Transport Solutions

STRATEGIC LAND GROUP

PROPOSED RESIDENTIAL DEVELOPMENT

LEE LANE

ROYSTON

Transport Assessment

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Contents

1 INTRODUCTION 3

1.1 Introduction 3

2 EXISTING CONDITIONS 4

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

3 PROPOSED DEVELOPMENT 5

3.1 Development Proposals 5
3.2 Vehicular Access 5
3.3 Pedestrian and Cycle Access 5

4 TRANSPORT PLANNING POLICY 7

4.1 Introduction 7
4.2 National Policy 7
4.3 Local Policy 9
4.4 Planning Policy Summary 11

5 NON-CAR ACCESSIBILITY OF THE SITE 12

5.1 Introduction 12
5.2 Accessibility on Foot 13
5.3 Access by Cycle 15
5.4 Access by Bus 16
5.5 Access by Rail 17
5.6 Summary 17

6 TRAFFIC IMPACT ANALYSIS 19

6.1 Introduction 19
6.2 Traffic Survey Data 19
6.3 Growthed Flows 19
6.4 Committed Development 20
6.5 Base Flows 21
6.6 Proposed Trip Distribution 21
6.7 Proposed Trip Generation 22
6.8 With Development Flows 23
6.9 Capacity Assessments 23
6.10 Capacity Assessment Summary 30

7 SMARTER TRAVEL CHOICES VIA TRAVEL PLANS 32

7.1 Introduction 32
7.2 Travel Planning Guidance 32
7.3 Residential Travel Plan 34

8 CONCLUSIONS 35

Contents

FIGURES

PLANS

Plan 1	**Site Location**
Plan 2	**Site Masterplan**
Plan 3	**Proposed Site Access Junction off B6428 Lee Lane**
Plan 4	**Pedestrian Catchment Plan**

APPENDICES

Appendix 1	**Traffic Count Data**
Appendix 2	**Trip Distribution Information**
Appendix 3	**TRICS Output - Proposed Residential Development**
Appendix 4	**ARCADY Output – B6428 Lee Lane/Site Access Junction**
Appendix 5	**LINSIG Output – B6428 Lee Lane/B6132 Station Road/B6428 Midland Road/B6132 Church Street signal Junction**
Appendix 6	**PICADY Output – A61 Wakefield Road/B6248 Shaw Lane Street Junction**
Appendix 7	**PICADY Output – A61 Wakefield Road/B6248 Lee Lane Junction**
Appendix 8	**Framework Residential Travel Plan**

1 INTRODUCTION

1.1 Introduction

1.1.1 Croft have been commissioned by Strategic Land Group to produce a Transport Assessment to assist the Local Planning Authority's determination of an outline planning application for a residential development on land to the north of the B6428 Lee Lane in the Royston area of Barnsley.

1.1.2 The application site is located approximately 1.3 kilometres west of Royston town centre. The location of the application site is shown within **Plan 1**.

1.1.3 The site is currently undeveloped. 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 up to 200 residential units. Vehicular access to the residential development site will be via a proposed roundabout off the B6428 Lee Lane. 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 development 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 contains Report's conclusions.

2 EXISTING CONDITIONS

2.1 Existing Site Information

2.1.1 The application site is located approximately 1.3 kilometres west of Royston town centre.

2.1.2 The site is currently undeveloped and is bound to the south by the B6428 Lee Lane, residential properties bound the site to the east whilst undeveloped land bounds the remainder of the site. The predominant land use in the vicinity of the site is residential with areas of open land.

2.2 Existing Highway Network

2.2.1 The B6428 Lee Lane runs in an approximate east-west direction along the frontage of the site and has an approximate carriageway width of around 6.7 metres in the vicinity of the site. Lee Lane is subject to the national speed limit, although the 30 mph speed limit begins close to the eastern boundary of the site.

2.2.2 To the west of the site the B6428 Lee Lane provides the minor arm of the A61 Wakefield Road/B6428 Lee Lane priority controlled junction. To the south the A61 Wakefield Road provides vehicular access into Barnsley. To the north, it provides the major arm of the A61 Wakefield Road/B6428 Shaw Lane priority controlled junction. To the north the A61 Wakefield Road provides vehicular access towards Wakefield, whilst the B6428 Shaw Lane provides access to the wider highway network including the M1.

2.2.3 To the east, the B6428 Lee Lane continues in an east-west alignment until it provides an arm of the signal controlled B6132 Church Street/B6428 Lee Lane Lane/B6132 Station Road/B6428 Midland Road junction. To the south the B6132 Station Road provides vehicular access to Carlton and Monk Bretton, whilst to the east the B6428 Midland Road provides vehicular access to Shafton.

2.3 Baseline Transport Data

2.3.1 The site is undeveloped and therefore does not generate any vehicle movements.

3 PROPOSED DEVELOPMENT

3.1 Development Proposals

3.1.1 It is proposed to develop the site with up to 200 residential units. The residential development will comprise a mix of house types with final details of these being submitted in a reserved matters application.

3.1.2 The proposed masterplan is displayed in **Plan 2**.

3.2 Vehicular Access

3.2.1 Vehicular access into the development site will be via the northern arm of a new four arm roundabout junction off the B6428 Lee Lane. This junction has been shown with a southern arm to serve as a potential access to the land to the south of Lee Lane. The geometric parameters used for the junction meet with current design guidance. They include an inscribed circle diameter of 40 metres, carriageway widths of at least 6.5 metres and 2 metre footways on each arm of the proposed junction.

3.2.2 In addition, although the B6428 Lee Lane is derestricted in the vicinity of the proposed development, a 30mph speed limit is in operation on Lee Lane approximately 60 metres east of the proposed roundabout. It is therefore felt there is scope to extend the 30mph speed limit past the frontage of the site and provide a 'Gateway Feature' to enhance pedestrian safety.

3.2.3 The proposed site access junction arrangement is displayed in **Plan 3**.

3.2.4 As such, the vehicular access strategy is appropriate for the purposes of this particular development.

3.3 Pedestrian and Cycle Access

3.3.1 Pedestrian and cycle access into the site will be afforded via the proposed vehicular access point off the B6428 Lee Lane which links with existing pedestrian infrastructure located within the vicinity of the site which provide excellent links to nearby amenities.

3.3.2 The internal layout of the site has been designed to provide linkages between the site and any existing right of ways located within 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 Royston is taken from the Third South Yorkshire Local Transport Plan and the emerging Barnsley Metropolitan Council Local Development Framework. 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, facilitate 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.*

- *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 local 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 The provision of a Travel Plan as part of the development and the retention of any 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 Local Policy

South Yorkshire Local Transport Plan 3 (2011 – 2026)

4.3.1 The third South Yorkshire Transport Plan (LTP) was published in March 2011 and covers the period from 2011 to 2026.

4.3.2 The four key goals set out in the LTP are as follows;

- To support economic growth.
- To enhance social inclusion and health.
- To reduce emissions.
- To maximise safety.

4.3.3 The LTP also identifies a further 26 policies that will help achieve the four key goals outlined above. As such those policies that directly relate to the proposed residential development are as follows;

Economic

- To deliver interventions required for development and regeneration.
- To develop high-quality public places.
- To focus new development along key public transport corridors and in places adjacent to existing shops and services.

Social Inclusion and Health

- To ensure public transport is accessible to all.
- To provide efficient and sustainable access to our green and recreational spaces, so that they can be enjoyed by all residents and attract tourism.

Reduce Emissions

- To encourage active travel and develop high quality cycling and walking networks.
- To provide information and travel advice for the users of all modes of transport, so that they can make informed travel choices.

Maximise Safety

- To encourage safer road use and reduce causalities on our roads.

Barnsley Local Development Framework

4.3.4 Barnsley Metropolitan Borough Council is currently in the process of developing and implementing their Local Development Framework (LDF), which will set out the vision for future development in the Barnsley area up until 2026.

4.3.5 The Core Strategy includes the following 8 objectives

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

4.3.6 In addition to the above objectives, the Core Strategy also identifies Royston as a location for future development;

"The Core Strategy policy CSP8 identifies the Principal Towns such as Royston as a priority for development and the main local focus for housing, employment, shopping, leisure, education, health and cultural activities and facilities".

4.3.7 Whilst Policy CSP10 anticipates that 1,000 new homes be provided within Royston over the plan period on sites such as the former Royston school site and other peripheral greenfield sites.

4.4 Planning Policy Summary

4.4.1 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 to 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.

5 NON-CAR ACCESSIBILITY OF THE SITE

5.1 Introduction

5.1.1 In order to accord with the aspirations of the National Planning Policy Framework (NPPF), any new proposals should extend the choice in transport and secure mobility in a way that supports sustainable development.

5.1.2 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."

5.1.3 One of the core principles of the NPPF is to 'actively manage patterns of growth to make the fullest use of public transport, walking and cycling and focus significant development in locations which are or can be made sustainable'.

5.1.4 New proposals should therefore attempt to influence the mode of travel to the development in terms of gaining a shift in modal split towards non-car modes, thus assisting in meeting the aspirations of current national and local planning policy.

5.1.5 The accessibility of the proposed site has been considered by the following modes of transport:

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

5.2 Accessibility on Foot

5.2.1 It is important to create a choice of direct, safe and attractive routes between where people live and where they need to travel in their day-to-day life. This philosophy clearly encourages the opportunity to walk whatever the journey purpose and also helps to create more active streets and a more vibrant neighbourhood.

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 It is likely that the primary pedestrian desire lines will be to the east towards the centre of Royston. A 2 metre wide pedestrian footway is provided on the southern side of Lee Lane travelling to the east and south-west of the site. This footway links to the footway provided on High Street which in turn provides a direct route into Royston 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 Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car journeys, particularly those under 2 kilometres. In addition, the DFT National Travel Survey of 2006 confirms that 78% of all trips less than a mile (1.6km) are carried out on foot.

5.2.6 **Plan 4** shows the pedestrian catchment for 800 metres and 2 kilometres from the centre of the site and provides an illustrative indication of the areas that can be reached based on a leisurely walk from the site.

5.2.7 As can be seen, the 800 metre catchment includes the residential area located east from the site as well as the Royston Summer Fields Primary School which is located approximately 650 metres from the site.

5.2.8 The 2,000 metre pedestrian catchment illustrates that the majority of the eastern residential districts of Royston including their associated local centres can be accessed.

5.2.9 Included within the 2,000 metre catchment are a number of schools and colleges, such as Royston Meadshead Primary School, Royston Parkside Primary School, St John Baptist CE Primary School and Carlton Community College.

5.2.10 It should also be noted that Notton Wood Nature Reserve and Barnsley Municipal Golf Club are within the 2,000 metre catchment.

5.2.11 In addition, to the pedestrian catchment plan, a review of the proximity of local facilities such as pharmacies/doctor's surgeries, schools (both primary and secondary) local shops/retail outlets and leisure facilities has been undertaken. The location of such facilities in relation to the site is shown in **Plan 4**.

5.2.12 As illustrated, the development site benefits from being located within close proximity to a range of local amenities with the largest choice of facilities being located around High Street.

5.2.13 Table 5.1 below, shows the distance from the edge of the site to the local food store and other nearby amenities in the vicinity of the site;

Local Amenity	Distance (metres)
Royston Summer Fields Primary School	400
Notton Wood Nature Reserve	500
Weldricks Pharmacy	600
Sainsbury's Local	1000
Barnsley Municipal Golf Club	1000
Royston Welfare Park	1000

Table 5.1 - Distance from Site to Local Facilities

5.2.14 As can be seen in the table above, the site is located within close proximity to a number of useful local amenities including primary services as well as retail and leisure facilities.

5.2.15 It is therefore considered that the existing pedestrian infrastructure will facilitate safe and direct pedestrian linkages between the site and local destinations. It is further considered that sufficient capacity exists to cater for potential increases in future pedestrian movements.

5.3 Access by Cycle

5.3.1 An alternative mode of travel to the site could be achieved by bicycle. A distance of 5 kilometres is generally accepted as a distance where cycling has the potential to replace short car journeys. This distance equates to a journey of around 25 minutes based on a leisurely cycle speed of 12 kilometres per hour and would encompass the whole of Royston and Athersley North, and parts of Cudworth and Ryhill.

5.3.2 The area surrounding the site lends itself to cycling as it's broadly flat and therefore ideal for trips by cycle.

5.3.3 In addition, a designated local cycle route is located approximately a kilometre south east of the site; this route provides excellent links to the wider National Cycle Network (National Route 67) which in turn links to surrounding places such as Wakefield, Chesterfield and Leeds, and also links up with National Route 71.

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

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

5.4 Access by Bus

5.4.1 There are 2 bus stops provided within 400 metres of the site which equates to a walking time of approximately 5 minutes, one on Lee Lane and the other on High Street. These bus stops are shown on Plan 4.

5.4.2 Safe pedestrian access to these bus stops is provided for via the existing pedestrian footways located on Lee Lane and High Street.

5.4.3 A summary of the services available from the bus stops are provided in Table 5.2 below.

Service No	Route	Monday – Friday Frequency per hour				Sat	Sun
		AM Peak	Midday	PM Peak	Eve		
57	Barnsley – Royston - Wakefield	4	4	3	1 jrny	4	1
59A	Barnsley - Wakefield	0	1	1	1	1	1

Table 5.2 - Existing Bus Services Operation in the Vicinity of the Site

5.4.4 As shown in Table 5.2, the stops on Lee Lane and High Street provide up to 5 services per hour, Monday to Saturday to destinations including Wakefield, Barnsley and Notton.

5.4.5 In order to demonstrate the level of accessibility some example bus journey times from the bus stops in the vicinity of the site are presented in Table 5.3 below;

Destination	Duration
Notton	5 minutes
Barnsley	21 minutes
Wakefield	27 minutes

Table 5.3 - Example Bus Journey Times

5.4.6 The above table demonstrates that bus journeys to Barnsley take approximately 21 minutes whilst bus journeys to Wakefield take approximately 27 minutes. This is a good level of service and provides commuter, retail and leisure opportunities from the site.

5.4.7 As such, the existing bus services are ideally placed to cater for the needs of the development's residents and visitors to numerous local and regional destinations in the area.

5.5 Access by Rail

5.5.1 Barnsley railway station is located approximately 7 kilometres to the south west of the site. The station can be accessed by cycle or via a direct bus service.

5.5.2 Barnsley railway station is located on both the Hallam and Penistone lines. The station provides 8 services per hour to destinations such as Liverpool, Huddersfield, Sheffield and Leeds.

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

5.6 Summary

5.6.1 It has been demonstrated that pedestrian and cycle infrastructure in the vicinity of the site is good.

5.6.2 The site is also accessible by public transport, with up to 5 different services per hour to places such as Wakefield and Barnsley which provides good accessibility to the site by bus.

5.6.3 The site benefits from being close to a number of useful facilities such as local shops, pharmacies and primary schools.

5.6.4 In light of the above, it is considered the site is accessible and will cater for needs of development's residents and assist in promoting a choice of travel modes other than the private car.

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 traffic impact of the proposed development reference has been made to the surveyed flows obtained as part of a recent planning application for the former Royston High School site to the east of the development site (App Ref: A/13/77891).

6.2.2 This has been supplemented by newly commissioned traffic surveys at the following junctions,

- A61 Wakefield Road/B6248 Shaw Lane priority controlled junction.
- A61 Wakefield Road/B6248 Lee Lane priority controlled junction.

6.2.3 The full traffic survey data is contained within **Appendix 1**. The AM and PM peak hours were identified as 0745 to 0845 hours and 1645 to 1745 hours. The AM and PM peak hours are shown within **Figures 1** and **2** in terms of PCU's.

6.3 Growthed Flows

6.3.1 The year of opening for the proposed development is anticipated to be 2017, therefore, and assessment of 2017 will be undertaken as will a future year of 2022 which is five years post opening and when all of the site should be completed.

6.3.2 The resultant growth factors are shown below:

- 2009 to 2017 AM Peak – 1.0439
- 2009 to 2017 PM Peak – 1.0512
- 2013 to 2017 AM Peak – 1.0407
- 2013 to 2017 PM Peak – 1.0422
- 2009 to 2022 AM Peak – 1.1201
- 2009 to 2022 PM Peak – 1.1293
- 2013 to 2022 AM Peak – 1.1166
- 2013 to 2022 PM Peak – 1.1195

6.3.3 The resultant growthed traffic flows are shown in **Figures 3** and **4** for the 2017 Weekday AM and PM peak periods whilst the 2022 growthed traffic flows are contained in **Figures 5** and **6**.

6.4 Committed Development

6.4.1 Barnsley Council has not requested that any potential committed development in the area is included within this technical analysis. However, for completeness, the recently consented planning application for a mixed-use development on the former Royston High School site has been included as a committed development (App Ref: A/13/77891).

6.4.2 The Transport Assessment submitted for the above scheme has been obtained from the Barnsley Council planning website and the flows contained within this document have been assigned to the local highway network.

6.4.3 The resultant former Royston High School site committed development flows are shown in **Figures 7** and **8** for the Weekday AM and PM Peak periods.

6.5 Base Flows

6.5.1 To calculate the 2017 Base Flows, the committed development flows displayed in Figures 7 and 8 have been added to the 2017 Growthed Flows shown in Figures 3 and 4. The resultant 2017 Base Flows for Weekday AM and PM peak periods are displayed in **Figures 9** and **10**.

6.5.2 The resultant 2022 Base Flows for Weekday AM and PM peak periods are displayed in **Figures 11** and **12**.

6.6 Proposed Trip Distribution

6.6.1 To derive the trip distribution reference has been made to the NOMIS Labour database for Royston Ward. Table 6.1 below summarises the derived trip distribution using the NOMIS data.

Derived Route	Total Vehicles	% Distribution
Within Royston	481	20%
B6248 Midland Road towards Pontefract	37	2%
Church Street towards Cudworth	204	9%
A61 (N) towards Wakefield	439	19%
A61 (S) towards Barnsley	832	36%
B6248 Shaw Lane towards Penistone	186	8%
M1 (N) towards Leeds via B6248 Shaw Lane	154	6%
Total	**2,333**	**100%**

Table 6.1 – Summary of NOMIS Data for Royston Ward and Derived Trip Distribution

6.6.2 As can be seen from Table 6.1, the interrogation of the NOMIS database states that 20% of existing vehicular trips are internal to Royston. Of the remaining 80% of journeys, 69% of these journeys would travel west along the B6248 Lee Lane to access the A61 Wakefield Road.

6.6.3 For robustness, it has been assumed that all 20% of the internal Royston ward trips would travel through the High Street/Midland Road/Church Street/Station Road junction, the distribution of these of trips has been undertaken using the observed turning proportions at the junction.

6.6.4 The proposed distribution for the AM and PM peak periods is shown in **Figure 13**.

6.7 Proposed Trip Generation

6.7.1 As previously stated, it is proposed to develop the site with up to 200 residential units.

6.7.2 In order to forecast the number of trips which the 200 dwellings were forecast to generate the TRICS 2013(b) database was analysed. Trip rates were obtained for all developments in the field "Residential – Houses Privately Owned" within the range 100 to 500 residential units.

6.7.3 The peak hour trip rates and forecast trip generation are shown within Table 6.2, whilst the full TRICS output is contained within **Appendix 3**.

Peak Hour	Trip Rates		Trip Generation	
	Arr	Dep	Arr	Dep
AM	0.155	0.411	31	82
PM	0.394	0.232	79	46

Table 6.2 - Forecast Trip Generation of Proposed Residential Development

6.7.4 As can be seen from Table 6.2 the residential development is forecast to generate a two-way total of approximately 113 trips in the AM peak hour and 125 trips in the PM peak hour.

6.7.5 In order to assign the traffic forecast to be generated by the proposed development, the trip distribution shown in Figure 13.

6.7.6 The resultant proposed residential development flows for the AM peak are shown in **Figure 14** whilst the proposed residential development flows for the PM peak are shown in **Figure 15**.

6.8 With Development Flows

6.8.1 In order to calculate the 2017 'With Development' flows, the 2017 Base Flows contained within Figures 9 and 10 were added to the development flows contained within Figures 14 and 15. The resultant 2017 'With Development' flows are contained within **Figures 16** and **17**.

6.8.2 Whilst the resultant 2022 'With Development' Flows were calculated in a similar way and are displayed in **Figures 18** and **19** for the Weekday peak periods.

6.9 Capacity Assessments

6.9.1 In order to assess the operation of the junctions, capacity assessments were undertaken at the following list of junctions:-

- B6428 Lee Lane/Site Access roundabout.
- B6428 Lee Lane/B6132 Station Road/B6428 Midland Road/B6132 Church Street signal controlled junction.
- A61 Wakefield Road/B6248 Shaw Lane priority controlled junction.
- A61 Wakefield Road/B6248 Lee Lane priority controlled junction.

B6428 Lee Lane/Site Access Junction

6.9.2 In order to assess the operation of the proposed B6428 Lee Lane/Site Access roundabout the ARCADY 7 program was utilised.

6.9.3 Assessments were undertaken using the 2017 and 2022 'With Development' flows, the results of which are summarised within Table 6.3 with the full results contained within **Appendix 4**.

Arm	2017 With Development				2022 With Development			
	AM Peak		PM Peak		AM Peak		PM Peak	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
B6428 Lee Lane (e)	0.35	1	0.29	0	0.37	1	0.31	0
Potential Site Access (s)	0.00	0	0.00	0	0.00	0	0.00	0
B6428 Lee Lane (w)	0.21	0	0.29	0	0.22	0	0.30	0
Proposed Site Access (n)	0.06	0	0.04	0	0.06	0	0.04	0

Table 6.3 - Summary of ARCADY Output for B6428 Lee Lane/Site Access – 2017 and 2022 'With Development' Scenarios

6.9.4 As can be seen from Table 6.3, the proposed B6428 Lee Lane/Site Access roundabout 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.

B6428 Lee Lane/B6132 Station Rd/B6428 Midland Rd/B6132 Church St Junction

6.9.5 The operation of the above junction was tested using the LINSIG 3 program. Assessments were undertaken using the 2017 and 2022 Base and 'With Development, the results of which are summarised within Tables 6.4 and 6.5 with the full results contained within **Appendix 5**.

Arm	2017 Base				2017 With Development			
	AM Peak		PM Peak		AM Peak		PM Peak	
	DOS	Max Q	DOS	Max Q	DOS	Max Q	DOS	Max Q
B6428 Midland Road	80.3	12	90.8	15	83.0	11	92.8	17
B6132 Church Street	80.1	12	91.6	16	82.4	13	94.0	18
B6132 Station Road	46.8	6	73.1	9	46.8	6	76.3	9
B6428 Lee Lane	80.7	9	92.5	15	83.6	8	94.8	17

Table 6.4 - Summary of LINSIG Output for B6428 Lee Lane/B6132 Station Road/B6428 Midland Road/B6132 Church Street - 2017 Base and 'With Development' Scenarios

Arm	2022 Base				2022 With Development			
	AM Peak		PM Peak		AM Peak		PM Peak	
	DOS	Max Q	DOS	Max Q	DOS	Max Q	DOS	Max Q
B6428 Midland Road	87.1	13	98.0	20	87.8	13	98.1	20
B6132 Church Street	85.6	14	95.4	20	89.3	16	100.3	27
B6132 Station Road	48.7	6	77.8	9	49.7	7	93.2	12
B6428 Lee Lane	85.7	9	99.2	21	88.5	11	99.3	20

Table 6.5 - Summary of LINSIG Output for B6428 Lee Lane/B6132 Station Road/B6428 Midland Road/B6132 Church Street - 2022 Base and 'With Development' Scenarios

6.9.6 As can be seen in Tables 6.4 and 6.5 the junction is forecast to operate within its theoretical capacity in the 2017 and 2022 Base scenarios.

6.9.7 With the addition of the proposed development traffic, the junction is forecast to operate around its theoretical capacity with minimal increases in the DOS and Mean Max Queue.

6.9.8 It should be noted that even with the robust assumption that all Royston development traffic will travel through the junction, the actual overall impact of the proposed development on the junction is minimal with a forecast percentage increase in traffic of between 2.4% in both the AM peak and PM peak periods.

6.9.9 It is therefore concluded that the proposed development will have a minimal impact on the operation on the junction.

A61 Wakefield Road/B6248 Shaw Lane Junction

6.9.10 The operation of the above junction was tested using the PICADY program.

6.9.11 Assessments were undertaken using the 2017 and 2022 Base and 'With Development; the results of which are summarised within Tables 6.6 and 6.7 with the full results contained within **Appendix 6**.

Arm	2017 Base				2017 With Development			
	AM Peak		PM Peak		AM Peak		PM Peak	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
B6428 Shaw Lane Left Turn	1.039	8	1.220	9	1.071	10	1.270	10
B6428 Shaw Lane Right Turn	1.028	16	1.201	43	1.060	19	1.257	53
A61 Wakefield Road Right Turn	0.136	0	0.211	0	0.139	0	0.212	0

Table 6.6 - Summary of PICADY Output for A61 Wakefield Road/B6428 Shaw Lane Junction - 2017 Base and 'With Development' Scenarios

Arm	2022 Base				2022 With Development			
	AM Peak		PM Peak		AM Peak		PM Peak	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
B6428 Shaw Lane Left Turn	1.168	14	1.245	14	1.203	16	1.352	16
B6428 Shaw Lane Right Turn	1.153	31	1.356	70	1.186	35	1.415	82
A61 Wakefield Road Right Turn	0.153	0	0.234	0	0.157	0	0.236	0

Table 6.7 - Summary of PICADY Output for A61 Wakefield Road/B6428 Shaw Lane Junction - 2022 Base and 'With Development' Scenarios

6.9.12 As can be seen in Tables 6.6 and 6.7 the A61 Wakefield Road/B6428 Shaw Lane junction is forecast to operate in excess of its actual capacity in both of the 2017 and 2022 Base scenarios and as well as the 'With Development' scenarios.

6.9.13 On site observations indicate that there is some vehicle queuing on the B6428 Shaw Lane in the peak periods but the levels were minimal with a maximum of just 6 vehicles, these queues caused minimal congestion as they were for a short period of time. It is therefore felt that the PICADY model is exaggerating the forecast level of queuing at the junction.

6.9.14 In addition, when the RFC exceeds a value of 1.00 it provides unreliable results with exaggerated levels of queuing and therefore the forecast level of queuing in the Base and 'With Development' scenarios should be treated with caution especially as the actual overall impact of the proposed development on the junction is minimal with a forecast percentage increase in traffic of between 2.3% in AM peak and 2.9% in PM peak. The proposed development is forecast to result in just 37 additional two-way trips in the AM peak and 42 two-way trips in the PM peak and therefore would result in less than one vehicle per minute during the peak hours.

6.9.15 It is therefore concluded that the proposed development will have a minimal impact on the operation on the junction.

A61 Wakefield Road/B6248 Lee Lane Junction

6.9.16 The operation of the above junction was tested using the PICADY program.

6.9.17 Assessments have been also undertaken using the 2017 and 2022 Base and 'With Development' flows, the results of which are summarised within Tables 6.8 and 6.9 with the full results contained within **Appendix 7**.

Arm	2013 Base				2013 With Development			
	AM Peak		PM Peak		AM Peak		PM Peak	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
B6428 Lee Lane Left Turn	1.133	8	0.526	1	1.243	15	0.993	6
B6428 Lee Lane Right Turn	1.112	30	0.822	6	1.217	48	0.981	11
A61 Wakefield Road Right Turn	0.140	0	0.300	0	0.163	0	0.359	1

Table 6.8 - Summary of PICADY Output for A61 Wakefield Road/B6428 Lee Lane Junction - 2017 Base and 'With Development' Scenarios

Arm	2022 Base				2022 With Development			
	AM Peak		PM Peak		AM Peak		PM Peak	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
B6428 Lee Lane Left Turn	1.263	13	0.994	5	1.310	21	1.106	10
B6428 Lee Lane Right Turn	1.235	51	0.982	11	1.349	73	1.088	22
A61 Wakefield Road Right Turn	0.151	0	0.387	1	0.176	0	0.388	1

Table 6.9 - Summary of PICADY Output for A61 Wakefield Road/B6428 Lee Lane Junction - 2022 Base and 'With Development' Scenarios

6.9.18 As can be seen in Tables 6.8 and 6.9 the A61 Wakefield Road/B6428 Lee Lane junction is forecast to operate in excess or close to its actual capacity in both of the 2017 and 2022 Base scenarios and as well as the 'With Development' scenarios.

6.9.19 As with the Shaw Lane junction, 0n site observations indicate that there is some vehicle queuing on the B6428 Lee Lane in the peak periods but the levels were minimal with a maximum of just 6 vehicles, these queues caused minimal congestion as they were for a short period of time. It is therefore felt that the PICADY model is exaggerating the forecast level of queuing at the junction

6.9.20 As detailed previously when the RFC exceeds a value of 1.00 it provides unreliable results with exaggerated levels of queuing and therefore the forecast level of queuing in the Base and 'With Development' scenarios should be treated with caution especially as the actual overall impact of the proposed development on the junction is minimal, with a forecast increase in traffic of just 78 two-way vehicle movements in the AM peak and 86 two-way trips in the PM peak, which equates to just over one additional vehicle per minute during the peak periods.

6.9.21 It is therefore concluded that the proposed development will have a minimal impact on the operation on the junction.

6.10 Capacity Assessment Summary

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

- The proposed B6428 Lee Lane site access roundabout junction has been designed to accord with highway design standards and will have more than sufficient capacity to accommodate the proposed development traffic.

- The B6428 Lee Lane/B6132 Station Road/B6428 Midland Road/B6132 Church Street signal controlled junction is forecast to operate close to its capacity in the Base scenarios but the addition of the development traffic will have a minimal impact on its operation given the fact that the analysis is extremely robust as it includes all of the Royston development traffic.

- The A61 Wakefield Road/B6428 Shaw Lane priority controlled is forecast to operate in excess of its capacity in the Base scenarios but the addition of the development traffic will have a minimal impact on its operation.

- The A61 Wakefield Road/B6428 Lee Lane priority controlled is forecast to operate in excess or close to its capacity in the Base scenarios but the addition of the development traffic will have a minimal impact on its operation.

6.10.2 It is therefore concluded that the development proposals will result in a minimal impact on the local highway network and can be accommodated on the network.

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 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 public transport, on foot and by bicycle.

7.3.2 A Framework Residential Travel Plan has been prepared and is presented in **Appendix 8**.

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 CONCLUSIONS

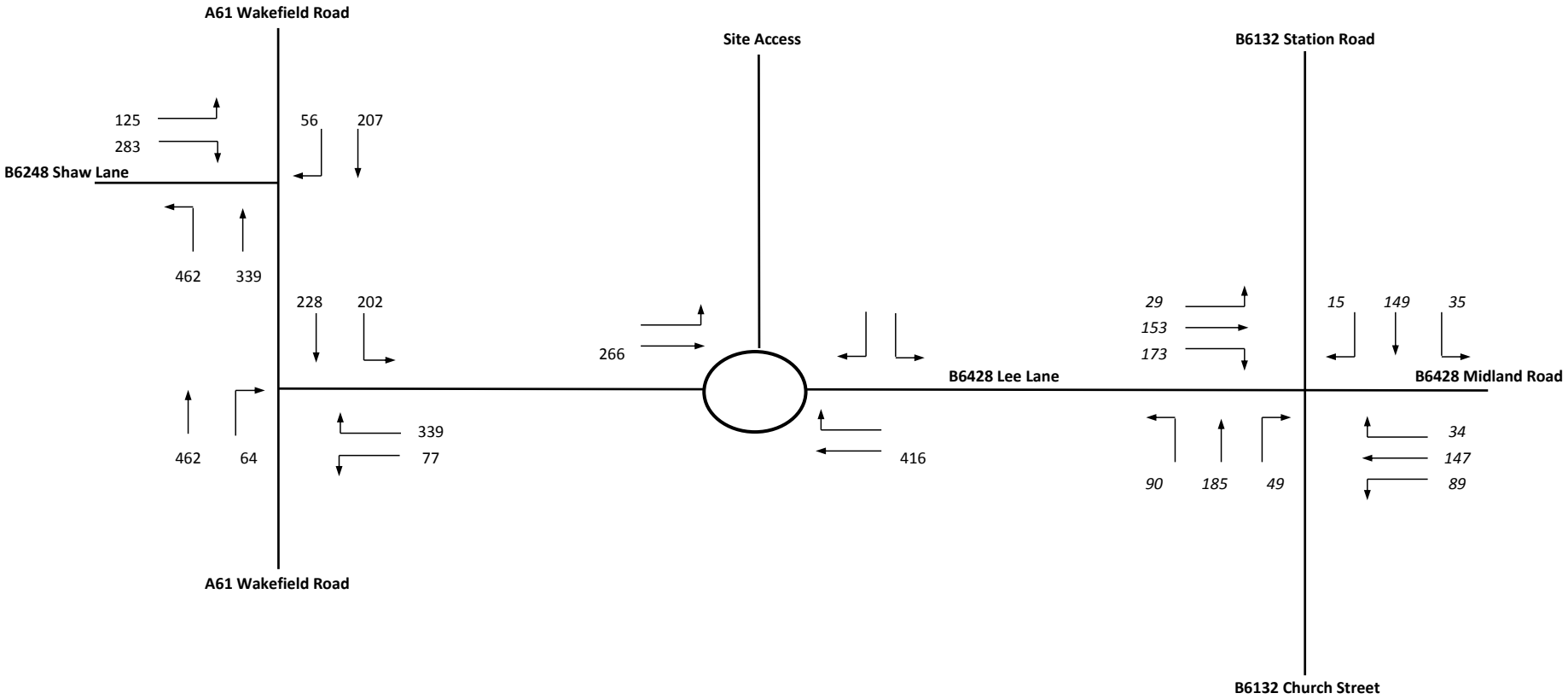
8.1.1 This Report has considered proposals for a residential development on land to the north of Lee Lane in the Royston area of Barnsley.

