PROPOSED MIXED USE DEVELOPMENT
WAKEFIELD ROAD
MAPPLEWELL
BARNSLEY

PLANNING APPLICATION BY
PIPESTONE GROUP LIMITED

TRANSPORT ASSESSMENT

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July 2009

Ref: 08-334-002.02

Draft Issue

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July 2009

Ref: 08-334-002.02

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1.0 INTRODUCTION

1.1 This Transport Assessment (TA) forms part of a planning application submitted by Pipestone Group Limited for a mixed use development off Wakefield Road in the Mapplewell area of Barnsley. The site is allocated within Barnsley Metropolitan Borough Council's Unitary Development Plan (UDP) as DT4 Employment Policy Area. The location of the site in relation to the local and regional highway networks is shown on the site location plans contained at Appendix BGH1. Further information on the development proposals is contained within Section 6.0 of this Transport Assessment.

1.2 This TA considers the transport issues associated with the proposed development and, in particular, the accesses and likely transport impact on the surrounding highway network based upon trip data from the TRICS 2009(b) database and the guidance given in the Department for Transport (DfT) publication 'Guidance on Transport Assessment', March 2007.

1.3 The DfT guidance also places significant emphasis on promoting Smarter Travel Choices via the implementation of Travel Plans and in line with this guidance and that previously given in 'Planning Policy Guidance 13: Transport', March 2001 (PPG13) a Travel Plan Framework has been produced and accompanies this Transport Assessment, as a separate document, as part of a planning application submission.

1.4 This Transport Assessment includes an assessment of the traffic likely to be generated by the development proposals and shows that the resultant development traffic can be accommodated safely and satisfactorily on the existing and proposed local highway network.

1.5 It will be concluded therefore that there are no highway or transport reasons which would prevent the proposed mixed use development being granted planning consent.

2.0 RELEVANT CENTRAL AND LOCAL GOVERNMENT POLICIES

2.1 Planning Policy Statement 1: Delivering Sustainable Development (PPS1)

2.1.1 Planning Policy Statement 1: Delivering Sustainable Development (PPS1), sets out the Government's overarching planning policies on the delivery of sustainable development through the planning system.

2.1.2 In December 2007 a supplement to PPS1 was published, Planning Policy Statement: Planning and Climate Change. This document states that one of the key planning objectives is to deliver patterns of urban growth and sustainable rural developments that help secure the fullest possible use of sustainable transport for moving freight, public transport, cycling and walking which overall, reduce the need to travel especially by car.

2.1.3 At paragraph 42 the new PPS states that in considering the environmental performance of proposed development, planning authorities should expect new development to create and secure opportunities for sustainable development in line with PPG13 including through:

- the preparation and submission of travel plans;
- providing for safe and attractive walking and cycling opportunities including, where appropriate, secure cycle parking and changing facilities; and
- an appropriate approach to the provision and management of car parking.

2.2 Planning Policy Statement 3: Housing (PPS3)

2.2.1 Planning Policy Statement 3 (PPS3): Housing, which was published in November 2006 and became a material consideration to Local Planning Authorities on 1st April 2007, provides advice on providing housing in suitable locations.

2.2.2 At paragraph 36 it is noted that the Government's policy is to ensure that housing is developed in suitable locations which offer a range of community

facilities and with good access to jobs, key services and infrastructure.

2.3 Planning Policy Guidance 13: Transport (PPG13)

2.3.1 PPG13, which was published in March 2001, provides advice on the integration of transport and land use planning. The objectives of the guidance are to integrate planning and transport at national, regional, strategic and local level to:

- Promote more sustainable transport choices for both people and moving freight
- Promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling, and
- Reduce the need to travel, especially by car.

2.3.2 Paragraphs 12-17 of PPG13 that deal specifically with housing are cancelled by PPS3 but the general guidance contained within PPG13 as outlined above is considered to be relevant to all development proposals and it is also specifically referred to within the new supplement to PPS1 on Planning and Climate Change.

2.4 The Yorkshire and Humber Plan – Regional Spatial Strategy to 2026

2.4.1 The Yorkshire and Humber Plan was published in May 2008 and sets out the Secretary of State for Communities and Local Government's policies in relation to the development of land within the region. It aims to guide development of land within the region. It aims to guide development over the next 15 to 20 years. The plan also embodies the Regional Transport Strategy and must be taken into account by local authorities in preparing their Local Development Frameworks and Local Transport Plans. The plan does not however make site-specific allocation of land for development.

2.4.2 Barnsley is named as a Sub regional Town and Policy YH4 of the Plan states that Regional Cities and Sub regional Cities and towns should be the prime

focus for housing, employment, shopping, leisure, education, health and cultural activities and facilities in the region.

2.4.3 The policies relating to the Regional Transport Strategy for Yorkshire and the Humber are contained in Section 13 of the RSS. Policy T1 relates to Personal Travel Reduction and Modal Shift and states in Part B of the policy that *"LDFs, and transport assessments accompanying planning applications, should be informed by public transport accessibility criteria in Tables 13.8 and 13.9 to ensure development is appropriately located."*

2.4.4 Part E of Policy T1 states that *"Congestion should be addressed especially in urban areas and on the strategic road network through positive measures including:*

1. Giving priority to improvements to public transport

and

3. Incentives to use public transport at new housing developments

4. Improved facilities for cyclists and pedestrians

7. Encouraging a shift from car-based to public transport-based commuting"

2.4.5 An outcome of Policy T1 should be a reduction in travel demand and a modal shift to more sustainable modes of transport in the Region and indicators of this is the number of trips by different modes of transport, conformity with the accessibility standards set out in Tables 13.8 and 13.9, the number of planning applications supported by an approved Transport Assessment and Travel Plan and distances travelled.

2.5 *Barnsley Metropolitan Borough Council's Unitary Development Plan*

2.5.1 The statutory development plan in Barnsley is the Barnsley Unitary Development Plan (UDP). The UDP was prepared in the 1990s and involved two major rounds of public consultation and a year-long public inquiry. It was formally adopted in 2000 but was in use throughout the 1990s. The main aims

of the Barnsley UDP are to increase job opportunities, to conserve and improve the environment and to revitalise communities. The UDP therefore has a key role in helping to deliver the Barnsley Community Plan. The Community Plan provides a long-term vision for Barnsley to 2020. It is prepared by One Barnsley a partnership of the public, private, voluntary and community sectors. The Council is currently working to produce the LDF for Barnsley which will replace the current UDP. The site is allocated within the UDP as DT4 Employment Policy Area.

2.5.2 PPG 12 advises that supplementary planning guidance can be taken into account as a material consideration in deciding planning applications which can be given substantial weight. PPG1 advises that applicants should be able to demonstrate that they had regard to development plan policies and supplementary planning guidance.

2.5.3 Supplementary planning guidance 24 - Reuse of employment policy areas provides guidance to potential developers about the circumstances in which the Council will consider alternative development on sites designated as Employment Policy Areas in the UDP. This guidance note explains how Policy ED7 will be applied when assessing proposals for alternative uses such as housing. It takes into account the advice in Department of the Environment Transport and the Regions Planning Policy Guidance Note 3: Housing (March 2000). This states that some employment land designations are no longer compatible with current planning policy and that local authorities should therefore consider through the development plan process whether some of this land might be better used for housing or mixed-use developments.

2.5.4 The proposals for uses as set out in Policy ED7 are business, industry, storage and distribution, re-use for housing will only be accepted where the site:-

- Is located within an area with an adequate service infrastructure in terms of schools, shopping and other facilities, which are easily accessible from the site by a variety of modes of transport and not just the car – or where adequate infrastructure does not exist they would be

funded by the development.

- Has an acceptable relationship with neighbouring uses such that the occupants of new housing will not suffer unsatisfactory living conditions.
- Is able to meet the requirements of the UDP policies ES7 or ES8 where it is known or suspected that the land is contaminated.

3.0 THE EXISTING SITUATION

3.1 The Application Site

3.1.1 The development site is situated immediately to the east of the A61 Wakefield Road and south of the B6428 Lee Lane in the Mapplewell area of Barnsley which lies approximately 2.9 miles north of Barnsley Town Centre. The location of the application site in relation to the existing highway network is shown on the plans attached at Appendix BGH1.

3.1.2 The application site is 4.4 HA in size and currently houses an 8,600 sq m gross floor area industrial unit and associated parking area previously occupied by Williams Freemans and the remainder of the site is undeveloped. The site is bounded to the north by residential properties and Greenfield land, to the east by undeveloped Greenfield land, to the south by small retail outlets and to the west by the A61 Wakefield Road. Further a field in all directions are existing residential developments and Greenfield land. Vehicular access into the development site is currently gained by way of a priority junction off the eastern kerb line of the A61 Wakefield Road opposite property number 42 Eastfield Crescent.

3.2 The Local Highway Network

3.2.1 The existing access off eastern kerb line of the A61 Wakefield Road will be closed and two new accesses are proposed, one approximately 50 metres north of the existing access and one approximately 50 metres south. The northern access will serve the residential element of the development and the southern access will serve the employment element of the site. Two new estate roads are proposed to run through the development which will, in parts, have a two metre footway on both sides and in other areas will be shared surfacing.

3.2.2 In the vicinity of the site the A61 Wakefield Road is a single carriageway road with a carriageway width of 7.8 metres. Footways are present on both sides of

the A61 Wakefield Road and are approximately two metres in width. The A61 Wakefield Road, in the vicinity of the site, is subject to a 30mph speed restriction and is lit. There are signalised pedestrian crossings at the existing signalised junctions, south of the site.

3.2.3 The A61 Wakefield Road runs in a southerly direction from Thirsk to the A38 at Alfreton passing through Harrogate, Leeds, Wakefield, Barnsley, Sheffield and Chesterfield along the way and providing access onto the A1, A58, M621, M1 and M62 among many others.

3.2.4 The A61 Wakefield Road forms a staggered priority cross road junction with the B6428 Lee Lane approximately 800 metres north of the site access, a signalised junction with the B6131 Bar Lane approximately 200 metres south of the site access, a signalised junction with the B6232 Laithes Lane approximately 800 metres south of the site access and a mini roundabout junction with the A633 Rotherham Road approximately 1300 metres south of the site access.

3.2.5 The B6428 Lee Lane east bound passes through Royston, provides access onto the A638 and terminates when it joins the A645 at Purston Jaglin. The B6428 Lee Lane west bound passes through Darton and terminates when it joins the A635 at Barugh Green. The B6131 west bound passes through Mapplewell and Darton and terminates when it joins the A637 at Kexbrough. The B6132 Laithes Lane north east bound passes through Royston and terminates when it joins the A61 at Milnthorpe. The A633 Rotherham Road provides access onto the A628, A635 and leads into Rotherham Town Centre.

