

STRATEGIC LAND GROUP

PROPOSED RESIDENTIAL DEVELOPMENT

LEE LANE

ROYSTON

Transport Assessment

December 2013

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1 INTRODUCTION

1.1 Introduction

- 1.1.1 Croft have been commissioned by Strategic Land Group to produce a Transport Assessment (TA) 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 considers road safety in the vicinity of the site and Section 8 presents details of the Framework Travel Plan and Section 9 contains Report's conclusions.
- 1.1.7 Following submission of the initial Transport Assessment, comments were received from the highway offices at Barnsley Metropolitan Borough Council (BMBC). It was requested by the local highway authority that some additional information was required, including the consideration of the Land West of Wakefield Road residential development (as 'committed' development) and a review of the road safety/personal injury accident record in the vicinity of the site. This revision of the TA therefore takes account of these comments.

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 casualties 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 jrnly	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). This included 2013 flows for the following junction;

- B6428 Lee Lane/B6132 Station Road/B6428 Midland Road/B6132 Church Street signal controlled junction.

6.2.2 The AM and PM peak hours for the signal controlled junction were identified as 0745 to 0845 hours and 1645 to 1745 hours.

6.2.3 Traffic flows for the remainder of the network have been taken from the TA prepared by Bryan G Hall for the Land west of Wakefield Road, Mapplewell development. This included 2012 flows for the following junction;

- A61 Wakefield Road/B6248 Shaw/B6248 Lee Lane staggered crossroad junction.

6.2.4 The AM and PM peak hours for the staggered crossroads junction were identified as 0745 to 0845 hours and 1615 to 1715 hours.

6.2.5 For robustness, this TA utilises all peak hour flows. The AM and PM peak hours presented in PCU's are shown within **Figures 1 and 2**.

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:

- 2012 to 2017 AM Peak – 1.0414 (as per the BGH TA)
- 2012 to 2017 PM Peak – 1.0433 (as per the BGH TA)
- 2013 to 2017 AM Peak – 1.0407
- 2013 to 2017 PM Peak – 1.0422
- 2012 to 2022 AM Peak – 1.1216
- 2012 to 2022 PM Peak – 1.1251
- 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.

- 6.4.4 Following post submission discussions with BMBC a further 'committed' development has been included in the analysis.
- 6.4.5 The development refers to a residential scheme comprising up to 300 units on land situated to the west of Wakefield Road in Mapplewell. A Transport Assessment was prepared by Bryan G Hall to accompany the planning application, although it is noted that this development has not yet been granted consent.
- 6.4.6 The traffic flows associated with the above development are shown in **Figures 9 and 10** for the Weekday AM and PM Peak periods.
- 6.4.7 A review of the Bryan G Hall submitted TA revealed that a further 'committed' scheme relating to the North Gawber development had also been considered within the analysis. This particular application was accompanied by a TA prepared by Aecom and the proposal was subsequently approved at appeal.
- 6.4.8 In light of the above, and for robustness, this TA includes traffic associated with both the land to the west of Wakefield Road and the North Gawber developments.
- 6.4.9 The traffic flows associated with the North Gawber development are shown in **Figures 11 and 12** 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 13 and 14**.
- 6.5.2 The resultant 2022 Base Flows for Weekday AM and PM peak periods are displayed in **Figures 15 and 16**.

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 17**.

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 It was considered that the trip rates presented in the submitted version of the TA were robust and no issue was raised by the local highway authority in regard to their appropriateness.

6.7.3 However, following the review of the BGH TA, it was noted that slightly higher trip rates had been utilised and so these are now the trip rates used for this analysis for robustness.

6.7.4 The peak hour trip rates and forecast trip generation as used in the BHG TA are shown within Table 6.2.

Peak Hour	Trip Rates		Trip Generation	
	Arr	Dep	Arr	Dep
AM	0.151	0.454	30	91
PM	0.432	0.256	86	51

Table 6.2 - Forecast Trip Generation of Proposed Residential Development

- 6.7.5 As can be seen from Table 6.2 the residential development is forecast to generate a two-way total of approximately 121 trips in the AM peak hour and 137 trips in the PM peak hour.
- 6.7.6 As the trip rates used are higher than those previously deemed acceptable by the local highway authority, the assessments are considered to be particularly robust.
- 6.7.7 In order to assign the traffic forecast to be generated by the proposed development, the trip distribution shown in Figure 17.
- 6.7.8 The resultant proposed residential development flows for the AM peak are shown in **Figure 18** whilst the proposed residential development flows for the PM peak are shown in **Figure 19**.

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 20 and 21**.
- 6.8.2 Whilst the resultant 2022 'With Development' Flows were calculated in a similar way and are displayed in **Figures 22 and 23** 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/B6248 Lee Lane staggered crossroad 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 2**.

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)	0.16	0	0.20	0	0.17	0	0.19	0
Potential Site Access (s)	0.00	0	0.00	0	0.00	0	0.00	0
B6428 Lee Lane (w)	0.20	0	0.19	0	0.39	1	0.21	0
Proposed Site Access (n)	0.07	0	0.04	0	0.08	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 3**.

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	82.3	11	92.6	16	83.1	12	94.9	19
B6132 Church Street	81.4	12	93.5	17	84.7	14	94.8	18
B6132 Station Road	46.8	6	75.1	9	47.7	6	67.6	8
B6428 Lee Lane	81.5	8	91.8	15	84.6	9	96.6	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	87.3	13	97.6	19	90.1	14	102.2	26
B6132 Church Street	88.0	15	99.4	25	88.5	15	102.2	25
B6132 Station Road	49.7	7	75.5	8	49.7	6	64.4	8
B6428 Lee Lane	86.2	9	98.3	19	89.5	11	103.0	27

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 Base scenarios. The 2022 results for the base scenario show that the junction will continue to operate with reserve capacity in the AM peak hour but is nearing its theoretical capacity in the PM peak hour.
- 6.9.7 With the addition of the proposed development traffic, the junction is forecast to operate at a similar level to the base scenario in both peak hours in the 2017 flow scenario with minimal increases in the DOS and Mean Max Queue. The 2022 assessments with the traffic associated with the development show that the AM peak continues to work satisfactorily and the PM peak, while exceeding its theoretical capacity shows very similar levels of DOS and only a minimal increase in queues.
- 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 2.5% and 2.7% in both the AM peak and PM peak periods for 2022 and 2017 respectively.

- 6.9.9 It is therefore concluded that the proposed development will have a minimal impact on the operation on the junction.
- 6.9.10 It is also noted that as part of the former Royston High School development, the operation of this particular junction will be improved by the implementation of MOVA.
- 6.9.11 MOVA (Microprocessor Optimised Vehicle Actuation) is a very well established strategy for the control of traffic light signals at isolated junctions i.e. junctions that are un-coordinated with any neighbouring signals.
- 6.9.12 MOVA is designed to cater for the full range of traffic conditions, from very low flows through to a junction that is overloaded. For the major part of the range, before congestion occurs for example, MOVA operates in a delay minimising mode. If any approach becomes overloaded however, the system switches to a capacity maximising procedure.
- 6.9.13 Studies at junctions where VA (Vehicle Actuated) control have been replaced by MOVA have indicated that in terms of delay, the average improvement is typically 13% but larger benefits would be expected compared with VA controlled junction which has not recently had its maximum greens and maximum set timetable checked for suitability. Therefore, the introduction of MOVA at this junction, proposed as part of the consented development would not only mitigate the impact of the proposals but improve the operational efficiency of the overall junction.

A61 Wakefield Road/B6248 Shaw/B6248 Lee Lane

- 6.9.14 The operation of the above junction was tested using the PICADY program.
- 6.9.15 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 4**.

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
Shaw Lane (left turn)	0.367	1	0.328	1	0.431	1	0.352	1
Shaw Lane (right turn to Lee Lane)	0.772	3	0.604	2	0.818	4	0.658	2
A61 Wakefield Road (nb) right turn to Lee Lane	0.113	0	0.106	0	0.136	0	0.166	0
Lee Lane (left turn)	0.115	0	0.112	0	0.196	0	0.168	0
Lee Lane (right turn to Shaw Lane)	0.532	1	0.607	2	0.692	2	0.717	2
A61 Wakefield Road (sb) right turn to Shaw Lane	0.138	0	0.148	0	0.142	0	0.150	0

Table 6.6 - Summary of PICADY Output for A61 Wakefield Road/B6428 Shaw Lane/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
Shaw Lane (left turn)	0.431	1	0.352	1	0.934	5	0.423	1
Shaw Lane (right turn to Lee Lane)	0.818	4	0.658	2	0.925	7	0.738	3
A61 Wakefield Road (nb) right turn to Lee Lane	0.136	0	0.166	0	0.146	0	0.176	0
Lee Lane (left turn)	0.196	0	0.167	0	0.269	0	0.230	0
Lee Lane (right turn to Shaw Lane)	0.692	2	0.717	2	0.773	3	0.789	3
A61 Wakefield Road (sb) right turn to Shaw Lane	0.142	0	0.150	0	0.157	0	0.166	0

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

- 6.9.16 As can be seen in Tables 6.6 and 6.7 the A61 Wakefield Road/B6428 Shaw Lane junction is forecast to operate within capacity in the AM and PM peak 2017 base scenarios. The results of the assessment, which include the traffic associated with the development, predict that the junction will continue to operate at a similar level with no capacity issues.
- 6.9.17 Similarly, the 2022 assessments show that the junction is forecast to continue to operate within its theoretical capacity in both peak periods although in the 2023 PM Peak 'With Development' scenario the Mean Max Queue on Shaw Lane increases by eight PCU's and the RFC is above the 'desirable minimum' of 0.85.

6.9.18 It should be noted that the analysis of the junctions have been based on an assessment year of 2023, all of the 'committed development' and robust trip rates as detailed previously and using 'One Hour' assessment tool in ARCADY 7 which creates a 'peak within a peak' by inflating the predicted peak hour traffic flows. As such, the analysis is likely to overestimate the RFC values and predicted queuing that will occur.

6.9.19 In addition, we are also aware of TRL's Article 193 which was published in January 2011 and is titled 'What maximum RFC (Ratio of flow to capacity) is acceptable?' In this document it states that judgements on the capacity of junctions should not rely on just one single acceptable maximum value of RFC and that more weight should be given to delay and junctions. In this case the increase in delays are minimal.

6.9.20 It is therefore our view 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 within its theoretical capacity in all the AM peak flow scenarios and the addition of the development traffic will have a minimal impact on its operation. In the PM peak, the assessments predict that the junction will be nearing its theoretical capacity in both the 2017 and 2022 base flow scenarios but again the impact of the development traffic minimal with only a moderate increase in queues. Notwithstanding this, the implementation of the MOVA operating system as part of the consented redevelopment of Royston School site will ensure that capacity

is maximised and so the results presented in this TA should be considered as a very worst case scenario.

- The A61 Wakefield Road/B6428 Shaw Lane/B6428 Lee Lane staggered crossroad junction is forecast to operate within its theoretical capacity in all scenarios other than on the B6428 Shaw Lane in the 2023 AM 'with development' scenario, when the RFC is slightly above the 'desirable minimum'.

6.10.2 It should be noted that in addition to the already consented Royston School and North Gawber development, this TA also considers the proposed residential scheme on Land to the West of Wakefield Road, which does not yet benefit from planning consent and so the assessments presented are not only robust in traffic terms but can be considered as a worst case situation. Should the other residential scheme not be granted consent then the impact of these proposals would be reduced and the junctions would operate more efficiently than the results shown.

6.10.3 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 ACCIDENT ANALYSIS

7.1 Introduction

7.1.1 In order to consider the potential impact of the development on road safety, personal injury accident data has been obtained from Barnsley Council for the last 5 years. The data obtained included the locations, numbers and types of accidents that have occurred between over the past 5 year period between 1st January 2008 and 31st December 2012. The data is contained within **Appendix 5**.

7.2 Extent of Accident Analysis

7.2.1 The analysis of road traffic accidents has been based on the same road network as the capacity assessments, which was agreed with the local highway authority. The data included information relating to recorded accidents at the following junctions;

- A61 Wakefield Road/B6248 Shaw Lane/B6248 Lee Lane.
- B6248 Lee Lane/B6132 Station Road/B6248 Midland Road/B6132 Church Street.

7.3 Accident Analysis

7.3.1 A review of the data shows that there have been a total of 26 reported accidents over the last 5 years at the above locations as summarised in **Table 7.1**;

Injury Severity	Year				
	2008	2009	2010	2011	2012
Slight	3	7	2	6	1
Serious	1	1	1	0	3
Fatal	0	0	1	0	0
Total	4	8	4	6	4

Table 7.1 – Summary of Accidents by Year

- 7.3.2 The data shows that the number of recorded accidents within the area of study has been fairly consistent with an average of 6 accidents per year, with the exception of 2009 when there were a total of 8 recorded accidents.
- 7.3.3 The data shows that while the number of accidents reduced to 4 recorded incidents in 2010, one of these resulted in a fatality. The recorded accidents increased to 6 in 2011 before reducing down again to just 4 incidents in 2012.
- 7.3.4 The majority of accidents have resulted in slight injuries being sustained, with only 6 of them being recorded as serious.

7.4 Accident Locations and Types

- 7.4.1 In light of the above, a brief analysis has also been made of the location, type and severity of the accidents that have taken place at the junctions listed above.

A61 Wakefield Road/B6248 Shaw Lane/B6248 Lee Lane

- 7.4.2 The data shows there have been 4 recorded accidents at the junction of A61 Wakefield Road/B6248 Shaw Lane/B6248 Lee Lane junction. Two of the accidents resulted in slight injuries being sustained while the other two were recorded as being serious.
- 7.4.3 One of the two slight injury accidents was caused by debris falling from a trailer onto the bonnet of another vehicle and the other was a shunt type collision that occurred when a vehicle did not react quick enough when the vehicle in front was making a right turn. These can be attributed to an insecure load and a driver not paying attention to other road users rather than any issue with the layout or geometry of the junction.
- 7.4.4 One of the serious injury accidents occurred after a vehicle pulled out of Shaw Lane and then stopped in the junction for an unknown reason where it was struck by another vehicle. The other related to an inebriated pedestrian who ran out in front of a vehicle on Lee Lane. Again, there is no evidence to suggest that any of these accidents could be attributed to the characteristics of the road/junction or conditions on site.

B6248 Lee Lane/B6132 Station Road/B6248 Midland Road/B6132 Church Street

- 7.4.5 The records show that a total of 6 accidents were recorded at the B6248 Lee Lane/B6132 Station Road/B6248 Midland Road/B6132 Church Street signalised junction during the 5 year study period.
- 7.4.6 All of the accidents with the exception of 1 resulted in slight injuries being sustained, the other resulted in a serious casualty.
- 7.4.7 The slight injury accidents were either collisions caused by drivers turning into the paths of other vehicles, one of which left the scene, or rear end shunts at the traffic lights when vehicles braked too late and collided with the vehicles in front. The serious injury accident occurred when a motorcyclist attempted to overtake a car that was turning right and as such collided with the vehicle.
- 7.4.8 Again, none of these accidents are considered to be untypical and can only be attributed to pedestrian/driver error.

B6248 Lee Lane

- 7.4.9 The review of accidents included the length of Lee Lane and in particular the area close to the proposed new site access.
- 7.4.10 The data shows that a total of 2 slight accidents and one serious accident were recorded at this location. The two accidents that resulted in slight injuries included a collision when a vehicle had stopped and had its hazard lights flashing, when a car collided with the rear of the vehicle. The other incident involved a car that was trying to overtake two other vehicles and did not see that a third vehicle had also started to overtake resulting in both vehicles colliding and leaving the carriageway. It was daylight and the road surface was dry, suggesting that the cause of the accident was driver error.
- 7.4.11 The accident that resulted in a serious injury being sustained referred to a driver who lost control of the vehicle and veered off the carriageway into a field. It is noted that the road conditions were dry and that weather was not a causal factor.

7.5 Summary

- 7.5.1 The data reviewed has not identified any untypical accidents at these types of junctions.
- 7.5.2 A review of the accidents that have taken place between 2008 and 2013 within the study area has shown that the number of accidents peaked to 8 in 2009 but has since reduced back to a similar level to that in 2008 with approximately 4 accidents per year.
- 7.5.3 Only 6 of the 26 recorded accidents have resulted in serious injuries being sustained and one of them resulted in a fatality but the cause of this accident was recorded as 'aggressive driving' and so cannot be attributed to the conditions on site.
- 7.5.4 The proposed point of access and internal layout of the site would be focused on providing safe access for all road users including pedestrians and cyclists with segregated traffic free routes being provided where appropriate.
- 7.5.5 It is not considered that there any specific accident problems in the area and as such, there is no evidence to suggest that the proposed residential development will have an adverse effect on road safety or the number of accidents in the vicinity.

8 SMARTER TRAVEL CHOICES VIA TRAVEL PLANS

8.1 Introduction

- 8.1.1 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.

8.2 Travel Planning Guidance

- 8.2.1 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.
- 8.2.2 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".
- 8.2.3 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."
- 8.2.4 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”.

- 8.2.5 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”*.
- 8.2.6 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”*.
- 8.2.7 Further guidance relating specifically to residential Travel Plans is presented in the DfT document entitled *“Making Residential Travel Plans Work”* published in June 2007.
- 8.2.8 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”.*
- 8.2.9 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.

- 8.2.10 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.
- 8.2.11 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.

8.3 Residential Travel Plan

- 8.3.1 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.
- 8.3.2 A Framework Residential Travel Plan has been prepared and is presented in **Appendix 6**.
- 8.3.3 The Framework Residential Travel Plan outlines physical and management measures that are designed to achieve this objective.
- 8.3.4 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.
- 8.3.5 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.

9 CONCLUSIONS

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

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

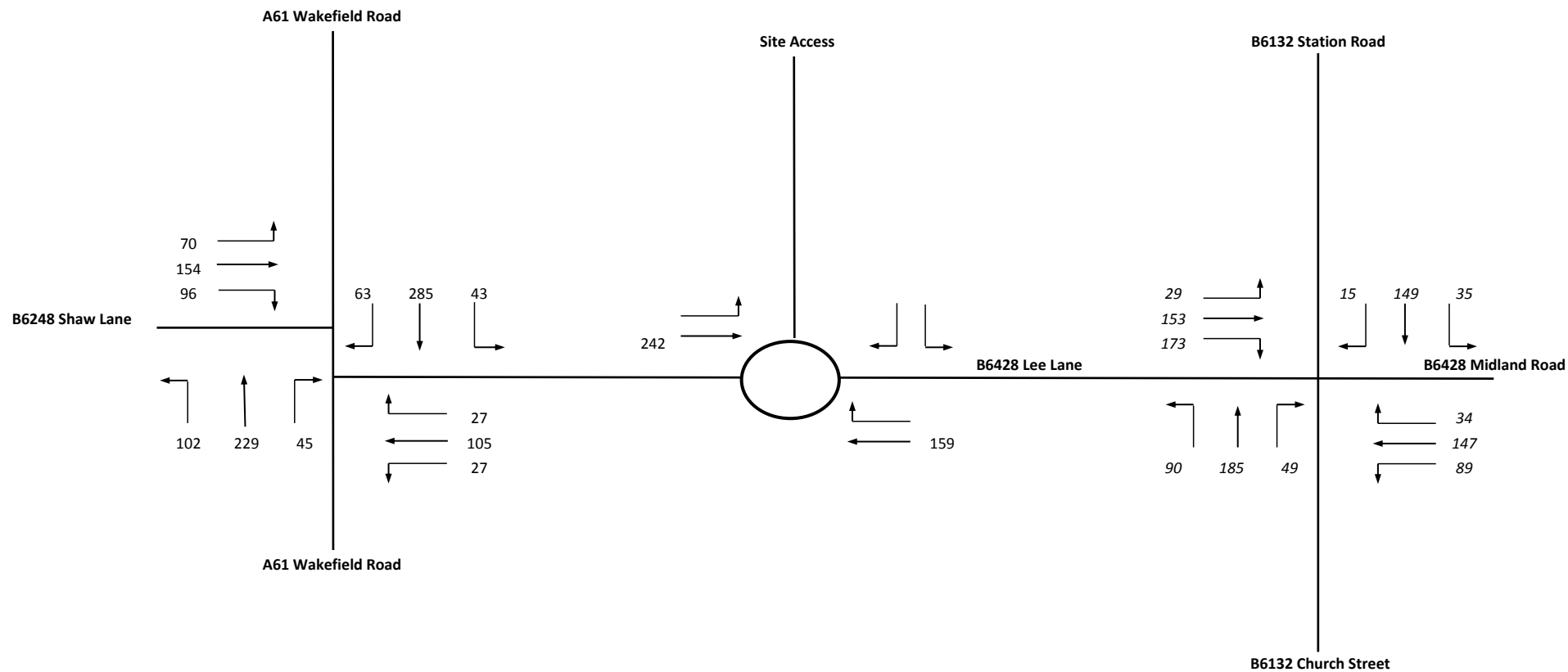
- The proposed development will be accessed by a safe and efficient vehicular access arrangement.
- The proposed development complies with local and national planning policy.
- The proposed development benefits from being highly accessible on foot with the existing pedestrian footways providing access 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.
- The review of personal injury accidents has shown that the proposals are unlikely to have an adverse impact on road safety.
- A Framework Travel Plan will be implemented to encourage the use of non-car modes.
- The use of the higher trip rates than those previously used provides a very robust prediction of likely traffic generation.
- Furthermore, the assessments are representative of a worst case scenario given that they take account of additional development which has not yet been granted consent.
- The traffic impact assessment indicates that the proposed development would be able to be accommodated on the local highway network.

- The proposals will not have a material impact on the local highway network.

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

FIGURES

FIGURE	DESCRIPTION	SCENARIO	CALC
FIGURE 1	2009 & 2013 SURVEYED FLOWS	AM PEAK	See TA
FIGURE 2	2009 & 2013 SURVEYED FLOWS	PM PEAK	See TA
FIGURE 3	2017 GROWTHED TRAFFIC FLOWS	AM PEAK	F1*TEMPRO
FIGURE 4	2017 GROWTHED TRAFFIC FLOWS	PM PEAK	F2*TEMPRO
FIGURE 5	2022 GROWTHED TRAFFIC FLOWS	AM PEAK	F1*TEMPRO
FIGURE 6	2022 GROWTHED TRAFFIC FLOWS	PM PEAK	F2*TEMPRO
FIGURE 7	COMMITTED DEVELOPMENT - FORMER ROYSTON HIGH SCHOOL	AM PEAK	See TA
FIGURE 8	COMMITTED DEVELOPMENT - FORMER ROYSTON HIGH SCHOOL	PM PEAK	See TA
FIGURE 9	COMMITTED DEVELOPMENT - WAKEFIELD ROAD (BGH TA)	AM PEAK	See TA
FIGURE 10	COMMITTED DEVELOPMENT - WAKEFIELD ROAD (BGH TA)	PM PEAK	See TA
FIGURE 11	COMMITTED DEVELOPMENT - NORTH GAWBER DEVELOPMENT	AM PEAK	See TA
FIGURE 12	COMMITTED DEVELOPMENT - NORTH GAWBER DEVELOPMENT	PM PEAK	See TA
FIGURE 13	2017 BASE TRAFFIC FLOWS	AM PEAK	F3+F7+F9+F11
FIGURE 14	2017 BASE TRAFFIC FLOWS	PM PEAK	F4+F8+F10+F12
FIGURE 15	2022 BASE TRAFFIC FLOWS	AM PEAK	F5+F7+F9+F11
FIGURE 16	2022 BASE TRAFFIC FLOWS	PM PEAK	F6+F8+F10+F12
FIGURE 17	TRIP DISTRIBUTION	AM & PM PEAK	See TA
FIGURE 18	DEVELOPMENT FLOWS	AM PEAK	See TA
FIGURE 19	DEVELOPMENT FLOWS	PM PEAK	See TA
FIGURE 20	2017 ASSESSMENT TRAFFIC FLOWS	AM PEAK	F13+F18
FIGURE 21	2017 ASSESSMENT TRAFFIC FLOWS	PM PEAK	F14+F19
FIGURE 22	2022 ASSESSMENT TRAFFIC FLOWS	AM PEAK	F15+F18
FIGURE 23	2022 ASSESSMENT TRAFFIC FLOWS	PM PEAK	F16+F19



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

\$\$\$ 2012 Traffic Counts from BGH TA

Figure 1 - Weekday AM Peak Surveyed Flows

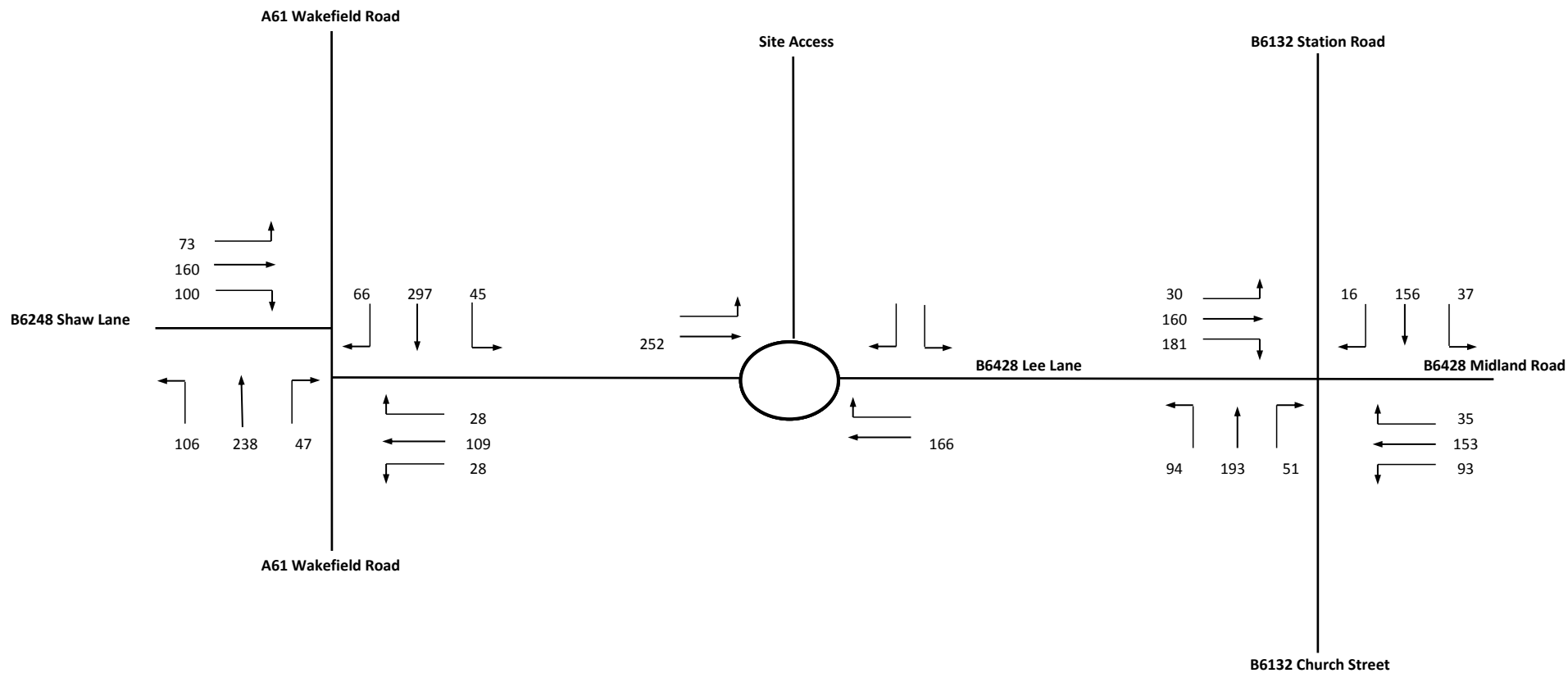
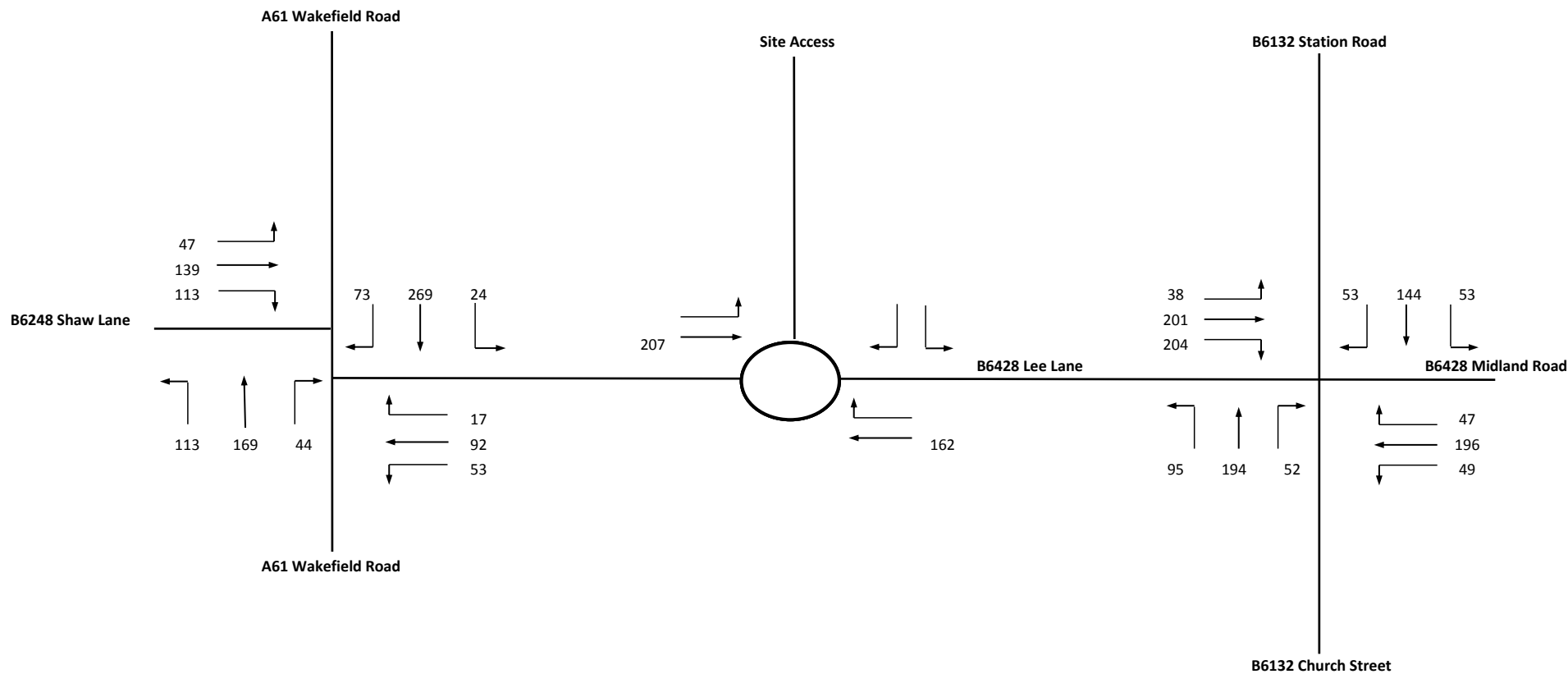


**Figure 3 - Weekday AM Peak
2017 Growthed Flows**



2009 - 2017 NTEM Adjusted Growth Factor 1.051
 2012 - 2017 NTEM Adjusted Growth Factor 1.043 (As per the BGH TA)