8.1.2 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 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 within of Royston.
- The proposed development is ideally located to encourage journeys by bus via the bus services available in the vicinity of the site.
- A Framework Travel Plan will be implemented to encourage the use of non-car modes.
- The traffic impact assessment indicates that the proposed development would be able to be accommodated on the local highway network.
- The proposals will have a minimal impact on the local highway network.

8.1.3 In conclusion, the proposals will provide a sustainable development in Transport terms and planning permission should be granted in accordance with the Framework.

FIGURES

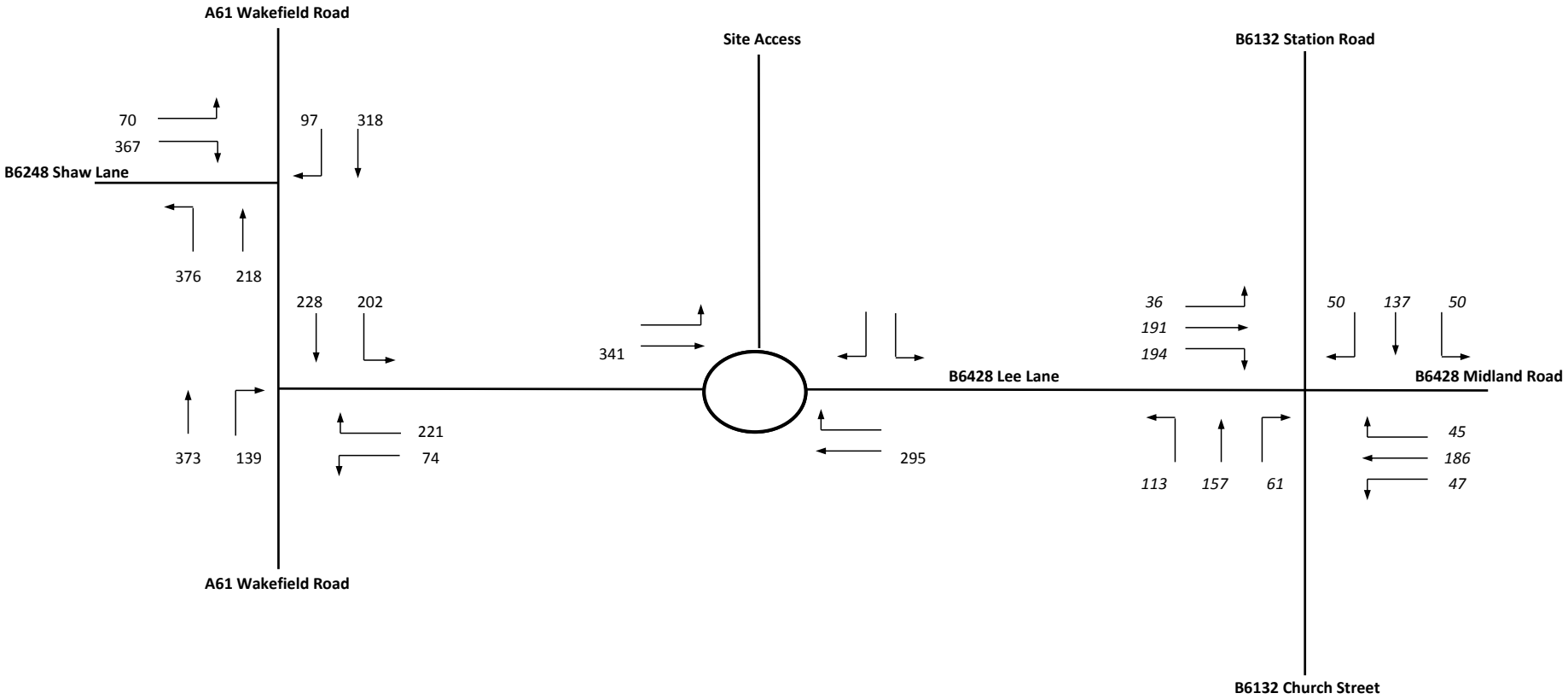


$$$ *2009 Traffic Counts From Pell Frischman TA*

$$$ 2013 Traffic Counts

Figure 1 - Weekday AM Peak Surveyed Flows

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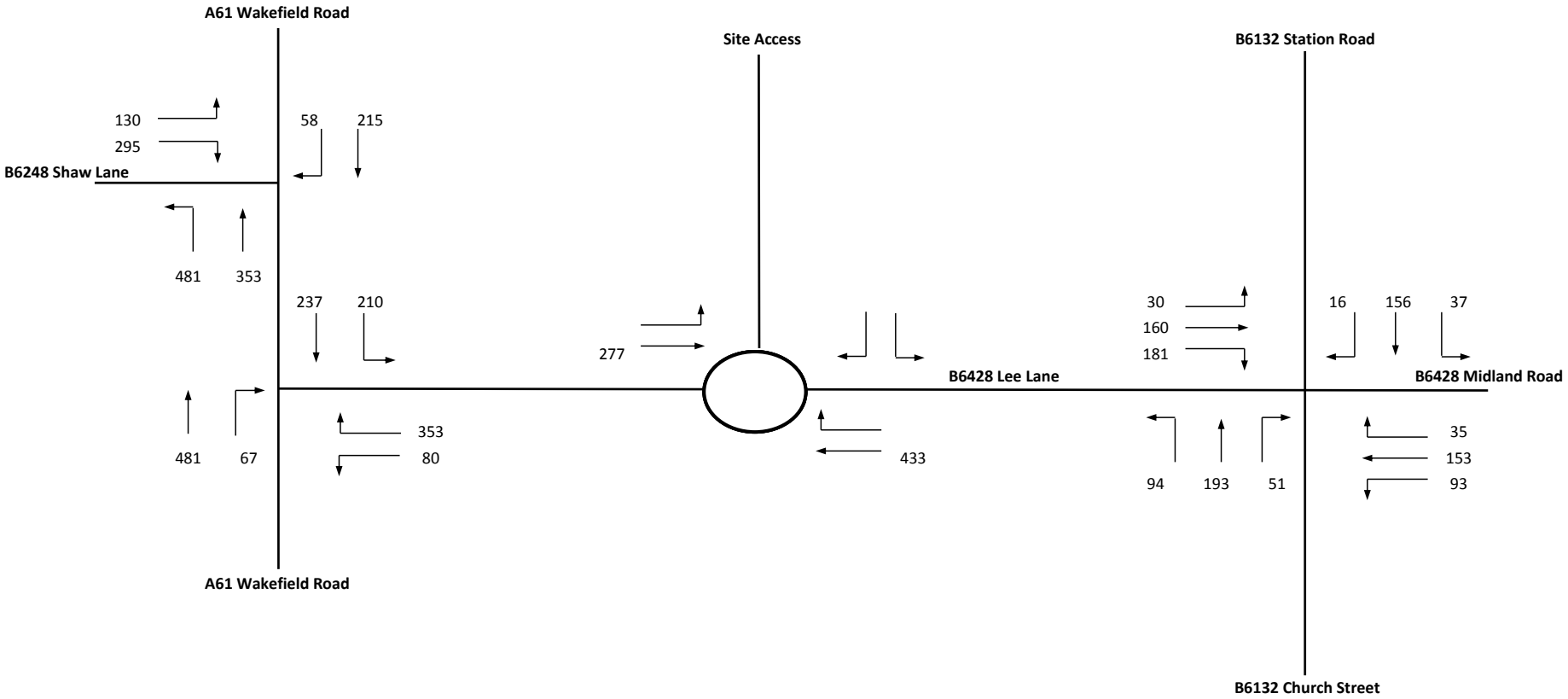


$$$ *2009 Traffic Counts From Pell Frischman TA*

$$$ 2013 Traffic Counts

Figure 2 - Weekday PM Peak Surveyed Flows

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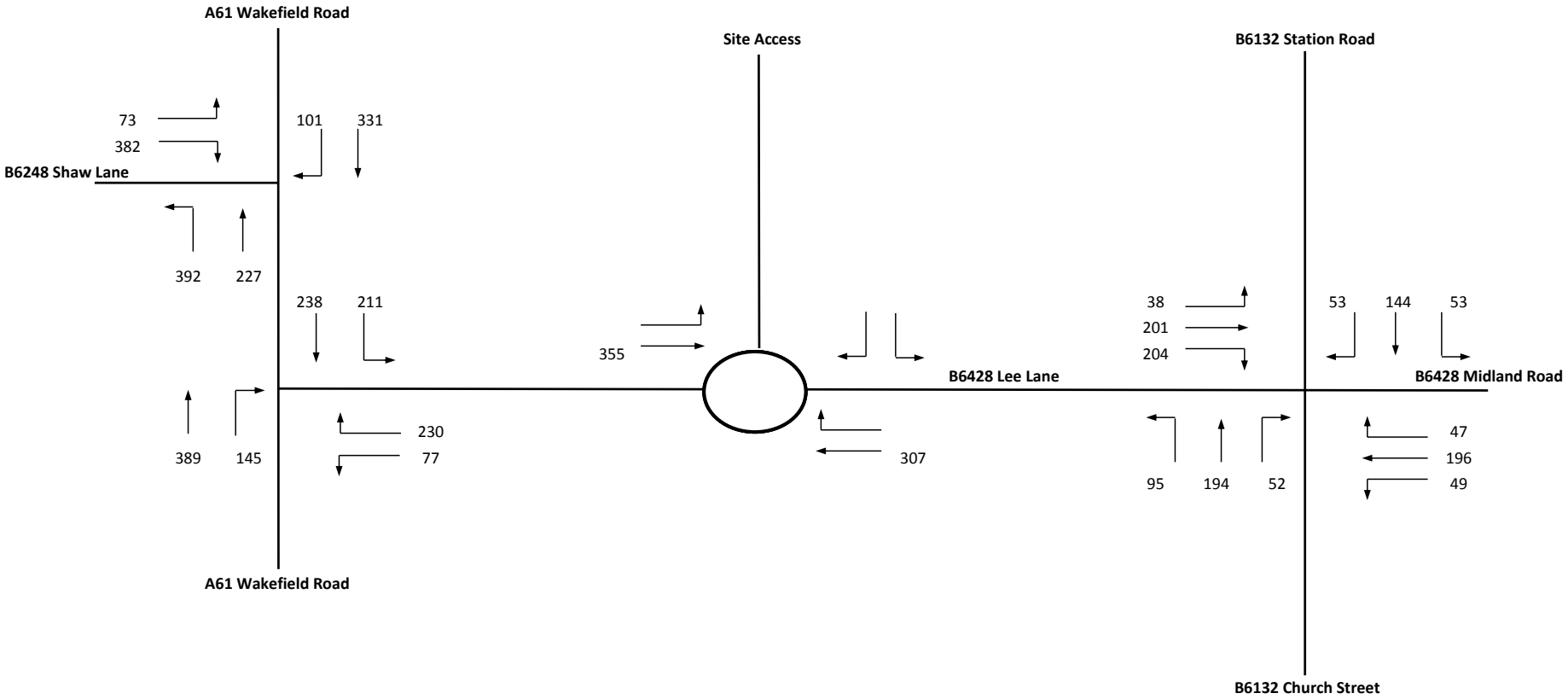
2009 - 2017 NTEM Adjusted Growth Factor	1.044
2013 - 2017 NTEM Adjusted Growth Factor	1.041

Figure 3 - Weekday AM Peak 2017 Growthed Flows

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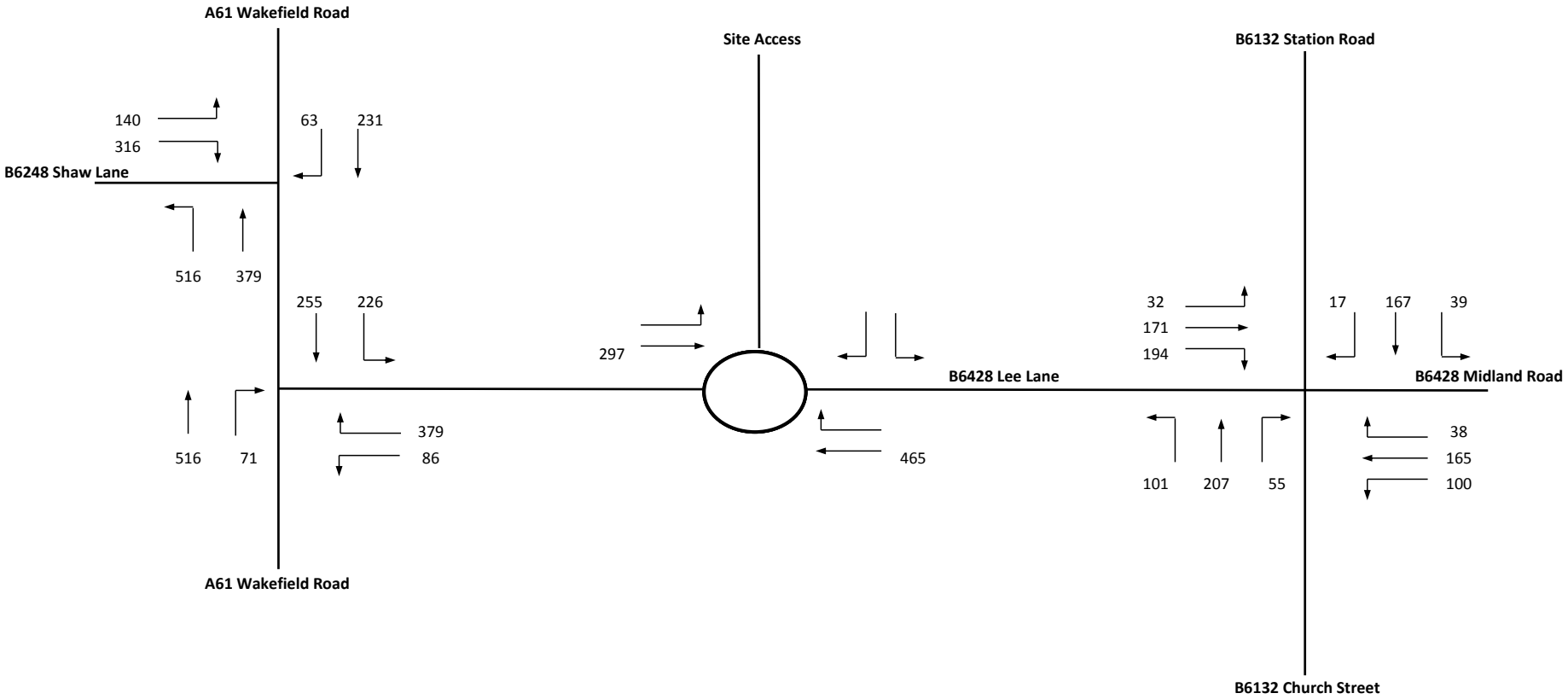
2009 - 2017 NTEM Adjusted Growth Factor	1.051
2013 - 2017 NTEM Adjusted Growth Factor	1.042

Figure 4 - Weekday PM Peak
2017 Growthed Flows

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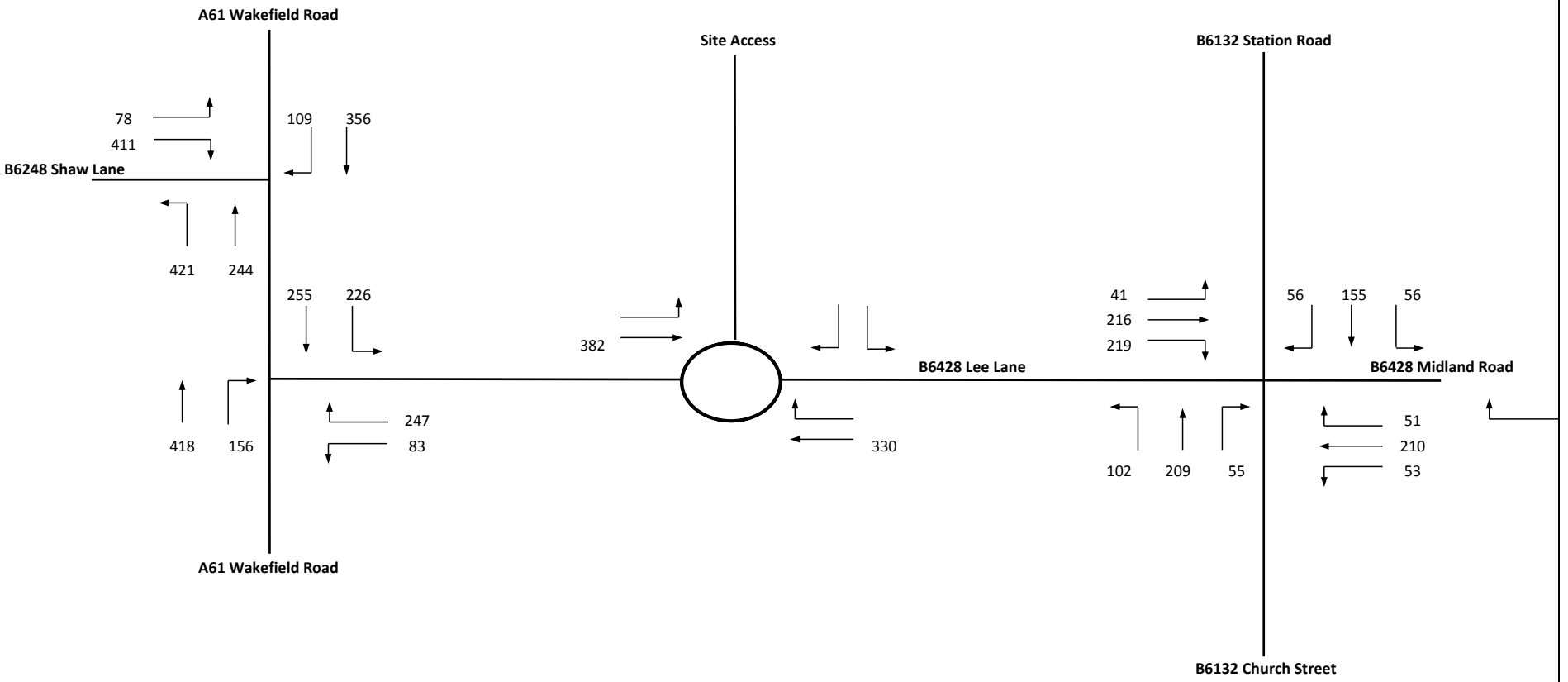
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2009 - 2022 NTEM Adjusted Growth Factor	1.120
2013 - 2022 NTEM Adjusted Growth Factor	1.117

Figure 5 - Weekday AM Peak 2022 Growthed Flows

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2009 - 2022 NTEM Adjusted Growth Factor	1.129
2013 - 2022 NTEM Adjusted Growth Factor	1.120

Figure 6 - Weekday PM Peak
2022 Growthed Flows

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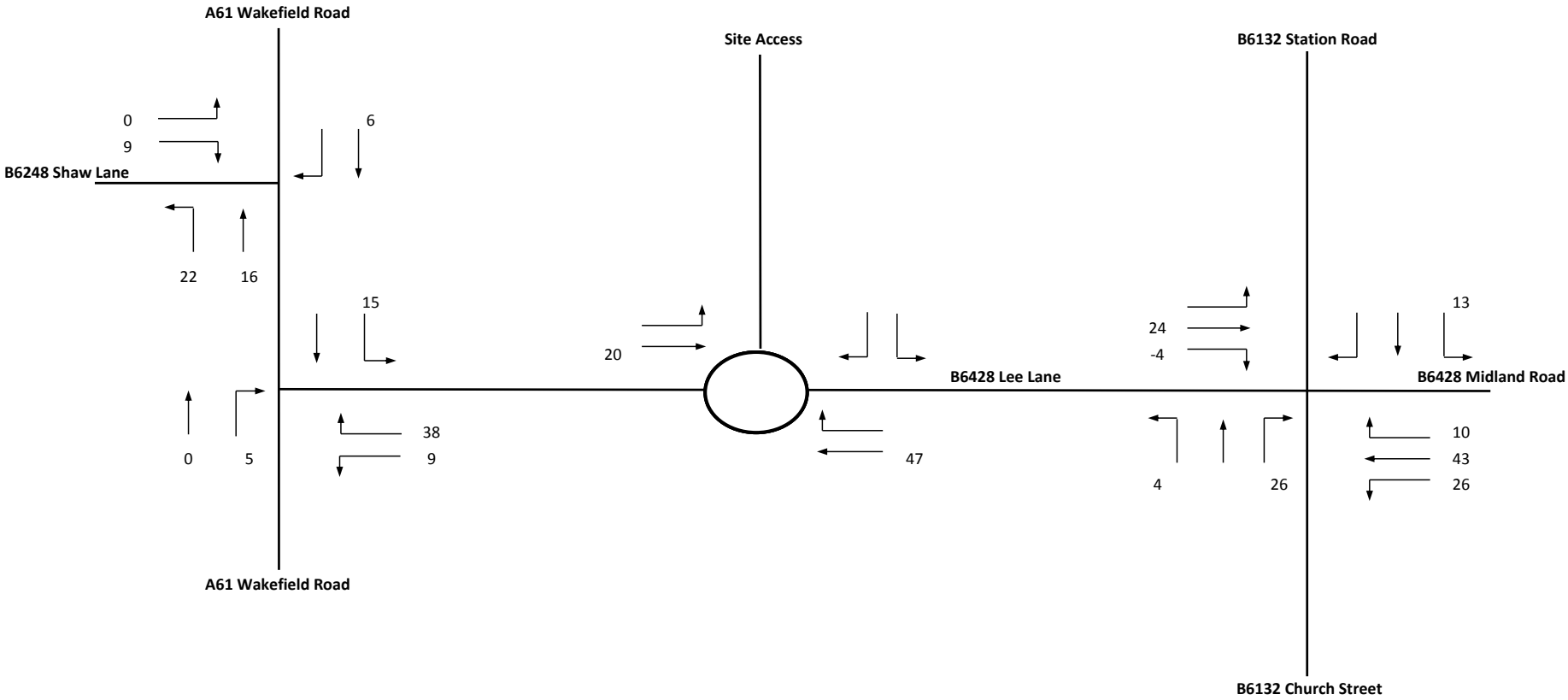


Figure 7 - **Weekday AM Peak**
Committed Development Flows - Former Royston High School Site

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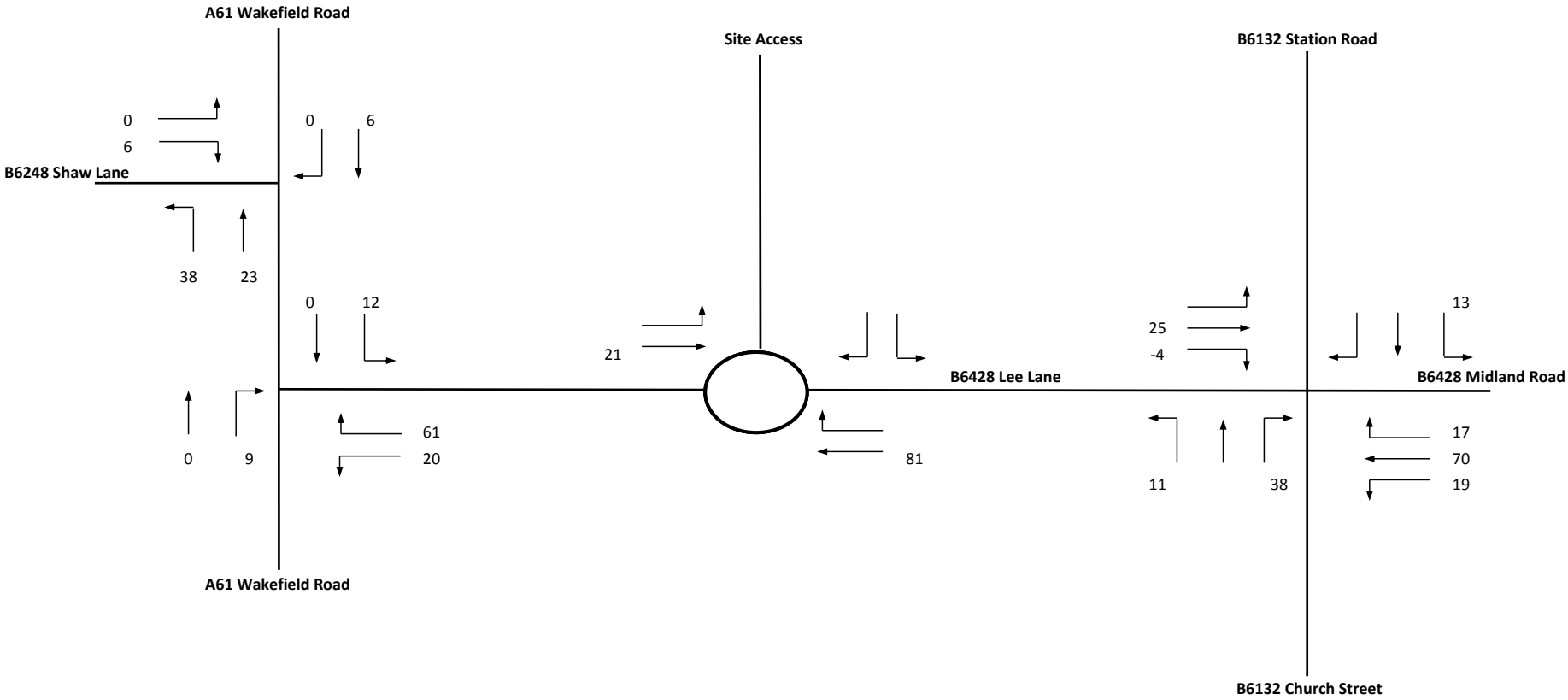


Figure 8 - **Weekday PM Peak**
Committed Development Flows - Former Royston High School Site

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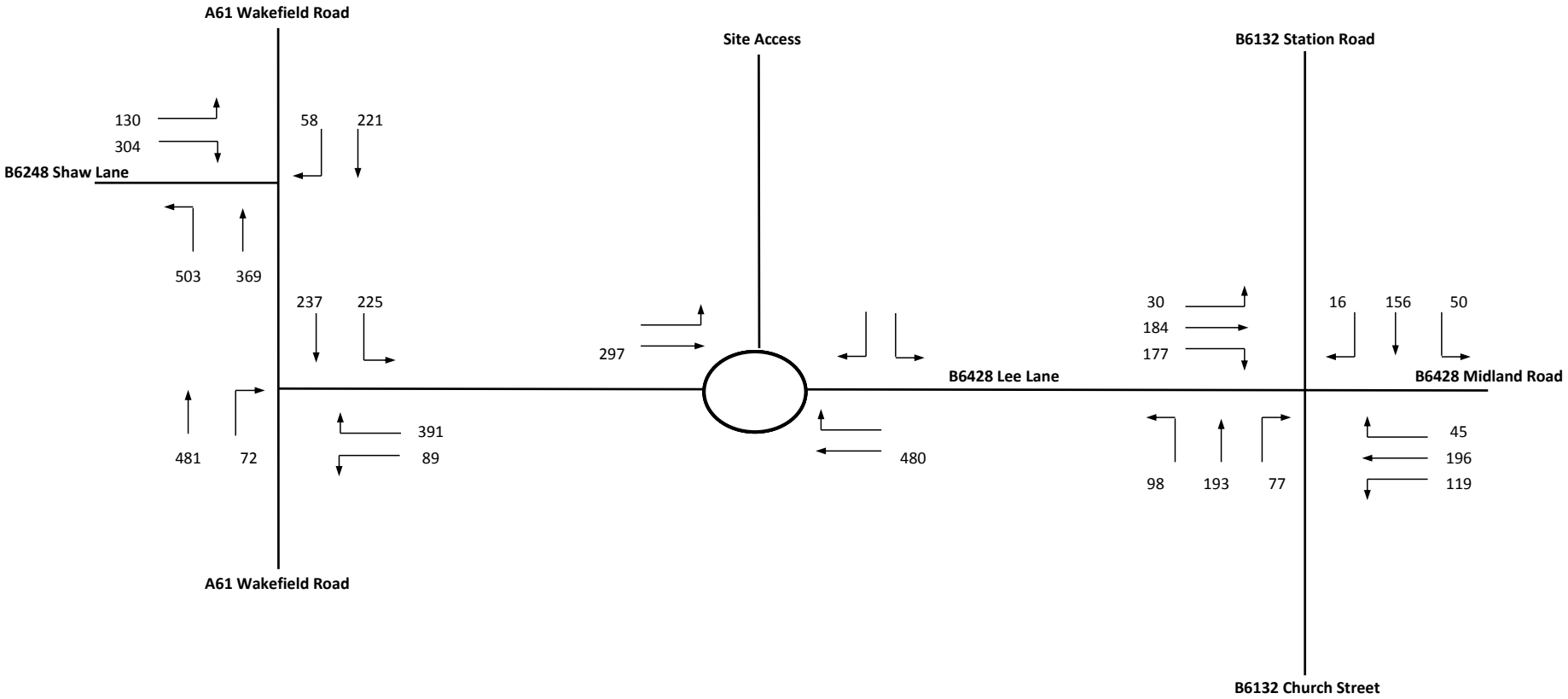


Figure 9 - Weekday AM Peak 2017 Base Flows

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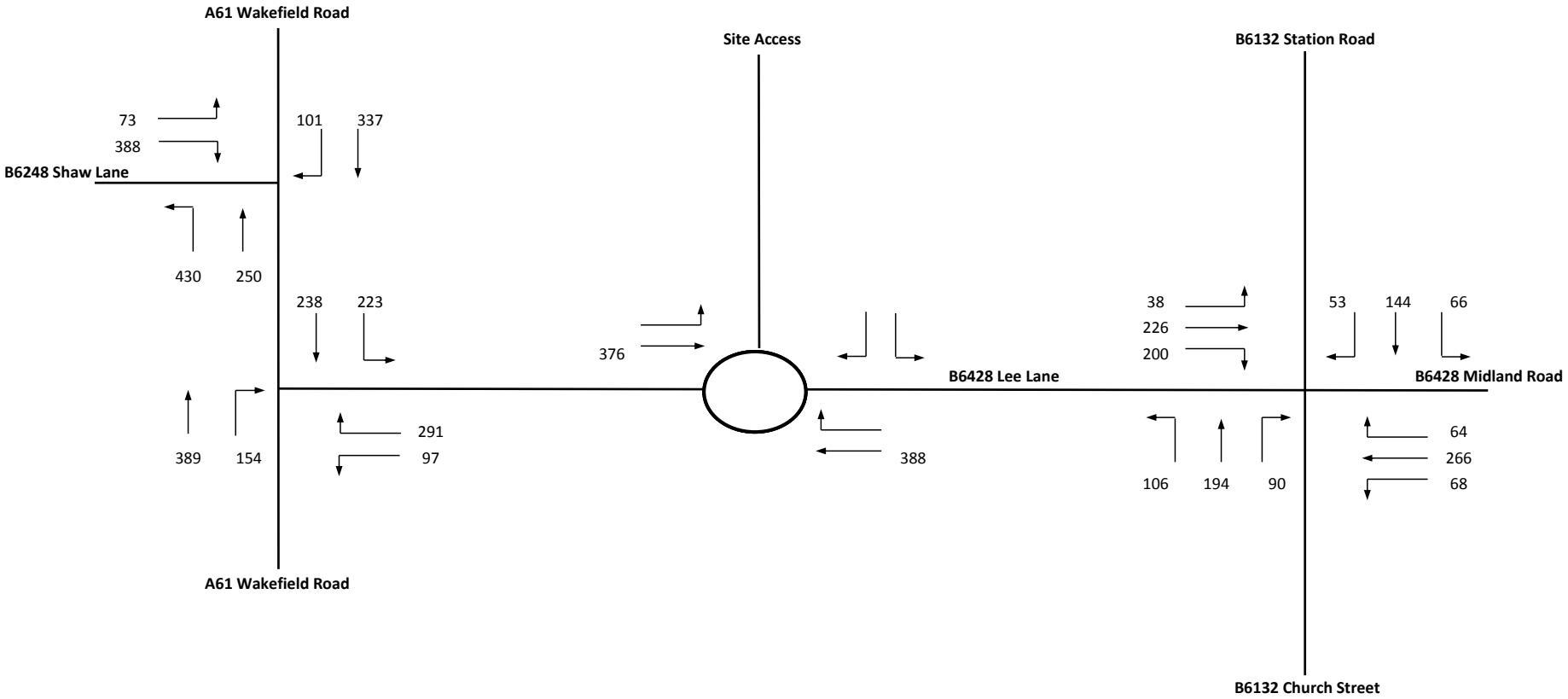