4.0 SCOPE OF THE ASSESSMENT

Opening Year

4.1.1 Following receipt of planning approval, construction of the residential development is expected to commence in late 2009 with first occupation from 2010.

Design Year

4.1.2 For the purposes of assessing the traffic impact of the development on the local highway network a Design Year of 2014 should been assumed, five years after the date of registration of the planning application, in line with current DfT guidance on the preparation of Transport Assessments. This assessment is considered very robust and given the size and location of the development, will represent a worst case scenario in terms of traffic growth on the surrounding highway network.

Traffic Generation

4.1.3 Traffic generation predictions for the proposed residential development are based upon 85th percentile trip rates derived from the TRICS 2009(b) database.

Assessment Periods

4.1.4 The weekday morning and evening peak periods have been assessed based upon the time periods identified as the morning and evening peak hours derived from the traffic surveys undertaken by Transport Surveys Ltd.

Traffic Surveys

4.1.5 Fully classified traffic counts were undertaken on Wednesday 2nd June 2008 at the following junctions to enable an assessment of the surrounding highway network:

- A61 Wakefield Road / A633 Rotherham Road – Mini Roundabout

- A61 Wakefield Road / B6132 Laithes Lane – Signalised Junction
- A61 Wakefield Road / B6131 Bar Lane – Signalised Junction
- A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane – Cross Roads

Trip Distribution

4.1.6 The distribution of the development traffic onto the local highway network has been distributed based upon the existing percentage split derived from the traffic surveys undertaken by Transport Surveys Ltd on Wednesday 2nd June 2008.

Committed Development

4.1.7 There is no committed development in the vicinity of the site.

Personal Injury Accident Data

4.1.8 Accident data has been obtained from Barnsley Metropolitan Borough Council Accident Studies Department and covers the last five years from 2003 to 2008.

Traffic Growth

4.1.9 In order to establish the future traffic operating conditions against which the impact of the proposed development can be compared, the existing 2008 traffic flows obtained by survey have been assumed to grow by TEMPRO adjusted NTM Forecast factors to the 2014 design year. For the purpose of the existing situation we have not growthed the 2008 traffic count data to 2009 as it is assumed due to the current climate there will have been no increase in traffic from 2008 to 2009, in reality it is more likely there will have been a decrease.

5.0 EXISTING TRAFFIC CONDITIONS

5.1 Existing Junction Operation

5.1.1 On Wednesday 2nd June 2008, fully classified traffic surveys were undertaken during the morning and evening peak periods at the following junctions:

- A61 Wakefield Road / A633 Rotherham Road – Mini Roundabout
- A61 Wakefield Road / B6132 Laithes Lane – Signalised Junction
- A61 Wakefield Road / B6131 Bar Lane – Signalised Junction
- A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane – Cross Roads

5.1.2 The surveys were carried out between the hours of 7:00 - 10:00 and 15:30 - 18:30. The morning and evening peak hours have been found to be 08:00 - 09:00 and 17:00 - 18:00. For the purpose of the existing situation we have not growthed the 2008 traffic count data to 2009 as it is assumed due to the current climate there will have been no increase in traffic from 2008 to 2009, in reality it is more likely there will have been a decrease. A summary of the existing 2008 peak hour traffic flows at each junction is contained at Appendix BGH2.

5.1.3 The operation of the existing junctions surveyed has been modelled using the computer programs PICADY 5, ARCADY 6 and LINSIG v2 for the 2008 existing morning and evening peak traffic flows as identified in Appendix BGH2. PICADY 5 is used to model priority junctions, ARCADY 6 to model roundabout junctions and LINSIG v2 to model signal controlled junctions.

A61 Wakefield Road / A622 Rotherham Road - Mini Roundabout Junction

5.1.4 A summary of the maximum ratio of demand flow to capacity (RFC), queues (vehicles) and maximum delay (sec / veh) obtained by the analysis of the mini roundabout junction of A61 Wakefield Road / A622 Rotherham Road under the existing 2008 peak hour traffic flows is given in Table 1 below. The full ARCADY output is contained at Appendix BGH3.

Table 1

A61 Wakefield Road / A622 Rotherham Road - Mini Roundabout Junction

Ratio of Flow to Capacity (RFC), Queues, and Mean Delay

Existing 2008 Traffic Flows

- Arm A – A61 Wakefield Road (North)
- Arm B – A622 Rotherham Road
- Arm C – A61 Wakefield Road (South)

Movement	08:00 – 09:00			17:00 – 18:00		
	RFC	Queue (veh)	Mean Delay (sec)	RFC	Queue (veh)	Mean Delay (sec)
Arm A	0.466	0	12.8	0.415	0	10.6
Arm B	0.219	0	4.1	0.116	0	2.0
Arm C	0.337	0	7.4	0.491	1	14.3

The results above show that this junction currently operates within capacity during the morning and evening peak hour periods.

A61 Wakefield Road / B6132 Laithes Lane - Signalised Junction

5.1.5 The critical results from the LINSIG analysis are shown below in Table 2 with the full LINSIG output contained at Appendix BGH3.

Table 2

A61 Wakefield Road / B6132 Laithes Lane - Signalised Junction

Practical Reserve Capacity

2008 Existing Traffic Flows

Assessment Scenario	Cycle Time (s) (4 cycles of 90sec)	PRC over all links (%)
2008 Existing Flows 08:00 – 09:00	360	38.7
2008 Existing Flows 17:00 – 18:00	360	43.3

5.1.6 The signal controlled junctions of A61 Wakefield Road / B6132 Laithes Lane incorporates a signal controlled bus lane for the east bound bus manoeuvres. The frequency of the buses during the peak periods are once every 30 minutes which equates to once every 20 cycles, based upon a 90 second cycle time.

The junction has been modelled with the assumption that the 'bus stage' will be called every four cycles which assures a bus arriving every six minutes and therefore represents a robust assessment in terms of the junction modelling. The Linsig model uses four cycles of 90 seconds (i.e. 360 seconds). The results above show that there are currently no adverse queuing or capacity problems at the A61 Wakefield Road / B6132 Laithes Lane Signalised Junction given that there is spare practical reserve capacity.

A61 Wakefield Road / B6131 Bar Lane - Signalised Junction

5.1.7 This junction was observed to operate on site based upon a 110 second cycle time. The critical results from the LINSIG analysis are shown below in Table 3 with the full LINSIG output contained at Appendix BGH3.

Table 3
A61 Wakefield Road / B6131 Bar Lane - Signalised Junction
Practical Reserve Capacity
2008 Existing Traffic Flows

Assessment Scenario	Cycle Time (s)	PRC over all links (%)
2008 Existing Flows 08:00 – 09:00	110	21.0
2008 Existing Flows 17:00 – 18:00	110	11.4

5.1.8 The results above show that there are currently no adverse queuing or capacity problems at the A61 Wakefield Road / B6131 Bar Lane Signalised Junction given that there is spare practical reserve capacity.

A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane - Staggered Crossroad Junction

5.1.9 A summary of the maximum ratio of demand flow to capacity (RFC), queues (vehicles) and maximum delay (sec / veh) obtained by the analysis of the A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane Staggered Crossroad Junction under the existing 2008 peak hour traffic flows is given in Table 4 below. The full PICADY output is contained at Appendix BGH3.

Table 4

A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane – Staggered Crossroad Junction

Ratio of Flow to Capacity (RFC), Queues, and Mean Delay

Existing 2008 Traffic Flows

- Arm A – A61 Wakefield Road (North)
- Arm B – B6428 Lee Lane
- Arm C – A61 Wakefield Road (South)
- Arm D – B6428 Shaw Lane

Movement	08:00 – 09:00			17:00 – 18:00		
	RFC	Queue (veh)	Mean Delay (sec)	RFC	Queue (veh)	Mean Delay (sec)
B-C	0.538	1	15.2	0.239	0	4.3
B-AD	0.852	5	67.9	0.673	2	25.5
A-D	0.126	0	2.1	0.253	0	4.9
D-A	0.337	1	7.8	0.279	0	5.3
D-BC	0.605	4	52.7	0.842	4	51.9
C-B	0.096	0	2.1	0.240	0	4.5

5.1.10 The results above show that there are currently no adverse queuing problems at the A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane Staggered Crossroad Junction. The B6428 Lee Lane arm during the AM Peak has an RFC of 0.852 and is nearing capacity because this is slightly over the 0.85 threshold.

5.2 Personal Injury Accidents

5.2.1 Personal injury accident data covering a five year from 1st May 2003 to 30th April 2008 has been obtained from Barnsley Metropolitan Borough Council Accident Department. The area of interest includes all the junctions surveyed.

5.2.2 A total of 54 accidents have been recorded within the study area, of which 40 were classified as slight in severity, 11 serious and three fatal. Of these, one fatal, three serious and three slight accidents involved a pedestrian and two

slight accidents involved a cyclist.

5.2.3 Clusters of accidents have been identified at the A61 Wakefield Road / A633 Rotherham Road Mini Roundabout including seven slight accidents, at the A61 Wakefield Road / B6132 Laithes Lane Signalised Junction including eight slight accidents and at the A61 Wakefield Road / B6131 Bar Lane Signalised Junction including five slight accidents and one serious. Four slight accidents have taken place at the A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane Cross Roads.

5.2.4 The three fatal accidents occurred at separate locations within the study area which occurred as follows;

- A motor cycle over 125cc was travelling along the A61 Wakefield Road, close to its junction with Regent Street when a pedestrian attempted to cross the road and collided with the motorcycle. The female pedestrian was killed and the male driver slightly injured.
- Vehicle one was travelling along the A61 Wakefield Road, 300 yards from its junction with Lee Lane when the driver lost control and collided with a stone wall, the vehicle turned over and spun, vehicle two collided with the debris. The driver of vehicle one was killed and its passenger seriously injured, the driver of vehicle two was unharmed.
- Vehicle one and vehicle two were travelling in opposite directions on the A61 Wakefield Road, 800m from its junction with Shaw Lane vehicle one lost control and collided head on with vehicle two. Both the driver and passenger of vehicle one were killed and the driver of vehicle two was seriously injured.

5.2.5 In the immediate vicinity of the proposed site access a total of two slight accidents have occurred over the five year period, this is not considered to be a significant amount and no trends have been identified. The full accident report data can be seen in Appendix BGH4.