**Figure 4 - Weekday PM Peak
2017 Growthed Flows**

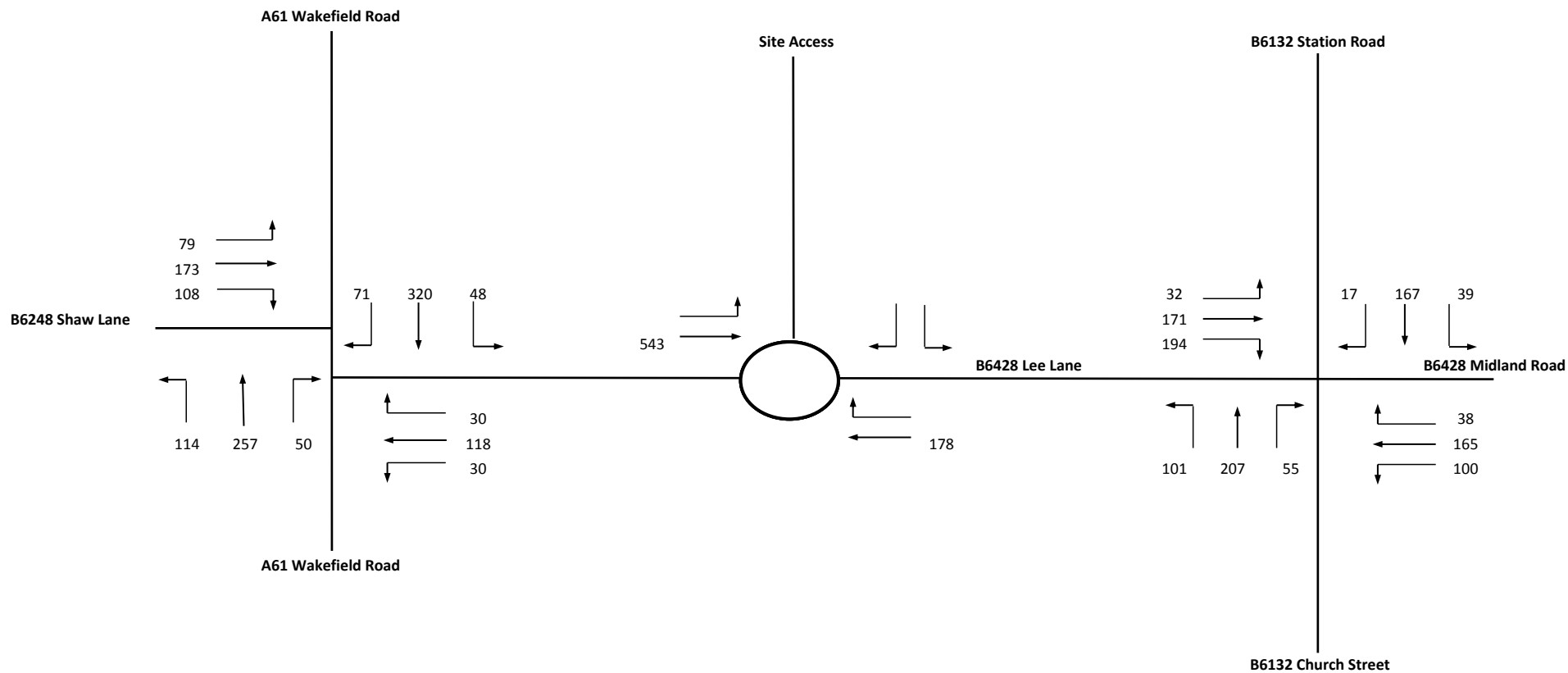
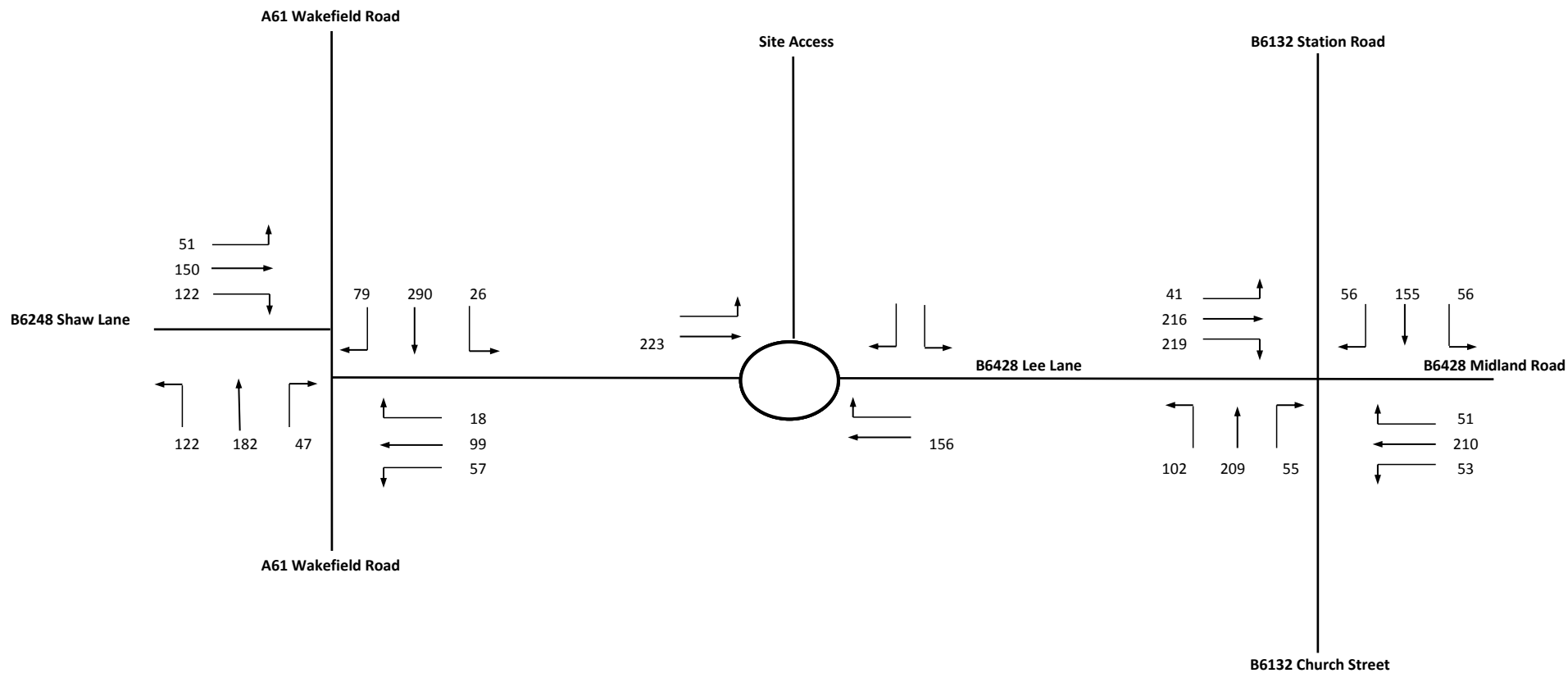


**Figure 5 - Weekday AM Peak
2022 Growthed Flows**



2009 - 2022 NTEM Adjusted Growth Factor 1.129
 2012 - 2022 NTEM Adjusted Growth Factor 1.125

**Figure 6 - Weekday PM Peak
2022 Growthed Flows**

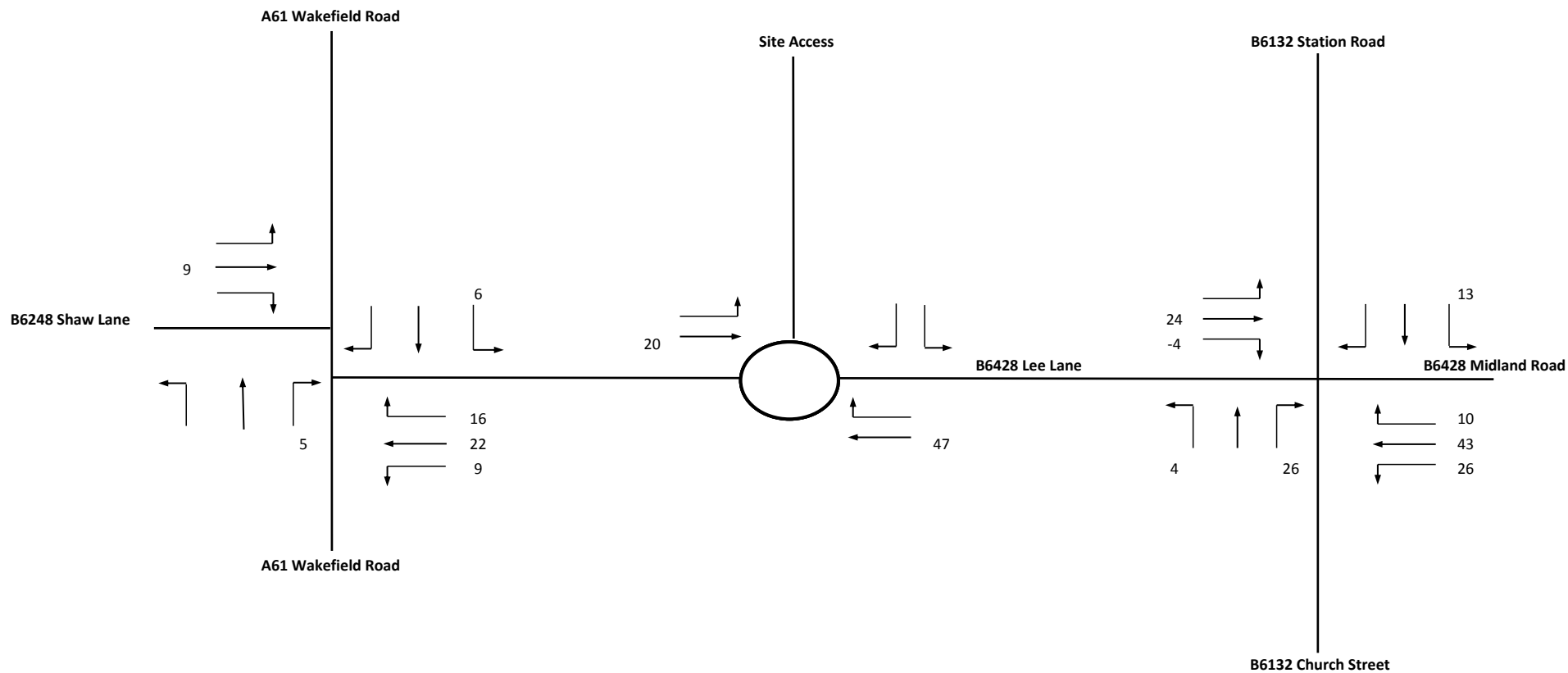


Figure 7 - Weekday AM Peak
Committed Development Flows - Former Royston High School Site

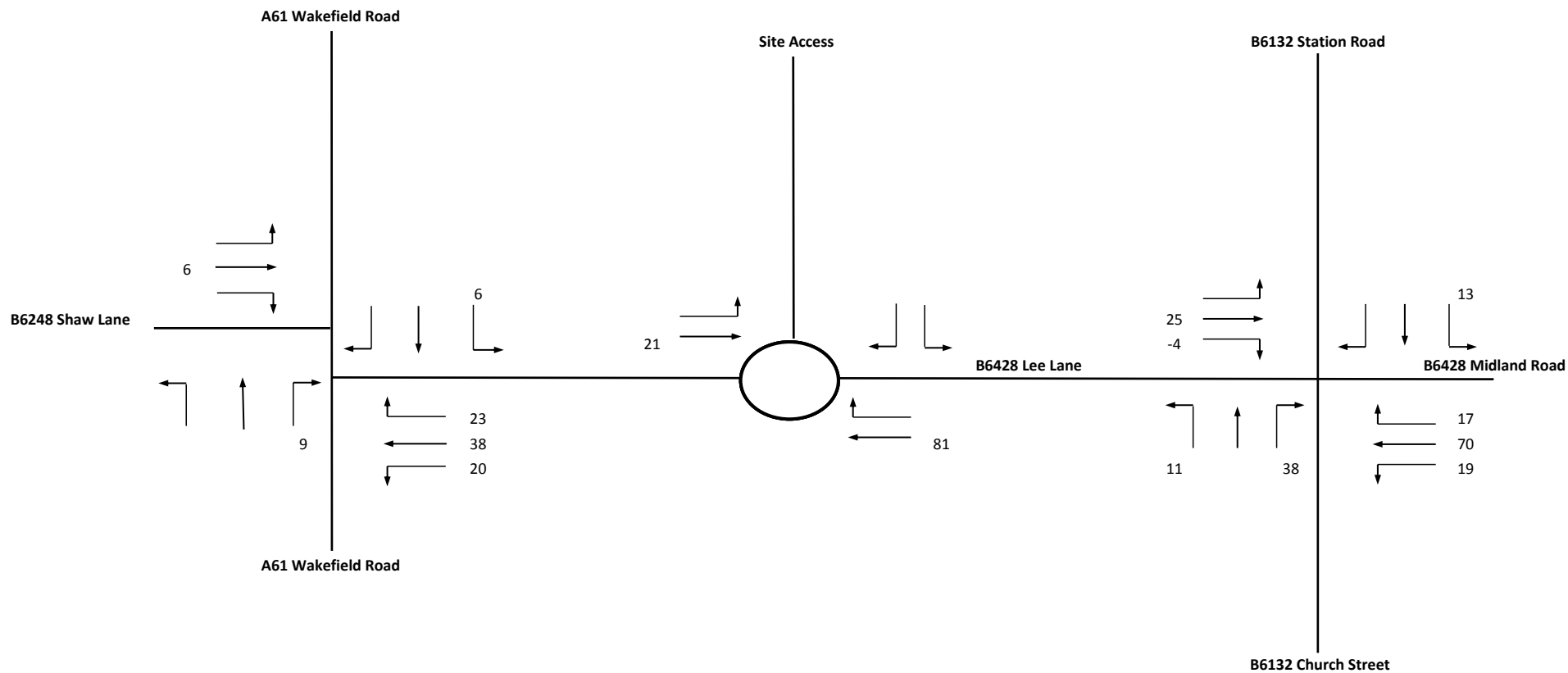


Figure 8 - Weekday PM Peak
Committed Development Flows - Former Royston High School Site

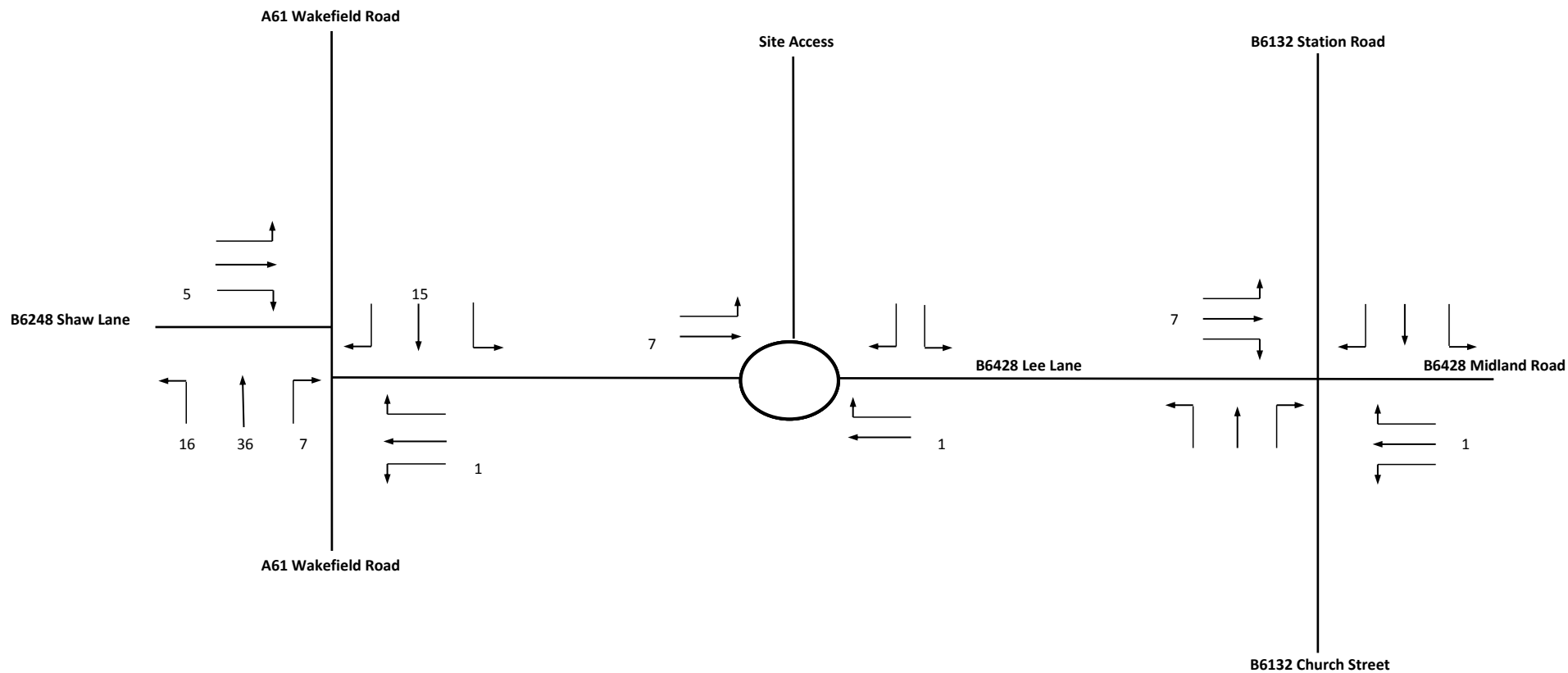


Figure 9 - Weekday AM Peak
Committed Development Flows - Land West of Wakefield Road, Mapplewell

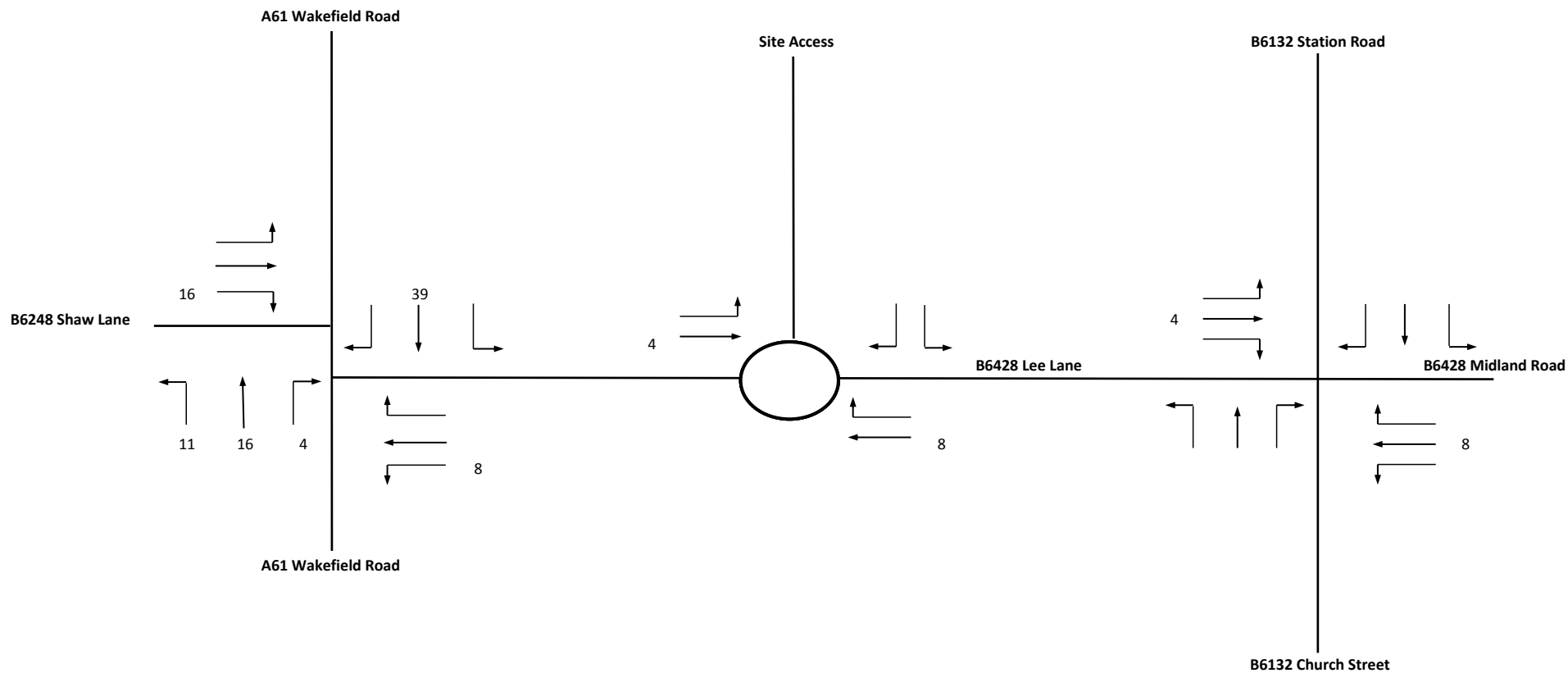


Figure 10 - Weekday PM Peak
Committed Development Flows - Land West of Wakefield Road, Mapplewell

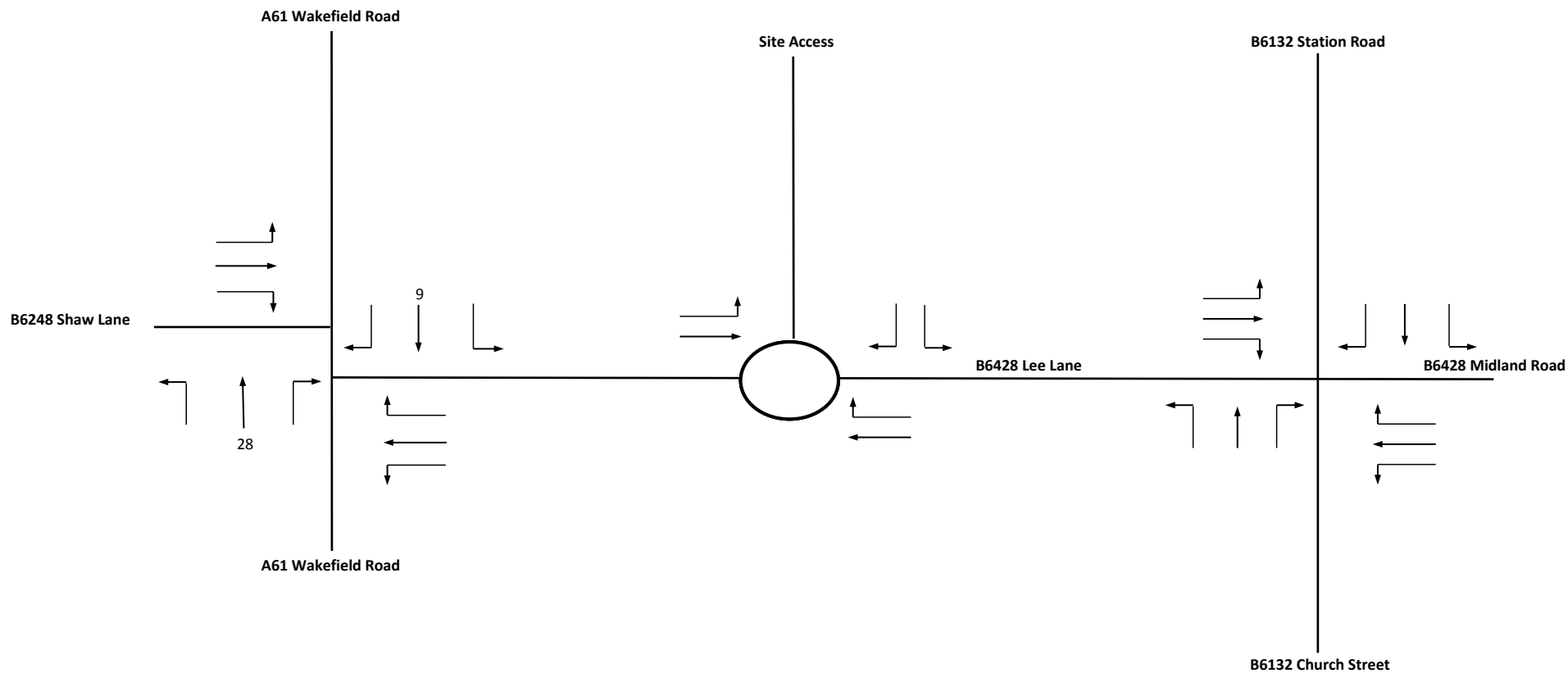


Figure 11 - Weekday AM Peak
Committed Development Flows - North Gawber Development

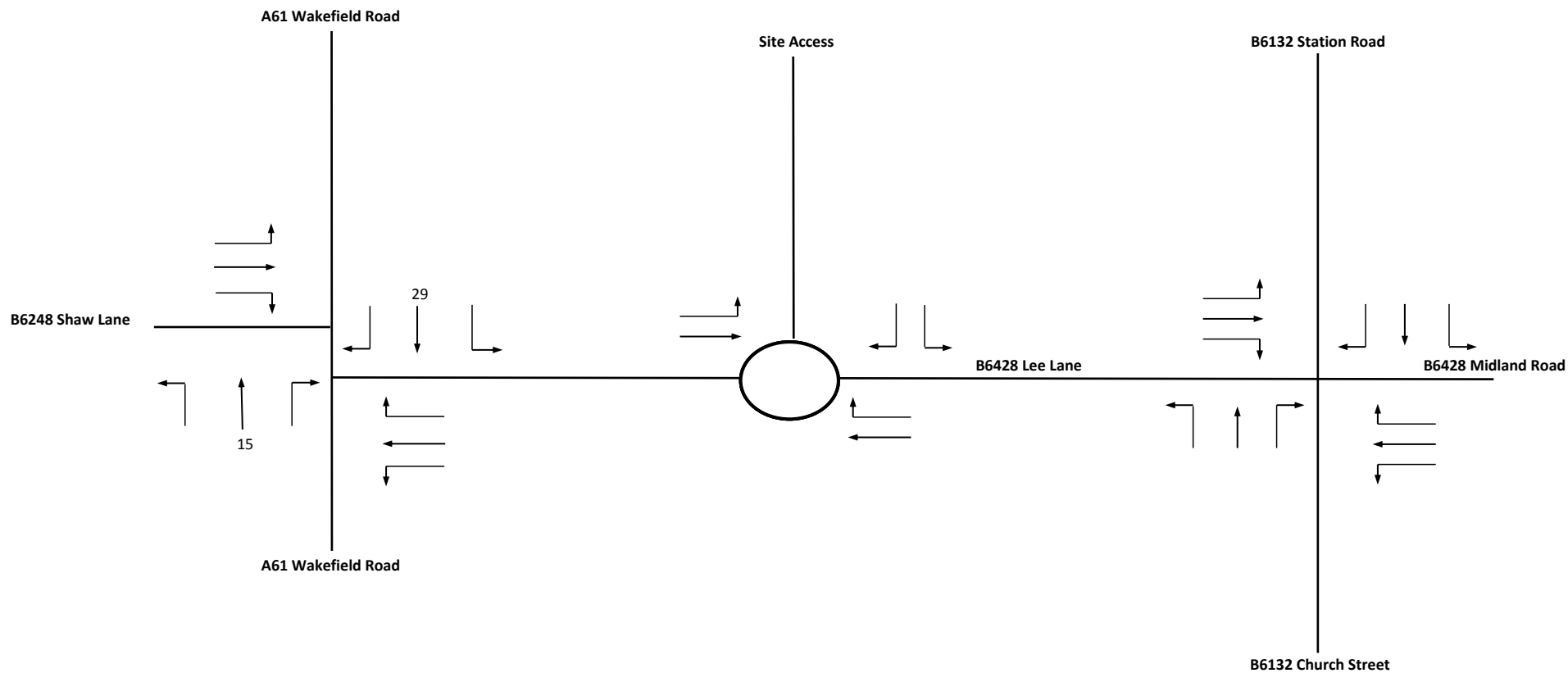


Figure 12 - Weekday PM Peak
Committed Development Flows - North Gawber Development

