THE STRATEGIC LAND GROUP LIMITED

PROPOSED RESIDENTIAL DEVELOPMENT

HENTHORN ROAD

CLITHEROE

Transport Assessment

October 2012

Croft Transport Solutions
6th Floor, Quay House, Quay Street, Manchester, M3 3JE
Tel: 0161 827 1740 Email: info@croftts.co.uk www.croftts.co.uk
Registered in England Number: 7373729

REPORT CONTROL

Document:	Transport Assessment
Project:	Proposed Residential Development, Henthorn Road, Clitheroe
Client:	The Strategic Land Group Limited
Job Number:	0248
File Origin:	Z:\projects\0248 Henthorn Road, Clitheroe\Docs\Reports\TA0248.1.doc

Document Checking:

Primary Author	PJW	**Initialled:**
Contributor	MTC	**Initialled:**
Review By	PJW	**Initialled:**

Issue	Date	Status	Checked for Issue
1	22-10-12	Final	
2			
3			
4			

Contents

1 INTRODUCTION 3

2 EXISTING CONDITIONS 4

2.1 Existing Site Information 4
2.2 Existing Highway Network 4
2.3 Baseline Transport Data 9

3 PROPOSED DEVELOPMENT 10

3.1 Development Proposals 10
3.2 Vehicular Access 10
3.3 Pedestrian and Cycle Access 11

4 TRANSPORT PLANNING POLICY 12

4.1 Introduction 12
4.2 National Policy 12
4.3 Regional Policy 14
4.4 Local Policy 14
4.5 Planning Policy Summary 15

5 NON-CAR ACCESSIBILITY OF THE SITE 16

5.1 Introduction 16
5.2 Access by Foot 16
5.3 Access by Cycle 17
5.4 Access by Bus 18
5.5 Access by Rail 19
5.6 Accessibility Questionnaire 19
5.7 Summary 20

6 TRAFFIC IMPACT ANALYSIS 22

6.1 Introduction 22
6.2 Traffic Survey Data 22
6.3 Growthed Traffic Flows 23
6.4 Committed Development 23
6.5 Base Flows 24
6.6 Trip Distribution 24
6.7 Proposed Trip Generation 24
6.8 With Development Flows 26
6.9 Traffic Impact 26
6.10 Capacity Assessments 28
6.1 Capacity Assessment Summary 39

7 SMARTER TRAVEL CHOICES VIA TRAVEL PLANS 40

7.1 Introduction 40
7.2 Travel Planning Guidance 40

7.3 Residential Travel Plan 42
8 ACCIDENT ANALYSIS 43
8.1 Introduction 43
8.2 Summary 44
9 CONCLUSIONS 45

Figures 1 to 24

PLANS
Plan 1 - Site Location
Plan 2 - Masterplan
Plan 3 - Proposed Site Access
Plan 4 - Pedestrian Catchment and Amenities Plan
Plan 5 - Primrose Road/A671 Whalley Road Improvement Scheme

APPENDICES
Appendix 1 - FLP and AHA Improvement Schemes
Appendix 2 - Accessibility Questionnaire
Appendix 3 - Traffic Survey Data
Appendix 4 - PICADY Output: Site Access/Henthorn Road
Appendix 5 - PICADY Output: Henthorn Road/Bawdlands
Appendix 6 - PICADY Output: Henthorn Road/Eshton Terrace/Thorn Street
Appendix 7 - ARCADY Output: Station Road/Parson Lane
Appendix 8 - PICADY Output: Castle View/Parson Lane
Appendix 9 - PICADY Output: Greenacre Street/Woone Lane/Eshton Terrace
Appendix 10 - PICADY Output: Whalley Road/Greenacre Street
Appendix 11 - PICADY Output: Primrose Road/A671 Whalley Road
Appendix 12 - Residential Travel Plan Framework
Appendix 13 - Accident Data

1 INTRODUCTION

1.1.1 Croft have been commissioned by The Strategic Land Group Limited to produce a Transport Assessment to assist the Local Planning Authority's determination of an outline planning application for a residential development off Henthorn Road in Clitheroe.

1.1.2 The application site is located approximately a kilometre south west of Clitheroe town centre. The location of the application site is shown on **Plan 1**.

1.1.3 The site is undeveloped and is used as agricultural land. Further details pertaining to the site's existing use will be provided in Section 2.

1.1.4 It is proposed to develop the site with approximately 144 residential units. Vehicular access will be provided via a new access off Henthorn Road. Further details pertaining to the proposed development will be provided within Section 3 of the Report.

1.1.5 Section 4 of the Report considers the aspects of local and national planning policy which are relevant to the redevelopment and Section 5 considers the accessibility of the site by non-car modes.

1.1.6 Section 6 contains the traffic impact assessment. Section 7 presents details of the Framework Travel Plan and Section 8 provides an analysis of Road Accident Data and Section 9 contains the Report's conclusions.

2 EXISTING CONDITIONS

2.1 Existing Site Information

2.1.1 The application site is located approximately a kilometre south west of Clitheroe town centre.

2.1.2 The site is bound to the north by Henthorn Road, whilst to the west and south the site is bound by agricultural land. To the east the site is bound by existing residential properties that are accessed from Temple View.

2.1.3 The predominant land use in the vicinity of the site is residential with areas of recreational open space.

2.1.4 The site is undeveloped with no formal vehicular access off Henthorn Road.

2.2 Existing Highway Network

2.2.1 To the north of the proposed development site, Henthorn Road runs in an approximate southwest-northeast alignment until it forms the minor arm of the priority junction with Bawdlands.

2.2.2 The Henthorn Road carriageway is generally around 5.5 metres wide with a footway along the northern side of the carriageway in the vicinity of the site and then on both sides between the site's eastern boundary all the way to the junction with Bawdlands. Bawdlands is the B6243 and runs east into the town centre.

2.2.3 The local highway network of analysis has been agreed with the local highway authority, Lancashire County Council as being as follows.

- Junction 1 - Lancaster Drive/Edisford Road.
- Junction 2 - Seedall Avenue/Edisford Road.
- Junction 3 - Faraday Avenue/Edisford Road.
- Junction 4 - Thorn Street/Bawdlands.
- Junction 5 - Henthorn Road/Bawdlands.

- Junction 6 - Henthorn Road/Eshton Terrace/Thorn Street.
- Junction 7 - Station Road/Parson Lane.
- Junction 8 - Lowergate/Moor Lane/Woone Lane.
- Junction 9 - Castle View/Parson Lane.
- Junction 10 - Greenacre Street/Woone Lane/Eshton Terrace.
- Junction 11 - Whalley Road/Greenacre Street.
- Junction 12 - Primrose Road/A671 Whalley Road.

2.2.4 Junction 1 is the priority control junction of Edisford Road and Lancaster Drive. Edisford Road is a single carriageway road that is around 9 metres wide at the junction with Lancaster Drive, has footway on both sides of the road, is subject to a 30mph speed limit, with street lighting and no parking restrictions. Lancaster Drive is on the south side of Edisford Road, and is a single carriageway residential road of typically 6.7 metres width with footways on both sides of the road. There is a bus stop on the south side of Edisford Road, a short distance east of Lancaster Road.

2.2.5 A short distance further east of Lancaster Drive, Edisford Road forms a priority control junction with St Paul's Street, on the north side of Edisford Road. A traffic management scheme provides a right-turn lane facility on Edisford Road, for the turn into St Paul's Street.

2.2.6 Junction 2 is located east of Junction 1, and is the priority control junction of Edisford Road and Seedal Avenue. Edisford Road is approximately 7.8 metres wide at the junction with Seedal Avenue. Seedal Avenue is on the south side of Edisford Road, and is a single carriageway residential road approximately 8.5 metres wide at the junction, with footways on both sides of the road. There is a signalled pedestrian warning sign on the south side of Edisford Road, just west of Seedal Avenue. There is a bus stop on the south side of Edisford Road, located mid-way between Junctions 1 and 2.

2.2.7 Junction 3 is located a short distance east of Junction 2. Edisford is wider at this location, being around 11 metres wide to the east of Faraday Avenue. Faraday Avenue is around 5.6 metres wide.

2.2.8 Junctions 4, 5 and 6 are in close proximity to each other, east of Junction 3. Edisford Road changes name to Bawdlands at some point east of Faraday Avenue. There is a footway on both sides of Bawdlands, a 30mph speed limit, street lighting and an absence of parking restrictions until near to the junction with Henthorn Road. During visits parked cars have been observed on both sides of Bawdlands in the vicinity of Junctions 4 and 5, where there are no restrictions. There is a bus stop on the south side of Bawdlands a short distance west of Henthorn Road (Junction 5). There are double yellow line waiting restrictions on all four corners of the priority control crossroads at Junction 6.

2.2.9 East of Henthorn Road and Junction 5, there is a level crossing on Thorn Street (east of this and the railway line the road name is Eshton Terrace). There is a 'Keep Clear' road marking on the Thorn Street eastbound approach to the level crossing, just west of Franklin Street. There is full barrier control of the level crossing, and cameras are pointed at the crossing.

2.2.10 Henthorn Road is a single carriageway road, typically around 7.1 metres wide, with footways on both sides, street lighting and subject to a 30mph speed limit; there is generally an absence of waiting restrictions, (although there are restrictions at Junction 6). The site boundary is next to Henthorn Road.

2.2.11 As Bawdlands extends east, the name of the road changes to Parson Lane. Junction 7 is the 3-arm mini-roundabout junction of Parson Lane and Station Road. On the east side of Junction 7 the Parson Lane arm of the roundabout operates one-way in a westbound direction, entering the roundabout.

2.2.12 There are waiting and loading restrictions at Junction 7. On land at the northeast sector of the roundabout, between Station Road and the one-way section of Parson Lane, there is a permit holders' car park; one-way entry is from Station Road and one-way exit is onto Parson Lane.

2.2.13 Junction 8 is a mini-roundabout at the junction of Woore Lane North and Moor Lane. There are waiting restrictions at the junction. There are cycle lanes along Moor Lane, on the south side of the junction.

2.2.14 Junction 9 is the junction of Castle View/Parson Lane close to the railway bridge. The junction has footways on the western side.

2.2.15 Junction 10 is the junction of Woone Lane and Greenacre Street. Greenacre Street operates as one-way entry to the junction. Greenacre Street/Eshton Street is designated as the 'major' road, ie having priority over Woone Lane. Both of the Woone Lane entries to the junction operate with 'stop line' control. There are waiting restrictions at the junction.

2.2.16 Junction 11 is the priority junction of the A671 Whalley Road and Greenacre Street. There are waiting restrictions at the junction and there is a pedestrian crossing on Whalley Road, south of Greenacre Street.

2.2.17 Junction 12 is the priority control junction of Primrose Road and Whalley Road which is some distance from the development site but this has been included as it was formed part of the network of assessment of the Gladman site on Henthorn Road, albeit for a much larger development.

2.2.18 There is an existing level crossing on Eshton Terrace to the northeast of the Site. The appellants at the Gladman site appeal commissioned a survey at the level crossing during March 2010, between the periods 0730 to 0930 hours and from 1600 to 1815 hours. The surveys recorded the:

- Times when the level crossing barriers were closed,
- Length of time they were closed,
- Length of the queues that formed during these periods, and
- Time taken for normal traffic conditions to resume (ie the time taken for the queues to dissipate).

2.2.19 The level crossing barriers were down on four occasions during the AM survey period, with two occurrences during the AM peak hour. The barriers were down for an average of just under two minutes and normal traffic conditions on both sides of the barrier generally resumed within typically a further 30 seconds. According to the surveys the maximum recorded queue on the eastbound approach was 15 vehicles. This occurred at 08:26:35 hours, and the back of the queue reached Henthorn Road. The maximum recorded queue on the westbound approach was 9 vehicles and this also occurred at 08:26:35 hours.

2.2.20 The surveys revealed that the level crossing barriers were down on six occasions during the PM survey period, with only one occurrence during the PM peak hour. The barriers were down for an average of just under two minutes and normal traffic conditions on both sides of the barrier generally resumed within a further minute. The maximum recorded queue on the eastbound approach was 9 vehicles and this occurred at 17:09:31 hours. The maximum recorded queue on the westbound approach was 14 vehicles and this also occurred at 17:09:31 hours.

2.2.21 As part of the Gladman appeal development proposals, a number of off-site highway improvements have been proposed by Ashley Helme Associates (AHA). The following lists these proposed improvements:

- Whalley Road: upgrade existing pedestrian crossing just south of Greenacre Street to Toucan crossing.
- Henthorn Road: proposed zebra crossing near Henthorne Park entrance, complemented by cycle signage (AHA Drawing No. 1222/19).
- Proposed pedestrian/cycle link to Edisford Road via 'caravan road' route (AHA Drawing No. 1222/18).
- Cycle parking to be provided at the developments play area and in Clitheroe town centre.
- Provision of enhanced local bus services to extend to a new bus stop within the development.
- Henthorn Road traffic management and road marking scheme (AHA Drawing No. 1222/19 and 1222/21).
- Improved pedestrian access at Lancaster Drive/Garnett Road roundabout.
- Woone Lane traffic management scheme consisting of two separate options for one-way works to Woone Lane comprising build outs, raised tables and priority junction improvements (AHA Drawing No. 1222/20 and 1222/23).

2.2.22 The package of improvements proposed for the Gladman site can be seen in **Appendix 1**.

2.3 Baseline Transport Data

2.3.1 The site is currently undeveloped which therefore generates no existing vehicular traffic.

3 PROPOSED DEVELOPMENT

3.1 Development Proposals

3.1.1 It is proposed to develop the site to provide approximately 144 residential units. The residential development will comprise a mix of house types and the final details of this will be confirmed as the application progresses.

3.1.2 However, at this stage the development will consist of the following mix of units:

- 98 open market houses of varying size.
- 40 affordable units.
- 6 apartments.

3.1.3 The proposed Masterplan is shown on **Plan 2**.

3.2 Vehicular Access

3.2.1 It is proposed that vehicular access into the development site will be provided off Henthorn Road via a new priority controlled junction, which will be located around 60 metres south west of the eastern boundary of the site.

3.2.2 The proposed site access will have a carriageway width of 5.5 metres and 2 metre footways on either side of the carriageway, the junction will incorporate 6 metre corner radii and visibility splays of 2.4 by 70 metres can be achieved in both directions from the proposed junction and therefore be in accordance with the standards contained within the Manual for Streets documents.

3.2.3 The proposed layout of the site access junction is shown in **Plan 3** and will form part of the matters to be determined in this application.

3.3 Pedestrian and Cycle Access

3.3.1 Pedestrian and cycle access into the site will be afforded via the proposed vehicle access point into the development from Henthorn Road, which will link with existing pedestrian infrastructure located along Henthorn Road which provide good links to the town centre and the nearby amenities.

3.3.2 The internal layout of the site will be designed to provide linkages between the site and the existing right of ways located to the west of the development site. As part of the proposed development the existing rights of way will be maintained.

4 TRANSPORT PLANNING POLICY

4.1 Introduction

4.1.1 The national policy presented in this document focuses on the National Planning Policy Framework (NPPF) formerly known as 'The Framework' which was published in March 2012 and sets out the Government's planning policies for achieving sustainable development.

4.1.2 Local transport planning policy for Clitheroe is taken from the Lancashire Local Transport Plan and the Ribble Valley Borough Local Plan. This section will briefly outline the pertinent policies relating to the proposed development.

4.2 National Policy

4.2.1 The presumption in favour of sustainable development is a central theme running through the framework and transport planning policies are seen as a key element of delivering sustainable development as well as contributing to wider sustainability and health objectives. To achieve these objectives paragraph 30 which states when making decisions, local authorities should:-

"Support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport."

4.2.2 In addition, paragraph 35 states that to further enhance the opportunities for sustainable development any future developments should be located and designed where practical to:-

- *To accommodate the efficient delivery of goods and supplies.*
- *Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities.*

- *Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones.*

- *Incorporate facilities for charging plug-in and other ultra-low emission vehicles; and*

- *Consider the needs of people with disabilities by all modes of transport.*

4.2.3 As will be demonstrated within this Transport Assessment, the proposed development accords with the policy test contained within paragraph 32 of the framework which states that:-

'All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment and that any plans or decisions should take into account the following;

- *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.*

4.2.4 The location of the proposed development close to a number of amenities is in accordance with the guidance contained within paragraph 38 which states that:-

"Key facilities such as primary schools and local shops should be located within walking distance of most properties"

4.2.5 Whilst the provision of a Travel Plan as part of the development and the retention of the existing public rights of way are in accordance with the guidance contained within paragraphs 32 and 75 respectively.

4.2.6 It is therefore concluded that as the development is located a short distance from a range of local amenities, is accessible by public transport and has been designed in accordance with the guidance contained within Manual for Streets it is considered that the proposed development accords with the aims and objectives of the Framework

4.3 Regional Policy

4.3.1 Of the policies contained within the 'North West of England Regional Spatial Strategy to 2021' the relevant policies are DP5, RT2 and RT9, of which DP5 and RT2 refer to 'managing travel demand'. RT2 refers to walking and cycling and the need for development to provide integrated networks for these modes of travel.

4.4 Local Policy

Ribble Valley Districtwide Local Plan

4.4.1 The Ribble Valley Districtwide Local Plan was adopted in June 1998 and is currently undergoing a review. It will eventually be replaced by the Ribble Valley LDF Core Strategy DPD.

4.4.2 Saved policies T1 set out the context for assessing the transport accessibility and sustainability aspects of the proposed development, identifying a range of criteria to ensure that new developments are sustainably located and provide a range of transportation choices.

Lancashire Local Transport Plan Draft Strategy (2011-2026)

4.4.3 The Lancashire Local Transport Plan Strategy covers the 15 year period between 2011 and 2026.

4.4.4 Lancashire County Council (LCC) is the local highway authority, and has responsibility for the development and delivery of the Local Transport Plan (LTP). The underlying theme and objectives of the LTP are to promote policies and measures to foster and achieve improved opportunities for travel choices by non car modes. This provides the context for specific local measures to be considered, promoted and introduced.

4.5 Planning Policy Summary

4.5.1 The proposed development is in accordance with national, regional and local policy for the following reasons:

- The proposed development will reduce the need to travel due to it being located in close proximity to a range of services such as schools, retail opportunities and health facilities which are located within a short walk of the site. Further details on the accessibility of the proposed development by non-car modes is provided in Section 5 of this Transport Assessment.
- The site is located in close proximity of a range of public transport opportunities which will facilitate non-car travel to and from the proposed development.
- The site promotes sustainable transport in accordance with the Framework (NPPF) as it facilitates sustainable development and contributes to wider sustainability and health objectives.
- The site seeks to protect and enhance public rights of way access in accordance with the Framework.

5 NON-CAR ACCESSIBILITY OF THE SITE

5.1 Introduction

5.1.1 Within the recently released National Planning Policy Framework (NPPF), there is a presumption in favour of sustainable development. Transport is recognised as having an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives. The NPPF therefore advises that decisions should take account of the opportunities for sustainable transport modes.

5.1.2 New proposals should therefore be located and designed where practical to have access to high quality public transport facilities and to give priority to pedestrian and cycle movements. Planning policies are also to aim for a balance of land uses within their area so that people can be encouraged to minimise journey lengths for employment and other activities.

5.1.3 Having regard to this, the accessibility of the site has been considered by the following modes of transport.

- Accessibility on foot.
- Accessibility by cycle.
- Accessibility by bus.
- Accessibility by rail.

5.2 Access by Foot

5.2.1 Pedestrian access into the site will be afforded via the proposed vehicular access point off Henthorn Road.

5.2.2 The internal highway infrastructure has been designed using the guidance within Manual for Streets 2 and as such ensures that the vehicular speeds through the site will be low and the design of the internal infrastructure will ensure a pedestrian friendly environment with areas of pedestrian priority to ensure safe and efficient movement for pedestrians through the site.

5.2.3 In the vicinity of the site, footways of at least 2 metres in width are located on Henthorn Road. These routes provide excellent connectivity from the site into Clitheroe town centre.

5.2.4 Within the Institution of Highways and Transportation (IHT) document, entitled "Guidelines for Providing for Journeys on Foot", a distance of 800 metres is identified as the preferred maximum distance for town centres, whilst a distance of 2 kilometres is defined as a preferred maximum for commuting.

5.2.5 As such, in order to assess the extent of the area considered accessible by foot, catchments of 800 metres and 2 kilometres have been prepared and are shown within **Plan 4**.

5.2.6 As can be seen from Plan 4 the 800 metre catchment encompasses the majority of the southern residential areas in Clitheroe and also includes the local services located within, such as Clitheroe Edisford Primary School and Henthorn Park.

5.2.7 The 2 kilometre catchment extends to include the majority of Clitheroe including the town centre and its associated retail, employment and education facilities.

5.2.8 As detailed earlier in this report, a series of improvements are proposed as part of the Gladman appeal site proposals, these improvements will greatly enhance pedestrian and cycle accessibility in the vicinity of the site. The improvements can be seen within Appendix 1.

5.2.9 It is therefore considered that the existing and proposed pedestrian infrastructure will facilitate safe and direct pedestrian linkages between the site and local destinations.

5.3 Access by Cycle

5.3.1 An alternative mode of travel to the site could be achieved by bicycle.

5.3.2 Regional Cycle Route 91 is located approximately 2.2 kilometres north-east of the site, this route is known as the 'Lancashire cycle way' and is ideal for recreational cycling providing numerous links to destinations across Lancashire.

5.3.3 The internal site layout will ensure that vehicular speeds are low and as such this would assist cycle accessibility.

5.3.4 The site can, therefore, be considered as being accessible by cycle.

5.4 Access by Bus

5.4.1 The nearest bus stops to the site are located on Garnett Road approximately 400 metres north east to the site. In addition a hail and ride service is available from Kenilworth Drive/Kemple View approximately 300 metres from the site.

5.4.2 Safe pedestrian access to these bus stops is provided for via the existing pedestrian footways located on Henthorn Road and Kemple View. The proposed improvements to the pedestrian infrastructure as part of the development of the site, and the Gladman proposals, will enhance pedestrian access to these bus stops.

5.4.3 A summary of the services available from the bus stops within 400 metres of the edge of the development site is provided in Table 5.1 below:

Service No	Route	Monday – Friday Frequency per hour				Sat	Sun
		AM Peak	Midday	PM Peak	Eve		
2	Sawley – Grindleton – Chatburn – Clitheroe – Low Moor	2	2	2	0	2	1

Table 5.1 - Existing Bus Services Operation in the Vicinity of the Site

5.4.4 As can be seen from Table 5.1, the bus stops located within 400 metres of the site provide up to 2 services per hour in the peak periods. These services provide access to destinations such as the town centre, Grindleton, Sawley and Chatburn.

5.4.5 In addition, there have been discussions with the local bus companies, in particular during the recent appeal on the Gladman site, the proposals seek to improve frequencies in the area and provide an additional bus stop located within the Gladman site.

5.4.6 It is therefore concluded that the proposed development site is accessible by bus.

5.5 Access by Rail

5.5.1 The nearest rail station to the site is Clitheroe, which as Plan 4 shows, is located within the 2 kilometre pedestrian catchment. Pedestrian access to the rail station is provided via the B6243 Junction Lane then Castle View.

5.5.2 Clitheroe rail station provides an hourly service to destinations including Blackburn, Bolton and Manchester.

5.5.3 It is therefore concluded that the proposed development site it accessible by rail.

5.6 Accessibility Questionnaire

5.6.1 In order to undertake a more quantitative approach to the consideration of the site's accessibility, the accessibility questionnaire produced by Lancashire County Council and included within the SPG "Access and Parking", has been completed. The completed questionnaire for the proposed residential development is contained within **Appendix 2**.

5.6.2 Following the completion of the accessibility questionnaire the proposed development accumulated a score of 14 which places the development within the "Low Accessibility" bracket.

5.6.3 To improve the accessibility of the site, a Travel Plan will be submitted to the Local Authority. This document will assist in creating a wider choice of travel modes to residents and in particular influence local trips within the immediate area.

5.6.4 It should be noted that the site benefits from scoring high for the distance to the nearest bus stop, however it scored medium in the frequency of buses as it only provides up to 2 services per hour. That said, as previously mentioned there have been discussions with the local bus companies, in particular during the recent appeal on the Gladman site which could improve frequencies in the area and potentially provide an additional bus stop even closer to the site.

5.6.5 In addition, following the implementation of the Gladman development proposals the site will be within approximately 400 metres of a play area, this will further increase the site's accessibility score.

5.6.6 As the Gladman appeal site includes measures that will have a beneficial impact on the accessibility score of the site, a 'proposed' situation accessibility questionnaire has been completed. The situation for the proposed development site following the implementation of the Gladman development is likely to result in a score of around 20 points establishing a 'Medium' level of accessibility for the site. The existing and proposed accessibility questionnaires are contained in Appendix 2.

5.7 Summary

5.7.1 The proposals have been considered in terms of accessibility by non car modes for the proposed residential development. The following conclusions can be drawn from this section of the Report:

- The site is situated close to Clitheroe town centre, which will provide the scope for a high degree of linked walk trips between the development and the retail, commercial and employment in Clitheroe.

- The site is accessible by foot and by cycle however these links will be substantially improved as part of development proposals. The existing and improved infrastructure will provide excellent pedestrian linkages with the surrounding retail and employment areas.

- There are up to 2 bus services per hour during peak periods to destinations including the town centre which provides good accessibility to the site by bus. In addition, the site's accessibility by bus will be enhanced by development proposals at the Gladman appeal site.

- Although Clitheroe rail station only provides one service per hour, it travels to Manchester Piccadilly which provides access to many more services to a much wider range of destinations.

- In order to undertake a more quantitative approach to the consideration of the site's accessibility, an accessibility questionnaire has been completed. The site will score 'Medium' on the questionnaire following the implementation of development proposals, in particular, proposals related to the Gladman appeal site.

6 TRAFFIC IMPACT ANALYSIS

6.1 Introduction

6.1.1 Having established that the application site is accessible by modes of transport other than the private car and would be in general accordance with land use and transport policies and the Framework which seeks to deliver sustainable development, the following section of the report considers the traffic impact of the development proposals on the local highway network.

6.2 Traffic Survey Data

6.2.1 In order to assess the impact of the proposed development on the local highway network traffic surveys were undertaken at the following junctions on Wednesday 13th June 2012, as agreed with Lancashire County Council, the local highway authority. These surveys are within two years of the submission of the planning application and in accordance with national guidance on the preparation of Transport Assessments;

- Junction 1 - Lancaster Drive/Edisford Road.
- Junction 2 - Seedall Avenue/Edisford Road.
- Junction 3 - Faraday Avenue/Edisford Road.
- Junction 4 - Thorn Street/Bawdlands.
- Junction 5 - Henthorn Road/Bawdlands.
- Junction 6 - Henthorn Road/Eshton Terrace/Thorn Street.
- Junction 7 - Station Road/Parson Lane.
- Junction 8 - Lowergate/Moor Lane/Woone Lane.
- Junction 9 - Castle View/Parson Lane.
- Junction 10 - Greenacre Street/Woone Lane/Eshton Terrace.
- Junction 11 - Whalley Road/Greenacre Street.
- Junction 12 - Primrose Road/A671 Whalley Road.

6.2.2 The full traffic survey data is contained within **Appendix 3**. The AM and PM peak hours were identified as 0800 to 0900 hours and 1700 to 1800 hours. The AM and PM peak hours are shown within **Figures 1** and **2** in terms of PCU's.

6.3 Growthed Traffic Flows

6.3.1 In order to factor the surveyed traffic flows to the assumed year of opening, 2016, and the future assessment year of 2021, the Trip End Model Presentation Program (TEMPRO) adjusted National Transport Model Forecast (NTM) growth factor was applied for Clitheroe.

6.3.2 These years have been used following discussions with the applicant regarding likely completion timescales for the proposals.

6.3.3 The resultant growth factors are shown below:

- 2012 to 2016 AM Peak – 1.0292
- 2012 to 2016 PM Peak – 1.0306
- 2012 to 2021 AM Peak – 1.1083
- 2012 to 2021 PM Peak – 1.1116

6.3.4 The resultant growthed traffic flows are shown in **Figures 3** and **4** for the 2016 Weekday AM and PM peak periods whilst the 2021 growthed traffic flows are contained in **Figures 5** and **6**.

6.4 Committed Development

6.4.1 Lancashire County Council have requested that the following committed development be included within the traffic impact analysis of the local highway network;

- Primrose Road Residential Development - 113 residential dwellings.
- Gladman Development on Henthorn Road - 270 residential dwellings.

6.4.2 The committed development flows for each of the schemes have been obtained from the Ribble Valley Borough Council website.

6.4.3 The committed development flows for each of the permitted developments are contained within **Figures 7** to **10**, whilst the total Committed Development flows are displayed in **Figures 11** and **12** for the Weekday AM and PM Peak respectively.

6.5 Base Flows

6.5.1 To calculate the 2016 Base Flows, the total committed development flows displayed in Figures 11 and 12 have been added to the 2016 growthed flows shown in Figures 3 and 4. The resultant 2016 Base Flows for Weekday AM and PM Peak periods are displayed in **Figures 13** and **14**.

6.5.2 Whilst the 2021 Base Flows are shown in **Figures 15** and **16** for the two peak periods respectively. These have been calculated by adding the 2021 growthed flows, shown in Figures 5 and 6, to the total committed development flows in Figures 11 and 12.

6.6 Trip Distribution

6.6.1 As agreed with LCC the directional distribution for the proposed development reference has been made to the trip distribution methodologies contained within the evidence at the recent Gladman appeal. The distribution contained in the Council's evidence has been utilised for the purposes of this particular assessment.

6.6.2 The proposed distribution for the AM Peak period is shown in **Figure 17** whilst the proposed distribution for the PM Peak period is shown in **Figure 18**.

6.7 Proposed Trip Generation

6.7.1 As previously stated it is proposed to develop the site for residential purposes with approximately 144 residential units being erected on the site.

6.7.2 In order to forecast the number of trips which the 144 dwellings were forecast to generate the same traffic generation rates that were agreed between Gladman and local highways officers at Lancashire County Council for the proposed Gladman residential scheme on Henthorn Road have been used.

6.7.3 The peak hour trip rates and forecast trip generation are shown within Table 6.1. These trip rates.

Peak Hour	Trip Rates		Trip Generation	
	Arr	Dep	Arr	Dep
AM	0.140	0.445	20	64
PM	0.437	0.226	63	33

Table 6.1 - Forecast Trip Generation of Proposed Residential Development

6.7.4 As can be seen from Table 6.1 the residential development is forecast to generate a 2-way total of approximately 84 trips in the AM peak hour and 96 trips in the PM peak hour.

6.7.5 These are considered to be particularly robust trip generation rates as the proposed development will consist of a proportion of affordable units as well as apartments.

6.7.6 In order to assign traffic forecast to be generated by the proposed development, the trip distribution shown in the Figures 17 and 18 has been utilised.

6.7.7 The resultant proposed residential development flows for the AM Peak are shown in **Figure 19** whilst the proposed residential development flows for the PM Peak are shown in **Figure 20**.

6.8 With Development Flows

6.8.1 In order to calculate the 2016 'With Development' flows, the 2016 Base Flows contained within Figures 13 and 14, were added to the development flows contained within Figures 19 and 20. The resultant 2016 'With Development' flows are contained within **Figures 21** and **22**.

6.8.2 In order to calculate the 2021 'With Development' flows, the 2021 Base flows, contained within Figures 15 and 16, were added to the development flows contained within Figures 19 and 20. The resultant 2021 'With Development' flows are contained within **Figures 23** and **24**.

6.9 Traffic Impact

6.9.1 When considering the traffic impact of the development proposals it is important to consider how in practice the increases in traffic would occur across the study area. In this regard Table 6.2 below illustrates the actual increase in traffic numbers predicted to occur at each of the junctions within the study area as a result of the development proposals, along with the percentage change in traffic at each junction.

Junction		2016 Base 'Without Development' Flows	2016 Base 'With Development' Flows	Increase in Traffic		Additional vehicles / minute
				Veh	%	
1) Lancaster Drive/Edisford Road	**AM**	623	635	+12	2.0	0.2
	PM	857	871	+14	1.7	0.2
2) Seedall Avenue/Edisford Road	**AM**	728	728	0	0	0
	PM	935	935	0	0	0
3) Faraday Avenue/Edisford Road	**AM**	734	734	0	0	0
	PM	920	920	0	0	0
4) Thorn Street/Bawdlands	**AM**	731	731	0	0	0
	PM	913	913	0	0	0

5) Henthorn Road/Bawdlands	**AM**	794	828	+35	4.4	0.6
	PM	910	944	+34	3.7	0.6
6) Henthorn Road/Eshton Terrace/Thorn Street	**AM**	773	844	+71	9.2	1.2
	PM	967	1048	+82	8.4	1.4
7) Station Road/Parson Lane	**AM**	938	973	+35	3.7	0.6
	PM	1069	1103	+34	3.1	0.6
8) Lowergate/Moor Lane/Woone Lane	**AM**	1031	1052	+21	2.0	0.4
	PM	1058	1069	+11	1.0	0.2
9) Castle View/Parson Lane	**AM**	845	880	+35	4.1	0.6
	PM	1026	1059	+34	3.3	0.6
10) Greenacre Street/Woone Lane/Eshton Terrace	**AM**	855	892	+37	4.3	0.6
	PM	1028	1075	+48	4.7	0.8
11) Whalley Road/Greenacre Street	**AM**	1471	1501	+31	2.0	0.5
	PM	1809	1850	+41	2.3	0.7
12) Primrose Road/A671 Whalley Road	**AM**	1754	1783	+29	1.7	0.5
	PM	1902	1938	+36	1.9	0.6

Table 6.2 - 2016 Proposed Development Traffic Increases

6.9.2 As can be seen in Table 6.2, the proposed development is forecast to result in a zero increase in traffic at the following junctions:

- Junction 2 - Seedall Avenue/Edisford Road.
- Junction 3 - Faraday Avenue/Edisford Road.
- Junction 4 - Thorn Street/Bawdlands.

6.9.3 In addition, the proposed development is forecast to generate less than the 30 two-way peak hours trips threshold for assessment contained within paragraph 2.11 of the DfT's *'Guidance on Transpor*t' at the following junctions:

- Junction 1 - Lancaster Drive/Edisford Road.
- Junction 8 - Lowergate/Moor Lane/Woone Lane.

6.9.4 Such changes in traffic are in practice less than that which might be expected as a result of daily fluctuations in traffic flows and as such can robustly be concluded to be immaterial to the overall operation of the junctions.

6.9.5 The results also confirm that the impact of the proposed residential development would be negligible at the above mentioned junctions and therefore, no additional junction analysis is required.

6.10 Capacity Assessments

6.10.1 A review of the information presented in Table 6.2 shows that the junctions at which the proposed development is estimated to generate an increase in traffic of more than 30 vehicles (two-way) are:

- Junction 5 - Henthorn Road/Bawdlands.
- Junction 6 - Henthorn Road/Eshton Terrace/Thorn Street.
- Junction 7 - Station Road/Parson Lane.
- Junction 9 - Castle View/Parson Lane.
- Junction 10 - Greenacre Street/Woone Lane/Eshton Terrace.
- Junction 11 - Whalley Road/Greenacre Street.
- Junction 12 - Primrose Road/A671 Whalley Road.

6.10.2 It is consequently concluded that modelling of the traffic impact of the proposed development is required for the proposed site access and the above mentioned off site junctions. Details of the capacity assessments undertaken are provided below.

Site Access/Henthorn Road Priority Controlled Junction

6.10.3 In order to assess the operation of the proposed Henthorn Road/Site Access priority controlled junction the PICADY 5 program was utilised.

6.10.4 Assessments were undertaken using the 2016 and 2021 'With Development' flows, the results of which are summarised within Table 6.3 with the full results contained within **Appendix 4**.

Arm	2016 With Development				2021 With Development			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Site Access	0.180	0	0.183	0	0.101	0	0.103	0
Henthorn Road Right-turn	0.000	0	0.000	0	0.000	0	0.000	0

Table 6.3 - Summary of PICADY Output for Henthorn Road/Site Access

6.10.5 As can be seen from Table 6.3, the Henthorn Road/Site Access priority controlled junction is forecast to operate well within its theoretical capacity in all of the assessment scenarios and can therefore adequately accommodate the traffic forecast to be generated by the proposed development.

Henthorn Road/Bawdlands Priority Controlled Junction

6.10.6 In order to assess the operation of the above mentioned junction the program PICADY 5 was utilised.

6.10.7 Assessments were undertaken using the 2016 and 2021 'base' and 'assessment' flows, the results of which are summarised within Tables 6.4 and 6.5 with the full results contained within **Appendix 5**.

Arm	2016 Base Flows				2016 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Henthorn Road	0.353	1	0.269	0	0.431	1	0.313	0
Bawdlands (w) Right Turn	0.230	0	0.185	0	0.230	0	0.187	0

Table 6.4 - Summary of PICADY Output for Henthorn Road/Bawdlands Road Junction

Arm	2021 Base Flows				2021 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Henthorn Road	0.381	1	0.295	0	0.461	1	0.341	0
Bawdlands (w) Right Turn	0.252	1	0.206	0	0.252	1	0.208	0

Table 6.5 - Summary of PICADY Output for Henthorn Road/Bawdlands Road Junction

6.10.8 As can be seen from Tables 6.4 and 6.5, the Henthorn Road/Bawdlands Road junction is forecast to continue to operate within its theoretical capacity in both the AM and PM peak scenarios.

6.10.9 The results also demonstrate that the impact of the proposed development on the junction is minimal.

Henthorn Road/Eshton Terrace/Thorn Street Priority Controlled Junction

6.10.10 In order to assess the operation of the proposed Henthorn Road/Eshton Terrace/Thorn Street priority controlled junctions the program PICADY 5 was utilised.

6.10.11 Assessments were undertaken using the 2016 and 2021 'base' and 'assessment' flows, the results of which are summarised within Tables 6.6 and 6.7 with the full results contained within **Appendix 6**.

Arm	2016 Base Flows				2016 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Eshton Terrace	0.471	1	0.918	8	0.503	1	0.997	15
Henthorn Road (n)	0.000	0	0.002	0	0.000	0	0.002	0
Thorn Street	0.103	0	0.166	0	0.107	0	0.159	0
Henthorn Road (s)	0.500	1	0.359	1	0.568	2	0.393	1

Table 6.6 - Summary of PICADY Output for Henthorn Road/Eshton Terrace/Thorn Street Junction

Arm	2021 Base Flows				2021 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Eshton Terrace	0.509	1	0.993	15	0.542	1	1.075	28
Henthorn Road (n)	0.000	0	0.002	0	0.000	0	0.002	0
Thorn Street	0.113	0	0.168	0	0.117	0	0.173	0
Henthorn Road (s)	0.536	1	0.386	1	0.603	2	0.422	1

Table 6.7 - Summary of PICADY Output for Henthorn Road/Eshton Terrace/Thorn Street Junction

6.10.12 As can be seen from Tables 6.6 and 6.7, the Henthorn Road/Eshton Terrace/Thorn Street junction is forecast to operate in excess of its theoretical capacity in the PM peak base scenarios. This continues to be the case during the PM peak periods in the assessment scenarios.

6.10.13 In the AM peak scenarios the junction is forecast to operate within its theoretical capacity in both the 2016 and 2021 assessment years.

6.10.14 However, the results also demonstrate that the impact of the proposed development on the junction is minimal. The increase in the maximum RFC increases from 0.993 to 1.075 on the westbound Eshton Terrace approach.

6.10.15 As such, on balance the impact of the proposed development on the operation of this junction can be considered as minimal.

Station Road/Parson Lane

6.10.16 The operation of the above mentioned junction was tested using the ARCADY 7 program.

6.10.17 Assessments were undertaken using the 2016 and 2021 'base' and 'assessment' flows, the results of which are summarised within Tables 6.8 and 6.9 with the full results contained within **Appendix 7**.

Arm	2016 Base Flows				2016 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Parson Lane	0.74	3	0.54	1	0.78	3	0.56	1
Station Road	0.45	0	0.60	1	0.32	0	0.62	2
Castle Gate	0.42	0	0.45	0	0.30	0	0.46	1

Table 6.8 - Summary of ARCADY Output for Station Road/Parson Lane Junction

Arm	2021 Base Flows				2021 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Parson Lane	0.79	4	0.58	1	0.84	5	0.75	3
Station Road	0.33	1	0.64	2	0.34	1	0.71	2
Castle Gate	0.33	0	0.50	1	0.33	0	0.51	1

Table 6.9 - Summary of ARCADY Output for Station Road/Parson Lane Junction

6.10.18 As can be seen from Tables 6.8 and 6.9, the Station Road/Parson Lane junction is forecast to continue to operate within its theoretical capacity in both the AM and PM peak scenarios.

6.10.19 The results also demonstrate that the impact of the proposed development on the junction is minimal.

Castle View/Parson Lane Priority Controlled Junction

6.10.20 The operation of the above mentioned junction was tested using the PICADY 5 program.

6.10.21 Assessments were undertaken using the 2016 and 2021 'base' and 'assessment' flows, the results of which are summarised within Tables 6.10 and 6.11 with the full results contained within **Appendix 8**.

Arm	2016 Base Flows				2016 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Castle View	0.194	0	0.207	0	0.198	0	0.210	0
Parson Lane Right Turn	0.075	0	0.246	1	0.076	0	0.252	1

Table 6.10 - Summary of PICADY Output for Castle View/Parson Lane Junction

Arm	2021 Base Flows				2021 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Castle View	0.213	0	0.230	0	0.217	0	0.234	0
Parson Lane Right Turn	0.083	0	0.279	1	0.084	0	0.286	1

Table 6.11 - Summary of PICADY Output for Castle View/Parson Lane Junction

6.10.22 As can be seen from Tables 6.10 and 6.11, the Castle View/Parson Lane junction is forecast to continue to operate well within its theoretical capacity in both the AM and PM peak scenarios.

6.10.23 The results also demonstrate that the impact of the proposed development on the junction is minimal.

Greenacre Street/Woone Lane/Eshton Terrace Priority Controlled Junction

6.10.24 The PICADY program was used to assess the operation of the above mentioned junction.

6.10.25 Assessments were undertaken using the 2016 and 2021 'base' and 'assessment' flows, the results of which are summarised within Tables 6.12 and 6.13 with the full results contained within **Appendix 9**.

Arm	2016 Base Flows				2016 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Woone Lane (n)	0.031	0	0.122	0	0.032	0	0.125	0
Eshton Terrace	0.173	0	0.165	0	0.181	0	0.175	0
Woone Lane (s)	0.270	0	0.209	0	0.276	0	0.222	0
Greenacre Street	0.074	0	0.048	0	0.075	0	0.048	0

Table 6.12 - Summary of PICADY Output for Greenacre Street/Woone Lane/Eshton Terrace

Arm	2021 Base Flows				2021 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Woone Lane (n)	0.035	0	0.135	0	0.035	0	0.137	0
Eshton Terrace	0.182	0	0.178	0	0.191	0	0.185	0
Woone Lane (s)	0.290	0	0.227	0	0.297	0	0.241	0
Greenacre Street	0.081	0	0.052	0	0.082	0	0.052	0

Table 6.13 - Summary of PICADY Output for Greenacre Street/Woone Lane/Eshton Terrace

6.10.26 As can be seen from Tables 6.12 and 6.13, the Greenacre Street/Woone Lane/Eshton Terrace junction is forecast to continue to operate well within its theoretical capacity in both the AM and PM peak scenarios.

6.10.27 The results also demonstrate that the impact of the proposed development on the junction is minimal.

Whalley Road/Greenacre Street Junction

6.10.28 The operation of the above mentioned junction was tested using the PICADY 5 program.

6.10.29 Assessments were undertaken using the 2016 and 2021 'base' and 'assessment' flows, the results of which are summarised within Tables 6.14 and 6.15 with the full results contained within **Appendix 10**.

Arm	2016 Base Flows				2016 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Greenacre Street	0.000	0	0.000	0	0.000	0	0.000	0
Whalley Road (n) Right Turn	0.342	1	0.609	3	0.350	1	0.637	3

Table 6.14 - Summary of PICADY Output for Whalley Road/Greenacre Street Junction

Arm	2021 Base Flows				2021 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Greenacre Street	0.000	0	0.000	0	0.000	0	0.000	0
Whalley Road (n) Right Turn	0.378	1	0.677	4	0.386	1	0.707	5

Table 6.15 - Summary of PICADY Output for Whalley Road/Greenacre Street Junction

6.10.30 As can be seen from Tables 6.14 and 6.15, the Whalley Road/Greenacre Street junction is forecast to continue to operate within its theoretical capacity in both the AM and PM peak scenarios.

6.10.31 The results also demonstrate that the impact of the proposed development on the junction is minimal.

Primrose Road/A671 Whalley Road Priority Controlled Junction

6.10.32 The operation of the above mentioned junction was tested using the PICADY 5 program.

6.10.33 As requested by Lancashire County Council, a committed development consisting of 113 residential units located off Primrose Road has been included within our traffic impact assessment. As a condition of this residential development a junction improvement is proposed at the Primrose Road/A671 Whalley Road priority junction. This improvement has therefore been considered in the below junction analysis.

6.10.34 The proposed Primrose Road/A671 Whalley Road junction improvement can be seen at **Plan 5**.

6.10.35 Assessments were undertaken using the 2016 and 2021 'base' and 'assessment' flows, the results of which are summarised within Tables 6.16 and 6.17 with the full results contained within **Appendix 11**.

Arm	2016 Base Flows				2016 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Side Road	0.032	0	0.021	0	0.033	0	0.021	0
Whalley Road (n)	0.078	0	0.198	0	0.079	0	0.201	0
Primrose Road Left Turn	0.375	1	0.242	0	0.431	1	0.271	0
Primrose Road Right Turn	0.826	4	0.707	2	0.848	4	0.744	3
Whalley road (s)	0.002	0	0.000	0	0.002	0	0.000	0

Table 6.16 - Summary of PICADY Output for Primrose Road/Whalley Road Junction

Arm	2021 Base Flows				2021 Assessment Flows			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Side Road	0.037	0	0.024	0	0.039	0	0.025	0
Whalley Road (n)	0.087	0	0.218	0	0.087	0	0.222	0
Primrose Road Left Turn	0.934	4	0.971	4	1.012	5	0.956	4
Primrose Road Right Turn	0.968	8	0.907	5	0.996	9	0.965	7
Whalley road (s)	0.002	0	0.000	0	0.002	0	0.000	0

Table 6.17 - Summary of PICADY Output for Primrose Road/Whalley Road Junction

6.10.36 As can be seen from Tables 6.16 and 6.17, the Primrose Road/Whalley Road junction is forecast to continue to operate within its theoretical capacity in both the AM and PM peak, base and assessment 2016 scenarios.

6.10.37 In the 2021 scenarios the junction is forecast to operate in excess of its theoretical capacity in both the AM and PM peak base scenarios. This continues to be the case during the AM and PM peak periods in the assessment scenarios.

6.10.38 However, the results also demonstrate that the impact of the proposed development on the junction is minimal. In the 2016 and 2021 'With Development' scenarios there is forecast to be minimal increases in the Degree of Saturation and queuing, with the largest increase in queuing being that of two vehicles in the 2021 PM Peak scenario.

6.10.39 As such, the impact of the proposed development on the operation of this junction can be considered as minimal.

6.1 Capacity Assessment Summary

6.1.1 In summary, the capacity assessment undertaken as part of this traffic impact analysis have demonstrated the following:

- The Site Access/Henthorn Road priority controlled junction, has been designed to accord with highway design standards and will have more than sufficient capacity to accommodate the proposed development traffic.
- Henthorn Road/Bawdlands priority controlled junction is forecast to operate within capacity in all of the traffic flow scenarios.
- Henthorn Road/Eshton Terrace/Thorn Street priority controlled junction is forecast to operate in excess of its theoretical capacity in the PM peak 2016 Base scenarios, but the proposed development will have of less than 2% impact on the junction.
- Station Road/Parson Lane mini-roundabout is forecast to operate within capacity in all of the traffic flow scenarios.
- Castle View/Parson Lane priority controlled junction is forecast to operate within capacity in all of the traffic flow scenarios.
- Greenacre Street/Woone Lane/Eshton Terrace priority controlled junction is forecast to operate within capacity in all of the traffic flow scenarios.
- Whalley Road/Greenacre Street priority controlled junction is forecast to operate within capacity in all of the traffic flow scenarios.
- Primrose Road/Whalley Road priority controlled junction is forecast to operate in excess of its capacity in the 2021 Base and 'With Development' scenarios but the addition of the development traffic will have a minimal impact on its operation.

6.1.2 It is therefore concluded that the development proposals will result in a minimal impact on the local highway network following the implementation of the previously defined highway improvements.

7 SMARTER TRAVEL CHOICES VIA TRAVEL PLANS

7.1 Introduction

7.1.1 In order to manage the travel by residents on the new development, the applicant wishes to offer a Travel Plan to encourage travel to the site by non-car modes.

7.2 Travel Planning Guidance

7.2.1 The preparation and adoption of a Travel Plan is an important element of managing the demand for travel to all modern developments. The Department for Transport (DfT) have produced guidance on the preparation of Travel Plans. The document, entitled 'Good Practice Guidelines: Delivering Travel Plans through the Planning Process' was published in August 2009.

7.2.2 The guidance explains how *"we often need to meet the demands of population and economic growth whilst simultaneously reducing our impact on the environment"* and identifies that *"The benefits of increases in sustainable travel, in particular cycling and walking, can extend beyond reduction in CO2 emissions and climate impacts, and include tackling congestion, tackling obesity and health issues, reducing social exclusion and improving quality of life"*.

7.2.3 The document sets out an overview of the process and delivery of Travel Plans and states that *"A travel plan is a long-term management strategy for an occupier or site that seeks to deliver sustainable transport objectives through positive action and is articulated in a document that is regularly reviewed*."

7.2.4 The Guidance states that "*Travel Plans should involve the development of agreed explicit outcomes linked to an appropriate package of measures aimed at encouraging more sustainable travel, with an emphasis on reducing single occupancy car use…"* and;

"A Travel Plan should seek to establish clear outcomes to be achieved in relation to access and set out all the measures to be implemented in detail, including an action plan, timescales, targets and responsibilities for implementation, monitoring and review".

7.2.5 It is made clear in the document that Travel Plans should focus on achieving the lowest practical level of single occupancy vehicle trips to or from a site and widening the use of other travel modes and assist in the wider aims of encouraging sustainable travel, improving health, reducing congestion, energy consumption and pollution. The Travel Plan it advises *"needs to address all the journeys that may be made to and from a site"*.

7.2.6 The guidance also specifies that *"It is important to note that Travel planning should be developed as one of the means of delivering an area's sustainable transport strategy. Travel Planning should feature in the policy framework and implementation programmes of Regional Spatial Strategies and Local Development Frameworks"*.

7.2.7 Further guidance relating specifically to residential Travel Plans is presented in the DfT document entitled *"Making Residential Travel Plans Work"* published in June 2007.

7.2.8 The document states that:

"Travel Planning is one of a range of measures known as smarter choices which have been found to be effective on reducing traffic and improving accessibility in residential areas".

7.2.9 A Residential Travel Plan is a package of measures designed to reduce car use originating from new housing by supporting alternative forms of transport and reducing the need to travel in the first place. They are an important tool to help deliver accessible, sustainable communities and offer clear benefits to all the parties involved – public, private and the community. They involve meeting the access needs of residents in a new way and require partnerships between developers, local authorities, local communities and new residents.

7.2.10 The value of travel plans in reducing car use to workplaces and schools is widely recognised and many local authorities and developers have experience in their design and implementation.

7.2.11 However, until recently, little attention has been given to tackling the origins of journeys from people's homes. Now, forward-thinking developers and local authorities are developing packages of smarter choices to both reduce the traffic generated by new housing developments and increasing the travel choices available to residents. These smarter choices are being set out in Residential Travel Plans.

7.3 Residential Travel Plan

7.3.1 The objective of a Residential Travel Plan is the delivery of the objectives of the NPPF, i.e. to encourage residents to travel to work by bus, on foot and by bicycle.

7.3.2 A Framework Residential Travel Plan has been prepared and is presented in **Appendix 12**.

7.3.3 The Framework Residential Travel Plan outlines physical and management measures that are designed to achieve this objective.

7.3.4 However, the principle measure will consist of a Residents Travel Pack containing relevant material to promote non-car modes of travel and the provision of certain physical measures.

7.3.5 The Travel Pack will contain information to inform residents of the existing long-term strategy for reducing the dependence of residents and visitors on travel by private car.

8 ACCIDENT ANALYSIS

8.1 Introduction

8.1.1 For the purpose of this report an accident data analysis has been carried out in the vicinity of the site which the proposed development will have an impact on. The junctions and the number and type of accidents that have occurred between July 2007 and June 2012 are listed and then described below;

- Junction 5 - Henthorn Road/Bawdlands.
- Junction 6 - Henthorn Road/Eshton Terrace/Thorn Street.
- Junction 7 - Station Road/Parson Lane.
- Junction 9 - Castle View/Parson Lane.
- Junction 10 - Greenacre Street/Woone Lane/Eshton Terrace.
- Junction 11 - Whalley Road/Greenacre Street.
- Junction 12 - Primrose Road/A671 Whalley Road.

Henthorn Road/Bawdlands

8.1.2 In the study period obtained from the Lancashire County Council, there has been one accident of a slight severity at the above junction.

Henthorn Road/Eshton Terrace/Thorn Street

8.1.3 There have been a total 2 accidents at the above junction during the 5 year study period. One of these accidents resulted in slight injury whilst the remaining one involved a pedal cyclist and resulted in serious injury.

Station Road/Parson Lane

8.1.4 There has been one accident of a slight severity at the above junction during the study period. The accident involved a pedestrian.

Castle View/Parson Lane

8.1.5 There has been one accident involving two vehicles at the above junction during the study period. The accident was classified as a slight severity accident.

Greenacre Street/Woone Lane/Eshton Terrace

8.1.6 There have been a total 4 accidents at the above junction during the 5 year study period. One of these accidents resulted in serious injury whilst the remaining three resulted in slight injury.

Whalley Road/Greenacre Street

8.1.7 In the study period there were a total of 7 collisions in the vicinity of the junction between Queensway and Brownlow Street. All resulted in slight injury with 3 of these involving pedestrians and 2 cyclists.

Primrose Road/A671 Whalley Road

8.1.8 No accidents have occurred at the above junction within the study period.

8.2 Summary

8.2.1 In view of this information it can be concluded that the local highway network in the vicinity of the site does not have an unduly poor safety record, and it is highly unlikely that this situation should be materially worsened as a consequence of the development proposals. A full copy of the Accident Data is shown in **Appendix 13**.

9 CONCLUSIONS

9.1.1 This Report has considered proposals for a residential development off Henthorn Road in Clitheroe.

9.1.2 The following conclusions have been drawn with regard to the proposed development:

- The proposed development will be accessed by a safe and efficient vehicular access arrangement.
- The proposed development complies with local, regional and national planning policy.
- The proposed development benefits from being highly accessible on foot with the existing pedestrian footways providing access to a wide of range of services including Clitheroe town centre.
- The proposed development is ideally located to encourage journeys by bus via the bus services available in the vicinity of the site.
- Pedestrian and public transport infrastructure will be enhanced in the vicinity of the site following a series of localised improvements proposed as part of a recently consented development site.
- A Framework Travel Plan will be implemented to encourage the use of non-car modes.
- The traffic impact assessment indicated that the proposed development would be able to be accommodated on the local highway network.
- The proposals will generally have a negligible impact on the local highway network.

9.1.3 In conclusion, the proposals for a residential development off Henthorn Road in Clitheroe will provide a sustainable development in transport terms and planning permission should be granted in accordance with the Framework.

FIGURES

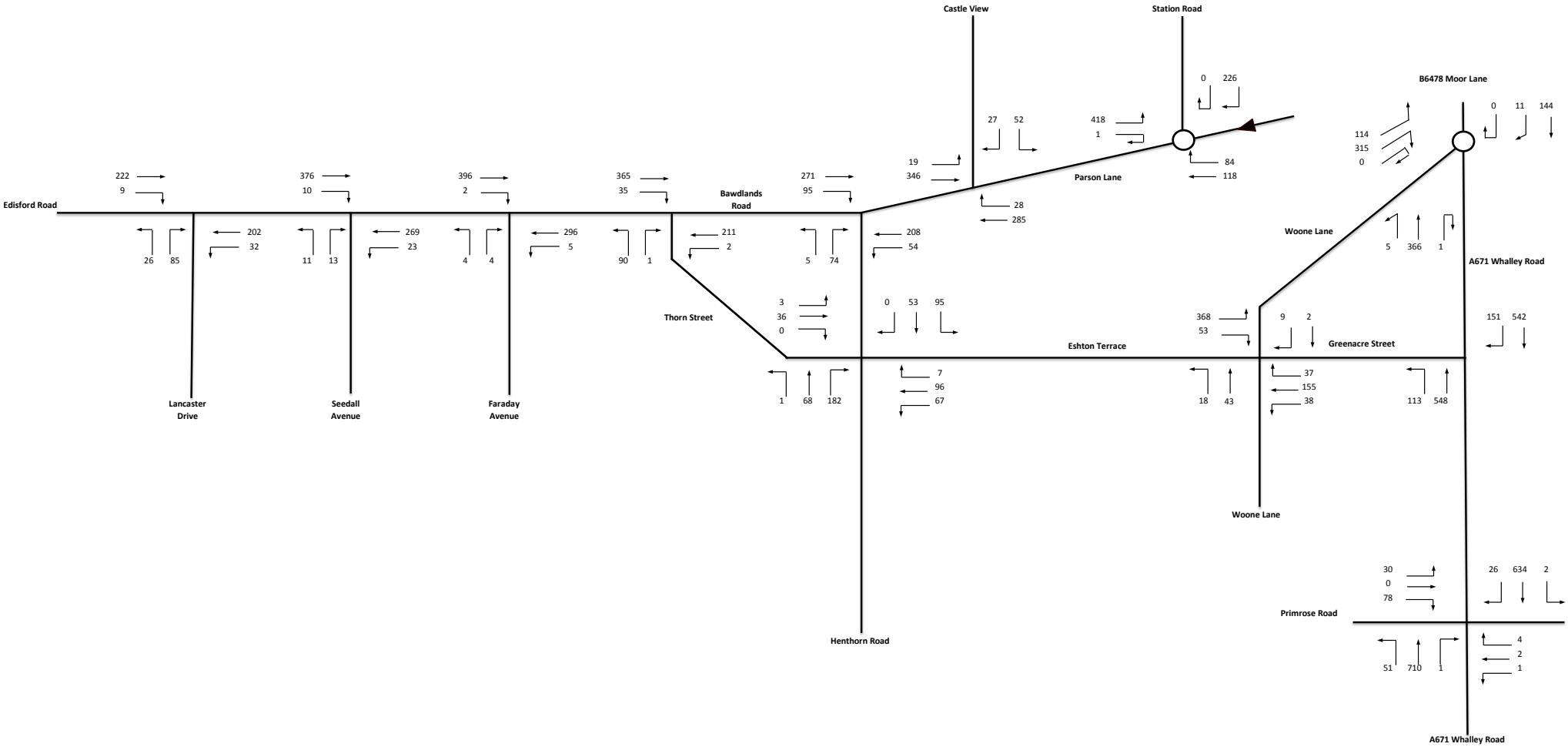


Figure 1 **Weekday AM Peak (0800 to 0900 hours)**
2012 Surveyed Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE 3et, Manchester M3 3JE

Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

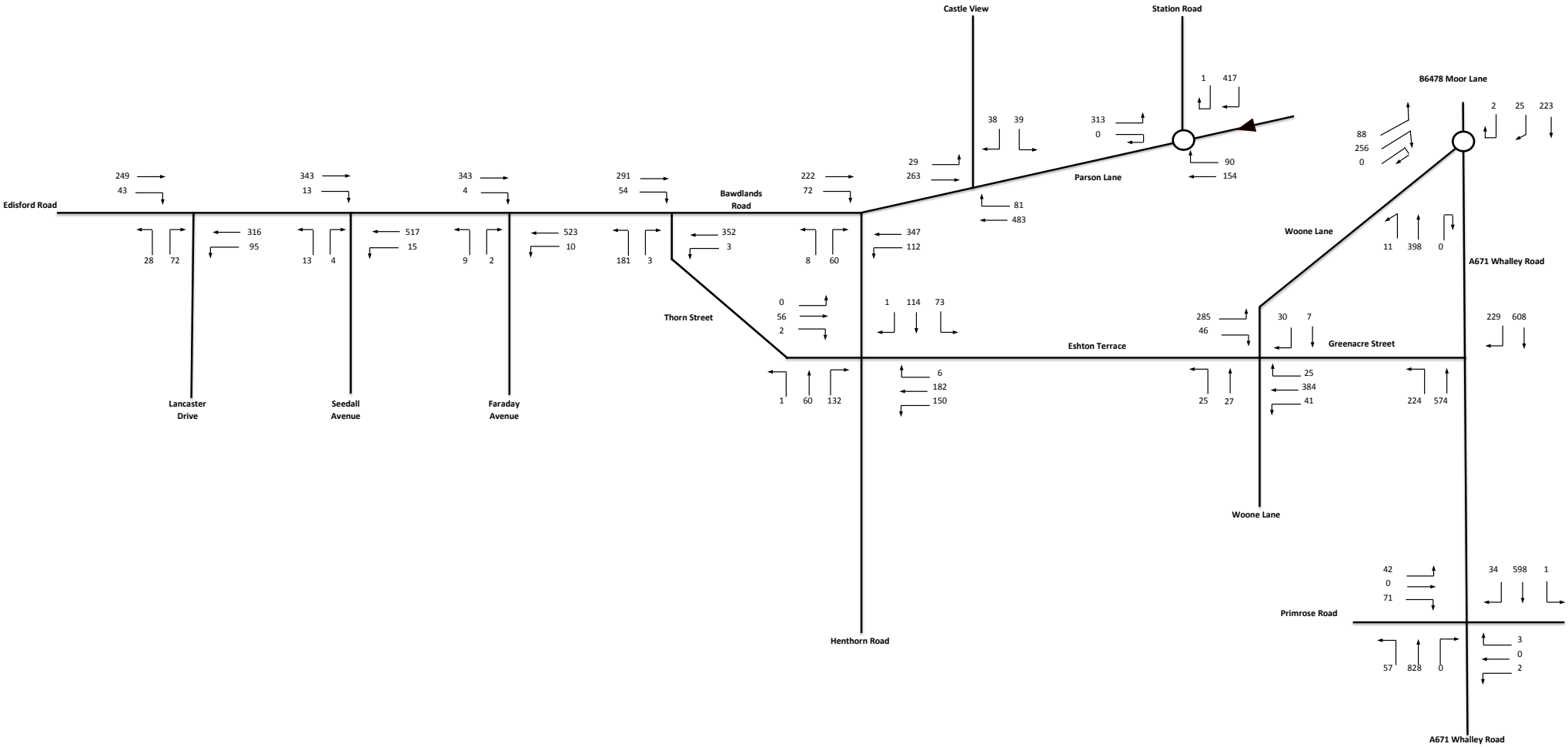
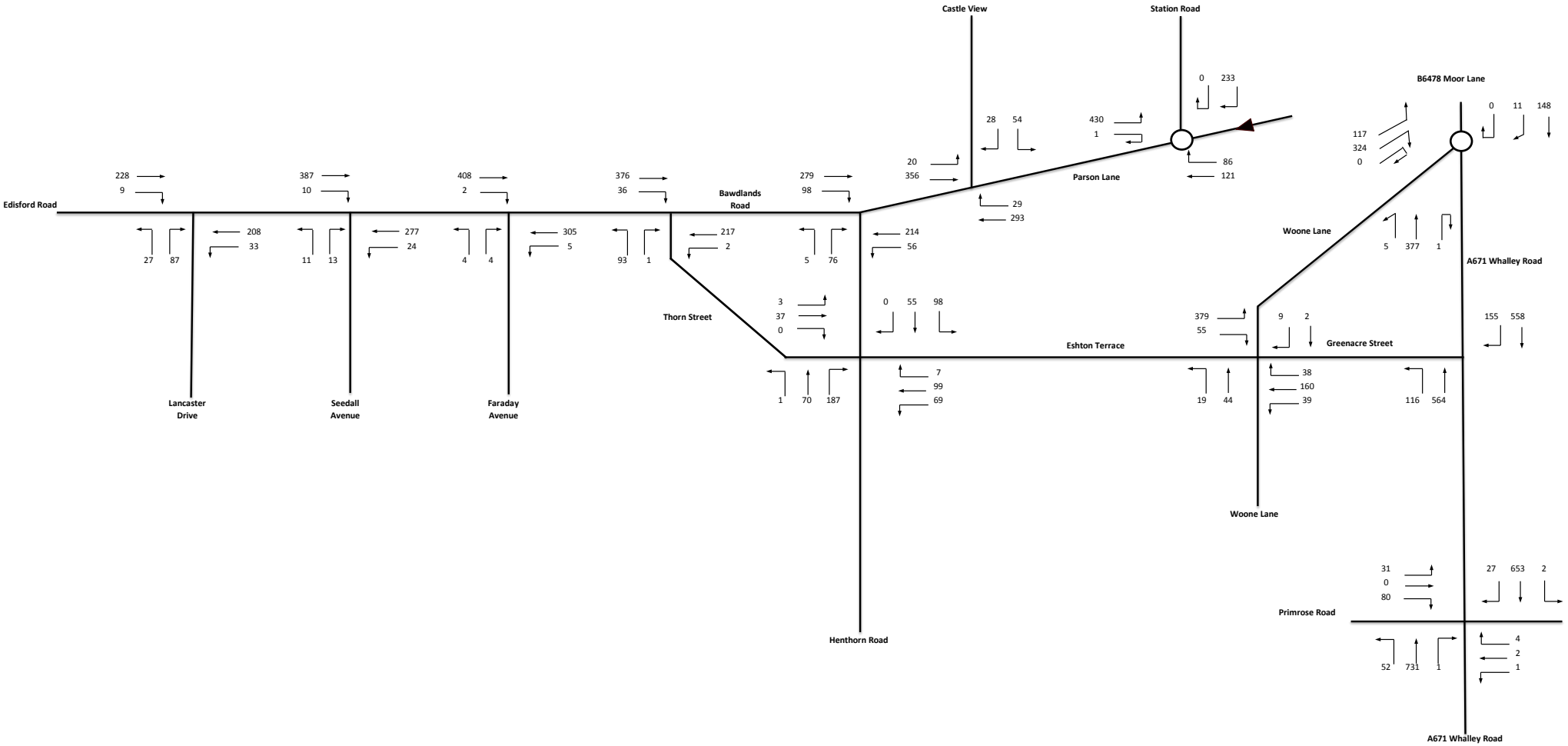