6.0 ACCESSIBILITY AND SUSTAINABILITY OF THE SITE

6.1 Introduction

6.1.1 As set out within Section 2.0 of this Transport Assessment national and regional transport policies and guidance place significant emphasis on the availability and use of means of transport other than by the private car in new development.

6.2 Pedestrian Accessibility

6.2.1 The Institution of Highways and Transportation publication [2000] 'Guidelines for providing for Journeys on Foot' notes that walking accounts for over a quarter of all journeys and four-fifths of journeys of less than one mile (1.6 kilometres).

6.2.2 Walking is also an essential part of public transport travel, bus stops usually being accessed on foot. Promoting sustainable, integrated transport involves providing good pedestrian links to public transport facilities as are available to the application site.

6.2.3 The IHT Guidelines also describe 'acceptable' walking distances for pedestrians without any mobility impairment. They suggest that, for commuting, up to 500 metres is the desirable distance, up to 1000 metres is an acceptable distance and 2000 metres is the preferred maximum.

6.2.4 The Department of the Environment publication [1996] 'PPG13 A Guide to Better Practice' states that distances under 1.6 kilometres are suited to journeys on foot. The plan attached at Appendix BGH5 shows the areas within reasonable walking distance of the application site, based on straight-line distances of 1.6 and 2.0 kilometres.

6.2.5 As regards walk distances to retail outlets, the IHT Guidelines suggest a 'preferred maximum' walking distance to town centres of 800 metres. This advice is reflected in the Department for Transport, Local Government and the

Regions in conjunction with CABE published 'Better places to live: By design – A companion guide to PPG3', September 2001. This suggests that:

> "Having established the site's broad setting in terms of its relationship to a city, town or village centre, a good starting point is to examine the area within 10 minutes' (about 800m) walking distance of the site. This can help to identify the range of facilities which residents may access comfortably access on foot, as well as opportunities to reach more distant facilities by public transport."

The plan attached at Appendix BGH5 shows the areas within 800 metres, of the application site, based on straight-line distances.

6.2.6 The maximum recommended walking distance of 2.0 kilometres covers the bus stops on the B6131 Bar Lane and the A61 Wakefield Road, the closest of which are approximately 400 metres walking distance from the centre of the site, and in parts, the residential settlements of Mapplewell and New Lodge which also include facilities such as many shops, a library, a sports centre and a post office.

6.2.7 Mapplewell Primary School is situated on Greenside Avenue, Staincross which is approximately 1.4 kilometre walking distance from the application site and Wellgate Primary School is situated on George Street, Mapplewell approximately 1.6 kilometre walking distance from the application site, within the preferred maximum walking distance of 2.0 kilometre for walking to schools. Footway provision along this route is good and follows well lit and overlooked residential roads with signalised pedestrian crossings existing at the signalised junctions.

6.3 Public Transport

6.3.1 There are existing bus stops on both sides of the B6131 Bar Lane and the A61 Wakefield Road, the closest of which are approximately 400 metres walking distance from the centre of the site. The route from the proposed development site to the bus stops is fully lit with adequate footways, dropped crossings and tactile paving is present with signalised pedestrian crossings at the existing

signalised junctions. These bus stops are served by bus numbers 1, 11 and 96. The 96 stops at Darton Railway Station and services 1 and 11 are both within walking distance of it. All of these services stop at Barnsley Interchange. Service 96 provides a direct route from Barnsley Interchange to Wakefield City Centre where both local and national bus and train services are available. A summary of these bus services and a map showing their routes are attached at Appendix BGH6.

6.3.2 The nearest railway station to the development site is Darton Railway Station. The station is located on Station Lane approximately 3.9 kilometres from the development site which is within a reasonable cycling distance from the development and as previously mentioned is accessible using bus services 1, 11 and 96. The station is managed by Northern Rail and provides an hourly service to Barnsley Interchange and also to Leeds and Sheffield where both local and national services are available. A summary of the trains available from Darton Railway Station is attached at Appendix BGH6.

6.3.3 Barnsley Interchange is a combined bus and rail station offering a wealth of facilities to the travelling public including a newsagents, a chemist, a café, rail ticket office, information centre, offices & meeting room, toilets, cash machines, telephone, cycle racks, lifts & escalators, real time information screens a car park with 74 spaces for rail users and a secure, fully enclosed, high quality passenger concourse and waiting area. There are many buses and trains available from Barnsley Interchange, a summary of which is attached at Appendix BGH6.

6.3.4 The Institution of Highways and Transportation publication 'Planning for Public Transport in Development' states:

> "The maximum walking distance to a bus stop should not exceed 400m and preferably be no more than 300m. These distances are quoted for guidance, and should not be followed slavishly if that would lead to complex or indirect bus routes"

6.3.5 'Planning for Public Transport in Developments' also sets out that new

development should be located so that walking distances to the nearest bus stop should be less than 400 metres.

6.3.6 The bus stops located on the B6131 Bar Lane and the A61 Wakefield Road, are within the recommended walking distance.

6.3.7 It is considered that the application site is very well located being within recommended walking distance of existing bus stops and a railway station and will thereby encourage residents of the residential element of the proposed development and employees of the employment element of the proposed development to chose alternative modes of transport to the private car in accordance with the aims and objectives of PPG13.

6.4 Cycling

6.4.1 The Department of the Environment publication [1996] 'PPG13: A Guide to Better Practice' states that the bicycle is an ideal mode of transport for journeys under 8 kilometres. PPG13 [March 2001] states that cycling "has clear potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport."

6.4.2 The majority of the Barnsley conurbation including the Town Centre lies within an 8 kilometre catchment area and Barnsley has a network of cycle routes and lanes as shown on the Cycle Map attached at Appendix BGH7 along with a plan showing the 5km and 8km cycle isochrones.

6.4.3 Darton Railway Station is approximately 3.9 kilometres and Barnsley Interchange approximately 4.3 kilometres from the site and are therefore well within the cycling catchment area.

6.4.4 Royston and Barnsley Town Centre are within the cycle catchment area. There are significant employment opportunities within Barnsley Town Centre. There are many public services in the area including, , Mapplewell, Wellgate and Royston Parkside Primary Schools and St Michaels Catholic High School,

St Georges Medical Practice, Athersley Health Care, Rotherham Road Medical Centre, Royston, Monk Bretton, Darton and Barnsley Central Libraries, Well's, Royston, Notton, Shafton and Smithies Post Offices, Café's, Newsagents, Banks, Restaurants, Greengrocers, Off Licence's and Public Houses.

6.4.5 The site is therefore considered to be in a sustainable location in relation to the availability of public transport, walking and cycle provision. It will further the aims and objectives of the Central and Local Government's Sustainable Transport Policy by promoting the use of alternative modes of transport and hence reducing the need to travel by private car.

6.4.6 Therefore, there will be a reasonable prospect of some people cycling to and from the application site for both commuting and leisure purposes including linked trips with bus and rail journeys.

6.4.7 With the implementation of a Site Wide Travel Plan it is expected that the residents of the residential element of the proposed development and employees of the employment element of the proposed development will be encouraged to choose to travel by alternative modes of transport to the private car.

7.0 THE PROPOSALS

7.1 This Transport Assessment is based upon the developer's proposals for approximately 83 residential units and 12 employment units with a total gross floor area of 64,500 sq ft (5,992 sq m). The residential element of the site comprises the following;

- 10 no two bed houses
- 37 no three bed houses
- 18 no four bed houses
- 2 no five bed houses
- 14 no two bed apartments
- 2 no one bed apartments

7.2 The employment element of the site comprises 2 no 6000 sq ft office units and 10 no commercial units will the following gross floor areas;

- 2 no 4000 sq ft
- 1 no 9000 sq ft
- 1 no 3750 sq ft
- 1 no 3500 sq ft
- 1 no 7750 sq ft
- 1 no 2500 sq ft
- 3 no 6000 sq ft

Landscaping, accesses, internal road layout and associated parking are also proposed. The current development proposals are shown on the J R Paley master plan, a copy of which is contained at Appendix BGH8.

7.3 The existing access off eastern kerb line of the A61 Wakefield Road will be closed and two new accesses are proposed, one approximately 50 metres north of the existing access and one approximately 50 metres south. The northern access will serve the residential element of the development and the southern access will serve the employment element of the site. Two new estate roads are proposed to run through the development which will, in parts, have a two metre footway on both sides and in other areas will be shared surfacing.

7.4 There are 34 marked car parking spaces proposed within the residential element of the site and the majority of the properties will have garages and or driveways. The employment element of the site has 103 parking spaces proposed.

7.5 All proposed junction visibility splays required can be achieved within the site frontage, in accordance with the Government guidance and have been based upon the speed restriction enforced on this section of the A61 Wakefield Road. The Architect's Masterplan shows visibility splays of 4.5 m x 90 m which is in excess of the current requirement for junction visibility on a 30mph road.

8.0 BASE TRAFFIC OPERATING CONDITIONS

8.1 For the purpose of assessing the 'natural' highway traffic growth on the local highway network a Base Year of 2014 has been assumed, five years after the date of registration of the planning application, in line with current DfT guidance on the preparation of Transport Assessments.

8.2 In order to establish the future traffic operating conditions against which the impact of the proposed development can be compared, the existing 2008 traffic flows obtained by survey have been assumed to grow by TEMPRO adjusted NTM Forecast factors to the 2014 design year. Applying traffic growth in addition to generated development traffic will ensure a robust assessment since there will be an element of double counting as the growth rates already include for elements such as future development forecasts and increased affluence.

8.3 The TEMPRO adjusted NTM central growth factors from 2009 – 2014 are 1.096 (am peak factor) and 1.094 (pm peak factor). These factors have been applied to the existing 2008 morning and evening peak hour flows to provide the 2014 morning and evening peak hour "Growthed" traffic flows.

8.4 The operation of the existing junctions surveyed has been modelled using the computer programs PICADY 5, ARCADY 6 and LINSIG v2 for the 2014 (base scenario) morning and evening peak traffic flows as shown in Appendix BGH10. PICADY 5 is used to model priority junctions, ARCADY 6 to model roundabout junctions and LINSIG v2 to model signal controlled junctions.

A61 Wakefield Road / A622 Rotherham Road - Mini Roundabout Junction

8.5 A summary of the maximum ratio of demand flow to capacity (RFC), queues (vehicles) and maximum delay (sec / veh) obtained by the analysis of the mini roundabout junction of A61 Wakefield Road / A622 Rotherham Road under the existing 2014 base peak hour traffic flows is given in Table 5 below. The 2014 Base AM and PM Peak hour traffic flows are attached at Appendix BGH10 and the full ARCADY output at Appendix BGH11.