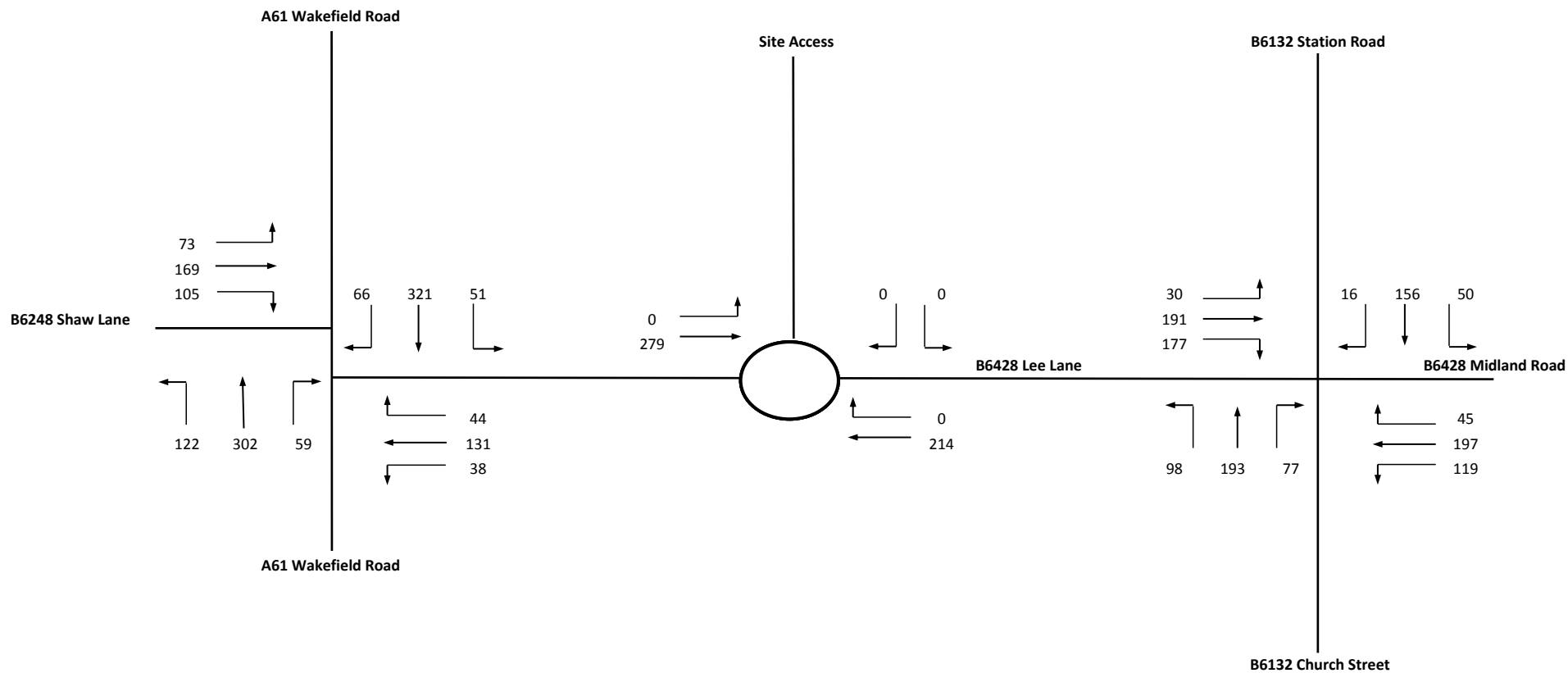


**Figure 13 - Weekday AM Peak
2017 Base Flows**

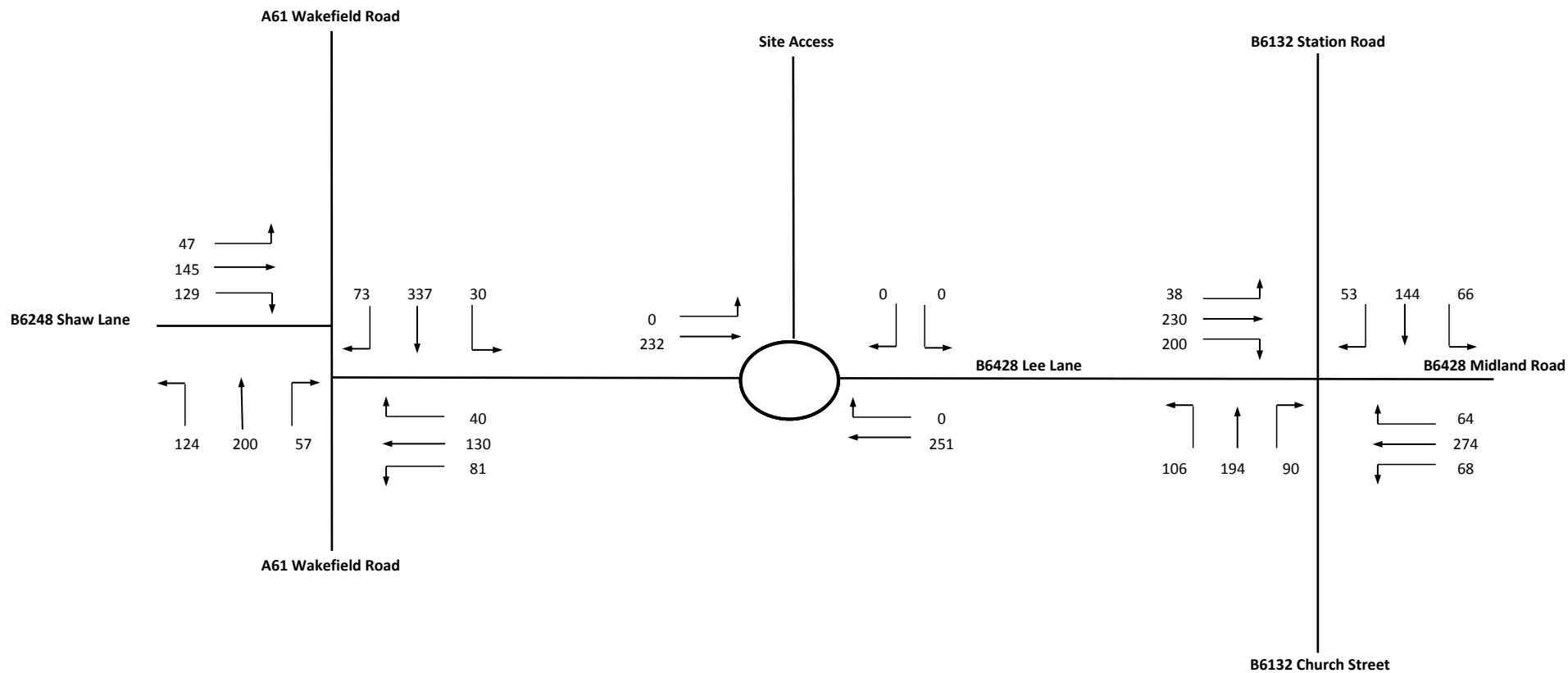


Figure 14 - Weekday PM Peak
2017 Base Flows

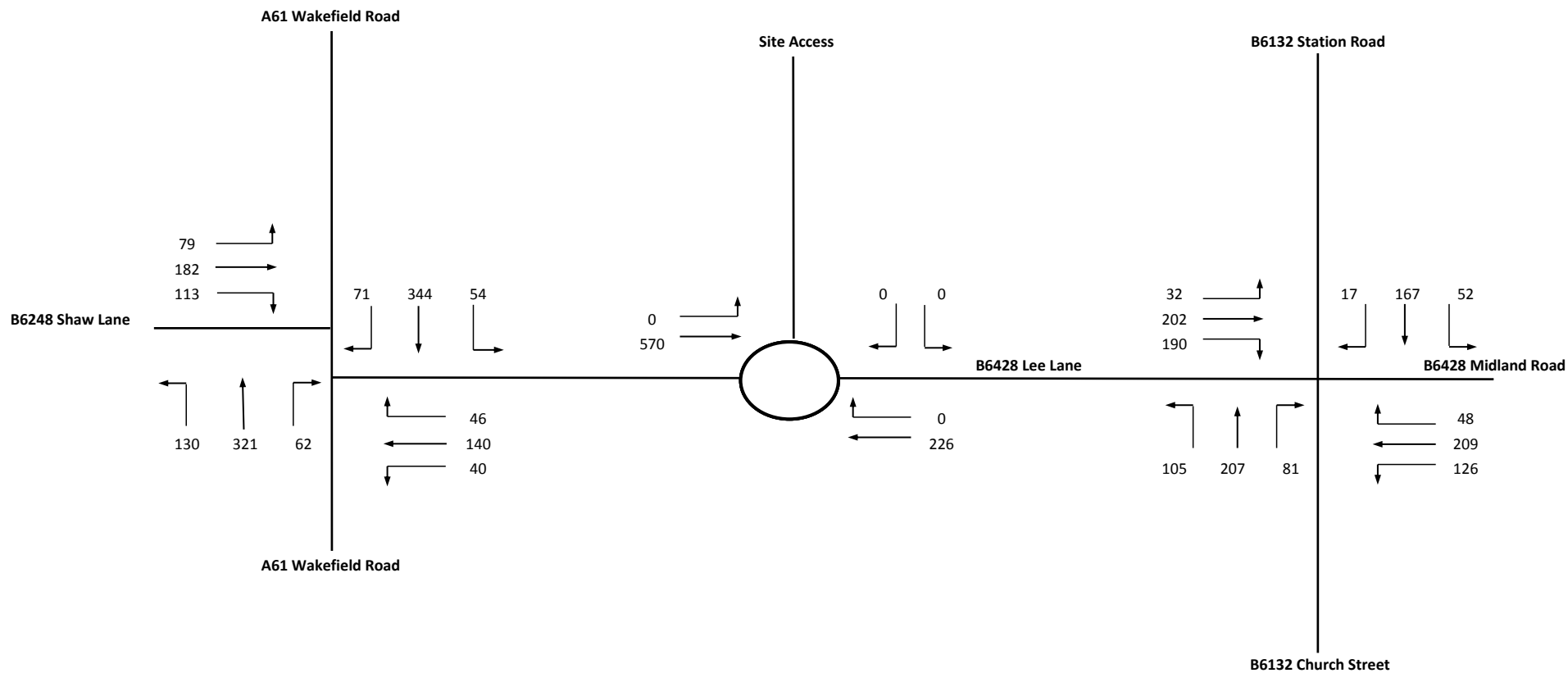


**Figure 15 - Weekday AM Peak
2022 Base Flows**

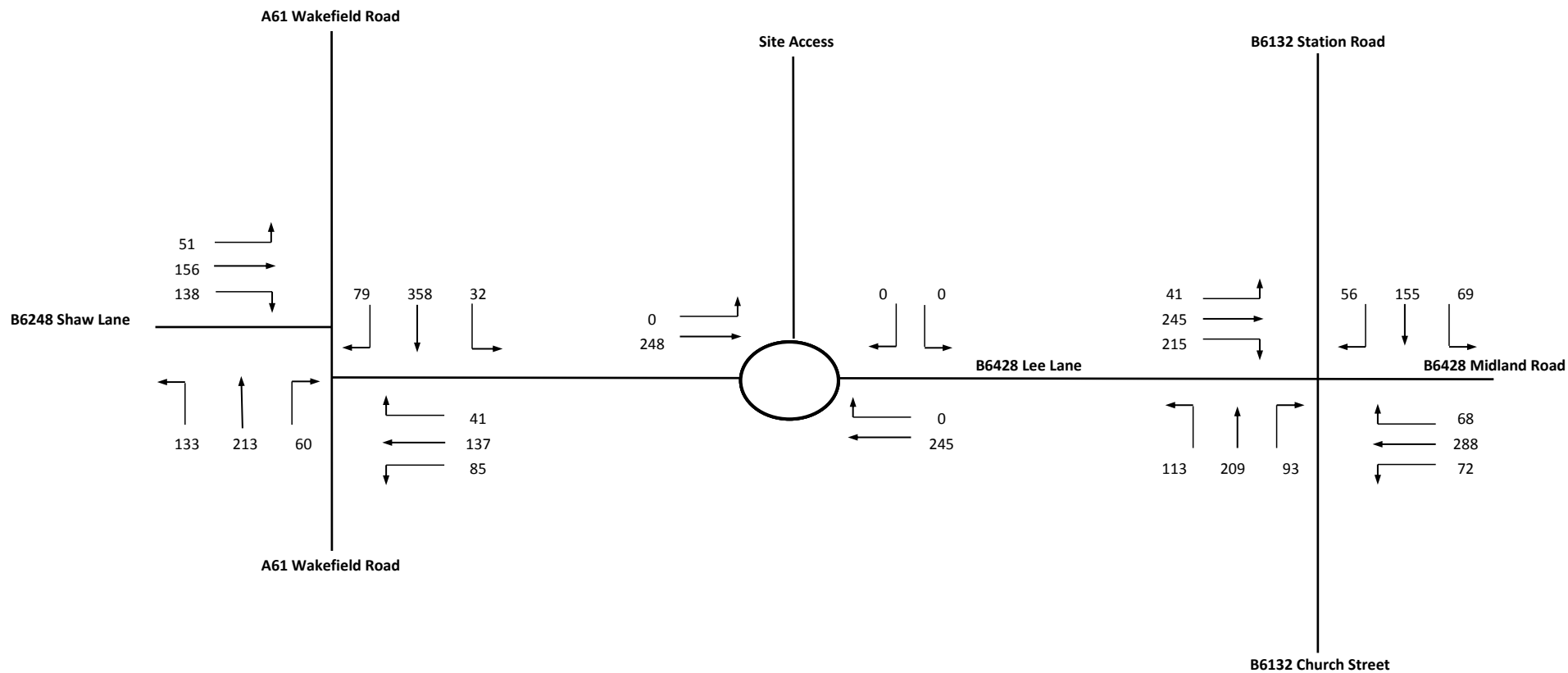


**Figure 16 - Weekday PM Peak
2022 Base Flows**

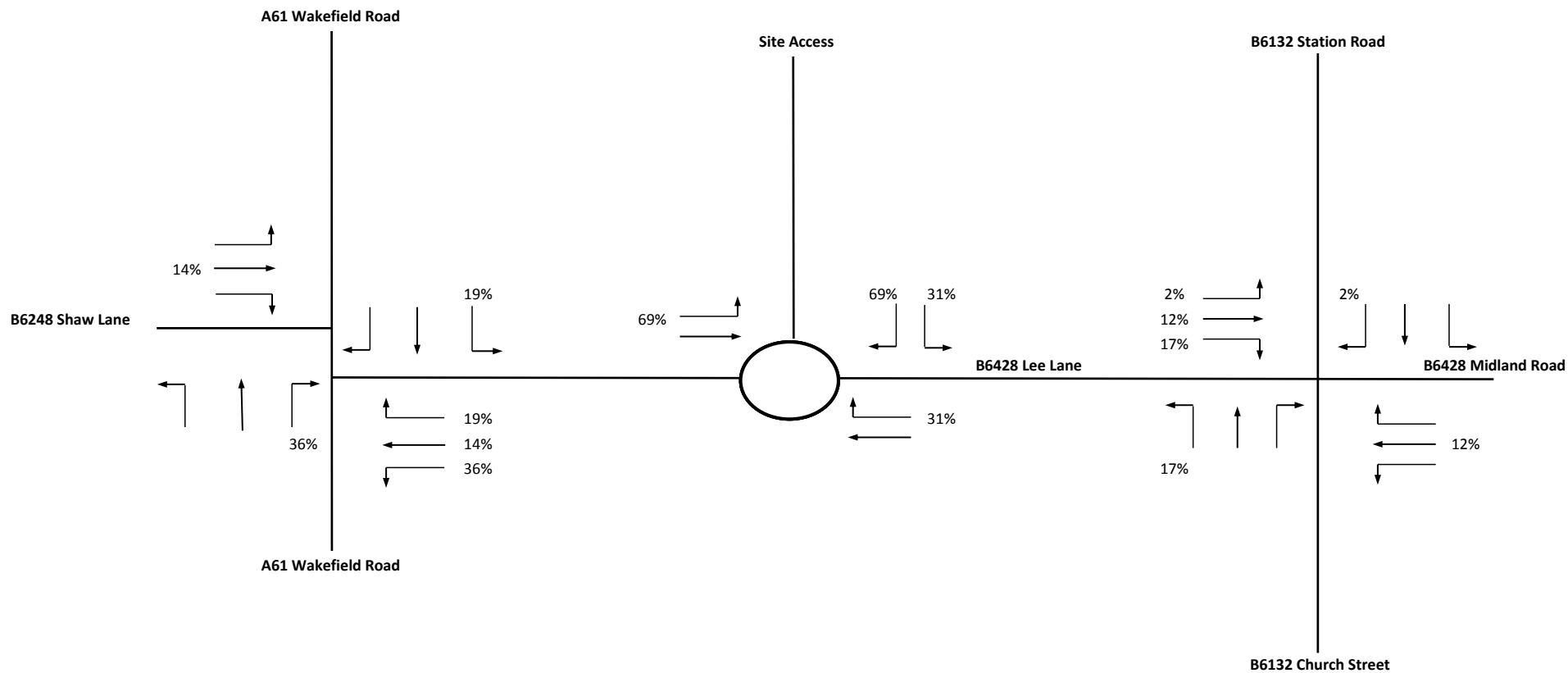
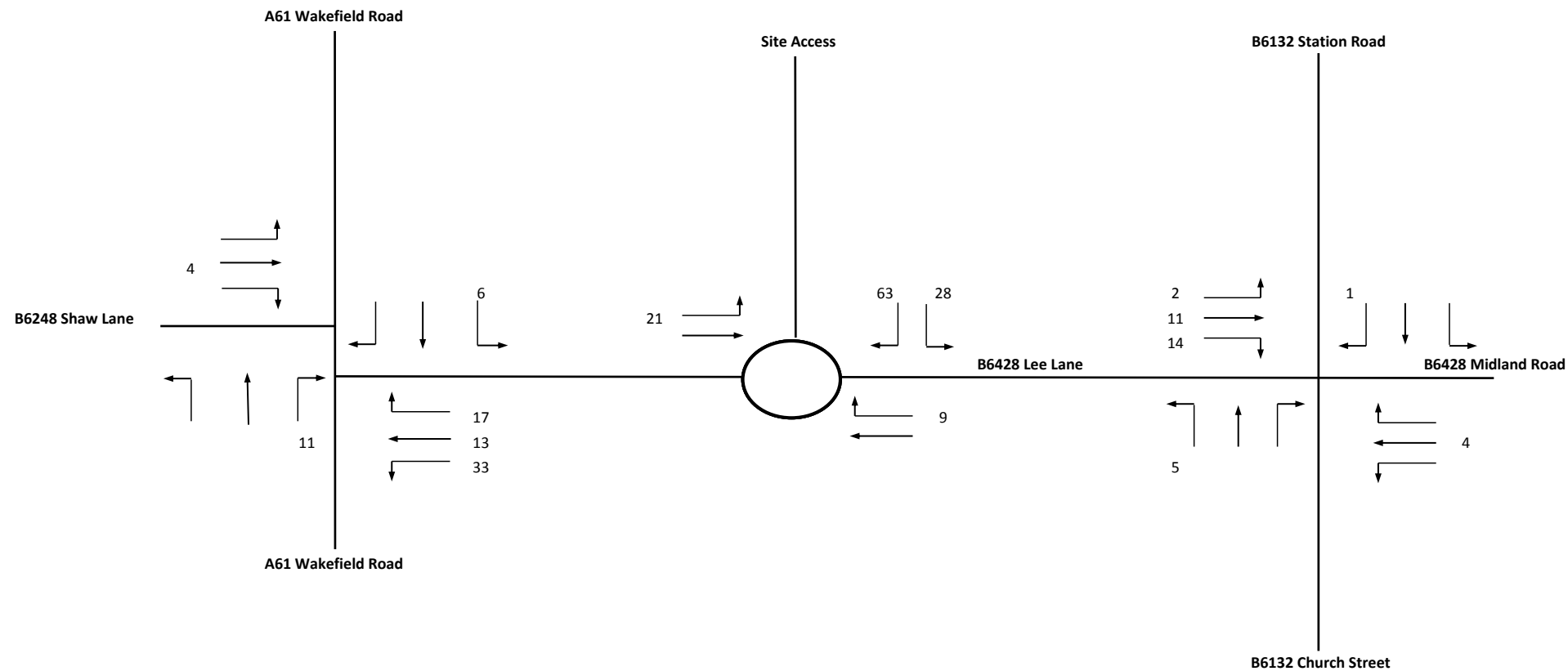


