	31	4	3	0	0	0	0	38	90	21	3	0	5	0	9	128
09:00	5	1	0	0	0	1	0	7	26	3	4	0	4	0	0	37
09:15	0	0	0	0	0	0	0	0	13	4	0	1	1	0	0	19
H/TOT	5	1	0	0	0	1	0	7	39	7	4	1	5	0	0	56
P/TOT	41	5	5	0	0	1	0	52	172	38	7	1	13	1	10	242

	C to B								C to A							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
16:00	5	0	0	0	0	0	0	5	37	0	0	0	3	0	0	40
16:15	4	1	0	0	0	0	0	5	16	7	1	1	2	0	0	27
16:30	5	2	0	0	0	0	0	7	20	3	1	0	0	0	0	24
16:45	5	2	0	0	0	0	0	7	24	4	1	0	4	0	0	33
H/TOT	19	5	0	0	0	0	0	24	97	14	3	1	9	0	0	124
17:00	1	1	0	0	0	0	0	2	26	5	0	0	1	0	0	32
17:15	4	0	0	0	0	0	0	4	23	5	0	0	0	0	0	28
17:30	3	1	0	0	0	0	0	4	23	2	1	0	2	1	0	29
17:45	5	0	0	0	0	0	0	5	15	6	0	0	2	0	0	23
H/TOT	13	2	0	0	0	0	0	15	87	18	1	0	5	1	0	112
P/TOT	32	7	0	0	0	0	0	39	184	32	4	1	14	1	0	236

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DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	C to D								C to C							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:30	38	14	0	1	0	0	0	53	0	0	0	0	0	0	0	0
07:45	46	14	2	0	0	0	0	62	0	0	0	0	0	0	0	0
H/TOT	84	28	2	1	0	0	0	115	0	0	0	0	0	0	0	0
08:00	91	7	3	0	2	0	2	105	0	1	0	0	0	0	0	1
08:15	67	8	3	0	2	0	0	80	5	0	0	0	0	0	0	5
08:30	50	4	0	0	0	0	0	54	0	0	0	0	0	0	0	0
08:45	42	10	1	1	2	0	0	56	0	0	0	0	0	0	0	0
H/TOT	250	29	7	1	6	0	2	295	5	1	0	0	0	0	0	6
09:00	43	7	3	0	0	0	0	53	0	0	0	0	0	0	0	0
09:15	26	5	2	0	0	0	0	33	0	0	0	0	0	0	0	0
H/TOT	69	12	5	0	0	0	0	86	0	0	0	0	0	0	0	0
P/TOT	403	69	14	2	6	0	2	496	5	1	0	0	0	0	0	6

	C to D								C to C							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
16:00	39	4	0	0	1	1	0	45	0	0	0	0	0	0	0	0
16:15	38	6	1	0	0	0	0	45	0	1	0	0	0	0	0	1
16:30	35	2	1	0	0	0	0	38	0	0	0	0	0	0	0	0
16:45	35	4	2	0	0	0	0	41	0	0	0	0	0	0	0	0
H/TOT	147	16	4	0	1	1	0	169	0	1	0	0	0	0	0	1
17:00	40	9	1	0	1	1	0	52	0	0	0	0	0	0	0	0
17:15	47	6	1	0	0	0	0	54	0	0	0	0	0	0	0	0
17:30	52	6	0	0	0	0	0	58	0	0	0	0	0	0	0	0
17:45	41	7	0	0	0	0	0	48	0	0	0	0	0	0	0	0
H/TOT	180	28	2	0	1	1	0	212	0	0	0	0	0	0	0	0
P/TOT	327	44	6	0	2	2	0	381	0	1	0	0	0	0	0	1

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	D to C								D to B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	31	2	1	0	0	1	0	35	101	29	4	9	0	1	0	144
07:45	36	10	0	0	0	1	0	47	105	22	7	3	0	0	0	137
H/TOT	67	12	1	0	0	2	0	82	206	51	11	12	0	1	0	281
08:00	68	4	0	0	0	1	0	73	107	13	4	9	0	0	0	133
08:15	68	5	0	0	1	0	0	74	116	13	4	3	1	0	0	137
08:30	47	5	4	0	1	0	0	57	85	18	6	4	0	0	0	113
08:45	51	7	2	1	0	0	0	61	73	9	8	7	0	3	0	100
H/TOT	234	21	6	1	2	1	0	265	381	53	22	23	1	3	0	483
09:00	40	3	0	0	0	0	0	43	83	15	7	6	1	0	0	112
09:15	39	6	2	1	0	1	0	49	57	15	6	4	0	0	0	82
H/TOT	79	9	2	1	0	1	0	92	140	30	13	10	1	0	0	194
P/TOT	380	42	9	2	2	4	0	439	727	134	46	45	2	4	0	958

	D to C								D to B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	57	9	4	0	1	0	0	71	105	23	6	7	3	0	0	144
16:15	50	14	2	0	0	0	0	66	105	28	9	4	1	1	0	148
16:30	50	10	0	0	0	0	0	60	125	16	0	3	1	0	0	145
16:45	50	12	1	0	0	0	2	65	113	21	6	3	0	0	0	143
H/TOT	207	45	7	0	1	0	2	262	448	88	21	17	5	1	0	580
17:00	58	12	0	0	0	0	0	70	97	14	5	2	2	1	0	121
17:15	52	13	2	0	0	0	0	67	103	13	5	3	0	1	0	125
17:30	48	10	0	0	0	1	0	59	112	19	1	2	0	0	0	134
17:45	45	4	0	0	0	0	1	50	84	7	1	3	1	2	0	98
H/TOT	203	39	2	0	0	1	1	246	396	53	12	10	3	4	0	478
P/TOT	410	84	9	0	1	1	3	508	844	141	33	27	8	5	0	1058

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CLASSIFIED TURNING COUNT

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	D to A								D to D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	11	4	0	1	0	0	0	16	0	0	0	0	0	0	0	0
07:45	15	5	0	1	0	0	0	21	0	0	0	0	0	0	0	0
H/TOT	26	9	0	2	0	0	0	37	0	0	0	0	0	0	0	0
08:00	19	3	1	0	0	0	0	23	0	0	0	0	0	0	0	0
08:15	20	3	0	0	0	0	0	23	0	0	0	0	0	0	0	0
08:30	10	2	2	0	0	0	0	14	0	0	0	0	0	0	0	0
08:45	8	7	1	1	0	0	0	17	0	0	0	0	0	0	0	0
H/TOT	57	15	4	1	0	0	0	77	0	0	0	0	0	0	0	0
09:00	15	3	0	0	0	0	0	18	0	0	0	0	0	0	0	0
09:15	18	7	1	1	0	0	0	27	0	0	0	0	0	0	0	0
H/TOT	33	10	1	1	0	0	0	45	0	0	0	0	0	0	0	0
P/TOT	116	34	5	4	0	0	0	159	0	0	0	0	0	0	0	0

	D to A								D to D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	23	6	0	0	0	0	0	29	0	0	0	0	0	0	0	0
16:15	25	2	0	0	0	0	0	27	0	0	0	0	0	0	0	0
16:30	32	6	1	1	0	0	0	40	0	0	0	0	0	0	0	0
16:45	24	4	1	0	0	0	0	29	0	0	0	0	0	0	0	0
H/TOT	104	18	2	1	0	0	0	125	0	0	0	0	0	0	0	0
17:00	17	3	1	0	0	0	0	21	0	0	0	0	0	0	0	0
17:15	21	5	0	0	0	0	0	26	0	0	0	0	0	0	0	0
17:30	17	0	1	0	0	0	0	18	0	0	0	0	0	0	0	0
17:45	22	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0
H/TOT	77	8	2	0	0	0	0	87	0	0	0	0	0	0	0	0
P/TOT	181	26	4	1	0	0	0	212	0	0	0	0	0	0	0	0

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	TO ARM A								FROM ARM A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	39	13	0	1	2	1	0	56	70	8	1	1	2	1	0	83
07:45	61	15	1	1	1	0	2	81	93	24	4	0	3	0	0	124
H/TOT	100	28	1	2	3	1	2	137	163	32	5	1	5	1	0	207
08:00	51	16	5	0	3	0	14	89	77	9	0	2	3	0	0	91
08:15	68	16	2	3	1	1	4	95	76	16	4	0	3	1	0	100
08:30	39	8	5	1	1	0	0	54	95	15	2	0	3	0	0	115
08:45	57	15	4	1	2	0	0	79	71	9	3	0	1	0	1	85
H/TOT	215	55	16	5	7	1	18	317	319	49	9	2	10	1	1	391
09:00	57	7	5	0	4	0	0	73	59	7	3	0	1	1	0	71
09:15	44	17	2	2	1	0	0	66	66	15	3	0	4	0	0	88
H/TOT	101	24	7	2	5	0	0	139	125	22	6	0	5	1	0	159
P/TOT	416	107	24	9	15	2	20	593	607	103	20	3	20	3	1	757

	TO ARM A								FROM ARM A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	87	12	2	1	3	0	0	105	53	15	0	0	1	0	0	69
16:15	73	14	2	1	3	0	0	93	69	14	6	0	2	1	0	92
16:30	78	15	3	1	0	0	0	97	70	14	1	1	2	0	0	88
16:45	71	17	2	0	5	0	1	96	63	11	2	1	0	0	0	77
H/TOT	309	58	9	3	11	0	1	391	255	54	9	2	5	1	0	326
17:00	83	16	1	0	1	0	0	101	68	13	3	0	1	0	0	85
17:15	70	17	0	0	1	1	0	89	76	18	1	0	2	0	1	98
17:30	73	3	2	0	2	3	0	83	72	7	2	0	1	0	0	82
17:45	62	8	0	0	2	0	0	72	50	10	1	0	2	0	0	63
H/TOT	288	44	3	0	6	4	0	345	266	48	7	0	6	0	1	328
P/TOT	597	102	12	3	17	4	1	736	521	102	16	2	11	1	1	654

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	TO ARM B								FROM ARM B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	130	33	6	9	0	2	0	180	119	20	5	7	0	0	0	151
07:45	150	30	8	3	0	0	0	191	135	24	6	3	5	1	1	175
H/TOT	280	63	14	12	0	2	0	371	254	44	11	10	5	1	1	326
08:00	141	20	5	10	0	0	0	176	103	22	9	5	4	0	10	153
08:15	146	20	5	3	1	1	0	176	118	22	8	12	0	1	2	163
08:30	128	21	8	4	0	0	0	161	87	22	10	3	1	0	0	123
08:45	105	12	10	7	0	3	0	137	103	16	8	10	2	0	0	139
H/TOT	520	73	28	24	1	4	0	650	411	82	35	30	7	1	12	578
09:00	109	17	8	6	1	1	0	142	81	14	9	5	1	0	0	110
09:15	80	24	8	4	0	0	0	116	68	27	5	4	1	0	0	105
H/TOT	189	41	16	10	1	1	0	258	149	41	14	9	2	0	0	215
P/TOT	989	177	58	46	2	7	0	1279	814	167	60	49	14	2	13	1119

	TO ARM B								FROM ARM B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	127	27	6	7	3	0	0	170	132	40	5	6	1	0	0	184
16:15	132	33	12	4	1	1	0	183	138	32	6	7	1	0	0	184
16:30	147	19	1	4	1	0	0	172	130	28	3	4	0	0	0	165
16:45	135	29	6	4	0	0	0	174	129	33	1	7	2	0	1	173
H/TOT	541	108	25	19	5	1	0	699	529	133	15	24	4	0	1	706
17:00	118	17	6	2	2	1	0	146	156	22	2	3	0	2	0	185
17:15	129	18	6	3	0	1	0	157	140	19	1	4	2	1	2	169
17:30	129	22	1	2	0	0	0	154	131	15	0	1	0	2	0	149
17:45	107	9	1	3	1	2	0	123	119	13	2	0	0	0	0	134
H/TOT	483	66	14	10	3	4	0	580	546	69	5	8	2	5	2	637
P/TOT	1024	174	39	29	8	5	0	1279	1075	202	20	32	6	5	3	1343

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	TO ARM C								FROM ARM C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	48	2	1	0	2	1	0	54	59	18	1	1	2	1	0	82
07:45	53	18	2	0	3	1	0	77	73	20	3	0	1	0	1	98
H/TOT	101	20	3	0	5	2	0	131	132	38	4	1	3	1	1	180
08:00	92	6	0	0	3	1	0	102	115	16	4	0	4	0	9	148
08:15	102	10	1	0	4	0	0	117	103	17	4	0	3	0	2	129
08:30	86	13	5	0	5	0	0	109	79	7	2	0	1	0	0	89
08:45	89	12	3	1	1	0	1	107	79	15	3	1	3	0	0	101
H/TOT	369	41	9	1	13	1	1	435	376	55	13	1	11	0	11	467
09:00	61	5	1	0	1	1	0	69	74	11	7	0	4	1	0	97
09:15	67	9	2	1	4	1	0	84	39	9	2	1	1	0	0	52
H/TOT	128	14	3	1	5	2	0	153	113	20	9	1	5	1	0	149
P/TOT	598	75	15	2	23	5	1	719	621	113	26	3	19	2	12	796

	TO ARM C								FROM ARM C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	78	14	4	0	2	0	0	98	81	4	0	0	4	1	0	90
16:15	73	23	2	0	2	0	0	100	58	15	2	1	2	0	0	78
16:30	87	16	0	0	2	0	0	105	60	7	2	0	0	0	0	69
16:45	77	16	3	0	0	0	2	98	64	10	3	0	4	0	0	81
H/TOT	315	69	9	0	6	0	2	401	263	36	7	1	10	1	0	318
17:00	91	17	2	0	1	0	0	111	67	15	1	0	2	1	0	86
17:15	85	18	2	0	2	0	0	107	74	11	1	0	0	0	0	86
17:30	79	13	0	0	1	1	0	94	78	9	1	0	2	1	0	91
17:45	65	10	1	0	2	0	1	79	61	13	0	0	2	0	0	76
H/TOT	320	58	5	0	6	1	1	391	280	48	3	0	6	2	0	339
P/TOT	635	127	14	0	12	1	3	792	543	84	10	1	16	3	0	657

SITE: 1 DATE: 03/12/2020

LOCATION: Shafton Roundabout DAY: Thursday

	TO ARM D								FROM ARM D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	174	33	5	9	0	0	0	221	143	35	5	10	0	2	0	195
07:45	193	42	9	3	5	1	0	253	156	37	7	4	0	1	0	205
H/TOT	367	75	14	12	5	1	0	474	299	72	12	14	0	3	0	400
08:00	205	25	8	6	5	0	5	254	194	20	5	9	0	1	0	229
08:15	185	30	12	9	2	0	0	238	204	21	4	3	2	0	0	234
08:30	150	27	8	2	0	0	0	187	142	25	12	4	1	0	0	184
08:45	134	24	8	11	3	0	0	180	132	23	11	9	0	3	0	178
H/TOT	674	106	36	28	10	0	5	859	672	89	32	25	3	4	0	825
09:00	125	24	12	5	1	0	0	167	138	21	7	6	1	0	0	173
09:15	96	29	7	4	1	0	0	137	114	28	9	6	0	1	0	158
H/TOT	221	53	19	9	2	0	0	304	252	49	16	12	1	1	0	331
P/TOT	1262	234	69	49	17	1	5	1637	1223	210	60	51	4	8	0	1556

	TO ARM D								FROM ARM D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	159	44	3	5	2	1	0	214	185	38	10	7	4	0	0	244
16:15	167	35	9	7	0	1	0	219	180	44	11	4	1	1	0	241
16:30	155	31	3	4	0	0	0	193	207	32	1	4	1	0	0	245
16:45	160	29	3	7	1	0	0	200	187	37	8	3	0	0	2	237
H/TOT	641	139	18	23	3	2	0	826	759	151	30	18	6	1	2	967
17:00	171	29	3	3	1	3	0	210	172	29	6	2	2	1	0	212
17:15	182	26	2	4	1	0	3	218	176	31	7	3	0	1	0	218
17:30	177	22	2	1	0	0	0	202	177	29	2	2	0	1	0	211
17:45	147	20	2	0	0	0	0	169	151	11	1	3	1	2	1	170
H/TOT	677	97	9	8	2	3	3	799	676	100	16	10	3	5	1	811
P/TOT	1318	236	27	31	5	5	3	1625	1435	251	46	28	9	6	3	1778

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DECEMBER 2020
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SITE: 1 DATE: 03/12/2020

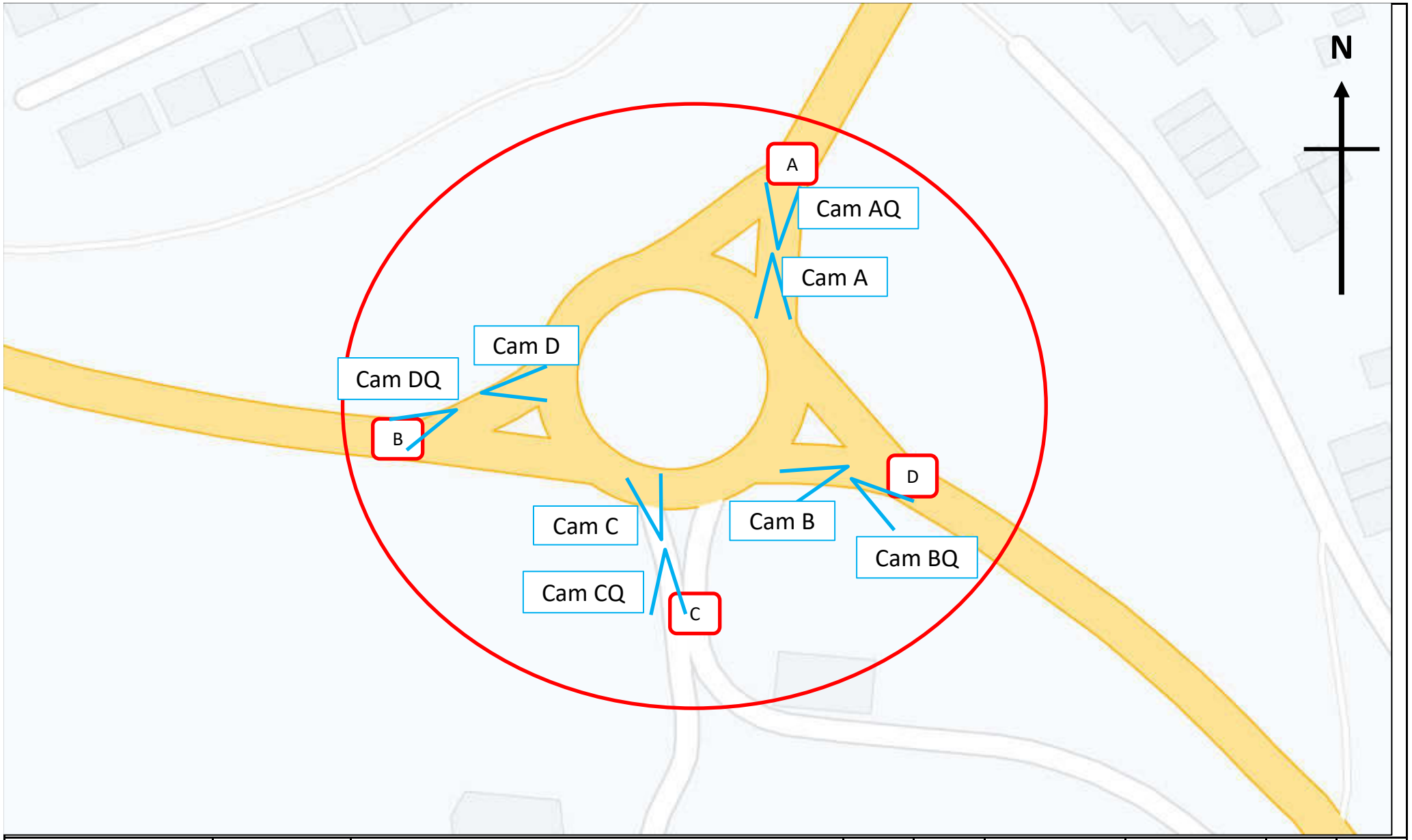
LOCATION: Shafton Roundabout DAY: Thursday

TIME	JUNCTION TOTAL CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:30	391	81	12	19	4	4	0	511
07:45	457	105	20	7	9	2	2	602
H/TOT	848	186	32	26	13	6	2	1113
08:00	489	67	18	16	11	1	19	621
08:15	501	76	20	15	8	2	4	626
08:30	403	69	26	7	6	0	0	511
08:45	385	63	25	20	6	3	1	503
H/TOT	1778	275	89	58	31	6	24	2261
09:00	352	53	26	11	7	2	0	451
09:15	287	79	19	11	6	1	0	403
H/TOT	639	132	45	22	13	3	0	854
P/TOT	3265	593	166	106	57	15	26	4228

PEAK HOUR CALCULATION	TOT
07:30 to 08:30	**2360**
07:45 to 08:45	**2360**
08:00 to 09:00	2261
08:15 to 09:15	2091
08:30 to 09:30	1868
PEAK VALUE	**2360**

TIME	JUNCTION TOTAL CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
16:00	451	97	15	13	10	1	0	587
16:15	445	105	25	12	6	2	0	595
16:30	467	81	7	9	3	0	0	567
16:45	443	91	14	11	6	0	3	568
H/TOT	1806	374	61	45	25	3	3	2317
17:00	463	79	12	5	5	4	0	568
17:15	466	79	10	7	4	2	3	571
17:30	458	60	5	3	3	4	0	533
17:45	381	47	4	3	5	2	1	443
H/TOT	1768	265	31	18	17	12	4	2115
P/TOT	3574	639	92	63	42	15	7	4432

PEAK HOUR CALCULATION	TOT
16:00 to 17:00	**2317**
16:15 to 17:15	2298
16:30 to 17:30	2274
16:45 to 17:45	2240
17:00 to 18:00	2115
PEAK VALUE	**2317**



NDC NATIONWIDE DATA COLLECTION	**Site / Location:**	Site 2, Engine Lane Roundabout	**Project No:**	11359	**Drawing No:**	11359-02	**Drawn By:** EA
	Survey Date:	Thursday 3rd December 2020	**Project Name:**	Grimethorpe			
	Survey Times:	07:30 to 09:30 and 16:00 to 18:00	**Drawing Title:**	Site Layout and Observed Movements			

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	A to D								A to C							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:30	9	1	0	0	2	0	0	12	4	0	0	0	0	0	0	4
07:45	11	1	2	0	0	0	0	14	10	0	0	0	0	0	0	10
H/TOT	20	2	2	0	2	0	0	26	14	0	0	0	0	0	0	14
08:00	6	5	1	0	0	0	0	12	19	1	0	0	1	0	0	21
08:15	9	0	0	0	0	0	0	9	3	0	0	0	0	0	0	3
08:30	5	2	0	0	1	0	0	8	0	0	0	0	0	0	0	0
08:45	7	2	3	0	1	0	0	13	0	0	0	0	0	0	0	0
H/TOT	27	9	4	0	2	0	0	42	22	1	0	0	1	0	0	24
09:00	8	3	1	0	2	0	0	14	0	0	0	0	0	0	0	0
09:15	10	1	0	0	0	0	0	11	1	0	0	0	0	0	0	1
H/TOT	18	4	1	0	2	0	0	25	1	0	0	0	0	0	0	1
P/TOT	65	15	7	0	6	0	0	93	37	1	0	0	1	0	0	39

	A to D								A to C							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
16:00	4	2	1	2	1	0	0	10	0	0	0	0	0	0	0	0
16:15	7	2	0	1	0	0	0	10	0	0	0	0	0	0	0	0
16:30	7	2	0	3	1	0	0	13	0	0	0	0	0	0	0	0
16:45	9	0	2	2	1	0	0	14	1	0	0	0	0	0	0	1
H/TOT	27	6	3	8	3	0	0	47	1	0	0	0	0	0	0	1
17:00	4	0	0	1	1	0	0	6	0	0	0	0	0	0	0	0
17:15	4	2	0	0	0	0	0	6	0	0	0	0	0	0	0	0
17:30	9	0	0	1	1	0	0	11	0	0	0	0	0	0	0	0
17:45	8	0	0	0	0	0	0	8	2	1	0	0	0	0	0	3
H/TOT	25	2	0	2	2	0	0	31	2	1	0	0	0	0	0	3
P/TOT	52	8	3	10	5	0	0	78	3	1	0	0	0	0	0	4