Figure 10 - Weekday PM Peak 2017 Base Flows

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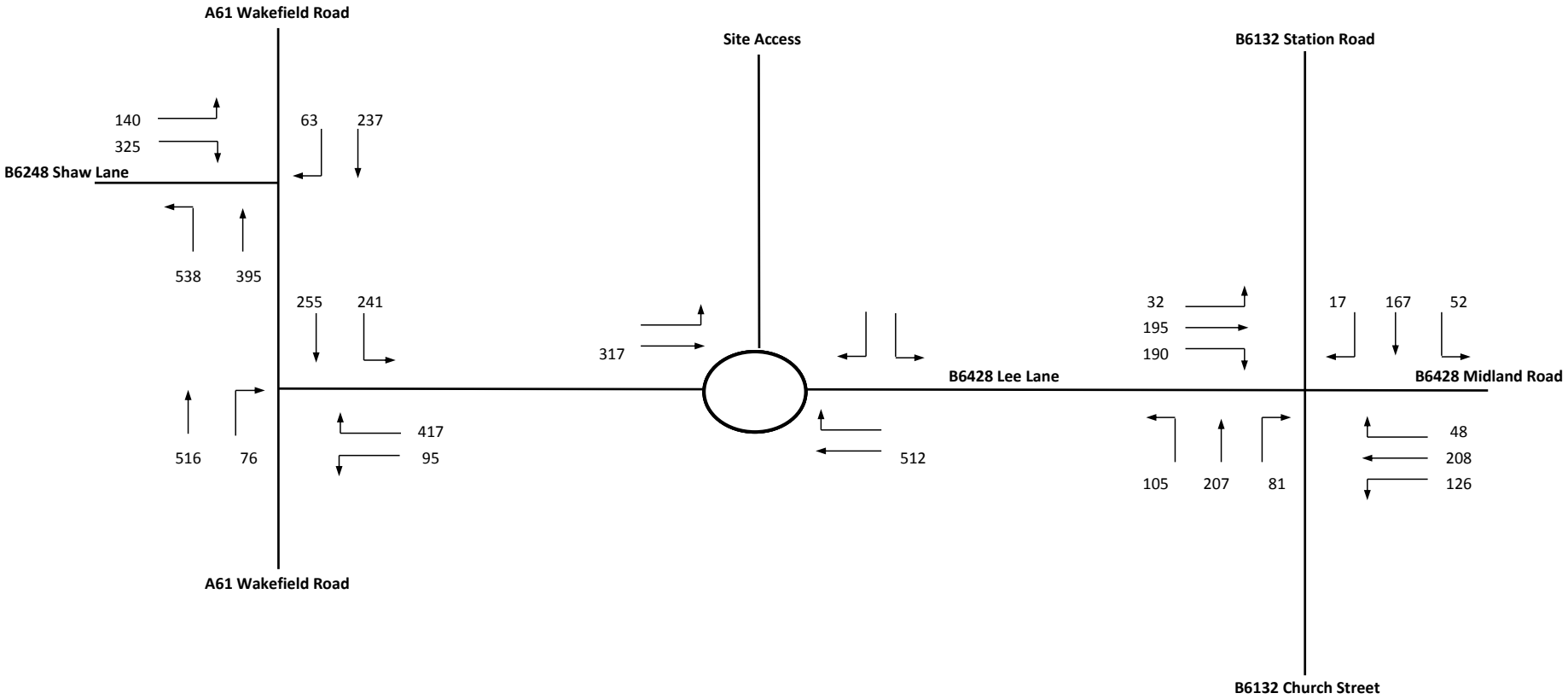


Figure 11 - Weekday AM Peak 2021 Base Flows

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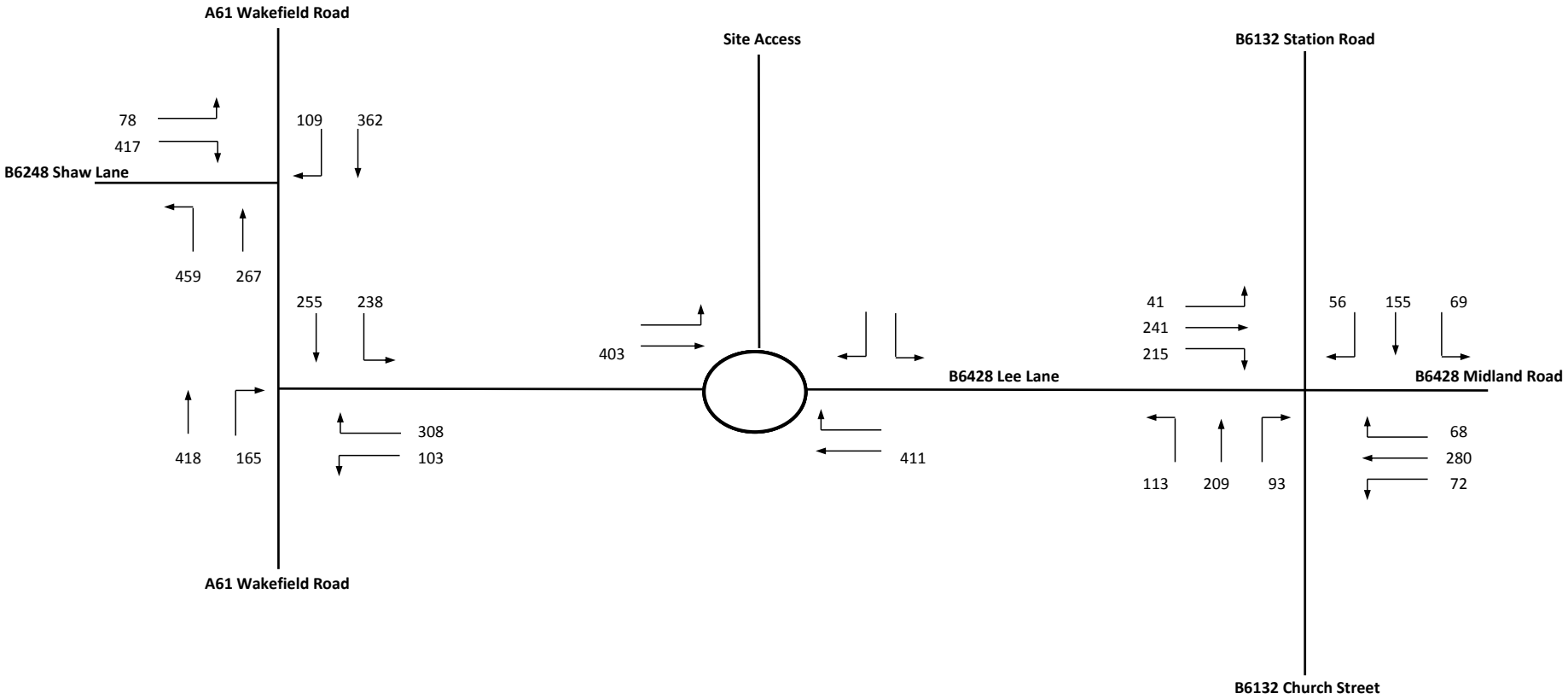


Figure 12 - Weekday PM Peak 2021 Base Flows

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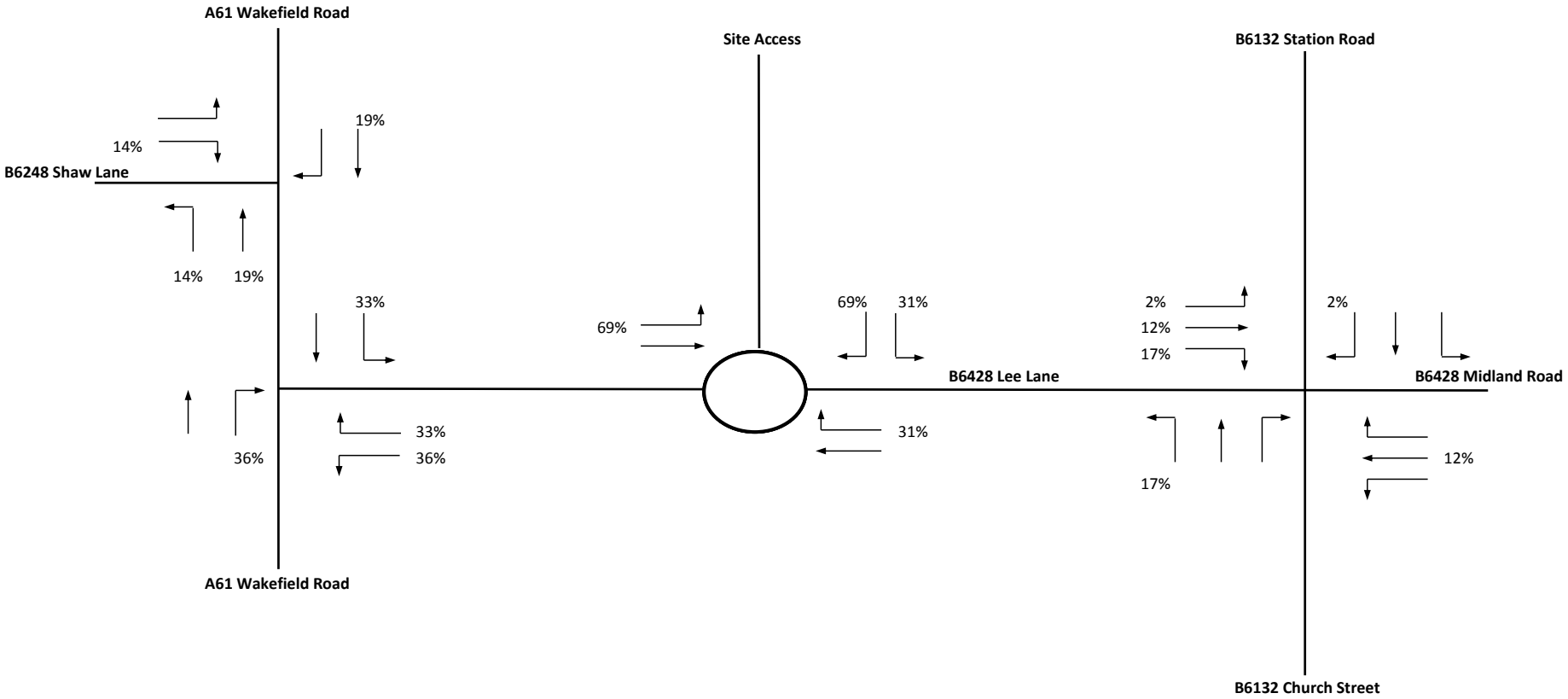
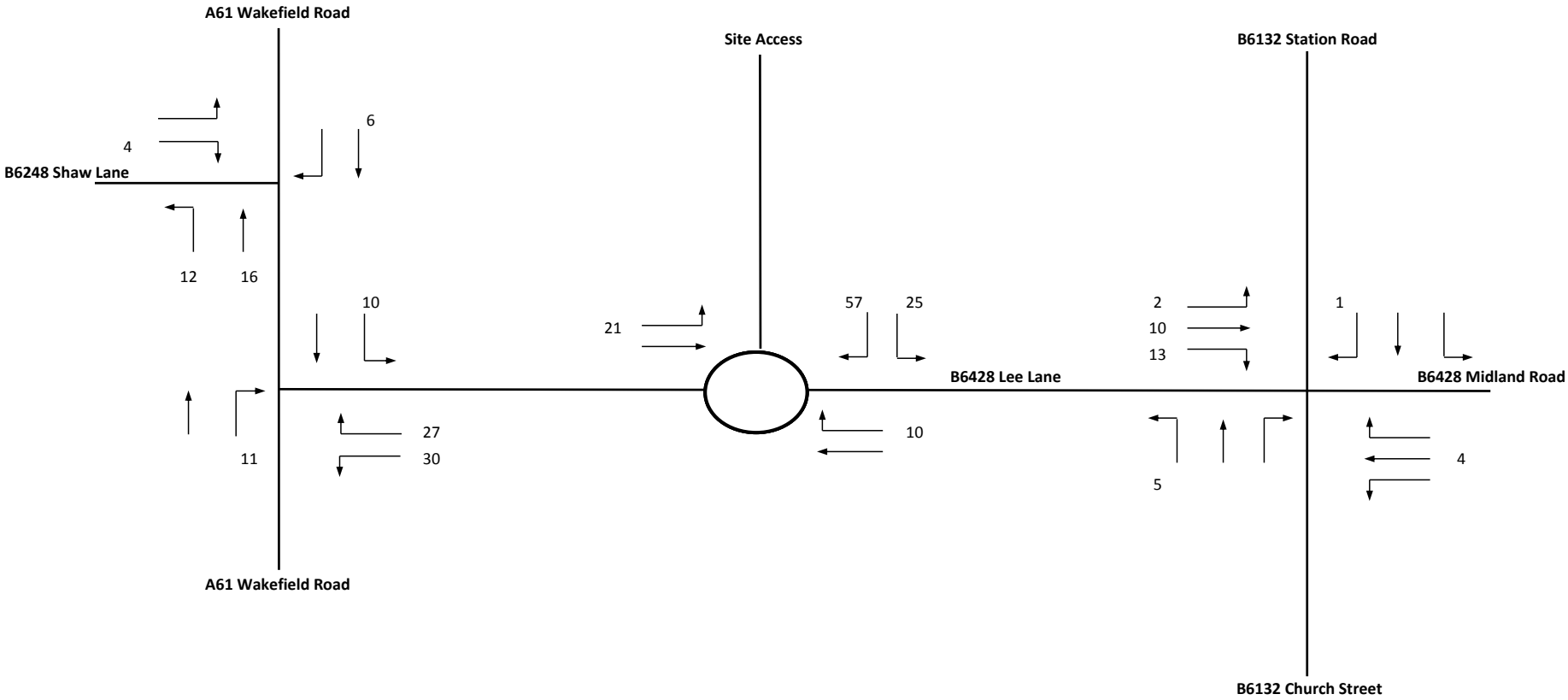


Figure 13 - Weekday AM and PM Peak Proposed Trip Distribution

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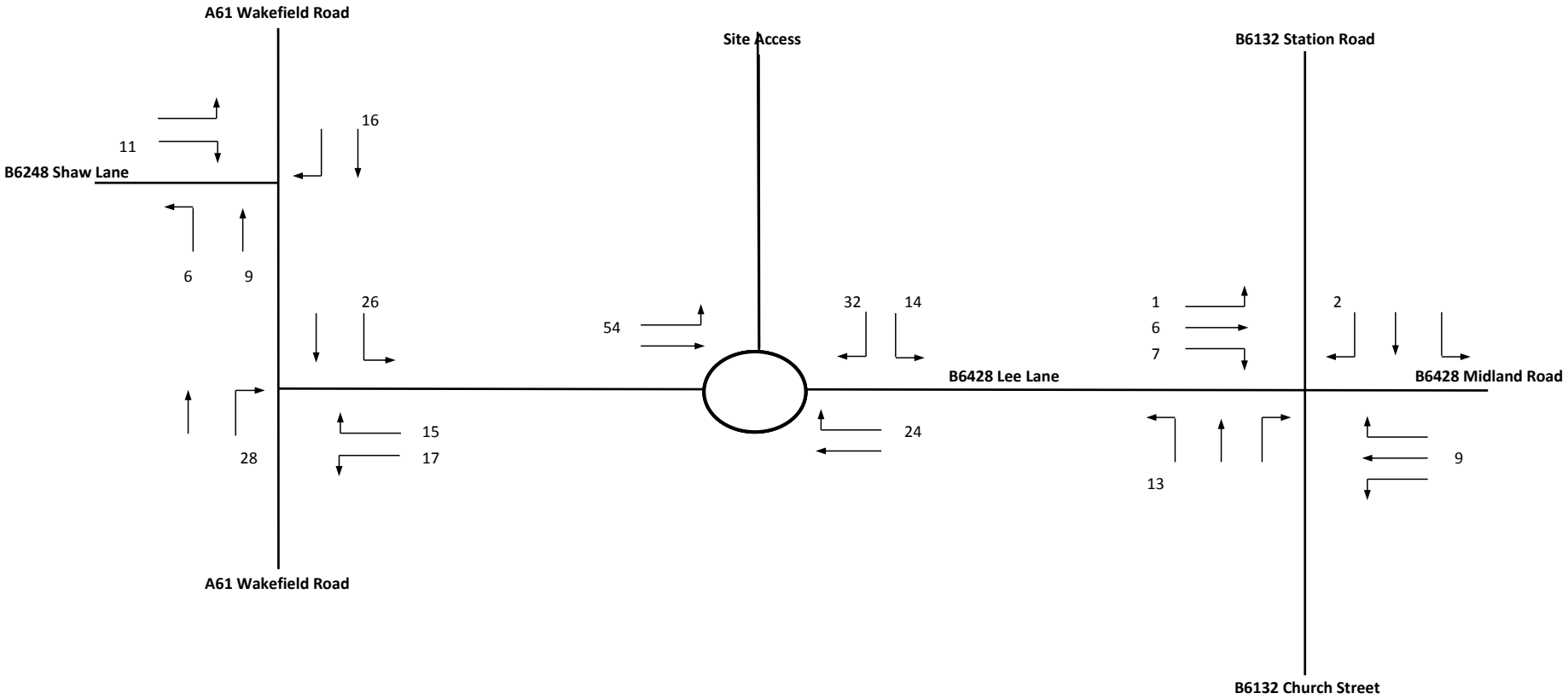


ARR 31

DEP 82

Figure 14 - Weekday AM Peak
Proposed Residential Development Flows

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ARR 79

DEP 46

Figure 15 - Weekday PM Peak
Proposed Residential Development Flows

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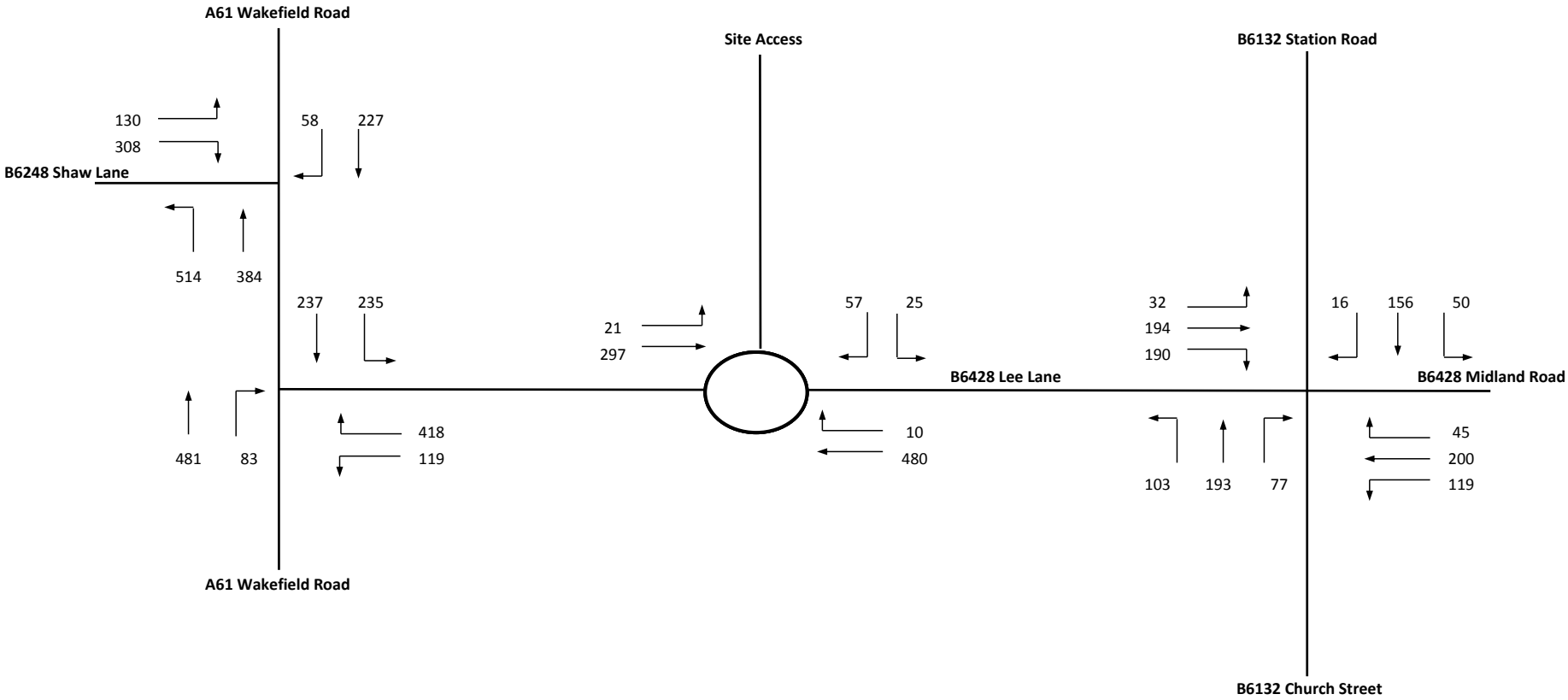


Figure 16 - Weekday AM Peak 2017 With Development Flows

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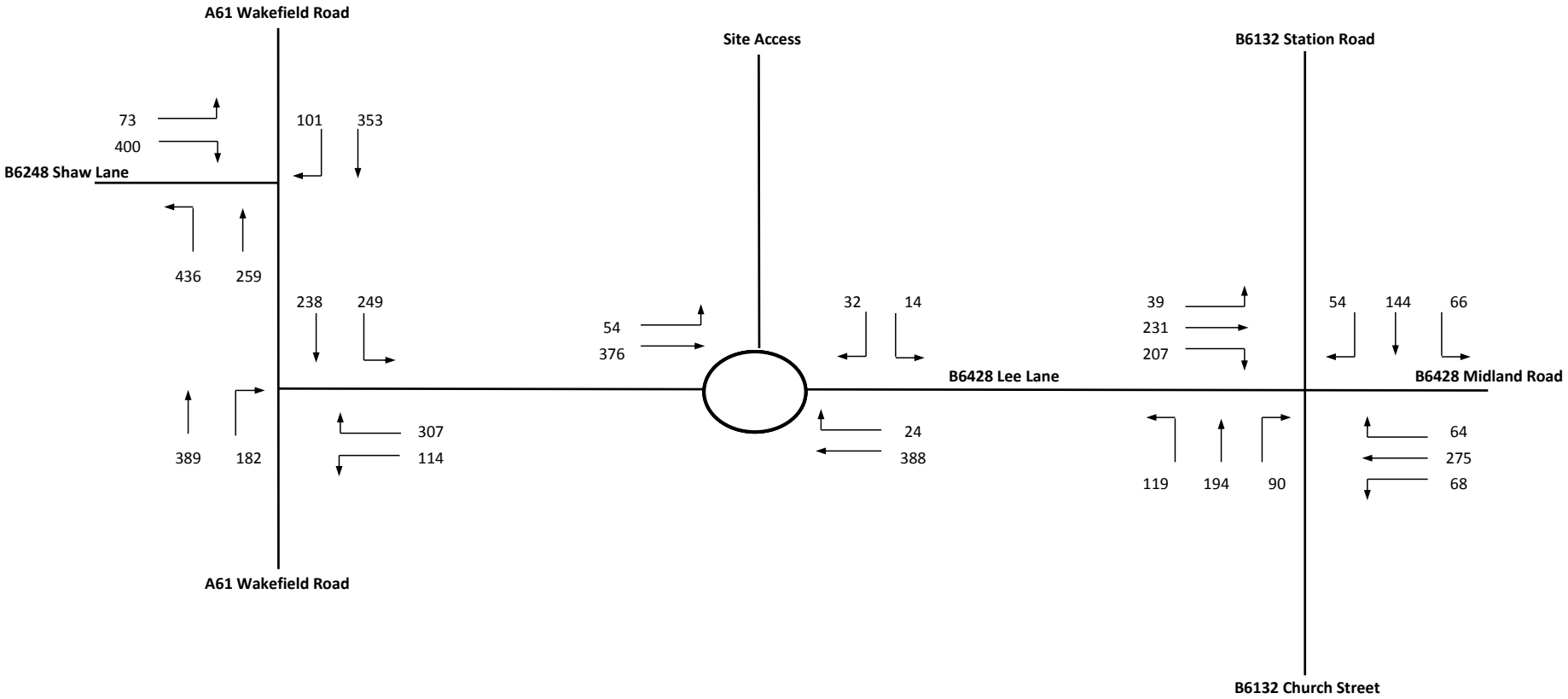


Figure 17 - Weekday PM Peak 2017 With Development Flows

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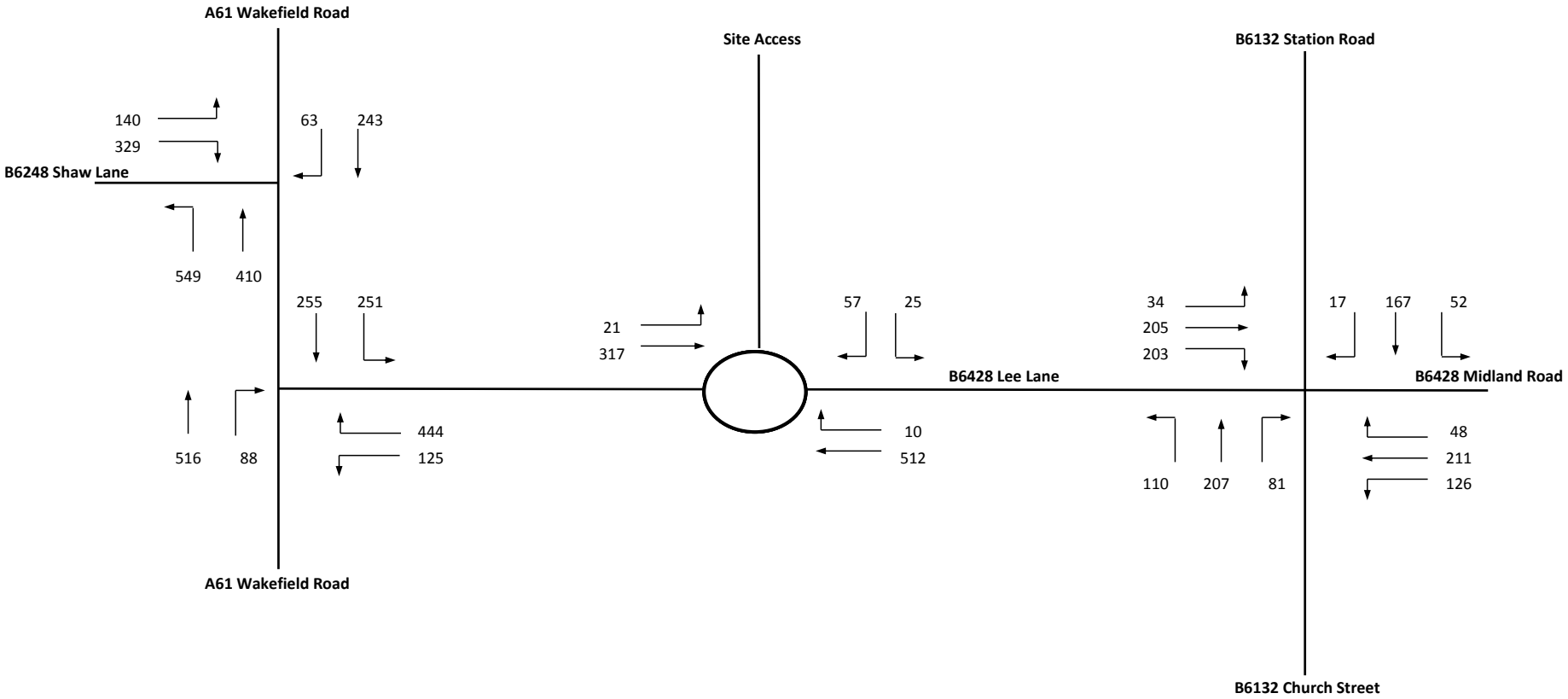


Figure 18 - Weekday AM Peak 2021 With Development Flows

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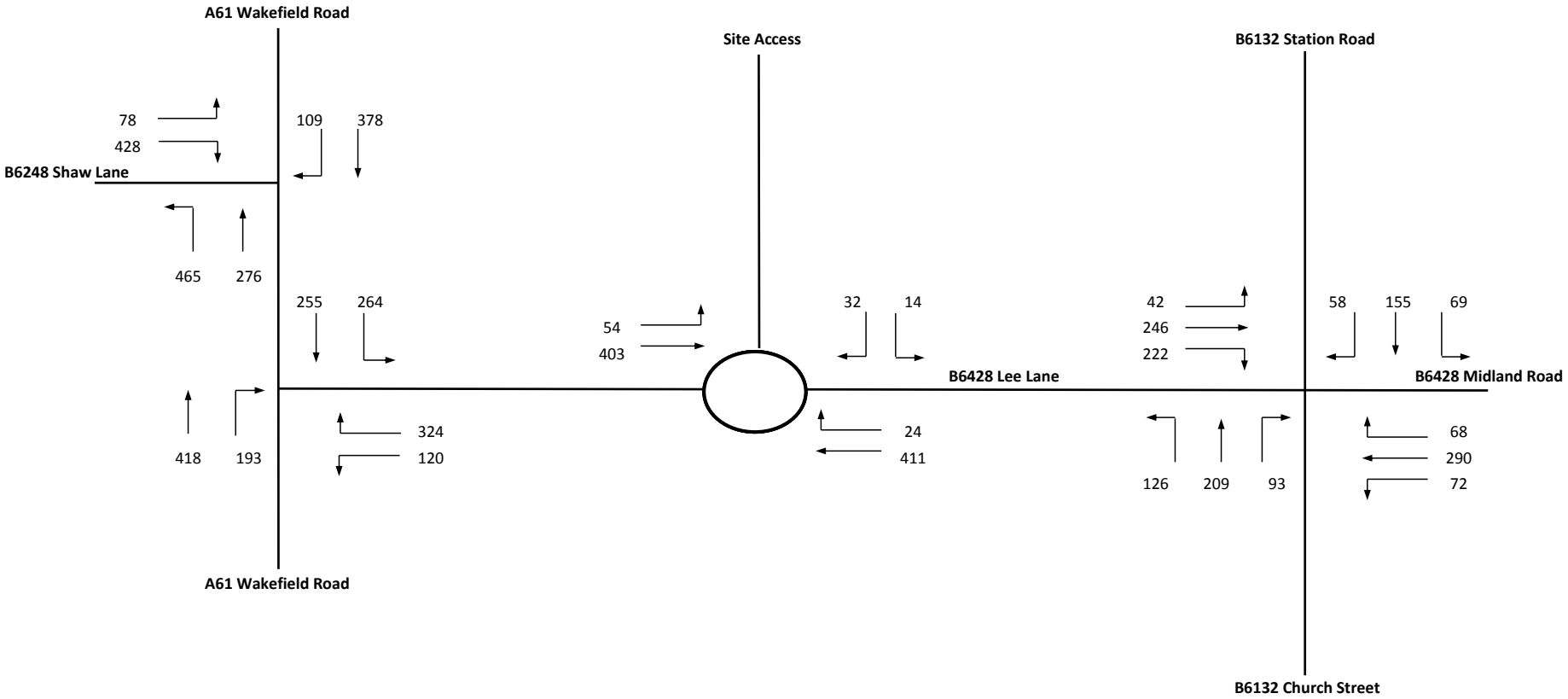
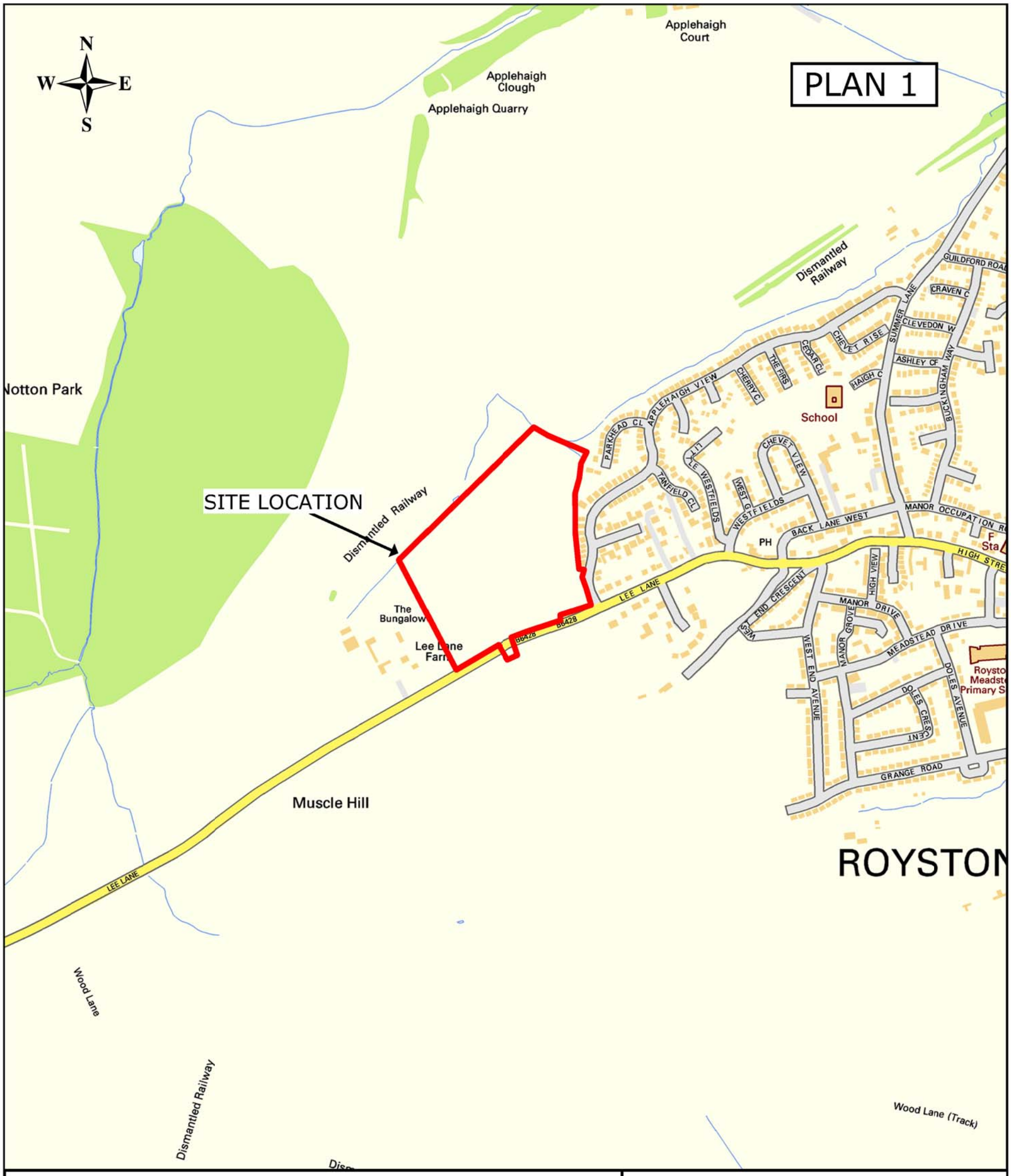


Figure 19 - Weekday PM Peak 2021 With Development Flows

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PLANS



STRATEGIC LAND GROUP

PROPOSED RESIDENTIAL DEVELOPMENT
LEE LANE, ROYSTON
SITE LOCATION

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Transport Solutions

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Tel: 0161 827 1740
Web: www.croftts.co.uk
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JC	16.08.13	TSB	16.08.13	N.T.S	0255-01	.