Table 5

A61 Wakefield Road / A622 Rotherham Road - Mini Roundabout Junction

Ratio of Flow to Capacity (RFC), Queues, and Mean Delay

Base 2014 Traffic Flows

- Arm A – A61 Wakefield Road (North)
- Arm B – A622 Rotherham Road
- Arm C – A61 Wakefield Road (South)

Movement	08:00 – 09:00			17:00 – 18:00		
	RFC	Queue (veh)	Mean Delay (sec)	RFC	Queue (veh)	Mean Delay (sec)
Arm A	0.514	1.1	3.0	0.456	0.8	3.0
Arm B	0.278	0.4	1.8	0.135	0.2	1.2
Arm C	0.381	0.6	3.6	0.556	1.2	4.2

8.5 The results above show that this junction will continue to operate within capacity during the AM Peak and PM Peak 2014 Base scenarios.

A61 Wakefield Road / B6132 Laithes Lane - Signalised Junction

8.6 The critical results from the LINSIG analysis are shown below in Table 6 and the full LINSIG output is at Appendix BGH11.

Table 6

A61 Wakefield Road / B6132 Laithes Lane - Signalised Junction

Practical Reserve Capacity

2014 Base Traffic Flows

Assessment Scenario	Cycle Time (s)	PRC over all links (%)
2014 Base Flows 08:00 – 09:00	360	24.7
2014 Base Flows 17:00 – 18:00	360	30.9

8.7 The results above show that there will be no adverse queuing or capacity problems at the A61 Wakefield Road / B6132 Laithes Lane Signalised Junction given that there is spare practical reserve capacity.

A61 Wakefield Road / B6131 Bar Lane - Signalised Junction

8.8 The critical results from the LINSIG analysis are shown below in Table 7 and the full LINSIG output is at Appendix BGH11.

Table 7
A61 Wakefield Road / B6131 Bar Lane - Signalised Junction
Practical Reserve Capacity
2014 Base Traffic Flows

Assessment Scenario	Cycle Time (s)	PRC over all links (%)
2008 Existing Flows 08:00 – 09:00	110	8.9
2008 Existing Flows 17:00 – 18:00	110	2.2

8.9 The results above show that there are no adverse queuing or capacity problems at the A61 Wakefield Road / B6131 Bar Lane Signalised Junction given that there is spare practical reserve capacity.

A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane – Staggered Crossroad Junction

8.10 A summary of the maximum ratio of demand flow to capacity (RFC), queues (vehicles) and maximum delay (sec / veh) obtained by the analysis of the A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane Staggered Crossroad Junction under the 2014 base peak hour traffic flows is given in Table 8 and the full PICADY output is at Appendix BGH11.

Table 8

A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane – Staggered Crossroad Junction

Ratio of Flow to Capacity (RFC), Queues, and Mean Delay

Base 2014 Traffic Flows

- Arm A – A61 Wakefield Road (North)
- Arm B – B6428 Lee Lane
- Arm C – A61 Wakefield Road (South)
- Arm D – B6428 Shaw Lane

Movement	08:00 – 09:00			17:00 – 18:00		
	RFC	Queue (veh)	Mean Delay (sec)	RFC	Queue (veh)	Mean Delay (sec)
B-C	0.983	7.0	91.8	0.370	8.2	15.6
B-AD	1.051	18.04	72.6	0.797	49.9	24.6
A-D	0.147	0.17	7.8	0.284	5.9	7.8
D-A	0.826	3.06	27.6	0.950	49.3	48
D-BC	0.927	7.97	35.4	0.964	143.6	42.6
C-B	0.137	0.16	7.2	0.274	5.6	8.4

8.11 The results above show that the B6428 Lee Lane and the B6428 Shaw Lane arms during the 2014 Base AM Peak and the B6428 Shaw Lane arm in the PM Peak have RFC's which are over the 0.85 threshold and therefore this junction will operate above capacity based upon the 2014 Base traffic flows.

8.12 It is also recognised that once a junction is shown to be over capacity within the PICADY modelling programme any further traffic added to that junction results in RFC values growing exponentially as vehicles join the back of the existing queues. This therefore provides misleading results for what is a minor increase in traffic and would not be perceivable from the day to day fluctuations in traffic flows which currently occur at this junction.

9.0 MULTI MODAL TRIP GENERATION

9.1 In order to predict the level and type of trips which will be made as a result of the residential development and the employment development and as required in the Department for Transport's "Guidance on Transport Assessment", the person trips to the proposed development have been assessed using information contained within the TRICS 2009 (b) database. The TRICS outputs are attached at Appendix BGH12.

9.2 The TRICS database has been used to assess the average total person trips to the residential element of the proposed development assuming the land-use categories Residential – Houses Privately Owned and Residential – Flats Privately Owned and to the employment element of the proposed development assuming the land use category Employment – Industrial Estate, the results are summarised below:-

Table 9

Total Person Trips - Residential – Houses Privately Owned

Assessment Period	Total No of Units	Trip Rates per Unit			Trips for 67 Units		
		IN	OUT	2-WAY	IN	OUT	2-WAY
08:00 – 09:00	67	0.385	1.100	1.485	26	74	100
17:00 – 18:00		0.778	0.543	1.321	52	36	88

Table 10

Total Person Trips – Residential – Flats Privately Owned

Assessment Period	Total No of Units	Trip Rates per Unit			Trips for 16 Units		
		IN	OUT	2-WAY	IN	OUT	2-WAY
08:00 – 09:00	16	0.150	0.583	0.733	2	9	11
17:00 – 18:00		0.523	0.250	0.773	8	4	12

Table 11

Total Person Trips – Employment – Industrial Estate

Assessment Period	GFA Sq m	Trip Rates per 100 sq m			Trips for 5,992 sq m		
		IN	OUT	2-WAY	IN	OUT	2-WAY
08:00 – 09:00	5,992	1.404	0.723	2.127	84	43	127
17:00 – 18:00		0.475	1.159	1.634	28	69	97

9.3 Following the above estimation of person trips, the modal split for these trips has been derived from the National Statistics Census 2001 data for journeys to work for the ward area of Darton East. This provides a percentage breakdown of different modes of transport currently used to travel to/from Darton East, which can then be applied to the proposed development. The results are summarised below:

Table 12

National Statistics Census 2001 Ward Data for Darton East – Method of Journey to Work – Resident Population (UV39).

Modal Split	% Split	No of People
Train	1	58
Bus, minibus or coach	7	342
Driving a car or van	67	3396
Passenger in a car or van	9	450
Motorcycle, scooter or moped	1	74
Cycle	1	30
On foot	8	395
Working from home	6	328

9.4 It can be seen that 67% of all journeys made by residents of the Darton East ward are undertaken using the private car. These percentages have been applied to the person trips in Tables 9 and 10 to calculate the likely number of multi modal trips associated with the residential element of the proposed development. The AM and PM results can be seen in Table 14 below.

Table 13

National Statistics Census 2001 Ward Data for Darton East – Method of Journey to Work – Day Time Population (UV39).

Modal Split	% Split	No of People
Train	0.5	10
Bus, minibus or coach	7	145
Driving a car or van	50	1101
Passenger in a car or van	9	194
Motorcycle, scooter or moped	1	20
Cycle	0.5	10
On foot	17	368
Working from home	15	328

9.4 It can be seen that 50% of all journeys made by people who are employed by businesses within the Darton East Ward are undertaken using the private car. These percentages have been applied to the person trips in Table 11 to calculate the likely number of multi modal trips associated with the employment element of the proposed development. The AM and PM results can be seen in table 15 below.

Table 14

AM and PM Peak Hour Modal Split – Residential Element

Peak Hour Modal Split	% Split	No of Two Way Trips	
		AM	PM
Train	1	1	1
Bus, minibus or coach	7	8	7
Driving a car or van	67	74	67
Passenger in a car or van	9	10	9
Motorcycle, scooter or moped	1	1	1
Cycle	1	1	1
On foot	8	9	8
Working from home	6	7	6
Total	100	111	100

Table 15

AM and PM Peak Hour Modal Split – Employment Element

Peak Hour Modal Split	% Split	No of Two Way Trips	
		AM	PM
Train	0.5	1	0
Bus, minibus or coach	7	9	7
Driving a car or van	50	64	49
Passenger in a car or van	9	11	9
Motorcycle, scooter or moped	1	1	1
Cycle	0.5	1	0
On foot	17	22	16
Working from home	15	19	15
Total	100	127	97

9.5 The above modal splits can be used to agree reductions in car usage and achieve targets for alternative modes of transport as part of a separate Travel Plan document for the proposed development. As part of an effective Site Wide Travel Plan this information can be compared with travel mode survey information for the proposed development once the site is fully occupied and travel patterns have been established.

9.6 It can be seen that the predominant modal choice for the proposed residential element of the development is likely to be the private car with 67% of person trips being made this way on average. Approximately 8% of trips are on foot, 8% by public transport and 1% by cycle. The level of trips to this type of development by public transport and cycle is therefore predicted to be around 9%, however it is expected that through the implementation of an effective Travel Plan the number of residents who may chose to travel by alternative modes of transport to the private car will be higher than the levels suggested above, which will in turn reduce the traffic generated by the proposed development.

9.7 It can be seen that the predominant modal choice for the proposed employment element of the development is likely to be the private car with 50% of person trips being made this way on average. Approximately 17% of trips are on foot, 7.5% by public transport and 0.5% by cycle. The level of trips to this type of development by public transport and cycle is therefore predicted to be around 8%, however it is expected that through the implementation of an effective Travel Plan the number of employees who may chose to travel by alternative modes of transport to the private car will be higher than the levels suggested above. There will also be a proportion of residents that live and work on the development site.

9.8 In order to achieve a reduction in the number of car-borne trips and increase the number of trips made by alternative modes of transport, it is necessary for the Travel Plan to set a benchmark from which realistic targets can be set for the individual development depending on its sustainability and accessibility.

9.9 In the absence of base-line survey data, the above modal splits can be used to agree initial modal split predictions for the proposed development. This information can then be compared with travel mode survey information for the proposed development once the site is fully occupied and travel patterns have been established.

10.0 TRAFFIC GENERATION AND DISTRIBUTION

10.1 As detailed in Section 9.0, the total vehicular traffic generated by the development proposals is shown in Table 16 below.

