

**Prepared on behalf of**

**Keepmoat Homes Ltd**

**Proposed Residential Development  
School Street, Thurnscoe**

**Transport Assessment**

## Acknowledgements:

Accident data has been provided by Barnsley Metropolitan Borough Council

Traffic count data has been provided by Traffic Data Collection Ltd.

2011 Census data has been used to inform the traffic distribution.

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

The PICADY 5 and ARCADY 6 modelling programmes have been used for junction capacity assessments.

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# 1 Introduction

## 1.1 Overview

1.1.1 *Sanderson Associates (Consulting Engineers) Ltd* has been appointed by *Keepmoat Homes Ltd* to advise on traffic and transportation issues surrounding a planning application for a proposed residential development at Thurnscoe, Barnsley. The site location is included at **Appendix A, Figure 1**.

1.1.2 The site forms part of an outline consent for residential development granted in 2010. The wider site forming part of the outline consent was separated into three sections as shown on the plan included at **Appendix B**. The area labelled as Site 1 to the south-east of the site has been built out, however the area's identified as Site 2 and Site 3 remain undeveloped and are the subject of this planning application.

1.1.3 *AECOM* have provided a scoping response on behalf of *Barnsley Metropolitan Borough Council* (BMBC) for the application identifying the traffic study area for this Transport Assessment, which is included at **Appendix C**. This comprises the following junctions:

- B6411 / Station Rd / Shepherd Ln / John St;
- B6411 Houghton Rd / School St;
- B6411 Houghton Rd / Lorne Rd / Merrill Rd;
- Barnsley road / Nicholas Ln / Highgate Ln staggered crossroads, and
- A635 / Barnsley Road roundabout.

- 1.1.4 The site is allocated for residential development in the emerging Barnsley Local Plan as site reference H1. The policy for the site is detailed as follows:

**Site H1 Former Reema Estate and adjoining land, off School Street, Thurnscoe**  
**Indicative number of dwellings 525**

The development will be expected to:

- ♦ provide a bridge for people and vehicles to use across the railway line connecting the site with Thurnscoe East Estate.
  - ♦ retain, enhance and manage a wildlife corridor on the eastern boundary alongside the rail line.
  - ♦ archaeological remains may be present on this site therefore proposals must be accompanied by an appropriate archaeological assessment (including a field evaluation if necessary) that must include the following:
    - Information identifying the likely location and extent of the remains, and the nature of the remains
    - An assessment of the significance of the remains
    - Consideration of how the remains would be affected by the proposed development.
- 1.1.5 A site visit was undertaken on the 17<sup>th</sup> July 2017 to record highway measurements, audit sustainable transport infrastructure and observe the prevailing highway conditions.
- 1.2 Planning Policy**
- 1.2.1 In accordance with the Planning Practice Guidance 'Transport evidence bases in plan making and decision taking' this Transport Statement addresses key issues including:
- assess the existing situation and likely generation of trips over time by all modes and the impact on the locality in economic, social and environmental terms

- assess the opportunities to support a pattern of development that, where reasonable to do so, facilitates the use of sustainable modes of transport
- highlight and promote opportunities to reduce the need for travel where appropriate
- identify opportunities to prioritise the use of alternative modes in both existing and new development locations if appropriate
- consider the cumulative impacts of existing and proposed development on transport networks
- assess the quality and capacity of transport infrastructure and its ability to meet forecast demands
- identify the short, medium and long-term transport proposals across all modes

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

1.2.3 At paragraph 14 it is stated that:

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

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

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

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

- the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- safe and suitable access to the site can be achieved for all people; and
- improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

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## 2 Existing Situation

### 2.1 *The Site and Surrounding Area*

2.1.1 The site comprises part of the former Reema Estate (Phase 2) and undeveloped land to the north of this (Phase 3). The site's boundaries can be loosely summarised as follows;

North: Fields

East: Railway Line

South: Housing accessed from Blossom Way (part of the Phase 1 development) and Ashberry Close / Stotfold Drive

West: Housing accessed from Merrill Road, Winn Gardens and Thornwood Court

2.1.2 Housing on the former Reema Estate has been demolished, however the road infrastructure provided by Lingamore Leys. School Street and Willow Road remains.

2.1.3 The area surrounding the site is predominantly residential.

### 2.2 *Local Highway Network*

2.2.1 School Street runs approximately north-south centrally through the southern part of the site. It acts as a residential collector road for the adjacent streets including the accesses provided to the constructed Phase 1 development via Blossom Way and Oak Road. Similarly Merrill Road acts as a residential collector to the west of the site, running broadly parallel to School Street, whilst Lingamore Leys links these routes running approximately east-west at the north of the Phase 2 site, forming the boundary with the Phase 3 land.

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- 2.2.2 Both School Street and Merrill Road form minor arms of major/ minor priority junctions with the B6411 Houghton Road some 550m apart. Ghost island right turn lanes are provided on Houghton Road at both junctions. The School Street junction is a 'T' junction, whilst Merrill Road forms a crossroads junction with Lorne Road opposite, some 1km south of the mini roundabout junction..
- 2.2.3 Approximately 130m east of School Street the B6411 Houghton Road forms a four-arm mini roundabout junction with John Street, Station Road and Shepherd Lane. Shepherd Lane runs south from the mini roundabout, becoming first Thurnscoe Bridge Lane and then Nicholas Lane, beyond where it passes underneath the A635.
- 2.2.4 Nicholas Lane forms the northern arm of a signalised staggered junction with Barnsley Road and Highgate Lane some 1.5km south of the B6411 in Goldthorpe. Both Nicholas Lane and Highgate Lane are single lane approaches with left turn slip roads, whilst there are two lanes on both Barnsley Road approaches with one a dedicated right turn lane in each case. Signalised pedestrian crossings are provided on each arm of the junction.
- 2.2.5 Approximately 1.2km to the west of the signalised junction, Barnsley Road forms the eastern arm of a four-arm roundabout junction with the A635. The speed limit changes from 30mph on Barnsley Road to 60mph at the roundabout junction.
- 2.3 Highway Accident Data**
- 2.3.1 Accident data for the most recent five year period available (2012-2016) has been obtained from Barnsley MBC for Houghton Road, Merrill Road, School Street and the residential streets within this area. A copy of the data is included at **Appendix D**.
- 2.3.2 A total of twenty accidents were recorded; sixteen of slight severity and four serious, each of which are summarised in the following paragraphs.

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- 2.3.3 Two serious accidents were recorded on Merrill Lane, both involving child pedestrians running out from behind parked vehicles at different locations.
- 2.3.4 Seven slight accidents were recorded on the section of Houghton Road, between Merrill Road and School Street. These are summarised as follows:
- One involved right turning vehicle into side road.
  - One involved PCSO's chasing a quad bike
  - Two pedestrian accidents, one involving a reversing vehicle and one involving a vehicle mounting the kerb.
  - Two involved vehicles pulling out of parking spaces.
  - One involved a child on a scooter crossing without looking.
  - One was a rear shunt.
- 2.3.5 Three accidents were recorded on School Street, including one at the junction with Houghton Road, which was serious and involved a child pedestrian. The other accidents involved an overtaking vehicle and a vehicle losing control.
- 2.3.6 Five accidents occurred at or near the mini roundabout junction between John Street, Station Road, Shepherd Lane and Houghton Road; four were slight and one serious. The serious accident involved a pedestrian on Shepherd Lane, whilst the slight accidents, two were rear shunts, one was a collision with a mobility scooter and one was a collision on the mini roundabout.
- 2.3.7 One slight accident was recorded on Lingamore Leys and involved an overtaking vehicle.

2.3.8 The accidents occurred due to a variety of different causes and although a number of accidents involved pedestrians, they each occurred at different locations therefore there does not appear to be an inherent accident pattern at a particular location on the local highway network.

## **2.4 Existing Traffic Flows**

2.4.1 Full classified peak period traffic counts have been undertaken by Traffic Data Collection Ltd at the following junctions:

- B6411 / Station Rd / Shepherd Ln / John St;
- B6411 Houghton Rd / School St;
- B6411 Houghton Rd / Lorne Rd / Merrill Rd;
- Barnsley road / Nicholas Ln / Highgate Ln staggered crossroads, and
- A635 / Barnsley Road roundabout.

2.4.2 The counts were undertaken between 0730-0930hrs and 1500-1800hrs on Tuesday 27<sup>th</sup> June 2017. A copy of the traffic data is included at **Appendix E**.

### 3 Sustainable Transport Modes

#### 3.1 *Introduction*

3.1.1 The National Planning Policy Framework (NPPF) was published by the Government in March 2012 and replaced PPG13: Transport. The NPPF however retains the objectives of PPG13, and in particular the need to rebalance the transport system in favour of sustainable transport modes, but does not include the same level of detail as the previous guidance. Some of the policies included in PPG13 Transport have therefore been used in this section to assess travel to the site by sustainable transport modes.

3.1.2 This section of the report considers the accessibility of the site by the following modes of transport;

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

#### 3.2 *Accessibility on Foot*

3.2.1 Walking is the most important mode of transport in the local level and can replace short car trips in journeys under 2km, which contribute to congestion and pollution, and the need for car parking.

3.2.2 In relation to acceptable walking distances, Manual for Streets offers the following guidance in Section 4.4 "The walkable neighbourhood".

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

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

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

3.2.4 **Appendix A (Figure 2)** indicates destinations which lie within an 800m and 2km radius of the centre of the application site. It is noted that walking routes will not follow the simple radius of this plan and the plan is provided as an indication of where destinations lie and the general extent to which the local area can be accessed on foot. The following amenities and facilities are all located within walking distance of the site;

- Bus stops along School Street, Lingamore Leys, Merrill Road and Houghton Road.
- Thurnscoe Village and associated shops and amenities
- Thurnscoe Train Station
- Gooseacre Primary Academy, The Robert Ogden Special, The Hill Primary Academy, Highgate Primary Academy, Sacred Heart Roman Catholic Primary and Dearne Goldthorpe Primary Schools
- ASDA Supermarket

- Lidget Lane Industrial Estate
- The Thurnscoe Centre doctors surgery
- Weldricks Pharmacy
- Post Office
- Thurnscoe Lifelong Learning Centre and Library
- Thurnscoe Sports Ground
- Hickleton Golf Club
- Pheonix Park

3.2.5 In terms of pedestrian infrastructure; the site is located in a predominately residential area therefore extensive pedestrian provision is present in the vicinity of the site, streets have footways on both sides and are lit. Houghton Road provides the main link between the site and the amenities available in Thurnscoe Village, dropped crossings and central refuge islands are provided regularly along Houghton Road, notably in the vicinity of the junctions with School Street and Merrill Road, with a Zebra crossing provided in the village centre.

3.2.6 Additionally there is a pedestrian bridge over the railway line on the sites eastern boundary which connects the site to the residential estate to the east of the site.

3.2.7 Furthermore the development proposals include the provision of new footways to be constructed within the site which link to the existing network.

3.2.8 It is considered that the site is therefore well located to allow pedestrian access to local services/ facilities and various places of education and employment.

### 3.3 **Cycling**

3.3.1 Cycling also has the potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport. The plan at **Appendix A (Figure 3)** shows a 5km radius from the centre of the site, which indicates the extent to which the local area can be accessed on cycle.

3.3.2 Like walking, cycling has an important part to play in reducing congestion, improving accessibility and reducing pollution. Destinations within a 5km radius from the centre of the site are indicated below together with the cycle time based on a 12kph cycle speed.

| Destination             | Distance | Time         |
|-------------------------|----------|--------------|
| Thurnscoe Train Station | 0.80km   | 4 minutes    |
| Thurnscoe               | 0.85km   | 4¼ minutes   |
| Goldthorpe              | 2.8km    | 14 minutes   |
| Great Houghton          | 3.1km    | 15 ½ minutes |
| Hickleton               | 3.2km    | 16 minutes   |
| Clayton                 | 3.7km    | 18 ½ minutes |
| Bolton-upon-Deane       | 3.8km    | 19 minutes   |
| Little Houghton         | 4.2km    | 21 minutes   |
| Millhouses              | 4.8km    | 24 minutes   |

3.3.3 Within a 5km cycling distance of the centre of the site there are therefore a number of shopping destinations which provide a range of services, facilities, school provision and employment opportunities.

### 3.4 **Bus Facilities**

3.4.1 There are bus stops located on Lingamore Leys and School Street approximately 150m from the centre of the site and Houghton Road approximately 570m from the centre of the site.

3.4.2 The location of accessible bus stops are shown on **Figure 4, Appendix A** and the details of the facilities provided along with the available services are provided as follows:-

***Lingamore Leys***

|                      |                                                   |
|----------------------|---------------------------------------------------|
| Location:            | Willow Road                                       |
| Reference:           | 37051091                                          |
| Distance to stop:    | Approximately 150m from the centre of the site    |
| Direction of Travel: | Buses travelling westbound                        |
| Facilities:          | Lighting pole with flag and timetable information |
| Bus services:        | 219, 407                                          |

|                      |                                                |
|----------------------|------------------------------------------------|
| Location:            | Willow Road                                    |
| Reference:           | 37055288                                       |
| Distance to stop:    | Approximately 150m from the centre of the site |
| Direction of Travel: | Buses travelling eastbound                     |
| Facilities:          | Pole with flag and timetable information       |
| Bus services:        | 219, 226, 407                                  |

***School Street***

|                      |                                                |
|----------------------|------------------------------------------------|
| Location:            | Oak Road                                       |
| Reference:           | 37056121                                       |
| Distance to stop:    | Approximately 150m from the centre of the site |
| Direction of Travel: | Buses travelling northbound                    |
| Facilities:          | Unmarked                                       |
| Bus services:        | 219, 226                                       |

### ***Houghton Road***

|                      |                                                |
|----------------------|------------------------------------------------|
| Location:            | Shepherd Lane                                  |
| Reference:           | 37050355                                       |
| Distance to stop:    | Approximately 570m from the centre of the site |
| Direction of Travel: | Buses travelling eastbound                     |
| Facilities:          | Pole with flag and timetable information       |
| Bus services:        | 216, 219, 219a, 226, 407, 449, 668             |
| Location:            | Garden Street                                  |
| Reference:           | 37055038                                       |
| Distance to stop:    | Approximately 570m from the centre of the site |
| Direction of Travel: | Buses travelling westbound                     |
| Facilities:          | Shelter with seating and timetable information |
| Bus services:        | 216, 219, 219a, 226, 407, 449, 665             |

3.4.3 The services available from these stops are detailed in the following table:

| Nº                   | Route                        | Approximate Peak Frequencies<br>(Buses per hour) |                 |            |            |
|----------------------|------------------------------|--------------------------------------------------|-----------------|------------|------------|
|                      |                              | Mon-Fri Day                                      | Mon-Fri Evening | Saturday   | Sunday     |
| 216                  | Goldthorpe to Grimethorpe    | 1433                                             | No Service      | 1425       | 0628       |
|                      | Grimethorpe to Goldthorpe    | 1525                                             |                 | No Service | 0725       |
| 219                  | Barnsley to Doncaster        | 60 mins                                          | 60 mins         | 60 mins    | 60 mins    |
| 219a                 | Barnsley to Doncaster        | 60 mins                                          | No Service      | 60 mins    | No Service |
| 226                  | Barnsley to Thurnscoe        | 30 mins                                          | 60 mins         | 30 mins    | 60 mins    |
| 407 (School Service) | Thurnscoe – Goldthorpe       | 0751                                             | No Service      | No Service | No Service |
|                      | Goldthorpe to Thurnscoe      | 1456                                             |                 |            |            |
| 449 (School Service) | Thurnscoe to Wombwell        | 0730                                             | No Service      | No Service | No Service |
|                      | Wombwell to Thurnscoe        | 1505                                             |                 |            |            |
| 665 (School Service) | Wath-upon-Deane to Thurnscoe | 1601                                             | No Service      | No Service | No Service |
| 668                  | Thurnscoe to Wath-upon-Deane | 0830                                             | No Service      | No Service | No Service |

3.4.4 There are approximately 4 regular services available per hour during weekday peak periods, the majority of which connect to either Barnsley or Doncaster city centres where an array of facilities and employment opportunities are available.

### 3.5 **Rail Facilities**

3.5.1 The nearest station to the site is Thurnscoe Train Station, which is located approximately 525m south east of the site and is described below.

3.5.2 The station is managed by Northern and is accessible by foot and cycle.

3.5.3 Facilities at the station include CCTV monitored cycle stands with parking provision for 8 cycles, a 60 space car park and ramps for train access.

3.5.4 A summary of the available services and their frequencies are shown in the following table:

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

### 3.6 **Summary**

3.6.1 The site is therefore accessible by a range of sustainable transport modes and a Travel Plan has also been prepared to encourage residents to utilise these options.

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## **4 Development Proposals**

### **4.1 Overview**

- 4.1.1 The application proposals include 479 dwellings separated into the Phase 2 and Phase 3 sections of the site. A copy of the illustrative masterplan is attached at **Appendix F**.

### **4.2 Access**

- 4.2.1 The Phase 2 site will be accessed via the existing infrastructure retained from the previous housing comprising Lingamore Leys, Willow Road and School Street. Phase 3 is to be accessed by an extension of School Street to the north.
- 4.2.2 The internal layout has been designed to provide loop roads and servicing will be undertaken directly from these estate roads. Where cul-de-sacs are provided they will be designed to accommodate the swept path of a refuse vehicle, or provide a collection point within an appropriate carry distance.

### **4.3 Parking**

- 4.3.1 Barnsley Council's Supplementary Planning Document on car parking (Adopted March 2012) includes maximum standards for residential developments, which are summarised as follows in relation to the proposals;
- Dwellings with 1-2 bedrooms – 1 space per dwelling
  - Dwellings with 3 or more bedrooms - 2 spaces per dwelling.

4.3.2 The proposed development comprises the following mix of number of bedrooms:

| No of Bedrooms | 2 Bed | 3 Bed | TOTAL |
|----------------|-------|-------|-------|
| Phase 2        | 61    | 68    | 129   |
| Phase 3        | 190   | 160   | 350   |
| Total          | 251   | 228   | 479   |

4.3.3 Therefore in accordance with local standards the maximum number of spaces for Phase 2 is 197 and the maximum number of spaces for Phase 3 is 510, a total of 707 spaces. Car parking will be provided in line with these standards.

## 5 Multimodal Trip Generation

5.1 The trip generations for the proposed residential development have been estimated using the TRICS v7.4.1 database. The TRICS search parameters have been refined to closely match the location and characteristics of the development site. The selection criteria is summarised below:

Land Use: 03 – Residential

Category: A – Houses Privately Owned

Selected Regions and Areas: Greater London and Ireland excluded

Parameter: Number of dwellings

Selected Survey Days: Weekends excluded

Selected Locations: Suburban Area and Edge of Town

Travel Plans: 1 of the 28 surveys was undertaken with a Travel Plan in place

5.2 A full copy of the TRICS output is included at **Appendix G** and the resulting trip rates and generations are shown in Table 5.2.

|                        | Trip Rate |         |       | Trip Generation |         |       | Modal Split % |         |        |
|------------------------|-----------|---------|-------|-----------------|---------|-------|---------------|---------|--------|
|                        | AM Peak   | PM Peak | Daily | AM Peak         | PM Peak | Daily | AM Peak       | PM Peak | Daily  |
| Pedestrians            | 0.194     | 0.098   | 1.304 | 93              | 47      | 625   | 19.0%         | 10.3%   | 15.4%  |
| Cyclists               | 0.021     | 0.024   | 0.159 | 10              | 11      | 76    | 2.1%          | 2.5%    | 1.9%   |
| Public Transport Users | 0.017     | 0.018   | 0.13  | 8               | 9       | 62    | 1.7%          | 1.9%    | 1.5%   |
| Vehicle Occupants      | 0.788     | 0.811   | 6.847 | 377             | 388     | 3280  | 77.2%         | 85.2%   | 81.1%  |
| Total People Trips     | 1.021     | 0.952   | 8.447 | 489             | 456     | 4046  | 100.0%        | 100.0%  | 100.0% |

**Table 5.2 – Multi-modal trip generation**

## 6 Traffic Flows

### 6.1 *Surveyed Traffic Flows*

6.1.1 The peak hour traffic flows have been identified from traffic count data detailed at section 2.4 as being during 08:00 – 09:00hrs and 17:00 – 18:00hrs. The surveyed traffic flows during these periods are shown on **Figure 5** at **Appendix A**.

### 6.2 *Traffic Growth*

6.2.1 An assessment year of 2022 has been applied, 5 years from the year of application. This is consistent with the Transport Assessment for the outline proposals.

6.2.2 To establish the likely growth of traffic from the 2017 traffic surveys to 2022, TEMPRO 7.2 growth factors have been calculated and applied as follows:

2017-2022      AM      1.0937      PM 1.0921

6.2.3 The resulting 2022 base traffic flows are shown on **Figure 6**.

### 6.3 *Vehicle Trip Generations*

6.3.1 Vehicle trip rates have been extracted from the multimodal TRICS search described within the previous chapter of this report. The predicted vehicle trip generation potential of a residential development containing 479 dwellings is summarised by the following table;

| Time Period    | Rates |       | Generations |     |         |
|----------------|-------|-------|-------------|-----|---------|
|                | Arr   | Dep   | Arr         | Dep | Two-way |
| AM (0800-0900) | 0.147 | 0.411 | 70          | 197 | 267     |
| PM (1700-1800) | 0.382 | 0.229 | 183         | 110 | 293     |

**Table 6.3.1 – Vehicle trip generations – 479 dwellings**

6.3.2 Table 6.3.1 identifies that the proposed development would generate in the order of 267 vehicle trips two-way in the AM peak period and 293 vehicle trips two-way in the PM peak period.

6.3.3 These traffic generations are considered highly robust as they are based wholly on private housing and do not making any allowance for the affordable housing provision, which would typically generate less traffic, whilst they also make no allowance for the traffic generated by the previous housing accommodated on the site.

6.3.4 Furthermore, outline consent was granted for the wider development including the now built Phase 1 proposals, which included 160 units. The Transport Assessment for the Outline consent was based on 900 units, whilst the total number of units now proposed in all three phases is 639. The impact is therefore significantly reduced from the consented position.

#### **6.4 Traffic Distribution**

6.4.1 In order to determine the impact of the development at junctions on the local highway network a traffic distribution assessment has been undertaken using 2011 Census: Origin / Destination statistics (Dataset: WU03EW) which identifies 'Location of usual residence and place of work by method of travel to work' at Middle Super Output Area (MSOA) level. This data identifies the existing travel to work patterns of people who work within the sites representative MSOA, which for reference is Barnsley 014'.

6.4.2 As the MSOA data includes all nationwide destinations, the results of the search have been refined to exclude all MSOA's which generate less than 10 trips which equates to less than 0.8% of the overall sample. It is considered that this excluded information is not relevant in terms of establishing a 'likely' distribution of traffic.

6.4.3 The likely route assignments between the site and the qualifying MSOA's have been determined using online route mapping and Population Centroid Data which identifies the centre of each MSOA based upon its residential population.

6.4.4 The table included at **Appendix H** details the route assignment percentage draw of each qualifying MSOA, and can be summarised as follows;

| Suggested Route   | Total Traffic Assignment % |
|-------------------|----------------------------|
| Houghton Road (W) | 41.0%                      |
| Station Road      | 22.4%                      |
| Highgate Lane     | 19.6%                      |
| A635 (SW)         | 2.9%                       |
| Local Centre      | 14.0%                      |

**Table 6.4.4 – Traffic distribution**

6.4.5 All traffic movements associated with the Phase 2 development have been assigned through the School Street junction, whilst the westbound element of Phase 3 development traffic has been split 50/50 between the Merrill Road and School Street junctions. The proportion of Phase 3 development traffic which travels to / from the Local Centre (14.0%) has been distributed 75% via School Street and 25% via Merrill Road.

6.4.6 The traffic figures in terms of percentage distribution for both phases of the development are illustrated on **Figures 7 & 8** included at **Appendix A**.

6.4.7 For clarity, the following table summarises which element of traffic turns left / right out of each junction;

| Route              | %     | Phase 2       |              | Phase 3         |                 |
|--------------------|-------|---------------|--------------|-----------------|-----------------|
|                    |       | School Street | Merrill Road | School Street   | Merrill Road    |
| Houghton Road (W ) | 41.0% | Right out     | N/A          | Right out (50%) | Right out (50%) |
| Station Road       | 22.4% | Left out      | N/A          | Left out        | N/A             |
| Barnsley Road (E ) | 0.0%  | Left out      | N/A          | Left out        | N/A             |
| Highgate Lane      | 19.6% | Left out      | N/A          | Left out        | N/A             |
| A635 (SW)          | 2.9%  | Left out      | N/A          | Left out        | N/A             |
| Local Centre       | 14.0% | Right out     | N/A          | Right out (75%) | Left out (25%)  |

6.4.8 The resulting traffic flows upon the local highway network based on the proposed development quantum of 479 dwellings are shown on **Figures 9 & 10**.

6.4.9 The 2022 total proposed assessment flows (including base and proposed development traffic flows) are shown in **Figure 11**.

## 7 Traffic Impact Assessment

### 7.1 Study Area

7.1.1 The study area has been agreed with the local highway authority during scoping discussions and comprises the following junctions:

- B6411 / Station Rd / Shepherd Ln / John St;
- B6411 Houghton Rd / School St;
- B6411 Houghton Rd / Lorne Rd / Merrill Rd;
- Barnsley road / Nicholas Ln / Highgate Ln staggered crossroads, and
- A635 / Barnsley Road roundabout.

7.1.2 The proportionate impact of the traffic flows generated by the development, relative to the assessment year base flows has been calculated for each junction approach within the study area with the results detailed in table 7.1.2 below;

|                   | Phase 2 |        | Phase 3 |        |
|-------------------|---------|--------|---------|--------|
|                   | AM      | PM     | AM      | PM     |
| Merrill Road      | 0.00%   | 0.00%  | 43.26%  | 22.03% |
| Houghton Road (E) | 7.50%   | 2.35%  | 10.80%  | 4.09%  |
| Lorne Road        | 0.00%   | 0.00%  | 0.00%   | 0.00%  |
| Houghton Road (W) | 2.49%   | 4.97%  | 6.77%   | 13.50% |
| Houghton Road (W) | 2.69%   | 6.43%  | 4.11%   | 9.84%  |
| School Street     | 38.17%  | 37.05% | 78.70%  | 76.39% |
| Houghton Road (E) | 2.74%   | 3.96%  | 7.42%   | 10.75% |
| Houghton Road     | 4.81%   | 3.13%  | 13.05%  | 8.50%  |
| John Street       | 0.00%   | 0.00%  | 0.00%   | 0.00%  |
| Station Road      | 1.38%   | 1.71%  | 3.75%   | 4.63%  |
| Shepherd Lane     | 1.31%   | 3.47%  | 3.55%   | 9.43%  |
| Nicholas Lane     | 1.76%   | 0.74%  | 4.77%   | 1.99%  |
| Barnsley Road (E) | 0.00%   | 0.00%  | 0.00%   | 0.00%  |
| Highgate Lane     | 0.79%   | 2.05%  | 2.15%   | 5.56%  |
| Barnsley Road (W) | 0.14%   | 0.36%  | 0.39%   | 0.97%  |
| TOTAL             | 0.86%   | 0.78%  | 2.33%   | 2.13%  |
| A635 (NE)         | 0.47%   | 0.17%  | 1.29%   | 0.45%  |
| Dudley Drive      | 0.00%   | 0.00%  | 0.00%   | 0.00%  |
| A635 (SW)         | 0.06%   | 0.13%  | 0.16%   | 0.34%  |

7.1.3 The traffic generated by the development would have a material impact at the Merrill Road, School Street and Houghton Road / John Street/Station Road/ Shepherd Lane junctions but not at the signalised junction between Nicholas Lane / Barnsley Road / Highgate Lane or the roundabout junction between the A635 / Dudley Drive. With regard to the signalised junction it should be noted that it is appropriate to consider the impact on the junction as a whole rather than single approaches as the timings can be altered to reflect the traffic flows on each approach.

7.1.4 Therefore traffic capacity assessments have been undertaken at the junctions where a material impact has been identified and the resulting study area is consistent with the Transport Assessment for the outline consented application, which also assessed the impact of the now-built Phase 1 development.

## 7.2 *Houghton Road / Merrill Road / Lorne Road*

7.2.1 PICADY has been used to assess the capacity of the junction; the results outputs are included at **Appendix I** and are summarised in the table below;

Arm A = Houghton Road (E)

Arm B = Lorne Road

Arm C = Houghton Road (W)

Arm D = Merrill Road

|        | AM Peak Hour 0800-0900hrs |       |               |       | PM Peak Hour 1700-1800hrs |       |               |       |
|--------|---------------------------|-------|---------------|-------|---------------------------|-------|---------------|-------|
|        | 2022 Base                 |       | 2022 Proposed |       | 2022 Base                 |       | 2022 Proposed |       |
|        | RFC                       | Queue | RFC           | Queue | RFC                       | Queue | RFC           | Queue |
| B – CD | 0.029                     | 0.03  | 0.030         | 0.03  | 0.019                     | 0.02  | 0.020         | 0.02  |
| B – AD | 0.082                     | 0.09  | 0.087         | 0.09  | 0.105                     | 0.12  | 0.112         | 0.12  |
| A – D  | 0.151                     | 0.18  | 0.158         | 0.19  | 0.144                     | 0.17  | 0.160         | 0.19  |
| D – AB | 0.104                     | 0.12  | 0.121         | 0.14  | 0.118                     | 0.13  | 0.133         | 0.15  |
| D – BC | 0.071                     | 0.08  | 0.156         | 0.18  | 0.077                     | 0.08  | 0.137         | 0.16  |
| C - B  | 0.006                     | 0.01  | 0.006         | 0.01  | 0.036                     | 0.04  | 0.037         | 0.04  |

**Table 7.2.1 – PICADY Results – Houghton Road / Merrill Road / Lorne Road Junction**

7.2.2 The assessment shows that the junction would operate comfortably within its practical capacity, generally accepted as being represented by a ratio of flow to capacity of 0.850 with no material queuing.

### 7.3 Houghton Road/ School Street

7.3.1 PICADY has been used to assess the capacity of the junction; the results outputs are included at **Appendix J** and are summarised in the table below;

Arm A = Houghton Road (E)

Arm B = School Street

Arm C = Houghton Road (W)

| 2022   | AM Peak Hour 0800-0900hrs |       |               |       | PM Peak Hour 1700-180hrs |       |               |       |
|--------|---------------------------|-------|---------------|-------|--------------------------|-------|---------------|-------|
|        | 2022 Base                 |       | 2022 Proposed |       | 2022 Base                |       | 2022 Proposed |       |
|        | RFC                       | Queue | RFC           | Queue | RFC                      | Queue | RFC           | Queue |
| B – C  | 0.231                     | 0.30  | 0.436         | 0.76  | 0.106                    | 0.12  | 0.215         | 0.27  |
| B - A  | 0.079                     | 0.08  | 0.348         | 0.53  | 0.103                    | 0.11  | 0.278         | 0.38  |
| C – AB | 0.115                     | 0.13  | 0.176         | 0.21  | 0.101                    | 0.11  | 0.261         | 0.35  |

**Table 7.3.1 – PICADY Results – Houghton Road / School Street**

7.3.2 The assessment shows that the junction would operate within its practical capacity, with no material queuing.

### 7.4 Houghton Road / John Street / Station Road / Shepherd Lane

7.4.1 ARCADY has been used to assess the capacity of the mini-roundabout junction; the results outputs are included at **Appendix K** and are summarised in the table below;

Arm A = John Street

Arm B = Station Road

Arm C = Shepherd Lane

Arm D = Houghton Road

| 2022 | AM Peak Hour 0800-0900hrs |       |               |       | PM Peak Hour 1700-1800hrs |       |               |       |
|------|---------------------------|-------|---------------|-------|---------------------------|-------|---------------|-------|
|      | 2022 Base                 |       | 2022 Proposed |       | 2022 Base                 |       | 2022 Proposed |       |
|      | RFC                       | Queue | RFC           | Queue | RFC                       | Queue | RFC           | Queue |
| A    | 0.065                     | 0.1   | 0.078         | 0.1   | 0.021                     | 0.0   | 0.023         | 0.0   |
| B    | 0.373                     | 0.6   | 0.410         | 0.7   | 0.760                     | 3.1   | 0.828         | 4.3   |
| C    | 0.485                     | 0.9   | 0.516         | 1.1   | 0.610                     | 1.5   | 0.719         | 2.4   |
| D    | 0.568                     | 1.3   | 0.667         | 2.0   | 0.465                     | 0.9   | 0.519         | 1.1   |

**Table 7.4.1 – ARCADY Results John Street/Station Road/Shepherd Lane/Houghton Road**

7.4.2 The assessment shows that the junction would operate within its practical capacity, generally accepted as being represented by a ratio of flow to capacity of 0.850 without significant queuing.

## **7.5 Summary**

7.5.1 Therefore each of these junctions can accommodate the traffic that would be generated by the proposed development.

7.5.2 In considering the results the following factors should be considered:

- The results are based on robust traffic generations, based wholly on private housing and not making any allowance for the affordable housing provision, which would typically generate less traffic.
- The traffic generations also make no allowance for the traffic generated by the previous housing accommodated on the site.
- Outline consent was granted for the wider development including the now built Phase 1 proposals, which included 160 units. The Transport Assessment for the Outline consent was based on 900 units, whilst the total number of units now proposed in all three phases is 639. The impact is therefore significantly reduced from the consented position.
- Given that the development proposals were already the subject of an Outline consent and are included in the emerging Local Plan, the traffic generated will already be accounted for on the wider network by the TEMPRO factors used to calculate traffic growth. Therefore the application of these growth factors in addition to the specific distribution of the traffic generated by the proposed development represents an element of 'double counting' in these capacity assessments.

- 
- The potential provision of a road bridge over the railway lines would allow some traffic to bypass the junctions within the study area and therefore the impact of the proposals would reduce should this be delivered.
  - It has been assumed that all trips remaining within Thurnscoe would travel through the mini roundabout junction between Houghton Road, John Street, Station Road and Shepherd Lane, when in practice this is unlikely to be the case.

---

## **8 Summary and Conclusions**

- 8.1 Sanderson Associates (Consulting Engineers) Limited have been appointed by Keepmoat Homes Ltd to advise on traffic and transportation issues in support of a proposed residential development off School Street, Thurnscoe.
- 8.2 The proposed development comprises 479 houses to be served by the existing infrastructure and an extension of School Street.
- 8.3 The site formed part of a wider outline application, consented in 2010. The proposals form Phases 2 and 3 of the development with Phase 1 already constructed.
- 8.4 Even based on highly robust assumptions, the junctions within study area would continue to operate within capacity, whilst accommodating the traffic generated by the proposed development.
- 8.5 Car parking spaces will be provided in accordance with the local authority's standards.
- 8.6 There does not appear to be an inherent accident pattern at a particular location on the local highway network.
- 8.7 The site is accessible by walking, cycling, and public transport and a Travel Plan has also been prepared to promote travel by these modes.

---

8.8 In accordance with the National Planning Policy Framework paragraph 32, this Transport Statement has demonstrated that:

- Sustainable transport modes are available for residents and visitors that reduce the need for major transport infrastructure;
- Safe and suitable access to the site can be achieved for all people; and,
- The impacts are not severe and improvements are not required within the transport network to limit the impacts of the development.

8.9 It is therefore considered that the application is acceptable in transport terms.

## **APPENDIX A**

*Figure 1 – Site Location Plan*

*Figure 2 – 800m and 2,000m indicative Walking Distance*

*Figure 3 – 5km Indicative Cycling Distance*

*Figure 4 – Public Transport Information*

*Figure 5 – 2017 Surveyed Flows*

*Figure 6 – 2022 Base Flows*

*Figure 7 – Proposed Phase 2 Development Traffic Distribution*

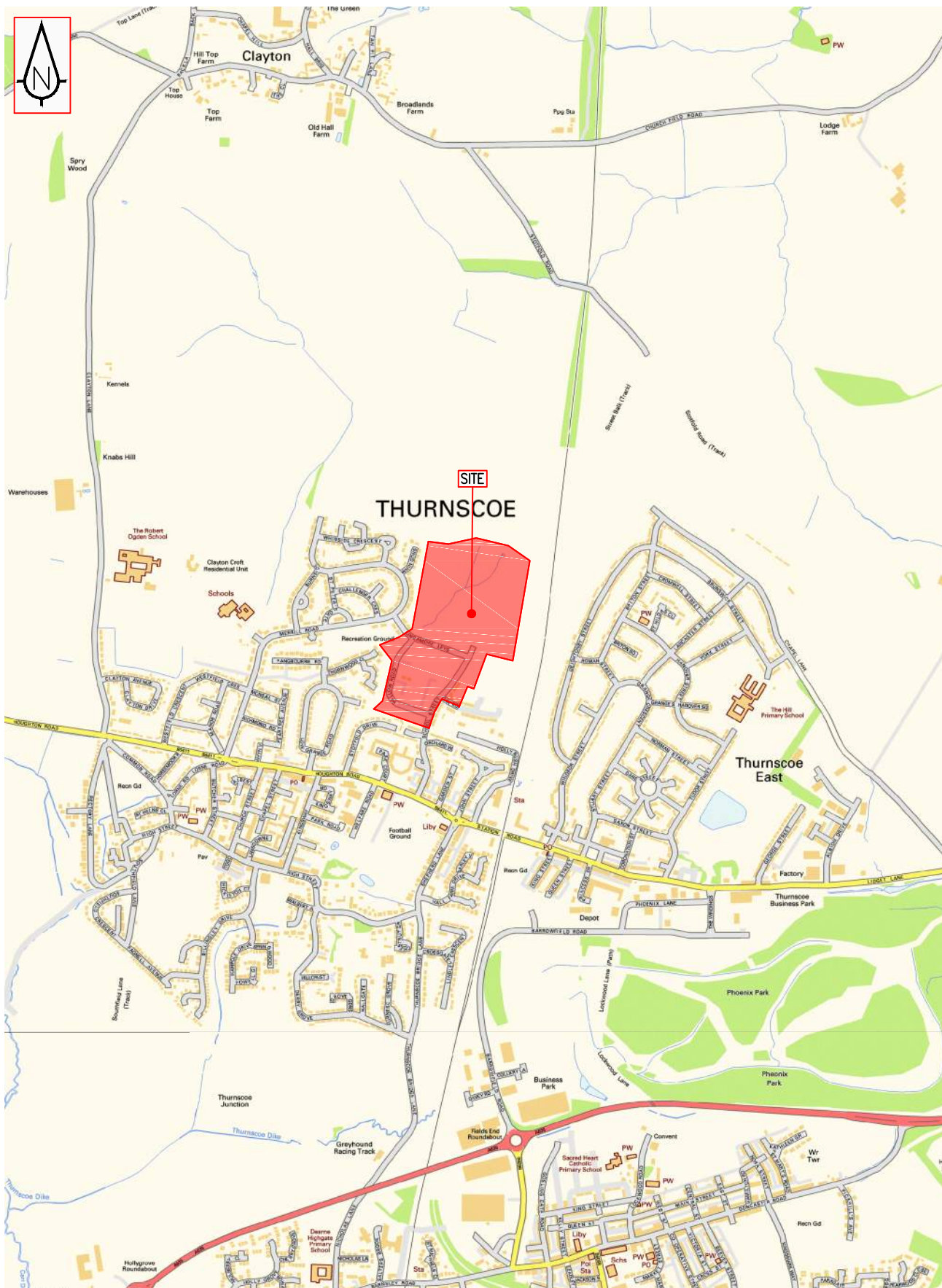
*Figure 8 – Proposed Phase 3 Development Traffic Distribution*

*Figure 9 – Proposed Phase 2 Development Traffic Flows*

*Figure 10 – Proposed Phase 3 Development Traffic Flows*

*Figure 11 – 2022 Total Proposed*

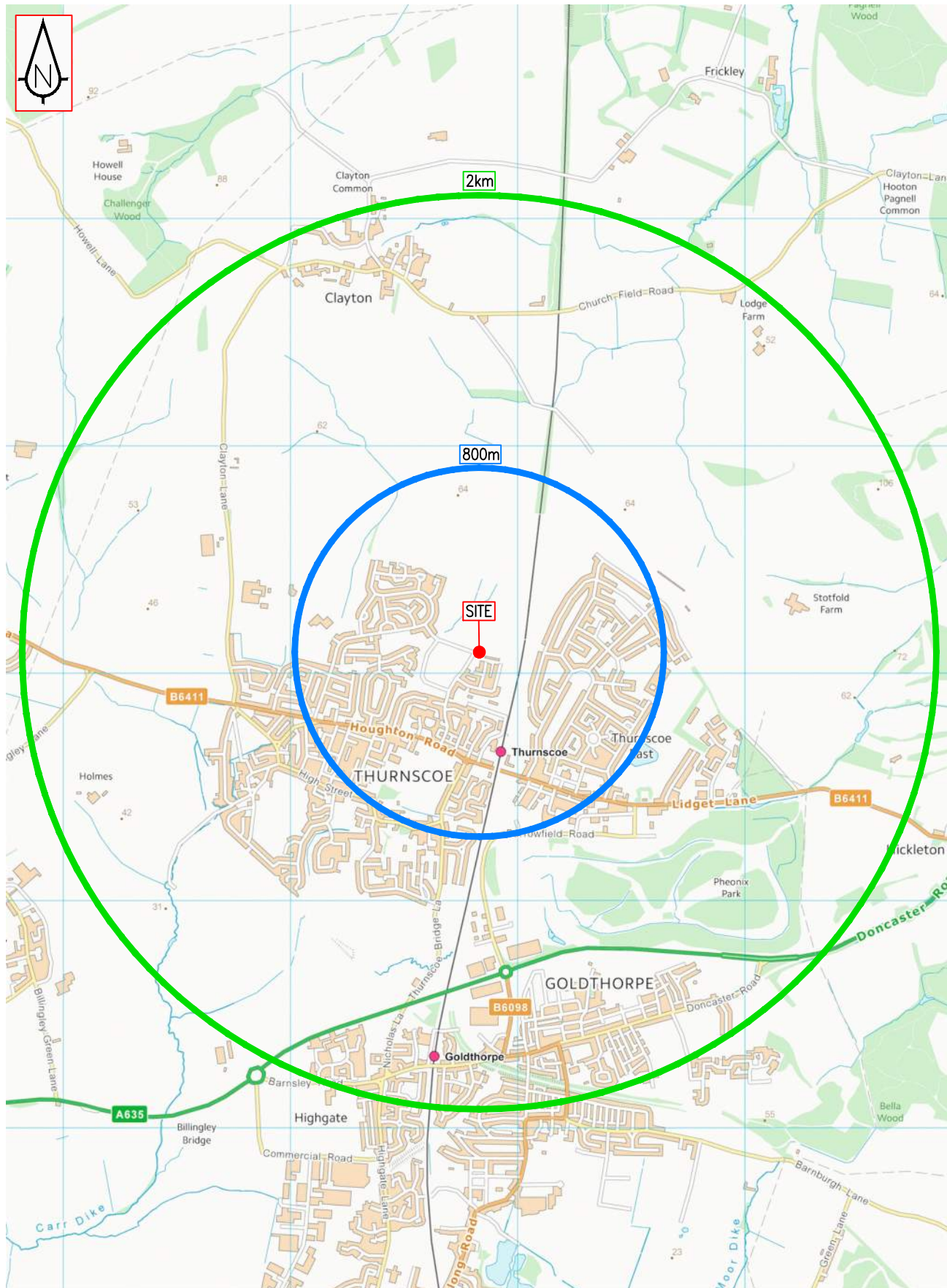
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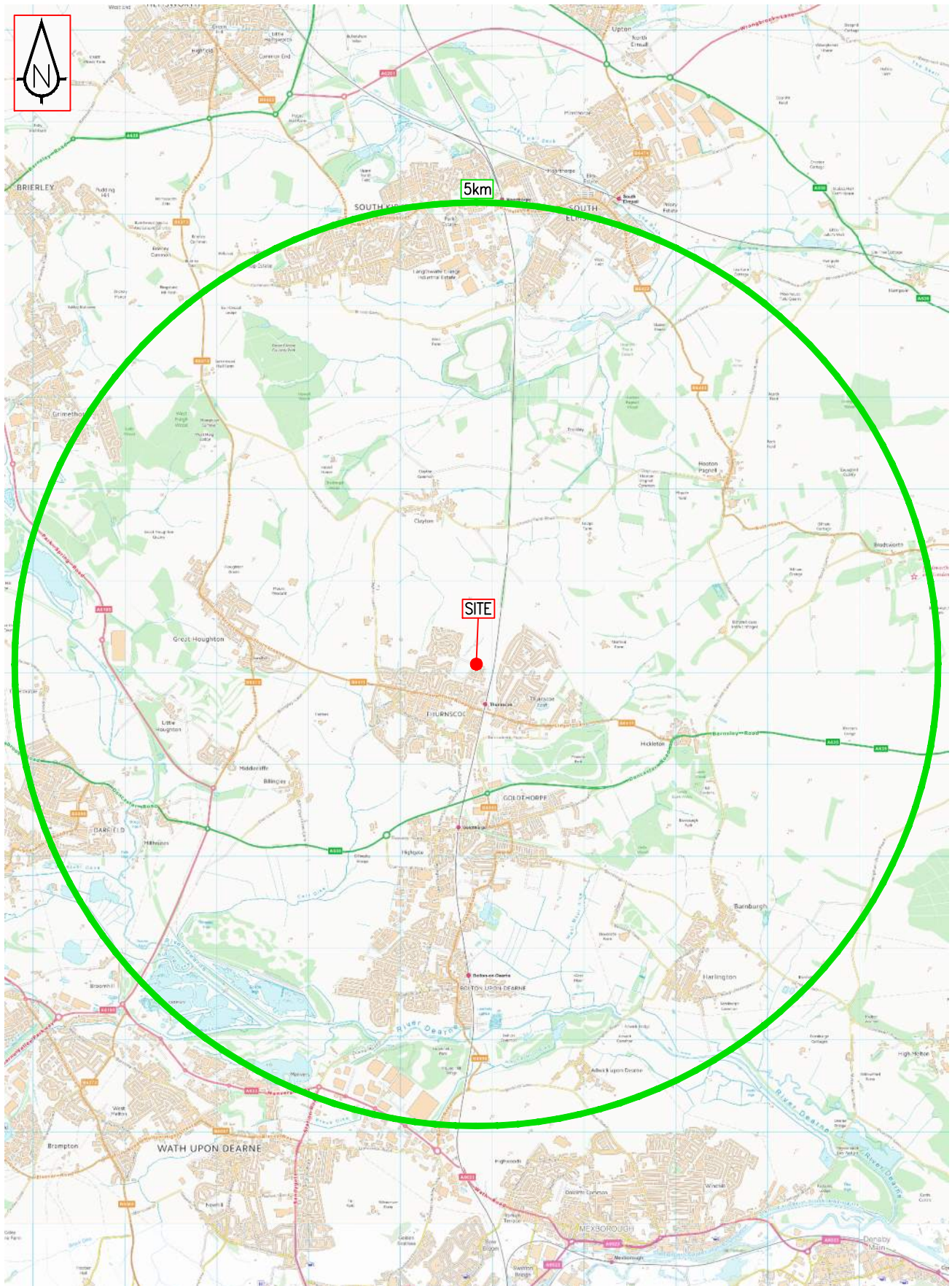


## Site Location Plan

Proposed Residential Development  
School Street, Thurnscoe

|                |                            |                                                                                                                      |
|----------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|
| Drawn<br>CC    | Scale<br>NTS               | <br>ISO 9001<br>REGISTERED FIRM |
| Checked<br>MD  | Date<br>July 2017          |                                                                                                                      |
| Approved<br>MD | Drawing Number<br>Figure 1 | Size<br>A4                                                                                                           |







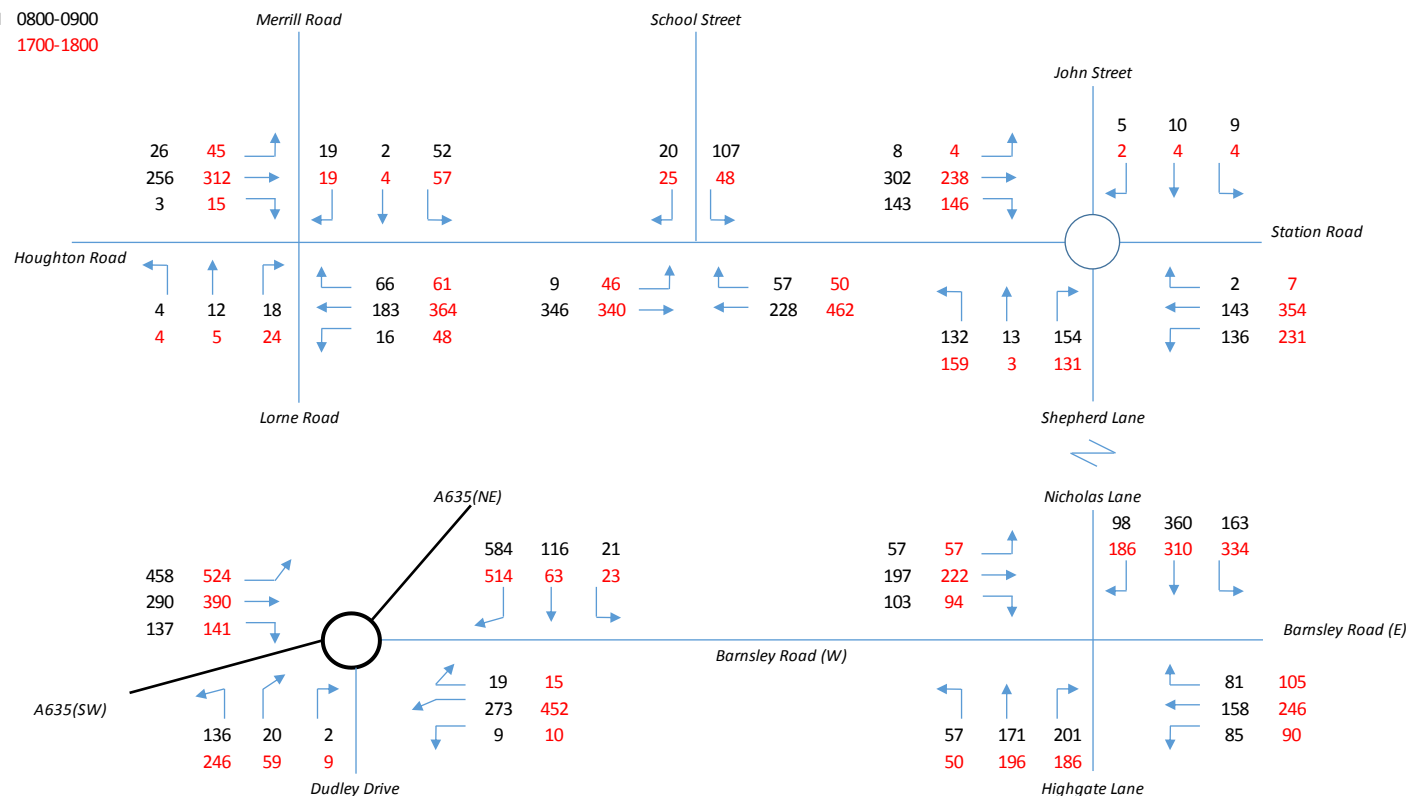
# THURNSCOE



## 2017 Surveyed Traffic Flows

AM 0800-0900

PM 1700-1800



| Rev | Amendment | Drawn | Date | Checked |
|-----|-----------|-------|------|---------|
|-----|-----------|-------|------|---------|