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	A to B								A to A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	69	18	2	6	0	0	0	95	0	0	0	0	0	0	0	0
07:45	67	12	4	2	0	0	0	85	0	0	0	0	0	0	0	0
H/TOT	136	30	6	8	0	0	0	180	0	0	0	0	0	0	0	0
08:00	84	13	3	5	0	1	0	106	0	0	0	0	0	0	0	0
08:15	83	10	1	3	1	0	0	98	0	0	0	0	0	0	0	0
08:30	82	13	6	2	1	0	0	104	0	0	0	0	0	0	0	0
08:45	65	9	3	5	0	1	0	83	0	0	0	0	0	0	0	0
H/TOT	314	45	13	15	2	2	0	391	0	0	0	0	0	0	0	0
09:00	67	9	5	4	1	0	0	86	0	0	0	0	0	0	0	0
09:15	56	10	4	4	0	0	0	74	0	0	0	0	0	0	0	0
H/TOT	123	19	9	8	1	0	0	160	0	0	0	0	0	0	0	0
P/TOT	573	94	28	31	3	2	0	731	0	0	0	0	0	0	0	0

	A to B								A to A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	87	21	7	7	3	0	0	125	0	0	0	0	0	0	0	0
16:15	59	24	7	4	0	0	0	94	0	0	0	0	0	0	0	0
16:30	83	18	0	2	0	0	0	103	0	0	0	0	0	0	0	0
16:45	78	23	4	1	0	0	0	106	1	0	0	0	0	0	0	1
H/TOT	307	86	18	14	3	0	0	428	1	0	0	0	0	0	0	1
17:00	62	12	3	2	0	0	0	79	0	0	0	0	0	0	0	0
17:15	81	16	4	3	0	0	0	104	0	0	0	0	0	0	0	0
17:30	76	18	1	1	0	1	0	97	0	0	0	0	0	0	0	0
17:45	52	6	1	3	0	0	1	63	0	0	0	0	0	0	0	0
H/TOT	271	52	9	9	0	1	1	343	0	0	0	0	0	0	0	0
P/TOT	578	138	27	23	3	1	1	771	1	0	0	0	0	0	0	1

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	B to A								B to D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	75	21	4	7	0	0	0	107	84	10	1	2	0	0	0	97
07:45	47	21	6	2	1	0	0	77	93	20	3	1	4	1	0	122
H/TOT	122	42	10	9	1	0	0	184	177	30	4	3	4	1	0	219
08:00	45	10	7	4	3	0	0	69	69	14	0	2	1	0	0	86
08:15	50	13	6	4	0	0	0	73	100	17	7	4	1	0	0	129
08:30	61	14	5	1	0	0	0	81	88	15	3	2	0	0	0	108
08:45	61	10	4	10	2	0	0	87	69	13	3	1	1	0	0	87
H/TOT	217	47	22	19	5	0	0	310	326	59	13	9	3	0	0	410
09:00	48	10	7	4	1	0	0	70	75	16	5	1	0	0	0	97
09:15	36	12	2	1	1	0	0	52	60	16	5	3	0	0	0	84
H/TOT	84	22	9	5	2	0	0	122	135	32	10	4	0	0	0	181
P/TOT	423	111	41	33	8	0	0	616	638	121	27	16	7	1	0	810

	B to A								B to D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	66	17	1	2	2	1	0	89	94	27	2	3	0	0	0	126
16:15	83	15	1	5	0	0	0	104	83	19	8	2	0	1	0	113
16:30	70	11	1	4	0	0	0	86	83	19	2	0	0	0	0	104
16:45	73	18	1	5	1	0	0	98	91	11	2	2	0	0	0	106
H/TOT	292	61	4	16	3	1	0	377	351	76	14	7	0	1	0	449
17:00	79	11	1	1	0	1	0	93	92	17	1	2	0	1	0	113
17:15	101	8	2	2	2	1	0	116	80	18	1	2	0	0	2	103
17:30	65	15	0	1	0	0	0	81	103	7	2	0	0	0	0	112
17:45	69	8	2	0	0	0	0	79	67	8	0	0	0	0	0	75
H/TOT	314	42	5	4	2	2	0	369	342	50	4	4	0	1	2	403
P/TOT	606	103	9	20	5	3	0	746	693	126	18	11	0	2	2	852

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	B to C								B to B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	12	0	0	0	0	0	0	12	1	0	0	0	0	0	0	1
07:45	47	1	0	0	0	0	0	48	2	0	0	0	0	0	0	2
H/TOT	59	1	0	0	0	0	0	60	3	0	0	0	0	0	0	3
08:00	75	1	0	0	1	0	3	80	6	1	0	0	0	0	0	7
08:15	43	0	0	0	1	0	0	44	7	0	0	0	0	0	0	7
08:30	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
08:45	1	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0
H/TOT	120	1	1	0	2	0	3	127	13	1	0	0	0	0	0	14
09:00	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
09:15	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
H/TOT	2	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0
P/TOT	181	3	1	0	2	0	3	190	16	1	0	0	0	0	0	17

	B to C								B to B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
H/TOT	1	0	0	0	0	0	0	1	2	0	0	0	0	0	0	2
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
17:30	9	1	0	0	0	0	0	10	0	0	0	0	0	0	0	0
17:45	14	3	0	0	0	0	0	17	2	0	0	0	0	0	0	2
H/TOT	25	4	0	0	0	0	0	29	2	0	0	0	0	0	0	2
P/TOT	26	4	0	0	0	0	0	30	4	0	0	0	0	0	0	4

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	C to B								C to A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	1	0	0	0	0	0	0	1	3	0	0	0	0	0	0	3
07:45	19	2	0	0	0	0	0	21	3	0	0	0	0	0	0	3
H/TOT	20	2	0	0	0	0	0	22	6	0	0	0	0	0	0	6
08:00	57	0	0	0	0	0	0	57	11	2	0	0	0	0	0	13
08:15	57	1	0	0	1	0	0	59	10	0	0	0	1	0	0	11
08:30	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0
08:45	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1
H/TOT	117	2	0	0	1	0	0	120	22	2	0	0	1	0	0	25
09:00	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
09:15	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0
H/TOT	2	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0
P/TOT	139	5	0	0	1	0	0	145	28	2	0	0	1	0	0	31

	C to B								C to A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	7	0	0	0	0	0	0	7	4	0	0	0	0	0	0	4
16:15	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
16:30	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1
16:45	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
H/TOT	18	0	0	0	0	0	0	18	5	0	0	0	0	0	0	5
17:00	6	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0
17:15	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
17:30	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1
17:45	10	0	0	0	0	0	0	10	2	0	0	0	0	0	0	2
H/TOT	22	0	0	0	0	0	0	22	3	0	0	0	0	0	0	3
P/TOT	40	0	0	0	0	0	0	40	8	0	0	0	0	0	0	8

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	C to D								C to C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
07:45	8	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0
H/TOT	9	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0
08:00	16	1	0	0	0	0	0	17	0	0	0	0	0	0	0	0
08:15	8	0	0	0	1	0	0	9	0	0	0	0	0	0	0	0
08:30	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
08:45	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
H/TOT	27	1	0	0	1	0	0	29	0	0	0	0	0	0	0	0
09:00	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
P/TOT	36	1	1	0	1	0	0	39	0	0	0	0	0	0	0	0

	C to D								C to C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
16:15	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
16:30	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	11	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0
17:00	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
17:15	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	7	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0
H/TOT	13	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0
P/TOT	24	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	D to C								D to B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	17	0	0	0	0	0	0	17	67	16	3	4	0	2	0	92
07:45	27	2	0	0	0	0	0	29	67	23	2	2	0	1	0	95
H/TOT	44	2	0	0	0	0	0	46	134	39	5	6	0	3	0	187
08:00	13	2	0	0	0	0	0	15	55	7	2	4	0	0	0	68
08:15	4	0	0	0	0	0	0	4	56	12	3	0	0	0	0	71
08:30	1	1	0	0	0	0	0	2	52	12	6	2	0	0	0	72
08:45	1	0	0	0	0	0	0	1	67	15	8	4	0	2	0	96
H/TOT	19	3	0	0	0	0	0	22	230	46	19	10	0	2	0	307
09:00	1	0	0	0	0	0	0	1	67	11	2	2	0	0	0	82
09:15	1	0	1	0	0	0	0	2	57	15	5	2	0	1	0	80
H/TOT	2	0	1	0	0	0	0	3	124	26	7	4	0	1	0	162
P/TOT	65	5	1	0	0	0	0	71	488	111	31	20	0	6	0	656

	D to C								D to B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	0	0	0	0	0	0	0	0	87	21	3	0	0	0	0	111
16:15	0	0	0	0	0	0	0	0	120	15	4	0	1	1	0	141
16:30	0	0	0	0	0	0	0	0	121	19	1	3	1	0	0	145
16:45	0	0	0	0	0	0	0	0	94	15	4	1	0	1	1	116
H/TOT	0	0	0	0	0	0	0	0	422	70	12	4	2	2	1	513
17:00	2	0	0	0	0	0	0	2	99	15	3	0	2	2	0	121
17:15	0	0	0	0	0	0	0	0	98	17	3	0	0	0	0	118
17:30	3	0	0	0	0	0	0	3	91	12	1	1	0	0	0	105
17:45	6	1	0	0	0	0	0	7	95	3	0	0	1	2	0	101
H/TOT	11	1	0	0	0	0	0	12	383	47	7	1	3	4	0	445
P/TOT	11	1	0	0	0	0	0	12	805	117	19	5	5	6	1	958

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	D to A								D to D							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:30	5	1	0	1	2	0	0	9	0	0	0	0	0	0	0	0
07:45	4	1	0	1	0	0	0	6	0	0	0	0	0	0	0	0
H/TOT	9	2	0	2	2	0	0	15	0	0	0	0	0	0	0	0
08:00	2	1	2	2	0	0	0	7	0	0	0	0	0	0	0	0
08:15	7	3	0	0	1	0	0	11	0	0	0	0	0	0	0	0
08:30	8	4	0	0	1	0	0	13	0	0	0	0	0	0	0	0
08:45	4	1	0	0	0	0	0	5	0	0	0	0	0	0	0	0
H/TOT	21	9	2	2	2	0	0	36	0	0	0	0	0	0	0	0
09:00	3	1	0	1	0	0	0	5	0	0	0	0	0	0	0	0
09:15	3	2	1	0	2	0	0	8	0	0	0	0	0	0	0	0
H/TOT	6	3	1	1	2	0	0	13	0	0	0	0	0	0	0	0
P/TOT	36	14	3	5	6	0	0	64	0	0	0	0	0	0	0	0

	D to A								D to D							
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
16:00	14	5	0	0	0	0	0	19	0	0	0	0	0	0	0	0
16:15	11	2	2	1	1	0	0	17	0	0	0	0	0	0	0	0
16:30	13	2	0	2	1	0	0	18	0	0	0	0	0	0	0	0
16:45	10	0	0	0	1	0	0	11	0	0	0	0	0	0	0	0
H/TOT	48	9	2	3	3	0	0	65	0	0	0	0	0	0	0	0
17:00	7	1	2	1	0	0	0	11	0	0	0	0	0	0	0	0
17:15	12	2	0	0	1	0	0	15	0	0	0	0	0	0	0	0
17:30	5	2	0	1	0	0	0	8	0	0	0	0	0	0	0	0
17:45	16	1	0	0	1	0	0	18	0	0	0	0	0	0	0	0
H/TOT	40	6	2	2	2	0	0	52	0	0	0	0	0	0	0	0
P/TOT	88	15	4	5	5	0	0	117	0	0	0	0	0	0	0	0

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	TO ARM A								FROM ARM A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	83	22	4	8	2	0	0	119	82	19	2	6	2	0	0	111
07:45	54	22	6	3	1	0	0	86	88	13	6	2	0	0	0	109
H/TOT	137	44	10	11	3	0	0	205	170	32	8	8	2	0	0	220
08:00	58	13	9	6	3	0	0	89	109	19	4	5	1	1	0	139
08:15	67	16	6	4	2	0	0	95	95	10	1	3	1	0	0	110
08:30	69	18	5	1	1	0	0	94	87	15	6	2	2	0	0	112
08:45	66	11	4	10	2	0	0	93	72	11	6	5	1	1	0	96
H/TOT	260	58	24	21	8	0	0	371	363	55	17	15	5	2	0	457
09:00	51	11	7	5	1	0	0	75	75	12	6	4	3	0	0	100
09:15	39	14	3	1	3	0	0	60	67	11	4	4	0	0	0	86
H/TOT	90	25	10	6	4	0	0	135	142	23	10	8	3	0	0	186
P/TOT	487	127	44	38	15	0	0	711	675	110	35	31	10	2	0	863

	TO ARM A								FROM ARM A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	84	22	1	2	2	1	0	112	91	23	8	9	4	0	0	135
16:15	94	17	3	6	1	0	0	121	66	26	7	5	0	0	0	104
16:30	84	13	1	6	1	0	0	105	90	20	0	5	1	0	0	116
16:45	84	18	1	5	2	0	0	110	89	23	6	3	1	0	0	122
H/TOT	346	70	6	19	6	1	0	448	336	92	21	22	6	0	0	477
17:00	86	12	3	2	0	1	0	104	66	12	3	3	1	0	0	85
17:15	113	10	2	2	3	1	0	131	85	18	4	3	0	0	0	110
17:30	71	17	0	2	0	0	0	90	85	18	1	2	1	1	0	108
17:45	87	9	2	0	1	0	0	99	62	7	1	3	0	0	1	74
H/TOT	357	48	7	6	4	2	0	424	298	55	9	11	2	1	1	377
P/TOT	703	118	13	25	10	3	0	872	634	147	30	33	8	1	1	854

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	TO ARM B								FROM ARM B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	138	34	5	10	0	2	0	189	172	31	5	9	0	0	0	217
07:45	155	37	6	4	0	1	0	203	189	42	9	3	5	1	0	249
H/TOT	293	71	11	14	0	3	0	392	361	73	14	12	5	1	0	466
08:00	202	21	5	9	0	1	0	238	195	26	7	6	5	0	3	242
08:15	203	23	4	3	2	0	0	235	200	30	13	8	2	0	0	253
08:30	135	26	12	4	1	0	0	178	150	29	8	3	0	0	0	190
08:45	134	24	11	9	0	3	0	181	131	23	8	11	3	0	0	176
H/TOT	674	94	32	25	3	4	0	832	676	108	36	28	10	0	3	861
09:00	135	20	7	6	1	0	0	169	125	26	12	5	1	0	0	169
09:15	114	26	9	6	0	1	0	156	96	29	7	4	1	0	0	137
H/TOT	249	46	16	12	1	1	0	325	221	55	19	9	2	0	0	306
P/TOT	1216	211	59	51	4	8	0	1549	1258	236	69	49	17	1	3	1633

	TO ARM B								FROM ARM B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	181	42	10	7	3	0	0	243	160	44	3	5	2	1	0	215
16:15	184	39	11	4	1	1	0	240	168	34	9	7	0	1	0	219
16:30	206	37	1	5	1	0	0	250	153	30	3	4	0	0	0	190
16:45	178	38	8	2	0	1	1	228	165	29	3	7	1	0	0	205
H/TOT	749	156	30	18	5	2	1	961	646	137	18	23	3	2	0	829
17:00	167	27	6	2	2	2	0	206	171	28	2	3	0	2	0	206
17:15	183	33	7	3	0	0	0	226	183	26	3	4	2	1	2	221
17:30	169	30	2	2	0	1	0	204	177	23	2	1	0	0	0	203
17:45	159	9	1	3	1	2	1	176	152	19	2	0	0	0	0	173
H/TOT	678	99	16	10	3	5	1	812	683	96	9	8	2	3	2	803
P/TOT	1427	255	46	28	8	7	2	1773	1329	233	27	31	5	5	2	1632

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	TO ARM C								FROM ARM C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	33	0	0	0	0	0	0	33	5	0	0	0	0	0	0	5
07:45	84	3	0	0	0	0	0	87	30	2	0	0	0	0	0	32
H/TOT	117	3	0	0	0	0	0	120	35	2	0	0	0	0	0	37
08:00	107	4	0	0	2	0	3	116	84	3	0	0	0	0	0	87
08:15	50	0	0	0	1	0	0	51	75	1	0	0	3	0	0	79
08:30	2	1	0	0	0	0	0	3	3	1	0	0	0	0	0	4
08:45	2	0	1	0	0	0	0	3	4	0	0	0	0	0	0	4
H/TOT	161	5	1	0	3	0	3	173	166	5	0	0	3	0	0	174
09:00	3	0	0	0	0	0	0	3	1	0	1	0	0	0	0	2
09:15	2	1	1	0	0	0	0	4	1	1	0	0	0	0	0	2
H/TOT	5	1	1	0	0	0	0	7	2	1	1	0	0	0	0	4
P/TOT	283	9	2	0	3	0	3	300	203	8	1	0	3	0	0	215

	TO ARM C								FROM ARM C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	16
16:15	1	0	0	0	0	0	0	1	7	0	0	0	0	0	0	7
16:30	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6
16:45	1	0	0	0	0	0	0	1	5	0	0	0	0	0	0	5
H/TOT	2	0	0	0	0	0	0	2	34	0	0	0	0	0	0	34
17:00	2	0	0	0	0	0	0	2	11	0	0	0	0	0	0	11
17:15	2	0	0	0	0	0	0	2	5	0	0	0	0	0	0	5
17:30	12	1	0	0	0	0	0	13	3	0	0	0	0	0	0	3
17:45	22	5	0	0	0	0	0	27	19	0	0	0	0	0	0	19
H/TOT	38	6	0	0	0	0	0	44	38	0	0	0	0	0	0	38
P/TOT	40	6	0	0	0	0	0	46	72	0	0	0	0	0	0	72

SITE: 2 DATE: 03/12/2020

LOCATION: Engine Lane Roundabout DAY: Thursday

	TO ARM D								FROM ARM D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	94	11	1	2	2	0	0	110	89	17	3	5	2	2	0	118
07:45	112	21	5	1	4	1	0	144	98	26	2	3	0	1	0	130
H/TOT	206	32	6	3	6	1	0	254	187	43	5	8	2	3	0	248
08:00	91	20	1	2	1	0	0	115	70	10	4	6	0	0	0	90
08:15	117	17	7	4	2	0	0	147	67	15	3	0	1	0	0	86
08:30	95	17	3	2	1	0	0	118	61	17	6	2	1	0	0	87
08:45	77	15	6	1	2	0	0	101	72	16	8	4	0	2	0	102
H/TOT	380	69	17	9	6	0	0	481	270	58	21	12	2	2	0	365
09:00	83	19	7	1	2	0	0	112	71	12	2	3	0	0	0	88
09:15	70	17	5	3	0	0	0	95	61	17	7	2	2	1	0	90
H/TOT	153	36	12	4	2	0	0	207	132	29	9	5	2	1	0	178
P/TOT	739	137	35	16	14	1	0	942	589	130	35	25	6	6	0	791

	TO ARM D								FROM ARM D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	103	29	3	5	1	0	0	141	101	26	3	0	0	0	0	130
16:15	93	21	8	3	0	1	0	126	131	17	6	1	2	1	0	158
16:30	93	21	2	3	1	0	0	120	134	21	1	5	2	0	0	163
16:45	100	11	4	4	1	0	0	120	104	15	4	1	1	1	1	127
H/TOT	389	82	17	15	3	1	0	507	470	79	14	7	5	2	1	578
17:00	101	17	1	3	1	1	0	124	108	16	5	1	2	2	0	134
17:15	85	20	1	2	0	0	2	110	110	19	3	0	1	0	0	133
17:30	112	7	2	1	1	0	0	123	99	14	1	2	0	0	0	116
17:45	82	8	0	0	0	0	0	90	117	5	0	0	2	2	0	126
H/TOT	380	52	4	6	2	1	2	447	434	54	9	3	5	4	0	509
P/TOT	769	134	21	21	5	2	2	954	904	133	23	10	10	6	1	1087

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 2 DATE: 03/12/2020

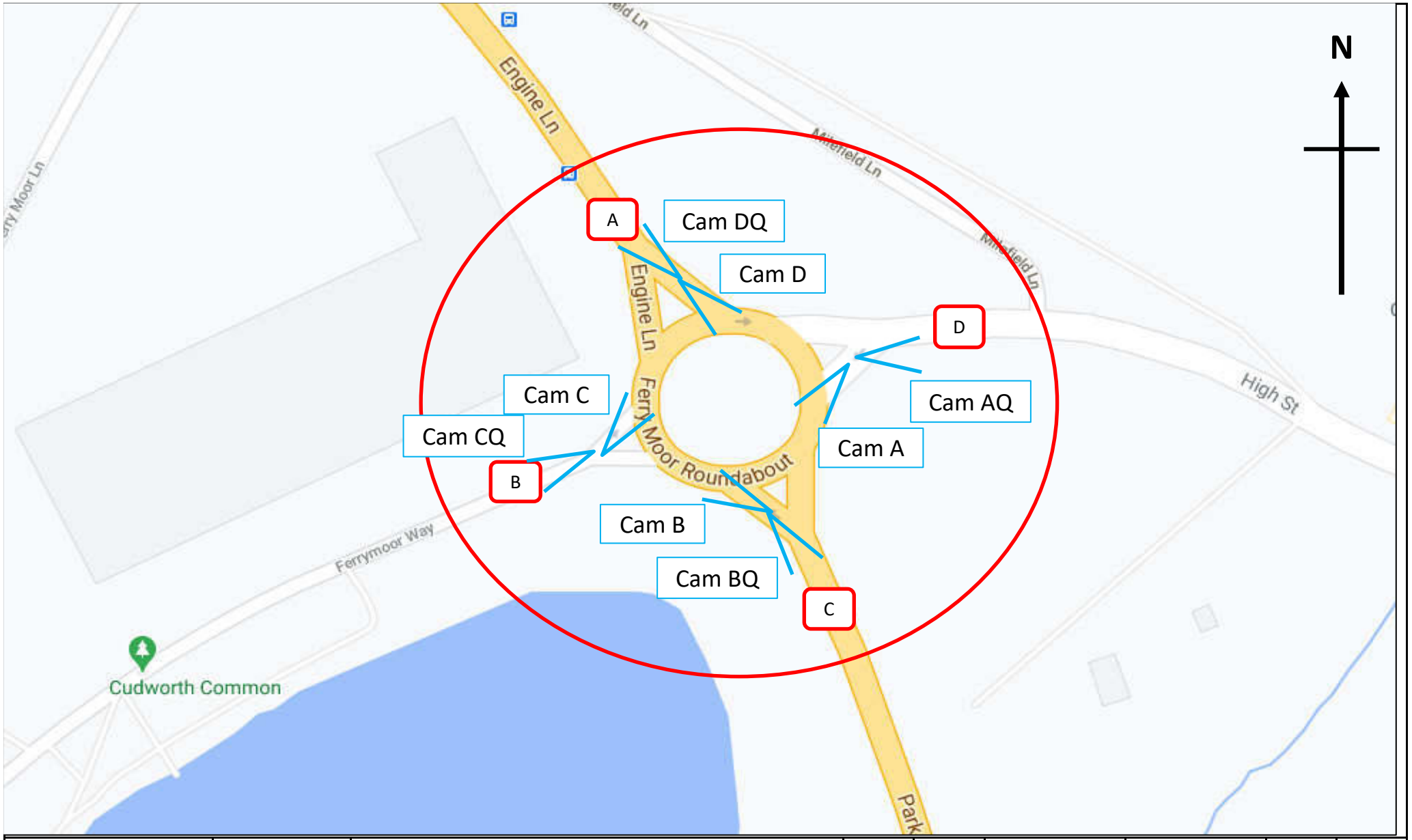
LOCATION: Engine Lane Roundabout DAY: Thursday

TIME	JUNCTION TOTAL CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:30	348	67	10	20	4	2	0	451
07:45	405	83	17	8	5	2	0	520
H/TOT	753	150	27	28	9	4	0	971
08:00	458	58	15	17	6	1	3	558
08:15	437	56	17	11	7	0	0	528
08:30	301	62	20	7	3	0	0	393
08:45	279	50	22	20	4	3	0	378
H/TOT	1475	226	74	55	20	4	3	1857
09:00	272	50	21	12	4	0	0	359
09:15	225	58	18	10	3	1	0	315
H/TOT	497	108	39	22	7	1	0	674
P/TOT	2725	484	140	105	36	9	3	3502