Figure 17 - Weekday AM and PM Peak
Proposed Trip Distribution



ARR 30
DEP 91

**Figure 18 - Weekday AM Peak
Proposed Residential Development Flows**

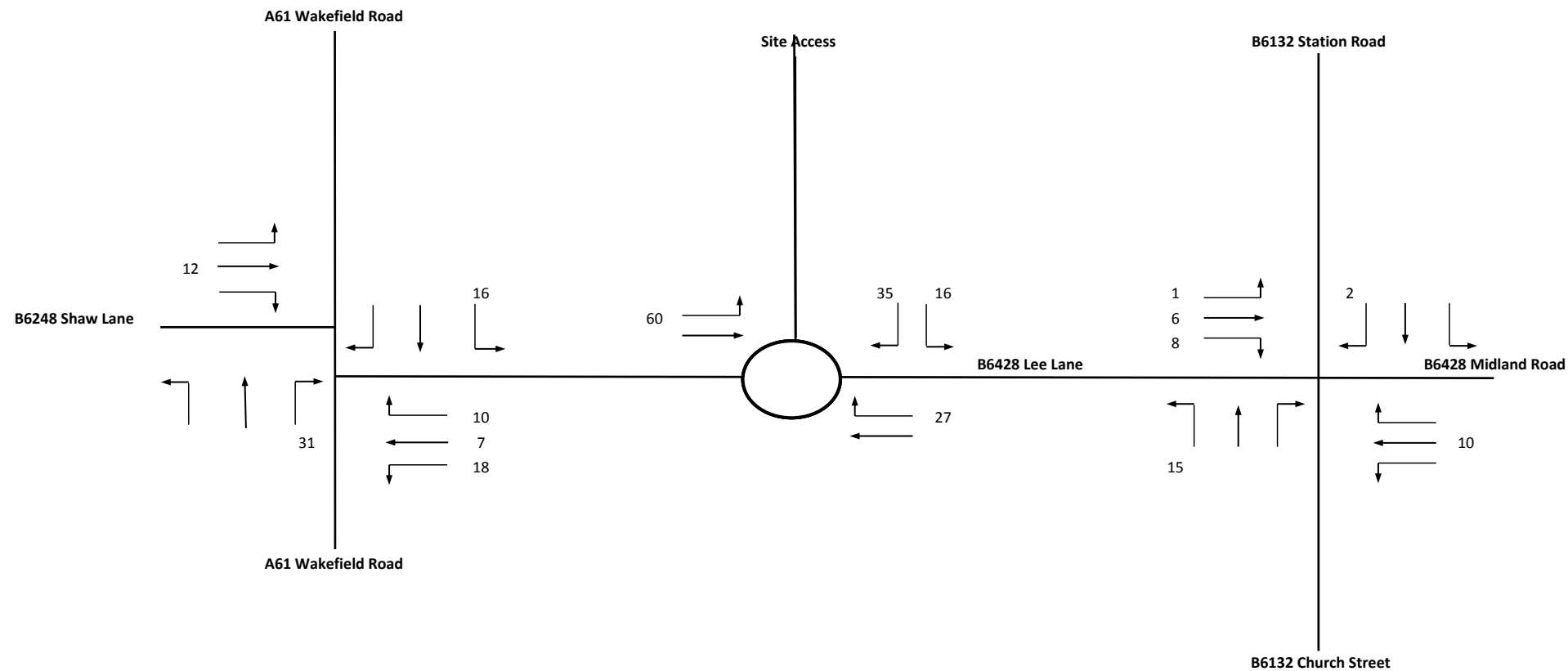


**Figure 19 - Weekday PM Peak
Proposed Residential Development Flows**

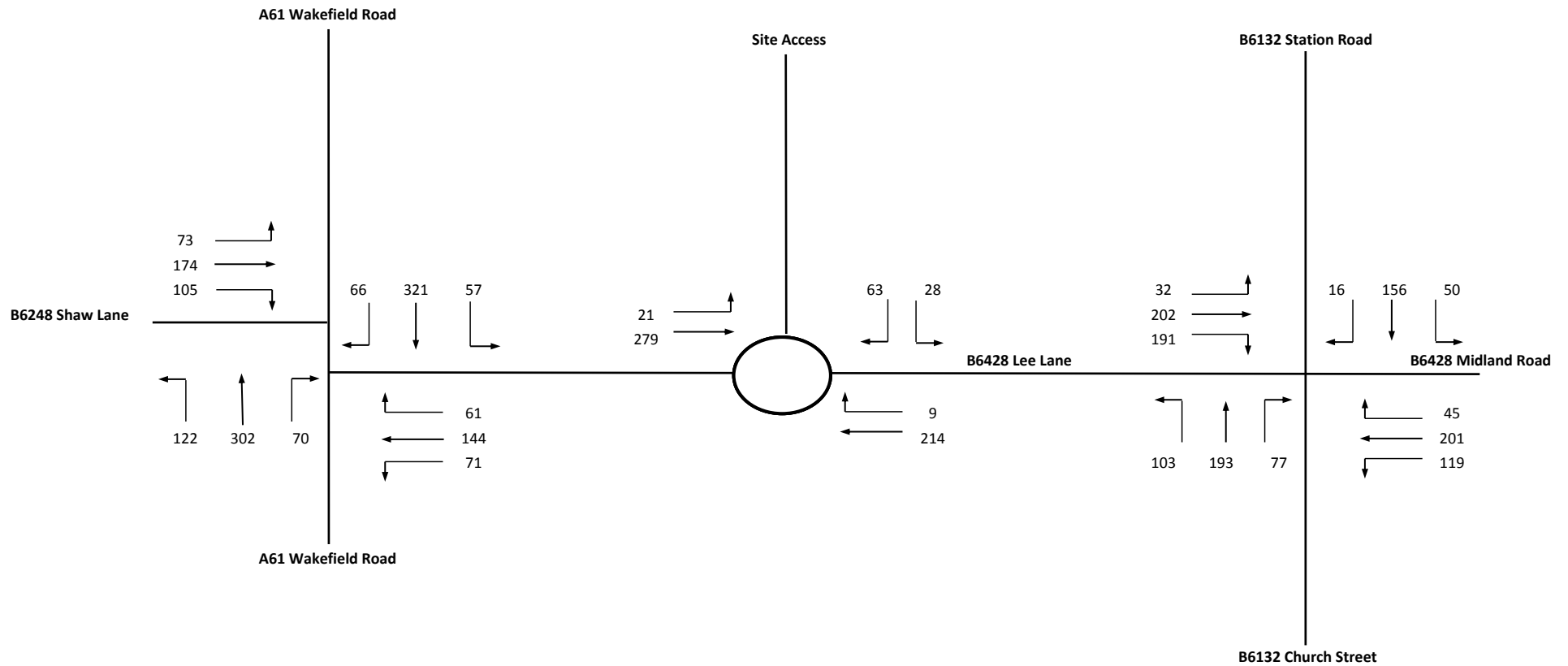


Figure 20 - Weekday AM Peak
2017 With Development Flows

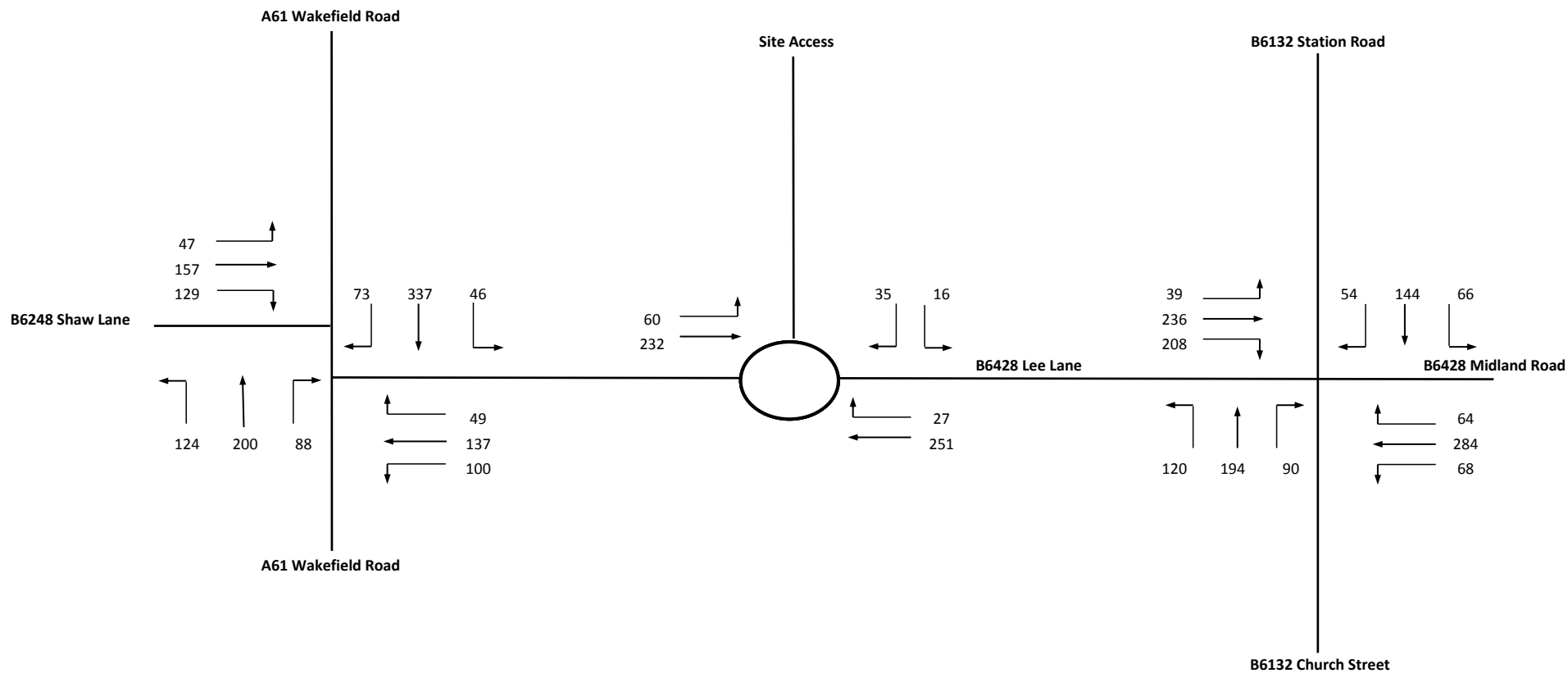


Figure 21 - Weekday PM Peak
2017 With Development Flows

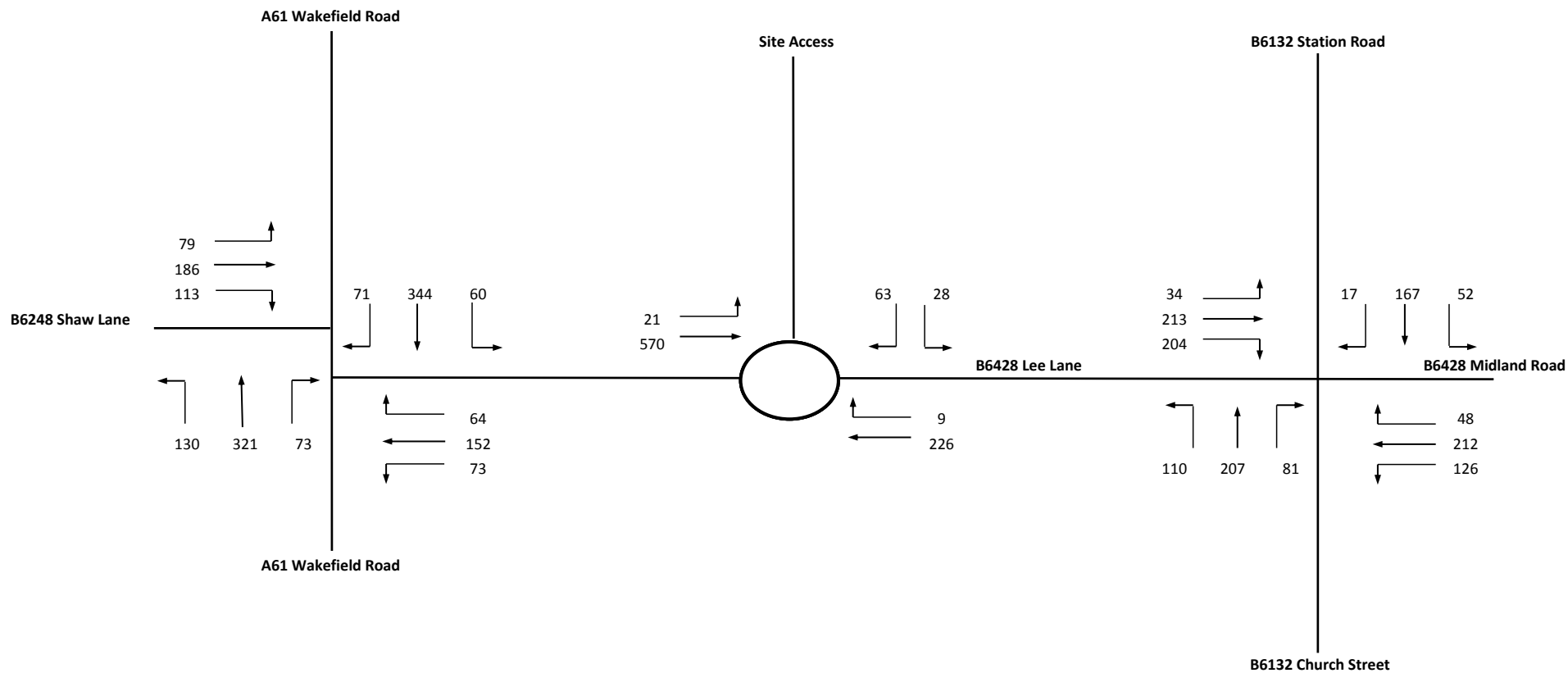


Figure 22 - Weekday AM Peak
2022 With Development Flows

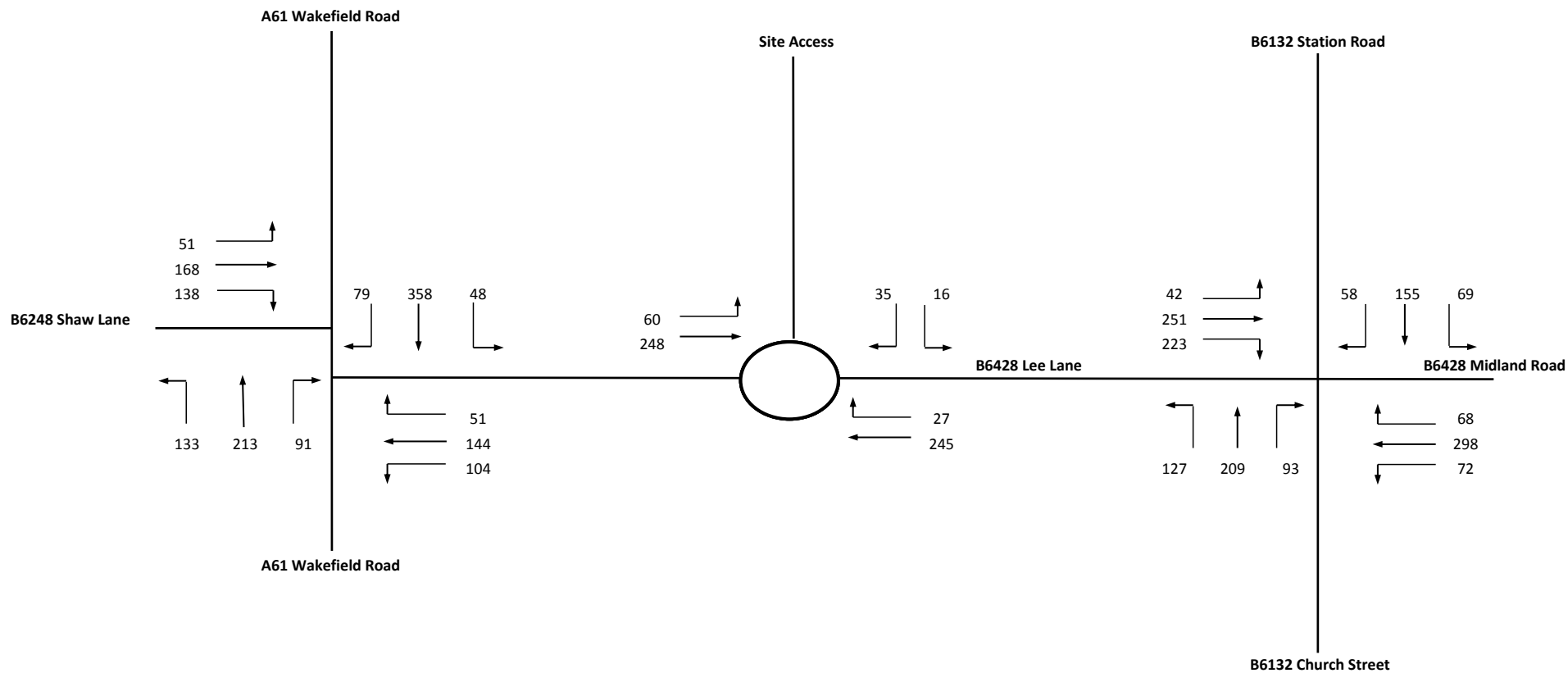
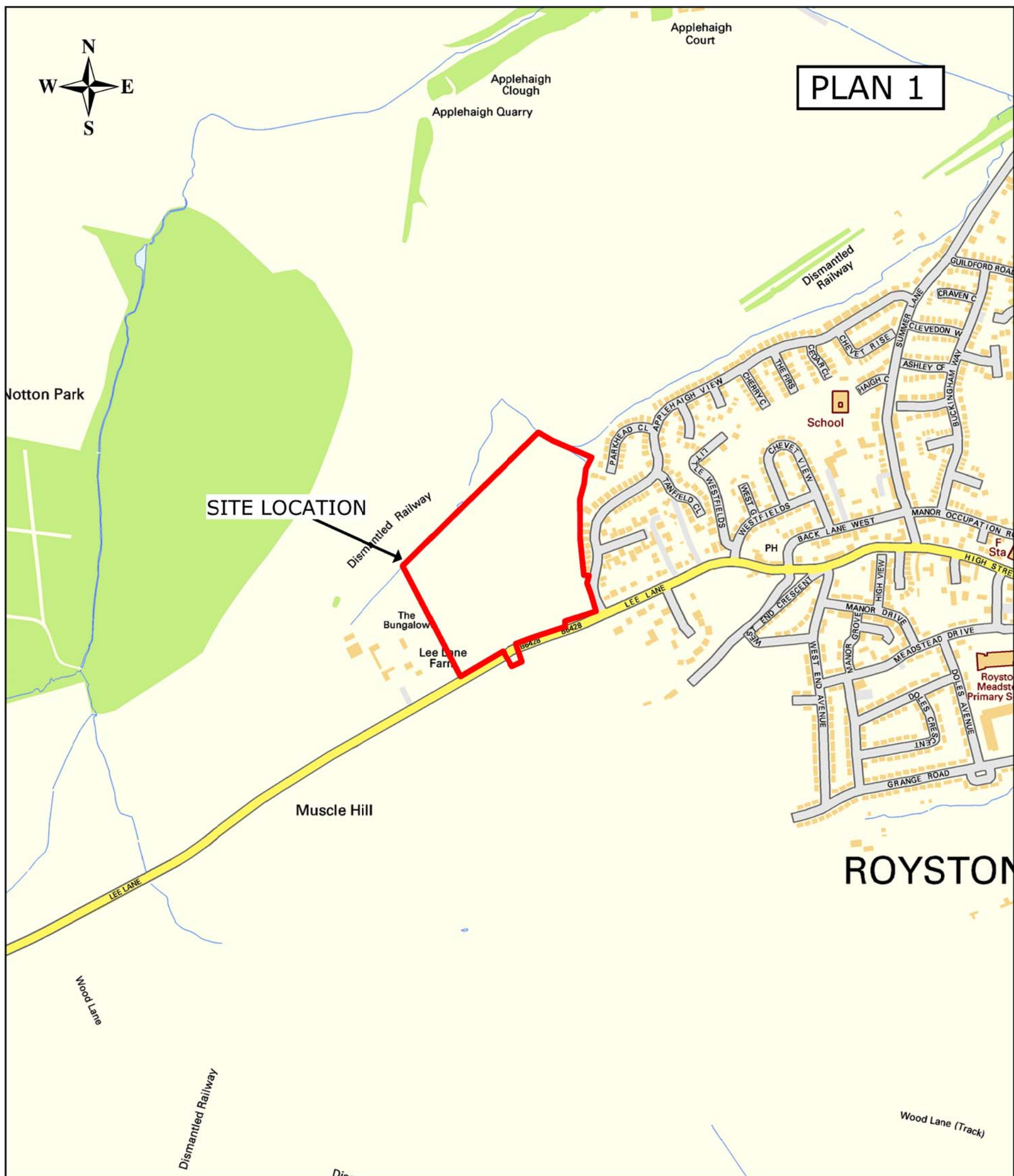


Figure 23 - Weekday PM Peak
2022 With Development Flows

PLANS



STRATEGIC LAND GROUP

PROPOSED RESIDENTIAL DEVELOPMENT
LEE LANE, ROYSTON
SITE LOCATION

croft
Transport Solutions

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

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

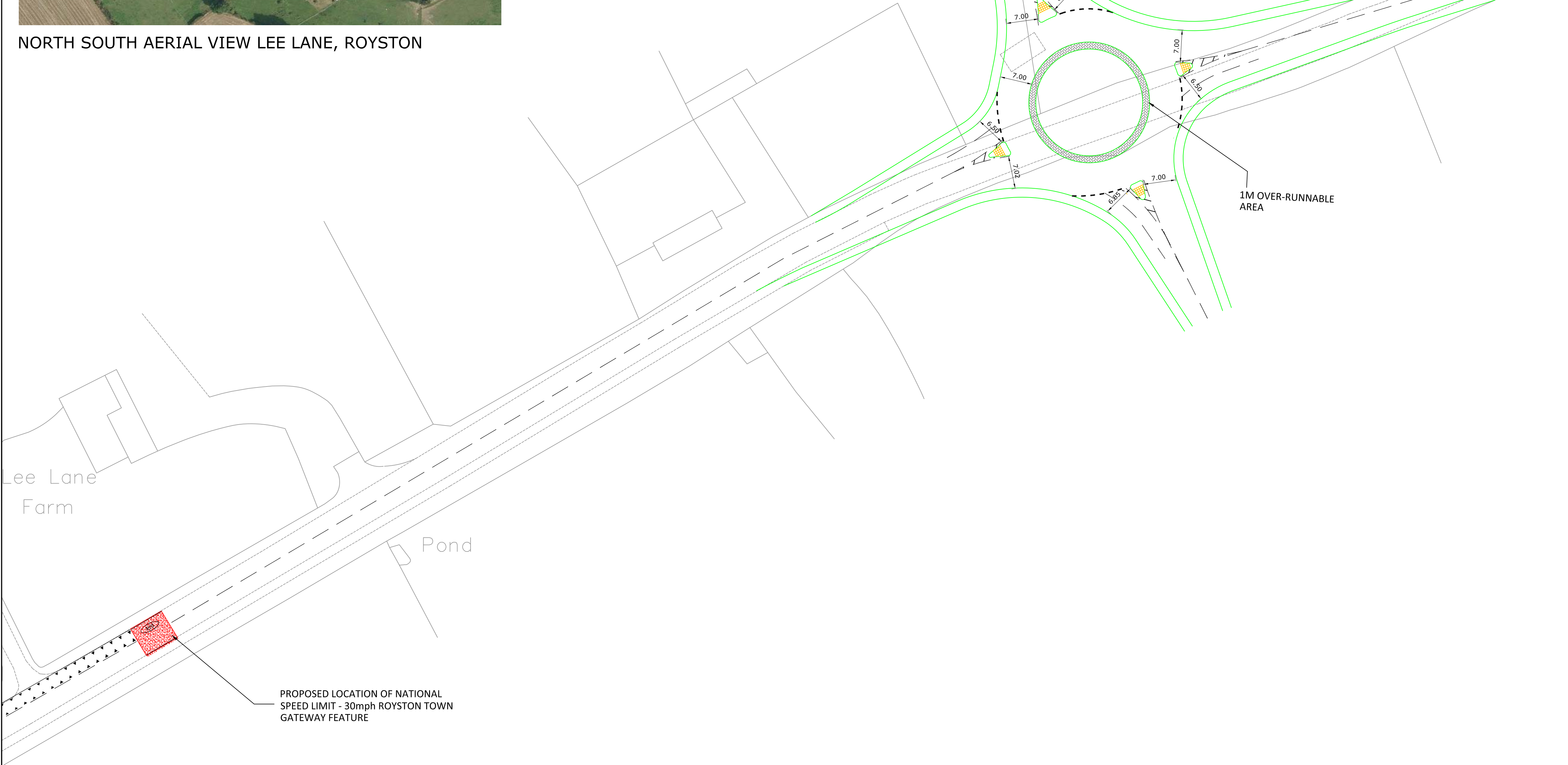
DRAWN:	DATE:	CHECKED:	DATE:	SCALE:
JC	16.08.13	TSB	16.08.13	N.T.S

DRAWING NUMBER:	REVISION:
0255-01	.





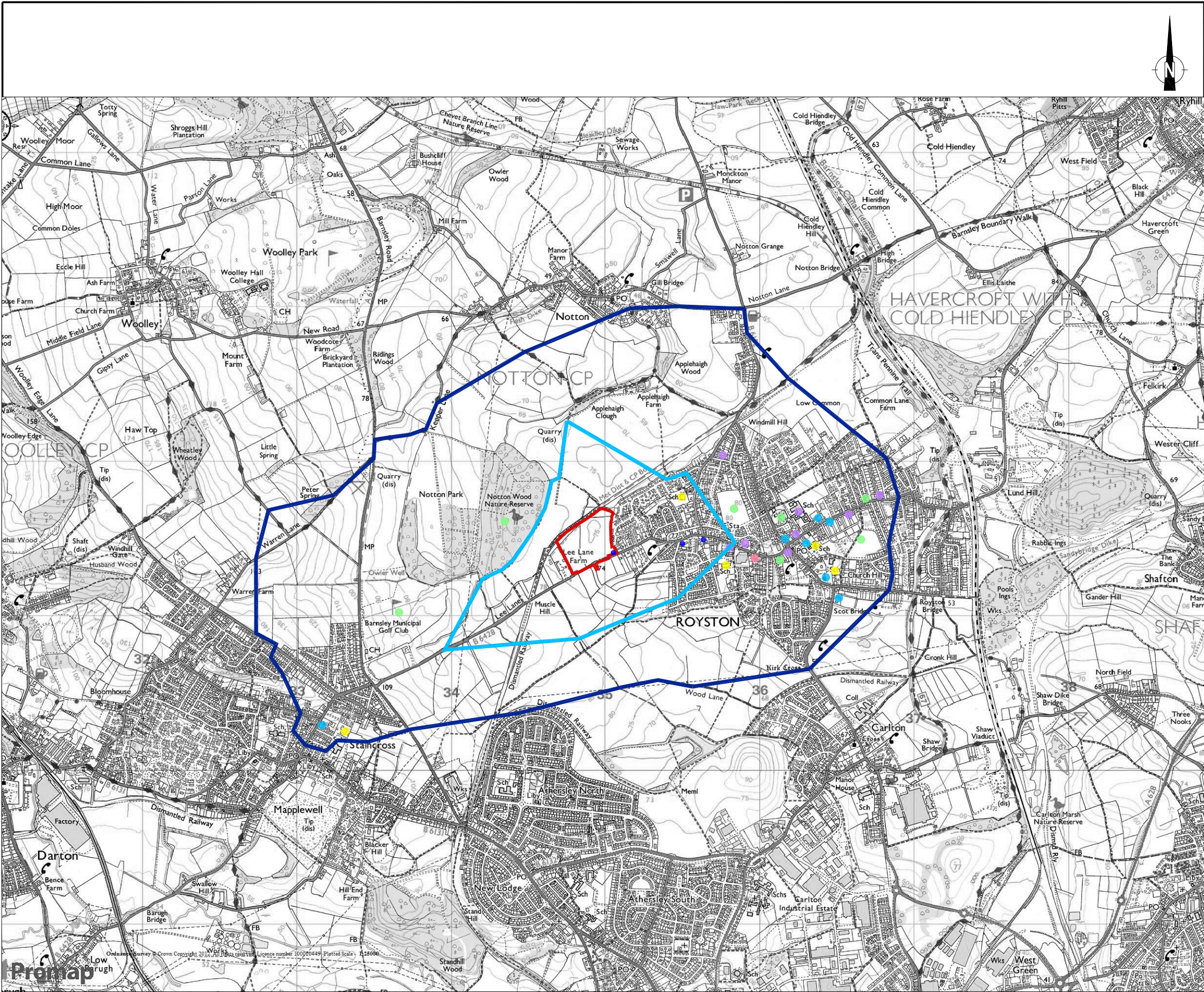
NORTH SOUTH AERIAL VIEW LEE LANE, ROYSTON



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: MC	CHECKED: MC	DATE: JUL.2013		
6th Floor, Quay House Quay Street Manchester, M3 3JE		 Transpot Solutions		
Email: info@crofts.co.uk Tel: 0161 827 1740 Web: www.crofts.co.uk				
DRAWING NUMBER: 255-F01				REVISION: B



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: JC		CHECKED: PJW		DATE: 13.06.2012
6th Floor, Quay House Quay Street Manchester, M3 3JE				
Email: info@crofts.co.uk Tel: 0161 827 1740 Web: www.crofts.co.uk				
DRAWING NUMBER: 0255-02				REVISION: B

croft

Transport Solutions

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

APPENDICES

APPENDIX 1

Trip Distribution Information

2001 census - UK travel flows (ward)

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area of residence
date

00CCFT : Royston (2003 CAS ward)
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 2

ARCADY Output – B6428 Lee Lane/Site Access Roundabout 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: 20/12/2013 09:22:42

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	0.19	0.05	0.16	A	0.24	0.05	0.20	A
Arm 2	0.00	0.00	0.00	A	0.00	0.00	0.00	A
Arm 3	0.25	0.04	0.20	A	0.24	0.05	0.19	A
Arm 4	0.07	0.04	0.07	A	0.04	0.04	0.04	A
(Default Analysis Set) - 2022 With Development								
Arm 1	0.20	0.05	0.17	A	0.24	0.05	0.19	A
Arm 2	0.00	0.00	0.00	A	0.00	0.00	0.00	A
Arm 3	0.64	0.06	0.39	A	0.26	0.05	0.21	A
Arm 4	0.09	0.05	0.08	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) - 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)	I' - 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	272.00	100.000	N/A
2	ONE HOUR	Yes	0.00	100.000	N/A
3	ONE HOUR	Yes	308.00	100.000	N/A
4	ONE HOUR	Yes	51.00	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	204.78	204.78	N/A	N/A
1	2	0.00	0.00	N/A	N/A
1	3	231.88	231.88	N/A	N/A
1	4	38.40	38.40	N/A	N/A
2	1	244.52	244.52	N/A	N/A
2	2	0.00	0.00	N/A	N/A
2	3	276.89	276.89	N/A	N/A
2	4	45.85	45.85	N/A	N/A
3	1	299.48	299.48	N/A	N/A
3	2	0.00	0.00	N/A	N/A
3	3	339.11	339.11	N/A	N/A
3	4	56.15	56.15	N/A	N/A
4	1	299.48	299.48	N/A	N/A
4	2	0.00	0.00	N/A	N/A
4	3	339.11	339.11	N/A	N/A
4	4	56.15	56.15	N/A	N/A
5	1	244.52	244.52	N/A	N/A
5	2	0.00	0.00	N/A	N/A
5	3	276.89	276.89	N/A	N/A
5	4	45.85	45.85	N/A	N/A

6	1	204.78	204.78	N/A	N/A
6	2	0.00	0.00	N/A	N/A
6	3	231.88	231.88	N/A	N/A
6	4	38.40	38.40	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	245.000
	2	0.000	0.000	0.000
	3	248.000	0.000	60.000
	4	16.000	0.000	35.000

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

	To			
	1	2	3	4
From	1	0.00	0.00	0.90
	2	0.25	0.25	0.25
	3	0.81	0.00	0.19
	4	0.31	0.00	0.69

Vehicle Mix

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

	To			
	1	2	3	4
From	1	1.000	1.000	1.000
	2	1.000	1.000	1.000
	3	1.000	1.000	1.000
	4	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
	2	0.000	0.000	0.000
	3	0.000	0.000	0.000
	4	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	0.19	0.05	0.24	A	249.59	374.39	17.05	0.05	0.19	17.05	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	0.21	0.05	0.26	A	282.63	423.94	18.57	0.04	0.21	18.57	0.04	0.629	1671.309
4	0.04	0.04	0.04	A	46.80	70.20	2.83	0.04	0.03	2.83	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	204.78	51.19	204.18	198.20	26.28	0.00	1572.93	1140.40	0.130	0.00	0.15

2	0.00	0.00	0.00	0.00	230.46	0.00	1765.37	762.64	0.000	0.00	0.00
3	231.88	57.97	231.23	210.19	20.27	0.00	1658.55	1240.10	0.140	0.00	0.16
4	38.40	9.60	38.29	65.31	186.19	0.00	1560.93	790.86	0.025	0.00	0.03

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	244.52	61.13	244.38	237.20	31.45	0.00	1569.77	1140.40	0.156	0.15	0.18
2	0.00	0.00	0.00	0.00	275.83	0.00	1734.05	762.64	0.000	0.00	0.00
3	276.89	69.22	276.73	251.57	24.26	0.00	1656.04	1240.10	0.167	0.16	0.20
4	45.85	11.46	45.83	78.17	222.82	0.00	1537.29	790.86	0.030	0.03	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	299.48	74.87	299.27	290.48	38.51	0.00	1565.45	1140.40	0.191	0.18	0.24
2	0.00	0.00	0.00	0.00	337.78	0.00	1691.29	762.64	0.000	0.00	0.00
3	339.11	84.78	338.89	308.08	29.71	0.00	1652.61	1240.10	0.205	0.20	0.26
4	56.15	14.04	56.12	95.72	272.87	0.00	1505.00	790.86	0.037	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	299.48	74.87	299.48	290.67	38.54	0.00	1565.43	1140.40	0.191	0.24	0.24
2	0.00	0.00	0.00	0.00	338.01	0.00	1691.13	762.64	0.000	0.00	0.00
3	339.11	84.78	339.11	308.28	29.73	0.00	1652.60	1240.10	0.205	0.26	0.26
4	56.15	14.04	56.15	95.79	273.05	0.00	1504.89	790.86	0.037	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	244.52	61.13	244.73	237.52	31.49	0.00	1569.75	1140.40	0.156	0.24	0.19
2	0.00	0.00	0.00	0.00	276.21	0.00	1733.79	762.64	0.000	0.00	0.00
3	276.89	69.22	277.11	251.92	24.29	0.00	1656.02	1240.10	0.167	0.26	0.20
4	45.85	11.46	45.88	78.28	223.13	0.00	1537.09	790.86	0.030	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	204.78	51.19	204.92	198.88	26.37	0.00	1572.88	1140.40	0.130	0.19	0.15
2	0.00	0.00	0.00	0.00	231.28	0.00	1764.80	762.64	0.000	0.00	0.00
3	231.88	57.97	232.03	210.94	20.34	0.00	1658.51	1240.10	0.140	0.20	0.16
4	38.40	9.60	38.42	65.54	186.83	0.00	1560.51	790.86	0.025	0.03	0.03

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	2.20	0.15	0.044	A	A
2	0.00	0.00	0.000	A	A
3	2.39	0.16	0.042	A	A
4	0.37	0.02	0.039	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	2.73	0.18	0.045	A	A
2	0.00	0.00	0.000	A	A
3	2.97	0.20	0.043	A	A
4	0.46	0.03	0.040	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	3.49	0.23	0.047	A	A
2	0.00	0.00	0.000	A	A
3	3.81	0.25	0.046	A	A
4	0.57	0.04	0.041	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	3.54	0.24	0.047	A	A
2	0.00	0.00	0.000	A	A
3	3.86	0.26	0.046	A	A
4	0.58	0.04	0.041	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	2.81	0.19	0.045	A	A
2	0.00	0.00	0.000	A	A
3	3.06	0.20	0.044	A	A
4	0.47	0.03	0.040	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	2.28	0.15	0.044	A	A
2	0.00	0.00	0.000	A	A
3	2.47	0.16	0.042	A	A
4	0.38	0.03	0.039	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	204.78	1572.93	0.130	0.00	0.00	0.15	2.20	(0.02)	0.044
1	2	0.00	1765.37	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
1	3	231.88	1658.55	0.140	0.00	0.00	0.16	2.39	(0.02)	0.042
1	4	38.40	1560.93	0.025	0.00	0.00	0.03	0.37	(0.02)	0.039
2	1	244.52	1569.77	0.156	0.00	0.15	0.18	2.73	(0.02)	0.045
2	2	0.00	1734.05	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
2	3	276.89	1656.04	0.167	0.00	0.16	0.20	2.97	(0.02)	0.043
2	4	45.85	1537.29	0.030	0.00	0.03	0.03	0.46	(0.02)	0.040
3	1	299.48	1565.45	0.191	0.00	0.18	0.24	3.49	(0.02)	0.047
3	2	0.00	1691.29	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
3	3	339.11	1652.61	0.205	0.00	0.20	0.26	3.81	(0.02)	0.046
3	4	56.15	1505.00	0.037	0.00	0.03	0.04	0.57	(0.02)	0.041
4	1	299.48	1565.43	0.191	0.00	0.24	0.24	3.54	(0.02)	0.047
4	2	0.00	1691.13	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
4	3	339.11	1652.60	0.205	0.00	0.26	0.26	3.86	(0.02)	0.046

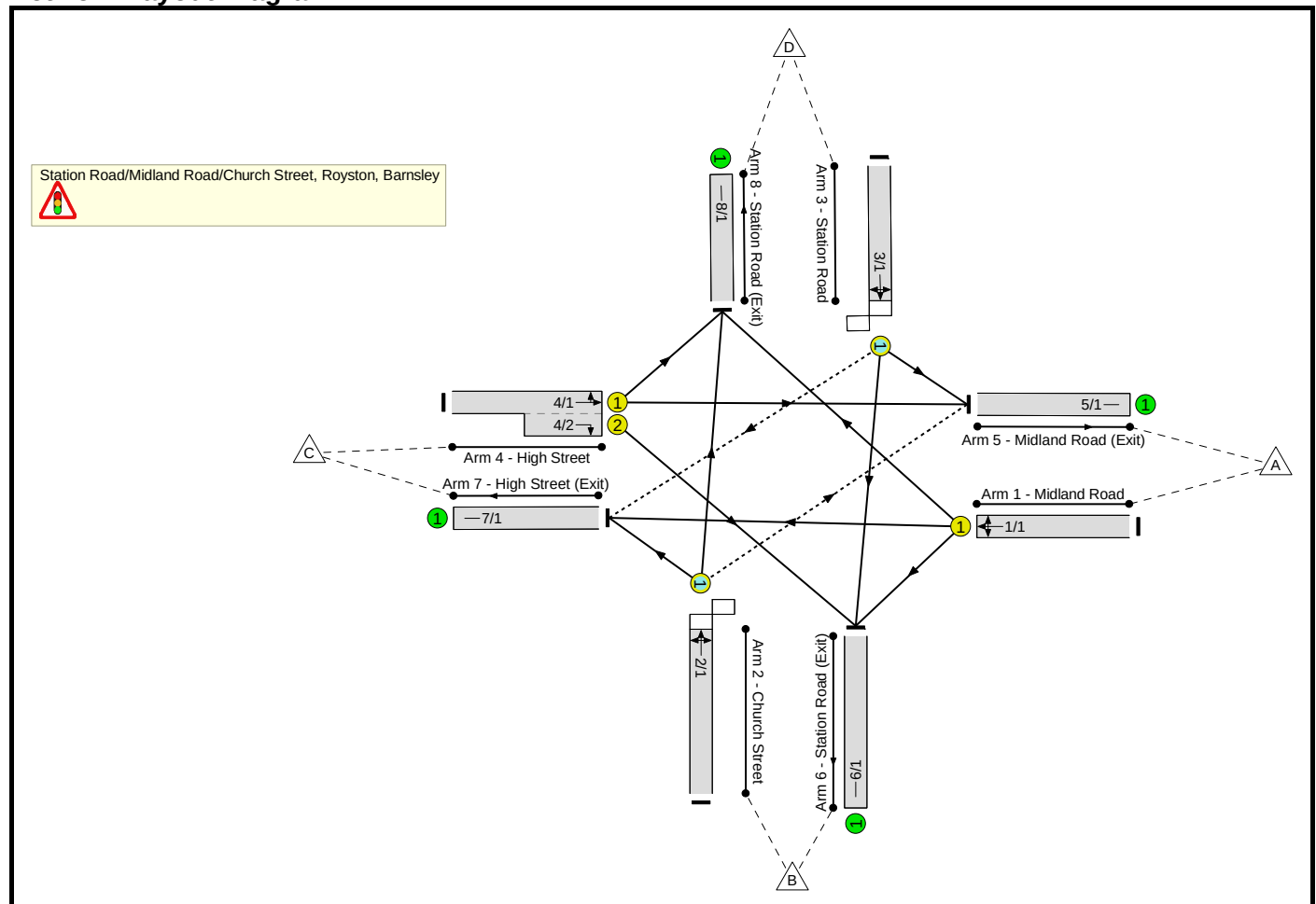
4	4	56.15	1504.89	0.037	0.00	0.04	0.04	0.58	(0.02)	0.041
5	1	244.52	1569.75	0.156	0.00	0.24	0.19	2.81	(0.02)	0.045
5	2	0.00	1733.79	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
5	3	276.89	1656.02	0.167	0.00	0.26	0.20	3.06	(0.02)	0.044
5	4	45.85	1537.09	0.030	0.00	0.04	0.03	0.47	(0.02)	0.040
6	1	204.78	1572.88	0.130	0.00	0.19	0.15	2.28	(0.02)	0.044
6	2	0.00	1764.80	0.000	0.00	0.00	0.00	0.00	(0.02)	0.000
6	3	231.88	1658.51	0.140	0.00	0.20	0.16	2.47	(0.02)	0.042
6	4	38.40	1560.51	0.025	0.00	0.03	0.03	0.38	(0.02)	0.039

APPENDIX 3

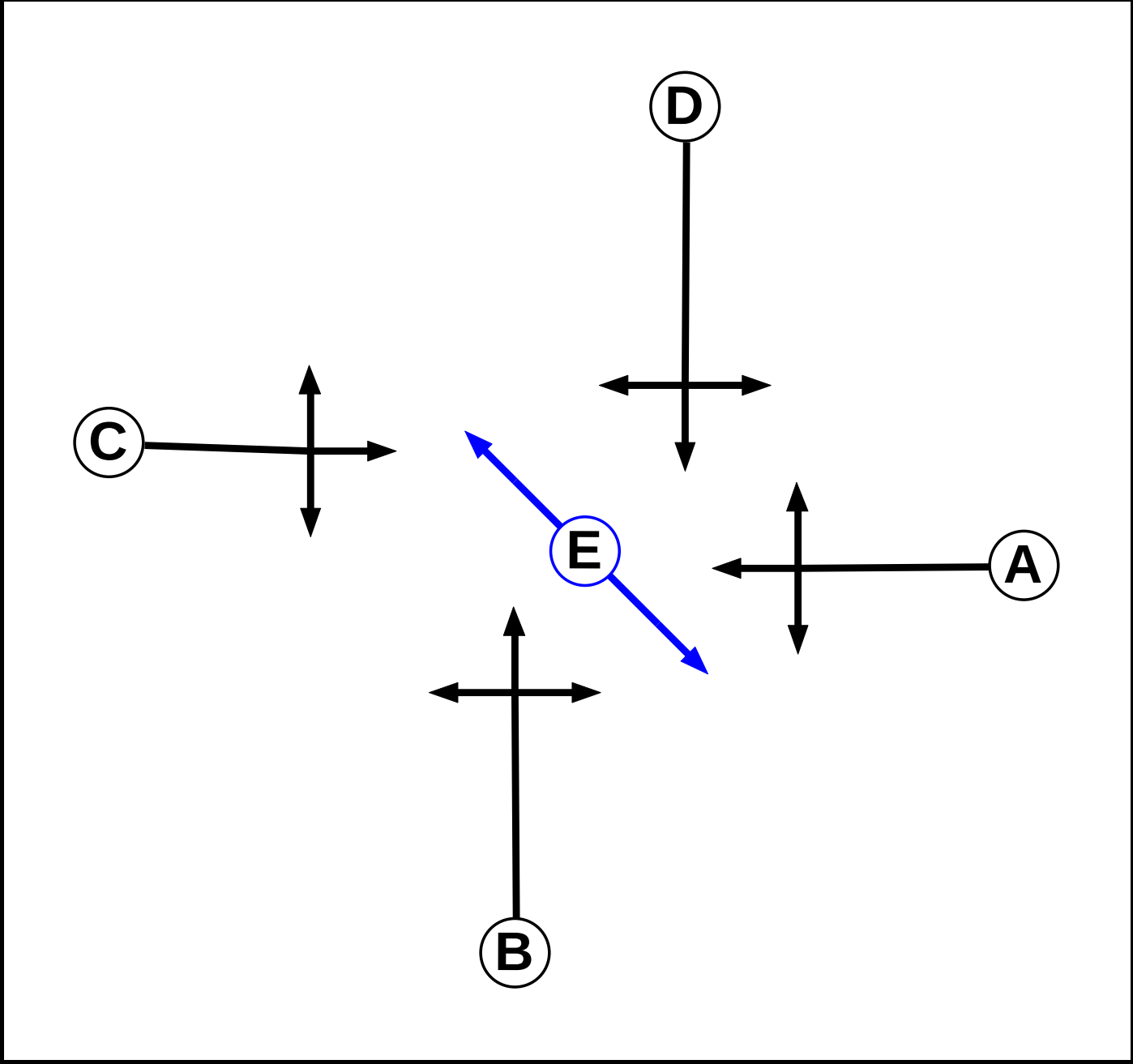
**LINSIG Output – B6428 Lee Lane/B6132 Station Road/B6428
Midland Road/B6132 Church Street Signal Junction**