Figure 2 **Weekday PM Peak (1700 to 1800 hours)**
2012 Surveyed Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE ɜet, Manchester M3 3JE

Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk



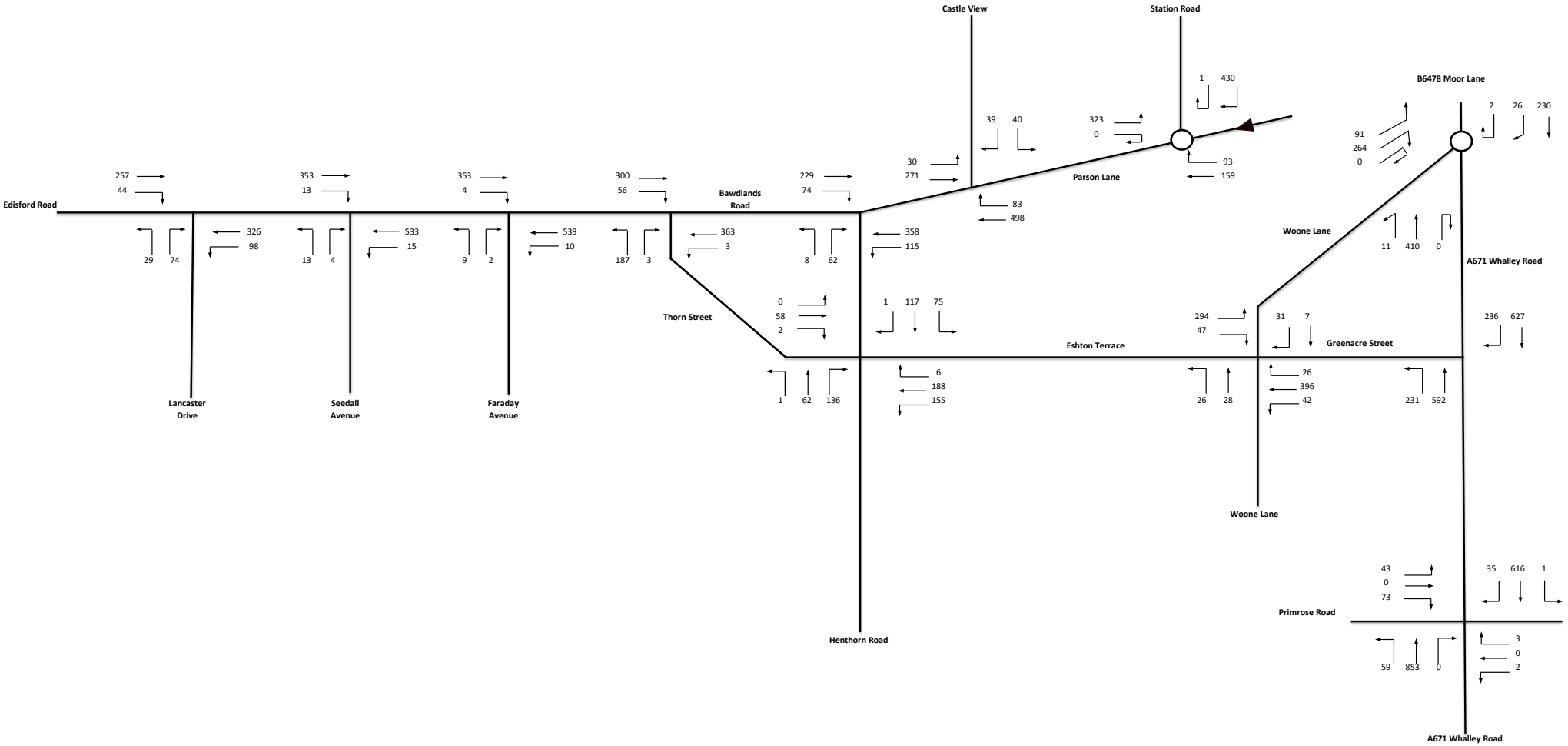
AM Peak TEMPO Adjusted NTM Factor = 1.03

Figure 3 Weekday AM Peak (0800 to 0900 hours) 2016 Growthed Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE et, Manchester M3 3JE

Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk



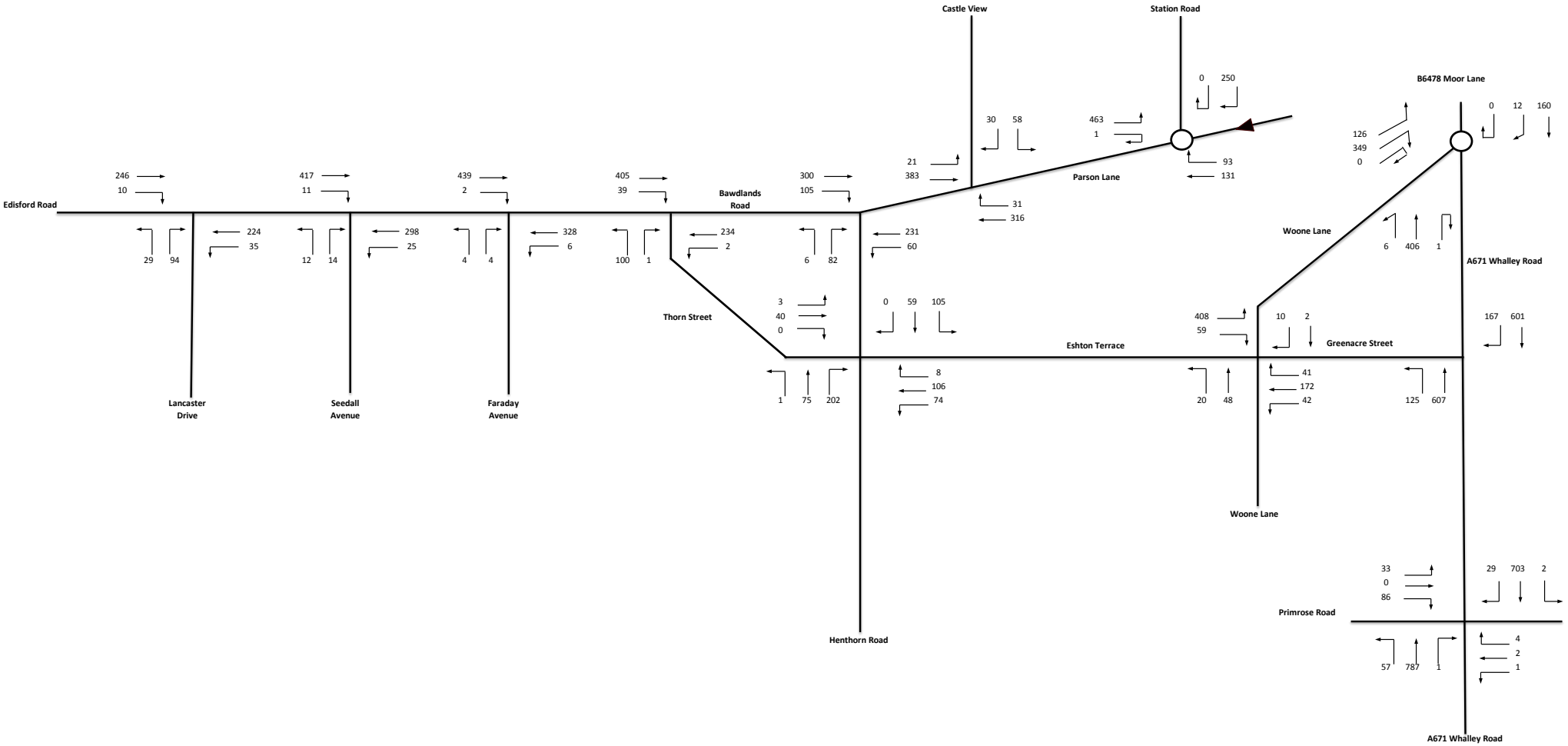
PM Peak TEMPO Adjusted NTM Factor = 1.03

Figure 4 Weekday PM Peak (1700 to 1800 hours) 2016 Growthed Flows

croft Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE et, Manchester M3 3JE

Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

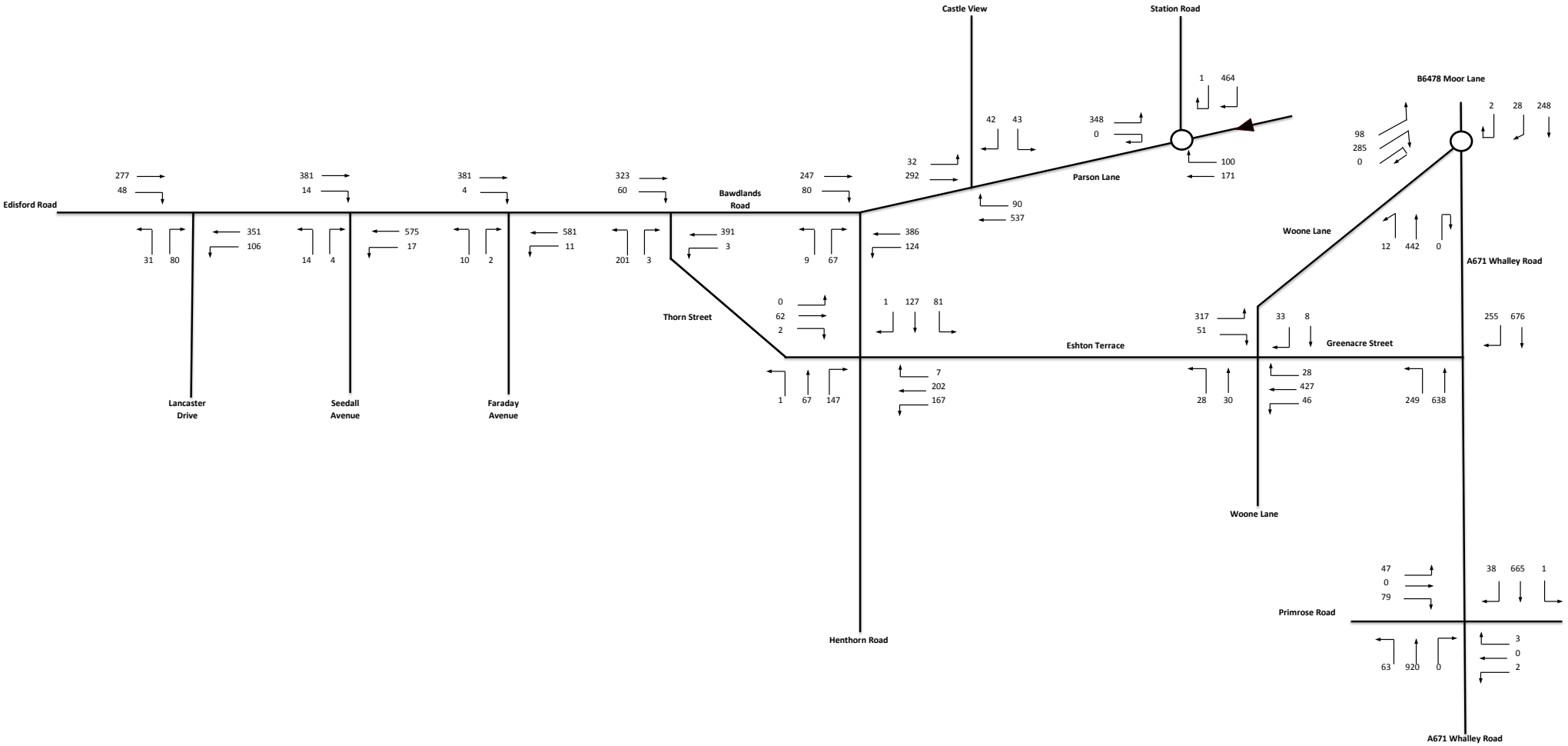


AM Peak TEMPO Adjusted NTM Factor = 1.11

Figure 5 Weekday AM Peak (0800 to 0900 hours) 2021 Growthed Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk



PM Peak TEMPO Adjusted NTM Factor = 1.11

Figure 6 Weekday PM Peak (1700 to 1800 hours) 2021 Growthed Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE Set, Manchester M3 3JE

Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

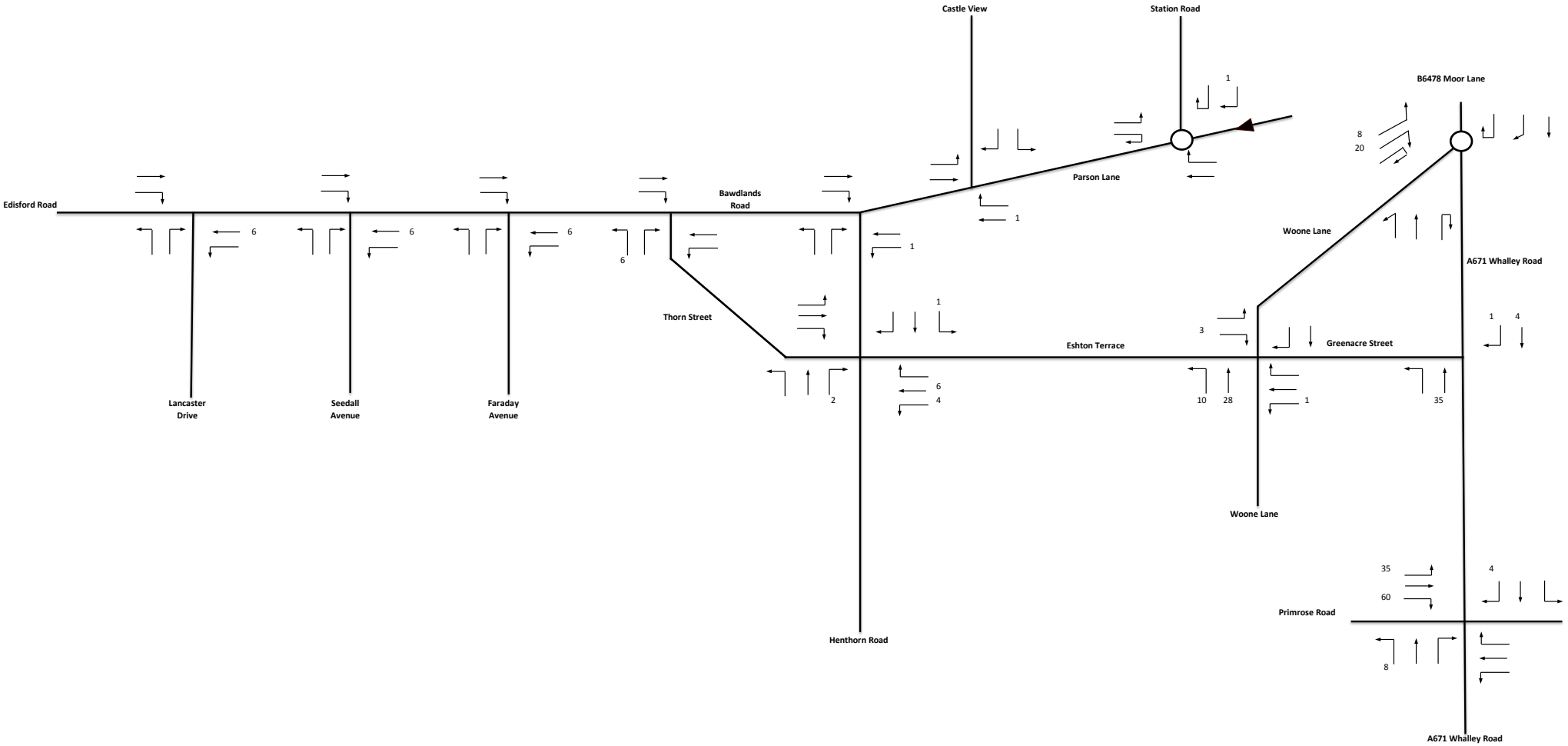


Figure 7 **Weekday AM Peak (0800 to 0900 hours)**
Committed Development Flows - Primrose Road Residential Development

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE Set, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

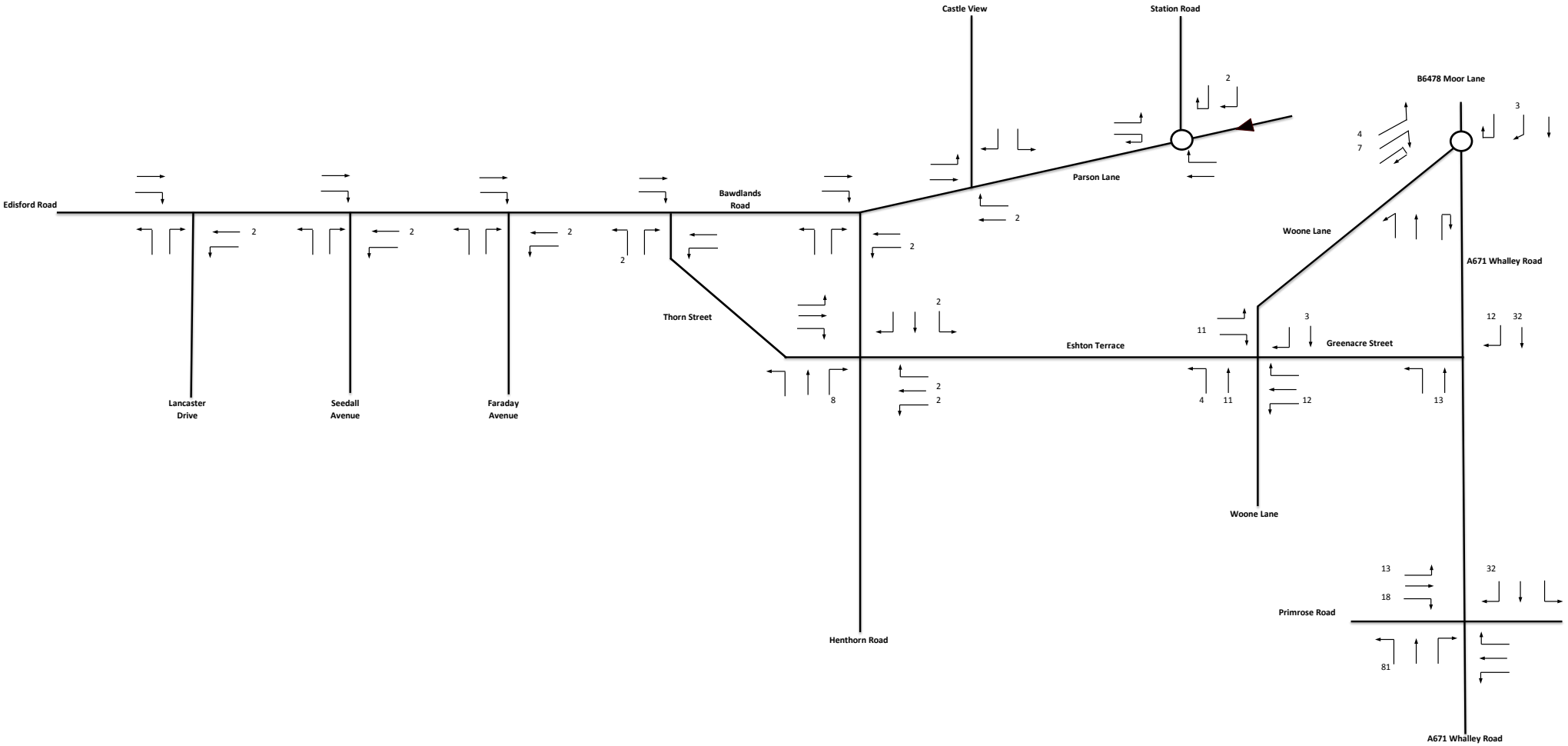


Figure 8 **Weekday PM Peak (1700 to 1800 hours)**
Committed Development Flows - Primrose Road Residential Development

croft
Transport Solutions
6th Floor, Quay House, Quay Street, Manchester M3 3JE et, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

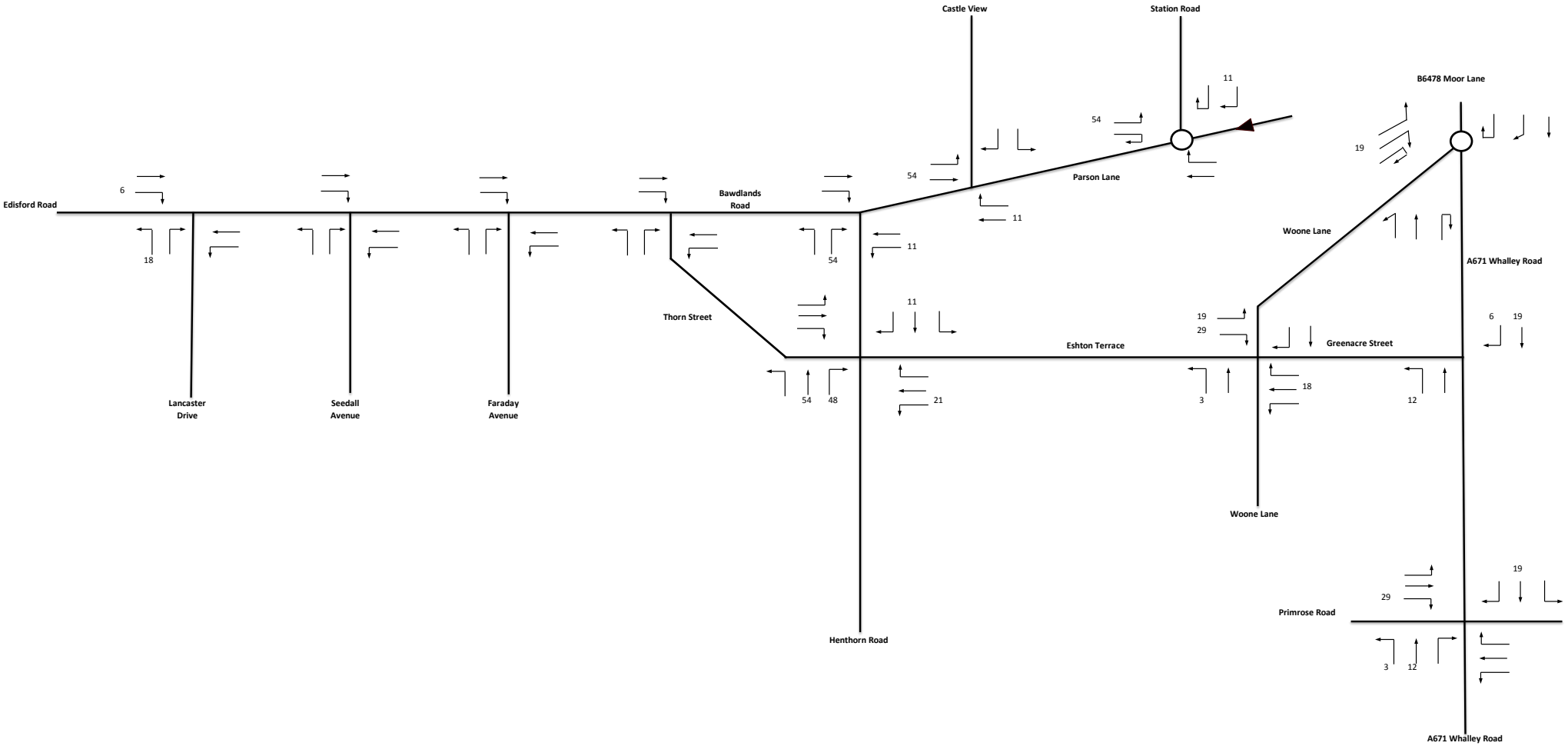


Figure 9 **Weekday AM Peak (0800 to 0900 hours)**
Committed Development Flows - Gladman Development on Henthorn Lane

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE Set, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

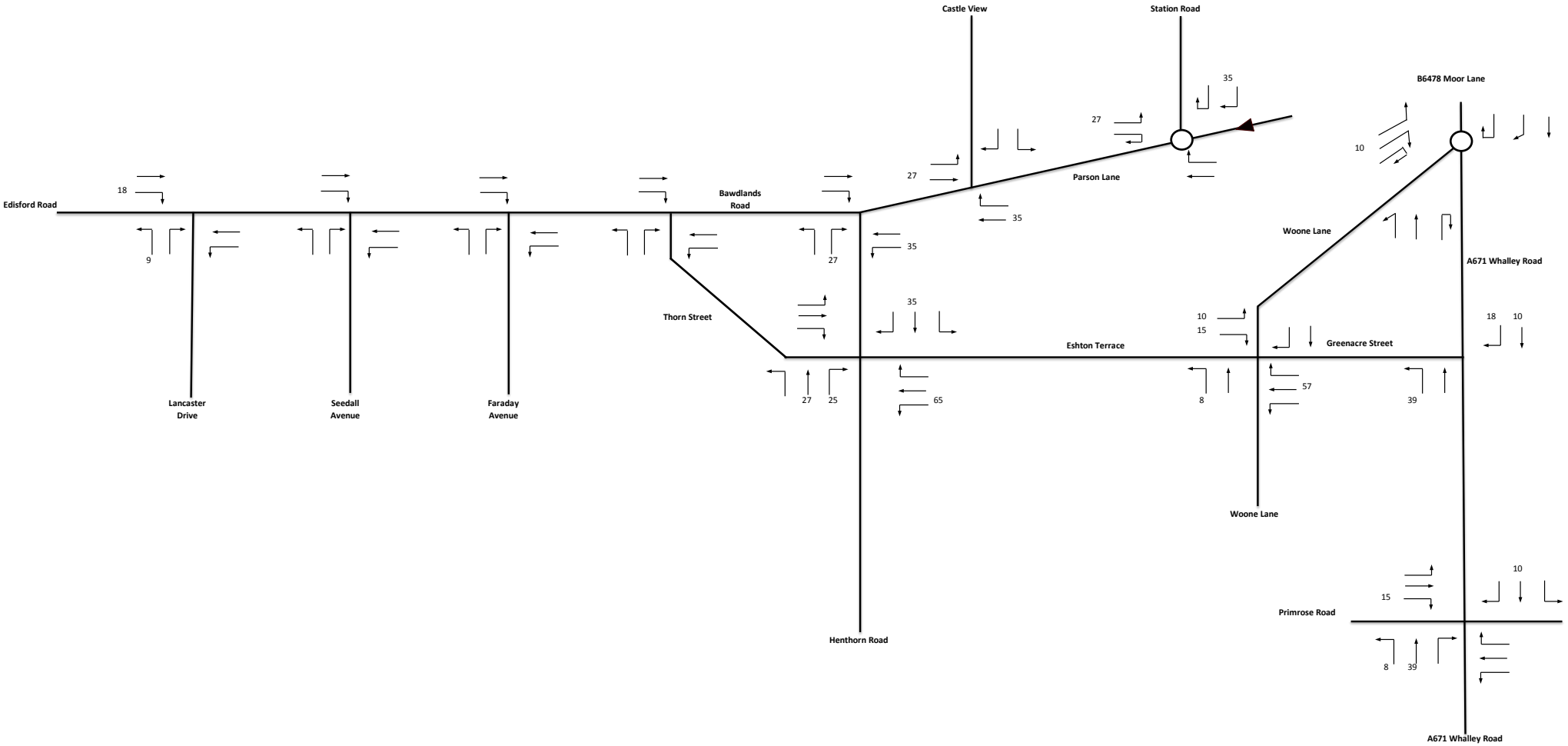


Figure 10 **Weekday PM Peak (1700 to 1800 hours)**
Committed Development Flows - Gladman Development on Henthorn Lane

croft
Transport Solutions
6th Floor, Quay House, Quay Street, Manchester M3 3JE et, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

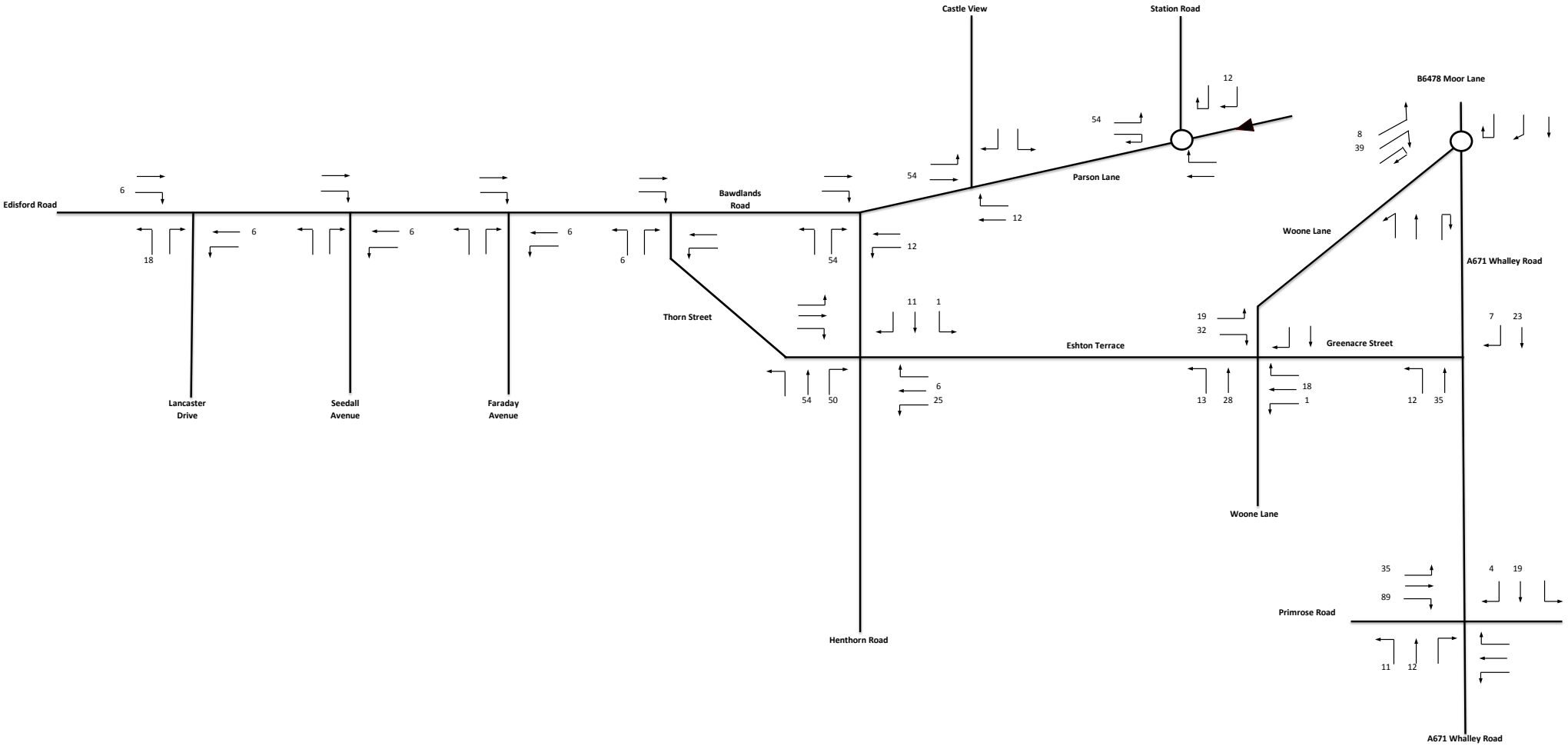


Figure 11 Weekday AM Peak (0800 to 0900 hours)
Total Committed Development Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE Set, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

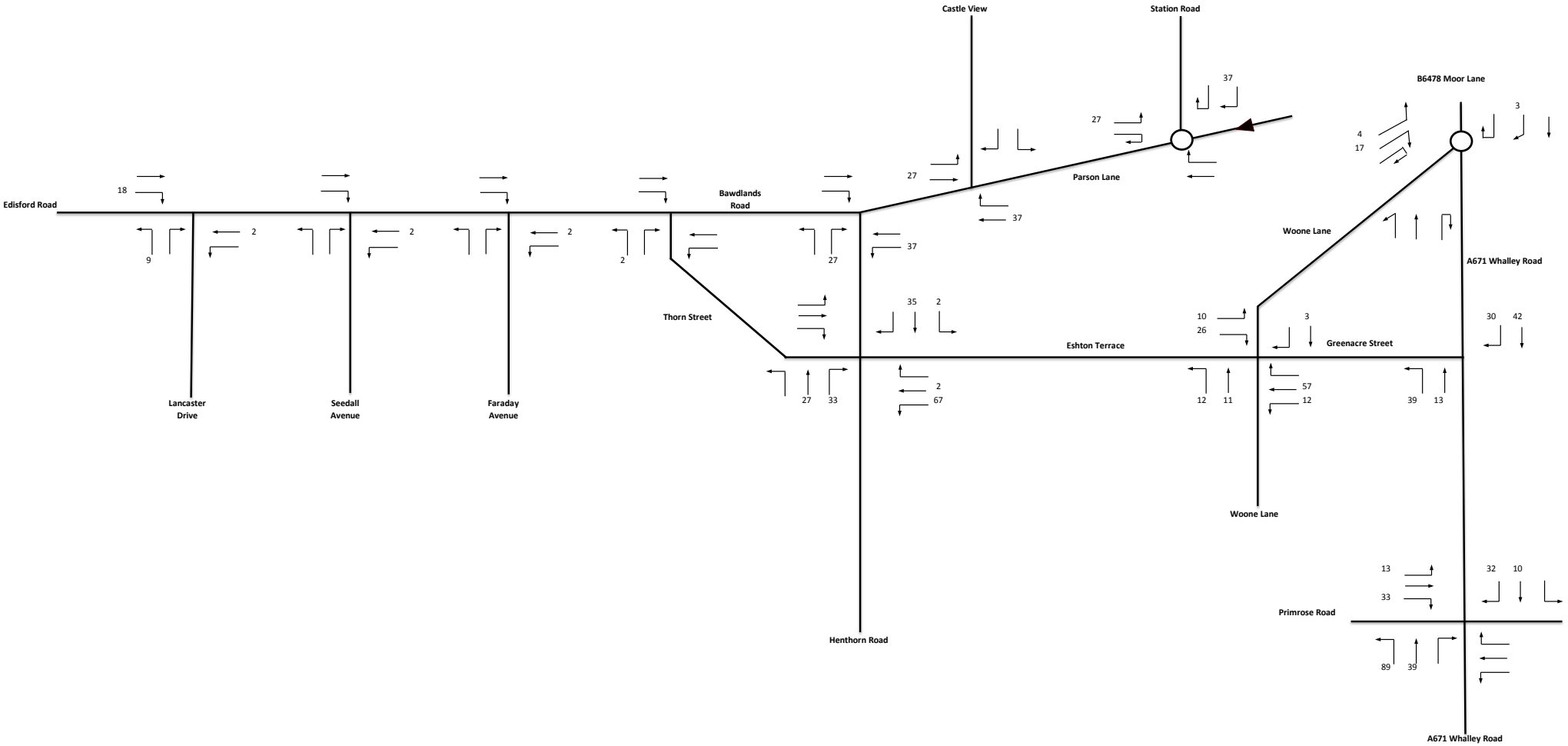


Figure 12 **Weekday PM Peak (1700 to 1800 hours)**
Total Committed Development Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE Set, Manchester M3 3JE

Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

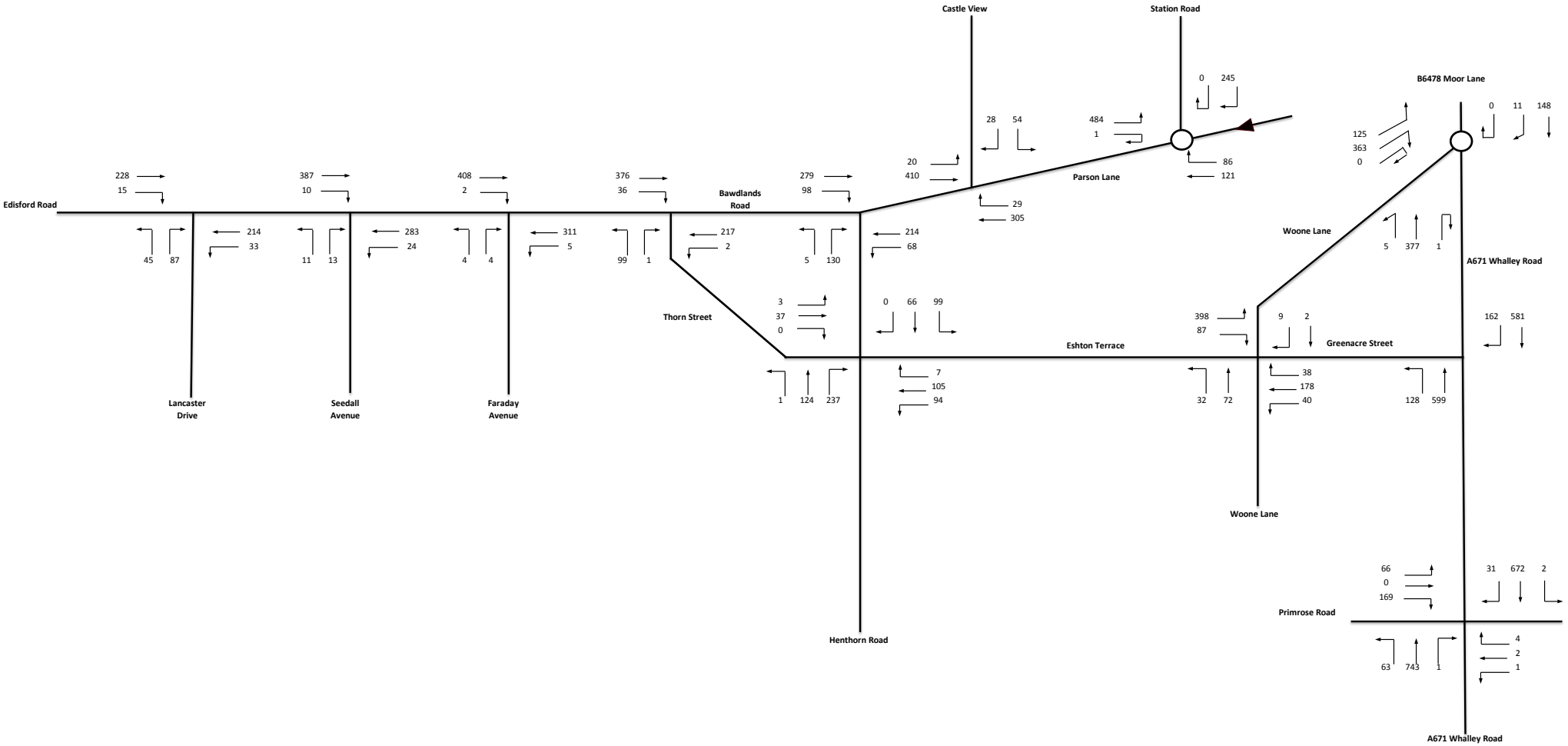


Figure 13 **Weekday AM Peak (0800 to 0900 hours)**
2016 Base Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE Set, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

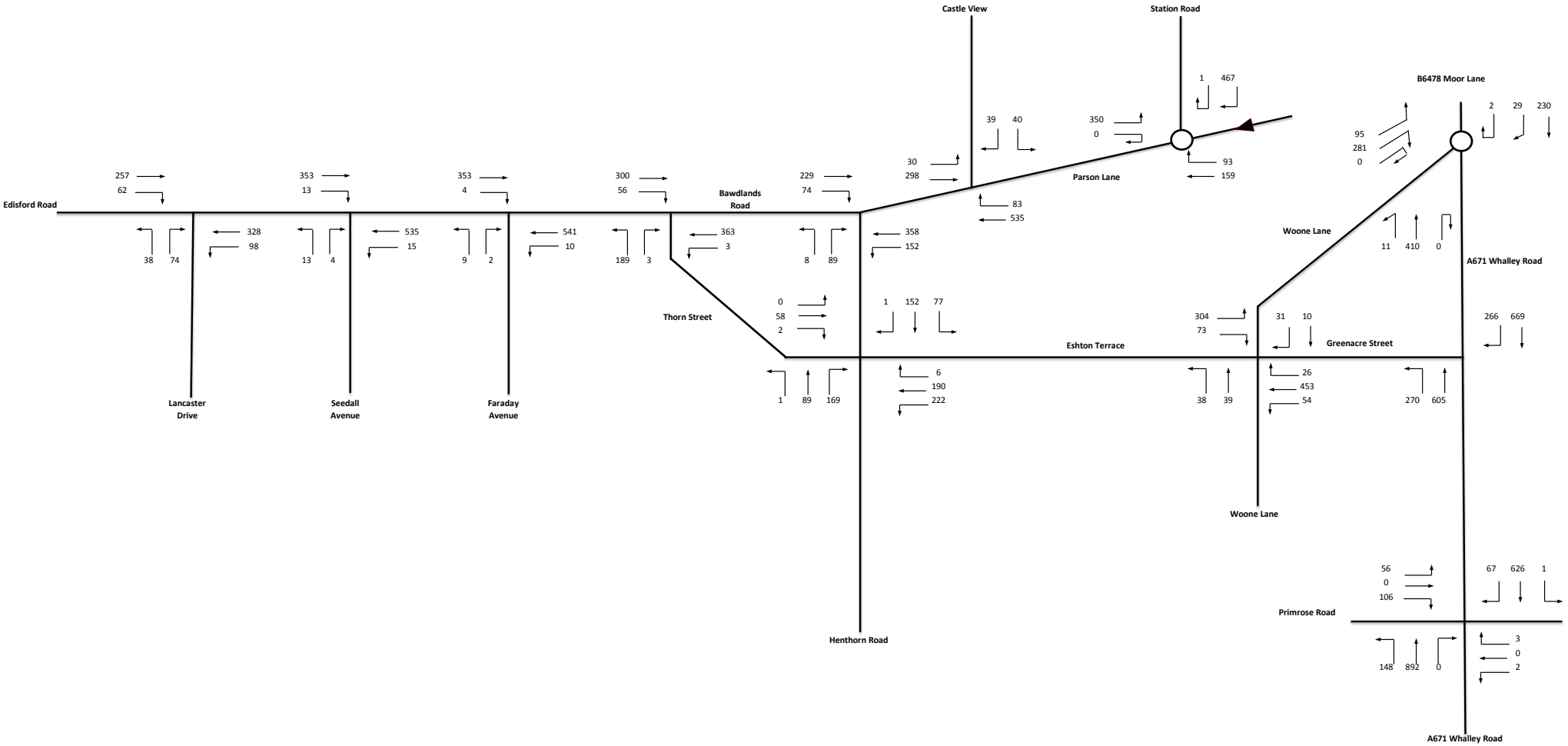


Figure 14 **Weekday PM Peak (1700 to 1800 hours)**
2016 Base Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE ɜet, Manchester M3 3JE

Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

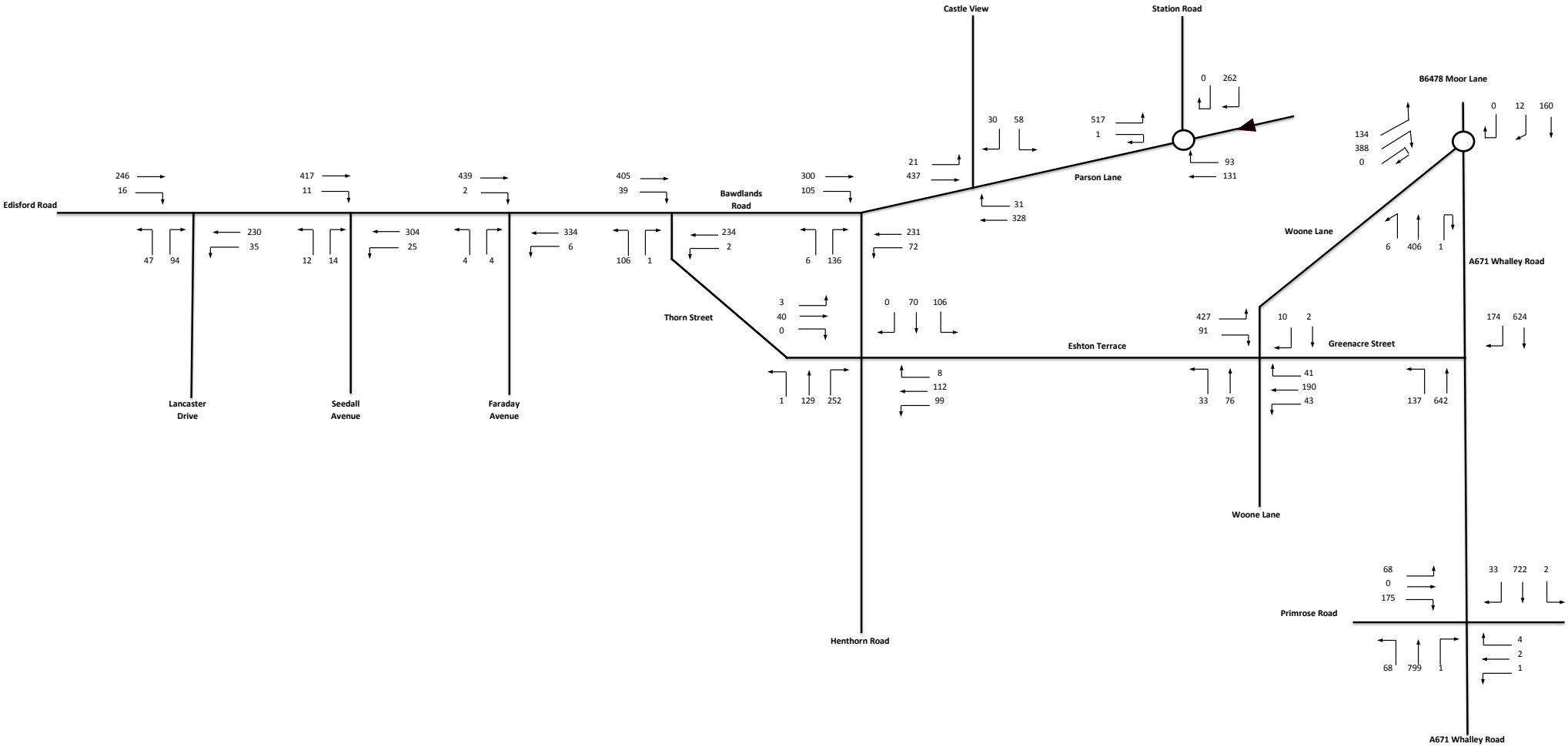


Figure 15 Weekday AM Peak (0800 to 0900 hours)
2021 Base Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE 3et, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

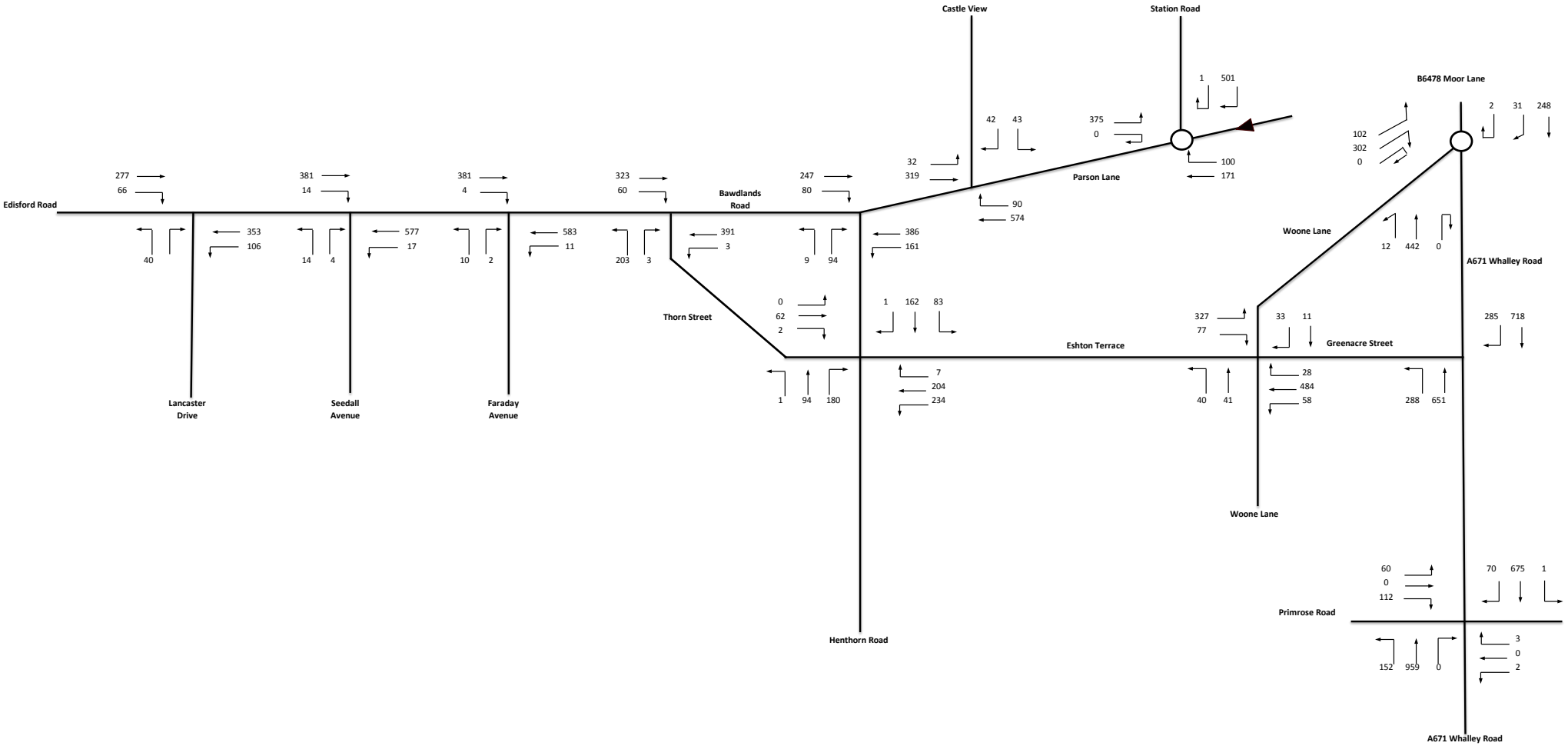


Figure 16 **Weekday PM Peak (1700 to 1800 hours)**
2021 Base Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE Set, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

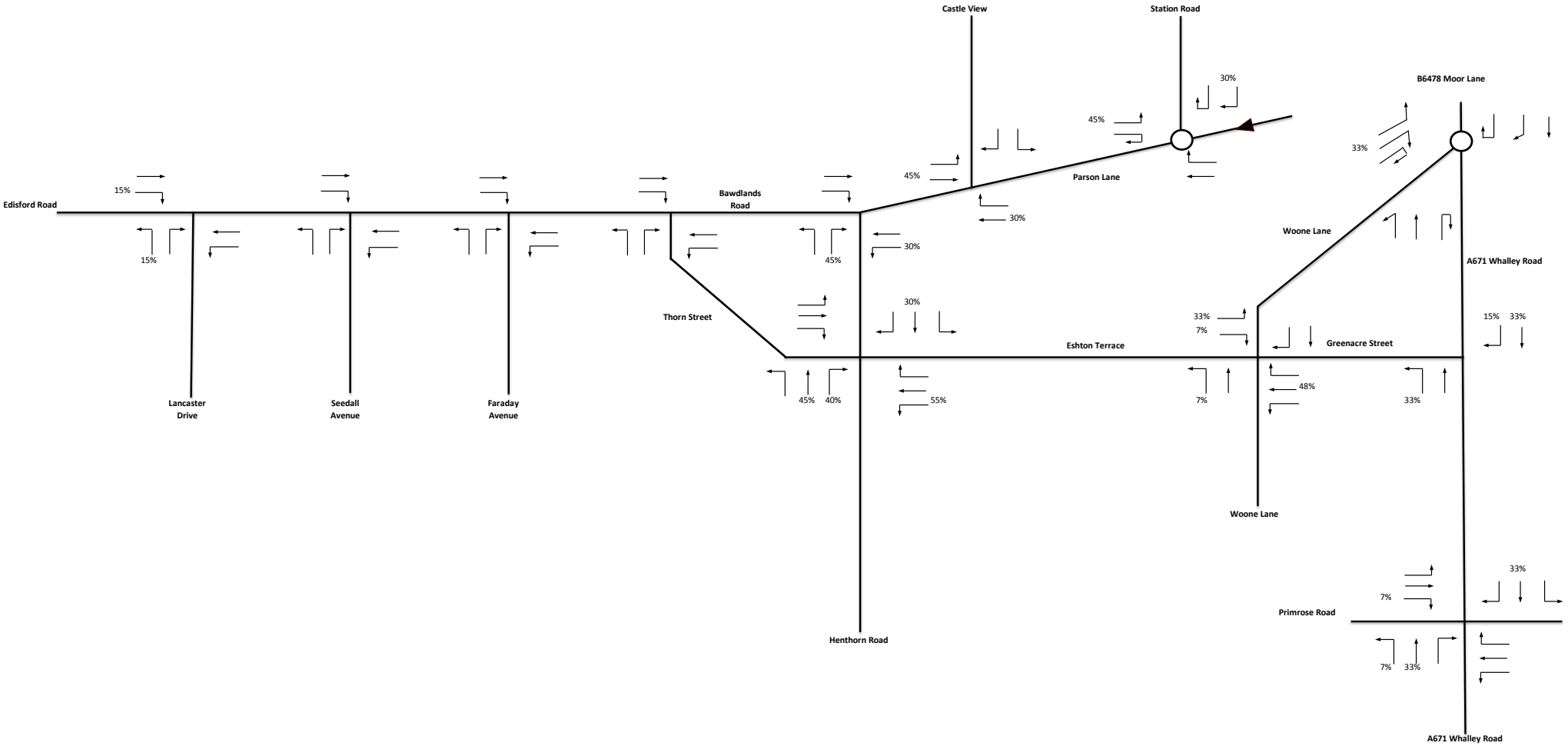


Figure 17 **Weekday AM Peak (0800 to 0900 hours)**
Proposed Trip Distribution

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE Set, Manchester M3 3JE

Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

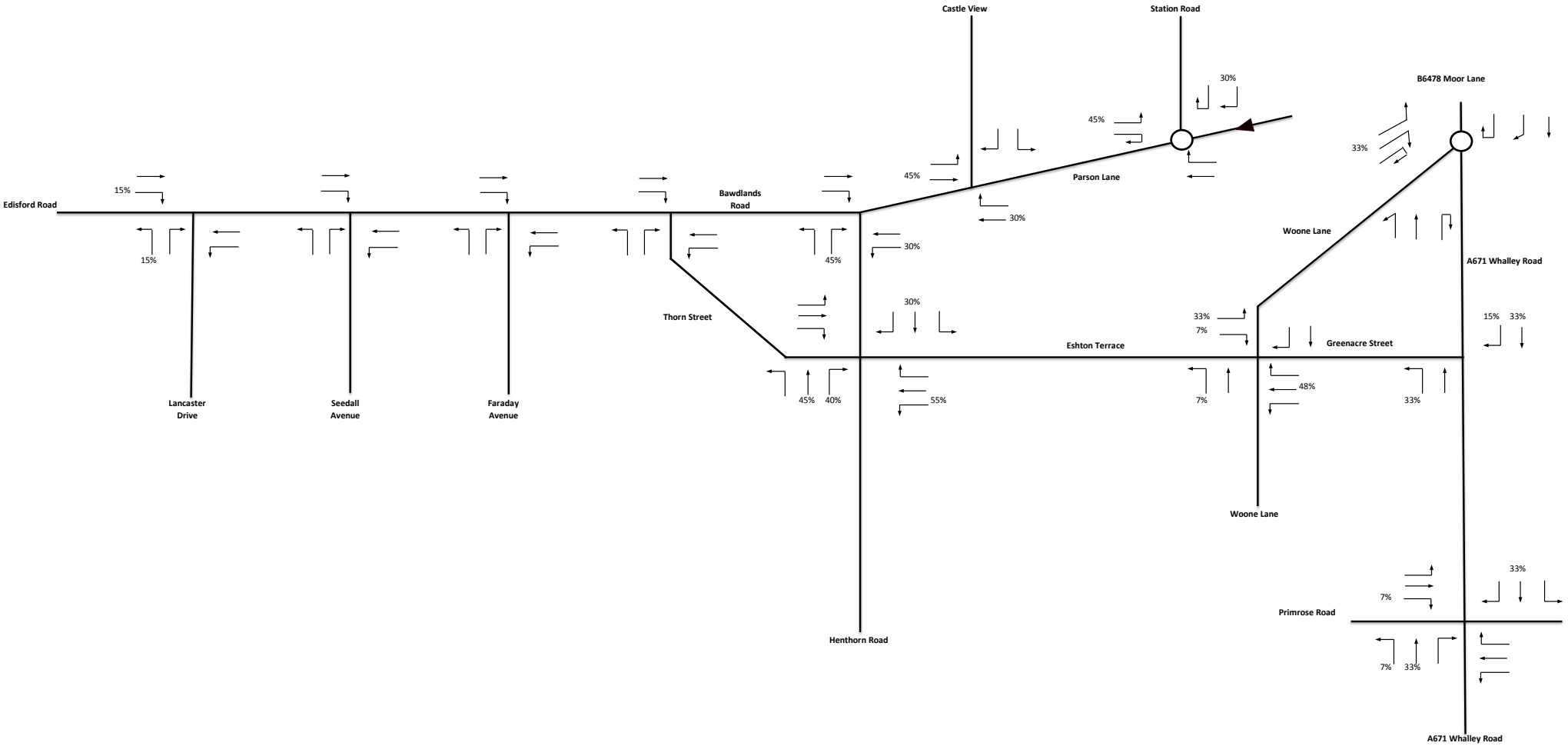


Figure 18 **Weekday PM Peak (1700 to 1800 hours)**
Proposed Trip Distribution

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE Set, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

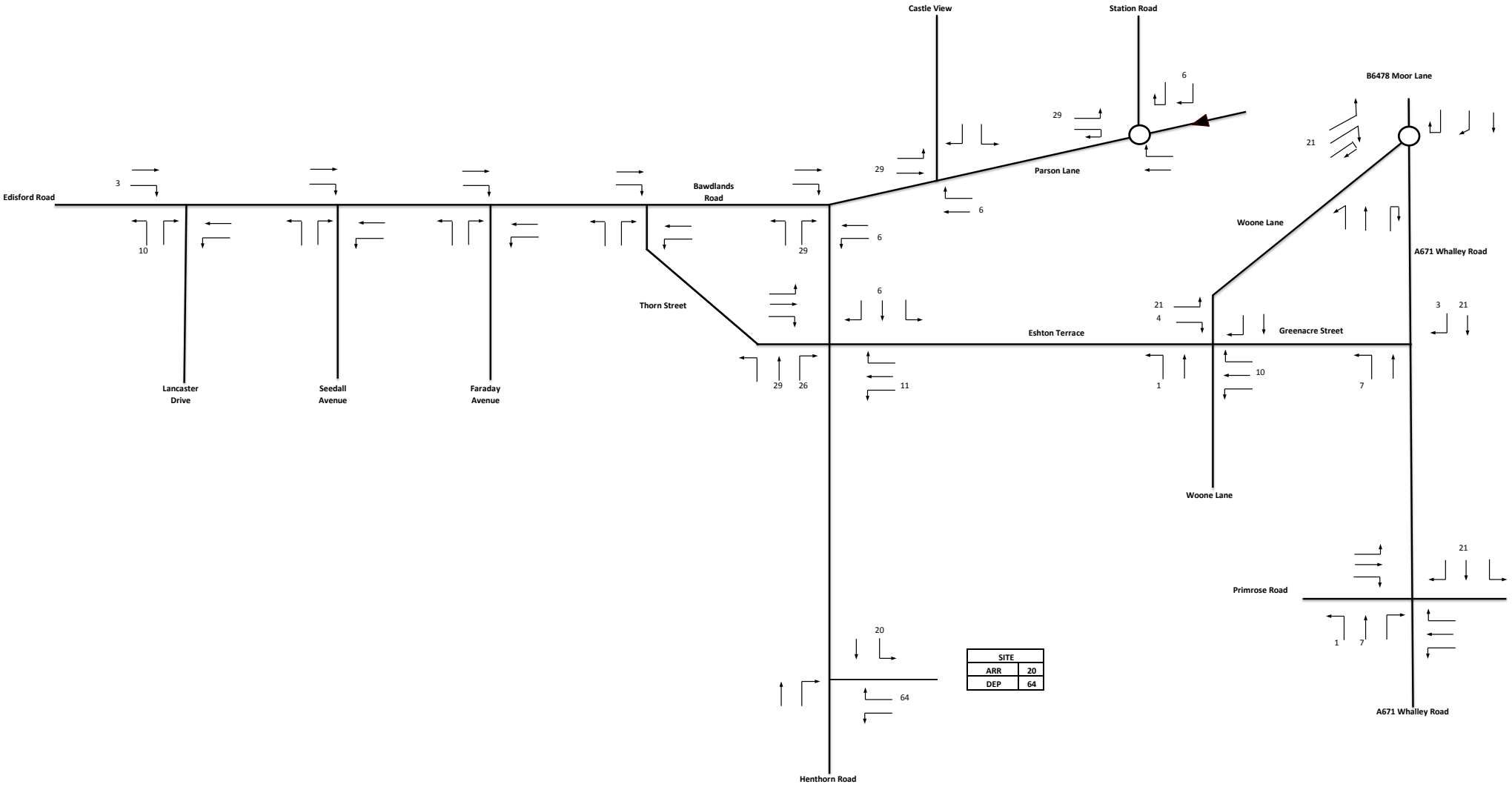


Figure 19 Weekday AM Peak (0800 to 0900 hours) Proposed Development Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE et, Manchester M3 3JE

Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

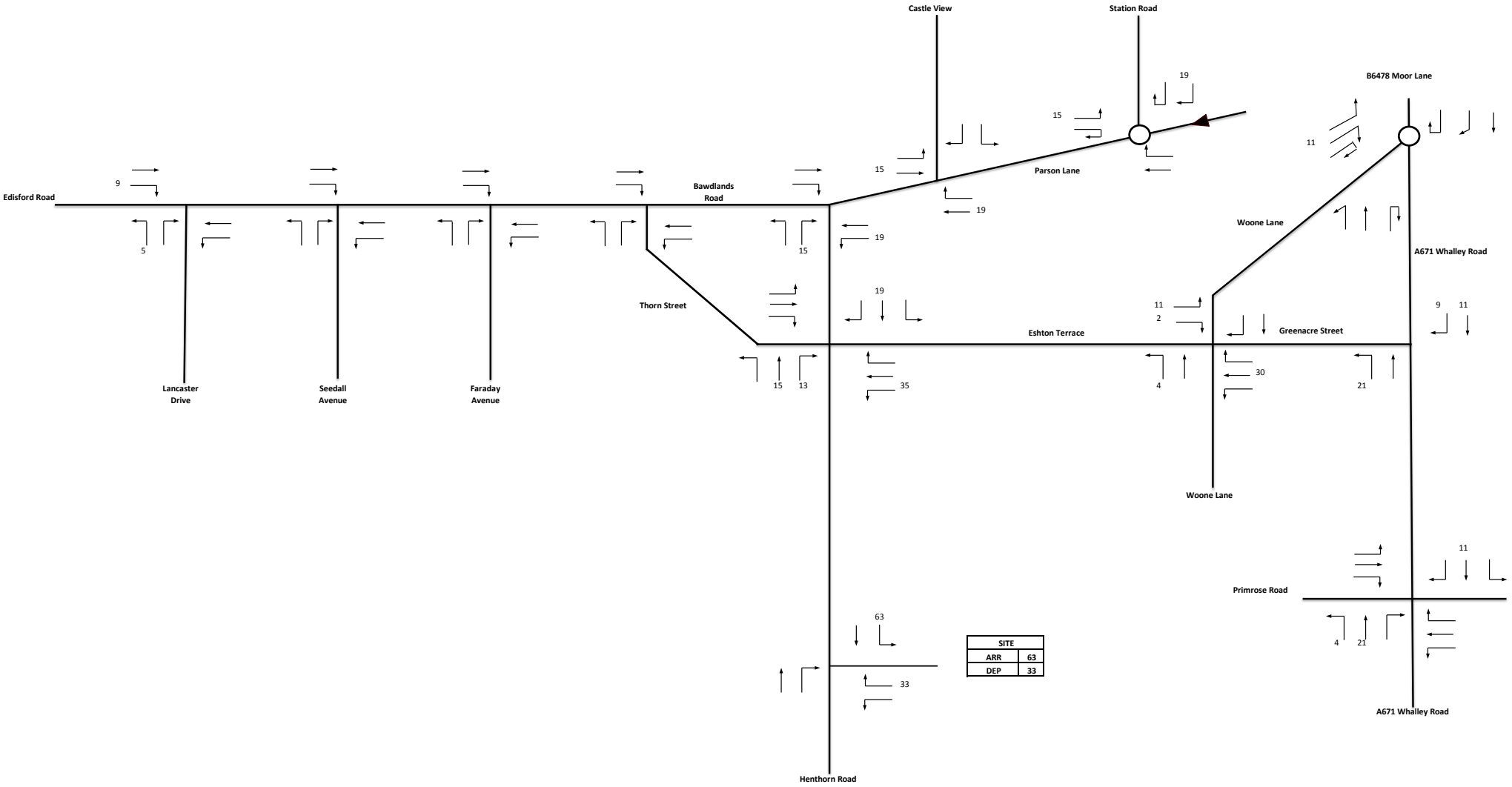


Figure 20 **Weekday PM Peak (1700 to 1800 hours)**
Proposed Development Flows

Transport Solutions
6th Floor, Quay House, Quay Street, Manchester M3 3JE Set, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