Illustrative Masterplan

Lee Lane
Royston

PLAN 2

mck associates limited
architecture | building surveying | urban design

Drwg: 10-083 -1010 • Date: Aug 2013 • Sheet Size: A2 • Scale: 1:1000 • Drawn: M.King



NORTH SOUTH AERIAL VIEW LEE LANE, ROYSTON

NOTES

PLAN 3

REV.	DETAILS	DRAWN	CHECKED	DATE

CLIENT:

STRATEGIC LAND GROUP

PROJECT:

LEE LANE, ROYSTON

DRAWING TITLE:

PROPOSED 40M ICD ROUNDABOUT ACCESS

SCALES:

1:500 @ A1

DRAWN:	CHECKED:	DATE:
MC	MC	JUL.2013

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

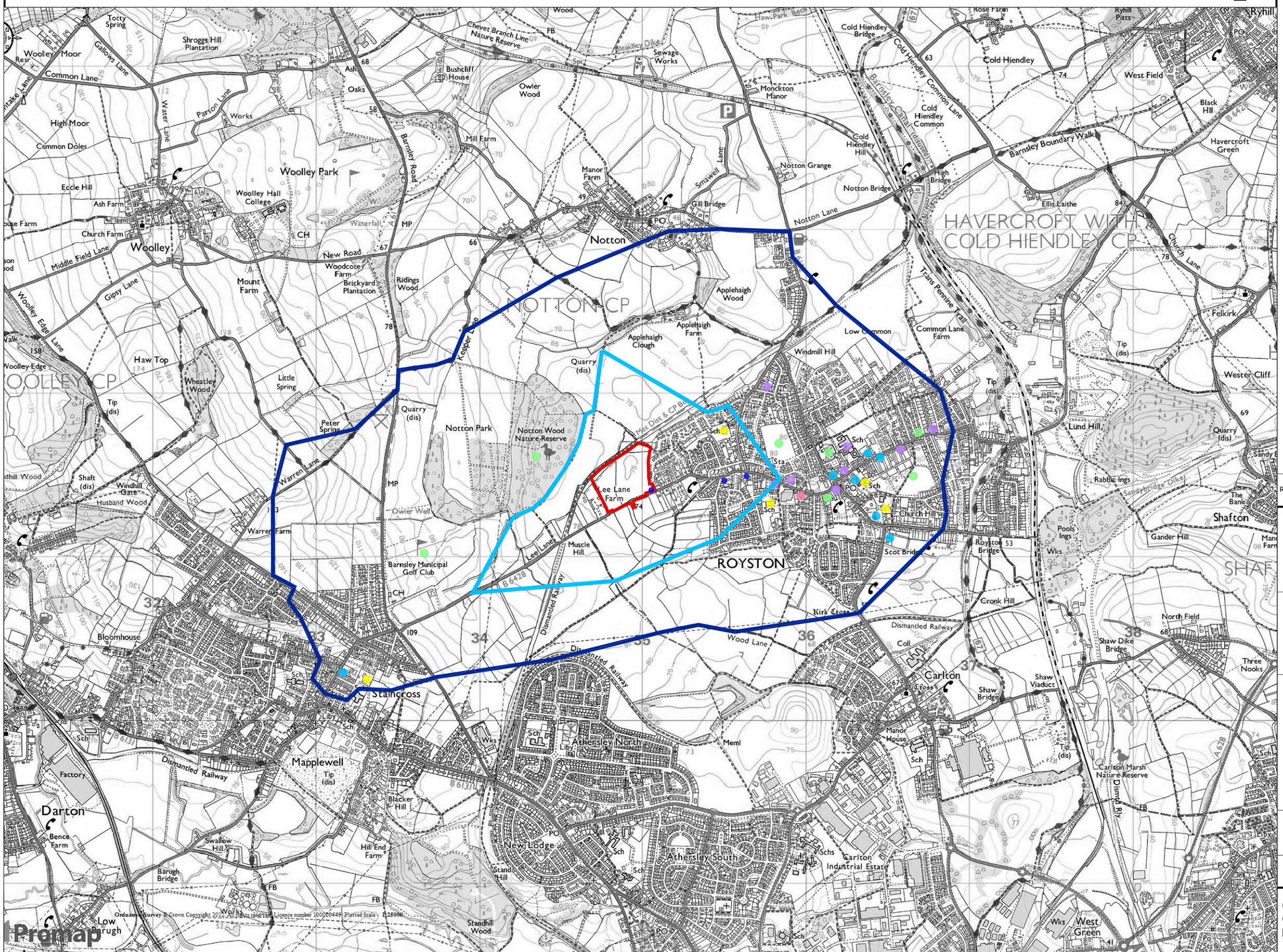
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DRAWING NUMBER: 255-F01

REVISION: B

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NOTES

PLAN 4

- 800m Pedestrian Catchment
- 2km Pedestrian Catchment
- Site Location
- Bus Stops Within 400m
- Education
- Retail
- Community Facilities
- Healthcare
- Sports & Recreation/Public Green Space

REV.	DETAILS	DRAWN	CHECKED	DATE

CLIENT:
STRATEGIC LAND GROUP

PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT,
LEE LANE, ROYSTON

DRAWING TITLE:
800m & 2km
PEDESTRIAN CATCHMENT WITH AMENITIES

SCALES:
1:25000 @ A3

DRAWN:	CHECKED:	DATE:
JC	PJW	13.06.2012

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: 0255-02

REVISION: B

Z:\projects\0255 Lee Lane, Royston\CAD\Croft Drawings\0255-02B (PLAN 2).dwg

APPENDICES

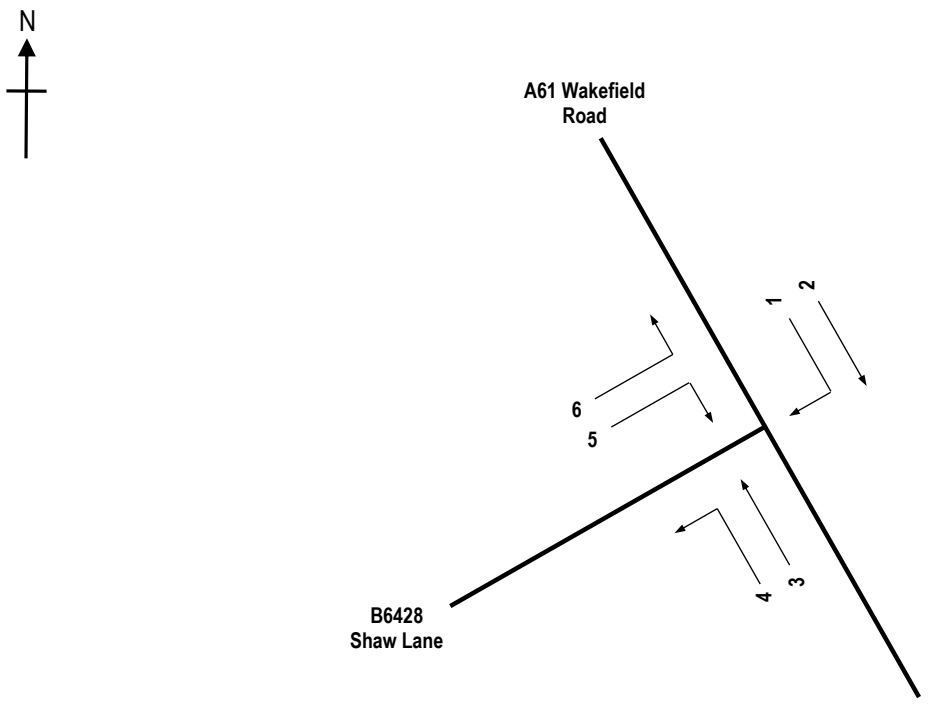
APPENDIX 1

Traffic Count Data

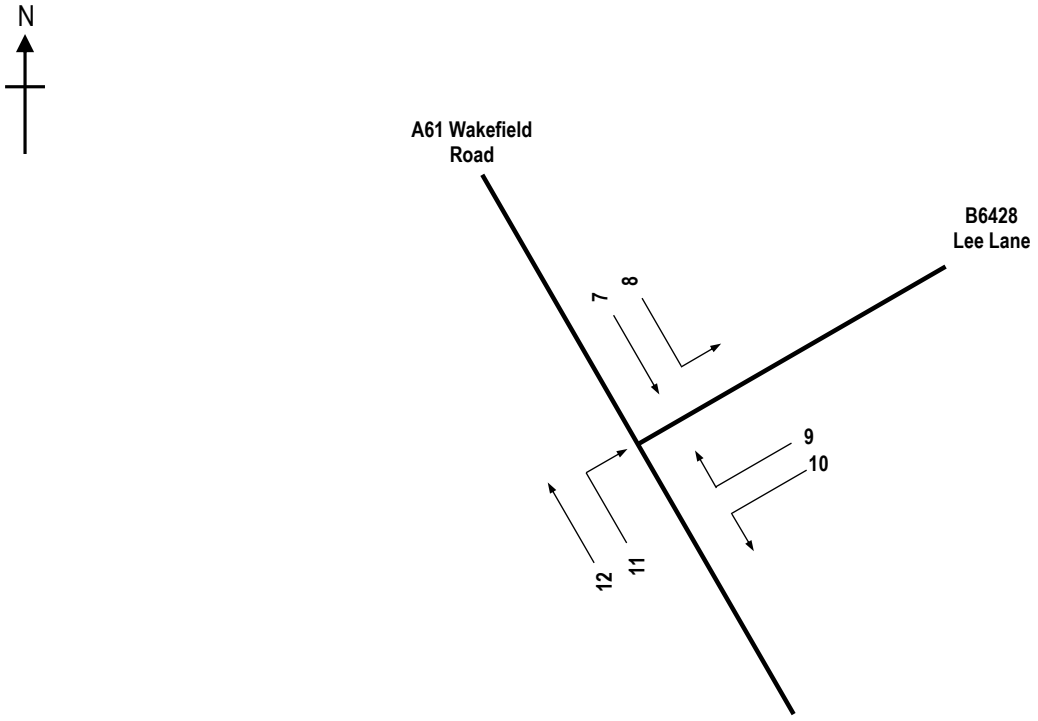
SURVEY CONTROL

Client:	Croft Transport Solutions
Client Contact:	Pjil Wooliscroft
Survey Location:	Royston
Date(s) of Survey:	Tuesday 16 July 2013
Notes:	
On Site Supervisor:	Gary Dixon
Data Checking:	David Cheng
Survey Reference:	2013.104 Royston
Status:	Final
Date of Issue:	17 July 2013

JUNCTION 1



JUNCTION 2



DRAWING TITLE: **TRAFFIC MOVEMENT REFERENCE**			
JOB TITLE: **2013.104 ROYSTON**			
DRAWN BY: DC	DATE: JUL 2013	SCALE: NTS	REF: 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

Time Beginning	A61 Wakefield Road/B6428 Shaw Lane - Tuesday 16 July 2013											
	1		2		3		4		5		6	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	16	1	19	3	72	8	118	3	73	2	36	1
0745	15	1	41	5	83	8	107	5	61	3	26	2
0800	13	1	44	2	68	4	105	1	72	3	33	0
0815	10	0	52	4	74	6	114	3	69	2	30	0
0830	14	0	40	4	68	5	112	3	53	6	30	1
0845	19	1	21	4	45	6	80	6	66	5	23	1
0900	25	0	26	2	47	7	78	4	55	2	16	2
0915	16	1	42	3	47	2	55	6	50	1	13	1

Time Beginning	A61 Wakefield Road/B6428 Shaw Lane - Tuesday 16 July 2013											
	1		2		3		4		5		6	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	23	0	68	4	66	3	85	2	88	5	17	0
1645	27	0	74	1	60	0	74	2	82	4	16	0
1700	21	0	78	5	43	2	85	1	85	2	21	0
1715	22	0	85	3	60	3	89	1	80	1	17	0
1730	27	0	57	3	39	3	118	1	100	3	16	0
1745	15	0	60	2	39	4	99	2	90	2	18	0
1800	27	0	81	3	57	0	67	1	84	3	17	0
1815	22	0	41	1	21	0	64	1	72	1	16	1

Time Beginning	A61 Wakefield Road/B6428 Lee Lane - Tuesday 16 July 2013											
	7		8		9		10		11		12	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
0730	50	5	42	0	73	2	15	1	7	0	117	9
0745	53	5	49	3	89	1	13	0	12	1	101	12
0800	69	2	47	3	75	0	17	1	14	0	98	5
0815	74	6	47	0	89	0	17	1	14	2	99	9
0830	52	7	41	3	80	2	26	0	14	2	100	6
0845	42	6	45	3	60	3	17	0	13	0	65	9
0900	41	3	40	1	68	0	19	1	6	0	57	11
0915	42	2	50	2	43	3	19	0	19	0	59	5

Time Beginning	A61 Wakefield Road/B6428 Lee Lane - Tuesday 16 July 2013											
	7		8		9		10		11		12	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1630	75	6	81	3	61	1	22	1	37	0	90	4
1645	63	2	93	3	49	1	13	1	34	0	85	1
1700	64	5	99	2	50	1	10	1	33	0	78	2
1715	90	3	75	1	52	0	19	2	47	0	97	4
1730	57	2	100	4	64	1	24	0	25	0	93	3
1745	69	4	81	0	62	2	16	1	29	0	76	4
1800	74	4	91	2	53	0	14	0	15	0	71	1
1815	60	1	53	1	40	1	12	1	14	0	45	0

APPENDIX 2

Trip Distribution Information

2001 census - UK travel flows (ward)

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area of residence 00CCFT : Royston (2003 CAS ward)
date 2001

area of workplace : 2003 CAS ward	T203:25 (Car - driver : All people)
Column Total	**2,333**
00CCFT : Royston	481
00CCFD : Central	315
00CCFU : South West	130
00CCFN : Monk Bretton	117
00CCFG : Darton	113
00DBFT : Wakefield East	88
00DBFS : Wakefield Central	80
00CCFA : Ardsley	78
00CCFP : North West	77
00CCFB : Athersley	74
00DAFH : City and Holbeck	68
00CCFK : Dodworth	64
00DBFX : Wakefield South	58
00DBFU : Wakefield North	57
00DBFR : Stanley and Wrenthorpe	47
00DBFQ : Stanley and Altofts	40
00DBFW : Wakefield Rural	38
00DBFL : Pontefract North	37
00CCFW : Wombwell North	35
00CCFR : Penistone East	31
00DBFC : Castleford Whitwood	31
00CCFC : Brierley	29
00CCFE : Cudworth	27
00DBFP : South Kirkby	27
00DBFK : Ossett	23
00DBFN : South Elmsall	22
00CCFQ : Park	21
00CCFS : Penistone West	21
00CCFY : Worsbrough	21
00DAFU : Morley North	21
00DAFW : Morley South	21
00DAGF : University	21
00CCFM : Hoyland West	20

Route	Total	%
Midland Road	37	2%
Church Street	204	9%
B6428 (W)	186	8%
A61 (n)	439	19%
A61 (s)	832	36%
M1 (n)	154	6%
M1 (s)		0%
Royston	481	20%
Total	2,333	100.0%

APPENDIX 3

TRICS Output - Proposed Residential Development

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
	EX	ESSEX	1 days
03	SOUTH WEST		
	CW	CORNWALL	2 days
	DC	DORSET	1 days
	WL	WILTSHIRE	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
	NF	NORFOLK	2 days
	SF	SUFFOLK	4 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
	LE	LEICESTERSHIRE	1 days
	LN	LINCOLNSHIRE	3 days
	NT	NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	2 days
	ST	STAFFORDSHIRE	1 days
	WK	WARWICKSHIRE	1 days
	WM	WEST MIDLANDS	3 days
	WO	WORCESTERSHIRE	4 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	5 days
08	NORTH WEST		
	CH	CHESHIRE	4 days
	GM	GREATER MANCHESTER	1 days
	LC	LANCASHIRE	1 days
	MS	MERSEYSIDE	1 days
09	NORTH		
	CB	CUMBRIA	2 days
	TV	TEES VALLEY	1 days
10	WALES		
	CF	CARDIFF	2 days
	CP	CAERPHILLY	1 days
11	SCOTLAND		
	AD	ABERDEEN CITY	1 days
	AG	ANGUS	1 days
	EA	EAST AYRSHIRE	1 days
	FI	FIFE	2 days
	HI	HIGHLAND	3 days
	PK	PERTH & KINROSS	1 days
	SR	STIRLING	1 days

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

Filtering Stage 2 selection:

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

Parameter:	Number of dwellings
Actual Range:	6 to 372 (units:)
Range Selected by User:	100 to 500 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 23/10/12

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

Selected survey days:

Monday	13 days
Tuesday	17 days
Wednesday	7 days
Thursday	11 days
Friday	10 days

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

Selected survey types:

Manual count	58 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	30
Edge of Town	25
Neighbourhood Centre (PPS6 Local Centre)	2

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

Selected Location Sub Categories:

Residential Zone	47
Out of Town	1
No Sub Category	10

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

Filtering Stage 3 selection:

Use Class:

C3	57 days

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

Filtering Stage 3 selection (Cont.):

Population within 1 mile:

1,001 to 5,000	7 days
5,001 to 10,000	8 days
10,001 to 15,000	12 days
15,001 to 20,000	18 days
20,001 to 25,000	7 days
25,001 to 50,000	6 days

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

Population within 5 miles:

5,001 to 25,000	6 days
25,001 to 50,000	9 days
50,001 to 75,000	4 days
75,001 to 100,000	12 days
100,001 to 125,000	8 days
125,001 to 250,000	11 days
250,001 to 500,000	7 days
500,001 or More	1 days

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

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	22 days
1.1 to 1.5	34 days
1.6 to 2.0	1 days

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

Travel Plan:

Yes	1 days
No	57 days

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

LIST OF SITES relevant to selection parameters

1 AD-03-A-01 SEMI-DETACHED ABERDEEN CITY
SPRINGFIELD ROAD

ABERDEEN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 59
Survey date: FRIDAY 18/05/12 Survey Type: MANUAL

2 AG-03-A-01 BUNGALOWS/DET. ANGUS
KEPTIE ROAD

ARBROATH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 7
Survey date: TUESDAY 22/05/12 Survey Type: MANUAL

3 CA-03-A-04 DETACHED CAMBRIDGESHIRE

THORPE PARK ROAD
PETERBOROUGH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 9
Survey date: TUESDAY 18/10/11 Survey Type: MANUAL

4 CB-03-A-03 SEMI DETACHED CUMBRIA
HAWKSHEAD AVENUE

WORKINGTON
Edge of Town
Residential Zone
Total Number of dwellings: 40
Survey date: THURSDAY 20/11/08 Survey Type: MANUAL

5 CB-03-A-04 SEMI DETACHED CUMBRIA
MOORCLOSE ROAD
SALTERBACK
WORKINGTON
Edge of Town
No Sub Category
Total Number of dwellings: 82
Survey date: FRIDAY 24/04/09 Survey Type: MANUAL

6 CF-03-A-02 MIXED HOUSES CARDIFF
DROPE ROAD

CARDIFF
Edge of Town
Residential Zone
Total Number of dwellings: 196
Survey date: FRIDAY 05/10/07 Survey Type: MANUAL

7 CF-03-A-03 DETACHED CARDIFF
LLANTRISANT ROAD

CARDIFF
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 29
Survey date: MONDAY 08/10/07 Survey Type: MANUAL

8 CH-03-A-02 HOUSES/FLATS CHESHIRE
SYDNEY ROAD

CREWE
Edge of Town
Residential Zone
Total Number of dwellings: 174
Survey date: TUESDAY 14/10/08 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9 CH-03-A-05 DETACHED CHESHIRE
SYDNEY ROAD
SYDNEY
CREWE
Edge of Town
Residential Zone
Total Number of dwellings: 17
Survey date: TUESDAY 14/10/08 Survey Type: MANUAL

10 CH-03-A-06 SEMI-DET./BUNGALOWS CHESHIRE
CREWE ROAD

CREWE
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 129
Survey date: TUESDAY 14/10/08 Survey Type: MANUAL

11 CH-03-A-08 DETACHED CHESHIRE
WHITCHURCH ROAD
BOUGHTON HEATH
CHESTER
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 11
Survey date: TUESDAY 22/05/12 Survey Type: MANUAL

12 CP-03-A-02 SEMI DETACHED CAERPHILLY
THE RISE

PENGAM
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 41
Survey date: MONDAY 05/09/05 Survey Type: MANUAL

13 CW-03-A-01 TERRACED CORNWALL
ALVERTON ROAD

PENZANCE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 13
Survey date: THURSDAY 30/06/05 Survey Type: MANUAL

14 CW-03-A-02 SEMI D./DETATCHED CORNWALL
BOSVEAN GARDENS

TRURO
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 73
Survey date: TUESDAY 18/09/07 Survey Type: MANUAL

15 DC-03-A-01 DETACHED DORSET
ISAACS CLOSE

POOLE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 51
Survey date: WEDNESDAY 16/07/08 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

16 DS-03-A-01 SEMI D./TERRACED DERBYSHIRE
THE AVENUE
HOLMESDALE
DRONFIELD
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Number of dwellings: 20
Survey date: THURSDAY 22/06/06 Survey Type: MANUAL

17 EA-03-A-01 DETATCHED EAST AYRSHIRE
TALISKER AVENUE

KILMARNOCK
Edge of Town
Residential Zone
Total Number of dwellings: 39
Survey date: THURSDAY 05/06/08 Survey Type: MANUAL

18 ES-03-A-02 PRIVATE HOUSING EAST SUSSEX
SOUTH COAST ROAD

PEACEHAVEN
Edge of Town
Residential Zone
Total Number of dwellings: 37
Survey date: FRIDAY 18/11/11 Survey Type: MANUAL

19 EX-03-A-01 SEMI-DET. ESSEX
MILTON ROAD
CORRINGHAM
STANFORD-LE-HOPE
Edge of Town
Residential Zone
Total Number of dwellings: 237
Survey date: TUESDAY 13/05/08 Survey Type: MANUAL

20 FI-03-A-02 SEMI DETACHED FIFE
WAROUT ROAD

GLENROTHES
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 58
Survey date: MONDAY 16/05/05 Survey Type: MANUAL

21 FI-03-A-03 MIXED HOUSES FIFE
WOODMILL ROAD

DUNFERMLINE
Edge of Town
Residential Zone
Total Number of dwellings: 155
Survey date: MONDAY 30/04/07 Survey Type: MANUAL

22 GM-03-A-10 DETACHED/SEMI GREATER MANCHESTER
BUTT HILL DRIVE
PRESTWICH
MANCHESTER
Edge of Town
Residential Zone
Total Number of dwellings: 29
Survey date: WEDNESDAY 12/10/11 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

23 HI-03-A-11 BUNGALOWS HIGHLAND
STEVENSON ROAD
INSHES
INVERNESS
Edge of Town
Residential Zone
Total Number of dwellings: 85
Survey date: MONDAY 05/06/06 Survey Type: MANUAL

24 HI-03-A-13 HOUSING HIGHLAND
KINGSMILLS ROAD

INVERNESS
Edge of Town
Residential Zone
Total Number of dwellings: 9
Survey date: THURSDAY 21/05/09 Survey Type: MANUAL

25 HI-03-A-14 SEMI-DETACHED HIGHLAND
CALEDONIAN ROAD
DALNEIGH
INVERNESS
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 73
Survey date: FRIDAY 13/05/11 Survey Type: MANUAL

26 LC-03-A-22 BUNGALOWS LANCASHIRE
CLIFTON DRIVE NORTH

BLACKPOOL
Edge of Town
Residential Zone
Total Number of dwellings: 98
Survey date: TUESDAY 18/10/05 Survey Type: MANUAL

27 LE-03-A-01 DETACHED LEICESTERSHIRE
REDWOOD AVENUE

MELTON MOWBRAY
Edge of Town
Residential Zone
Total Number of dwellings: 11
Survey date: TUESDAY 03/05/05 Survey Type: MANUAL

28 LN-03-A-01 MIXED HOUSES LINCOLNSHIRE
BRANT ROAD
BRACEBRIDGE
LINCOLN
Edge of Town
Residential Zone
Total Number of dwellings: 150
Survey date: TUESDAY 15/05/07 Survey Type: MANUAL

29 LN-03-A-02 MIXED HOUSES LINCOLNSHIRE
HYKEHAM ROAD

LINCOLN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 186
Survey date: MONDAY 14/05/07 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

30 LN-03-A-03 SEMI DETACHED LINCOLNSHIRE
ROOKERY LANE
BOULTHAM
LINCOLN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 22
Survey date: TUESDAY 18/09/12 Survey Type: MANUAL

31 MS-03-A-01 TERRACED MERSEYSIDE
PALACE FIELDS AVENUE

RUNCORN
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Number of dwellings: 372
Survey date: THURSDAY 06/10/05 Survey Type: MANUAL

32 NF-03-A-01 SEMI DET. & BUNGALOWS NORFOLK
YARMOUTH ROAD

CAISTER-ON-SEA
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 27
Survey date: TUESDAY 16/10/12 Survey Type: MANUAL

33 NF-03-A-02 HOUSES & FLATS NORFOLK
DEREHAM ROAD

NORWICH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 98
Survey date: MONDAY 22/10/12 Survey Type: MANUAL

34 NT-03-A-03 SEMI DETACHED NOTTINGHAMSHIRE
B6018 SUTTON ROAD

KIRKBY-IN-ASHFIELD
Edge of Town
Residential Zone
Total Number of dwellings: 166
Survey date: WEDNESDAY 28/06/06 Survey Type: MANUAL

35 NY-03-A-01 MIXED HOUSES NORTH YORKSHIRE
GRAMMAR SCHOOL LANE

NORTHALLERTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 52
Survey date: TUESDAY 25/09/07 Survey Type: MANUAL

36 NY-03-A-03 PRIVATE HOUSING NORTH YORKSHIRE
NEW ROW

BOROUGHBRIDGE
Edge of Town Centre
Residential Zone
Total Number of dwellings: 14
Survey date: MONDAY 15/09/08 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

37 NY-03-A-05 HOUSES AND FLATS NORTH YORKSHIRE
BOROUGHBRIDGE ROAD

RIPON
Edge of Town
No Sub Category
Total Number of dwellings: 71
Survey date: MONDAY 22/09/08 Survey Type: MANUAL

38 NY-03-A-06 BUNGALOWS & SEMI DET. NORTH YORKSHIRE
HORSEFAIR

BOROUGHBRIDGE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 115
Survey date: FRIDAY 14/10/11 Survey Type: MANUAL

39 NY-03-A-07 DETACHED & SEMI DET. NORTH YORKSHIRE
CRAVEN WAY

BOROUGHBRIDGE
Edge of Town
No Sub Category
Total Number of dwellings: 23
Survey date: TUESDAY 18/10/11 Survey Type: MANUAL

40 PK-03-A-01 DETAC. & BUNGALOWS PERTH & KINROSS
TULLYLUMB TERRACE
GORNHILL
PERTH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 36
Survey date: WEDNESDAY 11/05/11 Survey Type: MANUAL

41 SF-03-A-01 SEMI DETACHED SUFFOLK
A1156 FELIXSTOWE ROAD
RACECOURSE
IPSWICH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 77
Survey date: WEDNESDAY 23/05/07 Survey Type: MANUAL

42 SF-03-A-02 SEMI DET./TERRACED SUFFOLK
STOKE PARK DRIVE
MAIDENHALL
IPSWICH
Edge of Town
Residential Zone
Total Number of dwellings: 230
Survey date: THURSDAY 24/05/07 Survey Type: MANUAL

43 SF-03-A-03 MIXED HOUSES SUFFOLK
BARTON HILL
FORNHAM ST MARTIN
BURY ST EDMUNDS
Edge of Town
Out of Town
Total Number of dwellings: 101
Survey date: MONDAY 15/05/06 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

44 SF-03-A-04 DETACHED & BUNGALOWS SUFFOLK
NORMANSTON DRIVE

LOWESTOFT
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 7
Survey date: TUESDAY 23/10/12 Survey Type: MANUAL

45 SH-03-A-03 DETATCHED SHROPSHIRE
SOMERBY DRIVE
BICTON HEATH
SHREWSBURY
Edge of Town
No Sub Category
Total Number of dwellings: 10
Survey date: FRIDAY 26/06/09 Survey Type: MANUAL

46 SH-03-A-04 TERRACED SHROPSHIRE
ST MICHAEL'S STREET

SHREWSBURY
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 108
Survey date: THURSDAY 11/06/09 Survey Type: MANUAL

47 SR-03-A-01 DETACHED STIRLING
BENVIEW

STIRLING
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 115
Survey date: MONDAY 23/04/07 Survey Type: MANUAL

48 ST-03-A-05 TERRACED & DETACHED STAFFORDSHIRE
WATERMEET GROVE
ETRURIA
STOKE-ON-TRENT
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 14
Survey date: WEDNESDAY 26/11/08 Survey Type: MANUAL

49 TV-03-A-01 HOUSES & FLATS TEES VALLEY
POWLETT ROAD

HARTLEPOOL
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 225
Survey date: THURSDAY 14/04/05 Survey Type: MANUAL

50 WK-03-A-01 TERRACED/SEMI/DET. WARWICKSHIRE
ARLINGTON AVENUE

LEAMINGTON SPA
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 6
Survey date: FRIDAY 21/10/11 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

51 WL-03-A-01 SEMI D./TERRACED W. BASSETT WILTSHIRE
MAPLE DRIVE

WOOTTON BASSETT
Edge of Town
Residential Zone
Total Number of dwellings: 99
Survey date: MONDAY 02/10/06 Survey Type: MANUAL