Full Input Data And Results**User and Project Details**

Project:	Proposed Residential Development, Lee Lane, Royston
Title:	
Location:	
File name:	Station Road-Midland Road-Church Street-High Street_Revised December 2013.lsg3x
Author:	
Company:	Croft
Address:	
Notes:	

Network Layout Diagram

Phase Diagram



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

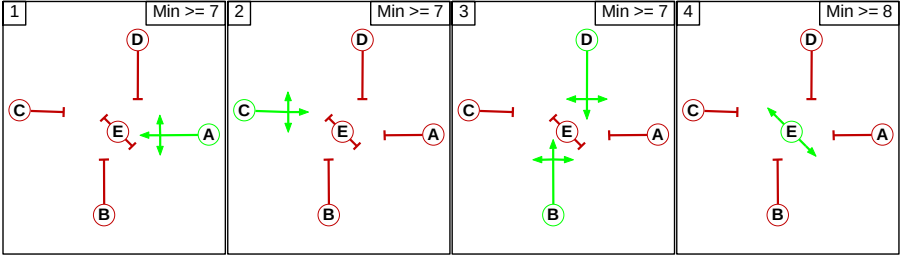
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

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

Prohibited Stage Change

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

Full Input Data And Results

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

Full Input Data And Results

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	-	-	-	-	-	-

Full Input Data And Results

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	

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

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	119	197	45	361
	B	77	0	98	193	368
	C	191	177	0	30	398
	D	50	156	16	0	222
	Tot.	318	452	311	268	1349

Traffic Lane Flows

Lane	Scenario 1: 2017 Base Flows - AM Peak
Junction: Station Road/Midland Road/Church Street, Royston, Barnsley	
1/1	361
2/1	368
3/1	222
4/1 (with short)	398(In) 221(Out)
4/2 (short)	177
5/1	318
6/1	452
7/1	311
8/1	268

Full Input Data And Results

Lane Saturation Flows

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

Full Input Data And Results

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

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	68	274	64	406
	B	90	0	106	194	390
	C	230	200	0	38	468
	D	66	144	53	0	263
	Tot.	386	412	433	296	1527

Traffic Lane Flows

Lane	Scenario 2: 2017 Base Flows - PM Peak
Junction: Station Road/Midland Road/Church Street, Royston, Barnsley	
1/1	406
2/1	390
3/1	263
4/1 (with short)	468(In) 268(Out)
4/2 (short)	200
5/1	386
6/1	412
7/1	433
8/1	296

Full Input Data And Results

Lane Saturation Flows

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

Full Input Data And Results

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

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	126	209	48	383
	B	81	0	105	207	393
	C	202	190	0	32	424
	D	52	167	17	0	236
	Tot.	335	483	331	287	1436

Traffic Lane Flows

Lane	Scenario 3: 2022 Base Flows - AM Peak
Junction: Station Road/Midland Road/Church Street, Royston, Barnsley	
1/1	383
2/1	393
3/1	236
4/1 (with short)	424(In) 234(Out)
4/2 (short)	190
5/1	335
6/1	483
7/1	331
8/1	287

Full Input Data And Results

Lane Saturation Flows

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

Full Input Data And Results

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

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	72	288	68	428
	B	93	0	113	209	415
	C	245	215	0	41	501
	D	69	155	56	0	280
	Tot.	407	442	457	318	1624

Traffic Lane Flows

Lane	Scenario 4: 2022 Base Flows - PM Peak
Junction: Station Road/Midland Road/Church Street, Royston, Barnsley	
1/1	428
2/1	415
3/1	280
4/1 (with short)	501(In) 286(Out)
4/2 (short)	215
5/1	407
6/1	442
7/1	457
8/1	318

Full Input Data And Results

Lane Saturation Flows

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

Full Input Data And Results

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

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	119	201	45	365
	B	77	0	103	193	373
	C	202	190	0	32	424
	D	50	156	16	0	222
	Tot.	329	465	320	270	1384

Traffic Lane Flows

Lane	Scenario 5: 2017 With Development Flows - AM Peak
Junction: Station Road/Midland Road/Church Street, Royston, Barnsley	
1/1	365
2/1	373
3/1	222
4/1 (with short)	424(In) 234(Out)
4/2 (short)	190
5/1	329
6/1	465
7/1	320
8/1	270

Full Input Data And Results

Lane Saturation Flows

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

Full Input Data And Results

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

Origin	Destination					
		A	B	C	D	Tot.
	A	0	68	284	64	416
	B	90	0	120	194	404
	C	236	208	0	39	483
	D	66	144	54	0	264
	Tot.	392	420	458	297	1567

Traffic Lane Flows

Lane	Scenario 6: 2017 With Development Flows - PM Peak
Junction: Station Road/Midland Road/Church Street, Royston, Barnsley	
1/1	416
2/1	404
3/1	264
4/1 (with short)	483(In) 275(Out)
4/2 (short)	208
5/1	392
6/1	420
7/1	458
8/1	297

Full Input Data And Results

Lane Saturation Flows

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

Full Input Data And Results

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

Origin	Destination					
		A	B	C	D	Tot.
	A	0	126	212	48	386
	B	81	0	110	207	398
	C	213	204	0	34	451
	D	52	167	17	0	236
	Tot.	346	497	339	289	1471

Traffic Lane Flows

Lane	Scenario 7: 2022 With Development Flows - AM Peak
Junction: Station Road/Midland Road/Church Street, Royston, Barnsley	
1/1	386
2/1	398
3/1	236
4/1 (with short)	451(In) 247(Out)
4/2 (short)	204
5/1	346
6/1	497
7/1	339
8/1	289

Full Input Data And Results

Lane Saturation Flows

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

Full Input Data And Results

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

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	72	298	68	438
	B	93	0	126	209	428
	C	251	223	0	42	516
	D	69	155	58	0	282
	Tot.	413	450	482	319	1664

Traffic Lane Flows

Lane	Scenario 8: 2022 With Development Flows - PM Peak
Junction: Station Road/Midland Road/Church Street, Royston, Barnsley	
1/1	438
2/1	428
3/1	282
4/1 (with short)	516(In) 293(Out)
4/2 (short)	223
5/1	413
6/1	450
7/1	482
8/1	319

Full Input Data And Results

Lane Saturation Flows

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

Full Input Data And Results

Network Results '2017 Base Flows - AM Peak'

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	-	-		-	-	-	-	-	-	82.3%
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	N/A	-	-		-	-	-	-	-	-	82.3%
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	361	1794	439	82.3%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	48	-	368	1664	452	81.4%
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	-	398	1880:1926	488	81.5%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	318	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	-		-	-	-	311	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	268	Inf	Inf	0.0%

Full Input Data And Results

[illegible]

Full Input Data And Results

Network Results '2017 Base Flows - PM Peak'

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	-	-		-	-	-	-	-	-	93.5%
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	N/A	-	-		-	-	-	-	-	-	93.5%
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	406	1794	439	92.6%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	45	-	390	1664	417	93.5%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	45	-	263	1709	350	75.1%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	32	-	468	1880:1926	510	91.8%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	386	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	-		-	-	-	433	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	296	Inf	Inf	0.0%

Full Input Data And Results

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	15.9	16.1	0.2	32.2	-	-	-	-
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	108	0	35	15.9	16.1	0.2	32.2	-	-	-	-
1/1	406	406	-	-	-	3.8	4.8	-	8.6	76.6	11.3	4.8	16.1
2/1	390	390	66	0	24	5.1	5.2	0.1	10.4	95.9	11.9	5.2	17.1
3/1	263	263	42	0	11	2.3	1.5	0.1	3.8	52.3	7.2	1.5	8.7
4/1+4/2	468	468	-	-	-	4.8	4.6	-	9.4	72.0	10.5	4.6	15.2
5/1	386	386	-	-	-	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	433	433	-	-	-	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 (%):				-3.9	Total Delay for Signalled Lanes (pcuHr):			32.22	Cycle Time (s): 180				
PRC Over All Lanes (%):				-3.9	Total Delay Over All Lanes(pcuHr):			32.22					

Full Input Data And Results

Network Results '2022 Base Flows - AM Peak'

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	-	-		-	-	-	-	-	-	88.0%
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	N/A	-	-		-	-	-	-	-	-	88.0%
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	383	1794	439	87.3%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	48	-	393	1664	446	88.0%
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	-	424	1880:1926	492	86.2%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	335	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	-		-	-	-	331	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	287	Inf	Inf	0.0%

Full Input Data And Results

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	13.3	9.8	0.1	23.1	-	-	-	-
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	96	0	2	13.3	9.8	0.1	23.1	-	-	-	-
1/1	383	383	-	-	-	3.6	3.1	-	6.7	62.8	9.7	3.1	12.8
2/1	393	393	80	0	1	3.7	3.3	0.1	7.0	64.1	12.1	3.3	15.4
3/1	236	236	16	0	1	1.9	0.5	0.0	2.4	37.2	6.3	0.5	6.8
4/1+4/2	424	424	-	-	-	4.1	2.9	-	7.0	59.5	6.5	2.9	9.4
5/1	335	335	-	-	-	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	331	331	-	-	-	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 (%):				2.2	Total Delay for Signalled Lanes (pcuHr):			23.13	Cycle Time (s): 180				
PRC Over All Lanes (%):				2.2	Total Delay Over All Lanes(pcuHr):			23.13					

Full Input Data And Results

Network Results '2022 Base Flows - PM Peak'

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	-	-		-	-	-	-	-	-	99.4%
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	N/A	-	-		-	-	-	-	-	-	99.4%
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	428	1794	439	97.6%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	45	-	415	1664	417	99.4%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	45	-	280	1709	371	75.5%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	32	-	501	1880:1926	509	98.3%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	407	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	-		-	-	-	457	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	318	Inf	Inf	0.0%

Full Input Data And Results

[illegible]

Full Input Data And Results

Network Results '2017 With Development Flows - AM Peak'

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	-	-		-	-	-	-	-	-	84.7%
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	N/A	-	-		-	-	-	-	-	-	84.7%
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	365	1794	439	83.2%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	47	-	373	1664	440	84.7%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	47	-	222	1709	465	47.7%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	30	-	424	1880:1926	501	84.6%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	329	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	-		-	-	-	320	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	270	Inf	Inf	0.0%

Full Input Data And Results

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	12.7	7.9	0.1	20.7	-	-	-	-
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	92	0	1	12.7	7.9	0.1	20.7	-	-	-	-
1/1	365	365	-	-	-	3.4	2.3	-	5.7	56.1	9.1	2.3	11.5
2/1	373	373	76	0	1	3.5	2.6	0.1	6.1	58.8	11.4	2.6	14.0
3/1	222	222	16	0	0	1.8	0.5	0.0	2.3	37.3	5.9	0.5	6.4
4/1+4/2	424	424	-	-	-	4.1	2.6	-	6.6	56.4	6.5	2.6	9.1
5/1	329	329	-	-	-	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	320	320	-	-	-	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 (%): 6.3 Total Delay for Signalled Lanes (pcuHr): 20.73 Cycle Time (s): 180 PRC Over All Lanes (%): 6.3 Total Delay Over All Lanes(pcuHr): 20.73													

Full Input Data And Results

Network Results '2017 With Development Flows - PM Peak'

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	-	-		-	-	-	-	-	-	96.6%
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	N/A	-	-		-	-	-	-	-	-	96.6%
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	42	-	416	1794	439	94.9%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	46	-	404	1664	426	94.8%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	46	-	264	1709	390	67.6%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	31	-	483	1880:1926	500	96.6%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	392	Inf	Inf	0.0%
6/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	420	Inf	Inf	0.0%
7/1	High Street (Exit)	U	N/A	N/A	-		-	-	-	458	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	297	Inf	Inf	0.0%

Full Input Data And Results

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	-	-	127	0	17	15.8	20.5	0.2	36.5	-	-	-	-
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	127	0	17	15.8	20.5	0.2	36.5	-	-	-	-
1/1	416	416	-	-	-	4.5	6.0	-	10.5	91.0	12.5	6.0	18.5
2/1	404	404	87	0	3	3.8	5.9	0.1	9.8	87.6	12.0	5.9	18.0
3/1	264	264	39	0	15	2.2	1.0	0.1	3.3	45.4	6.9	1.0	7.9
4/1+4/2	483	483	-	-	-	5.3	7.6	-	12.9	96.0	9.6	7.6	17.2
5/1	392	392	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	420	420	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	458	458	-	-	-	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 (%): -7.4 Total Delay for Signalled Lanes (pcuHr): 36.55 Cycle Time (s): 180 PRC Over All Lanes (%): -7.4 Total Delay Over All Lanes(pcuHr): 36.55													

Full Input Data And Results

Network Results '2022 With Development Flows - AM Peak'

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	-	-		-	-	-	-	-	-	90.1%
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	N/A	-	-		-	-	-	-	-	-	90.1%
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	41	-	386	1794	429	90.1%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	48	-	398	1664	450	88.5%
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	30	-	451	1880:1926	504	89.5%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	346	Inf	Inf	0.0%
6/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	497	Inf	Inf	0.0%
7/1	High Street (Exit)	U	N/A	N/A	-		-	-	-	339	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	289	Inf	Inf	0.0%

Full Input Data And Results

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	13.3	11.5	0.1	24.9	-	-	-	-
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	97	0	1	13.3	11.5	0.1	24.9	-	-	-	-
1/1	386	386	-	-	-	3.6	3.8	-	7.4	69.1	9.8	3.8	13.6
2/1	398	398	80	0	1	3.5	3.4	0.1	7.0	63.4	11.2	3.4	14.6
3/1	236	236	17	0	0	1.8	0.5	0.0	2.4	35.9	5.8	0.5	6.3
4/1+4/2	451	451	-	-	-	4.4	3.7	-	8.1	64.7	7.4	3.7	11.1
5/1	346	346	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	497	497	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	339	339	-	-	-	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 (%): -0.1 Total Delay for Signalled Lanes (pcuHr): 24.88 Cycle Time (s): 180 PRC Over All Lanes (%): -0.1 Total Delay Over All Lanes(pcuHr): 24.88													

Full Input Data And Results

Network Results'2022 With Development Flows - PM Peak'

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	-	-		-	-	-	-	-	-	103.0%
Station Road/Midland Road/Church Street, Royston, Barnsley	-	-	N/A	-	-		-	-	-	-	-	-	103.0%
1/1	Midland Road Left Ahead Right	U	N/A	N/A	A		2	41	-	438	1794	429	102.2%
2/1	Church Street Right Left Ahead	O	N/A	N/A	B		2	47	-	428	1664	419	102.2%
3/1	Station Road Left Ahead Right	O	N/A	N/A	D		2	47	-	282	1709	438	64.4%
4/1+4/2	High Street Ahead Right Left	U	N/A	N/A	C		2	31	-	516	1880:1926	501	103.0%
5/1	Midland Road (Exit)	U	N/A	N/A	-		-	-	-	413	Inf	Inf	0.0%
6/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	450	Inf	Inf	0.0%
7/1	High Street (Exit)	U	N/A	N/A	-		-	-	-	482	Inf	Inf	0.0%
8/1	Station Road (Exit)	U	N/A	N/A	-		-	-	-	319	Inf	Inf	0.0%

Full Input Data And Results

[illegible]

APPENDIX 4

**PICADY Output – A61 Wakefield Road/B6248 Shaw
Lane/B6248 Lee Lane Staggered Crossroad 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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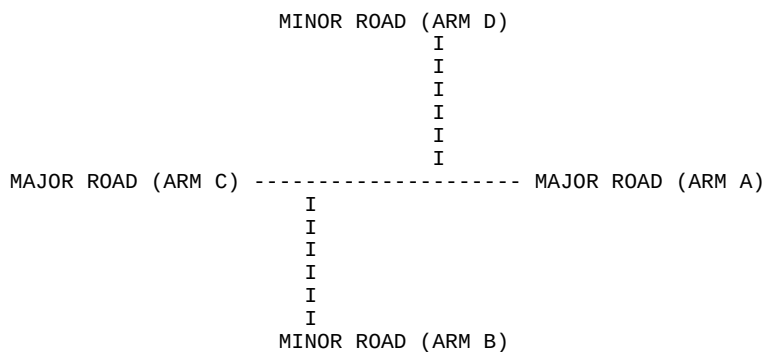
Run with file:-
"Z:\projects\0255 Lee Lane, Royston\Picady\
Wakefield Road-Shaw Lane-Lee Lane Staggered Junction - 2017 Base Flows.vpi"
(drive-on-the-left) at 12:30:08 on Friday, 20 December 2013

RUN INFORMATION

RUN TITLE : A61 Wakefield Road-Shaw Lane-Lee Lane Stagger
LOCATION : Lee Lane, Royston
DATE : 18/12/13
CLIENT :
ENUMERATOR : Croft
JOB NUMBER : 0255
STATUS :
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A61 Wakefield Road (NB)
ARM B IS B6248 Shaw Lane
ARM C IS A61 Wakefield Road (SB)
ARM D IS B6428 Lee Lane

STREAM LABELLING CONVENTION

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

GEOMETRIC DATA

I	DATA ITEM	I	MINOR ROAD B	I	MINOR ROAD D	I
I	TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	I	(W) 6.00 M.	I	(W) 6.00 M.	I
I	CENTRAL RESERVE WIDTH	I	(WCR) 0.00 M.	I	(WCR) 0.00 M.	I
I		I		I		I
I	MAJOR ROAD RIGHT TURN - WIDTH	I	(WC-B) 3.00 M.	I	(WA-D) 3.00 M.	I
I	- VISIBILITY	I	(VC-B)130.00 M.	I	(VA-D)250.00 M.	I
I	- BLOCKS TRAFFIC (SPACES)	I	NO (0)	I	NO (0)	I
I		I		I		I
I	MINOR ROAD - VISIBILITY TO LEFT	I	(VB-C) 55.0 M.	I	(VD-A) 40.0 M.	I
I	- VISIBILITY TO RIGHT	I	(VB-A) 35.0 M.	I	(VD-C) 65.0 M.	I
I	- LANE 1 WIDTH	I	(WB-C) -	I	(WD-A) -	I
I	- LANE 2 WIDTH	I	(WB-A) -	I	(WD-C) -	I
I	WIDTH AT 0 M FROM JUNCTION	I	10.00 M.	I	10.00 M.	I
I	WIDTH AT 5 M FROM JUNCTION	I	9.00 M.	I	8.00 M.	I
I	WIDTH AT 10 M FROM JUNCTION	I	5.60 M.	I	5.00 M.	I
I	WIDTH AT 15 M FROM JUNCTION	I	4.90 M.	I	4.25 M.	I
I	WIDTH AT 20 M FROM JUNCTION	I	4.50 M.	I	3.50 M.	I
I	- LENGTH OF FLARED SECTION	I	DERIVED: 3 PCU	I	2 VEHS	I

.SLOPES AND INTERCEPT

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

B-C Stream

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

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

B-AD Stream

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

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

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

C-B Stream

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

I	STREAM C-B	STREAM A-C	STREAM A-B	STREAM D-C	STREAM D-B	I
I	705.78	0.27	0.27	0.27	0.27	I

A-D Stream

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	STREAM A-D	STREAM	C-A	STREAM	C-D	STREAM	B-A	STREAM	B-D	I
I	705.78		0.30		0.30		0.30		0.30	I

TRAFFIC DEMAND DATA

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

Demand set: 2017 Base Flows - AM Peak

TIME PERIOD BEGINS 07.30 AND ENDS 09.00

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I
I		I	FLOW STARTS I TOP OF PEAK I FLOW STOPS	I	BEFORE I AT TOP I AFTER	I
I		I	TO RISE I IS REACHED I FALLING	I	PEAK I OF PEAK I PEAK	I
I		I		I		I
I	ARM A	I	15.00 I 45.00 I 75.00	I	6.04 I 9.06 I 6.04	I
I	ARM B	I	15.00 I 45.00 I 75.00	I	4.34 I 6.51 I 4.34	I
I	ARM C	I	15.00 I 45.00 I 75.00	I	5.47 I 8.21 I 5.47	I
I	ARM D	I	15.00 I 45.00 I 75.00	I	2.66 I 3.99 I 2.66	I

Demand set: 2017 Base Flows - AM Peak

I		I	TURNING PROPORTIONS	I
I		I	TURNING COUNTS	I
I		I	(PERCENTAGE OF H.V.S)	I
I	TIME	I	FROM/TO I ARM A I ARM B I ARM C I ARM D	I
I	07.30 - 09.00	I		I
I		I	ARM A I 0.000 I 0.253 I 0.625 I 0.122	I
I		I	I 0.0 I 122.0 I 302.0 I 59.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I
I		I	ARM B I 0.210 I 0.000 I 0.303 I 0.487	I
I		I	I 73.0 I 0.0 I 105.0 I 169.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I
I		I	ARM C I 0.733 I 0.151 I 0.000 I 0.116	I
I		I	I 321.0 I 66.0 I 0.0 I 51.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I
I		I	ARM D I 0.207 I 0.615 I 0.178 I 0.000	I
I		I	I 44.0 I 131.0 I 38.0 I 0.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
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)
07.30-07.45									
B-C	1.32	8.03	0.164		0.00	0.19	2.8		0.15
B-AD	3.04	6.95	0.437		0.00	0.75	10.5		0.25
A-B	1.53								
A-C	3.79								
A-D	0.74	10.69	0.069		0.00	0.07	1.1		0.10
D-A	0.55	8.78	0.063		0.00	0.07	1.0		0.12
D-BC	2.12	7.23	0.293		0.00	0.41	5.8		0.19
C-D	0.64								
C-A	4.03								
C-B	0.83	9.73	0.085		0.00	0.09	1.3		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	1.57	7.28	0.216		0.19	0.27	3.9		0.17
B-AD	3.63	6.45	0.562		0.75	1.22	17.0		0.35
A-B	1.83								
A-C	4.52								
A-D	0.88	10.22	0.086		0.07	0.09	1.4		0.11
D-A	0.66	8.19	0.081		0.07	0.09	1.3		0.13
D-BC	2.53	6.65	0.381		0.41	0.60	8.6		0.24
C-D	0.76								
C-A	4.81								
C-B	0.99	9.33	0.106		0.09	0.12	1.7		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	1.93	5.47	0.352		0.27	0.53	7.5		0.28
B-AD	4.44	5.76	0.771		1.22	2.85	36.4		0.66
A-B	2.24								
A-C	5.54								
A-D	1.08	9.59	0.113		0.09	0.13	1.9		0.12
D-A	0.81	7.11	0.114		0.09	0.13	1.8		0.16
D-BC	3.10	5.85	0.530		0.60	1.08	14.9		0.36
C-D	0.94								
C-A	5.89								
C-B	1.21	8.78	0.138		0.12	0.16	2.3		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	1.93	5.26	0.367		0.53	0.57	8.3		0.30
B-AD	4.44	5.75	0.772		2.85	3.08	44.7		0.73
A-B	2.24								
A-C	5.54								
A-D	1.08	9.55	0.113		0.13	0.13	1.9		0.12
D-A	0.81	7.05	0.115		0.13	0.13	1.9		0.16
D-BC	3.10	5.83	0.532		1.08	1.11	16.4		0.37
C-D	0.94								
C-A	5.89								
C-B	1.21	8.77	0.138		0.16	0.16	2.4		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	1.57	7.15	0.220		0.57	0.29	4.5		0.18
B-AD	3.63	6.44	0.563		3.08	1.35	22.7		0.38
A-B	1.83								
A-C	4.52								
A-D	0.88	10.17	0.087		0.13	0.10	1.5		0.11
D-A	0.66	8.14	0.081		0.13	0.09	1.4		0.13
D-BC	2.53	6.62	0.383		1.11	0.64	10.1		0.25
C-D	0.76								
C-A	4.81								
C-B	0.99	9.31	0.106		0.16	0.12	1.8		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	1.32	7.98	0.165		0.29	0.20	3.1		0.15
B-AD	3.04	6.94	0.437		1.35	0.80	12.8		0.26
A-B	1.53								
A-C	3.79								
A-D	0.74	10.66	0.069		0.10	0.08	1.1		0.10
D-A	0.55	8.75	0.063		0.09	0.07	1.0		0.12
D-BC	2.12	7.21	0.294		0.64	0.42	6.6		0.20
C-D	0.64								
C-A	4.03								
C-B	0.83	9.72	0.085		0.12	0.09	1.4		0.11

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.45	0.2
08.00	0.3
08.15	0.5 *
08.30	0.6 *
08.45	0.3
09.00	0.2

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.45	0.8 *
08.00	1.2 *
08.15	2.8 ***
08.30	3.1 ***
08.45	1.4 *
09.00	0.8 *

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
07.45	0.1
08.00	0.1
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1

QUEUE FOR STREAM		D-A
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.1	
08.00	0.1	
08.15	0.1	
08.30	0.1	
08.45	0.1	
09.00	0.1	

QUEUE FOR STREAM		D-BC
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.4	
08.00	0.6	*
08.15	1.1	*
08.30	1.1	*
08.45	0.6	*
09.00	0.4	

QUEUE FOR STREAM		C-B
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.1	
08.00	0.1	
08.15	0.2	
08.30	0.2	
08.45	0.1	
09.00	0.1	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL	I	DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I		I	* DELAY *	I	* DELAY *	I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I	(MIN)	I
I		I		I		I	(MIN/VEH)	I	(MIN/VEH)	I
I	B-C	I	144.5	I	96.3	I	30.1	I	0.21	I
I	B-AD	I	333.1	I	222.1	I	144.1	I	0.43	I
I	A-B	I	167.9	I	111.9	I		I		I
I	A-C	I	415.7	I	277.1	I		I		I
I	A-D	I	81.2	I	54.1	I	8.8	I	0.11	I
I	D-A	I	60.6	I	40.4	I	8.4	I	0.14	I
I	D-BC	I	232.6	I	155.1	I	62.5	I	0.27	I
I	C-D	I	70.2	I	46.8	I		I		I
I	C-A	I	441.8	I	294.6	I		I		I
I	C-B	I	90.8	I	60.6	I	11.1	I	0.12	I
I	ALL	I	2038.5	I	1359.0	I	265.0	I	0.13	I
I		I		I		I		I		I

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

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

.SLOPES AND INTERCEPT

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

B-C Stream

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

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

B-AD Stream

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

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

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

C-B Stream

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	STREAM C-B	STREAM	A-C	STREAM	A-B	STREAM	D-C	STREAM	D-B	I
I	705.78		0.27		0.27		0.27		0.27	I

A-D Stream

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	STREAM A-D	STREAM	C-A	STREAM	C-D	STREAM	B-A	STREAM	B-D	I
I	705.78		0.30		0.30		0.30		0.30	I

TRAFFIC DEMAND DATA

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

Demand set: 2017 Base Flows - PM Peak

TIME PERIOD BEGINS 16.30 AND ENDS 18.00

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I
I		I	FLOW STARTS	I	BEFORE	I
I		I	TO RISE	I	AT TOP	I
I		I	IS REACHED	I	OF PEAK	I
I		I	FALLING	I	PEAK	I
I	ARM A	I	15.00	I	4.76	I
I	ARM B	I	15.00	I	4.01	I
I	ARM C	I	15.00	I	5.50	I
I	ARM D	I	15.00	I	3.14	I

Demand set: 2017 Base Flows - PM Peak

I		I	TURNING PROPORTIONS	I
I		I	TURNING COUNTS	I
I		I	(PERCENTAGE OF H.V.S)	I
I	TIME	I	FROM/TO	I
I	16.30 - 18.00	I	ARM A	I
I		I	0.000	I
I		I	0.0	I
I		I	(0.0)	I
I		I	(0.0)	I
I		I	(0.0)	I
I		I	ARM B	I
I		I	0.146	I
I		I	47.0	I
I		I	(0.0)	I
I		I	(0.0)	I
I		I	(0.0)	I
I		I	ARM C	I
I		I	0.766	I
I		I	337.0	I
I		I	(0.0)	I
I		I	(0.0)	I
I		I	(0.0)	I
I		I	ARM D	I
I		I	0.159	I
I		I	40.0	I
I		I	(0.0)	I
I		I	(0.0)	I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
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)
16.30-16.45									
B-C	1.62	8.72	0.186		0.00	0.23	3.2		0.14
B-AD	2.41	6.93	0.348		0.00	0.52	7.3		0.22
A-B	1.56								
A-C	2.51								
A-D	0.72	10.90	0.066		0.00	0.07	1.0		0.10
D-A	0.50	8.61	0.058		0.00	0.06	0.9		0.12
D-BC	2.65	7.61	0.348		0.00	0.52	7.4		0.20
C-D	0.38								
C-A	4.23								
C-B	0.92	9.93	0.092		0.00	0.10	1.5		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	1.93	8.20	0.236		0.23	0.30	4.4		0.16
B-AD	2.88	6.47	0.444		0.52	0.78	11.0		0.28
A-B	1.86								
A-C	3.00								
A-D	0.85	10.48	0.082		0.07	0.09	1.3		0.10
D-A	0.60	7.93	0.076		0.06	0.08	1.2		0.14
D-BC	3.16	7.09	0.446		0.52	0.78	11.1		0.25
C-D	0.45								
C-A	5.05								
C-B	1.09	9.56	0.114		0.10	0.13	1.9		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	2.37	7.26	0.326		0.30	0.47	6.8		0.20
B-AD	3.52	5.84	0.603		0.78	1.43	19.5		0.42
A-B	2.28								
A-C	3.67								
A-D	1.05	9.90	0.106		0.09	0.12	1.7		0.11
D-A	0.73	6.60	0.111		0.08	0.12	1.8		0.17
D-BC	3.87	6.38	0.607		0.78	1.45	19.9		0.38
C-D	0.55								
C-A	6.18								
C-B	1.34	9.06	0.148		0.13	0.17	2.5		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	2.37	7.21	0.328		0.47	0.48	7.2		0.21
B-AD	3.52	5.83	0.604		1.43	1.47	21.8		0.43
A-B	2.28								
A-C	3.67								
A-D	1.05	9.89	0.106		0.12	0.12	1.8		0.11
D-A	0.73	6.53	0.112		0.12	0.13	1.9		0.17
D-BC	3.87	6.38	0.607		1.45	1.50	22.2		0.40
C-D	0.55								
C-A	6.18								
C-B	1.34	9.05	0.148		0.17	0.17	2.6		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	1.93	8.15	0.237		0.48	0.31	4.9		0.16
B-AD	2.88	6.46	0.445		1.47	0.83	13.3		0.29
A-B	1.86								
A-C	3.00								
A-D	0.85	10.46	0.082		0.12	0.09	1.4		0.10
D-A	0.60	7.88	0.076		0.13	0.08	1.3		0.14
D-BC	3.16	7.08	0.447		1.50	0.83	13.3		0.26
C-D	0.45								
C-A	5.05								
C-B	1.09	9.54	0.115		0.17	0.13	2.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	1.62	8.68	0.186		0.31	0.23	3.6		0.14
B-AD	2.41	6.92	0.348		0.83	0.55	8.6		0.22
A-B	1.56								
A-C	2.51								
A-D	0.72	10.88	0.066		0.09	0.07	1.1		0.10
D-A	0.50	8.58	0.059		0.08	0.06	1.0		0.12
D-BC	2.65	7.59	0.349		0.83	0.55	8.6		0.20
C-D	0.38								
C-A	4.23								
C-B	0.92	9.91	0.092		0.13	0.10	1.6		0.11

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.2
17.00	0.3
17.15	0.5
17.30	0.5
17.45	0.3
18.00	0.2

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.45	0.5	*
17.00	0.8	*
17.15	1.4	*
17.30	1.5	*
17.45	0.8	*
18.00	0.5	*