Table 16

Total Vehicular Trips

Assessment Period	Trips Residential		Trips Employment		Total Trips	
	IN	OUT	IN	OUT	IN	OUT
08:00 – 09:00	19	56	42	22	61	78
17:00 – 18:00	40	27	14	35	54	62

10.2 Although the proposed uses will generate trips during peak hours they are considered immaterial as the existing site use will also generate trips. It is considered that the additional traffic generated from the proposed development can be accommodated safely and satisfactorily on the local highway network.

10.3 The distribution of the development traffic onto the local highway network has been distributed based upon the percentage split derived from the traffic surveys undertaken by Transport Surveys Ltd on Wednesday 2nd June 2008. The development generated flows are attached at Appendix BGH13 for both the weekday morning and evening peak hours for all the junctions considered and the site accesses.

10.4 The northern access will serve the residential element of the development and the southern access will serve the employment element of the development. Therefore the northern access will be analysed using the residential generated trips and the southern access using the employment generated trips. The additional head flows on the A61 Wakefield Road as a result of both the residential and employment developments have also been included.

11.0 TRAFFIC IMPACT OF THE DEVELOPMENT PROPOSALS

11.1 Following receipt of planning approval, construction of the mixed use development is expected to commence in late 2009 with first occupation from 2010. For the purposes of assessing the traffic impact of the development on the local highway network a Design Year of 2014 has been assumed, five years after the date of registration of the planning application, in line with current DfT guidance on the preparation of Transport Assessments as detailed in Section 8.0.

11.2 The operation of the existing junctions surveyed has been modelled using the computer programs PICADY 5, ARCADY 6 and LINSIG v2 for the 2014 predicted (growthed existing flows + development generated traffic) morning and evening peak hour traffic flows as identified in Appendix BGH14.

11.3 The operation of the existing junctions surveyed has been modelled using the computer programs PICADY 5, ARCADY 6 and LINSIG v2 for the 2014 (predicted scenario) morning and evening peak traffic flows as identified in Appendix BGH14. PICADY 5 is used to model priority junctions, ARCADY 6 to model roundabout junctions and LINSIG v2 to model signal controlled junctions.

A61 Wakefield Road / A622 Rotherham Road - Mini Roundabout Junction

11.4 A summary of the maximum ratio of demand flow to capacity (RFC), queues (vehicles) and maximum delay (sec / veh) obtained by the analysis of the mini roundabout junction of A61 Wakefield Road / A622 Rotherham Road under the 2014 predicted peak hour traffic flows is given in Table 17 below and the full ARCADY output is contained at Appendix BGH15.

Table 17

A61 Wakefield Road / A622 Rotherham Road - Mini Roundabout Junction

Ratio of Flow to Capacity (RFC), Queues, and Mean Delay

Predicted 2014 Traffic Flows

- Arm A – A61 Wakefield Road (North)
- Arm B – A622 Rotherham Road
- Arm C – A61 Wakefield Road (South)

Movement	08:00 – 09:00			17:00 – 18:00		
	RFC	Queue (veh)	Mean Delay (sec)	RFC	Queue (veh)	Mean Delay (sec)
Arm A	0.523	1.1	3.0	0.465	0.9	3.0
Arm B	0.296	0.4	2.4	0.138	0.2	1.2
Arm C	0.388	0.6	3.6	0.559	1.3	4.2

11.5 The results above show that this junction will continue to operate within capacity during the AM Peak and PM Peak 2014 predicted scenarios.

A61 Wakefield Road / B6132 Laithes Lane - Signalised Junction

11.6 The critical results from the LINSIG analysis are shown below in Table 18 with the full LINSIG output contained at Appendix BGH15.

Table 18

A61 Wakefield Road / B6132 Laithes Lane - Signalised Junction

Practical Reserve Capacity

2014 Predicted Traffic Flows

Assessment Scenario	Cycle Time (s)	PRC over all links (%)
2014 Predicted Flows 08:00 – 09:00	360	22.2
2014 Predicted Flows 17:00 – 18:00	360	28.6

11.7 The results above show that there will be no adverse queuing or capacity problems at the A61 Wakefield Road / B6132 Laithes Lane Signalised Junction given that there is spare practical reserve capacity.

A61 Wakefield Road / B6131 Bar Lane - Signalised Junction

11.8 The critical results from the LINSIG analysis are shown below in Table 19 with the full LINSIG output contained at Appendix BGH15.

Table 19
A61 Wakefield Road / B6131 Bar Lane - Signalised Junction
Practical Reserve Capacity
2014 Predicted Traffic Flows

Assessment Scenario	Cycle Time (s)	PRC over all links (%)
2014 Predicted Flows 08:00 – 09:00	110	7.1
2014 Predicted Flows 17:00 – 18:00	110	2.2

11.9 The results above show that there will be no adverse queuing or capacity problems at the A61 Wakefield Road / B6131 Bar Lane Signalised Junction given that there is spare practical reserve capacity in the 2014 predicted scenario.

A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane – Staggered Crossroad Junction

11.10 Summary of the maximum ratio of demand flow to capacity (RFC), queues (vehicles) and maximum delay (sec / veh) obtained by the analysis of the A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane Staggered Crossroad Junction under the 2014 predicted peak hour traffic flows is given in Table 20 below and the full PICADY output is contained at Appendix BGH15.

Table 20

A61 Wakefield Road / B6428 Lee Lane / B6428 Shaw Lane – Staggered Crossroad Junction

Ratio of Flow to Capacity (RFC), Queues, and Mean Delay

Predicted 2014 Traffic Flows

- Arm A – A61 Wakefield Road (North)
- Arm B – B6428 Lee Lane
- Arm C – A61 Wakefield Road (South)
- Arm D – B6428 Shaw Lane

Movement	08:00 – 09:00			17:00 – 18:00		
	RFC	Queue (veh)	Mean Delay (sec)	RFC	Queue (veh)	Mean Delay (sec)
B-C	0.974	6.81	82.8	0.452	0.78	18.0
B-AD	1.040	16.70	65.4	0.833	4.19	28.2
A-D	0.146	0.17	7.8	0.288	0.40	8.4
D-A	0.960	4.88	36.6	0.904	4.91	69.6
D-BC	0.946	9.20	38.4	0.991	13.15	49.2
C-B	0.150	0.18	7.8	0.296	0.42	9.0

11.11 The results above show that the RFC's at the B6428 Lee Lane and the B6428 Shaw Lane arms during the AM Peak and B6428 Shaw Lane arm during the PM Peak have RFC's which are over the 0.85 threshold and therefore will operate above capacity based upon the 2014 Predicted traffic flows.

11.12 Whilst it is recognised that the junction is over capacity at the B6428 Lee Lane and the B6428 Shaw Lane arms this is also the case during the base 2014 situation. The predicted site traffic exiting both the B6428 Lee Lane and the B6428 Shaw Lane arms during the AM Peak is three vehicles equating to one every 20 minutes. The predicted site traffic exiting the B6428 Shaw Lane arm during the PM Peak is four vehicles equating to one every fifteen minutes. The predicted site traffic exiting these arms is therefore considered negligible and it is considered that the junction will continue to operate during the Predicted 2014 as it will in the Base 2014 scenario.

11.13 It is also recognised that once a junction is shown to be over capacity within the PICADY modelling programme any further traffic added to that junction

results in RFC values growing exponentially as vehicles join the back of the existing queues. This therefore provides misleading results for what is a minor increase in traffic and would not be perceivable from the day to day fluctuations in traffic flows which currently occur at this junction.

11.14 The implementation of an effective Travel Plan as part of this development will reduce the potential impact of development on the local highway network, through the encouragement of alternative modes of transport to the private car.

11.15 In addition, with the implementation of an effective site wide travel plan the level of traffic generated by the development is likely to decrease and given that robust 85th percentile trip rates have been used the above results are considered to be an absolute worst case. Given the availability of public transport within recommended walking distance of the site, it is expected that a proportion of residents and employees will use public transport rather than the private car. Also no allowance has been made for those residents living and working on the site, whom will not require a car to get to and from work in the morning and evening peak periods.

11.16 The operation of the proposed site access junctions with the A61 Wakefield Road have been modelled using the computer program PICADY for the 2014 (predicted scenario) morning and evening peak traffic flows. The northern access will serve the residential element of the development and the southern access will serve the employment element of the development. Therefore the northern access will be analysed using the residential generated trips and the southern access using the employment generated trips. The additional head flows on the A61 Wakefield Road as a result of both the residential and employment developments have also been included. The traffic flows for this scenario are attached at Appendix BGH16.

11.17 A summary of the maximum ratio of demand flow to capacity (RFC), queues (vehicles) and maximum delay (sec / veh) obtained by the analysis of the proposed access junctions under the predicted 2014 peak hour traffic flows are

given in Tables 21 and 22 below and the full PICADY outputs are contained at Appendix BGH17.

Table 21

Northern Site Access / A61 Wakefield Road (Residential Usage)

Ratio of Flow to Capacity (RFC), Queues, and Mean Delay

Predicted 2014 Traffic Flows

- Arm A – A61 Wakefield Road (North)
- Arm B – Northern Site Access
- Arm C – A61 Wakefield Road (South)

Movement	08:00 – 09:00			17:00 – 18:00		
	RFC	Queue (veh)	Mean Delay (sec)	RFC	Queue (veh)	Mean Delay (sec)
B – AC	0.173	0.21	10.8	0.090	0.10	10.2
C - AB	0.025	0.03	5.4	0.063	0.10	6.6

Table 22

Southern Site Access / A61 Wakefield Road (Employment Usage)

Ratio of Flow to Capacity (RFC), Queues, and Mean Delay

Predicted 2014 Traffic Flows

- Arm A – A61 Wakefield Road (North)
- Arm B – Southern Site Access
- Arm C – A61 Wakefield Road (South)

Movement	08:00 – 09:00			17:00 – 18:00		
	RFC	Queue (veh)	Mean Delay (sec)	RFC	Queue (veh)	Mean Delay (sec)
B – AC	0.069	0.07	9.6	0.115	0.13	10.8
C - AB	0.061	0.10	6.6	0.019	0.02	4.8

11.18 The results above show that there will be no adverse queuing or capacity problems at the northern or southern Site Access / A61 Wakefield Road Priority Junctions given that the maximum ratio of flow to capacity (RFC) are well below 0.85.

11.0 SUMMARY AND CONCLUSIONS

12.1 This Transport Assessment forms part of a planning application submitted by Pipestone Group Limited for a mixed use development on land situated approximately two miles to the north of Barnsley Town Centre.