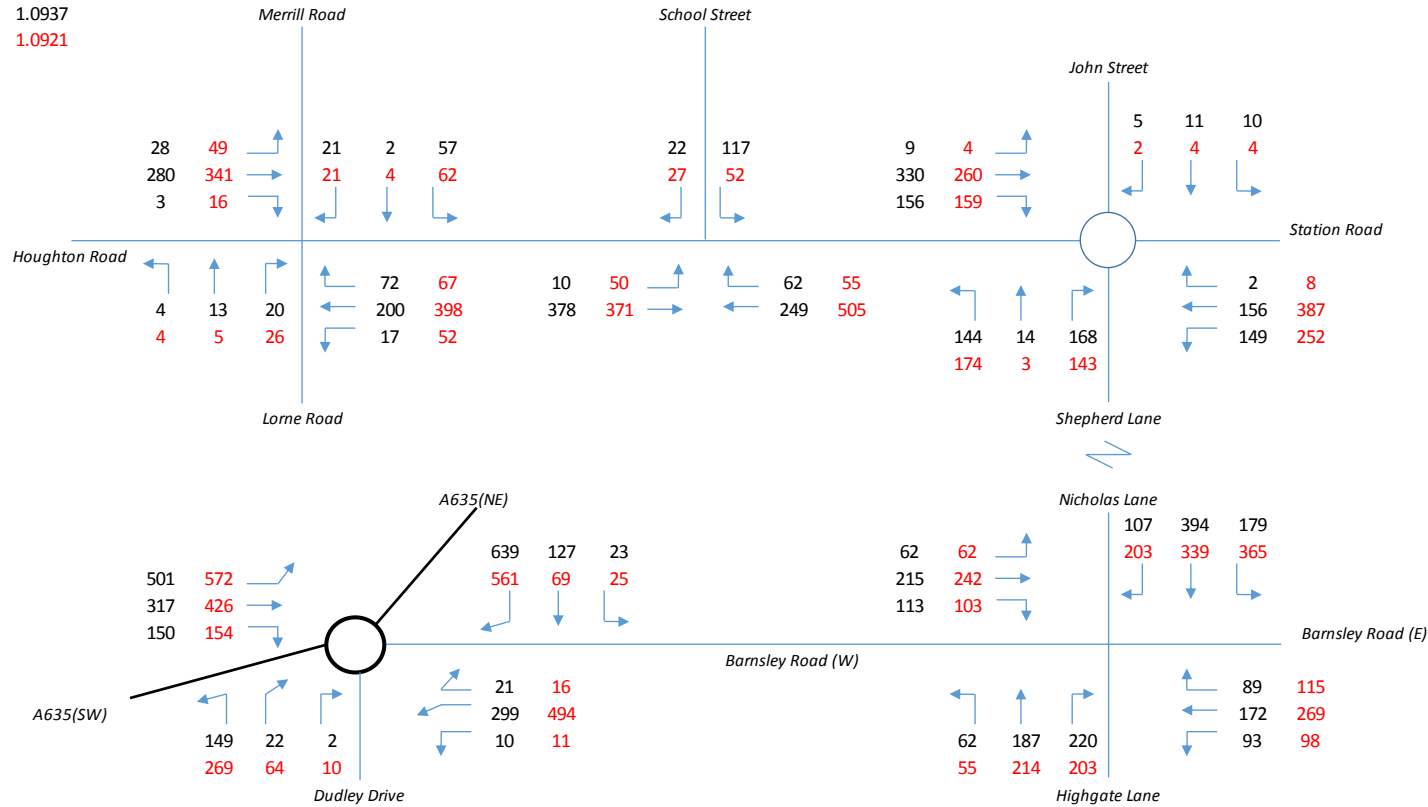
## Proposed Residential Development School Street, Thurnscoe

## 2017 Surveyed Traffic Flows

|              |                |             |    |
|--------------|----------------|-------------|----|
| Scale        | NTS            | Draw by     | BL |
| Drawing Size | A3             | Checked by  | KS |
| Date         | Nov 2017       | Approved by | KS |
|              | Drawing Number | Rev.        |    |
|              | Figure 5       |             |    |

## 2022 Base Flows

AM 1.0937  
PM 1.0921



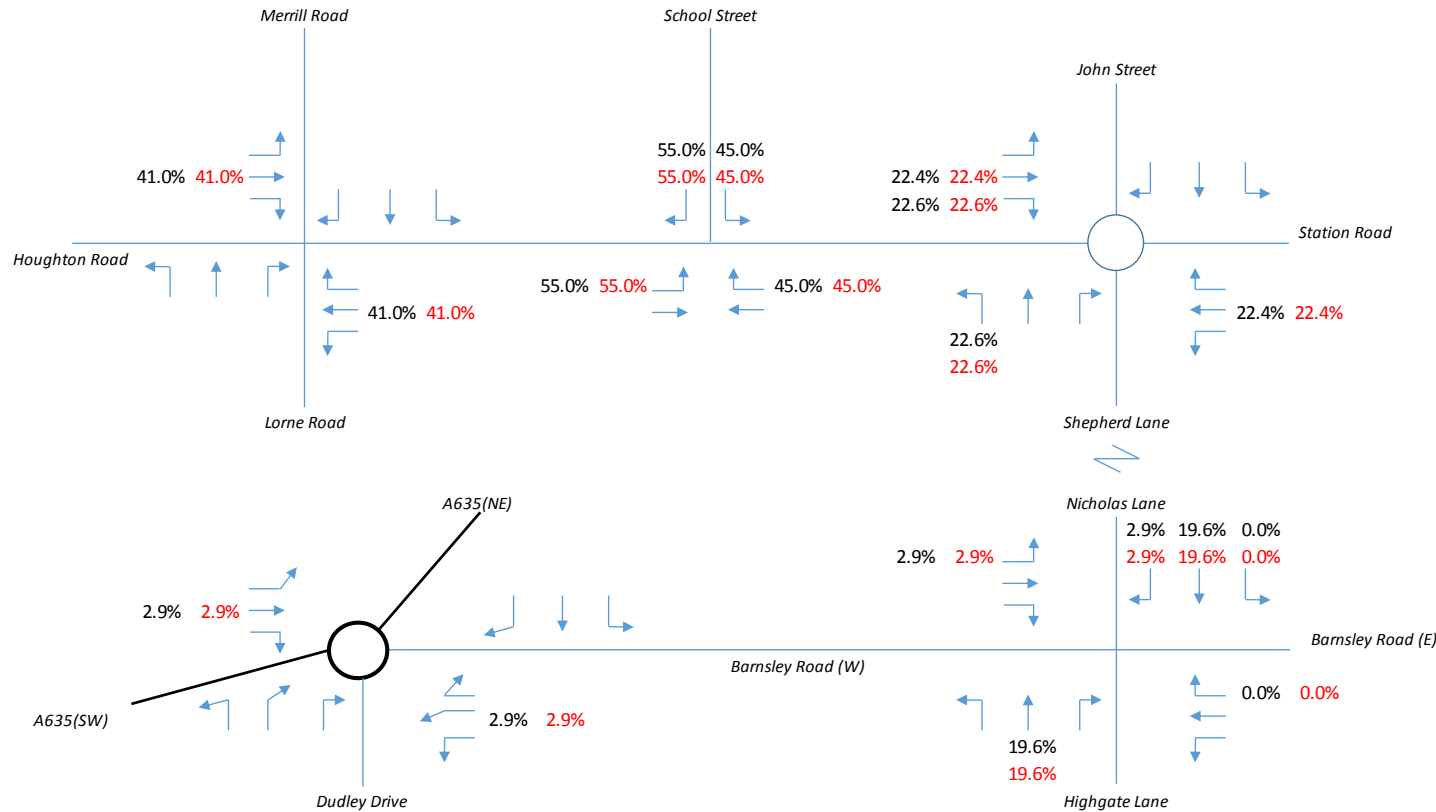
| Rev | Amendment | Drawn | Date | Checked |
|-----|-----------|-------|------|---------|
|-----|-----------|-------|------|---------|

## Proposed Residential Development School Street, Thurnscoe

## 2022 Base Traffic Flows

|              |                |             |    |
|--------------|----------------|-------------|----|
| Scale        | NTS            | Draw by     | BL |
| Drawing Size | A3             | Checked by  | KS |
| Date         | Nov 2017       | Approved by | KS |
|              | Drawing Number | Rev.        |    |
|              | Figure 6       |             |    |

AM  
 PM



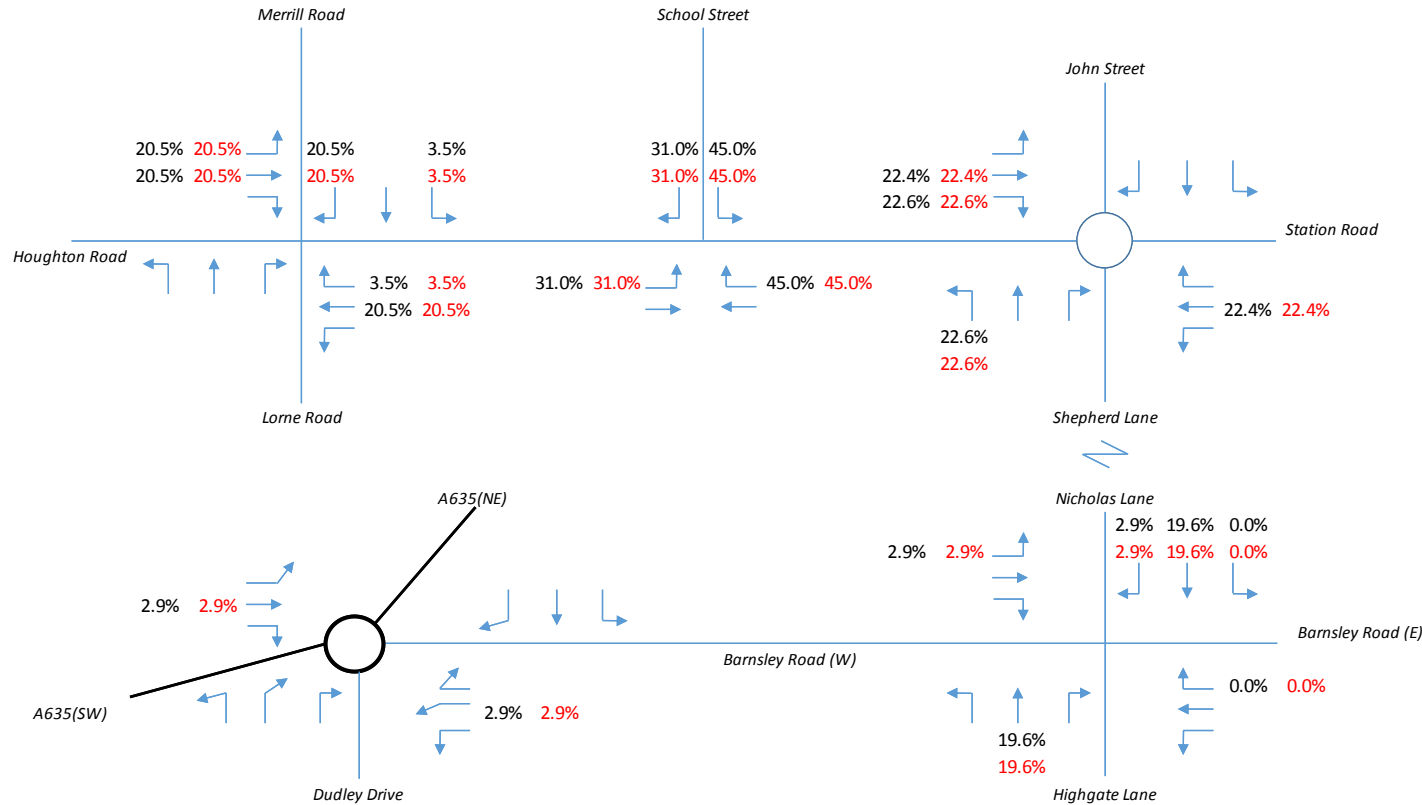
| Rev | Amendment | Drawn | Date | Checked |
|-----|-----------|-------|------|---------|
|-----|-----------|-------|------|---------|

## Proposed Residential Development School Street, Thurnscoe

## Phase 2 Development Traffic Distribution %

|              |                |             |    |
|--------------|----------------|-------------|----|
| Scale        | NTS            | Draw by     | BL |
| Drawing Size | A3             | Checked by  | KS |
| Date         | Nov 2017       | Approved by | KS |
|              | Drawing Number | Rev.        |    |
|              | Figure 7       |             |    |

AM  
PM



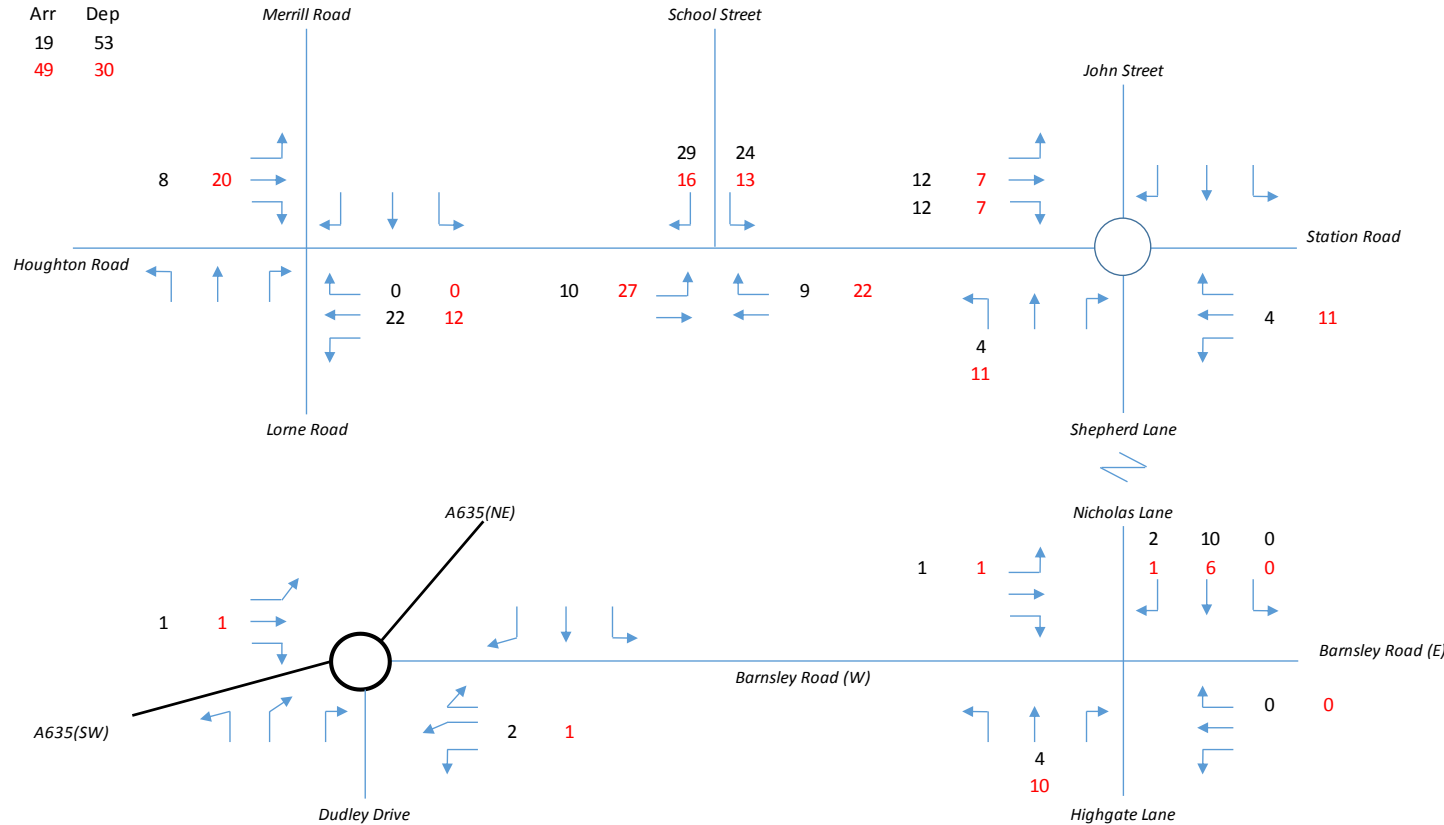
| Rev | Amendment | Drawn | Date | Checked |
|-----|-----------|-------|------|---------|
|-----|-----------|-------|------|---------|

### Proposed Residential Development School Street, Thurnscoe

### Phase 3 Development Traffic Distribution %

|              |                |             |    |
|--------------|----------------|-------------|----|
| Scale        | NTS            | Draw by     | BL |
| Drawing Size | A3             | Checked by  | KS |
| Date         | Nov 2017       | Approved by | KS |
|              | Drawing Number | Rev.        |    |
|              | Figure 8       |             |    |

Arr Dep  
AM 19 53  
PM 49 30



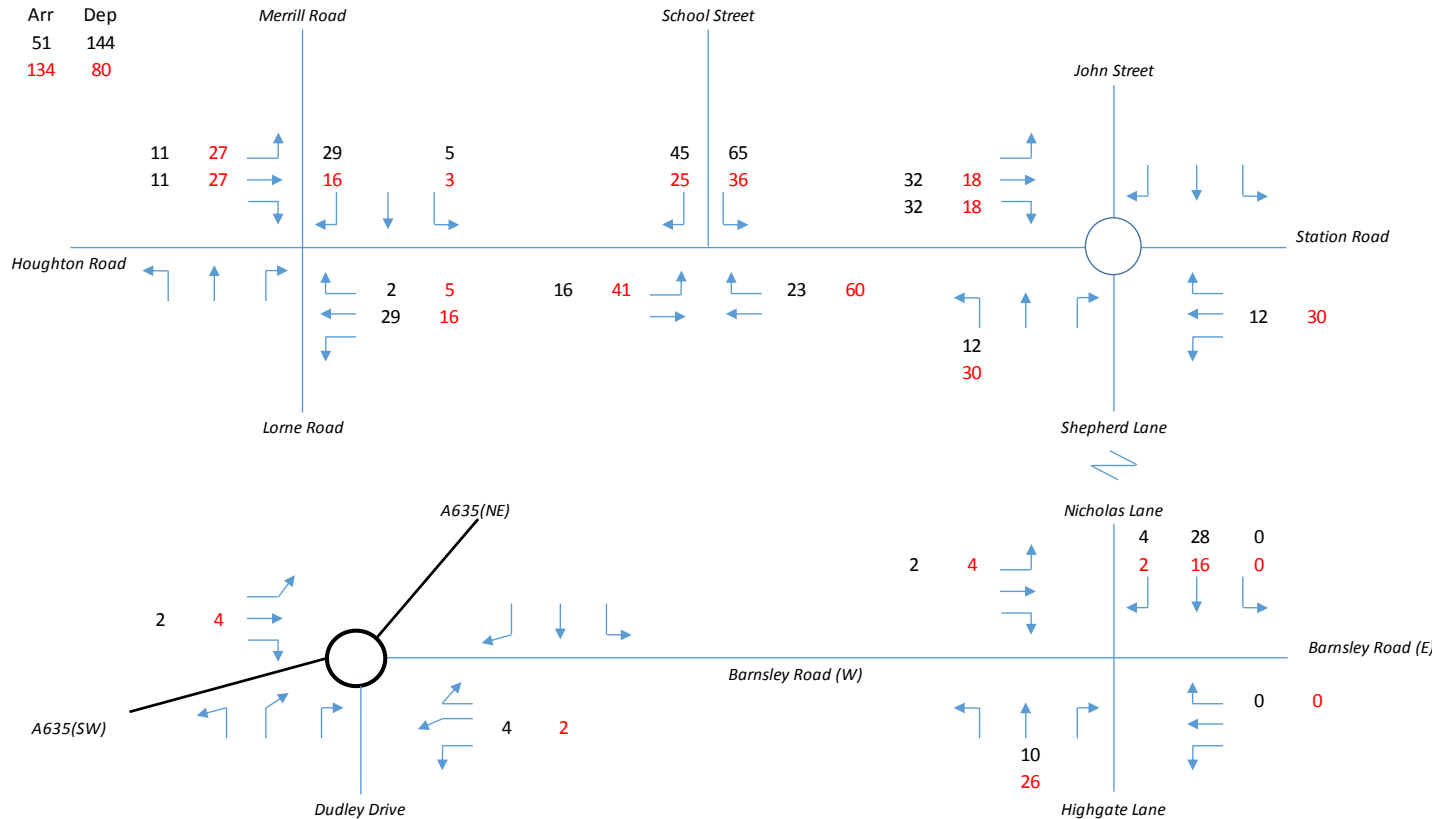
| Rev | Amendment | Drawn | Date | Checked |
|-----|-----------|-------|------|---------|
|-----|-----------|-------|------|---------|

## Proposed Residential Development School Street, Thurnscoe

### Phase 2 Development Traffic Flows

|              |                |             |    |
|--------------|----------------|-------------|----|
| Scale        | NTS            | Draw by     | BL |
| Drawing Size | A3             | Checked by  | KS |
| Date         | Nov 2017       | Approved by | KS |
|              | Drawing Number | Rev.        |    |
|              | Figure 9       |             |    |

Arr Dep  
 AM 51 144  
 PM 134 80



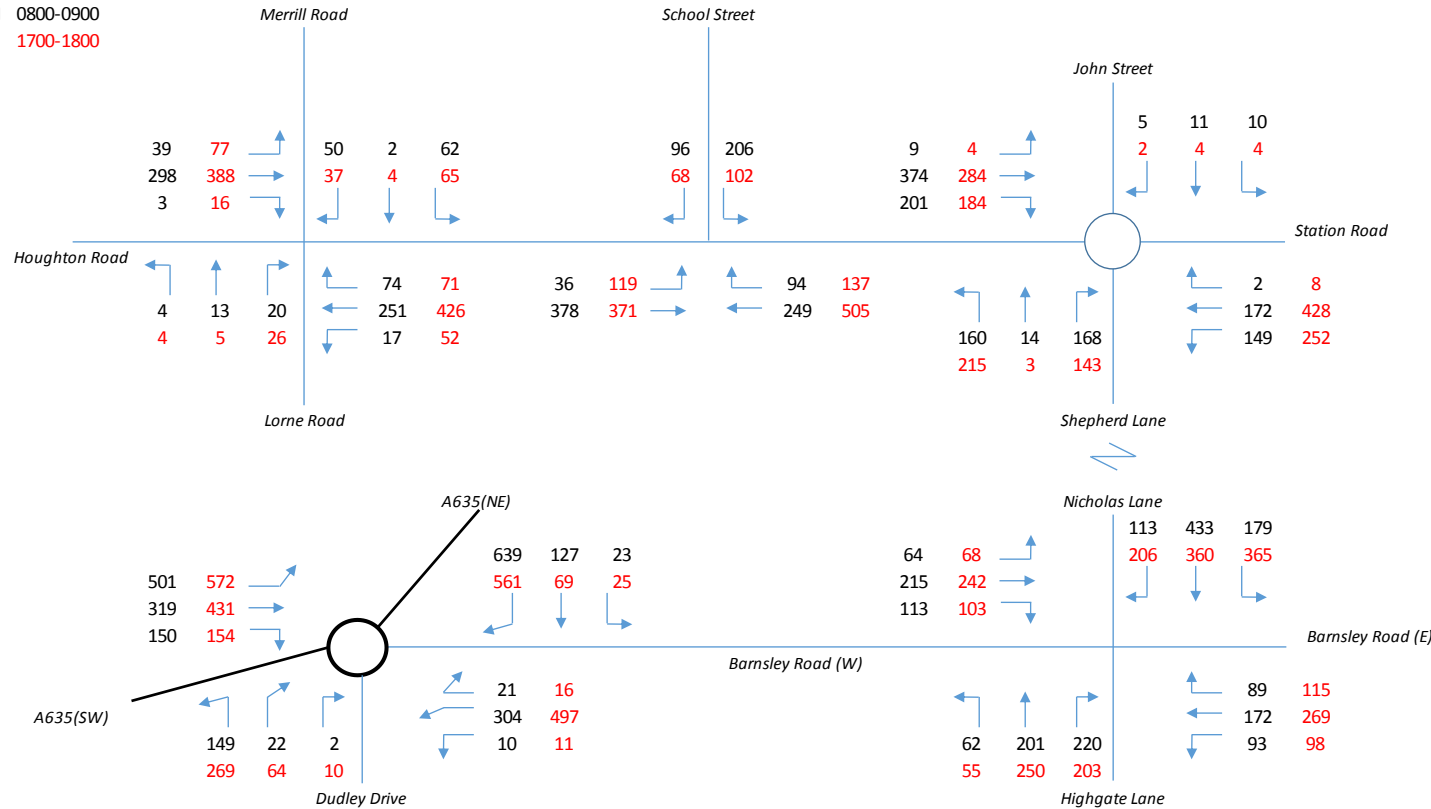
| Rev | Amendment | Drawn | Date | Checked |
|-----|-----------|-------|------|---------|
|-----|-----------|-------|------|---------|

## Proposed Residential Development School Street, Thurnscoe

### Phase 3 Development Traffic Flows

|              |                |             |    |
|--------------|----------------|-------------|----|
| Scale        | NTS            | Draw by     | BL |
| Drawing Size | A3             | Checked by  | KS |
| Date         | Nov 2017       | Approved by | KS |
|              | Drawing Number | Rev.        |    |
|              | Figure 10      |             |    |

AM 0800-0900  
 PM 1700-1800



| Rev | Amendment | Drawn | Date | Checked |
|-----|-----------|-------|------|---------|
|-----|-----------|-------|------|---------|

## Proposed Residential Development School Street, Thurnscoe

## 2022 Base + Total Development Traffic

|              |                |             |    |
|--------------|----------------|-------------|----|
| Scale        | NTS            | Draw by     | BL |
| Drawing Size | A3             | Checked by  | KS |
| Date         | Nov 2017       | Approved by | KS |
|              | Drawing Number | Rev.        |    |
|              | Figure 11      |             |    |

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***APPENDIX B***

***Outline Consent Site Plan***



| KEY |                          |  |                 |
|-----|--------------------------|--|-----------------|
|     | Green Space              |  | Pavement        |
|     | LEAP Play Area           |  | Road            |
|     | Equipped Play Area       |  | Visitor Parking |
|     | Application Boundary     |  | Soft Landscape  |
|     | Site Boundaries          |  | Trees           |
|     | Proposed New Development |  |                 |
|     | Mews court               |  |                 |
|     | Parking courts           |  |                 |



Scale: 1:1250 @ A1

---

***APPENDIX C***  
***Scoping Correspondence***

## Mark Devenish

---

**From:** Moss, Stephen R <stephen.moss@aecom.com>  
**Sent:** 23 June 2017 15:30  
**To:** Mark Devenish  
**Cc:** Wilson , Barbara; Andrew Bradley  
**Subject:** RE: Thurnscoe Phase 2 - Highways inspection meeting request

Mark

Good afternoon and following a review of the above development on behalf of Barnsley MBC can you please obtain traffic count data at the following junctions to then allow these to be assessed in any future report:

- B6411 / Station Rd / Shepherd Ln / John St;
- B6411 Houghton Rd / School St;
- B6411 Houghton Rd / Lorne Rd / Merrill Rd;
- Barnsley road / Nicholas Ln / Highgate Ln staggered crossroads, and
- A635 / Barnsley Road roundabout.

Furthermore, given the operation of the local highway it would also be useful to understand the number of trips you would propose to send through the Cathill roundabout, so that we can take a view on the level of impact from this and other proposals.

Hope that the above is clear but please do not hesitate to contact me if you would like to discuss anything

Regards

**Stephen Moss**, BEng (Hons) CEng MICE MCIHT  
Associate Director, Transportation, Development Planning  
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M +44-(0)7827-859-068  
[stephen.moss@aecom.com](mailto:stephen.moss@aecom.com)

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T +44-(0)113-391-6800  
[aecom.com](http://aecom.com)

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---

**From:** Andrew Bradley [mailto:Andrew.Bradley@keepmoat.com]  
**Sent:** 20 June 2017 16:50  
**To:** Moss, Stephen R  
**Cc:** Wilson , Barbara; Mark Devenish  
**Subject:** RE: Thurnscoe Phase 2 - Highways inspection meeting request

Stephen

As discussed we will be proposing a total of 485 plots over the next phases as per the sketch layout. This is subject to change as we progress through planning.

If you could liaise directly with Mark Devenish at Sanderson's associates to agree your scoping I would most appreciate it.

---

***APPENDIX D***  
***Accident Records***

Details of Personal Injury Accidents for Period - 01/01/2012 to 31/12/2016 (60) months

## Selection:

Selected using Manual Selection

## Notes:

Mark Devenish - Sandersons

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

|                   |                                 |                               |       |     |                    |   |    |   |   |    |        |
|-------------------|---------------------------------|-------------------------------|-------|-----|--------------------|---|----|---|---|----|--------|
| <b>B-00883-12</b> | Friday                          | HOUGHTON ROAD THURNSCOE,      | Veh 1 | Car | Wait to turn right | W | to | E | F | 59 | Slight |
|                   | 28/09/2012                      | BARNSELEY 10 M NTH CHAPPEL ST | Veh 1 | Car | Wait to turn right | W | to | E | F | 53 | Slight |
| <b>R1: B 6411</b> | 2141hrs                         |                               | Veh 1 | Car | Wait to turn right | W | to | E | F | 80 | Slight |
| <b>R2: U</b>      | Darkness: street lights present |                               | Veh 1 | Car | Wait to turn right | W | to | E | F | 38 | Slight |
| <b>E 445,194</b>  | Dry                             |                               | Veh 1 | Car | Wait to turn right | W | to | E | F | 38 | Slight |
| <b>N 405,780</b>  | Fine without high winds         |                               | Veh 2 | Car | Going ahead        | E | to | W |   |    |        |
|                   | 30 mph                          |                               |       |     |                    |   |    |   |   |    |        |

## Causation Factor:

**1st:** Impaired by alcohol  
**2nd:** Careless/Reckless/In a hurry  
**3rd:** Aggressive driving  
**4th:** Inexperienced or learner driver/rider  
**5th:** Stolen vehicle  
**6th:** Vehicle in course of crime

## Participant:

Vehicle 2  
Vehicle 2  
Vehicle 2  
Vehicle 2  
Vehicle 2  
Vehicle 2

## Confidence:

Very Likely  
Very Likely  
Possible  
Possible  
Possible  
Possible

VEH 1 MCAR TV ON HOUGHTON RD 10 M NORTH CHAPPEL STREET. HEADING TWO THURNSCOE TURNING RT. VEH 2 MCAR TV IN OPP DIRC. VEH 1 TURNS RT INTO PATH VEH 1. VEH 2 COLL VEH 1.

|                   |                         |                           |       |              |             |   |    |   |     |   |           |
|-------------------|-------------------------|---------------------------|-------|--------------|-------------|---|----|---|-----|---|-----------|
| <b>B-00974-12</b> | Sunday                  | STATION RD, THURNSCOE     | Veh 1 | M/C > 125 cc | Starting    | W | to | E |     |   |           |
|                   | 28/10/2012              | BARNSELEY J/W JOHN STREET | Veh 2 | M/C < 50 cc  | Going ahead | W | to | E | Dri | M | 17 Slight |
| <b>R1: B 6411</b> | 1109hrs                 |                           |       |              |             |   |    |   |     |   |           |
| <b>R2: U</b>      |                         |                           |       |              |             |   |    |   |     |   |           |
| <b>E 445,775</b>  | Wet/Damp                |                           |       |              |             |   |    |   |     |   |           |
| <b>N 405,623</b>  | Fine without high winds |                           |       |              |             |   |    |   |     |   |           |
|                   | 30 mph                  |                           |       |              |             |   |    |   |     |   |           |

## Causation Factor:

**1st:** Failed to look properly  
**2nd:** Buildings, road signs, street furniture

## Participant:

Vehicle 1  
Vehicle 1

## Confidence:

Very Likely  
Possible

V1 HAS PULLED UP AT THE JUNCTION WHEN A BIKE ( V2 ) HAS COLLIDED WITH ITS REAR, THE RIDER OF V2 IS INJURED

|                   |                                |                            |       |              |                       |   |    |   |     |   |           |
|-------------------|--------------------------------|----------------------------|-------|--------------|-----------------------|---|----|---|-----|---|-----------|
| <b>133752</b>     | Wednesday                      | B 6411 HOUGHTON ROAD SOUTH | Veh 1 | Goods < 3.5t | Wait go ahead held up | E | to | W | Ped | F | 29 Slight |
|                   | 06/02/2013                     | YORKSHIRE                  |       |              |                       |   |    |   |     |   |           |
| <b>R1: B 6411</b> | 0925hrs                        |                            |       |              |                       |   |    |   |     |   |           |
|                   | Daylight:street lights present |                            |       |              |                       |   |    |   |     |   |           |
| <b>E 445,326</b>  | Dry                            |                            |       |              |                       |   |    |   |     |   |           |
| <b>N 405,752</b>  | Fine without high winds        |                            |       |              |                       |   |    |   |     |   |           |
|                   | 30 mph                         |                            |       |              |                       |   |    |   |     |   |           |

## Causation Factor:

**1st:** Vehicle travelling along pavement

## Participant:

Vehicle 1

## Confidence:

Possible

PEDESTRIAN STOOD ON PAAVEMENT AS V1 DRIVES ONTO PAVEMENT, MOUNTING KERB & CLIPPING PEDESTRIAN'S SHOULDER.

Details of Personal Injury Accidents for Period - 01/01/2012 to 31/12/2016 (60) months

Selection:

Selected using Manual Selection

Notes:

Mark Devenish - Sandersons

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

**B-00158-13** Tuesday STOTFOLD DRIVE THURNSCOE O/S Veh 1 Car Going ahead N to S Ped M 65 Slight  
16/04/2013 NO 23  
**R1: U** 2050hrs  
Darkness: street lights present  
**E 445,486** Dry  
**N 405,861** Unknown  
30 mph

Causation Factor:

**1st:** Careless/Reckless/In a hurry  
**2nd:** Nervous/Uncertain/Panic  
**3rd:** Aggressive driving  
**4th:** Failed to look properly

Participant:

Vehicle 1  
Vehicle 1  
Vehicle 1  
Vehicle 1

Confidence:

Possible  
Possible  
Possible  
Possible

CAS1 [PEDN] STANDING IN CARRIAGEWAY IN FRONT OF VEH1 TO PREVENT VEH1 LEAVING SCENE. VEH1 DRIVES OFF, FRONT OFFSIDE OF VEH STRIKING CAS1 CAUSING MINOR INJURIES.

**B-00151-13** Monday HOUGHTON RD THURNSCOE Veh 1 Car Stopping W to E  
22/04/2013 Veh 2 Car Wait go ahead held up W to E Dri F 29 Slight  
**R1: B 6411** 1855hrs  
Daylight:street lights present  
**E 445,373** Dry  
**N 405,754** Fine without high winds  
30 mph

Causation Factor:

**1st:** Failed to judge other persons path or speed  
**2nd:** Inexperienced or learner driver/rider

Participant:

Vehicle 1  
Vehicle 1

Confidence:

Very Likely  
Very Likely

VEH'S TR IN SAME DIRECTION, V2 BRAKED BUT V1 FAILED TO REACT IN TIME AND COLL WITH REAR OF V2.

**C-00631-13** Saturday HOUGHTON ROAD ROTHERHAM 10 Veh 1 Car Going ahead W to E Ped M 5 Slight  
10/08/2013 METRES KINGSWAY, THURNSCOE  
**R1: B 6411** 1818hrs  
**R2: U** Daylight:street lights present  
**E 445,366** Dry  
**N 405,755** Fine without high winds  
30 mph

Causation Factor:

**1st:** Failed to look properly  
**2nd:** Careless/Reckless/In a hurry

Participant:

Casualty 1  
Casualty 1

Confidence:

Very Likely  
Very Likely

A YOUNG LAD ( C1 ) WITH A SCOOTER HAS GONE ACROSS THE ZEBRA CROSSING WITHOUT LOOKING, V1 TRAVELLING THROUGH LIGHTS HAS BRAKED SHARPLY BUT THE CHILD WENT OVER THE BONNET

Details of Personal Injury Accidents for Period - 01/01/2012 to 31/12/2016 (60) months

**Selection:**

Selected using Manual Selection

**Notes:**

Mark Devenish - Sandersons

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

**B-00505-13** Sunday HOUGHTON RD THURNSCOPE J/W 25/08/2013 SCHOOL ST Veh 1 Car Going ahead NW to SE Ped F 10 Serious  
**R1: B 6411** 1100hrs  
**R2: U** Daylight:street lights present  
**E 445,660** Dry  
**N 405,681** Fine without high winds 30 mph

**Causation Factor:**

**1st:** Failed to look properly  
**2nd:** Careless/Reckless/In a hurry  
**3rd:** Failed to judge vehicles path or speed

**Participant:**

Casualty 1  
Casualty 1  
Casualty 1

**Confidence:**

Very Likely  
Possible

C001 RUNS INTO PATH OF V1 AND COLL WITH WINDSCREEN CAUSING HEAD INJURY

**B-00437-14** Tuesday LINGAMORE LEYS THURNSCOPE 13 29/04/2014 MTS WILLOW ROAD Veh 1 Car Going ahead NW to SE  
Veh 2 M/C < 125 cc Going ahead NW to SE Dri M 23 Slight  
**R1: U** 1740hrs  
**R2: U** Daylight:street lights present  
**E 445,634** Dry  
**N 406,158** Fine without high winds 30 mph

**Causation Factor:**

**1st:** Failed to look properly

**Participant:**

Vehicle 2

**Confidence:**

Very Likely

VEH1 TV FROM MERRILL RD TURNED LT INTO LINGAMORE LEYS. DRIVER INDICATED AND BEGAN TO OVTK M/CYCLE2. RIDER SWAYED INTO PATH OF VEH1 AND COLL OCCURRED.

**B-00874-14** Thursday HOUGHTON ROAD THURNSCOPE 04/09/2014 5MTRS KINGSWAY Veh 1 Car Reversing SW to NE Ped M 8 Slight  
**R1: B 6411** 1530hrs  
**R2: U** Daylight:street lights present  
**E 445,358** Dry  
**N 405,755** Fine without high winds 30 mph

**Causation Factor:**

**1st:** Failed to look properly  
**2nd:** Failed to look properly  
**3rd:** Failed to judge vehicles path or speed

**Participant:**

Vehicle 1  
Casualty 1  
Casualty 1

**Confidence:**

Very Likely  
Very Likely

VEH1 PULLING OUT OF PARKING SPACE INTO HOUGHTON RD DRIVES OVER PED FOOT.

Details of Personal Injury Accidents for Period - 01/01/2012 to 31/12/2016 (60) months

Selection:

Selected using Manual Selection

Notes:

Mark Devenish - Sandersons

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

**B-00876-14** Wednesday 17/09/2014 KINGSWAY THURNSCOE J/W HOUGHTON ROAD  
**R1: U** 1750hrs  
**R2: B 6411** Daylight:street lights present  
**E 445,375** Dry  
**N 405,747** Fine without high winds 30 mph

Veh 1 Car Going ahead S to N  
Veh 2 Pedal cycle Going ahead W to E Dri F 7 Slight

Causation Factor:

**1st:** Failed to look properly  
**2nd:** Careless/Reckless/In a hurry

Participant:

Casualty 1  
Casualty 1

Confidence:

Very Likely  
Possible

VH1 M/CAR TRV NB ON KINGSWAY WHEN CHILD ON VH2 PED CYC RODE INTO PATH OF VEH1 TRV EB AND COLL OCC.

**B-01276-14** Tuesday 23/12/2014 JOHN STREET THURNSCOE J/W HOUGHTON ROAD  
**R1: U** 1525hrs  
**R2: U** Daylight:street lights present  
**E 445,778** Dry  
**N 405,627** Fine without high winds 30 mph

Veh 1 Car Going ahead S to N  
Veh 2 Going ahead E to W Dri F 82 Slight

Causation Factor:

**1st:** Failed to look properly  
**2nd:** Failed to look properly

Participant:

Vehicle 1  
Vehicle 2

Confidence:

Possible  
Possible

VH1 M/CAR TRV FRM SHEPHERD LN ONTO MINI RNDABT & EXITS ONTO JOHN ST THEN COLL MOBILITY SCOOTER CROSSING JOHN ST WB

**B-00053-15** Sunday 18/01/2015 HOUGHTON ROAD THURNSCOE 12 MTS CHAPEL STREET  
**R1: B 6411** 1330hrs  
**R2: U** Daylight:street lights present  
**E 445,245** Dry  
**N 405,771** Unknown 30 mph

Veh 1 Car Reversing E to W Ped F 21 Slight

PEDESTRIAN WAS CROSSING HOUGHTON RD NEAR TO SHOPS. V1 WAS REVERSING BUT THEN BRAKED. PEDESTRIAN SAW THIS SC CARRIED ON WALKING. V1 THEN STARTED TO REVERSE AT SPEED & COLLIDED WITH THE PEDESTRIAN. V1 FAILED TO STOP AT SCENE.

Details of Personal Injury Accidents for Period - 01/01/2012 to 31/12/2016 (60) months

Selection:

Selected using Manual Selection

Notes:

Mark Devenish - Sandersons

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

**B-00088-15** Tuesday MERRILL ROAD THURNSCOE J/W Beechlea Veh 1 M/C < 125 cc Stopping E to W Ped M 7 Serious  
27/01/2015  
**R1: U** 1900hrs  
**R2: U** Darkness: street lights present  
**E 445,354** Dry  
**N 406,171** Fine without high winds  
30 mph

Causation Factor:

**1st:** Failed to look properly

**2nd:** Crossed road masked by stationary veh

PEDN RUNS AROUND FRONT OF PARKED VEH INTO RD AND COLL OCCURS WITH VEH1.

Participant:

Casualty 1

Casualty 1

Confidence:

Very Likely

Possible

**C-00141-15** Friday LOW GRANGE ROAD THURNSCOE 25 Veh 1 Car Going ahead RH bend N to W Ped M 67 Slight  
30/01/2015 MTS LOW GRANGE ROAD  
**R1: U** 2315hrs  
Darkness: street lights present  
**E 445,392** Wet/Damp  
**N 405,814** Raining without high winds  
30 mph

Causation Factor:

**1st:** Failed to look properly

**2nd:** Impaired by alcohol

**3rd:** Careless/Reckless/In a hurry

**4th:** Pedestrian wearing dark clothing at night

**5th:** Disability or illness, mental or physical

**6th:** Road layout (eg bend, hill crest)

A PEDESTRIAN ( C1 ) IN DRINK HAS FALLEN INTO THE PATH OF ONCOMING V1

Participant:

Casualty 1

Casualty 1

Casualty 1

Casualty 1

Casualty 1

Vehicle 1

Confidence:

Very Likely

Very Likely

Possible

Possible

Possible

Possible

**B-00244-15** Thursday HOUGHTON ROAD THURNSCOE 14 Veh 1 Starting S to N Ped M 42 Slight  
05/03/2015 MTS CHAPEL STREET Veh 1 Starting S to N Ped F 20 Slight  
**R1: B 6411** 1610hrs Veh 2 Car Parked 0 to 0  
**R2: U** Daylight:street lights present  
**E 445,245** Dry  
**N 405,769** Fine without high winds  
30 mph

Causation Factor:

**1st:** Aggressive driving

**2nd:** Vehicle in course of crime

2 PCSO'S CAS 1 & 2 SEE UNREGISTERED QUAD BIKE VEH1 ON PAVEMENT WITH ENGINE RUNNING. RIDER EXITS FROM SHOP AND STARTS TO RIDE OFF. PCSO'S ATTEMPT TO PREVENT SAME AND ARE PULLED TO THE GROUND. VEH1 THEN COLLIDES WITH PARKED VEH2 BEFORE LEAVING SCENE

Participant:

Vehicle 1

Vehicle 1

Confidence:

Very Likely

Very Likely

Details of Personal Injury Accidents for Period - 01/01/2012 to 31/12/2016 (60) months

Selection:

Selected using Manual Selection

Notes:

Mark Devenish - Sandersons

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

**B-01000-15** Friday HOUGHTON ROAD THURNSCOE Veh 1 Car Going ahead W to E RSP M 4 Slight  
 30/10/2015 Veh 2 Car Going ahead E to W  
**R1: B 6411** 1400hrs  
 Daylight:street lights present  
**E 445,411** Dry  
**N 405,753** Fine without high winds  
 30 mph

Causation Factor:

Participant:

Confidence:

1st: Failed to look properly

Vehicle 2

Possible

VEH1 TV HOUGHTON RD. VEH2 TV IN OPP DIRC WHEN COLL OCCURRED.

**1679704** Sunday STATION ROAD (B6411) BARNSELEY Veh 1 M/C > 500 cc Turning right W to S Dri M 59 Slight  
 05/06/2016 AT OR WITHIN 20 MTS OF SHEPHERD Lane Veh 2 Car Going ahead E to W Dri F 41 Slight  
**R1: B 6411** 1735hrs  
**R2: U** Daylight:street lights present  
**E 445,780** Dry  
**N 405,611** Fine without high winds  
 30 mph

Causation Factor:

Participant:

Confidence:

1st: Failed to look properly

Vehicle 2

Possible

V1 HAS BEEN TRAVELLING ON HOUGHTON ROAD AND HAS COME TO A MINI ROUNDABOUT. V1 HAS ENTERED THE ROUNDABOUT INTENDING TO TURN RIGHT ONTO SHEPHERD LANE, V2 HAS ENTERED THE ROUND ABOUT FROM STATION ROAD AND COLLIDED WITH V1 CAUSING THE RIDER TO COME OFF.

**1682899** Saturday STATION ROAD (B6411) BARNSELEY Veh 1 Car Wait to turn right W to S Dri M 77 Slight  
 02/07/2016 AT OR WITHIN 20 MTS OF SHEPHERD Lane Veh 2 Goods < 3.5t Going ahead W to E  
**R1: B 6411** 2015hrs  
**R2: U** Daylight:street lights present  
**E 445,781** Dry  
**N 405,615** Fine without high winds  
 30 mph

Causation Factor:

Participant:

Confidence:

1st: Failed to look properly

Vehicle 2

Possible

V1 STAT AT ROUNDABOUT INTENDING TO TURN RIGHT FROM HOUGHTON ROAD ONTO NICHOLAS LANE. V2 COLL INTO REAR OF V1 AND FTS.

Details of Personal Injury Accidents for Period - 01/01/2012 to 31/12/2016 (60) months

**Selection:**

Selected using Manual Selection

**Notes:**

Mark Devenish - Sandersons

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

**16118125** Friday SCHOOL STREET BARNSELEY AT OR Veh 1 Car Turning right SW to SE Dri F 52 Slight  
14/10/2016 WITHIN 20 MTS OF OAK ROAD Veh 2 Car O/take m/veh o/side SW to NE  
**R1: U** 1220hrs  
**R2: U** Daylight:street lights present  
**E 445,728** Dry  
**N 405,974** Fine without high winds  
30 mph

**Causation Factor:**

**1st:** Failed to signal/Misleading signal  
**2nd:** Poor turn or manoeuvre  
**3rd:** Following too close

**Participant:**

Vehicle 1  
Vehicle 1  
Vehicle 2

**Confidence:**

Possible  
Possible

V1 TURNING RIGHT. V2 OVERTAKES V1 COLL OCCURS

**16126198** Saturday SCHOOL STREET BARNSELEY Veh 1 Goods < 3.5t Parked 0 to 0  
22/10/2016 Veh 2 Car Going ahead N to S Dri M 51 Slight  
**R1: U** 1428hrs Veh 3 Car Going ahead S to N  
Daylight:street lights present  
**E 445,677** Dry  
**N 405,726** Fine without high winds  
30 mph

**Causation Factor:**

**1st:** Other

**Participant:**

Vehicle 3

**Confidence:**

Possible

V3 TURNS RIGHT FROM HOUGHTON ROAD ONTO SCHOOL STREET LOSES CONTROL AND COLL WITH V1 WHICH WAS PARKED FACING HOUGHTON ROAD. V3 FTS AND TURNS INTO A GENNEL THAT LINKS WITH GARDEN STREET AND COLL WITH V2 WHICH WAS TRAVELLING DOWN GARDEN STREET.

**16128395** Monday MERRILL ROAD BARNSELEY Veh 1 Car O/take s/veh o/side E to W Ped M 12 Serious  
07/11/2016  
**R1: U** 1510hrs  
Daylight:street lights present  
**E 445,438** Dry  
**N 406,184** Fine without high winds  
30 mph

**Causation Factor:**

**1st:** Failed to look properly  
**2nd:** Crossed road masked by stationary veh

**Participant:**

Casualty 1  
Casualty 1

**Confidence:**

Very Likely  
Very Likely

V1 HAS BEEN TRAVELLING ALONG MERRILL RD THURNSCOE, WHEN A BUS IN FRONT HAS PULLED UP AT THE BUS STOP ON THE LEFT. HE HAS BEGUN TO OVERTAKE THE BUS, WHEN HE HAS BECAME PARALLEL WITH THE FRONT AND THE CHILD HAS RAN OU IN FRONT OF THE BUS AND INTO THE SID E OF V1

Details of Personal Injury Accidents for Period - 01/01/2012 to 31/12/2016 (60) months

**Selection:**

Selected using Manual Selection

**Notes:**

Mark Devenish - Sandersons

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

**16129676** Tuesday SHEPHERD LANE BARNSELEY Veh 1 M/C < 125 cc Going ahead NE to SW Dri M 26 Serious  
08/11/2016 Veh 1 M/C < 125 cc Going ahead NE to SW Ped M 55 Serious  
**R1: U** 1410hrs  
Daylight:street lights present  
**E 445,755** Dry  
**N 405,570** Fine without high winds  
30 mph

**Causation Factor:**

**1st:** Failed to judge other persons path or speed  
**2nd:** Stationary or parked vehicle  
**3rd:** Failed to look properly

CAS001 STEPS INTO ROAD INTO PATH OF V1

**Participant:**

Vehicle 1  
Vehicle 1  
Casualty 2

**Confidence:**

Possible  
Very Likely

**16144729** Tuesday HOUGHTON ROAD (B6411) Veh 1 Car Going ahead NW to SE Ped F 14 Serious  
20/12/2016 BARNSELEY AT OR WITHIN 20 MTS  
**R1: B 6411** 1106hrs OF SCHOOL STREET  
**R2: U** Daylight:street lights present  
**E 445,659** Dry  
**N 405,683** Fine without high winds  
30 mph

**Causation Factor:**

**1st:** Failed to look properly  
**2nd:** Careless/Reckless/In a hurry  
**3rd:** Failed to judge vehicles path or speed

VEH TRAVELLING HOUGHTON ROAD TOWARDS SHEPHERD LANE WHEN PEDN RUNS FROM NEAR SIDE AND A COLL OCCURRED.

**Participant:**

Casualty 1  
Casualty 1  
Casualty 1

**Confidence:**

Very Likely  
Possible

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-00883-12 28/09/2012 Friday Time: 2141 Vehicles 2 Casualties 5 Slight

Easting: 445,194 Northing: 405,780

Fine without high winds Road Surface: Dry Darkness: street lights present and lit

Road Type: Single carriageway Speed Limit: 30

Location: HOUGHTON ROAD THURNSCOE, BARNSLEY 10 M NTH CHAPPEL ST

Description: VEH 1 MCAR TV ON HOUGHTON RD 10 M NORTH CHAPPEL STREET. HEADING TWO THURNSCOE TURNING RT. VEH 2 MCAR TV IN OPP DIRC. VEH 1 TURNS RT INTO PATH VEH 1. VEH 2 COLL VEH 1.

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

Vehicle Reference: 1 Car Waiting to turn right

First point of impact: Front

Vehicle direction: W to E

Journey: Not known

Age of Driver : 38

Breath test: Negative

Contributory Factors : 501 602 601 605 901 902

Casualty Reference: 1 Age: 38 Female Driver/rider Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Casualty Reference: 2 Age: 59 Female Passenger Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Casualty Reference: 3 Age: 53 Female Passenger Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Casualty Reference: 4 Age: 80 Female Passenger Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Casualty Reference: 5 Age: 38 Female Passenger Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Vehicle Reference: 2 Car Going ahead

First point of impact: Offside

Vehicle direction: E to W

Journey: Not known

Age of Driver :

Breath test: Driver not contacted

Contributory Factors : 501 602 601 605 901 902

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-00974-12 28/10/2012 Sunday Time: 1109 Vehicles 2 Casualties 1 Slight  
Easting: 445,775 Northing: 405,623  
Fine without high winds Road Surface: Wet/Damp Daylight: street lights present  
Road Type: Roundabout Speed Limit: 30

Location: STATION RD, THURNSCOE BARNSELY J/W JOHN STREET

Description: V1 HAS PULLED UP AT THE JUNCTION WHEN A BIKE ( V2 ) HAS COLLIDED WITH ITS REAR, THE RIDER OF V2 IS INJURED

Vehicle Reference: 1 Motorcycle over 125cc and up Moving off

First point of impact: Offside

Vehicle direction: W to E

Journey: Not known

Age of Driver : 53

Breath test: Not requested

Contributory Factors : 405 704

Vehicle Reference: 2 Motorcycle 50cc and under Going ahead

First point of impact: Front

Vehicle direction: W to E

Journey: Not known

Age of Driver : 17

Breath test: Not requested

Contributory Factors : 405 704

Casualty Reference: 1 Age: 17 Male Driver/rider Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

133752 06/02/2013 Wednesda Time: 0925 Vehicles 1 Casualties 1 Slight  
Easting: 445,326 Northing: 405,752  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: B 6411 HOUGHTON ROAD SOUTH YORKSHIRE

Description: PEDESTRIAN STOOD ON PAAVEMENT AS V1 DRIVES ONTO PAVEMENT,  
MOUNTING KERB & CLIPPING PEDESTRIAN'S SHOULDER.

Vehicle Reference: 1 Van or Goods &lt;= 3.5 tonnes Waiting to go ahead but held up

First point of impact: Front

Vehicle direction: E to W

Journey: Journey as part of work

Age of Driver :

Breath test:

Contributory Factors : 309

Casualty Reference: 1 Age: 29 Female Pedestrian Severity: Slight

Ped Dir: Ped Movement : Movement U/K

Ped Location: On footpath / verge

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-00158-13 16/04/2013 Tuesday Time: 2050 Vehicles 1 Casualties 1 Slight  
Easting: 445,486 Northing: 405,861  
Unknown Road Surface: Dry Darkness: street lights present and lit  
Road Type: Single carriageway Speed Limit: 30

Location: STOTFOLD DRIVE THURNSCOE O/S NO 23

Description: CAS1 [PEDN] STANDING IN CARRIAGEWAY IN FRONT OF VEH1 TO PREVENT  
VEH1 LEAVING SCENE. VEH1 DRIVES OFF, FRONT OFFSIDE OF VEH STRIKING  
CAS1 CAUSING MINOR INJURIES.