PEAK HOUR CALCULATION	TOT
07:30 to 08:30	**2057**
07:45 to 08:45	1999
08:00 to 09:00	1857
08:15 to 09:15	1658
08:30 to 09:30	1445
PEAK VALUE	**2057**

TIME	JUNCTION TOTAL CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
16:00	368	93	14	14	6	1	0	496
16:15	372	77	22	13	2	2	0	488
16:30	383	71	4	14	3	0	0	475
16:45	363	67	13	11	3	1	1	459
H/TOT	1486	308	53	52	14	4	1	1918
17:00	356	56	10	7	3	4	0	436
17:15	383	63	10	7	3	1	2	469
17:30	364	55	4	5	1	1	0	430
17:45	350	31	3	3	2	2	1	392
H/TOT	1453	205	27	22	9	8	3	1727
P/TOT	2939	513	80	74	23	12	4	3645

PEAK HOUR CALCULATION	TOT
16:00 to 17:00	**1918**
16:15 to 17:15	1858
16:30 to 17:30	1839
16:45 to 17:45	1794
17:00 to 18:00	1727
PEAK VALUE	**1918**



NDC NATIONWIDE DATA COLLECTION	**Site / Location:**	Site 3, Ferry Moor Roundabout	**Project No:**	11359	**Drawing No:**	11359-03	**Drawn By:** EA
	Survey Date:	Thursday 3rd December 2020	**Project Name:**	Grimethorpe			
	Survey Times:	07:30 to 09:30 and 16:00 to 18:00	**Drawing Title:**	Site Layout and Observed Movements			

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	A to D								A to C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	29	5	0	0	1	0	0	35	57	10	1	1	0	0	0	69
07:45	48	8	1	0	2	0	0	59	66	11	4	1	3	1	0	86
H/TOT	77	13	1	0	3	0	0	94	123	21	5	2	3	1	0	155
08:00	65	11	1	0	0	0	0	77	45	12	1	2	1	0	0	61
08:15	60	9	2	1	1	0	0	73	57	7	4	2	1	0	0	71
08:30	56	7	0	0	0	0	0	63	52	9	4	1	1	0	0	67
08:45	39	5	1	0	1	0	0	46	37	6	2	2	0	0	0	47
H/TOT	220	32	4	1	2	0	0	259	191	34	11	7	3	0	0	246
09:00	37	4	3	0	1	0	0	45	44	15	7	1	1	0	0	68
09:15	26	8	1	0	0	0	0	35	36	6	3	2	0	0	0	47
H/TOT	63	12	4	0	1	0	0	80	80	21	10	3	1	0	0	115
P/TOT	360	57	9	1	6	0	0	433	394	76	26	12	7	1	0	516

	A to D								A to C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	49	10	0	1	0	0	0	60	62	21	2	3	1	0	0	89
16:15	41	15	4	0	0	1	1	62	51	9	4	2	0	0	0	66
16:30	39	13	2	1	0	0	0	55	58	8	2	1	1	0	0	70
16:45	42	6	3	1	0	0	0	52	45	6	1	2	1	0	0	55
H/TOT	171	44	9	3	0	1	1	229	216	44	9	8	3	0	0	280
17:00	53	14	1	0	0	1	0	69	52	3	0	2	1	0	0	58
17:15	36	7	0	0	0	0	1	44	52	9	1	2	0	0	0	64
17:30	56	4	0	1	0	0	1	62	53	1	2	0	1	0	0	57
17:45	43	5	0	0	0	0	0	48	40	3	1	0	0	0	0	44
H/TOT	188	30	1	1	0	1	2	223	197	16	4	4	2	0	0	223
P/TOT	359	74	10	4	0	2	3	452	413	60	13	12	5	0	0	503

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	A to B								A to A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
07:45	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
H/TOT	2	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	1	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
H/TOT	1	0	0	1	0	0	0	2	0	0	0	0	1	0	0	1
09:00	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
09:15	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
H/TOT	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1
P/TOT	5	0	0	2	0	0	0	7	1	0	0	0	1	0	0	2

	A to B								A to A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0
H/TOT	0	0	0	3	0	0	0	3	1	0	0	0	0	0	0	1
17:00	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
17:15	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	2	0	0	0	2	1	0	0	0	0	0	0	1
P/TOT	0	0	0	5	0	0	0	5	2	0	0	0	0	0	0	2

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	B to A								B to D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	1	0	1	0	0	0	2	0	0	0	0	0	0	0	0
H/TOT	0	1	0	1	0	0	0	2	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
08:15	1	1	0	0	0	0	0	2	1	0	0	0	0	0	0	1
08:30	0	0	0	1	0	0	0	1	2	0	0	0	0	0	0	2
08:45	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	1
H/TOT	1	1	0	2	0	0	0	4	5	0	0	0	0	0	0	5
09:00	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	2
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	2
P/TOT	1	2	1	3	0	0	0	7	6	0	0	1	0	0	0	7

	B to A								B to D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	2	1	0	1	0	0	0	4	1	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	5	0	0	2	0	0	1	8	1	0	0	0	0	0	0	1
16:45	1	1	0	0	0	0	0	2	1	0	0	0	0	0	0	1
H/TOT	8	2	0	3	0	0	1	14	3	0	0	0	0	0	0	3
17:00	2	0	0	1	0	0	0	3	2	0	0	0	0	0	0	2
17:15	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
17:30	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	4	0	0	2	0	0	0	6	2	0	0	0	0	0	0	2
P/TOT	12	2	0	5	0	0	1	20	5	0	0	0	0	0	0	5

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	B to C								B to B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	1	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
H/TOT	1	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
08:00	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
H/TOT	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0
09:00	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
09:15	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
H/TOT	1	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
P/TOT	2	0	0	4	0	0	0	6	0	0	0	0	0	0	0	0

	B to C								B to B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	1	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0
17:15	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
H/TOT	2	0	1	1	0	0	0	4	0	0	0	0	0	0	0	0
P/TOT	2	0	1	1	0	0	0	4	0	0	0	0	0	0	0	0

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	C to B								C to A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	0	0	0	0	0	0	1	1	54	12	2	3	2	1	0	74
07:45	0	0	0	0	0	0	0	0	48	13	2	5	0	0	0	68
H/TOT	0	0	0	0	0	0	1	1	102	25	4	8	2	1	0	142
08:00	0	0	1	0	0	0	0	1	36	6	3	2	0	0	0	47
08:15	1	0	0	1	0	0	0	2	35	7	1	0	0	0	0	43
08:30	1	0	0	0	0	0	0	1	24	13	2	1	1	0	0	41
08:45	0	0	0	0	0	0	0	0	28	7	6	2	0	1	0	44
H/TOT	2	0	1	1	0	0	0	4	123	33	12	5	1	1	0	175
09:00	0	0	0	0	0	0	0	0	32	12	1	3	0	0	0	48
09:15	0	0	1	1	0	0	0	2	22	7	6	2	1	0	0	38
H/TOT	0	0	1	1	0	0	0	2	54	19	7	5	1	0	0	86
P/TOT	2	0	2	2	0	0	1	7	279	77	23	18	4	2	0	403

	C to B								C to A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	1	0	0	3	0	0	0	4	69	14	5	0	0	0	0	88
16:15	0	0	3	3	0	0	0	6	71	14	4	0	1	0	0	90
16:30	0	0	0	3	0	0	0	3	94	14	3	2	1	0	0	114
16:45	0	0	0	1	0	0	0	1	49	10	4	1	1	1	0	66
H/TOT	1	0	3	10	0	0	0	14	283	52	16	3	3	1	0	358
17:00	0	0	0	1	0	0	0	1	60	8	2	0	1	1	0	72
17:15	0	0	0	0	0	0	0	0	52	13	2	1	1	0	0	69
17:30	0	0	0	0	0	0	0	0	58	7	0	0	0	0	0	65
17:45	0	0	0	0	0	0	0	0	49	2	0	0	2	1	0	54
H/TOT	0	0	0	1	0	0	0	1	219	30	4	1	4	2	0	260
P/TOT	1	0	3	11	0	0	0	15	502	82	20	4	7	3	0	618

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	C to D								C to C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	4	0	0	0	2	0	0	6	0	0	0	0	0	0	0	0
07:45	3	2	0	0	0	0	0	5	0	0	0	0	0	0	0	0
H/TOT	7	2	0	0	2	0	0	11	0	0	0	0	0	0	0	0
08:00	6	1	2	0	1	0	0	10	0	0	0	0	0	0	0	0
08:15	6	1	1	0	0	0	0	8	0	1	0	0	0	0	0	1
08:30	10	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0
08:45	4	2	0	0	2	0	0	8	0	0	0	0	0	0	0	0
H/TOT	26	4	3	0	3	0	0	36	0	1	0	0	0	0	0	1
09:00	2	1	0	0	1	0	0	4	0	0	0	0	0	0	0	0
09:15	3	0	0	0	1	0	0	4	0	0	0	0	0	0	0	0
H/TOT	5	1	0	0	2	0	0	8	0	0	0	0	0	0	0	0
P/TOT	38	7	3	0	7	0	0	55	0	1	0	0	0	0	0	1

	C to D								C to C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	11	0	1	0	0	0	0	12	0	0	0	0	0	0	0	0
16:15	3	0	0	0	2	0	0	5	0	0	0	0	0	0	0	0
16:30	9	1	0	0	0	0	0	10	1	0	0	0	0	0	0	1
16:45	2	3	1	0	0	0	0	6	0	0	0	0	0	0	0	0
H/TOT	25	4	2	0	2	0	0	33	1	0	0	0	0	0	0	1
17:00	6	1	0	0	2	0	0	9	0	0	0	0	0	0	0	0
17:15	5	2	1	0	2	0	0	10	0	0	0	0	0	0	0	0
17:30	3	0	0	0	1	0	0	4	0	0	0	0	0	0	0	0
17:45	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
H/TOT	17	3	1	0	5	0	0	26	0	0	0	0	0	0	0	0
P/TOT	42	7	3	0	7	0	0	59	1	0	0	0	0	0	0	1

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	D to C								D to B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	1	2	0	0	1	0	0	4	1	0	0	0	0	0	0	1
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	1	2	0	0	1	0	0	4	1	0	0	0	0	0	0	1
08:00	6	1	0	0	0	0	0	7	2	0	0	0	0	0	0	2
08:15	1	1	0	0	1	0	0	3	0	0	0	0	0	0	0	0
08:30	4	1	0	0	1	0	0	6	0	0	0	0	0	0	0	0
08:45	4	2	0	1	0	0	0	7	0	0	0	0	0	0	0	0
H/TOT	15	5	0	1	2	0	0	23	2	0	0	0	0	0	0	2
09:00	4	0	1	1	0	0	0	6	1	0	0	0	0	3	0	4
09:15	6	1	0	0	1	0	0	8	0	0	0	0	0	0	0	0
H/TOT	10	1	1	1	1	0	0	14	1	0	0	0	0	3	0	4
P/TOT	26	8	1	2	4	0	0	41	4	0	0	0	0	3	0	7

	D to C								D to B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	4	0	1	0	1	0	0	6	0	0	0	0	0	0	0	0
16:15	4	3	0	0	1	0	0	8	0	0	0	0	0	0	0	0
16:30	6	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0
16:45	5	0	0	0	2	0	0	7	0	0	0	0	0	0	0	0
H/TOT	19	3	1	0	4	0	0	27	0	0	0	0	0	0	0	0
17:00	6	0	1	0	1	0	0	8	0	0	0	0	0	0	0	0
17:15	4	0	0	0	1	0	0	5	0	0	0	0	0	0	0	0
17:30	7	0	0	0	1	0	0	8	1	0	0	0	0	0	0	1
17:45	2	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0
H/TOT	19	0	1	0	4	0	0	24	1	0	0	0	0	0	0	1
P/TOT	38	3	2	0	8	0	0	51	1	0	0	0	0	0	0	1

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	D to A								D to D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	28	6	1	0	0	1	0	36	0	0	0	0	0	0	0	0
07:45	59	7	0	0	0	1	0	67	0	0	0	0	0	0	0	0
H/TOT	87	13	1	0	0	2	0	103	0	0	0	0	0	0	0	0
08:00	65	6	1	2	0	0	0	74	0	0	0	0	0	0	0	0
08:15	23	5	2	0	1	0	0	31	0	0	0	0	0	0	0	0
08:30	43	6	5	0	0	0	0	54	0	0	0	0	0	0	0	0
08:45	41	5	1	0	0	1	0	48	0	1	0	0	0	0	0	1
H/TOT	172	22	9	2	1	1	0	207	0	1	0	0	0	0	0	1
09:00	36	5	0	0	1	0	0	42	1	0	0	0	0	0	0	1
09:15	31	4	2	0	1	1	0	39	0	0	0	0	0	0	0	0
H/TOT	67	9	2	0	2	1	0	81	1	0	0	0	0	0	0	1
P/TOT	326	44	12	2	3	4	0	391	1	1	0	0	0	0	0	2

	D to A								D to D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	44	10	0	0	0	1	0	55	0	0	0	0	0	0	0	0
16:15	33	4	1	0	1	0	0	39	0	0	0	0	0	0	0	0
16:30	49	8	0	1	1	0	0	59	0	0	0	0	0	0	0	0
16:45	32	2	0	0	0	0	0	34	0	0	0	0	0	0	0	0
H/TOT	158	24	1	1	2	1	0	187	0	0	0	0	0	0	0	0
17:00	58	11	2	0	1	1	0	73	0	0	0	0	0	0	0	0
17:15	42	4	0	0	0	0	0	46	0	0	0	0	0	0	0	0
17:30	41	6	0	0	0	0	0	47	0	0	0	0	0	0	0	0
17:45	64	8	0	0	0	1	0	73	0	0	0	0	0	0	0	0
H/TOT	205	29	2	0	1	2	0	239	0	0	0	0	0	0	0	0
P/TOT	363	53	3	1	3	3	0	426	0	0	0	0	0	0	0	0

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	TO ARM A								FROM ARM A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	82	18	3	3	2	2	0	110	86	15	1	2	1	0	0	105
07:45	107	21	2	6	0	1	0	137	116	19	5	1	5	1	0	147
H/TOT	189	39	5	9	2	3	0	247	202	34	6	3	6	1	0	252
08:00	101	12	4	4	0	0	0	121	110	23	2	2	1	0	0	138
08:15	59	13	3	0	1	0	0	76	117	16	6	3	2	0	0	144
08:30	67	19	7	2	1	0	0	96	109	16	4	2	1	0	0	132
08:45	69	12	7	3	1	2	0	94	76	11	3	2	2	0	0	94
H/TOT	296	56	21	9	3	2	0	387	412	66	15	9	6	0	0	508
09:00	69	17	2	3	1	0	0	92	83	19	10	1	2	0	0	115
09:15	53	11	8	2	2	1	0	77	63	14	4	2	0	0	0	83
H/TOT	122	28	10	5	3	1	0	169	146	33	14	3	2	0	0	198
P/TOT	607	123	36	23	8	6	0	803	760	133	35	15	14	1	0	958

	TO ARM A								FROM ARM A							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	116	25	5	1	0	1	0	148	112	31	2	5	1	0	0	151
16:15	104	18	5	0	2	0	0	129	92	24	8	2	0	1	1	128
16:30	148	22	3	5	2	0	1	181	97	21	4	2	1	0	0	125
16:45	82	13	4	1	1	1	0	102	87	12	4	5	1	0	0	109
H/TOT	450	78	17	7	5	2	1	560	388	88	18	14	3	1	1	513
17:00	120	19	4	1	2	2	0	148	105	17	1	3	1	1	0	128
17:15	97	17	2	1	1	0	0	118	89	16	1	3	0	0	1	110
17:30	99	13	0	1	0	0	0	113	109	5	2	1	1	0	1	119
17:45	113	10	0	0	2	2	0	127	83	8	1	0	0	0	0	92
H/TOT	429	59	6	3	5	4	0	506	386	46	5	7	2	1	2	449
P/TOT	879	137	23	10	10	6	1	1066	774	134	23	21	5	2	3	962

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	TO ARM B								FROM ARM B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	1	0	0	1	0	0	1	3	0	0	0	0	0	0	0	0
07:45	2	0	0	0	0	0	0	2	1	1	0	2	0	0	0	4
H/TOT	3	0	0	1	0	0	1	5	1	1	0	2	0	0	0	4
08:00	2	0	1	0	0	0	0	3	1	0	0	1	0	0	0	2
08:15	1	0	0	1	0	0	0	2	2	1	0	0	0	0	0	3
08:30	2	0	0	1	0	0	0	3	2	0	0	1	0	0	0	3
08:45	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	3
H/TOT	5	0	1	2	0	0	0	8	6	1	0	4	0	0	0	11
09:00	2	0	0	0	0	3	0	5	1	0	1	2	0	0	0	4
09:15	1	0	1	1	0	0	0	3	1	0	0	0	0	0	0	1
H/TOT	3	0	1	1	0	3	0	8	2	0	1	2	0	0	0	5
P/TOT	11	0	2	4	0	3	1	21	9	2	1	8	0	0	0	20

	TO ARM B								FROM ARM B							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	1	0	0	4	0	0	0	5	3	1	0	1	0	0	0	5
16:15	0	0	3	3	0	0	0	6	0	0	0	0	0	0	0	0
16:30	0	0	0	3	0	0	0	3	6	0	0	2	0	0	1	9
16:45	0	0	0	3	0	0	0	3	2	1	0	0	0	0	0	3
H/TOT	1	0	3	13	0	0	0	17	11	2	0	3	0	0	1	17
17:00	0	0	0	2	0	0	0	2	5	0	0	2	0	0	0	7
17:15	0	0	0	1	0	0	0	1	3	0	0	0	0	0	0	3
17:30	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1
17:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
H/TOT	1	0	0	3	0	0	0	4	8	0	1	3	0	0	0	12
P/TOT	2	0	3	16	0	0	0	21	19	2	1	6	0	0	1	29

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	TO ARM C								FROM ARM C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	58	12	1	1	1	0	0	73	58	12	2	3	4	1	1	81
07:45	67	11	4	2	3	1	0	88	51	15	2	5	0	0	0	73
H/TOT	125	23	5	3	4	1	0	161	109	27	4	8	4	1	1	154
08:00	51	13	1	3	1	0	0	69	42	7	6	2	1	0	0	58
08:15	58	9	4	2	2	0	0	75	42	9	2	1	0	0	0	54
08:30	56	10	4	1	2	0	0	73	35	13	2	1	1	0	0	52
08:45	41	8	2	4	0	0	0	55	32	9	6	2	2	1	0	52
H/TOT	206	40	11	10	5	0	0	272	151	38	16	6	4	1	0	216
09:00	48	15	8	3	1	0	0	75	34	13	1	3	1	0	0	52
09:15	43	7	3	2	1	0	0	56	25	7	7	3	2	0	0	44
H/TOT	91	22	11	5	2	0	0	131	59	20	8	6	3	0	0	96
P/TOT	422	85	27	18	11	1	0	564	319	85	28	20	11	2	1	466

	TO ARM C								FROM ARM C							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	66	21	3	3	2	0	0	95	81	14	6	3	0	0	0	104
16:15	55	12	4	2	1	0	0	74	74	14	7	3	3	0	0	101
16:30	65	8	2	1	1	0	0	77	104	15	3	5	1	0	0	128
16:45	50	6	1	2	3	0	0	62	51	13	5	2	1	1	0	73
H/TOT	236	47	10	8	7	0	0	308	310	56	21	13	5	1	0	406
17:00	59	3	1	3	2	0	0	68	66	9	2	1	3	1	0	82
17:15	57	9	1	2	1	0	0	70	57	15	3	1	3	0	0	79
17:30	60	1	2	0	2	0	0	65	61	7	0	0	1	0	0	69
17:45	42	3	2	0	1	0	0	48	52	2	0	0	2	1	0	57
H/TOT	218	16	6	5	6	0	0	251	236	33	5	2	9	2	0	287
P/TOT	454	63	16	13	13	0	0	559	546	89	26	15	14	3	0	693

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

	TO ARM D								FROM ARM D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
07:30	33	5	0	0	3	0	0	41	30	8	1	0	1	1	0	41
07:45	51	10	1	0	2	0	0	64	59	7	0	0	0	1	0	67
H/TOT	84	15	1	0	5	0	0	105	89	15	1	0	1	2	0	108
08:00	72	12	3	0	1	0	0	88	73	7	1	2	0	0	0	83
08:15	67	10	3	1	1	0	0	82	24	6	2	0	2	0	0	34
08:30	68	7	0	0	0	0	0	75	47	7	5	0	1	0	0	60
08:45	44	8	1	0	3	0	0	56	45	8	1	1	0	1	0	56
H/TOT	251	37	7	1	5	0	0	301	189	28	9	3	3	1	0	233
09:00	41	5	3	1	2	0	0	52	42	5	1	1	1	3	0	53
09:15	29	8	1	0	1	0	0	39	37	5	2	0	2	1	0	47
H/TOT	70	13	4	1	3	0	0	91	79	10	3	1	3	4	0	100
P/TOT	405	65	12	2	13	0	0	497	357	53	13	4	7	7	0	441

	TO ARM D								FROM ARM D							
TIME	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**MCL**	**PCL**	**TOT**
16:00	61	10	1	1	0	0	0	73	48	10	1	0	1	1	0	61
16:15	44	15	4	0	2	1	1	67	37	7	1	0	2	0	0	47
16:30	49	14	2	1	0	0	0	66	55	8	0	1	1	0	0	65
16:45	45	9	4	1	0	0	0	59	37	2	0	0	2	0	0	41
H/TOT	199	48	11	3	2	1	1	265	177	27	2	1	6	1	0	214
17:00	61	15	1	0	2	1	0	80	64	11	3	0	2	1	0	81
17:15	41	9	1	0	2	0	1	54	46	4	0	0	1	0	0	51
17:30	59	4	0	1	1	0	1	66	49	6	0	0	1	0	0	56
17:45	46	5	0	0	0	0	0	51	66	8	0	0	1	1	0	76
H/TOT	207	33	2	1	5	1	2	251	225	29	3	0	5	2	0	264
P/TOT	406	81	13	4	7	2	3	516	402	56	5	1	11	3	0	478

11359 / GRIMETHORPE
DECEMBER 2020
CLASSIFIED TURNING COUNT

SITE: 3 DATE: 03/12/2020

LOCATION: Ferry Moor Roundabout DAY: Thursday

TIME	JUNCTION TOTAL CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:30	174	35	4	5	6	2	1	227
07:45	227	42	7	8	5	2	0	291
H/TOT	401	77	11	13	11	4	1	518
08:00	226	37	9	7	2	0	0	281
08:15	185	32	10	4	4	0	0	235
08:30	193	36	11	4	3	0	0	247
08:45	154	28	10	7	4	2	0	205
H/TOT	758	133	40	22	13	2	0	968
09:00	160	37	13	7	4	3	0	224
09:15	126	26	13	5	4	1	0	175
H/TOT	286	63	26	12	8	4	0	399
P/TOT	1445	273	77	47	32	10	1	1885