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1

QUEUE FOR STREAM D-A	
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1

QUEUE FOR STREAM D-BC	
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.5 *
17.00	0.8 *
17.15	1.5 *
17.30	1.5 *
17.45	0.8 *
18.00	0.5 *

QUEUE FOR STREAM C-B	
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.1
18.00	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I	* DELAY *	I	* DELAY *	I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I
I		I		I	(MIN/VEH)	I	(MIN)	I
I	B-C	I	177.6	I	118.4	I	30.2	I
I	B-AD	I	264.3	I	176.2	I	81.6	I
I	A-B	I	170.7	I	113.8	I		I
I	A-C	I	275.3	I	183.5	I		I
I	A-D	I	78.5	I	52.3	I	8.3	I
I	D-A	I	55.1	I	36.7	I	8.0	I
I	D-BC	I	290.4	I	193.6	I	82.5	I
I	C-D	I	41.3	I	27.5	I		I
I	C-A	I	463.9	I	309.2	I		I
I	C-B	I	100.5	I	67.0	I	12.0	I
I	ALL	I	1917.4	I	1278.2	I	222.5	I
							0.12	
							222.6	
							0.12	

* 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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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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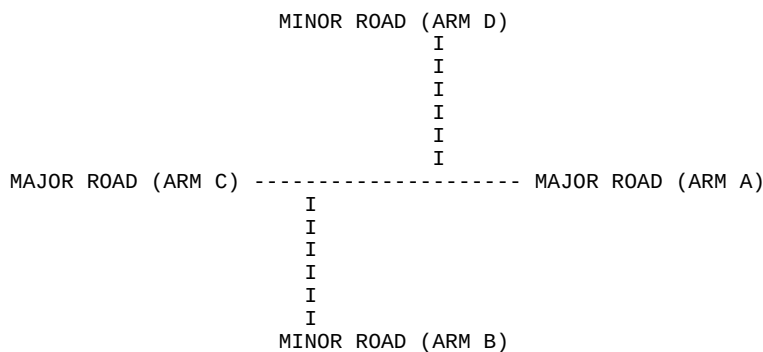
Run with file:-
"Z:\projects\0255 Lee Lane, Royston\Picady\
Wakefield Road-Shaw Lane-Lee Lane Staggered Junction - 2017 With Development Flows.vpi"
(drive-on-the-left) at 12:31:12 on Friday, 20 December 2013

RUN INFORMATION

RUN TITLE : A61 Wakefield Road-Shaw Lane-Lee Lane Stagger
LOCATION : Lee Lane, Royston
DATE : 18/12/13
CLIENT :
ENUMERATOR : Croft
JOB NUMBER : 0255
STATUS :
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A61 Wakefield Road (NB)
ARM B IS B6248 Shaw Lane
ARM C IS A61 Wakefield Road (SB)
ARM D IS B6428 Lee Lane

STREAM LABELLING CONVENTION

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

GEOMETRIC DATA

I	DATA ITEM	I	MINOR ROAD B	I	MINOR ROAD D	I
I	TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	I	(W) 6.00 M.	I	(W) 6.00 M.	I
I	CENTRAL RESERVE WIDTH	I	(WCR) 0.00 M.	I	(WCR) 0.00 M.	I
I		I		I		I
I	MAJOR ROAD RIGHT TURN - WIDTH	I	(WC-B) 3.00 M.	I	(WA-D) 3.00 M.	I
I	- VISIBILITY	I	(VC-B)130.00 M.	I	(VA-D)250.00 M.	I
I	- BLOCKS TRAFFIC (SPACES)	I	NO (0)	I	NO (0)	I
I		I		I		I
I	MINOR ROAD - VISIBILITY TO LEFT	I	(VB-C) 55.0 M.	I	(VD-A) 40.0 M.	I
I	- VISIBILITY TO RIGHT	I	(VB-A) 35.0 M.	I	(VD-C) 65.0 M.	I
I	- LANE 1 WIDTH	I	(WB-C) -	I	(WD-A) -	I
I	- LANE 2 WIDTH	I	(WB-A) -	I	(WD-C) -	I
I	WIDTH AT 0 M FROM JUNCTION	I	10.00 M.	I	10.00 M.	I
I	WIDTH AT 5 M FROM JUNCTION	I	8.90 M.	I	8.00 M.	I
I	WIDTH AT 10 M FROM JUNCTION	I	5.60 M.	I	5.00 M.	I
I	WIDTH AT 15 M FROM JUNCTION	I	4.90 M.	I	4.25 M.	I
I	WIDTH AT 20 M FROM JUNCTION	I	4.50 M.	I	3.50 M.	I
I	- LENGTH OF FLARED SECTION	I	DERIVED: 3 PCU	I	2 VEHS	I

.SLOPES AND INTERCEPT

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

B-C Stream

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

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

B-AD Stream

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

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

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

C-B Stream

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

I	STREAM C-B	STREAM A-C	STREAM A-B	STREAM D-C	STREAM D-B	I
I	705.78	0.27	0.27	0.27	0.27	I

A-D Stream

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	STREAM A-D	STREAM	C-A	STREAM C-D	STREAM	B-A	STREAM B-D	STREAM	B-D	I
I	705.78		0.30	0.30		0.30	0.30		0.30	I

TRAFFIC DEMAND DATA

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

Demand set: 2017 With Development Flows - AM Peak

TIME PERIOD BEGINS 07.30 AND ENDS 09.00

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I
I		I	FLOW STARTS I TOP OF PEAK I FLOW STOPS	I	BEFORE I AT TOP I AFTER	I
I		I	TO RISE I IS REACHED I FALLING	I	PEAK I OF PEAK I PEAK	I
I		I		I		I
I	ARM A	I	15.00 I 45.00 I 75.00	I	6.18 I 9.26 I 6.18	I
I	ARM B	I	15.00 I 45.00 I 75.00	I	4.40 I 6.60 I 4.40	I
I	ARM C	I	15.00 I 45.00 I 75.00	I	5.55 I 8.33 I 5.55	I
I	ARM D	I	15.00 I 45.00 I 75.00	I	3.45 I 5.18 I 3.45	I

Demand set: 2017 With Development Flows - AM Peak

I		I	TURNING PROPORTIONS	I
I		I	TURNING COUNTS	I
I		I	(PERCENTAGE OF H.V.S)	I
I	TIME	I	FROM/TO I ARM A I ARM B I ARM C I ARM D	I
I	07.30 - 09.00	I		I
I		I	ARM A	I
I		I	0.000 I 0.247 I 0.611 I 0.142	I
I		I	0.0 I 122.0 I 302.0 I 70.0	I
I		I	(0.0)I (0.0)I (0.0)I (0.0)	I
I		I		I
I		I	ARM B	I
I		I	0.207 I 0.000 I 0.298 I 0.494	I
I		I	73.0 I 0.0 I 105.0 I 174.0	I
I		I	(0.0)I (0.0)I (0.0)I (0.0)	I
I		I		I
I		I	ARM C	I
I		I	0.723 I 0.149 I 0.000 I 0.128	I
I		I	321.0 I 66.0 I 0.0 I 57.0	I
I		I	(0.0)I (0.0)I (0.0)I (0.0)	I
I		I		I
I		I	ARM D	I
I		I	0.221 I 0.522 I 0.257 I 0.000	I
I		I	61.0 I 144.0 I 71.0 I 0.0	I
I		I	(0.0)I (0.0)I (0.0)I (0.0)	I
I		I		I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
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)
07.30-07.45									
B-C	1.32	7.84	0.168		0.00	0.20	2.9		0.15
B-AD	3.10	6.82	0.454		0.00	0.81	11.2		0.26
A-B	1.53								
A-C	3.79								
A-D	0.88	10.65	0.082		0.00	0.09	1.3		0.10
D-A	0.77	8.50	0.090		0.00	0.10	1.4		0.13
D-BC	2.70	7.14	0.378		0.00	0.59	8.3		0.22
C-D	0.72								
C-A	4.03								
C-B	0.83	9.57	0.087		0.00	0.09	1.4		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	1.57	7.01	0.225		0.20	0.29	4.1		0.18
B-AD	3.70	6.29	0.588		0.81	1.35	18.7		0.38
A-B	1.83								
A-C	4.52								
A-D	1.05	10.17	0.103		0.09	0.11	1.7		0.11
D-A	0.91	7.68	0.119		0.10	0.13	2.0		0.15
D-BC	3.22	6.54	0.492		0.59	0.93	13.2		0.30
C-D	0.85								
C-A	4.81								
C-B	0.99	9.13	0.108		0.09	0.12	1.8		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	1.93	4.83	0.399		0.29	0.64	8.9		0.34
B-AD	4.53	5.56	0.816		1.35	3.48	43.0		0.78
A-B	2.24								
A-C	5.54								
A-D	1.28	9.52	0.135		0.11	0.15	2.3		0.12
D-A	1.12	5.88	0.191		0.13	0.23	3.3		0.21
D-BC	3.95	5.73	0.689		0.93	2.00	26.5		0.52
C-D	1.05								
C-A	5.89								
C-B	1.21	8.54	0.142		0.12	0.16	2.4		0.14

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	1.93	4.47	0.431		0.64	0.73	10.6		0.39
B-AD	4.53	5.54	0.818		3.48	3.88	55.7		0.92
A-B	2.24								
A-C	5.54								
A-D	1.28	9.48	0.136		0.15	0.16	2.3		0.12
D-A	1.12	5.71	0.196		0.23	0.24	3.6		0.22
D-BC	3.95	5.70	0.692		2.00	2.12	31.1		0.56
C-D	1.05								
C-A	5.89								
C-B	1.21	8.52	0.142		0.16	0.16	2.5		0.14

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.30-08.45										I
I	B-C	1.57	6.80	0.231		0.73	0.31	4.8		0.19	I
I	B-AD	3.70	6.27	0.590		3.88	1.52	26.5		0.44	I
I	A-B	1.83									I
I	A-C	4.52									I
I	A-D	1.05	10.11	0.104		0.16	0.12	1.8		0.11	I
I	D-A	0.91	7.56	0.121		0.24	0.14	2.2		0.15	I
I	D-BC	3.22	6.51	0.495		2.12	1.02	16.6		0.32	I
I	C-D	0.85									I
I	C-A	4.81									I
I	C-B	0.99	9.11	0.109		0.16	0.12	1.9		0.12	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00										I
I	B-C	1.32	7.78	0.169		0.31	0.21	3.2		0.16	I
I	B-AD	3.10	6.81	0.455		1.52	0.86	13.8		0.28	I
I	A-B	1.53									I
I	A-C	3.79									I
I	A-D	0.88	10.62	0.083		0.12	0.09	1.4		0.10	I
I	D-A	0.77	8.45	0.091		0.14	0.10	1.5		0.13	I
I	D-BC	2.70	7.12	0.379		1.02	0.62	9.9		0.23	I
I	C-D	0.72									I
I	C-A	4.03									I
I	C-B	0.83	9.55	0.087		0.12	0.10	1.5		0.11	I
I											I

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.2	
08.00	0.3	
08.15	0.6	*
08.30	0.7	*
08.45	0.3	
09.00	0.2	

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.8	*
08.00	1.4	*
08.15	3.5	***
08.30	3.9	****
08.45	1.5	**
09.00	0.9	*

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.1	
08.00	0.1	
08.15	0.2	
08.30	0.2	
08.45	0.1	
09.00	0.1	

QUEUE FOR STREAM		D-A
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.1	
08.00	0.1	
08.15	0.2	
08.30	0.2	
08.45	0.1	
09.00	0.1	

QUEUE FOR STREAM		D-BC
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.6	*
08.00	0.9	*
08.15	2.0	**
08.30	2.1	**
08.45	1.0	*
09.00	0.6	*

QUEUE FOR STREAM		C-B
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.1	
08.00	0.1	
08.15	0.2	
08.30	0.2	
08.45	0.1	
09.00	0.1	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL	DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I	I	I	I	I	I	* DELAY *	I	* DELAY *	I
I	I	I	(VEH)	(VEH/H)	I	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
I	B-C	I	144.5	I 96.3	I	34.6	I 0.24	I 34.6	I 0.24
I	B-AD	I	340.0	I 226.7	I	168.9	I 0.50	I 169.0	I 0.50
I	A-B	I	167.9	I 111.9	I		I	I	I
I	A-C	I	415.7	I 277.1	I		I	I	I
I	A-D	I	96.3	I 64.2	I	10.8	I 0.11	I 10.8	I 0.11
I	D-A	I	84.0	I 56.0	I	14.0	I 0.17	I 14.0	I 0.17
I	D-BC	I	295.9	I 197.3	I	105.6	I 0.36	I 105.6	I 0.36
I	C-D	I	78.5	I 52.3	I		I	I	I
I	C-A	I	441.8	I 294.6	I		I	I	I
I	C-B	I	90.8	I 60.6	I	11.3	I 0.12	I 11.3	I 0.12
I	ALL	I	2155.5	I 1437.0	I	345.2	I 0.16	I 345.2	I 0.16

* 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)

B-C Stream

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

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

B-AD Stream

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

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

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

C-B Stream

I Intercept For I STREAM C-B	Slope For STREAM C-B	Opposing A-C	Slope For STREAM A-B	Opposing D-C	Slope For STREAM D-C	Opposing D-B	I
I 705.78	I 0.27	I 0.27	I 0.27	I 0.27	I 0.27	I 0.27	I

A-D Stream

I Intercept For I STREAM A-D	Slope For STREAM A-D	Opposing C-A	Slope For STREAM C-D	Opposing B-A	Slope For STREAM B-A	Opposing B-D	I
I 705.78	I 0.30	I 0.30	I 0.30	I 0.30	I 0.30	I 0.30	I

TRAFFIC DEMAND DATA

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

Demand set: 2017 With Development Flows - PM Peak

TIME PERIOD BEGINS 16.30 AND ENDS 18.00

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I ARM	I NUMBER OF MINUTES FROM START WHEN I FLOW STARTS I TOP OF PEAK I FLOW STOPS I TO RISE I IS REACHED I FALLING	I RATE OF FLOW (VEH/MIN) I BEFORE I AT TOP I AFTER I PEAK I OF PEAK I PEAK	I
I ARM A	I 15.00 I 45.00 I 75.00	I 5.15 I 7.73 I 5.15	I
I ARM B	I 15.00 I 45.00 I 75.00	I 4.16 I 6.24 I 4.16	I
I ARM C	I 15.00 I 45.00 I 75.00	I 5.70 I 8.55 I 5.70	I
I ARM D	I 15.00 I 45.00 I 75.00	I 3.58 I 5.36 I 3.58	I

Demand set: 2017 With Development Flows - PM Peak

I	I TURNING PROPORTIONS I TURNING COUNTS I (PERCENTAGE OF H.V.S)	I
I TIME	I FROM/TO I ARM A I ARM B I ARM C I ARM D	I
I 16.30 - 18.00	I ARM A I 0.000 I 0.301 I 0.485 I 0.214 I I 0.0 I 124.0 I 200.0 I 88.0 I I (0.0)I (0.0)I (0.0)I (0.0)I I ARM B I 0.141 I 0.000 I 0.387 I 0.471 I I 47.0 I 0.0 I 129.0 I 157.0 I I (0.0)I (0.0)I (0.0)I (0.0)I I ARM C I 0.739 I 0.160 I 0.000 I 0.101 I I 337.0 I 73.0 I 0.0 I 46.0 I I (0.0)I (0.0)I (0.0)I (0.0)I I ARM D I 0.171 I 0.479 I 0.350 I 0.000 I I 49.0 I 137.0 I 100.0 I 0.0 I I (0.0)I (0.0)I (0.0)I (0.0)I I I I I I I	I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
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)
16.30-16.45									
B-C	1.62	8.53	0.190		0.00	0.23	3.3		0.14
B-AD	2.56	6.86	0.373		0.00	0.58	8.2		0.23
A-B	1.56								
A-C	2.51								
A-D	1.10	10.79	0.102		0.00	0.11	1.6		0.10
D-A	0.61	8.39	0.073		0.00	0.08	1.1		0.13
D-BC	2.97	7.40	0.402		0.00	0.66	9.2		0.22
C-D	0.58								
C-A	4.23								
C-B	0.92	9.84	0.093		0.00	0.10	1.5		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	1.93	7.95	0.243		0.23	0.32	4.6		0.17
B-AD	3.06	6.38	0.479		0.58	0.89	12.6		0.30
A-B	1.86								
A-C	3.00								
A-D	1.32	10.35	0.127		0.11	0.14	2.1		0.11
D-A	0.73	7.51	0.098		0.08	0.11	1.6		0.15
D-BC	3.55	6.84	0.519		0.66	1.04	14.6		0.30
C-D	0.69								
C-A	5.05								
C-B	1.09	9.45	0.116		0.10	0.13	1.9		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	2.37	6.82	0.347		0.32	0.52	7.5		0.22
B-AD	3.74	5.71	0.656		0.89	1.75	23.5		0.48
A-B	2.28								
A-C	3.67								
A-D	1.61	9.74	0.166		0.14	0.20	2.9		0.12
D-A	0.90	5.54	0.162		0.11	0.19	2.7		0.21
D-BC	4.35	6.08	0.715		1.04	2.25	29.6		0.53
C-D	0.84								
C-A	6.18								
C-B	1.34	8.93	0.150		0.13	0.17	2.6		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	2.37	6.73	0.352		0.52	0.53	7.9		0.23
B-AD	3.74	5.69	0.658		1.75	1.83	27.0		0.51
A-B	2.28								
A-C	3.67								
A-D	1.61	9.73	0.166		0.20	0.20	3.0		0.12
D-A	0.90	5.37	0.167		0.19	0.20	2.9		0.22
D-BC	4.35	6.07	0.717		2.25	2.37	34.9		0.57
C-D	0.84								
C-A	6.18								
C-B	1.34	8.91	0.150		0.17	0.18	2.6		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	1.93	7.88	0.245		0.53	0.33	5.1		0.17
B-AD	3.06	6.35	0.481		1.83	0.96	15.6		0.31
A-B	1.86								
A-C	3.00								
A-D	1.32	10.32	0.128		0.20	0.15	2.3		0.11
D-A	0.73	7.39	0.099		0.20	0.11	1.7		0.15
D-BC	3.55	6.83	0.520		2.37	1.13	18.5		0.32
C-D	0.69								
C-A	5.05								
C-B	1.09	9.42	0.116		0.18	0.13	2.0		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	1.62	8.49	0.191		0.33	0.24	3.7		0.15
B-AD	2.56	6.84	0.374		0.96	0.61	9.7		0.24
A-B	1.56								
A-C	2.51								
A-D	1.10	10.77	0.102		0.15	0.12	1.8		0.10
D-A	0.61	8.33	0.074		0.11	0.08	1.2		0.13
D-BC	2.97	7.38	0.403		1.13	0.69	10.9		0.23
C-D	0.58								
C-A	4.23								
C-B	0.92	9.82	0.093		0.13	0.10	1.6		0.11

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.2
17.00	0.3
17.15	0.5 *
17.30	0.5 *
17.45	0.3
18.00	0.2

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.6 *
17.00	0.9 *
17.15	1.8 **
17.30	1.8 **
17.45	1.0 *
18.00	0.6 *

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.1
18.00	0.1

QUEUE FOR STREAM D-A	
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.1
18.00	0.1

QUEUE FOR STREAM D-BC		
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.45	0.7	*
17.00	1.0	*
17.15	2.2	**
17.30	2.4	**
17.45	1.1	*
18.00	0.7	*

QUEUE FOR STREAM C-B	
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.1
18.00	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I	* DELAY *	I	* DELAY *	I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I
I		I		I	(MIN/VEH)	I	(MIN)	I
I	B-C	I	177.6	I	118.4	I	32.2	I
I	B-AD	I	280.8	I	187.2	I	96.5	I
I	A-B	I	170.7	I	113.8	I		I
I	A-C	I	275.3	I	183.5	I		I
I	A-D	I	121.1	I	80.8	I	13.6	I
I	D-A	I	67.4	I	45.0	I	11.4	I
I	D-BC	I	326.2	I	217.5	I	117.7	I
I	C-D	I	63.3	I	42.2	I		I
I	C-A	I	463.9	I	309.2	I		I
I	C-B	I	100.5	I	67.0	I	12.2	I
I	ALL	I	2046.7	I	1364.5	I	283.6	I

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

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

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

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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\
Wakefield Road-Shaw Lane-Lee Lane Staggered Junction - 2022 Base Flows.vpi"
(drive-on-the-left) at 12:30:41 on Friday, 20 December 2013