12.2 Analysis of the future operation of the local highway network has shown that the mini roundabout and the signalised junctions will operate in a safe and satisfactory manner in the adopted design year of 2014, five years from the date of registration of the planning application. The staggered cross road junction considered was shown to be over capacity during the 2014 predicted scenario, at two of its arms, however the site traffic predicted to be exiting these arms during the peak periods is considered negligible and it is concluded that the junction will operate during the 2014 predicted scenario as it will in the 2014 Base scenario.

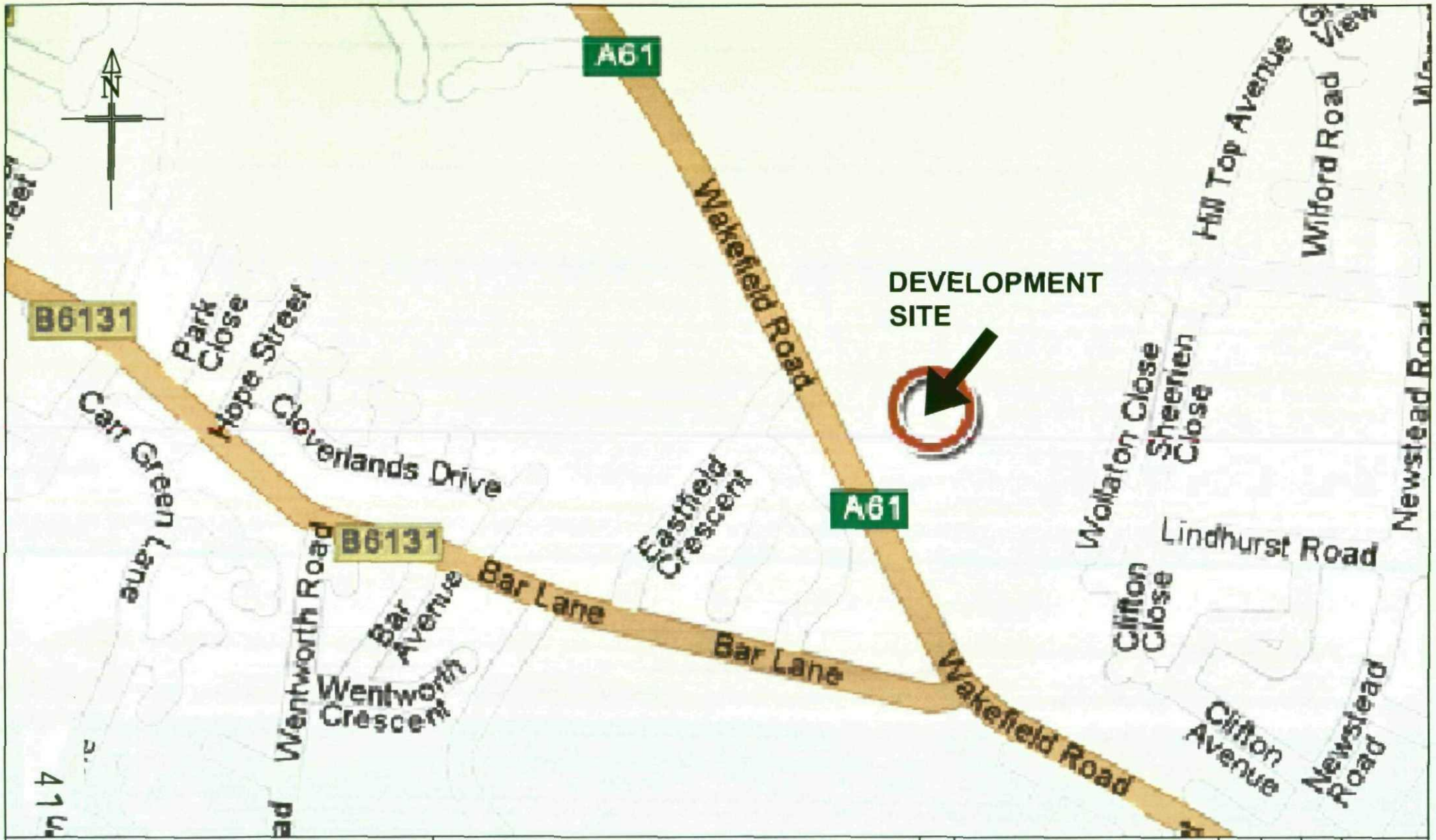
12.3 The results of the site access junction's analysis have determined that the accesses are capable of accommodating the predicted traffic generation of the development and the traffic growth up to and beyond the design year of 2014.

12.4 The area in the vicinity of the site is currently well served by public transport and there will be scope when developing the Site Wide Travel Plan to promote further alternative modes of transport to the private car, particularly single person occupancy journeys during peak hours.

12.5 Existing accident statistics for the local highway network have been considered and from close inspection of these details there is no accident problem within the vicinity of the proposed site access points. It is therefore concluded that the development proposals will not materially increase the accident potential within the study area.

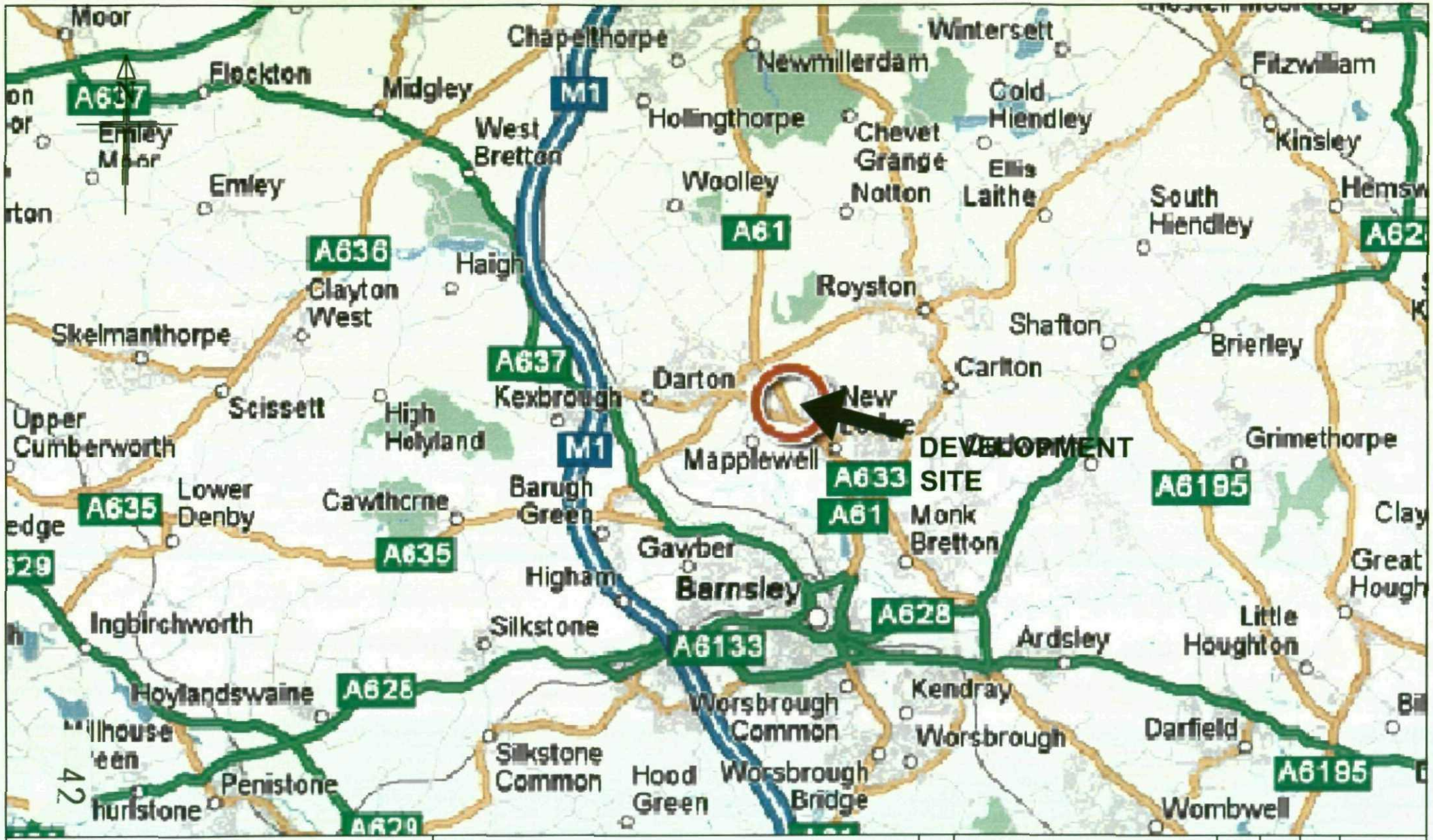
12.6 The overall conclusion is therefore that on highway and transport grounds there are no defensible reasons why planning consent for the development should be withheld.

APPENDIX BGH 1



Client	PIPESTONE GROUP LTD	Project	WAKEFIELD ROAD, MAPPLEWELL BARNSLEY			
BRYAN · G · HALL consulting civil & transportation planning engineers		Title	SITE LOCATION PLAN IN REALATION TO LOCAL HIGHWAY NETWORK	Rev	Amendments	Drwn / Chkd / Appr / Date
				Scale: NTS	Date: AUGUST 2008	Doc Sheet No:
				Drawn: ALS	Checked: EAG	Approved: EAG
				Job No: 08-334	Drawing No: BGH1-01	Rev: -