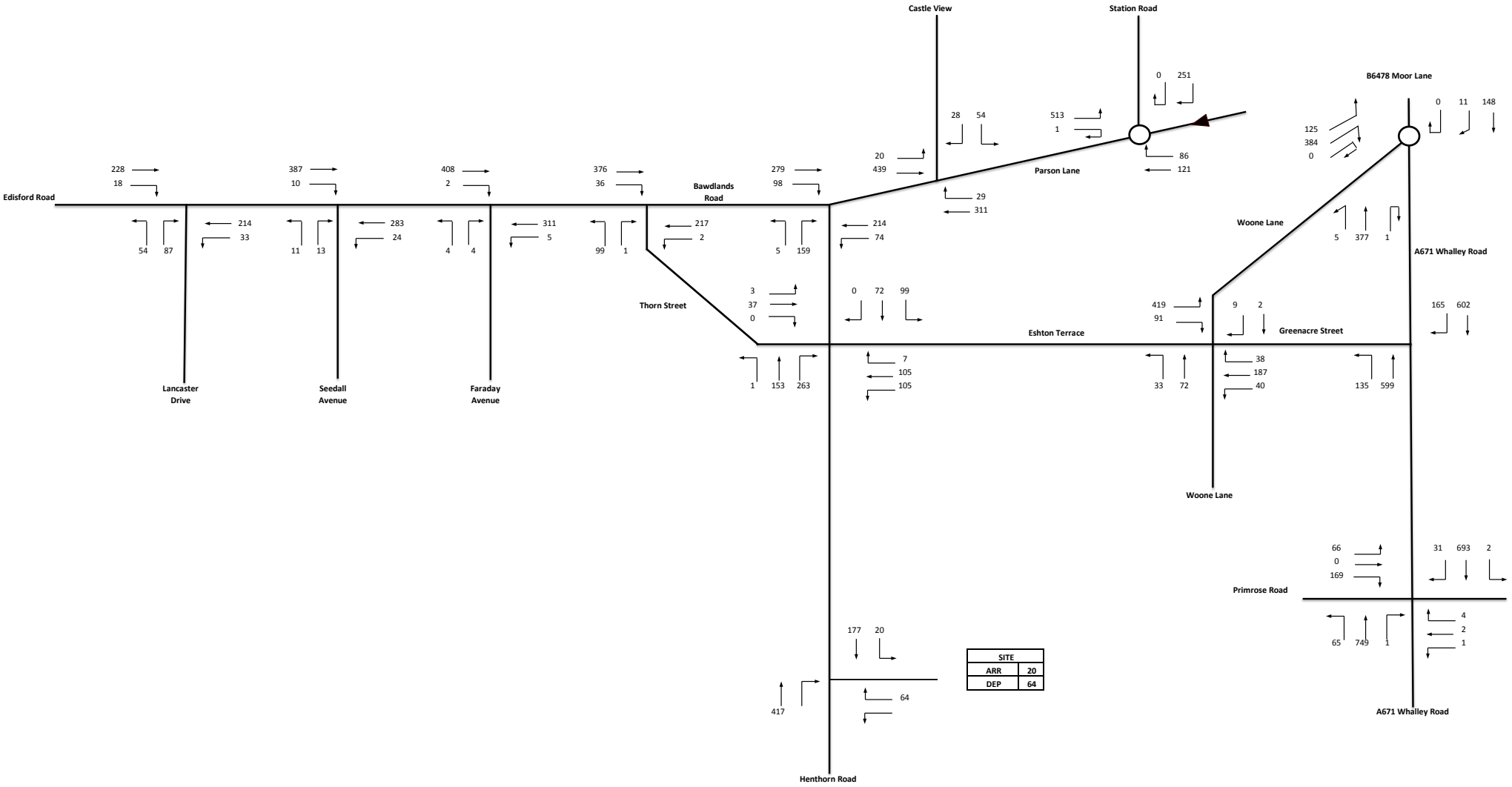


Figure 21 Weekday AM Peak (0800 to 0900 hours)
2016 'With Development' Flows

6th Floor, Quay House, Quay Street, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

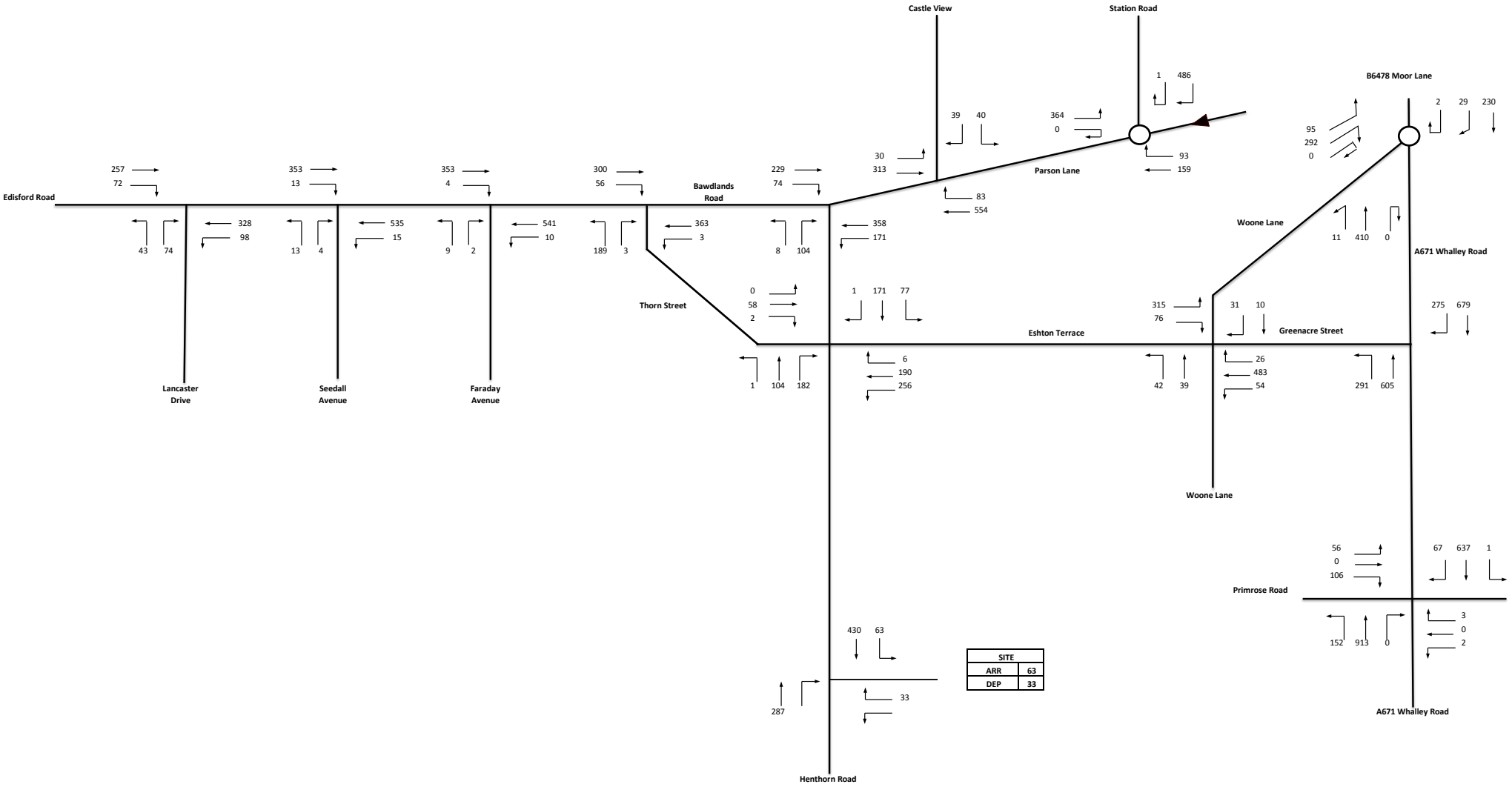


Figure 22 **Weekday PM Peak (1700 to 1800 hours)**
2016 'With Development' Flows

6th Floor, Quay House, Quay Street, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

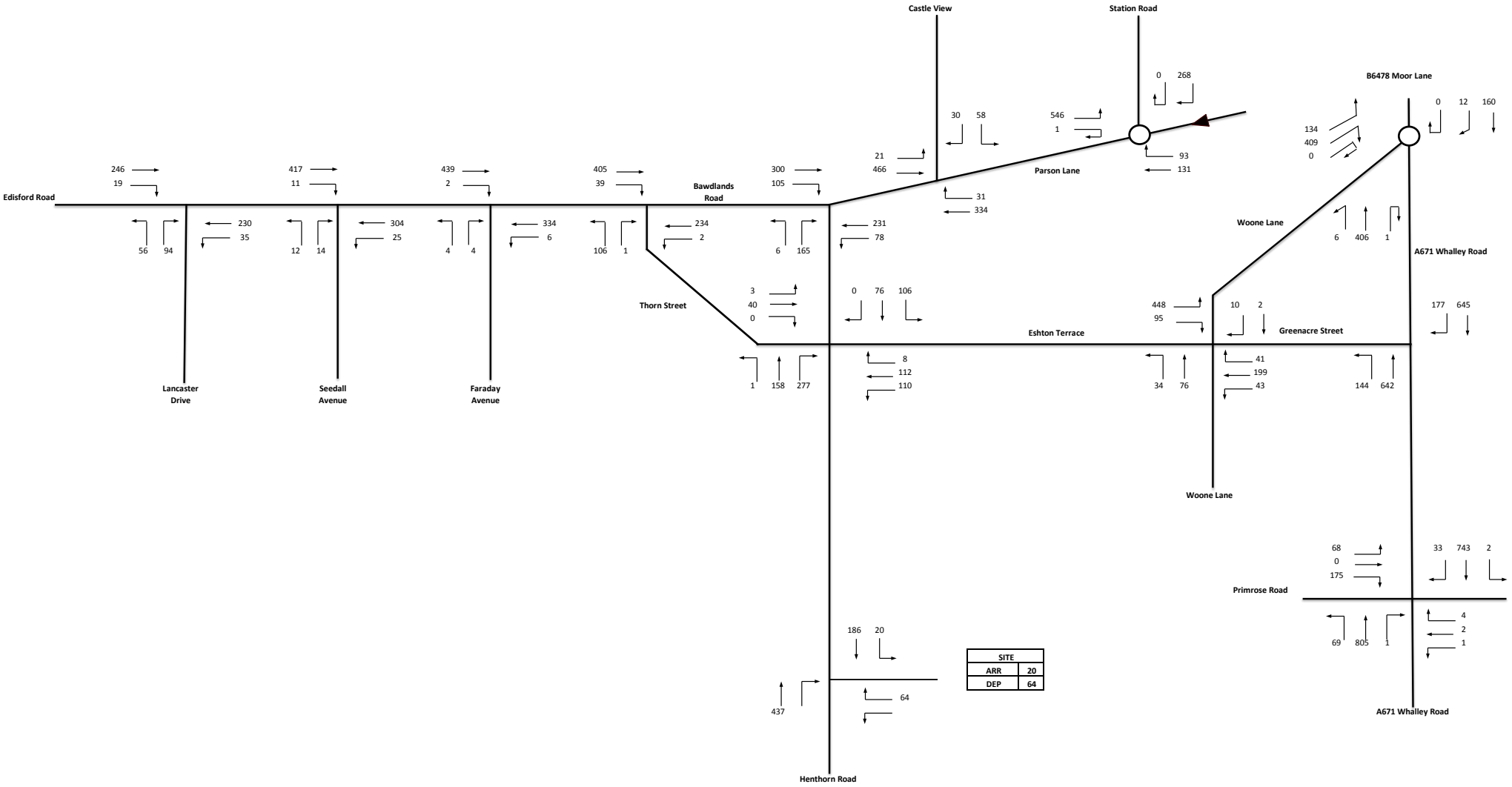


Figure 23 Weekday AM Peak (0800 to 0900 hours)
2021 'With Development' Flows

Transport Solutions
6th Floor, Quay House, Quay Street, Manchester M3 3JE et, Manchester M3 3JE
Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

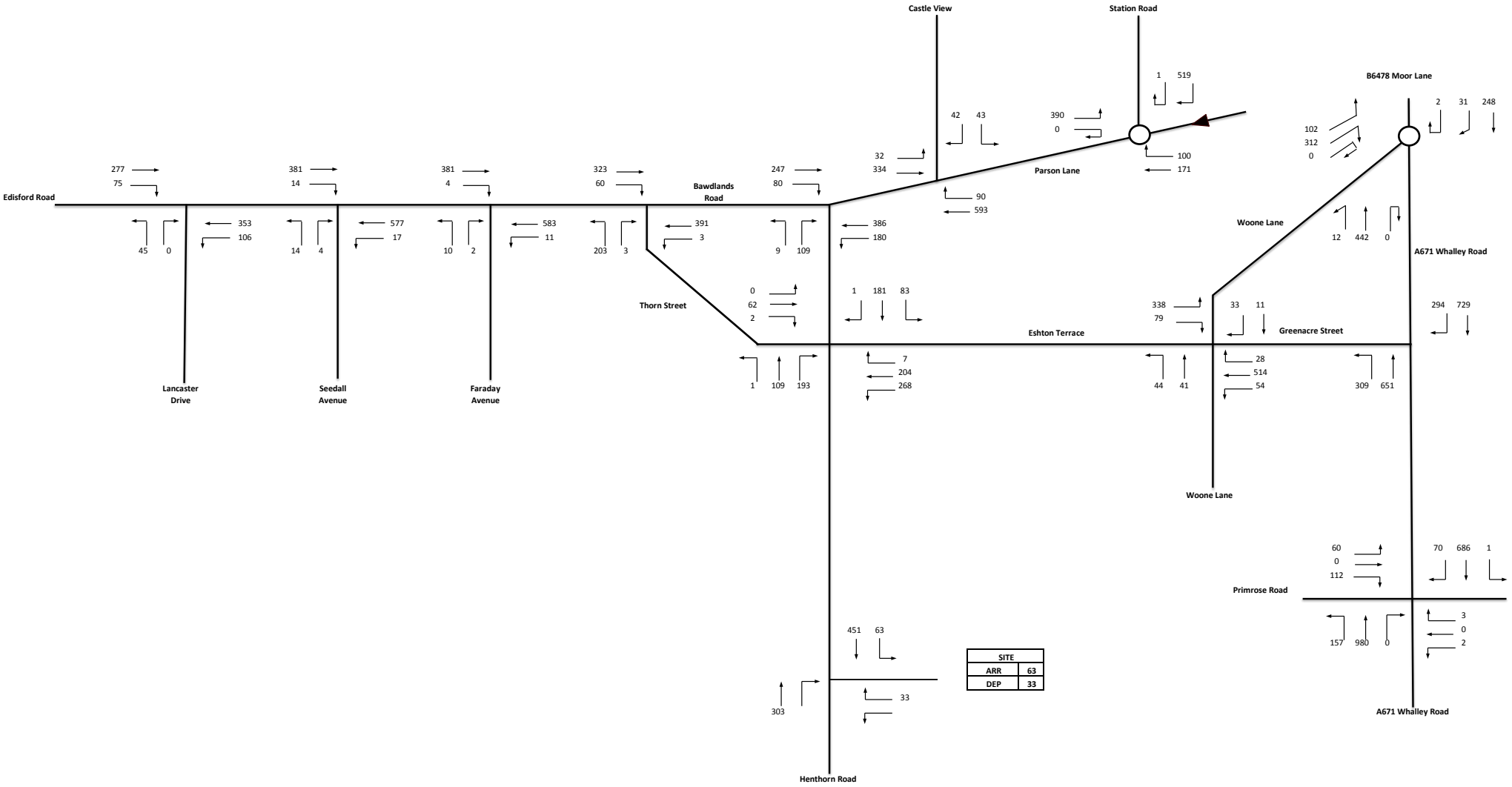


Figure 24 **Weekday PM Peak (1700 to 1800 hours)**
2021 ' With Development' Flows

Transport Solutions

6th Floor, Quay House, Quay Street, Manchester M3 3JE ɔet, Manchester M3 3JE

Tel: 0161 827 1740 www.croftts.co.uk info@croftts.co.uk

PLANS



THE STRATEGIC LAND GROUP LIMITED

PROPOSED RESIDENTIAL DEVELOPMENT,
HENTHORN ROAD, CLITHEROE
SITE LOCATION

croft
Transport Solutions

Email: info@croftts.co.uk
Tel: 0161 827 1740
Web: www.croftts.co.uk

6th Floor, Quay House
Quay Street
Manchester, M3 3JE

DRAWN:	DATE:	CHECKED:	DATE:	SCALES:	DRAWING NUMBER:	REVISION:
JC	09.07.12	MTC	09.07.12	N.T.S	0248-01	.

Z:\projects\0248 Henthorn Road, Clitheroe\CAD\Croft Drawings\0248-01 (PLAN 1).dwg

HENTHORN ROAD
CLITHEROE

general notes:
do not scale the drawing.
all dimensions to be checked on site prior to commencement of work and any discrepancy shall be immediately reported and resolved prior to work commencing.
this drawing is to be read in conjunction with all relevant drawings and specifications relating to the job whether or not indicated on the drawing.
copyright reserved to mck associates ltd. and this drawing may not be used or reproduced without prior written consent.

PLAN 2



Rev. Date By Description

Client:

BOWSALL GROUP

mck associates limited
architecture ■ building surveying ■ project management
burnaby villa ■ 48 watling street road ■ fulwood ■ preston ■ pr2 8bp
tel: 01772 774510 fax: 01772 774511 mck@mckassociates.co.uk

Project:

HENTHORN ROAD
CLITHEROE

Drawing Title:

CONCEPTUAL MASTERPLAN

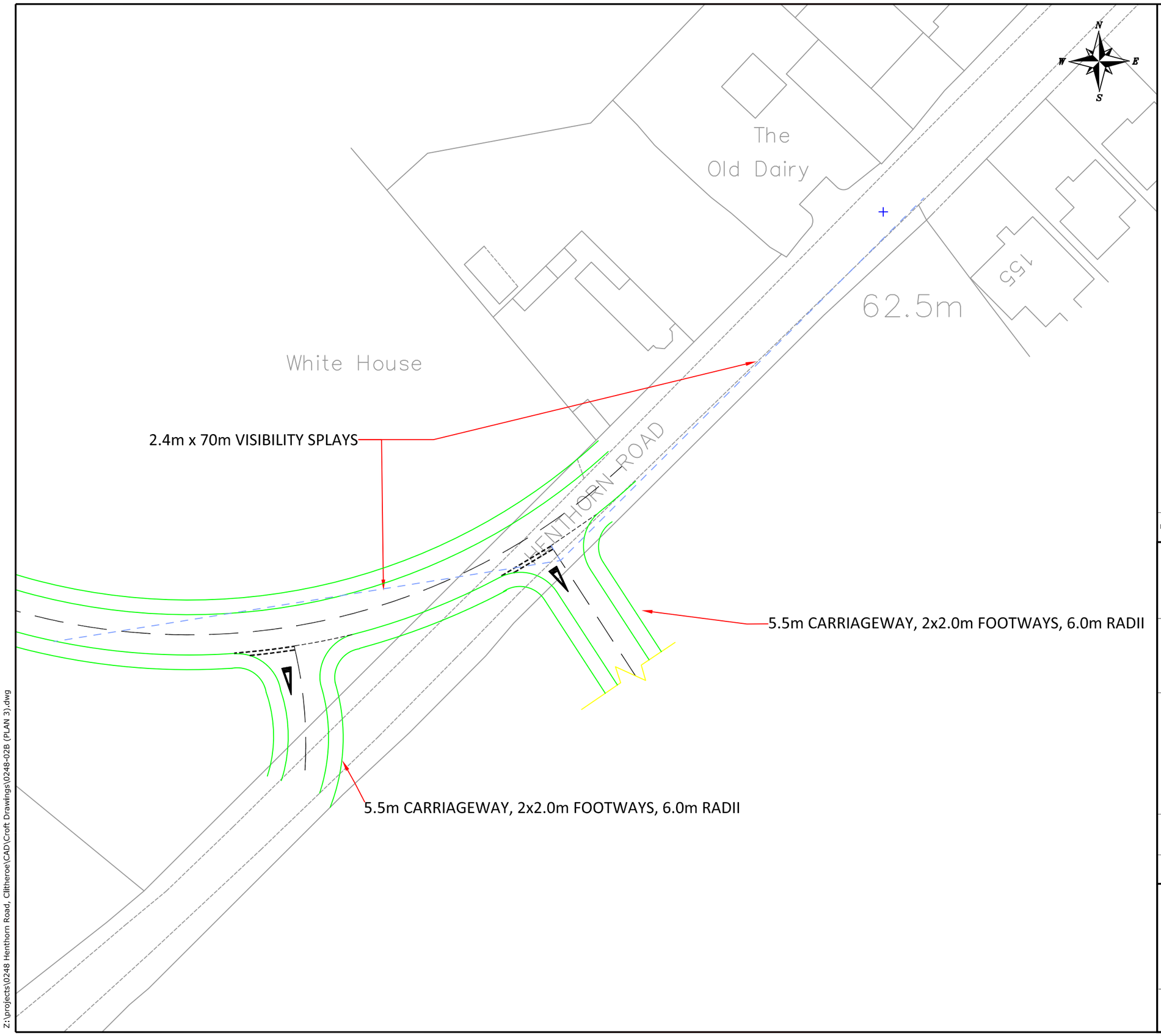
Drawn:	Checked:	Scale:	Date:
CA		1:1000	AUG 10
Job No:		Drawing No:	Rev:
10/121		1000	

A2

PLANNING

CONCEPTUAL MASTERPLAN

Dwg. Name & Location: Z:\Cad Standards\Title Blocks\MCK A2 2009.dwg



NOTES

PLAN 3

REV.	DETAILS	DRAWN	CHECKED	DATE

CLIENT:
THE STRATEGIC LAND GROUP LIMITED

PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT, HENTHORN ROAD, CLITHEROE

DRAWING TITLE:
PROPOSED SITE ACCESS

SCALES:
1:500 @ A3

DRAWN:	CHECKED:	DATE:
MTC	MTC	23.10.2012

6th Floor, Quay House
Quay Street
Manchester, M3 3JE

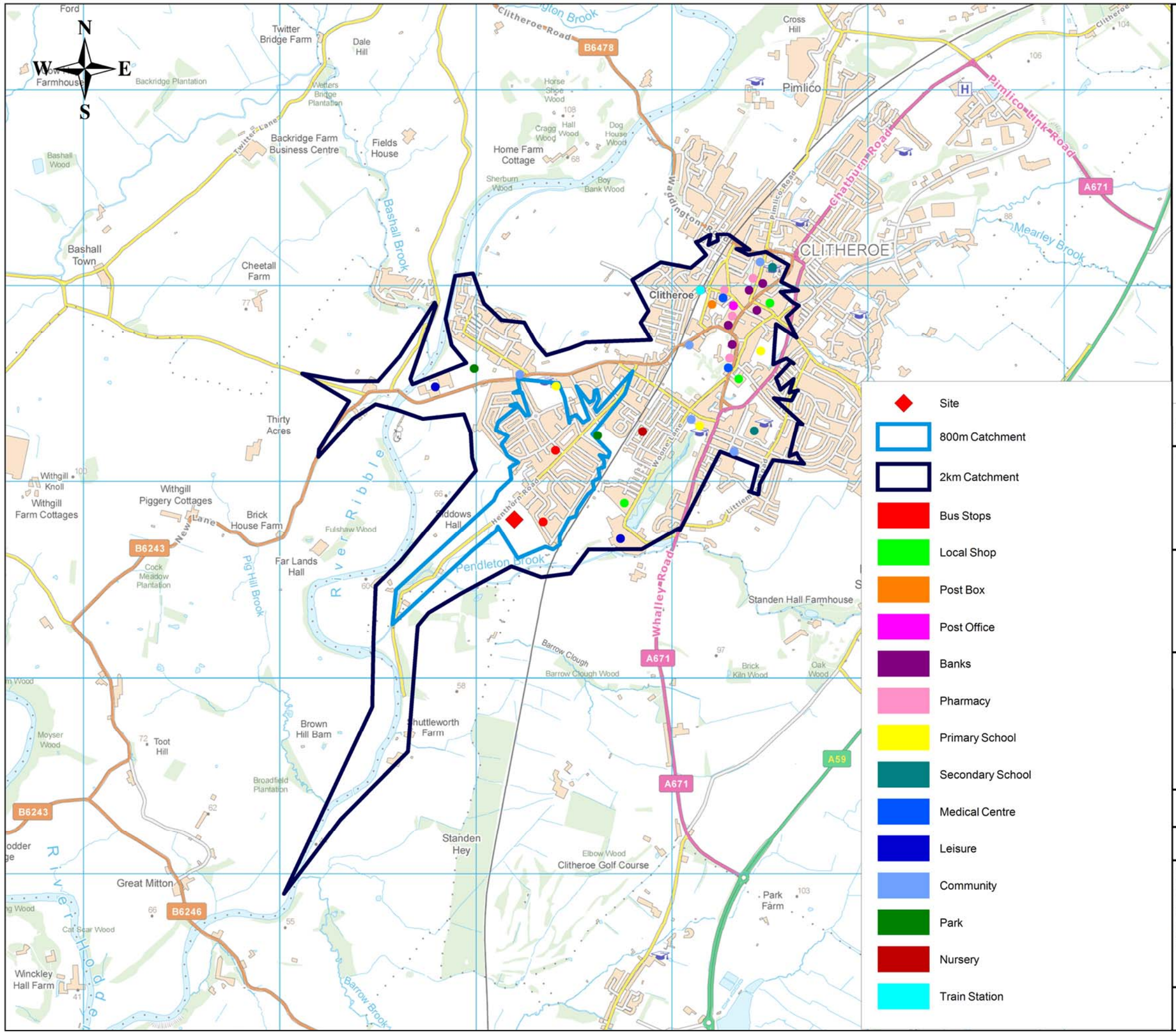
Email: info@croftts.co.uk
Tel: 0161 827 1740
Web: www.croftts.co.uk

croft
Transport Solutions

DRAWING NUMBER: 0248-02

REVISION: B

Z:\projects\0248 Henthorn Road, Clitheroe\CAD\Croft Drawings\0248-02B (PLAN 3).dwg



NOTES

PLAN 4

REV.	DETAILS	DRAWN	CHECKED	DATE

CLIENT:

THE STRATEGIC LAND GROUP LIMITED

PROJECT:

PROPOSED RESIDENTIAL DEVELOPMENT
HENTHORN ROAD
CLITHEROE

DRAWING TITLE:

800M & 2KM PEDESTRIAN CATCHMENT WITH AMENITIES

SCALE: 1:20000 @ A3

DRAWN:	CHECKED:	DATE:
JC	MTC	08.10.12

6th Floor,
Quay House,
Quay Street,
Manchester,
M3 3JE

Email: info@croftts.co.uk
Tel: 0161 827 1740
Web: www.croftts.co.uk

croft
Transport Solutions

DRAWING NUMBER:	REVISION:
0248-03	.



NOTES

PLAN 5

REV.	DETAILS	DRAWN	CHECKED	DATE

CLIENT:
THE STRATEGIC LAND GROUP LIMITED

PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT, HENTHORN ROAD, CLITHEROE

DRAWING TITLE:
PRIMROSE ROAD/A671 WHALLEY ROAD IMPROVEMENT SCHEME - BASED ON SBA DRAWING - N01951/08 B

SCALES:
1:500 @ A3

DRAWN:	CHECKED:	DATE:
MTC	MTC	23.10.2012

6th Floor, Quay House
Quay Street
Manchester, M3 3JE

Email: info@croftts.co.uk
Tel: 0161 827 1740
Web: www.croftts.co.uk

croft
Transport Solutions

DRAWING NUMBER: 0248-03

REVISION: .

Z:\projects\0248 Henthorn Road, Clitheroe\CAD\Croft Drawings\0248-03 (PLAN 5).dwg

APPENDICES

APPENDIX 1

FLP & AHA Improvement Schemes

FLP/AHA PROPOSALS	DETAILS OF PROPOSAL	DOC/PLAN REFERENCE	LCC HIGHWAYS RESPONSE TO PROPOSAL	FLP/AHA & LCC AGREEMENT
Bus	C1 bus service • Fully fund for 5 years a bus service based on the current C1, extended to serve the development with access via Henthorn Road, • Routing details to be determined by LCC, with the provisos that this **must** include the development's bus stop on **every** scheduled run, and the route must operate between the Site and Clitheroe town centre including a stop at the rail station, • To operate through the day and in the evenings on Monday to Saturday and additionally a Sunday service at reduced frequency, • 100% of farebox revenue to be ring-fenced for the sole purpose of continuing the service beyond the 5 year funded period, • Must be operating prior to occupation of the 51st dwelling, • Provide bus stop on the development's internal road network prior to the occupation of the 51st dwelling, • The carriageway width of the internal road layout, that remains to be approved as reserved matters, must be adequate to accommodate the bus service along the length of development road that it is to be routed, • In the interim period, between the occupation of the 1st dwelling and the until the occupation of the 51st dwelling, provide a temporary additional bus stop on Henthorn Road near to the development Site access.	AHA letter 24.02.11 LCC letter 04.03.11 Figure AM2	*"The detailed public transport provision to be resolved as part of a Section 106 Agreement."* *"While it is not realistic to demand support for a service in perpetuity, the funding measures that have been suggested would secure a valuable service in excess of the initial five year period."*	**Yes**

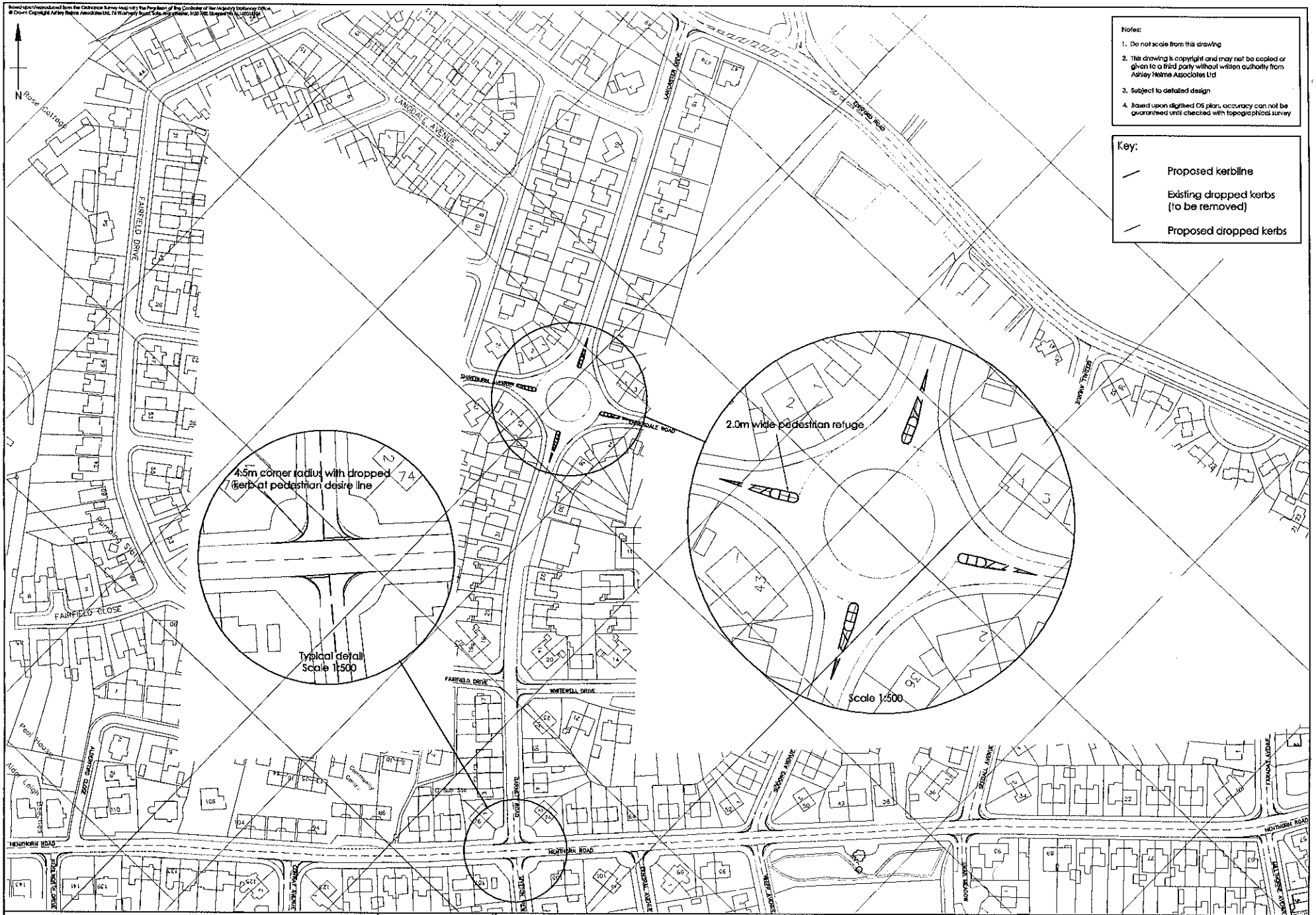
TABLE 1222/3/A **SUMMARY OF HIGHWAYS IMPROVEMENTS HENTHORN ROAD, CLITHEROE**

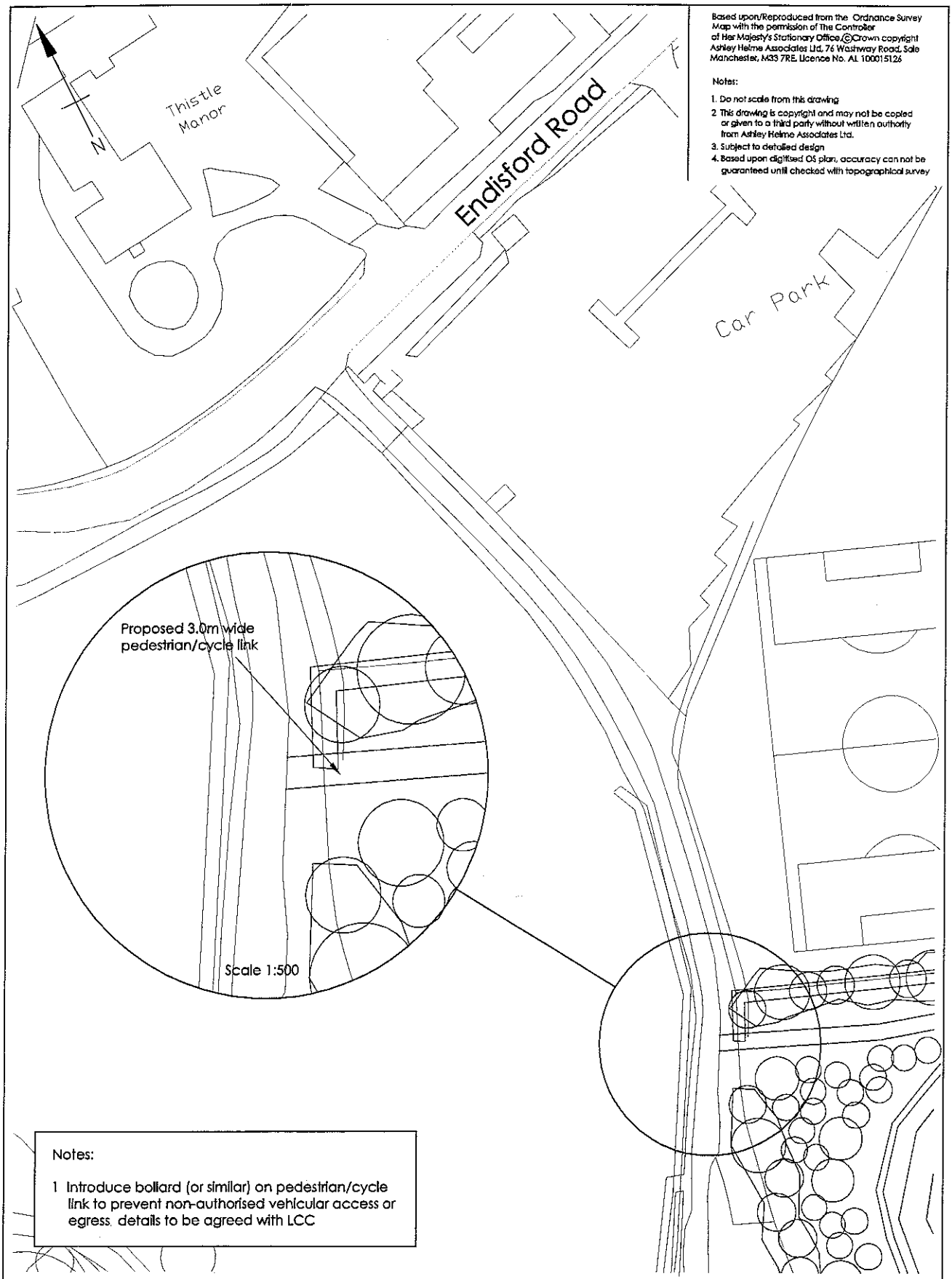
FLP/AHA PROPOSALS	DETAILS OF PROPOSAL	DOC/PLAN REFERENCE	LCC HIGHWAYS RESPONSE TO PROPOSAL	FLP/AHA & LCC AGREEMENT
Pedestrian/ Cycle	Whalley Road: upgrade to Toucan crossing the existing pedestrian crossing just south of Greenacre Street	LCC letter 04.03.11	*"The provision of Toucan measures at the upgraded signal controlled crossing on Whalley Road, close to Turner Street, would be a welcome improvement for cyclists and pedestrians."*	**Yes**
	Henthorn Road: pedestrian zebra crossing near Park entrance, complemented by cycle signage (AHA Drg No. 1222/19)	AHA Drg Nos. 1222/17 & 1222/19 AHA letter 17.12.10 LCC letter 04.03.11	*"...the proposed measures on Henthorn Road, including the provision of the Zebra crossing, could be linked to the completion and occupation of the first 65 properties (25% of total properties)."* Martin Nugent proposes a review of the main pedestrian desire lines from Henthorn Road to the town centre with the aim of securing appropriate pedestrian access, e.g. dropped kerb provision, improved surface materials and pedestrian signage.	**Yes** **Applicant finds this acceptable**
	Proposed 3.0m wide pedestrian/cycle link with LCC expressing a very strong preference/requirement that this should provide a link to Edisford Road via 'caravan road' route.	LCC letter 04.03.11 AHA Drg No. 1222/18	*"Adopt a similar trigger of 25% for the completion of the agreed pedestrian and cycle link to the camping and caravan access to the west of the site, following a successful agreement being reached with Ribble Valley Borough Council."*	**Yes**
Cycle parking	Cycle parking to be provided at: • Development Play Area, • Town centre, and • Clitheroe Rail Station. Each location to provide a parking stand to accommodate 4 cycles.	AHA letter 17.12.10 LCC letter 04.03.11	LCC and RVBC have now secured cycle parking at Clitheroe Rail Station, independent of the development. Hence development funding only required for the play area and the town centre. *"Appropriate levels of funding would have to be agreed following the granting of consent and the development of more detailed scheme drawings."*	**Yes**

TABLE 1222/3/A **SUMMARY OF HIGHWAYS IMPROVEMENTS HENTHORN ROAD, CLITHEROE**

FLP/AHA PROPOSALS	DETAILS OF PROPOSAL	DOC/PLAN REFERENCE	LCC HIGHWAYS RESPONSE TO PROPOSAL	FLP/AHA & LCC AGREEMENT
Henthorn Road traffic management & road marking scheme	Funding to provide a 20mph sign only scheme with complementary road markings on Henthorn Road. A zebra crossing (highlighted in 'pedestrian crossings') forms part of the Henthorn Road traffic management and road marking scheme.	LCC letter 04.03.11 AHA Drg Nos.1222/19 & 1222/21	County Councillor Mr Ashton, Portfolio Member for Highways and Transport, notes that it is the intention of LCC to pursue the implementation of 20mph speed limits on roads in residential areas. Henthorn Road is to become a priority. *"The road marking scheme would compliment such a reduction in speed limit, without any significant amendments."*	**Yes**
Woone Lane traffic management	AHA Drg No 1222/20 is preferred option including introducing one-way operation on Woone Lane. Following grant of planning consent, LCC pursue this, including consultations, TRO process & if TRO successful then implementation of the scheme. Funding fully secured from the applicant. However, if the TRO is not successful, LCC implement alternative scheme AHA Drg No 1222/23/B. This does not require any TRO and can be implemented within the powers of the highway authority. Drg No 1222/23/B scheme includes priority working on Woone Lane with the formation of kerbed build outs and raised tables. A 3.1m carriageway width will be formed along the length of Woone Lane with protected parking bays created as a result of the kerbed build outs.	LCC letter 04.03.11 10.05.11 AHA email 16.03.11 04.05.11 LCC email 27.04.11 AHA Drg No 1222/20, 1222/23/B & 1222/SP/02	LCC state *"that a scheme broadly in line with the indicative scheme"* shown on AHA Drg No 1222/20 would be beneficial for Woone Lane, and *"address the increased activity along this road"* generated by the proposed development. LCC highlights uncertainty of deliverability for a traffic management scheme on Woone Lane because of teh reliance on a TRO. Thus AHA identifies the alternative 'fall back' scheme on AHA Drg No 1222/23/B. *"...an agreed scheme involving priority working and protected parking bays has been developed in discussion with Ashley Helme Associates.* ..... *I am satisfied that this proposal, as detailed on the attached drawings (Drawing Numbers 1222/23 and 1222/SP/02), addresses the direct impact of the additional traffic generated by the proposed development, meets the existing demand for on street parking provisions, defines measures to secure managed speeds and secures accessible footways for pedestrians."*	**Yes**

TABLE 1222/3/A **SUMMARY OF HIGHWAYS IMPROVEMENTS HENTHORN ROAD, CLITHEROE**


Notes:
1. Do not scale from this drawing
2. This drawing is copyright and may not be copied or given to a third party without written authority from Ashley Helme Associates Ltd
3. Subject to detailed design
4. Based upon digitised OS plan, accuracy can not be guaranteed until checked with topographical survey
Key:
Proposed kerbline
Existing dropped kerbs (to be removed)
Proposed dropped kerbs
4.5m corner radius with dropped kerb at pedestrian desire line
Typical detail Scale 1:500
2.0m wide pedestrian refuge
Scale 1:500
N
Rose Cottage
LANGDALE AVENUE
FAIRFIELD DRIVE
FAIRFIELD CLOSE
WHITEWELL DRIVE
HENTHORN ROAD
Peel House
Alder Leigh Beeches
Community Centre
CLITHEROE
Project
HENTHORN ROAD, CLITHEROE
Client
GLADMAN DEVELOPMENTS
Title
PEDESTRIAN FACILITIES IMPROVEMENT STRATEGY
ashleyhelme associates
76 wellway road, sale, manchester, m33 7re
Drawing No
1222/17
Date
JUNE 2010
Scale
1:1250@A2



Based upon/Reproduced from the Ordnance Survey Map with the permission of The Controller of Her Majesty's Stationary Office.©Crown copyright Ashley Helme Associates Ltd. 76 Washway Road. Sale Manchester, M33 7RE. Licence No. AL 100015126

Notes:

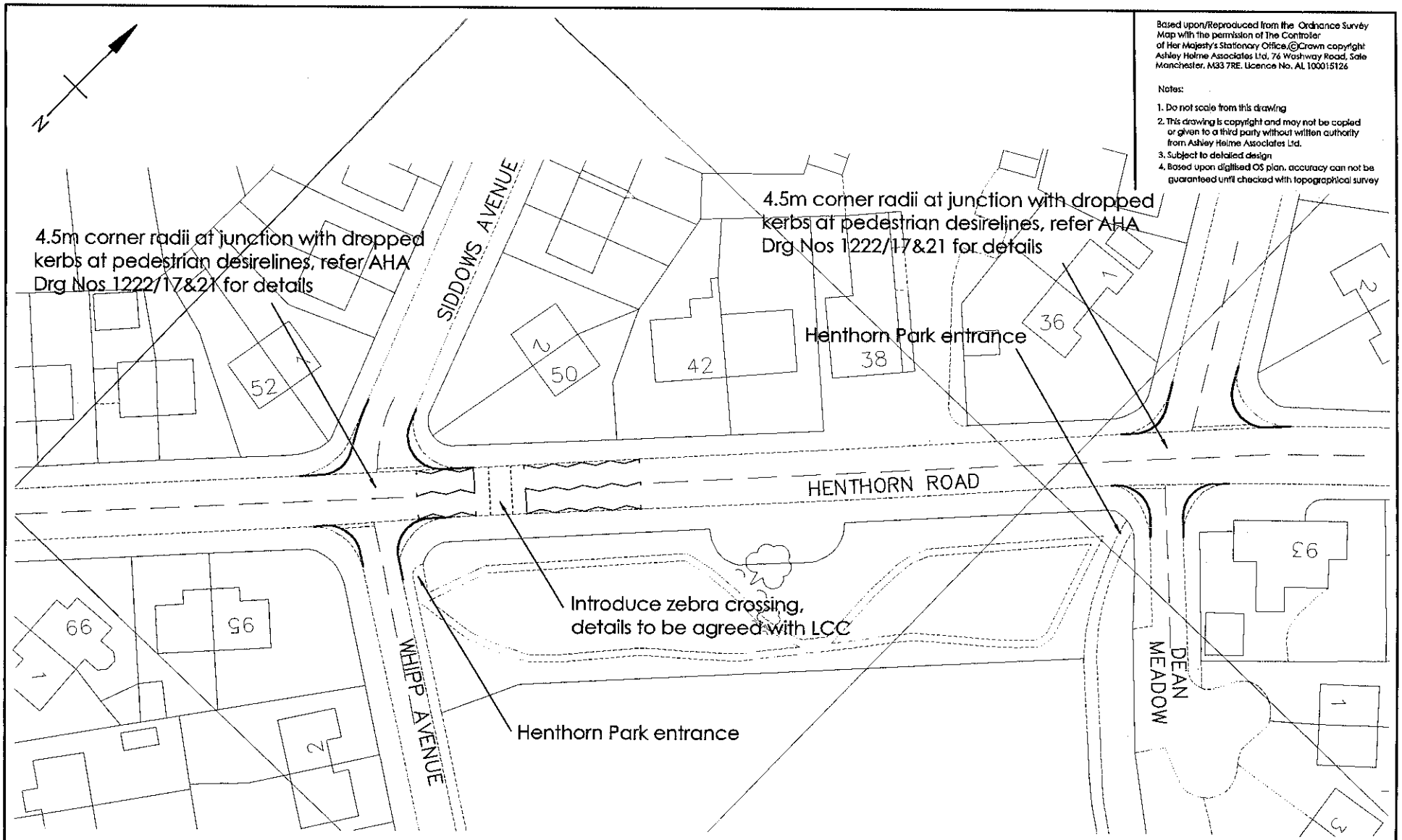
1. Do not scale from this drawing
2. This drawing is copyright and may not be copied or given to a third party without written authority from Ashley Helme Associates Ltd.
3. Subject to detailed design
4. Based upon digitised OS plan, accuracy can not be guaranteed until checked with topographical survey

Notes:

1 Introduce bollard (or similar) on pedestrian/cycle link to prevent non-authorised vehicular access or egress. details to be agreed with LCC

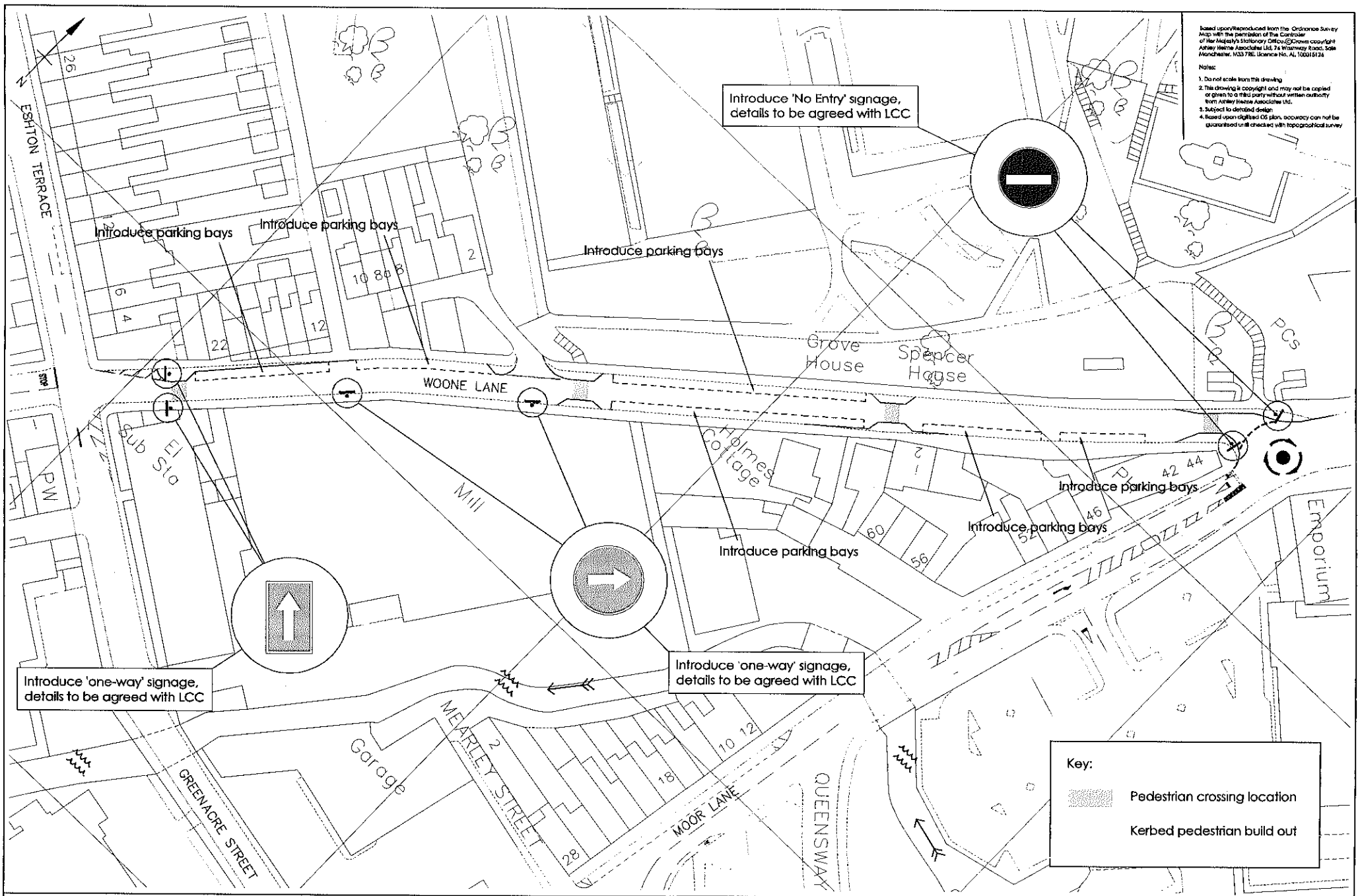
ashleyhelme associates
76 washway road, sale, manchester. m33 7re
email: ahal@ashleyhelme.co.uk tel: 0161 973 9552 fax: 0161 973 9553

Project	Client	Drawing No	Rev
HENTHORN ROAD, CLITHEROE	GLADMAN DEVELOPMENTS	1222/18	
Title: PEDESTRIAN/CYCLE LINK		Date: DEC 2010	Scale: 1:1000@A4



Project: HENTHORN ROAD, CLITHEROE	Title: HENTHORN ROAD PEDESTRIAN CROSSING SCHEME	Drawing No: 1222/19	Rev:
Client: GLADMAN DEVELOPMENTS		Date: DEC 2010	Scale: 1:500@A3

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email: aha@ashleyhelme.co.uk tel: 0161 972 0552 fax: 0161 972 0553

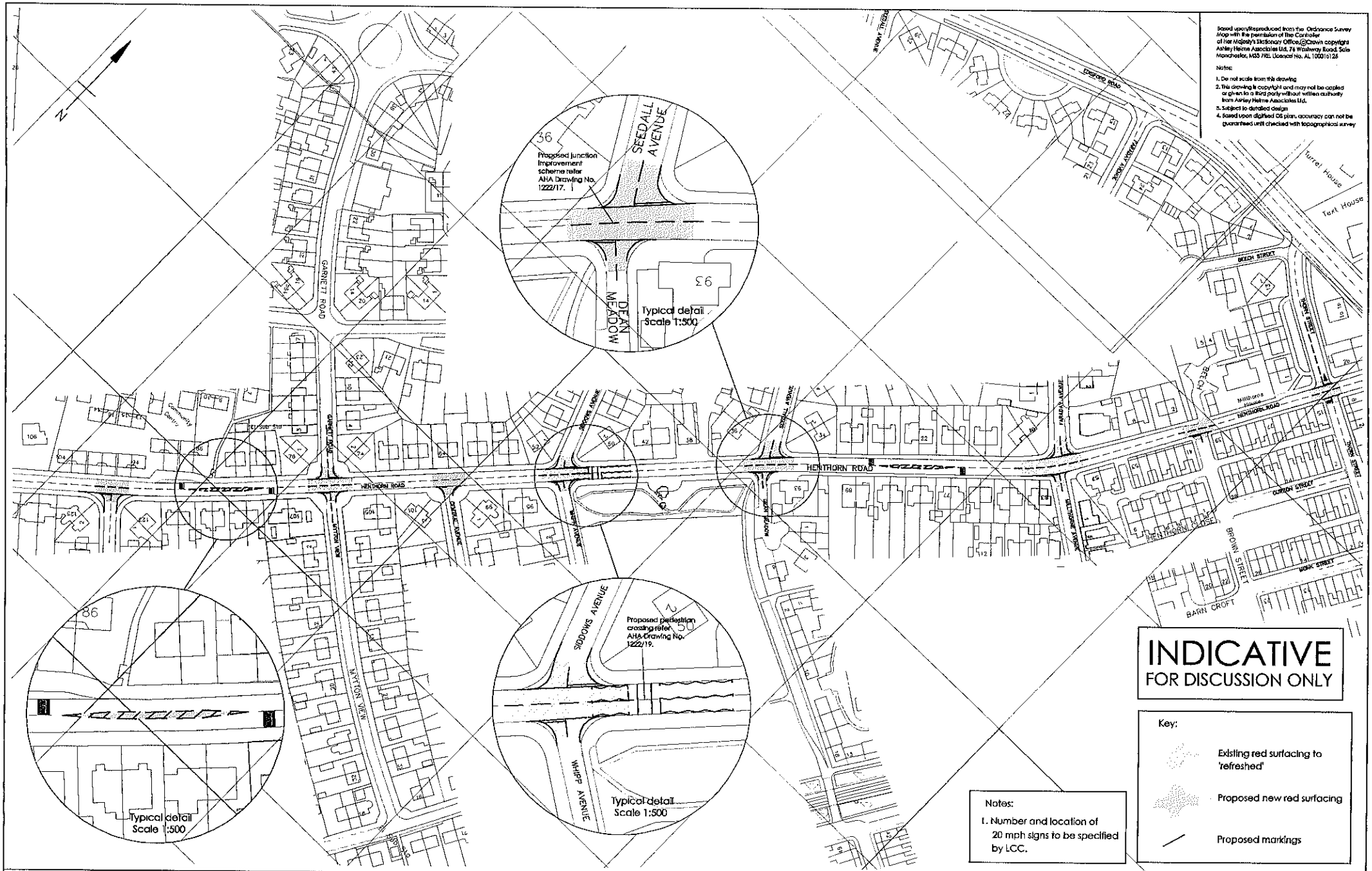


Based upon/Reproduced from the Ordnance Survey Map with the permission of The Controller of Her Majesty's Stationary Office.©Crown copyright Ashley Helme Associates Ltd. 76 Washway Road, Sale Manchester. M33 7RE. Licence No. AL 100018126

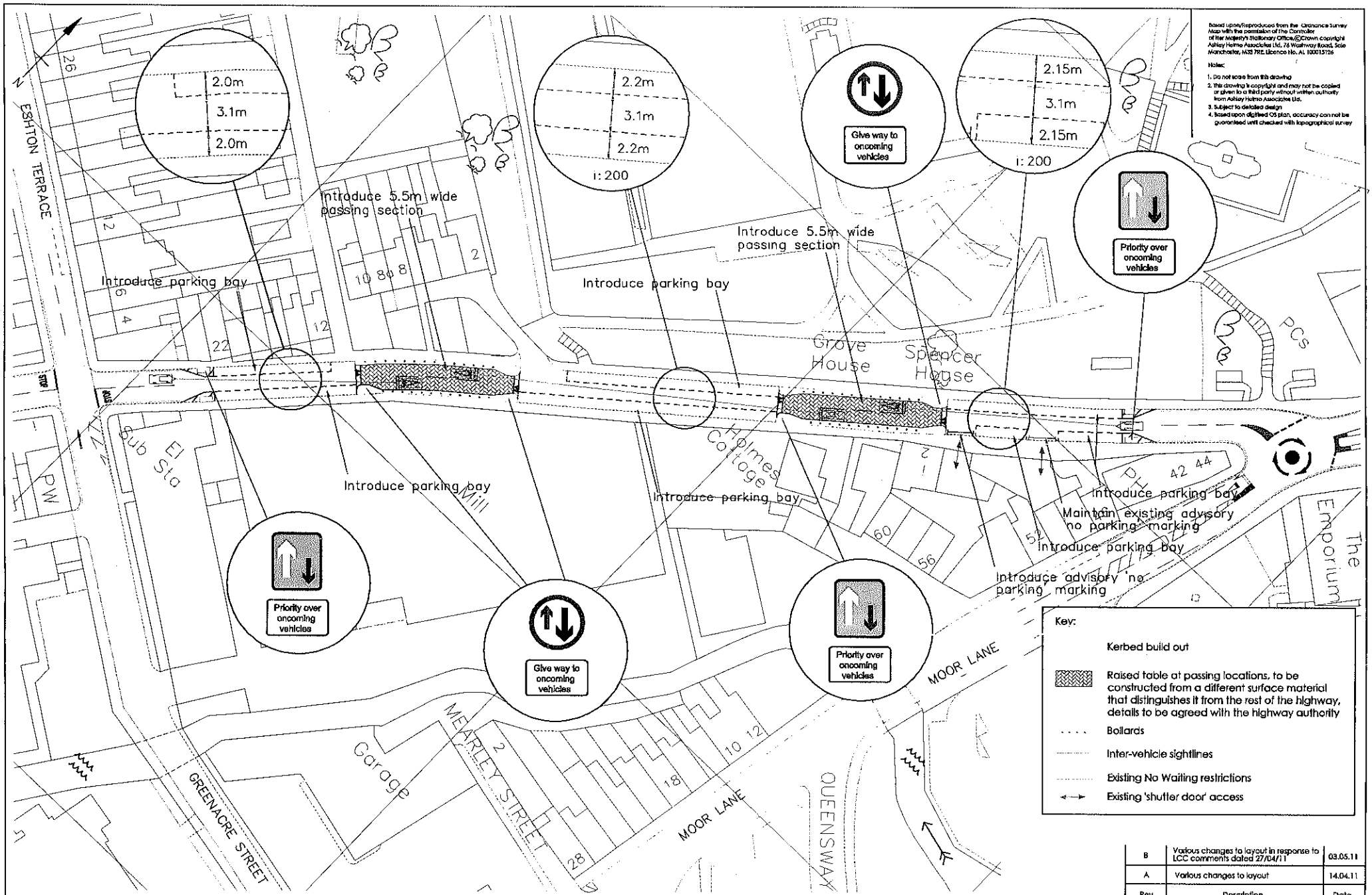
Notes:

1. Do not scale from this drawing
2. This drawing is copyright and may not be copied or given to a third party without written authority from Ashley Helme Associates Ltd.
3. Subject to detailed design
4. Based upon digitised OS plan, accuracy can not be guaranteed until checked with topographical survey

Project: HENTHORN ROAD, CLITHEROE	Title: INDICATIVE WOONE LANE ONE-WAY SCHEME	ashleyhelme associates, 76 washway road, sale, manchester, m33 7re	Drg no: 1222/20
Client: GLADMAN DEVELOPMENTS			Date: DEC 2010
			Scale: 1:500@A2



Project: HENTHORN ROAD, CLITHEROE	Title: INDICATIVE HENTHORN ROAD 20MPH 'SIGN ONLY' SCHEME	ashleyhelme associates, 76 washway road, sale, manchester, m33 7re	Drg No: 1222/21
Client: GLADMAN DEVELOPMENTS			Date: DECEMBER 2010
			Scale: 1:1250@A2



Based upon/Reproduced from the Ordnance Survey Map with the permission of the Controller of Her Majesty's Stationary Office,© Crown copyright Ashley Helme Associates Ltd, 76 Washway Road, Sale Manchester, M33 7RE Licence No. AL 100015126

Notes:
1. Do not scale from this drawing
2. This drawing is copyright and may not be copied or given to a third party without written authority from Ashley Helme Associates Ltd.
3. Subject to detailed design
4. Based upon digitised OS plan, accuracy can not be guaranteed until checked with topographical survey

Rev	Description	Date
B	Various changes to layout in response to LCC comments dated 27/04/11	03.05.11
A	Various changes to layout	14.04.11

Project: HENTHORN ROAD, CLITHEROE

Client: GLADMAN DEVELOPMENTS

Title: INDICATIVE WOONE LANE SCHEME

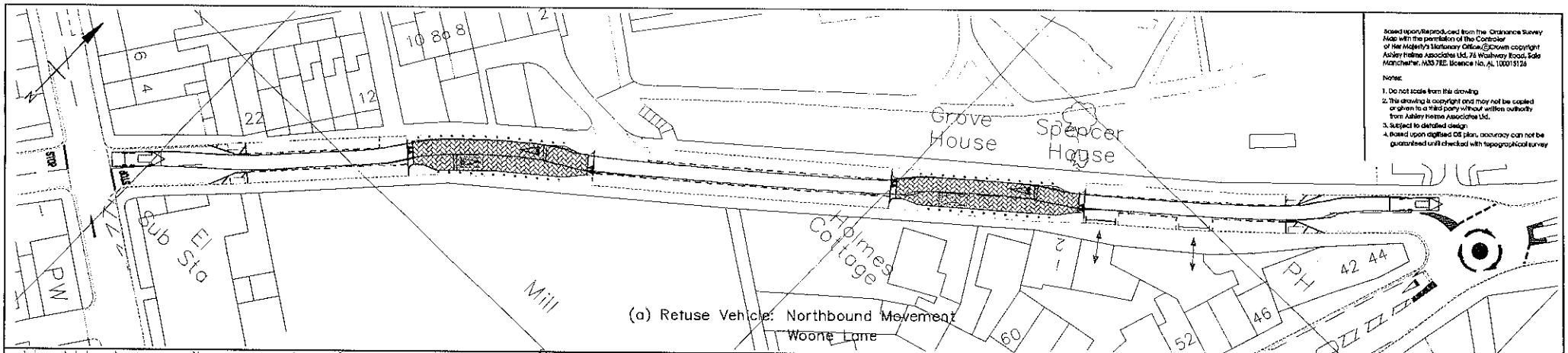
ashleyhelme associates
76 washway road, sale, manchester, m33 7re

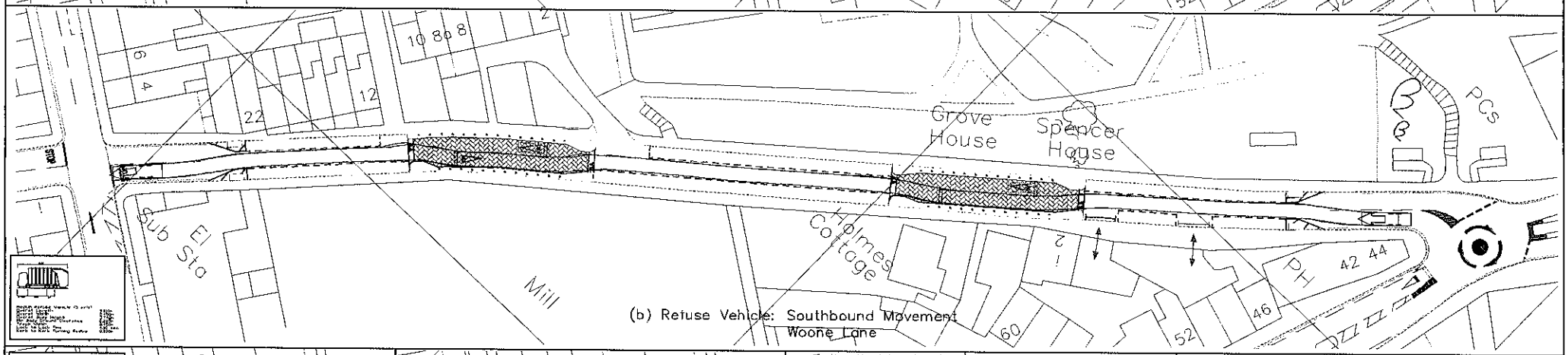
Dwg No: 1222/23

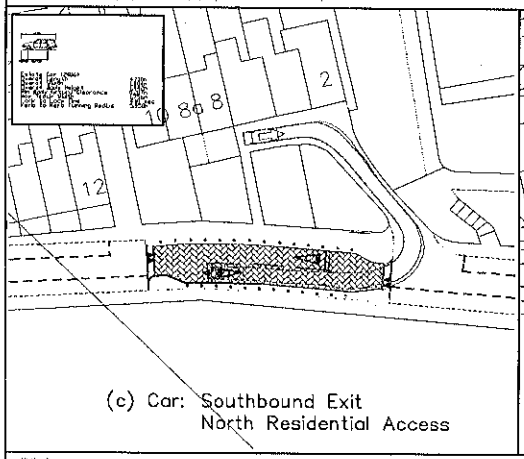
Rev: B

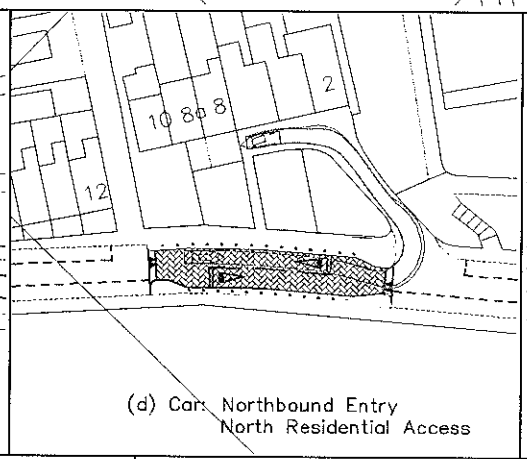
Date: MAY 2011

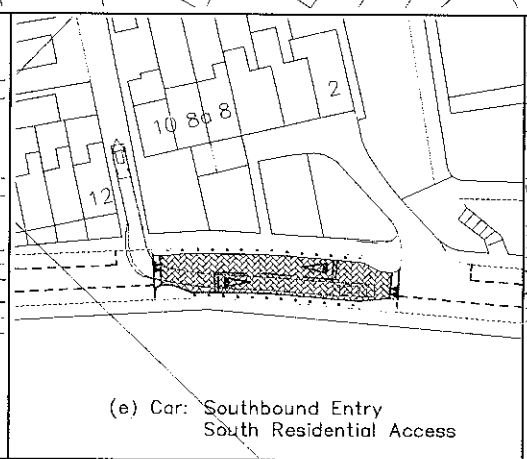
Scale: 1:500@A2

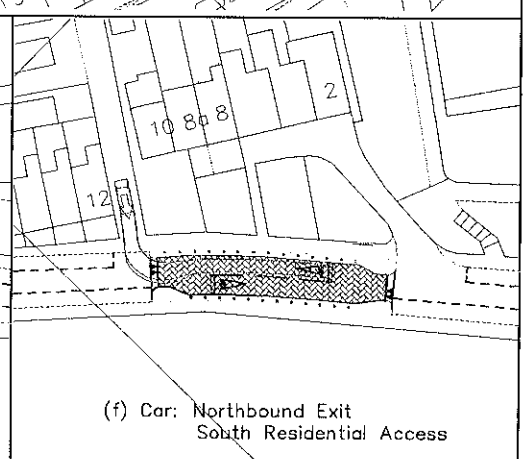












Based upon/Reproduced from the Ordnance Survey Map with the permission of The Controller of Her Majesty's Stationery Office,©Crown copyright Ashley Helme Associates Ltd, 76 Washway Road, Sale Manchester, M33 7RE. Licence No. AL 100015126

Notes:

1. Do not scale from this drawing.
2. This drawing is copyright and may not be copied or given to a third party without written authority from Ashley Helme Associates Ltd.
3. Subject to detailed design.
4. Based upon digitised OS plan, accuracy can not be guaranteed until checked with topographical survey.