52 WM-03-A-01 TERRACED WEST MIDLANDS
FOLESHILL ROAD
FOLESHILL
COVENTRY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 79
Survey date: FRIDAY 03/02/06 Survey Type: MANUAL

53 WM-03-A-02 DETACHED & SEMI DET. WEST MIDLANDS
HEATH STREET

STOURBRIDGE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 12
Survey date: WEDNESDAY 26/04/06 Survey Type: MANUAL

54 WM-03-A-03 MIXED HOUSING WEST MIDLANDS
BASELEY WAY
ROWLEYS GREEN
COVENTRY
Edge of Town
Residential Zone
Total Number of dwellings: 84
Survey date: MONDAY 24/09/07 Survey Type: MANUAL

55 WO-03-A-01 DETACHED WORCESTERSHIRE
MARLBOROUGH AVENUE
ASTON FIELDS
BROMSGROVE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 10
Survey date: THURSDAY 23/06/05 Survey Type: MANUAL

56 WO-03-A-02 SEMI DETACHED WORCESTERSHIRE
MEADOWHILL ROAD

REDDITCH
Edge of Town
No Sub Category
Total Number of dwellings: 48
Survey date: TUESDAY 02/05/06 Survey Type: MANUAL

57 WO-03-A-03 DETACHED WORCESTERSHIRE
BLAKEBROOK
BLAKEBROOK
KIDDERMINSTER
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 138
Survey date: FRIDAY 05/05/06 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

58 WO-03-A-06 DET./TERRACED WORCESTERSHIRE
ST GODWALDS ROAD
ASTON FIELDS
BROMSGROVE
Edge of Town
No Sub Category
Total Number of dwellings: 232
Survey date: THURSDAY 30/06/05 Survey Type: MANUAL

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	58	81	0.075	58	81	0.280	58	81	0.355
08:00 - 09:00	58	81	0.155	58	81	0.411	58	81	0.566
09:00 - 10:00	58	81	0.169	58	81	0.212	58	81	0.381
10:00 - 11:00	58	81	0.155	58	81	0.185	58	81	0.340
11:00 - 12:00	58	81	0.175	58	81	0.178	58	81	0.353
12:00 - 13:00	58	81	0.190	58	81	0.177	58	81	0.367
13:00 - 14:00	58	81	0.188	58	81	0.182	58	81	0.370
14:00 - 15:00	58	81	0.197	58	81	0.204	58	81	0.401
15:00 - 16:00	58	81	0.283	58	81	0.205	58	81	0.488
16:00 - 17:00	58	81	0.330	58	81	0.203	58	81	0.533
17:00 - 18:00	58	81	0.394	58	81	0.232	58	81	0.626
18:00 - 19:00	58	81	0.272	58	81	0.209	58	81	0.481
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.583			2.678			5.261

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

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

Parameter summary

Trip rate parameter range selected:	6 - 372 (units:)
Survey date date range:	01/01/05 - 23/10/12
Number of weekdays (Monday-Friday):	58
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	1

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

APPENDIX 4

ARCADY Output – B6428 Lee Lane/Site Access Junction

ARCADY 7

Version: 7.1.1.245 [9th June 2011]
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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

File: Z:\projects\0255 Lee Lane, Royston\Arcady\B6428 Lee Lane - Northern Site Access (August 2013).arc7
Report generation date: 16/08/2013 13:49:39

Summary of roundabout performance

	AM Peak				PM Peak			
	Queue (PCU)	Delay (min)	RFC	LOS	Queue (PCU)	Delay (min)	RFC	LOS
	(Default Analysis Set) - 2017 With Development							
Arm 1	0.53	0.06	0.35	A	0.41	0.05	0.29	A
Arm 2	0.00	0.00	0.00	A	0.00	0.00	0.00	A
Arm 3	0.27	0.05	0.21	A	0.40	0.05	0.29	A
Arm 4	0.07	0.04	0.06	A	0.04	0.04	0.04	A
	(Default Analysis Set) - 2022 With Development							
Arm 1	0.59	0.06	0.37	A	0.44	0.06	0.31	A
Arm 2	0.00	0.00	0.00	A	0.00	0.00	0.00	A
Arm 3	0.29	0.05	0.22	A	0.44	0.05	0.30	A
Arm 4	0.07	0.04	0.06	A	0.04	0.04	0.04	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

2017 With Development - AM Peak runs from 07:45:00 to 09:15:00
2017 With Development - PM Peak runs from 16:45:00 to 18:15:00
2022 With Development - AM Peak runs from 07:45:00 to 09:15:00
2022 With Development - PM Peak runs from 16:45:00 to 18:15:00

File summary

File Description

Title	B6428 Lee Lane/Site Access
Location	Royston, Barnsley
Site Number	
Date	13/08/2013
Version	
Status	(new file)
Identifier	
Client	Strategic Land Group
Jobnumber	0255
Enumerator	TBentley
Description	Drawing 0255-F01

Analysis Options

RFC Threshold	Vehicle Length (m)	Do Queue Variations
0.85	5.75	

Sorting and Display

Show Arm Names	Arm Grouping	Sorting Direction	Sorting Type	Data Matrix Style	Time Style
	Order	Ascending	Numerical	By Destination	Absolute Time

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	min	-Min	perMin

A1 - (Default Analysis Set) - D1 - 2017 With Development, AM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2017 With Development, AM Peak	2017 With Development	AM Peak			Yes			07:45	09:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	1,2,3,4	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
1	B6428 Lee Lane (e)	
2	Potential Site Access (s)	
3	B6428 Lee Lane (w)	
4	Proposed Site Access (s)	

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
4	0.00	99999.00		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.25	6.50	20.00	15.00	40.00	33.00	
2	3.65	8.85	17.00	29.00	40.00	31.00	
3	3.45	6.50	25.00	16.00	40.00	33.00	
4	3.65	6.50	15.00	38.00	40.00	30.00	

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		((calculated))	((calculated))	0.612	1589.005
2		((calculated))	((calculated))	0.690	1924.447
3		((calculated))	((calculated))	0.629	1671.309
4		((calculated))	((calculated))	0.645	1681.040

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)	PHF
1	ONE HOUR	Yes	490.00	100.000	N/A
2	ONE HOUR	Yes	0.00	100.000	N/A
3	ONE HOUR	Yes	318.00	100.000	N/A
4	ONE HOUR	Yes	82.00	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
1	1	368.90	368.90	N/A	N/A
1	2	0.00	0.00	N/A	N/A
1	3	239.41	239.41	N/A	N/A
1	4	61.73	61.73	N/A	N/A
2	1	440.50	440.50	N/A	N/A
2	2	0.00	0.00	N/A	N/A
2	3	285.88	285.88	N/A	N/A
2	4	73.72	73.72	N/A	N/A
3	1	539.50	539.50	N/A	N/A
3	2	0.00	0.00	N/A	N/A
3	3	350.12	350.12	N/A	N/A
3	4	90.28	90.28	N/A	N/A
4	1	539.50	539.50	N/A	N/A
4	2	0.00	0.00	N/A	N/A
4	3	350.12	350.12	N/A	N/A
4	4	90.28	90.28	N/A	N/A
5	1	440.50	440.50	N/A	N/A
5	2	0.00	0.00	N/A	N/A
5	3	285.88	285.88	N/A	N/A
5	4	73.72	73.72	N/A	N/A

6	1	368.90	368.90	N/A	N/A
6	2	0.00	0.00	N/A	N/A
6	3	239.41	239.41	N/A	N/A
6	4	61.73	61.73	N/A	N/A

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	480.000	10.000
	2	0.000	0.000	0.000	0.000
	3	297.000	0.000	0.000	21.000
	4	25.000	0.000	57.000	0.000

Turning Proportions (PCU) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.00	0.98	0.02
	2	0.25	0.25	0.25	0.25
	3	0.93	0.00	0.00	0.07
	4	0.30	0.00	0.70	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Total Demand (PCU/hr)	Total Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Queueing Total Delay (PCU-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/hr)
1	0.35	0.06	0.53	A	449.63	674.45	36.88	0.05	0.41	36.88	0.05	0.612	1589.005
2	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.690	1924.447
3	0.21	0.05	0.27	A	291.80	437.70	19.16	0.04	0.21	19.16	0.04	0.629	1671.309
4	0.06	0.04	0.07	A	75.24	112.87	4.74	0.04	0.05	4.74	0.04	0.645	1681.040

Main Results

Main results: (07:45-08:00)

Arm	Demand (PCU/hr)	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)
1	368.90	92.22	367.67	241.74	42.80	0.00	1562.83	1190.62	0.236	0.00	0.31

2	0.00	0.00	0.00	0.00	410.46	0.00	1641.12	789.24	0.000	0.00	0.00
3	239.41	59.85	238.74	402.96	7.50	0.00	1666.59	1283.50	0.144	0.00	0.17
4	61.73	15.43	61.57	23.27	222.97	0.00	1537.19	653.12	0.040	0.00	0.04

Main results: (08:00-08:15)

Arm	Demand (PCU/hr)	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)
1	440.50	110.12	440.16	289.31	51.22	0.00	1557.68	1190.62	0.283	0.31	0.39
2	0.00	0.00	0.00	0.00	491.38	0.00	1585.27	789.23	0.000	0.00	0.00
3	285.88	71.47	285.72	482.39	8.98	0.00	1665.66	1283.50	0.172	0.17	0.21
4	73.72	18.43	73.68	27.85	266.85	0.00	1508.89	653.12	0.049	0.04	0.05

Main results: (08:15-08:30)

Arm	Demand (PCU/hr)	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)
1	539.50	134.88	538.95	354.29	62.72	0.00	1550.64	1190.62	0.348	0.39	0.53
2	0.00	0.00	0.00	0.00	601.67	0.00	1509.14	789.24	0.000	0.00	0.00
3	350.12	87.53	349.89	590.67	11.00	0.00	1664.39	1283.50	0.210	0.21	0.27
4	90.28	22.57	90.23	34.10	326.78	0.00	1470.22	653.12	0.061	0.05	0.07

Main results: (08:30-08:45)

Arm	Demand (PCU/hr)	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)
1	539.50	134.88	539.49	354.53	62.76	0.00	1550.62	1190.62	0.348	0.53	0.53
2	0.00	0.00	0.00	0.00	602.25	0.00	1508.74	789.24	0.000	0.00	0.00
3	350.12	87.53	350.12	591.24	11.01	0.00	1664.38	1283.50	0.210	0.27	0.27
4	90.28	22.57	90.28	34.13	327.00	0.00	1470.08	653.12	0.061	0.07	0.07

Main results: (08:45-09:00)

Arm	Demand (PCU/hr)	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)
1	440.50	110.12	441.04	289.70	51.28	0.00	1557.64	1190.62	0.283	0.53	0.40
2	0.00	0.00	0.00	0.00	492.32	0.00	1584.62	789.23	0.000	0.00	0.00
3	285.88	71.47	286.11	483.32	9.00	0.00	1665.64	1283.50	0.172	0.27	0.21
4	73.72	18.43	73.77	27.89	267.21	0.00	1508.65	653.12	0.049	0.07	0.05

Main results: (09:00-09:15)

Arm	Demand (PCU/hr)	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)
1	368.90	92.22	369.24	242.58	42.94	0.00	1562.74	1190.62	0.236	0.40	0.31
2	0.00	0.00	0.00	0.00	412.18	0.00	1639.94	789.24	0.000	0.00	0.00
3	239.41	59.85	239.57	404.64	7.54	0.00	1666.57	1283.50	0.144	0.21	0.17
4	61.73	15.43	61.77	23.36	223.75	0.00	1536.70	653.12	0.040	0.05	0.04

Queueing Delay Results

Queueing Delay results: (07:45-08:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	4.53	0.30	0.050	A	A
2	0.00	0.00	0.000	A	A
3	2.47	0.16	0.042	A	A
4	0.62	0.04	0.041	A	A

Queueing Delay results: (08:00-08:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	5.80	0.39	0.054	A	A
2	0.00	0.00	0.000	A	A
3	3.06	0.20	0.043	A	A
4	0.76	0.05	0.042	A	A

Queueing Delay results: (08:15-08:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	7.82	0.52	0.059	A	A
2	0.00	0.00	0.000	A	A
3	3.93	0.26	0.046	A	A
4	0.97	0.06	0.043	A	A

Queueing Delay results: (08:30-08:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	7.97	0.53	0.059	A	A
2	0.00	0.00	0.000	A	A
3	3.99	0.27	0.046	A	A
4	0.98	0.07	0.043	A	A

Queueing Delay results: (08:45-09:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	6.04	0.40	0.054	A	A
2	0.00	0.00	0.000	A	A
3	3.16	0.21	0.044	A	A
4	0.78	0.05	0.042	A	A

Queueing Delay results: (09:00-09:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	4.72	0.31	0.050	A	A
2	0.00	0.00	0.000	A	A
3	2.55	0.17	0.042	A	A
4	0.64	0.04	0.041	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/hr)
1	3.25	6.50	20.00	15.00	40.00	33.00		0.612	1589.005
2	3.65	8.85	17.00	29.00	40.00	31.00		0.690	1924.447
3	3.45	6.50	25.00	16.00	40.00	33.00		0.629	1671.309
4	3.65	6.50	15.00	38.00	40.00	30.00		0.645	1681.040

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Pedestrian Demand (Ped/hr)	Start Queue (PCU)	End Queue (PCU)	Queueing Total Delay (PCU-min)	Geometric Total Delay (PCU-min)	Average Delay Per Arriving Vehicle (min)
1	1	368.90	1562.83	0.236	0.00	0.00	0.31	4.53	(0.02)	0.050
1	2	0.00	1641.12	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
1	3	239.41	1666.59	0.144	0.00	0.00	0.17	2.47	(0.02)	0.042
1	4	61.73	1537.19	0.040	0.00	0.00	0.04	0.62	(0.02)	0.041
2	1	440.50	1557.68	0.283	0.00	0.31	0.39	5.80	(0.02)	0.054
2	2	0.00	1585.27	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
2	3	285.88	1665.66	0.172	0.00	0.17	0.21	3.06	(0.02)	0.043
2	4	73.72	1508.89	0.049	0.00	0.04	0.05	0.76	(0.02)	0.042
3	1	539.50	1550.64	0.348	0.00	0.39	0.53	7.82	(0.02)	0.059
3	2	0.00	1509.14	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
3	3	350.12	1664.39	0.210	0.00	0.21	0.27	3.93	(0.02)	0.046
3	4	90.28	1470.22	0.061	0.00	0.05	0.07	0.97	(0.02)	0.043
4	1	539.50	1550.62	0.348	0.00	0.53	0.53	7.97	(0.02)	0.059
4	2	0.00	1508.74	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
4	3	350.12	1664.38	0.210	0.00	0.27	0.27	3.99	(0.02)	0.046

4	4	90.28	1470.08	0.061	0.00	0.07	0.07	0.98	(0.02)	0.043
5	1	440.50	1557.64	0.283	0.00	0.53	0.40	6.04	(0.02)	0.054
5	2	0.00	1584.62	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
5	3	285.88	1665.64	0.172	0.00	0.27	0.21	3.16	(0.02)	0.044
5	4	73.72	1508.65	0.049	0.00	0.07	0.05	0.78	(0.02)	0.042
6	1	368.90	1562.74	0.236	0.00	0.40	0.31	4.72	(0.02)	0.050
6	2	0.00	1639.94	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
6	3	239.41	1666.57	0.144	0.00	0.21	0.17	2.55	(0.02)	0.042
6	4	61.73	1536.70	0.040	0.00	0.05	0.04	0.64	(0.02)	0.041

A1 - (Default Analysis Set) - D2 - 2017 With Development, PM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2017 With Development, PM Peak	2017 With Development	PM Peak			Yes			16:45	18:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	1,2,3,4	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
1	B6428 Lee Lane (e)	
2	Potential Site Access (s)	
3	B6428 Lee Lane (w)	
4	Proposed Site Access (s)	

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
4	0.00	99999.00		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.25	6.50	20.00	15.00	40.00	33.00	
2	3.65	8.85	17.00	29.00	40.00	31.00	
3	3.45	6.50	25.00	16.00	40.00	33.00	
4	3.65	6.50	15.00	38.00	40.00	30.00	

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		((calculated))	((calculated))	0.612	1589.005
2		((calculated))	((calculated))	0.690	1924.447
3		((calculated))	((calculated))	0.629	1671.309
4		((calculated))	((calculated))	0.645	1681.040

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)	PHF
1	ONE HOUR	Yes	412.00	100.000	N/A
2	ONE HOUR	Yes	0.00	100.000	N/A
3	ONE HOUR	Yes	430.00	100.000	N/A
4	ONE HOUR	Yes	46.00	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
1	1	310.18	310.18	N/A	N/A
1	2	0.00	0.00	N/A	N/A
1	3	323.73	323.73	N/A	N/A
1	4	34.63	34.63	N/A	N/A
2	1	370.38	370.38	N/A	N/A
2	2	0.00	0.00	N/A	N/A
2	3	386.56	386.56	N/A	N/A
2	4	41.35	41.35	N/A	N/A
3	1	453.62	453.62	N/A	N/A
3	2	0.00	0.00	N/A	N/A
3	3	473.44	473.44	N/A	N/A

3	4	50.65	50.65	N/A	N/A
4	1	453.62	453.62	N/A	N/A
4	2	0.00	0.00	N/A	N/A
4	3	473.44	473.44	N/A	N/A
4	4	50.65	50.65	N/A	N/A
5	1	370.38	370.38	N/A	N/A
5	2	0.00	0.00	N/A	N/A
5	3	386.56	386.56	N/A	N/A
5	4	41.35	41.35	N/A	N/A
6	1	310.18	310.18	N/A	N/A
6	2	0.00	0.00	N/A	N/A
6	3	323.73	323.73	N/A	N/A
6	4	34.63	34.63	N/A	N/A

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	388.000	24.000
	2	0.000	0.000	0.000	0.000
	3	376.000	0.000	0.000	54.000
	4	14.000	0.000	32.000	0.000

Turning Proportions (PCU) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.00	0.94	0.06
	2	0.25	0.25	0.25	0.25
	3	0.87	0.00	0.00	0.13
	4	0.30	0.00	0.70	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Total Demand (PCU/hr)	Total Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Queueing Total Delay (PCU-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/hr)
1	0.29	0.05	0.41	A	378.06	567.09	28.68	0.05	0.32	28.68	0.05	0.612	1589.005
2	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	166666666.65	0.690	1924.447
3	0.29	0.05	0.40	A	394.58	591.86	28.27	0.05	0.31	28.27	0.05	0.629	1671.309

4	0.04	0.04	0.04	A	42.21	63.32	2.69	0.04	0.03	2.69	0.04	0.645	1681.040

Main Results

Main results: (16:45-17:00)

Arm	Demand (PCU/hr)	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)
1	310.18	77.54	309.20	292.74	24.03	0.00	1574.31	1164.63	0.197	0.00	0.24
2	0.00	0.00	0.00	0.00	333.22	0.00	1694.44	775.47	0.000	0.00	0.00
3	323.73	80.93	322.76	315.21	18.01	0.00	1659.97	1262.59	0.195	0.00	0.24
4	34.63	8.66	34.54	58.54	282.23	0.00	1498.97	718.66	0.023	0.00	0.02

Main results: (17:00-17:15)

Arm	Demand (PCU/hr)	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)
1	370.38	92.59	370.13	350.38	28.75	0.00	1571.42	1164.63	0.236	0.24	0.31
2	0.00	0.00	0.00	0.00	398.88	0.00	1649.12	775.47	0.000	0.00	0.00
3	386.56	96.64	386.32	377.32	21.56	0.00	1657.74	1262.59	0.233	0.24	0.30
4	41.35	10.34	41.33	70.07	337.80	0.00	1463.11	718.66	0.028	0.02	0.03

Main results: (17:15-17:30)

Arm	Demand (PCU/hr)	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)
1	453.62	113.41	453.23	429.05	35.21	0.00	1567.47	1164.61	0.289	0.31	0.41
2	0.00	0.00	0.00	0.00	488.44	0.00	1587.30	775.46	0.000	0.00	0.00
3	473.44	118.36	473.05	462.04	26.40	0.00	1654.69	1262.60	0.286	0.30	0.40
4	50.65	12.66	50.61	85.81	413.65	0.00	1414.18	718.66	0.036	0.03	0.04

Main results: (17:30-17:45)

Arm	Demand (PCU/hr)	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)
1	453.62	113.41	453.62	429.39	35.23	0.00	1567.45	1164.61	0.289	0.41	0.41
2	0.00	0.00	0.00	0.00	488.85	0.00	1587.01	775.46	0.000	0.00	0.00
3	473.44	118.36	473.44	462.42	26.42	0.00	1654.68	1262.60	0.286	0.40	0.40
4	50.65	12.66	50.65	85.88	413.98	0.00	1413.97	718.66	0.036	0.04	0.04

Main results: (17:45-18:00)

Arm	Demand (PCU/hr)	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)
1	370.38	92.59	370.77	350.94	28.79	0.00	1571.40	1164.63	0.236	0.41	0.31
2	0.00	0.00	0.00	0.00	399.56	0.00	1648.65	775.47	0.000	0.00	0.00
3	386.56	96.64	386.94	377.96	21.60	0.00	1657.72	1262.59	0.233	0.40	0.31
4	41.35	10.34	41.38	70.19	338.35	0.00	1462.76	718.66	0.028	0.04	0.03

Main results: (18:00-18:15)

Arm	Demand (PCU/hr)	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)
1	310.18	77.54	310.43	293.84	24.11	0.00	1574.26	1164.63	0.197	0.31	0.25
2	0.00	0.00	0.00	0.00	334.54	0.00	1693.53	775.47	0.000	0.00	0.00
3	323.73	80.93	323.98	316.45	18.08	0.00	1659.93	1262.59	0.195	0.31	0.24
4	34.63	8.66	34.65	58.77	283.29	0.00	1498.28	718.66	0.023	0.03	0.02

Queueing Delay Results

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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	3.60	0.24	0.047	A	A
2	0.00	0.00	0.000	A	A
3	3.56	0.24	0.045	A	A

4	0.35	0.02	0.041	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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	4.55	0.30	0.050	A	A
2	0.00	0.00	0.000	A	A
3	4.49	0.30	0.047	A	A
4	0.43	0.03	0.042	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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	5.99	0.40	0.054	A	A
2	0.00	0.00	0.000	A	A
3	5.90	0.39	0.051	A	A
4	0.55	0.04	0.044	A	A

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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	6.09	0.41	0.054	A	A
2	0.00	0.00	0.000	A	A
3	5.99	0.40	0.051	A	A
4	0.56	0.04	0.044	A	A

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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	4.71	0.31	0.050	A	A
2	0.00	0.00	0.000	A	A
3	4.64	0.31	0.047	A	A
4	0.44	0.03	0.042	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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	3.74	0.25	0.047	A	A
2	0.00	0.00	0.000	A	A
3	3.69	0.25	0.045	A	A
4	0.36	0.02	0.041	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/hr)
1	3.25	6.50	20.00	15.00	40.00	33.00		0.612	1589.005
2	3.65	8.85	17.00	29.00	40.00	31.00		0.690	1924.447
3	3.45	6.50	25.00	16.00	40.00	33.00		0.629	1671.309
4	3.65	6.50	15.00	38.00	40.00	30.00		0.645	1681.040

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Pedestrian Demand (Ped/hr)	Start Queue (PCU)	End Queue (PCU)	Queueing Total Delay (PCU-min)	Geometric Total Delay (PCU-min)	Average Delay Per Arriving Vehicle (min)
1	1	310.18	1574.31	0.197	0.00	0.00	0.24	3.60	(0.02)	0.047
1	2	0.00	1694.44	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
1	3	323.73	1659.97	0.195	0.00	0.00	0.24	3.56	(0.02)	0.045
1	4	34.63	1498.97	0.023	0.00	0.00	0.02	0.35	(0.02)	0.041

2	1	370.38	1571.42	0.236	0.00	0.24	0.31	4.55	(0.02)	0.050
2	2	0.00	1649.12	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
2	3	386.56	1657.74	0.233	0.00	0.24	0.30	4.49	(0.02)	0.047
2	4	41.35	1463.11	0.028	0.00	0.02	0.03	0.43	(0.02)	0.042
3	1	453.62	1567.47	0.289	0.00	0.31	0.41	5.99	(0.02)	0.054
3	2	0.00	1587.30	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
3	3	473.44	1654.69	0.286	0.00	0.30	0.40	5.90	(0.02)	0.051
3	4	50.65	1414.18	0.036	0.00	0.03	0.04	0.55	(0.02)	0.044
4	1	453.62	1567.45	0.289	0.00	0.41	0.41	6.09	(0.02)	0.054
4	2	0.00	1587.01	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
4	3	473.44	1654.68	0.286	0.00	0.40	0.40	5.99	(0.02)	0.051
4	4	50.65	1413.97	0.036	0.00	0.04	0.04	0.56	(0.02)	0.044
5	1	370.38	1571.40	0.236	0.00	0.41	0.31	4.71	(0.02)	0.050
5	2	0.00	1648.65	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
5	3	386.56	1657.72	0.233	0.00	0.40	0.31	4.64	(0.02)	0.047
5	4	41.35	1462.76	0.028	0.00	0.04	0.03	0.44	(0.02)	0.042
6	1	310.18	1574.26	0.197	0.00	0.31	0.25	3.74	(0.02)	0.047
6	2	0.00	1693.53	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
6	3	323.73	1659.93	0.195	0.00	0.31	0.24	3.69	(0.02)	0.045
6	4	34.63	1498.28	0.023	0.00	0.03	0.02	0.36	(0.02)	0.041

A1 - (Default Analysis Set) - D3 - 2022 With Development, AM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2022 With Development, AM Peak	2022 With Development	AM Peak			Yes			07:45	09:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay
1	(untitled)	1,2,3,4	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
1	B6428 Lee Lane (e)	

2	Potential Site Access (s)	
3	B6428 Lee Lane (w)	
4	Proposed Site Access (s)	

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
4	0.00	99999.00		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.25	6.50	20.00	15.00	40.00	33.00	
2	3.65	8.85	17.00	29.00	40.00	31.00	
3	3.45	6.50	25.00	16.00	40.00	33.00	
4	3.65	6.50	15.00	38.00	40.00	30.00	

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		((calculated))	((calculated))	0.612	1589.005
2		((calculated))	((calculated))	0.690	1924.447
3		((calculated))	((calculated))	0.629	1671.309
4		((calculated))	((calculated))	0.645	1681.040

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)	PHF
1	ONE HOUR	Yes	522.00	100.000	N/A
2	ONE HOUR	Yes	0.00	100.000	N/A
3	ONE HOUR	Yes	338.00	100.000	N/A
4	ONE HOUR	Yes	82.00	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
1	1	392.99	392.99	N/A	N/A
1	2	0.00	0.00	N/A	N/A
1	3	254.46	254.46	N/A	N/A
1	4	61.73	61.73	N/A	N/A
2	1	469.27	469.27	N/A	N/A
2	2	0.00	0.00	N/A	N/A
2	3	303.86	303.86	N/A	N/A
2	4	73.72	73.72	N/A	N/A
3	1	574.73	574.73	N/A	N/A
3	2	0.00	0.00	N/A	N/A
3	3	372.14	372.14	N/A	N/A
3	4	90.28	90.28	N/A	N/A
4	1	574.73	574.73	N/A	N/A
4	2	0.00	0.00	N/A	N/A
4	3	372.14	372.14	N/A	N/A
4	4	90.28	90.28	N/A	N/A
5	1	469.27	469.27	N/A	N/A
5	2	0.00	0.00	N/A	N/A
5	3	303.86	303.86	N/A	N/A
5	4	73.72	73.72	N/A	N/A
6	1	392.99	392.99	N/A	N/A
6	2	0.00	0.00	N/A	N/A
6	3	254.46	254.46	N/A	N/A
6	4	61.73	61.73	N/A	N/A

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	512.000	10.000
	2	0.000	0.000	0.000	0.000
	3	317.000	0.000	0.000	21.000
	4	25.000	0.000	57.000	0.000

Turning Proportions (PCU) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.00	0.98	0.02
	2	0.25	0.25	0.25	0.25
	3	0.94	0.00	0.00	0.06
	4	0.30	0.00	0.70	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000

4	0.000	0.000	0.000	0.000

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Total Demand (PCU/hr)	Total Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Queueing Total Delay (PCU-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/hr)
1	0.37	0.06	0.59	A	479.00	718.49	40.42	0.06	0.45	40.42	0.06	0.612	1589.005
2	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	166666666.65	0.690	1924.447
3	0.22	0.05	0.29	A	310.15	465.23	20.65	0.04	0.23	20.65	0.04	0.629	1671.309
4	0.06	0.04	0.07	A	75.24	112.87	4.78	0.04	0.05	4.78	0.04	0.645	1681.040

Main Results

Main results: (07:45-08:00)

Arm	Demand (PCU/hr)	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)
1	392.99	98.25	391.65	256.75	42.80	0.00	1562.83	1192.12	0.251	0.00	0.33
2	0.00	0.00	0.00	0.00	434.45	0.00	1624.57	790.03	0.000	0.00	0.00
3	254.46	63.62	253.75	426.94	7.50	0.00	1666.59	1284.04	0.153	0.00	0.18
4	61.73	15.43	61.57	23.27	237.98	0.00	1527.51	649.30	0.040	0.00	0.04

Main results: (08:00-08:15)

Arm	Demand (PCU/hr)	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)
1	469.27	117.32	468.89	307.28	51.22	0.00	1557.68	1192.12	0.301	0.33	0.43
2	0.00	0.00	0.00	0.00	520.10	0.00	1565.44	790.03	0.000	0.00	0.00
3	303.86	75.96	303.68	511.12	8.98	0.00	1665.66	1284.04	0.182	0.18	0.22
4	73.72	18.43	73.68	27.85	284.82	0.00	1497.30	649.30	0.049	0.04	0.05

Main results: (08:15-08:30)

Arm	Demand (PCU/hr)	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)
1	574.73	143.68	574.11	376.29	62.72	0.00	1550.64	1192.12	0.371	0.43	0.59
2	0.00	0.00	0.00	0.00	636.83	0.00	1484.87	790.03	0.000	0.00	0.00
3	372.14	93.04	371.89	625.83	11.00	0.00	1664.39	1284.04	0.224	0.22	0.29
4	90.28	22.57	90.23	34.10	348.78	0.00	1456.03	649.30	0.062	0.05	0.07

Main results: (08:30-08:45)

Arm	Demand (PCU/hr)	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)
1	574.73	143.68	574.73	376.55	62.76	0.00	1550.62	1192.12	0.371	0.59	0.59
2	0.00	0.00	0.00	0.00	637.48	0.00	1484.42	790.03	0.000	0.00	0.00
3	372.14	93.04	372.14	626.47	11.01	0.00	1664.38	1284.04	0.224	0.29	0.29
4	90.28	22.57	90.28	34.13	349.02	0.00	1455.88	649.30	0.062	0.07	0.07

Main results: (08:45-09:00)

Arm	Demand (PCU/hr)	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)
1	469.27	117.32	469.88	307.71	51.28	0.00	1557.64	1192.12	0.301	0.59	0.43
2	0.00	0.00	0.00	0.00	521.16	0.00	1564.71	790.03	0.000	0.00	0.00
3	303.86	75.96	304.11	512.16	9.00	0.00	1665.64	1284.04	0.182	0.29	0.22
4	73.72	18.43	73.77	27.90	285.21	0.00	1497.04	649.30	0.049	0.07	0.05

Main results: (09:00-09:15)

Arm	Demand (PCU/hr)	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)

1	392.99	98.25	393.37	257.65	42.94	0.00	1562.74	1192.12	0.251	0.43	0.34
2	0.00	0.00	0.00	0.00	436.31	0.00	1623.28	790.03	0.000	0.00	0.00
3	254.46	63.62	254.64	428.78	7.54	0.00	1666.57	1284.04	0.153	0.22	0.18
4	61.73	15.43	61.77	23.36	238.82	0.00	1526.97	649.30	0.040	0.05	0.04

Queueing Delay Results

Queueing Delay results: (07:45-08:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	4.92	0.33	0.051	A	A
2	0.00	0.00	0.000	A	A
3	2.65	0.18	0.042	A	A
4	0.62	0.04	0.041	A	A

Queueing Delay results: (08:00-08:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	6.34	0.42	0.055	A	A
2	0.00	0.00	0.000	A	A
3	3.30	0.22	0.044	A	A
4	0.77	0.05	0.042	A	A

Queueing Delay results: (08:15-08:30)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	8.62	0.57	0.061	A	A
2	0.00	0.00	0.000	A	A
3	4.25	0.28	0.046	A	A
4	0.98	0.07	0.044	A	A

Queueing Delay results: (08:30-08:45)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	8.79	0.59	0.061	A	A
2	0.00	0.00	0.000	A	A
3	4.31	0.29	0.046	A	A
4	0.99	0.07	0.044	A	A