Vehicle Reference: 1 Car

Going ahead

First point of impact: Front

Vehicle direction: N to S

Journey: Not known

Age of Driver : 29

Breath test: Driver not contacted

Contributory Factors : 602 603 601 405

Casualty Reference: 1 Age: 65 Male Pedestrian Severity: Slight

Ped Dir: Ped Movement : In carr not crossing

Ped Location: In carr not crossing

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-00151-13 22/04/2013 Monday Time: 1855 Vehicles 2 Casualties 1 Slight  
Easting: 445,373 Northing: 405,754  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: HOUGHTON RD THURNSCOE

Description: VEH'S TR IN SAME DIRECTION, V2 BRAKED BUT V1 FAILED TO REACT IN TIME  
AND COLL WITH REAR OF V2.

Vehicle Reference: 1 Car

Slowing or Stopping

First point of impact: Front

Vehicle direction: W to E

Journey: Pupil riding to/from school

Age of Driver : 21

Breath test: Not requested

Contributory Factors : 406 605

Vehicle Reference: 2 Car

Waiting to go ahead but held up

First point of impact: Back

Vehicle direction: W to E

Journey: Not known

Age of Driver : 29

Breath test: Not requested

Contributory Factors : 406 605

Casualty Reference: 1 Age: 29 Female Driver/rider Severity: Slight

Ped Dir:

Ped Movement :

Ped Location:

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

C-00631-13 10/08/2013 Saturday Time: 1818 Vehicles 1 Casualties 1 Slight  
Easting: 445,366 Northing: 405,755  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: HOUGHTON ROAD ROTHERHAM 10 METRES KINGSWAY, THURNSCOE  
Description: A YOUNG LAD ( C1 ) WITH A SCOOTER HAS GONE ACROSS THE ZEBRA  
CROSSING WITHOUT LOOKING, V1 TRAVELLING THROUGH LIGHTS HAS BRAKED  
SHARPLY BUT THE CHILD WENT OVER THE BONNET

Vehicle Reference: 1 Car Going ahead  
First point of impact: Front  
Vehicle direction: W to E Journey: Not known  
Age of Driver : 24 Breath test: Not requested

Contributory Factors : 802 808

Casualty Reference: 1 Age: 5 Male Pedestrian Severity: Slight

Ped Dir: Pedestrian Ped Movement : Driver's nearside

Ped Location: On Ped Crossing

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-00505-13 25/08/2013 Sunday Time: 1100 Vehicles 1 Casualties 1 Serious  
Easting: 445,660 Northing: 405,681  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: HOUGHTON RD THURNSCOE J/W SCHOOL ST

Description: C001 RUNS INTO PATH OF V1 AND COLL WITH WINDSCREEN CAUSING HEAD INJURY

Vehicle Reference: 1 Car

Going ahead

First point of impact: Front

Vehicle direction: NW to SE

Journey: Not known

Age of Driver : 71

Breath test: Negative

Contributory Factors : 802 808 803

Casualty Reference: 1 Age: 10 Female Pedestrian

Severity: Serious

Ped Dir: Pedestrian Ped Movement : Driver's nearside

Ped Location: In car elsewhere

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-00437-14 29/04/2014 Tuesday Time: 1740 Vehicles 2 Casualties 1 Slight  
Easting: 445,634 Northing: 406,158  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: LINGAMORE LEYS THURNSCOE 13 MTS WILLOW ROAD

Description: VEH1 TV FROM MERRILL RD TURNED LT INTO LINGAMORE LEYS. DRIVER  
INDICATED AND BEGAN TO OVTK M/CYCLE2. RIDER SWAYED INTO PATH OF  
VEH1 AND COLL OCCURRED.

Vehicle Reference: 1 Car Going ahead  
First point of impact: Nearside  
Vehicle direction: NW to SE Journey: Other  
Age of Driver : 31 Breath test: Not requested

Contributory Factors : 405

Vehicle Reference: 2 Motorcycle over 50cc and up Going ahead  
First point of impact: Offside  
Vehicle direction: NW to SE Journey: Other  
Age of Driver : 23 Breath test: Not requested

Contributory Factors : 405

Casualty Reference: 1 Age: 23 Male Driver/rider Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

## AccsMap - Accident Analysis System

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-00874-14 04/09/2014 Thursday Time: 1530 Vehicles 1 Casualties 1 Slight  
Easting: 445,358 Northing: 405,755  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: HOUGHTON ROAD THURNSCOE 5MTRS KINGSWAY

Description: VEH1 PULLING OUT OF PARKING SPACE INTO HOUGHTON RD DRIVES OVER PED FOOT.

Vehicle Reference: 1 Car

Reversing

First point of impact: Back

Vehicle direction: SW to NE

Journey: Other

Age of Driver :

Breath test: Driver not contacted

Contributory Factors : 405 802 803

Casualty Reference: 1 Age: 8 Male Pedestrian Severity: Slight

Ped Dir: Pedestrian Ped Movement : In carr not crossing

Ped Location: On footpath / verge

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-00876-14 17/09/2014 Wednesda Time: 1750 Vehicles 2 Casualties 1 Slight  
Easting: 445,375 Northing: 405,747  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: KINGSWAY THURNSCOE J/W HOUGHTON ROAD

Description: VH1 M/CAR TRV NB ON KINGSWAY WHEN CHILD ON VH2 PED CYC RODE INTO  
PATH OF VEH1 TRV EB AND COLL OCC.

Vehicle Reference: 1 Car Going ahead  
First point of impact: Front  
Vehicle direction: S to N Journey: Other  
Age of Driver : 28 Breath test: Driver not contacted  
Contributory Factors : 802 808

Vehicle Reference: 2 Pedal cycle Going ahead  
First point of impact: Nearside  
Vehicle direction: W to E Journey: Other  
Age of Driver : 7 Breath test: Driver not contacted  
Contributory Factors : 802 808

Casualty Reference: 1 Age: 7 Female Driver/rider Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-01276-14 23/12/2014 Tuesday Time: 1525 Vehicles 2 Casualties 1 Slight  
Easting: 445,778 Northing: 405,627  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: JOHN STREET THURNSCOE J/W HOUGHTON ROAD

Description: VH1 M/CAR TRV FRM SHEPHERD LN ONTO MINI RNDABT & EXITS ONTO JOHN ST  
THEN COLL MOBILITY SCOOTER CROSSING JOHN ST WB

Vehicle Reference: 1 Car

Going ahead

First point of impact: Front

Vehicle direction: S to N

Journey: Other

Age of Driver : 25

Breath test: Not requested

Contributory Factors : 405 405

Vehicle Reference: 2 Mobility Scooter

Going ahead

First point of impact: Nearside

Vehicle direction: E to W

Journey: Other

Age of Driver : 82

Breath test: Not requested

Contributory Factors : 405 405

Casualty Reference: 1 Age: 82 Female Driver/rider Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-00053-15 18/01/2015 Sunday Time: 1330 Vehicles 1 Casualties 1 Slight  
Easting: 445,245 Northing: 405,771  
Unknown Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: HOUGHTON ROAD THURNSCOE 12 MTS CHAPEL STREET

Description: PEDESTRIAN WAS CROSSING HOUGHTON RD NEAR TO SHOPS. V1 WAS  
REVERSING BUT THEN BRAKED. PEDESTRIAN SAW THIS SO CARRIED ON  
WALKING. V1 THEN STARTED TO REVERSE AT SPEED & COLLIDED WITH THE  
PEDESTRIAN. V1 FAILED TO STOP AT SCENE.

Vehicle Reference: 1 Car

Reversing

First point of impact: Back

Vehicle direction: E to W

Journey: Other

Age of Driver :

Breath test: Driver not contacted

Contributory Factors :

Casualty Reference: 1 Age: 21 Female Pedestrian Severity: Slight

Ped Dir: Pedestrian Ped Movement : Driver's nearside masked

Ped Location: In carr elsewhere

## AccsMap - Accident Analysis System

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-00088-15 27/01/2015 Tuesday Time: 1900 Vehicles 1 Casualties 1 Serious

Easting: 445,354 Northing: 406,171

Fine without high winds Road Surface: Dry Darkness: street lights present and lit

Road Type: Single carriageway Speed Limit: 30

Location: MERRILL ROAD THURNSCOE J/W BEECHLEA

Description: PEDN RUNS AROUND FRONT OF PARKED VEH INTO RD AND COLL OCCURS WITH VEH1.

Vehicle Reference: 1 Motorcycle over 50cc and up Slowing or Stopping

First point of impact: Front

Vehicle direction: E to W

Journey: Other

Age of Driver : 18

Breath test: Negative

Contributory Factors : 802 801

Casualty Reference: 1 Age: 7 Male Pedestrian Severity: Serious

Ped Dir: Pedestrian Ped Movement : Driver's nearside masked

Ped Location: In carr elsewhere

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Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

C-00141-15 30/01/2015 Friday Time: 2315 Vehicles 1 Casualties 1 Slight

Easting: 445,392 Northing: 405,814

Raining without high winds Road Surface: Wet/Damp Darkness: street lights present and lit

Road Type: Single carriageway Speed Limit: 30

Location: LOW GRANGE ROAD THURNSCOE 25 MTS LOW GRANGE ROAD

Description: A PEDESTRIAN ( C1 ) IN DRINK HAS FALLEN INTO THE PATH OF ONCOMING V1

Vehicle Reference: 1 Car Going ahead right hand bend

First point of impact: Offside

Vehicle direction: N to W

Journey: Other

Age of Driver : 61

Breath test: Not requested

Contributory Factors : 802 806 808 809 810 703

Casualty Reference: 1 Age: 67 Male Pedestrian Severity: Slight

Ped Dir: Pedestrian Ped Movement : Movement U/K

Ped Location: On footpath / verge

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-00244-15 05/03/2015 Thursday Time: 1610 Vehicles 2 Casualties 2 Slight  
Easting: 445,245 Northing: 405,769  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: HOUGHTON ROAD THURNSCOE 14 MTS CHAPEL STREET

Description: 2 PCSO'S CAS 1 & 2 SEE UNREGISTERED QUAD BIKE VEH1 ON PAVEMENT WITH  
ENGINE RUNNING. RIDER EXITS FROM SHOP AND STARTS TO RIDE OFF. PCSO'S  
ATTEMPT TO PREVENT SAME AND ARE PULLED TO THE GROUND. VEH1 THEN  
COLLIDES WITH PARKED VEH2 BEFORE LEAVING SCENE

Vehicle Reference: 1 Other Vehicle

Moving off

First point of impact: Front

Vehicle direction: S to N

Journey: Other

Age of Driver :

Breath test: Driver not contacted

Contributory Factors : 601 902

Casualty Reference: 1 Age: 20 Female Pedestrian

Severity: Slight

Ped Dir: Pedestrian Ped Movement : Movement U/K

Ped Location: On footpath / verge

Casualty Reference: 2 Age: 42 Male Pedestrian

Severity: Slight

Ped Dir: Pedestrian Ped Movement : Movement U/K

Ped Location: On footpath / verge

Vehicle Reference: 2 Car

Parked

First point of impact: Back

Vehicle direction: Parked to Parked

Journey: Other

Age of Driver : 70

Breath test: Not requested

Contributory Factors : 601 902

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

B-01000-15 30/10/2015 Friday Time: 1400 Vehicles 2 Casualties 1 Slight  
Easting: 445,411 Northing: 405,753  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: HOUGHTON ROAD THURNSCOE

Description: VEH1 TV HOUGHTON RD. VEH2 TV IN OPP DIRC WHEN COLL OCCURRED.

Vehicle Reference: 1 Car Going ahead  
First point of impact: Offside  
Vehicle direction: W to E Journey: Other  
Age of Driver : 27 Breath test: Not requested

Contributory Factors : 405

Casualty Reference: 1 Age: 4 Male Passenger Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Vehicle Reference: 2 Car Going ahead  
First point of impact: Offside  
Vehicle direction: E to W Journey: Other  
Age of Driver : 78 Breath test: Not requested

Contributory Factors : 405

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

1679704 05/06/2016 Sunday Time: 1735 Vehicles 2 Casualties 2 Slight  
Easting: 445,780 Northing: 405,611  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Roundabout Speed Limit: 30

Location: STATION ROAD (B6411) BARNSELY AT OR WITHIN 20 MTS OF SHEPHERD LANE  
Description: V1 HAS BEEN TRAVELLING ON HOUGHTON ROAD AND HAS COME TO A MINI  
ROUNDAABOUT. V1 HAS ENTERED THE ROUNDAABOUT INTENDING TO TURN  
RIGHT ONTO SHEPHERD LANE, V2 HAS ENTERED THE ROUND ABOUT FROM  
STATION ROAD AND COLLIDED WITH V1 CAUSING THE RIDER TO COME OFF.

Vehicle Reference: 1 Motorcycle over 500cc Turning right  
First point of impact: Nearside  
Vehicle direction: W to S Journey: Not known  
Age of Driver : 59 Breath test: Not provided (medical)

Contributory Factors : 405

Casualty Reference: 1 Age: 59 Male Driver/rider Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Vehicle Reference: 2 Car Going ahead  
First point of impact: Front  
Vehicle direction: E to W Journey: Not known  
Age of Driver : 41 Breath test: Not provided (medical)

Contributory Factors : 405

Casualty Reference: 2 Age: 41 Female Driver/rider Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

1682899 02/07/2016 Saturday Time: 2015 Vehicles 2 Casualties 1 Slight  
Easting: 445,781 Northing: 405,615  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Roundabout Speed Limit: 30

Location: STATION ROAD (B6411) BARNSELY AT OR WITHIN 20 MTS OF SHEPHERD LANE  
Description: V1 STAT AT ROUNDABOUT INTENDING TO TURN RIGHT FROM HOUGHTON ROAD  
ONTO NICHOLAS LANE. V2 COLL INTO REAR OF V1 AND FTS.

Vehicle Reference: 1 Car Waiting to turn right  
First point of impact: Back  
Vehicle direction: W to S Journey: Not known  
Age of Driver : 77 Breath test: Driver not contacted  
Contributory Factors : 405

Casualty Reference: 1 Age: 77 Male Driver/rider Severity: Slight

Ped Dir: Ped Movement :  
Ped Location:

Vehicle Reference: 2 Van or Goods <= 3.5 tonnes Going ahead  
First point of impact: Front  
Vehicle direction: W to E Journey: Not known  
Age of Driver : Breath test: Driver not contacted  
Contributory Factors : 405

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Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

16118125 14/10/2016 Friday Time: 1220 Vehicles 2 Casualties 1 Slight  
Easting: 445,728 Northing: 405,974  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: SCHOOL STREET BARNSELY AT OR WITHIN 20 MTS OF OAK ROAD

Description: V1 TURNING RIGHT. V2 OVERTAKES V1 COLL OCCURS

Vehicle Reference: 1 Car Turning right  
First point of impact: Front  
Vehicle direction: SW to SE Journey: Other  
Age of Driver : 52 Breath test: Driver not contacted

Contributory Factors : 404 403 308

Casualty Reference: 1 Age: 52 Female Driver/rider Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Vehicle Reference: 2 Car Overtaking moving vehicle on its offside  
First point of impact: Front  
Vehicle direction: SW to NE Journey: Other  
Age of Driver : 23 Breath test: Negative

Contributory Factors : 404 403 308

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

16126198 22/10/2016 Saturday Time: 1428 Vehicles 3 Casualties 1 Slight  
Easting: 445,677 Northing: 405,726  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: SCHOOL STREET BARNSELY

Description: V3 TURNS RIGHT FROM HOUGHTON ROAD ONTO SCHOOL STREET LOSES  
CONTROL AND COLL WITH V1 WHICH WAS PARKED FACING HOUGHTON ROAD.  
V3 FTS AND TURNS INTO A GENNEL THAT LINKS WITH GARDEN STREET AND  
COLL WITH V2 WHICH WAS TRAVELLING DOWN GARDEN STREET.

Vehicle Reference: 1 Van or Goods &lt;= 3.5 tonnes Parked

First point of impact: Front

Vehicle direction: Parked to Parked

Journey: Other

Age of Driver : 43

Breath test: Not requested

Contributory Factors : 999

Vehicle Reference: 2 Car

Going ahead

First point of impact: Front

Vehicle direction: N to S

Journey: Other

Age of Driver : 51

Breath test: Not requested

Contributory Factors : 999

Casualty Reference: 1 Age: 51 Male Driver/rider Severity: Slight

Ped Dir: Ped Movement :

Ped Location:

Vehicle Reference: 3 Car

Going ahead

First point of impact: Offside

Vehicle direction: S to N

Journey: Not known

Age of Driver :

Breath test: Driver not contacted

Contributory Factors : 999

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

16128395 07/11/2016 Monday Time: 1510 Vehicles 1 Casualties 1 Serious  
Easting: 445,438 Northing: 406,184  
Fine without high winds Road Surface: Dry Daylight  
Road Type: Single carriageway Speed Limit: 30

Location: MERRILL ROAD BARNSELY

Description: V1 HAS BEEN TRAVELLING ALONG MERRILL RD THURNSCOE, WHEN A BUS IN  
FRONT HAS PULLED UP AT THE BUS STOP ON THE LEFT. HE HAS BEGUN TO  
OVERTAKE THE BUS, WHEN HE HAS BECOME PARALLEL WITH THE FRONT AND  
THE CHILD HAS RAN OUT IN FRONT OF THE BUS AND INTO THE SID  
E OF V1

Vehicle Reference: 1 Car Overtaking stationary vehicle on its offside  
First point of impact: Nearside  
Vehicle direction: E to W Journey: Other  
Age of Driver : 30 Breath test: Driver not contacted

Contributory Factors : 802 801

Casualty Reference: 1 Age: 12 Male Pedestrian Severity: Serious

Ped Dir: Pedestrian Ped Movement : Driver's nearside masked

Ped Location: In carr elsewhere

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

16129676 08/11/2016 Tuesday Time: 1410 Vehicles 1 Casualties 2 Serious

Easting: 445,755 Northing: 405,570

Fine without high winds Road Surface: Dry Daylight

Road Type: Single carriageway Speed Limit: 30

Location: SHEPHERD LANE BARNSELY

Description: CAS001 STEPS INTO ROAD INTO PATH OF V1

Vehicle Reference: 1 Motorcycle over 50cc and up Going ahead

First point of impact: Front

Vehicle direction: NE to SW

Journey: Other

Age of Driver : 26

Breath test: Driver not contacted

Contributory Factors : 406 701 802

Casualty Reference: 1 Age: 26 Male Driver/rider Severity: Serious

Ped Dir: Ped Movement :

Ped Location:

Casualty Reference: 2 Age: 55 Male Pedestrian Severity: Serious

Ped Dir: Pedestrian Ped Movement : Driver's nearside

Ped Location: In carr elsewhere

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Notes:

Selected using Manual Selection

Mark Devenish - Sandersons

16144729 20/12/2016 Tuesday Time: 1106 Vehicles 1 Casualties 1 Serious  
 Easting: 445,659 Northing: 405,683  
 Fine without high winds Road Surface: Dry Daylight  
 Road Type: Single carriageway Speed Limit: 30

Location: HOUGHTON ROAD (B6411) BARNSELY AT OR WITHIN 20 MTS OF SCHOOL STREET

Description: VEH TRAVELLING HOUGHTON ROAD TOWARDS SHEPHERD LANE WHEN PEDN RUNS FROM NEAR SIDE AND A COLL OCCURRED.

Vehicle Reference: 1 Car

Going ahead

First point of impact: Front

Vehicle direction: NW to SE

Journey: Other

Age of Driver : 72

Breath test: Negative

Contributory Factors : 802 808 803

Casualty Reference: 1 Age: 14 Female Pedestrian

Severity: Serious

Ped Dir: Pedestrian Ped Movement : Driver's nearside

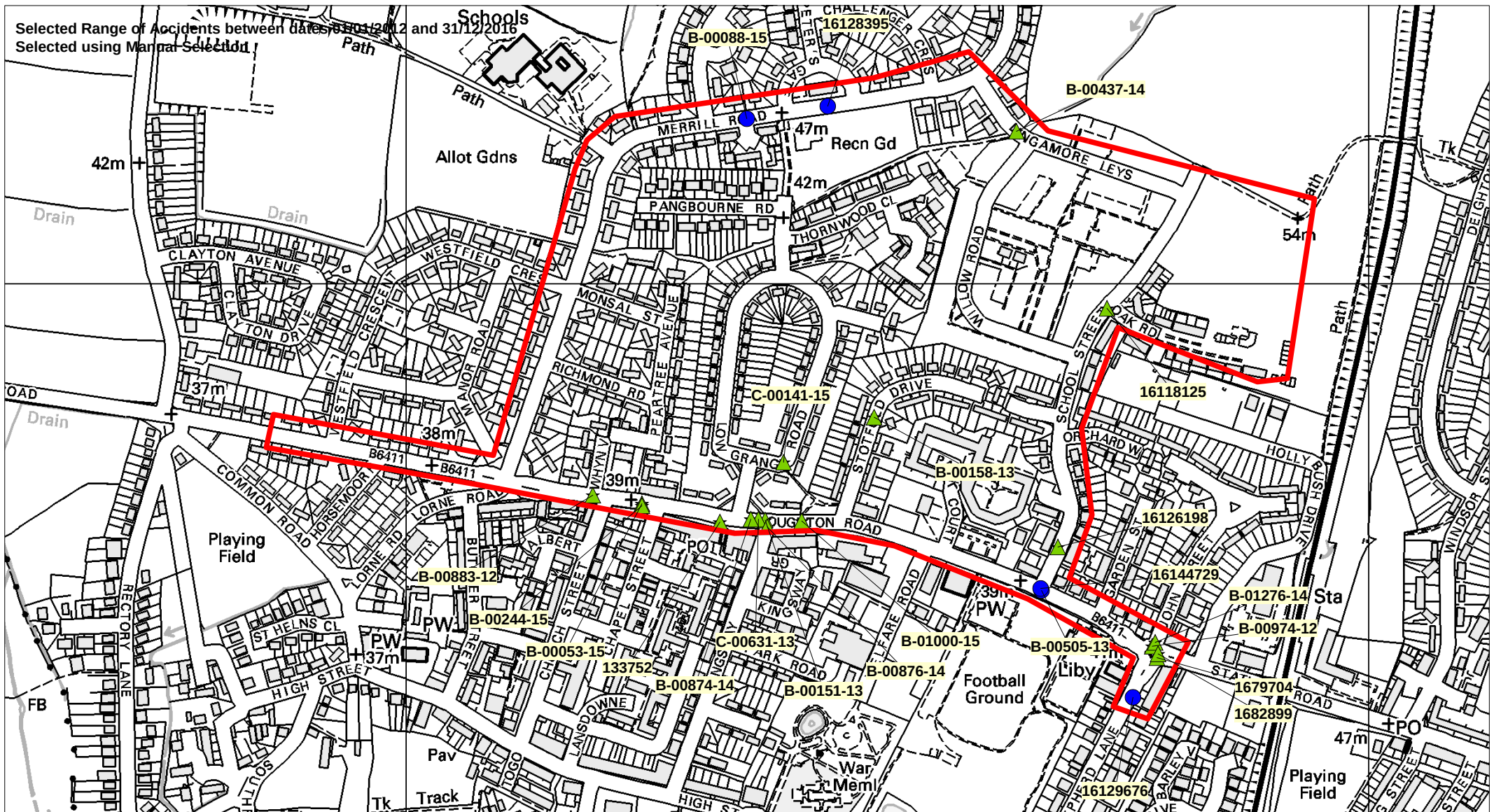
Ped Location: In car elsewhere

## Accidents involving:

|                                        | Fatal | Serious | Slight | Total |
|----------------------------------------|-------|---------|--------|-------|
| Motor vehicles only excluding 2-wheels | 0     | 3       | 13     | 16    |
| 2-wheeled motor vehicles               | 0     | 2       | 3      | 5     |
| Pedal cycles                           | 0     | 0       | 1      | 1     |
| Horses & other                         | 0     | 0       | 1      | 1     |
| Total                                  | 0     | 5       | 18     | 23    |

## Casualties:

|                  | Fatal | Serious | Slight | Total |
|------------------|-------|---------|--------|-------|
| Vehicle driver   | 0     | 0       | 7      | 7     |
| Passenger        | 0     | 0       | 5      | 5     |
| Motorcycle rider | 0     | 1       | 3      | 4     |
| Cyclist          | 0     | 0       | 1      | 1     |
| Pedestrian       | 0     | 5       | 8      | 13    |
| Other            | 0     | 0       | 0      | 0     |
| Total            | 0     | 6       | 24     | 30    |



|                                                               |                                                                                                                               |            |
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| <div data-bbox="107 1316 504 1428" data-label="Image"> </div> | All rights reserved. Rotherham MBC Licence<br>No. 100019587.<br>South Yorkshire LTP Partnership<br>Licence No. 100019587 2017 |            |
|                                                               | Selected map area                                                                                                             |            |
|                                                               | SCALE                                                                                                                         | 1 : 5500   |
|                                                               | DATE                                                                                                                          | 27/07/2017 |
|                                                               | DRWG No.                                                                                                                      |            |
|                                                               | DRN BY                                                                                                                        |            |

**Accidents between dates**      **01/01/2012 and 31/12/2016**      (60) months

**Selection:**      **Notes:**  
Selected using Manual Selection      Mark Devenish - Sandersons

| Police Ref.      | Date       | Cas. | Sev.    | P2W | Cycs | Peds | Ch | OAPs | Vis.  | Manv.   | Road Cond. | Time | Location                                                   |
|------------------|------------|------|---------|-----|------|------|----|------|-------|---------|------------|------|------------------------------------------------------------|
| B-00883-12       | 28/09/2012 | 5    | Slight  | 0   | 0    | 0    | 0  | 1    | Dark  | Right   | Dry        | 2141 | HOUGHTON ROAD THURNSCOE, BARNSLEY 10 M NTH CHAPPEL ST      |
| B-00974-12       | 28/10/2012 | 1    | Slight  | 2   | 0    | 0    | 0  | 0    | Light | No turn | Wet/Damp   | 1109 | STATION RD, THURNSCOE BARNSLEY J/W JOHN STREET             |
| 133752           | 06/02/2013 | 1    | Slight  | 0   | 0    | 1    | 0  | 0    | Light | No turn | Dry        | 0925 | B 6411 HOUGHTON ROAD SOUTH YORKSHIRE                       |
| B-00158-13       | 16/04/2013 | 1    | Slight  | 0   | 0    | 1    | 0  | 1    | Dark  | No turn | Dry        | 2050 | STOTFOLD DRIVE THURNSCOE O/S NO 23                         |
| B-00151-13       | 22/04/2013 | 1    | Slight  | 0   | 0    | 0    | 0  | 0    | Light | No turn | Dry        | 1855 | HOUGHTON RD THURNSCOE                                      |
| C-00631-13       | 10/08/2013 | 1    | Slight  | 0   | 0    | 1    | 1  | 0    | Light | No turn | Dry        | 1818 | HOUGHTON ROAD ROTHERHAM 10 METRES KINGSWAY, THURNSC        |
| B-00505-13       | 25/08/2013 | 1    | Serious | 0   | 0    | 1    | 1  | 0    | Light | No turn | Dry        | 1100 | HOUGHTON RD THURNSCOE J/W SCHOOL ST                        |
| B-00437-14       | 29/04/2014 | 1    | Slight  | 1   | 0    | 0    | 0  | 0    | Light | No turn | Dry        | 1740 | LINGAMORE LEYS THURNSCOE 13 MTS WILLOW ROAD                |
| B-00874-14       | 04/09/2014 | 1    | Slight  | 0   | 0    | 1    | 1  | 0    | Light | No turn | Dry        | 1530 | HOUGHTON ROAD THURNSCOE 5MTRS KINGSWAY                     |
| B-00876-14       | 17/09/2014 | 1    | Slight  | 0   | 1    | 0    | 1  | 0    | Light | No turn | Dry        | 1750 | KINGSWAY THURNSCOE J/W HOUGHTON ROAD                       |
| B-01276-14       | 23/12/2014 | 1    | Slight  | 0   | 0    | 0    | 0  | 1    | Light | No turn | Dry        | 1525 | JOHN STREET THURNSCOE J/W HOUGHTON ROAD                    |
| B-00053-15       | 18/01/2015 | 1    | Slight  | 0   | 0    | 1    | 0  | 0    | Light | No turn | Dry        | 1330 | HOUGHTON ROAD THURNSCOE 12 MTS CHAPEL STREET               |
| B-00088-15       | 27/01/2015 | 1    | Serious | 1   | 0    | 1    | 1  | 0    | Dark  | No turn | Dry        | 1900 | MERRILL ROAD THURNSCOE J/W BEECHLEA                        |
| C-00141-15       | 30/01/2015 | 1    | Slight  | 0   | 0    | 1    | 0  | 1    | Dark  | No turn | Wet/Damp   | 2315 | LOW GRANGE ROAD THURNSCOE 25 MTS LOW GRANGE ROAD           |
| B-00244-15       | 05/03/2015 | 2    | Slight  | 0   | 0    | 2    | 0  | 0    | Light | No turn | Dry        | 1610 | HOUGHTON ROAD THURNSCOE 14 MTS CHAPEL STREET               |
| B-01000-15       | 30/10/2015 | 1    | Slight  | 0   | 0    | 0    | 1  | 0    | Light | No turn | Dry        | 1400 | HOUGHTON ROAD THURNSCOE                                    |
| 1679704          | 05/06/2016 | 2    | Slight  | 1   | 0    | 0    | 0  | 0    | Light | Right   | Dry        | 1735 | STATION ROAD (B6411) BARNSLEY AT OR WITHIN 20 MTS OF SHEPH |
| 1682899          | 02/07/2016 | 1    | Slight  | 0   | 0    | 0    | 0  | 1    | Light | Right   | Dry        | 2015 | STATION ROAD (B6411) BARNSLEY AT OR WITHIN 20 MTS OF SHEPH |
| 16118125         | 14/10/2016 | 1    | Slight  | 0   | 0    | 0    | 0  | 0    | Light | Right   | Dry        | 1220 | SCHOOL STREET BARNSLEY AT OR WITHIN 20 MTS OF OAK ROAD     |
| 16126198         | 22/10/2016 | 1    | Slight  | 0   | 0    | 0    | 0  | 0    | Light | No turn | Dry        | 1428 | SCHOOL STREET BARNSLEY                                     |
| 16128395         | 07/11/2016 | 1    | Serious | 0   | 0    | 1    | 1  | 0    | Light | No turn | Dry        | 1510 | MERRILL ROAD BARNSLEY                                      |
| 16129676         | 08/11/2016 | 2    | Serious | 1   | 0    | 1    | 0  | 0    | Light | No turn | Dry        | 1410 | SHEPHERD LANE BARNSLEY                                     |
| 16144729         | 20/12/2016 | 1    | Serious | 0   | 0    | 1    | 1  | 0    | Light | No turn | Dry        | 1106 | HOUGHTON ROAD (B6411) BARNSLEY AT OR WITHIN 20 MTS OF SC   |
| Column Totals    |            | 30   |         | 6   | 1    | 13   | 8  | 5    |       |         |            |      |                                                            |
| No. of Accidents |            |      |         | 5   | 1    | 12   | 8  | 5    |       |         |            |      |                                                            |

Total number of accidents listed:      23

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection:

Selected using Manual Selection

Notes:

Mark Devenish - Sandersons

| Police Ref. | Acc Class | Date       | Time | Grid References | Casualties |     |     | Causation Factors/<br>Prob                      | Ped |   |   | Light | Weather                    | Road<br>Surface | Vehicle<br>Types |
|-------------|-----------|------------|------|-----------------|------------|-----|-----|-------------------------------------------------|-----|---|---|-------|----------------------------|-----------------|------------------|
|             |           |            |      |                 | Ftl        | Ser | Slt |                                                 | L   | M | D |       |                            |                 |                  |
| B-00883-12  | Slight    | 28/09/2012 | 2141 | 445194 405780   | 0          | 0   | 5   | 501V2A 602V2A<br>601V2B 605V2B<br>901V2B 902V2B | 0   | 0 | 0 | Dark  | Fine without high winds    | Dry             | 9 9              |
| B-00974-12  | Slight    | 28/10/2012 | 1109 | 445775 405623   | 0          | 0   | 1   | 405V1A 704V1B                                   | 0   | 0 | 0 | Light | Fine without high winds    | Wet/Damp        | 4 2              |
| 133752      | Slight    | 06/02/2013 | 0925 | 445326 405752   | 0          | 0   | 1   | 309V1B                                          | 6   | 9 |   | Light | Fine without high winds    | Dry             | 19               |
| B-00158-13  | Slight    | 16/04/2013 | 2050 | 445486 405861   | 0          | 0   | 1   | 602V1B 603V1B<br>601V1B 405V1B                  | 9   | 5 |   | Dark  | Unknown                    | Dry             | 9                |
| B-00151-13  | Slight    | 22/04/2013 | 1855 | 445373 405754   | 0          | 0   | 1   | 406V1A 605V1A                                   | 0   | 0 | 0 | Light | Fine without high winds    | Dry             | 9 9              |
| C-00631-13  | Slight    | 10/08/2013 | 1818 | 445366 405755   | 0          | 0   | 1   | 802C1A 808C1A                                   | 1   | 1 | 5 | Light | Fine without high winds    | Dry             | 9                |
| B-00505-13  | Serious   | 25/08/2013 | 1100 | 445660 405681   | 0          | 1   | 0   | 802C1A 808C1B<br>803C1B                         | 5   | 1 | 7 | Light | Fine without high winds    | Dry             | 9                |
| B-00437-14  | Slight    | 29/04/2014 | 1740 | 445634 406158   | 0          | 0   | 1   | 405V2A                                          | 0   | 0 | 0 | Light | Fine without high winds    | Dry             | 9 3              |
| B-00874-14  | Slight    | 04/09/2014 | 1530 | 445358 405755   | 0          | 0   | 1   | 405V1A 802C1A<br>803C1B                         | 6   | 5 | 1 | Light | Fine without high winds    | Dry             | 9                |
| B-00876-14  | Slight    | 17/09/2014 | 1750 | 445375 405747   | 0          | 0   | 1   | 802C1A 808C1B                                   | 0   | 0 | 0 | Light | Fine without high winds    | Dry             | 9 1              |
| B-01276-14  | Slight    | 23/12/2014 | 1525 | 445778 405627   | 0          | 0   | 1   | 405V1B 405V2B                                   | 0   | 0 | 0 | Light | Fine without high winds    | Dry             | 9 22             |
| B-00053-15  | Slight    | 18/01/2015 | 1330 | 445245 405771   | 0          | 0   | 1   |                                                 | 5   | 2 | 5 | Light | Unknown                    | Dry             | 9                |
| B-00088-15  | Serious   | 27/01/2015 | 1900 | 445354 406171   | 0          | 1   | 0   | 802C1A 801C1B                                   | 5   | 2 | 1 | Dark  | Fine without high winds    | Dry             | 3                |
| C-00141-15  | Slight    | 30/01/2015 | 2315 | 445392 405814   | 0          | 0   | 1   | 802C1A 806C1A<br>808C1A 809C1B<br>810C1B 703V1B | 6   | 9 | 1 | Dark  | Raining without high winds | Wet/Damp        | 9                |
| B-00244-15  | Slight    | 05/03/2015 | 1610 | 445245 405769   | 0          | 0   | 2   | 601V1A 902V1A                                   | 6   | 9 | 0 | Light | Fine without high winds    | Dry             | 90 9             |
| B-01000-15  | Slight    | 30/10/2015 | 1400 | 445411 405753   | 0          | 0   | 1   | 405V2B                                          | 0   | 0 | 0 | Light | Fine without high winds    | Dry             | 9 9              |
| 1679704     | Slight    | 05/06/2016 | 1735 | 445780 405611   | 0          | 0   | 2   | 405V2B                                          | 0   | 0 | 0 | Light | Fine without high winds    | Dry             | 5 9              |
| 1682899     | Slight    | 02/07/2016 | 2015 | 445781 405615   | 0          | 0   | 1   | 405V2B                                          | 0   | 0 | 0 | Light | Fine without high winds    | Dry             | 9 19             |
| 16118125    | Slight    | 14/10/2016 | 1220 | 445728 405974   | 0          | 0   | 1   | 404V1B 403V1B<br>308V2B                         | 0   | 0 | 0 | Light | Fine without high winds    | Dry             | 9 9              |
| 16126198    | Slight    | 22/10/2016 | 1428 | 445677 405726   | 0          | 0   | 1   | 999V3B                                          | 0   | 0 | 0 | Light | Fine without high winds    | Dry             | 19 9 9           |
| 16128395    | Serious   | 07/11/2016 | 1510 | 445438 406184   | 0          | 1   | 0   | 802C1A 801C1A                                   | 5   | 2 | 1 | Light | Fine without high winds    | Dry             | 9                |
| 16129676    | Serious   | 08/11/2016 | 1410 | 445755 405570   | 0          | 2   | 0   | 406V1B 701V1A<br>802C2A                         | 5   | 1 | 8 | Light | Fine without high winds    | Dry             | 3                |

Accidents between dates 01/01/2012 and 31/12/2016 (60) months

Selection: Notes:  
Selected using Manual Selection Mark Devenish - Sandersons

| Police Ref.   | Acc Class | Date       | Time | Grid References | Casualties |     |     | Causation Factors/<br>Prob | Ped    |        | Light      | Weather | Road<br>Surface | Vehicle<br>Types |                         |     |   |
|---------------|-----------|------------|------|-----------------|------------|-----|-----|----------------------------|--------|--------|------------|---------|-----------------|------------------|-------------------------|-----|---|
|               |           |            |      |                 | Ftl        | Ser | Slr |                            | L      | M      |            |         |                 |                  | D                       |     |   |
| 16144729      | Serious   | 20/12/2016 | 1106 | 445659          | 405683     | 0   | 1   | 0                          | 802C1A | 808C1B | 5          | 1       | 5               | Light            | Fine without high winds | Dry | 9 |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
| Column Totals |           |            |      |                 |            | 0   | 6   | 1                          |        |        | Light : 19 |         |                 |                  | Dry : 21                |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        | Dark : 4   |         |                 |                  | Wet : 2                 |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |
|               |           |            |      |                 |            |     |     |                            |        |        |            |         |                 |                  |                         |     |   |

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***APPENDIX E***  
***Traffic Count Data***



REF: Thurnscoe

A = School Road  
B = Houghton Road (East)  
C = Houghton Road (West)

DAY: Tue 27th June 2017

| TIME   | A => B |     |     |     |     |     | TOT | PCU | A => C |     |     |     |     |     | TOT | PCU | B => A |     |     |     |     |     | TOT | PCU | B => C |     |      |     |     |     | TOT  | PCU  | C => A |     |     |     |     |     | TOT | PCU | C => B |     |      |     |     |     | TOT  | PCU  |
|--------|--------|-----|-----|-----|-----|-----|-----|-----|--------|-----|-----|-----|-----|-----|-----|-----|--------|-----|-----|-----|-----|-----|-----|-----|--------|-----|------|-----|-----|-----|------|------|--------|-----|-----|-----|-----|-----|-----|-----|--------|-----|------|-----|-----|-----|------|------|
|        | PCL    | MCL | CAR | LGV | HGV | BUS |     |     | PCL    | MCL | CAR | LGV | HGV | BUS |     |     | PCL    | MCL | CAR | LGV | HGV | BUS |     |     | PCL    | MCL | CAR  | LGV | HGV | BUS |      |      | PCL    | MCL | CAR | LGV | HGV | BUS |     |     | PCL    | MCL | CAR  | LGV | HGV | BUS |      |      |
| 07:30  | 0      | 0   | 19  | 2   | 0   | 2   | 23  | 25  | 0      | 0   | 1   | 0   | 0   | 0   | 1   | 1   | 0      | 0   | 3   | 0   | 0   | 0   | 3   | 3   | 0      | 0   | 23   | 4   | 1   | 3   | 31   | 35.3 | 0      | 0   | 2   | 0   | 0   | 0   | 2   | 2   | 0      | 0   | 65   | 12  | 0   | 1   | 78   | 79   |
| 07:45  | 0      | 0   | 17  | 3   | 0   | 2   | 22  | 24  | 0      | 0   | 4   | 1   | 0   | 0   | 5   | 5   | 0      | 0   | 6   | 1   | 0   | 0   | 7   | 7   | 0      | 0   | 25   | 5   | 1   | 3   | 34   | 38.3 | 0      | 0   | 2   | 0   | 0   | 0   | 2   | 2   | 0      | 0   | 67   | 12  | 0   | 1   | 80   | 81   |
| H/TOT  | 0      | 0   | 36  | 5   | 0   | 4   | 45  | 49  | 0      | 0   | 5   | 1   | 0   | 0   | 6   | 6   | 0      | 0   | 9   | 1   | 0   | 0   | 10  | 10  | 0      | 0   | 48   | 9   | 2   | 6   | 65   | 73.6 | 0      | 0   | 4   | 0   | 0   | 0   | 4   | 4   | 0      | 0   | 132  | 24  | 0   | 2   | 158  | 160  |
| 08:00  | 0      | 0   | 20  | 0   | 0   | 1   | 21  | 22  | 0      | 0   | 3   | 0   | 0   | 0   | 3   | 3   | 0      | 0   | 9   | 0   | 0   | 0   | 9   | 9   | 0      | 0   | 45   | 5   | 1   | 1   | 52   | 54.3 | 0      | 0   | 3   | 0   | 0   | 0   | 3   | 3   | 0      | 0   | 72   | 12  | 1   | 1   | 86   | 88.3 |
| 08:15  | 0      | 0   | 27  | 1   | 0   | 0   | 28  | 28  | 0      | 0   | 5   | 0   | 0   | 0   | 5   | 5   | 0      | 0   | 9   | 0   | 0   | 0   | 9   | 9   | 0      | 0   | 35   | 11  | 2   | 1   | 49   | 52.6 | 0      | 0   | 4   | 0   | 0   | 0   | 4   | 4   | 0      | 0   | 65   | 11  | 1   | 1   | 78   | 80.3 |
| 08:30  | 0      | 0   | 31  | 4   | 0   | 2   | 37  | 39  | 0      | 0   | 7   | 1   | 0   | 0   | 8   | 8   | 0      | 0   | 20  | 3   | 0   | 1   | 24  | 25  | 0      | 0   | 42   | 7   | 2   | 1   | 52   | 55.6 | 0      | 0   | 1   | 0   | 0   | 0   | 1   | 1   | 0      | 0   | 81   | 12  | 2   | 1   | 96   | 99.6 |
| 08:45  | 0      | 0   | 21  | 0   | 0   | 0   | 21  | 21  | 0      | 0   | 4   | 0   | 0   | 0   | 4   | 4   | 0      | 0   | 15  | 0   | 0   | 0   | 15  | 15  | 0      | 0   | 65   | 7   | 1   | 2   | 75   | 78.3 | 0      | 0   | 1   | 0   | 0   | 0   | 1   | 1   | 0      | 0   | 72   | 12  | 1   | 1   | 86   | 88.3 |
| H/TOT  | 0      | 0   | 99  | 5   | 0   | 3   | 107 | 110 | 0      | 0   | 19  | 1   | 0   | 0   | 20  | 20  | 0      | 0   | 53  | 3   | 0   | 1   | 57  | 58  | 0      | 0   | 187  | 30  | 6   | 5   | 228  | 241  | 0      | 0   | 9   | 0   | 0   | 0   | 9   | 9   | 0      | 0   | 290  | 47  | 5   | 4   | 346  | 357  |
| 09:00  | 0      | 0   | 15  | 2   | 0   | 1   | 18  | 19  | 0      | 0   | 4   | 0   | 0   | 0   | 4   | 4   | 0      | 0   | 12  | 2   | 0   | 0   | 14  | 14  | 0      | 0   | 55   | 5   | 1   | 2   | 63   | 66.3 | 0      | 0   | 3   | 0   | 0   | 0   | 3   | 3   | 0      | 0   | 85   | 12  | 0   | 1   | 98   | 99   |
| 09:15  | 0      | 0   | 16  | 1   | 0   | 1   | 18  | 19  | 0      | 0   | 5   | 0   | 0   | 0   | 5   | 5   | 0      | 0   | 11  | 1   | 0   | 0   | 12  | 12  | 0      | 0   | 52   | 11  | 1   | 2   | 66   | 69.3 | 0      | 0   | 2   | 0   | 0   | 0   | 2   | 2   | 0      | 0   | 84   | 9   | 0   | 1   | 94   | 95   |
| H/TOT  | 0      | 0   | 31  | 3   | 0   | 2   | 36  | 38  | 0      | 0   | 9   | 0   | 0   | 0   | 9   | 9   | 0      | 0   | 23  | 3   | 0   | 0   | 26  | 26  | 0      | 0   | 107  | 16  | 2   | 4   | 129  | 136  | 0      | 0   | 5   | 0   | 0   | 0   | 5   | 5   | 0      | 0   | 169  | 21  | 0   | 2   | 192  | 194  |
| AM TOT | 0      | 0   | 166 | 13  | 0   | 9   | 188 | 197 | 0      | 0   | 33  | 2   | 0   | 0   | 35  | 35  | 0      | 0   | 85  | 7   | 0   | 1   | 93  | 94  | 0      | 0   | 342  | 55  | 10  | 15  | 422  | 450  | 0      | 0   | 18  | 0   | 0   | 0   | 18  | 18  | 0      | 0   | 591  | 92  | 5   | 8   | 696  | 711  |
| 15:00  | 0      | 0   | 11  | 1   | 0   | 1   | 13  | 14  | 0      | 0   | 2   | 0   | 0   | 0   | 2   | 2   | 0      | 0   | 11  | 2   | 0   | 1   | 14  | 15  | 0      | 0   | 55   | 7   | 1   | 1   | 64   | 66.3 | 0      | 0   | 3   | 0   | 0   | 0   | 3   | 3   | 0      | 0   | 55   | 3   | 0   | 0   | 58   | 58   |
| 15:15  | 0      | 0   | 12  | 1   | 0   | 1   | 14  | 15  | 0      | 0   | 2   | 0   | 0   | 0   | 2   | 2   | 0      | 0   | 12  | 2   | 0   | 0   | 14  | 14  | 0      | 0   | 65   | 5   | 0   | 1   | 71   | 72   | 0      | 0   | 3   | 0   | 0   | 0   | 3   | 3   | 0      | 0   | 47   | 4   | 0   | 2   | 53   | 55   |
| 15:30  | 0      | 0   | 15  | 1   | 0   | 1   | 17  | 18  | 0      | 0   | 2   | 0   | 0   | 0   | 2   | 2   | 0      | 0   | 17  | 1   | 0   | 1   | 19  | 20  | 0      | 0   | 75   | 10  | 0   | 2   | 87   | 89   | 0      | 0   | 4   | 0   | 0   | 0   | 4   | 4   | 0      | 0   | 57   | 4   | 0   | 1   | 62   | 63   |
| 15:45  | 0      | 0   | 11  | 1   | 0   | 1   | 13  | 14  | 0      | 0   | 3   | 0   | 0   | 0   | 3   | 3   | 0      | 0   | 12  | 2   | 0   | 0   | 14  | 14  | 0      | 0   | 79   | 11  | 0   | 0   | 90   | 90   | 0      | 0   | 3   | 0   | 0   | 0   | 3   | 3   | 0      | 0   | 72   | 9   | 0   | 0   | 81   | 81   |
| H/TOT  | 0      | 0   | 49  | 4   | 0   | 4   | 57  | 61  | 0      | 0   | 9   | 0   | 0   | 0   | 9   | 9   | 0      | 0   | 52  | 7   | 0   | 2   | 61  | 63  | 0      | 0   | 274  | 33  | 1   | 4   | 312  | 317  | 0      | 0   | 13  | 0   | 0   | 0   | 13  | 13  | 0      | 0   | 231  | 20  | 0   | 3   | 254  | 257  |
| 16:00  | 0      | 0   | 16  | 2   | 0   | 1   | 19  | 20  | 0      | 0   | 3   | 0   | 0   | 0   | 3   | 3   | 0      | 0   | 21  | 2   | 0   | 0   | 23  | 23  | 0      | 0   | 95   | 15  | 1   | 2   | 113  | 116  | 0      | 0   | 5   | 0   | 0   | 0   | 5   | 5   | 0      | 0   | 74   | 19  | 0   | 1   | 94   | 95   |
| 16:15  | 0      | 0   | 17  | 1   | 0   | 0   | 18  | 18  | 0      | 0   | 3   | 0   | 0   | 0   | 3   | 3   | 0      | 0   | 16  | 0   | 0   | 0   | 16  | 16  | 0      | 0   | 85   | 15  | 0   | 1   | 101  | 102  | 0      | 0   | 4   | 0   | 0   | 0   | 4   | 4   | 0      | 0   | 69   | 16  | 1   | 0   | 86   | 87.3 |
| 16:30  | 0      | 0   | 9   | 0   | 0   | 1   | 10  | 11  | 0      | 0   | 2   | 0   | 0   | 0   | 2   | 2   | 0      | 0   | 19  | 2   | 0   | 1   | 22  | 23  | 0      | 0   | 86   | 18  | 0   | 0   | 104  | 104  | 0      | 0   | 6   | 0   | 0   | 0   | 6   | 6   | 0      | 0   | 112  | 17  | 1   | 0   | 130  | 131  |
| 16:45  | 0      | 0   | 13  | 0   | 0   | 1   | 14  | 15  | 0      | 0   | 10  | 0   | 0   | 0   | 10  | 10  | 0      | 0   | 16  | 0   | 0   | 0   | 16  | 16  | 0      | 0   | 72   | 15  | 0   | 0   | 87   | 87   | 0      | 0   | 10  | 0   | 0   | 0   | 10  | 10  | 0      | 0   | 89   | 9   | 0   | 0   | 98   | 98   |
| H/TOT  | 0      | 0   | 55  | 3   | 0   | 3   | 61  | 64  | 0      | 0   | 18  | 0   | 0   | 0   | 18  | 18  | 0      | 0   | 72  | 4   | 0   | 1   | 77  | 78  | 0      | 0   | 338  | 63  | 1   | 3   | 405  | 409  | 0      | 0   | 25  | 0   | 0   | 0   | 25  | 25  | 0      | 0   | 344  | 61  | 2   | 1   | 408  | 412  |
| 17:00  | 0      | 0   | 11  | 1   | 0   | 1   | 13  | 14  | 0      | 0   | 7   | 1   | 0   | 0   | 8   | 8   | 0      | 0   | 14  | 2   | 0   | 0   | 16  | 16  | 0      | 0   | 95   | 10  | 1   | 2   | 108  | 111  | 0      | 0   | 8   | 1   | 0   | 0   | 9   | 9   | 0      | 0   | 71   | 11  | 0   | 1   | 83   | 84   |
| 17:15  | 0      | 0   | 10  | 1   | 0   | 0   | 11  | 11  | 0      | 0   | 6   | 1   | 0   | 0   | 7   | 7   | 0      | 0   | 12  | 0   | 0   | 0   | 12  | 12  | 0      | 0   | 102  | 12  | 1   | 1   | 116  | 118  | 0      | 0   | 12  | 2   | 0   | 0   | 14  | 14  | 0      | 0   | 84   | 9   | 0   | 0   | 93   | 93   |
| 17:30  | 0      | 0   | 11  | 0   | 0   | 0   | 11  | 11  | 0      | 0   | 5   | 0   | 0   | 0   | 5   | 5   | 0      | 0   | 11  | 0   | 0   | 0   | 11  | 11  | 0      | 0   | 118  | 13  | 0   | 1   | 132  | 133  | 0      | 0   | 11  | 1   | 0   | 0   | 12  | 12  | 0      | 0   | 83   | 4   | 0   | 1   | 88   | 89   |
| 17:45  | 0      | 0   | 12  | 0   | 0   | 1   | 13  | 14  | 0      | 0   | 5   | 0   | 0   | 0   | 5   | 5   | 0      | 0   | 10  | 1   | 0   | 0   | 11  | 11  | 0      | 0   | 92   | 11  | 1   | 2   | 106  | 109  | 0      | 0   | 10  | 1   | 0   | 0   | 11  | 11  | 0      | 0   | 72   | 4   | 0   | 0   | 76   | 76   |
| H/TOT  | 0      | 0   | 44  | 2   | 0   | 2   | 48  | 50  | 0      | 0   | 23  | 2   | 0   | 0   | 25  | 25  | 0      | 0   | 47  | 3   | 0   | 0   | 50  | 50  | 0      | 0   | 407  | 46  | 3   | 6   | 462  | 472  | 0      | 0   | 41  | 5   | 0   | 0   | 46  | 46  | 0      | 0   | 310  | 28  | 0   | 2   | 340  | 342  |
| PM TOT | 0      | 0   | 148 | 9   | 0   | 9   | 166 | 175 | 0      | 0   | 50  | 2   | 0   | 0   | 52  | 52  | 0      | 0   | 171 | 14  | 0   | 3   | 188 | 191 | 0      | 0   | 1019 | 142 | 5   | 13  | 1179 | 1199 | 0      | 0   | 79  | 5   | 0   | 0   | 84  | 84  | 0      | 0   | 885  | 109 | 2   | 6   | 1002 | 1011 |
| TOTAL  | 0      | 0   | 314 | 22  | 0   | 18  | 354 | 372 | 0      | 0   | 83  | 4   | 0   | 0   | 87  | 87  | 0      | 0   | 256 | 21  | 0   | 4   | 281 | 285 | 0      | 0   | 1361 | 197 | 15  | 28  | 1601 | 1649 | 0      | 0   | 97  | 5   | 0   | 0   | 102 | 102 | 0      | 0   | 1476 | 201 | 7   | 14  | 1698 | 1721 |