Project: HENTHORN ROAD, CLITHEROE

Client: GLADMAN DEVELOPMENTS

Title: SWEPT PATH ANALYSIS
MEDIUM REFUSE VEHICLE AND ESTATE CAR

ashleyhelme associates
76 washway road, sale, manchester, m33 7re

Dwg No: 1222/SP/02

Rev:

Date: MAY 2011

Scale: 1:500@A2

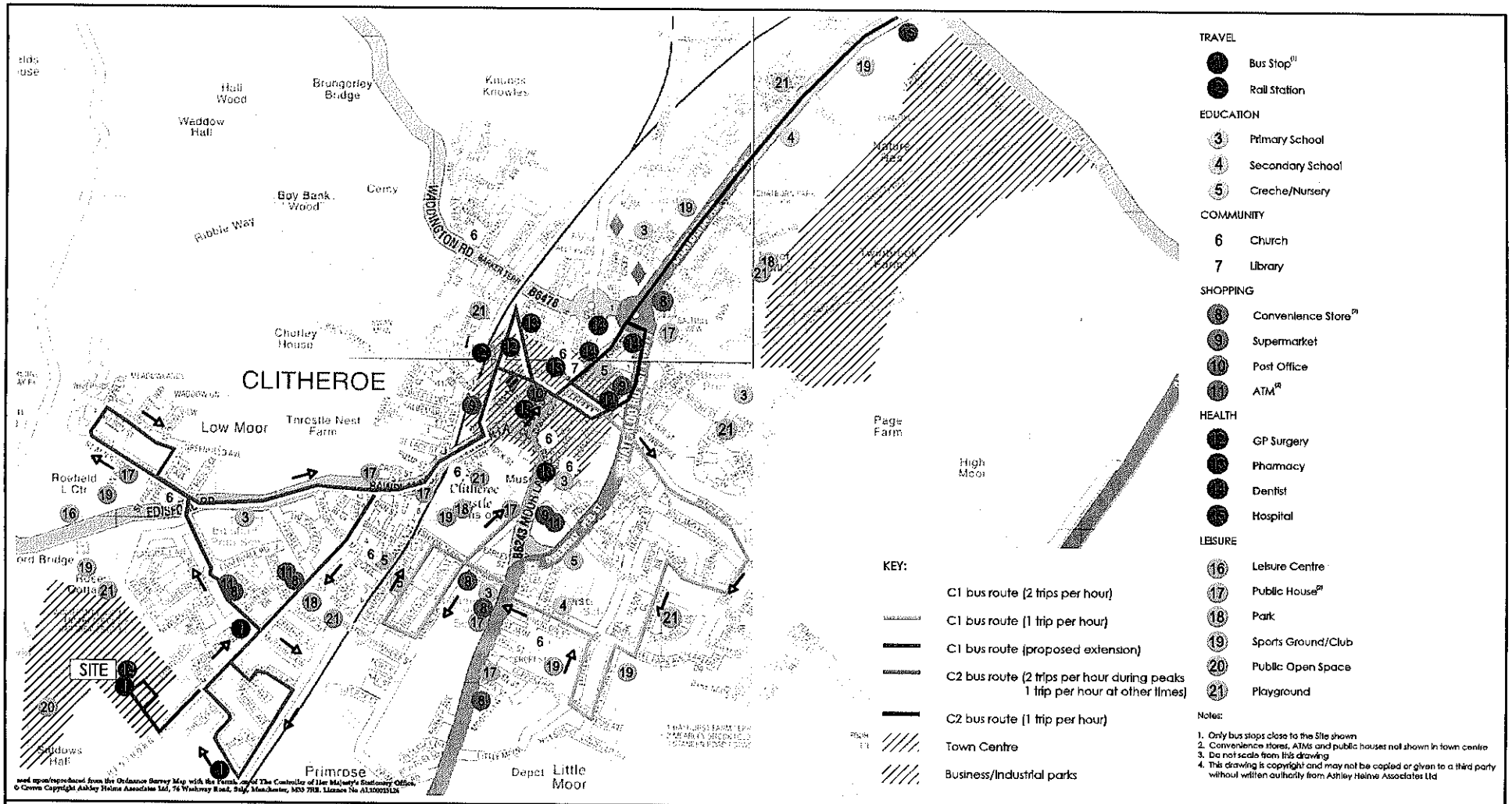


FIGURE AM2 BUS ROUTES AND LOCAL AMENITIES

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

Ashley Helme Associates

From: Ashley Helme Associates <aha@ashleyhelme.co uk>
Sent: 04 May 2011 10:50
To: 'Nugent, Martin'
Cc: 'Sarah Westwood'
Subject: 1222: Woone Lane Scheme, Clitheroe
Attachments: 1222-23B pdf; 1222-SP-02.pdf

Martin

I write further to your e-mail of 27 April 2011.

Woone Lane Traffic Management Scheme

Please find attached Drg No 1222/23 Rev B. This has been revised to reflect the comments in your 27 April e-mail. We have relocated the southern passing area to fit within the section of Woone Lane between the access points either side of the Nos 2-10 terrace properties. We have slightly ammended the western kerbline of this passing area to accommodate the tracking movements of a vehicle leaving the most southerly access.

I note your comments of carriageway and parking bay widths. We have shown a consistent carriageway width of 3.1m along the full length of Woone Lane. A parking bay width of 2.2m is achievable on the section of Woone Lane between the proposed passing areas. At the northern end of Woone Lane, the parking bays are only 50mm shy of your requirement. At the southern end of Woone Lane, the avaiable width of Woone Lane only allows 2.0m bays if the 3.1m carriageway width is to be maintained.

Swept Path Analysis

In accordance with your request, we have undertaken swept path analysis of the scheme shown on Drg No 1222/23/B. Please find attached Drg No 1222/SP/02.

The movement of a refuse vehicle is shown on:

- Cell (a): Northbound direction, and
- Cell (b): Southbound direction

Cells (a) and (b) demonstrate that a refuse vehicle is able to travel in both directions along Woone Lane with cars parked on both sides of the road and with vehicles waiting at the give-way lines within the passing areas.

We have anlaysed the turning movements of a car (estate) at the residential access points to the north and south of propoerties Nos 2 and 10 Woone Lane. The movements at the northern residential access are shown on cells (c) and (d) and the movements at the southern access are shown on cells (e) and (f). The anlaysis demonstrates that a car can undertake entry and exit movements at both access points.

I trust the enclosed provides you with the information that you presently require and that you are able to now report positively to Sarah Westwood. Your earliest response to Sarah would be greatly appreciated as I understand that time is now critical. Should you have any further queries, I would appreciate a phone call in the first instance so that we can resolve matters as quickly as possible.

Kind regards

Ben Jackson

ashleyhelme
76 Washway Road, Sale, Manchester M33 7RE
t 0161 972 0552 | w www.ashleyhelme.co.uk

From: Nugent, Martin [mailto:Martin.Nugent@lancashire.gov.uk]
Sent: 27 April 2011 10:41
To: aha@ashleyhelme.co.uk
Cc: Sarah Westwood
Subject: RE: Woone Lane Scheme

Ben,

Thank you for the updated and more detailed scheme drawings. As you have indicated, the revised plan allows for existing access arrangements to be maintained without hindering the operation or effectiveness of this non-TRO proposal.

The issue of parking bay widths has been the subject of recent discussions elsewhere in Clitheroe as part of local consultations on a Community Parking Scheme. On the streets concerned; Church Brow, Church Street and York Street, we have determined that all the bays should be set out with a minimum width of 2.2m. While a parking bay depth of 2.4m is advised as a standard, I recognise that this can be reduced to a minimum of 2.0m where the bay is bounded by a footway or verge of minimum width 0.8m.
In agreeing to the minimum standard, there could be an issue of consistency to address.

Therefore, would it be possible to look at re-siting the southerly passing area to minimise/remove the necessity for a 2.0m/3.1m/2.0m arrangement, with the access points to the terrace No's 2-10 acting as a natural break. If it is possible to achieve a 2.2m bay width by formalising a standard 3.1m carriageway running width, this would be preferable.

To support this proposal, I would be grateful for details of swept path analysis or other modelling that confirms access to the proposed bays and adjoining junctions, for both residential traffic and refuse vehicles (2.4m wide as standard).

I had a brief discussion with colleagues at Ribble Valley yesterday where I was able to confirm that a potentially viable scheme was being looked into in more detail. I am confident that, with some adjustments, this is a realistic proposal that could be identified and detailed as a future highways condition. I would be looking to include this scheme, along with the other off site highway works, as part of a formal Section 278 Agreement, and to include an agreed breakdown on the phasing of the various elements.

I look forward to talking with you further,

Martin Nugent

From: Ashley Helme Associates [mailto:aha@ashleyhelme.co.uk]
Sent: 14 April 2011 15:36

To: Nugent, Martin
Cc: Dean Tim
Subject: Woone Lane Scheme

Martin

Further to our meeting on Tuesday, please find attached Drg No 1222/23/A. We had another look at the existing access arrangements at the east end of Woone Lane and have modified the traffic calming scheme slightly. There are a couple of shutter doors on the south side of the highway which I have indicated on the plan. One of these accesses already has an advisory line marking to discourage parking across the shutter door frontage which I propose that we maintain. I think we should introduce another advisory line marking across the frontage of the other shutter access and reduce the length of the proposed parking bays so that they do not cross these accesses. I understand that the advisory markings can be implemented without a TRO.

As discussed during the meeting, the scheme now proposes raising the carriageway at the passing locations to introduce an additional traffic calming feature. The raised table could be constructed with a surface material that distinguishes it from the rest of the carriageway, but these details can be dealt with at the design stage.

I have also added some carriageway dimensions. The carriageway is generally 7.4-7.5m wide, although the carriageway measures circa 7.1m wide at the western end of Woone Lane. Nevertheless, this would still allow 2.0m wide parking bays and a 3.1m carriageway which is sufficiently wide to allow a HGV to pass between the parked vehicles.

I would be grateful if you could review the revised scheme and confirm that you are satisfied with the proposals and that no TROs will be required as part of its implementation. On the assumption that you are happy with the latest proposals, I would also be grateful if you would let the planning officer know that we have now resolved this issue

Many thanks

Regards
Ben Jackson

ashleyhelme
76 Washway Road, Sale, Manchester M33 7RE
t 0161 972 0552 | **w** www.ashleyhelme.co.uk

transport planning
transport assessment
air quality assessment
sustainable travel
traffic management
travel plans
highway engineering

****

This e-mail contains information intended for the addressee only

It may be confidential and may be the subject of legal and/or professional privilege

Ashley Helme Associates

From: Ashley Helme Associates <aha@ashleyhelme.co.uk>
Sent: 16 March 2011 09:43
To: martin.nugent@lancashire gov uk
Cc: Dean Tim; Fisher Dean
Subject: 1222: HENTORN ROAD, CLITHEROE
Attachments: 1222-22 pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Martin

Further to our telephone conversation yesterday, please find attached AHA Drg No 1222/22.

As I explained when we spoke, I am endeavouring to address your concerns about certainty of deliverability for a traffic management scheme on Woone Lane. As you helpfully set out in your letter dated 4 March 2011, you are confident that *"a scheme broadly in line with the indicative scheme"* shown on AHA Drg No 1222/20 would be beneficial for Woone Lane, and *"address the increased activity along this road"* generated by the proposed development.

The issue of concern to you is certainty of deliverability. The Drg No 1222/20 scheme includes introducing northbound one-way operation on Woone Lane, between Greenacre Street (which is presently one-way) to the mini-roundabout with Moor Lane (which has one-way arms at this roundabout). Thus, for the Drg No 1222/20 scheme, a TRO is required to make the one-way Order.

Your letter sets out your view that the one-way TRO should be secured prior to planning consent being granted for the proposed development. As I explained, my instructions from the applicant are that, for a variety of reasons, this is not a practical way forward, and is thus not acceptable to the applicant.

It is against this background that I am endeavouring to find a workable way forward in respect of a Woone Lane traffic management scheme, that is acceptable to both LCC and the applicant. The approach comprises:

- Consider the Drg No 1222/20 scheme as the preferred option scheme, say Scheme 'A',
- Following granting of planning consent, LCC pursue the Scheme A, including consultations, TRO process, and if this is successful implementation of Scheme A. Funding fully secured from the applicant,
- However, if the TRO is not successful, LCC implement the alternative 'fallback' scheme, say Scheme 'B', re-allocating the secured funding for implementation of Scheme A to Scheme B. Scheme B is indicated on AHA Drg No 1222/22. This does **not** require any TRO. It can be implemented within the powers of the highway authority LCC.

Scheme B achieves the fundamental objectives of Scheme A, in:
- Introduces parking bays marked on Woone Lane,
- Consequently removing on-footway parking that routinely occurs,
- Localised carriageway narrowing with minor 'build-out' that has bollards on it, on one side of Woone Lane (3no locations),
- At these locations, introduce raised table pedestrian crossing locations on Woone Lane (3no), with red surfacing or a contrasting material (eg block paviours).

The principle is that these 3no locations can provide a similar role to a passing bay location, being 5.5m wide and adequate for opposing vehicles to pass. There is only about 50m distance between the raised tables that provide passing opportunity. I conclude that:

- It is highly unlikely that a vehicle would choose to park on the raised table. I base this on the layout etc which indicates it is a pedestrian crossing location, and also that marked parking bays are provided on Woone Lane, and
- I note, and consider it highly relevant, that there is only a very small volume of traffic recorded travelling southbound on Woone Lane in the AM (20 pcu) & PM (61 pcu) peak hours.

Thus, I conclude that the fallback Scheme B provides an acceptable scheme to meet the objectives of a traffic management scheme on Woone Lane to mitigate the traffic impact of the proposed development, if the TRO required for Scheme A is not made. For the avoidance of doubt, my professional view is that Scheme B satisfies any requirement for a traffic management scheme on Woone Lane that acceptably mitigates the traffic impact of the proposed development. Scheme A also meets this criterion and may be considered to have a broader traffic management benefit.

I would appreciate it if you would consider this matter. I hope that this will provide you with a basis to conclude that you have no highways objections to the planning application, subject to securing of the funds from the applicant to allow implementation by LCC of a scheme broadly in line with Scheme A, or if the required TRO is not secured, then broadly in line with Scheme B.

I look forward to hearing from you. Please telephone if you would like to discuss this.

Regards

DR CAROL ASHLEY
Director

ashleyhelme
76 Washway Road, Sale, Manchester M33 7RE
t 0161 972 0552 | **w** www.ashleyhelme.co.uk

transport planning
transport assessment
air quality assessment
sustainable travel
traffic management
travel plans
highway engineering

Ashley Helme Associates

From: Nugent, Martin <Martin Nugent@lancashire.gov.uk>
Sent: 27 April 2011 10:41
To: aha@ashleyhelme co uk
Cc: Sarah Westwood
Subject: RE: Woone Lane Scheme
Attachments: woone lane, april 2011 pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Ben,

Thank you for the updated and more detailed scheme drawings. As you have indicated, the revised plan allows for existing access arrangements to be maintained without hindering the operation or effectiveness of this non-TRO proposal.

The issue of parking bay widths has been the subject of recent discussions elsewhere in Clitheroe as part of local consultations on a Community Parking Scheme. On the streets concerned; Church Brow, Church Street and York Street, we have determined that all the bays should be set out with a minimum width of 2.2m. While a parking bay depth of 2.4m is advised as a standard, I recognise that this can be reduced to a minimum of 2.0m where the bay is bounded by a footway or verge of minimum width 0.8m.
In agreeing to the minimum standard, there could be an issue of consistency to address.

Therefore, would it be possible to look at re-siting the southerly passing area to minimise/remove the necessity for a 2.0m/3.1m/2.0m arrangement, with the access points to the terrace No's 2-10 acting as a natural break. If it is possible to achieve a 2.2m bay width by formalising a standard 3.1m carriageway running width, this would be preferable.

To support this proposal, I would be grateful for details of swept path analysis or other modelling that confirms access to the proposed bays and adjoining junctions, for both residential traffic and refuse vehicles (2.4m wide as standard).

I had a brief discussion with colleagues at Ribble Valley yesterday where I was able to confirm that a potentially viable scheme was being looked into in more detail. I am confident that, with some adjustments, this is a realistic proposal that could be identified and detailed as a future highways condition. I would be looking to include this scheme, along with the other off site highway works, as part of a formal Section 278 Agreement, and to include an agreed breakdown on the phasing of the various elements.

I look forward to talking with you further,

Martin Nugent

From: Ashley Helme Associates [mailto:aha@ashleyhelme co.uk]
Sent: 14 April 2011 15:36
To: Nugent, Martin
Cc: Dean Tim
Subject: Woone Lane Scheme

Martin

ashleyhelme
associates

76 Washway Road
SALE
Manchester
M33 7RE

t 0161 972 0552
f 0161 972 0553
e aha@ashleyhelme.co.uk
w www.ashleyhelme.co.uk

Our Ref: 1222/caa

17 December 2010

Mr M Nugent
Lancashire County Council
Highways Department
Public Realm, Ribble Valley

Dear Martin

LAND OFF HENTHORN ROAD, CLITHEROE

I write following our meeting on 8 December 2010, at the Lancashire County Council (LCC) offices in Preston. We discussed in detail the LCC concerns at that point regarding the transport impact of the current planning application of my client Gladman Developments, for residential development on land off Henthorn Road, Clitheroe.

transport planning
sustainable travel
travel plans
transport assessment
traffic management
highway engineering
air quality assessment

Background

You had previously reviewed the Transport Assessment (TA) and Travel Plan (TP) reports prepared by AHA and submitted to support the planning application. You had also consulted internally with various of your LCC colleagues and obtained their technical views. Arising from this process you prepared a written response to the 20 August 2010 Ribble Valley Borough Council (RBVC) consultation letter. RBVC provided a copy of this to the applicant Gladman by email on 3 December 2010. Gladman forwarded a copy to me on the same date.

You helpfully set out in your consultation response that *"I have no objections in principle to this proposal on highway grounds."*

You continued to clarify that:

"However, a number of highway improvements will be required to address my concerns regarding aspects of the proposed development that could prove detrimental to residents and operation of the local highway network. These matters should be resolved and formal agreements reached prior to permission being granted." and

"However, the sustainability of the development is a particular concern, to the extent that I am advised by colleagues that a recommendation for refusal is warranted unless improvements in accessibility by public transport and non-car travel modes are addressed."

I reviewed in detail the content of your consultation response to RBVC. Arising from, and consequent upon this, I identified a range of proposed measures to address the concerns you raised. I gained approval from the applicant Gladman for these measures to be incorporated within the development.

Directors

DR CAROL ASHLEY
BSc MSc PhD FIHT MCIT MILT MAE

SIMON HELME
BEng MSc MIHT

Associate Director

BEN JACKSON
BEng MSc MIHT

Objective of Meeting & Approach to Achieve This

I requested the meeting so that we could jointly explore and identify proposals to achieve the objective of addressing the highways/transport concerns set out in your LCC Highways consultation response to RBVC. The underlying objective, as I confirmed to you, is that we reach a position such that you are able to provide an updated LCC Highways response to RBVC, confirming that LCC has 'no highways objections' to the planning application, subject to a schedule of transport measures/works that we have agreed.

I have undertaken to provide to you drawings and accompanying written explanatory text, as required, to set out the required schedule of transport measures to achieve this position This letter and attached drawings is the first step in that process.

You have agreed to review this, in consultation with your LCC colleagues as required You will then, for the avoidance of any doubt, respond to me setting out formally matters that are resolved and for which we have formal agreement.

If there remains any matter on which we have not yet reached formal agreement, we will use best endeavours to also resolve that as expeditiously as possible, through dialogue as required.

Issues to be Addressed by the Applicant

My review of your detailed consultation response to RBVC identified that the concerns you expressed can be conveniently considered under the following 'topic headings':

- Source data: to be provided to LCC,
- Bus service provision,
- Pedestrian & cyclist assistance
- Traffic impact on Henthorn Road and on Woone Lane,
- Other Matters

I set out below a summary of the key points arising from/established at our meeting.

Source Data

In advance of our meeting, on 3 December 2010, AHA sent to you by email the following source data as requested:

- Traffic counts,
- Junction modelling files.

You acknowledged receipt of these by return email.

Bus Service Provision

As I explained at the meeting, AHA has undertaken investigations and made enquiries of various parties in respect of bus service provision. This included formal approaches to 3no bus companies. All three expressed interest in operating a

replacement/extended C1 bus service. Two companies provided written quotations of cost.

This culminated in identifying a firm proposal for bus service provision for the development. I formally confirm on behalf of the applicant Gladman that they undertake to make the following commitments in connection with a planning consent for the proposed development:

- To fully fund for 5 years of operation a bus service ('the bus service') based on the current C1 service, extended to serve the development with access via Henthorn Road,

- The details of the routing of the bus service will be determined by LCC, with the provisos that the service route **must** include the development's bus stop on **every** scheduled run, and that the route must operate between the Site and Clitheroe town centre including a stop at the rail station,

- The bus service will operate through the day and in the evenings on Monday to Saturday and additionally a Sunday service at reduced frequency,

- The bus service must be operating prior to occupation of the 51st dwelling,

- 100% of the farebox revenues from the bus service funded by the developer are to be placed in a fund to be ring fenced and retained solely for the purpose of providing further funding for the bus service to continue to operate when the 5 years' funding provided by the developer ends. For the avoidance of doubt, the developer commits to retaining **none** of the farebox revenue,

- A bus stop is to be provided on the development's internal road network prior to the occupation of the 51st dwelling. This is to be to the LCC bus stop quality standard, and the location is to be agreed with LCC,

- The carriageway width of the internal road layout, that remains to be approved as reserved matters, must be adequate to accommodate the bus service along the length of development road that it is to be routed,

- In the interim period between the occupation of the 1st dwelling and the until the occupation of the 51st dwelling, a temporary additional bus stop, of a flag and pole type, is to be introduced on Henthorn Road near to the development Site access, the detailed location to be as required by LCC.

The foregoing demonstrates the applicant's clear commitment to ensuring that the development is served by bus. Furthermore, the bus service represents a material benefit for those on the route of the existing C1 service, as the developer funded bus service will be extended from the existing schedule to include the morning peak and the evenings on Monday to Saturday and to also introduce a Sunday service

The security of funding offered by the developer ensures that, not only will the bus service be secured for a period of 5 years at no cost to the public purse (a public cost saving compared with the current subsidy), but the retention of 100% of the farebox revenues for ongoing funding of the service ensures that there is secured funding at no public cost for well beyond 5 years. This contrasts with all other bus services in Clitheroe, which all rely upon some public cost subsidy, and therefore can not be 100% guaranteed into the future. The developer bus service is 100% guaranteed well into the future, for in excess of 5 years, for at least 7 or 8 years, or perhaps even more.

Pedestrian & Cyclist Assistance

There was a lengthy discussion about these matters. The input of your colleagues Caroline Holden and David Watson was most helpful. The key issues identified were:

- Pedestrian crossings to be introduced, and all to be of a Toucan type (ie accommodate pedestrians and cyclists),

- Second pedestrian/cyclist link between the Site and the surrounding area required, with LCC expressing a very strong preference/requirement that this should provide a link to Edisford Road via the 'caravan road' route,

- Cycle parking.

Pedestrian Crossings

It is agreed that the developer will fund the introduction of improvements to assist pedestrian crossing movements. For the avoidance of doubt, and convenience of reference, these are described below The requirement on the developer is fully discharged by the entering into the appropriate legal agreement to make the required funding available. The responsibility for introducing the pedestrian crossing works rests with LCC. The locations are as follows:

- Henthorn Road: Pedestrian crossing assistance near Park entrance, complemented by cycle signage Indicated on the attached AHA Drg No 1222/19. However, as agreed with LCC, the precise location and details will be confirmed by LCC at the time when this is to be introduced,

- Whalley Road: Existing pedestrian crossing just south of Greenacre Street to be upgraded to a Toucan crossing (ie pedestrians & cyclists).

As agreed, the potential for providing formal pedestrian crossing assistance on Parson Lane and on Eshton Terrace (near the Park entrance)was also investigated, notwithstanding that, at the meeting, we all thought it likely that various constraints may preclude the feasibility of this at either of these locations Regrettably, that has proved to be the case. I summarise below the findings:

- Parson Lane: There is no footway on one side of the road for circa 90m east of the railway line, and hence a pedestrian crossing would not be appropriate; introduction of footway would reduce the carriageway width below that required for 2 way traffic. Beyond this, to the east, access must be maintained to the Booth foodstore, and there is a length of on-street parking (serving dwellings and businesses). Further east is becoming close to the mini-roundabout. In summary, there is no suitable location in which to introduce a pedestrian crossing on Parson Lane,

- Eshton Terrace (near Park entrance): It is not feasible to introduce a pedestrian island because the carriageway width is too narrow for a pedestrian island and to maintain 2-way traffic with cyclists. The alternative of a zebra crossing near to the level crossing is not desirable. In general, the proximity to the level crossing tends to be a deterrent to introducing a formal pedestrian crossing near to it

Pedestrian/Cyclist Link to Caravan Road

As explained to you briefly by telephone on 13 December 2010, subsequent to our meeting I reported to Gladman the high importance placed by LCC on this second pedestrian/cyclist link between the Site and the surrounding area. It had been expressed by LCC at our meeting that the provision of this would be a material factor of great import in addressing *"the sustainability of the development"* in terms of achieving material *"improvements in accessibility by ..... non-car travel modes"*.

Consequently, Gladman met with John Gorton of RVBC to discuss the potential for a pedestrian/cyclist link to be made from the Site to the 'caravan road'. Gladman are advised that in principle this can be achieved, and the matter will be taken to the Council's Estates Committee meeting on 6 January 2011, with a recommendation that this should be approved in principle

Consequently, please find attached AHA Drg No 1222/18. This indicates a 3.0m wide pedestrian/cycle link between the Site and the 'caravan road' Thence, pedestrians and cyclists can traverse the tarmac surface of the caravan road to make their way to/from Edisford Road and various amenities This now forms part of the development proposal, subject only to the Council's approval of the link being introduced.

Cycle Parking

Caroline raised the issue of destination cycle parking, for residents of the development that make journeys by cycle. Arising from Caroline's input, it is proposed that cycle parking is provided at the following locations:

- Development Play Area: parking stand to accommodate 4 cycles,
- Clitheroe town centre: parking stand to accommodate 4 cycles (location to be determined by LCC).

The requirement on the developer for the above cycle parking is:

- Play Area: developer to provide cycle parking,
- Clitheroe town centre: developer responsibility fully discharged by the entering into the appropriate legal agreement to make the required funding available. The responsibility for introducing the cycle parking rests with LCC.

Traffic Impact: Henthorn Road & Woone Lane

We discussed this issue at length. For the avoidance of doubt, I confirm that my view remains as set out in the submitted TA report This is that the development has no material impact on the operation of Henthorn Road or Woone Lane Notwithstanding this, I accept that there is a professional difference of opinion between us on this issue.

Thus, in the spirit of using best endeavours to reach a negotiated position of agreement on this matter for the determination of the planning application, proposals are put forward to address the LCC concerns on these matters; these are set out in the following.

As I raised at our meeting, we propose that the implementation responsibilities for such works will be on a phased basis, as follows:

- Phase 1: developer funding of the investigation by LCC of the intention to introduce works, including inter alia the preparation of drawings, consultation

processes as necessary, including revisions to scheme(s) and re-consultations, up to and including the decision to not proceed with implementation and/or the taking the proposals to the relevant Council committee and their making a decision to proceed or not,

- Phase 2: triggered if the Council resolve to proceed with an identified scheme, having decided that it is necessary. Developer funding for the implementation of the works.

The developer responsibilities are discharged in full by entering into the relevant legal agreement to make the necessary funds available to be drawn down on the phased basis identified above.

Traffic Impact: Henthorn Road

You explained that LCC are considering the introduction of a '20mph sign only' scheme on Henthorn Road, near to the Park entrance. A 'sign only' scheme would not require, nor be reliant upon, any Traffic Regulation order (TRO). You anticipate that such a scheme would be accompanied by some form of complementary road marking scheme on the Henthorn Road carriageway.

I have prepared AHA Drg No 1222/21, which is attached. This indicates a proposal for a traffic management road marking scheme. This is for illustrative purposes. The details of any road marking scheme would be determined by LCC. Similarly, the number and location of the required 20mph signs is to be specified by LCC. For completeness, the Drg No 1222/21 shows all of the following on the Henthorn Road carriageway:

- Existing traffic management road markings,
- AHA Drg No 1222/19 proposal to introduce a zebra crossing on Henthorn Road, and
- Illustrative road marking proposals to complement the LCC proposed 20mph sign only scheme.

The developer responsibilities are discharged in full by entering into the relevant legal agreement, to make the necessary funds available for the '20mph sign only' scheme and complementary road marking scheme.

Traffic Impact: Woone Lane

AHA Drg No 1222/20 presents a traffic management scheme proposal for Woone Lane. The features of this include:

- Introduce designated parking bays along Woone Lane, between Greenacre Street and Moor Lane. Bays are to be located on both sides of the road, but not opposite to each other. This assists in fostering speed restraint,

- Resultant Woone Lane reduced carriageway width to become one-way operation in a northbound direction.

You suggested at the meeting that such a scheme may attract some existing traffic on the southern length of Woone Lane (south of Greenacre Street), to re-route (away from the residential properties on this southern length of Woone Lane) to the newly designated one-way northbound route which, has much less residential property frontage. This can only be conjecture, but if it did occur, you saw this as a benefit.

Of course, a one-way designation requires a TRO, and there can be no certainty that this will be made. I suggest to you that if the Council do have genuine concerns about the traffic conditions on Woone Lane, then it would be logical to make a one-way TRO that would address such a problem. If, on the other hand, the Council declined to make the one-way TRO then they must share my view that the development traffic impact is not material on Woone Lane.

The discharge of the developer responsibilities is on the phased basis explained above.

Other Matters

Caroline queried whether all of the dwellings would have garages. I am instructed that this is the intention

David Watson queried the width of carriageway on Henthorn Road in the locale of the proposed Site access realignment We explained that we had taken a number of on-site measurements (with a 'wheel'), as part of our site visit Please find attached AHA Drg No 1222/03 Rev C, which shows the measurements we recorded.

Finally, I confirm that I am instructed that it is proposed that the development scheme includes a GP surgery, and that the formal PCT consultations on this matter are well progressed, nearing completion. This provides a valuable facility that can be accessed on foot by residents of the development, and removes the need for these residents to make a longer journey elsewhere.

Summary

I trust the enclosed accords with your recollection of our meeting, and the pursuant investigations I undertook to make. I would appreciate your response to the enclosed as soon as you are able. You agreed to also provide an estimate of cost for each of the proposed items of transport/highways works; except for the bus service, for which we already have obtained commercial quotes. This will allow us to have a total cost summary of the proposed transport/highways measures

I would like to take this opportunity to thank yourself and colleagues, Andy Whitlam, David Watson and Caroline Holden, for your time and constructive approach at the very lengthy meeting we had. I do feel it was very worthwhile and that real progress was made. I hope that the enclosed carries this forward, and that we are nearing a formal agreement on transport/highways matters.

Should you require any further information, or want to discuss any aspect of this, please contact me. I would be happy to meet again, if it will help to expedite matters. Otherwise, we can deal with issues as they arise, by telephone and/or email Thank you for your cooperation and assistance

Kind regards

Yours sincerely

DR CAROL A ASHLEY
Director

cc File

ashleyhelme
associates

76 Washway Road
SALE
Manchester
M33 7RE

t 0161 972 0552
f 0161 972 0553
e aha@ashleyhelme.co.uk
w www.ashleyhelme.co.uk

Our Ref: 1222/idc/IDC

24 February 2011

Mr J Mellor
Commercial Manager
Stagecoach North West
Commercial Offices
Tithebarn Street
Preston
PR1 1YU

BY EMAIL & POST

Dear Mr Mellor

PROPOSED BUS SERVICE, CLITHEROE

I write further to your email, dated 02 November 2010, regarding the proposal of Gladman Developments Ltd to provide a bus service to serve a new residential development in Clitheroe. This service will either provide an extension to the existing C1 service in Clitheroe, or should council subsidy for the C1 service cease, provide a replacement service. The key features of this are:

- Operates between the Gladman Site at Henthorn Road, and Clitheroe town centre,
- Developer funding of the service commences on occupation of the 51st residential unit at the Site, or should the C1 service cease to operate, on occupation of the first unit,
- Weekday peak period minimum frequency of 30 minutes, during 0700-0930 and 1630-1830 on Monday to Friday,
- Minimum frequency of hourly at other times,
- Operate Monday to Saturday inclusive during circa 0700-2300 hours,
- Sunday operation with hourly service between circa 0800-2000 hours,
- Fully funded by Gladman for 5 years,
- All revenue collected to be ring-fenced for the sole purpose of continuing the service beyond the 5-year funded period.

AHA understand that Lancashire County Council presently provide a circa £35000 annual subsidy for the existing C1 service. This is clearly a

transport planning
sustainable travel
travel plans
transport assessment
traffic management
highway engineering
air quality assessment

Directors

DR CAROL ASHLEY
BSc MSc PhD FIHT MCIT MILT MAE

SIMON HELME
BEng MSc MIHT

Associate Director

BEN JACKSON
BEng MSc MIHT

far smaller subsidy than the total operating cost of this service. Therefore, AHA anticipates that the fares collected from the service will provide a fund for continuing the new service for a significant period of very many years after the developer 5 year funding has ceased.

I would be grateful if you would confirm in writing (on your company headed paper), that you would be willing to tender for, and if successful, operate such a service.

Please do not hesitate to contact me if you wish to discuss this matter. I look forward to hearing from you.

Kind regards

Yours sincerely

IAN CRONSHAW
Senior Consultant

cc T Dean – Gladman
File

ashleyhelme
associates

76 Washway Road
SALE
Manchester
M33 7RE

t 0161 972 0552
f 0161 972 0553
e aha@ashleyhelme.co.uk
w www.ashleyhelme.co.uk

Our Ref: 1222/idc/IDC

24 February 2011

Mr T Hancock
Assistant Traffic Manager
Tyrer Bus
16 Kirby Road
Lomeshaye
Nelson, Lancashire
BB9 6RS

BY EMAIL & POST

Dear Mr Hancock

PROPOSED BUS SERVICE, CLITHEROE

I write further to your email, dated 08 November 2010, regarding the proposal of Gladman Developments Ltd to provide a bus service to serve a new residential development in Clitheroe. This service will either provide an extension to the existing C1 service in Clitheroe, or should council subsidy for the C1 service cease, provide a replacement service. The key features of this are:

- Operates between the Gladman Site at Henthorn Road, and Clitheroe town centre,
- Developer funding of the service commences on occupation of the 51st residential unit at the Site, or should the C1 service cease to operate, on occupation of the first unit,
- Weekday peak period minimum frequency of 30 minutes, during 0700-0930 and 1630-1830 on Monday to Friday,
- Minimum frequency of hourly at other times,
- Operate Monday to Saturday inclusive during circa 0700-2300 hours,
- Sunday operation with hourly service between circa 0800-2000 hours,
- Fully funded by Gladman for 5 years,
- All revenue collected to be ring-fenced for the sole purpose of continuing the service beyond the 5-year funded period.

AHA understand that Lancashire County Council presently provide a circa £35000 annual subsidy for the existing C1 service. This is clearly a

transport planning
sustainable travel
travel plans
transport assessment
traffic management
highway engineering
air quality assessment

Directors

DR CAROL ASHLEY
BSc MSc PhD FIHT MCIT MILT MAE

SIMON HELME
BEng MSc MIHT

Associate Director

BEN JACKSON
BEng MSc MIHT

far smaller subsidy than the total operating cost of this service. Therefore, AHA anticipates that the fares collected from the service will provide a fund for continuing the new service for a significant period of very many years after the developer 5 year funding has ceased.

I would be grateful if you would confirm in writing (on your company headed paper), that you would be willing to tender for, and if successful, operate such a service.

Please do not hesitate to contact me if you wish to discuss this matter. I look forward to hearing from you.

Kind regards

Yours sincerely

IAN CRONSHAW
Senior Consultant

cc T Dean – Gladman
File

Lancashire County Council

07 MAR 2011

Copy to: *Director of Development Services*
Ribble Valley Borough Council
Council Offices
Church Walk
Clitheroe BB7 2RA

Dr Carol Ashley
Ashley Helme Associates
76 Washway Road
SALE
Manchester
M33 7RE

Phone: (01254) 770960
Fax: (01254) 770987
Email: highways@lancashire.gov.uk
Your ref: MN/ASF/D3/2011/0719
Our ref:
Date: 4th March 2011

Dear Dr Ashley

PLANNING APPLICATIONS, RIBBLE VALLEY DISTRICT
D3-10-0719 LAND OFF HENTHORN ROAD, CLITHEROE

Thank you for your letter of 17th December 2010 summarising discussions from our meeting of 8th December. This provided an opportunity to discuss the full range of highway issues associated with this application and has allowed a number of items to be progressed. I have compiled my response in liaison with colleagues with a view to resolving issues of concern wherever possible. However, where this is not possible and where significant differences in approach, assessment or interpretation remain, these have also been noted.

It is also relevant to note that as a result of the public consultation I also received a copy of report prepared by the Denis Wilson Partnership in respect of the Trustees of the Standen Estate. While they acknowledged a potential commercial interest in the outcome of the consultations, it seems prudent to try and address, where possible, any contentious points that may have been raised.

1. Source data

Thank you for providing copies of the traffic counts data and junction modelling files, as requested. I have received no adverse comment concerning this information and conclude that there no further observations on these matters will be forthcoming.

2 Bus Service Provision

The detailed Public Transport provisions would be resolved as part of a formal Section106 Agreement. In assisting with this aspect of the proposal your formal confirmation of the scope of the suggested bus service provisions are most welcome.

Jo Turton
Executive Director for the Environment
Area East, Willows Lane, Accrington, BB5 0RT

INVESTORS IN PEOPLE

Beacon Authority
2008-2009 Improving Accessibility
2009-2010 Positive Engagement of Older People
Raising Economic Prosperity through Partnerships
Cohesive and Resilient Communities

The provision of a new service would draw on the existing C1 service, but may vary in detail, frequency and route. However, the service would always aim to serve the development site and Clitheroe Interchange.

While it is not realistic to demand support for a service in perpetuity, the funding measures that have been suggested would secure a valuable service in excess of the initial five year period.

3. Pedestrian and Cycle Assistance

The provision of Toucan measures at the upgraded signal controlled crossing on Whalley Road, close to Turner Street, would be a welcome improvement for cyclists and pedestrians.

4. Pedestrian Crossings

The proposed crossings on Henthorn Road and Whalley Road will be of direct benefit to all road users, but with specific benefit to pedestrian movements from Henthorn Road to facilities within the town.

You have also detailed why it would not be feasible to pursue crossings at two other locations; Parson Lane and Eshton Terrace. I accept that there are physical limitations along both of these roads that appear to preclude the provision of these measures.

I place great importance on providing a significant impetus for prospective residents to walk to and from Clitheroe town centre, and while priority pedestrian crossings may not always complement these routes, every effort should be made to facilitate pedestrian accessibility. Therefore, I propose that we review the main pedestrian desire lines from Henthorn Road to the town centre with the aim of securing appropriate pedestrian access, for example, by means of drop kerb provision, improved surface materials and pedestrian signing.

5. Pedestrian/Cycle Link to Caravan and Camping access road

In order to achieve a basic level of sustainability, the development site requires a second pedestrian and cycle access to towards Edisford Road. Ribble Valley Borough Council has control over the access presently used by the caravan and camping site.

The appropriate requirement at this point is for the creation of a formally agreed route between the development site and Edisford Road. This can involve an improvement to the width and construction of the access road itself, or the establishment of a new, shared pedestrian/cycle route within Ribble Valley Borough Council land, linking to the existing car park.

Without such a provision, access to the site for all vehicular and pedestrian use is available from a single point, and given the scale of the proposed development this would not be safe, practicable or sustainable. I understand you are presently pursuing approval for this aspect of the proposal and I await a future determination of this matter.

6. Cycle Parking

Since our meeting took place, we have taken the opportunity, in cooperation with colleagues at Ribble Valley Borough Council, to arrange for the provision of cycle parking at Clitheroe Rail Station. The introduction of the additional measures at the play area and within the town centre would further enhance safe and secure cycle activity.

Appropriate levels of funding would have to be agreed following the granting of consent and the development of more detailed scheme drawings.

7. Traffic Impact: Henthorn Road

The prospect of a 20mph sign only scheme in the Henthorn Road area has moved on since our earlier discussions, as following comments from County Councillor Mr Ashton, Portfolio Member for Highways and Transport it is the intention of LCC to pursue the implementation of 20mph Speed Limits on roads in all residential areas. It is my understanding that Henthorn Road, as an area previously under consideration, would be addressed a priority.

The road marking scheme you have identified would compliment such a reduction in Speed Limit, without any significant amendments

8. Traffic Impact: Woone Lane

Traffic movements on Woone Lane and the impact of on street parking have been considered at intervals by officers and local representatives over recent years, with the most recent Traffic Regulation Order to revise on street parking being rejected in 2007.

In returning to this highway arrangement at this time, it is the direct impact of the additional traffic generated by the proposed development and the inherent limitations of the available highway infrastructure that warrants consideration of the proposed one way working, alterations in parking provision and associated physical measures.

I am satisfied that the traffic management features that you have identified, in broad strokes, could be refined and implemented to achieve an improvement in the safe operation of pedestrian and vehicular activity on this important link within the town.

However, there remains an essential requirement to successfully progress TRO's amending on street parking and introducing one-way operation, a matter that is open to public scrutiny and comment and which cannot be guaranteed to progress. I have commented below on this process and its possible implications.

9 Other Matters

However, the delivery of the proposed measures will require further public consultation and the pursuit of a Traffic Regulation Order. In addition, a legal agreement would also be required for the completion of the off-site highway works and this will be in the form of a Section 278 agreement.

The Public Transport improvements and funding arrangements, along with the funding of subsequent cycle measures shall be secured through a S106 Agreement.

Subject to consent being granted for this development, a condition would be imposed such that no part of the approved development would commence until a scheme for the construction of the site access and the off-site works of highway improvement had been submitted to, and approved by, the Local Planning Authority in consultation with the Highway Authority. This is to satisfy the Local Planning Authority and Highway Authority that the final details of the highway scheme/works are acceptable before work commences on site.

In this instance, the successful processing of the TRO to introduce one way working to Woone Lane is critical in order to satisfy my concerns regarding the impact of the development on the safe and efficient movement of traffic and pedestrians on this important highway link.

I am confident that a scheme broadly in line with the indicative scheme drawing you kindly provided, would address the increased activity along this road. In addition it would address the existing demand for on street parking provisions, define measures to secure managed speeds, retain accessible footways for pedestrians and provide a clearly defined and signed route to the town centre, the inner bypass (A671) and towards the A59

Therefore, the securing of the necessary TRO through the public consultation process should be addressed as a priority. This should include the possible referral to the matter to the Cabinet Member for Highways and Transport should there be any objections. Given that the completion of this process will take a minimum of 12 weeks, and that this will increase dramatically should there be objections, this matter must be resolved prior to the determination of the Application.

On the basis that the amendments to the management of traffic flows on Woone Lane are necessary in order to minimise the detrimental impact of the anticipated additional movements directly attributable to the development, I would recommend refusal of the application on highway safety grounds if the appropriate Traffic Regulation Orders could not be secured.

The remaining off site highway works can be achieved without reference to an Order making process and their introduction can be agreed and scheduled by means of the S278 Agreement

It is unrealistic to try and establish a rigid timeline for the introduction of these measures at this time as much will depend on the proposed phasing of the scheme. However, some aspects of the highway improvement measures are not directly dependant on the completion of on-site works and could be prepared for implementation following a pre-determined trigger.

I would suggest that the proposed measures on Henthorn Road, including the provision of the Zebra crossing, could be linked to the completion and occupation of the first 65 properties (25% of the total units).

A similar trigger (25%) would be appropriate for the completion of the agreed pedestrian and cycle link to the camping and caravan access to the west of the site, following a successful agreement being reached with Ribble Valley Borough Council.

In view of the additional school movements related to new activity within the development, the upgrading of the Toucan crossing on Whalley Road would follow the completion and occupation of the first 130 properties (50% of the total units).

10 Correspondence received during consultation.

I have included a copy of my response to the report presented by the consultants Denis Wilson on behalf of the Trustees of the Standen Estate.

As I explain in that response, the DW report aims to highlight a number of possible discrepancies and inconsistencies in the approach and methodology adopted by myself and other colleagues at LCC in addressing the original TA. I am satisfied that the approach we have adopted has been reasonable in nature and robust in detail.

On this basis, I am confident that the comments supplied to you previously, in combination with those detailed in the attached response, set out accurately the LCC position in respect of this application

Yours faithfully

Martin Nugent
Senior Engineer, Traffic & Development

Director of Development Services
Ribble Valley Borough Council
Council Offices
Church Walk
Clitheroe BB7 2RA

Martin Nugent
01254 828060
D3/10/0719

Drafted 10 May 2011

Dear Sir

Planning Applications, Ribble Valley District
D3-10-0719 land off Henthorn Road, Clitheroe

I refer to our previous correspondence, meetings and discussions concerning the above application.

Further to our most recent meeting with representatives of Ashley Helme, I can confirm that I have no objections in principle to this proposal on highway grounds. However, this view is subject to the provision of a number of improvements to the highway infrastructure, deemed necessary and appropriate to facilitate the additional pedestrian and vehicular activity generated by the proposed development.

1. Bus Service Provision

The detailed Public Transport provisions will be resolved as part of a formal Section 106 Agreement. The provision of a new service will draw on the existing C1 service. However, while it may vary in detail, frequency and route, the agreed service will always serve the development site and Clitheroe Interchange. The bus service must be operating prior to the occupation of the 51st dwelling.

During construction and until such time as a permanent stop can be established, a temporary stop will operate from Henthorn Road at a location to be agreed.

The agreed funding measures will secure the service for a minimum five year period, with additional measures being pursued that will require all fares collected during this period being reinvested into extending the service.

The formal Section 106 Agreement will detail the specific financial arrangements required to secure this additional provision.

2 Pedestrian/Cycle Link to Caravan and Camping access road

The proposed site requires a secondary pedestrian and cycle access to achieve a basic level of sustainability. The creation of such a route is proposed to tie in with an existing access from Edisford Road. This route is presently controlled by Ribble Valley Borough Council and offers access to the Edisford Caravan and Camping site.

Given the scale of the proposed development it is inappropriate to have all vehicular and pedestrian access available from a single point. This would be unsafe, impracticable or unsustainable.

Should it transpire that a formal agreement cannot be reached prior the granting of the formal planning consent, I have no objection to establishing a specific Condition,

as part of such consent, requiring the completion of a shared pedestrian and cycle access.

3. Cycle Provisions

The developer will provide parking stands (2 sets for 4 cycles) within the development play area and in Clitheroe Town Centre, at location to be determined by the LCC Cycling Officer.

4 Traffic Measures on Woone Lane

Measures to improve the management of traffic flows on Woone Lane are necessary in order to minimise the detrimental impact of the anticipated additional movements directly attributable to the development. In considering the means available to achieve a successful outcome, an agreed scheme involving priority working and protected parking bays has been developed in discussion with Ashley Helme Associates.

I am satisfied that this proposal, as detailed on the attached drawings (Drawing Numbers 1222/23 and 1222/SP/02), addresses the direct impact of the additional traffic generated by the proposed development, meets the existing demand for on street parking provisions, defines measures to secure managed speeds and secures accessible footways for pedestrians.

5. Off-Site Highway Works.

The provision of the following off site highway works can be achieved without reference to an Order making process and their introduction will be agreed and scheduled by means of the Section 278 Agreement.

a. The provision of Toucan measures at the upgraded signal controlled crossing on Whalley Road, close to Turner Street. This will assist in managing vehicle speeds and will be of specific benefit to both cyclists and pedestrians.
b The provision of a zebra crossing on Henthorn Road, along the frontage with Henthorn Park to the north east of Siddows Avenue. Subject to agreeing a definitive position for the crossing, this may also involve some minor footway reconstruction at Siddows Avenue and Whipp Avenue This will assist in managing vehicle speeds and will provide a safe pedestrian route to the various facilities within the town centre. I have attached a copy of Drawing Number 1222/19.
c. In order to maximise pedestrian access between the proposed development site and the town centre, the provision of drop kerbs along the main pedestrian desire lines, improved surface materials and pedestrian signing to the town shall be reviewed.
d. Lancashire County Council is pursuing a 20mph Speed Limit proposal that includes the Henthorn Road area. I have attached a copy of the draft plans, current as of 10 May 2011. If successful, the extent of the measures will be altered to include the proposed development.
As this matter is being dealt with directly by LCC, there will be no obligation placed on the developer to contribute toward the costs of this scheme
e. The provision of new red surfacing measures at a number of junctions along Henthorn Road has been discussed. I refer to Drawing 1222/21 of December 2010. With the proposed introduction of the 20mph Speed Limit, these additional measures will not be required. However, the renewal of the existing junction measures should proceed

6. Summary and Conditions

A. The Public Transport improvements and funding arrangements, along with the funding of subsequent cycle measures shall be secured through a S106 Agreement.

B. Subject to consent being granted for this development, a condition would be imposed such that no part of the approved development would commence until a scheme for the construction of the site access and the off-site works of highway improvement had been submitted to, and approved by, the Local Planning Authority in consultation with the Highway Authority. This is to satisfy the Local Planning Authority and Highway Authority that the final details of the highway scheme/works are acceptable before work commences on site.

C. The new estate road between the site and Henthorn Road shall be constructed in accordance with the Lancashire County Council Specification for Construction of Estate Roads to at least base course level before any development takes place within the site. This is to ensure that satisfactory access is provided to the site before the development hereby permitted becomes operative.

D. Before the development hereby permitted is brought into operation facilities shall be provided within the site by which means the wheels of vehicles may be cleaned before leaving the site. This is to avoid the possibility of the public highway being affected by the deposit of mud and/or loose materials thus creating a potential hazard to road users.

Martin Nugent

Public Realm, Ribble Valley
LCC Environmental Services East
01254 828060

APPENDIX 2

Accessibility Questionnaire

Table G - Accessibility Questionnaire (Residential)

Site description:
Application reference:

Access type	Criteria	Criteria scores		Sub score
Walking distance from centre of site to facilities using a safe, direct route	Distance to nearest bus stop	<200m	5	
		<400m	(3)	
		<500m	1	
		>500m	0	
	Distance to nearest railway station	<400m	3	
		<800m	2	
		>800m-1000m	1	
		>1km	(0)	
	Distance to nearest Primary School	<200m	5	
		<400m	3	
		<600m	1	
		>600m	(0)	
	Distance to nearest Food shop	<200m	5	
		<400m	3	
		<600m	1	
		>600m	(0)	
Cycling distance from centre of site	Proximity to defined on or off-road cycle route	<100m	3	
		<500m	2	
		>1km	(1)	
	Distance to nearest Secondary School	<400m	3	
		<600m	2	
		<1km	1	
		>1km	(0)	
	Distance to nearest town centre	<1km	3	
		<3km	(2)	
		<4km	1	
	Distance to nearest business park or employment concentration	<1km	3	
		<3km	(2)	
		<4km	1	
Public transport	Bus frequency from nearest bus stop (Mon-Sat daytime)	**Urban/suburban**		
		15 minutes or less	5	
		30 minutes or less	(3)	
		>30 minutes	1	
		Rural including villages		
		Hourly or less	5	
		2 hourly or less	3	
		1 or more per day	1	
	Train frequency from nearest station (Mon-Sat daytime)	30 minutes or less	3	
		30-59 minutes	2	
		Hourly or less frequent	(1)	
Accessibility to other basic services	Accessibility to other basic services (GP, Post Office, Library, Bank and Pub)	At least 3 within 400m	5	
		At least 3 within 800m	3	
		At least 3 within 1.5 km	(1)	
	Accessibility to Play Area or Park	<200m	5	
		<400m	3	
		<600m	(1)	
		>600m	0	

TOTAL AGGREGATE SCORE

Accessibility level High 35-48 Medium 20-35 Low Less than 20

EXISTING 14

Table G - Accessibility Questionnaire (Residential)

Site description:
Application reference:

Access type	Criteria	Criteria scores		Sub score
Walking distance from centre of site to facilities using a safe, direct route	Distance to nearest bus stop	<200m	(5)	WITH ADDITION OF NEW BUS STOP
		<400m	3	
		<500m	1	
		>500m	0	
	Distance to nearest railway station	<400m	3	
		<800m	2	
		>800m-1000m	1	
		>1km	(0)	
	Distance to nearest Primary School	<200m	5	
		<400m	3	
		<600m	1	
		>600m	(0)	
	Distance to nearest Food shop	<200m	5	
		<400m	3	
		<600m	1	
		>600m	(0)	
Cycling distance from centre of site	Proximity to defined on or off-road cycle route	<100m	3	
		<500m	2	
		>1km	(1)	
	Distance to nearest Secondary School	<400m	3	
		<600m	2	
		<1km	1	
		>1km	(0)	
	Distance to nearest town centre	<1km	3	
		<3km	(2)	
		<4km	1	
	Distance to nearest business park or employment concentration	<1km	3	
		<3km	(2)	
		<4km	1	
Public transport	Bus frequency from nearest bus stop (Mon-Sat daytime)	**Urban/suburban**		
		15 minutes or less	(5)	WITH INCREASED BUS FREQUENCY
		30 minutes or less	3	
		>30 minutes	1	
		Rural including villages		
		Hourly or less	5	
		2 hourly or less	3	
		1 or more per day	1	
	Train frequency from nearest station (Mon-Sat daytime)	30 minutes or less	3	
		30-59 minutes	2	
		Hourly or less frequent	(1)	
Accessibility to other basic services	Accessibility to other basic services (GP, Post Office, Library, Bank and Pub)	At least 3 within 400m	5	
		At least 3 within 800m	3	
		At least 3 within 1.5 km	(1)	
	Accessibility to Play Area or Park	<200m	5	
		<400m	(3)	WITH NEW PLAY AREA AT GLADMAN SITE
		<600m	1	
		>600m	0	
TOTAL AGGREGATE SCORE				

Accessibility level High 35-48 Medium 20-35 Low Less than 20

20

PROPOSED

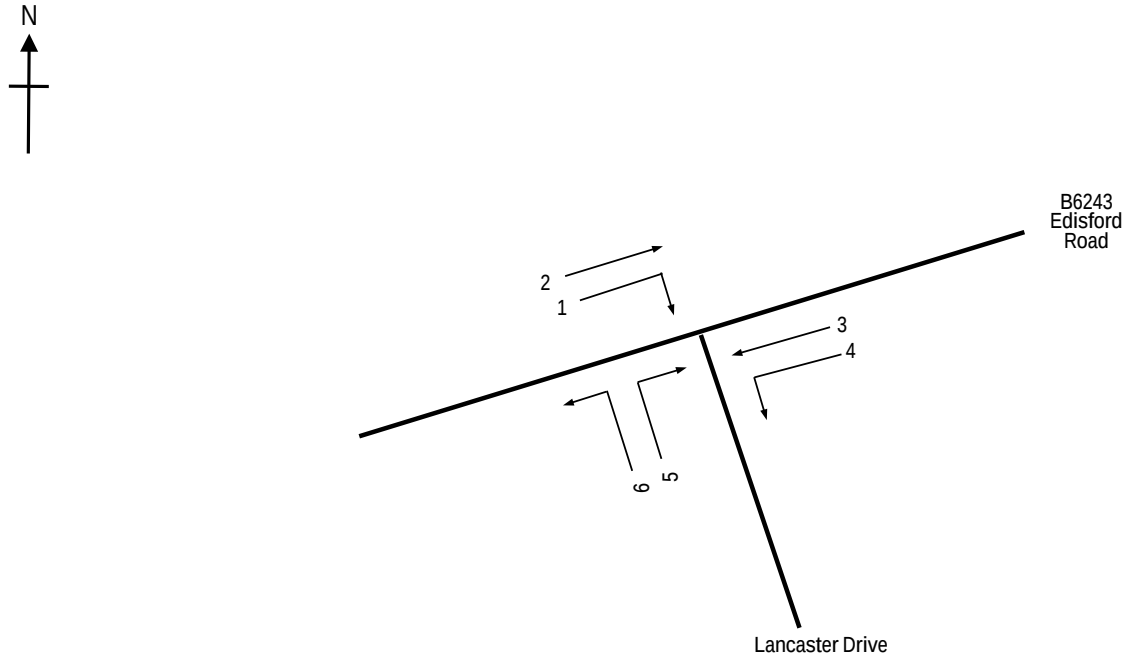
APPENDIX 3

Traffic Survey Data

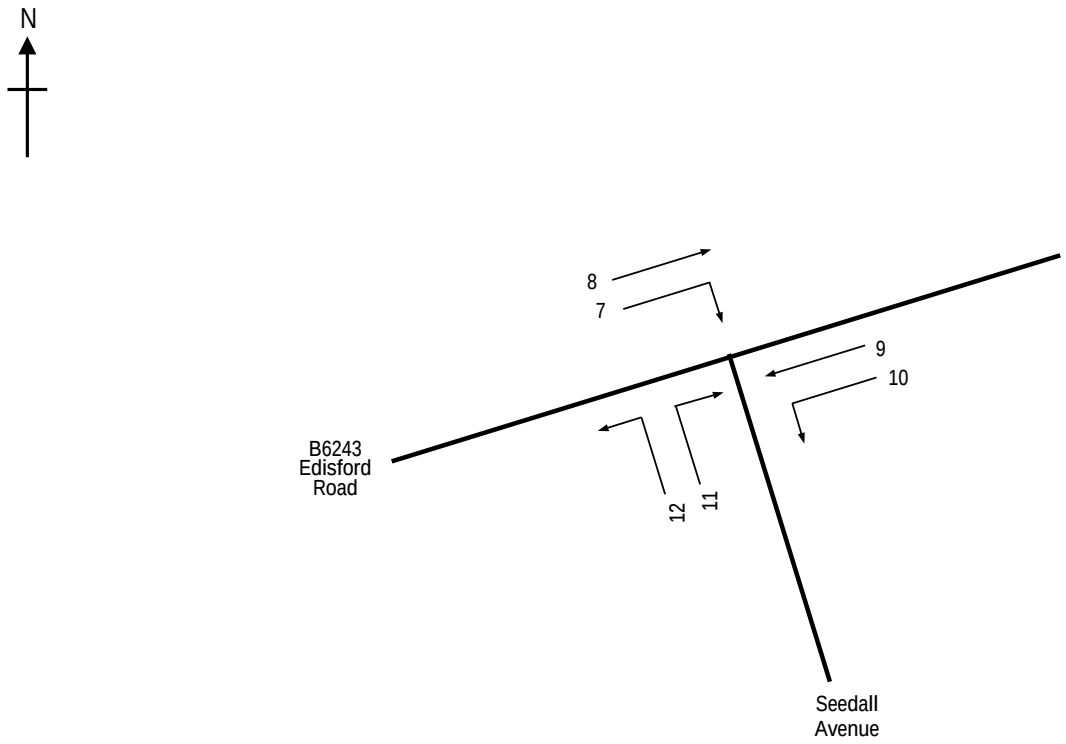
SURVEY CONTROL

Client:	Croft Transport Solutions
Client Contact:	Phil Wooliscroft
Survey Location:	Clitheroe
Date(s) of Survey:	Wednesday 13 June 2012
Notes:	
On Site Supervisor:	David Cheng
Data Checking:	Pedro Dixon
Survey Reference:	2012.066 Clitheroe Results
Status:	Final
Date of Issue:	19 June 2012

JUNCTION 1



JUNCTION 2



DRAWING TITLE

TRAFFIC MOVEMENT REFERENCE

JOB TITLE

2012.066 CLITHEROE

DRAWN BY	DATE	SCALE	REF
AL	JUNE 2012	NTS	FIGURE 1

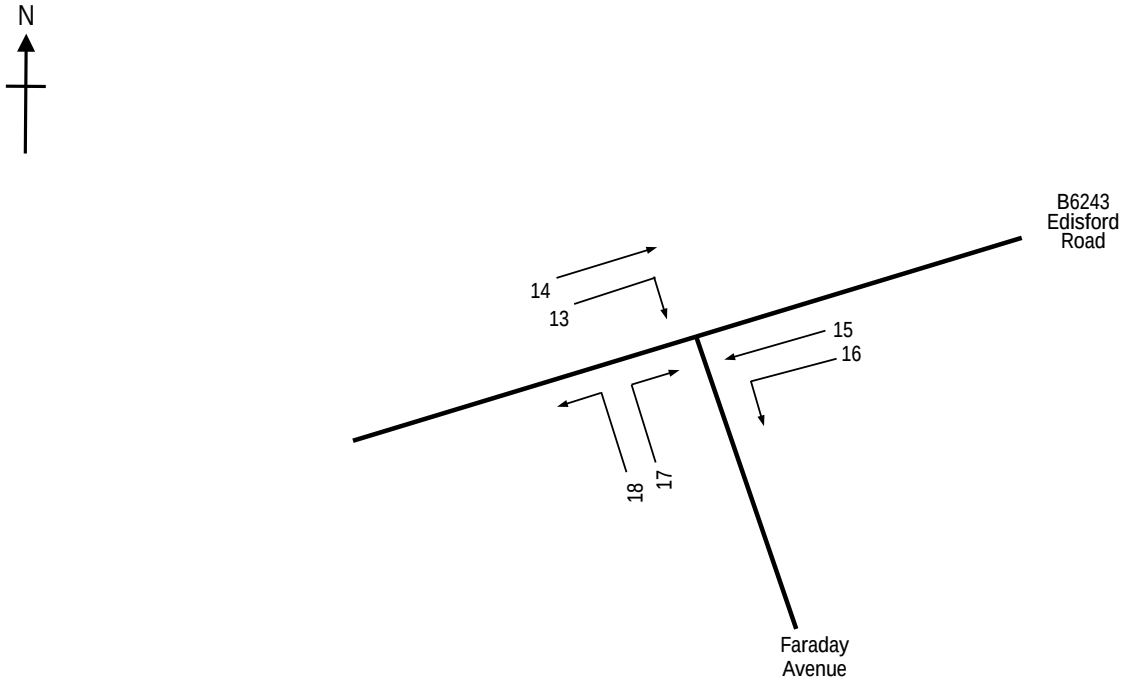
signal surveys

Traffic Counts and Car Park Surveys

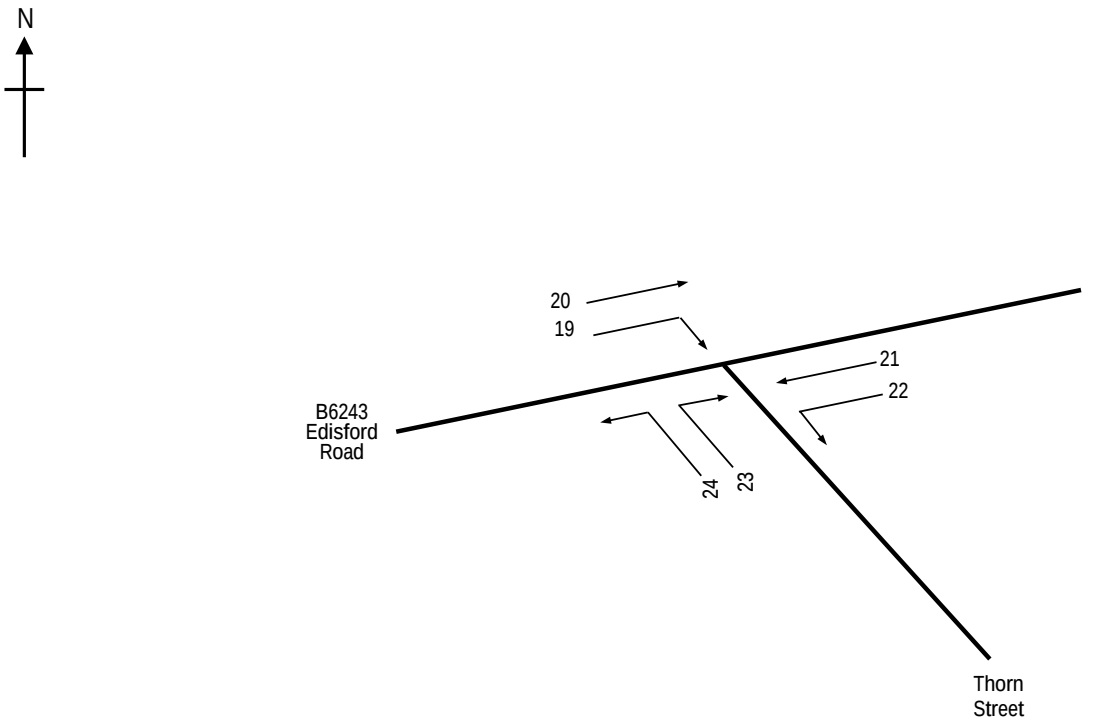
Parkway House, Palatine Road, Northenden, Manchester, M22 4DB