Queueing Delay results: (08:45-09:00)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	6.61	0.44	0.055	A	A
2	0.00	0.00	0.000	A	A
3	3.40	0.23	0.044	A	A
4	0.79	0.05	0.042	A	A

Queueing Delay results: (09:00-09:15)

Arm	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	5.14	0.34	0.051	A	A
2	0.00	0.00	0.000	A	A
3	2.74	0.18	0.043	A	A
4	0.64	0.04	0.041	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/hr)
1	3.25	6.50	20.00	15.00	40.00	33.00		0.612	1589.005
2	3.65	8.85	17.00	29.00	40.00	31.00		0.690	1924.447
3	3.45	6.50	25.00	16.00	40.00	33.00		0.629	1671.309

4	3.65	6.50	15.00	38.00	40.00	30.00		0.645	1681.040

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Pedestrian Demand (Ped/hr)	Start Queue (PCU)	End Queue (PCU)	Queueing Total Delay (PCU-min)	Geometric Total Delay (PCU-min)	Average Delay Per Arriving Vehicle (min)
1	1	392.99	1562.83	0.251	0.00	0.00	0.33	4.92	(0.02)	0.051
1	2	0.00	1624.57	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
1	3	254.46	1666.59	0.153	0.00	0.00	0.18	2.65	(0.02)	0.042
1	4	61.73	1527.51	0.040	0.00	0.00	0.04	0.62	(0.02)	0.041
2	1	469.27	1557.68	0.301	0.00	0.33	0.43	6.34	(0.02)	0.055
2	2	0.00	1565.44	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
2	3	303.86	1665.66	0.182	0.00	0.18	0.22	3.30	(0.02)	0.044
2	4	73.72	1497.30	0.049	0.00	0.04	0.05	0.77	(0.02)	0.042
3	1	574.73	1550.64	0.371	0.00	0.43	0.59	8.62	(0.02)	0.061
3	2	0.00	1484.87	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
3	3	372.14	1664.39	0.224	0.00	0.22	0.29	4.25	(0.02)	0.046
3	4	90.28	1456.03	0.062	0.00	0.05	0.07	0.98	(0.02)	0.044
4	1	574.73	1550.62	0.371	0.00	0.59	0.59	8.79	(0.02)	0.061
4	2	0.00	1484.42	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
4	3	372.14	1664.38	0.224	0.00	0.29	0.29	4.31	(0.02)	0.046
4	4	90.28	1455.88	0.062	0.00	0.07	0.07	0.99	(0.02)	0.044
5	1	469.27	1557.64	0.301	0.00	0.59	0.43	6.61	(0.02)	0.055
5	2	0.00	1564.71	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
5	3	303.86	1665.64	0.182	0.00	0.29	0.22	3.40	(0.02)	0.044
5	4	73.72	1497.04	0.049	0.00	0.07	0.05	0.79	(0.02)	0.042
6	1	392.99	1562.74	0.251	0.00	0.43	0.34	5.14	(0.02)	0.051
6	2	0.00	1623.28	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
6	3	254.46	1666.57	0.153	0.00	0.22	0.18	2.74	(0.02)	0.043
6	4	61.73	1526.97	0.040	0.00	0.05	0.04	0.64	(0.02)	0.041

A1 - (Default Analysis Set) - D4 - 2022 With Development, PM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Description	Include In Report	Use Specific Demand Set	Demand Set	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)		Yes		(D1)		100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Locked	Run Automatically	Use Relationship	Relationship	Start Time (HH:mm)	Finish Time (HH:mm)	Time Period Length (min)	Time Segment Length (min)	Traffic Profile Type
2022 With Development, PM Peak	2022 With Development	PM Peak			Yes			16:45	18:15	90	15	ONE HOUR

Roundabout Network

Roundabout Type(s)

ID	Name	Arm Order	Roundabout Type	Grade Separated	Large Roundabout	Do Geometric Delay

1	(untitled)	1,2,3,4	Standard			

Roundabout Network Options

Driving Side	Lighting	Road Surface	In London
Left	Normal/unknown	((Mini-roundabouts only))	

Arms

Arms

ID	Name	Description
1	B6428 Lee Lane (e)	
2	Potential Site Access (s)	
3	B6428 Lee Lane (w)	
4	Proposed Site Access (s)	

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
4	0.00	99999.00		0.00

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1	3.25	6.50	20.00	15.00	40.00	33.00	
2	3.65	8.85	17.00	29.00	40.00	31.00	
3	3.45	6.50	25.00	16.00	40.00	33.00	
4	3.65	6.50	15.00	38.00	40.00	30.00	

Pedestrian Crossings

Arm	Crossing Type
1	None
2	None
3	None
4	None

Arm Slope/ Intercept and Capacity

Slope and Intercept used in model

Arm	Enter Directly	Slope	Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
1		((calculated))	((calculated))	0.612	1589.005
2		((calculated))	((calculated))	0.690	1924.447
3		((calculated))	((calculated))	0.629	1671.309
4		((calculated))	((calculated))	0.645	1681.040

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
		Yes	Yes	HV Percentages	2.00				Yes	Yes

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)	PHF
1	ONE HOUR	Yes	436.00	100.000	N/A
2	ONE HOUR	Yes	0.00	100.000	N/A
3	ONE HOUR	Yes	457.00	100.000	N/A
4	ONE HOUR	Yes	46.00	100.000	N/A

Direct/Resultant Flows

Direct Flows Data

Time Segment	Arm	Direct Demand Entry Flow (PCU/hr)	DirectDemandEntryFlowInPCU (PCU/hr)	Direct Demand Exit Flow (PCU/hr)	Direct Demand Pedestrian Flow (Ped/hr)
1	1	328.24	328.24	N/A	N/A
1	2	0.00	0.00	N/A	N/A
1	3	344.05	344.05	N/A	N/A
1	4	34.63	34.63	N/A	N/A
2	1	391.96	391.96	N/A	N/A
2	2	0.00	0.00	N/A	N/A
2	3	410.83	410.83	N/A	N/A
2	4	41.35	41.35	N/A	N/A
3	1	480.04	480.04	N/A	N/A
3	2	0.00	0.00	N/A	N/A
3	3	503.17	503.17	N/A	N/A
3	4	50.65	50.65	N/A	N/A
4	1	480.04	480.04	N/A	N/A
4	2	0.00	0.00	N/A	N/A
4	3	503.17	503.17	N/A	N/A
4	4	50.65	50.65	N/A	N/A
5	1	391.96	391.96	N/A	N/A
5	2	0.00	0.00	N/A	N/A
5	3	410.83	410.83	N/A	N/A
5	4	41.35	41.35	N/A	N/A
6	1	328.24	328.24	N/A	N/A
6	2	0.00	0.00	N/A	N/A
6	3	344.05	344.05	N/A	N/A
6	4	34.63	34.63	N/A	N/A

Turning Proportions

Turning Counts or Proportions (PCU/hr) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	411.000	25.000
	2	0.000	0.000	0.000	0.000
	3	403.000	0.000	0.000	54.000
	4	14.000	0.000	32.000	0.000

Turning Proportions (PCU) - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.00	0.00	0.94	0.06
	2	0.25	0.25	0.25	0.25
	3	0.88	0.00	0.00	0.12
	4	0.30	0.00	0.70	0.00

Vehicle Mix

Average PCU Per Vehicle - Roundabout 1 (for whole period)

	To				
		1	2	3	4

From	1	1.000	1.000	1.000	1.000
	2	1.000	1.000	1.000	1.000
	3	1.000	1.000	1.000	1.000
	4	1.000	1.000	1.000	1.000

Heavy Vehicle Percentages - Roundabout 1 (for whole period)

		To			
		1	2	3	4
From	1	0.000	0.000	0.000	0.000
	2	0.000	0.000	0.000	0.000
	3	0.000	0.000	0.000	0.000
	4	0.000	0.000	0.000	0.000

Results

Results Summary

Arm	Max RFC	Max Delay (min)	Max Queue (PCU)	Max LOS	Total Demand (PCU/hr)	Total Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (min)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Queueing Total Delay (PCU-min)	Inclusive Queueing Average Delay (min)	Slope	Intercept (PCU/hr)
1	0.31	0.06	0.44	A	400.08	600.12	30.95	0.05	0.34	30.95	0.05	0.612	1589.005
2	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	166666666.65	0.690	1924.447
3	0.30	0.05	0.44	A	419.35	629.03	30.69	0.05	0.34	30.69	0.05	0.629	1671.309
4	0.04	0.04	0.04	A	42.21	63.32	2.72	0.04	0.03	2.72	0.04	0.645	1681.040

Main Results

Main results: (16:45-17:00)

Arm	Demand (PCU/hr)	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)
1	328.24	82.06	327.19	312.99	24.03	0.00	1574.31	1167.17	0.209	0.00	0.26
2	0.00	0.00	0.00	0.00	351.22	0.00	1682.01	776.81	0.000	0.00	0.00
3	344.05	86.01	343.01	332.46	18.76	0.00	1659.50	1262.54	0.207	0.00	0.26
4	34.63	8.66	34.54	59.29	302.48	0.00	1485.90	712.21	0.023	0.00	0.02

Main results: (17:00-17:15)

Arm	Demand (PCU/hr)	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)
1	391.96	97.99	391.68	374.63	28.75	0.00	1571.42	1167.17	0.249	0.26	0.33
2	0.00	0.00	0.00	0.00	420.43	0.00	1634.24	776.81	0.000	0.00	0.00
3	410.83	102.71	410.56	397.97	22.46	0.00	1657.17	1262.54	0.248	0.26	0.33
4	41.35	10.34	41.33	70.97	362.05	0.00	1447.47	712.21	0.029	0.02	0.03

Main results: (17:15-17:30)

Arm	Demand (PCU/hr)	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)
1	480.04	120.01	479.61	458.74	35.21	0.00	1567.47	1167.17	0.306	0.33	0.44
2	0.00	0.00	0.00	0.00	514.82	0.00	1569.09	776.81	0.000	0.00	0.00
3	503.17	125.79	502.74	487.32	27.50	0.00	1654.00	1262.54	0.304	0.33	0.44
4	50.65	12.66	50.61	86.91	443.33	0.00	1395.03	712.21	0.036	0.03	0.04

Main results: (17:30-17:45)

Arm	Demand (PCU/hr)	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)
1	480.04	120.01	480.04	459.12	35.23	0.00	1567.45	1167.17	0.306	0.44	0.44
2	0.00	0.00	0.00	0.00	515.27	0.00	1568.78	776.81	0.000	0.00	0.00
3	503.17	125.79	503.16	487.75	27.53	0.00	1653.99	1262.54	0.304	0.44	0.44
4	50.65	12.66	50.65	86.98	443.71	0.00	1394.79	712.21	0.036	0.04	0.04

Main results: (17:45-18:00)

Arm	Demand (PCU/hr)	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)
1	391.96	97.99	392.38	375.26	28.79	0.00	1571.40	1167.17	0.249	0.44	0.33
2	0.00	0.00	0.00	0.00	421.17	0.00	1633.73	776.81	0.000	0.00	0.00
3	410.83	102.71	411.25	398.67	22.50	0.00	1657.15	1262.54	0.248	0.44	0.33
4	41.35	10.34	41.39	71.09	362.66	0.00	1447.08	712.21	0.029	0.04	0.03

Main results: (18:00-18:15)

Arm	Demand (PCU/hr)	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)
1	328.24	82.06	328.52	314.19	24.11	0.00	1574.26	1167.17	0.209	0.33	0.26
2	0.00	0.00	0.00	0.00	352.63	0.00	1681.04	776.81	0.000	0.00	0.00
3	344.05	86.01	344.33	333.79	18.84	0.00	1659.45	1262.54	0.207	0.33	0.26
4	34.63	8.66	34.65	59.52	303.64	0.00	1485.15	712.21	0.023	0.03	0.02

Queueing Delay Results

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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	3.86	0.26	0.048	A	A
2	0.00	0.00	0.000	A	A
3	3.84	0.26	0.046	A	A
4	0.35	0.02	0.041	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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	4.90	0.33	0.051	A	A
2	0.00	0.00	0.000	A	A
3	4.86	0.32	0.048	A	A
4	0.44	0.03	0.043	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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	6.49	0.43	0.055	A	A
2	0.00	0.00	0.000	A	A
3	6.43	0.43	0.052	A	A
4	0.56	0.04	0.045	A	A

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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	6.60	0.44	0.055	A	A
2	0.00	0.00	0.000	A	A
3	6.54	0.44	0.052	A	A
4	0.56	0.04	0.045	A	A

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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	5.08	0.34	0.051	A	A
2	0.00	0.00	0.000	A	A
3	5.04	0.34	0.048	A	A
4	0.45	0.03	0.043	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 (min)	Unsignalised Level Of Service	Signalised Level Of Service
1	4.02	0.27	0.048	A	A
2	0.00	0.00	0.000	A	A
3	3.99	0.27	0.046	A	A

4	0.36	0.02	0.041	A	A

Overview: Standard Roundabout Geometry

Standard Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only	Final Slope	Final Intercept (PCU/hr)
1	3.25	6.50	20.00	15.00	40.00	33.00		0.612	1589.005
2	3.65	8.85	17.00	29.00	40.00	31.00		0.690	1924.447
3	3.45	6.50	25.00	16.00	40.00	33.00		0.629	1671.309
4	3.65	6.50	15.00	38.00	40.00	30.00		0.645	1681.040

Overview: Time Segment Results

Time Segment Results

Time Segment	Arm	Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Pedestrian Demand (Ped/hr)	Start Queue (PCU)	End Queue (PCU)	Queueing Total Delay (PCU-min)	Geometric Total Delay (PCU-min)	Average Delay Per Arriving Vehicle (min)
1	1	328.24	1574.31	0.209	0.00	0.00	0.26	3.86	(0.02)	0.048
1	2	0.00	1682.01	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
1	3	344.05	1659.50	0.207	0.00	0.00	0.26	3.84	(0.02)	0.046
1	4	34.63	1485.90	0.023	0.00	0.00	0.02	0.35	(0.02)	0.041
2	1	391.96	1571.42	0.249	0.00	0.26	0.33	4.90	(0.02)	0.051
2	2	0.00	1634.24	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
2	3	410.83	1657.17	0.248	0.00	0.26	0.33	4.86	(0.02)	0.048
2	4	41.35	1447.47	0.029	0.00	0.02	0.03	0.44	(0.02)	0.043
3	1	480.04	1567.47	0.306	0.00	0.33	0.44	6.49	(0.02)	0.055
3	2	0.00	1569.09	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
3	3	503.17	1654.00	0.304	0.00	0.33	0.44	6.43	(0.02)	0.052
3	4	50.65	1395.03	0.036	0.00	0.03	0.04	0.56	(0.02)	0.045
4	1	480.04	1567.45	0.306	0.00	0.44	0.44	6.60	(0.02)	0.055
4	2	0.00	1568.78	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
4	3	503.17	1653.99	0.304	0.00	0.44	0.44	6.54	(0.02)	0.052
4	4	50.65	1394.79	0.036	0.00	0.04	0.04	0.56	(0.02)	0.045
5	1	391.96	1571.40	0.249	0.00	0.44	0.33	5.08	(0.02)	0.051
5	2	0.00	1633.73	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
5	3	410.83	1657.15	0.248	0.00	0.44	0.33	5.04	(0.02)	0.048
5	4	41.35	1447.08	0.029	0.00	0.04	0.03	0.45	(0.02)	0.043
6	1	328.24	1574.26	0.209	0.00	0.33	0.26	4.02	(0.02)	0.048
6	2	0.00	1681.04	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
6	3	344.05	1659.45	0.207	0.00	0.33	0.26	3.99	(0.02)	0.046
6	4	34.63	1485.15	0.023	0.00	0.03	0.02	0.36	(0.02)	0.041

APPENDIX 5

LINSIG Output – B6428 Lee Lane/B6132 Station Road/B6428 Midland Road/B6132 Church Street signal Junction

LinSig V1 style report

User and Project Details

Project:	**Proposed Residential Development, Lee Lane, Royston**
Title:	**B6428 Lee Lane/B6132 Station Road/B6428 Midland Road/B6132 Church Street**
Location:	Royston
File name:	Station Road-Midland Road-Church Street-High Street.lsg3x
Author:	
Company:	Croft
Address:	
Notes:	Agreed Model from Pell Frischmann TA – App 2012/1337

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		8	8

Phase Intergreens Matrix

		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		7	7	7	8
	B	7		7	-	8
	C	6	7		7	8
	D	7	-	7		8
	E	10	10	10	10	

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage			
		1	2	3	4
From Stage	1		7	7	8
	2	6		7	8
	3	7	7		8
	4	10	10	10	

Phases in Stage

Stage No.	Phases in Stage
1	A
2	C
3	B D
4	E

Give-Way Lane Input Data

Junction: Station Road/Midland Road/Church Street, Royston, Barnsley											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
2/1 (Church Street)	5/1 (Right)	1440	0	3/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	1.00	0.50	2	2.00
3/1 (Station Road)	7/1 (Right)	1440	0	2/1	1.09	To 7/1 (Left) To 8/1 (Ahead)	2.00	1.00	0.50	2	2.00

Lane Input Data

Junction: Station Road/Midland Road/Church Street, Royston, Barnsley												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Midland Road)	U	A	2	3	60.0	User	1794	-	-	-	-	-
2/1 (Church Street)	O	B	2	3	60.0	User	1664	-	-	-	-	-
3/1 (Station Road)	O	D	2	3	60.0	User	1709	-	-	-	-	-
4/1 (High Street)	U	C	2	3	60.0	User	1880	-	-	-	-	-
4/2 (High Street)	U	C	2	3	5.2	User	1926	-	-	-	-	-
5/1 (Midland Road (Exit))	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Station Road (Exit))	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (High Street (Exit))	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Station Road (Exit))	U		2	3	60.0	Inf	-	-	-	-	-	-

Lane Saturation Flows

Scenario 1: '2017 Base Flows - AM Peak' (FG1: '2017 Base Flows - AM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Junction: Station Road/Midland Road/Church Street, Royston, Barnsley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Midland Road Lane 1)	This lane uses a directly entered Saturation Flow						1794	1794
2/1 (Church Street Lane 1)	This lane uses a directly entered Saturation Flow						1664	1664
3/1 (Station Road Lane 1)	This lane uses a directly entered Saturation Flow						1709	1709
4/1 (High Street Lane 1)	This lane uses a directly entered Saturation Flow						1880	1880
4/2 (High Street Lane 2)	This lane uses a directly entered Saturation Flow						1926	1926
5/1 (Midland Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (High Street (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2017 Base Flows - PM Peak' (FG2: '2017 Base Flows - PM Peak', Plan 1: 'Double Cycle Peds Every Other')

Junction: Station Road/Midland Road/Church Street, Royston, Barnsley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Midland Road Lane 1)	This lane uses a directly entered Saturation Flow						1794	1794
2/1 (Church Street Lane 1)	This lane uses a directly entered Saturation Flow						1664	1664
3/1 (Station Road Lane 1)	This lane uses a directly entered Saturation Flow						1709	1709
4/1 (High Street Lane 1)	This lane uses a directly entered Saturation Flow						1880	1880
4/2 (High Street Lane 2)	This lane uses a directly entered Saturation Flow						1926	1926
5/1 (Midland Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (High Street (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2022 Base Flows - AM Peak' (FG3: '2022 Base Flows- AM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Junction: Station Road/Midland Road/Church Street, Royston, Barnsley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Midland Road Lane 1)	This lane uses a directly entered Saturation Flow						1794	1794
2/1 (Church Street Lane 1)	This lane uses a directly entered Saturation Flow						1664	1664
3/1 (Station Road Lane 1)	This lane uses a directly entered Saturation Flow						1709	1709
4/1 (High Street Lane 1)	This lane uses a directly entered Saturation Flow						1880	1880
4/2 (High Street Lane 2)	This lane uses a directly entered Saturation Flow						1926	1926
5/1 (Midland Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (High Street (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2022 Base Flows - PM Peak' (FG4: '2022 Base Flows - PM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Junction: Station Road/Midland Road/Church Street, Royston, Barnsley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Midland Road Lane 1)	This lane uses a directly entered Saturation Flow						1794	1794
2/1 (Church Street Lane 1)	This lane uses a directly entered Saturation Flow						1664	1664
3/1 (Station Road Lane 1)	This lane uses a directly entered Saturation Flow						1709	1709
4/1 (High Street Lane 1)	This lane uses a directly entered Saturation Flow						1880	1880
4/2 (High Street Lane 2)	This lane uses a directly entered Saturation Flow						1926	1926
5/1 (Midland Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (High Street (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2017 With Development Flows - AM Peak' (FG5: '2017 With Development Flows - AM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Junction: Station Road/Midland Road/Church Street, Royston, Barnsley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Midland Road Lane 1)	This lane uses a directly entered Saturation Flow						1794	1794
2/1 (Church Street Lane 1)	This lane uses a directly entered Saturation Flow						1664	1664
3/1 (Station Road Lane 1)	This lane uses a directly entered Saturation Flow						1709	1709
4/1 (High Street Lane 1)	This lane uses a directly entered Saturation Flow						1880	1880
4/2 (High Street Lane 2)	This lane uses a directly entered Saturation Flow						1926	1926
5/1 (Midland Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (High Street (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2017 With Development Flows - PM Peak' (FG6: '2017 With Development Flows - PM Peak', Plan 1: 'Double Cycle Peds Every Other')

Junction: Station Road/Midland Road/Church Street, Royston, Barnsley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Midland Road Lane 1)	This lane uses a directly entered Saturation Flow						1794	1794
2/1 (Church Street Lane 1)	This lane uses a directly entered Saturation Flow						1664	1664
3/1 (Station Road Lane 1)	This lane uses a directly entered Saturation Flow						1709	1709
4/1 (High Street Lane 1)	This lane uses a directly entered Saturation Flow						1880	1880
4/2 (High Street Lane 2)	This lane uses a directly entered Saturation Flow						1926	1926
5/1 (Midland Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (High Street (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 7: '2022 With Development Flows - AM Peak' (FG7: '2022 With Development Flows- AM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Junction: Station Road/Midland Road/Church Street, Royston, Barnsley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Midland Road Lane 1)	This lane uses a directly entered Saturation Flow						1794	1794
2/1 (Church Street Lane 1)	This lane uses a directly entered Saturation Flow						1664	1664
3/1 (Station Road Lane 1)	This lane uses a directly entered Saturation Flow						1709	1709
4/1 (High Street Lane 1)	This lane uses a directly entered Saturation Flow						1880	1880
4/2 (High Street Lane 2)	This lane uses a directly entered Saturation Flow						1926	1926
5/1 (Midland Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (High Street (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2022 With Development Flows - PM Peak' (FG8: '2022 With Development Flows - PM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Junction: Station Road/Midland Road/Church Street, Royston, Barnsley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Midland Road Lane 1)	This lane uses a directly entered Saturation Flow						1794	1794
2/1 (Church Street Lane 1)	This lane uses a directly entered Saturation Flow						1664	1664
3/1 (Station Road Lane 1)	This lane uses a directly entered Saturation Flow						1709	1709
4/1 (High Street Lane 1)	This lane uses a directly entered Saturation Flow						1880	1880
4/2 (High Street Lane 2)	This lane uses a directly entered Saturation Flow						1926	1926
5/1 (Midland Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (High Street (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Station Road (Exit) Lane 1)	Infinite Saturation Flow						Inf	Inf

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2017 Base Flows - AM Peak '	08:00	09:00	01:00	
2: '2017 Base Flows - PM Peak'	17:00	18:00	01:00	
3: '2022 Base Flows- AM Peak '	08:00	09:00	01:00	
4: '2022 Base Flows - PM Peak '	17:00	18:00	01:00	
5: '2017 With Development Flows - AM Peak '	08:00	09:00	01:00	
6: '2017 With Development Flows - PM Peak'	17:00	18:00	01:00	
7: '2022 With Development Flows- AM Peak '	08:00	09:00	01:00	
8: '2022 With Development Flows - PM Peak '	17:00	18:00	01:00	

Traffic Flows, Desired

FG1: '2017 Base Flows - AM Peak '

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	119	196	45	360
	B	77	0	98	193	368
	C	184	177	0	30	391
	D	50	156	16	0	222
	Tot.	311	452	310	268	1341

FG2: '2017 Base Flows - PM Peak'

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	68	266	64	398
	B	90	0	106	194	390
	C	226	200	0	38	464
	D	66	144	53	0	263
	Tot.	382	412	425	296	1515

FG3: '2022 Base Flows- AM Peak '
Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	126	208	48	382
	B	81	0	105	207	393
	C	195	190	0	32	417
	D	52	167	17	0	236
	Tot.	328	483	330	287	1428

FG4: '2022 Base Flows - PM Peak '
Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	72	280	68	420
	B	93	0	113	209	415
	C	241	215	0	41	497
	D	69	155	56	0	280
	Tot.	403	442	449	318	1612

FG5: '2017 With Development Flows - AM Peak '
Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	119	200	45	364
	B	77	0	103	193	373
	C	194	190	0	32	416
	D	50	156	16	0	222
	Tot.	321	465	319	270	1375

FG6: '2017 With Development Flows - PM Peak'
Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	68	275	64	407
	B	90	0	119	194	403
	C	231	207	0	39	477
	D	66	144	54	0	264
	Tot.	387	419	448	297	1551

FG7: '2022 With Development Flows- AM Peak '
Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	126	211	48	385
	B	81	0	110	207	398
	C	205	203	0	34	442
	D	52	167	17	0	236
	Tot.	338	496	338	289	1461

FG8: '2022 With Development Flows - PM Peak '
Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	72	290	68	430
	B	93	0	126	209	428
	C	246	222	0	42	510
	D	69	155	58	0	282
	Tot.	408	449	474	319	1650

Stage Timings

Scenario 1: '2017 Base Flows - AM Peak' (FG1: '2017 Base Flows - AM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Stage	**1**	**2**	**3**	**1**	**2**	**3**	**4**
Duration	21	19	15	22	9	33	8
Change Point	0	31	57	79	108	124	164

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**80.7%**
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	**N/A**	-	-		-	-	-	-	-	-	**80.7%**
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	43	-	360	1794	448	80.3%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	48	-	368	1664	459	80.1%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	48	-	222	1709	475	46.8%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	28	-	391	1880:1926	265+219	80.7 : 80.7%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	311	Inf	Inf	0.0%
6/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	452	Inf	Inf	0.0%
7/1	High Street (Exit)	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	268	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**83**	**0**	**10**	**13.1**	**6.3**	**0.1**	**19.6**	**-**	**-**	**-**	**-**
Station Road/Midland Road/Church Street, Royston, Barnsley	**-**	**-**	**83**	**0**	**10**	**13.1**	**6.3**	**0.1**	**19.6**	**-**	**-**	**-**	**-**
1/1	360	360	-	-	-	3.3	1.9	-	5.2	52.4	10.1	1.9	12.0
2/1	368	368	68	0	9	4.1	1.9	0.1	6.1	59.5	9.7	1.9	11.6
3/1	222	222	14	0	2	1.7	0.4	0.0	2.2	35.7	5.5	0.4	6.0
4/1+4/2	391	391	-	-	-	4.0	2.0	-	6.0	55.5	7.3	2.0	9.3
5/1	311	311	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	452	452	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	310	310	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	268	268	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 11.5 Total Delay for Signalled Lanes (pcuHr): 19.56 Cycle Time (s): 180
PRC Over All Lanes (%): 11.5 Total Delay Over All Lanes(pcuHr): 19.56

Stage Timings

Scenario 2: '2017 Base Flows - PM Peak' (FG2: '2017 Base Flows - PM Peak', Plan 1: 'Double Cycle Peds Every Other')

Stage	1	2	3	1	2	3	4
Duration	22	22	15	20	9	31	8
Change Point	0	32	61	83	110	126	164

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**92.5%**
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	**N/A**	-	-		-	-	-	-	-	-	**92.5%**
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	398	1794	439	90.8%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	46	-	390	1664	426	91.6%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	46	-	263	1709	360	73.1%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	31	-	464	1880:1926	285+216	92.5 : 92.5%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	382	Inf	Inf	0.0%
6/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	412	Inf	Inf	0.0%
7/1	High Street (Exit)	U	N/A	N/A	-		-	-	-	425	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	296	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**108**	**0**	**35**	**15.7**	**14.7**	**0.2**	**30.6**	**-**	**-**	**-**	**-**
Station Road/Midland Road/Church Street, Royston, Barnsley	**-**	**-**	**108**	**0**	**35**	**15.7**	**14.7**	**0.2**	**30.6**	**-**	**-**	**-**	**-**
1/1	398	398	-	-	-	3.7	4.1	-	7.8	70.8	11.2	4.1	15.3
2/1	390	390	66	0	24	5.0	4.4	0.1	9.4	87.1	11.7	4.4	16.1
3/1	263	263	42	0	11	2.2	1.3	0.1	3.6	49.9	7.2	1.3	8.5
4/1+4/2	464	464	-	-	-	4.8	4.9	-	9.7	75.2	10.5	4.9	15.4
5/1	382	382	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	412	412	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	425	425	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	296	296	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -2.8 Total Delay for Signalled Lanes (pcuHr): 30.61 Cycle Time (s): 180
PRC Over All Lanes (%): -2.8 Total Delay Over All Lanes(pcuHr): 30.61

Stage Timings

Scenario 3: '2022 Base Flows - AM Peak' (FG3: '2022 Base Flows- AM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Stage	1	2	3	1	2	3	4
Duration	21	19	32	21	9	17	8
Change Point	0	31	57	96	124	140	164

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**87.1%**
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	**N/A**	-	-		-	-	-	-	-	-	**87.1%**
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	382	1794	439	87.1%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	49	-	393	1664	459	85.6%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	49	-	236	1709	484	48.7%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	28	-	417	1880:1926	265+222	85.7 : 85.7%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	328	Inf	Inf	0.0%
6/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	483	Inf	Inf	0.0%
7/1	High Street (Exit)	U	N/A	N/A	-		-	-	-	330	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	287	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**96**	**0**	**2**	**12.9**	**9.0**	**0.1**	**22.0**	**-**	**-**	**-**	**-**
Station Road/Midland Road/Church Street, Royston, Barnsley	**-**	**-**	**96**	**0**	**2**	**12.9**	**9.0**	**0.1**	**22.0**	**-**	**-**	**-**	**-**
1/1	382	382	-	-	-	3.5	3.0	-	6.5	61.4	9.5	3.0	12.6
2/1	393	393	80	0	1	3.5	2.7	0.1	6.3	57.7	11.5	2.7	14.2
3/1	236	236	16	0	1	1.8	0.5	0.0	2.3	35.8	6.0	0.5	6.4
4/1+4/2	417	417	-	-	-	4.1	2.8	-	6.9	59.4	5.9	2.8	8.7
5/1	328	328	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	483	483	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	330	330	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	287	287	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 3.3 Total Delay for Signalled Lanes (pcuHr): 22.04 Cycle Time (s): 180
PRC Over All Lanes (%): 3.3 Total Delay Over All Lanes(pcuHr): 22.04

Stage Timings

Scenario 4: '2022 Base Flows - PM Peak' (FG4: '2022 Base Flows - PM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Stage	1	2	3	1	2	3	4
Duration	23	20	31	18	11	16	8
Change Point	0	33	60	98	123	141	164

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**99.2%**
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	**N/A**	-	-		-	-	-	-	-	-	**99.2%**
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	41	-	420	1794	429	98.0%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	47	-	415	1664	435	95.4%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	47	-	280	1709	360	77.8%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	31	-	497	1880:1926	284+217	99.2 : 99.2%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	403	Inf	Inf	0.0%
6/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	442	Inf	Inf	0.0%
7/1	High Street (Exit)	U	N/A	N/A	-		-	-	-	449	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	318	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**128**	**0**	**21**	**16.3**	**26.5**	**0.2**	**43.1**	**-**	**-**	**-**	**-**
Station Road/Midland Road/Church Street, Royston, Barnsley	**-**	**-**	**128**	**0**	**21**	**16.3**	**26.5**	**0.2**	**43.1**	**-**	**-**	**-**	**-**
1/1	420	420	-	-	-	4.5	8.3	-	12.8	109.7	11.3	8.3	19.6
2/1	415	415	91	0	2	4.2	6.4	0.1	10.6	92.0	13.2	6.4	19.6
3/1	280	280	38	0	18	2.4	1.7	0.1	4.2	53.9	7.6	1.7	9.3
4/1+4/2	497	497	-	-	-	5.3	10.2	-	15.5	112.3	10.6	10.2	20.8
5/1	403	403	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	442	442	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	449	449	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	318	318	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -10.2 Total Delay for Signalled Lanes (pcuHr): 43.10 Cycle Time (s): 180
PRC Over All Lanes (%): -10.2 Total Delay Over All Lanes(pcuHr): 43.10