RUN INFORMATION

RUN TITLE : A61 Wakefield Road-Shaw Lane-Lee Lane Stagger
LOCATION : Lee Lane, Royston
DATE : 18/12/13
CLIENT :
ENUMERATOR : Croft
JOB NUMBER : 0255
STATUS :
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA

```

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

ARM A IS A61 Wakefield Road (NB)
ARM B IS B6248 Shaw Lane
ARM C IS A61 Wakefield Road (SB)
ARM D IS B6428 Lee Lane

STREAM LABELLING CONVENTION

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

GEOMETRIC DATA

I	DATA ITEM	I	MINOR ROAD B	I	MINOR ROAD D	I
I	TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	I	(W) 6.00 M.	I	(W) 6.00 M.	I
I	CENTRAL RESERVE WIDTH	I	(WCR) 0.00 M.	I	(WCR) 0.00 M.	I
I		I		I		I
I	MAJOR ROAD RIGHT TURN - WIDTH	I	(WC-B) 3.00 M.	I	(WA-D) 3.00 M.	I
I	- VISIBILITY	I	(VC-B)130.00 M.	I	(VA-D)250.00 M.	I
I	- BLOCKS TRAFFIC (SPACES)	I	NO (0)	I	NO (0)	I
I		I		I		I
I	MINOR ROAD - VISIBILITY TO LEFT	I	(VB-C) 55.0 M.	I	(VD-A) 40.0 M.	I
I	- VISIBILITY TO RIGHT	I	(VB-A) 35.0 M.	I	(VD-C) 65.0 M.	I
I	- LANE 1 WIDTH	I	(WB-C) -	I	(WD-A) -	I
I	- LANE 2 WIDTH	I	(WB-A) -	I	(WD-C) -	I
I	WIDTH AT 0 M FROM JUNCTION	I	10.00 M.	I	10.00 M.	I
I	WIDTH AT 5 M FROM JUNCTION	I	8.90 M.	I	8.00 M.	I
I	WIDTH AT 10 M FROM JUNCTION	I	5.60 M.	I	5.00 M.	I
I	WIDTH AT 15 M FROM JUNCTION	I	4.90 M.	I	4.25 M.	I
I	WIDTH AT 20 M FROM JUNCTION	I	4.50 M.	I	3.50 M.	I
I	- LENGTH OF FLARED SECTION	I	DERIVED: 3 PCU	I	2 VEHS	I

.SLOPES AND INTERCEPT

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

B-C Stream

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

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

B-AD Stream

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

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

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

C-B Stream

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
---	---------------	-----------	----------	-----------	----------	-----------	----------	-----------	----------	---

I	STREAM C-B	STREAM A-C	STREAM A-B	STREAM D-C	STREAM D-B	I
I	705.78	0.27	0.27	0.27	0.27	I

A-D Stream

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	STREAM A-D	STREAM	C-A	STREAM	C-D	STREAM	B-A	STREAM	B-D	I
I	705.78		0.30		0.30		0.30		0.30	I

TRAFFIC DEMAND DATA

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

Demand set: 2022 Base Flows - AM Peak

TIME PERIOD BEGINS 07.30 AND ENDS 09.00

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I
I		I	FLOW STARTS I TOP OF PEAK I FLOW STOPS	I	BEFORE I AT TOP I AFTER	I
I		I	TO RISE I IS REACHED I FALLING	I	PEAK I OF PEAK I PEAK	I
I		I		I		I
I	ARM A	I	15.00 I 45.00 I 75.00	I	6.41 I 9.62 I 6.41	I
I	ARM B	I	15.00 I 45.00 I 75.00	I	4.68 I 7.01 I 4.68	I
I	ARM C	I	15.00 I 45.00 I 75.00	I	5.86 I 8.79 I 5.86	I
I	ARM D	I	15.00 I 45.00 I 75.00	I	2.83 I 4.24 I 2.83	I

Demand set: 2022 Base Flows - AM Peak

I		I	TURNING PROPORTIONS	I
I		I	TURNING COUNTS	I
I		I	(PERCENTAGE OF H.V.S)	I
I	TIME	I	FROM/TO I ARM A I ARM B I ARM C I ARM D	I
I	07.30 - 09.00	I		I
I		I	ARM A I 0.000 I 0.253 I 0.626 I 0.121	I
I		I	I 0.0 I 130.0 I 321.0 I 62.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I
I		I	ARM B I 0.211 I 0.000 I 0.302 I 0.487	I
I		I	I 79.0 I 0.0 I 113.0 I 182.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I
I		I	ARM C I 0.733 I 0.151 I 0.000 I 0.115	I
I		I	I 344.0 I 71.0 I 0.0 I 54.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I
I		I	ARM D I 0.204 I 0.619 I 0.177 I 0.000	I
I		I	I 46.0 I 140.0 I 40.0 I 0.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	07.30-07.45										I
I	B-C	1.42	7.78	0.182		0.00	0.22	3.2		0.16	I
I	B-AD	3.27	6.78	0.483		0.00	0.90	12.4		0.28	I
I	A-B	1.63									I
I	A-C	4.03									I
I	A-D	0.78	10.52	0.074		0.00	0.08	1.2		0.10	I
I	D-A	0.58	8.59	0.067		0.00	0.07	1.0		0.12	I
I	D-BC	2.26	7.03	0.321		0.00	0.46	6.6		0.21	I
I	C-D	0.68									I
I	C-A	4.32									I
I	C-B	0.89	9.60	0.093		0.00	0.10	1.5		0.11	I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	07.45-08.00										I
I	B-C	1.69	6.83	0.248		0.22	0.32	4.7		0.19	I
I	B-AD	3.91	6.25	0.626		0.90	1.56	21.4		0.41	I
I	A-B	1.95									I
I	A-C	4.81									I
I	A-D	0.93	10.01	0.093		0.08	0.10	1.5		0.11	I
I	D-A	0.69	7.90	0.087		0.07	0.09	1.4		0.14	I
I	D-BC	2.70	6.41	0.421		0.46	0.71	10.0		0.27	I
I	C-D	0.81									I
I	C-A	5.15									I
I	C-B	1.06	9.17	0.116		0.10	0.13	1.9		0.12	I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.00-08.15										I
I	B-C	2.07	4.12	0.503		0.32	0.95	12.9		0.47	I
I	B-AD	4.79	5.50	0.871		1.56	4.55	53.9		0.94	I
I	A-B	2.39									I
I	A-C	5.89									I
I	A-D	1.14	9.33	0.122		0.10	0.14	2.0		0.12	I
I	D-A	0.84	6.53	0.129		0.09	0.15	2.1		0.18	I
I	D-BC	3.30	5.56	0.594		0.71	1.37	18.7		0.43	I
I	C-D	0.99									I
I	C-A	6.31									I
I	C-B	1.30	8.58	0.152		0.13	0.18	2.6		0.14	I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.15-08.30										I
I	B-C	2.07	3.52	0.589		0.95	1.32	18.2		0.67	I
I	B-AD	4.79	5.48	0.874		4.55	5.32	74.9		1.20	I
I	A-B	2.39									I
I	A-C	5.89									I
I	A-D	1.14	9.27	0.123		0.14	0.14	2.1		0.12	I
I	D-A	0.84	6.42	0.131		0.15	0.15	2.2		0.18	I
I	D-BC	3.30	5.53	0.598		1.37	1.43	21.1		0.45	I
I	C-D	0.99									I
I	C-A	6.31									I
I	C-B	1.30	8.57	0.152		0.18	0.18	2.7		0.14	I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.30-08.45										I
I	B-C	1.69	6.50	0.260		1.32	0.36	5.9		0.21	I
I	B-AD	3.91	6.24	0.627		5.32	1.81	33.5		0.52	I
I	A-B	1.95									I
I	A-C	4.81									I
I	A-D	0.93	9.93	0.094		0.14	0.10	1.6		0.11	I
I	D-A	0.69	7.80	0.088		0.15	0.10	1.5		0.14	I
I	D-BC	2.70	6.36	0.424		1.43	0.76	12.2		0.28	I
I	C-D	0.81									I
I	C-A	5.15									I
I	C-B	1.06	9.15	0.116		0.18	0.13	2.0		0.12	I
I											I

I	TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)	I
I	08.45-09.00										I
I	B-C	1.42	7.70	0.184		0.36	0.23	3.6		0.16	I
I	B-AD	3.27	6.77	0.483		1.81	0.97	15.6		0.29	I
I	A-B	1.63									I
I	A-C	4.03									I
I	A-D	0.78	10.48	0.074		0.10	0.08	1.2		0.10	I
I	D-A	0.58	8.54	0.068		0.10	0.07	1.1		0.13	I
I	D-BC	2.26	7.01	0.322		0.76	0.49	7.6		0.21	I
I	C-D	0.68									I
I	C-A	4.32									I
I	C-B	0.89	9.58	0.093		0.13	0.10	1.6		0.12	I
I											I

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.2	
08.00	0.3	
08.15	1.0	*
08.30	1.3	*
08.45	0.4	
09.00	0.2	

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.9	*
08.00	1.6	**
08.15	4.6	*****
08.30	5.3	*****
08.45	1.8	**
09.00	1.0	*

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.1	
08.00	0.1	
08.15	0.1	
08.30	0.1	
08.45	0.1	
09.00	0.1	

QUEUE FOR STREAM		D-A
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.1	
08.00	0.1	
08.15	0.1	
08.30	0.1	
08.45	0.1	
09.00	0.1	

QUEUE FOR STREAM		D-BC
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.5	
08.00	0.7	*
08.15	1.4	*
08.30	1.4	*
08.45	0.8	*
09.00	0.5	

QUEUE FOR STREAM		C-B
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.1	
08.00	0.1	
08.15	0.2	
08.30	0.2	
08.45	0.1	
09.00	0.1	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL	I	DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I		I	* DELAY *	I	* DELAY *	I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I	(MIN)	I
I		I		I		I	(MIN/VEH)	I	(MIN/VEH)	I
I	B-C	I	155.5	I	103.7	I	48.4	I	0.31	I
I	B-AD	I	359.2	I	239.5	I	211.7	I	0.59	I
I	A-B	I	178.9	I	119.3	I		I		I
I	A-C	I	441.8	I	294.6	I		I		I
I	A-D	I	85.3	I	56.9	I	9.6	I	0.11	I
I	D-A	I	63.3	I	42.2	I	9.4	I	0.15	I
I	D-BC	I	247.8	I	165.2	I	76.2	I	0.31	I
I	C-D	I	74.3	I	49.6	I		I		I
I	C-A	I	473.5	I	315.7	I		I		I
I	C-B	I	97.7	I	65.2	I	12.3	I	0.13	I
I	ALL	I	2177.5	I	1451.7	I	367.6	I	0.17	I

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

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

.SLOPES AND INTERCEPT

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

B-C Stream

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

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

B-AD Stream

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

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

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

C-B Stream

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	STREAM C-B	STREAM	A-C	STREAM	A-B	STREAM	D-C	STREAM	D-B	I
I	705.78		0.27		0.27		0.27		0.27	I

A-D Stream

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	STREAM A-D	STREAM	C-A	STREAM	C-D	STREAM	B-A	STREAM	B-D	I
I	705.78		0.30		0.30		0.30		0.30	I

TRAFFIC DEMAND DATA

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

Demand set: 2022 Base Flows - PM Peak

TIME PERIOD BEGINS 16.30 AND ENDS 18.00

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I
I		I	FLOW STARTS	I	BEFORE	I
I		I	TO RISE	I	AT TOP	I
I		I	IS REACHED	I	OF PEAK	I
I		I	FALLING	I	PEAK	I
I	ARM A	I	15.00	I	5.07	I
I	ARM B	I	15.00	I	4.31	I
I	ARM C	I	15.00	I	5.86	I
I	ARM D	I	15.00	I	3.29	I

Demand set: 2022 Base Flows - PM Peak

I		I	TURNING PROPORTIONS	I
I		I	TURNING COUNTS	I
I		I	(PERCENTAGE OF H.V.S)	I
I	TIME	I	FROM/TO	I
I	16.30 - 18.00	I	ARM A	I
I		I	0.000	I
I		I	0.0	I
I		I	(0.0)	I
I		I	0.148	I
I		I	51.0	I
I		I	(0.0)	I
I		I	0.763	I
I		I	358.0	I
I		I	(0.0)	I
I		I	0.156	I
I		I	41.0	I
I		I	(0.0)	I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
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)
16.30-16.45									
B-C	1.73	8.53	0.203		0.00	0.25	3.6		0.15
B-AD	2.60	6.79	0.383		0.00	0.60	8.5		0.23
A-B	1.67								
A-C	2.67								
A-D	0.75	10.75	0.070		0.00	0.07	1.1		0.10
D-A	0.51	8.42	0.061		0.00	0.06	0.9		0.13
D-BC	2.79	7.44	0.374		0.00	0.59	8.2		0.21
C-D	0.40								
C-A	4.49								
C-B	0.99	9.81	0.101		0.00	0.11	1.6		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	2.07	7.93	0.261		0.25	0.35	5.0		0.17
B-AD	3.10	6.30	0.493		0.60	0.93	13.2		0.31
A-B	1.99								
A-C	3.19								
A-D	0.90	10.30	0.087		0.07	0.09	1.4		0.11
D-A	0.61	7.64	0.080		0.06	0.09	1.3		0.14
D-BC	3.33	6.89	0.483		0.59	0.90	12.8		0.28
C-D	0.48								
C-A	5.36								
C-B	1.18	9.43	0.126		0.11	0.14	2.1		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	2.53	6.71	0.377		0.35	0.59	8.4		0.24
B-AD	3.80	5.61	0.677		0.93	1.90	25.3		0.52
A-B	2.44								
A-C	3.91								
A-D	1.10	9.69	0.114		0.09	0.13	1.9		0.12
D-A	0.75	5.98	0.126		0.09	0.14	2.1		0.19
D-BC	4.07	6.13	0.664		0.90	1.82	24.5		0.46
C-D	0.59								
C-A	6.57								
C-B	1.45	8.90	0.163		0.14	0.19	2.8		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	2.53	6.62	0.383		0.59	0.61	9.1		0.24
B-AD	3.80	5.60	0.678		1.90	2.00	29.4		0.55
A-B	2.44								
A-C	3.91								
A-D	1.10	9.67	0.114		0.13	0.13	1.9		0.12
D-A	0.75	5.86	0.128		0.14	0.15	2.2		0.20
D-BC	4.07	6.12	0.665		1.82	1.90	28.0		0.48
C-D	0.59								
C-A	6.57								
C-B	1.45	8.88	0.163		0.19	0.19	2.9		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	2.07	7.86	0.263		0.61	0.36	5.7		0.17
B-AD	3.10	6.28	0.494		2.00	1.01	16.5		0.33
A-B	1.99								
A-C	3.19								
A-D	0.90	10.27	0.088		0.13	0.10	1.5		0.11
D-A	0.61	7.55	0.081		0.15	0.09	1.4		0.14
D-BC	3.33	6.87	0.484		1.90	0.97	15.7		0.29
C-D	0.48								
C-A	5.36								
C-B	1.18	9.40	0.126		0.19	0.15	2.2		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	1.73	8.49	0.204		0.36	0.26	4.0		0.15
B-AD	2.60	6.77	0.384		1.01	0.64	10.1		0.24
A-B	1.67								
A-C	2.67								
A-D	0.75	10.73	0.070		0.10	0.08	1.2		0.10
D-A	0.51	8.38	0.061		0.09	0.07	1.0		0.13
D-BC	2.79	7.43	0.375		0.97	0.61	9.7		0.22
C-D	0.40								
C-A	4.49								
C-B	0.99	9.80	0.101		0.15	0.11	1.7		0.11

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.3
17.00	0.3
17.15	0.6 *
17.30	0.6 *
17.45	0.4
18.00	0.3

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.6 *
17.00	0.9 *
17.15	1.9 **
17.30	2.0 **
17.45	1.0 *
18.00	0.6 *

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1

QUEUE FOR STREAM D-A	
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1

QUEUE FOR STREAM D-BC		
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.45	0.6	*
17.00	0.9	*
17.15	1.8	**
17.30	1.9	**
17.45	1.0	*
18.00	0.6	*

QUEUE FOR STREAM C-B	
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.1
18.00	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I	* DELAY *	I	* DELAY *	I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I
I		I		I	(MIN/VEH)	I	(MIN)	I
I	B-C	I	189.9	I	126.6	I	35.8	I
I	B-AD	I	284.9	I	189.9	I	103.0	I
I	A-B	I	183.1	I	122.0	I		I
I	A-C	I	293.2	I	195.5	I		I
I	A-D	I	82.6	I	55.1	I	8.9	I
I	D-A	I	56.4	I	37.6	I	8.8	I
I	D-BC	I	305.6	I	203.7	I	98.9	I
I	C-D	I	44.0	I	29.4	I		I
I	C-A	I	492.8	I	328.5	I		I
I	C-B	I	108.7	I	72.5	I	13.4	I
I	ALL	I	2041.2	I	1360.8	I	268.8	I
							0.13	
							268.9	
							0.13	

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

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

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

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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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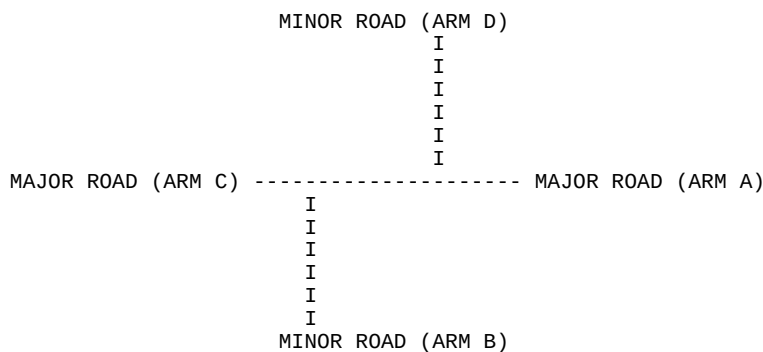
Run with file:-
"Z:\projects\0255 Lee Lane, Royston\Picady\
Wakefield Road-Shaw Lane-Lee Lane Staggered Junction - 2022 With Development Flows.vpi"
(drive-on-the-left) at 12:31:39 on Friday, 20 December 2013

RUN INFORMATION

RUN TITLE : A61 Wakefield Road-Shaw Lane-Lee Lane Stagger
LOCATION : Lee Lane, Royston
DATE : 18/12/13
CLIENT :
ENUMERATOR : Croft
JOB NUMBER : 0255
STATUS :
DESCRIPTION :

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A61 Wakefield Road (NB)
ARM B IS B6248 Shaw Lane
ARM C IS A61 Wakefield Road (SB)
ARM D IS B6428 Lee Lane

STREAM LABELLING CONVENTION

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

GEOMETRIC DATA

I	DATA ITEM	I	MINOR ROAD B	I	MINOR ROAD D	I
I	TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	I	(W) 6.00 M.	I	(W) 6.00 M.	I
I	CENTRAL RESERVE WIDTH	I	(WCR) 0.00 M.	I	(WCR) 0.00 M.	I
I		I		I		I
I	MAJOR ROAD RIGHT TURN - WIDTH	I	(WC-B) 3.00 M.	I	(WA-D) 3.00 M.	I
I	- VISIBILITY	I	(VC-B)130.00 M.	I	(VA-D)250.00 M.	I
I	- BLOCKS TRAFFIC (SPACES)	I	NO (0)	I	NO (0)	I
I		I		I		I
I	MINOR ROAD - VISIBILITY TO LEFT	I	(VB-C) 55.0 M.	I	(VD-A) 40.0 M.	I
I	- VISIBILITY TO RIGHT	I	(VB-A) 35.0 M.	I	(VD-C) 65.0 M.	I
I	- LANE 1 WIDTH	I	(WB-C) -	I	(WD-A) -	I
I	- LANE 2 WIDTH	I	(WB-A) -	I	(WD-C) -	I
I	WIDTH AT 0 M FROM JUNCTION	I	10.00 M.	I	10.00 M.	I
I	WIDTH AT 5 M FROM JUNCTION	I	9.00 M.	I	9.40 M.	I
I	WIDTH AT 10 M FROM JUNCTION	I	5.60 M.	I	6.50 M.	I
I	WIDTH AT 15 M FROM JUNCTION	I	4.90 M.	I	5.40 M.	I
I	WIDTH AT 20 M FROM JUNCTION	I	4.50 M.	I	4.50 M.	I
I	- LENGTH OF FLARED SECTION	I	DERIVED: 3 PCU	I	2 VEHS	I

.SLOPES AND INTERCEPT

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

B-C Stream

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

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

B-AD Stream

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

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

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

C-B Stream

I	Intercept For	Slope For Opposing	Slope For Opposing	Slope For Opposing	Slope For Opposing	I
---	---------------	--------------------	--------------------	--------------------	--------------------	---

I	STREAM C-B	STREAM A-C	STREAM A-B	STREAM D-C	STREAM D-B	I
I	705.78	0.27	0.27	0.27	0.27	I

A-D Stream

I	Intercept For	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	Slope For	Opposing	I
I	STREAM A-D	STREAM	C-A	STREAM	C-D	STREAM	B-A	STREAM	B-D	I
I	705.78		0.30		0.30		0.30		0.30	I

TRAFFIC DEMAND DATA

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

Demand set: 2022 With Development Flows - AM Peak

TIME PERIOD BEGINS 07.30 AND ENDS 09.00

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I	ARM	I	NUMBER OF MINUTES FROM START WHEN	I	RATE OF FLOW (VEH/MIN)	I
I		I	FLOW STARTS I TOP OF PEAK I FLOW STOPS	I	BEFORE I AT TOP I AFTER	I
I		I	TO RISE I IS REACHED I FALLING	I	PEAK I OF PEAK I PEAK	I
I	A	I	15.00 I 45.00 I 75.00	I	6.55 I 9.83 I 6.55	I
I	B	I	15.00 I 45.00 I 75.00	I	4.72 I 7.09 I 4.72	I
I	C	I	15.00 I 45.00 I 75.00	I	5.94 I 8.91 I 5.94	I
I	D	I	15.00 I 45.00 I 75.00	I	3.61 I 5.42 I 3.61	I

Demand set: 2022 With Development Flows - AM Peak

I		I	TURNING PROPORTIONS	I
I		I	TURNING COUNTS	I
I		I	(PERCENTAGE OF H.V.S)	I
I	TIME	I	FROM/TO I ARM A I ARM B I ARM C I ARM D	I
I	07.30 - 09.00	I		I
I		I	ARM A I 0.000 I 0.248 I 0.613 I 0.139	I
I		I	I 0.0 I 130.0 I 321.0 I 73.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I
I		I	ARM B I 0.209 I 0.000 I 0.299 I 0.492	I
I		I	I 79.0 I 0.0 I 113.0 I 186.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I
I		I	ARM C I 0.724 I 0.149 I 0.000 I 0.126	I
I		I	I 344.0 I 71.0 I 0.0 I 60.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I
I		I	ARM D I 0.221 I 0.526 I 0.253 I 0.000	I
I		I	I 64.0 I 152.0 I 73.0 I 0.0	I
I		I	I (0.0)I (0.0)I (0.0)I (0.0)	I
I		I	I I I I I	I

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
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)
07.30-07.45									
B-C	1.42	7.63	0.186		0.00	0.23	3.2		0.16
B-AD	3.33	6.65	0.500		0.00	0.96	13.2		0.29
A-B	1.63								
A-C	4.03								
A-D	0.92	10.48	0.087		0.00	0.10	1.4		0.10
D-A	0.80	7.93	0.101		0.00	0.11	1.6		0.14
D-BC	2.82	6.89	0.410		0.00	0.68	9.4		0.24
C-D	0.75								
C-A	4.32								
C-B	0.89	9.44	0.094		0.00	0.10	1.5		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	1.69	6.56	0.258		0.23	0.34	4.9		0.20
B-AD	3.97	6.09	0.652		0.96	1.73	23.5		0.45
A-B	1.95								
A-C	4.81								
A-D	1.09	9.97	0.110		0.10	0.12	1.8		0.11
D-A	0.96	7.00	0.137		0.11	0.16	2.3		0.17
D-BC	3.37	6.26	0.539		0.68	1.12	15.6		0.34
C-D	0.90								
C-A	5.15								
C-B	1.06	8.98	0.118		0.10	0.13	2.0		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	2.07	3.24	0.639		0.34	1.55	19.6		0.76
B-AD	4.86	5.29	0.919		1.73	5.76	64.9		1.15
A-B	2.39								
A-C	5.89								
A-D	1.34	9.27	0.144		0.12	0.17	2.4		0.13
D-A	1.17	4.71	0.249		0.16	0.32	4.6		0.28
D-BC	4.13	5.38	0.767		1.12	2.77	35.1		0.68
C-D	1.10								
C-A	6.31								
C-B	1.30	8.35	0.156		0.13	0.18	2.7		0.14

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	2.07	2.22	0.934		1.55	4.46	49.5		2.07
B-AD	4.86	5.26	0.925		5.76	7.26	98.9		1.60
A-B	2.39								
A-C	5.89								
A-D	1.34	9.19	0.146		0.17	0.17	2.5		0.13
D-A	1.17	4.36	0.269		0.32	0.36	5.3		0.31
D-BC	4.13	5.34	0.773		2.77	3.05	44.0		0.79
C-D	1.10								
C-A	6.31								
C-B	1.30	8.32	0.157		0.18	0.18	2.8		0.14

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	1.69	6.02	0.281		4.46	0.40	8.9		0.26
B-AD	3.97	6.05	0.656		7.26	2.09	43.3		0.66
A-B	1.95								
A-C	4.81								
A-D	1.09	9.84	0.111		0.17	0.13	1.9		0.11
D-A	0.96	6.75	0.142		0.36	0.17	2.6		0.17
D-BC	3.37	6.19	0.545		3.05	1.26	21.3		0.39
C-D	0.90								
C-A	5.15								
C-B	1.06	8.94	0.119		0.18	0.14	2.1		0.13

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	1.42	7.53	0.188		0.40	0.24	3.7		0.16
B-AD	3.33	6.64	0.501		2.09	1.04	17.0		0.31
A-B	1.63								
A-C	4.03								
A-D	0.92	10.44	0.088		0.13	0.10	1.5		0.11
D-A	0.80	7.86	0.102		0.17	0.11	1.8		0.14
D-BC	2.82	6.86	0.411		1.26	0.72	11.4		0.25
C-D	0.75								
C-A	4.32								
C-B	0.89	9.42	0.095		0.14	0.11	1.6		0.12

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.2	
08.00	0.3	
08.15	1.6	**
08.30	4.5	****
08.45	0.4	
09.00	0.2	

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	1.0	*
08.00	1.7	**
08.15	5.8	*****
08.30	7.3	*****
08.45	2.1	**
09.00	1.0	*

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
07.45	0.1	
08.00	0.1	
08.15	0.2	
08.30	0.2	
08.45	0.1	
09.00	0.1	

QUEUE FOR STREAM		D-A
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.1	
08.00	0.2	
08.15	0.3	
08.30	0.4	
08.45	0.2	
09.00	0.1	

QUEUE FOR STREAM		D-BC
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.7	*
08.00	1.1	*
08.15	2.8	***
08.30	3.1	***
08.45	1.3	*
09.00	0.7	*

QUEUE FOR STREAM		C-B
TIME	NO. OF	
SEGMENT	VEHICLES	
ENDING	IN QUEUE	
07.45	0.1	
08.00	0.1	
08.15	0.2	
08.30	0.2	
08.45	0.1	
09.00	0.1	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
		(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
I	B-C	I 155.5	I 103.7	I 89.9	I 0.58	I 89.9	I 0.58
I	B-AD	I 364.8	I 243.2	I 260.7	I 0.71	I 260.8	I 0.72
I	A-B	I 178.9	I 119.3	I	I	I	I
I	A-C	I 441.8	I 294.6	I	I	I	I
I	A-D	I 100.5	I 67.0	I 11.6	I 0.12	I 11.6	I 0.12
I	D-A	I 88.1	I 58.7	I 18.2	I 0.21	I 18.2	I 0.21
I	D-BC	I 309.7	I 206.5	I 136.9	I 0.44	I 136.9	I 0.44
I	C-D	I 82.6	I 55.1	I	I	I	I
I	C-A	I 473.5	I 315.7	I	I	I	I
I	C-B	I 97.7	I 65.2	I 12.6	I 0.13	I 12.6	I 0.13
I	ALL	I 2293.1	I 1528.8	I 529.9	I 0.23	I 530.0	I 0.23

* 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)

B-C Stream

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

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

B-AD Stream

I	Intercept For I STREAM B-AD	Slope For STREAM A-C	Slope For STREAM A-D	Slope For STREAM D-A	Slope For STREAM D-B	I
I	0.00	0.00	0.00	0.00	0.00	I

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
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)
16.30-16.45									
B-C	1.73	8.37	0.207		0.00	0.26	3.7		0.15
B-AD	2.75	6.71	0.410		0.00	0.67	9.4		0.25
A-B	1.67								
A-C	2.67								
A-D	1.14	10.65	0.107		0.00	0.12	1.7		0.10
D-A	0.64	7.81	0.082		0.00	0.09	1.3		0.14
D-BC	3.11	7.18	0.433		0.00	0.74	10.4		0.24
C-D	0.60								
C-A	4.49								
C-B	0.99	9.72	0.102		0.00	0.11	1.6		0.11

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	2.07	7.69	0.269		0.26	0.36	5.3		0.18
B-AD	3.28	6.20	0.530		0.67	1.08	15.1		0.34
A-B	1.99								
A-C	3.19								
A-D	1.36	10.17	0.134		0.12	0.15	2.3		0.11
D-A	0.76	6.82	0.112		0.09	0.12	1.8		0.16
D-BC	3.72	6.59	0.563		0.74	1.23	17.1		0.34
C-D	0.72								
C-A	5.36								
C-B	1.18	9.32	0.127		0.11	0.14	2.1		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	2.53	6.17	0.411		0.36	0.68	9.6		0.27
B-AD	4.02	5.47	0.734		1.08	2.41	31.2		0.61
A-B	2.44								
A-C	3.91								
A-D	1.67	9.53	0.175		0.15	0.21	3.1		0.13
D-A	0.94	4.38	0.214		0.12	0.27	3.8		0.29
D-BC	4.55	5.79	0.786		1.23	3.05	38.5		0.68
C-D	0.88								
C-A	6.57								
C-B	1.45	8.76	0.165		0.14	0.20	2.9		0.14

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	2.53	5.98	0.423		0.68	0.72	10.6		0.29
B-AD	4.02	5.45	0.738		2.41	2.59	37.8		0.68
A-B	2.44								
A-C	3.91								
A-D	1.67	9.50	0.176		0.21	0.21	3.2		0.13
D-A	0.94	4.07	0.230		0.27	0.29	4.3		0.32
D-BC	4.55	5.77	0.789		3.05	3.33	48.3		0.78
C-D	0.88								
C-A	6.57								
C-B	1.45	8.73	0.166		0.20	0.20	3.0		0.14

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)
17.30-17.45									
B-C	2.07	7.56	0.273		0.72	0.38	6.0		0.18
B-AD	3.28	6.16	0.532		2.59	1.19	19.8		0.37
A-B	1.99								
A-C	3.19								
A-D	1.36	10.13	0.135		0.21	0.16	2.4		0.11
D-A	0.76	6.60	0.116		0.29	0.13	2.1		0.17
D-BC	3.72	6.57	0.565		3.33	1.37	23.2		0.38
C-D	0.72								
C-A	5.36								
C-B	1.18	9.27	0.128		0.20	0.15	2.3		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	1.73	8.32	0.208		0.38	0.27	4.1		0.15
B-AD	2.75	6.69	0.411		1.19	0.72	11.4		0.26
A-B	1.67								
A-C	2.67								
A-D	1.14	10.62	0.107		0.16	0.12	1.9		0.11
D-A	0.64	7.74	0.083		0.13	0.09	1.4		0.14
D-BC	3.11	7.16	0.434		1.37	0.79	12.6		0.25
C-D	0.60								
C-A	4.49								
C-B	0.99	9.70	0.102		0.15	0.11	1.8		0.11

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.3
17.00	0.4
17.15	0.7 *
17.30	0.7 *
17.45	0.4
18.00	0.3

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.7 *
17.00	1.1 *
17.15	2.4 **
17.30	2.6 ***
17.45	1.2 *
18.00	0.7 *

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.2
17.15	0.2
17.30	0.2
17.45	0.2
18.00	0.1

QUEUE FOR STREAM D-A	
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.1
17.15	0.3
17.30	0.3
17.45	0.1
18.00	0.1

QUEUE FOR STREAM D-BC	
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.7 *
17.00	1.2 *
17.15	3.1 ***
17.30	3.3 ***
17.45	1.4 *
18.00	0.8 *

QUEUE FOR STREAM C-B	
TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
16.45	0.1
17.00	0.1
17.15	0.2
17.30	0.2
17.45	0.1
18.00	0.1

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

I	STREAM	I	TOTAL DEMAND	I	* QUEUEING *	I	* INCLUSIVE QUEUEING *	I
I		I		I	* DELAY *	I	* DELAY *	I
I		I	(VEH)	I	(VEH/H)	I	(MIN)	I
I		I		I	(MIN/VEH)	I	(MIN)	I
I	B-C	I	189.9	I	126.6	I	39.2	I
I	B-AD	I	301.4	I	201.0	I	124.7	I
I	A-B	I	183.1	I	122.0	I		I
I	A-C	I	293.2	I	195.5	I		I
I	A-D	I	125.3	I	83.5	I	14.5	I
I	D-A	I	70.2	I	46.8	I	14.6	I
I	D-BC	I	341.4	I	227.6	I	150.1	I
I	C-D	I	66.1	I	44.0	I		I
I	C-A	I	492.8	I	328.5	I		I
I	C-B	I	108.7	I	72.5	I	13.6	I
I	ALL	I	2172.0	I	1448.0	I	356.8	I
							0.16	
							356.9	
							0.16	

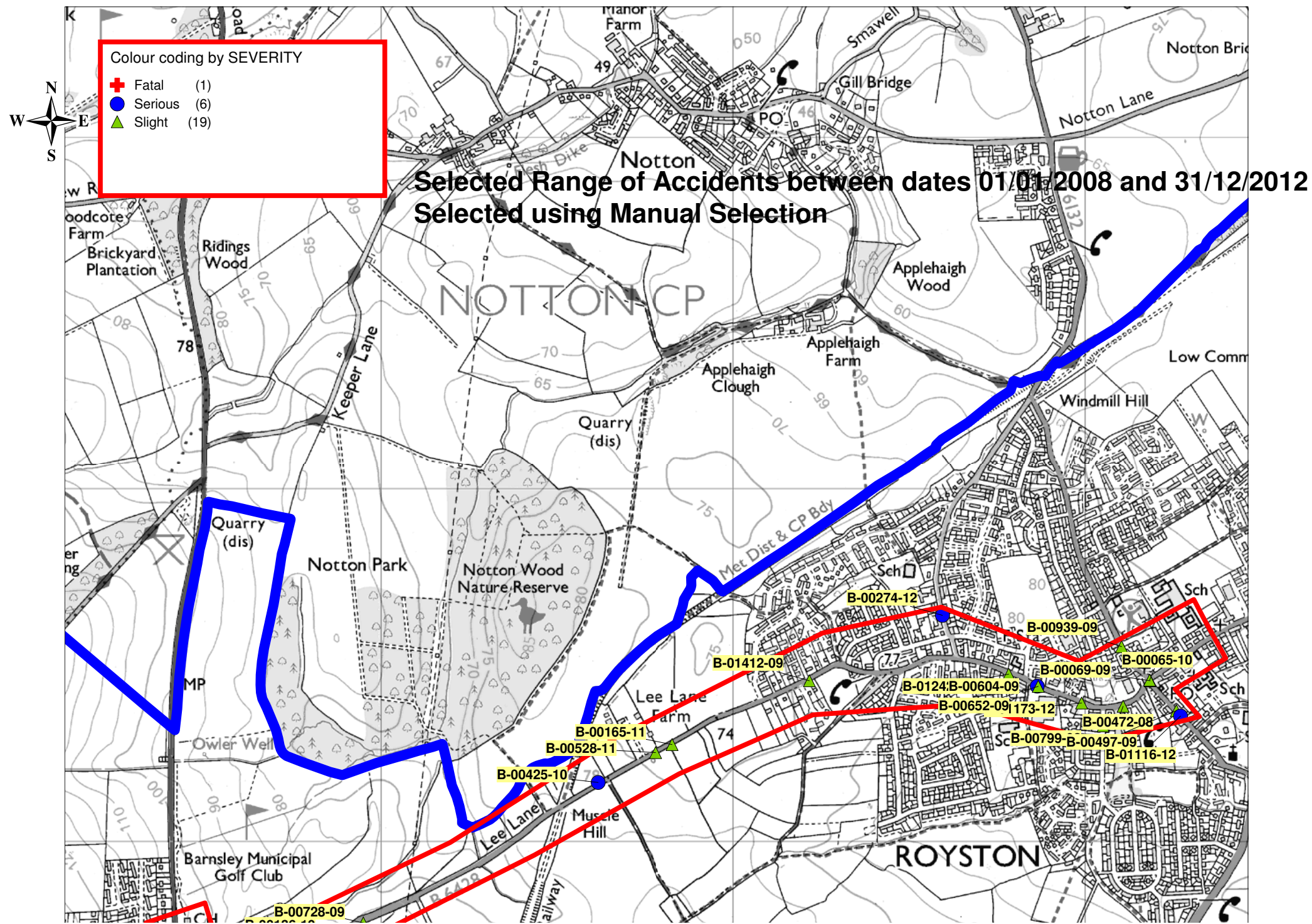
* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
 * INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES
 WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
 * THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS
 A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

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

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

APPENDIX 5

Personal Injury Data





**MAKING SOUTH YORKSHIRE
ROADS SAFER**

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Selected map area

SCALE

1 : 13500

DATE

21/11/2013

DRWG No.

DRN BY

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection:
Selected using Build Query : Local_auth = 'BARNSELEY' Notes:
Croft Transport Solutions

B-00035-08 02/01/2008 Wednesday Time:1108 Vehicles 2 Casualties 2 Slight
Easting: 433,872 Northing: 410,725
Other Road Surface:Wet/Damp Daylight: no street lighting
Road Type: Single carriageway Speed Limit: 60

Location: LEE LN ROYSTON 400 MTS FROM WAKEFIELD RD
Description:V2 WAS STATIONARY WHEN V1 APPROACHED AND FAILED TO STOP IN TIME
COLLIDING WITH REAR OF V2, ROAD CONDITIONS WET WITH DIESEL SPILLAGE.

Vehicle Reference1 Car Going ahead
First point of impact:Front
Vehicle direction: E to W Journey: Journey as part of work
Age of Driver : 46 Breath test:Not applicable

Contributory Factors : 102 103 104 307 703

Casualty Reference 1 Age:46 Male Driver/rider Severity:Slight
Ped Dir: Ped Movement :
Ped Location:

Vehicle Reference2 Van or Goods <= 3.5 tonnes mParked
First point of impact:Back
Vehicle direction:Parked to Parked Journey: Journey as part of work
Age of Driver : 48 Breath test:Not applicable

Contributory Factors : 102 103 104 307 703

Casualty Reference 2 Age:48 Male Driver/rider Severity:Slight
Ped Dir: Ped Movement :
Ped Location:

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00472-08 11/04/2008 Friday Time:1600 Vehicles 2 Casualties 1 Slight

Easting: 436,109 Northing: 411,384

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

Road Type: Single carriageway Speed Limit: 30

Location: HIGH ST ROYSTON

Description:V1 EMERGED FROM A LAY BY AND WAS HIT ON THE OFF SIDE BY V2 WHICH
THEN LEFT THE SCENE

Vehicle Reference1 Car

Moving off

First point of impact:Offside

Vehicle direction:Parked to Parked

Journey: Not known

Age of Driver : 18

Breath test:Not applicable

Contributory Factors : 405

Casualty Reference 1 Age:18 Female Driver/rider Severity:Slight

Ped Dir: Ped Movement :

Ped Location:

Vehicle Reference2 Car

Going ahead

First point of impact:Front

Vehicle direction:Parked to Parked

Journey: Not known

Age of Driver :

Breath test:Not applicable

Contributory Factors : 405

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00799-08 02/07/2008 Wednesday Time:1530 Vehicles 1 Casualties 1 Slight
Easting: 436,052 Northing: 411,328
Fine without high winds Road Surface:Dry Daylight:street lights present
Road Type: Single carriageway Speed Limit: 30

Location: REDWOOD AVE ROYSTON 40 MTS FROM HIGH ST

Description:BOYS PLAYING AND AS VEH PASSED THEM ONE OF THEM HIT VEH.

Vehicle Reference1 Car

Going ahead

First point of impact:Nearside

Vehicle direction: S to N

Journey: Taking pupil to/from school

Age of Driver : 41

Breath test:Not applicable

Contributory Factors : 805

Casualty Reference 1 Age:11 Male Pedestrian Severity:Slight

Ped Dir:Pedestrian Dir Ped Movement : Movement U/K

Ped Location:Location U/K

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-01626-08 28/12/2008 Sunday Time:1255 Vehicles 2 Casualties 6 Serious
Easting: 433,485 Northing: 410,561
Fine without high winds Road Surface:Dry Daylight:street lights present
Road Type: Single carriageway Speed Limit: 40

Location: WAKEFIELD RD BARNSELEY J/W SHAW LN

Description:V1 TV A61 TW WAKEFIELD. V2 PULLING OUT OF JCT OF SHAW LN, TURNING R
ONTO A61. FOR SOME REASON V2 STOPPED IN THE JCT & V1 THEN COLL WITH
V2.

Vehicle Reference1 Car

Going ahead

First point of impact:Front

Vehicle direction:Parked to Parked

Journey: Not known

Age of Driver : 22

Breath test:Not applicable

Contributory Factors : 402 406 306

Casualty Reference 1 Age:0 Female Passenger Severity:Slight

Ped Dir: Ped Movement :

Ped Location:

Casualty Reference 5 Age:22 Male Driver/rider Severity:Slight

Ped Dir: Ped Movement :

Ped Location:

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Selected using Build Query : Local_auth = 'BARNSELEY'

Notes:

Croft Transport Solutions

Vehicle Reference2 Car

Turning right