Tel 0161 998 4226 Fax 0161 998 1189

JUNCTION 3



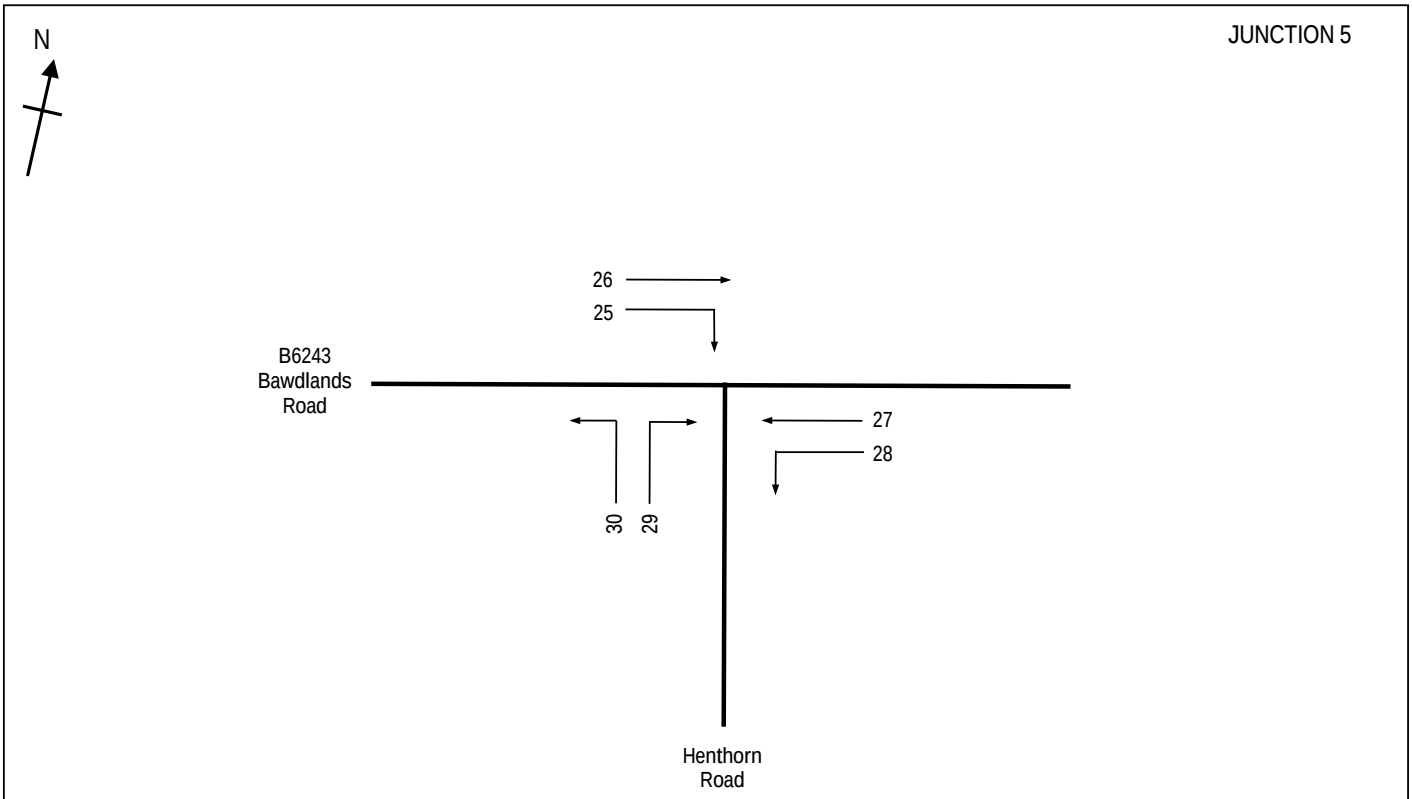
JUNCTION 4



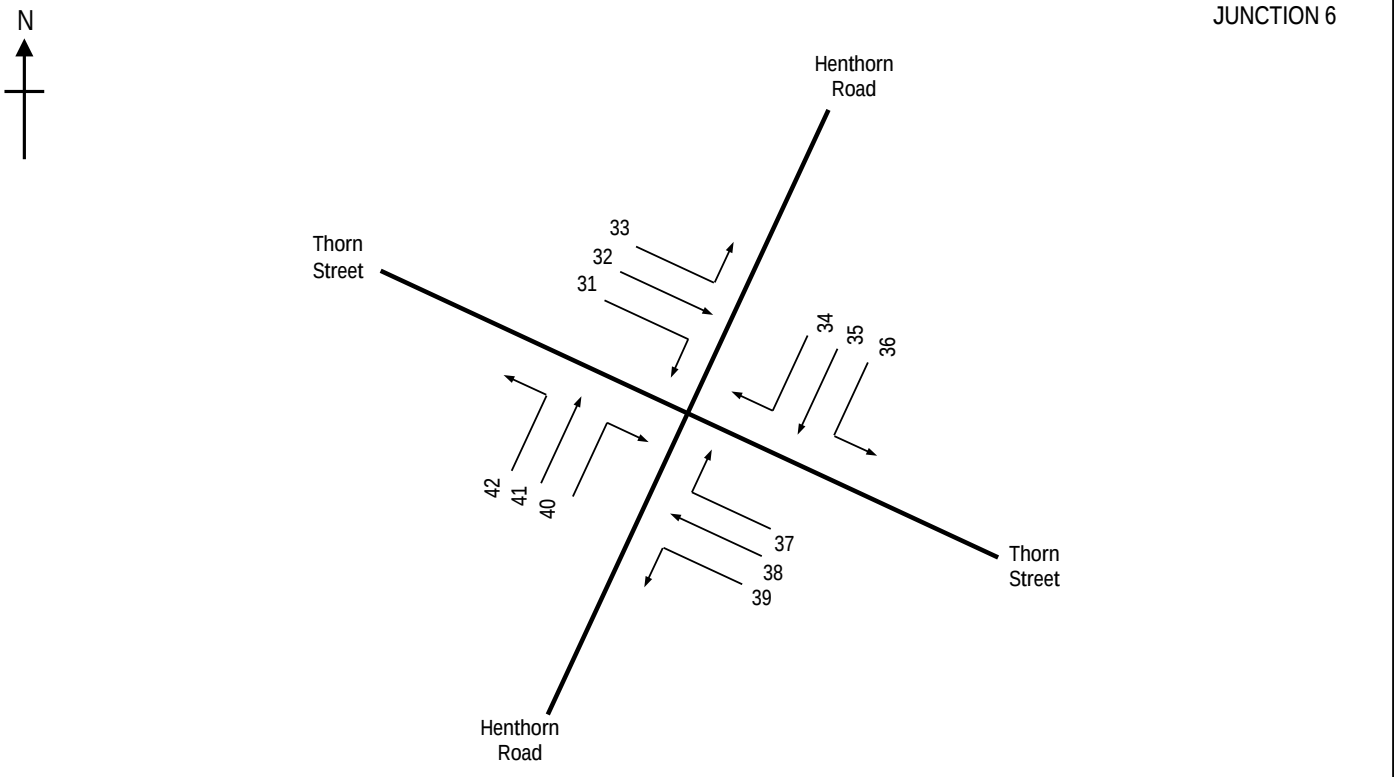
DRAWING TITLE: TRAFFIC MOVEMENT REFERENCE			
JOB TITLE: 2012.066 CLITHEROE			
DRAWN BY: AL	DATE: JUNE 2012	SCALE: NTS	REF: FIGURE 2

signal surveys
Traffic Counts and Car Park Surveys
Parkway House, Palatine Road, Northenden, Manchester, M22 4DB
Tel 0161 998 4226 Fax 0161 998 1189

JUNCTION 5



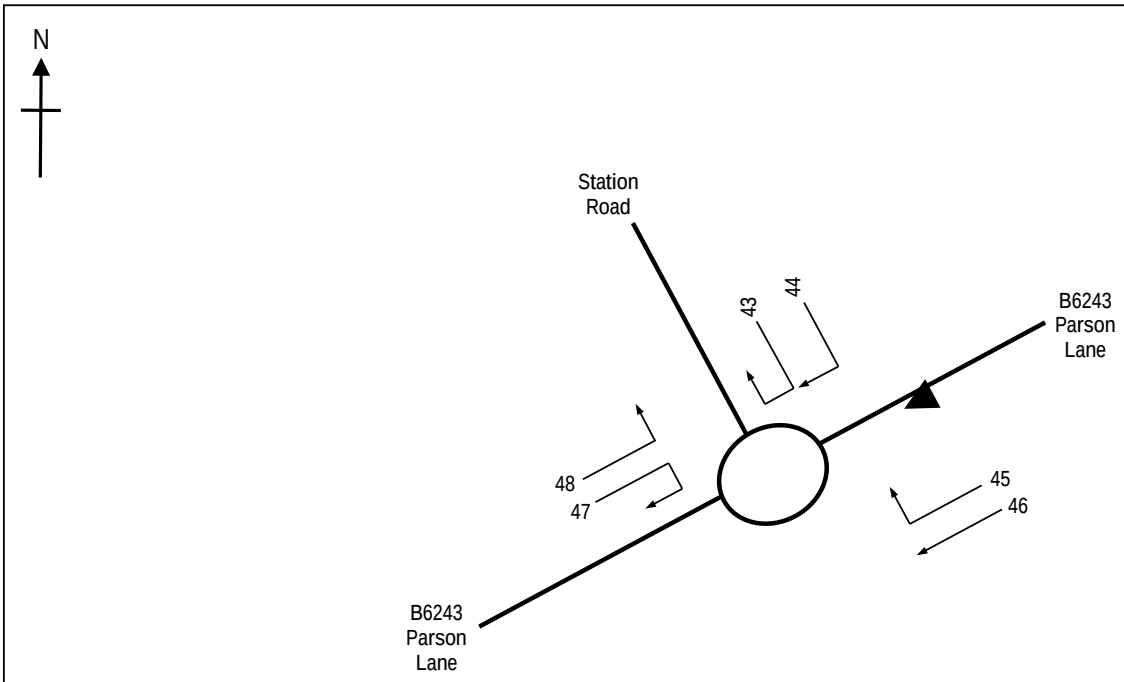
JUNCTION 6



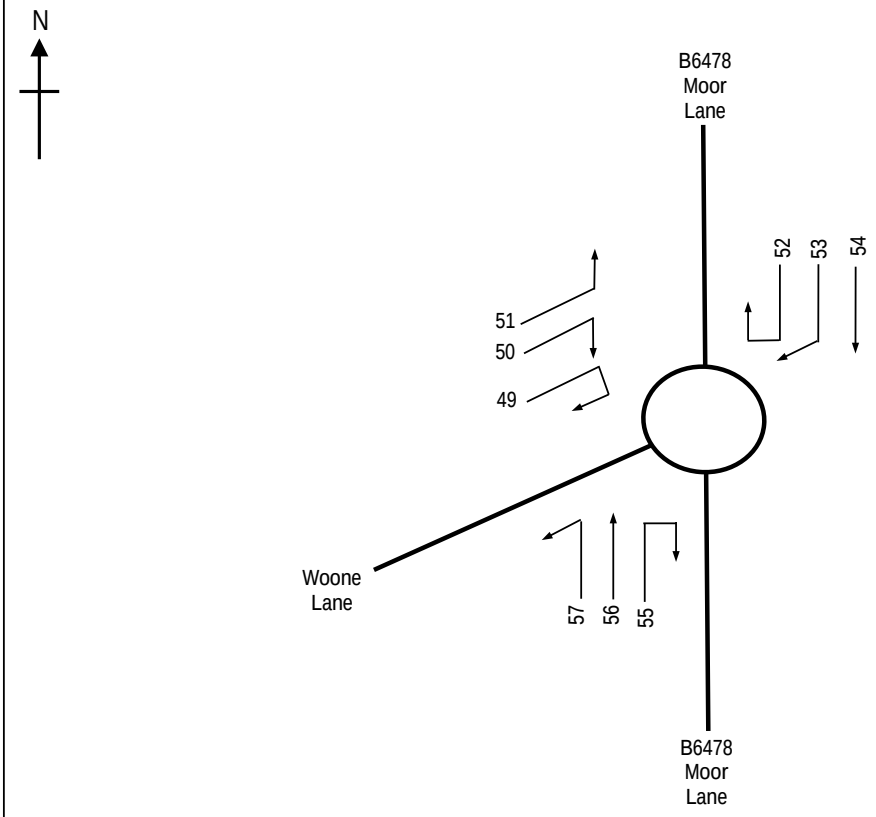
DRAWING TITLE: TRAFFIC MOVEMENT REFERENCE			
JOB TITLE: 2012.066 CLITHEROE			
DRAWN BY: AL	DATE: JUNE 2012	SCALE: NTS	REF: FIGURE 3

signal surveys
Traffic Counts and Car Park Surveys
Parkway House, Palatine Road, Northenden, Manchester, M22 4DB
Tel 0161 998 4226 Fax 0161 998 1189

JUNCTION 7



JUNCTION 8



DRAWING TITLE

TRAFFIC MOVEMENT REFERENCE

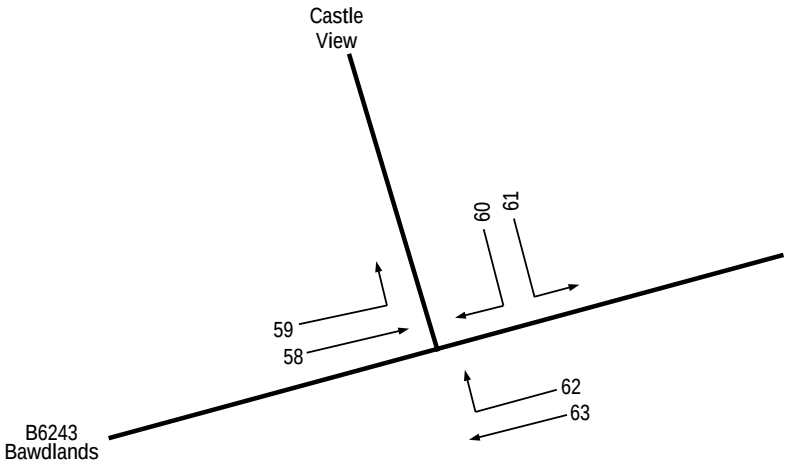
JOB TITLE

2012.066 CLITHEROE

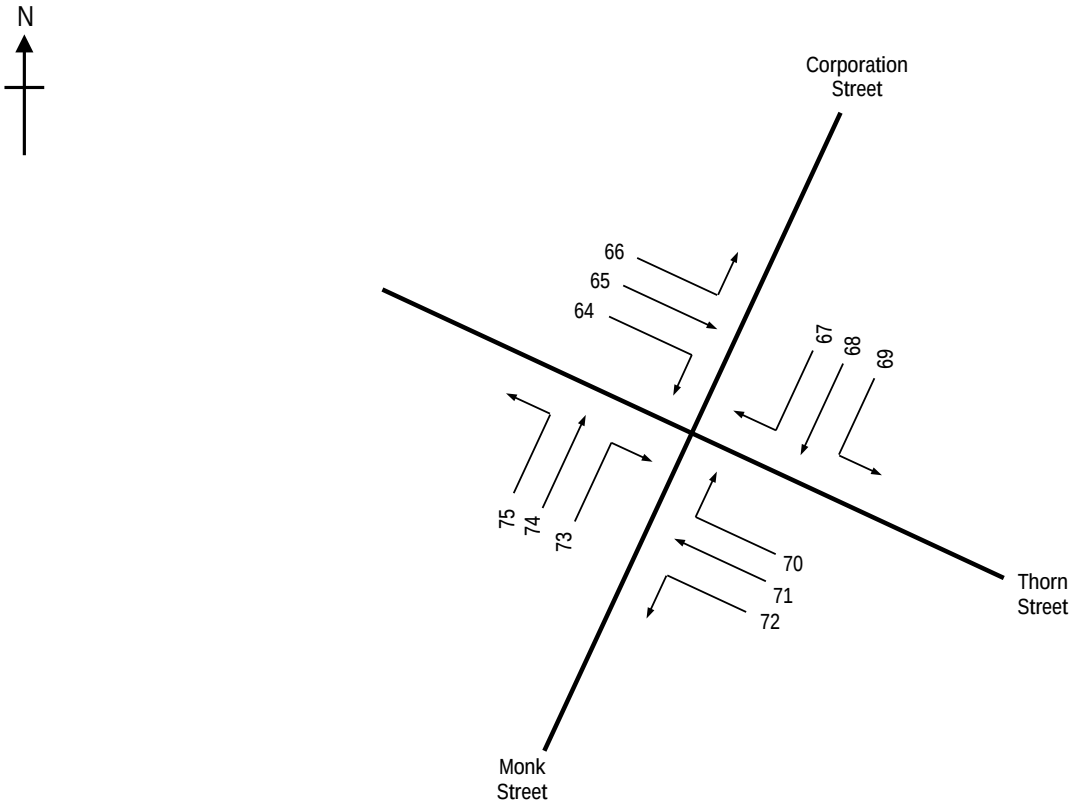
DRAWN BY	DATE	SCALE	REF
AL	JUNE 2012	NTS	FIGURE 4

signal surveys
Traffic Counts and Car Park Surveys
Parkway House, Palatine Road, Northenden,
Manchester, M22 4DB
Tel 0161 998 4226 Fax 0161 998 1189

JUNCTION 9



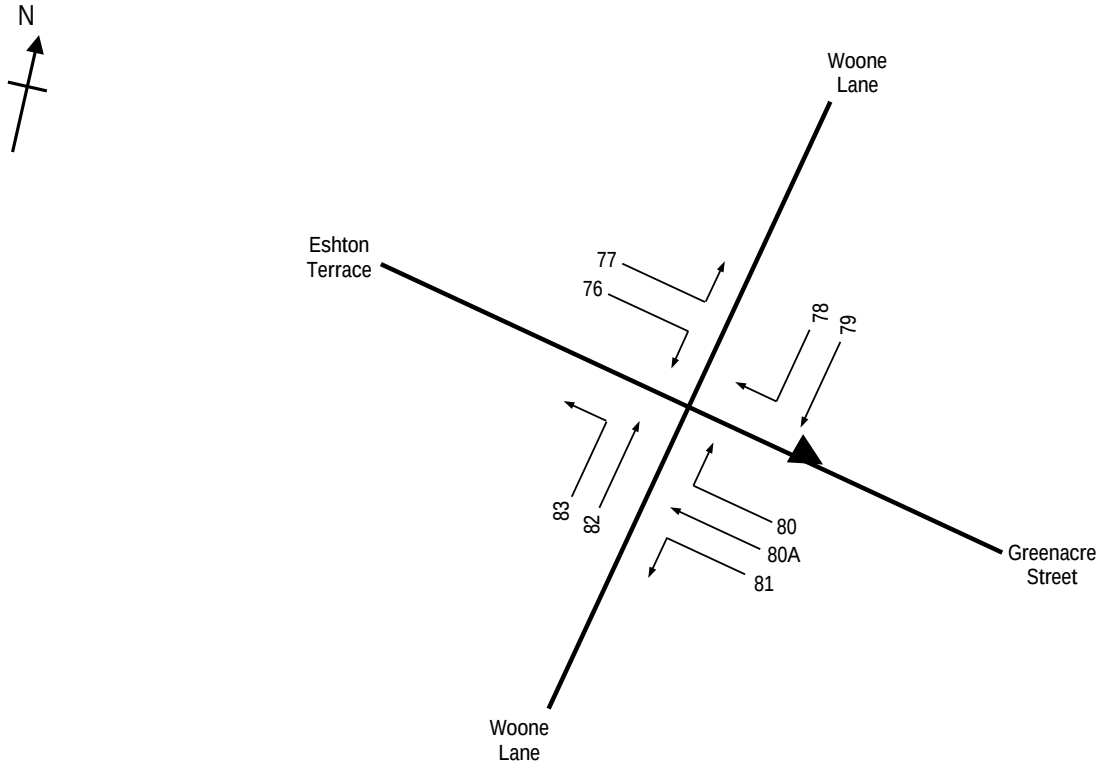
JUNCTION 10



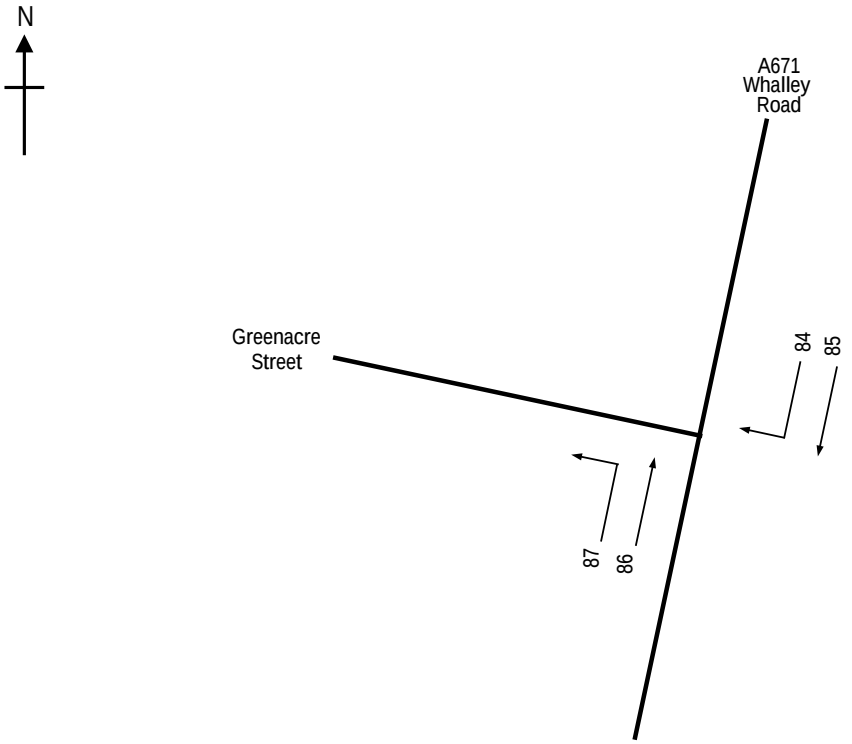
DRAWING TITLE: TRAFFIC MOVEMENT REFERENCE			
JOB TITLE: 2012.066 CLITHEROE			
DRAWN BY: AL	DATE: JUNE 2012	SCALE: NTS	REF: FIGURE 5

signal surveys
Traffic Counts and Car Park Surveys
Parkway House, Palatine Road, Northenden, Manchester, M22 4DB
Tel 0161 998 4226 Fax 0161 998 1189

JUNCTION 11



JUNCTION 12



DRAWING TITLE

TRAFFIC MOVEMENT REFERENCE

JOB TITLE

2012.066 CLITHEROE

DRAWN BY	DATE	SCALE	REF
AL	JUNE 2012	NTS	FIGURE 6

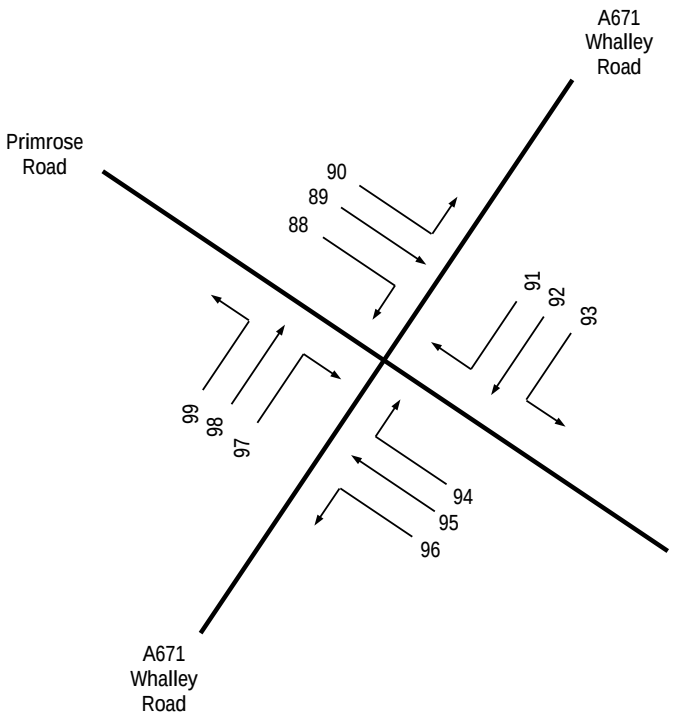
signal surveys

Traffic Counts and Car Park Surveys

Parkway House, Palatine Road, Northenden, Manchester, M22 4DB

Tel 0161 998 4226 Fax 0161 998 1189

JUNCTION 13



DRAWING TITLE: TRAFFIC MOVEMENT REFERENCE			
JOB TITLE: 2012.066 CLITHEROE			
DRAWN BY: AL	DATE: JUNE 2012	SCALE: NTS	REF: FIGURE 7

signal surveys
Traffic Counts and Car Park Surveys
Parkway House, Palatine Road, Northenden, Manchester, M22 4DB
Tel 0161 998 4226 Fax 0161 998 1189

Time Beginning	B6243 Edisford Road/Lancaster Drive - Wednesday 13 June 2012											
	1		2		3		4		5		6	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	8	1	30	5	28	2	1	0	17	1	7	0
0745	10	0	40	3	50	1	2	0	21	0	5	0
0800	2	1	50	3	47	1	5	0	16	1	6	0
0815	1	0	61	3	40	1	5	0	23	1	6	0
0830	1	0	47	1	49	4	9	0	22	1	7	0
0845	3	0	46	2	46	4	13	0	18	0	7	0
0900	4	0	42	1	40	1	19	0	10	1	5	0
0915	1	0	36	1	36	2	5	0	10	0	2	0

Time Beginning	B6243 Edisford Road/Lancaster Drive - Wednesday 13 June 2012											
	1		2		3		4		5		6	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	10	0	70	1	52	0	27	0	13	1	5	0
1645	11	0	44	0	77	1	20	0	15	0	4	0
1700	7	0	71	0	60	1	25	0	18	0	7	0
1715	10	0	63	1	92	0	24	0	17	1	7	0
1730	16	0	59	0	65	0	21	0	14	1	5	0
1745	8	1	50	2	95	1	25	0	19	0	9	0
1800	4	0	44	2	60	1	17	0	11	0	5	1
1815	3	0	45	1	53	1	22	0	14	0	4	0

Time Beginning	B6243 Edisford Road/Seedall Avenue - Wednesday 13 June 2012											
	7		8		9		10		11		12	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	3	0	63	6	35	5	2	0	0	0	1	0
0745	1	0	86	2	53	2	2	0	2	0	1	0
0800	1	0	74	5	68	3	0	0	1	0	0	0
0815	5	0	104	4	44	2	1	0	2	0	2	0
0830	0	0	92	5	63	3	9	0	4	0	5	0
0845	4	0	76	1	70	4	13	0	6	0	4	0
0900	5	0	68	3	55	0	1	0	2	0	3	0
0915	0	0	65	4	54	4	0	0	1	0	4	0

Time Beginning	B6243 Edisford Road/Seedall Avenue - Wednesday 13 June 2012											
	7		8		9		10		11		12	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	3	0	98	2	94	1	2	0	0	0	4	0
1645	5	0	78	3	119	2	2	0	1	0	1	0
1700	4	0	95	0	110	2	5	0	1	0	2	0
1715	0	0	94	2	142	0	1	0	2	0	2	0
1730	3	0	74	0	119	0	2	0	0	0	1	0
1745	6	0	70	3	140	1	7	0	1	0	8	0
1800	1	0	68	2	100	1	3	0	1	0	1	0
1815	0	0	77	1	90	1	2	0	3	0	1	0

Time Beginning	B6243 Edisford Road/Faraday Avenue - Wednesday 13 June 2012											
	13		14		15		16		17		18	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	0	0	64	6	39	5	0	0	1	0	0	0
0745	0	0	85	2	59	3	0	0	0	0	0	0
0800	0	0	81	5	70	2	0	1	0	0	1	0
0815	0	0	106	4	46	1	0	0	2	0	1	0
0830	1	0	97	5	76	3	1	0	1	0	0	0
0845	1	0	84	0	88	2	2	0	1	0	2	0
0900	0	0	70	4	58	0	2	0	2	0	0	0
0915	0	0	64	4	55	3	2	0	2	0	2	0

Time Beginning	B6243 Edisford Road/Faraday Avenue - Wednesday 13 June 2012											
	13		14		15		16		17		18	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	1	0	97	2	94	1	2	0	0	0	2	0
1645	0	0	79	3	119	2	2	0	2	0	2	0
1700	1	0	95	0	115	2	2	0	0	0	0	0
1715	2	0	94	2	140	0	4	0	2	0	3	0
1730	1	0	73	0	120	0	2	0	0	0	1	0
1745	0	0	71	3	142	1	2	0	0	0	5	0
1800	1	0	68	2	99	1	0	0	0	0	4	0
1815	1	0	79	1	92	1	0	0	1	0	0	0

Time Beginning	B6243 Edisford Road/Thorn Street - Wednesday 13 June 2012											
	19		20		21		22		23		24	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	2	1	63	5	25	3	0	0	1	0	14	2
0745	8	0	77	2	40	3	1	0	1	0	19	0
0800	6	1	75	4	56	2	0	0	0	0	14	1
0815	10	1	98	3	29	1	0	0	0	0	17	0
0830	6	0	92	5	53	2	0	0	0	0	24	1
0845	9	0	76	0	59	2	2	0	1	0	31	0
0900	12	2	60	2	41	0	0	0	0	0	19	0
0915	7	1	59	3	43	3	0	0	0	0	14	0

Time Beginning	B6243 Edisford Road/Thorn Street - Wednesday 13 June 2012											
	19		20		21		22		23		24	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	9	1	88	1	72	1	1	0	0	0	24	0
1645	10	1	71	2	86	2	1	0	1	0	35	0
1700	13	0	82	0	87	1	0	0	0	0	30	1
1715	18	0	78	2	95	0	3	0	1	0	49	0
1730	8	0	65	0	82	0	0	0	1	0	40	0
1745	15	0	56	3	86	0	0	0	1	0	58	1
1800	12	1	56	1	69	1	0	0	0	0	30	0
1815	12	0	68	1	70	1	0	0	0	0	22	0

Time Beginning	B6243 Bawdlands Road/Henthorn Road - Wednesday 13 June 2012											
	25		26		27		28		29		30	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	24	2	40	3	25	3	5	0	17	0	0	0
0745	17	1	61	1	41	3	9	1	13	0	0	0
0800	24	0	51	4	55	2	9	0	17	1	1	0
0815	21	0	77	3	29	1	14	2	16	0	0	0
0830	36	0	56	5	53	2	13	0	23	0	0	0
0845	14	0	63	0	57	2	14	0	16	0	4	0
0900	15	0	45	2	41	0	19	2	13	0	0	0
0915	15	0	44	3	41	3	12	1	20	0	2	0

Time Beginning	B6243 Bawdlands Road/Henthorn Road - Wednesday 13 June 2012											
	25		26		27		28		29		30	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	23	0	65	1	72	1	25	1	8	0	1	0
1645	16	0	56	2	86	2	26	0	9	1	1	0
1700	24	0	58	0	84	1	37	2	9	1	3	0
1715	19	0	60	2	96	0	23	1	9	1	2	0
1730	15	0	51	0	81	0	28	2	18	0	1	0
1745	14	0	43	3	84	0	14	0	20	0	2	0
1800	14	0	42	1	69	1	27	0	18	0	0	0
1815	18	0	50	1	69	1	13	0	10	0	1	0

Time Beginning	Thorn Street/Henthorn Road - Wednesday 13 June 2012																							
	31		32		33		34		35		36		37		38		39		40		41		42	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	0	0	3	1	0	0	0	0	5	1	23	1	0	0	14	2	7	0	33	2	17	0	1	0
0745	0	0	8	0	0	0	0	0	7	2	19	0	0	0	18	0	9	0	36	1	12	0	1	0
0800	0	0	5	1	1	0	0	0	8	0	25	0	2	0	15	1	7	0	37	2	15	1	0	0
0815	0	0	9	1	2	0	0	0	13	2	19	0	1	0	17	0	15	0	42	0	13	0	0	0
0830	0	0	7	0	0	0	0	0	15	0	35	0	2	0	25	2	15	0	55	0	21	0	1	0
0845	0	0	11	0	0	0	0	0	13	0	16	0	2	0	31	1	24	3	42	1	17	0	0	0
0900	0	0	12	2	0	0	0	0	19	2	16	0	0	0	19	0	16	2	31	1	13	0	1	0
0915	0	0	6	1	0	0	1	0	10	1	15	0	1	0	12	1	24	2	32	1	20	0	0	0

Time Beginning	Thorn Street/Henthorn Road - Wednesday 13 June 2012																							
	31		32		33		34		35		36		37		38		39		40		41		42	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	0	0	9	1	1	0	0	0	28	2	21	0	1	0	25	0	43	0	24	1	7	0	0	0
1645	0	0	10	1	0	0	1	0	26	0	15	0	0	0	35	0	39	1	27	0	11	1	1	0
1700	0	0	13	0	0	0	0	0	36	3	25	0	1	0	31	1	35	1	29	0	11	0	0	0
1715	1	0	18	0	0	0	1	0	21	1	20	0	2	0	46	0	41	1	28	1	10	1	0	0
1730	0	0	11	0	0	0	0	0	29	2	14	0	2	0	45	1	40	0	23	1	16	0	1	0
1745	1	0	14	0	0	0	0	0	16	0	14	0	1	0	56	0	28	1	46	1	21	0	0	0
1800	0	0	11	1	1	0	0	0	28	0	13	0	0	0	30	0	25	0	27	0	12	0	0	0
1815	0	0	14	0	0	0	0	0	12	0	21	0	2	0	22	0	30	0	30	0	14	0	1	0

Time Beginning	B6243 Parson Lane/Station Road - Wednesday 13 June 2012											
	43		44		45		46		47		48	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	0	0	19	3	13	1	10	3	0	0	66	4
0745	0	0	43	3	16	0	5	0	0	0	83	2
0800	0	0	53	4	13	0	16	4	0	0	97	4
0815	0	0	42	3	16	0	9	5	0	0	109	6
0830	0	0	65	1	23	1	20	4	1	0	99	6
0845	0	0	48	1	26	2	43	2	0	0	81	0
0900	0	0	61	2	17	0	25	1	0	0	75	3
0915	1	0	42	3	18	1	34	1	0	0	63	4

Time Beginning	B6243 Parson Lane/Station Road - Wednesday 13 June 2012											
	43		44		45		46		47		48	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	0	0	83	2	24	4	31	0	0	0	80	1
1645	0	0	98	2	24	1	39	0	1	0	86	3
1700	0	0	114	4	20	2	39	0	0	0	71	0
1715	1	0	106	0	19	3	44	0	0	0	81	3
1730	0	0	94	3	18	1	41	0	0	0	76	0
1745	0	0	89	0	15	3	30	0	0	0	75	2
1800	0	0	77	1	12	2	36	0	1	0	70	1
1815	1	0	70	1	9	0	32	0	0	0	72	1

Time Beginning	B6478 Moor Lane/Woone Lane - Wednesday 13 June 2012																	
	49		50		51		52		53		54		55		56		57	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	0	0	69	3	20	0	0	0	0	0	21	2	0	0	36	6	1	0
0745	0	0	79	2	28	1	0	0	1	0	19	6	0	0	53	2	1	0
0800	0	0	71	3	22	1	0	0	1	0	24	1	0	0	45	7	2	0
0815	0	0	73	0	19	1	0	0	3	0	26	4	0	0	78	5	0	0
0830	0	0	90	0	26	0	0	0	4	0	32	1	0	0	84	11	0	0
0845	0	0	73	1	43	0	0	0	3	0	42	4	1	0	105	4	3	0
0900	0	0	55	4	17	1	0	0	2	0	44	3	0	0	99	3	3	0
0915	1	0	52	1	16	0	0	0	5	0	42	2	0	0	86	4	4	0

Time Beginning	B6478 Moor Lane/Woone Lane - Wednesday 13 June 2012																	
	49		50		51		52		53		54		55		56		57	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	0	0	50	2	18	0	2	0	7	0	54	1	0	0	87	7	2	0
1645	0	0	40	1	24	0	1	0	7	0	51	2	0	0	96	2	1	0
1700	0	0	73	1	20	0	1	0	5	0	64	0	0	0	98	1	2	0
1715	0	0	58	0	17	0	1	0	7	0	60	2	0	0	100	3	3	0
1730	0	0	54	1	19	0	0	0	7	0	52	2	0	0	104	1	2	0
1745	0	0	67	0	32	0	0	0	6	0	37	1	0	0	80	3	4	0
1800	0	0	61	1	12	0	0	0	6	0	38	3	0	0	100	2	1	0
1815	0	0	57	0	25	0	0	0	5	0	31	2	0	0	96	1	2	0

Time Beginning	B6243 Bawdlands/Castle View - Wednesday 13 June 2012											
	58		59		60		61		62		63	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	60	4	2	0	12	0	8	0	4	0	25	4
0745	70	2	2	0	9	0	16	0	9	0	51	3
0800	66	2	0	0	5	0	6	0	9	0	66	3
0815	95	6	3	0	7	0	17	0	7	0	45	3
0830	84	6	11	0	8	0	16	0	9	0	76	2
0845	73	0	5	0	7	0	13	0	3	0	80	1
0900	66	2	0	0	5	0	5	0	9	0	66	2
0915	57	5	3	0	8	1	6	0	12	1	57	3

Time Beginning	B6243 Bawdlands/Castle View - Wednesday 13 June 2012											
	58		59		60		61		62		63	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	68	1	2	0	8	0	9	0	13	0	106	3
1645	74	3	7	0	4	0	5	0	14	0	123	1
1700	63	0	4	0	10	0	8	0	19	0	135	1
1715	68	1	12	0	6	0	11	0	25	0	126	1
1730	60	0	7	0	9	0	13	0	23	0	108	1
1745	64	3	6	0	13	0	7	0	14	0	108	0
1800	50	1	5	0	8	0	13	0	16	0	100	1
1815	54	0	5	0	7	0	8	0	16	0	73	1

Time Beginning	Corporation Street/Thorn Street - Wednesday 13 June 2012																					
	64		65		66		67		68		69		70		71		72		73		74		75	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	0	0	53	4	2	0	1	0	0	0	11	0	3	0	22	2	1	0	5	0	1	0	0	0
0745	0	0	66	1	0	0	1	0	0	0	12	0	5	0	25	0	0	0	0	0	0	0	0	0
0800	2	0	67	3	0	0	2	0	0	0	24	0	4	0	23	1	1	0	2	0	0	0	0	0
0815	0	0	67	1	0	0	0	0	0	0	13	0	7	0	32	0	0	0	0	0	1	1	0	0
0830	0	0	101	0	0	0	0	0	0	0	23	0	19	1	43	2	0	0	2	0	2	0	0	0
0845	0	0	64	1	0	0	1	0	0	0	22	0	12	0	53	4	0	0	0	0	0	0	0	0
0900	0	0	61	3	4	0	0	0	0	0	4	0	4	0	38	2	0	0	0	0	1	0	0	0
0915	0	0	52	2	0	0	0	0	0	0	16	0	2	0	37	2	0	0	2	0	0	0	0	0

Time Beginning	Corporation Street/Thorn Street - Wednesday 13 June 2012																					
	64		65		66		67		68		69		70		71		72		73		74		75	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	0	0	52	2	0	0	0	0	2	0	16	0	11	0	68	0	1	0	0	0	0	0	0	0
1645	0	0	53	1	1	0	1	0	2	0	19	0	16	0	75	1	3	0	0	0	3	0	0	0
1700	0	0	69	0	1	0	0	0	1	0	21	0	7	0	71	3	3	0	1	0	1	0	0	0
1715	0	0	63	1	0	0	1	0	1	0	22	0	17	0	94	1	4	0	0	0	1	0	0	0
1730	1	0	49	1	1	0	1	0	1	0	11	0	8	0	88	2	3	0	4	0	1	0	0	0
1745	0	0	72	1	1	0	1	0	3	0	19	0	15	0	81	0	3	0	0	0	0	0	1	0
1800	0	0	56	1	0	0	1	0	3	0	15	0	17	0	57	0	2	0	0	0	0	0	0	0
1815	1	0	62	0	2	0	0	0	0	0	10	0	6	0	52	0	1	0	2	0	1	0	0	0

Time Beginning	Eshton Terrace/Woone Lane/Greenacre Street- Wednesday 13 June 2012																	
	76		77		78		79		80		80A		81		82		83	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	9	0	69	3	0	0	0	0	5	0	25	2	5	0	8	0	0	0
0745	3	0	88	1	1	0	0	0	8	1	31	1	9	0	12	1	1	0
0800	13	0	86	4	3	0	1	0	1	0	22	1	8	1	9	0	4	0
0815	6	0	78	1	2	0	0	0	4	0	33	1	4	0	8	0	3	1
0830	17	0	111	0	3	0	1	0	17	0	41	2	7	0	7	1	5	1
0845	17	0	79	2	1	0	0	0	13	1	43	4	15	1	17	0	2	0
0900	13	0	68	3	2	0	1	0	9	0	42	2	11	0	4	0	2	0
0915	6	1	61	1	4	0	2	0	6	0	31	1	4	0	4	0	1	0

Time Beginning	Eshton Terrace/Woone Lane/Greenacre Street- Wednesday 13 June 2012																	
	76		77		78		79		80		80A		81		82		83	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	19	1	49	1	5	0	5	0	5	0	73	0	11	1	8	0	4	0
1645	19	0	46	1	6	0	2	0	7	0	89	1	10	0	7	0	5	0
1700	13	0	84	0	8	0	1	0	7	0	75	3	13	0	6	0	8	0
1715	13	0	65	1	7	0	1	0	7	0	108	1	12	0	3	0	5	0
1730	3	1	49	0	8	0	2	0	7	0	96	2	8	0	8	0	9	0
1745	15	0	85	0	7	0	3	0	4	0	93	0	8	0	10	0	3	0
1800	16	0	54	1	5	0	3	0	5	0	71	0	16	0	11	0	6	0
1815	12	0	63	0	6	0	1	0	6	0	52	0	11	0	12	0	5	0

Time Beginning	A671 Whalley Road/Greenacre Street - Wednesday 13 June 2012							
	84		85		86		87	
	LV	HV	LV	HV	LV	HV	LV	HV
0730	24	0	109	11	70	7	17	2
0745	25	0	125	10	74	3	20	2
0800	25	1	134	5	107	8	19	1
0815	26	1	98	8	95	16	22	1
0830	50	1	117	8	112	18	23	0
0845	42	1	129	11	138	6	35	5
0900	38	1	126	8	129	7	23	1
0915	23	0	95	7	124	4	16	2

Time Beginning	A671 Whalley Road/Greenacre Street - Wednesday 13 June 2012							
	84		85		86		87	
	LV	HV	LV	HV	LV	HV	LV	HV
1630	54	0	134	2	116	6	30	0
1645	42	0	144	7	145	3	54	1
1700	53	0	169	1	137	0	43	3
1715	72	0	143	3	129	3	56	1
1730	47	1	149	5	155	2	66	1
1745	55	0	127	1	137	3	49	0
1800	41	0	109	6	125	2	41	0
1815	36	0	94	2	101	2	29	0

Time Beginning	A671 Whalley Road/Primrose Road - Wednesday 13 June 2012																					
	88		89		90		91		92		93		94		95		96		97		98		99	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	21	0	0	0	5	0	1	0	136	9	0	0	0	0	0	0	0	0	0	0	82	7	3	0
0745	20	0	0	0	3	0	3	0	158	13	1	0	1	0	0	0	0	0	0	1	107	7	8	1
0800	27	0	0	0	7	0	3	0	156	4	0	0	0	1	0	0	0	0	0	0	129	10	5	1
0815	18	0	0	0	4	0	8	0	132	9	0	0	0	1	0	0	0	0	1	0	163	16	6	1
0830	18	1	0	0	7	0	4	0	136	11	0	1	0	0	0	1	0	0	0	0	168	13	21	1
0845	13	0	0	0	12	0	9	1	138	12	0	0	0	0	0	0	1	0	0	0	150	11	13	0
0900	16	1	0	0	11	1	5	0	124	8	0	1	0	0	0	0	0	0	1	0	154	6	6	0
0915	13	0	0	0	5	0	5	0	105	6	0	1	0	0	0	0	0	1	0	0	134	6	2	0

Time Beginning	A671 Whalley Road/Primrose Road - Wednesday 13 June 2012																					
	88		89		90		91		92		93		94		95		96		97		98		99	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	24	1	0	0	12	0	7	0	141	1	0	0	1	1	0	0	0	0	1	0	160	8	6	0
1645	16	2	1	0	4	1	3	0	152	7	1	1	0	0	0	0	0	0	1	1	207	2	18	3
1700	24	0	0	0	11	0	15	0	169	0	1	0	1	1	0	0	0	0	0	0	187	1	15	0
1715	12	1	0	0	10	0	7	0	143	3	0	0	0	0	0	0	1	0	0	0	199	4	8	1
1730	14	2	0	0	5	0	5	0	142	5	0	0	0	0	0	0	0	0	0	0	230	2	14	0
1745	13	1	0	0	16	0	7	0	126	1	0	0	0	0	0	0	1	0	0	0	192	3	18	0
1800	18	0	0	0	13	0	5	0	97	5	2	0	4	0	0	0	0	0	0	0	160	3	18	0
1815	14	0	0	0	6	0	2	0	83	3	0	0	0	0	0	0	0	0	0	0	123	1	12	0

APPENDIX 4

PICADY Output: Site Access/Henthorn Road

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)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
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

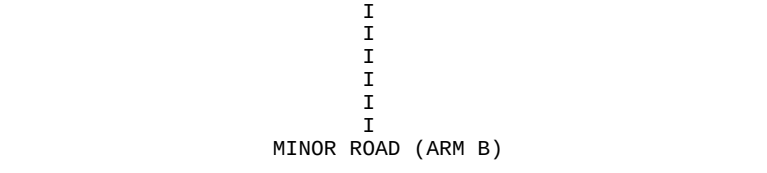
Run with file:-
"Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Site Access_Henthorn Rd.vpi"
(drive-on-the-left) at 13:45:24 on Friday, 12 October 2012

RUN INFORMATION

RUN TITLE	: Site Access/Henthorne Road
LOCATION	: Clitheroe
DATE	: 12/10/12
CLIENT	: Bowsall Limited
ENUMERATOR	: Cad Workstation2 [CADWORKSTATION2]
JOB NUMBER	: 0248
STATUS	: TIA
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Henthorne Rd (N)
ARM B IS Site Access
ARM C IS Henthorn Rd (S)

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

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 6.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)250.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 36.0 M.
- VISIBILITY TO RIGHT	(VB-A) 34.0 M.
- LANE 1 WIDTH	(WB-C) 3.00 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For STREAM A-C	Slope For Opposing STREAM A-B
645.34	0.25	0.10

Intercept For STREAM B-A	Slope For STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
505.98	0.23	0.09	0.15	0.33

Intercept For STREAM C-B	Slope For STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.28	0.28

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	2.46	3.69	2.46
ARM B	15.00	45.00	75.00	0.80	1.20	0.80
ARM C	15.00	45.00	75.00	5.21	7.82	5.21

Demand set: 2016 'With Development' Flows - AM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.102	0.898
		0.0	20.0	177.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	1.000	0.000	0.000
		64.0	0.0	0.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	1.000	0.000	0.000
		417.0	0.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	0.80	7.13	0.113		0.00	0.13	1.8		0.16
C-AB	0.00	10.26	0.000		0.00	0.00	0.0		0.00
C-A	5.23								
A-B	0.25								
A-C	2.22								
08.00-08.15									
B-AC	0.96	6.87	0.140		0.13	0.16	2.3		0.17
C-AB	0.00	10.14	0.000		0.00	0.00	0.0		0.00
C-A	6.25								
A-B	0.30								
A-C	2.65								
08.15-08.30									
B-AC	1.17	6.52	0.180		0.16	0.22	3.1		0.19
C-AB	0.00	9.97	0.000		0.00	0.00	0.0		0.00
C-A	7.65								
A-B	0.37								
A-C	3.25								
08.30-08.45									
B-AC	1.17	6.52	0.180		0.22	0.22	3.3		0.19
C-AB	0.00	9.97	0.000		0.00	0.00	0.0		0.00
C-A	7.65								
A-B	0.37								
A-C	3.25								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.96	6.87	0.140		0.22	0.16	2.5		0.17
C-AB	0.00	10.14	0.000		0.00	0.00	0.0		0.00
C-A	6.25								
A-B	0.30								
A-C	2.65								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.80	7.13	0.113		0.16	0.13	2.0		0.16
C-AB	0.00	10.26	0.000		0.00	0.00	0.0		0.00
C-A	5.23								
A-B	0.25								
A-C	2.22								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-AC	88.1	58.7	15.1	0.17	15.1	0.17
C-AB	0.0	0.0	0.0	0.00	0.0	0.00
C-A	574.0	382.6				
A-B	27.5	18.4				
A-C	243.6	162.4				
ALL	933.2	622.1	15.1	0.02	15.1	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*******

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
645.34	0.25	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
505.98	0.23	0.09	0.15	0.33

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.28	0.28

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	2.58	3.86	2.58
ARM B	15.00	45.00	75.00	0.80	1.20	0.80
ARM C	15.00	45.00	75.00	5.46	8.19	5.46

Demand set: 2021 'With Development' Flows - AM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.097	0.903
		0.0	20.0	186.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	1.000	0.000	0.000
		64.0	0.0	0.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	1.000	0.000	0.000
		437.0	0.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	0.80	7.06	0.114		0.00	0.13	1.8		0.16
C-AB	0.00	10.24	0.000		0.00	0.00	0.0		0.00
C-A	5.48								
A-B	0.25								
A-C	2.33								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	0.96	6.80	0.141		0.13	0.16	2.4		0.17
C-AB	0.00	10.11	0.000		0.00	0.00	0.0		0.00
C-A	6.55								
A-B	0.30								
A-C	2.79								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	1.17	6.43	0.183		0.16	0.22	3.2		0.19
C-AB	0.00	9.93	0.000		0.00	0.00	0.0		0.00
C-A	8.02								
A-B	0.37								
A-C	3.41								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	1.17	6.43	0.183		0.22	0.22	3.3		0.19
C-AB	0.00	9.93	0.000		0.00	0.00	0.0		0.00
C-A	8.02								
A-B	0.37								
A-C	3.41								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.96	6.80	0.141		0.22	0.17	2.6		0.17
C-AB	0.00	10.11	0.000		0.00	0.00	0.0		0.00
C-A	6.55								
A-B	0.30								
A-C	2.79								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.80	7.06	0.114		0.17	0.13	2.0		0.16
C-AB	0.00	10.24	0.000		0.00	0.00	0.0		0.00
C-A	5.48								
A-B	0.25								
A-C	2.33								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	88.1	58.7	15.3	0.17	15.3	0.17
C-AB	0.0	0.0	0.0	0.00	0.0	0.00
C-A	601.5	401.0				
A-B	27.5	18.4				
A-C	256.0	170.7				
ALL	973.1	648.8	15.3	0.02	15.3	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*******

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
645.34	0.25	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
505.98	0.23	0.09	0.15	0.33

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.28	0.28

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	5.49	8.23	5.49
ARM B	15.00	45.00	75.00	0.41	0.62	0.41
ARM C	15.00	45.00	75.00	3.24	4.86	3.24

Demand set: 2016 'With Development' Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.144	0.856
		0.0	63.0	376.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	1.000	0.000	0.000
		33.0	0.0	0.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	1.000	0.000	0.000
		259.0	0.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	0.41	6.78	0.061		0.00	0.06	0.9		0.16
C-AB	0.00	9.50	0.000		0.00	0.00	0.0		0.00
C-A	3.25								
A-B	0.79								
A-C	4.72								
17.00-17.15									
B-AC	0.49	6.46	0.076		0.06	0.08	1.2		0.17
C-AB	0.00	9.22	0.000		0.00	0.00	0.0		0.00
C-A	3.88								
A-B	0.94								
A-C	5.63								
17.15-17.30									
B-AC	0.61	6.02	0.101		0.08	0.11	1.6		0.18
C-AB	0.00	8.85	0.000		0.00	0.00	0.0		0.00
C-A	4.75								
A-B	1.16								
A-C	6.90								
17.30-17.45									
B-AC	0.61	6.02	0.101		0.11	0.11	1.7		0.18
C-AB	0.00	8.85	0.000		0.00	0.00	0.0		0.00
C-A	4.75								
A-B	1.16								
A-C	6.90								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	0.49	6.46	0.076		0.11	0.08	1.3		0.17
C-AB	0.00	9.22	0.000		0.00	0.00	0.0		0.00
C-A	3.88								
A-B	0.94								
A-C	5.63								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	0.41	6.78	0.061		0.08	0.07	1.0		0.16
C-AB	0.00	9.50	0.000		0.00	0.00	0.0		0.00
C-A	3.25								
A-B	0.79								
A-C	4.72								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	45.4	30.3	7.7	0.17	7.7	0.17
C-AB	0.0	0.0	0.0	0.00	0.0	0.00
C-A	356.5	237.7				
A-B	86.7	57.8				
A-C	517.5	345.0				
ALL	1006.2	670.8	7.7	0.01	7.7	0.01

* 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)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
645.34	0.25	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
505.98	0.23	0.09	0.15	0.33

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.28	0.28

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	5.76	8.64	5.76
ARM B	15.00	45.00	75.00	0.41	0.62	0.41
ARM C	15.00	45.00	75.00	3.44	5.16	3.44

Demand set: 2021 'With Development' Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.137	0.863
		0.0	63.0	398.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	1.000	0.000	0.000
		33.0	0.0	0.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	1.000	0.000	0.000
		275.0	0.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00										
	B-AC	0.41	6.69	0.062		0.00	0.07	0.9		0.16
	C-AB	0.00	9.43	0.000		0.00	0.00	0.0		0.00
	C-A	3.45								
	A-B	0.79								
	A-C	4.99								
17.00-17.15										
	B-AC	0.49	6.35	0.078		0.07	0.08	1.2		0.17
	C-AB	0.00	9.14	0.000		0.00	0.00	0.0		0.00
	C-A	4.12								
	A-B	0.94								
	A-C	5.96								
17.15-17.30										
	B-AC	0.61	5.89	0.103		0.08	0.11	1.6		0.19
	C-AB	0.00	8.75	0.000		0.00	0.00	0.0		0.00
	C-A	5.05								
	A-B	1.16								
	A-C	7.30								
17.30-17.45										
	B-AC	0.61	5.89	0.103		0.11	0.11	1.7		0.19
	C-AB	0.00	8.75	0.000		0.00	0.00	0.0		0.00
	C-A	5.05								
	A-B	1.16								
	A-C	7.30								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	0.49	6.35	0.078		0.11	0.09	1.3		0.17
C-AB	0.00	9.14	0.000		0.00	0.00	0.0		0.00
C-A	4.12								
A-B	0.94								
A-C	5.96								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	0.41	6.69	0.062		0.09	0.07	1.0		0.16
C-AB	0.00	9.43	0.000		0.00	0.00	0.0		0.00
C-A	3.45								
A-B	0.79								
A-C	4.99								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-AC	45.4	30.3	7.9	0.17	7.9	0.17
C-AB	0.0	0.0	0.0	0.00	0.0	0.00
C-A	378.5	252.3				
A-B	86.7	57.8				
A-C	547.8	365.2				
ALL	1058.5	705.6	7.9	0.01	7.9	0.01

* 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 ==========

Printed at 09:33:20 on 17/10/2012]

APPENDIX 5

PICADY Output: Henthorn Road/Bawdlands

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)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
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

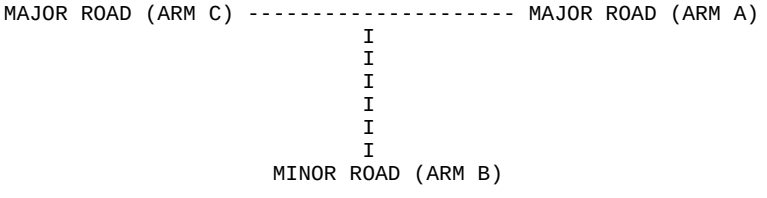
Run with file:-
"Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Bawdlands.vpi"
(drive-on-the-left) at 15:02:14 on Friday, 12 October 2012

RUN INFORMATION

RUN TITLE	: Henthorne Road/Bawdlands
LOCATION	: Clitheroe
DATE	: 12/10/12
CLIENT	: Bowsall Limited
ENUMERATOR	: Cad Workstation2 [CADWORKSTATION2]
JOB NUMBER	: 0248
STATUS	: TIA
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Bawdlands (E)
ARM B IS Henthorn Rd
ARM C IS Bawdlands (W)

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

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 9.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)100.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 25.0 M.
- VISIBILITY TO RIGHT	(VB-A) 17.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	10.00 M.
WIDTH AT 5 M FROM JUNCTION	5.40 M.
WIDTH AT 10 M FROM JUNCTION	3.60 M.
WIDTH AT 15 M FROM JUNCTION	3.30 M.
WIDTH AT 20 M FROM JUNCTION	3.40 M.
- LENGTH OF FLARED SECTION	DERIVED: 1 PCU

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.21	0.21

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	3.53	5.29	3.53
ARM B	15.00	45.00	75.00	1.69	2.53	1.69
ARM C	15.00	45.00	75.00	4.71	7.07	4.71

Demand set: 2016 Base Flows - AM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.241	0.759
		0.0	68.0	214.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.963	0.000	0.037
		130.0	0.0	5.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.740	0.260	0.000
		279.0	98.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	0.06	9.04	0.007		0.00	0.01	0.1		0.11
B-A	1.63	7.69	0.212		0.00	0.27	3.8		0.16
C-AB	1.72	12.13	0.142		0.00	0.23	3.4		0.10
C-A	3.01								
A-B	0.85								
A-C	2.69								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.07	8.72	0.009		0.01	0.01	0.1		0.12
B-A	1.95	7.39	0.264		0.27	0.35	5.1		0.18
C-AB	2.21	12.47	0.177		0.23	0.31	4.6		0.10
C-A	3.44								
A-B	1.02								
A-C	3.21								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	0.09	8.19	0.011		0.01	0.01	0.2		0.12
B-A	2.39	6.97	0.342		0.35	0.51	7.3		0.22
C-AB	2.97	12.93	0.229		0.31	0.44	6.7		0.10
C-A	3.95								
A-B	1.25								
A-C	3.93								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	0.09	8.19	0.011		0.01	0.01	0.2		0.12
B-A	2.39	6.97	0.342		0.51	0.51	7.7		0.22
C-AB	2.97	12.93	0.230		0.44	0.44	6.7		0.10
C-A	3.95								
A-B	1.25								
A-C	3.93								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.07	8.71	0.009		0.01	0.01	0.1		0.12
B-A	1.95	7.39	0.264		0.51	0.36	5.7		0.18
C-AB	2.21	12.47	0.177		0.44	0.31	4.7		0.10
C-A	3.44								
A-B	1.02								
A-C	3.21								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.06	9.03	0.007		0.01	0.01	0.1		0.11
B-A	1.63	7.69	0.212		0.36	0.27	4.2		0.17
C-AB	1.73	12.14	0.143		0.31	0.23	3.5		0.10
C-A	3.00								
A-B	0.85								
A-C	2.69								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES 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-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.3	
08.15	0.4	
08.30	0.5	*
08.45	0.5	*
09.00	0.4	
09.15	0.3	

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	6.9	4.6	0.8	0.12	0.8	0.12
B-A	178.9	119.3	33.8	0.19	33.8	0.19
C-AB	207.1	138.1	29.6	0.14	29.6	0.14
C-A	311.8	207.8				
A-B	93.6	62.4				
A-C	294.6	196.4				
ALL	1092.9	728.6	64.2	0.06	64.2	0.06

* 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)

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.21	0.21

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	3.79	5.68	3.79
ARM B	15.00	45.00	75.00	1.77	2.66	1.77
ARM C	15.00	45.00	75.00	5.06	7.59	5.06

Demand set: 2021 Base Flows - AM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.238	0.762
		0.0	72.0	231.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.958	0.000	0.042
		136.0	0.0	6.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.741	0.259	0.000
		300.0	105.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	0.08	8.94	0.008		0.00	0.01	0.1		0.11
B-A	1.71	7.58	0.225		0.00	0.29	4.1		0.17
C-AB	1.90	12.26	0.155		0.00	0.26	3.8		0.10
C-A	3.19								
A-B	0.90								
A-C	2.90								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.09	8.59	0.010		0.01	0.01	0.2		0.12
B-A	2.04	7.25	0.281		0.29	0.38	5.6		0.19
C-AB	2.44	12.62	0.193		0.26	0.35	5.2		0.10
C-A	3.63								
A-B	1.08								
A-C	3.46								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	0.11	8.00	0.014		0.01	0.01	0.2		0.13
B-A	2.50	6.80	0.367		0.38	0.57	8.1		0.23
C-AB	3.30	13.12	0.252		0.35	0.51	7.6		0.10
C-A	4.13								
A-B	1.32								
A-C	4.24								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	0.11	7.99	0.014		0.01	0.01	0.2		0.13
B-A	2.50	6.80	0.367		0.57	0.57	8.6		0.23
C-AB	3.31	13.13	0.252		0.51	0.51	7.7		0.10
C-A	4.13								
A-B	1.32								
A-C	4.24								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.09	8.58	0.010		0.01	0.01	0.2		0.12
B-A	2.04	7.25	0.281		0.57	0.40	6.2		0.19
C-AB	2.44	12.63	0.194		0.51	0.36	5.3		0.10
C-A	3.62								
A-B	1.08								
A-C	3.46								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.08	8.93	0.008		0.01	0.01	0.1		0.11
B-A	1.71	7.57	0.225		0.40	0.30	4.6		0.17
C-AB	1.90	12.27	0.155		0.36	0.26	3.9		0.10
C-A	3.18								
A-B	0.90								
A-C	2.90								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES 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-A

TIME SEGMENT ENDING	NO. OF VEHICLES 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 FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	8.3	5.5	1.0	0.12	1.0	0.12
B-A	187.2	124.8	37.1	0.20	37.1	0.20
C-AB	229.4	152.9	33.6	0.15	33.6	0.15
C-A	328.1	218.7				
A-B	99.1	66.1				
A-C	318.0	212.0				
ALL	1170.0	780.0	71.7	0.06	71.7	0.06

* 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)

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.21	0.21

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	3.60	5.40	3.60
ARM B	15.00	45.00	75.00	2.05	3.07	2.05
ARM C	15.00	45.00	75.00	4.71	7.07	4.71

Demand set: 2016 'With Development' Flows - AM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.257	0.743
		0.0	74.0	214.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.970	0.000	0.030
		159.0	0.0	5.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.740	0.260	0.000
		279.0	98.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	0.06	8.85	0.007		0.00	0.01	0.1		0.11
B-A	2.00	7.69	0.260		0.00	0.35	4.9		0.17
C-AB	1.73	12.12	0.142		0.00	0.23	3.4		0.10
C-A	3.00								
A-B	0.93								
A-C	2.69								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.07	8.43	0.009		0.01	0.01	0.1		0.12
B-A	2.38	7.38	0.323		0.35	0.47	6.8		0.20
C-AB	2.21	12.45	0.177		0.23	0.31	4.6		0.10
C-A	3.44								
A-B	1.11								
A-C	3.21								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	0.09	7.73	0.012		0.01	0.01	0.2		0.13
B-A	2.92	6.96	0.419		0.47	0.70	10.0		0.25
C-AB	2.97	12.91	0.230		0.31	0.44	6.7		0.10
C-A	3.95								
A-B	1.36								
A-C	3.93								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	0.09	7.71	0.012		0.01	0.01	0.2		0.13
B-A	2.92	6.96	0.419		0.70	0.71	10.6		0.25
C-AB	2.97	12.91	0.230		0.44	0.45	6.7		0.10
C-A	3.95								
A-B	1.36								
A-C	3.93								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.07	8.42	0.009		0.01	0.01	0.1		0.12
B-A	2.38	7.38	0.323		0.71	0.49	7.6		0.20
C-AB	2.21	12.45	0.178		0.45	0.32	4.7		0.10
C-A	3.44								
A-B	1.11								
A-C	3.21								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.06	8.83	0.007		0.01	0.01	0.1		0.11
B-A	2.00	7.68	0.260		0.49	0.36	5.5		0.18
C-AB	1.73	12.12	0.143		0.32	0.23	3.5		0.10
C-A	3.00								
A-B	0.93								
A-C	2.69								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES 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-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.3	
08.15	0.5	
08.30	0.7	*
08.45	0.7	*
09.00	0.5	
09.15	0.4	