REF: Thurnscoe

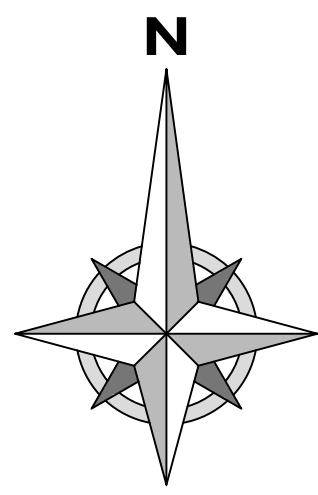
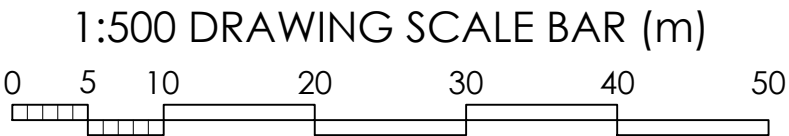
A = A635 (North East)  
B = Barnsley Road (East)  
C = Dudley Drive  
D = A635 (West)

SITE: J5

DAY: Tue 27th June 2017

| A ==> B |     |     |     |     |     |     |     |     |     |     |     | A ==> C |     |     |     |      |     |     |     |     |     |     |      | A ==> D |     |     |     |     |     |     |     |      |     |     |     | B ==> A |     |     |     |      |     |     |     |     |     |     |     | B ==> C |     |     |     |     |     |     |     |      |      |     |     | B ==> D |     |     |     |     |     |     |     |     |     |     |     | C ==> A |    |    |     |     |     |     |     |      |     |    |     | C ==> B |    |      |      |      |    |    |     |    |    |    |     | C ==> D |    |  |  |  |  |  |  |  |  |  |  | D ==> A |  |  |  |  |  |  |  |  |  |  |  | D ==> B |  |  |  |  |  |  |  |  |  |  |  | D ==> C |  |  |  |  |  |  |  |  |  |  |  |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|------|---------|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|---------|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|----|----|-----|-----|-----|-----|-----|------|-----|----|-----|---------|----|------|------|------|----|----|-----|----|----|----|-----|---------|----|--|--|--|--|--|--|--|--|--|--|---------|--|--|--|--|--|--|--|--|--|--|--|---------|--|--|--|--|--|--|--|--|--|--|--|---------|--|--|--|--|--|--|--|--|--|--|--|
| TIME    | PCL | MCL | CAR | LGV | HGV | BUS | TOT | PCU | PCL | MCL | CAR | LGV     | HGV | BUS | TOT | PCU  | PCL | MCL | CAR | LGV | HGV | BUS | TOT  | PCU     | PCL | MCL | CAR | LGV | HGV | BUS | TOT | PCU  | PCL | MCL | CAR | LGV     | HGV | BUS | TOT | PCU  | PCL | MCL | CAR | LGV | HGV | BUS | TOT | PCU     | PCL | MCL | CAR | LGV | HGV | BUS | TOT | PCU  | PCL  | MCL | CAR | LGV     | HGV | BUS | TOT | PCU | PCL | MCL | CAR | LGV | HGV | BUS | TOT | PCU     |    |    |     |     |     |     |     |      |     |    |     |         |    |      |      |      |    |    |     |    |    |    |     |         |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 07:30   | 0   | 0   | 1   | 0   | 0   | 0   | 1   | 1   | 0   | 0   | 11  | 0       | 7   | 0   | 18  | 27.1 | 0   | 0   | 123 | 0   | 18  | 2   | 143  | 168     | 0   | 0   | 3   | 0   | 0   | 0   | 3   | 3    | 0   | 0   | 2   | 0       | 0   | 1   | 3   | 4    | 0   | 0   | 71  | 9   | 1   | 1   | 82  | 84.3    | 0   | 0   | 2   | 0   | 0   | 4   | 6   | 10   | 0    | 0   | 1   | 0       | 0   | 0   | 1   | 1   | 0   | 0   | 20  | 1   | 0   | 1   | 22  | 23      | 0  | 0  | 75  | 9   | 5   | 0   | 89  | 95.5 | 0   | 0  | 67  | 11      | 2  | 1    | 81   | 84.6 | 0  | 0  | 22  | 2  | 0  | 1  | 25  | 26      |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 07:45   | 0   | 0   | 2   | 0   | 0   | 0   | 2   | 2   | 0   | 0   | 3   | 0       | 10  | 0   | 13  | 26   | 0   | 0   | 131 | 15  | 19  | 2   | 167  | 194     | 0   | 0   | 1   | 2   | 0   | 0   | 3   | 3    | 0   | 0   | 2   | 0       | 0   | 0   | 2   | 2    | 0   | 0   | 74  | 5   | 1   | 0   | 80  | 81.3    | 0   | 0   | 3   | 0   | 0   | 3   | 6   | 9    | 0    | 0   | 1   | 0       | 0   | 1   | 2   | 3   | 0   | 0   | 33  | 4   | 0   | 0   | 37  | 37      | 0  | 0  | 85  | 19  | 5   | 0   | 109 | 116  | 0   | 0  | 65  | 6       | 3  | 1    | 75   | 79.9 | 0  | 0  | 23  | 2  | 0  | 2  | 27  | 29      |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| H/TOT   | 0   | 0   | 3   | 0   | 0   | 0   | 3   | 3   | 0   | 0   | 14  | 0       | 17  | 0   | 31  | 53.1 | 0   | 0   | 254 | 15  | 37  | 4   | 310  | 362     | 0   | 0   | 4   | 2   | 0   | 0   | 6   | 6    | 0   | 0   | 4   | 0       | 0   | 1   | 5   | 6    | 0   | 0   | 145 | 14  | 2   | 1   | 162 | 166     | 0   | 0   | 5   | 0   | 0   | 7   | 12  | 19   | 0    | 0   | 2   | 0       | 0   | 1   | 3   | 4   | 0   | 0   | 53  | 5   | 0   | 1   | 59  | 60      | 0  | 0  | 160 | 28  | 10  | 0   | 198 | 211  | 0   | 0  | 132 | 17      | 5  | 2    | 156  | 165  | 0  | 0  | 45  | 4  | 0  | 3  | 52  | 55      |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 08:00   | 0   | 0   | 2   | 0   | 0   | 0   | 2   | 2   | 0   | 0   | 10  | 0       | 6   | 0   | 16  | 23.8 | 0   | 0   | 124 | 14  | 16  | 0   | 154  | 175     | 0   | 0   | 3   | 0   | 0   | 0   | 3   | 3    | 0   | 0   | 1   | 0       | 0   | 1   | 2   | 3    | 0   | 0   | 65  | 8   | 1   | 1   | 75  | 77.3    | 0   | 0   | 5   | 0   | 0   | 2   | 7   | 9    | 0    | 0   | 0   | 0       | 0   | 0   | 0   | 0   | 0   | 32  | 1   | 0   | 4   | 37  | 41  | 0       | 0  | 82 | 18  | 9   | 0   | 109 | 121 | 0    | 0   | 82 | 6   | 2       | 2  | 92   | 96.6 | 0    | 0  | 25 | 2   | 0  | 3  | 30 | 33  |         |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 08:15   | 0   | 0   | 1   | 0   | 0   | 0   | 1   | 1   | 0   | 0   | 28  | 0       | 11  | 0   | 39  | 53.3 | 0   | 0   | 131 | 21  | 18  | 0   | 170  | 193     | 0   | 0   | 4   | 0   | 1   | 0   | 5   | 6.3  | 0   | 0   | 3   | 0       | 0   | 0   | 3   | 3    | 0   | 0   | 52  | 5   | 1   | 2   | 60  | 63.3    | 0   | 0   | 1   | 0   | 0   | 1   | 2   | 3    | 0    | 0   | 1   | 0       | 0   | 0   | 1   | 1   | 0   | 0   | 22  | 1   | 0   | 3   | 26  | 29      | 0  | 0  | 94  | 22  | 12  | 1   | 129 | 146  | 0   | 0  | 62  | 6       | 3  | 2    | 73   | 78.9 | 0  | 0  | 27  | 2  | 0  | 2  | 31  | 33      |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 08:30   | 0   | 0   | 8   | 1   | 0   | 0   | 9   | 9   | 0   | 0   | 26  | 0       | 6   | 0   | 32  | 39.8 | 0   | 0   | 97  | 18  | 17  | 0   | 132  | 154     | 0   | 0   | 3   | 0   | 1   | 0   | 4   | 5.3  | 0   | 0   | 0   | 0       | 0   | 0   | 0   | 0    | 0   | 62  | 6   | 0   | 1   | 69  | 70  | 0       | 0   | 4   | 0   | 0   | 3   | 7   | 10  | 0    | 0    | 0   | 0   | 0       | 0   | 0   | 0   | 0   | 34  | 2   | 0   | 3   | 39  | 42  | 0   | 0       | 92 | 17 | 3   | 1   | 113 | 118 | 0   | 0    | 55  | 4  | 1   | 1       | 61 | 63.3 | 0    | 0    | 35 | 2  | 0   | 2  | 39 | 41 |     |         |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 08:45   | 0   | 0   | 9   | 0   | 0   | 0   | 9   | 9   | 0   | 0   | 27  | 0       | 2   | 0   | 29  | 31.6 | 0   | 0   | 99  | 12  | 17  | 0   | 128  | 150     | 0   | 0   | 7   | 0   | 0   | 0   | 7   | 7    | 0   | 0   | 3   | 0       | 1   | 0   | 4   | 5.3  | 0   | 0   | 61  | 7   | 0   | 1   | 69  | 70      | 0   | 0   | 4   | 0   | 0   | 0   | 4   | 4    | 0    | 0   | 1   | 0       | 0   | 0   | 1   | 1   | 0   | 0   | 32  | 0   | 0   | 2   | 34  | 36      | 0  | 0  | 87  | 15  | 5   | 0   | 107 | 114  | 0   | 0  | 58  | 3       | 1  | 2    | 64   | 67.3 | 0  | 0  | 32  | 3  | 0  | 2  | 37  | 39      |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| H/TOT   | 0   | 0   | 20  | 1   | 0   | 0   | 21  | 21  | 0   | 0   | 91  | 0       | 25  | 0   | 116 | 149  | 0   | 0   | 451 | 65  | 68  | 0   | 584  | 672     | 0   | 0   | 17  | 0   | 2   | 0   | 19  | 21.6 | 0   | 0   | 7   | 0       | 1   | 1   | 9   | 11.3 | 0   | 0   | 240 | 26  | 2   | 5   | 273 | 281     | 0   | 0   | 14  | 0   | 0   | 6   | 20  | 26   | 0    | 0   | 2   | 0       | 0   | 0   | 2   | 2   | 0   | 0   | 120 | 4   | 0   | 12  | 136 | 148     | 0  | 0  | 355 | 72  | 29  | 2   | 458 | 498  | 0   | 0  | 257 | 19      | 7  | 7    | 290  | 306  | 0  | 0  | 119 | 9  | 0  | 9  | 137 | 146     |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 09:00   | 0   | 0   | 11  | 0   | 0   | 0   | 11  | 11  | 0   | 0   | 22  | 2       | 8   | 0   | 32  | 42.4 | 0   | 0   | 88  | 11  | 12  | 0   | 111  | 127     | 0   | 0   | 10  | 0   | 0   | 0   | 10  | 10   | 0   | 0   | 2   | 0       | 0   | 0   | 2   | 2    | 0   | 0   | 55  | 3   | 1   | 1   | 60  | 62.3    | 0   | 0   | 3   | 0   | 0   | 1   | 4   | 5    | 0    | 0   | 1   | 0       | 0   | 0   | 0   | 1   | 1   | 0   | 0   | 22  | 1   | 0   | 2   | 25      | 27 | 0  | 0   | 85  | 13  | 5   | 1   | 104  | 112 | 0  | 0   | 52      | 3  | 0    | 2    | 57   | 59 | 0  | 0   | 35 | 3  | 0  | 2   | 40      | 42 |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 09:15   | 0   | 0   | 12  | 0   | 0   | 0   | 12  | 12  | 0   | 0   | 21  | 2       | 8   | 0   | 31  | 41.4 | 0   | 0   | 82  | 12  | 12  | 0   | 106  | 122     | 0   | 0   | 5   | 0   | 0   | 0   | 5   | 5    | 0   | 0   | 2   | 0       | 0   | 0   | 2   | 2    | 0   | 0   | 60  | 7   | 1   | 1   | 69  | 71.3    | 0   | 0   | 3   | 0   | 0   | 1   | 4   | 5    | 0    | 0   | 2   | 0       | 0   | 0   | 2   | 2   | 0   | 0   | 23  | 1   | 0   | 2   | 26  | 28      | 0  | 0  | 83  | 12  | 5   | 0   | 100 | 107  | 0   | 0  | 51  | 4       | 1  | 3    | 59   | 63.3 | 0  | 0  | 35  | 2  | 0  | 2  | 39  | 41      |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| H/TOT   | 0   | 0   | 23  | 0   | 0   | 0   | 23  | 23  | 0   | 0   | 43  | 4       | 16  | 0   | 63  | 83.8 | 0   | 0   | 170 | 23  | 24  | 0   | 217  | 248     | 0   | 0   | 15  | 0   | 0   | 0   | 15  | 15   | 0   | 0   | 4   | 0       | 0   | 0   | 4   | 4    | 0   | 0   | 115 | 10  | 2   | 2   | 129 | 134     | 0   | 0   | 6   | 0   | 0   | 2   | 8   | 10   | 0    | 0   | 3   | 0       | 0   | 0   | 3   | 3   | 0   | 0   | 45  | 2   | 0   | 4   | 51  | 55      | 0  | 0  | 168 | 25  | 10  | 1   | 204 | 218  | 0   | 0  | 103 | 7       | 1  | 5    | 116  | 122  | 0  | 0  | 70  | 5  | 0  | 4  | 79  | 83      |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| AM TOT  | 0   | 0   | 46  | 1   | 0   | 0   | 47  | 47  | 0   | 0   | 148 | 4       | 58  | 0   | 210 | 285  | 0   | 0   | 875 | 103 | 129 | 4   | 1111 | 1283    | 0   | 0   | 36  | 2   | 2   | 0   | 40  | 42.6 | 0   | 0   | 15  | 0       | 1   | 2   | 18  | 21.3 | 0   | 0   | 500 | 50  | 6   | 8   | 564 | 580     | 0   | 0   | 25  | 0   | 0   | 15  | 40  | 55   | 0    | 0   | 7   | 0       | 0   | 1   | 8   | 9   | 0   | 0   | 218 | 11  | 0   | 17  | 246 | 263     | 0  | 0  | 683 | 125 | 49  | 3   | 860 | 927  | 0   | 0  | 492 | 43      | 13 | 14   | 562  | 593  | 0  | 0  | 234 | 18 | 0  | 16 | 268 | 284     |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 15:00   | 0   | 0   | 9   | 0   | 0   | 0   | 9   | 9   | 0   | 0   | 11  | 0       | 2   | 0   | 13  | 15.6 | 0   | 0   | 75  | 9   | 1   | 0   | 85   | 86.3    | 0   | 0   | 10  | 0   | 0   | 0   | 10  | 10   | 0   | 0   | 1   | 0       | 0   | 0   | 1   | 1    | 0   | 0   | 72  | 3   | 1   | 2   | 78  | 81.3    | 0   | 0   | 4   | 0   | 2   | 2   | 8   | 12.6 | 0    | 0   | 1   | 0       | 0   | 0   | 1   | 1   | 0   | 0   | 22  | 0   | 0   | 1   | 23  | 24      | 0  | 0  | 93  | 9   | 0   | 0   | 102 | 102  | 0   | 0  | 61  | 4       | 0  | 4    | 69   | 73   | 0  | 0  | 22  | 5  | 1  | 3  | 31  | 35.3    |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 15:15   | 0   | 0   | 7   | 1   | 0   | 0   | 8   | 8   | 0   | 0   | 2   | 0       | 2   | 0   | 4   | 6.6  | 0   | 0   | 65  | 9   | 5   | 1   | 80   | 87.5    | 0   | 0   | 4   | 1   | 0   | 0   | 5   | 5    | 0   | 0   | 2   | 0       | 0   | 0   | 2   | 2    | 0   | 0   | 88  | 8   | 1   | 3   | 100 | 104     | 0   | 0   | 4   | 0   | 2   | 3   | 9   | 14.6 | 0    | 0   | 2   | 1       | 0   | 0   | 3   | 3   | 0   | 0   | 35  | 1   | 0   | 0   | 36  | 36      | 0  | 0  | 75  | 0   | 1   | 0   | 76  | 77.3 | 0   | 0  | 75  | 2       | 0  | 5    | 82   | 87   | 0  | 0  | 26  | 0  | 1  | 2  | 29  | 32.3    |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 15:30   | 0   | 0   | 5   | 0   | 0   | 0   | 5   | 5   | 0   | 0   | 6   | 1       | 2   | 0   | 9   | 11.6 | 0   | 0   | 72  | 18  | 2   | 0   | 92   | 94.6    | 0   | 0   | 5   | 0   | 0   | 0   | 5   | 5    | 0   | 0   | 2   | 0       | 0   | 1   | 3   | 4    | 0   | 0   | 100 | 8   | 0   | 1   | 109 | 110     | 0   | 0   | 4   | 0   | 2   | 2   | 8   | 12.6 | 0    | 0   | 1   | 1       | 0   | 0   | 2   | 2   | 0   | 0   | 21  | 1   | 0   | 2   | 24  | 26      | 0  | 0  | 82  | 8   | 5   | 0   | 95  | 102  | 0   | 0  | 85  | 5       | 0  | 3    | 93   | 96   | 0  | 0  | 22  | 2  | 0  | 4  | 28  | 32      |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 15:45   | 0   | 0   | 5   | 0   | 0   | 0   | 5   | 5   | 0   | 0   | 5   | 0       | 2   | 0   | 7   | 9.6  | 0   | 0   | 84  | 11  | 5   | 0   | 100  | 107     | 0   | 0   | 4   | 0   | 0   | 0   | 4   | 4    | 0   | 0   | 1   | 0       | 0   | 0   | 1   | 1    | 0   | 0   | 117 | 12  | 0   | 3   | 132 | 135     | 0   | 0   | 5   | 0   | 0   | 2   | 7   | 9    | 0    | 0   | 1   | 0       | 0   | 0   | 1   | 1   | 0   | 0   | 11  | 1   | 1   | 1   | 14  | 16.3    | 0  | 0  | 100 | 12  | 5   | 1   | 118 | 126  | 0   | 0  | 102 | 5       | 0  | 5    | 112  | 117  | 0  | 0  | 29  | 2  | 0  | 2  | 33  | 35      |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| H/TOT   | 0   | 0   | 26  | 1   | 0   | 0   | 27  | 27  | 0   | 0   | 24  | 1       | 8   | 0   | 33  | 43.4 | 0   | 0   | 296 | 47  | 13  | 1   | 357  | 375     | 0   | 0   | 23  | 1   | 0   | 0   | 24  | 24   | 0   | 0   | 6   | 0       | 0   | 1   | 7   | 8    | 0   | 0   | 377 | 31  | 2   | 9   | 419 | 431     | 0   | 0   | 17  | 0   | 6   | 9   | 32  | 4    | 0    | 0   | 5   | 0       | 0   | 0   | 7   | 7   | 0   | 0   | 89  | 3   | 1   | 4   | 97  | 102     | 0  | 0  | 350 | 29  | 11  | 1   | 391 | 406  | 0   | 0  | 323 | 16      | 0  | 17   | 356  | 373  | 0  | 0  | 99  | 9  | 2  | 11 | 121 | 135     |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |
| 16:00   | 0   | 0   | 5   | 0   | 0   | 0   | 5   | 5   | 0   | 0   | 5   | 0       | 2   | 0   | 7   | 9.6  | 0   | 0   | 89  | 12  | 6   | 0   | 107  | 115     | 0   | 0   | 4   | 0   | 0   | 0   | 4   | 4    | 0   | 0   | 1   | 0       | 0   | 0   | 1   | 1    | 0   | 0   | 113 | 10  | 0   | 2   | 125 | 127     | 0   | 0   | 2   | 0   | 2   | 7   | 7   | 11   | 20.6 | 0   | 0   | 1       | 0   | 0   | 0   | 1   | 1   | 0   | 0   | 17  | 2   | 0   | 3   | 22      | 25 | 0  | 0   | 93  | 12  | 10  | 1   | 116  | 130 | 0  | 0   | 92      | 7  | 0    | 5    |      |    |    |     |    |    |    |     |         |    |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |         |  |  |  |  |  |  |  |  |  |  |  |

***APPENDIX F***  
***Proposed Site Layout***



- DESIGN CRITERIA - PRIVATE PLOTS
- Traditional Construction
  - Building Regulations Part A 2013, Part B1 2013, Part C 2013, Part D 2015, Part E 2015, Part F 2015, Part G 2016, Part H 2015, Part J 2013, Part L 2016, Part M 2016, Part P 2013
  - Code for Sustainable Homes Level 3 (November 2009 Technical Guidance) NOT APPLICABLE
  - Lifetime Homes (July 2010) NOT APPLICABLE
  - Design Quality Standards (Edition 2) NOT APPLICABLE
  - Housing Quality Indicators (HQI) NOT APPLICABLE
  - Secured By Design (section 2 part compliance) NOT APPLICABLE
  - Secured By Design (full accreditation) NOT APPLICABLE
  - Building for Life (12 point assessment) NOT APPLICABLE
  - English Partnerships Standards NOT APPLICABLE
  - Mobility Standards NOT APPLICABLE
  - Wheelchair Design Guide Standards NOT APPLICABLE
  - NHF Standards NOT APPLICABLE

- DESIGN CRITERIA - AFFORDABLE PLOTS
- Traditional Construction
  - Building Regulations Part A 2013, Part B1 2013, Part C 2013, Part D 2015, Part E 2015, Part F 2015, Part G 2016, Part H 2015, Part J 2013, Part L 2016, Part M 2016, Part P 2013
  - Code for Sustainable Homes Level 3 (November 2009 Technical Guidance) NOT APPLICABLE
  - Lifetime Homes (July 2010) NOT APPLICABLE
  - Design Quality Standards (Edition 2) NOT APPLICABLE
  - Housing Quality Indicators (HQI) NOT APPLICABLE
  - Secured By Design (section 2 part compliance) NOT APPLICABLE
  - Secured By Design (full accreditation) NOT APPLICABLE
  - Building for Life (12 point assessment) NOT APPLICABLE
  - English Partnerships Standards NOT APPLICABLE
  - Mobility Standards NOT APPLICABLE
  - Wheelchair Design Guide Standards NOT APPLICABLE
  - NHF Standards NOT APPLICABLE

- REVISION
- | NO. | DATE     | DESCRIPTION                                                                                                                         |
|-----|----------|-------------------------------------------------------------------------------------------------------------------------------------|
| N   | 09.11.17 | 740v1 changed to 740v2.                                                                                                             |
| M   | 30.10.17 | Plot 81 changed to 867.                                                                                                             |
| L   | 20.10.17 | Variants noted.                                                                                                                     |
| K   | 05.10.17 | 955 replaced with 1032 type.                                                                                                        |
| J   | 01.08.17 | Knee rail replaced with railings fronting 56-60 & 66-68. Bin collection areas added.                                                |
| H   | 24.07.17 | Small sections of railings (less than 900mm in length) removed. Railings omitted from plots 72,74,94,97,108. Fence relocated 65-68. |
| G   | 17.07.17 | Boundary treatment updated.                                                                                                         |
| F   | 29.06.17 | Road 1 geometry changed to match existing.                                                                                          |
| E   | 26.06.17 | Plots 30-34 redesigned. Footpath added linking Road 1 and Road 4. Turning head added to Road 2. Parking for 100 & 107 amended.      |
| D   | 13.06.17 | Layout updated to match Sketch Appraisal 8. Mix amended accordingly.                                                                |
| C   | 20.02.17 | Site redline added. Accommodation Schedule updated to show site areas and densities.                                                |
| B   | 12.10.16 | Road fronting 49-52 changed to private drive. Brick boundary walls removed.                                                         |
| A   | 11.10.16 | Scheme redesigned to relocate POS and reduce number of units.                                                                       |

Legend

- Existing dwelling
- Private parking bay / drive
- 1.8m high brick wall
- 1.8m high close boarded timber screen fence
- 1.5m high close boarded timber fence with 0.3m trellis above
- 1.1m high steel railings
- 0.6m high timber knee rail
- front entrance door
- secondary entrance
- Lockable personnel gate
- Visitor parking
- 'Affordable' dwelling
- Plot variant
- Shared private driveway - Tarmacadam
- Block paving to section of adoptable highway
- 600mm margin to shared surface highway
- Refer to Landscape Architects details
- Existing tree as shown on Topographical Survey
- Bin store
- Bin collection point

| PHASE 2 - APPRAISAL ACCOMMODATION SCHEDULE |                           |                 |       |       |                   |         |     |     |
|--------------------------------------------|---------------------------|-----------------|-------|-------|-------------------|---------|-----|-----|
| PRIVATE SALES UNITS                        |                           |                 | GIA   |       | total GIA of type |         | No. | %   |
| House type                                 |                           |                 | sq.ft | sq.m. | sq.ft.            | sq.m.   |     |     |
| 621                                        | Detached                  | 2 bed. 3 person | 621   | 57.7  | 8073              | 750.0   | 13  | 13  |
| 651                                        | Semi-detached and terrace | 2 bed. 4 person | 651   | 60.5  | 18228             | 1693.4  | 28  | 29  |
| 857                                        | Detached                  | 3 bed. 5 person | 857   | 79.6  | 5142              | 477.7   | 6   | 6   |
| 867                                        | Detached                  | 3 bed. 5 person | 867   | 80.5  | 14739             | 1369.3  | 17  | 18  |
|                                            | Semi-detached             | 3 bed. 5 person | 867   | 80.5  | 2601              | 241.6   | 3   | 3   |
| 1032                                       | Detached                  | 3 bed. 6 person | 1032  | 95.9  | 16512             | 1534.0  | 16  | 16  |
| 1054                                       | Semi-detached             | 3 bed. 5 person | 1054  | 97.9  | 14756             | 1370.9  | 14  | 14  |
| SUB-TOTAL                                  |                           |                 |       |       | 80051             | 7437.0  | 97  | 100 |
|                                            |                           |                 |       |       |                   |         |     |     |
| AFFORDABLE UNITS                           |                           |                 | GIA   |       | total GIA of type |         | No. | %   |
| House type                                 |                           |                 | sq.ft | sq.m. | sq.ft.            | sq.m.   |     |     |
| 740                                        | Semi-detached             | 2 bed. 4 person | 740   | 68.7  | 14800             | 1375.0  | 20  | 63  |
| 953                                        | Semi-detached             | 3 bed. 5 person | 953   | 88.5  | 11436             | 1062.4  | 12  | 38  |
| SUB-TOTAL                                  |                           |                 |       |       | 26236             | 2437.4  | 32  | 100 |
|                                            |                           |                 |       |       |                   |         |     |     |
| TOTAL                                      |                           |                 |       |       | 106287            | 9874.39 | 129 |     |

|               |                   |                   |            |
|---------------|-------------------|-------------------|------------|
| Unit Density: | 14 Units/acre     | Acres             | Hectares   |
|               | 34 Units/hectares | Site Area (gross) | 12.10 4.90 |
|               |                   | POS               | 1.95 0.79  |
|               |                   | Undeveloped       | 0.72 0.29  |
|               |                   | Site Area (net)   | 9.44 3.82  |

|               |                    |
|---------------|--------------------|
| Area Density: | 11265 sq.ft./acre  |
|               | 2585 sq.m./hectare |

- GENERAL NOTES:
- This drawing is based on Haycock & Todd Topographical Survey, dated April 2013, job number 57847.
  - This drawing is to be read in conjunction with associated Boundary Treatment & Materials Drawings.
  - All contractors must visit the site and be responsible for taking and checking dimensions prior to undertaking of works.
  - Any discrepancies between drawings, specifications and site conditions must be brought to the attention of the Site Supervisor.
  - This drawing is for Planning purposes only. It is not intended to be used for construction purposes. Whilst all reasonable efforts are used to ensure drawings are accurate Chris Gothard Architectural accept no responsibility or liability for any reliance placed on, or use made of, this plan by anyone for purpose other than those stated above.

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ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCING ANY WORK

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## ***APPENDIX G***

### ***TRICS Data***

Calculation Reference: AUDIT-109307-170725-0738

## TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

|    |                                |        |
|----|--------------------------------|--------|
| 02 | SOUTH EAST                     |        |
|    | EX ESSEX                       | 1 days |
|    | WS WEST SUSSEX                 | 1 days |
| 03 | SOUTH WEST                     |        |
|    | DV DEVON                       | 1 days |
|    | WL WILTSHIRE                   | 1 days |
| 04 | EAST ANGLIA                    |        |
|    | NF NORFOLK                     | 1 days |
|    | SF SUFFOLK                     | 2 days |
| 05 | EAST MIDLANDS                  |        |
|    | LN LINCOLNSHIRE                | 2 days |
|    | NT NOTTINGHAMSHIRE             | 1 days |
| 06 | WEST MIDLANDS                  |        |
|    | SH SHROPSHIRE                  | 1 days |
|    | WM WEST MIDLANDS               | 1 days |
|    | WO WORCESTERSHIRE              | 1 days |
| 07 | YORKSHIRE & NORTH LINCOLNSHIRE |        |
|    | NE NORTH EAST LINCOLNSHIRE     | 1 days |
|    | NY NORTH YORKSHIRE             | 1 days |
| 08 | NORTH WEST                     |        |
|    | CH CHESHIRE                    | 1 days |
| 09 | NORTH                          |        |
|    | CB CUMBRIA                     | 1 days |
| 10 | WALES                          |        |
|    | CF CARDIFF                     | 1 days |
| 11 | SCOTLAND                       |        |
|    | FA FALKIRK                     | 1 days |
|    | FI FIFE                        | 1 days |
|    | HI HIGHLAND                    | 1 days |
|    | SR STIRLING                    | 1 days |

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

## Secondary Filtering selection:

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

Parameter: Number of dwellings  
Actual Range: 82 to 432 (units: )  
Range Selected by User: 80 to 491 (units: )

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/06 to 25/09/15

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   | 3 days |
| Wednesday | 2 days |
| Thursday  | 3 days |
| Friday    | 5 days |

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

Selected survey types:

|                       |         |
|-----------------------|---------|
| Manual count          | 22 days |
| Directional ATC Count | 0 days  |

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

Selected Locations:

|                                    |    |
|------------------------------------|----|
| Suburban Area (PPS6 Out of Centre) | 9  |
| Edge of Town                       | 13 |

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

Selected Location Sub Categories:

|                  |    |
|------------------|----|
| Residential Zone | 17 |
| Out of Town      | 1  |
| No Sub Category  | 4  |

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:

|    |         |
|----|---------|
| C3 | 22 days |
|----|---------|

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

## Secondary Filtering selection (Cont.):

Population within 1 mile:

|                  |        |
|------------------|--------|
| 1,001 to 5,000   | 1 days |
| 5,001 to 10,000  | 3 days |
| 10,001 to 15,000 | 5 days |
| 15,001 to 20,000 | 8 days |
| 20,001 to 25,000 | 4 days |
| 25,001 to 50,000 | 1 days |

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

Population within 5 miles:

|                    |        |
|--------------------|--------|
| 5,001 to 25,000    | 2 days |
| 25,001 to 50,000   | 2 days |
| 50,001 to 75,000   | 3 days |
| 75,001 to 100,000  | 4 days |
| 100,001 to 125,000 | 5 days |
| 125,001 to 250,000 | 5 days |
| 250,001 to 500,000 | 1 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 | 14 days |

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

Travel Plan:

|     |         |
|-----|---------|
| Yes | 1 days  |
| No  | 21 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 | 22 days |
|-----------------|---------|

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

LIST OF SITES relevant to selection parameters

|   |                                     |                     |  |                     |
|---|-------------------------------------|---------------------|--|---------------------|
| 1 | CB-03-A-04                          | SEMI DETACHED       |  | CUMBRIA             |
|   | MOORCLOSE ROAD                      |                     |  |                     |
|   | SALTERBACK                          |                     |  |                     |
|   | WORKINGTON                          |                     |  |                     |
|   | Edge of Town                        |                     |  |                     |
|   | No Sub Category                     |                     |  |                     |
|   | Total Number of dwellings:          | 82                  |  |                     |
|   | Survey date: FRIDAY                 | 24/04/09            |  | Survey Type: MANUAL |
| 2 | CF-03-A-02                          | MIXED HOUSES        |  | CARDIFF             |
|   | DROPE ROAD                          |                     |  |                     |
|   | CARDIFF                             |                     |  |                     |
|   | Edge of Town                        |                     |  |                     |
|   | Residential Zone                    |                     |  |                     |
|   | Total Number of dwellings:          | 196                 |  |                     |
|   | Survey date: FRIDAY                 | 05/10/07            |  | Survey Type: MANUAL |
| 3 | CH-03-A-06                          | SEMI-DET./BUNGALOWS |  | CHESHIRE            |
|   | CREWE ROAD                          |                     |  |                     |
|   | CREWE                               |                     |  |                     |
|   | Suburban Area (PPS6 Out of Centre)  |                     |  |                     |
|   | No Sub Category                     |                     |  |                     |
|   | Total Number of dwellings:          | 129                 |  |                     |
|   | Survey date: TUESDAY                | 14/10/08            |  | Survey Type: MANUAL |
| 4 | DV-03-A-02                          | HOUSES & BUNGALOWS  |  | DEVON               |
|   | MILLHEAD ROAD                       |                     |  |                     |
|   | HONITON                             |                     |  |                     |
|   | Suburban Area (PPS6 Out of Centre)  |                     |  |                     |
|   | Residential Zone                    |                     |  |                     |
|   | Total Number of dwellings:          | 116                 |  |                     |
|   | Survey date: FRIDAY                 | 25/09/15            |  | Survey Type: MANUAL |
| 5 | EX-03-A-01                          | SEMI-DET.           |  | ESSEX               |
|   | MILTON ROAD                         |                     |  |                     |
|   | CORRINGHAM                          |                     |  |                     |
|   | STANFORD-LE-HOPE                    |                     |  |                     |
|   | Edge of Town                        |                     |  |                     |
|   | Residential Zone                    |                     |  |                     |
|   | Total Number of dwellings:          | 237                 |  |                     |
|   | Survey date: TUESDAY                | 13/05/08            |  | Survey Type: MANUAL |
| 6 | FA-03-A-02                          | MIXED HOUSES        |  | FALKIRK             |
|   | ROSEBANK AVENUE & SPRINGFIELD DRIVE |                     |  |                     |
|   | FALKIRK                             |                     |  |                     |
|   | Suburban Area (PPS6 Out of Centre)  |                     |  |                     |
|   | Residential Zone                    |                     |  |                     |
|   | Total Number of dwellings:          | 161                 |  |                     |
|   | Survey date: WEDNESDAY              | 29/05/13            |  | Survey Type: MANUAL |
| 7 | FI-03-A-03                          | MIXED HOUSES        |  | FIFE                |
|   | WOODMILL ROAD                       |                     |  |                     |
|   | DUNFERMLINE                         |                     |  |                     |
|   | Edge of Town                        |                     |  |                     |
|   | Residential Zone                    |                     |  |                     |
|   | Total Number of dwellings:          | 155                 |  |                     |
|   | Survey date: MONDAY                 | 30/04/07            |  | Survey Type: MANUAL |

LIST OF SITES relevant to selection parameters (Cont.)

|    |                                    |                          |  |                         |
|----|------------------------------------|--------------------------|--|-------------------------|
| 8  | HI-03-A-11                         | BUNGALOWS                |  | HIGHLAND                |
|    | STEVENSON ROAD                     |                          |  |                         |
|    | INSHES                             |                          |  |                         |
|    | INVERNESS                          |                          |  |                         |
|    | Edge of Town                       |                          |  |                         |
|    | Residential Zone                   |                          |  |                         |
|    | Total Number of dwellings:         | 85                       |  |                         |
|    | Survey date: MONDAY                | 05/06/06                 |  | Survey Type: MANUAL     |
| 9  | LN-03-A-01                         | MIXED HOUSES             |  | LINCOLNSHIRE            |
|    | BRANT ROAD                         |                          |  |                         |
|    | BRACEBRIDGE                        |                          |  |                         |
|    | LINCOLN                            |                          |  |                         |
|    | Edge of Town                       |                          |  |                         |
|    | Residential Zone                   |                          |  |                         |
|    | Total Number of dwellings:         | 150                      |  |                         |
|    | Survey date: TUESDAY               | 15/05/07                 |  | Survey Type: MANUAL     |
| 10 | LN-03-A-02                         | MIXED HOUSES             |  | LINCOLNSHIRE            |
|    | HYKEHAM ROAD                       |                          |  |                         |
|    | LINCOLN                            |                          |  |                         |
|    | Suburban Area (PPS6 Out of Centre) |                          |  |                         |
|    | Residential Zone                   |                          |  |                         |
|    | Total Number of dwellings:         | 186                      |  |                         |
|    | Survey date: MONDAY                | 14/05/07                 |  | Survey Type: MANUAL     |
| 11 | NE-03-A-02                         | SEMI DETACHED & DETACHED |  | NORTH EAST LINCOLNSHIRE |
|    | HANOVER WALK                       |                          |  |                         |
|    | SCUNTHORPE                         |                          |  |                         |
|    | Edge of Town                       |                          |  |                         |
|    | No Sub Category                    |                          |  |                         |
|    | Total Number of dwellings:         | 432                      |  |                         |
|    | Survey date: MONDAY                | 12/05/14                 |  | Survey Type: MANUAL     |
| 12 | NF-03-A-02                         | HOUSES & FLATS           |  | NORFOLK                 |
|    | DEREHAM ROAD                       |                          |  |                         |
|    | NORWICH                            |                          |  |                         |
|    | Suburban Area (PPS6 Out of Centre) |                          |  |                         |
|    | Residential Zone                   |                          |  |                         |
|    | Total Number of dwellings:         | 98                       |  |                         |
|    | Survey date: MONDAY                | 22/10/12                 |  | Survey Type: MANUAL     |
| 13 | NT-03-A-03                         | SEMI DETACHED            |  | NOTTINGHAMSHIRE         |
|    | B6018 SUTTON ROAD                  |                          |  |                         |
|    | KIRKBY-IN-ASHFIELD                 |                          |  |                         |
|    | Edge of Town                       |                          |  |                         |
|    | Residential Zone                   |                          |  |                         |
|    | Total Number of dwellings:         | 166                      |  |                         |
|    | Survey date: WEDNESDAY             | 28/06/06                 |  | Survey Type: MANUAL     |
| 14 | NY-03-A-06                         | BUNGALOWS & SEMI DET.    |  | NORTH YORKSHIRE         |
|    | HORSEFAIR                          |                          |  |                         |
|    | BOROUGHBRIDGE                      |                          |  |                         |
|    | Suburban Area (PPS6 Out of Centre) |                          |  |                         |
|    | Residential Zone                   |                          |  |                         |
|    | Total Number of dwellings:         | 115                      |  |                         |
|    | Survey date: FRIDAY                | 14/10/11                 |  | Survey Type: MANUAL     |

LIST OF SITES relevant to selection parameters (Cont.)

|    |                                    |                             |  |                     |
|----|------------------------------------|-----------------------------|--|---------------------|
| 15 | SF-03-A-02                         | SEMI DET./TERRACED          |  | SUFFOLK             |
|    | STOKE PARK DRIVE                   |                             |  |                     |
|    | MAIDENHALL                         |                             |  |                     |
|    | IPSWICH                            |                             |  |                     |
|    | Edge of Town                       |                             |  |                     |
|    | Residential Zone                   |                             |  |                     |
|    | Total Number of dwellings:         | 230                         |  |                     |
|    | Survey date: THURSDAY              | 24/05/07                    |  | Survey Type: MANUAL |
| 16 | SF-03-A-03                         | MIXED HOUSES                |  | SUFFOLK             |
|    | BARTON HILL                        |                             |  |                     |
|    | FORNHAM ST MARTIN                  |                             |  |                     |
|    | BURY ST EDMUNDS                    |                             |  |                     |
|    | Edge of Town                       |                             |  |                     |
|    | Out of Town                        |                             |  |                     |
|    | Total Number of dwellings:         | 101                         |  |                     |
|    | Survey date: MONDAY                | 15/05/06                    |  | Survey Type: MANUAL |
| 17 | SH-03-A-04                         | TERRACED                    |  | SHROPSHIRE          |
|    | ST MICHAEL'S STREET                |                             |  |                     |
|    | SHREWSBURY                         |                             |  |                     |
|    | Suburban Area (PPS6 Out of Centre) |                             |  |                     |
|    | No Sub Category                    |                             |  |                     |
|    | Total Number of dwellings:         | 108                         |  |                     |
|    | Survey date: THURSDAY              | 11/06/09                    |  | Survey Type: MANUAL |
| 18 | SR-03-A-01                         | DETACHED                    |  | STIRLING            |
|    | BENVIEW                            |                             |  |                     |
|    | STIRLING                           |                             |  |                     |
|    | Suburban Area (PPS6 Out of Centre) |                             |  |                     |
|    | Residential Zone                   |                             |  |                     |
|    | Total Number of dwellings:         | 115                         |  |                     |
|    | Survey date: MONDAY                | 23/04/07                    |  | Survey Type: MANUAL |
| 19 | WL-03-A-01                         | SEMI D./TERRACED W. BASSETT |  | WILTSHIRE           |
|    | MAPLE DRIVE                        |                             |  |                     |
|    | WOOTTON BASSETT                    |                             |  |                     |
|    | Edge of Town                       |                             |  |                     |
|    | Residential Zone                   |                             |  |                     |
|    | Total Number of dwellings:         | 99                          |  |                     |
|    | Survey date: MONDAY                | 02/10/06                    |  | Survey Type: MANUAL |
| 20 | WM-03-A-03                         | MIXED HOUSING               |  | WEST MIDLANDS       |
|    | BASELEY WAY                        |                             |  |                     |
|    | ROWLEYS GREEN                      |                             |  |                     |
|    | COVENTRY                           |                             |  |                     |
|    | Edge of Town                       |                             |  |                     |
|    | Residential Zone                   |                             |  |                     |
|    | Total Number of dwellings:         | 84                          |  |                     |
|    | Survey date: MONDAY                | 24/09/07                    |  | Survey Type: MANUAL |
| 21 | WO-03-A-03                         | DETACHED                    |  | WORCESTERSHIRE      |
|    | BLAKEBROOK                         |                             |  |                     |
|    | BLAKEBROOK                         |                             |  |                     |
|    | KIDDERMINSTER                      |                             |  |                     |
|    | Suburban Area (PPS6 Out of Centre) |                             |  |                     |
|    | Residential Zone                   |                             |  |                     |
|    | Total Number of dwellings:         | 138                         |  |                     |
|    | Survey date: FRIDAY                | 05/05/06                    |  | Survey Type: MANUAL |

LIST OF SITES relevant to selection parameters (Cont.)

|    |                            |              |                     |
|----|----------------------------|--------------|---------------------|
| 22 | WS-03-A-04                 | MIXED HOUSES | WEST SUSSEX         |
|    | HILLS FARM LANE            |              |                     |
|    | BROADBRIDGE HEATH          |              |                     |
|    | HORSHAM                    |              |                     |
|    | Edge of Town               |              |                     |
|    | Residential Zone           |              |                     |
|    | Total Number of dwellings: | 151          |                     |
|    | Survey date: THURSDAY      | 11/12/14     | Survey Type: MANUAL |

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

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

**MULTI-MODAL VEHICLES**

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

| Time Range    | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|               | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00 |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00 |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00 |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00 |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00 |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00 |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00 |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00 | 22       | 152         | 0.075     | 22         | 152         | 0.280     | 22       | 152         | 0.355     |
| 08:00 - 09:00 | 22       | 152         | 0.147     | 22         | 152         | 0.411     | 22       | 152         | 0.558     |
| 09:00 - 10:00 | 22       | 152         | 0.163     | 22         | 152         | 0.211     | 22       | 152         | 0.374     |
| 10:00 - 11:00 | 22       | 152         | 0.146     | 22         | 152         | 0.184     | 22       | 152         | 0.330     |
| 11:00 - 12:00 | 22       | 152         | 0.170     | 22         | 152         | 0.165     | 22       | 152         | 0.335     |
| 12:00 - 13:00 | 22       | 152         | 0.193     | 22         | 152         | 0.177     | 22       | 152         | 0.370     |
| 13:00 - 14:00 | 22       | 152         | 0.184     | 22         | 152         | 0.176     | 22       | 152         | 0.360     |
| 14:00 - 15:00 | 22       | 152         | 0.178     | 22         | 152         | 0.189     | 22       | 152         | 0.367     |
| 15:00 - 16:00 | 22       | 152         | 0.294     | 22         | 152         | 0.209     | 22       | 152         | 0.503     |
| 16:00 - 17:00 | 22       | 152         | 0.323     | 22         | 152         | 0.195     | 22       | 152         | 0.518     |
| 17:00 - 18:00 | 22       | 152         | 0.382     | 22         | 152         | 0.229     | 22       | 152         | 0.611     |
| 18:00 - 19:00 | 22       | 152         | 0.262     | 22         | 152         | 0.218     | 22       | 152         | 0.480     |
| 19:00 - 20:00 |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00 |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00 |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00 |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00 |          |             |           |            |             |           |          |             |           |
| Total Rates:  |          |             | 2.517     |            |             | 2.644     |          |             | 5.161     |

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

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

**Parameter summary**

Trip rate parameter range selected: 82 - 432 (units: )  
 Survey date range: 01/01/06 - 25/09/15  
 Number of weekdays (Monday-Friday): 22  
 Number of Saturdays: 0  
 Number of Sundays: 0  
 Surveys automatically removed from selection: 0  
 Surveys manually removed from selection: 0

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

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

MULTI-MODAL CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

| Time Range    | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|               | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00 |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00 |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00 |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00 |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00 |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00 |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00 |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00 | 22       | 152         | 0.006     | 22         | 152         | 0.009     | 22       | 152         | 0.015     |
| 08:00 - 09:00 | 22       | 152         | 0.005     | 22         | 152         | 0.016     | 22       | 152         | 0.021     |
| 09:00 - 10:00 | 22       | 152         | 0.004     | 22         | 152         | 0.004     | 22       | 152         | 0.008     |
| 10:00 - 11:00 | 22       | 152         | 0.001     | 22         | 152         | 0.005     | 22       | 152         | 0.006     |
| 11:00 - 12:00 | 22       | 152         | 0.004     | 22         | 152         | 0.002     | 22       | 152         | 0.006     |
| 12:00 - 13:00 | 22       | 152         | 0.004     | 22         | 152         | 0.004     | 22       | 152         | 0.008     |
| 13:00 - 14:00 | 22       | 152         | 0.004     | 22         | 152         | 0.004     | 22       | 152         | 0.008     |
| 14:00 - 15:00 | 22       | 152         | 0.004     | 22         | 152         | 0.004     | 22       | 152         | 0.008     |
| 15:00 - 16:00 | 22       | 152         | 0.015     | 22         | 152         | 0.009     | 22       | 152         | 0.024     |
| 16:00 - 17:00 | 22       | 152         | 0.009     | 22         | 152         | 0.007     | 22       | 152         | 0.016     |
| 17:00 - 18:00 | 22       | 152         | 0.013     | 22         | 152         | 0.011     | 22       | 152         | 0.024     |
| 18:00 - 19:00 | 22       | 152         | 0.009     | 22         | 152         | 0.006     | 22       | 152         | 0.015     |
| 19:00 - 20:00 |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00 |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00 |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00 |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00 |          |             |           |            |             |           |          |             |           |
| Total Rates:  |          |             | 0.078     |            |             | 0.081     |          |             | 0.159     |

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

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

#### Parameter summary

Trip rate parameter range selected: 82 - 432 (units: )  
 Survey date range: 01/01/06 - 25/09/15  
 Number of weekdays (Monday-Friday): 22  
 Number of Saturdays: 0  
 Number of Sundays: 0  
 Surveys automatically removed from selection: 0  
 Surveys manually removed from selection: 0

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

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

MULTI-MODAL VEHICLE OCCUPANTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

| Time Range    | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|               | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00 |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00 |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00 |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00 |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00 |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00 |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00 |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00 | 22       | 152         | 0.086     | 22         | 152         | 0.333     | 22       | 152         | 0.419     |
| 08:00 - 09:00 | 22       | 152         | 0.182     | 22         | 152         | 0.606     | 22       | 152         | 0.788     |
| 09:00 - 10:00 | 22       | 152         | 0.191     | 22         | 152         | 0.271     | 22       | 152         | 0.462     |
| 10:00 - 11:00 | 22       | 152         | 0.184     | 22         | 152         | 0.240     | 22       | 152         | 0.424     |
| 11:00 - 12:00 | 22       | 152         | 0.213     | 22         | 152         | 0.213     | 22       | 152         | 0.426     |
| 12:00 - 13:00 | 22       | 152         | 0.244     | 22         | 152         | 0.223     | 22       | 152         | 0.467     |
| 13:00 - 14:00 | 22       | 152         | 0.234     | 22         | 152         | 0.225     | 22       | 152         | 0.459     |
| 14:00 - 15:00 | 22       | 152         | 0.226     | 22         | 152         | 0.245     | 22       | 152         | 0.471     |
| 15:00 - 16:00 | 22       | 152         | 0.458     | 22         | 152         | 0.282     | 22       | 152         | 0.740     |
| 16:00 - 17:00 | 22       | 152         | 0.448     | 22         | 152         | 0.273     | 22       | 152         | 0.721     |
| 17:00 - 18:00 | 22       | 152         | 0.504     | 22         | 152         | 0.307     | 22       | 152         | 0.811     |
| 18:00 - 19:00 | 22       | 152         | 0.348     | 22         | 152         | 0.311     | 22       | 152         | 0.659     |
| 19:00 - 20:00 |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00 |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00 |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00 |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00 |          |             |           |            |             |           |          |             |           |
| Total Rates:  |          |             | 3.318     |            |             | 3.529     |          |             | 6.847     |

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

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

#### Parameter summary

|                                               |                     |
|-----------------------------------------------|---------------------|
| Trip rate parameter range selected:           | 82 - 432 (units: )  |
| Survey date range:                            | 01/01/06 - 25/09/15 |
| Number of weekdays (Monday-Friday):           | 22                  |
| Number of Saturdays:                          | 0                   |
| Number of Sundays:                            | 0                   |
| Surveys automatically removed from selection: | 0                   |
| Surveys manually removed from selection:      | 0                   |

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

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

MULTI-MODAL PEDESTRIANS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

| Time Range    | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|               | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00 |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00 |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00 |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00 |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00 |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00 |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00 |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00 | 22       | 152         | 0.031     | 22         | 152         | 0.050     | 22       | 152         | 0.081     |
| 08:00 - 09:00 | 22       | 152         | 0.041     | 22         | 152         | 0.153     | 22       | 152         | 0.194     |
| 09:00 - 10:00 | 22       | 152         | 0.043     | 22         | 152         | 0.052     | 22       | 152         | 0.095     |
| 10:00 - 11:00 | 22       | 152         | 0.042     | 22         | 152         | 0.042     | 22       | 152         | 0.084     |
| 11:00 - 12:00 | 22       | 152         | 0.033     | 22         | 152         | 0.037     | 22       | 152         | 0.070     |
| 12:00 - 13:00 | 22       | 152         | 0.034     | 22         | 152         | 0.027     | 22       | 152         | 0.061     |
| 13:00 - 14:00 | 22       | 152         | 0.027     | 22         | 152         | 0.037     | 22       | 152         | 0.064     |
| 14:00 - 15:00 | 22       | 152         | 0.046     | 22         | 152         | 0.048     | 22       | 152         | 0.094     |
| 15:00 - 16:00 | 22       | 152         | 0.154     | 22         | 152         | 0.069     | 22       | 152         | 0.223     |
| 16:00 - 17:00 | 22       | 152         | 0.076     | 22         | 152         | 0.049     | 22       | 152         | 0.125     |
| 17:00 - 18:00 | 22       | 152         | 0.055     | 22         | 152         | 0.043     | 22       | 152         | 0.098     |
| 18:00 - 19:00 | 22       | 152         | 0.057     | 22         | 152         | 0.058     | 22       | 152         | 0.115     |
| 19:00 - 20:00 |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00 |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00 |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00 |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00 |          |             |           |            |             |           |          |             |           |
| Total Rates:  |          |             | 0.639     |            |             | 0.665     |          |             | 1.304     |

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

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

#### Parameter summary

|                                               |                     |
|-----------------------------------------------|---------------------|
| Trip rate parameter range selected:           | 82 - 432 (units: )  |
| Survey date range:                            | 01/01/06 - 25/09/15 |
| Number of weekdays (Monday-Friday):           | 22                  |
| Number of Saturdays:                          | 0                   |
| Number of Sundays:                            | 0                   |
| Surveys automatically removed from selection: | 0                   |
| Surveys manually removed from selection:      | 0                   |