Stage Timings

Scenario 5: '2017 With Development Flows - AM Peak' (FG5: '2017 With Development Flows - AM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Stage	1	2	3	1	2	3	4
Duration	17	20	28	25	9	20	8
Change Point	0	27	54	89	121	137	164

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**83.6%**
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	**N/A**	-	-		-	-	-	-	-	-	**83.6%**
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	364	1794	439	83.0%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	48	-	373	1664	453	82.4%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	48	-	222	1709	475	46.8%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	29	-	416	1880:1926	270+227	83.6 : 83.6%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	321	Inf	Inf	0.0%
6/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	465	Inf	Inf	0.0%
7/1	High Street (Exit)	U	N/A	N/A	-		-	-	-	319	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	270	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**92**	**0**	**1**	**12.2**	**7.4**	**0.1**	**19.7**	**-**	**-**	**-**	**-**
Station Road/Midland Road/Church Street, Royston, Barnsley	**-**	**-**	**92**	**0**	**1**	**12.2**	**7.4**	**0.1**	**19.7**	**-**	**-**	**-**	**-**
1/1	364	364	-	-	-	3.3	2.3	-	5.6	55.0	8.6	2.3	10.9
2/1	373	373	76	0	1	3.2	2.2	0.1	5.5	53.2	10.3	2.2	12.5
3/1	222	222	16	0	0	1.7	0.4	0.0	2.2	35.3	5.4	0.4	5.8
4/1+4/2	416	416	-	-	-	4.0	2.4	-	6.4	55.6	5.8	2.4	8.2
5/1	321	321	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	465	465	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	319	319	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	270	270	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 7.7 Total Delay for Signalled Lanes (pcuHr): 19.66 Cycle Time (s): 180
PRC Over All Lanes (%): 7.7 Total Delay Over All Lanes(pcuHr): 19.66

Stage Timings

Scenario 6: '2017 With Development Flows - PM Peak' (FG6: '2017 With Development Flows - PM Peak', Plan 1: 'Double Cycle Peds Every Other')

Stage	1	2	3	1	2	3	4
Duration	22	22	14	20	9	32	8
Change Point	0	32	61	82	109	125	164

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**94.8%**
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	**N/A**	-	-		-	-	-	-	-	-	**94.8%**
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	407	1794	439	92.8%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	46	-	403	1664	429	94.0%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	46	-	264	1709	346	76.3%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	31	-	477	1880:1926	285+218	94.8 : 94.8%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	387	Inf	Inf	0.0%
6/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	419	Inf	Inf	0.0%
7/1	High Street (Exit)	U	N/A	N/A	-		-	-	-	448	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	297	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**106**	**0**	**38**	**16.5**	**18.1**	**0.2**	**34.8**	**-**	**-**	**-**	**-**
Station Road/Midland Road/Church Street, Royston, Barnsley	**-**	**-**	**106**	**0**	**38**	**16.5**	**18.1**	**0.2**	**34.8**	**-**	**-**	**-**	**-**
1/1	407	407	-	-	-	3.9	4.9	-	8.9	78.4	11.6	4.9	16.6
2/1	403	403	68	0	22	5.3	5.5	0.1	10.9	97.2	12.8	5.5	18.2
3/1	264	264	38	0	16	2.3	1.5	0.1	3.9	53.1	7.2	1.5	8.7
4/1+4/2	477	477	-	-	-	5.0	6.2	-	11.2	84.2	11.1	6.2	17.3
5/1	387	387	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	419	419	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	448	448	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	297	297	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -5.3 Total Delay for Signalled Lanes (pcuHr): 34.80 Cycle Time (s): 180
PRC Over All Lanes (%): -5.3 Total Delay Over All Lanes(pcuHr): 34.80

Stage Timings

Scenario 7: '2022 With Development Flows - AM Peak' (FG7: '2022 With Development Flows- AM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Stage	1	2	3	1	2	3	4
Duration	23	20	30	19	9	18	8
Change Point	0	33	60	97	123	139	164

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**89.3%**
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	**N/A**	-	-		-	-	-	-	-	-	**89.3%**
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	385	1794	439	87.8%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	48	-	398	1664	445	89.3%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	48	-	236	1709	475	49.7%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	29	-	442	1880:1926	270+229	88.5 : 88.5%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	338	Inf	Inf	0.0%
6/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	496	Inf	Inf	0.0%
7/1	High Street (Exit)	U	N/A	N/A	-		-	-	-	338	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	289	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**97**	**0**	**1**	**13.5**	**10.8**	**0.1**	**24.3**	**-**	**-**	**-**	**-**
Station Road/Midland Road/Church Street, Royston, Barnsley	**-**	**-**	**97**	**0**	**1**	**13.5**	**10.8**	**0.1**	**24.3**	**-**	**-**	**-**	**-**
1/1	385	385	-	-	-	3.5	3.2	-	6.7	62.8	9.5	3.2	12.7
2/1	398	398	80	0	1	3.7	3.6	0.1	7.4	66.8	12.2	3.6	15.8
3/1	236	236	17	0	0	1.9	0.5	0.0	2.4	37.0	6.2	0.5	6.7
4/1+4/2	442	442	-	-	-	4.4	3.4	-	7.8	63.4	7.1	3.4	10.5
5/1	338	338	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	496	496	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	338	338	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	289	289	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 0.7 Total Delay for Signalled Lanes (pcuHr): 24.30 Cycle Time (s): 180
PRC Over All Lanes (%): 0.7 Total Delay Over All Lanes(pcuHr): 24.30

Stage Timings

Scenario 8: '2022 With Development Flows - PM Peak' (FG8: '2022 With Development Flows - PM Peak ', Plan 1: 'Double Cycle Peds Every Other')

Stage	1	2	3	1	2	3	4
Duration	21	15	36	21	17	9	8
Change Point	0	31	53	96	124	148	164

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**100.3%**
Station Road/Midland Road/Church Street, Royston, Barnsley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**100.3%**
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	430	1794	439	98.1%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	45	-	428	1664	427	100.3%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	45	-	282	1709	303	93.2%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	32	-	510	1880:1926	290+224	99.3 : 99.3%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	408	Inf	Inf	0.0%
6/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	449	Inf	Inf	0.0%
7/1	High Street (Exit)	U	N/A	N/A	-		-	-	-	474	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	319	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**96**	**0**	**54**	**18.0**	**34.2**	**0.3**	**52.5**	**-**	**-**	**-**	**-**
Station Road/Midland Road/Church Street, Royston, Barnsley	**-**	**-**	**96**	**0**	**54**	**18.0**	**34.2**	**0.3**	**52.5**	**-**	**-**	**-**	**-**
1/1	430	430	-	-	-	4.1	8.5	-	12.6	105.2	11.1	8.5	19.6
2/1	428	426	73	0	19	6.3	10.6	0.1	17.0	143.1	17.0	10.6	27.7
3/1	282	282	23	0	35	2.6	4.7	0.2	7.5	95.7	7.7	4.7	12.4
4/1+4/2	510	510	-	-	-	5.0	10.5	-	15.4	109.0	9.5	10.5	19.9
5/1	408	408	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	449	449	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	473	473	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	318	318	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -11.4 Total Delay for Signalled Lanes (pcuHr): 52.52 Cycle Time (s): 180
PRC Over All Lanes (%): -11.4 Total Delay Over All Lanes(pcuHr): 52.52

APPENDIX 6

PICADY Output – A61 Wakefield Road/B6248 Shaw Lane Street Junction

TRL LIMITED

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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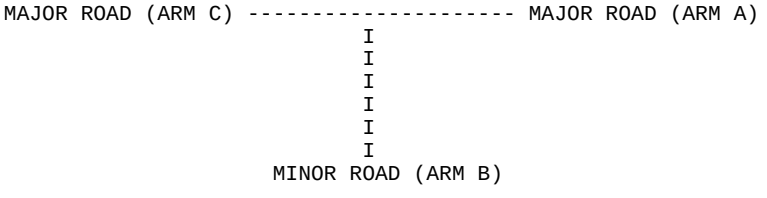
Run with file:-
"Z:\projects\0255 Lee Lane, Royston\Picady\A61 Wakefield Road.B6428 Shaw Lane.vpi"
(drive-on-the-left) at 14:17:14 on Wednesday, 14 August 2013

RUN INFORMATION

RUN TITLE	: A61 Wakefield Road - B6248 Shaw Lane
LOCATION	: Royston
DATE	: 14/08/13
CLIENT	: Bowsall
ENUMERATOR	: TBENTEY
JOB NUMBER	: 0255
STATUS	:
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A61 Wakefield Road (s)
ARM B IS B6248 Shaw Lane
ARM C IS A61 Wakefield 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) 6.30 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 3.30 M.
- VISIBILITY	(VC-B)150.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (13)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 45.0 M.
- VISIBILITY TO RIGHT	(VB-A) 45.0 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	8.00 M.
WIDTH AT 10 M FROM JUNCTION	5.60 M.
WIDTH AT 15 M FROM JUNCTION	4.30 M.
WIDTH AT 20 M FROM JUNCTION	3.95 M.
- LENGTH OF FLARED SECTION	1 VEHS

.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
739.94	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: 2017 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	10.90	16.35	10.90
ARM B	15.00	45.00	75.00	5.43	8.14	5.43
ARM C	15.00	45.00	75.00	3.49	5.23	3.49

Demand set: 2017 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	0.577	0.423
		0.0	503.0	369.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.700	0.000	0.300
		304.0	0.0	130.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.792	0.208	0.000
		221.0	58.0	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 2017 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	1.63	7.10	0.230		0.00	0.29	4.2		0.18
B-A	3.81	7.15	0.534		0.00	1.10	15.0		0.29
C-AB	0.73	9.24	0.079		0.00	0.08	1.3		0.12
A-B	6.31								
A-C	4.63								

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)
08.00-08.15									
B-C	1.95	5.38	0.362		0.29	0.55	7.8		0.29
B-A	4.55	6.47	0.704		1.10	2.16	28.8		0.49
C-AB	0.87	8.64	0.101		0.08	0.11	1.7		0.13
A-B	7.54								
A-C	5.53								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	2.39	2.30	1.039		0.55	6.24	59.7		2.34
B-A	5.58	5.43	1.028		2.16	10.26	102.8		1.64
C-AB	1.06	7.80	0.136		0.11	0.16	2.3		0.15
A-B	9.23								
A-C	6.77								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	2.39	2.39	0.996		6.24	8.42	110.7		3.65
B-A	5.58	5.35	1.042		10.26	16.00	198.5		2.86
C-AB	1.06	7.80	0.136		0.16	0.16	2.4		0.15
A-B	9.23								
A-C	6.77								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.95	3.50	0.557		8.42	1.41	43.3		1.18
B-A	4.55	6.13	0.743		16.00	3.58	118.6		1.61
C-AB	0.87	8.64	0.101		0.16	0.11	1.7		0.13
A-B	7.54								
A-C	5.53								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.63	6.84	0.239		1.41	0.32	5.2		0.20
B-A	3.81	7.11	0.536		3.58	1.21	20.8		0.33
C-AB	0.73	9.24	0.079		0.11	0.09	1.3		0.12
A-B	6.31								
A-C	4.63								

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	0.3	
08.15	0.6	*
08.30	6.2	******
08.45	8.4	********
09.00	1.4	*
09.15	0.3	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.1	*
08.15	2.2	**
08.30	10.3	**********
08.45	16.0	****************
09.00	3.6	****
09.15	1.2	*

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-C	178.9	119.3	231.0	1.29	231.0	1.29
B-A	418.4	279.0	484.5	1.16	484.6	1.16
C-AB	79.8	53.2	10.6	0.13	10.6	0.13
A-B	692.3	461.6				
A-C	507.9	338.6				
ALL	2181.6	1454.4	726.1	0.33	726.2	0.33

* 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
739.94	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: 2017 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	8.50	12.75	8.50
ARM B	15.00	45.00	75.00	5.76	8.64	5.76
ARM C	15.00	45.00	75.00	5.47	8.21	5.47

Demand set: 2017 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	0.632	0.368
		0.0	430.0	250.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.842	0.000	0.158
		388.0	0.0	73.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.769	0.231	0.000
		337.0	101.0	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 2017 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	0.92	5.83	0.157		0.00	0.18	2.6		0.20
B-A	4.87	7.24	0.672		0.00	1.90	24.8		0.38
C-AB	1.27	9.92	0.128		0.00	0.15	2.2		0.12
A-B	5.40								
A-C	3.14								

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)
17.00-17.15									
B-C	1.09	2.89	0.378		0.18	0.58	7.8		0.54
B-A	5.81	6.66	0.873		1.90	4.83	58.3		0.83
C-AB	1.51	9.45	0.160		0.15	0.19	2.8		0.13
A-B	6.44								
A-C	3.75								

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-C	1.34	1.10	1.220		0.58	6.16	55.4		4.50
B-A	7.12	5.93	1.201		4.83	24.45	224.5		2.93
C-AB	1.85	8.80	0.211		0.19	0.26	4.0		0.14
A-B	7.89								
A-C	4.59								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.34	1.18	1.134		6.16	9.29	116.4		7.67
B-A	7.12	5.91	1.205		24.45	43.00	506.3		5.89
C-AB	1.85	8.80	0.211		0.26	0.27	4.0		0.14
A-B	7.89								
A-C	4.59								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.09	1.30	0.843		9.29	7.96	127.5		7.36
B-A	5.81	6.58	0.884		43.00	33.80	576.0		5.94
C-AB	1.51	9.45	0.160		0.27	0.19	2.9		0.13
A-B	6.44								
A-C	3.75								

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-C	0.92	1.43	0.640		7.96	2.78	79.3		4.69
B-A	4.87	7.05	0.691		33.80	4.04	284.6		2.98
C-AB	1.27	9.92	0.128		0.19	0.15	2.2		0.12
A-B	5.40								
A-C	3.14								

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	0.2	
17.15	0.6	*
17.30	6.2	******
17.45	9.3	*********
18.00	8.0	********
18.15	2.8	***

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.9	**
17.15	4.8	*****
17.30	24.4	************************
17.45	43.0	**
18.00	33.8	**********************************
18.15	4.0	****

QUEUE FOR STREAM C-AB

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

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	100.5	67.0	389.0	3.87	391.7	3.90
B-A	534.1	356.0	1674.5	3.14	1675.7	3.14
C-AB	139.0	92.7	18.1	0.13	18.1	0.13
A-B	591.9	394.6				
A-C	344.1	229.4				
ALL	2173.4	1448.9	2081.6	0.96	2085.4	0.96

* 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
739.94	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 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	11.66	17.49	11.66
ARM B	15.00	45.00	75.00	5.81	8.72	5.81
ARM C	15.00	45.00	75.00	3.75	5.63	3.75

Demand set: 2021 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	0.577	0.423
		0.0	538.0	395.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.699	0.000	0.301
		325.0	0.0	140.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.790	0.210	0.000
		237.0	63.0	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	1.76	6.59	0.267		0.00	0.36	5.1		0.21
B-A	4.08	6.91	0.590		0.00	1.37	18.3		0.33
C-AB	0.79	9.02	0.088		0.00	0.10	1.4		0.12
A-B	6.75								
A-C	4.96								

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)
08.00-08.15									
B-C	2.10	4.42	0.475		0.36	0.86	11.8		0.42
B-A	4.87	6.13	0.794		1.37	3.19	40.4		0.67
C-AB	0.94	8.38	0.113		0.10	0.13	1.9		0.13
A-B	8.06								
A-C	5.92								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	2.57	2.20	1.168		0.86	9.13	82.1		3.16
B-A	5.96	5.17	1.153		3.19	17.71	163.5		2.53
C-AB	1.16	7.49	0.154		0.13	0.18	2.7		0.16
A-B	9.87								
A-C	7.25								

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)
08.30-08.45									
B-C	2.57	2.28	1.126		9.13	14.32	176.5		5.80
B-A	5.96	5.13	1.163		17.71	30.83	364.7		5.03
C-AB	1.16	7.49	0.154		0.18	0.18	2.7		0.16
A-B	9.87								
A-C	7.25								

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-C	2.10	2.54	0.826		14.32	10.18	183.8		4.98
B-A	4.87	5.76	0.845		30.83	20.18	382.6		4.58
C-AB	0.94	8.38	0.113		0.18	0.13	1.9		0.13
A-B	8.06								
A-C	5.92								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.76	4.53	0.387		10.18	0.66	29.7		0.61
B-A	4.08	6.56	0.621		20.18	1.84	106.2		1.28
C-AB	0.79	9.02	0.088		0.13	0.10	1.5		0.12
A-B	6.75								
A-C	4.96								

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	0.4	
08.15	0.9	*
08.30	9.1	*********
08.45	14.3	**************
09.00	10.2	**********
09.15	0.7	*

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.4	*
08.15	3.2	***
08.30	17.7	*****************
08.45	30.8	*******************************
09.00	20.2	********************
09.15	1.8	**

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-C	192.7	128.5	488.9	2.54	488.9	2.54
B-A	447.3	298.2	1075.6	2.40	1075.9	2.41
C-AB	86.7	57.8	12.1	0.14	12.1	0.14
A-B	740.5	493.7				
A-C	543.7	362.5				
ALL	2337.2	1558.1	1576.6	0.67	1576.9	0.67

* 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
739.94	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 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	9.07	13.61	9.07
ARM B	15.00	45.00	75.00	6.19	9.28	6.19
ARM C	15.00	45.00	75.00	5.89	8.83	5.89

Demand set: 2021 Base Flows - PM Peak

TIME	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.632	0.368
		0.0	459.0	267.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.842	0.000	0.158
		417.0	0.0	78.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.769	0.231	0.000
		362.0	109.0	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	0.98	4.96	0.198		0.00	0.24	3.4		0.25
B-A	5.23	7.04	0.744		0.00	2.56	32.3		0.47
C-AB	1.37	9.75	0.140		0.00	0.16	2.4		0.12
A-B	5.76								
A-C	3.35								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.17	1.18	0.991		0.24	3.68	35.6		3.07
B-A	6.25	6.39	0.978		2.56	8.62	93.1		1.31
C-AB	1.63	9.25	0.176		0.16	0.21	3.2		0.13
A-B	6.88								
A-C	4.00								

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-C	1.43	1.15	1.245		3.68	8.77	94.6		6.93
B-A	7.65	5.64	1.356		8.62	39.36	361.7		4.66
C-AB	2.00	8.56	0.234		0.21	0.30	4.5		0.15
A-B	8.42								
A-C	4.90								

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)
17.30-17.45									
B-C	1.43	1.11	1.291		8.77	13.93	170.5		11.10
B-A	7.65	5.65	1.354		39.36	69.47	816.4		9.49
C-AB	2.00	8.56	0.234		0.30	0.30	4.6		0.15
A-B	8.42								
A-C	4.90								

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-C	1.17	1.23	0.951		13.93	14.01	209.6		11.87
B-A	6.25	6.37	0.980		69.47	69.17	1039.8		10.72
C-AB	1.63	9.25	0.176		0.30	0.22	3.3		0.13
A-B	6.88								
A-C	4.00								

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-C	0.98	1.34	0.731		14.01	9.96	179.7		9.76
B-A	5.23	6.89	0.760		69.17	45.83	862.5		8.51
C-AB	1.37	9.75	0.140		0.22	0.16	2.5		0.12
A-B	5.76								
A-C	3.35								

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	0.2	
17.15	3.7	****
17.30	8.8	*********
17.45	13.9	**************
18.00	14.0	**************
18.15	10.0	**********

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	2.6	***
17.15	8.6	*********
17.30	39.4	**
17.45	69.5	**
18.00	69.2	***
18.15	45.8	***

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	107.4	71.6	693.4	6.46	730.4	6.80
B-A	574.0	382.6	3205.9	5.59	3358.4	5.85
C-AB	150.0	100.0	20.4	0.14	20.4	0.14
A-B	631.8	421.2				
A-C	367.5	245.0				
ALL	2328.9	1552.6	3919.6	1.68	4109.2	1.76

* 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
739.94	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: 2017 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	11.23	16.84	11.23
ARM B	15.00	45.00	75.00	5.47	8.21	5.47
ARM C	15.00	45.00	75.00	3.56	5.34	3.56

Demand set: 2017 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	0.572	0.428
		0.0	514.0	384.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.703	0.000	0.297
		308.0	0.0	130.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.796	0.204	0.000
		227.0	58.0	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 2017 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	1.63	6.95	0.235		0.00	0.30	4.3		0.19
B-A	3.86	7.07	0.547		0.00	1.16	15.7		0.30
C-AB	0.73	9.14	0.080		0.00	0.09	1.3		0.12
A-B	6.45								
A-C	4.82								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.95	5.12	0.380		0.30	0.59	8.4		0.31
B-A	4.61	6.37	0.725		1.16	2.35	31.1		0.52
C-AB	0.87	8.53	0.102		0.09	0.11	1.7		0.13
A-B	7.70								
A-C	5.75								

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)
08.15-08.30									
B-C	2.39	2.23	1.071		0.59	6.82	64.0		2.54
B-A	5.65	5.33	1.060		2.35	11.89	116.0		1.84
C-AB	1.06	7.67	0.139		0.11	0.16	2.4		0.15
A-B	9.43								
A-C	7.05								

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)
08.30-08.45									
B-C	2.39	2.33	1.026		6.82	9.56	123.7		4.21
B-A	5.65	5.28	1.071		11.89	19.21	234.5		3.34
C-AB	1.06	7.67	0.139		0.16	0.16	2.4		0.15
A-B	9.43								
A-C	7.05								

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)
08.45-09.00									
B-C	1.95	2.66	0.734		9.56	3.81	93.2		2.94
B-A	4.61	5.93	0.778		19.21	5.01	173.6		2.29
C-AB	0.87	8.53	0.102		0.16	0.11	1.7		0.13
A-B	7.70								
A-C	5.75								

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)
09.00-09.15									
B-C	1.63	6.57	0.248		3.81	0.34	7.0		0.22
B-A	3.86	6.99	0.553		5.01	1.30	24.2		0.37
C-AB	0.73	9.14	0.080		0.11	0.09	1.3		0.12
A-B	6.45								
A-C	4.82								

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	0.3	
08.15	0.6	*
08.30	6.8	*******
08.45	9.6	**********
09.00	3.8	****
09.15	0.3	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.2	*
08.15	2.4	**
08.30	11.9	***********
08.45	19.2	*******************
09.00	5.0	*****
09.15	1.3	*

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-C	178.9	119.3	300.5	1.68	300.5	1.68
B-A	423.9	282.6	595.0	1.40	595.2	1.40
C-AB	79.8	53.2	10.8	0.14	10.8	0.14
A-B	707.5	471.7				
A-C	528.5	352.4				
ALL	2231.2	1487.5	906.3	0.41	906.5	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)

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
739.94	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: 2017 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	8.69	13.03	8.69
ARM B	15.00	45.00	75.00	5.91	8.87	5.91
ARM C	15.00	45.00	75.00	5.68	8.51	5.68

Demand set: 2017 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	0.627	0.373
		0.0	436.0	259.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.846	0.000	0.154
		400.0	0.0	73.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.778	0.222	0.000
		353.0	101.0	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 2017 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	0.92	5.49	0.167		0.00	0.20	2.8		0.22
B-A	5.02	7.17	0.700		0.00	2.13	27.5		0.41
C-AB	1.27	9.86	0.128		0.00	0.15	2.2		0.12
A-B	5.47								
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)
17.00-17.15									
B-C	1.09	2.21	0.494		0.20	0.88	11.3		0.83
B-A	5.99	6.57	0.913		2.13	6.00	69.6		0.98
C-AB	1.51	9.39	0.161		0.15	0.19	2.9		0.13
A-B	6.53								
A-C	3.88								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.34	1.05	1.270		0.88	6.75	61.1		5.11
B-A	7.34	5.84	1.257		6.00	29.73	271.5		3.50
C-AB	1.85	8.72	0.212		0.19	0.27	4.0		0.15
A-B	8.00								
A-C	4.75								

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)
17.30-17.45									
B-C	1.34	1.12	1.199		6.75	10.64	130.9		8.87
B-A	7.34	5.82	1.261		29.73	52.75	618.9		7.17
C-AB	1.85	8.72	0.212		0.27	0.27	4.0		0.15
A-B	8.00								
A-C	4.75								

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)
17.45-18.00									
B-C	1.09	1.23	0.886		10.64	10.38	157.6		8.98
B-A	5.99	6.51	0.921		52.75	46.80	746.6		7.68
C-AB	1.51	9.39	0.161		0.27	0.19	2.9		0.13
A-B	6.53								
A-C	3.88								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	0.92	1.38	0.663		10.38	5.23	117.0		6.55
B-A	5.02	6.99	0.718		46.80	19.43	496.7		4.94
C-AB	1.27	9.86	0.128		0.19	0.15	2.2		0.12
A-B	5.47								
A-C	3.25								

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	0.2	
17.15	0.9	*
17.30	6.8	*******
17.45	10.6	**********
18.00	10.4	**********
18.15	5.2	*****

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	2.1	**
17.15	6.0	******
17.30	29.7	******************************
17.45	52.7	***
18.00	46.8	**
18.15	19.4	*******************

QUEUE FOR STREAM C-AB

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

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	100.5	67.0	480.7	4.78	490.6	4.88
B-A	550.6	367.0	2230.7	4.05	2257.7	4.10
C-AB	139.0	92.7	18.2	0.13	18.2	0.13
A-B	600.1	400.1				
A-C	356.5	237.7				
ALL	2232.6	1488.4	2729.7	1.22	2766.6	1.24

* 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
739.94	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	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	11.99	17.98	11.99
ARM B	15.00	45.00	75.00	5.86	8.79	5.86
ARM C	15.00	45.00	75.00	3.83	5.74	3.83

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	0.572	0.428
		0.0	549.0	410.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.701	0.000	0.299
		329.0	0.0	140.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.794	0.206	0.000
		243.0	63.0	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	1.76	6.42	0.274		0.00	0.37	5.2		0.21
B-A	4.13	6.82	0.605		0.00	1.44	19.3		0.35
C-AB	0.79	8.93	0.089		0.00	0.10	1.4		0.12
A-B	6.89								
A-C	5.14								

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)
08.00-08.15									
B-C	2.10	4.11	0.510		0.37	0.98	13.2		0.48
B-A	4.93	6.03	0.818		1.44	3.57	44.4		0.73
C-AB	0.94	8.27	0.114		0.10	0.13	1.9		0.14
A-B	8.23								
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)
08.15-08.30									
B-C	2.57	2.14	1.203		0.98	9.85	87.8		3.44
B-A	6.04	5.09	1.186		3.57	19.94	182.1		2.82
C-AB	1.16	7.35	0.157		0.13	0.18	2.8		0.16
A-B	10.07								
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)
08.30-08.45									
B-C	2.57	2.21	1.162		9.85	15.90	193.7		6.45
B-A	6.04	5.05	1.195		19.94	35.18	414.0		5.69
C-AB	1.16	7.35	0.157		0.18	0.19	2.8		0.16
A-B	10.07								
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-C	2.10	2.47	0.848		15.90	12.44	212.5		5.88
B-A	4.93	5.70	0.864		35.18	25.96	458.5		5.48
C-AB	0.94	8.27	0.114		0.19	0.13	2.0		0.14
A-B	8.23								
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-C	1.76	3.50	0.502		12.44	1.13	61.0		1.52
B-A	4.13	6.34	0.652		25.96	2.30	177.1		2.18
C-AB	0.79	8.93	0.089		0.13	0.10	1.5		0.12
A-B	6.89								
A-C	5.14								

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	0.4	
08.15	1.0	*
08.30	9.9	**********
08.45	15.9	**********
09.00	12.4	**********
09.15	1.1	*

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.4	*
08.15	3.6	****
08.30	19.9	**********
08.45	35.2	**********
09.00	26.0	**********
09.15	2.3	**

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-C	192.7	128.5	573.5	2.98	573.7	2.98
B-A	452.8	301.9	1295.4	2.86	1295.8	2.86
C-AB	86.7	57.8	12.3	0.14	12.3	0.14
A-B	755.7	503.8				
A-C	564.3	376.2				
ALL	2386.7	1591.1	1881.2	0.79	1881.8	0.79

* 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
739.94	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	9.26	13.89	9.26
ARM B	15.00	45.00	75.00	6.32	9.49	6.32
ARM C	15.00	45.00	75.00	6.09	9.13	6.09

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
16.45 - 18.15	ARM A	0.000	0.628	0.372
		0.0	465.0	276.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.846	0.000	0.154
		428.0	0.0	78.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.776	0.224	0.000
		378.0	109.0	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	0.98	4.58	0.214		0.00	0.27	3.7		0.28
B-A	5.37	6.96	0.772		0.00	2.90	35.9		0.52
C-AB	1.37	9.70	0.141		0.00	0.16	2.4		0.12
A-B	5.83								
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)
17.00-17.15									
B-C	1.17	1.13	1.030		0.27	4.00	38.0		3.35
B-A	6.41	6.32	1.015		2.90	10.65	110.6		1.53
C-AB	1.63	9.19	0.178		0.16	0.21	3.2		0.13
A-B	6.97								
A-C	4.14								

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)
17.15-17.30									
B-C	1.43	1.10	1.301		4.00	9.66	103.4		7.78
B-A	7.85	5.55	1.415		10.65	45.60	423.1		5.46
C-AB	2.00	8.48	0.236		0.21	0.30	4.6		0.15
A-B	8.53								
A-C	5.06								

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-C	1.43	1.06	1.352		9.66	15.49	188.8		12.61
B-A	7.85	5.56	1.413		45.60	80.09	942.7		11.00
C-AB	2.00	8.48	0.236		0.30	0.31	4.6		0.15
A-B	8.53								
A-C	5.06								

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)
17.45-18.00									
B-C	1.17	1.18	0.990		15.49	15.90	235.4		13.82
B-A	6.41	6.30	1.018		80.09	82.10	1216.4		12.65
C-AB	1.63	9.19	0.178		0.31	0.22	3.3		0.13
A-B	6.97								
A-C	4.14								

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)
18.00-18.15									
B-C	0.98	1.28	0.762		15.90	12.45	212.7		11.91
B-A	5.37	6.83	0.786		82.10	61.41	1076.3		10.66
C-AB	1.37	9.70	0.141		0.22	0.17	2.5		0.12
A-B	5.83								
A-C	3.46								

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	0.3	
17.15	4.0	****
17.30	9.7	**********
17.45	15.5	***************
18.00	15.9	****************
18.15	12.5	************

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	2.9	***
17.15	10.7	**********
17.30	45.6	**********
17.45	80.1	**********
18.00	82.1	**********
18.15	61.4	**********

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	107.4	71.6	782.0	7.28	842.4	7.85
B-A	589.1	392.7	3805.1	6.46	4081.1	6.93
C-AB	150.0	100.0	20.6	0.14	20.6	0.14
A-B	640.0	426.7				
A-C	379.9	253.3				
ALL	2386.7	1591.1	4607.8	1.93	4944.1	2.07

* 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*******

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

Printed at 14:17:53 on 14/08/2013]

APPENDIX 7

PICADY Output – A61 Wakefield Road/B6248 Lee Lane Junction

TRL LIMITED

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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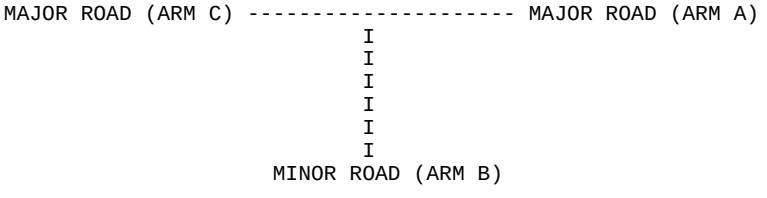
Run with file:-
"Z:\projects\0255 Lee Lane, Royston\Picady\A61 Wakefield Road-B6428 Lee Lane.vpi"
(drive-on-the-left) at 12:01:15 on Wednesday, 14 August 2013

RUN INFORMATION

RUN TITLE	: A61 Wakefield Road/B6428 Lee Lane
LOCATION	: Royston
DATE	: 14/08/13
CLIENT	: Bowsall
ENUMERATOR	: TBentley
JOB NUMBER	: 0255
STATUS	:
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A61 Wakefield Road (n)
ARM B IS B6428 Lee Lane
ARM C IS A61 Wakefield Road (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) 6.40 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 3.20 M.
- VISIBILITY	(VC-B)100.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (10)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 60.0 M.
- VISIBILITY TO RIGHT	(VB-A) 60.0 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	9.35 M.
WIDTH AT 10 M FROM JUNCTION	6.45 M.
WIDTH AT 15 M FROM JUNCTION	5.30 M.
WIDTH AT 20 M FROM JUNCTION	4.50 M.
- LENGTH OF FLARED SECTION	DERIVED: 3 PCU

.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
0.00	0.00	0.00

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

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
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 STREAM A-C	Slope For Opposing STREAM A-B
700.64	0.27	0.27