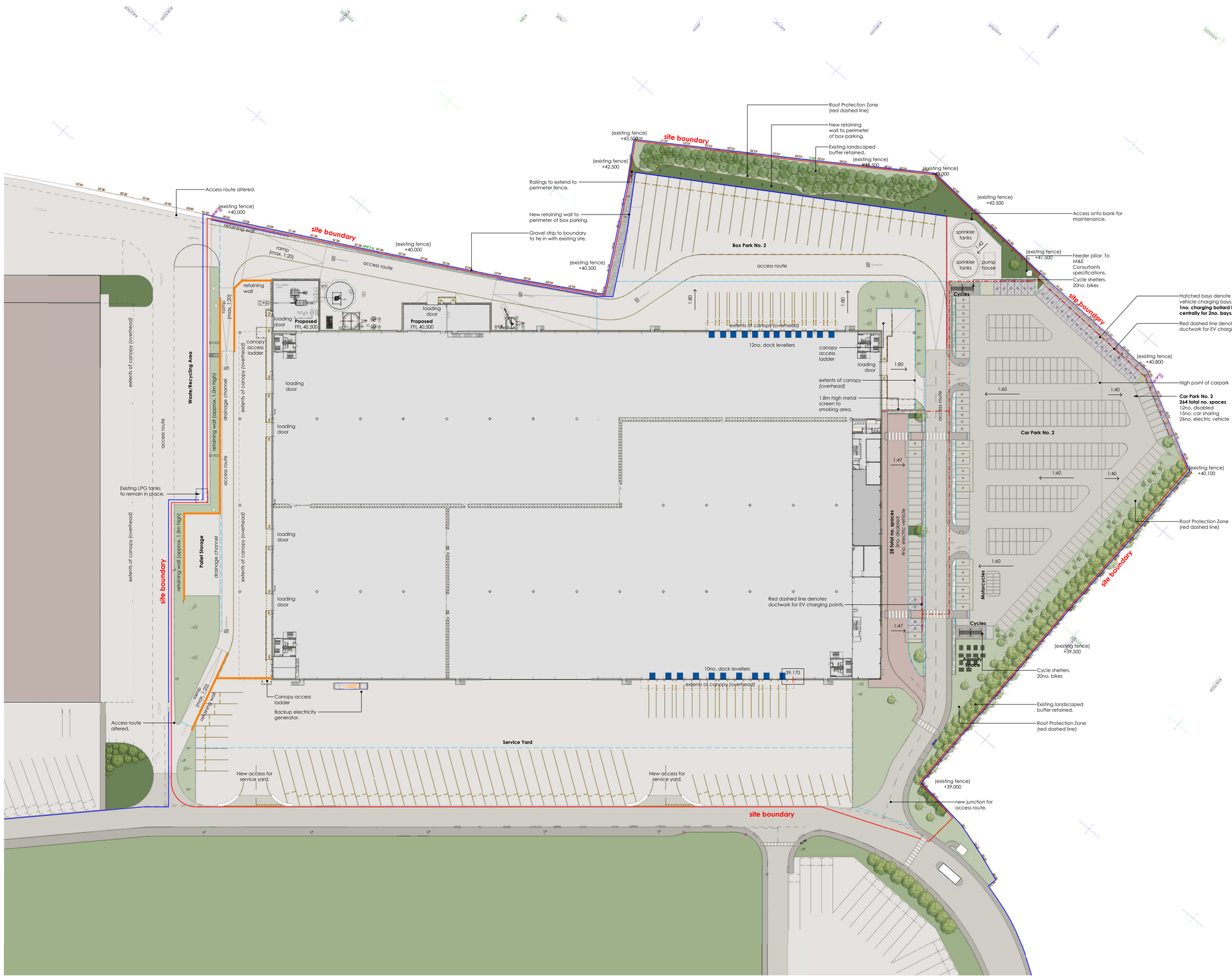
PEAK HOUR CALCULATION	TOT
07:30 to 08:30	1034
07:45 to 08:45	**1054**
08:00 to 09:00	968
08:15 to 09:15	911
08:30 to 09:30	851
PEAK VALUE	**1054**

TIME	JUNCTION TOTAL CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
16:00	244	56	9	9	2	1	0	321
16:15	203	45	16	5	5	1	1	276
16:30	262	44	7	10	3	0	1	327
16:45	177	28	9	7	4	1	0	226
H/TOT	886	173	41	31	14	3	2	1150
17:00	240	37	6	6	6	3	0	298
17:15	195	35	4	4	4	0	1	243
17:30	219	18	2	2	3	0	1	245
17:45	201	18	2	0	3	2	0	226
H/TOT	855	108	14	12	16	5	2	1012
P/TOT	1741	281	55	43	30	8	4	2162

PEAK HOUR CALCULATION	TOT
16:00 to 17:00	**1150**
16:15 to 17:15	1127
16:30 to 17:30	1094
16:45 to 17:45	1012
17:00 to 18:00	1012
PEAK VALUE	**1150**

S|C|P

APPENDIX B



External Works GA Plan
1 : 500

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 5 10 15 20 25 50m 1:500

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
H	23.10.2020	1no. dock levellers removed and alterations made to warehouse partitions.	NB	NDB
I	11.12.2020	Ductwork/infrastructure for EV charging points added to external works.	NB	NDB

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

15no. disabled spaces
15no. car sharing spaces
30no. electric vehicle spaces
229no. standard spaces
289 Total no. Car Spaces
12 Total no. Motorcycle Spaces

Cycling Schedule:
40no. cycles

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

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

DRAWING NOTES:

External lighting design in accordance with M&E consultants details.

All finishes to be on suitable substrate to structural engineer's design and specification.

All drainage shown is indicative and subject to Structural Engineer's details and specifications. Additional drainage requirements are to be to SE details.

New kerbs to be standard pre-cast concrete road kerbs – note all roads within the site affected by the proposed works are private roads and not adopted.

For all soft landscaping refer to Landscape Architects drawings and specifications.

PAVING TYPE 1
FOOTPATHS WITHIN SITE
Black tarmacadam footpaths. Paving to adoptable paving standards and on sub-base to engineer's specification and to local authority approval.

PAVING TYPE 2
CAR PARKING WITHIN SITE
Black tarmacadam roads and parking bays on sub-base to engineer's specification.

PAVING TYPE 3
SERVICE YARDS AND ACCESS ROUTE
New concrete service yard and access routes on sub-base to engineer's specification.

PAVING TYPE 4
FOOTPATH AND ROAD INFRONT OF OFFICE
80mm thick Tegula block paving to match factory no. 1. **(Specification: TBC).** Paving to adoptable paving standards and on sub-base to engineer's specification.

EXTERNAL STEPS
New flight of steps between levels constructed from painted galvanised steel structure with paved steps to match proposed paving.

LANDSCAPING TYPE 1
New turfed areas in accordance with Landscape Architect's specifications.

LANDSCAPING TYPE 2
New areas of soft landscaping in accordance with Landscape Architect's specifications.

LANDSCAPING TYPE 3
New areas of gravel fill to tie-in with existing site.

TREES
New trees within site in accordance with Landscape Architect's specifications.

CYCLE PARKING PROVISIONS
SHORT TERM STAY
Galvanised steel Sheffield Hoops to Local Authority approval.

CYCLE PARKING PROVISIONS
LONG TERM STAY
Galvanised steel Broxap Castleford cycle shelters or equal approved to local authority approval.
(4 x 10 bike shelters)

RETAINING WALL
Precast concrete retaining wall. **To SE details.**

RETAINING WALL (B)
Precast concrete retaining wall with 1100mm high galvanised steel keyclamp railings to top. **To SE details.**

RETAINING WALL (A and B)
Precast concrete retaining wall with galvanised steel armco vehicle barrier protection with 1100mm high pedestrian balustrade. **To SE details.**

BOLLARDS
(2no. to office main personnel doors, 4no. to all loading doors (2 internal, 2 external).
Galvanised mild steel bollards. 150mm dia x 1200mm high, bolted to concrete, filled with concrete and painted with black and yellow horizontal stripes.

EV CHARGING BOLLARDS
Pod point twin charger bollard (colour, black) to be installed within landscaping strip in accordance with manufacturer's details.

Client
The Symphony Group plc.

Project No. 1711
Project Ashes Phase 3

Drawing Title
(P) PLANNING
External Works Plan

Scale @ A0 1 : 500
Date 30.09.2019
Drawn by NB
Checked by NDB

Drawing Status
for Planning

Drawing Number (P) P02
Revision I

46 The Calls, Leeds, LS2 7EY
T: 0113 244 8858
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GNA GARNETT NETHERWOOD ARCHITECTS

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.

*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.*

S|C|P

APPENDIX D

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: Grimethorpe Colliery Roundabout.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY\December 2020
Report generation date: 14/12/2020 10:51:42

»Base 2020, AM
»Base 2020, PM
»Base 2027, AM
»Base 2027, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2027, AM
»Assessment 2027, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2020									
Arm 1	D1	0.0	0.00	0.00	A	D2	0.2	3.48	0.16	A
Arm 2		0.4	2.81	0.27	A		0.3	2.87	0.25	A
Arm 3		0.2	3.18	0.13	A		0.2	3.79	0.16	A
Arm 4		0.7	4.26	0.42	A		0.7	4.00	0.41	A
	Base 2027									
Arm 1	D3	0.0	0.00	0.00	A	D4	0.2	3.80	0.20	A
Arm 2		0.5	3.01	0.32	A		0.4	3.09	0.30	A
Arm 3		0.2	3.29	0.16	A		0.2	4.07	0.19	A
Arm 4		1.0	4.89	0.49	A		0.9	4.50	0.47	A
	Assessment 2020									
Arm 1	D5	0.0	2.81	0.01	A	D6	0.2	3.59	0.19	A
Arm 2		0.4	2.82	0.27	A		0.3	2.91	0.25	A
Arm 3		0.2	3.18	0.13	A		0.2	3.86	0.16	A
Arm 4		0.8	4.46	0.45	A		0.7	4.02	0.41	A
	Assessment 2027									
Arm 1	D7	0.0	2.92	0.01	A	D8	0.3	3.94	0.22	A
Arm 2		0.5	3.02	0.32	A		0.4	3.14	0.30	A
Arm 3		0.2	3.30	0.16	A		0.2	4.15	0.19	A
Arm 4		1.1	5.16	0.52	A		0.9	4.52	0.47	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	07:45	09:15	15
D2	Base 2020	PM	ONE HOUR	15:45	17:15	15
D3	Base 2027	AM	ONE HOUR	07:45	09:15	15
D4	Base 2027	PM	ONE HOUR	15:45	17:15	15
D5	Assessment 2020	AM	ONE HOUR	07:45	09:15	15
D6	Assessment 2020	PM	ONE HOUR	15:45	17:15	15
D7	Assessment 2027	AM	ONE HOUR	07:45	09:15	15
D8	Assessment 2027	PM	ONE HOUR	15:45	17:15	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	3.56	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	24.0	60.0	17.0	
2	4.76	7.14	3.7	25.0	60.0	7.0	
3	2.87	6.02	8.6	30.0	60.0	19.0	
4	3.84	7.00	6.4	28.0	60.0	33.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.553	1595
2	0.603	1830
3	0.516	1381
4	0.530	1538

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	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	0.27	2.81	0.4	A
3	0.13	3.18	0.2	A
4	0.42	4.26	0.7	A

Main Results for each time segment

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	378	1386	0.000	0	0.0	0.000	A
2	326	82	1781	0.183	325	0.2	2.471	A
3	120	98	1331	0.090	119	0.1	2.971	A
4	419	104	1483	0.283	418	0.4	3.374	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	453	1344	0.000	0	0.0	0.000	A
2	389	98	1771	0.220	389	0.3	2.604	A
3	143	117	1321	0.108	143	0.1	3.055	A
4	501	124	1473	0.340	500	0.5	3.700	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	554	1288	0.000	0	0.0	0.000	A
2	477	120	1758	0.271	476	0.4	2.809	A
3	175	143	1307	0.134	175	0.2	3.178	A
4	613	152	1458	0.421	612	0.7	4.253	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	555	1288	0.000	0	0.0	0.000	A
2	477	120	1758	0.271	477	0.4	2.809	A
3	175	143	1307	0.134	175	0.2	3.178	A
4	613	152	1458	0.421	613	0.7	4.262	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	0	454	1344	0.000	0	0.0	0.000	A
2	389	98	1771	0.220	390	0.3	2.608	A
3	143	117	1321	0.108	143	0.1	3.056	A
4	501	124	1473	0.340	502	0.5	3.709	A

09:00 - 09:15

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	380	1385	0.000	0	0.0	0.000	A
2	326	82	1781	0.183	326	0.2	2.475	A
3	120	98	1331	0.090	120	0.1	2.972	A
4	419	104	1483	0.283	420	0.4	3.386	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	3.56	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	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	181	100.000
2		✓	384	100.000
3		✓	163	100.000
4		✓	561	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	89	21	71
	2	3	0	12	369
	3	0	33	0	130
	4	0	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	0.16	3.48	0.2	A
2	0.25	2.87	0.3	A
3	0.16	3.79	0.2	A
4	0.41	4.00	0.7	A

Main Results for each time segment

15:45 - 16:00

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	136	446	1348	0.101	136	0.1	2.969	A
2	289	173	1726	0.167	288	0.2	2.502	A
3	123	333	1210	0.101	122	0.1	3.308	A
4	422	27	1524	0.277	421	0.4	3.259	A

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	163	534	1300	0.125	163	0.1	3.165	A
2	345	207	1706	0.202	345	0.3	2.645	A
3	147	398	1176	0.125	146	0.1	3.496	A
4	504	32	1521	0.332	504	0.5	3.536	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	199	653	1233	0.162	199	0.2	3.480	A
2	423	253	1678	0.252	422	0.3	2.868	A
3	179	487	1130	0.159	179	0.2	3.787	A
4	618	40	1517	0.407	617	0.7	3.994	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	199	654	1233	0.162	199	0.2	3.481	A
2	423	253	1678	0.252	423	0.3	2.868	A
3	179	488	1129	0.159	179	0.2	3.788	A
4	618	40	1517	0.407	618	0.7	4.001	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	163	535	1299	0.125	163	0.1	3.168	A
2	345	207	1705	0.202	346	0.3	2.647	A
3	147	399	1175	0.125	147	0.1	3.499	A
4	504	32	1521	0.332	505	0.5	3.547	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	136	448	1347	0.101	136	0.1	2.975	A
2	289	173	1726	0.168	289	0.2	2.508	A
3	123	334	1209	0.102	123	0.1	3.314	A
4	422	27	1524	0.277	423	0.4	3.272	A

Base 2027, 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	3.96	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 2027	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	4	100.000
2		✓	502	100.000
3		✓	183	100.000
4		✓	645	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	2	1	1
	2	111	0	351	40
	3	9	39	0	135
	4	101	418	126	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	0.32	3.01	0.5	A
3	0.16	3.29	0.2	A
4	0.49	4.89	1.0	A

Main Results for each time segment

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	437	1353	0.000	0	0.0	0.000	A
2	378	94	1773	0.213	377	0.3	2.577	A
3	138	113	1323	0.104	137	0.1	3.037	A
4	486	119	1475	0.329	484	0.5	3.626	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	524	1305	0.000	0	0.0	0.000	A
2	451	113	1762	0.256	451	0.3	2.745	A
3	165	136	1311	0.125	164	0.1	3.138	A
4	580	143	1463	0.396	579	0.7	4.073	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	641	1240	0.000	0	0.0	0.000	A
2	553	138	1747	0.316	552	0.5	3.011	A
3	201	166	1295	0.156	201	0.2	3.289	A
4	710	175	1446	0.491	709	1.0	4.879	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	642	1240	0.000	0	0.0	0.000	A
2	553	139	1747	0.316	553	0.5	3.014	A
3	201	166	1295	0.156	201	0.2	3.290	A
4	710	175	1446	0.491	710	1.0	4.894	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	0	525	1304	0.000	0	0.0	0.000	A
2	451	114	1762	0.256	452	0.3	2.750	A
3	165	136	1311	0.125	165	0.1	3.142	A
4	580	143	1462	0.396	581	0.7	4.091	A

09:00 - 09:15

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	440	1352	0.000	0	0.0	0.000	A
2	378	95	1773	0.213	378	0.3	2.583	A
3	138	114	1322	0.104	138	0.1	3.038	A
4	486	120	1475	0.329	486	0.5	3.646	A

Base 2027, 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	3.93	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 2027	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	210	100.000
2		✓	444	100.000
3		✓	188	100.000
4		✓	648	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	103	25	82
	2	4	0	14	426
	3	0	38	0	150
	4	0	488	160	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	3.80	0.2	A
2	0.30	3.09	0.4	A
3	0.19	4.07	0.2	A
4	0.47	4.50	0.9	A

Main Results for each time segment

15:45 - 16:00

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	158	514	1310	0.121	158	0.1	3.121	A
2	334	200	1709	0.196	333	0.2	2.615	A
3	142	384	1183	0.120	141	0.1	3.453	A
4	488	32	1522	0.321	486	0.5	3.470	A

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	189	616	1254	0.151	189	0.2	3.378	A
2	399	240	1686	0.237	399	0.3	2.797	A
3	169	460	1144	0.148	169	0.2	3.692	A
4	583	38	1518	0.384	582	0.6	3.842	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	231	754	1178	0.196	231	0.2	3.802	A
2	489	294	1653	0.296	488	0.4	3.091	A
3	207	563	1091	0.190	207	0.2	4.072	A
4	713	46	1514	0.471	712	0.9	4.486	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	755	1177	0.196	231	0.2	3.805	A
2	489	294	1653	0.296	489	0.4	3.091	A
3	207	564	1090	0.190	207	0.2	4.075	A
4	713	46	1514	0.471	713	0.9	4.497	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	189	618	1253	0.151	189	0.2	3.386	A
2	399	240	1685	0.237	400	0.3	2.802	A
3	169	461	1143	0.148	169	0.2	3.695	A
4	583	38	1518	0.384	584	0.6	3.857	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	158	517	1309	0.121	158	0.1	3.128	A
2	334	201	1709	0.196	335	0.2	2.619	A
3	142	386	1182	0.120	142	0.1	3.462	A
4	488	32	1522	0.321	488	0.5	3.485	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	3.68	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	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	2.81	0.0	A
2	0.27	2.82	0.4	A
3	0.13	3.18	0.2	A
4	0.45	4.46	0.8	A

Main Results for each time segment

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	5	378	1386	0.004	5	0.0	2.607	A
2	326	85	1779	0.183	325	0.2	2.475	A
3	120	101	1329	0.090	119	0.1	2.975	A
4	445	104	1483	0.300	443	0.4	3.454	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	6	453	1344	0.005	6	0.0	2.689	A
2	389	102	1769	0.220	389	0.3	2.609	A
3	143	120	1319	0.108	143	0.1	3.060	A
4	531	124	1473	0.361	531	0.6	3.820	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	8	554	1288	0.006	8	0.0	2.810	A
2	477	125	1755	0.272	476	0.4	2.816	A
3	175	147	1305	0.134	175	0.2	3.184	A
4	651	152	1458	0.446	650	0.8	4.449	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	8	555	1288	0.006	8	0.0	2.811	A
2	477	126	1755	0.272	477	0.4	2.816	A
3	175	148	1305	0.134	175	0.2	3.185	A
4	651	152	1458	0.446	651	0.8	4.460	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	6	454	1344	0.005	6	0.0	2.693	A
2	389	103	1768	0.220	390	0.3	2.611	A
3	143	121	1319	0.108	143	0.1	3.061	A
4	531	124	1473	0.361	532	0.6	3.834	A

09:00 - 09:15

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	5	380	1385	0.004	5	0.0	2.609	A
2	326	86	1778	0.183	326	0.2	2.480	A
3	120	101	1329	0.090	120	0.1	2.978	A
4	445	104	1483	0.300	445	0.4	3.472	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	3.61	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	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	0.19	3.59	0.2	A
2	0.25	2.91	0.3	A
3	0.16	3.86	0.2	A
4	0.41	4.02	0.7	A

Main Results for each time segment

15:45 - 16:00

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	158	446	1348	0.117	158	0.1	3.021	A
2	289	194	1713	0.169	288	0.2	2.525	A
3	123	354	1198	0.102	122	0.1	3.343	A
4	425	27	1524	0.279	423	0.4	3.266	A

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	189	534	1300	0.145	189	0.2	3.240	A
2	345	233	1690	0.204	345	0.3	2.676	A
3	147	424	1162	0.126	146	0.1	3.543	A
4	507	32	1521	0.333	507	0.5	3.546	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	231	653	1233	0.187	231	0.2	3.591	A
2	423	285	1658	0.255	422	0.3	2.912	A
3	179	519	1113	0.161	179	0.2	3.853	A
4	621	40	1517	0.409	620	0.7	4.009	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	654	1233	0.188	231	0.2	3.592	A
2	423	285	1658	0.255	423	0.3	2.913	A
3	179	520	1113	0.161	179	0.2	3.856	A
4	621	40	1517	0.409	621	0.7	4.016	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	189	535	1299	0.145	189	0.2	3.243	A
2	345	233	1690	0.204	346	0.3	2.680	A
3	147	425	1162	0.126	147	0.1	3.545	A
4	507	32	1521	0.333	508	0.5	3.557	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	158	448	1347	0.117	158	0.1	3.030	A
2	289	195	1713	0.169	289	0.2	2.529	A
3	123	356	1198	0.102	123	0.1	3.348	A
4	425	27	1524	0.279	425	0.4	3.279	A

Assessment 2027, 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	4.12	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 2027	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	7	100.000
2		✓	502	100.000
3		✓	183	100.000
4		✓	679	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	2	1	4
	2	111	0	351	40
	3	9	39	0	135
	4	135	418	126	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	2.92	0.0	A
2	0.32	3.02	0.5	A
3	0.16	3.30	0.2	A
4	0.52	5.16	1.1	A

Main Results for each time segment

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	5	437	1353	0.004	5	0.0	2.670	A
2	378	98	1771	0.213	377	0.3	2.581	A
3	138	116	1321	0.104	137	0.1	3.041	A
4	511	119	1475	0.347	509	0.5	3.719	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	6	523	1305	0.005	6	0.0	2.771	A
2	451	118	1759	0.257	451	0.3	2.751	A
3	165	139	1309	0.126	164	0.1	3.143	A
4	610	143	1463	0.417	610	0.7	4.217	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	8	641	1240	0.006	8	0.0	2.919	A
2	553	144	1743	0.317	552	0.5	3.020	A
3	201	171	1293	0.156	201	0.2	3.296	A
4	748	175	1446	0.517	746	1.1	5.136	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	8	642	1240	0.006	8	0.0	2.921	A
2	553	144	1743	0.317	553	0.5	3.023	A
3	201	171	1293	0.156	201	0.2	3.297	A
4	748	175	1446	0.517	748	1.1	5.157	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	6	525	1304	0.005	6	0.0	2.775	A
2	451	118	1759	0.257	452	0.3	2.756	A
3	165	139	1309	0.126	165	0.1	3.145	A
4	610	143	1462	0.417	612	0.7	4.238	A

09:00 - 09:15

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	5	440	1352	0.004	5	0.0	2.673	A
2	378	99	1771	0.213	378	0.3	2.585	A
3	138	117	1321	0.104	138	0.1	3.042	A
4	511	120	1475	0.347	512	0.5	3.743	A

Assessment 2027, 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	3.98	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 2027	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	239	100.000
2		✓	444	100.000
3		✓	188	100.000
4		✓	651	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	103	25	111
	2	4	0	14	426
	3	0	38	0	150
	4	3	488	160	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	3.94	0.3	A
2	0.30	3.14	0.4	A
3	0.19	4.15	0.2	A
4	0.47	4.52	0.9	A

Main Results for each time segment

15:45 - 16:00

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	180	514	1310	0.137	179	0.2	3.181	A
2	334	222	1696	0.197	333	0.2	2.640	A
3	142	406	1172	0.121	141	0.1	3.491	A
4	490	32	1522	0.322	488	0.5	3.478	A

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	215	616	1254	0.171	215	0.2	3.463	A
2	399	266	1670	0.239	399	0.3	2.832	A
3	169	486	1130	0.150	169	0.2	3.743	A
4	585	38	1518	0.385	585	0.6	3.853	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	263	754	1178	0.223	263	0.3	3.934	A
2	489	325	1634	0.299	488	0.4	3.140	A
3	207	595	1074	0.193	207	0.2	4.149	A
4	717	46	1514	0.473	716	0.9	4.505	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	263	755	1177	0.224	263	0.3	3.938	A
2	489	326	1634	0.299	489	0.4	3.143	A
3	207	596	1074	0.193	207	0.2	4.152	A
4	717	46	1514	0.473	717	0.9	4.516	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	215	618	1253	0.171	215	0.2	3.471	A
2	399	267	1670	0.239	400	0.3	2.835	A
3	169	487	1130	0.150	169	0.2	3.747	A
4	585	38	1518	0.385	586	0.6	3.866	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	180	517	1309	0.137	180	0.2	3.192	A
2	334	223	1696	0.197	335	0.2	2.646	A
3	142	408	1171	0.121	142	0.1	3.497	A
4	490	32	1522	0.322	491	0.5	3.496	A

S|C|P

APPENDIX E

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: Ferrymoor Roundabout.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY\December 2020
Report generation date: 14/12/2020 18:04:57