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED  
**MULTI-MODAL PUBLIC TRANSPORT USERS**  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

| Time Range    | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|               | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00 |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00 |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00 |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00 |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00 |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00 |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00 |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00 | 22       | 152         | 0.000     | 22         | 152         | 0.009     | 22       | 152         | 0.009     |
| 08:00 - 09:00 | 22       | 152         | 0.003     | 22         | 152         | 0.014     | 22       | 152         | 0.017     |
| 09:00 - 10:00 | 22       | 152         | 0.002     | 22         | 152         | 0.007     | 22       | 152         | 0.009     |
| 10:00 - 11:00 | 22       | 152         | 0.003     | 22         | 152         | 0.004     | 22       | 152         | 0.007     |
| 11:00 - 12:00 | 22       | 152         | 0.004     | 22         | 152         | 0.005     | 22       | 152         | 0.009     |
| 12:00 - 13:00 | 22       | 152         | 0.005     | 22         | 152         | 0.007     | 22       | 152         | 0.012     |
| 13:00 - 14:00 | 22       | 152         | 0.006     | 22         | 152         | 0.003     | 22       | 152         | 0.009     |
| 14:00 - 15:00 | 22       | 152         | 0.004     | 22         | 152         | 0.002     | 22       | 152         | 0.006     |
| 15:00 - 16:00 | 22       | 152         | 0.008     | 22         | 152         | 0.006     | 22       | 152         | 0.014     |
| 16:00 - 17:00 | 22       | 152         | 0.009     | 22         | 152         | 0.003     | 22       | 152         | 0.012     |
| 17:00 - 18:00 | 22       | 152         | 0.014     | 22         | 152         | 0.004     | 22       | 152         | 0.018     |
| 18:00 - 19:00 | 22       | 152         | 0.007     | 22         | 152         | 0.001     | 22       | 152         | 0.008     |
| 19:00 - 20:00 |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00 |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00 |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00 |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00 |          |             |           |            |             |           |          |             |           |
| Total Rates:  |          |             | 0.065     |            |             | 0.065     |          |             | 0.130     |

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

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

#### Parameter summary

Trip rate parameter range selected: 82 - 432 (units: )  
 Survey date range: 01/01/06 - 25/09/15  
 Number of weekdays (Monday-Friday): 22  
 Number of Saturdays: 0  
 Number of Sundays: 0  
 Surveys automatically removed from selection: 0  
 Surveys manually removed from selection: 0

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

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

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

| Time Range    | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|               | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00 |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00 |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00 |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00 |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00 |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00 |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00 |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00 | 22       | 152         | 0.124     | 22         | 152         | 0.401     | 22       | 152         | 0.525     |
| 08:00 - 09:00 | 22       | 152         | 0.232     | 22         | 152         | 0.789     | 22       | 152         | 1.021     |
| 09:00 - 10:00 | 22       | 152         | 0.240     | 22         | 152         | 0.333     | 22       | 152         | 0.573     |
| 10:00 - 11:00 | 22       | 152         | 0.230     | 22         | 152         | 0.291     | 22       | 152         | 0.521     |
| 11:00 - 12:00 | 22       | 152         | 0.255     | 22         | 152         | 0.258     | 22       | 152         | 0.513     |
| 12:00 - 13:00 | 22       | 152         | 0.287     | 22         | 152         | 0.261     | 22       | 152         | 0.548     |
| 13:00 - 14:00 | 22       | 152         | 0.271     | 22         | 152         | 0.269     | 22       | 152         | 0.540     |
| 14:00 - 15:00 | 22       | 152         | 0.280     | 22         | 152         | 0.299     | 22       | 152         | 0.579     |
| 15:00 - 16:00 | 22       | 152         | 0.636     | 22         | 152         | 0.366     | 22       | 152         | 1.002     |
| 16:00 - 17:00 | 22       | 152         | 0.543     | 22         | 152         | 0.333     | 22       | 152         | 0.876     |
| 17:00 - 18:00 | 22       | 152         | 0.586     | 22         | 152         | 0.366     | 22       | 152         | 0.952     |
| 18:00 - 19:00 | 22       | 152         | 0.421     | 22         | 152         | 0.376     | 22       | 152         | 0.797     |
| 19:00 - 20:00 |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00 |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00 |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00 |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00 |          |             |           |            |             |           |          |             |           |
| Total Rates:  |          |             | 4.105     |            |             | 4.342     |          |             | 8.447     |

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

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

#### Parameter summary

|                                               |                     |
|-----------------------------------------------|---------------------|
| Trip rate parameter range selected:           | 82 - 432 (units: )  |
| Survey date range:                            | 01/01/06 - 25/09/15 |
| Number of weekdays (Monday-Friday):           | 22                  |
| Number of Saturdays:                          | 0                   |
| Number of Sundays:                            | 0                   |
| Surveys automatically removed from selection: | 0                   |
| Surveys manually removed from selection:      | 0                   |

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

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## ***APPENDIX H***

### ***Census Based Traffic Assignment***

# WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

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population All usual residents aged 16 and over in employment the week before the census  
units Persons  
date 2011  
method of travel to work Driving a car or van

| place of work : 2011 super output area - middle layer | usual residence<br>E02001522 :<br>Barnsley 014 | %      | Co-ordinates |             | Houghton<br>Road (W ) | Station<br>Road | Barnsley<br>Road (E ) | Highgate<br>Lane | A635<br>(SW) | Local<br>Centre |
|-------------------------------------------------------|------------------------------------------------|--------|--------------|-------------|-----------------------|-----------------|-----------------------|------------------|--------------|-----------------|
| E02001579 : Rotherham 002                             | 208                                            | 17.5%  | 53.49745242  | -1.34205705 | 8.7%                  |                 |                       | 8.7%             |              |                 |
| E02001522 : Barnsley 014                              | 167                                            | 14.0%  | 53.54650379  | -1.31370821 |                       |                 |                       |                  |              | 14.0%           |
| E02001530 : Barnsley 022                              | 146                                            | 12.3%  | 53.53170944  | -1.30774141 |                       | 6.1%            |                       | 6.1%             |              |                 |
| E02001578 : Rotherham 001                             | 70                                             | 5.9%   | 53.50678169  | -1.36995058 | 2.9%                  |                 |                       |                  | 2.9%         |                 |
| E02001521 : Barnsley 013                              | 63                                             | 5.3%   | 53.55028028  | -1.48868045 | 5.3%                  |                 |                       |                  |              |                 |
| E02001560 : Doncaster 022                             | 51                                             | 4.3%   | 53.51831483  | -1.13003816 |                       | 4.3%            |                       |                  |              |                 |
| E02001523 : Barnsley 015                              | 38                                             | 3.2%   | 53.54683154  | -1.44273593 | 3.2%                  |                 |                       |                  |              |                 |
| E02001566 : Doncaster 028                             | 34                                             | 2.9%   | 53.50134495  | -1.14599696 |                       | 2.9%            |                       |                  |              |                 |
| E02001520 : Barnsley 012                              | 31                                             | 2.6%   | 53.55970955  | -1.51054398 | 2.6%                  |                 |                       |                  |              |                 |
| E02001558 : Doncaster 020                             | 26                                             | 2.2%   | 53.52041056  | -1.26387801 |                       | 2.2%            |                       |                  |              |                 |
| E02002481 : Wakefield 044                             | 26                                             | 2.2%   | 53.59249788  | -1.28789752 |                       | 2.2%            |                       |                  |              |                 |
| E02001594 : Rotherham 017                             | 25                                             | 2.1%   | 53.42979154  | -1.34949431 | 2.1%                  |                 |                       |                  |              |                 |
| E02001533 : Barnsley 025                              | 22                                             | 1.8%   | 53.51931549  | -1.32028306 |                       |                 |                       | 1.8%             |              |                 |
| E02001534 : Barnsley 026                              | 21                                             | 1.8%   | 53.51900135  | -1.39822545 | 1.8%                  |                 |                       |                  |              |                 |
| E02001569 : Doncaster 031                             | 21                                             | 1.8%   | 53.49746585  | -1.29244249 |                       | 0.9%            |                       | 0.9%             |              |                 |
| E02001528 : Barnsley 020                              | 20                                             | 1.7%   | 53.53752800  | -1.37496651 | 1.7%                  |                 |                       |                  |              |                 |
| E02001580 : Rotherham 003                             | 17                                             | 1.4%   | 53.48804280  | -1.31552092 |                       |                 |                       | 1.4%             |              |                 |
| E02001531 : Barnsley 023                              | 16                                             | 1.3%   | 53.52646923  | -1.40865004 | 1.3%                  |                 |                       |                  |              |                 |
| E02001632 : Sheffield 022                             | 15                                             | 1.3%   | 53.39790185  | -1.45582932 | 1.3%                  |                 |                       |                  |              |                 |
| E02001510 : Barnsley 002                              | 14                                             | 1.2%   | 53.59575351  | -1.44659135 | 1.2%                  |                 |                       |                  |              |                 |
| E02001536 : Barnsley 028                              | 14                                             | 1.2%   | 53.50295042  | -1.47533056 | 1.2%                  |                 |                       |                  |              |                 |
| E02001542 : Doncaster 004                             | 14                                             | 1.2%   | 53.59814401  | -1.02554965 |                       | 1.2%            |                       |                  |              |                 |
| E02001602 : Rotherham 025                             | 14                                             | 1.2%   | 53.40487425  | -1.37004525 | 0.6%                  |                 |                       | 0.6%             |              |                 |
| E02001515 : Barnsley 007                              | 13                                             | 1.1%   | 53.58093183  | -1.47498841 | 1.1%                  |                 |                       |                  |              |                 |
| E02001518 : Barnsley 010                              | 13                                             | 1.1%   | 53.56329007  | -1.48573098 | 1.1%                  |                 |                       |                  |              |                 |
| E02006843 : Sheffield 073                             | 13                                             | 1.1%   | 53.38594108  | -1.47564761 | 1.1%                  |                 |                       |                  |              |                 |
| E02001519 : Barnsley 011                              | 12                                             | 1.0%   | 53.56226223  | -1.43664222 | 1.0%                  |                 |                       |                  |              |                 |
| E02001553 : Doncaster 015                             | 12                                             | 1.0%   | 53.53807668  | -1.10328197 |                       | 1.0%            |                       |                  |              |                 |
| E02001593 : Rotherham 016                             | 12                                             | 1.0%   | 53.43153334  | -1.37936987 | 1.0%                  |                 |                       |                  |              |                 |
| E02001628 : Sheffield 018                             | 12                                             | 1.0%   | 53.41220748  | -1.39668964 | 1.0%                  |                 |                       |                  |              |                 |
| E02001514 : Barnsley 006                              | 10                                             | 0.8%   | 53.58091579  | -1.37905769 | 0.8%                  |                 |                       |                  |              |                 |
| E02001545 : Doncaster 007                             | 10                                             | 0.8%   | 53.56611563  | -1.06717894 |                       | 0.8%            |                       |                  |              |                 |
| E02001595 : Rotherham 018                             | 10                                             | 0.8%   | 53.42741467  | -1.21991169 |                       | 0.8%            |                       |                  |              |                 |
|                                                       | 1,190                                          | 100.0% |              |             | 41.0%                 | 22.4%           | 0.0%                  | 19.6%            | 2.9%         | 14.0%           |

---

## ***APPENDIX I***

***PICADY – Houghton Road / Merrill Road / Lorne Road***

TRL LIMITED

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM  
RELEASE 5.0 (JUNE 2010)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT  
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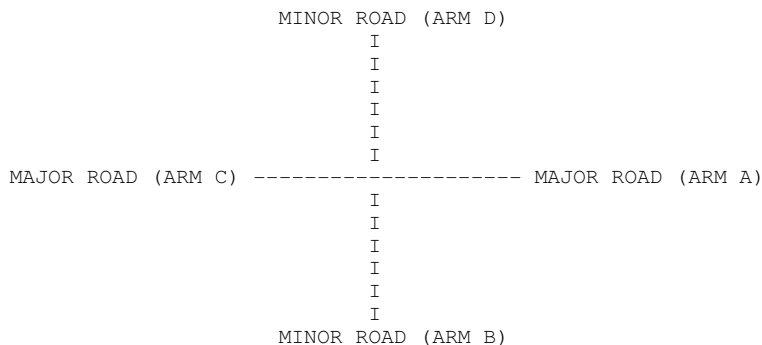
Run with file:-  
"J:\10000\10000\10082\_SchoolStreetThurnsco\engineering\Traffic\_Programs\Picady\Merrill Road\Merrill Road .vpi"  
(drive-on-the-left) at 09:37:59 on Thursday, 9 November 2017

RUN INFORMATION  
\*\*\*\*\*

RUN TITLE : Merrill Road - Houghton Road  
LOCATION : Thurnscoe  
DATE : 27/07/17  
CLIENT : Keepmoat Homes Ltd  
ENUMERATOR :  
JOB NUMBER : 10082  
STATUS : Preliminary  
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY  
\*\*\*\*\*

INPUT DATA  
-----



ARM A IS Houghton Road (E)  
ARM B IS Lorne Road  
ARM C IS Houghton Road (W)  
ARM D IS Merrill Road

STREAM LABELLING CONVENTION  
-----

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B  
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C  
ETC.

GEOMETRIC DATA

| I | DATA ITEM                          | I | MINOR ROAD B    | I | MINOR ROAD D    | I |
|---|------------------------------------|---|-----------------|---|-----------------|---|
| I | TOTAL MAJOR ROAD CARRIAGEWAY WIDTH | I | ( W ) 6.40 M.   | I | ( W ) 6.40 M.   | I |
| I | CENTRAL RESERVE WIDTH              | I | (WCR ) 0.00 M.  | I | (WCR ) 0.00 M.  | I |
| I |                                    | I |                 | I |                 | I |
| I | MAJOR ROAD RIGHT TURN - WIDTH      | I | (WC-B) 2.20 M.  | I | (WA-D) 2.20 M.  | I |
| I | - VISIBILITY                       | I | (VC-B)100.00 M. | I | (VA-D)100.00 M. | I |
| I | - BLOCKS TRAFFIC (SPACES)          | I | YES ( 3)        | I | NO ( 0)         | I |
| I |                                    | I |                 | I |                 | I |
| I | MINOR ROAD - VISIBILITY TO LEFT    | I | (VB-C) 20.0 M.  | I | (VD-A) 30.0 M.  | I |
| I | - VISIBILITY TO RIGHT              | I | (VB-A) 100.0 M. | I | (VD-C) 50.0 M.  | I |
| I | - LANE 1 WIDTH                     | I | (WB-C) 2.30 M.  | I | (WD-A) -        | I |
| I | - LANE 2 WIDTH                     | I | (WB-A) 2.30 M.  | I | (WD-C) -        | I |
| I | WIDTH AT 0 M FROM JUNCTION         | I | -               | I | 10.00 M.        | I |
| I | WIDTH AT 5 M FROM JUNCTION         | I | -               | I | 4.90 M.         | I |
| I | WIDTH AT 10 M FROM JUNCTION        | I | -               | I | 3.65 M.         | I |
| I | WIDTH AT 15 M FROM JUNCTION        | I | -               | I | 3.55 M.         | I |
| I | WIDTH AT 20 M FROM JUNCTION        | I | -               | I | 3.70 M.         | I |
| I | - LENGTH OF FLARED SECTION         | I | -               | I | DERIVED: 1 PCU  | I |

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

|   |               |                    |                    |   |
|---|---------------|--------------------|--------------------|---|
| I | Intercept For | Slope For Opposing | Slope For Opposing | I |
| I | STREAM B-C    | STREAM A-C         | STREAM A-B         | I |
| I | 638.75        | 0.24               | 0.10               | I |

STREAM D-A

|   |               |                    |                    |   |
|---|---------------|--------------------|--------------------|---|
| I | Intercept For | Slope For Opposing | Slope For Opposing | I |
| I | STREAM D-A    | STREAM C-A         | STREAM C-D         | I |
| I | 0.00          | 0.00               | 0.00               | I |

\* Due to the presence of a flare, data is not available

STREAM B-A

|   |               |                    |                    |                    |                    |   |
|---|---------------|--------------------|--------------------|--------------------|--------------------|---|
| I | Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I | STREAM B-A    | STREAM A-C         | STREAM A-D         | STREAM D-A         | STREAM D-B         | I |
| I | 495.65        | 0.22               | 0.22               | 0.22               | 0.22               | I |

|   |  |                    |                    |                    |                    |   |
|---|--|--------------------|--------------------|--------------------|--------------------|---|
| I |  | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I |  | STREAM A-B         | STREAM C-A         | STREAM C-B         | STREAM D-C         | I |
| I |  | 0.09               | 0.14               | 0.32               | 0.11               | I |

STREAM D-C

|   |               |                    |                    |                    |                    |   |
|---|---------------|--------------------|--------------------|--------------------|--------------------|---|
| I | Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I | STREAM D-C    | STREAM C-A         | STREAM C-B         | STREAM B-C         | STREAM B-D         | I |
| I | 0.00          | 0.00               | 0.00               | 0.00               | 0.00               | I |

|   |  |                    |                    |                    |                    |   |
|---|--|--------------------|--------------------|--------------------|--------------------|---|
| I |  | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I |  | STREAM C-D         | STREAM A-C         | STREAM A-D         | STREAM B-A         | I |
| I |  | 0.00               | 0.00               | 0.00               | 0.00               | I |

\* Due to the presence of a flare, data is not available

STREAM C-B

|   |               |                    |                    |                    |   |
|---|---------------|--------------------|--------------------|--------------------|---|
| I | Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I | STREAM C-B    | STREAM A-B         | STREAM A-C         | STREAM A-D         | I |
| I | 631.87        | 0.24               | 0.24               | 0.34               | I |



| I Intercept For<br>I STREAM A-D | Slope For Opposing<br>STREAM C-A | Slope For Opposing<br>STREAM C-B | Slope For Opposing<br>STREAM C-D | I |
|---------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| I 631.87                        | 0.24                             | 0.34                             | 0.24                             | I |

B-D Stream From Left Hand Lane

| I Intercept For<br>I STREAM B-D | Slope For Opposing<br>STREAM A-C | Slope For Opposing<br>STREAM A-D | Slope For Opposing<br>STREAM A-B | Slope For Opposing<br>STREAM C-B | I |
|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| I 495.65                        | 0.22                             | 0.22                             | 0.09                             | 0.32                             | I |
| I                               | Slope For Opposing<br>STREAM C-A | Slope For Opposing<br>STREAM C-D | Slope For Opposing               | Slope For Opposing               | I |
| I                               | 0.14                             | 0.14                             |                                  |                                  | I |

B-D Stream From Right Hand Lane

| I Intercept For<br>I STREAM B-D | Slope For Opposing<br>STREAM A-C | Slope For Opposing<br>STREAM A-D | Slope For Opposing<br>STREAM A-B | Slope For Opposing<br>STREAM C-B | I |
|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| I 495.65                        | 0.22                             | 0.22                             | 0.09                             | 0.32                             | I |
| I                               | Slope For Opposing<br>STREAM C-A | Slope For Opposing<br>STREAM C-D | Slope For Opposing               | Slope For Opposing               | I |
| I                               | 0.14                             | 0.14                             |                                  |                                  | I |

D-B Stream From Left Hand Lane

| I Intercept For<br>I STREAM D-B | Slope For Opposing<br>STREAM C-A | Slope For Opposing<br>STREAM C-B | Slope For Opposing<br>STREAM C-D | Slope For Opposing<br>STREAM A-D | I |
|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| I 0.00                          | 0.00                             | 0.00                             | 0.00                             | 0.00                             | I |
| I                               | Slope For Opposing<br>STREAM A-C | Slope For Opposing<br>STREAM A-B | Slope For Opposing               | Slope For Opposing               | I |
| I                               | 0.00                             | 0.00                             |                                  |                                  | I |

\* Due to the presence of a flare, data is not available

D-B Stream From Right Hand Lane

| I Intercept For<br>I STREAM B-D | Slope For Opposing<br>STREAM C-A | Slope For Opposing<br>STREAM C-B | Slope For Opposing<br>STREAM C-D | Slope For Opposing<br>STREAM A-D | I |
|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| I 0.00                          | 0.00                             | 0.00                             | 0.00                             | 0.00                             | I |
| I                               | Slope For Opposing<br>STREAM A-C | Slope For Opposing<br>STREAM A-B | Slope For Opposing               | Slope For Opposing               | I |
| I                               | 0.00                             | 0.00                             |                                  |                                  | I |

\* Due to the presence of a flare, data is not available

TRAFFIC DEMAND DATA

| I ARM | I FLOW | I SCALE (%) | I |
|-------|--------|-------------|---|
| I A   | I      | 100         | I |
| I B   | I      | 100         | I |
| I C   | I      | 100         | I |
| I D   | I      | 100         | I |

Demand set: 2022 Base AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.  
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

| I | ARM | I | NUMBER OF MINUTES FROM START WHEN |             |            | I     | RATE OF FLOW (VEH/MIN) |       |            | I    |         |        |      |        |   |       |
|---|-----|---|-----------------------------------|-------------|------------|-------|------------------------|-------|------------|------|---------|--------|------|--------|---|-------|
|   |     |   | I                                 | FLOW STARTS | I          |       | TOP OF PEAK            | I     | FLOW STOPS |      | I       | BEFORE | I    | AT TOP | I | AFTER |
|   |     |   |                                   |             |            |       |                        |       |            |      |         |        |      |        |   |       |
|   |     |   |                                   |             |            |       |                        |       |            |      |         |        |      |        |   |       |
| I | I   | I | TO RISE                           | I           | IS REACHED | I     | FALLING                | I     | PEAK       | I    | OF PEAK | I      | PEAK | I      |   |       |
| I | I   | I | I                                 | I           | I          | I     | I                      | I     | I          | I    | I       | I      | I    | I      |   |       |
| I | ARM | A | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 3.61 | I       | 5.42   | I    | 3.61   | I |       |
| I | ARM | B | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 0.46 | I       | 0.69   | I    | 0.46   | I |       |
| I | ARM | C | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 3.89 | I       | 5.83   | I    | 3.89   | I |       |
| I | ARM | D | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 1.00 | I       | 1.50   | I    | 1.00   | I |       |

Demand set: 2022 Base AM

| I | I             | TURNING PROPORTIONS |         |                |        |                       |        |       |         |       |        | I     |   |     |   |   |
|---|---------------|---------------------|---------|----------------|--------|-----------------------|--------|-------|---------|-------|--------|-------|---|-----|---|---|
|   |               | I                   | I       | TURNING COUNTS |        |                       |        |       |         |       |        |       | I |     |   |   |
|   |               |                     |         | I              | I      | (PERCENTAGE OF H.V.S) |        |       |         |       |        |       |   | I   |   |   |
|   |               |                     |         |                |        | I                     | I      | I     | I       | I     | I      |       |   |     | I | I |
| I | TIME          | I                   | FROM/TO | I              | ARM    | A                     | I      | ARM   | B       | I     | ARM    | C     | I | ARM | D | I |
| I | 07.45 - 09.15 | I                   |         | I              |        | I                     |        | I     |         | I     |        | I     |   | I   |   | I |
| I |               | I                   | ARM     | A              | I      | 0.000                 | I      | 0.059 | I       | 0.692 | I      | 0.249 | I |     |   | I |
| I |               | I                   |         | I              | 0.0    | I                     | 17.0   | I     | 200.0   | I     | 72.0   | I     |   |     | I |   |
| I |               | I                   |         | I              | ( 0.0) | I                     | ( 6.3) | I     | ( 3.8)  | I     | ( 4.5) | I     |   |     | I |   |
| I |               | I                   |         | I              |        | I                     |        | I     |         | I     |        | I     |   |     | I |   |
| I |               | I                   | ARM     | B              | I      | 0.541                 | I      | 0.000 | I       | 0.108 | I      | 0.351 | I |     |   | I |
| I |               | I                   |         | I              | 20.0   | I                     | 0.0    | I     | 4.0     | I     | 13.0   | I     |   |     | I |   |
| I |               | I                   |         | I              | ( 5.6) | I                     | ( 0.0) | I     | ( 0.0)  | I     | ( 0.0) | I     |   |     | I |   |
| I |               | I                   |         | I              |        | I                     |        | I     |         | I     |        | I     |   |     | I |   |
| I |               | I                   | ARM     | C              | I      | 0.900                 | I      | 0.010 | I       | 0.000 | I      | 0.090 | I |     |   | I |
| I |               | I                   |         | I              | 280.0  | I                     | 3.0    | I     | 0.0     | I     | 28.0   | I     |   |     | I |   |
| I |               | I                   |         | I              | ( 2.0) | I                     | ( 0.0) | I     | ( 0.0)  | I     | ( 3.8) | I     |   |     | I |   |
| I |               | I                   |         | I              |        | I                     |        | I     |         | I     |        | I     |   |     | I |   |
| I |               | I                   | ARM     | D              | I      | 0.712                 | I      | 0.025 | I       | 0.262 | I      | 0.000 | I |     |   | I |
| I |               | I                   |         | I              | 57.0   | I                     | 2.0    | I     | 21.0    | I     | 0.0    | I     |   |     | I |   |
| I |               | I                   |         | I              | ( 1.9) | I                     | ( 0.0) | I     | ( 10.5) | I     | ( 0.0) | I     |   |     | I |   |
| I | I             |                     | I       |                | I      |                       | I      |       | I       |       | I      |       |   | I   |   |   |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS  
AND FOR TIME PERIOD 1

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|---|
| I | 07.45-08.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | B-CD        | 0.13                | 7.68                  | 0.018                        |                                  | 0.00                     | 0.02                   | 0.3                                 |                                               | 0.13                                           | I |
| I | B-AD        | 0.33                | 6.48                  | 0.051                        |                                  | 0.00                     | 0.05                   | 0.8                                 |                                               | 0.16                                           | I |
| I | A-B         | 0.21                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | A-C         | 2.51                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | A-D         | 0.90                | 9.16                  | 0.099                        |                                  | 0.00                     | 0.11                   | 1.6                                 |                                               |                                                | I |
| I | D-AB        | 0.73                | 10.83                 | 0.067                        |                                  | 0.00                     | 0.07                   | 1.0                                 |                                               | 0.10                                           | I |
| I | D-BC        | 0.28                | 6.39                  | 0.043                        |                                  | 0.00                     | 0.04                   | 0.6                                 |                                               | 0.16                                           | I |
| I | C-ABD       | 0.04                | 9.53                  | 0.004                        |                                  | 0.00                     | 0.00                   | 0.1                                 |                                               | 0.11                                           | I |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |

|  | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|--|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
|  | 08.00-08.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
|  | B-CD        | 0.16                | 7.40                  | 0.022                        |                                  | 0.02                     | 0.02                   | 0.3                                 |                                               | 0.14                                           |
|  | B-AD        | 0.39                | 6.20                  | 0.063                        |                                  | 0.05                     | 0.07                   | 1.0                                 |                                               | 0.17                                           |
|  | A-B         | 0.25                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
|  | A-C         | 3.00                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
|  | A-D         | 1.08                | 8.98                  | 0.120                        |                                  | 0.11                     | 0.14                   | 2.0                                 |                                               |                                                |
|  | D-AB        | 0.87                | 10.59                 | 0.082                        |                                  | 0.07                     | 0.09                   | 1.3                                 |                                               | 0.10                                           |
|  | D-BC        | 0.33                | 6.09                  | 0.054                        |                                  | 0.04                     | 0.06                   | 0.8                                 |                                               | 0.17                                           |
|  | C-ABD       | 0.04                | 9.33                  | 0.005                        |                                  | 0.00                     | 0.00                   | 0.1                                 |                                               | 0.11                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.15-08.30 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.20                | 7.02                  | 0.029                        |                                  | 0.02                     | 0.03                   | 0.4                                 |                                               | 0.15                                           |
| B-AD        | 0.48                | 5.81                  | 0.082                        |                                  | 0.07                     | 0.09                   | 1.3                                 |                                               | 0.19                                           |
| A-B         | 0.31                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 3.67                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.32                | 8.73                  | 0.151                        |                                  | 0.14                     | 0.18                   | 2.6                                 |                                               |                                                |
| D-AB        | 1.07                | 10.26                 | 0.104                        |                                  | 0.09                     | 0.11                   | 1.7                                 |                                               | 0.11                                           |
| D-BC        | 0.40                | 5.68                  | 0.071                        |                                  | 0.06                     | 0.08                   | 1.1                                 |                                               | 0.19                                           |
| C-ABD       | 0.06                | 9.06                  | 0.006                        |                                  | 0.00                     | 0.01                   | 0.1                                 |                                               | 0.11                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.30-08.45 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.20                | 7.02                  | 0.029                        |                                  | 0.03                     | 0.03                   | 0.4                                 |                                               | 0.15                                           |
| B-AD        | 0.48                | 5.81                  | 0.082                        |                                  | 0.09                     | 0.09                   | 1.3                                 |                                               | 0.19                                           |
| A-B         | 0.31                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 3.67                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.32                | 8.73                  | 0.151                        |                                  | 0.18                     | 0.18                   | 2.7                                 |                                               |                                                |
| D-AB        | 1.07                | 10.26                 | 0.104                        |                                  | 0.11                     | 0.12                   | 1.7                                 |                                               | 0.11                                           |
| D-BC        | 0.40                | 5.67                  | 0.071                        |                                  | 0.08                     | 0.08                   | 1.1                                 |                                               | 0.19                                           |
| C-ABD       | 0.06                | 9.06                  | 0.006                        |                                  | 0.01                     | 0.01                   | 0.1                                 |                                               | 0.11                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.45-09.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.16                | 7.40                  | 0.022                        |                                  | 0.03                     | 0.02                   | 0.3                                 |                                               | 0.14                                           |
| B-AD        | 0.39                | 6.20                  | 0.063                        |                                  | 0.09                     | 0.07                   | 1.1                                 |                                               | 0.17                                           |
| A-B         | 0.25                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 3.00                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.08                | 8.98                  | 0.120                        |                                  | 0.18                     | 0.14                   | 2.1                                 |                                               |                                                |
| D-AB        | 0.87                | 10.59                 | 0.082                        |                                  | 0.12                     | 0.09                   | 1.4                                 |                                               | 0.10                                           |
| D-BC        | 0.33                | 6.09                  | 0.054                        |                                  | 0.08                     | 0.06                   | 0.9                                 |                                               | 0.17                                           |
| C-ABD       | 0.04                | 9.33                  | 0.005                        |                                  | 0.01                     | 0.00                   | 0.1                                 |                                               | 0.11                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 09.00-09.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.14                | 7.67                  | 0.018                        |                                  | 0.02                     | 0.02                   | 0.3                                 |                                               | 0.13                                           |
| B-AD        | 0.33                | 6.48                  | 0.051                        |                                  | 0.07                     | 0.05                   | 0.8                                 |                                               | 0.16                                           |
| A-B         | 0.21                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 2.51                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 0.90                | 9.16                  | 0.099                        |                                  | 0.14                     | 0.11                   | 1.7                                 |                                               |                                                |
| D-AB        | 0.73                | 10.83                 | 0.067                        |                                  | 0.09                     | 0.07                   | 1.1                                 |                                               | 0.10                                           |
| D-BC        | 0.28                | 6.38                  | 0.043                        |                                  | 0.06                     | 0.05                   | 0.7                                 |                                               | 0.16                                           |
| C-ABD       | 0.04                | 9.52                  | 0.004                        |                                  | 0.00                     | 0.00                   | 0.1                                 |                                               | 0.11                                           |

\*WARNING\* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 08.00                     | 0.0                            |
| 08.15                     | 0.0                            |
| 08.30                     | 0.0                            |
| 08.45                     | 0.0                            |
| 09.00                     | 0.0                            |
| 09.15                     | 0.0                            |

| QUEUE FOR STREAM B-AD |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 08.00                 | 0.1      |
| 08.15                 | 0.1      |
| 08.30                 | 0.1      |
| 08.45                 | 0.1      |
| 09.00                 | 0.1      |
| 09.15                 | 0.1      |

| QUEUE FOR STREAM A-D |          |
|----------------------|----------|
| TIME                 | NO. OF   |
| SEGMENT              | VEHICLES |
| ENDING               | IN QUEUE |
| 08.00                | 0.1      |
| 08.15                | 0.1      |
| 08.30                | 0.2      |
| 08.45                | 0.2      |
| 09.00                | 0.1      |
| 09.15                | 0.1      |

| QUEUE FOR STREAM D-AB |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 08.00                 | 0.1      |
| 08.15                 | 0.1      |
| 08.30                 | 0.1      |
| 08.45                 | 0.1      |
| 09.00                 | 0.1      |
| 09.15                 | 0.1      |

| QUEUE FOR STREAM D-BC |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 08.00                 | 0.0      |
| 08.15                 | 0.1      |
| 08.30                 | 0.1      |
| 08.45                 | 0.1      |
| 09.00                 | 0.1      |
| 09.15                 | 0.0      |

| QUEUE FOR STREAM C-ABD |          |
|------------------------|----------|
| TIME                   | NO. OF   |
| SEGMENT                | VEHICLES |
| ENDING                 | IN QUEUE |
| 08.00                  | 0.0      |
| 08.15                  | 0.0      |
| 08.30                  | 0.0      |
| 08.45                  | 0.0      |
| 09.00                  | 0.0      |
| 09.15                  | 0.0      |

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

| I | STREAM | I | TOTAL | DEMAND  | I | * QUEUEING * | I         | * INCLUSIVE QUEUEING * | I         |
|---|--------|---|-------|---------|---|--------------|-----------|------------------------|-----------|
| I |        | I |       |         | I | * DELAY *    | I         | * DELAY *              | I         |
| I |        | I | (VEH) | (VEH/H) | I | (MIN)        | (MIN/VEH) | (MIN)                  | (MIN/VEH) |
| I |        | I |       |         | I |              |           |                        | I         |
| I | B-CD   | I | 14.9  | I 10.0  | I | 2.1          | I 0.14    | I 2.1                  | I 0.14    |
| I | B-AD   | I | 36.0  | I 24.0  | I | 6.3          | I 0.17    | I 6.3                  | I 0.17    |
| I | A-B    | I | 23.4  | I 15.6  | I |              | I         | I                      | I         |
| I | A-C    | I | 275.3 | I 183.5 | I |              | I         | I                      | I         |
| I | A-D    | I | 99.1  | I 66.1  | I | 12.6         | I 0.13    | I 12.6                 | I 0.13    |
| I | D-AB   | I | 79.9  | I 53.3  | I | 8.3          | I 0.10    | I 8.3                  | I 0.10    |
| I | D-BC   | I | 30.2  | I 20.1  | I | 5.3          | I 0.18    | I 5.3                  | I 0.18    |
| I | C-ABD  | I | 4.1   | I 2.8   | I | 0.4          | I 0.11    | I 0.4                  | I 0.11    |
| I | ALL    | I | 986.9 | I 657.9 | I | 34.9         | I 0.04    | I 34.9                 | I 0.04    |

\* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD  
 \* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES  
 WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD  
 \* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS  
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

\*\*\*\*\*END OF RUN\*\*\*\*\*

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

| I | Intercept | For | Slope  | For | Opposing | Slope | For    | Opposing | I |
|---|-----------|-----|--------|-----|----------|-------|--------|----------|---|
| I | STREAM    | B-C | STREAM | A-C | STREAM   | A-B   | STREAM | A-B      | I |
| I | 638.75    |     | 0.24   |     | 0.10     |       |        |          | I |

STREAM D-A

| I | Intercept | For | Slope  | For | Opposing | Slope | For    | Opposing | I |
|---|-----------|-----|--------|-----|----------|-------|--------|----------|---|
| I | STREAM    | D-A | STREAM | C-A | STREAM   | C-D   | STREAM | C-D      | I |
| I | 0.00      |     | 0.00   |     | 0.00     |       |        |          | I |

\* Due to the presence of a flare, data is not available

STREAM B-A

| I | Intercept | For | Slope  | For | Opposing | Slope | For    | Opposing | Slope  | For | Opposing | I   |   |
|---|-----------|-----|--------|-----|----------|-------|--------|----------|--------|-----|----------|-----|---|
| I | STREAM    | B-A | STREAM | A-C | STREAM   | A-D   | STREAM | D-A      | STREAM | D-B | STREAM   | D-C | I |
| I | 495.65    |     | 0.22   |     | 0.22     |       | 0.22   |          | 0.22   |     | 0.22     |     | I |

| I |  | Slope  | For | Opposing | Slope | For    | Opposing | Slope  | For | Opposing | Slope | For    | Opposing | I |
|---|--|--------|-----|----------|-------|--------|----------|--------|-----|----------|-------|--------|----------|---|
| I |  | STREAM | A-B | STREAM   | C-A   | STREAM | C-B      | STREAM | C-B | STREAM   | D-C   | STREAM | D-C      | I |
| I |  | 0.09   |     | 0.14     |       | 0.32   |          | 0.11   |     |          |       |        |          | I |

STREAM D-C

| I | Intercept | For | Slope  | For | Opposing | Slope | For    | Opposing | Slope  | For | Opposing | I   |   |
|---|-----------|-----|--------|-----|----------|-------|--------|----------|--------|-----|----------|-----|---|
| I | STREAM    | D-C | STREAM | C-A | STREAM   | C-B   | STREAM | B-C      | STREAM | B-D | STREAM   | B-A | I |
| I | 0.00      |     | 0.00   |     | 0.00     |       | 0.00   |          | 0.00   |     | 0.00     |     | I |

| I |  | Slope  | For | Opposing | Slope | For    | Opposing | Slope  | For | Opposing | Slope | For    | Opposing | I |
|---|--|--------|-----|----------|-------|--------|----------|--------|-----|----------|-------|--------|----------|---|
| I |  | STREAM | C-D | STREAM   | A-C   | STREAM | A-D      | STREAM | B-A | STREAM   | B-A   | STREAM | B-A      | I |
| I |  | 0.00   |     | 0.00     |       | 0.00   |          | 0.00   |     | 0.00     |       | 0.00   |          | I |

\* Due to the presence of a flare, data is not available

STREAM C-B

| I | Intercept | For | Slope  | For | Opposing | Slope | For    | Opposing | Slope  | For | Opposing | I   |   |
|---|-----------|-----|--------|-----|----------|-------|--------|----------|--------|-----|----------|-----|---|
| I | STREAM    | C-B | STREAM | A-B | STREAM   | A-C   | STREAM | A-D      | STREAM | A-D | STREAM   | A-D | I |

I

| STREAM A-D |               |                    |                    |                    |   |
|------------|---------------|--------------------|--------------------|--------------------|---|
| I          | Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I          | STREAM A-D    | STREAM C-A         | STREAM C-B         | STREAM C-D         | I |
| I          | 631.87        | 0.24               | 0.34               | 0.24               | I |

B-D Stream From Left Hand Lane

| I | Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|---|---------------|--------------------|--------------------|--------------------|--------------------|---|
| I | STREAM B-D    | STREAM A-C         | STREAM A-D         | STREAM A-B         | STREAM C-B         | I |
| I | 495.65        | 0.22               | 0.22               | 0.09               | 0.32               | I |
| I |               | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I |               | STREAM C-A         | STREAM C-D         |                    |                    | I |
| I |               | 0.14               | 0.14               |                    |                    | I |

B-D Stream From Right Hand Lane

| I | Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|---|---------------|--------------------|--------------------|--------------------|--------------------|---|
| I | STREAM B-D    | STREAM A-C         | STREAM A-D         | STREAM A-B         | STREAM C-B         | I |
| I | 495.65        | 0.22               | 0.22               | 0.09               | 0.32               | I |
| I |               | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I |               | STREAM C-A         | STREAM C-D         |                    |                    | I |
| I |               | 0.14               | 0.14               |                    |                    | I |

D-B Stream From Left Hand Lane

| I | Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|---|---------------|--------------------|--------------------|--------------------|--------------------|---|
| I | STREAM D-B    | STREAM C-A         | STREAM C-B         | STREAM C-D         | STREAM A-D         | I |
| I | 0.00          | 0.00               | 0.00               | 0.00               | 0.00               | I |
| I |               | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I |               | STREAM A-C         | STREAM A-B         |                    |                    | I |
| I |               | 0.00               | 0.00               |                    |                    | I |

\* Due to the presence of a flare, data is not available

D-B Stream From Right Hand Lane

| I | Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|---|---------------|--------------------|--------------------|--------------------|--------------------|---|
| I | STREAM B-D    | STREAM C-A         | STREAM C-B         | STREAM C-D         | STREAM A-D         | I |
| I | 0.00          | 0.00               | 0.00               | 0.00               | 0.00               | I |
| I |               | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I |               | STREAM A-C         | STREAM A-B         |                    |                    | I |
| I |               | 0.00               | 0.00               |                    |                    | I |

\* Due to the presence of a flare, data is not available

TRAFFIC DEMAND DATA

| I | ARM | I | FLOW | SCALE(%) | I |
|---|-----|---|------|----------|---|
| I | A   | I | 100  |          | I |
| I | B   | I | 100  |          | I |
| I | C   | I | 100  |          | I |
| I | D   | I | 100  |          | I |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.00-17.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.10                | 7.20                  | 0.014                        |                                  | 0.01                     | 0.01                   | 0.2                                 |                                               | 0.14                                           |
| B-AD        | 0.42                | 5.55                  | 0.076                        |                                  | 0.06                     | 0.08                   | 1.2                                 |                                               | 0.19                                           |
| A-B         | 0.78                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 5.96                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.00                | 8.89                  | 0.113                        |                                  | 0.10                     | 0.13                   | 1.9                                 |                                               |                                                |
| D-AB        | 0.96                | 10.39                 | 0.092                        |                                  | 0.08                     | 0.10                   | 1.5                                 |                                               | 0.11                                           |
| D-BC        | 0.34                | 6.03                  | 0.057                        |                                  | 0.05                     | 0.06                   | 0.9                                 |                                               | 0.18                                           |
| C-ABD       | 0.24                | 8.53                  | 0.028                        |                                  | 0.02                     | 0.03                   | 0.4                                 |                                               | 0.12                                           |



| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.15-17.30 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.12                | 6.61                  | 0.019                        |                                  | 0.01                     | 0.02                   | 0.3                                 |                                               | 0.15                                           |
| B-AD        | 0.52                | 4.94                  | 0.105                        |                                  | 0.08                     | 0.12                   | 1.7                                 |                                               | 0.23                                           |
| A-B         | 0.95                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 7.30                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.23                | 8.56                  | 0.144                        |                                  | 0.13                     | 0.17                   | 2.4                                 |                                               |                                                |
| D-AB        | 1.18                | 9.96                  | 0.118                        |                                  | 0.10                     | 0.13                   | 2.0                                 |                                               | 0.11                                           |
| D-BC        | 0.42                | 5.43                  | 0.077                        |                                  | 0.06                     | 0.08                   | 1.2                                 |                                               | 0.20                                           |
| C-ABD       | 0.29                | 8.08                  | 0.036                        |                                  | 0.03                     | 0.04                   | 0.6                                 |                                               | 0.13                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.30-17.45 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.12                | 6.61                  | 0.019                        |                                  | 0.02                     | 0.02                   | 0.3                                 |                                               | 0.15                                           |
| B-AD        | 0.52                | 4.94                  | 0.105                        |                                  | 0.12                     | 0.12                   | 1.7                                 |                                               | 0.23                                           |
| A-B         | 0.95                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 7.30                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.23                | 8.56                  | 0.144                        |                                  | 0.17                     | 0.17                   | 2.5                                 |                                               |                                                |
| D-AB        | 1.18                | 9.96                  | 0.118                        |                                  | 0.13                     | 0.13                   | 2.0                                 |                                               | 0.11                                           |
| D-BC        | 0.42                | 5.43                  | 0.077                        |                                  | 0.08                     | 0.08                   | 1.2                                 |                                               | 0.20                                           |
| C-ABD       | 0.29                | 8.08                  | 0.036                        |                                  | 0.04                     | 0.04                   | 0.6                                 |                                               | 0.13                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.45-18.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.10                | 7.19                  | 0.014                        |                                  | 0.02                     | 0.01                   | 0.2                                 |                                               | 0.14                                           |
| B-AD        | 0.42                | 5.55                  | 0.076                        |                                  | 0.12                     | 0.08                   | 1.3                                 |                                               | 0.20                                           |
| A-B         | 0.78                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 5.96                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.00                | 8.89                  | 0.113                        |                                  | 0.17                     | 0.13                   | 2.0                                 |                                               |                                                |
| D-AB        | 0.96                | 10.39                 | 0.092                        |                                  | 0.13                     | 0.10                   | 1.6                                 |                                               | 0.11                                           |
| D-BC        | 0.34                | 6.03                  | 0.057                        |                                  | 0.08                     | 0.06                   | 0.9                                 |                                               | 0.18                                           |
| C-ABD       | 0.24                | 8.53                  | 0.028                        |                                  | 0.04                     | 0.03                   | 0.4                                 |                                               | 0.12                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 18.00-18.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.08                | 7.60                  | 0.011                        |                                  | 0.01                     | 0.01                   | 0.2                                 |                                               | 0.13                                           |
| B-AD        | 0.36                | 5.99                  | 0.059                        |                                  | 0.08                     | 0.06                   | 1.0                                 |                                               | 0.18                                           |
| A-B         | 0.65                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 4.99                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 0.84                | 9.13                  | 0.092                        |                                  | 0.13                     | 0.10                   | 1.6                                 |                                               |                                                |
| D-AB        | 0.80                | 10.69                 | 0.075                        |                                  | 0.10                     | 0.08                   | 1.3                                 |                                               | 0.10                                           |
| D-BC        | 0.29                | 6.47                  | 0.044                        |                                  | 0.06                     | 0.05                   | 0.7                                 |                                               | 0.16                                           |
| C-ABD       | 0.20                | 8.85                  | 0.023                        |                                  | 0.03                     | 0.02                   | 0.4                                 |                                               | 0.12                                           |

\*WARNING\* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-CD

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 17.00                     | 0.0                            |
| 17.15                     | 0.0                            |
| 17.30                     | 0.0                            |
| 17.45                     | 0.0                            |
| 18.00                     | 0.0                            |
| 18.15                     | 0.0                            |

| QUEUE FOR STREAM B-AD |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 17.00                 | 0.1      |
| 17.15                 | 0.1      |
| 17.30                 | 0.1      |
| 17.45                 | 0.1      |
| 18.00                 | 0.1      |
| 18.15                 | 0.1      |

| QUEUE FOR STREAM A-D |          |
|----------------------|----------|
| TIME                 | NO. OF   |
| SEGMENT              | VEHICLES |
| ENDING               | IN QUEUE |
| 17.00                | 0.1      |
| 17.15                | 0.1      |
| 17.30                | 0.2      |
| 17.45                | 0.2      |
| 18.00                | 0.1      |
| 18.15                | 0.1      |

| QUEUE FOR STREAM D-AB |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 17.00                 | 0.1      |
| 17.15                 | 0.1      |
| 17.30                 | 0.1      |
| 17.45                 | 0.1      |
| 18.00                 | 0.1      |
| 18.15                 | 0.1      |

| QUEUE FOR STREAM D-BC |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 17.00                 | 0.0      |
| 17.15                 | 0.1      |
| 17.30                 | 0.1      |
| 17.45                 | 0.1      |
| 18.00                 | 0.1      |
| 18.15                 | 0.0      |

| QUEUE FOR STREAM C-ABD |          |
|------------------------|----------|
| TIME                   | NO. OF   |
| SEGMENT                | VEHICLES |
| ENDING                 | IN QUEUE |
| 17.00                  | 0.0      |
| 17.15                  | 0.0      |
| 17.30                  | 0.0      |
| 17.45                  | 0.0      |
| 18.00                  | 0.0      |
| 18.15                  | 0.0      |

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

| I | STREAM | I | TOTAL  | DEMAND  | I | * QUEUEING * | I         | * INCLUSIVE QUEUEING * | I     |           |   |
|---|--------|---|--------|---------|---|--------------|-----------|------------------------|-------|-----------|---|
| I |        | I |        |         | I | * DELAY *    | I         | * DELAY *              | I     |           |   |
| I |        | I |        |         | I |              | I         |                        | I     |           |   |
| I |        | I | (VEH)  | (VEH/H) | I | (MIN)        | (MIN/VEH) | I                      | (MIN) | (MIN/VEH) | I |
| I | B-CD   | I | 9.2    | I 6.1   | I | 1.3          | I 0.14    | I                      | 1.3   | I 0.14    | I |
| I | B-AD   | I | 39.0   | I 26.0  | I | 7.8          | I 0.20    | I                      | 7.8   | I 0.20    | I |
| I | A-B    | I | 71.6   | I 47.7  | I |              | I         | I                      |       | I         | I |
| I | A-C    | I | 547.8  | I 365.2 | I |              | I         | I                      |       | I         | I |
| I | A-D    | I | 92.2   | I 61.5  | I | 11.8         | I 0.13    | I                      | 11.8  | I 0.13    | I |
| I | D-AB   | I | 88.2   | I 58.8  | I | 9.4          | I 0.11    | I                      | 9.4   | I 0.11    | I |
| I | D-BC   | I | 31.5   | I 21.0  | I | 5.6          | I 0.18    | I                      | 5.6   | I 0.18    | I |
| I | C-ABD  | I | 22.0   | I 14.7  | I | 2.7          | I 0.12    | I                      | 2.7   | I 0.12    | I |
| I | ALL    | I | 1438.4 | I 958.9 | I | 38.6         | I 0.03    | I                      | 38.6  | I 0.03    | I |

\* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD  
\* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES  
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD  
\* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS  
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

\*\*\*\*\*END OF RUN\*\*\*\*\*

===== end of file =====

TRL LIMITED

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM  
RELEASE 5.0 (JUNE 2010)

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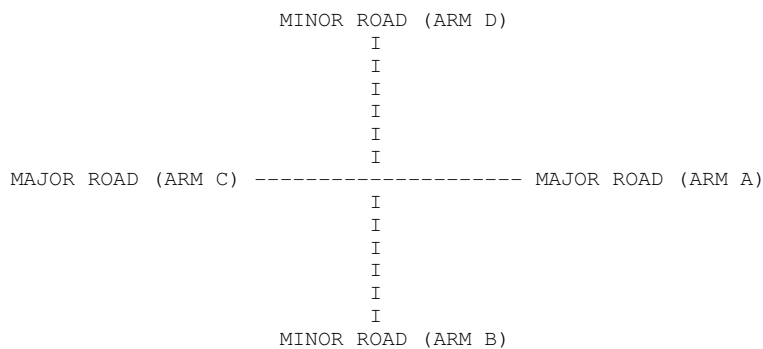
Run with file:-  
"J:\10000\10000\10082\_SchoolStreetThurnsco\engineering\Traffic\_Programs\Picady\Merrill Road\Merrill Road .vpi"  
(drive-on-the-left) at 09:37:19 on Thursday, 9 November 2017

RUN INFORMATION  
\*\*\*\*\*

RUN TITLE : Merrill Road - Houghton Road  
LOCATION : Thurnscoe  
DATE : 27/07/17  
CLIENT : Keepmoat Homes Ltd  
ENUMERATOR :  
JOB NUMBER : 10082  
STATUS : Preliminary  
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY  
\*\*\*\*\*

INPUT DATA  
-----



ARM A IS Houghton Road (E)  
ARM B IS Lorne Road  
ARM C IS Houghton Road (W)  
ARM D IS Merrill Road

STREAM LABELLING CONVENTION  
-----

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B  
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C  
ETC.