First point of impact:Offside

Vehicle direction:Parked to Parked

Journey: Not known

Age of Driver : 49

Breath test:Not applicable

Contributory Factors : 402 406 306

Casualty Reference2 Age:45 Female Passenger Severity:Serious

Ped Dir: Ped Movement :

Ped Location:

Casualty Reference3 Age:16 Female Passenger Severity:Slight

Ped Dir: Ped Movement :

Ped Location:

Casualty Reference4 Age:11 Male Passenger Severity:Slight

Ped Dir: Ped Movement :

Ped Location:

Casualty Reference6 Age:49 Male Driver/rider Severity:Slight

Ped Dir: Ped Movement :

Ped Location:

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection: Notes:
Selected using Build Query : Local_auth = 'BARNSELEY' Croft Transport Solutions

B-00069-09 16/01/2009 Friday Time:1138 Vehicles 2 Casualties 2 Slight
Easting: 436,186 Northing: 411,456
Fine without high winds Road Surface:Dry Daylight:street lights present
Road Type: Single carriageway Speed Limit: 30

Location: STATION RD ROYSTON J/W MIDLAND RD
Description:V2 TV DOWN STATION RD & WAS TV THROUGH TRAFFIC LIGHT CONTROLLED
JCT WHEN V1 (TV OPP DIRC) TURNED R ACROSS PATH OF V2 & COLL
OCCURRED.

Vehicle Reference1 Car Turning right
First point of impact:Front
Vehicle direction: S to E Journey: Not known
Age of Driver : 47 Breath test:Not applicable

Contributory Factors : 406 405

Casualty Reference 1 Age:47 Male Driver/rider Severity:Slight
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

Vehicle Reference2 Car Going ahead
First point of impact:Front
Vehicle direction: N to S Journey: Not known
Age of Driver : 35 Breath test:Not applicable

Contributory Factors : 406 405

Casualty Reference 2 Age:35 Female Driver/rider Severity:Slight
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00244-09 25/02/2009 Wednesday Time:2220 Vehicles 1 Casualties 1 Slight

Easting: 433,674 Northing: 410,329

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

Road Type: Single carriageway Speed Limit: 40

Location: WAKEFIELD RD BARNSELEY 30M SOUTH PADDOCK ROAD

Description:DRIVER LOST CONTROL LEAVING CARR, ENTERING FIELD, COLLIDING WITH
FENCE POST AND OVERTURNS

Vehicle Reference1 Car

Going ahead

First point of impact:Front

Vehicle direction: N to S

Journey: Not known

Age of Driver : 17

Breath test:Not applicable

Contributory Factors : 410

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

Ped Dir:Pedestrian Di Ped Movement : Not pedestrian

Ped Location:

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00497-09 09/05/2009 Saturday Time:0815 Vehicles 2 Casualties 1 Slight
 Easting: 436,260 Northing: 411,371
 Fine without high winds Road Surface:Dry Daylight:street lights present
 Road Type: Single carriageway Speed Limit: 30

Location: CHURCH ST ROYSTON

Description:BOTH VEHS TV ALONG CHURCH ST. V1 BRAKED TO ALLOW RIGHT OF WAY TO
 ONCOMING VEH DUE TO PARKED CAR. V2 BRAKED BUT COLL WOTH REAR OF
 V1

Vehicle Reference1 Car Waiting to go ahead but held up
 First point of impact:Back
 Vehicle direction:Parked to Parked Journey: Not known
 Age of Driver : 18 Breath test:Not applicable

Contributory Factors : 406

Casualty Reference 1 Age:18 Female Driver/rider Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian

Ped Location:

Vehicle Reference2 Van or Goods <= 3.5 tonnes m Going ahead

First point of impact:Front

Vehicle direction:Parked to Parked

Journey: Not known

Age of Driver : 20

Breath test:Not applicable

Contributory Factors : 406

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00604-09 04/06/2009 Thursday Time:1237 Vehicles 1 Casualties 2 Serious
Easting: 435,865 Northing: 411,441
Fine without high winds Road Surface:Dry Daylight:street lights present
Road Type: Single carriageway Speed Limit: 30

Location: HIGH ST ROYSTON

Description:V1 TV ALONG HIGH ST TW ROYSTON CENTRE. V1 COLL WITH TWO PED XING
FROM N/S .

Vehicle Reference1 Car Going ahead
First point of impact:Front
Vehicle direction: W to E Journey: Commuting to/from work
Age of Driver : 51 Breath test:Not applicable

Contributory Factors : 802 803 802 803

Casualty Reference 1 Age:70 Male Pedestrian Severity:Serious
Ped Dir:Pedestrian Dii Ped Movement : Movement U/K
Ped Location:In carr elsewhere

Casualty Reference 2 Age:68 Female Pedestrian Severity:Serious
Ped Dir:Pedestrian Dii Ped Movement : Movement U/K
Ped Location:In carr elsewhere

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Selected using Build Query : Local_auth = 'BARNSELEY'

Notes:

Croft Transport Solutions

B-00652-09 16/06/2009 Tuesday Time:1900 Vehicles 2 Casualties 2 Slight
Easting: 435,868 Northing: 411,440
Fine without high winds Road Surface:Dry Daylight: no street lighting
Road Type: Single carriageway Speed Limit: 30

Location: HIGH ST ROYSTON

Description:V2 BRAKED BUT V1 FOLLOWING COLL WITH REAR OF V1.

Vehicle Reference1 Motorcycle 50cc and under Going ahead

First point of impact:Back

Vehicle direction:Parked to Parked

Journey: Not known

Age of Driver : 16

Breath test:Not applicable

Contributory Factors : 102 408

Casualty Reference 1 Age:16 Male Driver/rider Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian

Ped Location:

Vehicle Reference2 Car

Slowing or Stopping

First point of impact:Back

Vehicle direction:Parked to Parked

Journey: Not known

Age of Driver :

Breath test:Not applicable

Contributory Factors : 102 408

Casualty Reference 2 Age:25 Female Passenger Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian

Ped Location:

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00728-09 04/07/2009 Saturday Time:1359 Vehicles 3 Casualties 2 Slight
 Easting: 433,951 Northing: 410,768
 Fine without high winds Road Surface:Dry Daylight:street lights present
 Road Type: Single carriageway Speed Limit: 60

Location: LEE LN ROYSTON

Description:V1 TV ALONG LEE LN TW ROYSTON. V1 O/T A VEH THEN BRAKES & LOOSES
 CONTROL OF VEH. RIDER FELL OFF M/BIKE INTO KERB & SHRUBBERY. THE
 BIKE THEN SLID ACROSS THE RD & STRUCK V2 TV IN OPP DIRC.V3 TV SAME
 DIRC AS V2, V3 BRAKED DUE TO BUILD UP OF TF, LOST CONTROL

Vehicle Reference1 Motorcycle over 125cc and upOvertaking moving vehicle on its offside

First point of impact:Nearside

Vehicle direction: SW to NE

Journey: Not known

Age of Driver : 43

Breath test:Not applicable

Contributory Factors : 802

Casualty Reference 1 Age:43 Male Driver/rider Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian

Ped Location:

Vehicle Reference2 Car

Going ahead

First point of impact:Nearside

Vehicle direction: NE to SW

Journey: Not known

Age of Driver : 67

Breath test:Not applicable

Contributory Factors : 802

Vehicle Reference3 Car

Going ahead

First point of impact:Front

Vehicle direction: NE to SW

Journey: Not known

Age of Driver : 26

Breath test:Not applicable

Contributory Factors : 802

Casualty Reference 2 Age:26 Female Driver/rider Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian

Ped Location:

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection: Notes:
Selected using Build Query : Local_auth = 'BARNSELEY' Croft Transport Solutions

B-00939-09 07/09/2009 Monday Time:1230 Vehicles 2 Casualties 2 Slight
Easting: 436,104 Northing: 411,553
Fine without high winds Road Surface:Dry Daylight:street lights present
Road Type: Single carriageway Speed Limit: 30

Location: STATION RD ROYSTON J/W WELL HILL GR
Description:V2 TV ALONG STATION RD FOLLOWED BY V1. V2 SLOWED DOWN & INDICATED
TO TURN ONTO WELL HILL GR & V1 COLL WITH REAR OF V1.

Vehicle Reference1 Car Turning right
First point of impact:Back
Vehicle direction:Parked to Parked Journey: Not known
Age of Driver : 31 Breath test:Not applicable

Contributory Factors : 404 406

Casualty Reference 1 Age:28 Female Passenger Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

Vehicle Reference2 Car Going ahead
First point of impact:Front
Vehicle direction:Parked to Parked Journey: Not known
Age of Driver : 36 Breath test:Not applicable

Contributory Factors : 404 406

Casualty Reference 2 Age:36 Male Driver/rider Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection:
Selected using Build Query : Local_auth = 'BARNSELEY' Notes:
Croft Transport Solutions

B-01412-09 13/12/2009 Sunday Time:1320 Vehicles 2 Casualties 3 Slight
Easting: 435,218 Northing: 411,456
Fine without high winds Road Surface:Wet/Damp Daylight:street lights present
Road Type: Single carriageway Speed Limit: 30

Location: LEE LN ROYSTON 30 MTS FROM HENDERSON GLEN
Description:DRIVER OF V2 HAS LOST CONTROL AND VEERED ONTO OPP CARR COLLIDING
WITH V1

Vehicle Reference1 Car Going ahead
First point of impact:Front
Vehicle direction: NE to SW Journey: Not known
Age of Driver : 45 Breath test:Not applicable

Contributory Factors : 405 406 410

Casualty Reference 1 Age:45 Male Driver/rider Severity:Slight
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

Vehicle Reference2 Car Going ahead
First point of impact:Front
Vehicle direction: SW to NE Journey: Not known
Age of Driver : 18 Breath test:Not applicable

Contributory Factors : 405 406 410

Casualty Reference 2 Age: Male Passenger Severity:Slight
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

Casualty Reference 3 Age:18 Male Driver/rider Severity:Slight
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00065-10 17/01/2010 Sunday Time:1930 Vehicles 2 Casualties 2 Slight

Easting: 436,184 Northing: 411,458

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

Road Type: Single carriageway Speed Limit: 30

Location: STATION RD ROYSTON AT J/W MIDLAND RD

Description:V2 TURNED RGT IN FRONT OF V1 AND COLL OCC CAUSING V1 TO COLL WITH BUILDING.

Vehicle Reference1 Car

Going ahead

First point of impact:Front

Vehicle direction: N to S

Journey: Not known

Age of Driver : 50

Breath test:Not applicable

Contributory Factors : 403 406 605

Vehicle Reference2 Car

Turning right

First point of impact:Nearside

Vehicle direction: S to E

Journey: Not known

Age of Driver : 19

Breath test:Not applicable

Contributory Factors : 403 406 605

Casualty Reference 1 Age:14 Female Passenger

Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian

Ped Location:

Casualty Reference 2 Age:15 Female Passenger

Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian

Ped Location:

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection: Notes:
Selected using Build Query : Local_auth = 'BARNSELEY' Croft Transport Solutions

B-00136-10 24/01/2010 Sunday Time:1916 Vehicles 2 Casualties 3 Fatal
Easting: 433,886 Northing: 410,733
Fine without high winds Road Surface:Wet/Damp Darkness: no street lighting
Road Type: Single carriageway Speed Limit: 30

Location: LEE LANE BARNSELEY 1/2 MILE N WAKEFIELD ROAD
Description:VEH 1 TRAVELLING TOWARDS WAKEFIELD ROAD. VEH HAS CROSSED CENTRE
WHITE LINE AND THE FRONT OFFSIDE OF VEHICLE HAS COLLIDED WITH THE
FRONT OFFSIDE OF VEH 2 TRAVELLING IN THE OPP DIRECTION.

Vehicle Reference1 Car Going ahead
First point of impact:Front
Vehicle direction: E to W Journey: Not known
Age of Driver : 23 Breath test:Not applicable

Contributory Factors : 601

Casualty Reference 1 Age:23 Male Driver/rider Severity:Fatal
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

Casualty Reference 2 Age:16 Female Passenger Severity:Serious
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

Vehicle Reference2 Car Going ahead
First point of impact:Front
Vehicle direction: W to E Journey: Not known
Age of Driver : 22 Breath test:Not applicable

Contributory Factors : 601

Casualty Reference 3 Age:22 Female Driver/rider Severity:Slight
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00425-10 09/04/2010 Friday Time:1912 Vehicles 1 Casualties 2 Serious
Easting: 434,618 Northing: 411,167
Fine without high winds Road Surface:Dry Daylight: no street lighting
Road Type: Single carriageway Speed Limit: 60

Location: LEE LANE ROYSTON

Description:V1 TV ALONG LEE LN TW ROYSTON WHEN DRIVER LOST CONTROL & VEERED
TO N/S & LEFT C/WAY INTO FIELD.

Vehicle Reference1 Car Going ahead
First point of impact:Front
Vehicle direction: S to N Journey: Not known
Age of Driver : 24 Breath test:Not applicable

Contributory Factors : 306 409 601

Casualty Reference 1 Age:24 Male Driver/rider Severity:Slight
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

Casualty Reference 2 Age:33 Female Passenger Severity:Serious
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection: Notes:
Selected using Build Query : Local_auth = 'BARNSELEY' Croft Transport Solutions

B-01209-10 15/11/2010 Monday Time:1828 Vehicles 3 Casualties 1 Slight
Easting: 433,413 Northing: 410,525
Other Road Surface:Wet/Damp Darkness: street lights present and lit
Road Type: Single carriageway Speed Limit: 30

Location: SHAW LN STAINCROSS 1 MT FROM J/W LIMES AVE
Description:V1 & V2 TV UP SHAW LN AWAY FROM WAKEFIELD RD WHEN A TRAILER COLL
WITH V1 & DEBRIS FROM THE TRAILER HIT BONNET OF V2. IT IS BELIEVED
THAT A JEEP(V3) WAS TOWING THE TRAILER, HOWEVER THE JEEP DROVE OFF
IN DIRC OF WAKEFIELD.

Vehicle Reference1 Car Going ahead
First point of impact:Did not impact
Vehicle direction: S to N Journey: Not known
Age of Driver : 17 Breath test:Not applicable

Contributory Factors : 206 999

Casualty Reference 1 Age:17 Male Driver/rider Severity:Slight
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

Vehicle Reference2 Car Going ahead
First point of impact:Front
Vehicle direction: S to N Journey: Not known
Age of Driver : 21 Breath test:Not applicable

Contributory Factors : 206 999

Vehicle Reference3 Car Going ahead
First point of impact:Front
Vehicle direction: N to S Journey: Not known
Age of Driver : Breath test:Not applicable

Contributory Factors : 206 999

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00165-11 17/02/2011 Thursday Time:2109 Vehicles 2 Casualties 1 Slight
 Easting: 434,828 Northing: 411,275
 Fine without high winds Road Surface:Dry Darkness: no street lighting
 Road Type: Single carriageway Speed Limit: 60

Location: LEE LN ROYSTON

Description:V1 TR ALONG CARR COLL WITH V2 THAT WAS STATIONARY ON N/S WITH LGTS AND HAZARDS ILLUMINATED.

Vehicle Reference1 Car Going ahead
 First point of impact:Front
 Vehicle direction: SW to NE Journey: Not known
 Age of Driver : 62 Breath test:Negative

Contributory Factors : 405 506 202 999

Casualty Reference 1 Age:62 Female Driver/rider Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian

Ped Location:

Vehicle Reference2 Car Parked
 First point of impact:Back
 Vehicle direction:Parked to Parked Journey: Not known
 Age of Driver : 40 Breath test:Not requested

Contributory Factors : 405 506 202 999

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00314-11 02/04/2011 Saturday Time:2008 Vehicles 2 Casualties 1 Slight
 Easting: 433,652 Northing: 410,358
 Fine without high winds Road Surface:Dry Darkness: street lights present and lit
 Road Type: Single carriageway Speed Limit: 40

Location: WAKEFIELD RD STAINCROSS J/W PADDOCK RD

Description:V1 TV ALONG A61 WAKEFIELD RD TW STAINCROSS WHEN V2 PULLED OUT OF JCT IN FRONT OF V1 & COLL OCCURRED.

Vehicle Reference1 Car

Going ahead

First point of impact:Front

Vehicle direction: NW to SE

Journey: Commuting to/from work

Age of Driver : 28

Breath test:Negative

Contributory Factors : 405 406

Vehicle Reference2 Car

Moving off

First point of impact:Offside

Vehicle direction: W to E

Journey: Not known

Age of Driver : 81

Breath test:Negative

Contributory Factors : 405 406

Casualty Reference 1 Age:81 Male Driver/rider Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian

Ped Location:

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00528-11 11/06/2011 Saturday Time:1500 Vehicles 3 Casualties 1 Slight
 Easting: 434,781 Northing: 411,252
 Fine without high winds Road Surface:Dry Daylight: no street lighting
 Road Type: Single carriageway Speed Limit: 60

Location: LEE LN BARNSELEY OUTSIDE LEE LANE FARM

Description:3 VEH'S TR IN SAME DIRECTION, V3 BEGINS TO OVERTAKE V2 & V1, V2 BEGINS
 TO OVERTAKE V1 FAILING TO SEE V3 OVERTAKING, COLL OCC CAUSING BOTH
 VEH'S TO SPIN, V2 COLL WITH V1 THEN V2 & V3 LEAVE CARR.

Vehicle Reference1 Car Going ahead
 First point of impact:Back
 Vehicle direction: E to W Journey: Not known
 Age of Driver : 43 Breath test:Negative

Contributory Factors : 405 403

Casualty Reference 1 Age:43 Male Driver/rider Severity:Slight

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian

Ped Location:

Vehicle Reference2 Car Overtaking moving vehicle on its offside
 First point of impact:Front
 Vehicle direction: E to W Journey: Not known
 Age of Driver : 24 Breath test:Negative

Contributory Factors : 405 403

Vehicle Reference3 Car Overtaking moving vehicle on its offside
 First point of impact:Front
 Vehicle direction: E to W Journey: Not known
 Age of Driver : 24 Breath test:Negative

Contributory Factors : 405 403

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Selected using Build Query : Local_auth = 'BARNSELEY'

Notes:

Croft Transport Solutions

B-00572-11 21/06/2011 Tuesday Time:1113 Vehicles 2 Casualties 2 Slight
Easting: 433,421 Northing: 410,715
Fine without high winds Road Surface:Dry Daylight:street lights present
Road Type: Single carriageway Speed Limit: 40

Location: WAKEFIELD RD BARNSELEY AT J/W THE LIMES

Description:V2 SLOWED DOWN TO TURN RGT BUT V1 FOLLOWING FAILED TO REACT IN
TIME AND COLL WITH REAR OF V2.

Vehicle Reference1 Car Going ahead
First point of impact:Front
Vehicle direction: S to N Journey: Not known
Age of Driver : 25 Breath test:Negative

Contributory Factors : 308 405 509

Vehicle Reference2 Car Waiting to turn right
First point of impact:Back
Vehicle direction: S to E Journey: Not known
Age of Driver : 18 Breath test:Negative

Contributory Factors : 308 405 509

Casualty Reference 1 Age:18 Male Driver/rider Severity:Slight
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

Casualty Reference 2 Age:19 Female Passenger Severity:Slight
Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian
Ped Location:

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00653-11 13/07/2011 Wednesday Time:1520 Vehicles 2 Casualties 1 Slight
 Easting: 433,654 Northing: 410,356
 Fine without high winds Road Surface:Dry Daylight:street lights present
 Road Type: Single carriageway Speed Limit: 40

Location: WAKEFIELD RD BARNSELEY AT J/W PADDOCK RD
 Description:V1 EMERGED FROM JCT INTO PATH OF V2 AND COLL OCC.

Vehicle Reference1 Car Turning right
 First point of impact:Offside
 Vehicle direction: W to S Journey: Commuting to/from work
 Age of Driver : 57 Breath test:Negative

Contributory Factors : 405

Vehicle Reference2 Motorcycle over 50cc and up to 60cc Going ahead
 First point of impact:Front
 Vehicle direction: S to N Journey: Commuting to/from work
 Age of Driver : 34 Breath test:Not provided (medical)

Contributory Factors : 405

Casualty Reference 1 Age:34 Male Driver/rider Severity:Slight
 Ped Dir:Pedestrian Dir Ped Movement : Not pedestrian
 Ped Location:

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection:
Selected using Build Query : Local_auth = 'BARNSELEY'
Notes:
Croft Transport Solutions

B-01242-11 19/12/2011 Monday Time:1016 Vehicles 2 Casualties 2 Slight
Easting: 435,784 Northing: 411,475
Raining without high winds Road Surface:Wet/Damp Daylight: no street lighting
Road Type: Single carriageway Speed Limit: 30

Location: HIGH ST ROYSTON AT J/W MEADSTEAD DR
Description:V1 EMERGED FROM MEADSTEAD DR INTENDING TO TN RGT, V2 TR ALONG
HIGH ST AND COLL WITH SIDE OF V1.

Vehicle Reference1 Car Moving off
First point of impact:Front
Vehicle direction: N to S Journey: Journey as part of work
Age of Driver : 53 Breath test:Negative

Contributory Factors : 402 406 602

Casualty Reference 1 Age:53 Male Driver/rider Severity:Slight
Ped Dir: Ped Movement :
Ped Location:

Vehicle Reference2 Car Going ahead
First point of impact:Front
Vehicle direction: W to E Journey: Not known
Age of Driver : 25 Breath test:Negative

Contributory Factors : 402 406 602

Casualty Reference 2 Age:25 Male Driver/rider Severity:Slight
Ped Dir: Ped Movement :
Ped Location:

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-00274-12 23/03/2012 Friday Time:0900 Vehicles 2 Casualties 1 Serious
Easting: 435,596 Northing: 411,642
Fine without high winds Road Surface:Dry Daylight:street lights present
Road Type: Single carriageway Speed Limit: 30

Location: SUMMER LN ROYSTON

Description:CHILD ON BICYCLE WOBBLED INTO CARR AND COLL WITH LORRY.

Vehicle Reference1 Goods >= 7.5 tonnes mgw Moving off

First point of impact:Nearside

Vehicle direction: S to N

Journey: Journey as part of work

Age of Driver : 49

Breath test:Negative

Contributory Factors : 808

Vehicle Reference2 Pedal cycle

Going ahead

First point of impact:Did not impact

Vehicle direction: S to N

Journey: Not known

Age of Driver : 7

Breath test:Not requested

Contributory Factors : 808

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

Ped Dir:Pedestrian Dir Ped Movement : Not pedestrian

Ped Location:

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-01010-12 08/11/2012 Thursday Time:0432 Vehicles 1 Casualties 1 Serious

Easting: 433,652 Northing: 410,612

Fine without high winds Road Surface:Wet/Damp Darkness: no street lighting

Road Type: Single carriageway Speed Limit: 60

Location: LEE LN ROYSTON 150 MTS FROM WAKEFIELD RD

Description:PED IN DRINK RAN OUT INTO PATH OF VEH AND COLL OCC.

Vehicle Reference1 Goods between 3.5 and 7.5 to6Going ahead

First point of impact:Nearside

Vehicle direction: SW to NE

Journey: Commuting to/from work

Age of Driver : 46

Breath test:Negative

Contributory Factors : 802 806 809

Casualty Reference 1 Age:24 Male Pedestrian Severity:Serious

Ped Dir:Pedestrian Dir Ped Movement : Driver's offside

Ped Location:In carr elsewhere

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-01116-12 29/11/2012 Thursday Time:1845 Vehicles 2 Casualties 1 Serious

Easting: 436,272 Northing: 411,356

Fine without high winds Road Surface:Frost/Ice Darkness: street lights present and lit

Road Type: Single carriageway Speed Limit: 30

Location: CHURCH ST ROYSTON BARNSELEY

Description:VH1 M/CAR SETS OFF FRM PKD POSITION TRV SE ON CHURCH ST APPROX 20
YDS & TURNS R INTO CAR PK & COLL VH2 M/CYC ATTEMPTING TO OVTK VH1

Vehicle Reference1 Car

Turning right

First point of impact:Offside

Vehicle direction: NW to SE

Journey: Not known

Age of Driver : 18

Breath test:Not requested

Contributory Factors : 405

Vehicle Reference2 Motorcycle over 50cc and up to 60cc Going ahead

First point of impact:Front

Vehicle direction: NW to SE

Journey: Not known

Age of Driver : 20

Breath test:Not requested

Contributory Factors : 405

Casualty Reference 1 Age:20 Male Driver/rider Severity:Serious

Ped Dir:Pedestrian Dii Ped Movement : Not pedestrian

Ped Location:

AccsMap - Accident Analysis System

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection:

Notes:

Selected using Build Query : Local_auth = 'BARNSELEY'

Croft Transport Solutions

B-01173-12 19/12/2012 Wednesday Time:1250 Vehicles 1 Casualties 1 Slight

Easting: 435,991 Northing: 411,393

Raining without high winds Road Surface:Wet/Damp Daylight:street lights present

Road Type: Single carriageway Speed Limit: 30

Location: O/SIDE ALEXANDRA PUB HIGH ST ROYSTON

Description:AS BUS MOVED OFF PASSENGER FELL

Vehicle Reference1 Bus or coach

Slowing or Stopping

First point of impact:Did not impact

Vehicle direction: E to W

Journey: Journey as part of work

Age of Driver : 45

Breath test:Not requested

Contributory Factors : 602

Casualty Reference 1 Age:70 Female Passenger Severity:Slight

Ped Dir:Pedestrian Dir Ped Movement : Not pedestrian

Ped Location:

Accidents involving:

Casualties:

	Fatal	Serious	Slight	Total
Motor vehicles only excluding 2-wheels	1	4	16	21
2-wheeled motor vehicles	0	1	3	4
Pedal cycles	0	1	0	1
Horses & other	0	0	0	0
Total	1	6	19	26

	Fatal	Serious	Slight	Total
Vehicle driver	1	0	22	23
Passenger	0	3	10	13
Motorcycle rider	0	1	3	4
Cyclist	0	1	0	1
Pedestrian	0	3	1	4
Other	0	0	0	0
Total	1	8	36	45

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection: Notes:
Selected using Build Query : Local_auth = 'BARNSELEY' Croft Transport Solutions

Police Ref.	Acc Class	Date	Time	Grid References	Casualties			Causation Factors/ Prob	Ped			Light	Weather	Road Surface	Vehicle Types
					Ftl	Ser	SlT		L	M	D				
B-00035-08	Slight	02/01/2008	1108	433872 410725	0	0	2	102V1A 103V1A 104V2B 307V1A 703V1A	0	0	0	Light	Other	Wet/Damp	19 9
B-00472-08	Slight	11/04/2008	1600	436109 411384	0	0	1	405V1B	0	0	0	Dark	Raining without high winds	Wet/Damp	9 9
B-00799-08	Slight	02/07/2008	1530	436052 411328	0	0	1	805C1A	10	9	5	Light	Fine without high winds	Dry	9
B-01626-08	Serious	28/12/2008	1255	433485 410561	0	1	5	402V2B 406V2B 306V1B	0	0	0	Light	Fine without high winds	Dry	9 9
B-00069-09	Slight	16/01/2009	1138	436186 411456	0	0	2	406V1A 405V1A	0	0	0	Light	Fine without high winds	Dry	9 9
B-00244-09	Slight	25/02/2009	2220	433674 410329	0	0	1	410V1A	0	0	0	Dark	Fine without high winds	Dry	9
B-00497-09	Slight	09/05/2009	0815	436260 411371	0	0	1	406V2B	0	0	0	Light	Fine without high winds	Dry	19 9
B-00604-09	Serious	04/06/2009	1237	435865 411441	0	2	0	802C1B 803C1B 802C2B 803C2B	5	9	5	Light	Fine without high winds	Dry	9
B-00652-09	Slight	16/06/2009	1900	435868 411440	0	0	2	102V1B 408V2A	0	0	0	Light	Fine without high winds	Dry	2 9
B-00728-09	Slight	04/07/2009	1359	433951 410768	0	0	2	802C1B	0	0	0	Light	Fine without high winds	Dry	4 9 9
B-00939-09	Slight	07/09/2009	1230	436104 411553	0	0	2	404V2B 406V1A	0	0	0	Light	Fine without high winds	Dry	9 9
B-01412-09	Slight	13/12/2009	1320	435218 411456	0	0	3	405V2A 406V2A 410V2A	0	0	0	Light	Fine without high winds	Wet/Damp	9 9
B-00065-10	Slight	17/01/2010	1930	436184 411458	0	0	2	403V2A 406V2A 605V2B	0	0	0	Dark	Fine without high winds	Dry	9 9
B-00136-10	Fatal	24/01/2010	1916	433886 410733	1	1	1	601V1A	0	0	0	Dark	Fine without high winds	Wet/Damp	9 9
B-00425-10	Serious	09/04/2010	1912	434618 411167	0	1	1	306V1A 409V1A 601V1B	0	0	0	Light	Fine without high winds	Dry	9
B-01209-10	Slight	15/11/2010	1828	433413 410525	0	0	1	206V3A 999V3A	0	0	0	Dark	Other	Wet/Damp	9 9 9
B-00165-11	Slight	17/02/2011	2109	434828 411275	0	0	1	405V1A 506V1B 202V1B 999V2B	0	0	0	Dark	Fine without high winds	Dry	9 9
B-00314-11	Slight	02/04/2011	2008	433652 410358	0	0	1	405V2A 406V2B	0	0	0	Dark	Fine without high winds	Dry	9 9
B-00528-11	Slight	11/06/2011	1500	434781 411252	0	0	1	405V2A 403V2A	0	0	0	Light	Fine without high winds	Dry	9 9 9
B-00572-11	Slight	21/06/2011	1113	433421 410715	0	0	2	308V1A 405V1A 509V1B	0	0	0	Light	Fine without high winds	Dry	9 9
B-00653-11	Slight	13/07/2011	1520	433654 410356	0	0	1	405V1A	0	0	0	Light	Fine without high winds	Dry	3 9
B-01242-11	Slight	19/12/2011	1016	435784 411475	0	0	2	402V1A 406V1A 602V2A	0	0	0	Light	Raining without high winds	Wet/Damp	9 9

Accidents between dates 01/01/2008 and 31/12/2012 (60) months

Selection: Notes:
Selected using Build Query : Local_auth = 'BARNSELEY' Croft Transport Solutions

Police Ref.	Acc Class	Date	Time	Grid References	Casualties			Causation Factors/ Prob	Ped		Weather	Road Surface	Vehicle Types		
					Ftl	Ser	Slr		L	M				D	Light
B-00274-12	Serious	23/03/2012	0900	435596 411642	0	1	0	808C1A	0	0	0	Light	Fine without high winds	Dry	1 21
B-01010-12	Serious	08/11/2012	0432	433652 410612	0	1	0	802C1A 806C1A 809C1A	5	3	1	Dark	Fine without high winds	Wet/Damp	20
B-01116-12	Serious	29/11/2012	1845	436272 411356	0	1	0	405V1A	0	0	0	Dark	Fine without high winds	Frost/Ice	3 9
B-01173-12	Slight	19/12/2012	1250	435991 411393	0	0	1	602V1B	0	0	0	Light	Raining without high winds	Wet/Damp	11
Column Totals					1	8	0								

Total number of accidents listed: 26

APPENDIX 6

Framework Residential Travel Plan

STRATEGIC LAND GROUP

PROPOSED RESIDENTIAL DEVELOPMENT

LEE LANE

ROYSTON

RESIDENTIAL TRAVEL PLAN FRAMEWORK

December 2013

REPORT CONTROL

Document: Transport Plan Framework

Project: Proposed Residential Development, Lee Lane, Royston

Client: Strategic Land Group

Job Number: 0255

File Origin: Z:\projects\0255 Lee Lane, Royston\Docs\Reports\TP 0255.1.docx

Document Checking:

Primary Author	TSB	Initialled:
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Contributor	-	Initialled:
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Review By	PW	Initialled:
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Issue	Date	Status	Checked for Issue
1	15/08/13	First Draft	
2			
3			
4			

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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 ACCESSIBILITY

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 jrnly	4	0
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 area 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.



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