»Base 2020, AM
»Base 2020, PM
»Base 2027, AM
»Base 2027, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2027, AM
»Assessment 2027, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2020									
Arm 1	D1	0.0	3.09	0.02	A	D2	0.1	3.50	0.06	A
Arm 2		0.6	3.24	0.39	A		0.6	3.12	0.36	A
Arm 3		0.3	3.47	0.21	A		0.2	3.21	0.17	A
Arm 4		0.3	2.71	0.24	A		0.5	3.02	0.34	A
	Base 2027									
Arm 1	D3	0.0	3.19	0.02	A	D4	0.1	3.67	0.07	A
Arm 2		0.8	3.48	0.43	A		0.7	3.33	0.40	A
Arm 3		0.3	3.67	0.24	A		0.2	3.35	0.19	A
Arm 4		0.4	2.84	0.27	A		0.6	3.22	0.37	A
	Assessment 2020									
Arm 1	D5	0.0	3.12	0.03	A	D6	0.2	4.02	0.18	A
Arm 2		0.8	3.55	0.45	A		0.6	3.23	0.38	A
Arm 3		0.3	3.74	0.23	A		0.2	3.28	0.18	A
Arm 4		0.4	2.95	0.27	A		0.5	3.05	0.34	A
	Assessment 2027									
Arm 1	D7	0.0	3.22	0.03	A	D8	0.2	4.24	0.19	A
Arm 2		0.9	3.85	0.49	A		0.7	3.45	0.41	A
Arm 3		0.4	3.97	0.26	A		0.2	3.43	0.20	A
Arm 4		0.4	3.10	0.30	A		0.6	3.25	0.38	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	07:45	09:15	15
D2	Base 2020	PM	ONE HOUR	15:45	17:15	15
D3	Base 2027	AM	ONE HOUR	07:45	09:15	15
D4	Base 2027	PM	ONE HOUR	15:45	17:15	15
D5	Assessment 2020	AM	ONE HOUR	07:45	09:15	15
D6	Assessment 2020	PM	ONE HOUR	15:45	17:15	15
D7	Assessment 2027	AM	ONE HOUR	07:45	09:15	15
D8	Assessment 2027	PM	ONE HOUR	15:45	17:15	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	3.13	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	27.0	60.0	28.0	
2	4.74	7.14	6.9	24.0	60.0	20.0	
3	3.56	7.82	7.3	24.0	60.0	23.0	
4	5.00	7.50	6.3	23.0	60.0	20.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.530	1511
2	0.596	1857
3	0.544	1576
4	0.607	1925

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	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	0.39	3.24	0.6	A
3	0.21	3.47	0.3	A
4	0.24	2.71	0.3	A

Main Results for each time segment

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	14	421	1288	0.011	14	0.0	2.823	A
2	492	32	1838	0.267	490	0.4	2.669	A
3	187	333	1395	0.134	187	0.2	2.978	A
4	290	193	1808	0.160	289	0.2	2.369	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	16	504	1245	0.013	16	0.0	2.930	A
2	587	39	1834	0.320	587	0.5	2.885	A
3	224	399	1359	0.165	224	0.2	3.169	A
4	346	231	1785	0.194	346	0.2	2.502	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	20	617	1185	0.017	20	0.0	3.089	A
2	719	47	1829	0.393	718	0.6	3.239	A
3	274	488	1311	0.209	274	0.3	3.472	A
4	424	283	1753	0.242	424	0.3	2.707	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	20	618	1184	0.017	20	0.0	3.090	A
2	719	47	1829	0.393	719	0.6	3.242	A
3	274	489	1310	0.209	274	0.3	3.473	A
4	424	283	1753	0.242	424	0.3	2.708	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	16	505	1244	0.013	16	0.0	2.933	A
2	587	39	1834	0.320	588	0.5	2.891	A
3	224	400	1359	0.165	224	0.2	3.174	A
4	346	231	1784	0.194	346	0.2	2.505	A

09:00 - 09:15

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	14	423	1288	0.011	14	0.0	2.827	A
2	492	32	1838	0.267	492	0.4	2.675	A
3	187	335	1394	0.134	188	0.2	2.985	A
4	290	194	1807	0.160	290	0.2	2.372	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	3.11	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	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	0.36	3.12	0.6	A
3	0.17	3.21	0.2	A
4	0.34	3.02	0.5	A

Main Results for each time segment

15:45 - 16:00

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	44	537	1227	0.036	44	0.0	3.043	A
2	452	50	1828	0.248	451	0.3	2.613	A
3	160	276	1426	0.112	159	0.1	2.839	A
4	412	146	1836	0.224	411	0.3	2.522	A

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	53	643	1171	0.045	53	0.0	3.219	A
2	540	59	1822	0.297	540	0.4	2.808	A
3	191	331	1396	0.136	190	0.2	2.984	A
4	492	174	1819	0.270	491	0.4	2.711	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	65	788	1094	0.059	65	0.1	3.496	A
2	662	73	1814	0.365	661	0.6	3.121	A
3	233	405	1356	0.172	233	0.2	3.205	A
4	602	213	1795	0.335	602	0.5	3.014	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	1814	0.365	662	0.6	3.123	A
3	233	405	1356	0.172	233	0.2	3.206	A
4	602	214	1795	0.336	602	0.5	3.017	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	53	644	1170	0.045	53	0.0	3.224	A
2	540	59	1822	0.297	541	0.4	2.813	A
3	191	331	1396	0.137	191	0.2	2.986	A
4	492	175	1819	0.270	492	0.4	2.714	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	44	539	1226	0.036	44	0.0	3.046	A
2	452	50	1828	0.248	453	0.3	2.620	A
3	160	277	1425	0.112	160	0.1	2.846	A
4	412	146	1836	0.224	412	0.3	2.530	A

Base 2027, 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	3.32	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 2027	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	20	100.000
2		✓	720	100.000
3		✓	275	100.000
4		✓	424	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	13	1	6
	2	38	0	237	445
	3	18	227	0	30
	4	34	351	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	3.19	0.0	A
2	0.43	3.48	0.8	A
3	0.24	3.67	0.3	A
4	0.27	2.84	0.4	A

Main Results for each time segment

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	15	463	1266	0.012	15	0.0	2.876	A
2	542	35	1837	0.295	540	0.4	2.773	A
3	207	367	1377	0.150	206	0.2	3.074	A
4	319	212	1796	0.178	318	0.2	2.435	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	18	554	1218	0.015	18	0.0	2.999	A
2	647	41	1833	0.353	647	0.5	3.034	A
3	247	439	1337	0.185	247	0.2	3.301	A
4	381	254	1770	0.215	381	0.3	2.590	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	22	679	1152	0.019	22	0.0	3.185	A
2	793	51	1827	0.434	792	0.8	3.474	A
3	303	538	1284	0.236	302	0.3	3.669	A
4	467	311	1736	0.269	466	0.4	2.836	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	679	1152	0.019	22	0.0	3.185	A
2	793	51	1827	0.434	793	0.8	3.479	A
3	303	538	1283	0.236	303	0.3	3.670	A
4	467	312	1736	0.269	467	0.4	2.836	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	18	555	1217	0.015	18	0.0	3.000	A
2	647	41	1833	0.353	648	0.5	3.040	A
3	247	440	1337	0.185	248	0.2	3.307	A
4	381	255	1770	0.215	382	0.3	2.594	A

09:00 - 09:15

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	15	465	1265	0.012	15	0.0	2.878	A
2	542	35	1837	0.295	543	0.4	2.782	A
3	207	368	1376	0.150	207	0.2	3.082	A
4	319	213	1795	0.178	319	0.2	2.439	A

Base 2027, 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	3.30	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 2027	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	65	100.000
2		✓	662	100.000
3		✓	234	100.000
4		✓	602	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	35	2	28
	2	15	0	284	363
	3	4	195	0	35
	4	9	550	43	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	3.67	0.1	A
2	0.40	3.33	0.7	A
3	0.19	3.35	0.2	A
4	0.37	3.22	0.6	A

Main Results for each time segment

15:45 - 16:00

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	49	591	1198	0.041	49	0.0	3.131	A
2	498	55	1825	0.273	497	0.4	2.709	A
3	176	305	1411	0.125	176	0.1	2.913	A
4	453	161	1827	0.248	452	0.3	2.615	A

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	58	708	1137	0.051	58	0.1	3.338	A
2	595	66	1818	0.327	595	0.5	2.942	A
3	210	365	1378	0.153	210	0.2	3.082	A
4	541	192	1808	0.299	541	0.4	2.841	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	72	867	1052	0.068	71	0.1	3.669	A
2	729	80	1809	0.403	728	0.7	3.328	A
3	258	447	1333	0.193	257	0.2	3.345	A
4	663	235	1782	0.372	662	0.6	3.213	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	72	868	1052	0.068	72	0.1	3.670	A
2	729	80	1809	0.403	729	0.7	3.331	A
3	258	447	1333	0.193	258	0.2	3.346	A
4	663	236	1782	0.372	663	0.6	3.216	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	58	709	1136	0.051	59	0.1	3.343	A
2	595	66	1818	0.327	596	0.5	2.946	A
3	210	365	1378	0.153	211	0.2	3.084	A
4	541	193	1808	0.299	542	0.4	2.846	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	49	594	1197	0.041	49	0.0	3.137	A
2	498	55	1824	0.273	499	0.4	2.716	A
3	176	306	1410	0.125	176	0.1	2.918	A
4	453	161	1827	0.248	454	0.3	2.623	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	3.40	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	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	3.55	0.8	A
3	0.23	3.74	0.3	A
4	0.27	2.95	0.4	A

Main Results for each time segment

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	22	421	1288	0.017	22	0.0	2.841	A
2	557	35	1837	0.303	555	0.4	2.806	A
3	201	400	1359	0.148	200	0.2	3.106	A
4	315	272	1760	0.179	315	0.2	2.489	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	26	504	1245	0.021	26	0.0	2.953	A
2	665	41	1833	0.363	665	0.6	3.080	A
3	240	479	1316	0.182	240	0.2	3.345	A
4	377	325	1727	0.218	376	0.3	2.664	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	32	617	1185	0.027	32	0.0	3.122	A
2	815	51	1827	0.446	814	0.8	3.549	A
3	294	586	1257	0.234	294	0.3	3.735	A
4	461	398	1683	0.274	461	0.4	2.945	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	32	618	1184	0.027	32	0.0	3.123	A
2	815	51	1827	0.446	815	0.8	3.555	A
3	294	587	1257	0.234	294	0.3	3.737	A
4	461	399	1683	0.274	461	0.4	2.946	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	26	505	1244	0.021	26	0.0	2.957	A
2	665	41	1833	0.363	666	0.6	3.088	A
3	240	480	1315	0.182	240	0.2	3.349	A
4	377	326	1727	0.218	377	0.3	2.669	A

09:00 - 09:15

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	22	423	1288	0.017	22	0.0	2.845	A
2	557	35	1837	0.303	558	0.4	2.817	A
3	201	402	1358	0.148	201	0.2	3.112	A
4	315	273	1759	0.179	316	0.2	2.495	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	3.26	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	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	3.23	0.6	A
3	0.18	3.28	0.2	A
4	0.34	3.05	0.5	A

Main Results for each time segment

15:45 - 16:00

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	136	537	1227	0.110	135	0.1	3.295	A
2	459	83	1808	0.254	458	0.3	2.665	A
3	161	305	1410	0.114	161	0.1	2.879	A
4	415	154	1831	0.227	414	0.3	2.537	A

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	162	643	1171	0.138	162	0.2	3.566	A
2	548	100	1798	0.305	548	0.4	2.880	A
3	192	366	1377	0.140	192	0.2	3.037	A
4	495	184	1813	0.273	495	0.4	2.731	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	198	788	1094	0.181	198	0.2	4.015	A
2	672	122	1785	0.376	671	0.6	3.231	A
3	236	448	1333	0.177	235	0.2	3.280	A
4	607	226	1788	0.339	606	0.5	3.044	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	4.018	A
2	672	122	1784	0.376	672	0.6	3.234	A
3	236	448	1333	0.177	236	0.2	3.281	A
4	607	226	1788	0.339	607	0.5	3.047	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	162	644	1170	0.138	162	0.2	3.570	A
2	548	100	1798	0.305	549	0.4	2.883	A
3	192	366	1377	0.140	193	0.2	3.041	A
4	495	184	1813	0.273	496	0.4	2.734	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	136	539	1226	0.111	136	0.1	3.304	A
2	459	84	1807	0.254	460	0.3	2.671	A
3	161	307	1409	0.114	161	0.1	2.883	A
4	415	154	1831	0.227	415	0.3	2.544	A

Assessment 2027, 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	3.64	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 2027	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	32	100.000
2		✓	808	100.000
3		✓	292	100.000
4		✓	457	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	20	3	9
	2	126	0	237	445
	3	35	227	0	30
	4	67	351	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	3.22	0.0	A
2	0.49	3.85	0.9	A
3	0.26	3.97	0.4	A
4	0.30	3.10	0.4	A

Main Results for each time segment

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	24	463	1266	0.019	24	0.0	2.897	A
2	608	38	1834	0.332	606	0.5	2.926	A
3	220	435	1340	0.164	219	0.2	3.211	A
4	344	291	1748	0.197	343	0.2	2.561	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	29	554	1218	0.024	29	0.0	3.026	A
2	726	46	1830	0.397	726	0.7	3.258	A
3	263	521	1293	0.203	262	0.3	3.493	A
4	411	348	1713	0.240	411	0.3	2.763	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	35	679	1152	0.031	35	0.0	3.222	A
2	890	56	1824	0.488	888	0.9	3.844	A
3	321	638	1229	0.262	321	0.4	3.962	A
4	503	427	1666	0.302	503	0.4	3.093	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	35	679	1152	0.031	35	0.0	3.223	A
2	890	56	1824	0.488	890	0.9	3.853	A
3	321	639	1229	0.262	321	0.4	3.967	A
4	503	427	1665	0.302	503	0.4	3.096	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	29	555	1217	0.024	29	0.0	3.030	A
2	726	46	1830	0.397	728	0.7	3.268	A
3	263	522	1292	0.203	263	0.3	3.500	A
4	411	349	1713	0.240	411	0.3	2.766	A

09:00 - 09:15

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	24	465	1265	0.019	24	0.0	2.899	A
2	608	38	1834	0.332	609	0.5	2.941	A
3	220	437	1338	0.164	220	0.2	3.218	A
4	344	292	1747	0.197	344	0.2	2.566	A

Assessment 2027, 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	3.46	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 2027	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	185	100.000
2		✓	671	100.000
3		✓	236	100.000
4		✓	606	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	111	17	57
	2	24	0	284	363
	3	6	195	0	35
	4	13	550	43	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	4.24	0.2	A
2	0.41	3.45	0.7	A
3	0.20	3.43	0.2	A
4	0.38	3.25	0.6	A

Main Results for each time segment

15:45 - 16:00

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	139	591	1198	0.116	139	0.1	3.396	A
2	505	88	1805	0.280	504	0.4	2.762	A
3	178	333	1395	0.127	177	0.1	2.954	A
4	456	169	1822	0.250	455	0.3	2.630	A

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	166	708	1137	0.146	166	0.2	3.709	A
2	603	105	1795	0.336	603	0.5	3.018	A
3	212	399	1359	0.156	212	0.2	3.137	A
4	545	202	1802	0.302	544	0.4	2.862	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	204	867	1052	0.194	203	0.2	4.239	A
2	739	129	1781	0.415	738	0.7	3.453	A
3	260	488	1311	0.198	260	0.2	3.425	A
4	667	247	1774	0.376	667	0.6	3.247	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	868	1052	0.194	204	0.2	4.243	A
2	739	129	1780	0.415	739	0.7	3.455	A
3	260	489	1310	0.198	260	0.2	3.426	A
4	667	248	1774	0.376	667	0.6	3.250	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	166	709	1136	0.146	167	0.2	3.716	A
2	603	105	1794	0.336	604	0.5	3.027	A
3	212	400	1359	0.156	212	0.2	3.140	A
4	545	203	1802	0.302	545	0.4	2.868	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	139	594	1197	0.116	139	0.1	3.406	A
2	505	88	1805	0.280	506	0.4	2.773	A
3	178	335	1394	0.127	178	0.1	2.961	A
4	456	170	1822	0.250	457	0.3	2.637	A

S|C|P

APPENDIX F

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: Rotherham Road Roundabout.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY\December 2020
Report generation date: 14/12/2020 10:55:45

»Base 2020, AM
»Base 2020, PM
»Base 2027, AM
»Base 2027, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2027, AM
»Assessment 2027, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2020									
Arm 1	D1	0.4	3.57	0.30	A	D2	0.9	4.73	0.47	A
Arm 2		0.4	3.63	0.28	A		0.7	4.87	0.42	A
Arm 3		1.2	5.63	0.56	A		1.6	6.69	0.62	A
	Base 2027									
Arm 1	D3	0.6	3.97	0.36	A	D4	1.2	5.78	0.55	A
Arm 2		0.5	4.01	0.33	A		1.0	5.92	0.50	A
Arm 3		1.8	7.07	0.65	A		2.6	9.11	0.72	A
	Assessment 2020									
Arm 1	D5	0.4	3.59	0.30	A	D6	1.1	5.20	0.52	A
Arm 2		0.4	3.65	0.28	A		0.7	5.13	0.43	A
Arm 3		1.5	6.39	0.61	A		1.7	6.78	0.63	A
	Assessment 2027									
Arm 1	D7	0.6	3.99	0.36	A	D8	1.5	6.49	0.60	A
Arm 2		0.5	4.03	0.33	A		1.1	6.30	0.52	A
Arm 3		2.3	8.31	0.70	A		2.6	9.29	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	07:45	09:15	15
D2	Base 2020	PM	ONE HOUR	15:45	17:15	15
D3	Base 2027	AM	ONE HOUR	07:45	09:15	15
D4	Base 2027	PM	ONE HOUR	15:45	17:15	15
D5	Assessment 2020	AM	ONE HOUR	07:45	09:15	15
D6	Assessment 2020	PM	ONE HOUR	15:45	17:15	15
D7	Assessment 2027	AM	ONE HOUR	07:45	09:15	15
D8	Assessment 2027	PM	ONE HOUR	15:45	17:15	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	4.61	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	23.0	60.0	36.0	
2	3.93	6.91	5.7	45.6	60.0	29.0	
3	3.11	6.69	8.9	23.0	60.0	23.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.545	1650
2	0.543	1575
3	0.523	1460

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	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	3.57	0.4	A
2	0.28	3.63	0.4	A
3	0.56	5.63	1.2	A

Main Results for each time segment

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	296	260	1508	0.196	295	0.2	2.964	A
2	261	251	1438	0.182	260	0.2	3.055	A
3	549	23	1448	0.379	546	0.6	3.985	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	353	312	1480	0.239	353	0.3	3.193	A
2	312	301	1411	0.221	312	0.3	3.274	A
3	655	28	1445	0.453	654	0.8	4.548	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	433	381	1442	0.300	432	0.4	3.562	A
2	382	368	1374	0.278	382	0.4	3.623	A
3	803	34	1442	0.557	801	1.2	5.602	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	433	382	1442	0.300	433	0.4	3.566	A
2	382	369	1374	0.278	382	0.4	3.627	A
3	803	34	1442	0.557	803	1.2	5.631	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	353	313	1480	0.239	354	0.3	3.200	A
2	312	302	1411	0.221	312	0.3	3.280	A
3	655	28	1445	0.453	657	0.8	4.576	A

09:00 - 09:15

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	296	262	1507	0.196	296	0.2	2.974	A
2	261	252	1438	0.182	261	0.2	3.061	A
3	549	23	1448	0.379	550	0.6	4.015	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	5.60	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	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	4.73	0.9	A
2	0.42	4.87	0.7	A
3	0.62	6.69	1.6	A

Main Results for each time segment

15:45 - 16:00

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	459	272	1502	0.306	457	0.4	3.441	A
2	361	387	1364	0.264	359	0.4	3.577	A
3	611	36	1441	0.424	608	0.7	4.310	A

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	548	326	1472	0.372	548	0.6	3.891	A
2	431	463	1323	0.326	430	0.5	4.031	A
3	730	43	1437	0.508	729	1.0	5.074	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	672	399	1433	0.469	670	0.9	4.716	A
2	527	567	1266	0.416	526	0.7	4.858	A
3	894	53	1432	0.624	892	1.6	6.629	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	400	1432	0.469	672	0.9	4.732	A
2	527	568	1266	0.417	527	0.7	4.873	A
3	894	53	1432	0.624	894	1.6	6.687	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	548	327	1472	0.373	549	0.6	3.910	A
2	431	465	1322	0.326	432	0.5	4.046	A
3	730	43	1437	0.508	732	1.0	5.127	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	459	274	1501	0.306	460	0.4	3.462	A
2	361	389	1363	0.265	361	0.4	3.593	A
3	611	36	1441	0.424	613	0.7	4.352	A

Base 2027, 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	5.52	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 2027	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	456	100.000
2		✓	403	100.000
3		✓	845	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	67	389
	2	36	0	367
	3	443	402	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	0.36	3.97	0.6	A
2	0.33	4.01	0.5	A
3	0.65	7.07	1.8	A

Main Results for each time segment

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	343	301	1486	0.231	342	0.3	3.145	A
2	303	292	1416	0.214	302	0.3	3.229	A
3	636	27	1446	0.440	633	0.8	4.414	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	410	361	1453	0.282	410	0.4	3.449	A
2	362	349	1385	0.262	362	0.4	3.519	A
3	760	32	1443	0.527	758	1.1	5.250	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	502	441	1410	0.356	501	0.5	3.962	A
2	444	428	1342	0.331	443	0.5	4.001	A
3	930	40	1439	0.647	928	1.8	7.002	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	502	443	1409	0.356	502	0.6	3.969	A
2	444	428	1342	0.331	444	0.5	4.007	A
3	930	40	1439	0.647	930	1.8	7.074	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	410	363	1452	0.282	411	0.4	3.456	A
2	362	350	1384	0.262	363	0.4	3.525	A
3	760	32	1443	0.527	762	1.1	5.311	A

09:00 - 09:15

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	343	303	1485	0.231	344	0.3	3.155	A
2	303	293	1415	0.214	304	0.3	3.241	A
3	636	27	1446	0.440	637	0.8	4.462	A

Base 2027, 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	7.24	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)
D4	Base 2027	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	705	100.000
2		✓	554	100.000
3		✓	938	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	109	596
	2	56	0	498
	3	519	419	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	0.55	5.78	1.2	A
2	0.50	5.92	1.0	A
3	0.72	9.11	2.6	A

Main Results for each time segment

15:45 - 16:00

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	531	314	1479	0.359	529	0.6	3.780	A
2	417	447	1332	0.313	415	0.5	3.919	A
3	706	42	1438	0.491	702	1.0	4.870	A

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	634	376	1445	0.439	633	0.8	4.427	A
2	498	535	1284	0.388	497	0.6	4.573	A
3	843	50	1433	0.588	841	1.4	6.063	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	776	459	1400	0.555	774	1.2	5.741	A
2	610	655	1219	0.500	609	1.0	5.883	A
3	1033	62	1428	0.723	1028	2.5	8.915	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	776	461	1399	0.555	776	1.2	5.783	A
2	610	656	1218	0.501	610	1.0	5.919	A
3	1033	62	1427	0.723	1033	2.6	9.106	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	634	379	1444	0.439	636	0.8	4.466	A
2	498	537	1283	0.388	499	0.6	4.606	A
3	843	50	1433	0.588	848	1.5	6.195	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	531	316	1478	0.359	532	0.6	3.808	A
2	417	449	1330	0.313	418	0.5	3.947	A
3	706	42	1438	0.491	708	1.0	4.948	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	5.05	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	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	0.30	3.59	0.4	A
2	0.28	3.65	0.4	A
3	0.61	6.39	1.5	A

Main Results for each time segment

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	300	260	1508	0.199	299	0.2	2.975	A
2	263	256	1436	0.183	262	0.2	3.066	A
3	600	25	1447	0.415	597	0.7	4.224	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	359	311	1480	0.242	358	0.3	3.209	A
2	314	306	1408	0.223	313	0.3	3.288	A
3	716	30	1444	0.496	715	1.0	4.932	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	439	381	1442	0.305	439	0.4	3.585	A
2	384	375	1371	0.280	384	0.4	3.645	A
3	878	36	1441	0.609	875	1.5	6.341	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	439	382	1442	0.305	439	0.4	3.590	A
2	384	375	1371	0.280	384	0.4	3.648	A
3	878	36	1441	0.609	877	1.5	6.391	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	359	313	1479	0.242	359	0.3	3.214	A
2	314	307	1408	0.223	314	0.3	3.291	A
3	716	30	1444	0.496	719	1.0	4.976	A

09:00 - 09:15

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	300	262	1507	0.199	301	0.2	2.983	A
2	263	257	1435	0.183	263	0.2	3.073	A
3	600	25	1447	0.415	601	0.7	4.262	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	5.84	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	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	5.20	1.1	A
2	0.43	5.13	0.7	A
3	0.63	6.78	1.7	A