# GEOMETRIC DATA

| I | DATA ITEM                          | I | MINOR ROAD B    | I | MINOR ROAD D    | I |
|---|------------------------------------|---|-----------------|---|-----------------|---|
| I | TOTAL MAJOR ROAD CARRIAGEWAY WIDTH | I | ( W ) 6.40 M.   | I | ( W ) 6.40 M.   | I |
| I | CENTRAL RESERVE WIDTH              | I | (WCR ) 0.00 M.  | I | (WCR ) 0.00 M.  | I |
| I |                                    | I |                 | I |                 | I |
| I | MAJOR ROAD RIGHT TURN - WIDTH      | I | (WC-B) 2.20 M.  | I | (WA-D) 2.20 M.  | I |
| I | - VISIBILITY                       | I | (VC-B)100.00 M. | I | (VA-D)100.00 M. | I |
| I | - BLOCKS TRAFFIC (SPACES)          | I | YES ( 3)        | I | NO ( 0)         | I |
| I |                                    | I |                 | I |                 | I |
| I | MINOR ROAD - VISIBILITY TO LEFT    | I | (VB-C) 20.0 M.  | I | (VD-A) 30.0 M.  | I |
| I | - VISIBILITY TO RIGHT              | I | (VB-A) 100.0 M. | I | (VD-C) 50.0 M.  | I |
| I | - LANE 1 WIDTH                     | I | (WB-C) 2.30 M.  | I | (WD-A) -        | I |
| I | - LANE 2 WIDTH                     | I | (WB-A) 2.30 M.  | I | (WD-C) -        | I |
| I | WIDTH AT 0 M FROM JUNCTION         | I | -               | I | 10.00 M.        | I |
| I | WIDTH AT 5 M FROM JUNCTION         | I | -               | I | 4.90 M.         | I |
| I | WIDTH AT 10 M FROM JUNCTION        | I | -               | I | 3.65 M.         | I |
| I | WIDTH AT 15 M FROM JUNCTION        | I | -               | I | 3.55 M.         | I |
| I | WIDTH AT 20 M FROM JUNCTION        | I | -               | I | 3.70 M.         | I |
| I | - LENGTH OF FLARED SECTION         | I | -               | I | DERIVED: 1 PCU  | I |

## .SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

### STREAM B-C

| I | Intercept For | Slope For Opposing | Slope For Opposing | I |
|---|---------------|--------------------|--------------------|---|
| I | STREAM B-C    | STREAM A-C         | STREAM A-B         | I |
| I | 638.75        | 0.24               | 0.10               | I |

### STREAM D-A

| I | Intercept For | Slope For Opposing | Slope For Opposing | I |
|---|---------------|--------------------|--------------------|---|
| I | STREAM D-A    | STREAM C-A         | STREAM C-D         | I |
| I | 0.00          | 0.00               | 0.00               | I |

\* Due to the presence of a flare, data is not available

### STREAM B-A

| I | Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|---|---------------|--------------------|--------------------|--------------------|--------------------|---|
| I | STREAM B-A    | STREAM A-C         | STREAM A-D         | STREAM D-A         | STREAM D-B         | I |
| I | 495.65        | 0.22               | 0.22               | 0.22               | 0.22               | I |

| I | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|---|--------------------|--------------------|--------------------|--------------------|---|
| I | STREAM A-B         | STREAM C-A         | STREAM C-B         | STREAM D-C         | I |
| I | 0.09               | 0.14               | 0.32               | 0.11               | I |

### STREAM D-C

| I | Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|---|---------------|--------------------|--------------------|--------------------|--------------------|---|
| I | STREAM D-C    | STREAM C-A         | STREAM C-B         | STREAM B-C         | STREAM B-D         | I |
| I | 0.00          | 0.00               | 0.00               | 0.00               | 0.00               | I |

| I | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|---|--------------------|--------------------|--------------------|--------------------|---|
| I | STREAM C-D         | STREAM A-C         | STREAM A-D         | STREAM B-A         | I |
| I | 0.00               | 0.00               | 0.00               | 0.00               | I |

\* Due to the presence of a flare, data is not available

### STREAM C-B

| I | Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|---|---------------|--------------------|--------------------|--------------------|---|
| I | STREAM C-B    | STREAM A-B         | STREAM A-C         | STREAM A-D         | I |
| I | 631.87        | 0.24               | 0.24               | 0.34               | I |



| I Intercept For<br>I STREAM A-D | Slope For Opposing<br>STREAM C-A | Slope For Opposing<br>STREAM C-B | Slope For Opposing<br>STREAM C-D | I |
|---------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| I 631.87                        | 0.24                             | 0.34                             | 0.24                             | I |

B-D Stream From Left Hand Lane

| I Intercept For<br>I STREAM B-D | Slope For Opposing<br>STREAM A-C | Slope For Opposing<br>STREAM A-D | Slope For Opposing<br>STREAM A-B | Slope For Opposing<br>STREAM C-B | I |
|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| I 495.65                        | 0.22                             | 0.22                             | 0.09                             | 0.32                             | I |
| I                               | Slope For Opposing<br>STREAM C-A | Slope For Opposing<br>STREAM C-D | Slope For Opposing               | Slope For Opposing               | I |
| I                               | 0.14                             | 0.14                             |                                  |                                  | I |

B-D Stream From Right Hand Lane

| I Intercept For<br>I STREAM B-D | Slope For Opposing<br>STREAM A-C | Slope For Opposing<br>STREAM A-D | Slope For Opposing<br>STREAM A-B | Slope For Opposing<br>STREAM C-B | I |
|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| I 495.65                        | 0.22                             | 0.22                             | 0.09                             | 0.32                             | I |
| I                               | Slope For Opposing<br>STREAM C-A | Slope For Opposing<br>STREAM C-D | Slope For Opposing               | Slope For Opposing               | I |
| I                               | 0.14                             | 0.14                             |                                  |                                  | I |

D-B Stream From Left Hand Lane

| I Intercept For<br>I STREAM D-B | Slope For Opposing<br>STREAM C-A | Slope For Opposing<br>STREAM C-B | Slope For Opposing<br>STREAM C-D | Slope For Opposing<br>STREAM A-D | I |
|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| I 0.00                          | 0.00                             | 0.00                             | 0.00                             | 0.00                             | I |
| I                               | Slope For Opposing<br>STREAM A-C | Slope For Opposing<br>STREAM A-B | Slope For Opposing               | Slope For Opposing               | I |
| I                               | 0.00                             | 0.00                             |                                  |                                  | I |

\* Due to the presence of a flare, data is not available

D-B Stream From Right Hand Lane

| I Intercept For<br>I STREAM B-D | Slope For Opposing<br>STREAM C-A | Slope For Opposing<br>STREAM C-B | Slope For Opposing<br>STREAM C-D | Slope For Opposing<br>STREAM A-D | I |
|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| I 0.00                          | 0.00                             | 0.00                             | 0.00                             | 0.00                             | I |
| I                               | Slope For Opposing<br>STREAM A-C | Slope For Opposing<br>STREAM A-B | Slope For Opposing               | Slope For Opposing               | I |
| I                               | 0.00                             | 0.00                             |                                  |                                  | I |

\* Due to the presence of a flare, data is not available

TRAFFIC DEMAND DATA

| I ARM | I FLOW | I SCALE (%) | I |
|-------|--------|-------------|---|
| I A   | I      | 100         | I |
| I B   | I      | 100         | I |
| I C   | I      | 100         | I |
| I D   | I      | 100         | I |

Demand set: 2022 Base AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.  
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

|       |   | NUMBER OF MINUTES FROM START WHEN |             |            | RATE OF FLOW (VEH/MIN) |         |        |
|-------|---|-----------------------------------|-------------|------------|------------------------|---------|--------|
| ARM   |   | FLOW STARTS                       | TOP OF PEAK | FLOW STOPS | BEFORE                 | AT TOP  | AFTER  |
|       |   | TO RISE                           | IS REACHED  | FALLING    | PEAK                   | OF PEAK | PEAK   |
|       |   |                                   |             |            |                        |         |        |
| ARM A | I | 15.00                             | I 45.00     | I 75.00    | I 3.61                 | I 5.42  | I 3.61 |
| ARM B | I | 15.00                             | I 45.00     | I 75.00    | I 0.46                 | I 0.69  | I 0.46 |
| ARM C | I | 15.00                             | I 45.00     | I 75.00    | I 3.89                 | I 5.83  | I 3.89 |
| ARM D | I | 15.00                             | I 45.00     | I 75.00    | I 1.00                 | I 1.50  | I 1.00 |

Demand set: Phase 2 Development AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.

LENGTH OF TIME PERIOD - 30 MIN.  
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

|   |     | NUMBER OF MINUTES FROM START WHEN |             |            | RATE OF FLOW (VEH/MIN) |         |       |       |   |      |   |      |   |      |   |
|---|-----|-----------------------------------|-------------|------------|------------------------|---------|-------|-------|---|------|---|------|---|------|---|
| I | ARM | I                                 | I           | I          | I                      | I       | I     | I     |   |      |   |      |   |      |   |
|   |     | FLOW STARTS                       | TOP OF PEAK | FLOW STOPS | BEFORE                 | AT TOP  | AFTER |       |   |      |   |      |   |      |   |
|   |     | TO RISE                           | IS REACHED  | FALLING    | PEAK                   | OF PEAK | PEAK  |       |   |      |   |      |   |      |   |
|   |     | I                                 | I           | I          | I                      | I       | I     | I     |   |      |   |      |   |      |   |
| I | ARM | A                                 | I           | 15.00      | I                      | 45.00   | I     | 75.00 | I | 0.28 | I | 0.41 | I | 0.28 | I |
| I | ARM | B                                 | I           | 15.00      | I                      | 45.00   | I     | 75.00 | I | 0.00 | I | 0.00 | I | 0.00 | I |
| I | ARM | C                                 | I           | 15.00      | I                      | 45.00   | I     | 75.00 | I | 0.10 | I | 0.15 | I | 0.10 | I |
| I | ARM | D                                 | I           | 15.00      | I                      | 45.00   | I     | 75.00 | I | 0.00 | I | 0.00 | I | 0.00 | I |

Demand set: Phase 3 Development AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.

LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

|   |     | NUMBER OF MINUTES FROM START WHEN |             |            | RATE OF FLOW (VEH/MIN) |         |       |       |   |      |   |      |   |      |   |
|---|-----|-----------------------------------|-------------|------------|------------------------|---------|-------|-------|---|------|---|------|---|------|---|
| I | ARM | I                                 | I           | I          | I                      | I       | I     | I     |   |      |   |      |   |      |   |
|   |     | FLOW STARTS                       | TOP OF PEAK | FLOW STOPS | BEFORE                 | AT TOP  | AFTER |       |   |      |   |      |   |      |   |
|   |     | TO RISE                           | IS REACHED  | FALLING    | PEAK                   | OF PEAK | PEAK  |       |   |      |   |      |   |      |   |
| I |     | I                                 |             | I          |                        | I       |       | I     |   |      |   |      |   |      |   |
| I | ARM | A                                 | I           | 15.00      | I                      | 45.00   | I     | 75.00 | I | 0.39 | I | 0.58 | I | 0.39 | I |
| I | ARM | B                                 | I           | 15.00      | I                      | 45.00   | I     | 75.00 | I | 0.00 | I | 0.00 | I | 0.00 | I |
| I | ARM | C                                 | I           | 15.00      | I                      | 45.00   | I     | 75.00 | I | 0.28 | I | 0.41 | I | 0.28 | I |
| I | ARM | D                                 | I           | 15.00      | I                      | 45.00   | I     | 75.00 | I | 0.43 | I | 0.64 | I | 0.43 | I |

Demand set: 2022 Base AM

[illegible]

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

Demand set: Phase 2 Development AM

|       |         | TURNING PROPORTIONS   |     |        |     |        |     |        |     |        |  |  |  |  |
|-------|---------|-----------------------|-----|--------|-----|--------|-----|--------|-----|--------|--|--|--|--|
|       |         | TURNING COUNTS        |     |        |     |        |     |        |     |        |  |  |  |  |
|       |         | (PERCENTAGE OF H.V.S) |     |        |     |        |     |        |     |        |  |  |  |  |
| TIME  |         | FROM/TO               | ARM | A      | ARM | B      | ARM | C      | ARM | D      |  |  |  |  |
| 07.45 | - 09.15 |                       |     |        |     |        |     |        |     |        |  |  |  |  |
|       |         | ARM A                 |     | 0.000  |     | 0.000  |     | 1.000  |     | 0.000  |  |  |  |  |
|       |         |                       |     | 0.0    |     | 0.0    |     | 22.0   |     | 0.0    |  |  |  |  |
|       |         |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |  |
|       |         |                       |     |        |     |        |     |        |     |        |  |  |  |  |
|       |         | ARM B                 |     | 0.000  |     | 0.000  |     | 0.000  |     | 0.000  |  |  |  |  |
|       |         |                       |     | 0.0    |     | 0.0    |     | 0.0    |     | 0.0    |  |  |  |  |
|       |         |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |  |
|       |         |                       |     |        |     |        |     |        |     |        |  |  |  |  |
|       |         | ARM C                 |     | 1.000  |     | 0.000  |     | 0.000  |     | 0.000  |  |  |  |  |
|       |         |                       |     | 8.0    |     | 0.0    |     | 0.0    |     | 0.0    |  |  |  |  |
|       |         |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |  |
|       |         |                       |     |        |     |        |     |        |     |        |  |  |  |  |
|       |         | ARM D                 |     | 0.000  |     | 0.000  |     | 0.000  |     | 0.000  |  |  |  |  |
|       |         |                       |     | 0.0    |     | 0.0    |     | 0.0    |     | 0.0    |  |  |  |  |
|       |         |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |  |
|       |         |                       |     |        |     |        |     |        |     |        |  |  |  |  |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

Demand set: Phase 3 Development AM

|       |         | TURNING PROPORTIONS   |     |        |     |        |     |        |     |        |  |  |  |  |
|-------|---------|-----------------------|-----|--------|-----|--------|-----|--------|-----|--------|--|--|--|--|
|       |         | TURNING COUNTS        |     |        |     |        |     |        |     |        |  |  |  |  |
|       |         | (PERCENTAGE OF H.V.S) |     |        |     |        |     |        |     |        |  |  |  |  |
| TIME  |         | FROM/TO               | ARM | A      | ARM | B      | ARM | C      | ARM | D      |  |  |  |  |
| 07.45 | - 09.15 |                       |     |        |     |        |     |        |     |        |  |  |  |  |
|       |         | ARM A                 |     | 0.000  |     | 0.000  |     | 0.935  |     | 0.065  |  |  |  |  |
|       |         |                       |     | 0.0    |     | 0.0    |     | 29.0   |     | 2.0    |  |  |  |  |
|       |         |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |  |
|       |         |                       |     |        |     |        |     |        |     |        |  |  |  |  |
|       |         | ARM B                 |     | 0.000  |     | 0.000  |     | 0.000  |     | 0.000  |  |  |  |  |
|       |         |                       |     | 0.0    |     | 0.0    |     | 0.0    |     | 0.0    |  |  |  |  |
|       |         |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |  |
|       |         |                       |     |        |     |        |     |        |     |        |  |  |  |  |
|       |         | ARM C                 |     | 0.500  |     | 0.000  |     | 0.000  |     | 0.500  |  |  |  |  |
|       |         |                       |     | 11.0   |     | 0.0    |     | 0.0    |     | 11.0   |  |  |  |  |
|       |         |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |  |
|       |         |                       |     |        |     |        |     |        |     |        |  |  |  |  |
|       |         | ARM D                 |     | 0.147  |     | 0.000  |     | 0.853  |     | 0.000  |  |  |  |  |
|       |         |                       |     | 5.0    |     | 0.0    |     | 29.0   |     | 0.0    |  |  |  |  |
|       |         |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |  |
|       |         |                       |     |        |     |        |     |        |     |        |  |  |  |  |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS  
AND FOR TIME PERIOD

1

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 07.45-08.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.14                | 7.48                  | 0.018                        |                                  | 0.00                     | 0.02                   | 0.3                                 |                                               | 0.14                                           |
| B-AD        | 0.33                | 6.26                  | 0.053                        |                                  | 0.00                     | 0.05                   | 0.8                                 |                                               | 0.17                                           |
| A-B         | 0.21                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 3.15                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 0.93                | 9.08                  | 0.102                        |                                  | 0.00                     | 0.11                   | 1.6                                 |                                               |                                                |
| D-AB        | 0.79                | 10.23                 | 0.077                        |                                  | 0.00                     | 0.08                   | 1.2                                 |                                               | 0.11                                           |
| D-BC        | 0.64                | 6.83                  | 0.093                        |                                  | 0.00                     | 0.10                   | 1.5                                 |                                               | 0.16                                           |
| C-ABD       | 0.04                | 9.36                  | 0.004                        |                                  | 0.00                     | 0.00                   | 0.1                                 |                                               | 0.11                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.00-08.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.16                | 7.16                  | 0.023                        |                                  | 0.02                     | 0.02                   | 0.3                                 |                                               | 0.14                                           |
| B-AD        | 0.39                | 5.94                  | 0.066                        |                                  | 0.05                     | 0.07                   | 1.0                                 |                                               | 0.18                                           |
| A-B         | 0.25                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 3.76                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.11                | 8.88                  | 0.125                        |                                  | 0.11                     | 0.14                   | 2.1                                 |                                               |                                                |
| D-AB        | 0.95                | 9.95                  | 0.095                        |                                  | 0.08                     | 0.10                   | 1.5                                 |                                               | 0.11                                           |
| D-BC        | 0.76                | 6.47                  | 0.118                        |                                  | 0.10                     | 0.13                   | 1.9                                 |                                               | 0.18                                           |
| C-ABD       | 0.04                | 9.13                  | 0.005                        |                                  | 0.00                     | 0.00                   | 0.1                                 |                                               | 0.11                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.15-08.30 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.20                | 6.72                  | 0.030                        |                                  | 0.02                     | 0.03                   | 0.4                                 |                                               | 0.15                                           |
| B-AD        | 0.48                | 5.49                  | 0.087                        |                                  | 0.07                     | 0.09                   | 1.4                                 |                                               | 0.20                                           |
| A-B         | 0.31                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 4.61                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.36                | 8.61                  | 0.158                        |                                  | 0.14                     | 0.19                   | 2.7                                 |                                               |                                                |
| D-AB        | 1.16                | 9.55                  | 0.121                        |                                  | 0.10                     | 0.14                   | 2.0                                 |                                               | 0.12                                           |
| D-BC        | 0.93                | 5.97                  | 0.156                        |                                  | 0.13                     | 0.18                   | 2.7                                 |                                               | 0.20                                           |
| C-ABD       | 0.06                | 8.82                  | 0.006                        |                                  | 0.00                     | 0.01                   | 0.1                                 |                                               | 0.11                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.30-08.45 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.20                | 6.72                  | 0.030                        |                                  | 0.03                     | 0.03                   | 0.5                                 |                                               | 0.15                                           |
| B-AD        | 0.48                | 5.48                  | 0.087                        |                                  | 0.09                     | 0.09                   | 1.4                                 |                                               | 0.20                                           |
| A-B         | 0.31                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 4.61                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.36                | 8.61                  | 0.158                        |                                  | 0.19                     | 0.19                   | 2.8                                 |                                               |                                                |
| D-AB        | 1.16                | 9.55                  | 0.121                        |                                  | 0.14                     | 0.14                   | 2.1                                 |                                               | 0.12                                           |
| D-BC        | 0.93                | 5.96                  | 0.156                        |                                  | 0.18                     | 0.18                   | 2.8                                 |                                               | 0.20                                           |
| C-ABD       | 0.06                | 8.82                  | 0.006                        |                                  | 0.01                     | 0.01                   | 0.1                                 |                                               | 0.11                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.45-09.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.16                | 7.16                  | 0.023                        |                                  | 0.03                     | 0.02                   | 0.4                                 |                                               | 0.14                                           |
| B-AD        | 0.39                | 5.93                  | 0.066                        |                                  | 0.09                     | 0.07                   | 1.1                                 |                                               | 0.18                                           |
| A-B         | 0.25                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 3.76                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.11                | 8.88                  | 0.125                        |                                  | 0.19                     | 0.14                   | 2.2                                 |                                               |                                                |
| D-AB        | 0.95                | 9.95                  | 0.095                        |                                  | 0.14                     | 0.11                   | 1.6                                 |                                               | 0.11                                           |
| D-BC        | 0.76                | 6.47                  | 0.118                        |                                  | 0.18                     | 0.14                   | 2.1                                 |                                               | 0.18                                           |
| C-ABD       | 0.04                | 9.13                  | 0.005                        |                                  | 0.01                     | 0.00                   | 0.1                                 |                                               | 0.11                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 09.00-09.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.14                | 7.47                  | 0.018                        |                                  | 0.02                     | 0.02                   | 0.3                                 |                                               | 0.14                                           |
| B-AD        | 0.33                | 6.26                  | 0.053                        |                                  | 0.07                     | 0.06                   | 0.9                                 |                                               | 0.17                                           |
| A-B         | 0.21                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 3.15                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 0.93                | 9.08                  | 0.102                        |                                  | 0.14                     | 0.11                   | 1.8                                 |                                               |                                                |
| D-AB        | 0.79                | 10.23                 | 0.077                        |                                  | 0.11                     | 0.08                   | 1.3                                 |                                               | 0.11                                           |
| D-BC        | 0.64                | 6.83                  | 0.094                        |                                  | 0.14                     | 0.10                   | 1.6                                 |                                               | 0.16                                           |
| C-ABD       | 0.04                | 9.36                  | 0.004                        |                                  | 0.00                     | 0.00                   | 0.1                                 |                                               | 0.11                                           |

\*WARNING\* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

| QUEUE FOR STREAM B-CD |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 08.00                 | 0.0      |
| 08.15                 | 0.0      |
| 08.30                 | 0.0      |
| 08.45                 | 0.0      |
| 09.00                 | 0.0      |
| 09.15                 | 0.0      |

| QUEUE FOR STREAM B-AD |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 08.00                 | 0.1      |
| 08.15                 | 0.1      |
| 08.30                 | 0.1      |
| 08.45                 | 0.1      |
| 09.00                 | 0.1      |
| 09.15                 | 0.1      |

| QUEUE FOR STREAM A-D |          |
|----------------------|----------|
| TIME                 | NO. OF   |
| SEGMENT              | VEHICLES |
| ENDING               | IN QUEUE |
| 08.00                | 0.1      |
| 08.15                | 0.1      |
| 08.30                | 0.2      |
| 08.45                | 0.2      |
| 09.00                | 0.1      |
| 09.15                | 0.1      |

| QUEUE FOR STREAM D-AB |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 08.00                 | 0.1      |
| 08.15                 | 0.1      |
| 08.30                 | 0.1      |
| 08.45                 | 0.1      |
| 09.00                 | 0.1      |
| 09.15                 | 0.1      |

| QUEUE FOR STREAM D-BC |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 08.00                 | 0.1      |
| 08.15                 | 0.1      |
| 08.30                 | 0.2      |
| 08.45                 | 0.2      |
| 09.00                 | 0.1      |
| 09.15                 | 0.1      |

| QUEUE FOR STREAM C-ABD |          |
|------------------------|----------|
| TIME                   | NO. OF   |
| SEGMENT                | VEHICLES |
| ENDING                 | IN QUEUE |
| 08.00                  | 0.0      |
| 08.15                  | 0.0      |
| 08.30                  | 0.0      |
| 08.45                  | 0.0      |
| 09.00                  | 0.0      |
| 09.15                  | 0.0      |

-----

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

-----

| I | STREAM | I | TOTAL  | DEMAND  | I | * QUEUEING * | I         | * INCLUSIVE QUEUEING * | I     |           |   |
|---|--------|---|--------|---------|---|--------------|-----------|------------------------|-------|-----------|---|
| I |        | I |        |         | I | * DELAY *    | I         | * DELAY *              | I     |           |   |
| I |        | I |        |         | I |              | I         |                        | I     |           |   |
| I |        | I | (VEH)  | (VEH/H) | I | (MIN)        | (MIN/VEH) | I                      | (MIN) | (MIN/VEH) | I |
| I | B-CD   | I | 15.0   | I 10.0  | I | 2.2          | I 0.14    | I                      | 2.2   | I 0.14    | I |
| I | B-AD   | I | 36.0   | I 24.0  | I | 6.6          | I 0.18    | I                      | 6.6   | I 0.18    | I |
| I | A-B    | I | 23.4   | I 15.6  | I |              | I         | I                      |       | I         | I |
| I | A-C    | I | 345.5  | I 230.3 | I |              | I         | I                      |       | I         | I |
| I | A-D    | I | 101.9  | I 67.9  | I | 13.2         | I 0.13    | I                      | 13.2  | I 0.13    | I |
| I | D-AB   | I | 86.9   | I 57.9  | I | 9.7          | I 0.11    | I                      | 9.7   | I 0.11    | I |
| I | D-BC   | I | 70.0   | I 46.7  | I | 12.5         | I 0.18    | I                      | 12.5  | I 0.18    | I |
| I | C-ABD  | I | 4.1    | I 2.8   | I | 0.5          | I 0.11    | I                      | 0.5   | I 0.11    | I |
| I | ALL    | I | 1147.9 | I 765.3 | I | 44.6         | I 0.04    | I                      | 44.6  | I 0.04    | I |

\* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD  
 \* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES  
 WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD  
 \* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS  
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

\*\*\*\*\*END OF RUN\*\*\*\*\*

.SLOPES AND INTERCEPT

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(NB:Streams may be combined, in which case capacity will be adjusted)

STREAM B-C

| I | Intercept | For | Slope  | For | Opposing | Slope | For    | Opposing | I |
|---|-----------|-----|--------|-----|----------|-------|--------|----------|---|
| I | STREAM    | B-C | STREAM | A-C | STREAM   | A-B   | STREAM | A-B      | I |
| I | 638.75    |     | 0.24   |     | 0.10     |       |        |          | I |

STREAM D-A

| I | Intercept | For | Slope  | For | Opposing | Slope | For    | Opposing | I |
|---|-----------|-----|--------|-----|----------|-------|--------|----------|---|
| I | STREAM    | D-A | STREAM | C-A | STREAM   | C-D   | STREAM | C-D      | I |
| I | 0.00      |     | 0.00   |     | 0.00     |       |        |          | I |

\* Due to the presence of a flare, data is not available

STREAM B-A

| I | Intercept | For | Slope  | For | Opposing | Slope | For    | Opposing | Slope  | For | Opposing | Slope | For    | Opposing | I |
|---|-----------|-----|--------|-----|----------|-------|--------|----------|--------|-----|----------|-------|--------|----------|---|
| I | STREAM    | B-A | STREAM | A-C | STREAM   | A-D   | STREAM | D-A      | STREAM | D-B | STREAM   | D-C   | STREAM | D-B      | I |
| I | 495.65    |     | 0.22   |     | 0.22     |       | 0.22   |          | 0.22   |     | 0.22     |       | 0.22   |          | I |

| I |  | Slope  | For | Opposing | Slope | For    | Opposing | Slope  | For | Opposing | Slope | For    | Opposing | I |
|---|--|--------|-----|----------|-------|--------|----------|--------|-----|----------|-------|--------|----------|---|
| I |  | STREAM | A-B | STREAM   | C-A   | STREAM | C-B      | STREAM | C-B | STREAM   | D-C   | STREAM | D-C      | I |
| I |  | 0.09   |     | 0.14     |       | 0.32   |          | 0.11   |     |          |       |        |          | I |

STREAM D-C

| I | Intercept | For | Slope  | For | Opposing | Slope | For    | Opposing | Slope  | For | Opposing | I   |   |
|---|-----------|-----|--------|-----|----------|-------|--------|----------|--------|-----|----------|-----|---|
| I | STREAM    | D-C | STREAM | C-A | STREAM   | C-B   | STREAM | B-C      | STREAM | B-D | STREAM   | B-D | I |
| I | 0.00      |     | 0.00   |     | 0.00     |       | 0.00   |          | 0.00   |     | 0.00     |     | I |

| I |  | Slope  | For | Opposing | Slope | For    | Opposing | Slope  | For | Opposing | Slope | For    | Opposing | I |
|---|--|--------|-----|----------|-------|--------|----------|--------|-----|----------|-------|--------|----------|---|
| I |  | STREAM | C-D | STREAM   | A-C   | STREAM | A-D      | STREAM | B-A | STREAM   | B-A   | STREAM | B-A      | I |
| I |  | 0.00   |     | 0.00     |       | 0.00   |          | 0.00   |     | 0.00     |       | 0.00   |          | I |

\* Due to the presence of a flare, data is not available

STREAM C-B

| I | Intercept | For | Slope  | For | Opposing | Slope | For    | Opposing | Slope  | For | Opposing | I   |   |
|---|-----------|-----|--------|-----|----------|-------|--------|----------|--------|-----|----------|-----|---|
| I | STREAM    | C-B | STREAM | A-B | STREAM   | A-C   | STREAM | A-D      | STREAM | A-D | STREAM   | A-D | I |



| STREAM A-D      |                    |                    |                    |   |  |
|-----------------|--------------------|--------------------|--------------------|---|--|
| I Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |  |
| I STREAM A-D    | STREAM C-A         | STREAM C-B         | STREAM C-D         | I |  |
| I 631.87        | 0.24               | 0.34               | 0.24               | I |  |

B-D Stream From Left Hand Lane

| I Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|-----------------|--------------------|--------------------|--------------------|--------------------|---|
| I STREAM B-D    | STREAM A-C         | STREAM A-D         | STREAM A-B         | STREAM C-B         | I |
| I 495.65        | 0.22               | 0.22               | 0.09               | 0.32               | I |
| I               | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I               | STREAM C-A         | STREAM C-D         |                    |                    | I |
| I               | 0.14               | 0.14               |                    |                    | I |

B-D Stream From Right Hand Lane

| I Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|-----------------|--------------------|--------------------|--------------------|--------------------|---|
| I STREAM B-D    | STREAM A-C         | STREAM A-D         | STREAM A-B         | STREAM C-B         | I |
| I 495.65        | 0.22               | 0.22               | 0.09               | 0.32               | I |
| I               | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I               | STREAM C-A         | STREAM C-D         |                    |                    | I |
| I               | 0.14               | 0.14               |                    |                    | I |

D-B Stream From Left Hand Lane

| I Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|-----------------|--------------------|--------------------|--------------------|--------------------|---|
| I STREAM D-B    | STREAM C-A         | STREAM C-B         | STREAM C-D         | STREAM A-D         | I |
| I 0.00          | 0.00               | 0.00               | 0.00               | 0.00               | I |
| I               | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I               | STREAM A-C         | STREAM A-B         |                    |                    | I |
| I               | 0.00               | 0.00               |                    |                    | I |

\* Due to the presence of a flare, data is not available

D-B Stream From Right Hand Lane

| I Intercept For | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
|-----------------|--------------------|--------------------|--------------------|--------------------|---|
| I STREAM B-D    | STREAM C-A         | STREAM C-B         | STREAM C-D         | STREAM A-D         | I |
| I 0.00          | 0.00               | 0.00               | 0.00               | 0.00               | I |
| I               | Slope For Opposing | Slope For Opposing | Slope For Opposing | Slope For Opposing | I |
| I               | STREAM A-C         | STREAM A-B         |                    |                    | I |
| I               | 0.00               | 0.00               |                    |                    | I |

\* Due to the presence of a flare, data is not available

TRAFFIC DEMAND DATA

| I ARM | I FLOW | SCALE (%) | I |
|-------|--------|-----------|---|
| I A   | I      | 100       | I |
| I B   | I      | 100       | I |
| I C   | I      | 100       | I |
| I D   | I      | 100       | I |

Demand set: 2022 Base PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.  
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

|   |     | NUMBER OF MINUTES FROM START WHEN |             |       |             |       | RATE OF FLOW (VEH/MIN) |       |        |      |         |      |       |      |   |
|---|-----|-----------------------------------|-------------|-------|-------------|-------|------------------------|-------|--------|------|---------|------|-------|------|---|
| I | ARM | I                                 | FLOW STARTS | I     | TOP OF PEAK | I     | FLOW STOPS             | I     | BEFORE | I    | AT TOP  | I    | AFTER | I    |   |
| I |     | I                                 | TO RISE     | I     | IS REACHED  | I     | FALLING                | I     | PEAK   | I    | OF PEAK | I    | PEAK  | I    |   |
| I |     | I                                 |             | I     |             | I     |                        | I     |        | I    |         | I    |       | I    |   |
| I | ARM | A                                 | I           | 15.00 | I           | 45.00 | I                      | 75.00 | I      | 6.46 | I       | 9.69 | I     | 6.46 | I |
| I | ARM | B                                 | I           | 15.00 | I           | 45.00 | I                      | 75.00 | I      | 0.44 | I       | 0.66 | I     | 0.44 | I |
| I | ARM | C                                 | I           | 15.00 | I           | 45.00 | I                      | 75.00 | I      | 5.07 | I       | 7.61 | I     | 5.07 | I |
| I | ARM | D                                 | I           | 15.00 | I           | 45.00 | I                      | 75.00 | I      | 1.09 | I       | 1.63 | I     | 1.09 | I |

Demand set: Phase 2 Development PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.  
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

| I | ARM | I | NUMBER OF MINUTES FROM START WHEN |             |            |             | RATE OF FLOW (VEH/MIN) |            |      |        | I       |      |        |      |       |
|---|-----|---|-----------------------------------|-------------|------------|-------------|------------------------|------------|------|--------|---------|------|--------|------|-------|
|   |     |   | I                                 | FLOW STARTS | I          | TOP OF PEAK | I                      | FLOW STOPS | I    | BEFORE |         | I    | AT TOP | I    | AFTER |
|   |     |   |                                   |             |            |             |                        |            |      |        |         |      |        |      |       |
|   |     |   |                                   |             |            |             |                        |            |      |        |         |      |        |      |       |
| I | I   | I | TO RISE                           | I           | IS REACHED | I           | FALLING                | I          | PEAK | I      | OF PEAK | I    | PEAK   | I    |       |
| I | I   | I | I                                 | I           | I          | I           | I                      | I          | I    | I      | I       | I    | I      | I    |       |
| I | ARM | A | I                                 | 15.00       | I          | 45.00       | I                      | 75.00      | I    | 0.15   | I       | 0.23 | I      | 0.15 | I     |
| I | ARM | B | I                                 | 15.00       | I          | 45.00       | I                      | 75.00      | I    | 0.00   | I       | 0.00 | I      | 0.00 | I     |
| I | ARM | C | I                                 | 15.00       | I          | 45.00       | I                      | 75.00      | I    | 0.25   | I       | 0.38 | I      | 0.25 | I     |
| I | ARM | D | I                                 | 15.00       | I          | 45.00       | I                      | 75.00      | I    | 0.00   | I       | 0.00 | I      | 0.00 | I     |

Demand set: Phase 3 Development PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.  
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

| I | ARM | I | NUMBER OF MINUTES FROM START WHEN |             |            |             | RATE OF FLOW (VEH/MIN) |            |      |        | I       |      |        |      |       |
|---|-----|---|-----------------------------------|-------------|------------|-------------|------------------------|------------|------|--------|---------|------|--------|------|-------|
|   |     |   | I                                 | FLOW STARTS | I          | TOP OF PEAK | I                      | FLOW STOPS | I    | BEFORE |         | I    | AT TOP | I    | AFTER |
|   |     |   |                                   |             |            |             |                        |            |      |        |         |      |        |      |       |
|   |     |   |                                   |             |            |             |                        |            |      |        |         |      |        |      |       |
| I | I   | I | TO RISE                           | I           | IS REACHED | I           | FALLING                | I          | PEAK | I      | OF PEAK | I    | PEAK   | I    |       |
| I | I   | I | I                                 | I           | I          | I           | I                      | I          | I    | I      | I       | I    | I      | I    |       |
| I | ARM | A | I                                 | 15.00       | I          | 45.00       | I                      | 75.00      | I    | 0.26   | I       | 0.39 | I      | 0.26 | I     |
| I | ARM | B | I                                 | 15.00       | I          | 45.00       | I                      | 75.00      | I    | 0.00   | I       | 0.00 | I      | 0.00 | I     |
| I | ARM | C | I                                 | 15.00       | I          | 45.00       | I                      | 75.00      | I    | 0.68   | I       | 1.01 | I      | 0.68 | I     |
| I | ARM | D | I                                 | 15.00       | I          | 45.00       | I                      | 75.00      | I    | 0.24   | I       | 0.36 | I      | 0.24 | I     |

| Demand set: |               | 2022 Base PM |                       |   |     |       |   |       |      |       |     |       |   |     |      |   |
|-------------|---------------|--------------|-----------------------|---|-----|-------|---|-------|------|-------|-----|-------|---|-----|------|---|
|             |               |              |                       |   |     |       |   |       |      |       |     |       |   |     |      |   |
| I           |               | I            | TURNING PROPORTIONS   |   |     |       |   |       |      |       |     |       |   |     | I    |   |
| I           |               | I            | TURNING COUNTS        |   |     |       |   |       |      |       |     |       |   |     | I    |   |
| I           |               | I            | (PERCENTAGE OF H.V.S) |   |     |       |   |       |      |       |     |       |   |     | I    |   |
| I           |               |              |                       |   |     |       |   |       |      |       |     |       |   |     |      |   |
| I           | TIME          | I            | FROM/TO               | I | ARM | A     | I | ARM   | B    | I     | ARM | C     | I | ARM | D    | I |
| I           | 16.45 - 18.15 | I            |                       | I |     | I     |   | I     |      | I     |     | I     |   | I   |      | I |
| I           |               | I            | ARM                   | A | I   | 0.000 | I | 0.101 | I    | 0.770 | I   | 0.130 | I |     |      | I |
| I           |               | I            |                       | I | I   | 0.0   | I | 52.0  | I    | 398.0 | I   | 67.0  | I |     |      | I |
| I           |               | I            |                       | I | (   | 0.0)  | I | (     | 2.1) | I     | (   | 1.6)  | I | (   | 1.6) | I |
| I           |               | I            |                       | I | I   |       | I | I     |      | I     |     | I     |   | I   |      | I |
| I           |               | I            | ARM                   | B | I   | 0.743 | I | 0.000 | I    | 0.114 | I   | 0.143 | I |     |      | I |
| I           |               | I            |                       | I | I   | 26.0  | I | 0.0   | I    | 4.0   | I   | 5.0   | I |     |      | I |
| I           |               | I            |                       | I | (   | 0.0)  | I | (     | 0.0) | I     | (   | 0.0)  | I | (   | 0.0) | I |
| I           |               | I            |                       | I | I   |       | I | I     |      | I     |     | I     |   | I   |      | I |
| I           |               | I            | ARM                   | C | I   | 0.840 | I | 0.039 | I    | 0.000 | I   | 0.121 | I |     |      | I |
| I           |               | I            |                       | I | I   | 341.0 | I | 16.0  | I    | 0.0   | I   | 49.0  | I |     |      | I |
| I           |               | I            |                       | I | (   | 0.6)  | I | (     | 0.0) | I     | (   | 0.0)  | I | (   | 0.0) | I |
| I           |               | I            |                       | I | I   |       | I | I     |      | I     |     | I     |   | I   |      | I |
| I           |               | I            | ARM                   | D | I   | 0.713 | I | 0.046 | I    | 0.241 | I   | 0.000 | I |     |      | I |
| I           |               | I            |                       | I | I   | 62.0  | I | 4.0   | I    | 21.0  | I   | 0.0   | I |     |      | I |
| I           |               | I            |                       | I | (   | 0.0)  | I | (     | 0.0) | I     | (   | 0.0)  | I | (   | 0.0) | I |
| I           |               | I            |                       | I | I   |       | I | I     |      | I     |     | I     |   | I   |      | I |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

| Demand set: |               | Phase 2 Development PM |                       |   |     |        |   |        |   |        |     |        |   |     |   |   |
|-------------|---------------|------------------------|-----------------------|---|-----|--------|---|--------|---|--------|-----|--------|---|-----|---|---|
| I           |               | I                      | TURNING PROPORTIONS   |   |     |        |   |        |   |        |     |        |   |     | I |   |
| I           |               | I                      | TURNING COUNTS        |   |     |        |   |        |   |        |     |        |   |     | I |   |
| I           |               | I                      | (PERCENTAGE OF H.V.S) |   |     |        |   |        |   |        |     |        |   |     | I |   |
| I           |               |                        |                       |   |     |        |   |        |   |        |     |        |   |     |   |   |
| I           | TIME          | I                      | FROM/TO               | I | ARM | A      | I | ARM    | B | I      | ARM | C      | I | ARM | D | I |
| I           | 16.45 - 18.15 | I                      |                       | I |     | I      |   | I      |   | I      |     | I      |   | I   |   | I |
| I           |               | I                      | ARM                   | A | I   | 0.000  | I | 0.000  | I | 1.000  | I   | 0.000  | I |     |   | I |
| I           |               | I                      |                       | I | I   | 0.0    | I | 0.0    | I | 12.0   | I   | 0.0    | I |     |   | I |
| I           |               | I                      |                       | I | I   | ( 0.0) | I | ( 0.0) | I | ( 0.0) | I   | ( 0.0) | I |     |   | I |
| I           |               | I                      |                       | I | I   |        | I | I      |   | I      |     | I      |   | I   |   | I |
| I           |               | I                      | ARM                   | B | I   | 0.000  | I | 0.000  | I | 0.000  | I   | 0.000  | I |     |   | I |
| I           |               | I                      |                       | I | I   | 0.0    | I | 0.0    | I | 0.0    | I   | 0.0    | I |     |   | I |
| I           |               | I                      |                       | I | I   | ( 0.0) | I | ( 0.0) | I | ( 0.0) | I   | ( 0.0) | I |     |   | I |
| I           |               | I                      |                       | I | I   |        | I | I      |   | I      |     | I      |   | I   |   | I |
| I           |               | I                      | ARM                   | C | I   | 1.000  | I | 0.000  | I | 0.000  | I   | 0.000  | I |     |   | I |
| I           |               | I                      |                       | I | I   | 20.0   | I | 0.0    | I | 0.0    | I   | 0.0    | I |     |   | I |
| I           |               | I                      |                       | I | I   | ( 0.0) | I | ( 0.0) | I | ( 0.0) | I   | ( 0.0) | I |     |   | I |
| I           |               | I                      |                       | I | I   |        | I | I      |   | I      |     | I      |   | I   |   | I |
| I           |               | I                      | ARM                   | D | I   | 0.000  | I | 0.000  | I | 0.000  | I   | 0.000  | I |     |   | I |
| I           |               | I                      |                       | I | I   | 0.0    | I | 0.0    | I | 0.0    | I   | 0.0    | I |     |   | I |
| I           |               | I                      |                       | I | I   | ( 0.0) | I | ( 0.0) | I | ( 0.0) | I   | ( 0.0) | I |     |   | I |
| I           |               | I                      |                       | I | I   |        | I | I      |   | I      |     | I      |   | I   |   | I |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

| Demand set: |               | Phase 3 Development PM |                       |   |     |        |   |        |   |        |     |        |   |     |   |   |
|-------------|---------------|------------------------|-----------------------|---|-----|--------|---|--------|---|--------|-----|--------|---|-----|---|---|
| I           |               | I                      | TURNING PROPORTIONS   |   |     |        |   |        |   |        |     |        |   |     | I |   |
| I           |               | I                      | TURNING COUNTS        |   |     |        |   |        |   |        |     |        |   |     | I |   |
| I           |               | I                      | (PERCENTAGE OF H.V.S) |   |     |        |   |        |   |        |     |        |   |     | I |   |
| I           |               |                        |                       |   |     |        |   |        |   |        |     |        |   |     |   |   |
| I           | TIME          | I                      | FROM/TO               | I | ARM | A      | I | ARM    | B | I      | ARM | C      | I | ARM | D | I |
| I           | 16.45 - 18.15 | I                      |                       | I |     | I      |   | I      |   | I      |     | I      |   | I   |   | I |
| I           |               | I                      | ARM                   | A | I   | 0.000  | I | 0.000  | I | 0.762  | I   | 0.238  | I |     |   | I |
| I           |               | I                      |                       | I | I   | 0.0    | I | 0.0    | I | 16.0   | I   | 5.0    | I |     |   | I |
| I           |               | I                      |                       | I | I   | ( 0.0) | I | ( 0.0) | I | ( 0.0) | I   | ( 0.0) | I |     |   | I |
| I           |               | I                      |                       | I | I   |        | I | I      |   | I      |     | I      |   | I   |   | I |
| I           |               | I                      | ARM                   | B | I   | 0.000  | I | 0.000  | I | 0.000  | I   | 0.000  | I |     |   | I |
| I           |               | I                      |                       | I | I   | 0.0    | I | 0.0    | I | 0.0    | I   | 0.0    | I |     |   | I |
| I           |               | I                      |                       | I | I   | ( 0.0) | I | ( 0.0) | I | ( 0.0) | I   | ( 0.0) | I |     |   | I |
| I           |               | I                      |                       | I | I   |        | I | I      |   | I      |     | I      |   | I   |   | I |
| I           |               | I                      | ARM                   | C | I   | 0.500  | I | 0.000  | I | 0.000  | I   | 0.500  | I |     |   | I |
| I           |               | I                      |                       | I | I   | 27.0   | I | 0.0    | I | 0.0    | I   | 27.0   | I |     |   | I |
| I           |               | I                      |                       | I | I   | ( 0.0) | I | ( 0.0) | I | ( 0.0) | I   | ( 0.0) | I |     |   | I |
| I           |               | I                      |                       | I | I   |        | I | I      |   | I      |     | I      |   | I   |   | I |
| I           |               | I                      | ARM                   | D | I   | 0.158  | I | 0.000  | I | 0.842  | I   | 0.000  | I |     |   | I |
| I           |               | I                      |                       | I | I   | 3.0    | I | 0.0    | I | 16.0   | I   | 0.0    | I |     |   | I |
| I           |               | I                      |                       | I | I   | ( 0.0) | I | ( 0.0) | I | ( 0.0) | I   | ( 0.0) | I |     |   | I |
| I           |               | I                      |                       | I | I   |        | I | I      |   | I      |     | I      |   | I   |   | I |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

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QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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FOR COMBINED DEMAND SETS  
AND FOR TIME PERIOD

2

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 16.45-17.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.08                | 7.43                  | 0.011                        |                                  | 0.00                     | 0.01                   | 0.2                                 |                                               | 0.14                                           |
| B-AD        | 0.36                | 5.79                  | 0.061                        |                                  | 0.00                     | 0.06                   | 0.9                                 |                                               | 0.18                                           |
| A-B         | 0.65                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 5.35                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 0.90                | 8.92                  | 0.101                        |                                  | 0.00                     | 0.11                   | 1.6                                 |                                               |                                                |
| D-AB        | 0.84                | 10.18                 | 0.083                        |                                  | 0.00                     | 0.09                   | 1.3                                 |                                               | 0.11                                           |
| D-BC        | 0.49                | 6.38                  | 0.076                        |                                  | 0.00                     | 0.08                   | 1.2                                 |                                               | 0.17                                           |
| C-ABD       | 0.20                | 8.75                  | 0.023                        |                                  | 0.00                     | 0.02                   | 0.3                                 |                                               | 0.12                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.00-17.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.10                | 6.97                  | 0.014                        |                                  | 0.01                     | 0.01                   | 0.2                                 |                                               | 0.15                                           |
| B-AD        | 0.42                | 5.30                  | 0.080                        |                                  | 0.06                     | 0.09                   | 1.2                                 |                                               | 0.20                                           |
| A-B         | 0.78                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 6.38                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.08                | 8.64                  | 0.125                        |                                  | 0.11                     | 0.14                   | 2.1                                 |                                               |                                                |
| D-AB        | 1.01                | 9.81                  | 0.103                        |                                  | 0.09                     | 0.11                   | 1.7                                 |                                               | 0.11                                           |
| D-BC        | 0.58                | 5.88                  | 0.099                        |                                  | 0.08                     | 0.11                   | 1.6                                 |                                               | 0.19                                           |
| C-ABD       | 0.24                | 8.40                  | 0.029                        |                                  | 0.02                     | 0.03                   | 0.4                                 |                                               | 0.12                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.15-17.30 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.12                | 6.32                  | 0.020                        |                                  | 0.01                     | 0.02                   | 0.3                                 |                                               | 0.16                                           |
| B-AD        | 0.52                | 4.64                  | 0.112                        |                                  | 0.09                     | 0.12                   | 1.8                                 |                                               | 0.24                                           |
| A-B         | 0.95                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 7.82                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.32                | 8.25                  | 0.160                        |                                  | 0.14                     | 0.19                   | 2.8                                 |                                               |                                                |
| D-AB        | 1.23                | 9.30                  | 0.133                        |                                  | 0.11                     | 0.15                   | 2.2                                 |                                               | 0.12                                           |
| D-BC        | 0.71                | 5.19                  | 0.137                        |                                  | 0.11                     | 0.16                   | 2.3                                 |                                               | 0.22                                           |
| C-ABD       | 0.29                | 7.92                  | 0.037                        |                                  | 0.03                     | 0.04                   | 0.6                                 |                                               | 0.13                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.30-17.45 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.12                | 6.31                  | 0.020                        |                                  | 0.02                     | 0.02                   | 0.3                                 |                                               | 0.16                                           |
| B-AD        | 0.52                | 4.64                  | 0.112                        |                                  | 0.12                     | 0.12                   | 1.9                                 |                                               | 0.24                                           |
| A-B         | 0.95                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 7.82                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.32                | 8.25                  | 0.160                        |                                  | 0.19                     | 0.19                   | 2.8                                 |                                               |                                                |
| D-AB        | 1.23                | 9.30                  | 0.133                        |                                  | 0.15                     | 0.15                   | 2.3                                 |                                               | 0.12                                           |
| D-BC        | 0.71                | 5.19                  | 0.137                        |                                  | 0.16                     | 0.16                   | 2.4                                 |                                               | 0.22                                           |
| C-ABD       | 0.29                | 7.92                  | 0.037                        |                                  | 0.04                     | 0.04                   | 0.6                                 |                                               | 0.13                                           |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.45-18.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-CD        | 0.10                | 6.97                  | 0.014                        |                                  | 0.02                     | 0.01                   | 0.2                                 |                                               | 0.15                                           |
| B-AD        | 0.42                | 5.30                  | 0.080                        |                                  | 0.12                     | 0.09                   | 1.4                                 |                                               | 0.21                                           |
| A-B         | 0.78                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 6.38                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-D         | 1.08                | 8.64                  | 0.125                        |                                  | 0.19                     | 0.14                   | 2.2                                 |                                               |                                                |
| D-AB        | 1.01                | 9.81                  | 0.103                        |                                  | 0.15                     | 0.12                   | 1.8                                 |                                               | 0.11                                           |
| D-BC        | 0.58                | 5.88                  | 0.099                        |                                  | 0.16                     | 0.11                   | 1.7                                 |                                               | 0.19                                           |
| C-ABD       | 0.24                | 8.40                  | 0.029                        |                                  | 0.04                     | 0.03                   | 0.4                                 |                                               | 0.12                                           |



| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|---|
| I | 18.00-18.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | B-CD        | 0.08                | 7.42                  | 0.011                        |                                  | 0.01                     | 0.01                   | 0.2                                 |                                               | 0.14                                           | I |
| I | B-AD        | 0.36                | 5.78                  | 0.062                        |                                  | 0.09                     | 0.07                   | 1.0                                 |                                               | 0.18                                           | I |
| I | A-B         | 0.65                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | A-C         | 5.35                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | A-D         | 0.90                | 8.92                  | 0.101                        |                                  | 0.14                     | 0.11                   | 1.7                                 |                                               |                                                | I |
| I | D-AB        | 0.84                | 10.17                 | 0.083                        |                                  | 0.12                     | 0.09                   | 1.4                                 |                                               | 0.11                                           | I |
| I | D-BC        | 0.49                | 6.37                  | 0.076                        |                                  | 0.11                     | 0.08                   | 1.3                                 |                                               | 0.17                                           | I |
| I | C-ABD       | 0.20                | 8.75                  | 0.023                        |                                  | 0.03                     | 0.02                   | 0.4                                 |                                               | 0.12                                           | I |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |

\*WARNING\* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-CD

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 17.00                     | 0.0                            |
| 17.15                     | 0.0                            |
| 17.30                     | 0.0                            |
| 17.45                     | 0.0                            |
| 18.00                     | 0.0                            |
| 18.15                     | 0.0                            |

QUEUE FOR STREAM B-AD

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 17.00                     | 0.1                            |
| 17.15                     | 0.1                            |
| 17.30                     | 0.1                            |
| 17.45                     | 0.1                            |
| 18.00                     | 0.1                            |
| 18.15                     | 0.1                            |

QUEUE FOR STREAM A-D

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 17.00                     | 0.1                            |
| 17.15                     | 0.1                            |
| 17.30                     | 0.2                            |
| 17.45                     | 0.2                            |
| 18.00                     | 0.1                            |
| 18.15                     | 0.1                            |

QUEUE FOR STREAM D-AB

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 17.00                     | 0.1                            |
| 17.15                     | 0.1                            |
| 17.30                     | 0.2                            |
| 17.45                     | 0.2                            |
| 18.00                     | 0.1                            |
| 18.15                     | 0.1                            |

QUEUE FOR STREAM D-BC

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 17.00                     | 0.1                            |
| 17.15                     | 0.1                            |
| 17.30                     | 0.2                            |
| 17.45                     | 0.2                            |
| 18.00                     | 0.1                            |
| 18.15                     | 0.1                            |

QUEUE FOR STREAM C-ABD

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 17.00                     | 0.0                            |
| 17.15                     | 0.0                            |
| 17.30                     | 0.0                            |
| 17.45                     | 0.0                            |
| 18.00                     | 0.0                            |
| 18.15                     | 0.0                            |

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

| I | STREAM | I | TOTAL  | DEMAND   | I | * QUEUEING * | I         | * INCLUSIVE QUEUEING * | I         |
|---|--------|---|--------|----------|---|--------------|-----------|------------------------|-----------|
| I | I      | I | I      | I        | I | * DELAY *    | I         | * DELAY *              | I         |
| I | I      | I | (VEH)  | (VEH/H)  | I | (MIN)        | (MIN/VEH) | (MIN)                  | (MIN/VEH) |
| I | B-CD   | I | 9.2    | I 6.2    | I | 1.4          | I 0.15    | I 1.4                  | I 0.15    |
| I | B-AD   | I | 38.9   | I 26.0   | I | 8.2          | I 0.21    | I 8.2                  | I 0.21    |
| I | A-B    | I | 71.6   | I 47.7   | I | I            | I         | I                      | I         |
| I | A-C    | I | 586.4  | I 390.9  | I | I            | I         | I                      | I         |
| I | A-D    | I | 99.1   | I 66.1   | I | 13.2         | I 0.13    | I 13.2                 | I 0.13    |
| I | D-AB   | I | 92.5   | I 61.7   | I | 10.6         | I 0.11    | I 10.6                 | I 0.11    |
| I | D-BC   | I | 53.4   | I 35.6   | I | 10.4         | I 0.19    | I 10.4                 | I 0.19    |
| I | C-ABD  | I | 22.0   | I 14.7   | I | 2.7          | I 0.12    | I 2.7                  | I 0.12    |
| I | ALL    | I | 1611.8 | I 1074.5 | I | 46.6         | I 0.03    | I 46.6                 | I 0.03    |

\* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD  
 \* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES  
 WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD  
 \* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS  
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

\*\*\*\*\*END OF RUN\*\*\*\*\*

===== end of file =====

## ***APPENDIX J***

***PICADY – Houghton Road / School Street***

---

TRL LIMITED

(C) COPYRIGHT 2010

CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM  
RELEASE 5.0 (JUNE 2010)

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TEL: CROWTHORNE (01344) 770758, FAX: 770356  
EMAIL: software@trl.co.uk

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS  
IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-  
"J:\10000\10000\10082\_SchoolStreetThurnsco\engineering\Traffic\_Programs\Picady\School Street\  
School Street - Houghton Road .vpi"  
(drive-on-the-left) at 09:33:33 on Thursday, 9 November 2017

RUN INFORMATION  
\*\*\*\*\*

RUN TITLE : School Street - Houghton Road  
LOCATION : School Street, Thurnscoe  
DATE : 25/07/17  
CLIENT : Keepmoat Homes Ltd  
ENUMERATOR : brett.littlewood [PC137]  
JOB NUMBER : 10082  
STATUS : Preliminary  
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY  
\*\*\*\*\*

INPUT DATA  
-----

MAJOR ROAD (ARM C) ----- MAJOR ROAD (ARM A)  
I  
I  
I  
I  
I  
I  
I  
MINOR ROAD (ARM B)

ARM A IS Houghton Road (W)  
ARM B IS School Street  
ARM C IS Houghton Road (E)

STREAM LABELLING CONVENTION  
-----

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B  
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C  
ETC.