(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: 2017 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	5.78	8.66	5.78
ARM B	15.00	45.00	75.00	6.00	9.00	6.00
ARM C	15.00	45.00	75.00	6.91	10.37	6.91

Demand set: 2017 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	0.487	0.513
		0.0	225.0	237.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.815	0.000	0.185
		391.0	0.0	89.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.870	0.130	0.000
		481.0	72.0	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 2017 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	1.12	7.31	0.153		0.00	0.18	2.6		0.16
B-A	4.91	7.65	0.642		0.00	1.68	22.4		0.34
C-AB	0.90	10.13	0.089		0.00	0.10	1.4		0.11
A-B	2.82								
A-C	2.97								

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)
08.00-08.15									
B-C	1.33	5.02	0.266		0.18	0.35	5.0		0.27
B-A	5.86	7.15	0.820		1.68	3.71	47.0		0.65
C-AB	1.08	9.83	0.110		0.10	0.12	1.8		0.11
A-B	3.37								
A-C	3.55								

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-C	1.63	1.44	1.133		0.35	6.05	54.9		3.39
B-A	7.17	6.46	1.111		3.71	17.77	168.7		2.11
C-AB	1.32	9.42	0.140		0.12	0.16	2.4		0.12
A-B	4.13								
A-C	4.35								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.63	1.57	1.039		6.05	8.33	108.4		5.53
B-A	7.17	6.46	1.112		17.77	29.52	355.6		3.97
C-AB	1.32	9.42	0.140		0.16	0.16	2.4		0.12
A-B	4.13								
A-C	4.35								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.33	1.72	0.775		8.33	5.09	98.6		4.31
B-A	5.86	7.13	0.822		29.52	13.95	326.0		3.26
C-AB	1.08	9.83	0.110		0.16	0.12	1.9		0.11
A-B	3.37								
A-C	3.55								

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-C	1.12	6.18	0.181		5.09	0.22	6.4		0.23
B-A	4.91	7.64	0.642		13.95	1.95	63.4		0.69
C-AB	0.90	10.13	0.089		0.12	0.10	1.5		0.11
A-B	2.82								
A-C	2.97								

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	0.2	
08.15	0.4	
08.30	6.0	******
08.45	8.3	********
09.00	5.1	*****
09.15	0.2	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.7	**
08.15	3.7	****
08.30	17.8	******************
08.45	29.5	******************************
09.00	13.9	**************
09.15	1.9	**

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-C	122.5	81.7	275.9	2.25	275.9	2.25
B-A	538.2	358.8	983.1	1.83	983.3	1.83
C-AB	99.1	66.1	11.5	0.12	11.5	0.12
A-B	309.7	206.5				
A-C	326.2	217.5				
ALL	2057.8	1371.8	1270.4	0.62	1270.7	0.62

* 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
700.64	0.27	0.27

(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: 2017 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	5.76	8.64	5.76
ARM B	15.00	45.00	75.00	4.85	7.27	4.85
ARM C	15.00	45.00	75.00	6.79	10.18	6.79

Demand set: 2017 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	0.484	0.516
		0.0	223.0	238.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.750	0.000	0.250
		291.0	0.0	97.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.716	0.284	0.000
		389.0	154.0	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 2017 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	1.22	8.29	0.147		0.00	0.17	2.5		0.14
B-A	3.65	7.34	0.498		0.00	0.96	13.2		0.26
C-AB	1.93	10.13	0.191		0.00	0.23	3.5		0.12
A-B	2.80								
A-C	2.99								

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)
17.00-17.15									
B-C	1.45	7.27	0.200		0.17	0.25	3.6		0.17
B-A	4.36	6.80	0.641		0.96	1.67	22.9		0.39
C-AB	2.31	9.83	0.235		0.23	0.30	4.6		0.13
A-B	3.34								
A-C	3.57								

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)
17.15-17.30									
B-C	1.78	4.10	0.434		0.25	0.73	10.0		0.42
B-A	5.34	6.06	0.881		1.67	4.90	57.8		0.91
C-AB	2.83	9.42	0.300		0.30	0.42	6.3		0.15
A-B	4.09								
A-C	4.37								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.78	3.38	0.526		0.73	1.03	14.4		0.61
B-A	5.34	6.06	0.882		4.90	5.71	80.4		1.16
C-AB	2.83	9.42	0.300		0.42	0.43	6.4		0.15
A-B	4.09								
A-C	4.37								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.45	6.88	0.211		1.03	0.27	4.4		0.19
B-A	4.36	6.80	0.641		5.71	1.92	35.8		0.50
C-AB	2.31	9.83	0.235		0.43	0.31	4.7		0.13
A-B	3.34								
A-C	3.57								

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)
18.00-18.15									
B-C	1.22	8.21	0.148		0.27	0.18	2.7		0.14
B-A	3.65	7.33	0.498		1.92	1.03	16.6		0.28
C-AB	1.93	10.13	0.191		0.31	0.24	3.6		0.12
A-B	2.80								
A-C	2.99								

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	0.2	
17.15	0.2	
17.30	0.7	*
17.45	1.0	*
18.00	0.3	
18.15	0.2	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.0	*
17.15	1.7	**
17.30	4.9	*****
17.45	5.7	******
18.00	1.9	**
18.15	1.0	*

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	133.5	89.0	37.5	0.28	37.5	0.28
B-A	400.5	267.0	226.5	0.57	226.6	0.57
C-AB	212.0	141.3	29.0	0.14	29.0	0.14
A-B	306.9	204.6				
A-C	327.6	218.4				
ALL	1916.0	1277.3	293.1	0.15	293.2	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)

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
700.64	0.27	0.27

(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	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	6.20	9.30	6.20
ARM B	15.00	45.00	75.00	6.40	9.60	6.40
ARM C	15.00	45.00	75.00	7.40	11.10	7.40

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	0.486	0.514
		0.0	241.0	255.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.814	0.000	0.186
		417.0	0.0	95.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.872	0.128	0.000
		516.0	76.0	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	1.19	6.75	0.176		0.00	0.21	3.0		0.18
B-A	5.23	7.46	0.701		0.00	2.14	27.8		0.40
C-AB	0.95	10.02	0.095		0.00	0.10	1.6		0.11
A-B	3.02								
A-C	3.20								

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)
08.00-08.15									
B-C	1.42	3.39	0.420		0.21	0.68	9.3		0.49
B-A	6.25	6.93	0.902		2.14	5.73	67.5		0.91
C-AB	1.14	9.70	0.117		0.10	0.13	2.0		0.12
A-B	3.61								
A-C	3.82								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.74	1.38	1.263		0.68	8.04	70.8		4.35
B-A	7.65	6.20	1.235		5.73	28.94	264.0		3.22
C-AB	1.39	9.25	0.151		0.13	0.18	2.6		0.13
A-B	4.42								
A-C	4.68								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.74	1.47	1.183		8.04	12.68	155.8		7.90
B-A	7.65	6.19	1.235		28.94	51.07	600.4		6.57
C-AB	1.39	9.25	0.151		0.18	0.18	2.7		0.13
A-B	4.42								
A-C	4.68								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.42	1.63	0.875		12.68	10.82	173.3		7.89
B-A	6.25	6.92	0.903		51.07	43.01	705.6		6.85
C-AB	1.14	9.70	0.117		0.18	0.13	2.0		0.12
A-B	3.61								
A-C	3.82								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.19	1.76	0.678		10.82	4.56	115.4		5.13
B-A	5.23	7.44	0.703		43.01	12.41	415.7		3.94
C-AB	0.95	10.02	0.095		0.13	0.11	1.6		0.11
A-B	3.02								
A-C	3.20								

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	0.2	
08.15	0.7	*
08.30	8.0	********
08.45	12.7	************
09.00	10.8	**********
09.15	4.6	*****

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	2.1	**
08.15	5.7	******
08.30	28.9	****************************
08.45	51.1	**
09.00	43.0	***
09.15	12.4	**********

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-C	130.8	87.2	527.6	4.03	533.5	4.08
B-A	574.0	382.6	2081.0	3.63	2091.3	3.64
C-AB	104.6	69.7	12.4	0.12	12.4	0.12
A-B	331.7	221.1				
A-C	351.0	234.0				
ALL	2202.3	1468.2	2621.0	1.19	2637.2	1.20

* 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
700.64	0.27	0.27

(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	6.16	9.24	6.16
ARM B	15.00	45.00	75.00	5.14	7.71	5.14
ARM C	15.00	45.00	75.00	7.29	10.93	7.29

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	0.483	0.517
		0.0	238.0	255.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.749	0.000	0.251
		308.0	0.0	103.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.717	0.283	0.000
		418.0	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 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	1.29	8.03	0.161		0.00	0.19	2.7		0.15
B-A	3.86	7.14	0.541		0.00	1.13	15.4		0.29
C-AB	2.07	10.03	0.206		0.00	0.26	3.8		0.13
A-B	2.99								
A-C	3.20								

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)
17.00-17.15									
B-C	1.54	6.68	0.231		0.19	0.30	4.3		0.19
B-A	4.61	6.57	0.703		1.13	2.15	28.7		0.48
C-AB	2.47	9.71	0.255		0.26	0.34	5.1		0.14
A-B	3.57								
A-C	3.82								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.89	1.90	0.994		0.30	4.81	46.8		2.31
B-A	5.65	5.77	0.980		2.15	8.25	87.6		1.36
C-AB	3.03	9.26	0.327		0.34	0.48	7.2		0.16
A-B	4.37								
A-C	4.68								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.89	2.05	0.921		4.81	5.74	79.6		3.11
B-A	5.65	5.76	0.982		8.25	11.28	148.0		2.07
C-AB	3.03	9.26	0.327		0.48	0.48	7.3		0.16
A-B	4.37								
A-C	4.68								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.54	5.55	0.278		5.74	0.39	10.7		0.30
B-A	4.61	6.55	0.704		11.28	2.70	68.9		0.91
C-AB	2.47	9.71	0.255		0.48	0.35	5.2		0.14
A-B	3.57								
A-C	3.82								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.29	7.89	0.164		0.39	0.20	3.1		0.15
B-A	3.86	7.13	0.542		2.70	1.23	20.4		0.32
C-AB	2.07	10.03	0.206		0.35	0.26	3.9		0.13
A-B	2.99								
A-C	3.20								

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	0.2	
17.15	0.3	
17.30	4.8	*****
17.45	5.7	******
18.00	0.4	
18.15	0.2	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.1	*
17.15	2.1	**
17.30	8.3	********
17.45	11.3	***********
18.00	2.7	***
18.15	1.2	*

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.3
17.15	0.3
17.30	0.5
17.45	0.5
18.00	0.3
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-C	141.8	94.5	147.2	1.04	147.2	1.04
B-A	423.9	282.6	369.1	0.87	369.2	0.87
C-AB	227.1	151.4	32.5	0.14	32.5	0.14
A-B	327.6	218.4				
A-C	351.0	234.0				
ALL	2046.7	1364.5	548.8	0.27	548.9	0.27

* 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
700.64	0.27	0.27

(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: 2017 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	5.90	8.85	5.90
ARM B	15.00	45.00	75.00	6.71	10.07	6.71
ARM C	15.00	45.00	75.00	7.05	10.58	7.05

Demand set: 2017 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	0.498	0.502
		0.0	235.0	237.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.778	0.000	0.222
		418.0	0.0	119.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.853	0.147	0.000
		481.0	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 2017 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	1.49	6.95	0.215		0.00	0.27	3.8		0.18
B-A	5.24	7.53	0.697		0.00	2.11	27.4		0.39
C-AB	1.04	10.10	0.103		0.00	0.11	1.7		0.11
A-B	2.95								
A-C	2.97								

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)
08.00-08.15									
B-C	1.78	3.86	0.461		0.27	0.81	11.0		0.47
B-A	6.26	7.01	0.894		2.11	5.49	65.3		0.87
C-AB	1.24	9.79	0.127		0.11	0.14	2.2		0.12
A-B	3.52								
A-C	3.55								

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-C	2.18	1.76	1.243		0.81	9.30	81.9		3.89
B-A	7.67	6.31	1.216		5.49	27.45	251.4		3.04
C-AB	1.52	9.37	0.163		0.14	0.19	2.9		0.13
A-B	4.31								
A-C	4.35								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	2.18	1.86	1.174		9.30	14.76	181.0		7.20
B-A	7.67	6.30	1.217		27.45	48.24	568.0		6.16
C-AB	1.52	9.37	0.163		0.19	0.19	2.9		0.13
A-B	4.31								
A-C	4.35								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.78	2.04	0.874		14.76	11.32	197.6		7.21
B-A	6.26	6.99	0.896		48.24	39.48	657.9		6.35
C-AB	1.24	9.79	0.127		0.19	0.15	2.2		0.12
A-B	3.52								
A-C	3.55								

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-C	1.49	2.14	0.699		11.32	4.08	116.9		4.31
B-A	5.24	7.49	0.701		39.48	8.63	360.9		3.45
C-AB	1.04	10.10	0.103		0.15	0.12	1.7		0.11
A-B	2.95								
A-C	2.97								

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	0.3	
08.15	0.8	*
08.30	9.3	*********
08.45	14.8	***************
09.00	11.3	***********
09.15	4.1	****

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	2.1	**
08.15	5.5	*****
08.30	27.4	***************************
08.45	48.2	**
09.00	39.5	***
09.15	8.6	*********

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-C	163.8	109.2	592.2	3.62	596.1	3.64
B-A	575.3	383.6	1930.9	3.36	1935.9	3.36
C-AB	114.2	76.2	13.6	0.12	13.6	0.12
A-B	323.5	215.6				
A-C	326.2	217.5				
ALL	2165.1	1443.4	2536.7	1.17	2545.5	1.18

* 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
700.64	0.27	0.27

(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	6.32	9.49	6.32
ARM B	15.00	45.00	75.00	7.11	10.67	7.11
ARM C	15.00	45.00	75.00	7.55	11.33	7.55

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	0.496	0.504
		0.0	251.0	255.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.780	0.000	0.220
		444.0	0.0	125.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.854	0.146	0.000
		516.0	88.0	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	1.57	6.27	0.250		0.00	0.33	4.6		0.21
B-A	5.57	7.34	0.759		0.00	2.75	34.5		0.48
C-AB	1.10	9.98	0.111		0.00	0.12	1.8		0.11
A-B	3.15								
A-C	3.20								

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)
08.00-08.15									
B-C	1.87	1.88	0.996		0.33	4.82	46.9		2.38
B-A	6.65	6.78	0.981		2.75	9.06	97.9		1.29
C-AB	1.32	9.66	0.137		0.12	0.16	2.4		0.12
A-B	3.76								
A-C	3.82								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	2.29	1.80	1.271		4.82	12.99	135.0		6.01
B-A	8.15	6.04	1.349		9.06	41.28	379.4		4.56
C-AB	1.61	9.20	0.176		0.16	0.21	3.2		0.13
A-B	4.61								
A-C	4.68								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	2.29	1.75	1.310		12.99	21.39	258.1		10.30
B-A	8.15	6.04	1.349		41.28	72.98	857.1		9.33
C-AB	1.61	9.20	0.176		0.21	0.21	3.2		0.13
A-B	4.61								
A-C	4.68								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.87	1.94	0.965		21.39	21.44	321.2		11.28
B-A	6.65	6.78	0.982		72.98	72.71	1092.7		10.60
C-AB	1.32	9.66	0.137		0.21	0.16	2.4		0.12
A-B	3.76								
A-C	3.82								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.57	2.10	0.746		21.44	14.84	272.1		9.17
B-A	5.57	7.31	0.763		72.71	48.18	906.7		8.43
C-AB	1.10	9.98	0.111		0.16	0.13	1.9		0.11
A-B	3.15								
A-C	3.20								

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	0.3	
08.15	4.8	*****
08.30	13.0	*************
08.45	21.4	**********
09.00	21.4	**********
09.15	14.8	**************

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	2.8	***
08.15	9.1	*********
08.30	41.3	**
08.45	73.0	**********
09.00	72.7	**********
09.15	48.2	**********

QUEUE FOR STREAM C-AB

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

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	172.1	114.7	1038.0	6.03	1090.4	6.34
B-A	611.1	407.4	3368.4	5.51	3527.2	5.77
C-AB	121.1	80.8	14.8	0.12	14.8	0.12
A-B	345.5	230.3				
A-C	351.0	234.0				
ALL	2311.0	1540.7	4421.2	1.91	4632.4	2.00

* 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
700.64	0.27	0.27

(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: 2017 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	6.09	9.13	6.09
ARM B	15.00	45.00	75.00	5.26	7.89	5.26
ARM C	15.00	45.00	75.00	7.14	10.71	7.14

Demand set: 2017 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	0.511	0.489
		0.0	249.0	238.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.729	0.000	0.271
		307.0	0.0	114.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.681	0.319	0.000
		389.0	182.0	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 2017 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	1.43	8.13	0.176		0.00	0.21	3.0		0.15
B-A	3.85	7.12	0.541		0.00	1.13	15.4		0.29
C-AB	2.28	10.05	0.227		0.00	0.29	4.3		0.13
A-B	3.12								
A-C	2.99								

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)
17.00-17.15									
B-C	1.71	6.79	0.251		0.21	0.33	4.8		0.20
B-A	4.60	6.55	0.702		1.13	2.14	28.6		0.48
C-AB	2.73	9.73	0.280		0.29	0.38	5.8		0.14
A-B	3.73								
A-C	3.57								

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)
17.15-17.30									
B-C	2.09	2.11	0.993		0.33	5.06	49.4		2.18
B-A	5.63	5.76	0.979		2.14	8.19	87.1		1.35
C-AB	3.34	9.29	0.359		0.38	0.55	8.3		0.17
A-B	4.57								
A-C	4.37								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	2.09	2.26	0.927		5.06	6.07	84.0		2.98
B-A	5.63	5.74	0.981		8.19	11.19	146.9		2.07
C-AB	3.34	9.29	0.359		0.55	0.56	8.4		0.17
A-B	4.57								
A-C	4.37								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.71	5.69	0.300		6.07	0.44	12.0		0.31
B-A	4.60	6.53	0.704		11.19	2.70	68.4		0.91
C-AB	2.73	9.73	0.280		0.56	0.39	5.9		0.14
A-B	3.73								
A-C	3.57								

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)
18.00-18.15									
B-C	1.43	7.99	0.179		0.44	0.22	3.4		0.15
B-A	3.85	7.11	0.542		2.70	1.23	20.3		0.33
C-AB	2.28	10.05	0.227		0.39	0.30	4.5		0.13
A-B	3.12								
A-C	2.99								

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	0.2	
17.15	0.3	
17.30	5.1	*****
17.45	6.1	******
18.00	0.4	
18.15	0.2	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.1	*
17.15	2.1	**
17.30	8.2	********
17.45	11.2	***********
18.00	2.7	***
18.15	1.2	*

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	0.6	*
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-C	156.9	104.6	156.7	1.00	156.7	1.00
B-A	422.6	281.7	366.8	0.87	366.9	0.87
C-AB	250.5	167.0	37.2	0.15	37.2	0.15
A-B	342.7	228.5				
A-C	327.6	218.4				
ALL	2035.7	1357.2	560.6	0.28	560.7	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)

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
700.64	0.27	0.27

(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	6.49	9.73	6.49
ARM B	15.00	45.00	75.00	5.55	8.33	5.55
ARM C	15.00	45.00	75.00	7.64	11.46	7.64

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
16.45 - 18.15	ARM A	0.000	0.509	0.491
		0.0	264.0	255.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.730	0.000	0.270
		324.0	0.0	120.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.684	0.316	0.000
		418.0	193.0	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	1.51	7.82	0.192		0.00	0.24	3.4		0.16
B-A	4.07	6.93	0.587		0.00	1.35	18.1		0.33
C-AB	2.42	9.94	0.244		0.00	0.32	4.7		0.13
A-B	3.31								
A-C	3.20								

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)
17.00-17.15									
B-C	1.80	6.01	0.299		0.24	0.42	6.0		0.24
B-A	4.85	6.32	0.768		1.35	2.85	36.9		0.60
C-AB	2.89	9.60	0.301		0.32	0.43	6.4		0.15
A-B	3.96								
A-C	3.82								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	2.20	1.99	1.106		0.42	7.01	64.1		2.81
B-A	5.95	5.48	1.085		2.85	13.80	133.1		2.02
C-AB	3.54	9.14	0.388		0.43	0.62	9.3		0.18
A-B	4.84								
A-C	4.68								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	2.20	2.13	1.036		7.01	9.74	126.3		4.67
B-A	5.95	5.47	1.088		13.80	22.30	271.9		3.66
C-AB	3.54	9.14	0.388		0.62	0.63	9.5		0.18
A-B	4.84								
A-C	4.68								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.80	2.42	0.744		9.74	4.22	101.2		3.30
B-A	4.85	6.26	0.775		22.30	5.34	206.0		2.51
C-AB	2.89	9.60	0.301		0.63	0.44	6.6		0.15
A-B	3.96								
A-C	3.82								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.51	7.51	0.200		4.22	0.25	5.7		0.18
B-A	4.07	6.91	0.588		5.34	1.51	28.3		0.42
C-AB	2.42	9.94	0.244		0.44	0.33	4.9		0.13
A-B	3.31								
A-C	3.20								

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	0.2	
17.15	0.4	
17.30	7.0	*******
17.45	9.7	**********
18.00	4.2	****
18.15	0.3	

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.3	*
17.15	2.8	***
17.30	13.8	**************
17.45	22.3	**********************
18.00	5.3	*****
18.15	1.5	**

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	0.6	*
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-C	165.2	110.1	306.6	1.86	306.6	1.86
B-A	446.0	297.3	694.2	1.56	694.4	1.56
C-AB	265.7	177.1	41.4	0.16	41.4	0.16
A-B	363.4	242.3				
A-C	351.0	234.0				
ALL	2166.5	1444.3	1042.2	0.48	1042.4	0.48

* 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 ==========

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APPENDIX 8

Framework Residential Travel Plan

croft
Transport Solutions

STRATEGIC LAND GROUP

PROPOSED RESIDENTIAL DEVELOPMENT

LEE LANE

ROYSTON

RESIDENTIAL TRAVEL PLAN FRAMEWORK

August 2013

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Contents

1 INTRODUCTION 1

1.2 Development Site and its Location 1
1.3 Development Proposals 1
1.4 The Travel Plan 2
1.5 Resident's Travel Pack 2

2 NON-CAR ACCESSIBILTY 3

2.2 Site Accessibility - Foot 3
2.3 Site Accessibility - Cycle 5
2.4 Site Accessibility – Bus 6
2.5 Summary 7

3 MANAGEMENT MEASURES 9

3.1 Introduction 9
3.2 Resident's Travel Pack 9
3.3 Travel Awareness and Information 10
3.4 Promotion of Car Share Scheme 10
3.5 Encouraging Walking/Cycling 11

4 TRAVEL PLAN AIMS AND OBJECTIVES 12

4.1 Introduction 12
4.2 Potential Aims and Objectives 12
4.3 Plan Monitoring and Assessment 13

PLANS (See Transport Assessment)

1 INTRODUCTION

1.1.1 Croft Transport Solutions have been appointed by Strategic Land to advise on the traffic and transportation issues relating to proposals for a residential development residential development on land to the north of the B6428 Lee Lane in the Royston area of Barnsley.

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 1.3 kilometres west of Royston town centre.

1.2.2 The site is currently undeveloped and is bound to the south by the B6428 Lee Lane, residential properties bound the site to the east whilst undeveloped land bounds the remainder of the site. The predominant land use in the vicinity of the site is residential with areas of open land.

1.3 Development Proposals

1.3.1 It is proposed to develop the site with up to 200 residential units. The residential development will comprise a mix of house types with final details of these being submitted in a reserved matters application.

1.3.2 Vehicular access into the development site will be via the northern arm of a new four arm roundabout junction off the B6428 Lee Lane.

1.3.3 Pedestrian and cycle access into the site will be afforded via the proposed vehicular access point off the B6428 Lee Lane which links with existing pedestrian infrastructure located within the vicinity of the site which provide excellent links to nearby amenities.

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 Resident's Travel Pack

1.5.1 The principle measure will consist of a Resident's 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 ACCESSIBILTY

2.1.1 In order to accord with the aspirations of the National Planning Policy Framework (NPPF), also referred to as the Framework any new proposals should extend the choice in transport and secure mobility in a way that supports sustainable development.

2.1.2 New proposals should attempt to influence the mode of travel to the development in terms of gaining a shift in modal split towards non car travel modes, thus assisting in meeting the aspirations of current national, regional and local planning policy.

2.1.3 The accessibility of the proposed development by the following modes of transport has, therefore, been considered.

a) Accessibility on Foot.

b) Accessibility by Cycle.

c) Accessibility by Bus.

d) Accessibility by Rail.

2.2 Site Accessibility - Foot

2.2.1 It is important to create a choice of direct, safe and attractive routes between where people live and where they need to travel in their day-to-day life. This philosophy clearly encourages the opportunity to walk whatever the journey purpose and also helps to create more active streets and a more vibrant neighbourhood.

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 It is likely that the primary pedestrian desire lines will be to the east towards the centre of Royston. A 2 metre wide pedestrian footway is provided on the southern side of Lee Lane travelling to the east and south-west of the site. This footway links to the footway provided on High Street which in turn provides a direct route into Royston 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 Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car journeys, particularly those under 2 kilometres. In addition, the DFT National Travel Survey of 2006 confirms that 78% of all trips less than a mile (1.6km) are carried out on foot.

2.2.6 **Plan 4** shows the pedestrian catchment for 800 metres and 2 kilometres from the centre of the site and provides an illustrative indication of the areas that can be reached based on a leisurely walk from the site.

2.2.7 As can be seen, the 800 metre catchment includes the residential area located east from the site as well as the Royston Summer Fields Primary School which is located approximately 650 metres from the site.

2.2.8 The 2,000 metre pedestrian catchment illustrates that the majority of the eastern residential districts of Royston including their associated local centres can be accessed.

2.2.9 Included within the 2,000 metre catchment are a number of schools and colleges, such as Royston Meadshead Primary School, Royston Parkside Primary School and St John Baptist CE Primary School.

2.2.10 It should also be noted that Notton Wood Nature Reserve and Barnsley Municipal Golf Club are also within the 2,000 metre catchment.

2.2.11

2.2.12 In addition, to the pedestrian catchment plan, a review of the proximity of local facilities such as pharmacies/doctor's surgeries, schools (both primary and secondary) local shops/retail outlets and leisure facilities has been undertaken. The location of such facilities in relation to the site is shown in **Plan 4**.

2.2.13 As illustrated, the development site benefits from being located within close proximity to a range of local amenities with the largest choice of facilities being located around High Street.

2.2.14 Table 2.1 below, shows the distance from the edge of the site to the local food store and other nearby amenities in the vicinity of the site

Local Amenity	Distance (metres)
Royston Summer Fields Primary School	400
Notton Wood Nature Reserve	500
Weldricks Pharmacy	600
Sainsbury's Local	1000
Barnsley Municipal Golf Club	1000
Royston Welfare Park	1000

Table 2.1 - Distance from Site to Local Facilities

2.2.15 As can be seen in the table above, the site is located within close proximity to a number of useful local amenities including primary services as well as retail and leisure facilities.

2.2.16 It is therefore considered that the existing pedestrian infrastructure will facilitate safe and direct pedestrian linkages between the site and local destinations. It is further considered that sufficient capacity exists to cater for potential increases in future pedestrian movements.

2.3 Site Accessibility - Cycle

2.3.1 An alternative mode of travel to the site could be achieved by bicycle. A distance of 5 kilometres is generally accepted as a distance where cycling has the potential to replace short car journeys. This distance equates to a journey of around 25 minutes based on a leisurely cycle speed of 12 kilometres per hour and would encompass the whole of Royston and Athersley North, and parts of Cudworth and Ryhill.

2.3.2 The area surrounding the site lends itself to cycling as it's broadly flat and therefore ideal for trips by cycle.

2.3.3 In addition, a designated local cycle route is located approximately a kilometre south east of the site; this route provides excellent links to the wider National Cycle Network (National Route 67) which in turn links to surrounding places such as Wakefield, Chesterfield and Leeds, and also links up with National Route 71.

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

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

2.4 Site Accessibility – Bus

2.4.1 There are 2 bus stops provided within 400 metres of the site which equates to a walking time of approximately 5 minutes, one on Lee Lane and the other on High Street. These bus stops are shown on Plan 4.

2.4.2 Safe pedestrian access to these bus stops is provided for via the existing pedestrian footways located on Lee Lane and High Street.

2.4.3 A summary of the services available from the bus stops in the vicinity of the site are provided in Table 2.2 below.

Service No	Route	Monday – Friday Frequency per hour				Sat	Sun
		AM Peak	Midday	PM Peak	Eve		
57	Barnsley – Royston - Wakefield	4	4	3	1 jrny	4	1
59A	Barnsley - Wakefield	0	1	1	1	1	1

Table 2.2 - Existing Bus Services Operation in the Vicinity of the Site

2.4.4 As shown in Table 2.2, the stops on Lee Lane and High Street provide up to 5 services per hour, Monday to Saturday to destinations including Wakefield, Barnsley and Notton

2.4.5 In order to demonstrate the level of accessibility some example bus journey times from the bus stops in the vicinity of the site are presented in Table 2.3 below;

Destination	Duration
Notton	5 minutes
Barnsley	21 minutes
Wakefield	27 minutes

Table 2.3: Example Bus Journey Times

2.4.6 The above table demonstrates that bus journeys to Barnsley take approximately 21 minutes whilst bus journeys to Wakefield take approximately 27 minutes. This is a good level of service and provides commuter, retail and leisure opportunities from the site.

2.4.7 As such, the existing bus services are ideally placed to cater for the needs of the development's residents and visitors to numerous local and regional destinations in the area.

2.5 Site Accessibility – Rail

2.5.1 Barnsley railway station is located approximately 7 kilometres to the south west of the site. The station can be accessed by cycle or via a direct bus service.

2.5.2 Barnsley railway station is located on both the Hallam and Penistone lines. The station provides 8 services per hour to destinations such as Liverpool, Huddersfield, Sheffield and Leeds.

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

2.6 Summary

2.6.1 It has been demonstrated that pedestrian and cycle infrastructure in the vicinity of the site is good.

2.6.2 The site is also accessible by public transport, with bus services extending to places such as Swadlincote and Burton-on-Trent.

2.6.3 In light of the above, it is considered the site is highly accessible and will cater for needs of development's residents and assist in promoting a choice of travel modes other than the private car.

3 MANAGEMENT MEASURES

3.1 Introduction

3.1.1 The following Travel Plan measures will be considered:

i) Resident's Travel Pack,

ii) Travel awareness and Information,

iii) Promotion of Lift Share Scheme, and

iv) Encouraging Walking/Cycling.

3.2 Resident's Travel Pack

3.2.1 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.

3.2.2 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.

3.2.3 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.

3.2.4 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 as well as identification of the location of nearby amenity facilities as part of the information supplied to prospective purchasers.

3.2.5 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.

3.2.6 It is also proposed that the Travel Plan Co-ordinator will investigate the potential to provide discounted season tickets for new residents.

3.2.7 Within the Resident's 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 Resident's Travel Pack will be the responsibility of the house builder.

3.2.8 The provision of a Resident's 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.

3.3 Travel Awareness and Information

3.3.1 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.

3.3.2 As mentioned previously, Resident's 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.

3.4 Promotion of Car Share Scheme

3.4.1 The Travel Plan Co-ordinator will promote the use of car sharing via registering on a car share website such as Liftshare or Goliftshare. It allows users to register their details, where they are travelling to or from in the Barnsley are and if they are offering a lift or need a lift to their destination.

3.4.2 The websites can be found at the following locations www.liftshare.com and www.goliftshare.com.

3.4.3 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.

3.5 Encouraging Walking/Cycling

3.5.1 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.

3.5.2 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.

3.5.3 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.

3.5.4 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 AIMS AND OBJECTIVES

4.1 Introduction

4.1.1 This section of the Travel Plan will provide details of the aims and objectives against which the success of the Plan in achieving its objectives will be measured.

4.1.2 These are designed to be quantifiable, be relevant to both measures and objectives identified in the Plan and to include timescale.

4.1.3 Further information (e.g. through a travel survey) may have to be obtained in order to establish against which to set the aims and objective. 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 aims and objectives for reducing the need to travel by private car will be set and agreed with the Barnsley Metropolitan Borough Council and included in the final Travel Plan for the development.

4.2 Potential Aims and Objectives

4.2.1 Aims and objectives which according to the DfT may potentially be included in the Travel Plan include the following:

- Car trips per household - aims set on the basis of predicted trip rates for the development.
- Uptake of alternatives - aims 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 aims may be supplemented by aims related to car ownership, travel to work by mode and travel to school by mode.

- Travel Plan awareness aims - for example, an aim 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 on a regular basis;
- 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 Barnsley Metropolitan Council.

croft

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