Main Results for each time segment

15:45 - 16:00

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	506	272	1502	0.337	504	0.5	3.600	A
2	361	433	1340	0.269	359	0.4	3.667	A
3	617	36	1441	0.428	614	0.7	4.336	A

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	604	326	1472	0.410	603	0.7	4.139	A
2	431	518	1293	0.333	430	0.5	4.168	A
3	736	43	1437	0.512	735	1.0	5.119	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	740	399	1433	0.516	738	1.1	5.174	A
2	527	634	1230	0.429	526	0.7	5.108	A
3	902	53	1432	0.630	899	1.7	6.723	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	400	1432	0.517	740	1.1	5.199	A
2	527	635	1229	0.429	527	0.7	5.127	A
3	902	53	1432	0.630	902	1.7	6.784	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	604	327	1472	0.411	606	0.7	4.165	A
2	431	520	1292	0.333	432	0.5	4.189	A
3	736	43	1437	0.512	739	1.1	5.174	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	506	274	1501	0.337	507	0.5	3.626	A
2	361	435	1338	0.269	361	0.4	3.688	A
3	617	36	1441	0.428	618	0.8	4.382	A

Assessment 2027, 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	6.22	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 2027	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	461	100.000
2		✓	405	100.000
3		✓	913	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	67	394
	2	38	0	367
	3	511	402	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	0.36	3.99	0.6	A
2	0.33	4.03	0.5	A
3	0.70	8.31	2.3	A

Main Results for each time segment

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	347	301	1486	0.234	346	0.3	3.155	A
2	305	296	1414	0.216	304	0.3	3.239	A
3	687	29	1445	0.476	684	0.9	4.709	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	414	361	1453	0.285	414	0.4	3.464	A
2	364	354	1382	0.263	364	0.4	3.534	A
3	821	34	1442	0.569	819	1.3	5.766	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	508	441	1410	0.360	507	0.6	3.985	A
2	446	433	1339	0.333	445	0.5	4.024	A
3	1005	42	1438	0.699	1001	2.3	8.176	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	508	443	1409	0.360	508	0.6	3.994	A
2	446	434	1339	0.333	446	0.5	4.030	A
3	1005	42	1438	0.699	1005	2.3	8.313	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	414	363	1452	0.285	415	0.4	3.472	A
2	364	355	1382	0.263	365	0.4	3.542	A
3	821	34	1442	0.569	825	1.3	5.869	A

09:00 - 09:15

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	347	303	1485	0.234	347	0.3	3.168	A
2	305	297	1413	0.216	305	0.3	3.251	A
3	687	29	1445	0.476	689	0.9	4.776	A

Assessment 2027, 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	7.61	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 2027	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	767	100.000
2		✓	554	100.000
3		✓	945	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	110	657
	2	56	0	498
	3	526	419	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	0.60	6.49	1.5	A
2	0.52	6.30	1.1	A
3	0.73	9.29	2.6	A

Main Results for each time segment

15:45 - 16:00

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	577	314	1479	0.390	575	0.6	3.971	A
2	417	492	1307	0.319	415	0.5	4.028	A
3	711	42	1438	0.495	708	1.0	4.905	A

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	690	376	1445	0.477	688	0.9	4.750	A
2	498	590	1254	0.397	497	0.7	4.750	A
3	850	50	1433	0.593	848	1.4	6.126	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	844	459	1400	0.603	842	1.5	6.429	A
2	610	721	1183	0.516	608	1.1	6.250	A
3	1040	61	1428	0.729	1036	2.6	9.082	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	844	461	1399	0.604	844	1.5	6.492	A
2	610	723	1182	0.516	610	1.1	6.296	A
3	1040	62	1427	0.729	1040	2.6	9.285	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	690	379	1444	0.478	692	0.9	4.805	A
2	498	593	1253	0.398	500	0.7	4.792	A
3	850	51	1433	0.593	854	1.5	6.266	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	577	316	1478	0.391	579	0.6	4.009	A
2	417	496	1305	0.320	418	0.5	4.061	A
3	711	42	1438	0.495	713	1.0	4.983	A

S|C|P

APPENDIX G

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: Cathill Roundabout.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY\December 2020
Report generation date: 14/12/2020 18:07:32

»Base 2020, AM
»Base 2020, PM
»Base 2027, AM
»Base 2027, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2027, AM
»Assessment 2027, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2020									
Arm 1	D1	1.4	5.84	0.59	A	D2	1.1	5.52	0.53	A
Arm 2		0.5	2.77	0.34	A		0.8	3.26	0.45	A
Arm 3		1.2	3.35	0.54	A		1.8	4.43	0.64	A
Arm 4		0.9	3.18	0.47	A		1.4	4.38	0.59	A
	Base 2027									
Arm 1	D3	2.4	8.61	0.71	A	D4	1.8	7.74	0.64	A
Arm 2		0.7	3.26	0.41	A		1.2	4.04	0.54	A
Arm 3		1.8	4.35	0.64	A		3.0	6.67	0.76	A
Arm 4		1.2	3.86	0.55	A		2.2	6.17	0.69	A
	Assessment 2020									
Arm 1	D5	1.6	6.38	0.62	A	D6	1.1	5.57	0.53	A
Arm 2		0.5	2.79	0.34	A		0.9	3.47	0.49	A
Arm 3		1.2	3.44	0.56	A		1.9	4.60	0.65	A
Arm 4		0.9	3.31	0.48	A		1.4	4.47	0.59	A
	Assessment 2027									
Arm 1	D7	2.8	9.81	0.74	A	D8	1.8	7.85	0.65	A
Arm 2		0.7	3.28	0.41	A		1.3	4.38	0.57	A
Arm 3		1.8	4.51	0.65	A		3.3	7.12	0.77	A
Arm 4		1.3	4.06	0.57	A		2.3	6.39	0.70	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	07:45	09:15	15
D2	Base 2020	PM	ONE HOUR	15:45	17:15	15
D3	Base 2027	AM	ONE HOUR	07:45	09:15	15
D4	Base 2027	PM	ONE HOUR	15:45	17:15	15
D5	Assessment 2020	AM	ONE HOUR	07:45	09:15	15
D6	Assessment 2020	PM	ONE HOUR	15:45	17:15	15
D7	Assessment 2027	AM	ONE HOUR	07:45	09:15	15
D8	Assessment 2027	PM	ONE HOUR	15:45	17:15	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	3.79	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	25.0	80.0	45.0	
2	7.48	10.53	11.2	28.0	80.0	44.0	
3	8.03	11.16	7.9	40.0	80.0	39.0	
4	7.52	8.35	57.0	40.0	80.0	31.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.511	2030
2	0.606	2665
3	0.637	2832
4	0.605	2572

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	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	0.59	5.84	1.4	A
2	0.34	2.77	0.5	A
3	0.54	3.35	1.2	A
4	0.47	3.18	0.9	A

Main Results for each time segment

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	611	695	1675	0.365	608	0.6	3.368	A
2	454	791	2186	0.208	453	0.3	2.076	A
3	876	511	2506	0.349	873	0.5	2.202	A
4	675	511	2263	0.298	673	0.4	2.262	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	729	832	1605	0.454	728	0.8	4.098	A
2	542	946	2092	0.259	542	0.3	2.322	A
3	1046	612	2442	0.428	1045	0.7	2.574	A
4	805	611	2202	0.366	805	0.6	2.574	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	893	1018	1510	0.591	891	1.4	5.793	A
2	664	1158	1963	0.338	663	0.5	2.767	A
3	1280	749	2355	0.544	1279	1.2	3.338	A
4	987	748	2119	0.465	985	0.9	3.171	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	893	1020	1509	0.592	893	1.4	5.842	A
2	664	1160	1962	0.338	664	0.5	2.773	A
3	1280	750	2354	0.544	1280	1.2	3.351	A
4	987	749	2119	0.466	987	0.9	3.178	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	729	834	1604	0.455	731	0.8	4.137	A
2	542	950	2089	0.259	543	0.4	2.330	A
3	1046	613	2441	0.428	1047	0.8	2.585	A
4	805	612	2201	0.366	807	0.6	2.584	A

09:00 - 09:15

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	611	698	1674	0.365	612	0.6	3.392	A
2	454	795	2184	0.208	454	0.3	2.083	A
3	876	513	2505	0.350	876	0.5	2.211	A
4	675	512	2262	0.298	675	0.4	2.269	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	4.35	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)
D2	Base 2020	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	667	100.000
2		✓	831	100.000
3		✓	1334	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	218	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	0.53	5.52	1.1	A
2	0.45	3.26	0.8	A
3	0.64	4.43	1.8	A
4	0.59	4.38	1.4	A

Main Results for each time segment

15:45 - 16:00

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	502	858	1592	0.315	500	0.5	3.293	A
2	626	726	2225	0.281	624	0.4	2.247	A
3	1004	589	2457	0.409	1002	0.7	2.470	A
4	795	662	2171	0.366	793	0.6	2.607	A

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	600	1026	1506	0.398	599	0.7	3.967	A
2	747	869	2138	0.349	746	0.5	2.584	A
3	1199	705	2383	0.503	1198	1.0	3.036	A
4	949	792	2093	0.454	948	0.8	3.143	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	734	1256	1388	0.529	733	1.1	5.475	A
2	915	1063	2021	0.453	914	0.8	3.250	A
3	1469	863	2282	0.644	1466	1.8	4.392	A
4	1163	969	1985	0.586	1160	1.4	4.351	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	1258	1387	0.530	734	1.1	5.516	A
2	915	1066	2019	0.453	915	0.8	3.259	A
3	1469	864	2281	0.644	1469	1.8	4.429	A
4	1163	971	1984	0.586	1163	1.4	4.381	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	600	1030	1504	0.399	601	0.7	3.997	A
2	747	873	2136	0.350	748	0.5	2.595	A
3	1199	707	2382	0.504	1202	1.0	3.062	A
4	949	795	2091	0.454	952	0.8	3.167	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	502	862	1590	0.316	503	0.5	3.314	A
2	626	730	2223	0.281	626	0.4	2.256	A
3	1004	592	2455	0.409	1006	0.7	2.485	A
4	795	665	2170	0.366	796	0.6	2.624	A

Base 2027, 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	5.03	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 2027	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	925	100.000
2		✓	688	100.000
3		✓	1326	100.000
4		✓	1021	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	40	650	235
	2	83	0	146	459
	3	554	138	0	634
	4	103	601	317	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	0.71	8.61	2.4	A
2	0.41	3.26	0.7	A
3	0.64	4.35	1.8	A
4	0.55	3.86	1.2	A

Main Results for each time segment

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	696	793	1625	0.429	693	0.7	3.852	A
2	518	901	2119	0.244	517	0.3	2.244	A
3	998	583	2460	0.406	996	0.7	2.453	A
4	769	582	2220	0.346	767	0.5	2.474	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	832	948	1545	0.538	830	1.2	5.020	A
2	618	1079	2011	0.308	618	0.4	2.584	A
3	1192	698	2388	0.499	1191	1.0	3.005	A
4	918	696	2151	0.427	917	0.7	2.917	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	1018	1161	1437	0.709	1014	2.4	8.410	A
2	758	1318	1866	0.406	757	0.7	3.241	A
3	1460	854	2288	0.638	1457	1.7	4.315	A
4	1124	852	2057	0.547	1122	1.2	3.847	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	1018	1163	1436	0.709	1018	2.4	8.611	A
2	758	1323	1863	0.407	757	0.7	3.255	A
3	1460	855	2287	0.638	1460	1.8	4.352	A
4	1124	853	2056	0.547	1124	1.2	3.864	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	832	951	1544	0.539	836	1.2	5.121	A
2	618	1086	2007	0.308	619	0.4	2.595	A
3	1192	700	2386	0.500	1195	1.0	3.030	A
4	918	698	2149	0.427	920	0.7	2.933	A

09:00 - 09:15

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	696	796	1623	0.429	698	0.8	3.898	A
2	518	907	2116	0.245	518	0.3	2.256	A
3	998	586	2459	0.406	1000	0.7	2.470	A
4	769	584	2218	0.347	770	0.5	2.485	A

Base 2027, 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	6.16	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 2027	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	758	100.000
2		✓	944	100.000
3		✓	1515	100.000
4		✓	1201	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	88	498	172
	2	136	0	225	583
	3	618	247	0	650
	4	149	622	430	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	0.64	7.74	1.8	A
2	0.54	4.04	1.2	A
3	0.76	6.67	3.0	A
4	0.69	6.17	2.2	A

Main Results for each time segment

15:45 - 16:00

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	571	975	1532	0.373	568	0.6	3.726	A
2	711	825	2165	0.328	709	0.5	2.468	A
3	1141	669	2406	0.474	1137	0.9	2.828	A
4	904	751	2117	0.427	901	0.7	2.953	A

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	681	1166	1434	0.475	680	0.9	4.767	A
2	849	987	2067	0.411	848	0.7	2.952	A
3	1362	800	2322	0.586	1360	1.4	3.732	A
4	1080	899	2028	0.532	1078	1.1	3.782	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	835	1425	1302	0.641	831	1.7	7.599	A
2	1039	1207	1934	0.537	1038	1.2	4.008	A
3	1668	979	2208	0.755	1662	3.0	6.509	A
4	1322	1098	1907	0.693	1318	2.2	6.063	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	835	1430	1299	0.642	834	1.8	7.742	A
2	1039	1211	1931	0.538	1039	1.2	4.036	A
3	1668	981	2207	0.756	1668	3.0	6.669	A
4	1322	1102	1905	0.694	1322	2.2	6.174	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	681	1173	1431	0.476	685	0.9	4.847	A
2	849	993	2063	0.411	850	0.7	2.975	A
3	1362	803	2320	0.587	1368	1.4	3.808	A
4	1080	904	2025	0.533	1084	1.2	3.843	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	571	980	1529	0.373	572	0.6	3.763	A
2	711	830	2162	0.329	712	0.5	2.482	A
3	1141	672	2404	0.474	1143	0.9	2.858	A
4	904	755	2115	0.428	906	0.8	2.980	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	3.98	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	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	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	0.62	6.38	1.6	A
2	0.34	2.79	0.5	A
3	0.56	3.44	1.2	A
4	0.48	3.31	0.9	A

Main Results for each time segment

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	627	732	1656	0.379	625	0.6	3.484	A
2	461	791	2186	0.211	460	0.3	2.084	A
3	892	516	2503	0.356	890	0.6	2.228	A
4	695	529	2251	0.309	693	0.4	2.308	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	749	876	1583	0.473	748	0.9	4.305	A
2	550	946	2092	0.263	550	0.4	2.335	A
3	1065	617	2439	0.437	1064	0.8	2.618	A
4	830	633	2189	0.379	829	0.6	2.646	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	917	1072	1482	0.619	914	1.6	6.308	A
2	674	1157	1964	0.343	673	0.5	2.788	A
3	1305	755	2351	0.555	1303	1.2	3.429	A
4	1016	775	2103	0.483	1015	0.9	3.304	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	917	1073	1481	0.619	917	1.6	6.375	A
2	674	1160	1962	0.343	674	0.5	2.794	A
3	1305	756	2350	0.555	1305	1.2	3.442	A
4	1016	776	2102	0.483	1016	0.9	3.314	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	749	878	1581	0.474	752	0.9	4.354	A
2	550	951	2089	0.263	551	0.4	2.342	A
3	1065	619	2438	0.437	1067	0.8	2.629	A
4	830	635	2188	0.379	831	0.6	2.657	A

09:00 - 09:15

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	627	735	1655	0.379	628	0.6	3.513	A
2	461	795	2183	0.211	461	0.3	2.090	A
3	892	518	2502	0.357	893	0.6	2.239	A
4	695	531	2250	0.309	696	0.4	2.317	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	4.48	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)
D6	Assessment 2020	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	670	100.000
2		✓	891	100.000
3		✓	1336	100.000
4		✓	1059	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	80	438	152
	2	138	0	217	536
	3	544	220	0	572
	4	131	550	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	0.53	5.57	1.1	A
2	0.49	3.47	0.9	A
3	0.65	4.60	1.9	A
4	0.59	4.47	1.4	A

Main Results for each time segment

15:45 - 16:00

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	504	862	1590	0.317	503	0.5	3.305	A
2	671	726	2225	0.301	669	0.4	2.312	A
3	1006	620	2437	0.413	1003	0.7	2.507	A
4	797	677	2162	0.369	795	0.6	2.629	A

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	602	1031	1503	0.401	602	0.7	3.989	A
2	801	869	2138	0.375	800	0.6	2.689	A
3	1201	742	2359	0.509	1200	1.0	3.102	A
4	952	810	2082	0.457	951	0.8	3.180	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	738	1261	1385	0.532	736	1.1	5.526	A
2	981	1063	2021	0.485	980	0.9	3.453	A
3	1471	908	2254	0.653	1468	1.9	4.561	A
4	1166	991	1972	0.591	1164	1.4	4.438	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	1264	1384	0.533	738	1.1	5.568	A
2	981	1066	2019	0.486	981	0.9	3.466	A
3	1471	909	2253	0.653	1471	1.9	4.604	A
4	1166	993	1971	0.592	1166	1.4	4.471	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	602	1035	1501	0.401	604	0.7	4.021	A
2	801	873	2136	0.375	802	0.6	2.701	A
3	1201	744	2358	0.509	1204	1.0	3.130	A
4	952	813	2080	0.458	954	0.8	3.206	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	504	865	1588	0.318	505	0.5	3.329	A
2	671	730	2223	0.302	671	0.4	2.322	A
3	1006	623	2435	0.413	1007	0.7	2.524	A
4	797	680	2160	0.369	798	0.6	2.644	A

Assessment 2027, 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	5.42	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 2027	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	947	100.000
2		✓	697	100.000
3		✓	1348	100.000
4		✓	1047	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	62	650	235
	2	86	0	149	462
	3	554	160	0	634
	4	103	627	317	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	0.74	9.81	2.8	A
2	0.41	3.28	0.7	A
3	0.65	4.51	1.8	A
4	0.57	4.06	1.3	A

Main Results for each time segment

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	713	829	1607	0.444	710	0.8	4.001	A
2	525	901	2119	0.248	523	0.3	2.254	A
3	1015	588	2458	0.413	1012	0.7	2.486	A
4	788	601	2208	0.357	786	0.6	2.528	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	851	991	1523	0.559	849	1.3	5.326	A
2	627	1079	2011	0.312	626	0.5	2.599	A
3	1212	703	2384	0.508	1211	1.0	3.065	A
4	941	718	2137	0.440	940	0.8	3.007	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	1043	1213	1410	0.739	1037	2.7	9.498	A
2	767	1317	1867	0.411	766	0.7	3.269	A
3	1484	860	2284	0.650	1481	1.8	4.464	A
4	1153	879	2040	0.565	1151	1.3	4.039	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	1043	1215	1409	0.740	1042	2.8	9.807	A
2	767	1323	1863	0.412	767	0.7	3.284	A
3	1484	862	2283	0.650	1484	1.8	4.506	A
4	1153	881	2039	0.565	1153	1.3	4.062	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	851	995	1522	0.559	857	1.3	5.467	A
2	627	1087	2006	0.312	628	0.5	2.614	A
3	1212	706	2382	0.509	1215	1.0	3.094	A
4	941	721	2136	0.441	943	0.8	3.026	A

09:00 - 09:15

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	713	832	1605	0.444	715	0.8	4.053	A
2	525	907	2115	0.248	525	0.3	2.264	A
3	1015	590	2456	0.413	1016	0.7	2.502	A
4	788	603	2207	0.357	789	0.6	2.542	A

Assessment 2027, 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	6.43	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 2027	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	760	100.000
2		✓	1007	100.000
3		✓	1518	100.000
4		✓	1205	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	90	498	172
	2	156	0	244	607
	3	618	250	0	650
	4	149	626	430	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	0.65	7.85	1.8	A
2	0.57	4.38	1.3	A
3	0.77	7.12	3.3	A
4	0.70	6.39	2.3	A

Main Results for each time segment

15:45 - 16:00

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	572	980	1529	0.374	570	0.6	3.742	A
2	758	825	2165	0.350	756	0.5	2.552	A
3	1143	702	2385	0.479	1139	0.9	2.881	A
4	907	768	2107	0.431	904	0.8	2.986	A

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	683	1172	1431	0.477	682	0.9	4.799	A
2	905	987	2067	0.438	904	0.8	3.093	A
3	1365	840	2297	0.594	1363	1.4	3.843	A
4	1083	919	2016	0.537	1082	1.2	3.848	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	837	1433	1298	0.645	833	1.8	7.693	A
2	1109	1206	1934	0.573	1107	1.3	4.340	A
3	1671	1027	2178	0.767	1664	3.2	6.918	A
4	1327	1123	1892	0.701	1322	2.3	6.264	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	837	1438	1295	0.646	837	1.8	7.846	A
2	1109	1211	1931	0.574	1109	1.3	4.377	A
3	1671	1029	2176	0.768	1671	3.3	7.117	A
4	1327	1127	1890	0.702	1327	2.3	6.387	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	683	1179	1427	0.479	687	0.9	4.884	A
2	905	994	2063	0.439	907	0.8	3.123	A
3	1365	843	2295	0.595	1372	1.5	3.928	A
4	1083	925	2012	0.538	1088	1.2	3.913	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	572	985	1527	0.375	573	0.6	3.783	A
2	758	830	2162	0.351	759	0.5	2.569	A
3	1143	705	2383	0.480	1145	0.9	2.912	A
4	907	772	2105	0.431	909	0.8	3.016	A

S|C|P

APPENDIX H

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: Engine Lane Roundabout.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY\December 2020
Report generation date: 14/12/2020 14:54:26

»Base 2020, AM
»Base 2020, PM
»Base 2027, AM
»Base 2027, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2027, AM
»Assessment 2027, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2020									
Arm 1	D1	1.4	8.65	0.58	A	D2	2.0	9.51	0.67	A
Arm 2		0.5	6.71	0.33	A		0.1	6.13	0.07	A
Arm 3		3.3	9.26	0.77	A		1.8	5.91	0.64	A
Arm 4		3.9	22.55	0.80	C		2.2	12.18	0.69	B
	Base 2027									
Arm 1	D3	2.0	11.46	0.67	B	D4	3.0	13.30	0.76	B
Arm 2		0.6	7.94	0.39	A		0.1	7.07	0.09	A
Arm 3		5.6	14.49	0.85	B		2.4	7.32	0.71	A
Arm 4		10.8	58.17	0.95	F		3.5	18.18	0.79	C
	Assessment 2020									
Arm 1	D5	1.4	8.80	0.59	A	D6	2.8	12.18	0.74	B
Arm 2		0.5	6.75	0.33	A		0.1	6.66	0.08	A
Arm 3		4.5	11.97	0.82	B		1.8	6.05	0.65	A
Arm 4		5.8	33.83	0.87	D		2.2	12.40	0.69	B
	Assessment 2027									
Arm 1	D7	2.0	11.34	0.67	B	D8	4.7	19.13	0.83	C
Arm 2		0.6	7.84	0.39	A		0.1	7.79	0.09	A
Arm 3		8.7	21.80	0.91	C		2.5	7.54	0.72	A
Arm 4		22.2	108.36	1.02	F		3.6	18.68	0.79	C

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	Symphony
Location	Grimethorpe
Site number	
Date	09/12/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	19657
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

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base 2020	AM	ONE HOUR	07:45	09:15	15	✓
D2	Base 2020	PM	ONE HOUR	15:45	17:15	15	✓
D3	Base 2027	AM	ONE HOUR	07:45	09:15	15	✓
D4	Base 2027	PM	ONE HOUR	15:45	17:15	15	✓
D5	Assessment 2020	AM	ONE HOUR	07:45	09:15	15	✓
D6	Assessment 2020	PM	ONE HOUR	15:45	17:15	15	✓
D7	Assessment 2027	AM	ONE HOUR	07:45	09:15	15	✓
D8	Assessment 2027	PM	ONE HOUR	15:45	17:15	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	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	11.97	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Engine Lane	
2	School Accadamy Access	
3	Collier Road west	
4	Collier Road North	

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	4.20	4.88	8.6	20.0	50.0	25.0	
2	3.43	4.68	11.4	21.0	50.0	18.0	
3	3.80	7.00	16.5	28.0	50.0	30.0	
4	3.49	4.08	9.1	16.6	50.0	9.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.568	1462
2	0.560	1378
3	0.627	1774
4	0.547	1281