# GEOMETRIC DATA

| I | DATA ITEM                          | I | MINOR ROAD B     | I |
|---|------------------------------------|---|------------------|---|
| I | TOTAL MAJOR ROAD CARRIAGEWAY WIDTH | I | ( W ) 7.70 M.    | I |
| I | CENTRAL RESERVE WIDTH              | I | (WCR ) 0.00 M.   | I |
| I |                                    | I |                  | I |
| I | MAJOR ROAD RIGHT TURN - WIDTH      | I | (WC-B) 2.40 M.   | I |
| I | - VISIBILITY                       | I | (VC-B) 220.00 M. | I |
| I | - BLOCKS TRAFFIC (SPACES)          | I | YES ( 4)         | I |
| I |                                    | I |                  | I |
| I | MINOR ROAD - VISIBILITY TO LEFT    | I | (VB-C) 20.0 M.   | I |
| I | - VISIBILITY TO RIGHT              | I | (VB-A) 15.0 M.   | I |
| I | - LANE 1 WIDTH                     | I | (WB-C) -         | I |
| I | - LANE 2 WIDTH                     | I | (WB-A) -         | I |
| I | WIDTH AT 0 M FROM JUNCTION         | I | 7.00 M.          | I |
| I | WIDTH AT 5 M FROM JUNCTION         | I | 3.65 M.          | I |
| I | WIDTH AT 10 M FROM JUNCTION        | I | 3.65 M.          | I |
| I | WIDTH AT 15 M FROM JUNCTION        | I | 3.65 M.          | I |
| I | WIDTH AT 20 M FROM JUNCTION        | I | 3.65 M.          | I |
| I | - LENGTH OF FLARED SECTION         | I | DERIVED: 0 PCU   | I |

## .SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | I |
|---|---------------|-----------|----------|-----------|----------|---|
| I | STREAM B-C    | STREAM    | A-C      | STREAM    | A-B      | I |
| I | 0.00          |           | 0.00     |           | 0.00     | I |

\* Due to the presence of a flare, data is not available

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | Slope For | Opposing | Slope For | Opposing | I |
|---|---------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|---|
| I | STREAM B-A    | STREAM    | A-C      | STREAM    | A-B      | STREAM    | C-A      | STREAM    | C-B      | I |
| I | 0.00          |           | 0.00     |           | 0.00     |           | 0.00     |           | 0.00     | I |

\* Due to the presence of a flare, data is not available

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | I |
|---|---------------|-----------|----------|-----------|----------|---|
| I | STREAM C-B    | STREAM    | A-C      | STREAM    | A-B      | I |
| I | 716.63        |           | 0.26     |           | 0.26     | I |

(NB These values do not allow for any site specific corrections)

## TRAFFIC DEMAND DATA

| I | ARM | I | FLOW SCALE(%) | I |
|---|-----|---|---------------|---|
| I | A   | I | 100           | I |
| I | B   | I | 100           | I |
| I | C   | I | 100           | I |

Demand set: 2022 AM Base

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.

LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

| I | ARM   | I | NUMBER OF MINUTES FROM START WHEN | I | RATE OF FLOW (VEH/MIN) | I |
|---|-------|---|-----------------------------------|---|------------------------|---|
| I |       | I | FLOW STARTS                       | I | TOP OF PEAK            | I |
| I |       | I | TO RISE                           | I | IS REACHED             | I |
| I |       | I |                                   | I | FALLING                | I |
| I |       | I |                                   | I | BEFORE                 | I |
| I |       | I |                                   | I | AT TOP                 | I |
| I |       | I |                                   | I | AFTER                  | I |
| I |       | I |                                   | I | PEAK                   | I |
| I |       | I |                                   | I | OF PEAK                | I |
| I |       | I |                                   | I | PEAK                   | I |
| I | ARM A | I | 15.00                             | I | 45.00                  | I |
| I | ARM B | I | 15.00                             | I | 45.00                  | I |
| I | ARM C | I | 15.00                             | I | 45.00                  | I |
| I |       | I |                                   | I | 75.00                  | I |
| I |       | I |                                   | I | 75.00                  | I |
| I |       | I |                                   | I | 75.00                  | I |
| I |       | I |                                   | I | 4.85                   | I |
| I |       | I |                                   | I | 7.27                   | I |
| I |       | I |                                   | I | 4.85                   | I |
| I |       | I |                                   | I | 1.74                   | I |
| I |       | I |                                   | I | 2.61                   | I |
| I |       | I |                                   | I | 1.74                   | I |
| I |       | I |                                   | I | 3.89                   | I |
| I |       | I |                                   | I | 5.83                   | I |
| I |       | I |                                   | I | 3.89                   | I |

Demand set: 2022 AM Base

| TIME          | TURNING PROPORTIONS   |     |        |     |        |     |        |  |
|---------------|-----------------------|-----|--------|-----|--------|-----|--------|--|
|               | TURNING COUNTS        |     |        |     |        |     |        |  |
|               | (PERCENTAGE OF H.V.S) |     |        |     |        |     |        |  |
|               | FROM/TO               | ARM | A      | ARM | B      | ARM | C      |  |
| 07.45 - 09.15 | ARM A                 |     | 0.000  |     | 0.026  |     | 0.974  |  |
|               |                       |     | 0.0    |     | 10.0   |     | 378.0  |  |
|               |                       |     | ( 0.0) |     | ( 0.0) |     | ( 2.6) |  |
|               | ARM B                 |     | 0.158  |     | 0.000  |     | 0.842  |  |
|               |                       |     | 22.0   |     | 0.0    |     | 117.0  |  |
|               |                       |     | ( 0.0) |     | ( 0.0) |     | ( 2.8) |  |
|               | ARM C                 |     | 0.801  |     | 0.199  |     | 0.000  |  |
|               |                       |     | 249.0  |     | 62.0   |     | 0.0    |  |
|               |                       |     | ( 4.8) |     | ( 1.8) |     | ( 0.0) |  |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS  
AND FOR TIME PERIOD 1

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 07.45-08.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 1.47                | 9.91                  | 0.148                        |                                  | 0.00                     | 0.17                   | 2.5                                 |                                               | 0.12                                           |
| B-A         | 0.28                | 5.84                  | 0.047                        |                                  | 0.00                     | 0.05                   | 0.7                                 |                                               | 0.18                                           |
| C-AB        | 0.78                | 10.47                 | 0.074                        |                                  | 0.00                     | 0.08                   | 1.2                                 |                                               | 0.10                                           |
| A-B         | 0.13                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 4.74                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.00-08.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 1.75                | 9.65                  | 0.182                        |                                  | 0.17                     | 0.22                   | 3.2                                 |                                               | 0.13                                           |
| B-A         | 0.33                | 5.54                  | 0.059                        |                                  | 0.05                     | 0.06                   | 0.9                                 |                                               | 0.19                                           |
| C-AB        | 0.93                | 10.23                 | 0.091                        |                                  | 0.08                     | 0.10                   | 1.5                                 |                                               | 0.11                                           |
| A-B         | 0.15                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 5.66                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.15-08.30 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 2.15                | 9.29                  | 0.231                        |                                  | 0.22                     | 0.30                   | 4.3                                 |                                               | 0.14                                           |
| B-A         | 0.40                | 5.13                  | 0.079                        |                                  | 0.06                     | 0.08                   | 1.2                                 |                                               | 0.21                                           |
| C-AB        | 1.14                | 9.89                  | 0.115                        |                                  | 0.10                     | 0.13                   | 1.9                                 |                                               | 0.11                                           |
| A-B         | 0.18                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 6.94                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.30-08.45 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 2.15                | 9.29                  | 0.231                        |                                  | 0.30                     | 0.30                   | 4.5                                 |                                               | 0.14                                           |
| B-A         | 0.40                | 5.13                  | 0.079                        |                                  | 0.08                     | 0.08                   | 1.3                                 |                                               | 0.21                                           |
| C-AB        | 1.14                | 9.89                  | 0.115                        |                                  | 0.13                     | 0.13                   | 1.9                                 |                                               | 0.11                                           |
| A-B         | 0.18                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 6.94                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.45-09.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 1.75                | 9.65                  | 0.182                        |                                  | 0.30                     | 0.22                   | 3.5                                 |                                               | 0.13                                           |
| B-A         | 0.33                | 5.54                  | 0.059                        |                                  | 0.08                     | 0.06                   | 1.0                                 |                                               | 0.19                                           |
| C-AB        | 0.93                | 10.23                 | 0.091                        |                                  | 0.13                     | 0.10                   | 1.5                                 |                                               | 0.11                                           |
| A-B         | 0.15                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 5.66                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 09.00-09.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 1.47                | 9.91                  | 0.148                        |                                  | 0.22                     | 0.18                   | 2.7                                 |                                               | 0.12                                           |
| B-A         | 0.28                | 5.84                  | 0.047                        |                                  | 0.06                     | 0.05                   | 0.8                                 |                                               | 0.18                                           |
| C-AB        | 0.78                | 10.47                 | 0.074                        |                                  | 0.10                     | 0.08                   | 1.2                                 |                                               | 0.10                                           |
| A-B         | 0.13                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 4.74                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

\*WARNING\* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

| TIME  | NO. OF<br>VEHICLES<br>IN QUEUE |
|-------|--------------------------------|
| 08.00 | 0.2                            |
| 08.15 | 0.2                            |
| 08.30 | 0.3                            |
| 08.45 | 0.3                            |
| 09.00 | 0.2                            |
| 09.15 | 0.2                            |

| TIME  | NO. OF<br>VEHICLES<br>IN QUEUE |
|-------|--------------------------------|
| 08.00 | 0.0                            |
| 08.15 | 0.1                            |
| 08.30 | 0.1                            |
| 08.45 | 0.1                            |
| 09.00 | 0.1                            |
| 09.15 | 0.1                            |

| TIME  | NO. OF<br>VEHICLES<br>IN QUEUE |
|-------|--------------------------------|
| 08.00 | 0.1                            |
| 08.15 | 0.1                            |
| 08.30 | 0.1                            |
| 08.45 | 0.1                            |
| 09.00 | 0.1                            |
| 09.15 | 0.1                            |

-----

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

-----

| I | STREAM | I | TOTAL  | I | DEMAND  | I | * QUEUEING * | I | * INCLUSIVE QUEUEING * | I |
|---|--------|---|--------|---|---------|---|--------------|---|------------------------|---|
| I |        | I |        | I |         | I | * DELAY *    | I | * DELAY *              | I |
| I |        | I |        | I |         | I |              | I |                        | I |
| I |        | I | (VEH)  | I | (VEH/H) | I | (MIN)        | I | (MIN/VEH)              | I |
| I |        | I |        | I |         | I |              | I |                        | I |
| I | B-C    | I | 161.0  | I | 107.4   | I | 20.7         | I | 0.13                   | I |
| I | B-A    | I | 30.3   | I | 20.2    | I | 5.9          | I | 0.19                   | I |
| I | C-AB   | I | 85.3   | I | 56.9    | I | 9.3          | I | 0.11                   | I |
| I | A-B    | I | 13.8   | I | 9.2     | I |              | I |                        | I |
| I | A-C    | I | 520.3  | I | 346.9   | I |              | I |                        | I |
| I | ALL    | I | 1153.4 | I | 769.0   | I | 35.8         | I | 0.03                   | I |

\* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD

\* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES

WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD

\* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS

A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

\*\*\*\*\*END OF RUN\*\*\*\*\*

-----

.SLOPES AND INTERCEPT

-----

(NB:Streams may be combined, in which case capacity will be adjusted)

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | I |
|---|---------------|-----------|----------|-----------|----------|---|
| I | STREAM B-C    | STREAM    | A-C      | STREAM    | A-B      | I |
| I |               |           |          |           |          | I |
| I | 0.00          |           | 0.00     |           | 0.00     | I |

\* Due to the presence of a flare, data is not available

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | Slope For | Opposing | Slope For | Opposing | I |
|---|---------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|---|
| I | STREAM B-A    | STREAM    | A-C      | STREAM    | A-B      | STREAM    | C-A      | STREAM    | C-B      | I |
| I |               |           |          |           |          |           |          |           |          | I |
| I | 0.00          |           | 0.00     |           | 0.00     |           | 0.00     |           | 0.00     | I |

\* Due to the presence of a flare, data is not available

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | I |
|---|---------------|-----------|----------|-----------|----------|---|
| I | STREAM C-B    | STREAM    | A-C      | STREAM    | A-B      | I |
| I |               |           |          |           |          | I |
| I | 716.63        |           | 0.26     |           | 0.26     | I |

(NB These values do not allow for any site specific corrections)

-----

TRAFFIC DEMAND DATA

-----

| I | ARM | I | FLOW | I | SCALE (%) | I |
|---|-----|---|------|---|-----------|---|
| I |     | I |      | I |           | I |
| I |     | I |      | I |           | I |
| I | A   | I | 100  | I |           | I |
| I | B   | I | 100  | I |           | I |
| I | C   | I | 100  | I |           | I |

Demand set: 2022 PM Base

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.

LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

| I |       | I | NUMBER OF MINUTES FROM START WHEN | I | RATE OF FLOW (VEH/MIN) | I |
|---|-------|---|-----------------------------------|---|------------------------|---|
| I | ARM   | I | FLOW STARTS                       | I | TOP OF PEAK            | I |
| I |       | I | TO RISE                           | I | IS REACHED             | I |
| I |       | I |                                   | I | FALLING                | I |
| I |       | I |                                   | I |                        | I |
| I |       | I |                                   | I | BEFORE                 | I |
| I |       | I |                                   | I | AT TOP                 | I |
| I |       | I |                                   | I | AFTER                  | I |
| I |       | I |                                   | I | PEAK                   | I |
| I |       | I |                                   | I | OF PEAK                | I |
| I |       | I |                                   | I | PEAK                   | I |
| I |       | I |                                   | I |                        | I |
| I | ARM A | I | 15.00                             | I | 45.00                  | I |
| I | ARM B | I | 15.00                             | I | 45.00                  | I |
| I | ARM C | I | 15.00                             | I | 45.00                  | I |



Demand set: 2022 PM Base

| TIME          | TURNING PROPORTIONS   |     |        |     |        |     |        |  |
|---------------|-----------------------|-----|--------|-----|--------|-----|--------|--|
|               | TURNING COUNTS        |     |        |     |        |     |        |  |
|               | (PERCENTAGE OF H.V.S) |     |        |     |        |     |        |  |
|               | FROM/TO               | ARM | A      | ARM | B      | ARM | C      |  |
| 16.45 - 18.15 |                       |     |        |     |        |     |        |  |
|               | ARM A                 |     | 0.000  |     | 0.119  |     | 0.881  |  |
|               |                       |     | 0.0    |     | 50.0   |     | 371.0  |  |
|               |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.6) |  |
|               |                       |     |        |     |        |     |        |  |
|               | ARM B                 |     | 0.342  |     | 0.000  |     | 0.658  |  |
|               |                       |     | 27.0   |     | 0.0    |     | 52.0   |  |
|               |                       |     | ( 0.0) |     | ( 0.0) |     | ( 4.2) |  |
|               |                       |     |        |     |        |     |        |  |
|               | ARM C                 |     | 0.902  |     | 0.098  |     | 0.000  |  |
|               |                       |     | 505.0  |     | 55.0   |     | 0.0    |  |
|               |                       |     | ( 1.9) |     | ( 0.0) |     | ( 0.0) |  |
|               |                       |     |        |     |        |     |        |  |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS  
AND FOR TIME PERIOD 2

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 16.45-17.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 0.65                | 9.67                  | 0.067                        |                                  | 0.00                     | 0.07                   | 1.0                                 |                                               | 0.11                                           |
| B-A         | 0.34                | 5.73                  | 0.059                        |                                  | 0.00                     | 0.06                   | 0.9                                 |                                               | 0.19                                           |
| C-AB        | 0.69                | 10.58                 | 0.065                        |                                  | 0.00                     | 0.07                   | 1.0                                 |                                               | 0.10                                           |
| A-B         | 0.63                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 4.66                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.00-17.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 0.78                | 9.41                  | 0.083                        |                                  | 0.07                     | 0.09                   | 1.3                                 |                                               | 0.12                                           |
| B-A         | 0.40                | 5.35                  | 0.076                        |                                  | 0.06                     | 0.08                   | 1.2                                 |                                               | 0.20                                           |
| C-AB        | 0.82                | 10.31                 | 0.080                        |                                  | 0.07                     | 0.09                   | 1.3                                 |                                               | 0.11                                           |
| A-B         | 0.75                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 5.56                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.15-17.30 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 0.95                | 9.04                  | 0.106                        |                                  | 0.09                     | 0.12                   | 1.7                                 |                                               | 0.12                                           |
| B-A         | 0.50                | 4.82                  | 0.103                        |                                  | 0.08                     | 0.11                   | 1.6                                 |                                               | 0.23                                           |
| C-AB        | 1.01                | 9.95                  | 0.101                        |                                  | 0.09                     | 0.11                   | 1.7                                 |                                               | 0.11                                           |
| A-B         | 0.92                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 6.81                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.30-17.45 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 0.95                | 9.04                  | 0.106                        |                                  | 0.12                     | 0.12                   | 1.8                                 |                                               | 0.12                                           |
| B-A         | 0.50                | 4.82                  | 0.103                        |                                  | 0.11                     | 0.11                   | 1.7                                 |                                               | 0.23                                           |
| C-AB        | 1.01                | 9.95                  | 0.101                        |                                  | 0.11                     | 0.11                   | 1.7                                 |                                               | 0.11                                           |
| A-B         | 0.92                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 6.81                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|---|
| I | 17.45-18.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | B-C         | 0.78                | 9.41                  | 0.083                        |                                  | 0.12                     | 0.09                   | 1.4                                 |                                               | 0.12                                           | I |
| I | B-A         | 0.40                | 5.35                  | 0.076                        |                                  | 0.11                     | 0.08                   | 1.3                                 |                                               | 0.20                                           | I |
| I | C-AB        | 0.82                | 10.31                 | 0.080                        |                                  | 0.11                     | 0.09                   | 1.3                                 |                                               | 0.11                                           | I |
| I | A-B         | 0.75                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | A-C         | 5.56                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|---|
| I | 18.00-18.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | B-C         | 0.65                | 9.67                  | 0.067                        |                                  | 0.09                     | 0.07                   | 1.1                                 |                                               | 0.11                                           | I |
| I | B-A         | 0.34                | 5.73                  | 0.059                        |                                  | 0.08                     | 0.06                   | 1.0                                 |                                               | 0.19                                           | I |
| I | C-AB        | 0.69                | 10.58                 | 0.065                        |                                  | 0.09                     | 0.07                   | 1.1                                 |                                               | 0.10                                           | I |
| I | A-B         | 0.63                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | A-C         | 4.66                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |

\*WARNING\* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

| QUEUE FOR STREAM B-C |          |
|----------------------|----------|
| TIME                 | NO. OF   |
| SEGMENT              | VEHICLES |
| ENDING               | IN QUEUE |
| 17.00                | 0.1      |
| 17.15                | 0.1      |
| 17.30                | 0.1      |
| 17.45                | 0.1      |
| 18.00                | 0.1      |
| 18.15                | 0.1      |

| QUEUE FOR STREAM B-A |          |
|----------------------|----------|
| TIME                 | NO. OF   |
| SEGMENT              | VEHICLES |
| ENDING               | IN QUEUE |
| 17.00                | 0.1      |
| 17.15                | 0.1      |
| 17.30                | 0.1      |
| 17.45                | 0.1      |
| 18.00                | 0.1      |
| 18.15                | 0.1      |

| QUEUE FOR STREAM C-AB |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 17.00                 | 0.1      |
| 17.15                 | 0.1      |
| 17.30                 | 0.1      |
| 17.45                 | 0.1      |
| 18.00                 | 0.1      |
| 18.15                 | 0.1      |

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

| I | STREAM | I | TOTAL  | DEMAND  | I | * QUEUEING * | I         | * INCLUSIVE QUEUEING * | I     |           |
|---|--------|---|--------|---------|---|--------------|-----------|------------------------|-------|-----------|
| I |        | I |        |         | I | * DELAY *    | I         | * DELAY *              | I     |           |
| I |        | I |        |         | I |              |           | I                      |       |           |
| I |        | I | (VEH)  | (VEH/H) | I | (MIN)        | (MIN/VEH) | I                      | (MIN) | (MIN/VEH) |
| I | B-C    | I | 71.6   | I 47.7  | I | 8.3          | I 0.12    | I                      | 8.3   | I 0.12    |
| I | B-A    | I | 37.2   | I 24.8  | I | 7.7          | I 0.21    | I                      | 7.7   | I 0.21    |
| I | C-AB   | I | 75.7   | I 50.5  | I | 8.1          | I 0.11    | I                      | 8.1   | I 0.11    |
| I | A-B    | I | 68.8   | I 45.9  | I |              | I         | I                      |       | I         |
| I | A-C    | I | 510.7  | I 340.4 | I |              | I         | I                      |       | I         |
| I | ALL    | I | 1459.0 | I 972.7 | I | 24.1         | I 0.02    | I                      | 24.1  | I 0.02    |

\* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD  
\* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES  
WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD  
\* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS  
A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

\*\*\*\*\*END OF RUN\*\*\*\*\*

===== end of file =====

TRL LIMITED

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CAPACITIES, QUEUES, AND DELAYS AT 3 OR 4-ARM MAJOR/MINOR PRIORITY JUNCTIONS

PICADY 5.1 ANALYSIS PROGRAM  
RELEASE 5.0 (JUNE 2010)

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THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS  
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Run with file:-  
"J:\10000\10000\10082\_SchoolStreetThurnsco\engineering\Traffic\_Programs\Picady\School Street\  
School Street - Houghton Road .vpi"  
(drive-on-the-left) at 09:31:00 on Thursday, 9 November 2017

RUN INFORMATION  
\*\*\*\*\*

RUN TITLE : School Street - Houghton Road  
LOCATION : School Street, Thurnscoe  
DATE : 25/07/17  
CLIENT : Keepmoat Homes Ltd  
ENUMERATOR : brett.littlewood [PC137]  
JOB NUMBER : 10082  
STATUS : Preliminary  
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY  
\*\*\*\*\*

INPUT DATA  
-----

MAJOR ROAD (ARM C) ----- MAJOR ROAD (ARM A)  
I  
I  
I  
I  
I  
I  
I  
MINOR ROAD (ARM B)

ARM A IS Houghton Road (W)  
ARM B IS School Street  
ARM C IS Houghton Road (E)

STREAM LABELLING CONVENTION  
-----

STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B  
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C  
ETC.

# GEOMETRIC DATA

| I | DATA ITEM                          | I | MINOR ROAD B     | I |
|---|------------------------------------|---|------------------|---|
| I | TOTAL MAJOR ROAD CARRIAGEWAY WIDTH | I | ( W ) 7.70 M.    | I |
| I | CENTRAL RESERVE WIDTH              | I | (WCR ) 0.00 M.   | I |
| I |                                    | I |                  | I |
| I | MAJOR ROAD RIGHT TURN - WIDTH      | I | (WC-B) 2.40 M.   | I |
| I | - VISIBILITY                       | I | (VC-B) 220.00 M. | I |
| I | - BLOCKS TRAFFIC (SPACES)          | I | YES ( 4)         | I |
| I |                                    | I |                  | I |
| I | MINOR ROAD - VISIBILITY TO LEFT    | I | (VB-C) 20.0 M.   | I |
| I | - VISIBILITY TO RIGHT              | I | (VB-A) 15.0 M.   | I |
| I | - LANE 1 WIDTH                     | I | (WB-C) -         | I |
| I | - LANE 2 WIDTH                     | I | (WB-A) -         | I |
| I | WIDTH AT 0 M FROM JUNCTION         | I | 7.00 M.          | I |
| I | WIDTH AT 5 M FROM JUNCTION         | I | 3.65 M.          | I |
| I | WIDTH AT 10 M FROM JUNCTION        | I | 3.65 M.          | I |
| I | WIDTH AT 15 M FROM JUNCTION        | I | 3.65 M.          | I |
| I | WIDTH AT 20 M FROM JUNCTION        | I | 3.65 M.          | I |
| I | - LENGTH OF FLARED SECTION         | I | DERIVED: 0 PCU   | I |

## .SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | I |
|---|---------------|-----------|----------|-----------|----------|---|
| I | STREAM B-C    | STREAM    | A-C      | STREAM    | A-B      | I |
| I | 0.00          |           | 0.00     |           | 0.00     | I |

\* Due to the presence of a flare, data is not available

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | Slope For | Opposing | Slope For | Opposing | I |
|---|---------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|---|
| I | STREAM B-A    | STREAM    | A-C      | STREAM    | A-B      | STREAM    | C-A      | STREAM    | C-B      | I |
| I | 0.00          |           | 0.00     |           | 0.00     |           | 0.00     |           | 0.00     | I |

\* Due to the presence of a flare, data is not available

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | I |
|---|---------------|-----------|----------|-----------|----------|---|
| I | STREAM C-B    | STREAM    | A-C      | STREAM    | A-B      | I |
| I | 716.63        |           | 0.26     |           | 0.26     | I |

(NB These values do not allow for any site specific corrections)

## TRAFFIC DEMAND DATA

| I | ARM | I | FLOW SCALE(%) | I |
|---|-----|---|---------------|---|
| I | A   | I | 100           | I |
| I | B   | I | 100           | I |
| I | C   | I | 100           | I |

Demand set: 2022 AM Base

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.

LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

| I | ARM   | I | NUMBER OF MINUTES FROM START WHEN | I | RATE OF FLOW (VEH/MIN) | I |
|---|-------|---|-----------------------------------|---|------------------------|---|
| I |       | I | FLOW STARTS                       | I | TOP OF PEAK            | I |
| I |       | I | TO RISE                           | I | IS REACHED             | I |
| I |       | I |                                   | I | FALLING                | I |
| I |       | I |                                   | I | BEFORE                 | I |
| I |       | I |                                   | I | AT TOP                 | I |
| I |       | I |                                   | I | AFTER                  | I |
| I |       | I |                                   | I | PEAK                   | I |
| I |       | I |                                   | I | OF PEAK                | I |
| I |       | I |                                   | I | PEAK                   | I |
| I | ARM A | I | 15.00                             | I | 45.00                  | I |
| I | ARM B | I | 15.00                             | I | 45.00                  | I |
| I | ARM C | I | 15.00                             | I | 45.00                  | I |
| I |       | I |                                   | I | 75.00                  | I |
| I |       | I |                                   | I | 75.00                  | I |
| I |       | I |                                   | I | 75.00                  | I |
| I |       | I |                                   | I | 4.85                   | I |
| I |       | I |                                   | I | 7.27                   | I |
| I |       | I |                                   | I | 4.85                   | I |
| I |       | I |                                   | I | 1.74                   | I |
| I |       | I |                                   | I | 2.61                   | I |
| I |       | I |                                   | I | 1.74                   | I |
| I |       | I |                                   | I | 3.89                   | I |
| I |       | I |                                   | I | 5.83                   | I |
| I |       | I |                                   | I | 3.89                   | I |

Demand set: AM Phase 2 Development

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.  
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

| I | ARM | I | NUMBER OF MINUTES FROM START WHEN |       |   | RATE OF FLOW (VEH/MIN) |   |       | I |      |   |      |   |      |   |
|---|-----|---|-----------------------------------|-------|---|------------------------|---|-------|---|------|---|------|---|------|---|
|   |     |   | I                                 | I     | I | I                      | I | I     |   |      |   |      |   |      |   |
|   |     |   | I                                 | I     | I | I                      | I | I     |   |      |   |      |   |      |   |
|   |     |   | I                                 | I     | I | I                      | I | I     |   |      |   |      |   |      |   |
| I | ARM | A | I                                 | 15.00 | I | 45.00                  | I | 75.00 | I | 0.13 | I | 0.19 | I | 0.13 | I |
| I | ARM | B | I                                 | 15.00 | I | 45.00                  | I | 75.00 | I | 0.66 | I | 0.99 | I | 0.66 | I |
| I | ARM | C | I                                 | 15.00 | I | 45.00                  | I | 75.00 | I | 0.11 | I | 0.17 | I | 0.11 | I |

Demand set: AM Phase 3 Development

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

LENGTH OF TIME PERIOD - 90 MIN.  
LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

| I | ARM | I | NUMBER OF MINUTES FROM START WHEN |       |   | RATE OF FLOW (VEH/MIN) |   |       | I |      |   |      |   |      |   |
|---|-----|---|-----------------------------------|-------|---|------------------------|---|-------|---|------|---|------|---|------|---|
|   |     |   | I                                 | I     | I | I                      | I | I     |   |      |   |      |   |      |   |
|   |     |   | I                                 | I     | I | I                      | I | I     |   |      |   |      |   |      |   |
|   |     |   | I                                 | I     | I | I                      | I | I     |   |      |   |      |   |      |   |
| I | ARM | A | I                                 | 15.00 | I | 45.00                  | I | 75.00 | I | 0.20 | I | 0.30 | I | 0.20 | I |
| I | ARM | B | I                                 | 15.00 | I | 45.00                  | I | 75.00 | I | 1.38 | I | 2.06 | I | 1.38 | I |
| I | ARM | C | I                                 | 15.00 | I | 45.00                  | I | 75.00 | I | 0.29 | I | 0.43 | I | 0.29 | I |

Demand set: 2022 AM Base

|      |               | I     | TURNING PROPORTIONS   |   |     |        |   |        |   |        |     |   | I |  |
|------|---------------|-------|-----------------------|---|-----|--------|---|--------|---|--------|-----|---|---|--|
|      |               | I     | TURNING COUNTS        |   |     |        |   |        |   |        |     |   | I |  |
|      |               | I     | (PERCENTAGE OF H.V.S) |   |     |        |   |        |   |        |     |   | I |  |
|      |               | ----- |                       |   |     |        |   |        |   |        |     |   |   |  |
| TIME |               | I     | FROM/TO               | I | ARM | A      | I | ARM    | B | I      | ARM | C | I |  |
|      |               | ----- |                       |   |     |        |   |        |   |        |     |   |   |  |
| I    | 07.45 - 09.15 | I     |                       | I |     | I      |   | I      |   | I      |     | I |   |  |
| I    |               | I     | ARM                   | A | I   | 0.000  | I | 0.026  | I | 0.974  | I   |   |   |  |
| I    |               | I     |                       |   | I   | 0.0    | I | 10.0   | I | 378.0  | I   |   |   |  |
| I    |               | I     |                       |   | I   | ( 0.0) | I | ( 0.0) | I | ( 2.6) | I   |   |   |  |
| I    |               | I     |                       |   | I   |        | I |        | I |        | I   |   |   |  |
| I    |               | I     | ARM                   | B | I   | 0.158  | I | 0.000  | I | 0.842  | I   |   |   |  |
| I    |               | I     |                       |   | I   | 22.0   | I | 0.0    | I | 117.0  | I   |   |   |  |
| I    |               | I     |                       |   | I   | ( 0.0) | I | ( 0.0) | I | ( 2.8) | I   |   |   |  |
| I    |               | I     |                       |   | I   |        | I |        | I |        | I   |   |   |  |
| I    |               | I     | ARM                   | C | I   | 0.801  | I | 0.199  | I | 0.000  | I   |   |   |  |
| I    |               | I     |                       |   | I   | 249.0  | I | 62.0   | I | 0.0    | I   |   |   |  |
| I    |               | I     |                       |   | I   | ( 4.8) | I | ( 1.8) | I | ( 0.0) | I   |   |   |  |
| I    |               | I     |                       |   | I   |        | I |        | I |        | I   |   |   |  |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

Demand set: AM Phase 2 Development

| TIME          | TURNING PROPORTIONS   |     |        |        |   |        |   |  |  |  |
|---------------|-----------------------|-----|--------|--------|---|--------|---|--|--|--|
|               | TURNING COUNTS        |     |        |        |   |        |   |  |  |  |
|               | (PERCENTAGE OF H.V.S) |     |        |        |   |        |   |  |  |  |
|               | FROM/TO               | ARM | A      | ARM    | B | ARM    | C |  |  |  |
| 07.45 - 09.15 | ARM A                 |     | 0.000  | 1.000  |   | 0.000  |   |  |  |  |
|               |                       |     | 0.0    | 10.0   |   | 0.0    |   |  |  |  |
|               |                       |     | ( 0.0) | ( 0.0) |   | ( 0.0) |   |  |  |  |
|               | ARM B                 |     | 0.547  | 0.000  |   | 0.453  |   |  |  |  |
|               |                       |     | 29.0   | 0.0    |   | 24.0   |   |  |  |  |
|               |                       |     | ( 0.0) | ( 0.0) |   | ( 0.0) |   |  |  |  |
|               | ARM C                 |     | 0.000  | 1.000  |   | 0.000  |   |  |  |  |
|               |                       |     | 0.0    | 9.0    |   | 0.0    |   |  |  |  |
|               |                       |     | ( 0.0) | ( 0.0) |   | ( 0.0) |   |  |  |  |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

Demand set: AM Phase 3 Development

| TIME          | TURNING PROPORTIONS   |     |        |        |   |        |   |  |  |  |
|---------------|-----------------------|-----|--------|--------|---|--------|---|--|--|--|
|               | TURNING COUNTS        |     |        |        |   |        |   |  |  |  |
|               | (PERCENTAGE OF H.V.S) |     |        |        |   |        |   |  |  |  |
|               | FROM/TO               | ARM | A      | ARM    | B | ARM    | C |  |  |  |
| 07.45 - 09.15 | ARM A                 |     | 0.000  | 1.000  |   | 0.000  |   |  |  |  |
|               |                       |     | 0.0    | 16.0   |   | 0.0    |   |  |  |  |
|               |                       |     | ( 0.0) | ( 0.0) |   | ( 0.0) |   |  |  |  |
|               | ARM B                 |     | 0.409  | 0.000  |   | 0.591  |   |  |  |  |
|               |                       |     | 45.0   | 0.0    |   | 65.0   |   |  |  |  |
|               |                       |     | ( 0.0) | ( 0.0) |   | ( 0.0) |   |  |  |  |
|               | ARM C                 |     | 0.000  | 1.000  |   | 0.000  |   |  |  |  |
|               |                       |     | 0.0    | 23.0   |   | 0.0    |   |  |  |  |
|               |                       |     | ( 0.0) | ( 0.0) |   | ( 0.0) |   |  |  |  |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

# QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS  
AND FOR TIME PERIOD 1

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 07.45-08.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 2.58                | 9.56                  | 0.270                        |                                  | 0.00                     | 0.37                   | 5.3                                 |                                               | 0.14                                           |
| B-A         | 1.20                | 5.85                  | 0.206                        |                                  | 0.00                     | 0.25                   | 3.6                                 |                                               | 0.21                                           |
| C-AB        | 1.18                | 10.45                 | 0.113                        |                                  | 0.00                     | 0.13                   | 1.9                                 |                                               | 0.11                                           |
| A-B         | 0.45                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 4.74                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.00-08.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 3.09                | 9.19                  | 0.336                        |                                  | 0.37                     | 0.50                   | 7.2                                 |                                               | 0.16                                           |
| B-A         | 1.44                | 5.52                  | 0.261                        |                                  | 0.25                     | 0.35                   | 5.0                                 |                                               | 0.24                                           |
| C-AB        | 1.41                | 10.19                 | 0.138                        |                                  | 0.13                     | 0.16                   | 2.4                                 |                                               | 0.11                                           |
| A-B         | 0.54                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 5.66                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.15-08.30 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 3.78                | 8.67                  | 0.436                        |                                  | 0.50                     | 0.76                   | 10.8                                |                                               | 0.20                                           |
| B-A         | 1.76                | 5.06                  | 0.348                        |                                  | 0.35                     | 0.52                   | 7.4                                 |                                               | 0.30                                           |
| C-AB        | 1.72                | 9.83                  | 0.176                        |                                  | 0.16                     | 0.21                   | 3.2                                 |                                               | 0.12                                           |
| A-B         | 0.66                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 6.94                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.30-08.45 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 3.78                | 8.66                  | 0.436                        |                                  | 0.76                     | 0.76                   | 11.4                                |                                               | 0.20                                           |
| B-A         | 1.76                | 5.06                  | 0.348                        |                                  | 0.52                     | 0.53                   | 7.8                                 |                                               | 0.30                                           |
| C-AB        | 1.72                | 9.83                  | 0.176                        |                                  | 0.21                     | 0.21                   | 3.2                                 |                                               | 0.12                                           |
| A-B         | 0.66                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 6.94                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 08.45-09.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 3.09                | 9.18                  | 0.336                        |                                  | 0.76                     | 0.51                   | 8.0                                 |                                               | 0.16                                           |
| B-A         | 1.44                | 5.52                  | 0.261                        |                                  | 0.53                     | 0.36                   | 5.7                                 |                                               | 0.25                                           |
| C-AB        | 1.41                | 10.19                 | 0.138                        |                                  | 0.21                     | 0.16                   | 2.4                                 |                                               | 0.11                                           |
| A-B         | 0.54                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 5.66                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 09.00-09.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 2.58                | 9.55                  | 0.271                        |                                  | 0.51                     | 0.38                   | 5.8                                 |                                               | 0.14                                           |
| B-A         | 1.20                | 5.85                  | 0.206                        |                                  | 0.36                     | 0.26                   | 4.1                                 |                                               | 0.22                                           |
| C-AB        | 1.18                | 10.45                 | 0.113                        |                                  | 0.16                     | 0.13                   | 1.9                                 |                                               | 0.11                                           |
| A-B         | 0.45                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 4.74                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

\*WARNING\* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 08.00                     | 0.4                            |
| 08.15                     | 0.5                            |
| 08.30                     | 0.8 *                          |
| 08.45                     | 0.8 *                          |
| 09.00                     | 0.5 *                          |
| 09.15                     | 0.4                            |

QUEUE FOR STREAM B-A

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 08.00                     | 0.3                            |
| 08.15                     | 0.3                            |
| 08.30                     | 0.5 *                          |
| 08.45                     | 0.5 *                          |
| 09.00                     | 0.4                            |
| 09.15                     | 0.3                            |

| TIME    | NO. OF   |
|---------|----------|
| SEGMENT | VEHICLES |
| ENDING  | IN QUEUE |
| 08.00   | 0.1      |
| 08.15   | 0.2      |
| 08.30   | 0.2      |
| 08.45   | 0.2      |
| 09.00   | 0.2      |
| 09.15   | 0.1      |

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

| I | STREAM | I | TOTAL DEMAND | I       | * QUEUEING * | I     | * INCLUSIVE QUEUEING * | I |      |
|---|--------|---|--------------|---------|--------------|-------|------------------------|---|------|
| I |        | I |              | I       | * DELAY *    | I     | * DELAY *              | I |      |
| I |        | I |              | I       |              | I     |                        | I |      |
| I |        | I | (VEH)        | (VEH/H) | I            | (MIN) | (MIN/VEH)              | I |      |
| I |        | I |              |         | I            |       |                        | I |      |
| I | B-C    | I | 283.5        | I       | 189.0        | I     | 48.6                   | I | 0.17 |
| I | B-A    | I | 132.1        | I       | 88.1         | I     | 33.6                   | I | 0.25 |
| I | C-AB   | I | 129.4        | I       | 86.3         | I     | 15.0                   | I | 0.12 |
| I | A-B    | I | 49.6         | I       | 33.0         | I     |                        | I |      |
| I | A-C    | I | 520.3        | I       | 346.9        | I     |                        | I |      |
| I | ALL    | I | 1457.6       | I       | 971.8        | I     | 97.1                   | I | 0.07 |

\* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD  
 \* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES  
 WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD  
 \* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS  
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

\*\*\*\*\*END OF RUN\*\*\*\*\*

.SLOPES AND INTERCEPT

(NB:Streams may be combined, in which case capacity will be adjusted)

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | I |
|---|---------------|-----------|----------|-----------|----------|---|
| I | STREAM B-C    | STREAM    | A-C      | STREAM    | A-B      | I |
| I | 0.00          |           | 0.00     |           | 0.00     | I |

\* Due to the presence of a flare, data is not available

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | Slope For | Opposing | Slope For | OpposingI |
|---|---------------|-----------|----------|-----------|----------|-----------|----------|-----------|-----------|
| I | STREAM B-A    | STREAM    | A-C      | STREAM    | A-B      | STREAM    | C-A      | STREAM    | C-B       |
| I | 0.00          |           | 0.00     |           | 0.00     |           | 0.00     |           | 0.00      |

\* Due to the presence of a flare, data is not available

| I | Intercept For | Slope For | Opposing | Slope For | Opposing | I |
|---|---------------|-----------|----------|-----------|----------|---|
| I | STREAM C-B    | STREAM    | A-C      | STREAM    | A-B      | I |
| I | 716.63        |           | 0.26     |           | 0.26     | I |

(NB These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA

| I | ARM | I | FLOW | SCALE (%) | I |
|---|-----|---|------|-----------|---|
| I | A   | I | 100  |           | I |
| I | B   | I | 100  |           | I |
| I | C   | I | 100  |           | I |

Demand set: 2022 PM Base

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.  
 LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

| I | ARM | I | NUMBER OF MINUTES FROM START WHEN |             |            | I     | RATE OF FLOW (VEH/MIN) |       |            | I    |         |        |      |        |   |       |   |
|---|-----|---|-----------------------------------|-------------|------------|-------|------------------------|-------|------------|------|---------|--------|------|--------|---|-------|---|
|   |     |   | I                                 | FLOW STARTS | I          |       | TOP OF PEAK            | I     | FLOW STOPS |      | I       | BEFORE | I    | AT TOP | I | AFTER | I |
|   |     |   |                                   |             |            |       |                        |       |            |      |         |        |      |        |   |       |   |
|   |     |   |                                   |             |            |       |                        |       |            |      |         |        |      |        |   |       |   |
| I | I   | I | TO RISE                           | I           | IS REACHED | I     | FALLING                | I     | PEAK       | I    | OF PEAK | I      | PEAK | I      |   |       |   |
| I | I   | I | I                                 | I           | I          | I     | I                      | I     | I          | I    | I       | I      | I    | I      |   |       |   |
| I | ARM | A | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 5.26 | I       | 7.89   | I    | 5.26   | I |       |   |
| I | ARM | B | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 0.99 | I       | 1.48   | I    | 0.99   | I |       |   |
| I | ARM | C | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 7.00 | I       | 10.50  | I    | 7.00   | I |       |   |

Demand set: PM Phase 2 Development

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.

LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

| I | ARM | I | NUMBER OF MINUTES FROM START WHEN |             |            | I     | RATE OF FLOW (VEH/MIN) |       |            | I    |         |        |      |        |   |       |
|---|-----|---|-----------------------------------|-------------|------------|-------|------------------------|-------|------------|------|---------|--------|------|--------|---|-------|
|   |     |   | I                                 | FLOW STARTS | I          |       | TOP OF PEAK            | I     | FLOW STOPS |      | I       | BEFORE | I    | AT TOP | I | AFTER |
|   |     |   |                                   |             |            |       |                        |       |            |      |         |        |      |        |   |       |
|   |     |   |                                   |             |            |       |                        |       |            |      |         |        |      |        |   |       |
| I | I   | I | TO RISE                           | I           | IS REACHED | I     | FALLING                | I     | PEAK       | I    | OF PEAK | I      | PEAK | I      |   |       |
| I | I   | I | I                                 | I           | I          | I     | I                      | I     | I          | I    | I       | I      | I    | I      |   |       |
| I | ARM | A | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 0.34 | I       | 0.51   | I    | 0.34   | I |       |
| I | ARM | B | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 0.36 | I       | 0.54   | I    | 0.36   | I |       |
| I | ARM | C | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 0.28 | I       | 0.41   | I    | 0.28   | I |       |

Demand set: PM Phase 3 Development

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

LENGTH OF TIME PERIOD - 90 MIN.

LENGTH OF TIME SEGMENT - 15 MIN.

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

| I | ARM | I | NUMBER OF MINUTES FROM START WHEN |             |            | I     | RATE OF FLOW (VEH/MIN) |       |            | I    |         |        |      |        |   |       |
|---|-----|---|-----------------------------------|-------------|------------|-------|------------------------|-------|------------|------|---------|--------|------|--------|---|-------|
|   |     |   | I                                 | FLOW STARTS | I          |       | TOP OF PEAK            | I     | FLOW STOPS |      | I       | BEFORE | I    | AT TOP | I | AFTER |
|   |     |   |                                   |             |            |       |                        |       |            |      |         |        |      |        |   |       |
|   |     |   |                                   |             |            |       |                        |       |            |      |         |        |      |        |   |       |
| I | I   | I | TO RISE                           | I           | IS REACHED | I     | FALLING                | I     | PEAK       | I    | OF PEAK | I      | PEAK | I      |   |       |
| I | I   | I | I                                 | I           | I          | I     | I                      | I     | I          | I    | I       | I      | I    | I      |   |       |
| I | ARM | A | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 0.51 | I       | 0.77   | I    | 0.51   | I |       |
| I | ARM | B | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 0.76 | I       | 1.14   | I    | 0.76   | I |       |
| I | ARM | C | I                                 | 15.00       | I          | 45.00 | I                      | 75.00 | I          | 0.75 | I       | 1.13   | I    | 0.75   | I |       |

Demand set: 2022 PM Base

| I | I             | TURNING PROPORTIONS   |         |   |        |       |        |       |        |       |     | I |   |  |
|---|---------------|-----------------------|---------|---|--------|-------|--------|-------|--------|-------|-----|---|---|--|
|   |               | TURNING COUNTS        |         |   |        |       |        |       |        |       |     |   |   |  |
|   |               | (PERCENTAGE OF H.V.S) |         |   |        |       |        |       |        |       |     |   |   |  |
|   |               |                       |         |   |        |       |        |       |        |       |     |   |   |  |
| I | TIME          | I                     | FROM/TO | I | ARM    | A     | I      | ARM   | B      | I     | ARM | C | I |  |
| I | 16.45 - 18.15 | I                     |         | I |        | I     |        | I     |        | I     |     | I |   |  |
| I |               | I                     | ARM     | A | I      | 0.000 | I      | 0.119 | I      | 0.881 | I   |   | I |  |
| I |               | I                     |         | I | 0.0    | I     | 50.0   | I     | 371.0  | I     |     | I |   |  |
| I |               | I                     |         | I | ( 0.0) | I     | ( 0.0) | I     | ( 0.6) | I     |     | I |   |  |
| I |               | I                     |         | I |        | I     |        | I     |        | I     |     | I |   |  |
| I |               | I                     | ARM     | B | I      | 0.342 | I      | 0.000 | I      | 0.658 | I   |   | I |  |
| I |               | I                     |         | I | 27.0   | I     | 0.0    | I     | 52.0   | I     |     | I |   |  |
| I |               | I                     |         | I | ( 0.0) | I     | ( 0.0) | I     | ( 4.2) | I     |     | I |   |  |
| I |               | I                     |         | I |        | I     |        | I     |        | I     |     | I |   |  |
| I |               | I                     | ARM     | C | I      | 0.902 | I      | 0.098 | I      | 0.000 | I   |   | I |  |
| I |               | I                     |         | I | 505.0  | I     | 55.0   | I     | 0.0    | I     |     | I |   |  |
| I |               | I                     |         | I | ( 1.9) | I     | ( 0.0) | I     | ( 0.0) | I     |     | I |   |  |
| I |               | I                     |         | I |        | I     |        | I     |        | I     |     | I |   |  |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

Demand set: PM Phase 2 Development

| TIME          | TURNING PROPORTIONS   |     |        |     |        |     |        |  |  |  |
|---------------|-----------------------|-----|--------|-----|--------|-----|--------|--|--|--|
|               | TURNING COUNTS        |     |        |     |        |     |        |  |  |  |
|               | (PERCENTAGE OF H.V.S) |     |        |     |        |     |        |  |  |  |
|               | FROM/TO               | ARM | A      | ARM | B      | ARM | C      |  |  |  |
| 16.45 - 18.15 |                       |     |        |     |        |     |        |  |  |  |
|               | ARM A                 |     | 0.000  |     | 1.000  |     | 0.000  |  |  |  |
|               |                       |     | 0.0    |     | 27.0   |     | 0.0    |  |  |  |
|               |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |
|               |                       |     |        |     |        |     |        |  |  |  |
|               | ARM B                 |     | 0.552  |     | 0.000  |     | 0.448  |  |  |  |
|               |                       |     | 16.0   |     | 0.0    |     | 13.0   |  |  |  |
|               |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |
|               |                       |     |        |     |        |     |        |  |  |  |
|               | ARM C                 |     | 0.000  |     | 1.000  |     | 0.000  |  |  |  |
|               |                       |     | 0.0    |     | 22.0   |     | 0.0    |  |  |  |
|               |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |
|               |                       |     |        |     |        |     |        |  |  |  |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

Demand set: PM Phase 3 Development

| TIME          | TURNING PROPORTIONS   |     |        |     |        |     |        |  |  |  |
|---------------|-----------------------|-----|--------|-----|--------|-----|--------|--|--|--|
|               | TURNING COUNTS        |     |        |     |        |     |        |  |  |  |
|               | (PERCENTAGE OF H.V.S) |     |        |     |        |     |        |  |  |  |
|               | FROM/TO               | ARM | A      | ARM | B      | ARM | C      |  |  |  |
| 16.45 - 18.15 |                       |     |        |     |        |     |        |  |  |  |
|               | ARM A                 |     | 0.000  |     | 1.000  |     | 0.000  |  |  |  |
|               |                       |     | 0.0    |     | 41.0   |     | 0.0    |  |  |  |
|               |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |
|               |                       |     |        |     |        |     |        |  |  |  |
|               | ARM B                 |     | 0.410  |     | 0.000  |     | 0.590  |  |  |  |
|               |                       |     | 25.0   |     | 0.0    |     | 36.0   |  |  |  |
|               |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |
|               |                       |     |        |     |        |     |        |  |  |  |
|               | ARM C                 |     | 0.000  |     | 1.000  |     | 0.000  |  |  |  |
|               |                       |     | 0.0    |     | 60.0   |     | 0.0    |  |  |  |
|               |                       |     | ( 0.0) |     | ( 0.0) |     | ( 0.0) |  |  |  |
|               |                       |     |        |     |        |     |        |  |  |  |

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA  
THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

# QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS  
AND FOR TIME PERIOD 2

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 16.45-17.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 1.27                | 9.48                  | 0.134                        |                                  | 0.00                     | 0.15                   | 2.2                                 |                                               | 0.12                                           |
| B-A         | 0.85                | 5.62                  | 0.152                        |                                  | 0.00                     | 0.18                   | 2.5                                 |                                               | 0.21                                           |
| C-AB        | 1.72                | 10.36                 | 0.166                        |                                  | 0.00                     | 0.20                   | 2.9                                 |                                               | 0.12                                           |
| A-B         | 1.48                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 4.66                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|
| 17.00-17.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| B-C         | 1.51                | 9.13                  | 0.166                        |                                  | 0.15                     | 0.20                   | 2.9                                 |                                               | 0.13                                           |
| B-A         | 1.02                | 5.14                  | 0.198                        |                                  | 0.18                     | 0.24                   | 3.5                                 |                                               | 0.24                                           |
| C-AB        | 2.05                | 10.05                 | 0.204                        |                                  | 0.20                     | 0.25                   | 3.8                                 |                                               | 0.12                                           |
| A-B         | 1.77                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |
| A-C         | 5.56                |                       |                              |                                  |                          |                        |                                     |                                               |                                                |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|---|
| I | 17.15-17.30 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | B-C         | 1.85                | 8.62                  | 0.215                        |                                  | 0.20                     | 0.27                   | 3.9                                 |                                               | 0.15                                           | I |
| I | B-A         | 1.25                | 4.49                  | 0.278                        |                                  | 0.24                     | 0.37                   | 5.3                                 |                                               | 0.31                                           | I |
| I | C-AB        | 2.51                | 9.63                  | 0.261                        |                                  | 0.25                     | 0.35                   | 5.3                                 |                                               | 0.14                                           | I |
| I | A-B         | 2.17                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | A-C         | 6.81                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|---|
| I | 17.30-17.45 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | B-C         | 1.85                | 8.61                  | 0.215                        |                                  | 0.27                     | 0.27                   | 4.1                                 |                                               | 0.15                                           | I |
| I | B-A         | 1.25                | 4.49                  | 0.278                        |                                  | 0.37                     | 0.38                   | 5.7                                 |                                               | 0.31                                           | I |
| I | C-AB        | 2.51                | 9.63                  | 0.261                        |                                  | 0.35                     | 0.35                   | 5.3                                 |                                               | 0.14                                           | I |
| I | A-B         | 2.17                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | A-C         | 6.81                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|---|
| I | 17.45-18.00 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | B-C         | 1.51                | 9.12                  | 0.166                        |                                  | 0.27                     | 0.20                   | 3.1                                 |                                               | 0.13                                           | I |
| I | B-A         | 1.02                | 5.14                  | 0.198                        |                                  | 0.38                     | 0.25                   | 4.0                                 |                                               | 0.24                                           | I |
| I | C-AB        | 2.05                | 10.05                 | 0.204                        |                                  | 0.35                     | 0.26                   | 3.9                                 |                                               | 0.13                                           | I |
| I | A-B         | 1.77                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | A-C         | 5.56                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | GEOMETRIC DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|-----------------------------------------------|------------------------------------------------|---|
| I | 18.00-18.15 |                     |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | B-C         | 1.27                | 9.47                  | 0.134                        |                                  | 0.20                     | 0.16                   | 2.4                                 |                                               | 0.12                                           | I |
| I | B-A         | 0.85                | 5.61                  | 0.152                        |                                  | 0.25                     | 0.18                   | 2.8                                 |                                               | 0.21                                           | I |
| I | C-AB        | 1.72                | 10.36                 | 0.166                        |                                  | 0.26                     | 0.20                   | 3.0                                 |                                               | 0.12                                           | I |
| I | A-B         | 1.48                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |
| I | A-C         | 4.66                |                       |                              |                                  |                          |                        |                                     |                                               |                                                | I |