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	6.9	4.6	0.8	0.12	0.8	0.12
B-A	218.9	145.9	45.5	0.21	45.5	0.21
C-AB	207.3	138.2	29.7	0.14	29.7	0.14
C-A	311.6	207.7				
A-B	101.9	67.9				
A-C	294.6	196.4				
ALL	1141.1	760.7	76.0	0.07	76.0	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)

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.21	0.21

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	3.86	5.79	3.86
ARM B	15.00	45.00	75.00	2.14	3.21	2.14
ARM C	15.00	45.00	75.00	5.06	7.59	5.06

Demand set: 2021 'With Development' Flows - AM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.252	0.748
		0.0	78.0	231.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.965	0.000	0.035
		165.0	0.0	6.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.741	0.259	0.000
		300.0	105.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	0.08	8.75	0.009		0.00	0.01	0.1		0.12
B-A	2.07	7.57	0.273		0.00	0.37	5.3		0.18
C-AB	1.90	12.25	0.155		0.00	0.26	3.8		0.10
C-A	3.18								
A-B	0.98								
A-C	2.90								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.09	8.29	0.011		0.01	0.01	0.2		0.12
B-A	2.47	7.24	0.341		0.37	0.51	7.3		0.21
C-AB	2.44	12.61	0.194		0.26	0.35	5.2		0.10
C-A	3.63								
A-B	1.17								
A-C	3.46								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	0.11	7.49	0.015		0.01	0.01	0.2		0.14
B-A	3.03	6.79	0.446		0.51	0.78	11.1		0.26
C-AB	3.31	13.10	0.252		0.35	0.51	7.7		0.10
C-A	4.13								
A-B	1.43								
A-C	4.24								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	0.11	7.47	0.015		0.01	0.01	0.2		0.14
B-A	3.03	6.79	0.446		0.78	0.79	11.8		0.27
C-AB	3.31	13.11	0.252		0.51	0.51	7.7		0.10
C-A	4.12								
A-B	1.43								
A-C	4.24								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.09	8.27	0.011		0.01	0.01	0.2		0.12
B-A	2.47	7.24	0.342		0.79	0.53	8.3		0.21
C-AB	2.45	12.61	0.194		0.51	0.36	5.3		0.10
C-A	3.62								
A-B	1.17								
A-C	3.46								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.08	8.72	0.009		0.01	0.01	0.1		0.12
B-A	2.07	7.56	0.274		0.53	0.38	6.0		0.18
C-AB	1.90	12.25	0.155		0.36	0.26	3.9		0.10
C-A	3.18								
A-B	0.98								
A-C	2.90								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES 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-A

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	8.3	5.5	1.0	0.12	1.0	0.12
B-A	227.1	151.4	49.8	0.22	49.8	0.22
C-AB	229.6	153.0	33.7	0.15	33.7	0.15
C-A	327.9	218.6				
A-B	107.4	71.6				
A-C	318.0	212.0				
ALL	1218.1	812.1	84.6	0.07	84.6	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)

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.21	0.21

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	6.38	9.56	6.38
ARM B	15.00	45.00	75.00	1.21	1.82	1.21
ARM C	15.00	45.00	75.00	3.79	5.68	3.79

Demand set: 2016 Base Flows - PM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.298	0.702
		0.0	152.0	358.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.918	0.000	0.082
		89.0	0.0	8.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.756	0.244	0.000
		229.0	74.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	0.10	8.82	0.011		0.00	0.01	0.2		0.11
B-A	1.12	7.38	0.151		0.00	0.18	2.5		0.16
C-AB	1.24	11.15	0.111		0.00	0.17	2.5		0.10
C-A	2.56								
A-B	1.91								
A-C	4.49								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.12	8.49	0.014		0.01	0.01	0.2		0.12
B-A	1.33	7.01	0.190		0.18	0.23	3.4		0.18
C-AB	1.59	11.32	0.141		0.17	0.23	3.5		0.10
C-A	2.95								
A-B	2.28								
A-C	5.36								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.15	8.01	0.018		0.01	0.02	0.3		0.13
B-A	1.63	6.51	0.251		0.23	0.33	4.8		0.20
C-AB	2.13	11.54	0.185		0.23	0.34	5.1		0.11
C-A	3.43								
A-B	2.79								
A-C	6.57								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	0.15	8.01	0.018		0.02	0.02	0.3		0.13
B-A	1.63	6.51	0.251		0.33	0.33	5.0		0.21
C-AB	2.14	11.54	0.185		0.34	0.34	5.1		0.11
C-A	3.42								
A-B	2.79								
A-C	6.57								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	0.12	8.49	0.014		0.02	0.01	0.2		0.12
B-A	1.33	7.01	0.190		0.33	0.24	3.7		0.18
C-AB	1.59	11.32	0.141		0.34	0.24	3.6		0.10
C-A	2.95								
A-B	2.28								
A-C	5.36								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-C	0.10	8.81	0.011		0.01	0.01	0.2		0.11
B-A	1.12	7.37	0.151		0.24	0.18	2.8		0.16
C-AB	1.24	11.15	0.111		0.24	0.17	2.6		0.10
C-A	2.56								
A-B	1.91								
A-C	4.49								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES 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-A

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	11.0	7.3	1.3	0.12	1.3	0.12
B-A	122.5	81.7	22.1	0.18	22.1	0.18
C-AB	149.0	99.3	22.3	0.15	22.3	0.15
C-A	268.0	178.7				
A-B	209.2	139.5				
A-C	492.8	328.5				
ALL	1252.5	835.0	45.8	0.04	45.8	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)

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.21	0.21

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	6.84	10.26	6.84
ARM B	15.00	45.00	75.00	1.29	1.93	1.29
ARM C	15.00	45.00	75.00	4.09	6.13	4.09

Demand set: 2021 Base Flows - PM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.294	0.706
		0.0	161.0	386.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.913	0.000	0.087
		94.0	0.0	9.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.755	0.245	0.000
		247.0	80.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	0.11	8.72	0.013		0.00	0.01	0.2		0.12
B-A	1.18	7.23	0.163		0.00	0.19	2.8		0.16
C-AB	1.38	11.23	0.123		0.00	0.19	2.9		0.10
C-A	2.72								
A-B	2.02								
A-C	4.84								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.13	8.36	0.016		0.01	0.02	0.2		0.12
B-A	1.41	6.84	0.206		0.19	0.26	3.7		0.18
C-AB	1.78	11.40	0.156		0.19	0.26	4.0		0.10
C-A	3.12								
A-B	2.41								
A-C	5.78								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.17	7.83	0.021		0.02	0.02	0.3		0.13
B-A	1.72	6.30	0.274		0.26	0.37	5.3		0.22
C-AB	2.40	11.65	0.206		0.26	0.39	5.9		0.11
C-A	3.60								
A-B	2.95								
A-C	7.08								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	0.17	7.82	0.021		0.02	0.02	0.3		0.13
B-A	1.72	6.30	0.274		0.37	0.37	5.6		0.22
C-AB	2.40	11.66	0.206		0.39	0.39	6.0		0.11
C-A	3.60								
A-B	2.95								
A-C	7.08								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	0.13	8.36	0.016		0.02	0.02	0.3		0.12
B-A	1.41	6.83	0.206		0.37	0.26	4.1		0.18
C-AB	1.78	11.41	0.156		0.39	0.27	4.1		0.10
C-A	3.12								
A-B	2.41								
A-C	5.78								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-C	0.11	8.71	0.013		0.02	0.01	0.2		0.12
B-A	1.18	7.22	0.163		0.26	0.20	3.1		0.17
C-AB	1.39	11.23	0.124		0.27	0.20	3.0		0.10
C-A	2.71								
A-B	2.02								
A-C	4.84								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES 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-A

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	12.4	8.3	1.5	0.12	1.5	0.12
B-A	129.4	86.3	24.6	0.19	24.6	0.19
C-AB	166.9	111.3	25.8	0.15	25.8	0.15
C-A	283.2	188.8				
A-B	221.6	147.7				
A-C	531.3	354.2				
ALL	1344.8	896.5	51.8	0.04	51.9	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)

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.21	0.21

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	6.61	9.92	6.61
ARM B	15.00	45.00	75.00	1.40	2.10	1.40
ARM C	15.00	45.00	75.00	3.79	5.68	3.79

Demand set: 2016 'With Development' Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.323	0.677
		0.0	171.0	358.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.929	0.000	0.071
		104.0	0.0	8.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.756	0.244	0.000
		229.0	74.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	0.10	8.70	0.012		0.00	0.01	0.2		0.12
B-A	1.30	7.36	0.177		0.00	0.21	3.0		0.16
C-AB	1.24	11.10	0.112		0.00	0.17	2.5		0.10
C-A	2.56								
A-B	2.15								
A-C	4.49								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.12	8.34	0.014		0.01	0.01	0.2		0.12
B-A	1.56	6.99	0.223		0.21	0.28	4.1		0.18
C-AB	1.60	11.26	0.142		0.17	0.23	3.5		0.10
C-A	2.94								
A-B	2.56								
A-C	5.36								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.15	7.80	0.019		0.01	0.02	0.3		0.13
B-A	1.91	6.49	0.294		0.28	0.41	5.9		0.22
C-AB	2.14	11.48	0.187		0.23	0.34	5.1		0.11
C-A	3.42								
A-B	3.14								
A-C	6.57								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	0.15	7.79	0.019		0.02	0.02	0.3		0.13
B-A	1.91	6.49	0.294		0.41	0.41	6.2		0.22
C-AB	2.14	11.48	0.187		0.34	0.34	5.2		0.11
C-A	3.42								
A-B	3.14								
A-C	6.57								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	0.12	8.34	0.014		0.02	0.01	0.2		0.12
B-A	1.56	6.99	0.223		0.41	0.29	4.5		0.18
C-AB	1.60	11.27	0.142		0.34	0.24	3.6		0.10
C-A	2.94								
A-B	2.56								
A-C	5.36								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-C	0.10	8.69	0.012		0.01	0.01	0.2		0.12
B-A	1.30	7.36	0.177		0.29	0.22	3.4		0.17
C-AB	1.24	11.11	0.112		0.24	0.18	2.6		0.10
C-A	2.56								
A-B	2.15								
A-C	4.49								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES 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-A

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	11.0	7.3	1.4	0.12	1.4	0.12
B-A	143.1	95.4	27.1	0.19	27.1	0.19
C-AB	149.4	99.6	22.6	0.15	22.6	0.15
C-A	267.7	178.5				
A-B	235.4	156.9				
A-C	492.8	328.5				
ALL	1299.3	866.2	51.1	0.04	51.1	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)

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.21	0.21

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	7.07	10.61	7.07
ARM B	15.00	45.00	75.00	1.48	2.21	1.48
ARM C	15.00	45.00	75.00	4.09	6.13	4.09

Demand set: 2021 'With Development' Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.318	0.682
		0.0	180.0	386.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.924	0.000	0.076
		109.0	0.0	9.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.755	0.245	0.000
		247.0	80.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	0.11	8.59	0.013		0.00	0.01	0.2		0.12
B-A	1.37	7.22	0.190		0.00	0.23	3.3		0.17
C-AB	1.39	11.18	0.124		0.00	0.20	2.9		0.10
C-A	2.72								
A-B	2.26								
A-C	4.84								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.13	8.20	0.016		0.01	0.02	0.2		0.12
B-A	1.63	6.82	0.239		0.23	0.31	4.5		0.19
C-AB	1.78	11.35	0.157		0.20	0.27	4.0		0.10
C-A	3.12								
A-B	2.70								
A-C	5.78								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.17	7.59	0.022		0.02	0.02	0.3		0.13
B-A	2.00	6.28	0.319		0.31	0.46	6.6		0.23
C-AB	2.41	11.59	0.208		0.27	0.40	6.0		0.11
C-A	3.59								
A-B	3.30								
A-C	7.08								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	0.17	7.58	0.022		0.02	0.02	0.3		0.13
B-A	2.00	6.27	0.319		0.46	0.46	6.9		0.23
C-AB	2.41	11.59	0.208		0.40	0.40	6.0		0.11
C-A	3.59								
A-B	3.30								
A-C	7.08								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	0.13	8.19	0.016		0.02	0.02	0.3		0.12
B-A	1.63	6.82	0.240		0.46	0.32	5.0		0.19
C-AB	1.78	11.35	0.157		0.40	0.27	4.1		0.10
C-A	3.12								
A-B	2.70								
A-C	5.78								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-C	0.11	8.58	0.013		0.02	0.01	0.2		0.12
B-A	1.37	7.21	0.190		0.32	0.24	3.7		0.17
C-AB	1.39	11.19	0.124		0.27	0.20	3.0		0.10
C-A	2.71								
A-B	2.26								
A-C	4.84								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES 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-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.5
17.45	0.5
18.00	0.3
18.15	0.2

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY (MIN)	* QUEUEING * DELAY (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY (MIN)	* INCLUSIVE QUEUEING * DELAY (MIN/VEH)
B-C	12.4	8.3	1.6	0.13	1.6	0.13
B-A	150.0	100.0	30.0	0.20	30.0	0.20
C-AB	167.4	111.6	26.1	0.16	26.1	0.16
C-A	282.7	188.5				
A-B	247.8	165.2				
A-C	531.3	354.2				
ALL	1391.6	927.7	57.6	0.04	57.6	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*******

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

Printed at 09:59:37 on 17/10/2012]

APPENDIX 6

PICADY Output: Henthorn Road/Eshton Terrace/Thorn 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)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
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

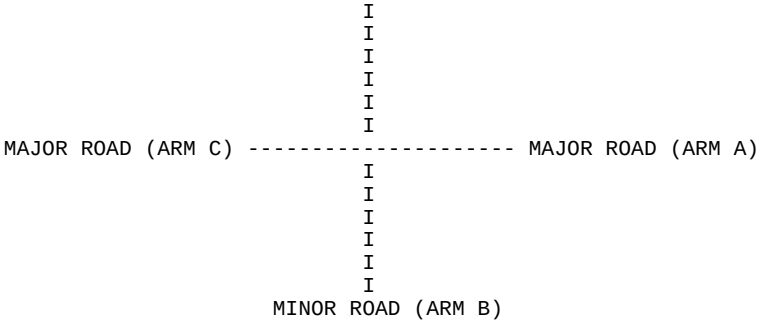
Run with file:-
"Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Eshton Terrace_Thorn Street.vpi"
(drive-on-the-left) at 10:04:48 on Wednesday, 17 October 2012

RUN INFORMATION

RUN TITLE	: Henthorne Road/Eshton Terrace/Thorn Street
LOCATION	: Clitheroe
DATE	: 12/10/12
CLIENT	: Bowsall Limited
ENUMERATOR	: Cad Workstation2 [CADWORKSTATION2]
JOB NUMBER	: 0248
STATUS	: TIA
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Henthorn Rd (N)
ARM B IS Eshton Terrace
ARM C IS Henthorn Rd (S)
ARM D IS Thorn Street

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

DATA ITEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.	(WA-D) 2.20 M.
- VISIBILITY	(VC-B) 55.00 M.	(VA-D)140.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (0)	YES (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 17.0 M.	(VD-A) 33.0 M.
- VISIBILITY TO RIGHT	(VB-A) 18.0 M.	(VD-C) 32.0 M.
- LANE 1 WIDTH	(WB-C) 3.75 M.	(WD-A) 3.60 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.	(WD-C) 0.00 M.

.SLOPES AND INTERCEPT

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

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
682.97	0.25	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
682.77	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
528.93	0.23	0.23	0.23	0.23

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.09	0.14	0.33	0.11

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
534.29	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.15	0.33	0.12

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
605.81	0.22	0.22	0.32

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
655.04	0.24	0.34	0.24

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2016 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	2.06	3.09	2.06
ARM B	15.00	45.00	75.00	2.58	3.86	2.58
ARM C	15.00	45.00	75.00	4.53	6.79	4.53
ARM D	15.00	45.00	75.00	0.50	0.75	0.50

Demand set: 2016 Base Flows - AM PEAK

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	0.600	0.400	0.000
		0.0	99.0	66.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.034	0.000	0.456	0.510
		7.0	0.0	94.0	105.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.343	0.655	0.000	0.003
		124.0	237.0	0.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.075	0.925	0.000	0.000
		3.0	37.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	2.58	8.64	0.299		0.00	0.42	6.0		0.16
A-BCD	0.00	8.66	0.000		0.00	0.00	0.0		0.00
A-B	1.24								
A-C	0.83								
D-ABC	0.50	7.73	0.065		0.00	0.07	1.0		0.14
C-ABD	3.48	10.70	0.326		0.00	0.53	7.9		0.14
C-D	0.01								
C-A	1.05								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	3.09	8.39	0.368		0.42	0.57	8.3		0.19
A-BCD	0.00	8.40	0.000		0.00	0.00	0.0		0.00
A-B	1.48								
A-C	0.99								
D-ABC	0.60	7.47	0.080		0.07	0.09	1.3		0.15
C-ABD	4.30	10.83	0.397		0.53	0.73	11.1		0.15
C-D	0.01								
C-A	1.12								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	3.78	8.04	0.470		0.57	0.86	12.3		0.23
A-BCD	0.00	8.06	0.000		0.00	0.00	0.0		0.00
A-B	1.82								
A-C	1.21								
D-ABC	0.73	7.10	0.103		0.09	0.11	1.7		0.16
C-ABD	5.50	11.00	0.500		0.73	1.12	17.0		0.18
C-D	0.01								
C-A	1.13								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	3.78	8.03	0.471		0.86	0.88	13.1		0.24
A-BCD	0.00	8.05	0.000		0.00	0.00	0.0		0.00
A-B	1.82								
A-C	1.21								
D-ABC	0.73	7.10	0.103		0.11	0.11	1.7		0.16
C-ABD	5.51	11.01	0.500		1.12	1.14	17.3		0.18
C-D	0.01								
C-A	1.13								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	3.09	8.38	0.368		0.88	0.59	9.3		0.19
A-BCD	0.00	8.39	0.000		0.00	0.00	0.0		0.00
A-B	1.48								
A-C	0.99								
D-ABC	0.60	7.46	0.080		0.11	0.09	1.4		0.15
C-ABD	4.31	10.84	0.397		1.14	0.76	11.5		0.15
C-D	0.01								
C-A	1.11								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	2.58	8.63	0.300		0.59	0.43	6.7		0.17
A-BCD	0.00	8.64	0.000		0.00	0.00	0.0		0.00
A-B	1.24								
A-C	0.83								
D-ABC	0.50	7.72	0.065		0.09	0.07	1.1		0.14
C-ABD	3.49	10.71	0.326		0.76	0.55	8.2		0.14
C-D	0.01								
C-A	1.04								

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

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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	

QUEUE FOR STREAM A-BCD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	*
08.15	0.7	*
08.30	1.1	*
08.45	1.1	*
09.00	0.8	*
09.15	0.6	*

TRL TRL Viewer 3.2 AG Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Eshton Terrace_Thorn Stre

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	283.5	189.0	55.7	0.20	55.7	0.20
A-BCD	0.0	0.0	0.0	0.00	0.0	0.00
A-B	136.3	90.8				
A-C	90.8	60.6				
D-ABC	55.1	36.7	8.1	0.15	8.1	0.15
C-ABD	398.9	265.9	73.0	0.18	73.0	0.18
C-D	0.8	0.5				
C-A	98.6	65.7				
ALL	1064.0	709.3	136.8	0.13	136.8	0.13

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
682.97	0.25	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
682.77	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
528.93	0.23	0.23	0.23	0.23

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.09	0.14	0.33	0.11

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
534.29	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.15	0.33	0.12

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
605.81	0.22	0.22	0.32

TRL TRL Viewer 3.2 AG Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Eshton Terrace_Thorn Stre

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
655.04	0.24	0.34	0.24

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2021 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	2.20	3.30	2.20
ARM B	15.00	45.00	75.00	2.74	4.11	2.74
ARM C	15.00	45.00	75.00	4.78	7.16	4.78
ARM D	15.00	45.00	75.00	0.54	0.81	0.54

Demand set: 2021 Base Flows - AM PEAK

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	0.602	0.398	0.000
		0.0	106.0	70.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.037	0.000	0.452	0.511
		8.0	0.0	99.0	112.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.338	0.660	0.000	0.003
		129.0	252.0	0.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.070	0.930	0.000	0.000
		3.0	40.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2021 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	2.75	8.55	0.321		0.00	0.47	6.6		0.17
A-BCD	0.00	8.59	0.000		0.00	0.00	0.0		0.00
A-B	1.33								
A-C	0.88								
D-ABC	0.54	7.64	0.071		0.00	0.08	1.1		0.14
C-ABD	3.73	10.72	0.348		0.00	0.59	8.7		0.14
C-D	0.01								
C-A	1.06								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	3.28	8.28	0.396		0.47	0.64	9.3		0.20
A-BCD	0.00	8.32	0.000		0.00	0.00	0.0		0.00
A-B	1.59								
A-C	1.05								
D-ABC	0.64	7.36	0.088		0.08	0.09	1.4		0.15
C-ABD	4.61	10.85	0.425		0.59	0.82	12.5		0.16
C-D	0.01								
C-A	1.11								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	4.02	7.90	0.508		0.64	1.00	14.2		0.25
A-BCD	0.00	7.95	0.000		0.00	0.00	0.0		0.00
A-B	1.95								
A-C	1.28								
D-ABC	0.79	6.98	0.113		0.09	0.13	1.8		0.16
C-ABD	5.91	11.03	0.536		0.82	1.30	19.6		0.19
C-D	0.01								
C-A	1.09								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	4.02	7.90	0.509		1.00	1.02	15.2		0.26
A-BCD	0.00	7.94	0.000		0.00	0.00	0.0		0.00
A-B	1.95								
A-C	1.28								
D-ABC	0.79	6.97	0.113		0.13	0.13	1.9		0.16
C-ABD	5.92	11.03	0.536		1.30	1.32	20.1		0.20
C-D	0.01								
C-A	1.08								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	3.28	8.27	0.397		1.02	0.67	10.6		0.20
A-BCD	0.00	8.30	0.000		0.00	0.00	0.0		0.00
A-B	1.59								
A-C	1.05								
D-ABC	0.64	7.35	0.088		0.13	0.10	1.5		0.15
C-ABD	4.62	10.86	0.425		1.32	0.86	12.9		0.16
C-D	0.01								
C-A	1.10								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	2.75	8.54	0.322		0.67	0.48	7.5		0.17
A-BCD	0.00	8.57	0.000		0.00	0.00	0.0		0.00
A-B	1.33								
A-C	0.88								
D-ABC	0.54	7.63	0.071		0.10	0.08	1.2		0.14
C-ABD	3.74	10.72	0.349		0.86	0.61	9.1		0.14
C-D	0.01								
C-A	1.05								

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

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	
08.15	0.6	*
08.30	1.0	*
08.45	1.0	*
09.00	0.7	*
09.15	0.5	

QUEUE FOR STREAM A-BCD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.6	*
08.15	0.8	*
08.30	1.3	*
08.45	1.3	*
09.00	0.9	*
09.15	0.6	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	301.4	201.0	63.4	0.21	63.4	0.21
A-BCD	0.0	0.0	0.0	0.00	0.0	0.00
A-B	145.9	97.3				
A-C	96.3	64.2				
D-ABC	59.2	39.5	8.9	0.15	8.9	0.15
C-ABD	427.8	285.2	82.9	0.19	82.9	0.19
C-D	0.8	0.5				
C-A	97.2	64.8				
ALL	1128.7	752.4	155.2	0.14	155.2	0.14

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
682.97	0.25	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
682.77	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
528.93	0.23	0.23	0.23	0.23

	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
	0.09	0.14	0.33	0.11

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
534.29	0.23	0.23	0.23	0.23

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.09	0.15	0.33	0.12

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
605.81	0.22	0.22	0.32

TRL TRL Viewer 3.2 AG Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Eshton Terrace_Thorn Stre

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
655.04	0.24	0.34	0.24

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2016 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	2.14	3.21	2.14
ARM B	15.00	45.00	75.00	2.71	4.07	2.71
ARM C	15.00	45.00	75.00	5.21	7.82	5.21
ARM D	15.00	45.00	75.00	0.50	0.75	0.50

Demand set: 2016 'With Development' Flows - AM PEAK

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	0.579	0.421	0.000
		0.0	99.0	72.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.032	0.000	0.484	0.484
		7.0	0.0	105.0	105.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.367	0.631	0.000	0.002
		153.0	263.0	0.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.075	0.925	0.000	0.000
		3.0	37.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2016 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	2.72	8.60	0.317		0.00	0.46	6.5		0.17
A-BCD	0.00	8.48	0.000		0.00	0.00	0.0		0.00
A-B	1.24								
A-C	0.90								
D-ABC	0.50	7.56	0.066		0.00	0.07	1.0		0.14
C-ABD	4.01	10.93	0.366		0.00	0.65	9.6		0.14
C-D	0.01								
C-A	1.22								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	3.25	8.32	0.391		0.46	0.63	9.1		0.20
A-BCD	0.00	8.18	0.000		0.00	0.00	0.0		0.00
A-B	1.48								
A-C	1.08								
D-ABC	0.60	7.26	0.083		0.07	0.09	1.3		0.15
C-ABD	4.98	11.11	0.448		0.65	0.92	14.0		0.16
C-D	0.01								
C-A	1.26								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	3.98	7.93	0.502		0.63	0.98	13.9		0.25
A-BCD	0.00	7.79	0.000		0.00	0.00	0.0		0.00
A-B	1.82								
A-C	1.32								
D-ABC	0.73	6.85	0.107		0.09	0.12	1.7		0.16
C-ABD	6.44	11.35	0.567		0.92	1.50	22.6		0.20
C-D	0.01								
C-A	1.21								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	3.98	7.92	0.503		0.98	0.99	14.8		0.25
A-BCD	0.00	7.78	0.000		0.00	0.00	0.0		0.00
A-B	1.82								
A-C	1.32								
D-ABC	0.73	6.84	0.107		0.12	0.12	1.8		0.16
C-ABD	6.45	11.36	0.568		1.50	1.53	23.3		0.20
C-D	0.01								
C-A	1.20								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	3.25	8.31	0.391		0.99	0.66	10.3		0.20
A-BCD	0.00	8.17	0.000		0.00	0.00	0.0		0.00
A-B	1.48								
A-C	1.08								
D-ABC	0.60	7.25	0.083		0.12	0.09	1.4		0.15
C-ABD	4.99	11.12	0.449		1.53	0.97	14.6		0.17
C-D	0.01								
C-A	1.25								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	2.72	8.59	0.317		0.66	0.47	7.3		0.17
A-BCD	0.00	8.46	0.000		0.00	0.00	0.0		0.00
A-B	1.24								
A-C	0.90								
D-ABC	0.50	7.55	0.066		0.09	0.07	1.1		0.14
C-ABD	4.02	10.94	0.367		0.97	0.68	10.1		0.15
C-D	0.01								
C-A	1.21								

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

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	
08.15	0.6	*
08.30	1.0	*
08.45	1.0	*
09.00	0.7	*
09.15	0.5	

QUEUE FOR STREAM A-BCD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	0.9	*
08.30	1.5	*
08.45	1.5	**
09.00	1.0	*
09.15	0.7	*

TRL TRL Viewer 3.2 AG Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Eshton Terrace_Thorn Stre

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	298.7	199.1	61.9	0.21	61.9	0.21
A-BCD	0.0	0.0	0.0	0.00	0.0	0.00
A-B	136.3	90.8				
A-C	99.1	66.1				
D-ABC	55.1	36.7	8.3	0.15	8.3	0.15
C-ABD	463.3	308.8	94.2	0.20	94.2	0.20
C-D	0.7	0.5				
C-A	110.0	73.3				
ALL	1163.1	775.4	164.4	0.14	164.5	0.14

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
682.97	0.25	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
682.77	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
528.93	0.23	0.23	0.23	0.23

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.09	0.14	0.33	0.11

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
534.29	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.15	0.33	0.12

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
605.81	0.22	0.22	0.32

TRL TRL Viewer 3.2 AG Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Eshton Terrace_Thorn Stre

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
655.04	0.24	0.34	0.24

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2021 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	2.28	3.41	2.28
ARM B	15.00	45.00	75.00	2.88	4.31	2.88
ARM C	15.00	45.00	75.00	5.45	8.17	5.45
ARM D	15.00	45.00	75.00	0.54	0.81	0.54

Demand set: 2021 'With Development' Flows - AM PEAK

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	0.582	0.418	0.000
		0.0	106.0	76.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.035	0.000	0.478	0.487
		8.0	0.0	110.0	112.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.362	0.635	0.000	0.002
		158.0	277.0	0.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.070	0.930	0.000	0.000
		3.0	40.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2021 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	2.89	8.51	0.339		0.00	0.50	7.2		0.18
A-BCD	0.00	8.41	0.000		0.00	0.00	0.0		0.00
A-B	1.33								
A-C	0.95								
D-ABC	0.54	7.48	0.072		0.00	0.08	1.1		0.14
C-ABD	4.25	10.95	0.388		0.00	0.71	10.5		0.15
C-D	0.01								
C-A	1.21								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	3.45	8.21	0.420		0.50	0.71	10.2		0.21
A-BCD	0.00	8.10	0.000		0.00	0.00	0.0		0.00
A-B	1.59								
A-C	1.14								
D-ABC	0.64	7.16	0.090		0.08	0.10	1.4		0.15
C-ABD	5.29	11.13	0.475		0.71	1.03	15.6		0.17
C-D	0.01								
C-A	1.24								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	4.22	7.79	0.542		0.71	1.14	16.0		0.28
A-BCD	0.00	7.69	0.000		0.00	0.00	0.0		0.00
A-B	1.95								
A-C	1.39								
D-ABC	0.79	6.73	0.117		0.10	0.13	1.9		0.17
C-ABD	6.85	11.37	0.602		1.03	1.73	26.0		0.22
C-D	0.01								
C-A	1.14								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	4.22	7.78	0.542		1.14	1.16	17.3		0.28
A-BCD	0.00	7.68	0.000		0.00	0.00	0.0		0.00
A-B	1.95								
A-C	1.39								
D-ABC	0.79	6.72	0.117		0.13	0.13	2.0		0.17
C-ABD	6.86	11.38	0.603		1.73	1.76	26.9		0.22
C-D	0.01								
C-A	1.13								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	3.45	8.19	0.421		1.16	0.74	11.7		0.21
A-BCD	0.00	8.08	0.000		0.00	0.00	0.0		0.00
A-B	1.59								
A-C	1.14								
D-ABC	0.64	7.14	0.090		0.13	0.10	1.5		0.15
C-ABD	5.30	11.14	0.476		1.76	1.08	16.4		0.17
C-D	0.01								
C-A	1.22								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	2.89	8.49	0.340		0.74	0.52	8.2		0.18
A-BCD	0.00	8.39	0.000		0.00	0.00	0.0		0.00
A-B	1.33								
A-C	0.95								
D-ABC	0.54	7.46	0.072		0.10	0.08	1.2		0.14
C-ABD	4.26	10.96	0.389		1.08	0.74	11.1		0.15
C-D	0.01								
C-A	1.20								

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

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	*
08.15	0.7	*
08.30	1.1	*
08.45	1.2	*
09.00	0.7	*
09.15	0.5	*

QUEUE FOR STREAM A-BCD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	1.0	*
08.30	1.7	**
08.45	1.8	**
09.00	1.1	*
09.15	0.7	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	316.6	211.1	70.6	0.22	70.6	0.22
A-BCD	0.0	0.0	0.0	0.00	0.0	0.00
A-B	145.9	97.3				
A-C	104.6	69.7				
D-ABC	59.2	39.5	9.2	0.16	9.2	0.16
C-ABD	492.3	328.2	106.6	0.22	106.6	0.22
C-D	0.7	0.5				
C-A	107.2	71.5				
ALL	1226.4	817.6	186.4	0.15	186.4	0.15

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
682.97	0.25	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
682.77	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
528.93	0.23	0.23	0.23	0.23

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.09	0.14	0.33	0.11

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
534.29	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.15	0.33	0.12

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
605.81	0.22	0.22	0.32

TRL TRL Viewer 3.2 AG Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Eshton Terrace_Thorn Stre

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
655.04	0.24	0.34	0.24

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2016 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	2.88	4.31	2.88
ARM B	15.00	45.00	75.00	5.22	7.84	5.22
ARM C	15.00	45.00	75.00	3.24	4.86	3.24
ARM D	15.00	45.00	75.00	0.75	1.13	0.75

Demand set: 2016 Base Flows - PM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.335	0.661	0.004
		0.0	77.0	152.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.014	0.000	0.531	0.455
		6.0	0.0	222.0	190.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.344	0.653	0.000	0.004
		89.0	169.0	0.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.000	0.967	0.033	0.000
		0.0	58.0	2.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	5.24	8.90	0.589		0.00	1.37	18.7		0.26
A-BCD	0.02	11.83	0.001		0.00	0.00	0.0		0.08
A-B	0.96								
A-C	1.90								
D-ABC	0.75	7.69	0.098		0.00	0.11	1.6		0.14
C-ABD	2.38	10.23	0.233		0.00	0.33	4.9		0.13
C-D	0.01								
C-A	0.86								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	6.26	8.68	0.722		1.37	2.39	32.4		0.39
A-BCD	0.02	12.01	0.002		0.00	0.00	0.0		0.08
A-B	1.15								
A-C	2.27								
D-ABC	0.90	7.44	0.121		0.11	0.14	2.0		0.15
C-ABD	2.92	10.26	0.284		0.33	0.44	6.6		0.14
C-D	0.01								
C-A	0.95								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	7.67	8.36	0.918		2.39	6.64	77.5		0.85
A-BCD	0.03	12.28	0.002		0.00	0.00	0.0		0.08
A-B	1.41								
A-C	2.78								
D-ABC	1.10	7.11	0.155		0.14	0.18	2.6		0.17
C-ABD	3.70	10.31	0.359		0.44	0.62	9.4		0.15
C-D	0.01								
C-A	1.04								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	7.67	8.36	0.918		6.64	7.90	110.2		1.11
A-BCD	0.03	12.28	0.002		0.00	0.00	0.0		0.08
A-B	1.41								
A-C	2.78								
D-ABC	1.10	7.10	0.155		0.18	0.18	2.7		0.17
C-ABD	3.70	10.31	0.359		0.62	0.63	9.5		0.15
C-D	0.01								
C-A	1.04								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	6.26	8.67	0.722		7.90	2.85	54.2		0.54
A-BCD	0.02	12.01	0.002		0.00	0.00	0.0		0.08
A-B	1.15								
A-C	2.27								
D-ABC	0.90	7.43	0.121		0.18	0.14	2.1		0.15
C-ABD	2.92	10.27	0.284		0.63	0.45	6.7		0.14
C-D	0.01								
C-A	0.95								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	5.24	8.90	0.589		2.85	1.50	24.3		0.29
A-BCD	0.02	11.82	0.001		0.00	0.00	0.0		0.08
A-B	0.96								
A-C	1.90								
D-ABC	0.75	7.68	0.098		0.14	0.11	1.7		0.14
C-ABD	2.38	10.23	0.233		0.45	0.34	5.1		0.13
C-D	0.01								
C-A	0.86								

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

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.4	*
17.15	2.4	**
17.30	6.6	*******
17.45	7.9	********
18.00	2.9	***
18.15	1.5	*

QUEUE FOR STREAM A-BCD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.3	
17.15	0.4	
17.30	0.6	*
17.45	0.6	*
18.00	0.4	
18.15	0.3	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	575.3	383.6	317.3	0.55	317.4	0.55
A-BCD	1.9	1.3	0.2	0.08	0.2	0.08
A-B	105.8	70.5				
A-C	208.8	139.2				
D-ABC	82.6	55.1	12.7	0.15	12.7	0.15
C-ABD	270.0	180.0	42.1	0.16	42.1	0.16
C-D	1.0	0.6				
C-A	85.6	57.0				
ALL	1331.0	887.3	372.3	0.28	372.4	0.28

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
682.97	0.25	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
682.77	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
528.93	0.23	0.23	0.23	0.23

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.09	0.14	0.33	0.11

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
534.29	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.15	0.33	0.12

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
605.81	0.22	0.22	0.32

TRL TRL Viewer 3.2 AG Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Eshton Terrace_Thorn Stre

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
655.04	0.24	0.34	0.24

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2021 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	3.08	4.61	3.08
ARM B	15.00	45.00	75.00	5.56	8.34	5.56
ARM C	15.00	45.00	75.00	3.44	5.16	3.44
ARM D	15.00	45.00	75.00	0.80	1.20	0.80

Demand set: 2021 Base Flows - PM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.337	0.659	0.004
		0.0	83.0	162.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.016	0.000	0.526	0.458
		7.0	0.0	234.0	204.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.342	0.655	0.000	0.004
		94.0	180.0	0.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.000	0.969	0.031	0.000
		0.0	62.0	2.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	5.58	8.81	0.634		0.00	1.64	22.1		0.29
A-BCD	0.02	11.90	0.001		0.00	0.00	0.0		0.08
A-B	1.04								
A-C	2.03								
D-ABC	0.80	7.61	0.106		0.00	0.12	1.7		0.15
C-ABD	2.55	10.23	0.249		0.00	0.36	5.4		0.13
C-D	0.01								
C-A	0.89								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	6.67	8.57	0.778		1.64	3.10	40.9		0.48
A-BCD	0.02	12.10	0.002		0.00	0.00	0.0		0.08
A-B	1.24								
A-C	2.42								
D-ABC	0.96	7.35	0.130		0.12	0.15	2.2		0.16
C-ABD	3.13	10.26	0.305		0.36	0.48	7.3		0.14
C-D	0.01								
C-A	0.98								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	8.17	8.22	0.993		3.10	10.70	114.0		1.20
A-BCD	0.03	12.39	0.002		0.00	0.00	0.0		0.08
A-B	1.52								
A-C	2.97								
D-ABC	1.17	7.00	0.168		0.15	0.20	2.9		0.17
C-ABD	3.98	10.31	0.386		0.48	0.70	10.6		0.16
C-D	0.01								
C-A	1.06								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	8.17	8.22	0.993		10.70	14.74	192.6		1.86
A-BCD	0.03	12.39	0.002		0.00	0.00	0.0		0.08
A-B	1.52								
A-C	2.97								
D-ABC	1.17	6.99	0.168		0.20	0.20	3.0		0.17
C-ABD	3.98	10.32	0.386		0.70	0.71	10.7		0.16
C-D	0.01								
C-A	1.05								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	6.67	8.56	0.779		14.74	4.16	106.2		1.03
A-BCD	0.02	12.10	0.002		0.00	0.00	0.0		0.08
A-B	1.24								
A-C	2.42								
D-ABC	0.96	7.34	0.131		0.20	0.15	2.3		0.16
C-ABD	3.14	10.27	0.306		0.71	0.50	7.5		0.14
C-D	0.01								
C-A	0.97								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	5.58	8.80	0.634		4.16	1.83	30.8		0.34
A-BCD	0.02	11.89	0.001		0.00	0.00	0.0		0.08
A-B	1.04								
A-C	2.03								
D-ABC	0.80	7.60	0.106		0.15	0.12	1.8		0.15
C-ABD	2.56	10.23	0.250		0.50	0.37	5.6		0.13
C-D	0.01								
C-A	0.89								

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

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.6	**
17.15	3.1	***
17.30	10.7	**********
17.45	14.7	**********
18.00	4.2	****
18.15	1.8	**

QUEUE FOR STREAM A-BCD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.2
17.45	0.2
18.00	0.2
18.15	0.1

QUEUE FOR STREAM C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.5	
17.30	0.7	*
17.45	0.7	*
18.00	0.5	
18.15	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	612.5	408.3	506.6	0.83	506.8	0.83
A-BCD	2.0	1.3	0.2	0.08	0.2	0.08
A-B	114.0	76.0				
A-C	222.6	148.4				
D-ABC	88.1	58.7	13.9	0.16	13.9	0.16
C-ABD	290.1	193.4	47.0	0.16	47.0	0.16
C-D	0.9	0.6				
C-A	87.5	58.3				
ALL	1417.7	945.1	567.7	0.40	567.9	0.40

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
682.97	0.25	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
682.77	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
528.93	0.23	0.23	0.23	0.23

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.09	0.14	0.33	0.11

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
534.29	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.15	0.33	0.12

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
605.81	0.22	0.22	0.32

TRL TRL Viewer 3.2 AG Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Eshton Terrace_Thorn Stre

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
655.04	0.24	0.34	0.24

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2016 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	3.11	4.67	3.11
ARM B	15.00	45.00	75.00	5.65	8.48	5.65
ARM C	15.00	45.00	75.00	3.59	5.38	3.59
ARM D	15.00	45.00	75.00	0.75	1.13	0.75

Demand set: 2016 'With Development' Flows - PM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.309	0.687	0.004
		0.0	77.0	171.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.013	0.000	0.566	0.420
		6.0	0.0	256.0	190.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.362	0.634	0.000	0.003
		104.0	182.0	0.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.000	0.967	0.033	0.000
		0.0	58.0	2.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	5.67	8.91	0.636		0.00	1.66	22.3		0.29
A-BCD	0.02	11.89	0.001		0.00	0.00	0.0		0.08
A-B	0.96								
A-C	2.14								
D-ABC	0.75	7.57	0.099		0.00	0.11	1.6		0.15
C-ABD	2.62	10.31	0.254		0.00	0.37	5.5		0.13
C-D	0.01								
C-A	0.97								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	6.77	8.67	0.781		1.66	3.15	41.6		0.48
A-BCD	0.02	12.09	0.002		0.00	0.00	0.0		0.08
A-B	1.15								
A-C	2.56								
D-ABC	0.90	7.30	0.123		0.11	0.14	2.0		0.16
C-ABD	3.22	10.36	0.311		0.37	0.50	7.6		0.14
C-D	0.01								
C-A	1.07								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	8.29	8.32	0.997		3.15	11.02	116.9		1.22
A-BCD	0.03	12.38	0.002		0.00	0.00	0.0		0.08
A-B	1.41								
A-C	3.13								
D-ABC	1.10	6.93	0.159		0.14	0.19	2.7		0.17
C-ABD	4.10	10.43	0.393		0.50	0.73	11.0		0.16
C-D	0.01								
C-A	1.15								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	8.29	8.32	0.997		11.02	15.31	199.3		1.89
A-BCD	0.03	12.38	0.002		0.00	0.00	0.0		0.08
A-B	1.41								
A-C	3.13								
D-ABC	1.10	6.92	0.159		0.19	0.19	2.8		0.17
C-ABD	4.10	10.43	0.393		0.73	0.74	11.2		0.16
C-D	0.01								
C-A	1.15								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	6.77	8.66	0.782		15.31	4.26	111.0		1.06
A-BCD	0.02	12.09	0.002		0.00	0.00	0.0		0.08
A-B	1.15								
A-C	2.56								
D-ABC	0.90	7.28	0.123		0.19	0.14	2.2		0.16
C-ABD	3.22	10.36	0.311		0.74	0.52	7.8		0.14
C-D	0.01								
C-A	1.07								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	5.67	8.91	0.637		4.26	1.85	31.2		0.34
A-BCD	0.02	11.88	0.001		0.00	0.00	0.0		0.08
A-B	0.96								
A-C	2.14								
D-ABC	0.75	7.56	0.100		0.14	0.11	1.7		0.15
C-ABD	2.62	10.31	0.254		0.52	0.39	5.8		0.13
C-D	0.01								
C-A	0.97								

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

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.7	**
17.15	3.2	***
17.30	11.0	**********
17.45	15.3	***************
18.00	4.3	****
18.15	1.8	**

QUEUE FOR STREAM A-BCD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.5	*
17.30	0.7	*
17.45	0.7	*
18.00	0.5	*
18.15	0.4	

TRL TRL Viewer 3.2 AG Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Eshton Terrace_Thorn Stre

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	622.1	414.8	522.3	0.84	522.4	0.84
A-BCD	2.0	1.3	0.2	0.08	0.2	0.08
A-B	105.8	70.5				
A-C	234.9	156.6				
D-ABC	82.6	55.1	13.1	0.16	13.1	0.16
C-ABD	298.3	198.9	48.8	0.16	48.8	0.16
C-D	0.9	0.6				
C-A	95.8	63.9				
ALL	1442.5	961.7	584.3	0.41	584.5	0.41

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
682.97	0.25	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
682.77	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
528.93	0.23	0.23	0.23	0.23

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.09	0.14	0.33	0.11

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
534.29	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.15	0.33	0.12

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
605.81	0.22	0.22	0.32

TRL TRL Viewer 3.2 AG Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Henthorn Rd_Eshton Terrace_Thorn Stre

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
655.04	0.24	0.34	0.24

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
528.93	0.23	0.23	0.09	0.33

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
534.29	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.15	0.15

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2021 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	3.31	4.97	3.31
ARM B	15.00	45.00	75.00	5.99	8.98	5.99
ARM C	15.00	45.00	75.00	3.79	5.68	3.79
ARM D	15.00	45.00	75.00	0.80	1.20	0.80

Demand set: 2021 'With Development' Flows - PM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.313	0.683	0.004
		0.0	83.0	181.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.015	0.000	0.559	0.426
		7.0	0.0	268.0	204.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.360	0.637	0.000	0.003
		109.0	193.0	0.0	1.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.000	0.969	0.031	0.000
		0.0	62.0	2.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	6.01	8.82	0.682		0.00	2.00	26.5		0.33
A-BCD	0.02	11.97	0.001		0.00	0.00	0.0		0.08
A-B	1.04								
A-C	2.27								
D-ABC	0.80	7.49	0.107		0.00	0.12	1.7		0.15
C-ABD	2.80	10.31	0.271		0.00	0.41	6.1		0.13
C-D	0.01								
C-A	1.00								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	7.18	8.55	0.839		2.00	4.24	53.8		0.60
A-BCD	0.02	12.18	0.002		0.00	0.00	0.0		0.08
A-B	1.24								
A-C	2.71								
D-ABC	0.96	7.21	0.133		0.12	0.15	2.2		0.16
C-ABD	3.44	10.36	0.332		0.41	0.55	8.4		0.14
C-D	0.01								
C-A	1.09								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	8.79	8.18	1.074		4.24	17.73	173.4		1.73
A-BCD	0.03	12.49	0.002		0.00	0.00	0.0		0.08
A-B	1.52								
A-C	3.31								
D-ABC	1.17	6.82	0.172		0.15	0.21	3.0		0.18
C-ABD	4.40	10.43	0.421		0.55	0.82	12.4		0.16
C-D	0.01								
C-A	1.15								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	8.79	8.18	1.075		17.73	28.43	347.4		3.13
A-BCD	0.03	12.49	0.002		0.00	0.00	0.0		0.08
A-B	1.52								
A-C	3.31								
D-ABC	1.17	6.80	0.173		0.21	0.21	3.1		0.18
C-ABD	4.40	10.44	0.422		0.82	0.83	12.6		0.17
C-D	0.01								
C-A	1.15								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	7.18	8.54	0.840		28.43	12.31	305.5		2.58
A-BCD	0.02	12.18	0.002		0.00	0.00	0.0		0.08
A-B	1.24								
A-C	2.71								
D-ABC	0.96	7.18	0.134		0.21	0.16	2.4		0.16
C-ABD	3.45	10.37	0.333		0.83	0.57	8.6		0.15
C-D	0.01								
C-A	1.08								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	6.01	8.81	0.683		12.31	2.34	60.5		0.59
A-BCD	0.02	11.96	0.001		0.00	0.00	0.0		0.08
A-B	1.04								
A-C	2.27								
D-ABC	0.80	7.47	0.107		0.16	0.12	1.9		0.15
C-ABD	2.80	10.31	0.272		0.57	0.42	6.3		0.13
C-D	0.01								
C-A	0.99								

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

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	2.0	**
17.15	4.2	****
17.30	17.7	******************
17.45	28.4	****************************
18.00	12.3	************
18.15	2.3	**

QUEUE FOR STREAM A-BCD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.2
18.00	0.2
18.15	0.1

QUEUE FOR STREAM C-ABD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.6	*
17.30	0.8	*
17.45	0.8	*
18.00	0.6	*
18.15	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	659.3	439.5	967.1	1.47	967.4	1.47
A-BCD	2.0	1.4	0.2	0.08	0.2	0.08
A-B	114.0	76.0				
A-C	248.7	165.8				
D-ABC	88.1	58.7	14.3	0.16	14.3	0.16
C-ABD	319.3	212.8	54.4	0.17	54.4	0.17
C-D	0.9	0.6				
C-A	96.9	64.6				
ALL	1529.2	1019.5	1035.9	0.68	1036.3	0.68

* 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 ==========

Printed at 10:40:52 on 17/10/2012]

APPENDIX 7

ARCADY Output: Station Road/Parson Lane

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.1.305 [25 May 2012]
© Copyright TRL Limited, 2012

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 E-mail: software@trl.co.uk Web: http://www.trlsoftware.co.uk

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: (new file)
Path:
Report generation date: 17/10/2012 15:52:15

« Existing Layout - 2021 With Development Flows, PM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Existing Layout - 2016 Base Flows							
Arm 1	2.72	18.89	0.74	C	1.14	10.79	0.54	B
Arm 2	0.45	6.05	0.31	A	1.45	10.27	0.60	B
Arm 3	0.42	6.70	0.30	A	0.81	10.59	0.45	B
	Existing Layout - 2016 With Development Flows							
Arm 1	3.41	22.58	0.78	C	1.24	11.31	0.56	B
Arm 2	0.47	6.11	0.32	A	1.60	10.92	0.62	B
Arm 3	0.43	6.75	0.30	A	0.84	11.00	0.46	B
	Existing Layout - 2021 Base Flows							
Arm 1	3.61	23.78	0.79	C	1.35	11.91	0.58	B
Arm 2	0.50	6.24	0.33	A	1.74	11.49	0.64	B
Arm 3	0.48	7.10	0.33	A	0.99	12.15	0.50	B
	Existing Layout - 2021 With Development Flows							
Arm 1	4.70	29.66	0.84	D	2.95	20.34	0.75	C
Arm 2	0.52	6.32	0.34	A	2.43	15.64	0.71	C
Arm 3	0.49	7.15	0.33	A	1.03	12.66	0.51	B

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2016 Base Flows, AM" model duration: 07:45 - 09:15
"D2 - 2021 Base Flows, AM" model duration: 07:45 - 09:15
"D3 - 2016 With Development Flows, AM" model duration: 07:45 - 09:15
"D4 - 2021 With Development Flows, AM" model duration: 07:45 - 09:15
"D5 - 2016 Base Flows, PM" model duration: 16:45 - 18:15
"D6 - 2021 Base Flows, PM" model duration: 16:45 - 18:15
"D7 - 2016 With Development Flows, PM" model duration: 16:45 - 18:15
"D8 - 2021 With Development Flows, PM " model duration: 16:45 - 18:15

Run using Junctions 8.0.1.305 at 17/10/2012 15:52:15

File summary

File Summary

File Description

Title	Station Road/Parson Lane
Location	Clitheroe
Site Number	
Date	17/10/2012
Version	
Status	TIA
Identifier	
Client	Bowsall Limited
Jobnumber	0248
Enumerator	CadWorkstation2\Cad Workstation2
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Existing Layout - 2021 With Development Flows, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relat
2021 With Development Flows, PM	2021 With Development Flows	PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Name	Junction Type	Arm Order	Junction Delay (s)	Junction LOS
Station Road/Parson Lane	Mini-roundabout	1,2,3	16.81	C

Junction Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Name	Description
1	Parson Lane	
2	Station Road	
3	Castle Gate	

Capacity Options

Arm	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
1	0.00	99999.00		0.00
2	0.00	99999.00		0.00
3	0.00	99999.00		0.00

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.00	3.00	3.00	0.00	12.00	5.60	0.00	
2	4.50	4.50	4.50	0.00	9.00	8.00	0.00	
3	4.50	3.50	6.00	5.00	14.00	14.00	0.00	

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

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		(calculated)	(calculated)	0.504	770.959
2		(calculated)	(calculated)	0.580	865.624
3		(calculated)	(calculated)	0.606	929.204

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
1	ONE HOUR	✓	490.00	100.000
2	ONE HOUR	✓	520.00	100.000
3	ONE HOUR	✓	271.00	100.000

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	390.000	100.000
	2	519.000	1.000	0.000
	3	171.000	100.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.00	0.80	0.20
	2	1.00	0.00	0.00
	3	0.63	0.37	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		1	2	3
From	1	1.000	1.000	1.000
	2	1.000	1.000	1.000
	3	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		1	2	3
From	1	0.000	0.000	0.000
	2	0.000	0.000	0.000
	3	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
1	0.75	20.34	2.95	C	449.63	674.45	159.19	14.16	1.77	159.23	14.17
2	0.71	15.64	2.43	C	477.16	715.74	136.67	11.46	1.52	136.70	11.46
3	0.51	12.66	1.03	B	248.67	373.01	60.59	9.75	0.67	60.60	9.75

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	368.90	92.22	364.93	514.87	75.42	0.00	732.91	685.68	0.503	0.00	0.99	9.682	A
2	391.48	97.87	387.91	365.88	74.48	0.00	822.40	784.40	0.476	0.00	0.89	8.220	A
3	204.02	51.01	202.38	74.48	387.91	0.00	694.21	454.01	0.294	0.00	0.41	7.297	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	440.50	110.12	438.48	618.14	90.52	0.00	725.30	685.68	0.607	0.99	1.50	12.459	B
2	467.47	116.87	465.77	439.52	89.49	0.00	813.68	784.40	0.575	0.89	1.32	10.296	B
3	243.62	60.91	242.89	89.49	465.77	0.00	647.04	454.01	0.377	0.41	0.59	8.892	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	539.50	134.88	534.14	754.48	110.58	0.00	715.18	685.69	0.754	1.50	2.84	19.314	C
2	572.53	143.13	568.36	535.71	109.01	0.00	802.35	784.40	0.714	1.32	2.36	15.111	C
3	298.38	74.59	296.70	109.01	568.36	0.00	584.89	454.01	0.510	0.59	1.01	12.419	B

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	539.50	134.88	539.06	759.39	111.17	0.00	714.88	685.69	0.755	2.84	2.95	20.339	C
2	572.53	143.13	572.27	540.22	110.01	0.00	801.77	784.40	0.714	2.36	2.43	15.637	C
3	298.38	74.59	298.30	110.01	572.27	0.00	582.52	454.01	0.512	1.01	1.03	12.658	B

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	440.50	110.12	445.88	625.48	91.42	0.00	724.85	685.68	0.608	2.95	1.60	13.140	B
2	467.47	116.87	471.61	446.30	91.00	0.00	812.81	784.40	0.575	2.43	1.39	10.674	B
3	243.62	60.91	245.28	91.00	471.61	0.00	643.50	454.01	0.379	1.03	0.62	9.078	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Exit Flow (PCU/hr)	Circulating Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	Saturation Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
1	368.90	92.22	371.16	521.81	76.33	0.00	732.46	685.68	0.504	1.60	1.04	10.025	B
2	391.48	97.87	393.34	371.74	75.75	0.00	821.66	784.40	0.476	1.39	0.93	8.442	A
3	204.02	51.01	204.80	75.75	393.34	0.00	690.92	454.01	0.295	0.62	0.42	7.419	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:45-17:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	13.99	0.93	9.682	A	A

2	12.70	0.85	8.220	A	A
3	5.93	0.40	7.297	A	A

Queueing Delay results: (17:00-17:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	21.24	1.42	12.459	B	B
2	18.84	1.26	10.296	B	B
3	8.62	0.57	8.892	A	A

Queueing Delay results: (17:15-17:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	38.36	2.56	19.314	C	B
2	32.58	2.17	15.111	C	B
3	14.40	0.96	12.419	B	B

Queueing Delay results: (17:30-17:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	43.53	2.90	20.339	C	C
2	35.99	2.40	15.637	C	B
3	15.39	1.03	12.658	B	B

Queueing Delay results: (17:45-18:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	25.77	1.72	13.140	B	B
2	22.09	1.47	10.674	B	B
3	9.68	0.65	9.078	A	A

Queueing Delay results: (18:00-18:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
1	16.31	1.09	10.025	B	B
2	14.47	0.96	8.442	A	A
3	6.56	0.44	7.419	A	A

APPENDIX 8

PICADY Output: Castle View/Parson Lane

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)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
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

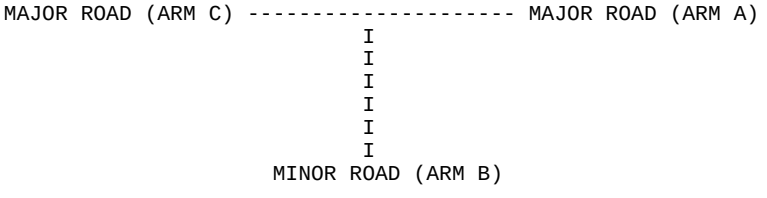
Run with file:-
"Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Castle View_Parson Lane.vpi"
(drive-on-the-left) at 16:01:07 on Friday, 12 October 2012

RUN INFORMATION

RUN TITLE	: Castle View/Parson Lane
LOCATION	: Clitheroe
DATE	: 12/10/12
CLIENT	: Bowsall Limited
ENUMERATOR	: Cad Workstation2 [CADWORKSTATION2]
JOB NUMBER	: 0248
STATUS	: TIA
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Bawdlands
ARM B IS Castle View
ARM C IS Parson Lnae

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

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.30 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)100.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 12.0 M.
- VISIBILITY TO RIGHT	(VB-A) 43.0 M.
- LANE 1 WIDTH	(WB-C) 3.25 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For STREAM A-C	Slope For Opposing STREAM A-B
667.30	0.24	0.10

Intercept For STREAM B-A	Slope For STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
515.11	0.22	0.09	0.14	0.32

Intercept For STREAM C-B	Slope For STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	5.38	8.06	5.38
ARM B	15.00	45.00	75.00	1.02	1.54	1.02
ARM C	15.00	45.00	75.00	4.18	6.26	4.18

Demand set: 2016 Base Flows - AM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.047	0.953
		0.0	20.0	410.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.341	0.000	0.659
		28.0	0.0	54.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.913	0.087	0.000
		305.0	29.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00										
	B-AC	1.03	8.51	0.121		0.00	0.14	2.0		0.13
	C-AB	0.53	11.89	0.044		0.00	0.06	0.9		0.09
	C-A	3.67								
	A-B	0.25								
	A-C	5.14								
08.00-08.15										
	B-AC	1.23	8.20	0.150		0.14	0.17	2.6		0.14
	C-AB	0.68	12.17	0.055		0.06	0.09	1.3		0.09
	C-A	4.33								
	A-B	0.30								
	A-C	6.14								
08.15-08.30										
	B-AC	1.50	7.75	0.194		0.17	0.24	3.5		0.16
	C-AB	0.95	12.66	0.075		0.09	0.13	2.0		0.09
	C-A	5.18								
	A-B	0.37								
	A-C	7.52								
08.30-08.45										
	B-AC	1.50	7.75	0.194		0.24	0.24	3.6		0.16
	C-AB	0.95	12.66	0.075		0.13	0.13	2.0		0.09
	C-A	5.18								
	A-B	0.37								
	A-C	7.52								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	1.23	8.20	0.150		0.24	0.18	2.7		0.14
C-AB	0.68	12.18	0.056		0.13	0.09	1.3		0.09
C-A	4.33								
A-B	0.30								
A-C	6.14								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	1.03	8.51	0.121		0.18	0.14	2.1		0.13
C-AB	0.53	11.89	0.044		0.09	0.07	1.0		0.09
C-A	3.66								
A-B	0.25								
A-C	5.14								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	112.9	75.2	16.4	0.15	16.4	0.15
C-AB	64.5	43.0	8.6	0.13	8.6	0.13
C-A	395.2	263.5				
A-B	27.5	18.4				
A-C	564.3	376.2				
ALL	1164.5	776.3	25.1	0.02	25.1	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*******

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
667.30	0.24	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
515.11	0.22	0.09	0.14	0.32

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	5.72	8.59	5.72
ARM B	15.00	45.00	75.00	1.10	1.65	1.10
ARM C	15.00	45.00	75.00	4.49	6.73	4.49

Demand set: 2021 Base Flows - AM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.046	0.954
		0.0	21.0	437.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	0.341	0.000	0.659
		30.0	0.0	58.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	0.914	0.086	0.000
		328.0	31.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	1.10	8.41	0.131		0.00	0.15	2.2		0.14
C-AB	0.58	12.01	0.048		0.00	0.07	1.1		0.09
C-A	3.93								
A-B	0.26								
A-C	5.48								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	1.32	8.07	0.163		0.15	0.19	2.8		0.15
C-AB	0.75	12.32	0.061		0.07	0.10	1.5		0.09
C-A	4.63								
A-B	0.31								
A-C	6.55								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	1.61	7.59	0.213		0.19	0.27	3.9		0.17
C-AB	1.06	12.86	0.082		0.10	0.15	2.3		0.08
C-A	5.53								
A-B	0.39								
A-C	8.02								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	1.61	7.59	0.213		0.27	0.27	4.0		0.17
C-AB	1.06	12.86	0.083		0.15	0.16	2.4		0.08
C-A	5.53								
A-B	0.39								
A-C	8.02								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	1.32	8.07	0.163		0.27	0.20	3.1		0.15
C-AB	0.75	12.32	0.061		0.16	0.10	1.5		0.09
C-A	4.63								
A-B	0.31								
A-C	6.55								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	1.10	8.41	0.131		0.20	0.15	2.3		0.14
C-AB	0.58	12.01	0.048		0.10	0.07	1.1		0.09
C-A	3.93								
A-B	0.26								
A-C	5.48								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.2
08.30	0.3
08.45	0.3
09.00	0.2
09.15	0.2

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	121.1	80.8	18.3	0.15	18.3	0.15
C-AB	71.6	47.7	9.8	0.14	9.8	0.14
C-A	422.6	281.7				
A-B	28.9	19.3				
A-C	601.5	401.0				
ALL	1245.7	830.4	28.1	0.02	28.1	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*******

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
667.30	0.24	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
515.11	0.22	0.09	0.14	0.32

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	5.74	8.61	5.74
ARM B	15.00	45.00	75.00	1.02	1.54	1.02
ARM C	15.00	45.00	75.00	4.25	6.38	4.25

Demand set: 2016 'With Development' Flows - AM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.044	0.956
		0.0	20.0	439.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	0.341	0.000	0.659
		28.0	0.0	54.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	0.915	0.085	0.000
		311.0	29.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	1.03	8.42	0.122		0.00	0.14	2.0		0.13
C-AB	0.53	11.87	0.045		0.00	0.06	1.0		0.09
C-A	3.74								
A-B	0.25								
A-C	5.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	1.23	8.09	0.152		0.14	0.18	2.6		0.15
C-AB	0.68	12.15	0.056		0.06	0.09	1.3		0.09
C-A	4.41								
A-B	0.30								
A-C	6.58								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	1.50	7.61	0.198		0.18	0.24	3.5		0.16
C-AB	0.96	12.64	0.076		0.09	0.14	2.1		0.09
C-A	5.28								
A-B	0.37								
A-C	8.06								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	1.50	7.61	0.198		0.24	0.24	3.7		0.16
C-AB	0.96	12.64	0.076		0.14	0.14	2.1		0.09
C-A	5.27								
A-B	0.37								
A-C	8.06								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	1.23	8.08	0.152		0.24	0.18	2.8		0.15
C-AB	0.68	12.15	0.056		0.14	0.09	1.4		0.09
C-A	4.41								
A-B	0.30								
A-C	6.58								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	1.03	8.42	0.122		0.18	0.14	2.2		0.14
C-AB	0.53	11.87	0.045		0.09	0.07	1.0		0.09
C-A	3.73								
A-B	0.25								
A-C	5.51								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	112.9	75.2	16.7	0.15	16.7	0.15
C-AB	65.4	43.6	8.8	0.13	8.8	0.13
C-A	402.6	268.4				
A-B	27.5	18.4				
A-C	604.3	402.8				
ALL	1212.6	808.4	25.6	0.02	25.6	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*******

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
667.30	0.24	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
515.11	0.22	0.09	0.14	0.32

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	6.09	9.13	6.09
ARM B	15.00	45.00	75.00	1.10	1.65	1.10
ARM C	15.00	45.00	75.00	4.56	6.84	4.56

Demand set: 2021 'With Development' Flows - AM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.043	0.957
		0.0	21.0	466.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	0.341	0.000	0.659
		30.0	0.0	58.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	0.915	0.085	0.000
		334.0	31.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00										
	B-AC	1.10	8.31	0.133		0.00	0.15	2.2		0.14
	C-AB	0.58	11.99	0.049		0.00	0.07	1.1		0.09
	C-A	4.00								
	A-B	0.26								
	A-C	5.85								
08.00-08.15										
	B-AC	1.32	7.95	0.166		0.15	0.20	2.9		0.15
	C-AB	0.76	12.29	0.061		0.07	0.10	1.5		0.09
	C-A	4.71								
	A-B	0.31								
	A-C	6.98								
08.15-08.30										
	B-AC	1.61	7.45	0.217		0.20	0.27	4.0		0.17
	C-AB	1.08	12.84	0.084		0.10	0.16	2.4		0.09
	C-A	5.62								
	A-B	0.39								
	A-C	8.55								
08.30-08.45										
	B-AC	1.61	7.45	0.217		0.27	0.27	4.1		0.17
	C-AB	1.08	12.84	0.084		0.16	0.16	2.4		0.09
	C-A	5.62								
	A-B	0.39								
	A-C	8.55								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	1.32	7.95	0.166		0.27	0.20	3.1		0.15
C-AB	0.76	12.30	0.062		0.16	0.10	1.6		0.09
C-A	4.71								
A-B	0.31								
A-C	6.98								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	1.10	8.31	0.133		0.20	0.15	2.4		0.14
C-AB	0.58	11.99	0.049		0.10	0.07	1.1		0.09
C-A	4.00								
A-B	0.26								
A-C	5.85								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	121.1	80.8	18.6	0.15	18.6	0.15
C-AB	72.6	48.4	10.1	0.14	10.1	0.14
C-A	429.8	286.6				
A-B	28.9	19.3				
A-C	641.4	427.6				
ALL	1293.8	862.6	28.7	0.02	28.7	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*******

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
667.30	0.24	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
515.11	0.22	0.09	0.14	0.32