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base 2020	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	528	100.000
2		ONE HOUR	✓	241	100.000
3		ONE HOUR	✓	1179	100.000
4		ONE HOUR	✓	587	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	76	402	50
	2	42	0	163	36
	3	536	216	0	427
	4	59	46	482	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.58	8.65	1.4	A	485	727
2	0.33	6.71	0.5	A	221	332
3	0.77	9.26	3.3	A	1082	1623
4	0.80	22.55	3.9	C	539	808

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	398	99	556	1146	0.347	395	477	0.0	0.5	4.783	A
2	181	45	699	986	0.184	181	253	0.0	0.2	4.463	A
3	888	222	96	1714	0.518	883	783	0.0	1.1	4.313	A
4	442	110	595	956	0.462	439	384	0.0	0.8	6.917	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	475	119	666	1083	0.438	474	571	0.5	0.8	5.895	A
2	217	54	837	909	0.238	216	303	0.2	0.3	5.196	A
3	1060	265	115	1702	0.623	1058	938	1.1	1.6	5.568	A
4	528	132	712	891	0.592	525	460	0.8	1.4	9.773	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	581	145	810	1002	0.580	579	697	0.8	1.4	8.470	A
2	265	66	1019	807	0.329	265	370	0.3	0.5	6.631	A
3	1298	325	140	1686	0.770	1292	1143	1.6	3.2	8.985	A
4	646	162	870	805	0.803	637	562	1.4	3.7	20.440	C

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	581	145	818	997	0.583	581	701	1.4	1.4	8.655	A
2	265	66	1028	802	0.331	265	372	0.5	0.5	6.705	A
3	1298	325	141	1686	0.770	1298	1152	3.2	3.3	9.260	A
4	646	162	874	803	0.805	645	565	3.7	3.9	22.545	C

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	475	119	679	1076	0.441	477	577	1.4	0.8	6.028	A
2	217	54	849	902	0.240	217	306	0.5	0.3	5.265	A
3	1060	265	116	1702	0.623	1066	951	3.3	1.7	5.722	A
4	528	132	718	888	0.594	537	464	3.9	1.5	10.512	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	398	99	563	1142	0.348	399	481	0.8	0.5	4.849	A
2	181	45	706	982	0.185	182	255	0.3	0.2	4.499	A
3	888	222	97	1714	0.518	890	791	1.7	1.1	4.383	A
4	442	110	599	953	0.464	444	387	1.5	0.9	7.110	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	8.59	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Base 2020	PM	ONE HOUR	15:45	17:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	685	100.000
2		ONE HOUR	✓	40	100.000
3		ONE HOUR	✓	994	100.000
4		ONE HOUR	✓	597	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	601	84
	2	13	0	21	6
	3	532	1	0	461
	4	71	1	525	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.67	9.51	2.0	A	629	943
2	0.07	6.13	0.1	A	37	55
3	0.64	5.91	1.8	A	912	1368
4	0.69	12.18	2.2	B	548	822

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	516	129	394	1238	0.417	513	462	0.0	0.7	4.946	A
2	30	8	906	870	0.035	30	1	0.0	0.0	4.283	A
3	748	187	77	1726	0.434	745	858	0.0	0.8	3.661	A
4	449	112	409	1057	0.425	447	413	0.0	0.7	5.866	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	616	154	472	1194	0.516	614	553	0.7	1.1	6.201	A
2	36	9	1085	770	0.047	36	2	0.0	0.0	4.904	A
3	894	223	92	1716	0.521	892	1029	0.8	1.1	4.363	A
4	537	134	490	1013	0.530	535	495	0.7	1.1	7.508	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	754	189	577	1134	0.665	751	676	1.1	1.9	9.299	A
2	44	11	1325	635	0.069	44	2	0.0	0.1	6.086	A
3	1094	274	113	1703	0.642	1092	1256	1.1	1.8	5.857	A
4	657	164	600	953	0.690	653	605	1.1	2.1	11.839	B

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	754	189	580	1132	0.666	754	678	1.9	2.0	9.508	A
2	44	11	1332	632	0.070	44	2	0.1	0.1	6.126	A
3	1094	274	113	1703	0.643	1094	1263	1.8	1.8	5.911	A
4	657	164	601	952	0.690	657	607	2.1	2.2	12.178	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	616	154	477	1191	0.517	619	556	2.0	1.1	6.337	A
2	36	9	1095	764	0.047	36	2	0.1	0.0	4.942	A
3	894	223	93	1716	0.521	896	1038	1.8	1.1	4.407	A
4	537	134	492	1012	0.530	541	497	2.2	1.1	7.708	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	516	129	398	1236	0.417	517	465	1.1	0.7	5.019	A
2	30	8	914	866	0.035	30	2	0.0	0.0	4.307	A
3	748	187	78	1725	0.434	750	866	1.1	0.8	3.693	A
4	449	112	412	1056	0.426	451	416	1.1	0.7	5.968	A

Base 2027, 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	23.34	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)	Run automatically
D3	Base 2027	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	582	100.000
2		ONE HOUR	✓	267	100.000
3		ONE HOUR	✓	1300	100.000
4		ONE HOUR	✓	647	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	84	443	55
	2	47	0	180	40
	3	591	238	0	471
	4	65	51	531	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.67	11.46	2.0	B	534	801
2	0.39	7.94	0.6	A	245	368
3	0.85	14.49	5.6	B	1193	1789
4	0.95	58.17	10.8	F	594	891

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	438	110	612	1114	0.393	436	526	0.0	0.6	5.286	A
2	201	50	769	947	0.212	200	279	0.0	0.3	4.812	A
3	979	245	106	1708	0.573	973	863	0.0	1.3	4.869	A
4	487	122	656	922	0.528	483	424	0.0	1.1	8.110	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	523	131	733	1045	0.500	522	630	0.6	1.0	6.858	A
2	240	60	921	862	0.278	240	334	0.3	0.4	5.780	A
3	1169	292	127	1694	0.690	1165	1033	1.3	2.2	6.762	A
4	582	145	785	852	0.683	578	507	1.1	2.1	12.966	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	641	160	877	964	0.665	637	766	1.0	1.9	10.900	B
2	294	73	1108	757	0.388	293	406	0.4	0.6	7.743	A
3	1431	358	156	1677	0.854	1419	1246	2.2	5.3	13.352	B
4	712	178	956	758	0.940	686	618	2.1	8.6	40.399	E

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	641	160	895	953	0.672	640	773	1.9	2.0	11.460	B
2	294	73	1125	747	0.393	294	410	0.6	0.6	7.940	A
3	1431	358	156	1676	0.854	1430	1263	5.3	5.6	14.493	B
4	712	178	964	754	0.945	704	623	8.6	10.8	58.174	F

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	523	131	770	1024	0.511	527	642	2.0	1.1	7.293	A
2	240	60	956	842	0.285	241	341	0.6	0.4	6.000	A
3	1169	292	128	1694	0.690	1182	1069	5.6	2.3	7.202	A
4	582	145	796	846	0.688	616	514	10.8	2.3	17.745	C

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	438	110	622	1108	0.395	440	531	1.1	0.7	5.396	A
2	201	50	780	941	0.214	202	282	0.4	0.3	4.874	A
3	979	245	107	1707	0.573	982	874	2.3	1.4	4.994	A
4	487	122	662	919	0.530	492	428	2.3	1.1	8.515	A

Base 2027, 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	11.89	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)	Run automatically
D4	Base 2027	PM	ONE HOUR	15:45	17:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	754	100.000
2		ONE HOUR	✓	43	100.000
3		ONE HOUR	✓	1095	100.000
4		ONE HOUR	✓	657	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	662	92
	2	14	0	23	6
	3	586	1	0	508
	4	78	1	578	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.76	13.30	3.0	B	692	1038
2	0.09	7.07	0.1	A	39	59
3	0.71	7.32	2.4	A	1005	1507
4	0.79	18.18	3.5	C	603	904

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	568	142	433	1216	0.467	564	508	0.0	0.9	5.498	A
2	32	8	996	820	0.039	32	1	0.0	0.0	4.570	A
3	824	206	84	1722	0.479	821	945	0.0	0.9	3.980	A
4	495	124	450	1035	0.478	491	454	0.0	0.9	6.577	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	678	169	519	1167	0.581	676	608	0.9	1.4	7.303	A
2	39	10	1194	709	0.055	39	2	0.0	0.1	5.368	A
3	984	246	100	1711	0.575	983	1132	0.9	1.3	4.929	A
4	591	148	539	986	0.599	588	544	0.9	1.5	9.000	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	830	208	632	1103	0.753	824	743	1.4	2.9	12.637	B
2	47	12	1454	563	0.084	47	2	0.1	0.1	6.972	A
3	1206	301	123	1697	0.710	1201	1378	1.3	2.4	7.196	A
4	723	181	659	920	0.786	716	665	1.5	3.4	16.971	C

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	830	208	638	1099	0.755	830	746	2.9	3.0	13.300	B
2	47	12	1466	557	0.085	47	2	0.1	0.1	7.066	A
3	1206	301	123	1697	0.710	1205	1390	2.4	2.4	7.320	A
4	723	181	662	919	0.787	723	667	3.4	3.5	18.184	C

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	678	169	528	1162	0.583	684	613	3.0	1.4	7.630	A
2	39	10	1211	700	0.055	39	2	0.1	0.1	5.448	A
3	984	246	102	1711	0.575	989	1148	2.4	1.4	5.014	A
4	591	148	543	984	0.600	599	548	3.5	1.5	9.514	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	568	142	439	1213	0.468	570	512	1.4	0.9	5.617	A
2	32	8	1007	814	0.040	32	2	0.1	0.0	4.610	A
3	824	206	85	1721	0.479	826	955	1.4	0.9	4.031	A
4	495	124	453	1033	0.479	497	457	1.5	0.9	6.744	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	15.79	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)	Run automatically
D5	Assessment 2020	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	535	100.000
2		ONE HOUR	✓	241	100.000
3		ONE HOUR	✓	1260	100.000
4		ONE HOUR	✓	595	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	76	409	50
	2	42	0	163	36
	3	617	216	0	427
	4	67	46	482	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.59	8.80	1.4	A	491	736
2	0.33	6.75	0.5	A	221	332
3	0.82	11.97	4.5	B	1156	1734
4	0.87	33.83	5.8	D	546	819

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	403	101	556	1146	0.351	401	544	0.0	0.5	4.816	A
2	181	45	704	984	0.184	181	253	0.0	0.2	4.478	A
3	949	237	96	1714	0.553	944	788	0.0	1.2	4.615	A
4	448	112	655	923	0.485	444	384	0.0	0.9	7.469	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	481	120	666	1084	0.444	480	651	0.5	0.8	5.954	A
2	217	54	843	906	0.239	216	303	0.2	0.3	5.220	A
3	1133	283	115	1702	0.665	1130	944	1.2	1.9	6.256	A
4	535	134	785	852	0.628	532	460	0.9	1.6	11.155	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	589	147	805	1005	0.586	587	793	0.8	1.4	8.565	A
2	265	66	1023	805	0.330	265	369	0.3	0.5	6.655	A
3	1387	347	140	1686	0.823	1378	1147	1.9	4.3	11.333	B
4	655	164	957	758	0.865	641	561	1.6	5.2	28.003	D

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	589	147	817	998	0.590	589	799	1.4	1.4	8.800	A
2	265	66	1034	798	0.332	265	372	0.5	0.5	6.751	A
3	1387	347	141	1686	0.823	1387	1158	4.3	4.5	11.972	B
4	655	164	963	754	0.869	653	565	5.2	5.8	33.831	D

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	481	120	685	1073	0.448	483	659	1.4	0.8	6.132	A
2	217	54	861	895	0.242	217	307	0.5	0.3	5.316	A
3	1133	283	116	1702	0.666	1143	963	4.5	2.0	6.545	A
4	535	134	793	847	0.631	551	465	5.8	1.8	12.762	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	403	101	564	1142	0.353	404	549	0.8	0.5	4.887	A
2	181	45	712	979	0.185	182	255	0.3	0.2	4.520	A
3	949	237	97	1714	0.554	952	797	2.0	1.3	4.743	A
4	448	112	661	920	0.487	451	387	1.8	1.0	7.736	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	9.58	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	Assessment 2020	PM	ONE HOUR	15:45	17:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	761	100.000
2		ONE HOUR	✓	40	100.000
3		ONE HOUR	✓	1003	100.000
4		ONE HOUR	✓	597	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	671	90
	2	13	0	21	6
	3	541	1	0	461
	4	71	1	525	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.74	12.18	2.8	B	698	1047
2	0.08	6.66	0.1	A	37	55
3	0.65	6.05	1.8	A	920	1381
4	0.69	12.40	2.2	B	548	822

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	573	143	394	1238	0.463	570	468	0.0	0.9	5.359	A
2	30	8	962	839	0.036	30	1	0.0	0.0	4.451	A
3	755	189	82	1723	0.438	752	911	0.0	0.8	3.695	A
4	449	112	416	1054	0.427	447	417	0.0	0.7	5.902	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	684	171	472	1194	0.573	682	561	0.9	1.3	7.015	A
2	36	9	1153	732	0.049	36	2	0.0	0.1	5.172	A
3	902	225	98	1713	0.526	900	1091	0.8	1.1	4.423	A
4	537	134	498	1009	0.532	535	500	0.7	1.1	7.578	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	838	209	577	1134	0.739	832	686	1.3	2.7	11.709	B
2	44	11	1407	590	0.075	44	2	0.1	0.1	6.593	A
3	1104	276	119	1699	0.650	1101	1331	1.1	1.8	5.992	A
4	657	164	609	948	0.694	653	611	1.1	2.2	12.044	B

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	838	209	580	1132	0.740	838	688	2.7	2.8	12.180	B
2	44	11	1415	585	0.075	44	2	0.1	0.1	6.655	A
3	1104	276	120	1699	0.650	1104	1340	1.8	1.8	6.051	A
4	657	164	611	947	0.694	657	613	2.2	2.2	12.400	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	684	171	477	1191	0.575	690	564	2.8	1.4	7.265	A
2	36	9	1165	725	0.050	36	2	0.1	0.1	5.228	A
3	902	225	99	1712	0.527	905	1103	1.8	1.1	4.472	A
4	537	134	501	1007	0.533	541	503	2.2	1.2	7.786	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	573	143	398	1236	0.464	575	471	1.4	0.9	5.465	A
2	30	8	972	833	0.036	30	2	0.1	0.0	4.483	A
3	755	189	82	1723	0.438	756	919	1.1	0.8	3.730	A
4	449	112	419	1052	0.427	451	420	1.2	0.8	6.006	A

Assessment 2027, 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	37.99	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	Assessment 2027	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	589	100.000
2		ONE HOUR	✓	267	100.000
3		ONE HOUR	✓	1381	100.000
4		ONE HOUR	✓	655	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	84	450	55
	2	47	0	180	40
	3	672	238	0	471
	4	73	51	531	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.67	11.34	2.0	B	540	811
2	0.39	7.84	0.6	A	245	368
3	0.91	21.80	8.7	C	1267	1901
4	1.02	108.36	22.2	F	601	902

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	443	111	612	1114	0.398	441	593	0.0	0.7	5.326	A
2	201	50	774	944	0.213	200	279	0.0	0.3	4.829	A
3	1040	260	106	1708	0.609	1034	867	0.0	1.5	5.295	A
4	493	123	716	889	0.554	488	424	0.0	1.2	8.872	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	529	132	732	1046	0.506	528	709	0.7	1.0	6.930	A
2	240	60	926	859	0.279	240	334	0.3	0.4	5.808	A
3	1241	310	127	1694	0.733	1237	1038	1.5	2.7	7.794	A
4	589	147	857	812	0.725	584	507	1.2	2.5	15.424	C

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	649	162	857	975	0.665	645	856	1.0	1.9	10.785	B
2	294	73	1099	762	0.386	293	403	0.4	0.6	7.659	A
3	1521	380	156	1677	0.907	1499	1236	2.7	8.0	18.420	C
4	721	180	1040	712	1.012	674	615	2.5	14.4	60.676	F

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	649	162	875	965	0.672	648	867	1.9	2.0	11.341	B
2	294	73	1115	753	0.390	294	408	0.6	0.6	7.838	A
3	1521	380	156	1676	0.907	1518	1253	8.0	8.7	21.802	C
4	721	180	1052	706	1.022	690	622	14.4	22.2	108.361	F

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	529	132	809	1002	0.528	533	732	2.0	1.1	7.731	A
2	240	60	997	819	0.293	241	346	0.6	0.4	6.230	A
3	1241	310	128	1694	0.733	1265	1109	8.7	2.8	8.826	A
4	589	147	876	802	0.734	666	517	22.2	3.0	37.939	E

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	443	111	624	1107	0.401	445	600	1.1	0.7	5.455	A
2	201	50	787	937	0.215	202	282	0.4	0.3	4.900	A
3	1040	260	107	1707	0.609	1045	882	2.8	1.6	5.478	A
4	493	123	724	885	0.557	500	428	3.0	1.3	9.509	A

Assessment 2027, 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	13.98	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)	Run automatically
D8	Assessment 2027	PM	ONE HOUR	15:45	17:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	831	100.000
2		ONE HOUR	✓	43	100.000
3		ONE HOUR	✓	1104	100.000
4		ONE HOUR	✓	657	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	732	99
	2	14	0	23	6
	3	595	1	0	508
	4	78	1	578	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.83	19.13	4.7	C	763	1144
2	0.09	7.79	0.1	A	39	59
3	0.72	7.54	2.5	A	1013	1520
4	0.79	18.68	3.6	C	603	904

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	626	156	433	1216	0.515	621	515	0.0	1.0	6.016	A
2	32	8	1053	788	0.041	32	1	0.0	0.0	4.764	A
3	831	208	89	1718	0.484	827	997	0.0	0.9	4.024	A
4	495	124	457	1031	0.480	491	459	0.0	0.9	6.622	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	747	187	519	1167	0.640	744	616	1.0	1.7	8.463	A
2	39	10	1262	671	0.058	39	2	0.0	0.1	5.693	A
3	992	248	107	1707	0.581	991	1194	0.9	1.4	5.011	A
4	591	148	547	982	0.602	588	550	0.9	1.5	9.097	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	915	229	632	1103	0.829	904	753	1.7	4.4	17.262	C
2	47	12	1534	519	0.091	47	2	0.1	0.1	7.635	A
3	1216	304	130	1693	0.718	1211	1451	1.4	2.5	7.405	A
4	723	181	669	915	0.790	715	672	1.5	3.5	17.369	C

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	915	229	638	1099	0.832	914	756	4.4	4.7	19.130	C
2	47	12	1550	510	0.093	47	2	0.1	0.1	7.786	A
3	1216	304	131	1692	0.718	1215	1466	2.5	2.5	7.543	A
4	723	181	672	914	0.792	723	675	3.5	3.6	18.683	C

16:45 - 17:00

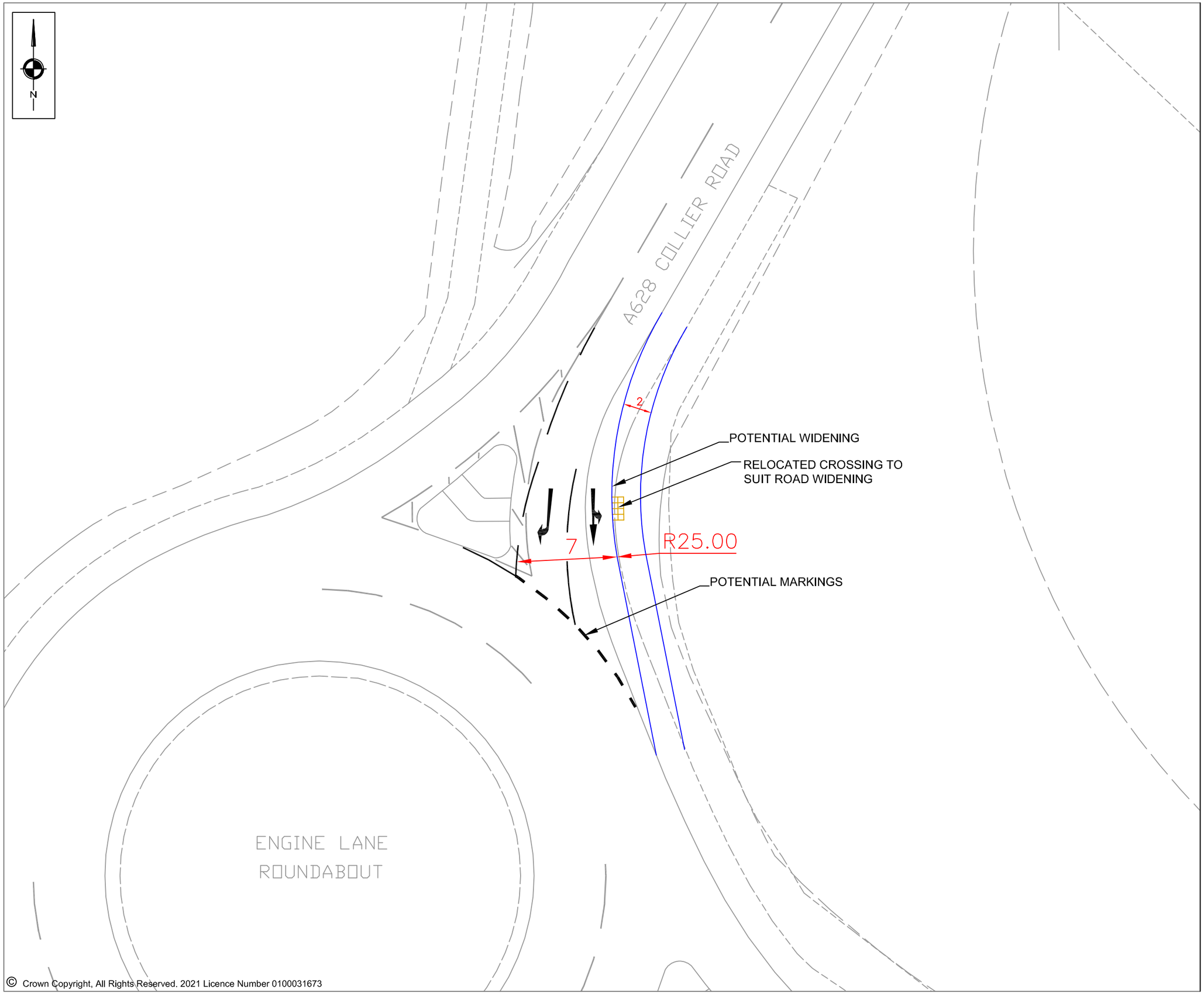
Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	747	187	529	1162	0.643	758	621	4.7	1.8	9.163	A
2	39	10	1285	658	0.059	39	2	0.1	0.1	5.818	A
3	992	248	108	1706	0.582	997	1216	2.5	1.4	5.107	A
4	591	148	551	980	0.603	599	554	3.6	1.6	9.643	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	626	156	439	1213	0.516	629	519	1.8	1.1	6.198	A
2	32	8	1066	781	0.041	32	2	0.1	0.0	4.814	A
3	831	208	90	1718	0.484	833	1008	1.4	0.9	4.077	A
4	495	124	460	1029	0.480	497	463	1.6	0.9	6.795	A

S|C|P

APPENDIX I



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NOTES

REVISIONS

REV	DESCRIPTION	DATE	BY
-	-	-	-

S C P
Transportation Planning : Infrastructure Design
Colwyn Chambers, 19 York Street, Manchester, M2 3BA, Tel 0161 832 4400,
www.scptransport.co.uk, Email info@scptransport.co.uk

Client Name:
SYMPHONY GROUP

Project Title:
PENN HILL ESTATE, GRIMETHORPE, BARNSLEY

Drawing Title:
POTENTIAL 2 LANE APPROACH FROM COLLIER ROAD - ENGINE LANE ROUNDABOUT

Drawn By:	Date:
BA	06.01.2021
Checked:	Scale:
MD	1:250 @ A3
Status:	Approved/Unapproved:
PLANNING	-

Drawing No.	Rev.
SCP/190657/F03	-

Roundabout Design Checklist – CD 116 Revision 2

(Formerly TD 16/07)