\*WARNING\* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 17.00                     | 0.2                            |
| 17.15                     | 0.2                            |
| 17.30                     | 0.3                            |
| 17.45                     | 0.3                            |
| 18.00                     | 0.2                            |
| 18.15                     | 0.2                            |

QUEUE FOR STREAM B-A

| TIME<br>SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|---------------------------|--------------------------------|
| 17.00                     | 0.2                            |
| 17.15                     | 0.2                            |
| 17.30                     | 0.4                            |
| 17.45                     | 0.4                            |
| 18.00                     | 0.3                            |
| 18.15                     | 0.2                            |

| QUEUE FOR STREAM C-AB |          |
|-----------------------|----------|
| TIME                  | NO. OF   |
| SEGMENT               | VEHICLES |
| ENDING                | IN QUEUE |
| 17.00                 | 0.2      |
| 17.15                 | 0.3      |
| 17.30                 | 0.4      |
| 17.45                 | 0.4      |
| 18.00                 | 0.3      |
| 18.15                 | 0.2      |

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

| I STREAM I |      | TOTAL DEMAND I |           | * QUEUEING * I |             | * INCLUSIVE QUEUEING * I |             |   |        |
|------------|------|----------------|-----------|----------------|-------------|--------------------------|-------------|---|--------|
| I I        |      | I I            |           | * DELAY * I    |             | * DELAY * I              |             |   |        |
| I I        |      | I I            |           | I I            |             | I I                      |             |   |        |
| I I        |      | (VEH)          | (VEH/H) I | (MIN)          | (MIN/VEH) I | (MIN)                    | (MIN/VEH) I |   |        |
| I          | B-C  | I              | 139.0 I   | I              | 92.7 I      | I                        | 18.6 I      | I | 0.13 I |
| I          | B-A  | I              | 93.6 I    | I              | 62.4 I      | I                        | 23.8 I      | I | 0.25 I |
| I          | C-AB | I              | 188.6 I   | I              | 125.7 I     | I                        | 24.3 I      | I | 0.13 I |
| I          | A-B  | I              | 162.4 I   | I              | 108.3 I     | I                        | I           | I | I      |
| I          | A-C  | I              | 510.7 I   | I              | 340.4 I     | I                        | I           | I | I      |
| I          | ALL  | I              | 1789.4 I  | I              | 1192.9 I    | I                        | 66.7 I      | I | 0.04 I |

---

## ***APPENDIX K***

***ARCADY – John Street / Station Road / Shepherd Lane / Houghton Road***

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-  
"j:\10000\10000\10082\_SchoolStreetThurnsco\engineering\Traffic\_Programs\Arcady\2022 AM.vai"  
(drive-on-the-left ) at 13:44:08 on Tuesday, 14 November 2017

FILE PROPERTIES  
\*\*\*\*\*

RUN TITLE: Houghton Road-John Street-Station Road-Shepherd Lane  
LOCATION: Thurnscoe  
DATE: 27/07/17  
CLIENT: Keepmoat Homes Ltd  
ENUMERATOR: mark.devenish [PC119]  
JOB NUMBER: 10082  
STATUS: Preliminary  
DESCRIPTION:

INPUT DATA  
\*\*\*\*\*

ARM A - John Street  
ARM B - Station Road  
ARM C - Shepherd Lane  
ARM D - Houghton Road

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON  
LIGHTING CONDITIONS : NORMAL  
ROAD SURFACE CONDITION: NORMAL

| I ARM   | I | V (M) | I | E (M) | I | Lm(M) | I | Vm(M) | I | A (M) | I | K (M) | I | G (%) | I | SLOPE | I | INTERCEPT | I |
|---------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-----------|---|
| I       | I |       | I |       | I |       | I |       | I |       | I |       | I |       | I |       | I | (PCU/MIN) | I |
| I ARM A | I | 4.15  | I | 4.45  | I | 1.00  | I | 4.15  | I | 12.00 | I | 4.00  | I | 4.00  | I | 0.770 | I | 16.750    | I |
| I ARM B | I | 3.50  | I | 4.50  | I | 6.00  | I | 3.50  | I | 15.00 | I | 6.00  | I | -6.00 | I | 0.863 | I | 18.536    | I |
| I ARM C | I | 3.50  | I | 4.45  | I | 1.00  | I | 3.50  | I | 15.00 | I | 6.00  | I | 2.00  | I | 0.641 | I | 14.485    | I |
| I ARM D | I | 3.60  | I | 4.55  | I | 7.00  | I | 3.60  | I | 14.00 | I | 9.50  | I | 5.00  | I | 0.821 | I | 19.169    | I |

V = approach half-width Lm = effective flare length A = distance between arms  
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND SET TITLE: 2022 AM Base

| T15 |     |   |                                   |       |            |                        |      |       |         |      |      |      |   |      |   |
|-----|-----|---|-----------------------------------|-------|------------|------------------------|------|-------|---------|------|------|------|---|------|---|
| I   | ARM | I | NUMBER OF MINUTES FROM START WHEN |       |            | RATE OF FLOW (VEH/MIN) |      |       |         | I    |      |      |   |      |   |
|     |     |   | I                                 | I     | I          | I                      | I    | I     | I       |      |      |      |   |      |   |
|     |     |   |                                   |       |            |                        |      |       |         |      | I    | I    | I | I    | I |
|     |     |   |                                   |       |            |                        |      |       |         |      |      |      |   |      |   |
| I   | I   | I | TO RISE                           | I     | IS REACHED | I                      | PEAK | I     | OF PEAK | I    | PEAK | I    |   |      |   |
| I   | ARM | A | I                                 | 15.00 | I          | 45.00                  | I    | 75.00 | I       | 0.32 | I    | 0.49 | I | 0.32 | I |
| I   | ARM | B | I                                 | 15.00 | I          | 45.00                  | I    | 75.00 | I       | 3.84 | I    | 5.76 | I | 3.84 | I |
| I   | ARM | C | I                                 | 15.00 | I          | 45.00                  | I    | 75.00 | I       | 4.07 | I    | 6.11 | I | 4.07 | I |
| I   | ARM | D | I                                 | 15.00 | I          | 45.00                  | I    | 75.00 | I       | 6.19 | I    | 9.28 | I | 6.19 | I |

[illegible][illegible]

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|
| 08.00-08.15 |                     |                       |                              |                                  |                          |                        |                                     |                                                |
| ARM A       | 0.39                | 9.07                  | 0.043                        | -                                | 0.0                      | 0.0                    | 0.7                                 | 0.115                                          |
| ARM B       | 4.60                | 15.58                 | 0.295                        | -                                | 0.3                      | 0.4                    | 6.1                                 | 0.091                                          |
| ARM C       | 4.88                | 12.72                 | 0.384                        | -                                | 0.5                      | 0.6                    | 9.0                                 | 0.127                                          |
| ARM D       | 7.42                | 16.48                 | 0.450                        | -                                | 0.6                      | 0.8                    | 11.8                                | 0.110                                          |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|
| 08.15-08.30 |                     |                       |                              |                                  |                          |                        |                                     |                                                |
| ARM A       | 0.48                | 7.36                  | 0.065                        | -                                | 0.0                      | 0.1                    | 1.0                                 | 0.145                                          |
| ARM B       | 5.63                | 15.10                 | 0.373                        | -                                | 0.4                      | 0.6                    | 8.6                                 | 0.105                                          |
| ARM C       | 5.98                | 12.35                 | 0.485                        | -                                | 0.6                      | 0.9                    | 13.3                                | 0.156                                          |
| ARM D       | 9.08                | 15.99                 | 0.568                        | -                                | 0.8                      | 1.3                    | 18.5                                | 0.143                                          |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|
| 08.30-08.45 |                     |                       |                              |                                  |                          |                        |                                     |                                                |
| ARM A       | 0.48                | 7.33                  | 0.065                        | -                                | 0.1                      | 0.1                    | 1.0                                 | 0.146                                          |
| ARM B       | 5.63                | 15.10                 | 0.373                        | -                                | 0.6                      | 0.6                    | 8.9                                 | 0.106                                          |
| ARM C       | 5.98                | 12.34                 | 0.485                        | -                                | 0.9                      | 0.9                    | 13.9                                | 0.157                                          |
| ARM D       | 9.08                | 15.98                 | 0.568                        | -                                | 1.3                      | 1.3                    | 19.5                                | 0.145                                          |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|
| 08.45-09.00 |                     |                       |                              |                                  |                          |                        |                                     |                                                |
| ARM A       | 0.39                | 9.03                  | 0.043                        | -                                | 0.1                      | 0.0                    | 0.7                                 | 0.116                                          |
| ARM B       | 4.60                | 15.57                 | 0.295                        | -                                | 0.6                      | 0.4                    | 6.5                                 | 0.091                                          |
| ARM C       | 4.88                | 12.71                 | 0.384                        | -                                | 0.9                      | 0.6                    | 9.8                                 | 0.128                                          |
| ARM D       | 7.42                | 16.47                 | 0.450                        | -                                | 1.3                      | 0.8                    | 12.9                                | 0.111                                          |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|
| 09.00-09.15 |                     |                       |                              |                                  |                          |                        |                                     |                                                |
| ARM A       | 0.33                | 10.29                 | 0.032                        | -                                | 0.0                      | 0.0                    | 0.5                                 | 0.100                                          |
| ARM B       | 3.85                | 15.92                 | 0.242                        | -                                | 0.4                      | 0.3                    | 4.9                                 | 0.083                                          |
| ARM C       | 4.09                | 12.99                 | 0.315                        | -                                | 0.6                      | 0.5                    | 7.2                                 | 0.113                                          |
| ARM D       | 6.21                | 16.83                 | 0.369                        | -                                | 0.8                      | 0.6                    | 9.1                                 | 0.094                                          |

#### QUEUE AT ARM A

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.0                            |
| 08.15                  | 0.0                            |
| 08.30                  | 0.1                            |
| 08.45                  | 0.1                            |
| 09.00                  | 0.0                            |
| 09.15                  | 0.0                            |

QUEUE AT ARM B

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.3                            |
| 08.15                  | 0.4                            |
| 08.30                  | 0.6 *                          |
| 08.45                  | 0.6 *                          |
| 09.00                  | 0.4                            |
| 09.15                  | 0.3                            |

QUEUE AT ARM C

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.5                            |
| 08.15                  | 0.6 *                          |
| 08.30                  | 0.9 *                          |
| 08.45                  | 0.9 *                          |
| 09.00                  | 0.6 *                          |
| 09.15                  | 0.5                            |

QUEUE AT ARM D

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.6 *                          |
| 08.15                  | 0.8 *                          |
| 08.30                  | 1.3 *                          |
| 08.45                  | 1.3 *                          |
| 09.00                  | 0.8 *                          |
| 09.15                  | 0.6 *                          |

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

| ARM   | TOTAL DEMAND | QUEUEING DELAY | INCLUSIVE QUEUEING DELAY |
|-------|--------------|----------------|--------------------------|
| (VEH) | (VEH/H)      | (MIN)          | (MIN/VEH)                |
| A     | 35.8         | 23.9           | 4.4                      |
| B     | 422.6        | 281.7          | 39.6                     |
| C     | 448.7        | 299.1          | 59.7                     |
| D     | 681.3        | 454.2          | 80.1                     |
| ALL   | 1588.4       | 1058.9         | 183.7                    |

\* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.  
 \* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.  
 \* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

===== end of file =====

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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RG40 3GA, UK

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS  
IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-  
"j:\10000\10000\10082\_SchoolStreetThurnsco\engineering\Traffic\_Programs\Arcady\2022 PM.vai"  
(drive-on-the-left ) at 10:04:19 on Thursday, 9 November 2017

FILE PROPERTIES  
\*\*\*\*\*

RUN TITLE: Houghton Road-John Street-Station Road-Shepherd Lane  
LOCATION: Thurnscoe  
DATE: 27/07/17  
CLIENT: Keepmoat Homes Ltd  
ENUMERATOR: mark.devenish [PC119]  
JOB NUMBER: 10082  
STATUS: Preliminary  
DESCRIPTION:

INPUT DATA  
\*\*\*\*\*

ARM A - John Street  
ARM B - Station Road  
ARM C - Shepherd Lane  
ARM D - Houghton Road

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON  
LIGHTING CONDITIONS : NORMAL  
ROAD SURFACE CONDITION: NORMAL

|   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |       |   |           | T5 |
|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-----------|----|
| I | ARM   | I | V (M) | I | E (M) | I | Lm(M) | I | Vm(M) | I | A (M) | I | K (M) | I | G (%) | I | SLOPE | I | INTERCEPT | I  |
| I |       | I |       | I |       | I |       | I |       | I |       | I |       | I |       | I |       | I | (PCU/MIN) | I  |
| I | ARM A | I | 4.15  | I | 4.45  | I | 1.00  | I | 4.15  | I | 12.00 | I | 4.00  | I | 4.00  | I | 0.770 | I | 16.750    | I  |
| I | ARM B | I | 3.50  | I | 4.50  | I | 6.00  | I | 3.50  | I | 15.00 | I | 6.00  | I | -6.00 | I | 0.863 | I | 18.536    | I  |
| I | ARM C | I | 3.50  | I | 4.45  | I | 1.00  | I | 3.50  | I | 15.00 | I | 6.00  | I | 2.00  | I | 0.641 | I | 14.485    | I  |
| I | ARM D | I | 3.60  | I | 4.55  | I | 7.00  | I | 3.60  | I | 14.00 | I | 9.50  | I | 5.00  | I | 0.821 | I | 19.169    | I  |

V = approach half-width Lm = effective flare length A = distance between arms  
E = entry width Vm = minimum approach half-width K= entry corner kerb line G=gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND SET TITLE: 2022 PM Base

DEMAND SET TITLE: 2022 PM Base

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

[illegible]

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|---|
| I | 08.00-08.15 |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |
| I | ARM A       | 0.15                | 10.23                 | 0.015                        | - -                              | 0.0                      | 0.0                    | 0.2                                 | 0.099                                          | I |
| I | ARM B       | 9.69                | 16.08                 | 0.603                        | - -                              | 1.0                      | 1.5                    | 21.2                                | 0.155                                          | I |
| I | ARM C       | 4.79                | 10.50                 | 0.456                        | - -                              | 0.6                      | 0.8                    | 11.8                                | 0.174                                          | I |
| I | ARM D       | 6.34                | 17.10                 | 0.371                        | - -                              | 0.4                      | 0.6                    | 8.5                                 | 0.093                                          | I |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|---|
| I | 08.15-08.30 |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |
| I | ARM A       | 0.18                | 8.78                  | 0.021                        | - -                              | 0.0                      | 0.0                    | 0.3                                 | 0.116                                          | I |
| I | ARM B       | 11.87               | 15.62                 | 0.760                        | - -                              | 1.5                      | 3.0                    | 40.4                                | 0.254                                          | I |
| I | ARM C       | 5.87                | 9.66                  | 0.608                        | - -                              | 0.8                      | 1.5                    | 20.8                                | 0.258                                          | I |
| I | ARM D       | 7.76                | 16.69                 | 0.465                        | - -                              | 0.6                      | 0.9                    | 12.5                                | 0.112                                          | I |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|---|
| I | 08.30-08.45 |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |
| I | ARM A       | 0.18                | 8.75                  | 0.021                        | - -                              | 0.0                      | 0.0                    | 0.3                                 | 0.117                                          | I |
| I | ARM B       | 11.87               | 15.61                 | 0.760                        | - -                              | 3.0                      | 3.1                    | 45.4                                | 0.266                                          | I |
| I | ARM C       | 5.87                | 9.62                  | 0.610                        | - -                              | 1.5                      | 1.5                    | 22.7                                | 0.266                                          | I |
| I | ARM D       | 7.76                | 16.68                 | 0.465                        | - -                              | 0.9                      | 0.9                    | 12.9                                | 0.112                                          | I |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|---|
| I | 08.45-09.00 |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |
| I | ARM A       | 0.15                | 10.19                 | 0.015                        | - -                              | 0.0                      | 0.0                    | 0.2                                 | 0.100                                          | I |
| I | ARM B       | 9.69                | 16.08                 | 0.603                        | - -                              | 3.1                      | 1.6                    | 24.8                                | 0.162                                          | I |
| I | ARM C       | 4.79                | 10.45                 | 0.459                        | - -                              | 1.5                      | 0.9                    | 13.7                                | 0.180                                          | I |
| I | ARM D       | 6.34                | 17.08                 | 0.371                        | - -                              | 0.9                      | 0.6                    | 9.2                                 | 0.093                                          | I |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|---|
| I | 09.00-09.15 |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |
| I | ARM A       | 0.13                | 11.27                 | 0.011                        | - -                              | 0.0                      | 0.0                    | 0.2                                 | 0.090                                          | I |
| I | ARM B       | 8.12                | 16.42                 | 0.494                        | - -                              | 1.6                      | 1.0                    | 15.5                                | 0.122                                          | I |
| I | ARM C       | 4.02                | 11.11                 | 0.362                        | - -                              | 0.9                      | 0.6                    | 8.9                                 | 0.142                                          | I |
| I | ARM D       | 5.31                | 17.39                 | 0.305                        | - -                              | 0.6                      | 0.4                    | 6.8                                 | 0.083                                          | I |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |

QUEUE AT ARM A

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.0                            |
| 08.15                  | 0.0                            |
| 08.30                  | 0.0                            |
| 08.45                  | 0.0                            |
| 09.00                  | 0.0                            |
| 09.15                  | 0.0                            |

QUEUE AT ARM B

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |     |
|------------------------|--------------------------------|-----|
| 08.00                  | 1.0                            | *   |
| 08.15                  | 1.5                            | *   |
| 08.30                  | 3.0                            | *** |
| 08.45                  | 3.1                            | *** |
| 09.00                  | 1.6                            | **  |
| 09.15                  | 1.0                            | *   |

QUEUE AT ARM C

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |    |
|------------------------|--------------------------------|----|
| 08.00                  | 0.6                            | *  |
| 08.15                  | 0.8                            | *  |
| 08.30                  | 1.5                            | *  |
| 08.45                  | 1.5                            | ** |
| 09.00                  | 0.9                            | *  |
| 09.15                  | 0.6                            | *  |

QUEUE AT ARM D

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |   |
|------------------------|--------------------------------|---|
| 08.00                  | 0.4                            |   |
| 08.15                  | 0.6                            | * |
| 08.30                  | 0.9                            | * |
| 08.45                  | 0.9                            | * |
| 09.00                  | 0.6                            | * |
| 09.15                  | 0.4                            |   |

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

| T75 |   |              |          |              |           |                        |           |  |  |   |
|-----|---|--------------|----------|--------------|-----------|------------------------|-----------|--|--|---|
| ARM | I | TOTAL DEMAND | I        | * QUEUEING * | I         | * INCLUSIVE QUEUEING * | I         |  |  | I |
|     | I |              | I        | * DELAY *    | I         | * DELAY *              | I         |  |  | I |
|     | I | (VEH)        | (VEH/H)  | (MIN)        | (MIN/VEH) | (MIN)                  | (MIN/VEH) |  |  | I |
| A   | I | 13.8         | I 9.2    | I 1.4        | I 0.10    | I 1.4                  | I 0.10    |  |  | I |
| B   | I | 890.5        | I 593.7  | I 161.1      | I 0.18    | I 161.1                | I 0.18    |  |  | I |
| C   | I | 440.5        | I 293.6  | I 85.9       | I 0.19    | I 85.9                 | I 0.20    |  |  | I |
| D   | I | 582.2        | I 388.2  | I 56.2       | I 0.10    | I 56.2                 | I 0.10    |  |  | I |
| ALL | I | 1927.0       | I 1284.7 | I 304.6      | I 0.16    | I 304.6                | I 0.16    |  |  | I |

\* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.  
\* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.  
\* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

===== end of file =====

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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RG40 3GA, UK

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IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:-  
"j:\10000\10000\10082\_SchoolStreetThurnsco\engineering\Traffic\_Programs\Arcady\2022 AM.vai"  
(drive-on-the-left ) at 13:43:23 on Tuesday, 14 November 2017

FILE PROPERTIES  
\*\*\*\*\*

RUN TITLE: Houghton Road-John Street-Station Road-Shepherd Lane  
LOCATION: Thurnscoe  
DATE: 27/07/17  
CLIENT: Keepmoat Homes Ltd  
ENUMERATOR: mark.devenish [PC119]  
JOB NUMBER: 10082  
STATUS: Preliminary  
DESCRIPTION:

INPUT DATA  
\*\*\*\*\*

ARM A - John Street  
ARM B - Station Road  
ARM C - Shepherd Lane  
ARM D - Houghton Road

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON  
LIGHTING CONDITIONS : NORMAL  
ROAD SURFACE CONDITION: NORMAL

| I ARM   | I | V (M) | I | E (M) | I | Lm(M) | I | Vm(M) | I | A (M) | I | K (M) | I | G (%) | I | SLOPE | I | INTERCEPT | I |
|---------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-------|---|-----------|---|
| I       | I |       | I |       | I |       | I |       | I |       | I |       | I |       | I |       | I | (PCU/MIN) | I |
| I ARM A | I | 4.15  | I | 4.45  | I | 1.00  | I | 4.15  | I | 12.00 | I | 4.00  | I | 4.00  | I | 0.770 | I | 16.750    | I |
| I ARM B | I | 3.50  | I | 4.50  | I | 6.00  | I | 3.50  | I | 15.00 | I | 6.00  | I | -6.00 | I | 0.863 | I | 18.536    | I |
| I ARM C | I | 3.50  | I | 4.45  | I | 1.00  | I | 3.50  | I | 15.00 | I | 6.00  | I | 2.00  | I | 0.641 | I | 14.485    | I |
| I ARM D | I | 3.60  | I | 4.55  | I | 7.00  | I | 3.60  | I | 14.00 | I | 9.50  | I | 5.00  | I | 0.821 | I | 19.169    | I |

V = approach half-width Lm = effective flare length A = distance between arms  
E = entry width Vm = minimum approach half-width K = entry corner kerb line G=gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

| I ARM | I | FLOW SCALE(%) | I |
|-------|---|---------------|---|
| I A   | I | 100           | I |
| I B   | I | 100           | I |
| I C   | I | 100           | I |
| I D   | I | 100           | I |

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)

LENGTH OF TIME PERIOD -( 90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2022 AM Base

T15

| I | I     | I | NUMBER OF MINUTES FROM START WHEN | I | RATE OF FLOW (VEH/MIN) | I |            |   |        |   |         |   |       |   |
|---|-------|---|-----------------------------------|---|------------------------|---|------------|---|--------|---|---------|---|-------|---|
| I | ARM   | I | FLOW STARTS                       | I | TOP OF PEAK            | I | FLOW STOPS | I | BEFORE | I | AT TOP  | I | AFTER | I |
| I |       | I |                                   | I |                        | I |            | I |        | I |         | I |       | I |
| I |       | I | TO RISE                           | I | IS REACHED             | I | FALLING    | I | PEAK   | I | OF PEAK | I | PEAK  | I |
| I | ARM A | I | 15.00                             | I | 45.00                  | I | 75.00      | I | 0.32   | I | 0.49    | I | 0.32  | I |
| I | ARM B | I | 15.00                             | I | 45.00                  | I | 75.00      | I | 3.84   | I | 5.76    | I | 3.84  | I |
| I | ARM C | I | 15.00                             | I | 45.00                  | I | 75.00      | I | 4.07   | I | 6.11    | I | 4.07  | I |
| I | ARM D | I | 15.00                             | I | 45.00                  | I | 75.00      | I | 6.19   | I | 9.28    | I | 6.19  | I |

DEMAND SET TITLE: Phase 2 Development AM

T15

| I | I     | I | NUMBER OF MINUTES FROM START WHEN | I | RATE OF FLOW (VEH/MIN) | I | I          | I | I      |   |         |   |       |   |
|---|-------|---|-----------------------------------|---|------------------------|---|------------|---|--------|---|---------|---|-------|---|
| I | ARM   | I | FLOW STARTS                       | I | TOP OF PEAK            | I | FLOW STOPS | I | BEFORE | I | AT TOP  | I | AFTER | I |
| I |       | I |                                   | I |                        | I |            | I |        | I |         | I |       | I |
| I |       | I | TO RISE                           | I | IS REACHED             | I | FALLING    | I | PEAK   | I | OF PEAK | I | PEAK  | I |
| I | ARM A | I | 15.00                             | I | 45.00                  | I | 75.00      | I | 0.00   | I | 0.00    | I | 0.00  | I |
| I | ARM B | I | 15.00                             | I | 45.00                  | I | 75.00      | I | 0.05   | I | 0.08    | I | 0.05  | I |
| I | ARM C | I | 15.00                             | I | 45.00                  | I | 75.00      | I | 0.05   | I | 0.08    | I | 0.05  | I |
| I | ARM D | I | 15.00                             | I | 45.00                  | I | 75.00      | I | 0.30   | I | 0.45    | I | 0.30  | I |

DEMAND SET TITLE: Phase 3 Development AM

| T15 |       |   |                       |   |                          |   |                       |   |                                              |
|-----|-------|---|-----------------------|---|--------------------------|---|-----------------------|---|----------------------------------------------|
| I   | ARM   | I | NUMBER OF FLOW STARTS | I | MINUTES FROM TOP OF PEAK | I | START WHEN FLOW STOPS | I | RATE OF FLOW (VEH/MIN) BEFORE AT TOP AFTER I |
| I   |       | I |                       | I |                          | I |                       | I |                                              |
| I   |       | I | TO RISE               | I | IS REACHED               | I | FALLING               | I | PEAK OF PEAK PEAK I                          |
| I   | ARM A | I | 15.00                 | I | 45.00                    | I | 75.00                 | I | 0.00 0.00 0.00 I                             |
| I   | ARM B | I | 15.00                 | I | 45.00                    | I | 75.00                 | I | 0.15 0.23 0.15 I                             |
| I   | ARM C | I | 15.00                 | I | 45.00                    | I | 75.00                 | I | 0.15 0.23 0.15 I                             |
| I   | ARM D | I | 15.00                 | I | 45.00                    | I | 75.00                 | I | 0.80 1.20 0.80 I                             |

DEMAND SET TITLE: 2022 AM Base



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QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

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| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |   | T70   |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|---|-------|
|             |                     |                       |                              |                                  |                          |                        |                                     |                                                |   |       |
| 07.45-08.00 |                     |                       |                              |                                  |                          |                        |                                     |                                                |   |       |
| ARM A       | 0.33                | 9.51                  | 0.034                        | - -                              | -                        | 0.0                    | 0.0                                 | 0.5                                            | - | 0.109 |
| ARM B       | 4.05                | 15.52                 | 0.261                        | - -                              | -                        | 0.0                    | 0.4                                 | 5.1                                            | - | 0.087 |
| ARM C       | 4.29                | 12.87                 | 0.333                        | - -                              | -                        | 0.0                    | 0.5                                 | 7.1                                            | - | 0.116 |
| ARM D       | 7.32                | 16.91                 | 0.433                        | - -                              | -                        | 0.0                    | 0.8                                 | 10.8                                           | - | 0.103 |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|
| 08.00-08.15 |                     |                       |                              |                                  |                          |                        |                                     |                                                |
| ARM A       | 0.39                | 8.07                  | 0.048                        | -                                | -                        | 0.0                    | 0.1                                 | 0.7                                            |
| ARM B       | 4.84                | 15.07                 | 0.321                        | -                                | -                        | 0.4                    | 0.5                                 | 6.9                                            |
| ARM C       | 5.12                | 12.57                 | 0.408                        | -                                | -                        | 0.5                    | 0.7                                 | 9.9                                            |
| ARM D       | 8.74                | 16.54                 | 0.528                        | -                                | -                        | 0.8                    | 1.1                                 | 15.9                                           |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|---|
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |
| - |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | - |
| I | 08.15-08.30 |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |
| I | ARM A       | 0.48                | 6.14                  | 0.078                        | - -                              | -                        | 0.1                    | 0.1                                 | 1.2                                            | - |
| I | ARM B       | 5.93                | 14.48                 | 0.409                        | - -                              | -                        | 0.5                    | 0.7                                 | 10.0                                           | - |
| I | ARM C       | 6.28                | 12.16                 | 0.516                        | - -                              | -                        | 0.7                    | 1.0                                 | 14.9                                           | - |
| I | ARM D       | 10.70               | 16.05                 | 0.666                        | - -                              | -                        | 1.1                    | 1.9                                 | 27.2                                           | - |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|---|
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |
| - |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | - |
| I | 08.30-08.45 |                     |                       |                              |                                  |                          |                        |                                     |                                                | I |
| I | ARM A       | 0.48                | 6.09                  | 0.078                        | - -                              | -                        | 0.1                    | 0.1                                 | 1.3                                            | - |
| I | ARM B       | 5.93                | 14.46                 | 0.410                        | - -                              | -                        | 0.7                    | 0.7                                 | 10.3                                           | - |
| I | ARM C       | 6.28                | 12.16                 | 0.516                        | - -                              | -                        | 1.0                    | 1.1                                 | 15.7                                           | - |
| I | ARM D       | 10.70               | 16.04                 | 0.667                        | - -                              | -                        | 1.9                    | 2.0                                 | 29.3                                           | - |
| T |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | T |

| I | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) | I     |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|-------|
| I |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | I     |
| - |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | -     |
| I | 08.45-09.00 |                     |                       |                              |                                  |                          |                        |                                     |                                                | I     |
| I | ARM A       | 0.39                | 7.99                  | 0.049                        | - -                              | 0.1                      | 0.1                    | 0.8                                 | -                                              | 0.132 |
| I | ARM B       | 4.84                | 15.05                 | 0.322                        | - -                              | 0.7                      | 0.5                    | 7.4                                 | -                                              | 0.098 |
| I | ARM C       | 5.12                | 12.56                 | 0.408                        | - -                              | 1.1                      | 0.7                    | 10.9                                | -                                              | 0.135 |
| I | ARM D       | 8.74                | 16.53                 | 0.528                        | - -                              | 2.0                      | 1.1                    | 17.9                                | -                                              | 0.130 |
| T |             |                     |                       |                              |                                  |                          |                        |                                     |                                                | T     |

|   | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|
| I | 09.00-09.15 |                     |                       |                              |                                  |                          |                        |                                     |                                                |
| I | ARM A       | 0.33                | 9.43                  | 0.035                        | - -                              | -                        | 0.1                    | 0.0                                 | 0.6                                            |
| I | ARM B       | 4.05                | 15.49                 | 0.262                        | - -                              | -                        | 0.5                    | 0.4                                 | 5.5                                            |
| I | ARM C       | 4.29                | 12.86                 | 0.334                        | - -                              | -                        | 0.7                    | 0.5                                 | 7.8                                            |
| I | ARM D       | 7.32                | 16.89                 | 0.433                        | - -                              | -                        | 1.1                    | 0.8                                 | 12.0                                           |

QUEUE AT ARM A

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.0                            |
| 08.15                  | 0.1                            |
| 08.30                  | 0.1                            |
| 08.45                  | 0.1                            |
| 09.00                  | 0.1                            |
| 09.15                  | 0.0                            |

QUEUE AT ARM B

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.4                            |
| 08.15                  | 0.5                            |
| 08.30                  | 0.7 *                          |
| 08.45                  | 0.7 *                          |
| 09.00                  | 0.5                            |
| 09.15                  | 0.4                            |

QUEUE AT ARM C

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.5                            |
| 08.15                  | 0.7 *                          |
| 08.30                  | 1.0 *                          |
| 08.45                  | 1.1 *                          |
| 09.00                  | 0.7 *                          |
| 09.15                  | 0.5 *                          |

QUEUE AT ARM D

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.8 *                          |
| 08.15                  | 1.1 *                          |
| 08.30                  | 1.9 **                         |
| 08.45                  | 2.0 **                         |
| 09.00                  | 1.1 *                          |
| 09.15                  | 0.8 *                          |

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

| T75 |     |   |              |          |              |           |                        |           |  |   |
|-----|-----|---|--------------|----------|--------------|-----------|------------------------|-----------|--|---|
| I   | ARM | I | TOTAL DEMAND | I        | * QUEUEING * | I         | * INCLUSIVE QUEUEING * | I         |  | I |
| I   | I   | I |              | I        | * DELAY *    | I         | * DELAY *              | I         |  | I |
| I   | I   | I | (VEH)        | (VEH/H)  | (MIN)        | (MIN/VEH) | (MIN)                  | (MIN/VEH) |  | I |
| I   | A   | I | 35.8         | I 23.9   | I 5.1        | I 0.14    | I 5.1                  | I 0.14    |  | I |
| I   | B   | I | 444.6        | I 296.4  | I 45.1       | I 0.10    | I 45.1                 | I 0.10    |  | I |
| I   | C   | I | 470.7        | I 313.8  | I 66.4       | I 0.14    | I 66.4                 | I 0.14    |  | I |
| I   | D   | I | 802.5        | I 535.0  | I 113.1      | I 0.14    | I 113.1                | I 0.14    |  | I |
| I   | ALL | I | 1753.6       | I 1169.0 | I 229.6      | I 0.13    | I 229.6                | I 0.13    |  | I |

\* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.  
\* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.  
\* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

===== end of file =====

Printed at 13:43:44 on 14/11/2017]

A R C A D Y 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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Run with file:-  
"j:\10000\10000\10082\_SchoolStreetThurnsco\engineering\Traffic\_Programs\Arcady\2022 PM.vai"  
(drive-on-the-left ) at 10:05:01 on Thursday, 9 November 2017

FILE PROPERTIES  
\*\*\*\*\*

RUN TITLE: Houghton Road-John Street-Station Road-Shepherd Lane  
LOCATION: Thurnscoe  
DATE: 27/07/17  
CLIENT: Keepmoat Homes Ltd  
ENUMERATOR: mark.devenish [PC119]  
JOB NUMBER: 10082  
STATUS: Preliminary  
DESCRIPTION:

INPUT DATA  
\*\*\*\*\*

ARM A - John Street  
ARM B - Station Road  
ARM C - Shepherd Lane  
ARM D - Houghton Road

MINI-ROUNDABOUT GEOMETRIC DATA

JUNCTION IN LONDON  
LIGHTING CONDITIONS : NORMAL  
ROAD SURFACE CONDITION: NORMAL

|   |       |   |       |   |       |   |        |   |        |   |       |   |       |   |       |   |       |   | T5                     |   |
|---|-------|---|-------|---|-------|---|--------|---|--------|---|-------|---|-------|---|-------|---|-------|---|------------------------|---|
| I | ARM   | I | V (M) | I | E (M) | I | Lm (M) | I | Vm (M) | I | A (M) | I | K (M) | I | G (%) | I | SLOPE | I | INTERCEPT<br>(PCU/MIN) | I |
| I | ARM A | I | 4.15  | I | 4.45  | I | 1.00   | I | 4.15   | I | 12.00 | I | 4.00  | I | 4.00  | I | 0.770 | I | 16.750                 | I |
| I | ARM B | I | 3.50  | I | 4.50  | I | 6.00   | I | 3.50   | I | 15.00 | I | 6.00  | I | -6.00 | I | 0.863 | I | 18.536                 | I |
| I | ARM C | I | 3.50  | I | 4.45  | I | 1.00   | I | 3.50   | I | 15.00 | I | 6.00  | I | 2.00  | I | 0.641 | I | 14.485                 | I |
| I | ARM D | I | 3.60  | I | 4.55  | I | 7.00   | I | 3.60   | I | 14.00 | I | 9.50  | I | 5.00  | I | 0.821 | I | 19.169                 | I |

V = approach half-width      Lm = effective flare length      A = distance between arms  
E = entry width      Vm = minimum approach half-width      K = entry corner kerb line      G = gradient over 50 m

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

|           |   |               |   |
|-----------|---|---------------|---|
| ----- T13 |   |               |   |
| I ARM     | I | FLOW SCALE(%) | I |
| -----     |   |               |   |
| I A       | I | 100           | I |
| I B       | I | 100           | I |
| I C       | I | 100           | I |
| I D       | I | 100           | I |
| -----     |   |               |   |

TIME PERIOD BEGINS(07.45)AND ENDS(09.15)

LENGTH OF TIME PERIOD -( 90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2022 PM Base

|           |                                   |             |       |             |                        |        |       |         |
|-----------|-----------------------------------|-------------|-------|-------------|------------------------|--------|-------|---------|
| ----- T15 |                                   |             |       |             |                        |        |       |         |
| I         | NUMBER OF MINUTES FROM START WHEN |             |       |             | RATE OF FLOW (VEH/MIN) |        |       |         |
| I ARM     | I                                 | FLOW STARTS | I     | TOP OF PEAK | I                      | BEFORE | I     | AT TOP  |
| I         | I                                 |             | I     |             | I                      |        | I     | AFTER   |
| I         | I                                 | TO RISE     | I     | IS REACHED  | I                      | PEAK   | I     | OF PEAK |
| -----     |                                   |             |       |             |                        |        |       |         |
| I ARM     | A                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| I ARM     | B                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| I ARM     | C                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| I ARM     | D                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| -----     |                                   |             |       |             |                        |        |       |         |

DEMAND SET TITLE: Phase 2 Development PM

|           |                                   |             |       |             |                        |        |       |         |
|-----------|-----------------------------------|-------------|-------|-------------|------------------------|--------|-------|---------|
| ----- T15 |                                   |             |       |             |                        |        |       |         |
| I         | NUMBER OF MINUTES FROM START WHEN |             |       |             | RATE OF FLOW (VEH/MIN) |        |       |         |
| I ARM     | I                                 | FLOW STARTS | I     | TOP OF PEAK | I                      | BEFORE | I     | AT TOP  |
| I         | I                                 |             | I     |             | I                      |        | I     | AFTER   |
| I         | I                                 | TO RISE     | I     | IS REACHED  | I                      | PEAK   | I     | OF PEAK |
| -----     |                                   |             |       |             |                        |        |       |         |
| I ARM     | A                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| I ARM     | B                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| I ARM     | C                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| I ARM     | D                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| -----     |                                   |             |       |             |                        |        |       |         |

DEMAND SET TITLE: Phase 3 Development PM

|           |                                   |             |       |             |                        |        |       |         |
|-----------|-----------------------------------|-------------|-------|-------------|------------------------|--------|-------|---------|
| ----- T15 |                                   |             |       |             |                        |        |       |         |
| I         | NUMBER OF MINUTES FROM START WHEN |             |       |             | RATE OF FLOW (VEH/MIN) |        |       |         |
| I ARM     | I                                 | FLOW STARTS | I     | TOP OF PEAK | I                      | BEFORE | I     | AT TOP  |
| I         | I                                 |             | I     |             | I                      |        | I     | AFTER   |
| I         | I                                 | TO RISE     | I     | IS REACHED  | I                      | PEAK   | I     | OF PEAK |
| -----     |                                   |             |       |             |                        |        |       |         |
| I ARM     | A                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| I ARM     | B                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| I ARM     | C                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| I ARM     | D                                 | I           | 15.00 | I           | 45.00                  | I      | 75.00 | I       |
| -----     |                                   |             |       |             |                        |        |       |         |

DEMAND SET TITLE: 2022 PM Base

| T33                   |        |        |        |        |        |  |  |  |
|-----------------------|--------|--------|--------|--------|--------|--|--|--|
| TURNING PROPORTIONS   |        |        |        |        |        |  |  |  |
| TURNING COUNTS        |        |        |        |        |        |  |  |  |
| (PERCENTAGE OF H.V.S) |        |        |        |        |        |  |  |  |
| TIME                  | FROM/T | ARM A  | ARM B  | ARM C  | ARM D  |  |  |  |
| 07.45 - 09.15         | ARM A  | 0.000  | 0.400  | 0.400  | 0.200  |  |  |  |
|                       |        | 0.0    | 4.0    | 4.0    | 2.0    |  |  |  |
|                       |        | ( 0.0) | ( 0.0) | ( 0.0) | ( 0.0) |  |  |  |
|                       | ARM B  | 0.012  | 0.000  | 0.389  | 0.598  |  |  |  |
|                       |        | 8.0    | 0.0    | 252.0  | 387.0  |  |  |  |
|                       |        | ( 0.0) | ( 0.0) | ( 1.3) | ( 2.5) |  |  |  |
|                       | ARM C  | 0.009  | 0.447  | 0.000  | 0.544  |  |  |  |
|                       |        | 3.0    | 143.0  | 0.0    | 174.0  |  |  |  |
|                       |        | ( 0.0) | ( 0.0) | ( 0.0) | ( 1.5) |  |  |  |
|                       | ARM D  | 0.009  | 0.615  | 0.376  | 0.000  |  |  |  |
|                       |        | 4.0    | 260.0  | 159.0  | 0.0    |  |  |  |
|                       |        | ( 0.0) | ( 1.7) | ( 0.0) | ( 0.0) |  |  |  |

DEMAND SET TITLE: Phase 2 Development PM

| T33                   |        |        |        |        |        |  |  |  |
|-----------------------|--------|--------|--------|--------|--------|--|--|--|
| TURNING PROPORTIONS   |        |        |        |        |        |  |  |  |
| TURNING COUNTS        |        |        |        |        |        |  |  |  |
| (PERCENTAGE OF H.V.S) |        |        |        |        |        |  |  |  |
| TIME                  | FROM/T | ARM A  | ARM B  | ARM C  | ARM D  |  |  |  |
| 07.45 - 09.15         | ARM A  | 0.000  | 0.000  | 0.000  | 0.000  |  |  |  |
|                       |        | 0.0    | 0.0    | 0.0    | 0.0    |  |  |  |
|                       |        | ( 0.0) | ( 0.0) | ( 0.0) | ( 0.0) |  |  |  |
|                       | ARM B  | 0.000  | 0.000  | 0.000  | 1.000  |  |  |  |
|                       |        | 0.0    | 0.0    | 0.0    | 11.0   |  |  |  |
|                       |        | ( 0.0) | ( 0.0) | ( 0.0) | ( 0.0) |  |  |  |
|                       | ARM C  | 0.000  | 0.000  | 0.000  | 1.000  |  |  |  |
|                       |        | 0.0    | 0.0    | 0.0    | 11.0   |  |  |  |
|                       |        | ( 0.0) | ( 0.0) | ( 0.0) | ( 0.0) |  |  |  |
|                       | ARM D  | 0.000  | 0.500  | 0.500  | 0.000  |  |  |  |
|                       |        | 0.0    | 7.0    | 7.0    | 0.0    |  |  |  |
|                       |        | ( 0.0) | ( 0.0) | ( 0.0) | ( 0.0) |  |  |  |

DEMAND SET TITLE: Phase 3 Development PM

| T33                   |        |        |        |        |        |  |  |  |
|-----------------------|--------|--------|--------|--------|--------|--|--|--|
| TURNING PROPORTIONS   |        |        |        |        |        |  |  |  |
| TURNING COUNTS        |        |        |        |        |        |  |  |  |
| (PERCENTAGE OF H.V.S) |        |        |        |        |        |  |  |  |
| TIME                  | FROM/T | ARM A  | ARM B  | ARM C  | ARM D  |  |  |  |
| 07.45 - 09.15         | ARM A  | 0.000  | 0.000  | 0.000  | 0.000  |  |  |  |
|                       |        | 0.0    | 0.0    | 0.0    | 0.0    |  |  |  |
|                       |        | ( 0.0) | ( 0.0) | ( 0.0) | ( 0.0) |  |  |  |
|                       | ARM B  | 0.000  | 0.000  | 0.000  | 1.000  |  |  |  |
|                       |        | 0.0    | 0.0    | 0.0    | 30.0   |  |  |  |
|                       |        | ( 0.0) | ( 0.0) | ( 0.0) | ( 0.0) |  |  |  |
|                       | ARM C  | 0.000  | 0.000  | 0.000  | 1.000  |  |  |  |
|                       |        | 0.0    | 0.0    | 0.0    | 30.0   |  |  |  |
|                       |        | ( 0.0) | ( 0.0) | ( 0.0) | ( 0.0) |  |  |  |
|                       | ARM D  | 0.000  | 0.500  | 0.500  | 0.000  |  |  |  |
|                       |        | 0.0    | 18.0   | 18.0   | 0.0    |  |  |  |
|                       |        | ( 0.0) | ( 0.0) | ( 0.0) | ( 0.0) |  |  |  |

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

[illegible]

| I | TIME        | DEMAND    | CAPACITY  | DEMAND/  | PEDESTRIAN | START  | END    | DELAY         |      | AVERAGE DELAY | I     |   |
|---|-------------|-----------|-----------|----------|------------|--------|--------|---------------|------|---------------|-------|---|
| I |             | (VEH/MIN) | (VEH/MIN) | CAPACITY | FLOW       | QUEUE  | QUEUE  | (VEH.MIN/     |      | PER ARRIVING  | I     |   |
| I |             |           |           | (RFC)    | (PEDS/MIN) | (VEHS) | (VEHS) | TIME SEGMENT) |      | VEHICLE (MIN) | I     |   |
| I | -           |           |           |          |            |        |        |               |      |               | -     |   |
| I | 08.00-08.15 |           |           |          |            |        |        |               |      |               | I     |   |
| I | ARM A       | 0.15      | 9.66      | 0.016    | - -        | -      | 0.0    | 0.0           | 0.2  | -             | 0.105 | I |
| I | ARM B       | 10.31     | 15.79     | 0.653    | - -        | -      | 1.1    | 1.8           | 25.8 | -             | 0.179 | I |
| I | ARM C       | 5.41      | 10.13     | 0.534    | - -        | -      | 0.7    | 1.1           | 15.8 | -             | 0.209 | I |
| I | ARM D       | 7.09      | 17.12     | 0.414    | - -        | -      | 0.5    | 0.7           | 10.2 | -             | 0.099 | I |
| I |             |           |           |          |            |        |        |               |      |               | I     |   |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|
| 08.15-08.30 |                     |                       |                              |                                  |                          |                        |                                     |                                                |
| ARM A       | 0.18                | 8.09                  | 0.023                        | - -                              | -                        | 0.0                    | 0.0                                 | 0.3                                            |
| ARM B       | 12.63               | 15.25                 | 0.828                        | - -                              | -                        | 1.8                    | 4.3                                 | 55.7                                           |
| ARM C       | 6.62                | 9.22                  | 0.719                        | - -                              | -                        | 1.1                    | 2.4                                 | 31.7                                           |
| ARM D       | 8.68                | 16.72                 | 0.519                        | - -                              | -                        | 0.7                    | 1.1                                 | 15.3                                           |

|   | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|
| I | 08.30-08.45 |                     |                       |                              |                                  |                          |                        |                                     |                                                |
| I | ARM A       | 0.18                | 8.05                  | 0.023                        | - -                              | 0.0                      | 0.0                    | 0.3                                 | 0.127                                          |
| I | ARM B       | 12.63               | 15.24                 | 0.828                        | - -                              | 4.3                      | 4.5                    | 66.2                                | 0.374                                          |
| I | ARM C       | 6.62                | 9.16                  | 0.723                        | - -                              | 2.4                      | 2.5                    | 36.6                                | 0.390                                          |
| I | ARM D       | 8.68                | 16.70                 | 0.520                        | - -                              | 1.1                      | 1.1                    | 16.0                                | 0.125                                          |

| TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|
| 08.45-09.00 |                     |                       |                              |                                  |                          |                        |                                     |                                                |
| ARM A       | 0.15                | 9.60                  | 0.016                        | -                                | 0.0                      | 0.0                    | 0.2                                 | 0.106                                          |
| ARM B       | 10.31               | 15.78                 | 0.653                        | -                                | 4.5                      | 1.9                    | 32.0                                | 0.194                                          |
| ARM C       | 5.41                | 10.04                 | 0.539                        | -                                | 2.5                      | 1.2                    | 19.4                                | 0.224                                          |
| ARM D       | 7.09                | 17.09                 | 0.415                        | -                                | 1.1                      | 0.7                    | 11.1                                | 0.101                                          |

|   | TIME        | DEMAND<br>(VEH/MIN) | CAPACITY<br>(VEH/MIN) | DEMAND/<br>CAPACITY<br>(RFC) | PEDESTRIAN<br>FLOW<br>(PEDS/MIN) | START<br>QUEUE<br>(VEHS) | END<br>QUEUE<br>(VEHS) | DELAY<br>(VEH.MIN/<br>TIME SEGMENT) | AVERAGE DELAY<br>PER ARRIVING<br>VEHICLE (MIN) |
|---|-------------|---------------------|-----------------------|------------------------------|----------------------------------|--------------------------|------------------------|-------------------------------------|------------------------------------------------|
| I | 09.00-09.15 |                     |                       |                              |                                  |                          |                        |                                     |                                                |
| I | ARM A       | 0.13                | 10.78                 | 0.012                        | - -                              | -                        | 0.0                    | 0.0                                 | 0.2                                            |
| I | ARM B       | 8.63                | 16.17                 | 0.534                        | - -                              | -                        | 1.9                    | 1.2                                 | 18.3                                           |
| I | ARM C       | 4.53                | 10.78                 | 0.420                        | - -                              | -                        | 1.2                    | 0.7                                 | 11.6                                           |
| I | ARM D       | 5.93                | 17.41                 | 0.341                        | - -                              | -                        | 0.7                    | 0.5                                 | 8.0                                            |

QUEUE AT ARM A

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.0                            |
| 08.15                  | 0.0                            |
| 08.30                  | 0.0                            |
| 08.45                  | 0.0                            |
| 09.00                  | 0.0                            |
| 09.15                  | 0.0                            |

QUEUE AT ARM B

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 1.1 *                          |
| 08.15                  | 1.8 **                         |
| 08.30                  | 4.3 ****                       |
| 08.45                  | 4.5 *****                      |
| 09.00                  | 1.9 **                         |
| 09.15                  | 1.2 *                          |

QUEUE AT ARM C

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.7 *                          |
| 08.15                  | 1.1 *                          |
| 08.30                  | 2.4 **                         |
| 08.45                  | 2.5 **                         |
| 09.00                  | 1.2 *                          |
| 09.15                  | 0.7 *                          |

QUEUE AT ARM D

| TIME SEGMENT<br>ENDING | NO. OF<br>VEHICLES<br>IN QUEUE |
|------------------------|--------------------------------|
| 08.00                  | 0.5 *                          |
| 08.15                  | 0.7 *                          |
| 08.30                  | 1.1 *                          |
| 08.45                  | 1.1 *                          |
| 09.00                  | 0.7 *                          |
| 09.15                  | 0.5 *                          |

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

| T75 |              |                           |                                     |           |       |           |   |   |   |   |
|-----|--------------|---------------------------|-------------------------------------|-----------|-------|-----------|---|---|---|---|
| ARM | TOTAL DEMAND | * QUEUEING *<br>* DELAY * | * INCLUSIVE QUEUEING *<br>* DELAY * |           |       |           |   |   |   |   |
| I   | I            | I                         | I                                   | I         | I     | I         | I | I | I | I |
|     | (VEH)        | (VEH/H)                   | (MIN)                               | (MIN/VEH) | (MIN) | (MIN/VEH) |   |   |   |   |
| A   | 13.8         | 9.2                       | 1.5                                 | 0.11      | 1.5   | 0.11      |   |   |   |   |
| B   | 947.0        | 631.3                     | 213.9                               | 0.23      | 213.9 | 0.23      |   |   |   |   |
| C   | 496.9        | 331.3                     | 125.2                               | 0.25      | 125.2 | 0.25      |   |   |   |   |
| D   | 651.0        | 434.0                     | 68.1                                | 0.10      | 68.1  | 0.10      |   |   |   |   |
| ALL | 2108.7       | 1405.8                    | 408.7                               | 0.19      | 408.7 | 0.19      |   |   |   |   |

\* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.  
\* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.  
\* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

===== end of file =====