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	4.10	6.15	4.10
ARM B	15.00	45.00	75.00	0.99	1.48	0.99
ARM C	15.00	45.00	75.00	7.72	11.59	7.72

Demand set: 2016 Base Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15				
	ARM A	0.000	0.091	0.909
		0.0	30.0	298.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.494	0.000	0.506
		39.0	0.0	40.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.866	0.134	0.000
		535.0	83.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	0.99	7.91	0.125		0.00	0.14	2.0		0.14
C-AB	1.95	14.11	0.138		0.00	0.29	4.2		0.08
C-A	5.80								
A-B	0.38								
A-C	3.74								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	1.18	7.53	0.157		0.14	0.18	2.7		0.16
C-AB	2.64	14.83	0.178		0.29	0.41	6.1		0.08
C-A	6.62								
A-B	0.45								
A-C	4.46								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	1.45	7.00	0.207		0.18	0.26	3.7		0.18
C-AB	3.92	15.92	0.246		0.41	0.64	9.7		0.08
C-A	7.42								
A-B	0.55								
A-C	5.47								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	1.45	7.00	0.207		0.26	0.26	3.9		0.18
C-AB	3.92	15.93	0.246		0.64	0.65	9.9		0.08
C-A	7.42								
A-B	0.55								
A-C	5.47								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	1.18	7.53	0.157		0.26	0.19	2.9		0.16
C-AB	2.65	14.84	0.178		0.65	0.42	6.3		0.08
C-A	6.61								
A-B	0.45								
A-C	4.46								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	0.99	7.90	0.125		0.19	0.14	2.2		0.14
C-AB	1.97	14.12	0.139		0.42	0.30	4.4		0.08
C-A	5.79								
A-B	0.38								
A-C	3.74								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	0.3	
17.45	0.3	
18.00	0.2	
18.15	0.1	

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.3	
17.15	0.4	
17.30	0.6	*
17.45	0.7	*
18.00	0.4	
18.15	0.3	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	108.7	72.5	17.5	0.16	17.5	0.16
C-AB	255.7	170.5	40.7	0.16	40.7	0.16
C-A	594.9	396.6				
A-B	41.3	27.5				
A-C	410.2	273.4				
ALL	1410.8	940.6	58.2	0.04	58.2	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)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
667.30	0.24	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
515.11	0.22	0.09	0.14	0.32

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	4.39	6.58	4.39
ARM B	15.00	45.00	75.00	1.06	1.59	1.06
ARM C	15.00	45.00	75.00	8.30	12.45	8.30

Demand set: 2021 Base Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.091	0.909
		0.0	32.0	319.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	0.494	0.000	0.506
		42.0	0.0	43.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	0.864	0.136	0.000
		574.0	90.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	1.07	7.77	0.137		0.00	0.16	2.3		0.15
C-AB	2.22	14.38	0.154		0.00	0.33	4.9		0.08
C-A	6.12								
A-B	0.40								
A-C	4.00								
17.00-17.15									
B-AC	1.27	7.36	0.173		0.16	0.21	3.0		0.16
C-AB	3.08	15.22	0.202		0.33	0.48	7.3		0.08
C-A	6.87								
A-B	0.48								
A-C	4.78								
17.15-17.30									
B-AC	1.56	6.78	0.230		0.21	0.29	4.3		0.19
C-AB	4.55	16.34	0.279		0.48	0.78	11.7		0.08
C-A	7.63								
A-B	0.59								
A-C	5.85								
17.30-17.45									
B-AC	1.56	6.78	0.230		0.29	0.30	4.4		0.19
C-AB	4.56	16.35	0.279		0.78	0.79	11.9		0.09
C-A	7.62								
A-B	0.59								
A-C	5.85								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	1.27	7.36	0.173		0.30	0.21	3.3		0.16
C-AB	3.09	15.24	0.203		0.79	0.50	7.5		0.08
C-A	6.86								
A-B	0.48								
A-C	4.78								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	1.07	7.76	0.137		0.21	0.16	2.5		0.15
C-AB	2.23	14.39	0.155		0.50	0.34	5.1		0.08
C-A	6.10								
A-B	0.40								
A-C	4.00								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.3	
17.15	0.5	
17.30	0.8	*
17.45	0.8	*
18.00	0.5	*
18.15	0.3	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	117.0	78.0	19.7	0.17	19.7	0.17
C-AB	296.0	197.3	48.4	0.16	48.4	0.16
C-A	617.9	412.0				
A-B	44.0	29.4				
A-C	439.1	292.7				
ALL	1514.1	1009.4	68.2	0.05	68.2	0.05

* 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)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
667.30	0.24	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
515.11	0.22	0.09	0.14	0.32

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	4.29	6.43	4.29
ARM B	15.00	45.00	75.00	0.99	1.48	0.99
ARM C	15.00	45.00	75.00	7.96	11.94	7.96

Demand set: 2016 'With Development' Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.087	0.913
		0.0	30.0	313.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	0.494	0.000	0.506
		39.0	0.0	40.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	0.870	0.130	0.000
		554.0	83.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	0.99	7.84	0.126		0.00	0.14	2.1		0.15
C-AB	2.00	14.23	0.140		0.00	0.30	4.4		0.08
C-A	5.99								
A-B	0.38								
A-C	3.93								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	1.18	7.45	0.159		0.14	0.19	2.7		0.16
C-AB	2.76	15.04	0.184		0.30	0.43	6.5		0.08
C-A	6.78								
A-B	0.45								
A-C	4.69								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	1.45	6.89	0.210		0.19	0.26	3.8		0.18
C-AB	4.06	16.12	0.252		0.43	0.68	10.2		0.08
C-A	7.63								
A-B	0.55								
A-C	5.74								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	1.45	6.89	0.210		0.26	0.26	4.0		0.18
C-AB	4.06	16.12	0.252		0.68	0.68	10.4		0.08
C-A	7.62								
A-B	0.55								
A-C	5.74								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	1.18	7.44	0.159		0.26	0.19	3.0		0.16
C-AB	2.77	15.05	0.184		0.68	0.44	6.7		0.08
C-A	6.77								
A-B	0.45								
A-C	4.69								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	0.99	7.83	0.127		0.19	0.15	2.3		0.15
C-AB	2.01	14.24	0.141		0.44	0.31	4.6		0.08
C-A	5.98								
A-B	0.38								
A-C	3.93								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	0.3	
17.45	0.3	
18.00	0.2	
18.15	0.1	

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.3	
17.15	0.4	
17.30	0.7	*
17.45	0.7	*
18.00	0.4	
18.15	0.3	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	108.7	72.5	17.8	0.16	17.8	0.16
C-AB	265.0	176.6	42.7	0.16	42.7	0.16
C-A	611.8	407.9				
A-B	41.3	27.5				
A-C	430.8	287.2				
ALL	1457.6	971.8	60.4	0.04	60.4	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)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
667.30	0.24	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
515.11	0.22	0.09	0.14	0.32

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
631.87	0.23	0.23

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	4.57	6.86	4.57
ARM B	15.00	45.00	75.00	1.06	1.59	1.06
ARM C	15.00	45.00	75.00	8.54	12.81	8.54

Demand set: 2021 'With Development' Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.087	0.913
		0.0	32.0	334.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	0.494	0.000	0.506
		42.0	0.0	43.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	0.868	0.132	0.000
		593.0	90.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	1.07	7.70	0.139		0.00	0.16	2.3		0.15
C-AB	2.26	14.50	0.156		0.00	0.34	5.0		0.08
C-A	6.31								
A-B	0.40								
A-C	4.19								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	1.27	7.27	0.175		0.16	0.21	3.1		0.17
C-AB	3.17	15.38	0.206		0.34	0.50	7.6		0.08
C-A	7.06								
A-B	0.48								
A-C	5.00								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	1.56	6.67	0.234		0.21	0.30	4.3		0.20
C-AB	4.71	16.53	0.285		0.50	0.82	12.3		0.08
C-A	7.82								
A-B	0.59								
A-C	6.13								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	1.56	6.67	0.234		0.30	0.30	4.5		0.20
C-AB	4.72	16.54	0.286		0.82	0.82	12.5		0.09
C-A	7.81								
A-B	0.59								
A-C	6.13								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	1.27	7.27	0.175		0.30	0.22	3.3		0.17
C-AB	3.18	15.40	0.207		0.82	0.52	7.8		0.08
C-A	7.05								
A-B	0.48								
A-C	5.00								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	1.07	7.69	0.139		0.22	0.16	2.5		0.15
C-AB	2.28	14.52	0.157		0.52	0.35	5.3		0.08
C-A	6.29								
A-B	0.40								
A-C	4.19								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.3	
17.15	0.5	*
17.30	0.8	*
17.45	0.8	*
18.00	0.5	*
18.15	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	117.0	78.0	20.1	0.17	20.1	0.17
C-AB	305.0	203.4	50.6	0.17	50.6	0.17
C-A	635.1	423.4				
A-B	44.0	29.4				
A-C	459.7	306.5				
ALL	1560.9	1040.6	70.6	0.05	70.6	0.05

* 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 ==========

Printed at 10:52:09 on 17/10/2012]

APPENDIX 9

PICADY Output: Greenacre Street/Woone Lane/Eshton Terrace

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)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
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

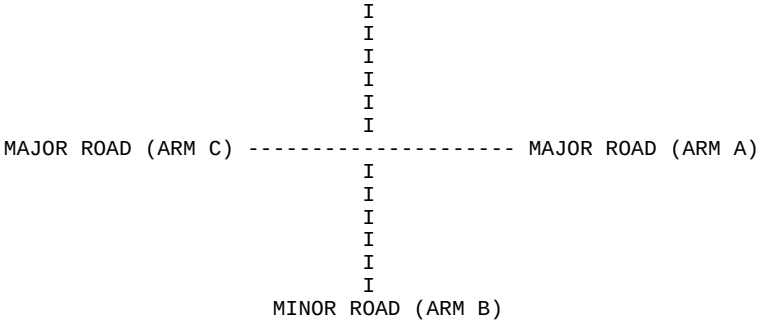
Run with file:-
"Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Greenacre St_Woone Ln_Eshton Terrace.vpi"
(drive-on-the-left) at 16:42:59 on Friday, 12 October 2012

RUN INFORMATION

RUN TITLE	: Greenacre Street/Woone Lane/Eshton Terrace
LOCATION	: Clitheroe
DATE	: 12/10/12
CLIENT	: Bowsall Limited
ENUMERATOR	: Cad Workstation2 [CADWORKSTATION2]
JOB NUMBER	: 0248
STATUS	: TIA
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Eshton Terrace
ARM B IS Woone Lane (N)
ARM C IS Greenacre Street
ARM D IS Woone Lane (S)

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.

TRL TRL Viewer 3.2 AG Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Greenacre St_Woone Ln_Eshton Terrace.

GEOMETRIC DATA

DATA ITEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.25 M.	(W) 7.25 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.	(WA-D) 2.20 M.
- VISIBILITY	(VC-B)250.00 M.	(VA-D) 85.00 M.
- BLOCKS TRAFFIC (SPACES)	NO (0)	NO (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 12.0 M.	(VD-A) 12.0 M.
- VISIBILITY TO RIGHT	(VB-A) 12.0 M.	(VD-C) 12.0 M.
- LANE 1 WIDTH	(WB-C) 3.50 M.	(WD-A) 3.75 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.	(WD-C) 0.00 M.

.SLOPES AND INTERCEPT

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

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.24	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
678.91	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
511.87	0.22	0.22	0.22	0.22

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

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
524.07	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.14	0.33	0.11

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
718.74	0.26	0.26	0.38

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
623.19	0.23	0.33	0.23

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2016 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	6.06	9.09	6.06
ARM B	15.00	45.00	75.00	0.14	0.21	0.14
ARM C	15.00	45.00	75.00	3.20	4.80	3.20
ARM D	15.00	45.00	75.00	1.30	1.95	1.30

Demand set: 2016 Base Flows - AM PEAK

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	0.821	0.000	0.179
		0.0	398.0	0.0	87.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.818	0.000	0.000	0.182
		9.0	0.0	0.0	2.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.695	0.148	0.000	0.156
		178.0	38.0	0.0	40.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.308	0.692	0.000	0.000
		32.0	72.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	0.14	7.13	0.019		0.00	0.02	0.3		0.14
A-B	4.99								
A-C	0.00								
A-D	1.09	9.61	0.114		0.00	0.13	1.8		0.12
D-ABC	1.30	7.83	0.167		0.00	0.20	2.8		0.15
C-D	0.50								
C-A	2.23								
C-B	0.48	10.25	0.047		0.00	0.05	0.7		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	0.16	6.85	0.024		0.02	0.02	0.4		0.15
A-B	5.96								
A-C	0.00								
A-D	1.30	9.45	0.138		0.13	0.16	2.3		0.12
D-ABC	1.56	7.52	0.207		0.20	0.26	3.8		0.17
C-D	0.60								
C-A	2.67								
C-B	0.57	9.92	0.057		0.05	0.06	0.9		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	0.20	6.48	0.031		0.02	0.03	0.5		0.16
A-B	7.30								
A-C	0.00								
A-D	1.60	9.24	0.173		0.16	0.21	3.0		0.13
D-ABC	1.91	7.08	0.270		0.26	0.36	5.3		0.19
C-D	0.73								
C-A	3.27								
C-B	0.70	9.45	0.074		0.06	0.08	1.2		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	0.20	6.48	0.031		0.03	0.03	0.5		0.16
A-B	7.30								
A-C	0.00								
A-D	1.60	9.24	0.173		0.21	0.21	3.1		0.13
D-ABC	1.91	7.07	0.270		0.36	0.37	5.5		0.19
C-D	0.73								
C-A	3.27								
C-B	0.70	9.45	0.074		0.08	0.08	1.2		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	0.16	6.85	0.024		0.03	0.02	0.4		0.15
A-B	5.96								
A-C	0.00								
A-D	1.30	9.45	0.138		0.21	0.16	2.5		0.12
D-ABC	1.56	7.52	0.207		0.37	0.27	4.1		0.17
C-D	0.60								
C-A	2.67								
C-B	0.57	9.91	0.057		0.08	0.06	0.9		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	0.14	7.13	0.019		0.02	0.02	0.3		0.14
A-B	4.99								
A-C	0.00								
A-D	1.09	9.61	0.114		0.16	0.13	2.0		0.12
D-ABC	1.30	7.83	0.167		0.27	0.20	3.1		0.15
C-D	0.50								
C-A	2.23								
C-B	0.48	10.25	0.047		0.06	0.05	0.8		0.10

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.2

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	15.1	10.1	2.3	0.15	2.3	0.15
A-B	547.8	365.2				
A-C	0.0	0.0				
A-D	119.7	79.8	14.8	0.12	14.8	0.12
D-ABC	143.1	95.4	24.6	0.17	24.6	0.17
C-D	55.1	36.7				
C-A	245.0	163.3				
C-B	52.3	34.9	5.6	0.11	5.6	0.11
ALL	1178.2	785.5	47.2	0.04	47.2	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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.24	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
678.91	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
511.87	0.22	0.22	0.22	0.22

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

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
524.07	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.14	0.33	0.11

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
718.74	0.26	0.26	0.38

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
623.19	0.23	0.33	0.23

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2021 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	6.47	9.71	6.47
ARM B	15.00	45.00	75.00	0.15	0.23	0.15
ARM C	15.00	45.00	75.00	3.42	5.14	3.42
ARM D	15.00	45.00	75.00	1.36	2.04	1.36

Demand set: 2021 Base Flows - AM PEAK

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	0.824	0.000	0.176
		0.0	427.0	0.0	91.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.833	0.000	0.000	0.167
		10.0	0.0	0.0	2.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.693	0.150	0.000	0.157
		190.0	41.0	0.0	43.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.303	0.697	0.000	0.000
		33.0	76.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2021 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	0.15	7.04	0.021		0.00	0.02	0.3		0.15
A-B	5.36								
A-C	0.00								
A-D	1.14	9.55	0.120		0.00	0.13	2.0		0.12
D-ABC	1.37	7.71	0.177		0.00	0.21	3.1		0.16
C-D	0.54								
C-A	2.38								
C-B	0.51	10.14	0.051		0.00	0.05	0.8		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	0.18	6.74	0.027		0.02	0.03	0.4		0.15
A-B	6.40								
A-C	0.00								
A-D	1.36	9.39	0.145		0.13	0.17	2.5		0.12
D-ABC	1.63	7.37	0.222		0.21	0.28	4.1		0.17
C-D	0.64								
C-A	2.85								
C-B	0.61	9.78	0.063		0.05	0.07	1.0		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	0.22	6.34	0.035		0.03	0.04	0.5		0.16
A-B	7.84								
A-C	0.00								
A-D	1.67	9.16	0.182		0.17	0.22	3.2		0.13
D-ABC	2.00	6.90	0.290		0.28	0.40	5.8		0.20
C-D	0.79								
C-A	3.49								
C-B	0.75	9.28	0.081		0.07	0.09	1.3		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	0.22	6.34	0.035		0.04	0.04	0.5		0.16
A-B	7.84								
A-C	0.00								
A-D	1.67	9.16	0.182		0.22	0.22	3.3		0.13
D-ABC	2.00	6.90	0.290		0.40	0.40	6.0		0.20
C-D	0.79								
C-A	3.49								
C-B	0.75	9.28	0.081		0.09	0.09	1.3		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	0.18	6.74	0.027		0.04	0.03	0.4		0.15
A-B	6.40								
A-C	0.00								
A-D	1.36	9.39	0.145		0.22	0.17	2.6		0.12
D-ABC	1.63	7.37	0.222		0.40	0.29	4.5		0.17
C-D	0.64								
C-A	2.85								
C-B	0.61	9.78	0.063		0.09	0.07	1.0		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	0.15	7.03	0.021		0.03	0.02	0.3		0.15
A-B	5.36								
A-C	0.00								
A-D	1.14	9.55	0.120		0.17	0.14	2.1		0.12
D-ABC	1.37	7.71	0.177		0.29	0.22	3.4		0.16
C-D	0.54								
C-A	2.38								
C-B	0.51	10.13	0.051		0.07	0.05	0.8		0.10

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.2

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	16.5	11.0	2.5	0.15	2.5	0.15
A-B	587.7	391.8				
A-C	0.0	0.0				
A-D	125.3	83.5	15.7	0.13	15.7	0.13
D-ABC	150.0	100.0	26.8	0.18	26.8	0.18
C-D	59.2	39.5				
C-A	261.5	174.3				
C-B	56.4	37.6	6.2	0.11	6.2	0.11
ALL	1256.7	837.8	51.3	0.04	51.3	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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.24	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
678.91	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
511.87	0.22	0.22	0.22	0.22

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

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
524.07	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.14	0.33	0.11

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
718.74	0.26	0.26	0.38

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
623.19	0.23	0.33	0.23

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2016 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	6.38	9.56	6.38
ARM B	15.00	45.00	75.00	0.14	0.21	0.14
ARM C	15.00	45.00	75.00	3.31	4.97	3.31
ARM D	15.00	45.00	75.00	1.31	1.97	1.31

Demand set: 2016 'With Development' Flows - AM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 09.15	ARM A	0.000	0.822	0.000	0.178
		0.0	419.0	0.0	91.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.818	0.000	0.000	0.182
		9.0	0.0	0.0	2.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.706	0.143	0.000	0.151
		187.0	38.0	0.0	40.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.314	0.686	0.000	0.000
		33.0	72.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	0.14	7.08	0.019		0.00	0.02	0.3		0.14
A-B	5.26								
A-C	0.00								
A-D	1.14	9.58	0.119		0.00	0.13	1.9		0.12
D-ABC	1.32	7.78	0.169		0.00	0.20	2.9		0.15
C-D	0.50								
C-A	2.35								
C-B	0.48	10.17	0.047		0.00	0.05	0.7		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	0.16	6.79	0.024		0.02	0.02	0.4		0.15
A-B	6.28								
A-C	0.00								
A-D	1.36	9.42	0.145		0.13	0.17	2.5		0.12
D-ABC	1.57	7.45	0.211		0.20	0.26	3.8		0.17
C-D	0.60								
C-A	2.80								
C-B	0.57	9.81	0.058		0.05	0.06	0.9		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	0.20	6.40	0.032		0.02	0.03	0.5		0.16
A-B	7.69								
A-C	0.00								
A-D	1.67	9.21	0.181		0.17	0.22	3.2		0.13
D-ABC	1.93	6.99	0.276		0.26	0.37	5.4		0.20
C-D	0.73								
C-A	3.43								
C-B	0.70	9.32	0.075		0.06	0.08	1.2		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	0.20	6.40	0.032		0.03	0.03	0.5		0.16
A-B	7.69								
A-C	0.00								
A-D	1.67	9.21	0.181		0.22	0.22	3.3		0.13
D-ABC	1.93	6.98	0.276		0.37	0.38	5.6		0.20
C-D	0.73								
C-A	3.43								
C-B	0.70	9.32	0.075		0.08	0.08	1.2		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	0.16	6.79	0.024		0.03	0.03	0.4		0.15
A-B	6.28								
A-C	0.00								
A-D	1.36	9.42	0.145		0.22	0.17	2.6		0.12
D-ABC	1.57	7.45	0.211		0.38	0.27	4.2		0.17
C-D	0.60								
C-A	2.80								
C-B	0.57	9.81	0.058		0.08	0.06	1.0		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	0.14	7.07	0.020		0.03	0.02	0.3		0.14
A-B	5.26								
A-C	0.00								
A-D	1.14	9.58	0.119		0.17	0.14	2.1		0.12
D-ABC	1.32	7.78	0.169		0.27	0.21	3.2		0.15
C-D	0.50								
C-A	2.35								
C-B	0.48	10.16	0.047		0.06	0.05	0.8		0.10

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.2

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	15.1	10.1	2.3	0.15	2.3	0.15
A-B	576.7	384.5				
A-C	0.0	0.0				
A-D	125.3	83.5	15.6	0.12	15.6	0.12
D-ABC	144.5	96.3	25.2	0.17	25.2	0.17
C-D	55.1	36.7				
C-A	257.4	171.6				
C-B	52.3	34.9	5.7	0.11	5.7	0.11
ALL	1226.4	817.6	48.8	0.04	48.8	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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.24	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
678.91	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
511.87	0.22	0.22	0.22	0.22

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

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
524.07	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.14	0.33	0.11

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
718.74	0.26	0.26	0.38

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
623.19	0.23	0.33	0.23

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2021 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	6.79	10.18	6.79
ARM B	15.00	45.00	75.00	0.15	0.23	0.15
ARM C	15.00	45.00	75.00	3.54	5.31	3.54
ARM D	15.00	45.00	75.00	1.38	2.06	1.38

Demand set: 2021 'With Development' Flows - AM PEAK

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	0.825	0.000	0.175
		0.0	448.0	0.0	95.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.833	0.000	0.000	0.167
		10.0	0.0	0.0	2.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.703	0.145	0.000	0.152
		199.0	41.0	0.0	43.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.309	0.691	0.000	0.000
		34.0	76.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2021 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	0.15	6.99	0.022		0.00	0.02	0.3		0.15
A-B	5.62								
A-C	0.00								
A-D	1.19	9.53	0.125		0.00	0.14	2.1		0.12
D-ABC	1.38	7.66	0.180		0.00	0.22	3.1		0.16
C-D	0.54								
C-A	2.50								
C-B	0.51	10.05	0.051		0.00	0.05	0.8		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	0.18	6.68	0.027		0.02	0.03	0.4		0.15
A-B	6.71								
A-C	0.00								
A-D	1.42	9.36	0.152		0.14	0.18	2.6		0.13
D-ABC	1.65	7.30	0.226		0.22	0.29	4.2		0.18
C-D	0.64								
C-A	2.98								
C-B	0.61	9.67	0.064		0.05	0.07	1.0		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	0.22	6.26	0.035		0.03	0.04	0.5		0.17
A-B	8.22								
A-C	0.00								
A-D	1.74	9.13	0.191		0.18	0.23	3.4		0.14
D-ABC	2.02	6.81	0.297		0.29	0.41	6.0		0.21
C-D	0.79								
C-A	3.65								
C-B	0.75	9.15	0.082		0.07	0.09	1.3		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	0.22	6.26	0.035		0.04	0.04	0.5		0.17
A-B	8.22								
A-C	0.00								
A-D	1.74	9.13	0.191		0.23	0.23	3.5		0.14
D-ABC	2.02	6.81	0.297		0.41	0.42	6.2		0.21
C-D	0.79								
C-A	3.65								
C-B	0.75	9.15	0.082		0.09	0.09	1.3		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	0.18	6.68	0.027		0.04	0.03	0.4		0.15
A-B	6.71								
A-C	0.00								
A-D	1.42	9.36	0.152		0.23	0.18	2.8		0.13
D-ABC	1.65	7.30	0.226		0.42	0.30	4.6		0.18
C-D	0.64								
C-A	2.98								
C-B	0.61	9.67	0.064		0.09	0.07	1.0		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	0.15	6.98	0.022		0.03	0.02	0.3		0.15
A-B	5.62								
A-C	0.00								
A-D	1.19	9.52	0.125		0.18	0.14	2.2		0.12
D-ABC	1.38	7.65	0.180		0.30	0.22	3.4		0.16
C-D	0.54								
C-A	2.50								
C-B	0.51	10.05	0.051		0.07	0.05	0.8		0.10

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES 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

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.2
08.15	0.3
08.30	0.4
08.45	0.4
09.00	0.3
09.15	0.2

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	16.5	11.0	2.6	0.15	2.6	0.15
A-B	616.6	411.1				
A-C	0.0	0.0				
A-D	130.8	87.2	16.6	0.13	16.6	0.13
D-ABC	151.4	100.9	27.5	0.18	27.6	0.18
C-D	59.2	39.5				
C-A	273.9	182.6				
C-B	56.4	37.6	6.3	0.11	6.3	0.11
ALL	1304.9	869.9	53.0	0.04	53.0	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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.24	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
678.91	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
511.87	0.22	0.22	0.22	0.22

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

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
524.07	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.14	0.33	0.11

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
718.74	0.26	0.26	0.38

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
623.19	0.23	0.33	0.23

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2016 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	4.71	7.07	4.71
ARM B	15.00	45.00	75.00	0.51	0.77	0.51
ARM C	15.00	45.00	75.00	6.66	9.99	6.66
ARM D	15.00	45.00	75.00	0.96	1.44	0.96

Demand set: 2016 Base Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.806	0.000	0.194
		0.0	304.0	0.0	73.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.756	0.000	0.000	0.244
		31.0	0.0	0.0	10.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.850	0.049	0.000	0.101
		453.0	26.0	0.0	54.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.494	0.506	0.000	0.000
		38.0	39.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	0.51	6.90	0.075		0.00	0.08	1.1		0.16
A-B	3.81								
A-C	0.00								
A-D	0.92	8.83	0.104		0.00	0.11	1.7		0.13
D-ABC	0.97	7.77	0.124		0.00	0.14	2.0		0.15
C-D	0.68								
C-A	5.68								
C-B	0.33	10.63	0.031		0.00	0.03	0.5		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	0.61	6.58	0.093		0.08	0.10	1.5		0.17
A-B	4.55								
A-C	0.00								
A-D	1.09	8.52	0.128		0.11	0.15	2.1		0.13
D-ABC	1.15	7.36	0.157		0.14	0.18	2.7		0.16
C-D	0.81								
C-A	6.79								
C-B	0.39	10.37	0.038		0.03	0.04	0.6		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	0.75	6.15	0.122		0.10	0.14	2.0		0.19
A-B	5.58								
A-C	0.00								
A-D	1.34	8.11	0.165		0.15	0.20	2.9		0.15
D-ABC	1.41	6.77	0.209		0.18	0.26	3.8		0.19
C-D	0.99								
C-A	8.31								
C-B	0.48	10.00	0.048		0.04	0.05	0.7		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	0.75	6.15	0.122		0.14	0.14	2.1		0.19
A-B	5.58								
A-C	0.00								
A-D	1.34	8.11	0.165		0.20	0.20	2.9		0.15
D-ABC	1.41	6.77	0.209		0.26	0.26	3.9		0.19
C-D	0.99								
C-A	8.31								
C-B	0.48	10.00	0.048		0.05	0.05	0.7		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	0.61	6.58	0.093		0.14	0.10	1.6		0.17
A-B	4.55								
A-C	0.00								
A-D	1.09	8.52	0.128		0.20	0.15	2.3		0.13
D-ABC	1.15	7.35	0.157		0.26	0.19	2.9		0.16
C-D	0.81								
C-A	6.79								
C-B	0.39	10.36	0.038		0.05	0.04	0.6		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	0.51	6.90	0.075		0.10	0.08	1.3		0.16
A-B	3.81								
A-C	0.00								
A-D	0.92	8.83	0.104		0.15	0.12	1.8		0.13
D-ABC	0.97	7.77	0.124		0.19	0.14	2.2		0.15
C-D	0.68								
C-A	5.68								
C-B	0.33	10.63	0.031		0.04	0.03	0.5		0.10

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 SEGMENT ENDING	NO. OF VEHICLES 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-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.3
17.45	0.3
18.00	0.2
18.15	0.1

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	56.4	37.6	9.6	0.17	9.6	0.17
A-B	418.4	279.0				
A-C	0.0	0.0				
A-D	100.5	67.0	13.7	0.14	13.7	0.14
D-ABC	106.0	70.7	17.5	0.17	17.5	0.17
C-D	74.3	49.6				
C-A	623.5	415.7				
C-B	35.8	23.9	3.6	0.10	3.6	0.10
ALL	1415.0	943.3	44.4	0.03	44.4	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*******

.SLOPES AND INTERCEPT

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

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.24	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
678.91	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
511.87	0.22	0.22	0.22	0.22

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

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
524.07	0.23	0.23	0.23	0.23

	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
	0.09	0.14	0.33	0.11

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
718.74	0.26	0.26	0.38

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
623.19	0.23	0.33	0.23

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2021 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	5.05	7.58	5.05
ARM B	15.00	45.00	75.00	0.55	0.83	0.55
ARM C	15.00	45.00	75.00	7.13	10.69	7.13
ARM D	15.00	45.00	75.00	1.01	1.52	1.01

Demand set: 2021 Base Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.809	0.000	0.191
		0.0	327.0	0.0	77.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.750	0.000	0.000	0.250
		33.0	0.0	0.0	11.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.849	0.049	0.000	0.102
		484.0	28.0	0.0	58.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.494	0.506	0.000	0.000
		40.0	41.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	0.55	6.80	0.081		0.00	0.09	1.3		0.16
A-B	4.10								
A-C	0.00								
A-D	0.97	8.72	0.111		0.00	0.12	1.8		0.13
D-ABC	1.02	7.63	0.133		0.00	0.15	2.2		0.15
C-D	0.73								
C-A	6.07								
C-B	0.35	10.54	0.033		0.00	0.03	0.5		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	0.66	6.45	0.102		0.09	0.11	1.6		0.17
A-B	4.90								
A-C	0.00								
A-D	1.15	8.39	0.137		0.12	0.16	2.3		0.14
D-ABC	1.21	7.18	0.169		0.15	0.20	2.9		0.17
C-D	0.87								
C-A	7.25								
C-B	0.42	10.25	0.041		0.03	0.04	0.6		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	0.81	5.99	0.135		0.11	0.15	2.2		0.19
A-B	6.00								
A-C	0.00								
A-D	1.41	7.95	0.178		0.16	0.21	3.1		0.15
D-ABC	1.49	6.55	0.227		0.20	0.29	4.2		0.20
C-D	1.06								
C-A	8.88								
C-B	0.51	9.86	0.052		0.04	0.05	0.8		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	0.81	5.99	0.135		0.15	0.15	2.3		0.19
A-B	6.00								
A-C	0.00								
A-D	1.41	7.95	0.178		0.21	0.21	3.2		0.15
D-ABC	1.49	6.54	0.227		0.29	0.29	4.4		0.20
C-D	1.06								
C-A	8.88								
C-B	0.51	9.86	0.052		0.05	0.05	0.8		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	0.66	6.45	0.102		0.15	0.12	1.8		0.17
A-B	4.90								
A-C	0.00								
A-D	1.15	8.39	0.137		0.21	0.16	2.5		0.14
D-ABC	1.21	7.18	0.169		0.29	0.21	3.2		0.17
C-D	0.87								
C-A	7.25								
C-B	0.42	10.25	0.041		0.05	0.04	0.7		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	0.55	6.79	0.081		0.12	0.09	1.4		0.16
A-B	4.10								
A-C	0.00								
A-D	0.97	8.72	0.111		0.16	0.13	1.9		0.13
D-ABC	1.02	7.63	0.133		0.21	0.16	2.4		0.15
C-D	0.73								
C-A	6.07								
C-B	0.35	10.53	0.033		0.04	0.03	0.5		0.10

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.2
18.00	0.2
18.15	0.1

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.1
17.45	0.1
18.00	0.0
18.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	60.6	40.4	10.6	0.18	10.6	0.18
A-B	450.1	300.1				
A-C	0.0	0.0				
A-D	106.0	70.7	14.8	0.14	14.8	0.14
D-ABC	111.5	74.3	19.3	0.17	19.3	0.17
C-D	79.8	53.2				
C-A	666.2	444.1				
C-B	38.5	25.7	3.9	0.10	3.9	0.10
ALL	1512.7	1008.5	48.6	0.03	48.6	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*******

.SLOPES AND INTERCEPT

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

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.24	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
678.91	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
511.87	0.22	0.22	0.22	0.22

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

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
524.07	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.14	0.33	0.11

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
718.74	0.26	0.26	0.38

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
623.19	0.23	0.33	0.23

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2016 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	4.89	7.33	4.89
ARM B	15.00	45.00	75.00	0.51	0.77	0.51
ARM C	15.00	45.00	75.00	7.04	10.56	7.04
ARM D	15.00	45.00	75.00	1.01	1.52	1.01

Demand set: 2016 'With Development' Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.806	0.000	0.194
		0.0	315.0	0.0	76.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.756	0.000	0.000	0.244
		31.0	0.0	0.0	10.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.858	0.046	0.000	0.096
		483.0	26.0	0.0	54.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.519	0.481	0.000	0.000
		42.0	39.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	0.51	6.82	0.075		0.00	0.08	1.2		0.16
A-B	3.95								
A-C	0.00								
A-D	0.95	8.74	0.109		0.00	0.12	1.8		0.13
D-ABC	1.02	7.74	0.131		0.00	0.15	2.2		0.15
C-D	0.68								
C-A	6.06								
C-B	0.33	10.58	0.031		0.00	0.03	0.5		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	0.61	6.49	0.095		0.08	0.10	1.5		0.17
A-B	4.72								
A-C	0.00								
A-D	1.14	8.42	0.135		0.12	0.15	2.3		0.14
D-ABC	1.21	7.30	0.166		0.15	0.20	2.9		0.16
C-D	0.81								
C-A	7.24								
C-B	0.39	10.30	0.038		0.03	0.04	0.6		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	0.75	6.03	0.125		0.10	0.14	2.0		0.19
A-B	5.78								
A-C	0.00								
A-D	1.39	7.98	0.175		0.15	0.21	3.1		0.15
D-ABC	1.49	6.68	0.222		0.20	0.28	4.1		0.19
C-D	0.99								
C-A	8.86								
C-B	0.48	9.93	0.048		0.04	0.05	0.7		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	0.75	6.02	0.125		0.14	0.14	2.1		0.19
A-B	5.78								
A-C	0.00								
A-D	1.39	7.98	0.175		0.21	0.21	3.2		0.15
D-ABC	1.49	6.68	0.222		0.28	0.28	4.2		0.19
C-D	0.99								
C-A	8.86								
C-B	0.48	9.93	0.048		0.05	0.05	0.8		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	0.61	6.48	0.095		0.14	0.11	1.6		0.17
A-B	4.72								
A-C	0.00								
A-D	1.14	8.42	0.135		0.21	0.16	2.4		0.14
D-ABC	1.21	7.30	0.166		0.28	0.20	3.1		0.16
C-D	0.81								
C-A	7.24								
C-B	0.39	10.30	0.038		0.05	0.04	0.6		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	0.51	6.82	0.075		0.11	0.08	1.3		0.16
A-B	3.95								
A-C	0.00								
A-D	0.95	8.74	0.109		0.16	0.12	1.9		0.13
D-ABC	1.02	7.74	0.131		0.20	0.15	2.4		0.15
C-D	0.68								
C-A	6.06								
C-B	0.33	10.58	0.031		0.04	0.03	0.5		0.10

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.2
18.00	0.2
18.15	0.1

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.3
17.45	0.3
18.00	0.2
18.15	0.2

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.1
17.45	0.1
18.00	0.0
18.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	56.4	37.6	9.7	0.17	9.7	0.17
A-B	433.6	289.0				
A-C	0.0	0.0				
A-D	104.6	69.7	14.6	0.14	14.6	0.14
D-ABC	111.5	74.3	18.8	0.17	18.8	0.17
C-D	74.3	49.6				
C-A	664.8	443.2				
C-B	35.8	23.9	3.6	0.10	3.6	0.10
ALL	1481.0	987.4	46.8	0.03	46.8	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*******

.SLOPES AND INTERCEPT

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

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.24	0.10

STREAM D-A

Intercept For STREAM D-A	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
678.91	0.25	0.10

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
511.87	0.22	0.22	0.22	0.22

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

STREAM D-C

Intercept For STREAM D-C	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM B-C	Slope For Opposing STREAM B-D
524.07	0.23	0.23	0.23	0.23

Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM B-A
0.09	0.14	0.33	0.11

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
718.74	0.26	0.26	0.38

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
623.19	0.23	0.33	0.23

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
511.87	0.22	0.22	0.09	0.32

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.14	0.14

D-B Stream From Left Hand Lane

Intercept For STREAM D-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

D-B Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	Slope For Opposing STREAM A-D
524.07	0.23	0.23	0.09	0.33

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.14	0.14

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2021 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	5.21	7.82	5.21
ARM B	15.00	45.00	75.00	0.55	0.83	0.55
ARM C	15.00	45.00	75.00	7.45	11.17	7.45
ARM D	15.00	45.00	75.00	1.06	1.59	1.06

Demand set: 2021 'With Development' Flows - PM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.811	0.000	0.189
		0.0	338.0	0.0	79.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.750	0.000	0.000	0.250
		33.0	0.0	0.0	11.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.862	0.047	0.000	0.091
		514.0	28.0	0.0	54.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.518	0.482	0.000	0.000
		44.0	41.0	0.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	0.55	6.72	0.082		0.00	0.09	1.3		0.16
A-B	4.24								
A-C	0.00								
A-D	0.99	8.64	0.115		0.00	0.13	1.9		0.13
D-ABC	1.07	7.60	0.140		0.00	0.16	2.3		0.15
C-D	0.68								
C-A	6.45								
C-B	0.35	10.49	0.033		0.00	0.03	0.5		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	0.66	6.36	0.104		0.09	0.11	1.7		0.18
A-B	5.06								
A-C	0.00								
A-D	1.18	8.31	0.143		0.13	0.16	2.4		0.14
D-ABC	1.27	7.13	0.179		0.16	0.21	3.1		0.17
C-D	0.81								
C-A	7.70								
C-B	0.42	10.20	0.041		0.03	0.04	0.6		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	0.81	5.87	0.137		0.11	0.16	2.3		0.20
A-B	6.20								
A-C	0.00								
A-D	1.45	7.84	0.185		0.16	0.22	3.3		0.16
D-ABC	1.56	6.47	0.241		0.21	0.31	4.5		0.20
C-D	0.99								
C-A	9.43								
C-B	0.51	9.80	0.052		0.04	0.05	0.8		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	0.81	5.87	0.137		0.16	0.16	2.4		0.20
A-B	6.20								
A-C	0.00								
A-D	1.45	7.84	0.185		0.22	0.23	3.4		0.16
D-ABC	1.56	6.47	0.241		0.31	0.32	4.7		0.20
C-D	0.99								
C-A	9.43								
C-B	0.51	9.79	0.052		0.05	0.06	0.8		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	0.66	6.36	0.104		0.16	0.12	1.8		0.18
A-B	5.06								
A-C	0.00								
A-D	1.18	8.31	0.143		0.23	0.17	2.6		0.14
D-ABC	1.27	7.13	0.179		0.32	0.22	3.4		0.17
C-D	0.81								
C-A	7.70								
C-B	0.42	10.19	0.041		0.06	0.04	0.7		0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	0.55	6.71	0.082		0.12	0.09	1.4		0.16
A-B	4.24								
A-C	0.00								
A-D	0.99	8.64	0.115		0.17	0.13	2.0		0.13
D-ABC	1.07	7.60	0.140		0.22	0.17	2.5		0.15
C-D	0.68								
C-A	6.45								
C-B	0.35	10.49	0.034		0.04	0.03	0.5		0.10

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.2
18.00	0.2
18.15	0.1

QUEUE FOR STREAM D-ABC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.1
17.45	0.1
18.00	0.0
18.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	60.6	40.4	10.8	0.18	10.8	0.18
A-B	465.2	310.2				
A-C	0.0	0.0				
A-D	108.7	72.5	15.5	0.14	15.5	0.14
D-ABC	117.0	78.0	20.7	0.18	20.7	0.18
C-D	74.3	49.6				
C-A	707.5	471.7				
C-B	38.5	25.7	4.0	0.10	4.0	0.10
ALL	1571.9	1047.9	50.9	0.03	50.9	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 ==========

Printed at 11:15:41 on 17/10/2012]

APPENDIX 10

PICADY Output: Whalley Road/Greenacre 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)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
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

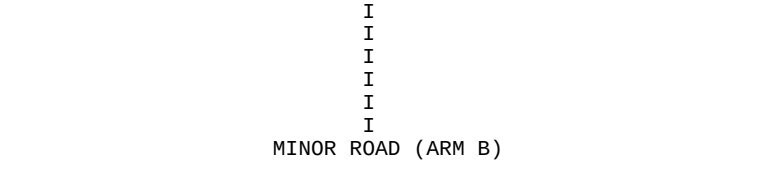
Run with file:-
"Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Whalley Rd_Greenacre St.vpi"
(drive-on-the-left) at 09:55:04 on Monday, 15 October 2012

RUN INFORMATION

RUN TITLE	: Whalley Road/Greenacre Street
LOCATION	: Clitheroe
DATE	: 12/10/12
CLIENT	: Bowsall Limited
ENUMERATOR	: Cad Workstation2 [CADWORKSTATION2]
JOB NUMBER	: 0248
STATUS	: TIA
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A671 Whalley Road (S)
ARM B IS Greenacre Street
ARM C IS A671 Whalley Road (N)

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

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 8.60 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)250.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (1)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 12.0 M.
- VISIBILITY TO RIGHT	(VB-A) 12.0 M.
- LANE 1 WIDTH	(WB-C) 3.50 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
511.87	0.21	0.08	0.13	0.30

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.25	0.25

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	9.09	13.63	9.09
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	9.29	13.93	9.29

Demand set: 2016 Base Flows - AM PEAK

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	0.176	0.824
		0.0	128.0	599.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.000	0.000	0.000
		0.0	0.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.782	0.218	0.000
		581.0	162.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	0.00	6.08	0.000		0.00	0.00	0.0		0.00
C-AB	2.03	9.73	0.209		0.00	0.30	4.4		0.13
A-B	1.61								
A-C	7.52								
08.00-08.15									
B-AC	0.00	5.52	0.000		0.00	0.00	0.0		0.00
C-AB	2.43	9.29	0.261		0.30	0.43	6.5		0.15
A-B	1.92								
A-C	8.97								
08.15-08.30									
B-AC	0.00	4.70	0.000		0.00	0.00	0.0		0.00
C-AB	2.97	8.68	0.342		0.43	0.72	10.7		0.17
A-B	2.35								
A-C	10.99								
08.30-08.45									
B-AC	0.00	4.69	0.000		0.00	0.00	0.0		0.00
C-AB	2.97	8.68	0.342		0.72	0.73	11.1		0.18
A-B	2.35								
A-C	10.99								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.00	5.51	0.000		0.00	0.00	0.0		0.00
C-AB	2.43	9.29	0.261		0.73	0.45	6.8		0.15
A-B	1.92								
A-C	8.97								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.00	6.08	0.000		0.00	0.00	0.0		0.00
C-AB	2.03	9.73	0.209		0.45	0.31	4.7		0.13
A-B	1.61								
A-C	7.52								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.3	
08.15	0.4	
08.30	0.7	*
08.45	0.7	*
09.00	0.4	
09.15	0.3	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	0.0	0.0	0.0	0.00	0.0	0.00
C-AB	223.0	148.7	44.2	0.20	44.2	0.20
A-B	176.2	117.5				
A-C	824.5	549.7				
ALL	2023.3	1348.9	44.2	0.02	44.2	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*******

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
511.87	0.21	0.08	0.13	0.30

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.25	0.25

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	9.74	14.61	9.74
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	9.98	14.96	9.98

Demand set: 2021 Base Flows - AM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.176	0.824
		0.0	137.0	642.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.000	0.000	0.000
		0.0	0.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.782	0.218	0.000
		624.0	174.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	0.00	5.88	0.000		0.00	0.00	0.0		0.00
C-AB	2.18	9.56	0.228		0.00	0.35	5.1		0.13
A-B	1.72								
A-C	8.06								
08.00-08.15									
B-AC	0.00	5.26	0.000		0.00	0.00	0.0		0.00
C-AB	2.61	9.10	0.287		0.35	0.51	7.6		0.15
A-B	2.05								
A-C	9.62								
08.15-08.30									
B-AC	0.00	4.35	0.000		0.00	0.00	0.0		0.00
C-AB	3.19	8.45	0.378		0.51	0.88	13.3		0.19
A-B	2.51								
A-C	11.78								
08.30-08.45									
B-AC	0.00	4.35	0.000		0.00	0.00	0.0		0.00
C-AB	3.19	8.45	0.378		0.88	0.90	13.8		0.19
A-B	2.51								
A-C	11.78								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.00	5.25	0.000		0.00	0.00	0.0		0.00
C-AB	2.61	9.10	0.287		0.90	0.53	8.1		0.16
A-B	2.05								
A-C	9.62								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.00	5.87	0.000		0.00	0.00	0.0		0.00
C-AB	2.18	9.56	0.228		0.53	0.36	5.4		0.14
A-B	1.72								
A-C	8.06								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.3	
08.15	0.5	*
08.30	0.9	*
08.45	0.9	*
09.00	0.5	*
09.15	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	0.0	0.0	0.0	0.00	0.0	0.00
C-AB	239.5	159.7	53.2	0.22	53.2	0.22
A-B	188.6	125.7				
A-C	883.7	589.1				
ALL	2170.6	1447.1	53.2	0.02	53.2	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*******

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
511.87	0.21	0.08	0.13	0.30

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.25	0.25

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	9.18	13.76	9.18
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	9.59	14.38	9.59

Demand set: 2016 'With Development' Flows - AM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.184	0.816
		0.0	135.0	599.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.000	0.000	0.000
		0.0	0.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.785	0.215	0.000
		602.0	165.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	0.00	6.04	0.000		0.00	0.00	0.0		0.00
C-AB	2.07	9.70	0.213		0.00	0.31	4.6		0.13
A-B	1.69								
A-C	7.52								
08.00-08.15									
B-AC	0.00	5.46	0.000		0.00	0.00	0.0		0.00
C-AB	2.47	9.26	0.267		0.31	0.45	6.7		0.15
A-B	2.02								
A-C	8.97								
08.15-08.30									
B-AC	0.00	4.63	0.000		0.00	0.00	0.0		0.00
C-AB	3.03	8.65	0.350		0.45	0.75	11.3		0.18
A-B	2.48								
A-C	10.99								
08.30-08.45									
B-AC	0.00	4.62	0.000		0.00	0.00	0.0		0.00
C-AB	3.03	8.65	0.350		0.75	0.77	11.7		0.18
A-B	2.48								
A-C	10.99								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.00	5.46	0.000		0.00	0.00	0.0		0.00
C-AB	2.47	9.26	0.267		0.77	0.47	7.1		0.15
A-B	2.02								
A-C	8.97								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.00	6.04	0.000		0.00	0.00	0.0		0.00
C-AB	2.07	9.70	0.213		0.47	0.32	4.8		0.13
A-B	1.69								
A-C	7.52								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.3	
08.15	0.4	
08.30	0.8	*
08.45	0.8	*
09.00	0.5	
09.15	0.3	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	0.0	0.0	0.0	0.00	0.0	0.00
C-AB	227.1	151.4	46.2	0.20	46.2	0.20
A-B	185.8	123.9				
A-C	824.5	549.7				
ALL	2066.0	1377.3	46.2	0.02	46.2	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*******

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
511.87	0.21	0.08	0.13	0.30

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.25	0.25

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	9.82	14.74	9.82
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	10.27	15.41	10.27

Demand set: 2021 'With Development' Flows - AM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.183	0.817
		0.0	144.0	642.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.000	0.000	0.000
		0.0	0.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.785	0.215	0.000
		645.0	177.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	0.00	5.83	0.000		0.00	0.00	0.0		0.00
C-AB	2.22	9.54	0.233		0.00	0.36	5.3		0.14
A-B	1.81								
A-C	8.06								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	0.00	5.20	0.000		0.00	0.00	0.0		0.00
C-AB	2.65	9.07	0.292		0.36	0.53	7.9		0.16
A-B	2.16								
A-C	9.62								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	0.00	4.28	0.000		0.00	0.00	0.0		0.00
C-AB	3.25	8.42	0.386		0.53	0.93	14.0		0.19
A-B	2.64								
A-C	11.78								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	0.00	4.27	0.000		0.00	0.00	0.0		0.00
C-AB	3.25	8.42	0.386		0.93	0.95	14.5		0.19
A-B	2.64								
A-C	11.78								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.00	5.19	0.000		0.00	0.00	0.0		0.00
C-AB	2.65	9.07	0.292		0.95	0.56	8.5		0.16
A-B	2.16								
A-C	9.62								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.00	5.83	0.000		0.00	0.00	0.0		0.00
C-AB	2.22	9.54	0.233		0.56	0.37	5.6		0.14
A-B	1.81								
A-C	8.06								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.4	
08.15	0.5	*
08.30	0.9	*
08.45	0.9	*
09.00	0.6	*
09.15	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	0.0	0.0	0.0	0.00	0.0	0.00
C-AB	243.6	162.4	55.7	0.23	55.7	0.23
A-B	198.2	132.1				
A-C	883.7	589.1				
ALL	2213.3	1475.5	55.7	0.03	55.7	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*******

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
511.87	0.21	0.08	0.13	0.30

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.25	0.25

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	10.94	16.41	10.94
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	11.69	17.53	11.69

Demand set: 2016 Base Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.309	0.691
		0.0	270.0	605.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.000	0.000	0.000
		0.0	0.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.716	0.284	0.000
		669.0	266.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	0.00	5.51	0.000		0.00	0.00	0.0		0.00
C-AB	3.34	9.27	0.360		0.00	0.72	10.6		0.17
A-B	3.39								
A-C	7.59								
17.00-17.15									
B-AC	0.00	4.78	0.000		0.00	0.00	0.0		0.00
C-AB	3.99	8.74	0.456		0.72	1.22	18.4		0.21
A-B	4.05								
A-C	9.06								
17.15-17.30									
B-AC	0.00	3.68	0.000		0.00	0.00	0.0		0.00
C-AB	4.88	8.01	0.609		1.22	2.81	41.5		0.32
A-B	4.95								
A-C	11.10								
17.30-17.45									
B-AC	0.00	3.65	0.000		0.00	0.00	0.0		0.00
C-AB	4.88	8.01	0.609		2.81	2.91	44.8		0.34
A-B	4.95								
A-C	11.10								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	0.00	4.74	0.000		0.00	0.00	0.0		0.00
C-AB	3.99	8.74	0.456		2.91	1.33	20.5		0.22
A-B	4.05								
A-C	9.06								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	0.00	5.49	0.000		0.00	0.00	0.0		0.00
C-AB	3.34	9.27	0.360		1.33	0.77	11.7		0.17
A-B	3.39								
A-C	7.59								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.7	*
17.15	1.2	*
17.30	2.8	***
17.45	2.9	***
18.00	1.3	*
18.15	0.8	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	0.0	0.0	0.0	0.00	0.0	0.00
C-AB	366.1	244.1	147.6	0.40	147.6	0.40
A-B	371.6	247.8				
A-C	832.7	555.2				
ALL	2491.3	1660.9	147.6	0.06	147.6	0.06

* 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)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
511.87	0.21	0.08	0.13	0.30

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.25	0.25

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	11.74	17.61	11.74
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	12.54	18.81	12.54

Demand set: 2021 Base Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.307	0.693
		0.0	288.0	651.0
		(0.0)%	(0.0)%	(0.0)%
	ARM B	0.000	0.000	0.000
		0.0	0.0	0.0
		(0.0)%	(0.0)%	(0.0)%
	ARM C	0.716	0.284	0.000
		718.0	285.0	0.0
		(0.0)%	(0.0)%	(0.0)%

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	0.00	5.24	0.000		0.00	0.00	0.0		0.00
C-AB	3.58	9.07	0.394		0.00	0.87	12.8		0.18
A-B	3.61								
A-C	8.17								
17.00-17.15									
B-AC	0.00	4.43	0.000		0.00	0.00	0.0		0.00
C-AB	4.27	8.50	0.502		0.87	1.57	23.6		0.24
A-B	4.32								
A-C	9.75								
17.15-17.30									
B-AC	0.00	3.20	0.000		0.00	0.00	0.0		0.00
C-AB	5.23	7.72	0.677		1.57	4.11	59.5		0.39
A-B	5.28								
A-C	11.95								
17.30-17.45									
B-AC	0.00	3.15	0.000		0.00	0.00	0.0		0.00
C-AB	5.23	7.72	0.677		4.11	4.30	66.7		0.44
A-B	5.28								
A-C	11.95								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	0.00	4.37	0.000		0.00	0.00	0.0		0.00
C-AB	4.27	8.50	0.502		4.30	1.73	26.9		0.26
A-B	4.32								
A-C	9.75								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	0.00	5.21	0.000		0.00	0.00	0.0		0.00
C-AB	3.58	9.07	0.394		1.73	0.94	14.3		0.19
A-B	3.61								
A-C	8.17								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.9	*
17.15	1.6	**
17.30	4.1	****
17.45	4.3	****
18.00	1.7	**
18.15	0.9	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	0.0	0.0	0.0	0.00	0.0	0.00
C-AB	392.3	261.5	203.9	0.52	203.9	0.52
A-B	396.4	264.3				
A-C	896.1	597.4				
ALL	2673.0	1782.0	203.9	0.08	203.9	0.08

* 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)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
511.87	0.21	0.08	0.13	0.30

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.25	0.25

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2016 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	11.20	16.80	11.20
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	11.93	17.89	11.93

Demand set: 2016 'With Development' Flows - PM PEAK

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.325	0.675
		0.0	291.0	605.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.000	0.000	0.000
		0.0	0.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.712	0.288	0.000
		679.0	275.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	0.00	5.45	0.000		0.00	0.00	0.0		0.00
C-AB	3.45	9.20	0.375		0.00	0.78	11.5		0.17
A-B	3.65								
A-C	7.59								
17.00-17.15									
B-AC	0.00	4.70	0.000		0.00	0.00	0.0		0.00
C-AB	4.12	8.66	0.476		0.78	1.35	20.4		0.22
A-B	4.36								
A-C	9.06								
17.15-17.30									
B-AC	0.00	3.57	0.000		0.00	0.00	0.0		0.00
C-AB	5.05	7.92	0.637		1.35	3.26	47.7		0.34
A-B	5.34								
A-C	11.10								
17.30-17.45									
B-AC	0.00	3.53	0.000		0.00	0.00	0.0		0.00
C-AB	5.05	7.92	0.637		3.26	3.38	52.2		0.37
A-B	5.34								
A-C	11.10								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	0.00	4.65	0.000		0.00	0.00	0.0		0.00
C-AB	4.12	8.66	0.476		3.38	1.48	22.8		0.24
A-B	4.36								
A-C	9.06								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	0.00	5.42	0.000		0.00	0.00	0.0		0.00
C-AB	3.45	9.20	0.375		1.48	0.83	12.7		0.18
A-B	3.65								
A-C	7.59								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.8	*
17.15	1.4	*
17.30	3.3	***
17.45	3.4	***
18.00	1.5	*
18.15	0.8	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	0.0	0.0	0.0	0.00	0.0	0.00
C-AB	378.5	252.3	167.3	0.44	167.3	0.44
A-B	400.5	267.0				
A-C	832.7	555.2				
ALL	2546.4	1697.6	167.3	0.07	167.3	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)

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
663.10	0.23	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
511.87	0.21	0.08	0.13	0.30

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.25	0.25

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100

Demand set: 2021 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	12.00	18.00	12.00
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	12.79	19.18	12.79

Demand set: 2021 'With Development' Flows - PM PEAK

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15				
	ARM A	0.000	0.322	0.678
		0.0	309.0	651.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.000	0.000	0.000
		0.0	0.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.713	0.287	0.000
		729.0	294.0	0.0
		(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2021 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	0.00	5.18	0.000		0.00	0.00	0.0		0.00
C-AB	3.69	9.00	0.410		0.00	0.95	13.9		0.19
A-B	3.88								
A-C	8.17								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	0.00	4.35	0.000		0.00	0.00	0.0		0.00
C-AB	4.41	8.43	0.523		0.95	1.75	26.2		0.25
A-B	4.63								
A-C	9.75								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	0.00	3.08	0.000		0.00	0.00	0.0		0.00
C-AB	5.40	7.63	0.707		1.75	4.85	69.4		0.43
A-B	5.67								
A-C	11.95								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	0.00	3.01	0.000		0.00	0.00	0.0		0.00
C-AB	5.40	7.63	0.707		4.85	5.10	79.3		0.51
A-B	5.67								
A-C	11.95								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	0.00	4.27	0.000		0.00	0.00	0.0		0.00
C-AB	4.41	8.43	0.523		5.10	1.93	30.2		0.28
A-B	4.63								
A-C	9.75								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	0.00	5.14	0.000		0.00	0.00	0.0		0.00
C-AB	3.69	9.00	0.410		1.93	1.02	15.6		0.19
A-B	3.88								
A-C	8.17								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES 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 C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.9	*
17.15	1.7	**
17.30	4.8	*****
17.45	5.1	*****
18.00	1.9	**
18.15	1.0	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	0.0	0.0	0.0	0.00	0.0	0.00
C-AB	404.7	269.8	234.6	0.58	234.6	0.58
A-B	425.3	283.5				
A-C	896.1	597.4				
ALL	2729.5	1819.6	234.6	0.09	234.6	0.09

* 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 ==========

Printed at 11:25:44 on 17/10/2012]

APPENDIX 11

PICADY Output: Primrose Road/A671 Whalley Road

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)

ADAPTED FROM PICADY/3 WHICH IS CROWN COPYRIGHT
BY PERMISSION OF THE CONTROLLER OF HMSO

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
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

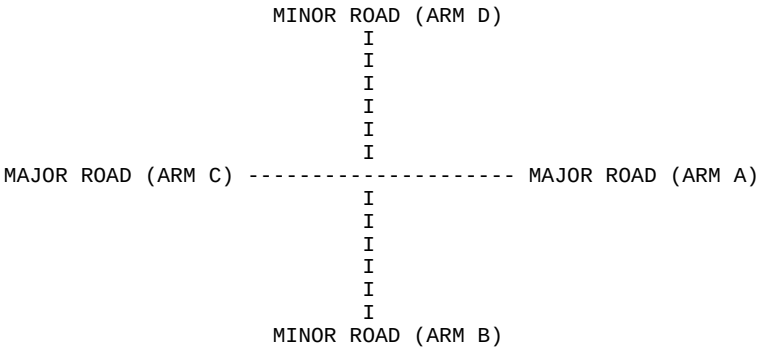
Run with file:-
"Z:\projects\0248 Henthorn Road, Clitheroe\Picady\Primrose Rd_A671 Whalley Rd (SBA Geometry).vpi"
(drive-on-the-left) at 12:22:53 on Wednesday, 17 October 2012

RUN INFORMATION

RUN TITLE	: Primrose Road/A671 Whalley Road
LOCATION	: Clitheroe
DATE	: 12/10/12
CLIENT	: Bowsall Limited
ENUMERATOR	: Cad Workstation2 [CADWORKSTATION2]
JOB NUMBER	: 0248
STATUS	: TIA
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Whalley Road (N)
ARM B IS Side Road
ARM C IS Whalley Road (S)
ARM D IS Primrose 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

DATA ITEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 6.80 M.	(W) 6.80 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.70 M.	(WA-D) 2.50 M.
- VISIBILITY	(VC-B)100.00 M.	(VA-D)100.00 M.
- BLOCKS TRAFFIC (SPACES)	NO (0)	NO (0)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 30.0 M.	(VD-A) 33.0 M.
- VISIBILITY TO RIGHT	(VB-A) 18.0 M.	(VD-C) 25.0 M.
- LANE 1 WIDTH	(WB-C) 5.00 M.	(WD-A) -
- LANE 2 WIDTH	(WB-A) 0.00 M.	(WD-C) -
WIDTH AT 0 M FROM JUNCTION	-	10.00 M.
WIDTH AT 5 M FROM JUNCTION	-	7.40 M.
WIDTH AT 10 M FROM JUNCTION	-	5.90 M.
WIDTH AT 15 M FROM JUNCTION	-	5.10 M.
WIDTH AT 20 M FROM JUNCTION	-	4.20 M.
- LENGTH OF FLARED SECTION	-	DERIVED: 3 PCU

.SLOPES AND INTERCEPT

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

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
762.47	0.29	0.11

STREAM D-A

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

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

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
595.50	0.26	0.26	0.26	0.26

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.10	0.17	0.38	0.13

STREAM D-C

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

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

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

STREAM C-B

Intercept For STREAM C-B	Slope For Opposing STREAM A-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D
666.26	0.25	0.25	0.36

STREAM A-D

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D
652.51	0.24	0.35	0.24

B-D Stream From Left Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
595.50	0.26	0.26	0.10	0.38

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.17	0.17

B-D Stream From Right Hand Lane

Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B
595.50	0.26	0.26	0.10	0.38

Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D
0.17	0.17

D-B Stream From Left Hand Lane

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

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00

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

D-B Stream From Right Hand Lane

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

Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
0.00	0.00

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

TRAFFIC DEMAND DATA

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	100

Demand set: 2016 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	8.81	13.22	8.81
ARM B	15.00	45.00	75.00	0.09	0.13	0.09
ARM C	15.00	45.00	75.00	10.09	15.13	10.09
ARM D	15.00	45.00	75.00	2.94	4.41	2.94

Demand set: 2016 Base Flows - AM PEAK

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	0.003	0.953	0.044
		0.0	2.0	672.0	31.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.571	0.000	0.143	0.286
		4.0	0.0	1.0	2.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.921	0.001	0.000	0.078
		743.0	1.0	0.0	63.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.281	0.000	0.719	0.000
		66.0	0.0	169.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2016 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	0.09	6.04	0.015		0.00	0.01	0.2		0.17
A-B	0.03								
A-C	8.43								
A-D	0.39	8.40	0.046		0.00	0.05	0.7		0.12
D-AB	0.83	7.24	0.114		0.00	0.13	1.8		0.16
D-BC	2.12	5.60	0.379		0.00	0.59	8.2		0.28
C-D	0.79								
C-A	9.32								
C-B	0.01	8.86	0.001		0.00	0.00	0.0		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	0.10	5.19	0.020		0.01	0.02	0.3		0.20
A-B	0.03								
A-C	10.07								
A-D	0.46	7.92	0.059		0.05	0.06	0.9		0.13
D-AB	0.99	6.39	0.155		0.13	0.18	2.6		0.18
D-BC	2.53	4.83	0.525		0.59	1.04	14.4		0.42
C-D	0.94								
C-A	11.13								
C-B	0.01	8.42	0.002		0.00	0.00	0.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	0.13	4.00	0.032		0.02	0.03	0.5		0.26
A-B	0.04								
A-C	12.33								
A-D	0.57	7.26	0.078		0.06	0.08	1.2		0.15
D-AB	1.21	3.76	0.322		0.18	0.46	6.4		0.39
D-BC	3.10	3.75	0.826		1.04	3.34	39.6		1.08
C-D	1.16								
C-A	13.63								
C-B	0.02	7.82	0.002		0.00	0.00	0.0		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	0.13	3.98	0.032		0.03	0.03	0.5		0.26
A-B	0.04								
A-C	12.33								
A-D	0.57	7.26	0.078		0.08	0.08	1.3		0.15
D-AB	1.21	3.23	0.375		0.46	0.57	8.2		0.49
D-BC	3.10	3.75	0.826		3.34	3.83	54.4		1.34
C-D	1.16								
C-A	13.63								
C-B	0.02	7.82	0.002		0.00	0.00	0.0		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	0.10	5.16	0.020		0.03	0.02	0.3		0.20
A-B	0.03								
A-C	10.07								
A-D	0.46	7.92	0.059		0.08	0.06	1.0		0.13
D-AB	0.99	6.20	0.159		0.57	0.19	3.1		0.19
D-BC	2.53	4.83	0.525		3.83	1.17	21.5		0.51
C-D	0.94								
C-A	11.13								
C-B	0.01	8.42	0.002		0.00	0.00	0.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	0.09	6.03	0.015		0.02	0.01	0.2		0.17
A-B	0.03								
A-C	8.43								
A-D	0.39	8.40	0.046		0.06	0.05	0.8		0.12
D-AB	0.83	7.20	0.115		0.19	0.13	2.0		0.16
D-BC	2.12	5.60	0.379		1.17	0.63	10.1		0.29
C-D	0.79								
C-A	9.32								
C-B	0.01	8.86	0.001		0.00	0.00	0.0		0.11

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES 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 D-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.1	
08.15	0.2	
08.30	0.5	
08.45	0.6	*
09.00	0.2	
09.15	0.1	