Northern Arm – Engine Lane Roundabout, Barnsley

Design Feature	Design Requirements	Arm 1 – Existing Arrangement	Arm 1 – Mitigation Scheme
Approach Half Width (v)	Typically, 2m – 7.3m	3.5m	Unchanged
Entry Width (e)	Min 3m per lane Single 3m<e<10.5m (4.5m ideal) Dual 6m<e<15m (3m-3.5m ideal)	4.2m	7.0m (3.5m per lane)
Average Effective Flare Length (l')	5m – 100m (25m rural ideal)	9.6m	5.0m
Entry Radius (r)	10m – 100m (20m ideal) Normal – 20m min for HGV's)	18m	25m
ICD (D)	>28m	50m	Unchanged
Entry Angle (Ø)	20° – 60° (30°– 40° ideal)	27°	22°
Entry Path Curvature (Deflection)	Normal - <100m radius Compact - <70m radius (DMRB: urban overruns OK)	73m	93m
Circulatory Carriageway	1.0 – 1.2 x max entry width max 15m	10m (as built)	Unchanged
Exit Radius	Normal 20m – 100m (40m ideal) Compact – 15m – 20m	42m (as built)	Unchanged
Exit Width	Normal – 6m min Compact – single lane	3.5m (as built)	Unchanged

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: Engine Lane Roundabout Mitigation AM Intercept.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY\January 2021
Report generation date: 11/01/2021 17:40:29

»Base 2020, AM
»Base 2020, PM
»Base 2027, AM
»Base 2027, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2027, AM
»Assessment 2027, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2020									
Arm 1	D1	1.4	8.66	0.58	A	D2	2.0	9.51	0.67	A
Arm 2		0.5	6.71	0.33	A		0.1	6.13	0.07	A
Arm 3		3.3	9.26	0.77	A		1.8	5.91	0.64	A
Arm 4		2.9	16.60	0.75	C		1.8	9.99	0.65	A
	Base 2027									
Arm 1	D3	2.0	11.59	0.67	B	D4	3.0	13.31	0.76	B
Arm 2		0.6	7.99	0.39	A		0.1	7.07	0.09	A
Arm 3		5.6	14.49	0.85	B		2.4	7.32	0.71	A
Arm 4		6.3	33.83	0.88	D		2.7	13.82	0.74	B
	Assessment 2020									
Arm 1	D5	1.4	8.82	0.59	A	D6	2.8	12.18	0.74	B
Arm 2		0.5	6.76	0.33	A		0.1	6.66	0.08	A
Arm 3		4.5	11.97	0.82	B		1.8	6.05	0.65	A
Arm 4		3.9	22.63	0.81	C		1.8	10.15	0.65	B
	Assessment 2027									
Arm 1	D7	2.1	11.74	0.68	B	D8	4.7	19.16	0.83	C
Arm 2		0.6	8.01	0.40	A		0.1	7.79	0.09	A
Arm 3		8.7	21.80	0.91	C		2.5	7.54	0.72	A
Arm 4		11.1	58.77	0.95	F		2.8	14.12	0.74	B

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	Symphony
Location	Grimethorpe
Site number	
Date	09/12/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	19657
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

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base 2020	AM	ONE HOUR	07:45	09:15	15	✓
D2	Base 2020	PM	ONE HOUR	15:45	17:15	15	✓
D3	Base 2027	AM	ONE HOUR	07:45	09:15	15	✓
D4	Base 2027	PM	ONE HOUR	15:45	17:15	15	✓
D5	Assessment 2020	AM	ONE HOUR	07:45	09:15	15	✓
D6	Assessment 2020	PM	ONE HOUR	15:45	17:15	15	✓
D7	Assessment 2027	AM	ONE HOUR	07:45	09:15	15	✓
D8	Assessment 2027	PM	ONE HOUR	15:45	17:15	15	✓

Analysis Set Details

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

Assessment 2027, 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	26.85	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	Assessment 2027	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	589	100.000
2		ONE HOUR	✓	267	100.000
3		ONE HOUR	✓	1381	100.000
4		ONE HOUR	✓	655	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	84	450	55
	2	47	0	180	40
	3	672	238	0	471
	4	73	51	531	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.68	11.74	2.1	B	540	811
2	0.40	8.01	0.6	A	245	368
3	0.91	21.80	8.7	C	1267	1901
4	0.95	58.77	11.1	F	601	902

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	443	111	613	1114	0.398	441	593	0.0	0.7	5.328	A
2	201	50	774	944	0.213	200	279	0.0	0.3	4.831	A
3	1040	260	106	1708	0.609	1034	868	0.0	1.5	5.295	A
4	493	123	716	952	0.518	489	424	0.0	1.1	7.712	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	529	132	733	1045	0.507	528	709	0.7	1.0	6.938	A
2	240	60	927	858	0.280	240	334	0.3	0.4	5.814	A
3	1241	310	127	1694	0.733	1237	1039	1.5	2.7	7.794	A
4	589	147	857	871	0.676	585	507	1.1	2.0	12.417	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	649	162	876	964	0.672	645	859	1.0	2.0	11.124	B
2	294	73	1116	753	0.391	293	404	0.4	0.6	7.813	A
3	1521	380	156	1677	0.907	1499	1253	2.7	8.0	18.417	C
4	721	180	1039	767	0.940	695	615	2.0	8.7	39.914	E

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	649	162	894	954	0.680	648	869	2.0	2.1	11.740	B
2	294	73	1132	743	0.395	294	409	0.6	0.6	8.009	A
3	1521	380	156	1676	0.907	1518	1270	8.0	8.7	21.799	C
4	721	180	1052	760	0.948	711	622	8.7	11.1	58.773	F

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	529	132	773	1023	0.518	533	728	2.1	1.1	7.413	A
2	240	60	963	838	0.286	241	343	0.6	0.4	6.038	A
3	1241	310	128	1694	0.733	1265	1076	8.7	2.8	8.825	A
4	589	147	876	861	0.684	624	517	11.1	2.3	17.303	C

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	443	111	622	1108	0.400	445	599	1.1	0.7	5.441	A
2	201	50	785	938	0.214	202	282	0.4	0.3	4.892	A
3	1040	260	107	1707	0.609	1045	879	2.8	1.6	5.475	A
4	493	123	724	947	0.521	498	428	2.3	1.1	8.091	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: Engine Lane Roundabout Mitigation PM Intercept.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY\January 2021
Report generation date: 11/01/2021 17:39:39

»Base 2020, AM
»Base 2020, PM
»Base 2027, AM
»Base 2027, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2027, AM
»Assessment 2027, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2020									
Arm 1	D1	1.4	8.66	0.58	A	D2	2.0	9.51	0.67	A
Arm 2		0.5	6.71	0.33	A		0.1	6.13	0.07	A
Arm 3		3.3	9.26	0.77	A		1.8	5.91	0.64	A
Arm 4		2.6	14.72	0.73	B		1.6	9.07	0.62	A
	Base 2027									
Arm 1	D3	2.0	11.61	0.67	B	D4	3.0	13.31	0.76	B
Arm 2		0.6	8.00	0.40	A		0.1	7.07	0.09	A
Arm 3		5.6	14.49	0.85	B		2.4	7.32	0.71	A
Arm 4		5.2	27.88	0.85	D		2.4	12.21	0.71	B
	Assessment 2020									
Arm 1	D5	1.4	8.82	0.59	A	D6	2.8	12.18	0.74	B
Arm 2		0.5	6.76	0.33	A		0.1	6.66	0.08	A
Arm 3		4.5	11.97	0.82	B		1.8	6.05	0.65	A
Arm 4		3.4	19.62	0.78	C		1.7	9.21	0.63	A
	Assessment 2027									
Arm 1	D7	2.1	11.81	0.68	B	D8	4.7	19.17	0.83	C
Arm 2		0.6	8.04	0.40	A		0.1	7.79	0.09	A
Arm 3		8.7	21.80	0.91	C		2.5	7.54	0.72	A
Arm 4		8.7	46.59	0.92	E		2.4	12.46	0.72	B

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	Symphony
Location	Grimethorpe
Site number	
Date	09/12/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	19657
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

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base 2020	AM	ONE HOUR	07:45	09:15	15	✓
D2	Base 2020	PM	ONE HOUR	15:45	17:15	15	✓
D3	Base 2027	AM	ONE HOUR	07:45	09:15	15	✓
D4	Base 2027	PM	ONE HOUR	15:45	17:15	15	✓
D5	Assessment 2020	AM	ONE HOUR	07:45	09:15	15	✓
D6	Assessment 2020	PM	ONE HOUR	15:45	17:15	15	✓
D7	Assessment 2027	AM	ONE HOUR	07:45	09:15	15	✓
D8	Assessment 2027	PM	ONE HOUR	15:45	17:15	15	✓

Analysis Set Details

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

Assessment 2027, 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	12.44	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)	Run automatically
D8	Assessment 2027	PM	ONE HOUR	15:45	17:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	831	100.000
2		ONE HOUR	✓	43	100.000
3		ONE HOUR	✓	1104	100.000
4		ONE HOUR	✓	657	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	732	99
	2	14	0	23	6
	3	595	1	0	508
	4	78	1	578	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.83	19.17	4.7	C	763	1144
2	0.09	7.79	0.1	A	39	59
3	0.72	7.54	2.5	A	1013	1520
4	0.72	12.46	2.4	B	603	904

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	626	156	434	1215	0.515	621	515	0.0	1.0	6.019	A
2	32	8	1054	787	0.041	32	1	0.0	0.0	4.766	A
3	831	208	89	1718	0.484	827	997	0.0	0.9	4.024	A
4	495	124	457	1141	0.434	492	459	0.0	0.8	5.523	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	747	187	520	1167	0.640	744	616	1.0	1.7	8.469	A
2	39	10	1262	671	0.058	39	2	0.0	0.1	5.696	A
3	992	248	107	1707	0.581	991	1194	0.9	1.4	5.011	A
4	591	148	547	1086	0.544	589	550	0.8	1.2	7.214	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	915	229	634	1102	0.831	904	753	1.7	4.4	17.373	C
2	47	12	1536	517	0.092	47	2	0.1	0.1	7.659	A
3	1216	304	130	1693	0.718	1211	1454	1.4	2.5	7.404	A
4	723	181	669	1013	0.714	719	672	1.2	2.4	12.031	B

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	915	229	638	1099	0.832	914	756	4.4	4.7	19.167	C
2	47	12	1550	509	0.093	47	2	0.1	0.1	7.790	A
3	1216	304	131	1692	0.718	1215	1467	2.5	2.5	7.543	A
4	723	181	672	1012	0.715	723	675	2.4	2.4	12.455	B

16:45 - 17:00

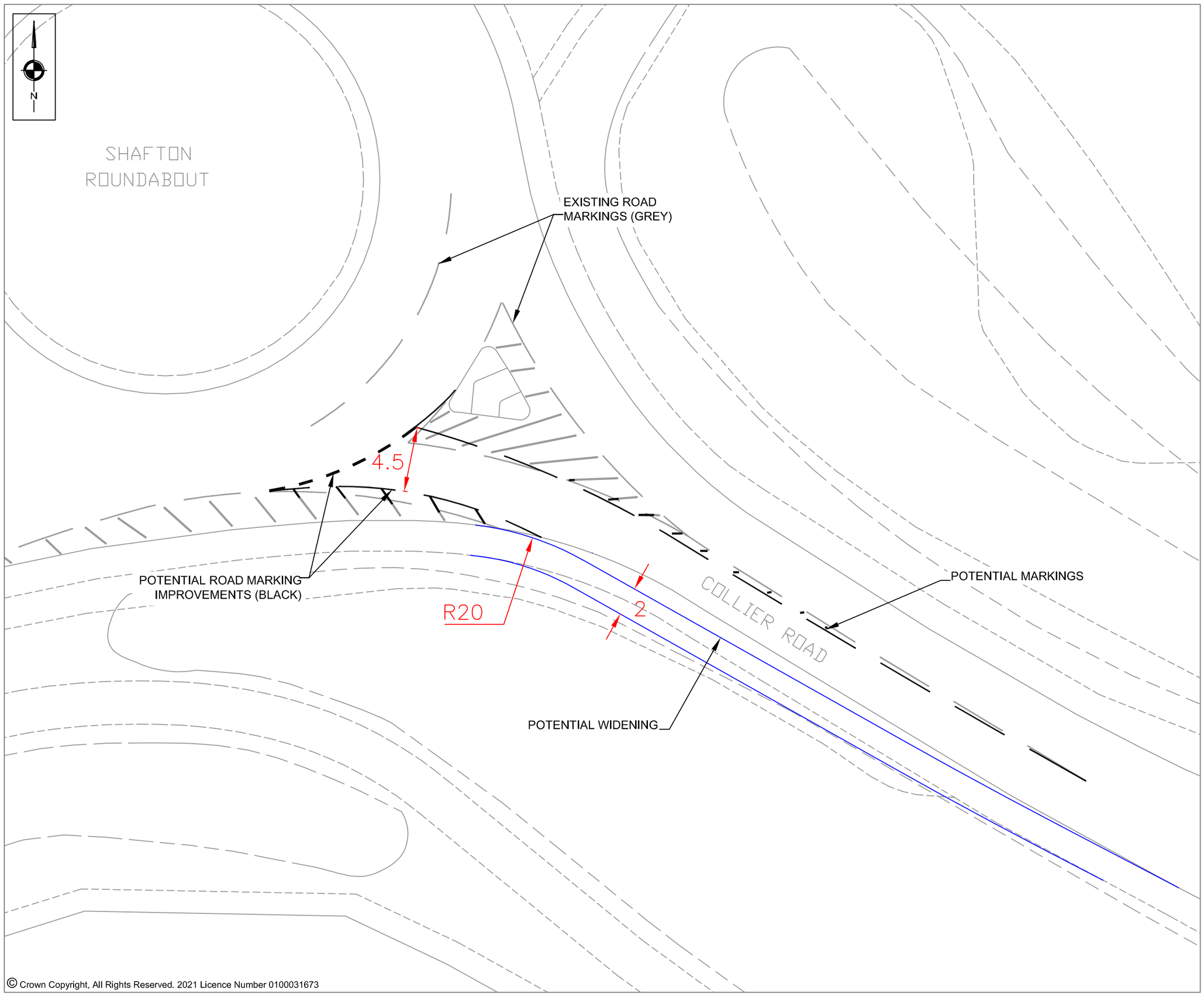
Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	747	187	526	1163	0.642	758	621	4.7	1.8	9.126	A
2	39	10	1282	659	0.059	39	2	0.1	0.1	5.803	A
3	992	248	108	1706	0.582	997	1213	2.5	1.4	5.105	A
4	591	148	551	1084	0.545	596	554	2.4	1.2	7.439	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	626	156	438	1213	0.516	629	518	1.8	1.1	6.194	A
2	32	8	1065	781	0.041	32	2	0.1	0.0	4.809	A
3	831	208	90	1718	0.484	833	1008	1.4	0.9	4.078	A
4	495	124	460	1139	0.434	496	463	1.2	0.8	5.619	A

S|C|P

APPENDIX J



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NOTES

REVISIONS

REV	DESCRIPTION	DATE	BY
-	-	-	-

S C P
Transportation Planning : Infrastructure Design
Colwyn Chambers, 19 York Street, Manchester, M2 3BA, Tel 0161 832 4400,
www.scptransport.co.uk, Email info@scptransport.co.uk

Client Name:
SYMPHONY GROUP

Project Title:
PENN HILL ESTATE, GRIMETHORPE, BARNSLEY

Drawing Title:
POTENTIAL WIDENING SCHEME FROM COLLIER ROAD - SHAFTON ROUNDABOUT

Drawn By:	Date:
BA	08.01.2021
Checked:	Scale:
MD	1:250 @ A3
Status:	Approved/Unapproved:
PLANNING	-

Drawing No.	Rev.
SCP/190657/F04	A

Roundabout Design Checklist – CD 116 Revision 2

(Formerly TD 16/07)

South Eastern Arm – Collier Road - Shafton Roundabout, Barnsley

Design Feature	Design Requirements	Arm 1 – Existing Arrangement	Arm 1 – Mitigation Scheme
Approach Half Width (v)	Typically, 2m – 7.3m	3.5m	Unchanged
Entry Width (e)	Min 3m per lane Single 3m<e<10.5m (4.5m ideal) Dual 6m<e<15m (3m-3.5m ideal)	4.2m	4.5m
Average Effective Flare Length (l')	5m – 100m (25m rural ideal)	18m	30m
Entry Radius (r)	10m – 100m (20m ideal) Normal – 20m min for HGV's)	44m	29m
ICD (D)	>28m	50m	Unchanged
Entry Angle (Ø)	20° – 60° (30°– 40° ideal)	15°	24°
Entry Path Curvature (Deflection)	Normal - <100m radius Compact - <70m radius (DMRB: urban overruns OK)	168m (as existing)	160m
Circulatory Carriageway	1.0 – 1.2 x max entry width max 15m	Primarily 10m – narrowing to 7.3m between Collier Road & Pontrefract Road (as built)	Unchanged
Exit Radius	Normal 20m – 100m (40m ideal) Compact – 15m – 20m	41m (as built)	Unchanged
Exit Width	Normal – 6m min Compact – single lane	4.5m (as built)	Unchanged

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462
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Filename: Shafton Roundabout Mitigation single lane.j9
Path: Z:\Job Library\2019\190657 - Pen Hill Estate, Grimethorpe, Barnsley\Traffic Data\ARCADY\January 2021
Report generation date: 11/01/2021 14:47:20

»Base 2020, AM
»Base 2020, PM
»Base 2027, AM
»Base 2027, PM
»Assessment 2020, AM
»Assessment 2020, PM
»Assessment 2027, AM
»Assessment 2027, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2020									
Arm 1	D1	34.3	100.48	1.03	F	D2	66.5	170.92	1.10	F
Arm 2		2.5	15.86	0.72	C		1.0	8.44	0.50	A
Arm 3		3.1	12.95	0.76	B		3.1	12.05	0.76	B
Arm 4		3.3	22.76	0.78	C		1.2	10.07	0.54	B
	Base 2027									
Arm 1	D3	95.4	271.51	1.15	F	D4	142.4	426.96	1.22	F
Arm 2		3.9	22.69	0.81	C		1.2	9.37	0.54	A
Arm 3		5.9	22.91	0.87	C		5.4	19.52	0.85	C
Arm 4		9.7	62.85	0.94	F		1.7	13.72	0.64	B
	Assessment 2020									
Arm 1	D5	36.4	105.03	1.04	F	D6	104.9	290.05	1.16	F
Arm 2		2.8	17.32	0.75	C		1.0	8.55	0.50	A
Arm 3		4.0	15.97	0.81	C		3.2	12.60	0.77	B
Arm 4		5.2	35.43	0.86	E		1.2	10.23	0.55	B
	Assessment 2027									
Arm 1	D7	95.7	283.61	1.15	F	D8	196.7	590.18	1.29	F
Arm 2		4.5	25.11	0.83	D		1.2	9.47	0.55	A
Arm 3		8.7	32.56	0.91	D		5.8	20.84	0.86	C
Arm 4		22.3	124.09	1.04	F		1.8	14.08	0.65	B

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	Symphony
Location	Grimethorpe
Site number	
Date	09/12/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	19657
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

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Base 2020	AM	ONE HOUR	07:45	09:15	15	✓
D2	Base 2020	PM	ONE HOUR	15:45	17:15	15	✓
D3	Base 2027	AM	ONE HOUR	07:45	09:15	15	✓
D4	Base 2027	PM	ONE HOUR	15:45	17:15	15	✓
D5	Assessment 2020	AM	ONE HOUR	07:45	09:15	15	✓
D6	Assessment 2020	PM	ONE HOUR	15:45	17:15	15	✓
D7	Assessment 2027	AM	ONE HOUR	07:45	09:15	15	✓
D8	Assessment 2027	PM	ONE HOUR	15:45	17:15	15	✓

Analysis Set Details

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

Assessment 2027, 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	137.22	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	Assessment 2027	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	1182	100.000
2		ONE HOUR	✓	610	100.000
3		ONE HOUR	✓	929	100.000
4		ONE HOUR	✓	565	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	298	770	114
	2	415	0	36	159
	3	775	8	0	146
	4	219	157	189	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1.15	283.61	95.7	F	1085	1627
2	0.83	25.11	4.5	D	560	840
3	0.91	32.56	8.7	D	852	1279
4	1.04	124.09	22.3	F	518	778

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	890	222	264	1186	0.750	878	1052	0.0	2.9	11.319	B
2	459	115	798	948	0.484	456	344	0.0	0.9	7.255	A
3	699	175	513	1253	0.558	694	740	0.0	1.2	6.389	A
4	425	106	895	825	0.515	421	313	0.0	1.0	8.819	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1063	266	315	1158	0.917	1041	1260	2.9	8.1	26.840	D
2	548	137	947	864	0.635	545	410	0.9	1.7	11.204	B
3	835	209	614	1194	0.699	831	879	1.2	2.2	9.801	A
4	508	127	1072	731	0.695	503	373	1.0	2.2	15.537	C

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1301	325	361	1134	1.148	1124	1509	8.1	52.4	108.687	F
2	672	168	1033	815	0.824	662	452	1.7	4.1	22.228	C
3	1023	256	731	1126	0.909	1002	964	2.2	7.5	25.581	D
4	622	156	1295	611	1.018	576	438	2.2	13.7	66.681	F

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1301	325	369	1130	1.152	1129	1533	52.4	95.7	244.356	F
2	672	168	1041	811	0.828	670	457	4.1	4.5	25.115	D
3	1023	256	740	1121	0.913	1018	971	7.5	8.7	32.559	D
4	622	156	1314	600	1.036	588	444	13.7	22.3	124.087	F

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1063	266	366	1131	0.939	1119	1324	95.7	81.4	283.608	F
2	548	137	1033	815	0.673	558	453	4.5	2.1	14.458	B
3	835	209	633	1183	0.706	860	958	8.7	2.5	11.914	B
4	508	127	1104	713	0.712	586	388	22.3	2.7	42.047	E

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	890	222	270	1183	0.752	1168	1069	81.4	11.8	148.774	F
2	459	115	1018	823	0.558	463	421	2.1	1.3	10.070	B
3	699	175	548	1233	0.567	704	933	2.5	1.3	6.868	A
4	425	106	908	818	0.520	432	344	2.7	1.1	9.457	A

Assessment 2027, 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	262.17	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	Assessment 2027	PM	ONE HOUR	15:45	17:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	1344	100.000
2		ONE HOUR	✓	419	100.000
3		ONE HOUR	✓	948	100.000
4		ONE HOUR	✓	428	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	349	812	183
	2	218	0	30	171
	3	745	19	0	184
	4	139	163	126	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1.29	590.18	196.7	F	1233	1850
2	0.55	9.47	1.2	A	384	577
3	0.86	20.84	5.8	C	870	1305
4	0.65	14.08	1.8	B	393	589

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1012	253	230	1204	0.840	993	824	0.0	4.7	15.878	C
2	315	79	829	930	0.339	313	394	0.0	0.5	5.817	A
3	714	178	426	1304	0.547	709	717	0.0	1.2	6.001	A
4	322	81	734	912	0.353	320	401	0.0	0.5	6.063	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1208	302	276	1180	1.024	1140	987	4.7	21.7	53.918	F
2	377	94	957	858	0.439	376	459	0.5	0.8	7.444	A
3	852	213	504	1259	0.677	849	829	1.2	2.0	8.713	A
4	385	96	880	834	0.461	384	473	0.5	0.8	7.974	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1480	370	336	1147	1.290	1145	1201	21.7	105.3	208.604	F
2	461	115	986	842	0.548	460	496	0.8	1.2	9.379	A
3	1044	261	583	1212	0.861	1030	863	2.0	5.4	18.526	C
4	471	118	1070	732	0.644	468	544	0.8	1.7	13.448	B

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1480	370	339	1146	1.291	1146	1212	105.3	188.8	463.963	F
2	461	115	987	841	0.548	461	498	1.2	1.2	9.473	A
3	1044	261	584	1212	0.861	1042	864	5.4	5.8	20.838	C
4	471	118	1080	726	0.649	471	547	1.7	1.8	14.076	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1208	302	280	1178	1.026	1177	1004	188.8	196.7	590.177	F
2	377	94	986	842	0.447	378	471	1.2	0.8	7.789	A
3	852	213	511	1254	0.679	867	852	5.8	2.2	9.605	A
4	385	96	895	825	0.466	388	483	1.8	0.9	8.303	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1012	253	233	1203	0.841	1197	833	196.7	150.5	522.922	F
2	315	79	981	844	0.374	316	448	0.8	0.6	6.830	A
3	714	178	457	1286	0.555	717	841	2.2	1.3	6.369	A
4	322	81	743	907	0.355	324	431	0.9	0.6	6.182	A