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.6	*
08.15	1.0	*
08.30	3.3	***
08.45	3.8	****
09.00	1.2	*
09.15	0.6	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	9.6	6.4	2.0	0.21	2.0	0.21
A-B	2.8	1.8				
A-C	925.0	616.6				
A-D	42.7	28.4	5.8	0.14	5.8	0.14
D-AB	90.8	60.6	24.1	0.27	24.1	0.27
D-BC	232.6	155.1	148.2	0.64	148.3	0.64
C-D	86.7	57.8				
C-A	1022.7	681.8				
C-B	1.4	0.9	0.2	0.12	0.2	0.12
ALL	2414.3	1609.5	180.3	0.07	180.4	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)

STREAM B-C

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
762.47	0.29	0.11

STREAM D-A

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

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

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
595.50	0.26	0.26	0.26	0.26

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.10	0.17	0.38	0.13

STREAM D-C

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

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

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

STREAM C-B

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing

I STREAM C-B	STREAM A-B	STREAM A-C	STREAM A-D	I
I 666.26	0.25	0.25	0.36	I

STREAM A-D				
I Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	I
I 652.51	0.24	0.35	0.24	I

B-D Stream From Left Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

B-D Stream From Right Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

D-B Stream From Left Hand Lane

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

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

I	Slope For Opposing STREAM A-C	Slope For Opposing 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 SCALE(%)	I
I A	I 100	I
I B	I 100	I
I C	I 100	I
I D	I 100	I

Demand set: 2021 Base Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.46	14.19	9.46
ARM B	15.00	45.00	75.00	0.09	0.13	0.09
ARM C	15.00	45.00	75.00	10.85	16.28	10.85
ARM D	15.00	45.00	75.00	3.04	4.56	3.04

Demand set: 2021 Base Flows - AM PEAK

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	0.003	0.954	0.044
		0.0	2.0	722.0	33.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.571	0.000	0.143	0.286
		4.0	0.0	1.0	2.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.921	0.001	0.000	0.078
		799.0	1.0	0.0	68.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.280	0.000	0.720	0.000
		68.0	0.0	175.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2021 Base Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	0.09	5.73	0.015		0.00	0.02	0.2		0.18
A-B	0.03								
A-C	9.06								
A-D	0.41	8.22	0.050		0.00	0.05	0.8		0.13
D-AB	0.85	6.99	0.122		0.00	0.14	2.0		0.16
D-BC	2.20	5.31	0.414		0.00	0.68	9.4		0.31
C-D	0.85								
C-A	10.03								
C-B	0.01	8.69	0.001		0.00	0.00	0.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	0.10	4.82	0.022		0.02	0.02	0.3		0.21
A-B	0.03								
A-C	10.82								
A-D	0.49	7.70	0.064		0.05	0.07	1.0		0.14
D-AB	1.02	5.95	0.171		0.14	0.20	2.9		0.20
D-BC	2.62	4.47	0.586		0.68	1.31	17.8		0.52
C-D	1.02								
C-A	11.97								
C-B	0.01	8.22	0.002		0.00	0.00	0.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	0.13	3.53	0.036		0.02	0.04	0.5		0.29
A-B	0.04								
A-C	13.25								
A-D	0.61	6.99	0.087		0.07	0.09	1.4		0.16
D-AB	1.25	1.38	0.901		0.20	3.08	31.3		2.40
D-BC	3.21	3.32	0.967		1.31	5.93	62.2		1.74
C-D	1.25								
C-A	14.66								
C-B	0.02	7.58	0.002		0.00	0.00	0.0		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	0.13	3.46	0.037		0.04	0.04	0.6		0.30
A-B	0.04								
A-C	13.25								
A-D	0.61	6.99	0.087		0.09	0.09	1.4		0.16
D-AB	1.25	1.34	0.934		3.08	4.42	57.1		3.54
D-BC	3.21	3.32	0.968		5.93	8.06	106.1		2.62
C-D	1.25								
C-A	14.66								
C-B	0.02	7.58	0.002		0.00	0.00	0.0		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	0.10	4.71	0.022		0.04	0.02	0.4		0.22
A-B	0.03								
A-C	10.82								
A-D	0.49	7.70	0.064		0.09	0.07	1.1		0.14
D-AB	1.02	5.33	0.191		4.42	0.24	6.4		0.26
D-BC	2.62	4.47	0.587		8.06	1.56	40.6		0.87
C-D	1.02								
C-A	11.97								
C-B	0.01	8.22	0.002		0.00	0.00	0.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	0.09	5.72	0.015		0.02	0.02	0.2		0.18
A-B	0.03								
A-C	9.06								
A-D	0.41	8.22	0.050		0.07	0.05	0.8		0.13
D-AB	0.85	6.94	0.123		0.24	0.14	2.2		0.16
D-BC	2.20	5.30	0.414		1.56	0.73	11.9		0.33
C-D	0.85								
C-A	10.03								
C-B	0.01	8.69	0.001		0.00	0.00	0.0		0.12

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES 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-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.1	
08.15	0.2	
08.30	3.1	***
08.45	4.4	****
09.00	0.2	
09.15	0.1	

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	1.3	*
08.30	5.9	******
08.45	8.1	********
09.00	1.6	**
09.15	0.7	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	9.6	6.4	2.2	0.23	2.2	0.23
A-B	2.8	1.8				
A-C	993.8	662.5				
A-D	45.4	30.3	6.4	0.14	6.4	0.14
D-AB	93.6	62.4	102.0	1.09	102.0	1.09
D-BC	240.9	160.6	247.9	1.03	248.0	1.03
C-D	93.6	62.4				
C-A	1099.8	733.2				
C-B	1.4	0.9	0.2	0.12	0.2	0.12
ALL	2580.8	1720.5	358.7	0.14	358.8	0.14

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
762.47	0.29	0.11

STREAM D-A

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

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

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
595.50	0.26	0.26	0.26	0.26

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.10	0.17	0.38	0.13

STREAM D-C

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

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

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

STREAM C-B

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing

I STREAM C-B	STREAM A-B	STREAM A-C	STREAM A-D	I
I 666.26	0.25	0.25	0.36	I

STREAM A-D				
I Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	I
I 652.51	0.24	0.35	0.24	I

B-D Stream From Left Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

B-D Stream From Right Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

D-B Stream From Left Hand Lane

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

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

I	Slope For Opposing STREAM A-C	Slope For Opposing 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 SCALE(%)	I
I A	I 100	I
I B	I 100	I
I C	I 100	I
I D	I 100	I

Demand set: 2016 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.07	13.61	9.07
ARM B	15.00	45.00	75.00	0.09	0.13	0.09
ARM C	15.00	45.00	75.00	10.19	15.28	10.19
ARM D	15.00	45.00	75.00	2.94	4.41	2.94

Demand set: 2016 'With Development' Flows - AM PEAK

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	0.003	0.955	0.043
		0.0	2.0	693.0	31.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.571	0.000	0.143	0.286
		4.0	0.0	1.0	2.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.919	0.001	0.000	0.080
		749.0	1.0	0.0	65.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.281	0.000	0.719	0.000
		66.0	0.0	169.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2016 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	0.09	5.95	0.015		0.00	0.01	0.2		0.17
A-B	0.03								
A-C	8.70								
A-D	0.39	8.38	0.046		0.00	0.05	0.7		0.12
D-AB	0.83	7.21	0.115		0.00	0.13	1.8		0.16
D-BC	2.12	5.54	0.383		0.00	0.60	8.3		0.29
C-D	0.82								
C-A	9.40								
C-B	0.01	8.79	0.001		0.00	0.00	0.0		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	0.10	5.09	0.021		0.01	0.02	0.3		0.20
A-B	0.03								
A-C	10.38								
A-D	0.46	7.89	0.059		0.05	0.06	0.9		0.13
D-AB	0.99	6.34	0.156		0.13	0.18	2.6		0.19
D-BC	2.53	4.75	0.533		0.60	1.08	14.8		0.44
C-D	0.97								
C-A	11.22								
C-B	0.01	8.34	0.002		0.00	0.00	0.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	0.13	3.87	0.033		0.02	0.03	0.5		0.27
A-B	0.04								
A-C	12.72								
A-D	0.57	7.22	0.079		0.06	0.08	1.2		0.15
D-AB	1.21	3.47	0.349		0.18	0.51	7.1		0.43
D-BC	3.10	3.66	0.847		1.08	3.64	42.4		1.17
C-D	1.19								
C-A	13.74								
C-B	0.02	7.72	0.002		0.00	0.00	0.0		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	0.13	3.85	0.033		0.03	0.03	0.5		0.27
A-B	0.04								
A-C	12.72								
A-D	0.57	7.22	0.079		0.08	0.09	1.3		0.15
D-AB	1.21	2.81	0.431		0.51	0.71	10.0		0.61
D-BC	3.10	3.66	0.848		3.64	4.26	59.9		1.50
C-D	1.19								
C-A	13.74								
C-B	0.02	7.72	0.002		0.00	0.00	0.0		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	0.10	5.06	0.021		0.03	0.02	0.3		0.20
A-B	0.03								
A-C	10.38								
A-D	0.46	7.89	0.059		0.09	0.06	1.0		0.13
D-AB	0.99	6.11	0.162		0.71	0.20	3.2		0.20
D-BC	2.53	4.75	0.533		4.26	1.22	23.1		0.54
C-D	0.97								
C-A	11.22								
C-B	0.01	8.34	0.002		0.00	0.00	0.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	0.09	5.94	0.015		0.02	0.02	0.2		0.17
A-B	0.03								
A-C	8.70								
A-D	0.39	8.38	0.046		0.06	0.05	0.8		0.13
D-AB	0.83	7.17	0.115		0.20	0.13	2.0		0.16
D-BC	2.12	5.53	0.383		1.22	0.64	10.3		0.30
C-D	0.82								
C-A	9.40								
C-B	0.01	8.79	0.001		0.00	0.00	0.0		0.11

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES 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 D-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.1	
08.15	0.2	
08.30	0.5	*
08.45	0.7	*
09.00	0.2	
09.15	0.1	

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.6	*
08.15	1.1	*
08.30	3.6	****
08.45	4.3	****
09.00	1.2	*
09.15	0.6	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	9.6	6.4	2.1	0.22	2.1	0.22
A-B	2.8	1.8				
A-C	953.9	635.9				
A-D	42.7	28.4	5.8	0.14	5.8	0.14
D-AB	90.8	60.6	26.7	0.29	26.7	0.29
D-BC	232.6	155.1	158.8	0.68	158.8	0.68
C-D	89.5	59.6				
C-A	1030.9	687.3				
C-B	1.4	0.9	0.2	0.12	0.2	0.12
ALL	2454.2	1636.1	193.6	0.08	193.6	0.08

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
762.47	0.29	0.11

STREAM D-A

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

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

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
595.50	0.26	0.26	0.26	0.26

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.10	0.17	0.38	0.13

STREAM D-C

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

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

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

STREAM C-B

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing

I STREAM C-B	STREAM A-B	STREAM A-C	STREAM A-D	I
I 666.26	0.25	0.25	0.36	I

STREAM A-D				
I Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	I
I 652.51	0.24	0.35	0.24	I

B-D Stream From Left Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

B-D Stream From Right Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

D-B Stream From Left Hand Lane

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

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

I	Slope For Opposing STREAM A-C	Slope For Opposing 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 SCALE(%)	I
I A	I 100	I
I B	I 100	I
I C	I 100	I
I D	I 100	I

Demand set: 2021 'With Development' Flows - AM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.73	14.59	9.73
ARM B	15.00	45.00	75.00	0.09	0.13	0.09
ARM C	15.00	45.00	75.00	10.94	16.41	10.94
ARM D	15.00	45.00	75.00	3.04	4.56	3.04

Demand set: 2021 'With Development' Flows - AM PEAK

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	0.003	0.955	0.042
		0.0	2.0	743.0	33.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.571	0.000	0.143	0.286
		4.0	0.0	1.0	2.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.920	0.001	0.000	0.079
		805.0	1.0	0.0	69.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.280	0.000	0.720	0.000
		68.0	0.0	175.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2021 'With Development' Flows - AM PEAK
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-ACD	0.09	5.65	0.016		0.00	0.02	0.2		0.18
A-B	0.03								
A-C	9.32								
A-D	0.41	8.19	0.051		0.00	0.05	0.8		0.13
D-AB	0.85	6.96	0.123		0.00	0.14	2.0		0.16
D-BC	2.20	5.24	0.419		0.00	0.69	9.5		0.32
C-D	0.87								
C-A	10.10								
C-B	0.01	8.63	0.001		0.00	0.00	0.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-ACD	0.10	4.71	0.022		0.02	0.02	0.3		0.22
A-B	0.03								
A-C	11.13								
A-D	0.49	7.67	0.064		0.05	0.07	1.0		0.14
D-AB	1.02	5.88	0.173		0.14	0.21	3.0		0.21
D-BC	2.62	4.40	0.596		0.69	1.36	18.3		0.54
C-D	1.03								
C-A	12.06								
C-B	0.01	8.15	0.002		0.00	0.00	0.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-ACD	0.13	3.40	0.038		0.02	0.04	0.6		0.31
A-B	0.04								
A-C	13.63								
A-D	0.61	6.96	0.087		0.07	0.09	1.4		0.16
D-AB	1.25	1.23	1.012		0.21	3.98	38.0		3.03
D-BC	3.21	3.23	0.995		1.36	6.56	67.3		1.91
C-D	1.27								
C-A	14.77								
C-B	0.02	7.48	0.002		0.00	0.00	0.0		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-ACD	0.13	3.31	0.039		0.04	0.04	0.6		0.31
A-B	0.04								
A-C	13.63								
A-D	0.61	6.96	0.087		0.09	0.09	1.4		0.16
D-AB	1.25	1.34	0.933		3.98	4.99	67.8		3.96
D-BC	3.21	3.22	0.996		6.56	9.28	120.0		2.98
C-D	1.27								
C-A	14.77								
C-B	0.02	7.48	0.002		0.00	0.00	0.0		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-ACD	0.10	4.60	0.023		0.04	0.02	0.4		0.22
A-B	0.03								
A-C	11.13								
A-D	0.49	7.67	0.064		0.09	0.07	1.1		0.14
D-AB	1.02	5.09	0.200		4.99	0.26	7.5		0.29
D-BC	2.62	4.39	0.597		9.28	1.65	48.0		1.01
C-D	1.03								
C-A	12.06								
C-B	0.01	8.14	0.002		0.00	0.00	0.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-ACD	0.09	5.63	0.016		0.02	0.02	0.2		0.18
A-B	0.03								
A-C	9.32								
A-D	0.41	8.19	0.051		0.07	0.05	0.8		0.13
D-AB	0.85	6.90	0.124		0.26	0.14	2.2		0.17
D-BC	2.20	5.24	0.419		1.65	0.75	12.2		0.34
C-D	0.87								
C-A	10.10								
C-B	0.01	8.63	0.001		0.00	0.00	0.0		0.12

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES 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-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.1	
08.15	0.2	
08.30	4.0	****
08.45	5.0	*****
09.00	0.3	
09.15	0.1	

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.7	*
08.15	1.4	*
08.30	6.6	*******
08.45	9.3	*********
09.00	1.6	**
09.15	0.7	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	9.6	6.4	2.3	0.24	2.3	0.24
A-B	2.8	1.8				
A-C	1022.7	681.8				
A-D	45.4	30.3	6.5	0.14	6.5	0.14
D-AB	93.6	62.4	120.5	1.29	120.5	1.29
D-BC	240.9	160.6	275.3	1.14	275.4	1.14
C-D	95.0	63.3				
C-A	1108.0	738.7				
C-B	1.4	0.9	0.2	0.12	0.2	0.12
ALL	2619.3	1746.2	404.8	0.15	404.8	0.15

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
762.47	0.29	0.11

STREAM D-A

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

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

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
595.50	0.26	0.26	0.26	0.26

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.10	0.17	0.38	0.13

STREAM D-C

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

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

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

STREAM C-B

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing

I STREAM C-B	STREAM A-B	STREAM A-C	STREAM A-D	I
I 666.26	0.25	0.25	0.36	I

STREAM A-D				
I Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	I
I 652.51	0.24	0.35	0.24	I

B-D Stream From Left Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

B-D Stream From Right Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

D-B Stream From Left Hand Lane

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

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

I	Slope For Opposing STREAM A-C	Slope For Opposing 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 SCALE(%)	I
I A	I 100	I
I B	I 100	I
I C	I 100	I
I D	I 100	I

Demand set: 2016 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	8.68	13.01	8.68
ARM B	15.00	45.00	75.00	0.06	0.09	0.06
ARM C	15.00	45.00	75.00	13.00	19.50	13.00
ARM D	15.00	45.00	75.00	2.03	3.04	2.03

Demand set: 2016 Base Flows - PM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.001	0.902	0.097
		0.0	1.0	626.0	67.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.600	0.000	0.400	0.000
		3.0	0.0	2.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.858	0.000	0.000	0.142
		892.0	0.0	0.0	148.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.346	0.000	0.654	0.000
		56.0	0.0	106.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR DEMAND SET 2016 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	0.06	6.69	0.009		0.00	0.01	0.1		0.15
A-B	0.01								
A-C	7.85								
A-D	0.84	7.69	0.109		0.00	0.12	1.8		0.15
D-AB	0.70	7.15	0.098		0.00	0.11	1.6		0.15
D-BC	1.33	4.86	0.274		0.00	0.37	5.1		0.28
C-D	1.86								
C-A	11.19								
C-B	0.00	8.04	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	0.07	5.78	0.013		0.01	0.01	0.2		0.18
A-B	0.01								
A-C	9.38								
A-D	1.00	7.07	0.142		0.12	0.16	2.4		0.16
D-AB	0.84	6.36	0.132		0.11	0.15	2.2		0.18
D-BC	1.59	3.97	0.400		0.37	0.64	8.9		0.41
C-D	2.22								
C-A	13.36								
C-B	0.00	7.64	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	0.09	4.45	0.021		0.01	0.02	0.3		0.23
A-B	0.02								
A-C	11.49								
A-D	1.23	6.22	0.198		0.16	0.24	3.5		0.20
D-AB	1.03	4.48	0.230		0.15	0.29	4.1		0.29
D-BC	1.95	2.75	0.706		0.64	1.95	24.1		1.03
C-D	2.72								
C-A	16.37								
C-B	0.00	7.09	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	0.09	4.43	0.021		0.02	0.02	0.3		0.23
A-B	0.02								
A-C	11.49								
A-D	1.23	6.22	0.198		0.24	0.24	3.7		0.20
D-AB	1.03	4.24	0.242		0.29	0.31	4.6		0.31
D-BC	1.95	2.75	0.707		1.95	2.14	30.9		1.18
C-D	2.72								
C-A	16.37								
C-B	0.00	7.09	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	0.07	5.76	0.013		0.02	0.01	0.2		0.18
A-B	0.01								
A-C	9.38								
A-D	1.00	7.07	0.142		0.24	0.17	2.6		0.17
D-AB	0.84	6.29	0.133		0.31	0.16	2.4		0.18
D-BC	1.59	3.97	0.400		2.14	0.70	12.1		0.45
C-D	2.22								
C-A	13.36								
C-B	0.00	7.64	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	0.06	6.68	0.009		0.01	0.01	0.1		0.15
A-B	0.01								
A-C	7.85								
A-D	0.84	7.69	0.109		0.17	0.12	1.9		0.15
D-AB	0.70	7.13	0.099		0.16	0.11	1.7		0.16
D-BC	1.33	4.85	0.274		0.70	0.39	6.2		0.29
C-D	1.86								
C-A	11.19								
C-B	0.00	8.04	0.000		0.00	0.00	0.0		0.00

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.2
18.00	0.2
18.15	0.1

QUEUE FOR STREAM D-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.3
17.45	0.3
18.00	0.2
18.15	0.1

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.6	*
17.30	2.0	**
17.45	2.1	**
18.00	0.7	*
18.15	0.4	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	6.9	4.6	1.3	0.19	1.3	0.19
A-B	1.4	0.9				
A-C	861.6	574.4				
A-D	92.2	61.5	15.8	0.17	15.8	0.17
D-AB	77.1	51.4	16.6	0.22	16.6	0.22
D-BC	145.9	97.3	87.4	0.60	87.4	0.60
C-D	203.7	135.8				
C-A	1227.8	818.5				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
ALL	2616.6	1744.4	121.1	0.05	121.1	0.05

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
762.47	0.29	0.11

STREAM D-A

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

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

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
595.50	0.26	0.26	0.26	0.26

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.10	0.17	0.38	0.13

STREAM D-C

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

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

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

STREAM C-B

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing

I STREAM C-B	STREAM A-B	STREAM A-C	STREAM A-D	I
I 666.26	0.25	0.25	0.36	I

STREAM A-D				
I Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	I
I 652.51	0.24	0.35	0.24	I

B-D Stream From Left Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

B-D Stream From Right Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

D-B Stream From Left Hand Lane

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

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

I	Slope For Opposing STREAM A-C	Slope For Opposing 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 SCALE(%)	I
I A	I 100	I
I B	I 100	I
I C	I 100	I
I D	I 100	I

Demand set: 2021 Base Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.32	13.99	9.32
ARM B	15.00	45.00	75.00	0.06	0.09	0.06
ARM C	15.00	45.00	75.00	13.89	20.83	13.89
ARM D	15.00	45.00	75.00	2.15	3.23	2.15

Demand set: 2021 Base Flows - PM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.001	0.905	0.094
		0.0	1.0	675.0	70.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.600	0.000	0.400	0.000
		3.0	0.0	2.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.863	0.000	0.000	0.137
		959.0	0.0	0.0	152.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.349	0.000	0.651	0.000
		60.0	0.0	112.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2021 Base Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	0.06	6.35	0.010		0.00	0.01	0.1		0.16
A-B	0.01								
A-C	8.47								
A-D	0.88	7.47	0.118		0.00	0.13	1.9		0.15
D-AB	0.75	6.90	0.109		0.00	0.12	1.7		0.16
D-BC	1.41	4.53	0.310		0.00	0.44	6.1		0.31
C-D	1.91								
C-A	12.03								
C-B	0.00	7.89	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	0.07	5.36	0.014		0.01	0.01	0.2		0.19
A-B	0.01								
A-C	10.11								
A-D	1.05	6.81	0.154		0.13	0.18	2.6		0.17
D-AB	0.90	5.98	0.150		0.12	0.17	2.5		0.20
D-BC	1.68	3.58	0.469		0.44	0.83	11.4		0.51
C-D	2.28								
C-A	14.37								
C-B	0.00	7.46	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	0.09	3.88	0.024		0.01	0.02	0.3		0.26
A-B	0.02								
A-C	12.39								
A-D	1.28	5.90	0.218		0.18	0.27	3.9		0.22
D-AB	1.10	2.25	0.489		0.17	0.86	11.1		0.81
D-BC	2.06	2.27	0.905		0.83	3.91	42.1		1.87
C-D	2.79								
C-A	17.60								
C-B	0.00	6.87	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	0.09	3.83	0.024		0.02	0.02	0.4		0.27
A-B	0.02								
A-C	12.39								
A-D	1.28	5.90	0.218		0.27	0.28	4.1		0.22
D-AB	1.10	1.13	0.971		0.86	3.56	36.9		2.98
D-BC	2.06	2.27	0.907		3.91	5.03	67.9		2.61
C-D	2.79								
C-A	17.60								
C-B	0.00	6.86	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	0.07	5.25	0.014		0.02	0.01	0.2		0.19
A-B	0.01								
A-C	10.11								
A-D	1.05	6.81	0.154		0.28	0.18	2.9		0.17
D-AB	0.90	5.70	0.158		3.56	0.19	4.6		0.23
D-BC	1.68	3.57	0.469		5.03	0.95	21.7		0.70
C-D	2.28								
C-A	14.37								
C-B	0.00	7.46	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	0.06	6.34	0.010		0.01	0.01	0.2		0.16
A-B	0.01								
A-C	8.47								
A-D	0.88	7.47	0.118		0.18	0.13	2.1		0.15
D-AB	0.75	6.87	0.110		0.19	0.12	1.9		0.16
D-BC	1.41	4.52	0.311		0.95	0.46	7.5		0.33
C-D	1.91								
C-A	12.03								
C-B	0.00	7.89	0.000		0.00	0.00	0.0		0.00

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	0.3	
17.45	0.3	
18.00	0.2	
18.15	0.1	

QUEUE FOR STREAM D-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	0.9	*
17.45	3.6	****
18.00	0.2	
18.15	0.1	

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.8	*
17.30	3.9	****
17.45	5.0	*****
18.00	0.9	*
18.15	0.5	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	6.9	4.6	1.4	0.21	1.4	0.21
A-B	1.4	0.9				
A-C	929.1	619.4				
A-D	96.3	64.2	17.5	0.18	17.5	0.18
D-AB	82.6	55.1	58.9	0.71	58.9	0.71
D-BC	154.2	102.8	156.5	1.02	156.6	1.02
C-D	209.2	139.5				
C-A	1320.0	880.0				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
ALL	2799.7	1866.4	234.3	0.08	234.4	0.08

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
762.47	0.29	0.11

STREAM D-A

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

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

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
595.50	0.26	0.26	0.26	0.26

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.10	0.17	0.38	0.13

STREAM D-C

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

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

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

STREAM C-B

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing

I STREAM C-B	STREAM A-B	STREAM A-C	STREAM A-D	I
I 666.26	0.25	0.25	0.36	I

STREAM A-D				
I Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	I
I 652.51	0.24	0.35	0.24	I

B-D Stream From Left Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

B-D Stream From Right Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

D-B Stream From Left Hand Lane

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

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

I	Slope For Opposing STREAM A-C	Slope For Opposing 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 SCALE(%)	I
I A	I 100	I
I B	I 100	I
I C	I 100	I
I D	I 100	I

Demand set: 2016 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	8.81	13.22	8.81
ARM B	15.00	45.00	75.00	0.06	0.09	0.06
ARM C	15.00	45.00	75.00	13.31	19.97	13.31
ARM D	15.00	45.00	75.00	2.03	3.04	2.03

Demand set: 2016 'With Development' Flows - PM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.001	0.904	0.095
		0.0	1.0	637.0	67.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.600	0.000	0.400	0.000
		3.0	0.0	2.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.857	0.000	0.000	0.143
		913.0	0.0	0.0	152.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.346	0.000	0.654	0.000
		56.0	0.0	106.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2016 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	0.06	6.61	0.009		0.00	0.01	0.1		0.15
A-B	0.01								
A-C	7.99								
A-D	0.84	7.61	0.110		0.00	0.12	1.8		0.15
D-AB	0.70	7.08	0.099		0.00	0.11	1.6		0.16
D-BC	1.33	4.77	0.279		0.00	0.38	5.3		0.29
C-D	1.91								
C-A	11.46								
C-B	0.00	8.01	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	0.07	5.68	0.013		0.01	0.01	0.2		0.18
A-B	0.01								
A-C	9.54								
A-D	1.00	6.98	0.144		0.12	0.17	2.4		0.17
D-AB	0.84	6.27	0.134		0.11	0.15	2.2		0.18
D-BC	1.59	3.86	0.411		0.38	0.67	9.3		0.43
C-D	2.28								
C-A	13.68								
C-B	0.00	7.60	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	0.09	4.32	0.021		0.01	0.02	0.3		0.24
A-B	0.02								
A-C	11.69								
A-D	1.23	6.11	0.201		0.17	0.25	3.6		0.20
D-AB	1.03	4.13	0.249		0.15	0.32	4.5		0.32
D-BC	1.95	2.62	0.743		0.67	2.22	26.7		1.17
C-D	2.79								
C-A	16.75								
C-B	0.00	7.04	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	0.09	4.30	0.021		0.02	0.02	0.3		0.24
A-B	0.02								
A-C	11.69								
A-D	1.23	6.11	0.201		0.25	0.25	3.7		0.20
D-AB	1.03	3.79	0.271		0.32	0.36	5.3		0.36
D-BC	1.95	2.61	0.744		2.22	2.48	35.6		1.39
C-D	2.79								
C-A	16.75								
C-B	0.00	7.04	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	0.07	5.66	0.013		0.02	0.01	0.2		0.18
A-B	0.01								
A-C	9.54								
A-D	1.00	6.98	0.144		0.25	0.17	2.6		0.17
D-AB	0.84	6.17	0.136		0.36	0.16	2.5		0.19
D-BC	1.59	3.86	0.411		2.48	0.73	13.1		0.49
C-D	2.28								
C-A	13.68								
C-B	0.00	7.60	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	0.06	6.60	0.010		0.01	0.01	0.1		0.15
A-B	0.01								
A-C	7.99								
A-D	0.84	7.61	0.110		0.17	0.13	1.9		0.15
D-AB	0.70	7.06	0.100		0.16	0.11	1.7		0.16
D-BC	1.33	4.76	0.279		0.73	0.40	6.4		0.30
C-D	1.91								
C-A	11.46								
C-B	0.00	8.01	0.000		0.00	0.00	0.0		0.00

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.3
18.00	0.2
18.15	0.1

QUEUE FOR STREAM D-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.3
17.45	0.4
18.00	0.2
18.15	0.1

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.7	*
17.30	2.2	**
17.45	2.5	**
18.00	0.7	*
18.15	0.4	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-ACD	6.9	4.6	1.3	0.19	1.3	0.19
A-B	1.4	0.9				
A-C	876.8	584.5				
A-D	92.2	61.5	16.1	0.17	16.1	0.17
D-AB	77.1	51.4	17.8	0.23	17.8	0.23
D-BC	145.9	97.3	96.3	0.66	96.3	0.66
C-D	209.2	139.5				
C-A	1256.7	837.8				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
ALL	2666.1	1777.4	131.6	0.05	131.6	0.05

* 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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
762.47	0.29	0.11

STREAM D-A

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

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

STREAM B-A

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM D-A	Slope For Opposing STREAM D-B
595.50	0.26	0.26	0.26	0.26

Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM D-C
0.10	0.17	0.38	0.13

STREAM D-C

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

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

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

STREAM C-B

Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing

I STREAM C-B	STREAM A-B	STREAM A-C	STREAM A-D	I
I 666.26	0.25	0.25	0.36	I

STREAM A-D				
I Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B	Slope For Opposing STREAM C-D	I
I 652.51	0.24	0.35	0.24	I

B-D Stream From Left Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

B-D Stream From Right Hand Lane

I Intercept For STREAM B-D	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-D	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-B	I
I 595.50	0.26	0.26	0.10	0.38	I

I	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing	Slope For Opposing	I
I	0.17	0.17			I

D-B Stream From Left Hand Lane

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

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

I	Slope For Opposing STREAM A-C	Slope For Opposing 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 SCALE(%)	I
I A	I 100	I
I B	I 100	I
I C	I 100	I
I D	I 100	I

Demand set: 2021 'With Development' Flows - PM PEAK

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

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.46	14.19	9.46
ARM B	15.00	45.00	75.00	0.06	0.09	0.06
ARM C	15.00	45.00	75.00	14.21	21.32	14.21
ARM D	15.00	45.00	75.00	2.15	3.23	2.15

Demand set: 2021 'With Development' Flows - PM PEAK

TURNING PROPORTIONS
TURNING COUNTS
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15	ARM A	0.000	0.001	0.906	0.092
		0.0	1.0	686.0	70.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.600	0.000	0.400	0.000
		3.0	0.0	2.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.862	0.000	0.000	0.138
		980.0	0.0	0.0	157.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.349	0.000	0.651	0.000
		60.0	0.0	112.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR DEMAND SET 2021 'With Development' Flows - PM PEAK
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-ACD	0.06	6.27	0.010		0.00	0.01	0.1		0.16
A-B	0.01								
A-C	8.61								
A-D	0.88	7.39	0.119		0.00	0.13	1.9		0.15
D-AB	0.75	6.82	0.110		0.00	0.12	1.8		0.16
D-BC	1.41	4.43	0.317		0.00	0.45	6.2		0.32
C-D	1.97								
C-A	12.30								
C-B	0.00	7.86	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-ACD	0.07	5.25	0.014		0.01	0.01	0.2		0.19
A-B	0.01								
A-C	10.28								
A-D	1.05	6.72	0.156		0.13	0.18	2.7		0.18
D-AB	0.90	5.86	0.153		0.12	0.18	2.6		0.20
D-BC	1.68	3.47	0.484		0.45	0.88	12.0		0.54
C-D	2.35								
C-A	14.68								
C-B	0.00	7.42	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-ACD	0.09	3.74	0.025		0.01	0.02	0.4		0.27
A-B	0.02								
A-C	12.59								
A-D	1.28	5.78	0.222		0.18	0.28	4.0		0.22
D-AB	1.10	1.27	0.870		0.18	2.70	27.7		2.41
D-BC	2.06	2.13	0.964		0.88	4.70	48.4		2.21
C-D	2.88								
C-A	17.98								
C-B	0.00	6.82	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-ACD	0.09	3.64	0.025		0.02	0.03	0.4		0.28
A-B	0.02								
A-C	12.59								
A-D	1.28	5.78	0.222		0.28	0.28	4.2		0.22
D-AB	1.10	1.15	0.956		2.70	4.26	53.2		3.81
D-BC	2.06	2.13	0.965		4.70	6.47	84.7		3.27
C-D	2.88								
C-A	17.98								
C-B	0.00	6.82	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-ACD	0.07	5.12	0.015		0.03	0.02	0.2		0.20
A-B	0.01								
A-C	10.28								
A-D	1.05	6.72	0.156		0.28	0.19	2.9		0.18
D-AB	0.90	5.45	0.165		4.26	0.20	5.5		0.25
D-BC	1.68	3.46	0.485		6.47	1.02	27.7		0.85
C-D	2.35								
C-A	14.68								
C-B	0.00	7.42	0.000		0.00	0.00	0.0		0.00

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-ACD	0.06	6.26	0.010		0.02	0.01	0.2		0.16
A-B	0.01								
A-C	8.61								
A-D	0.88	7.39	0.119		0.19	0.14	2.1		0.15
D-AB	0.75	6.79	0.111		0.20	0.13	2.0		0.17
D-BC	1.41	4.43	0.317		1.02	0.48	7.8		0.34
C-D	1.97								
C-A	12.30								
C-B	0.00	7.85	0.000		0.00	0.00	0.0		0.00

QUEUE FOR STREAM B-ACD

TIME SEGMENT ENDING	NO. OF VEHICLES 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 A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	0.3	
17.45	0.3	
18.00	0.2	
18.15	0.1	

QUEUE FOR STREAM D-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	2.7	***
17.45	4.3	****
18.00	0.2	
18.15	0.1	

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.9	*
17.30	4.7	*****
17.45	6.5	******
18.00	1.0	*
18.15	0.5	

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES 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

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-ACD	6.9	4.6	1.5	0.21	1.5	0.21
A-B	1.4	0.9				
A-C	944.2	629.5				
A-D	96.3	64.2	17.9	0.19	17.9	0.19
D-AB	82.6	55.1	92.8	1.12	92.8	1.12
D-BC	154.2	102.8	186.8	1.21	186.8	1.21
C-D	216.1	144.1				
C-A	1348.9	899.3				
C-B	0.0	0.0	0.0	0.00	0.0	0.00
ALL	2850.6	1900.4	299.0	0.10	299.0	0.10

* 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 ==========

Printed at 13:07:04 on 17/10/2012]

APPENDIX 12

Residential Travel Plan Framework

THE STRATEGIC LAND GROUP LIMITED

PROPOSED RESIDENTIAL DEVELOPMENT

HENTHORN ROAD

CLITHEROE

Residential Travel Plan Framework

October 2012

Croft Transport Solutions
6th Floor, Quay House, Quay Street, Manchester, M3 3JE
Tel: 0161 827 1740 Email: info@croftts.co.uk www.croftts.co.uk
Registered in England Number: 7373729

REPORT CONTROL

Document:	Residential Travel Plan Framework
Project:	Proposed Residential Development, Henthorn Road, Clitheroe
Client:	The Strategic Land Group Limited
Job Number:	0248
File Origin:	Z:\projects\0248 Henthorn Road, Clitheroe\Docs\Reports\Residential Travel Plan Framework.docx

Document Checking:

Primary Author	MTC	**Initialled:**
Contributor	PJW	**Initialled:**
Review By	PJW	**Initialled:**

Issue	Date	Status	Checked for Issue
1	22-10-12	Final	
2			
3			
4			

Contents

1 INTRODUCTION 2

1.2 Development Site and its Location 2
1.3 Development Proposals 2
1.4 The Travel Plan 3
1.5 Residents Travel Pack 3

2 NON-CAR ACCESSIBILITY OF THE SITE 4

2.1 Introduction 4
2.2 Access by Foot 4
2.3 Access by Cycle 6
2.4 Access by Bus 6
2.5 Access by Rail 7
2.6 Accessibility Questionnaire 8
2.7 Summary 9

3 MANAGEMENT MEASURES 10

3.1 Introduction 10

4 TRAVEL PLAN TARGETS 13

4.1 Introduction 13
4.2 Potential Targets 13
4.3 Plan Monitoring and Assessment 14

(See Transport Assessment for Plans)

1 INTRODUCTION

1.1.1 Croft have been commissioned by The Strategic Land Group Limited to produce a Transport Assessment to assist the Local Planning Authority's determination of an outline planning application for a residential development off Henthorn Road in Clitheroe.

1.1.2 This document will set out the principle strategies that will be put in place once the development is open and residents are occupying the dwellings, to encourage sustainable travel to the development.

1.1.3 The Department for Transport has issued two separate guides on the preparation of travel plans which are of relevance to this proposed development, these documents are as follows;

- Making Residential Travel Plans Work - Published in September 2005.
- Good Practice Guidelines: Delivering Travel Plans through the Planning Process – Published in April 2009.

1.2 Development Site and its Location

1.2.1 The application site is located approximately a kilometre south west of Clitheroe town centre.

1.2.2 The site is bound to the north by Henthorn Road, whilst to the west and south the site is bound by agricultural land. To the east the site is bound by existing residential properties that are accessed from Temple View.

1.3 Development Proposals

1.3.1 It is proposed to develop the site to provide approximately 144 residential units. The residential development will comprise a mix of house types and the final details of this will be confirmed as the application progresses.

1.3.2 It is proposed that vehicular access into the development site will be provided off Henthorn Road via a new priority controlled junction, which will be located around 60 metres south west of the eastern boundary of the site.

1.3.3 The proposed masterplan is shown in the **Plan 2** of the Transport Assessment.

1.4 The Travel Plan

1.4.1 The aims of the Travel Plans are as follows:

- To encourage residents and visitors to use alternatives to the private car;
- To increase the awareness of the advantages and potential for travel by more environmentally friendly modes, and
- To introduce a package of management measures that will facilitate travel by modes of transport other than the private car;

1.5 Residents Travel Pack

1.5.1 The principle measure will consist of a Residents Travel Pack containing relevant material to promote non-car modes of travel and the provision of certain physical measures. This will be discussed further in Section 3.

2 NON-CAR ACCESSIBILITY OF THE SITE

2.1 Introduction

2.1.1 Within the recently released National Planning Policy Framework (NPPF), there is a presumption in favour of sustainable development. Transport is recognised as having an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives. The NPPF therefore advises that decisions should take account of the opportunities for sustainable transport modes.

2.1.2 New proposals should therefore be located and designed where practical to have access to high quality public transport facilities and to give priority to pedestrian and cycle movements. Planning policies are also to aim for a balance of land uses within their area so that people can be encouraged to minimise journey lengths for employment and other activities.

2.1.3 Having regard to this, the accessibility of the site has been considered by the following modes of transport.

- Accessibility on foot.
- Accessibility by cycle.
- Accessibility by bus.
- Accessibility by rail.

2.2 Access by Foot

2.2.1 Pedestrian access into the site will be afforded via the proposed vehicular access point off Henthorn Road.

2.2.2 The internal highway infrastructure has been designed using the guidance within Manual for Streets 2 and as such ensures that the vehicular speeds through the site will be low and the design of the internal infrastructure will ensure a pedestrian friendly environment with areas of pedestrian priority to ensure safe and efficient movement for pedestrians through the site.

2.2.3 In the vicinity of the site, footways of at least 2 metres in width are located on Henthorn Road. These routes provide excellent connectivity from the site into Clitheroe town centre.

2.2.4 Within the Institution of Highways and Transportation (IHT) document, entitled "Guidelines for Providing for Journeys on Foot", a distance of 800 metres is identified as the preferred maximum distance for town centres, whilst a distance of 2 kilometres is defined as a preferred maximum for commuting.

2.2.5 As such, in order to assess the extent of the area considered accessible by foot, catchments of 800 metres and 2 kilometres have been prepared and are shown within **Plan 4**.

2.2.6 As can be seen from Plan 4 the 800 metre catchment encompasses the majority of the southern residential areas in Clitheroe and also includes the local services located within, such as Clitheroe Edisford Primary School and Henthorn Park.

2.2.7 The 2 kilometre catchment extends to include the majority of Clitheroe including the town centre and its associated retail, employment and education facilities.

2.2.8 As detailed earlier in this report, a series of improvements are proposed as part of the Gladman appeal site proposals, these improvements will greatly enhance pedestrian and cycle accessibility in the vicinity of the site. The improvements can be seen within Appendix 1.

2.2.9 It is therefore considered that the existing and proposed pedestrian infrastructure will facilitate safe and direct pedestrian linkages between the site and local destinations.

2.3 Access by Cycle

2.3.1 An alternative mode of travel to the site could be achieved by bicycle.

2.3.2 Regional Cycle Route 91 is located approximately 2.2 kilometres north-east of the site, this route is known as the 'Lancashire cycle way' and is ideal for recreational cycling providing numerous links to destinations across Lancashire.

2.3.3 The internal site layout will ensure that vehicular speeds are low and as such this would assist cycle accessibility.

2.3.4 The site can, therefore, be considered as being accessible by cycle.

2.4 Access by Bus

2.4.1 The nearest bus stops to the site are located on Garnett Road approximately 400 metres north east to the site. In addition a hail and ride service is available from Kenilworth Drive/Kemple View approximately 300 metres from the site.

2.4.2 Safe pedestrian access to these bus stops is provided for via the existing pedestrian footways located on Henthorn Road and Kemple View. The proposed improvements to the pedestrian infrastructure as part of the development of the site, and the Gladman proposals, will enhance pedestrian access to these bus stops.

2.4.3 A summary of the services available from the bus stops within 400 metres of the edge of the development site is provided in Table 5.1 below:

Service No	Route	Monday – Friday Frequency per hour				Sat	Sun
		AM Peak	Midday	PM Peak	Eve		
2	Sawley – Grindleton – Chatburn – Clitheroe – Low Moor	2	2	2	0	2	1

Table 5.1 - Existing Bus Services Operation in the Vicinity of the Site

2.4.4 As can be seen from Table 5.1, the bus stops located within 400 metres of the site provide up to 2 services per hour in the peak periods. These services provide access to destinations such as the town centre, Grindleton, Sawley and Chatburn.

2.4.5 In addition, there have been discussions with the local bus companies, in particular during the recent appeal on the Gladman site, the proposals seek to improve frequencies in the area and provide an additional bus stop located within the Gladman site.

2.4.6 It is therefore concluded that the proposed development site is accessible by bus.

2.5 Access by Rail

2.5.1 The nearest rail station to the site is Clitheroe, which as Plan 4 shows, is located within the 2 kilometre pedestrian catchment. Pedestrian access to the rail station is provided via the B6243 Junction Lane then Castle View.

2.5.2 Clitheroe rail station provides an hourly service to destinations including Blackburn, Bolton and Manchester.

2.5.3 It is therefore concluded that the proposed development site it accessible by rail.

2.6 Accessibility Questionnaire

2.6.1 In order to undertake a more quantitative approach to the consideration of the site's accessibility, the accessibility questionnaire produced by Lancashire County Council and included within the SPG "Access and Parking", has been completed. The completed questionnaire for the proposed residential development is contained within **Appendix 2**.

2.6.2 Following the completion of the accessibility questionnaire the proposed development accumulated a score of 14 which places the development within the "Low Accessibility" bracket.

2.6.3 To improve the accessibility of the site, a Travel Plan will be submitted to the Local Authority. This document will assist in creating a wider choice of travel modes to residents and in particular influence local trips within the immediate area.

2.6.4 It should be noted that the site benefits from scoring high for the distance to the nearest bus stop, however it scored medium in the frequency of buses as it only provides up to 2 services per hour. That said, as previously mentioned there have been discussions with the local bus companies, in particular during the recent appeal on the Gladman site which could improve frequencies in the area and potentially provide an additional bus stop even closer to the site.

2.6.5 In addition, following the implementation of the Gladman development proposals the site will be within approximately 400 metres of a play area, this will further increase the site's accessibility score.

2.6.6 As the Gladman appeal site includes measures that will have a beneficial impact on the accessibility score of the site, a 'proposed' situation accessibility questionnaire has been completed. The situation for the proposed development site following the implementation of the Gladman development is likely to result in a score of around 20 points establishing a 'Medium' level of accessibility for the site. The existing and proposed accessibility questionnaires are contained in Appendix 2.

2.7 Summary

2.7.1 The proposals have been considered in terms of accessibility by non car modes for the proposed residential development. The following conclusions can be drawn from this section of the Report:

- The site is situated close to Clitheroe town centre, which will provide the scope for a high degree of linked walk trips between the development and the retail, commercial and employment in Clitheroe.

- The site is accessible by foot and by cycle however these links will be substantially improved as part of development proposals. The existing and improved infrastructure will provide excellent pedestrian linkages with the surrounding retail and employment areas.

- There are up to 2 bus services per hour during peak periods to destinations including the town centre which provides good accessibility to the site by bus. In addition, the site's accessibility by bus will be enhanced by development proposals at the Gladman appeal site.

- Although Clitheroe rail station only provides one service per hour, it travels to Manchester Piccadilly which provides access to many more services to a much wider range of destinations.

- In order to undertake a more quantitative approach to the consideration of the site's accessibility, an accessibility questionnaire has been completed. The site will score 'Medium' on the questionnaire following the implementation of development proposals, in particular, proposals related to the Gladman appeal site.

3 MANAGEMENT MEASURES

3.1 Introduction

3.1.1 The following Travel Plan measures will be considered:

i) Residents Travel Pack

ii) Travel awareness and Information

iii) Promotion of Lift Share Scheme

iv) Encouraging Walking/Cycling

Residents Travel Pack

3.1.2 It is an important and emerging principle in residential developments that where appropriate the implementation of travel plan type measures can establish a pattern of travel behaviour favouring sustainable modes from the inception of the development.

3.1.3 The proposed development is very well placed for encouraging access on foot or by cycle to a wide range of facilities. Similarly the existence of a local bus service will encourage choice of public transport as a primary means of travel for the development.

3.1.4 However in order to build on these locational advantages it is recommended that a Residents Travel Pack is provided for the occupants of each new residential unit. Prior to the occupation of the first unit.

3.1.5 The contents of such a travel pack would include information relating to walking and cycling routes in the area and the provision of up to date bus and rail timetable information in addition an identification of the location of nearby amenity facilities as part of the information supplied to prospective purchasers.

3.1.6 The adoption of such travel packs is recognised as being an important element in ensuring that access by non-car modes is promoted from the earliest occupation of a residential development.

3.1.7 It is also proposed that the Travel Plan Co-ordinator will investigate the potential to provide discounted season tickets for new residents.

3.1.8 Within the Residents Welcome Pack, residents will be encouraged to consider ways in which to reduce their need to travel such as Home delivery for shopping and working from home. The first issue of the Residents Travel Pack will be the responsibility of the house builder.

3.1.9 The provision of a Residents Travel Pack will form part of the terms of the sale or occupancy of the dwellings and therefore they are aware in advance of what is required of them within the Travel Plan framework.

Travel Awareness and Information

3.1.10 Residents will be made aware of the existence of the Travel Plan and a copy of the plan will be made available to residents on purchasing a property.

3.1.11 As mentioned previously, Residents Travel Packs will be issued for new residents moving into the development and prospective buyers will be made aware of the travel plan when viewing properties.

Promotion of Car Share Scheme

3.1.12 The Travel Plan Co-ordinator will promote the use of car sharing via registering on the Liftshare website. It allows users to register their details, where they are travelling to in the Clitheroe area if they are offering a lift or need a lift to their destination.

3.1.13 The website can be found at the following location www.liftshare.com.

3.1.14 Travel Plan Co-ordinator will also investigate the viability of establishing a Car Sharing Club for the residential development, however, it is likely that the promotion of the lift share scheme will be more beneficial to local residents.

Encouraging Walking/Cycling

3.1.15 Residents will be provided with information and advice concerning safe pedestrian and cycle routes to the site through the WalkBUDi/BikeBUDi schemes. Information on these schemes is available on the following websites www.walkbudi.com/www.bikebudi.com.

3.1.16 The WalkBUDi/BikeBUDi schemes are part of the National Lift Share Network and are simple and free to use. They simply match individuals with others walking or cycling the same way so they can walk or cycle together. The matches are displayed in both table and map format, allowing the user to easily find the most suitable people.

3.1.17 The WalkBUDi/BikeBUDi schemes aim to help individuals to meet others wanting to travel the same way. They can be used for regular trips such as walking or cycling to the office or going to the station as well as making a journey safer.

3.1.18 As part of these schemes the provision of walking/cycling signage will be investigated by the Travel Plan Co-ordinator, this signage could provide details on the routes and distances to and from local services and amenities in the area.

4 TRAVEL PLAN TARGETS

4.1 Introduction

4.1.1 This section of the Travel Plan will provide details of the targets against which the success of the Plan in achieving its objectives will be measured.

4.1.2 The targets are designed to be quantifiable, be relevant to both measures and objectives identified in the Plan and to include timescale.

4.1.3 In order to set the targets further information (e.g. through a travel survey) may have to be obtained in order to establish against which to set the targets. This information will be related to existing patterns of movement (i.e. the proportion of residents who travel to their workplace by non-car mode) and may be obtained from sources such as the National Travel Survey and the National Census.

4.1.4 Suitable targets for reducing the need to travel by private car will be set and agreed with Lancashire County Council and included in the final Travel Plan for the development.

4.2 Potential Targets

4.2.1 Targets which according to the DfT may potentially be included in the Travel Plan include the following:

- Car trips per household - targets set on the basis of predicted trip rates for the development.
- Uptake of alternatives - Targets for bus patronage, membership and use of car clubs, registration and participation in car share scheme, cycle counts and pedestrian counts.

- Car ownership and mode of travel - trip based targets may be supplemented by targets related to car ownership, travel to work by mode and travel to school by mode.

- Travel Plan awareness targets - for example, a target can be established to ensure a significant percentage of residents are aware of the travel plan and its purpose.

4.3 Plan Monitoring and Assessment

4.3.1 DfT best practice guidelines state that monitoring of the travel plan should normally take place on the following basis:

- Early on in the occupation period of the site - for example, triggered by 75% occupancy to provide the information base for the review of the plan;

- Annually or at least every two years thereafter to provide ongoing information on the impact of the plan. Monitoring should take place over a wide range of time periods to reflect the different pattern of journeys that can be generated by residential development.

4.3.2 The monitoring could include items such as:

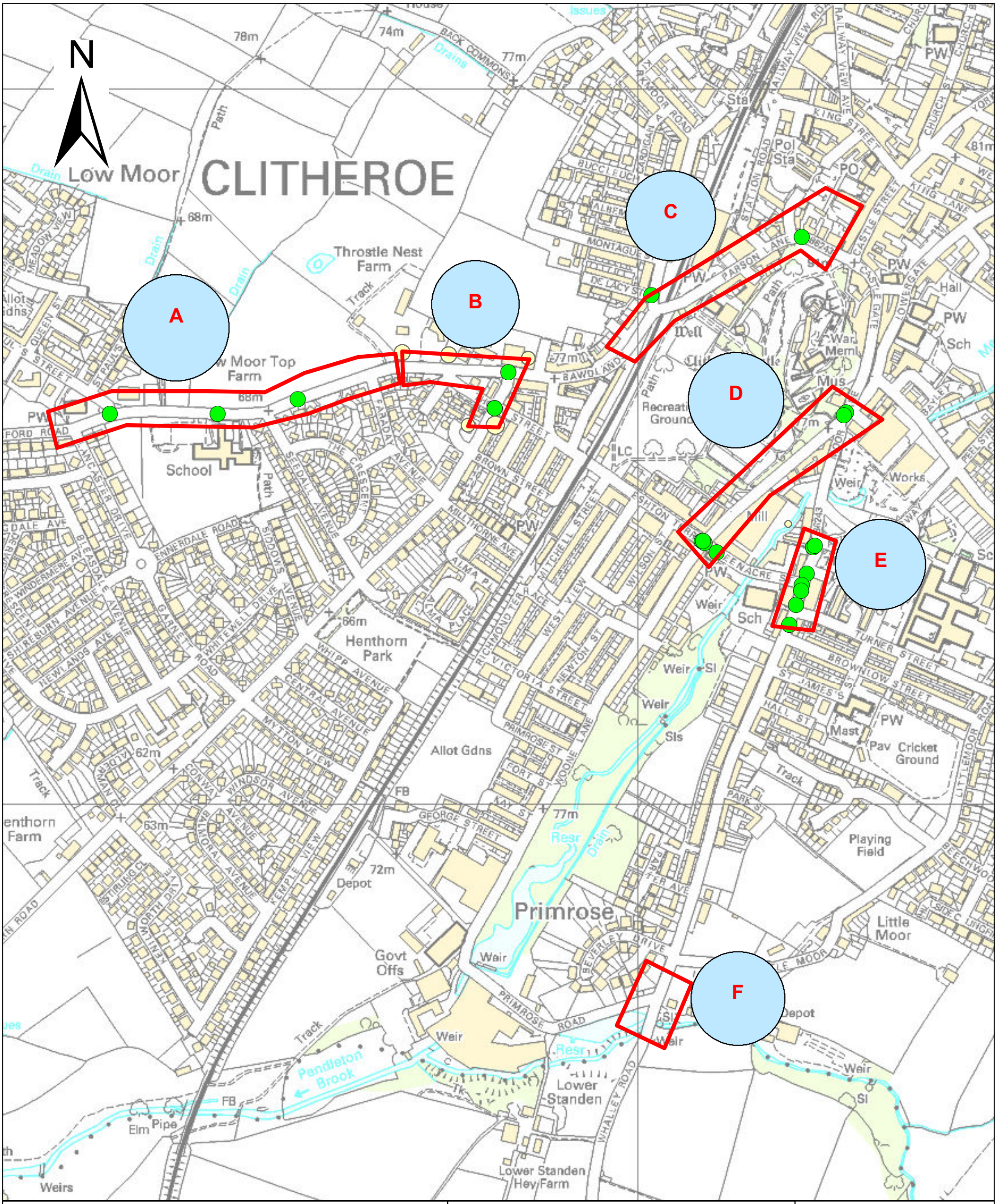
- Full residential surveys to be completed between every 2 to 3 years and snap shot surveys to be completed every 6 to 12 months.

- Feedback from bus operators to establish demand for local bus services.

4.3.3 Consideration will be given on how best to monitor and measure the success of the Travel Plan measures when preparing the final Travel Plan for the development. Appropriate monitoring arrangements will be discussed and agreed with Lancashire County Council.

APPENDIX 13

Accident Data



This Map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationery Office (C) Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to Prosecution or civil proceedings. Lancashire County Council Licence No. 100023320

PERSONAL INJURY COLLISIONS

1:5,000

Lancashire County Council

SIX SELECTED AREAS OF CLITHEROE

Between 01 07 2007 and 30 06 2012

CURRENT_ACCIDENTS.ID IN (153791, 154845, 179029)

a.ID



5-Line Summary

Id : 153791 **Reference No :** EN0700118	**District :** Ribble Valley	**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Slight	**First Road :** B6243 : Edisford Road	Car	Driver or rider	Slight
Accident Date : Sunday 7-Oct-2007 09:18	**Grid Ref :** 373261 : 441546	Pedal Cycle		
Lighting Condition : Daylight: street lights present	**Distance/Direction :** Unknown			
Surface Condition : Dry	**Second Road :** U23126 : St Pauls Street			
Weather Condition : Fine without high winds	**Town :** Clitheroe			
Id : 154845 **Reference No :** EM0700058	**District :** Ribble Valley	**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Slight	**First Road :** B6243 : Edisford Road	Car	Pedestrian	Slight
Accident Date : Tuesday 6-Nov-2007 15:20	**Grid Ref :** 373524 : 441566			
Lighting Condition : Darkness: street lights present and lit	**Distance/Direction :** 300 South			
Surface Condition : Oil or Diesel	**Second Road :** U23221 : Henthorn Road			
Weather Condition : Unknown	**Town :** Clitheroe			
Id : 179029 **Reference No :** EN0800154	**District :** Ribble Valley	**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Slight	**First Road :** B6243 : Edisford Road	Agricultural vehicle (includes diggers etc.)	Driver or rider	Slight
Accident Date : Monday 8-Dec-2008 09:00	**Grid Ref :** 373412 : 441546	Car		
Lighting Condition : Daylight: street lights present	**Distance/Direction :** 150 East			
Surface Condition : Wet / Damp	**Second Road :** : St Pauls Street			
Weather Condition : Raining without high winds	**Town :** Clitheroe			

CURRENT_ACCIDENTS.ID IN (196175, 199043, 204465)

a.ID



5-Line Summary

Id : 196175	**Reference No :** EN0900095	**District :** Ribble Valley		**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Slight		**First Road :** U23221 : Henthorn Road		Car	Vehicle or pillion passenger	Slight
Accident Date : Sunday 4-Oct-2009 18:20		**Grid Ref :** 373800 : 441554		Car		
Lighting Condition : Daylight: street lights present		**Distance/Direction :**	Unknown			
Surface Condition : Wet / Damp		**Second Road :** U23166 : Thorn Street				
Weather Condition : Fine without high winds		**Town :** Clitheroe				
Id : 199043	**Reference No :** EN1000022	**District :** Ribble Valley		**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Serious		**First Road :** U23221 : Henthorn Road		Pedal Cycle	Driver or rider	Serious
Accident Date : Friday 19-Feb-2010 21:19		**Grid Ref :** 373800 : 441554				
Lighting Condition : Darkness: street lights present and lit		**Distance/Direction :**	Unknown			
Surface Condition : Wet / Damp		**Second Road :** U23166 : Thorn Street				
Weather Condition : Fine without high winds		**Town :** Clitheroe				
Id : 204465	**Reference No :** EN1000071	**District :** Ribble Valley		**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Slight		**First Road :** B6243 : The Bawdlands		Car	Driver or rider	Slight
Accident Date : Saturday 3-Jul-2010 02:55		**Grid Ref :** 373819 : 441604		Car		
Lighting Condition : Darkness: street lights present and lit		**Distance/Direction :**	Unknown	Car		
Surface Condition : Dry		**Second Road :** U23221 : Henthorn Road				
Weather Condition : Fine without high winds		**Town :** Clitheroe				

CURRENT_ACCIDENTS.ID IN (228945, 166640)

a.ID



5-Line Summary

Id : 166640	**Reference No :** EN0800140	**District :** Ribble Valley	**Vehicle Type**	**Casualty Type**	**Severity**
	Severity : Slight	**First Road :** B6243 : Parson Lane	Car	Pedestrian	Slight
	Accident Date : Monday 3-Nov-2008 20:36	**Grid Ref :** 374229 : 441793			
	Lighting Condition : Darkness: street lights present and lit	**Distance/Direction :** Unknown			
	Surface Condition : Dry	**Second Road :** U : Castlegate			
	Weather Condition : Fine without high winds	**Town :** Clitheroe			
Id : 228945	**Reference No :** EN1100050	**District :** Ribble Valley	**Vehicle Type**	**Casualty Type**	**Severity**
	Severity : Slight	**First Road :** U23026 : Castle View	Car	Driver or rider	Slight
	Accident Date : Monday 16-May-2011 07:20	**Grid Ref :** 374019 : 441712	Car		
	Lighting Condition : Daylight: street lights present	**Distance/Direction :** Unknown			
	Surface Condition : Wet / Damp	**Second Road :** B6243 : Bawdlands			
	Weather Condition : Raining without high winds	**Town :** Clitheroe			

CURRENT_ACCIDENTS.ID IN (154854, 196339, 235076, 235072, 153054, 198280)

a.ID



5-Line Summary

Id : 153054 **Reference No :** EN0700109	**District :** Ribble Valley	**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Slight	**First Road :** U23223 : Eshton Terrace	Car	Driver or rider	Slight
Accident Date : Monday 17-Sep-2007 18:55	**Grid Ref :** 374091 : 441368	Car	Vehicle or pillion passenger	Slight
Lighting Condition : Daylight: no street lighting	**Distance/Direction :** Unknown	Car	Vehicle or pillion passenger	Slight
Surface Condition : Dry	**Second Road :** U23225 : Woone Lane			
Weather Condition : Fine without high winds	**Town :** Clitheroe			
Id : 154854 **Reference No :** EN0700132	**District :** Ribble Valley	**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Slight	**First Road :** B6478 : Moor Lane	Goods vehicle 7.5 tonnes mgw and over	Driver or rider	Slight
Accident Date : Friday 9-Nov-2007 14:00	**Grid Ref :** 374291 : 441547	Other motor vehicle		
Lighting Condition : Daylight: street lights present	**Distance/Direction :** Unknown			
Surface Condition : Dry	**Second Road :** : Lowergate			
Weather Condition : Fine without high winds	**Town :** Clitheroe			
Id : 196339 **Reference No :** EN0900098	**District :** Ribble Valley	**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Slight	**First Road :** B6478 : Moor Lane	Car	Driver or rider	Slight
Accident Date : Monday 19-Oct-2009 13:55	**Grid Ref :** 374288 : 441543			
Lighting Condition : Daylight: street lights present	**Distance/Direction :** 20 North East			
Surface Condition : Wet / Damp	**Second Road :** U23225 : Woone Lane			
Weather Condition : Fine without high winds	**Town :** Clitheroe			
Id : 198280 **Reference No :** EN0900017	**District :** Ribble Valley	**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Slight	**First Road :** U23222 : Greenacre Street	Car	Pedestrian	Slight
Accident Date : Tuesday 10-Mar-2009 16:15	**Grid Ref :** 374110 : 441352			
Lighting Condition : Daylight: street lights present	**Distance/Direction :** Unknown			
Surface Condition : Dry	**Second Road :** U : Rear Alley Woone Lane			
Weather Condition : Fine without high winds	**Town :** Clitheroe			
Id : 235072 **Reference No :** EN1200012	**District :** Ribble Valley	**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Serious	**First Road :** U23222 : Greenacre Street	Car	Vehicle or pillion passenger	Serious
Accident Date : Saturday 4-Feb-2012 16:44	**Grid Ref :** 374093 : 441365	Other motor vehicle		
Lighting Condition : Daylight: street lights present	**Distance/Direction :** Unknown			
Surface Condition : Snow	**Second Road :** U23225 : Woone Lane			
Weather Condition : Snowing without high winds	**Town :** Clitheroe			
Id : 235076 **Reference No :** EN1200018	**District :** Ribble Valley	**Vehicle Type**	**Casualty Type**	**Severity**
Severity : Slight	**First Road :** U23223 : Eshton Terrace	Car	Driver or rider	Slight
Accident Date : Sunday 19-Feb-2012 09:19	**Grid Ref :** 374089 : 441368	Car		
Lighting Condition : Daylight: no street lighting	**Distance/Direction :** Unknown			
Surface Condition : Dry	**Second Road :** U23225 : Woone Lane			
Weather Condition : Fine without high winds	**Town :** Clitheroe			

CURRENT_ACCIDENTS.ID IN (167313, 169375, 200513, 154857, 228849, 205696, 236042)

a.ID

AREA E

5-Line Summary

Id	Reference No	District	First Road	Grid Ref	Distance/Direction	Second Road	Town	Severity	Accident Date	Lighting Condition	Surface Condition	Weather Condition	Vehicle Type	Casualty Type	Severity
154857	EN0700135	Ribble Valley	A671 : Whalley Road	374212 : 441250	Unknown	:	Clitheroe	Slight	Sunday 11-Nov-2007 01:36	Darkness: street lights present and lit	Wet / Damp	Fine with high winds	Car Car Taxi / Private hire car	Driver or rider	Slight
167313	EN0800018	Ribble Valley	A671 : Whalley Road	374236 : 441322	Unknown	U23222 : Greenacre Street	Clitheroe	Slight	Monday 18-Feb-2008 11:15	Daylight: street lights present	Dry	Fine without high winds	Car Pedal Cycle	Driver or rider	Slight
169375	EN0800008	Ribble Valley	A671 : Whalley Road	374229 : 441306	Unknown	U23222 : Greenacre Street	Clitheroe	Slight	Monday 21-Jan-2008 22:30	Darkness: street lights present and lit	Wet / Damp	Raining without high winds	Car Car	Driver or rider	Slight
200513	EN1000025	Ribble Valley	A671 : Whalley Road	374245 : 441359	Unknown	B6478 : Whalley Road	Clitheroe	Slight	Monday 1-Mar-2010 15:15	Daylight: street lights present	Dry	Fine without high winds	Car	Pedestrian	Slight
205696	EN1000077	Ribble Valley	A671 : Whalley Road	374221 : 441278	Unknown	U23082 : Turner Street	Clitheroe	Slight	Thursday 5-Aug-2010 20:21	Daylight: street lights present	Dry	Fine without high winds	Car	Pedestrian	Slight
228849	EN1100064	Ribble Valley	A671 : Queensway	374247 : 441361	Unknown	B6478 : Whalley Road	Clitheroe	Slight	Tuesday 21-Jun-2011 17:20	Daylight: street lights present	Dry	Fine without high winds	Goods vehicle 3.5 tonnes maximum gross weight (mgw) and under Pedal Cycle	Driver or rider	Slight

5-Line Summary

Id : 236042 **Reference No :** EN1200044
Severity : Slight
Accident Date : Thursday 19-Apr-2012 16:03
Lighting Condition : Daylight: street lights present
Surface Condition : Dry
Weather Condition : Fine without high winds

District : Ribble Valley
First Road : A671 : Whalley Road
Grid Ref : 374228 : 441298
Distance/Direction : 10 South
Second Road : U23222 : Greenacre Street
Town : Clitheroe

Vehicle Type	Casualty Type	Severity
Car	Pedestrian	Slight

Croft Transport Solutions
6th Floor, Quay House, Quay Street, Manchester, M3 3JE
Tel: 0161 827 1740 Email: info@croftts.co.uk www.croftts.co.uk
Registered in England Number: 7373729