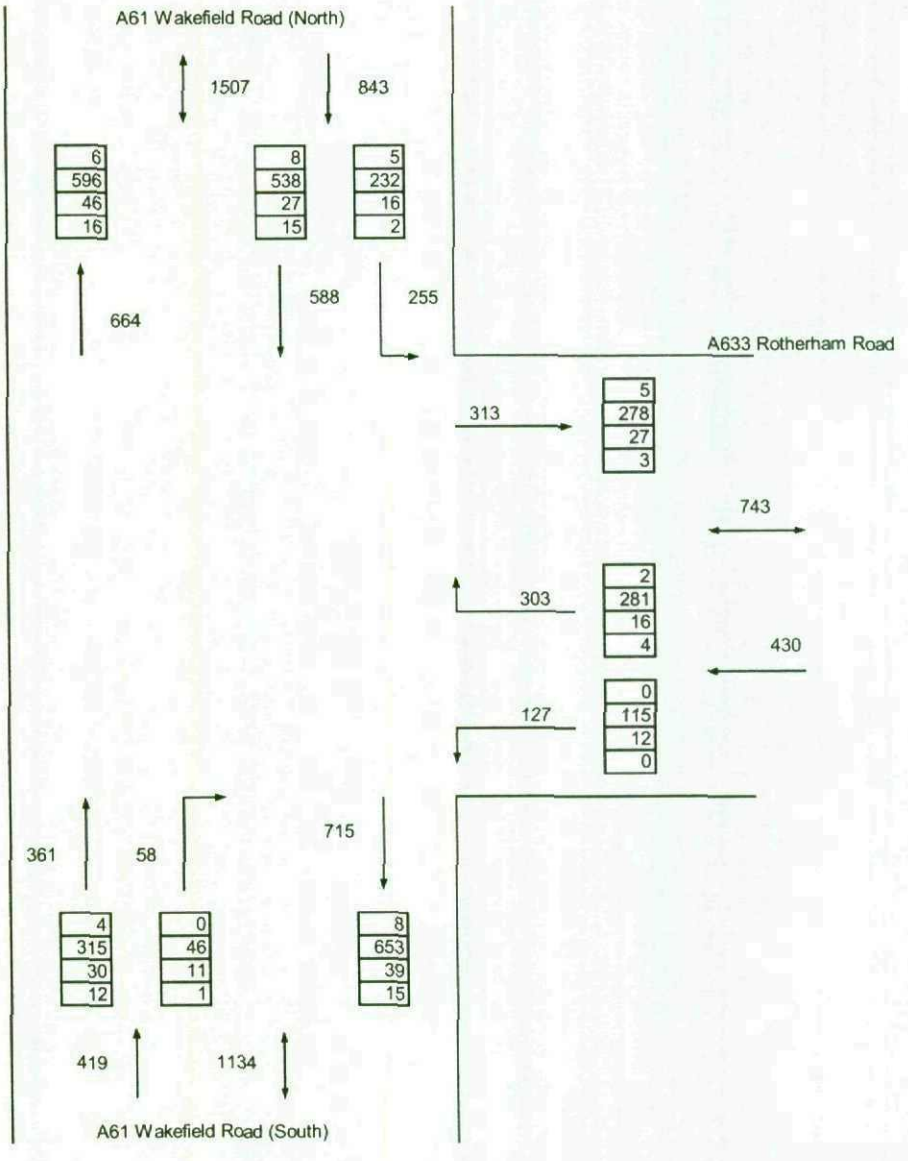
Bryan G Hall Ltd.
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http://www.bryanghall.co.uk



Client	PIPESTONE GROUP LTD	Project	WAKEFIELD ROAD, MAPPLEWELL BARNSLEY				
				Rev	Amendments	Drawn / Chkd / Appr / Date	
BRYAN · G · HALL consulting civil & transportation planning engineers	Bryan G Hall Ltd. Tel: +44(0)113 246 1555 Fax: +44(0)113 234 2201 http://www.bryanghall.co.uk	Title	SITE LOCATION PLAN IN RELATION TO REGIONAL HIGHWAY NETWORK	Scale: NTS	Date: AUGUST 2008	Doc Sheet No	
				Drawn: ALS	Checked: EAG	Approved: EAG	
				Job No: 08-334	Drawing No: BGH1-02	Rev: –	

APPENDIX BGH 2

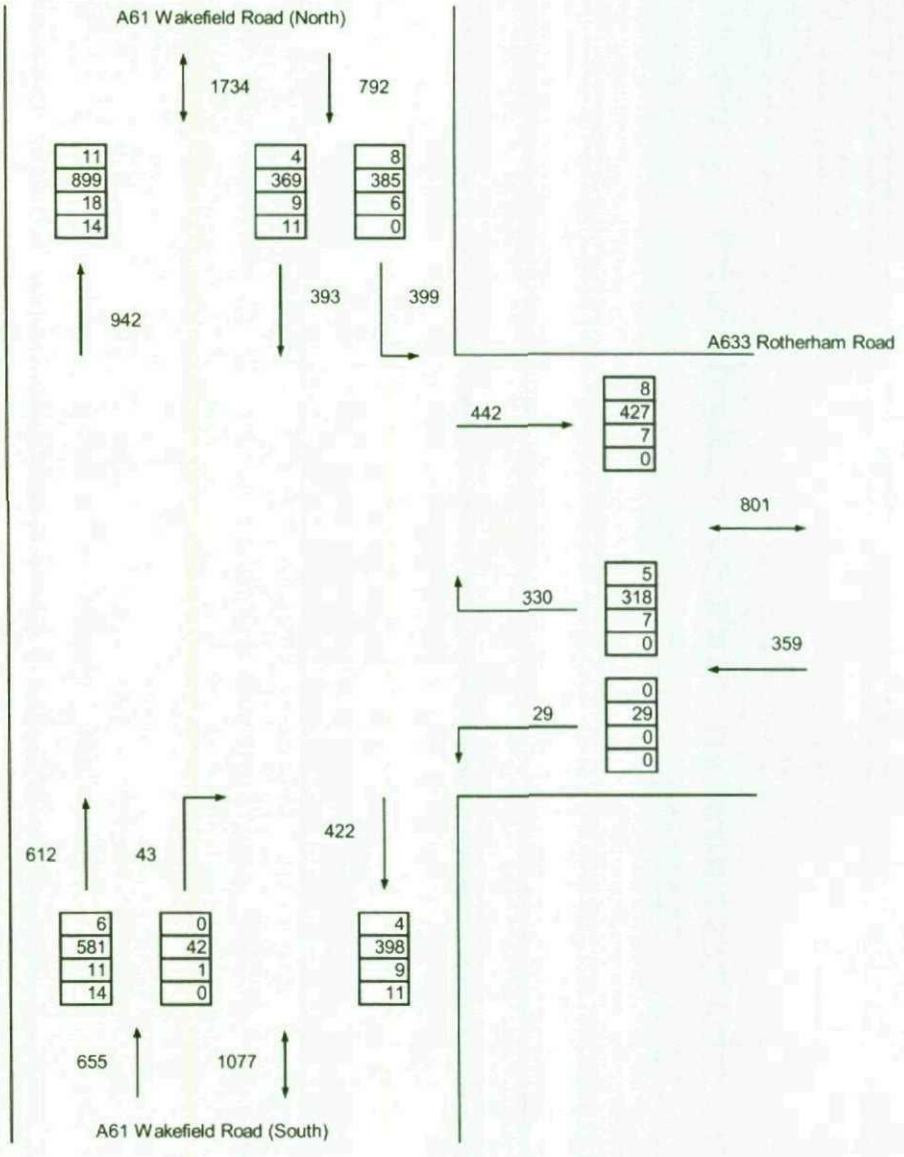
EXISTING VEHICULAR FLOWS
WAKEFIELD ROAD/ROTHERHAM ROAD
WEDNESDAY 2 JUNE 2008
8:00 am - 9:00 am



Vehicular Flows

	Motor cycles and pedal cycles
	Cars and light goods vehicles
	Heavy goods vehicles
	Buses

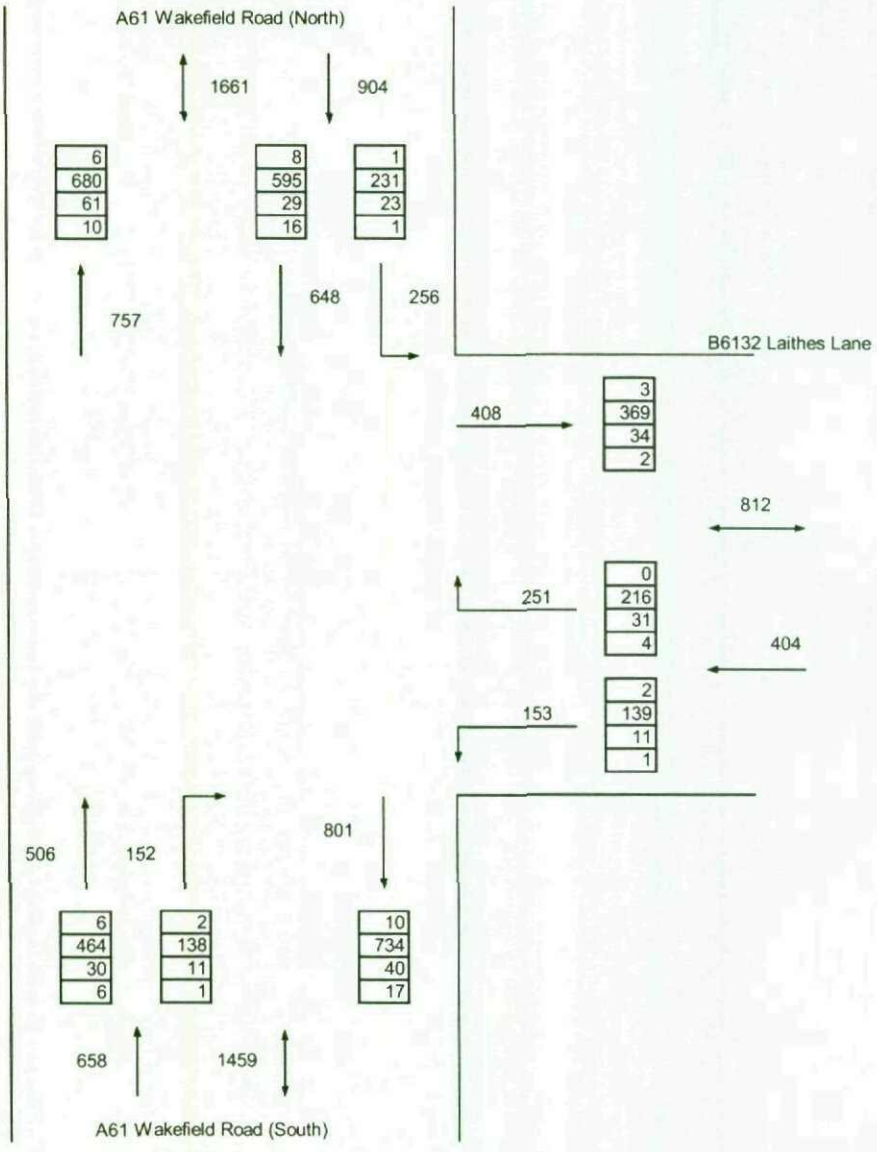
EXISTING VEHICULAR FLOWS
WAKEFIELD ROAD/ROTHERHAM ROAD
WEDNESDAY 2 JUNE 2008
5:00 pm - 6:00 pm



Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

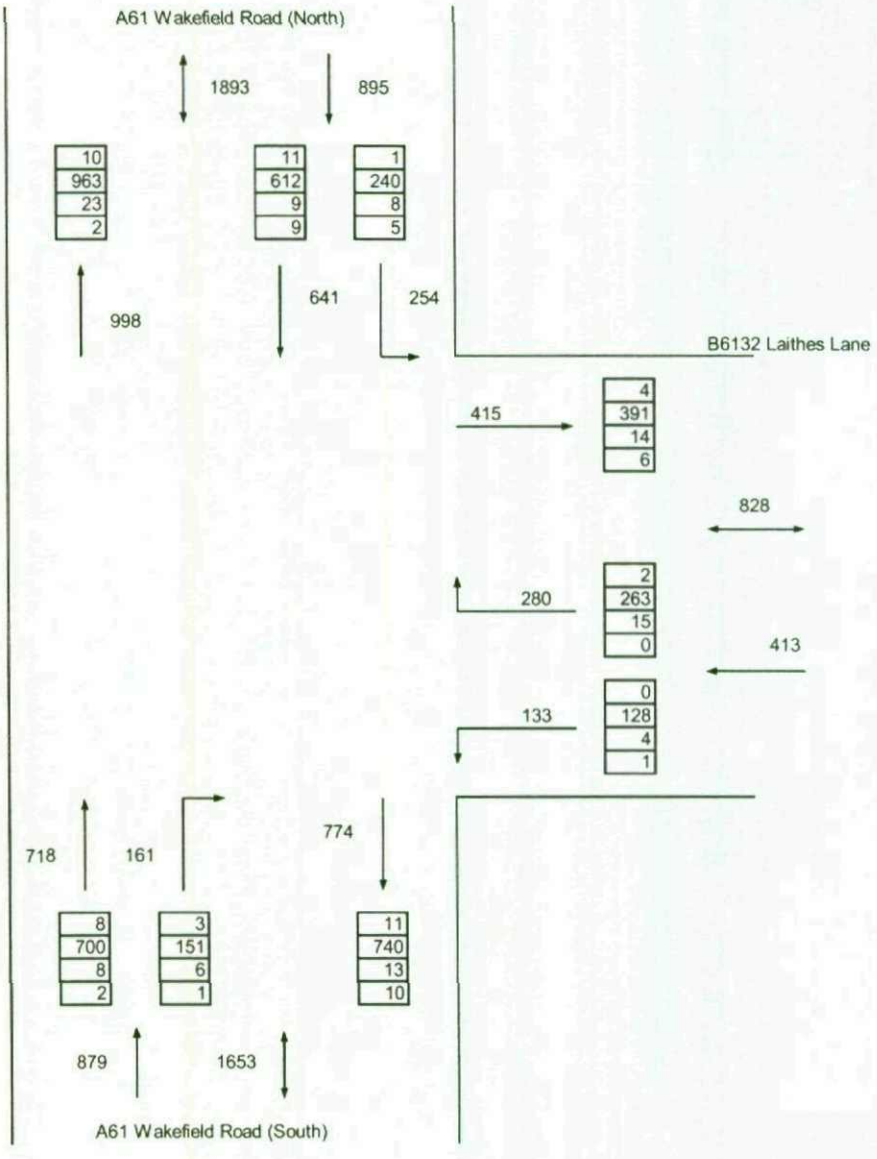
EXISTING VEHICULAR FLOWS
WAKEFIELD ROAD/LAITHES LANE
WEDNESDAY 02 JUNE 2008
8:00 am - 9:00 am



Vehicular Flows

	Motor cycles and pedal cycles
	Cars and light goods vehicles
	Heavy goods vehicles
	Buses

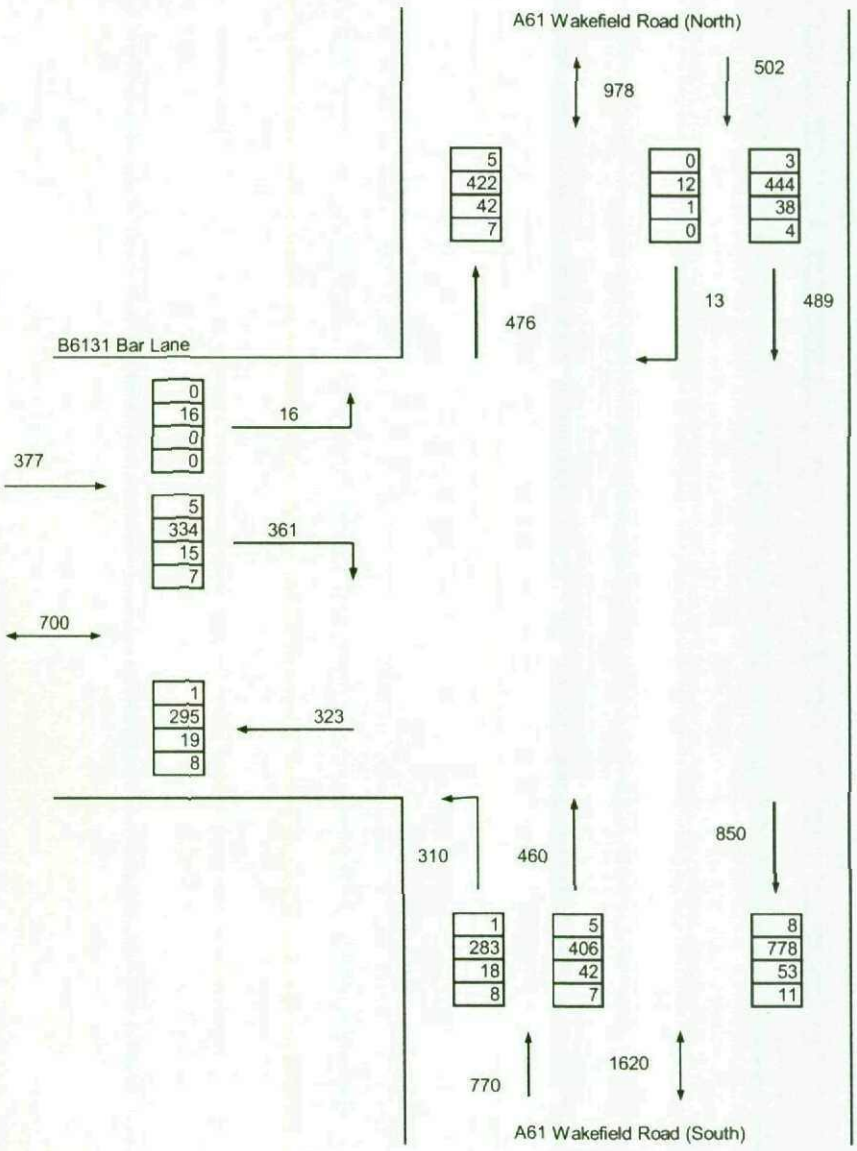
EXISTING VEHICULAR FLOWS
WAKEFIELD ROAD/LAITHES LANE
WEDNESDAY 02 JUNE 2008
5:00 pm - 6:00 pm



Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

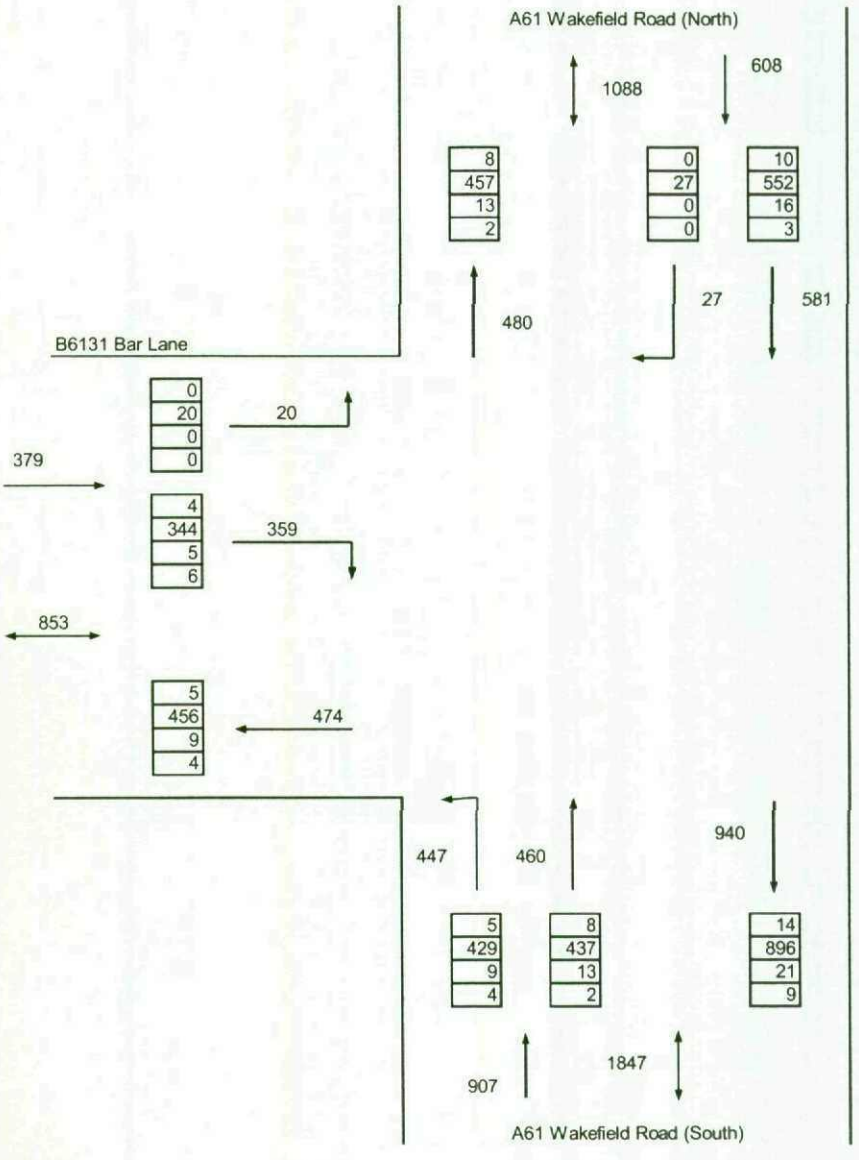
EXISTING VEHICULAR FLOWS
WAKEFIELD ROAD/BAR LANE
WEDNESDAY 02 JUNE 2008
8:00 am - 9:00 am



Vehicular Flows

	Motor cycles and pedal cycles
	Cars and light goods vehicles
	Heavy goods vehicles
	Buses

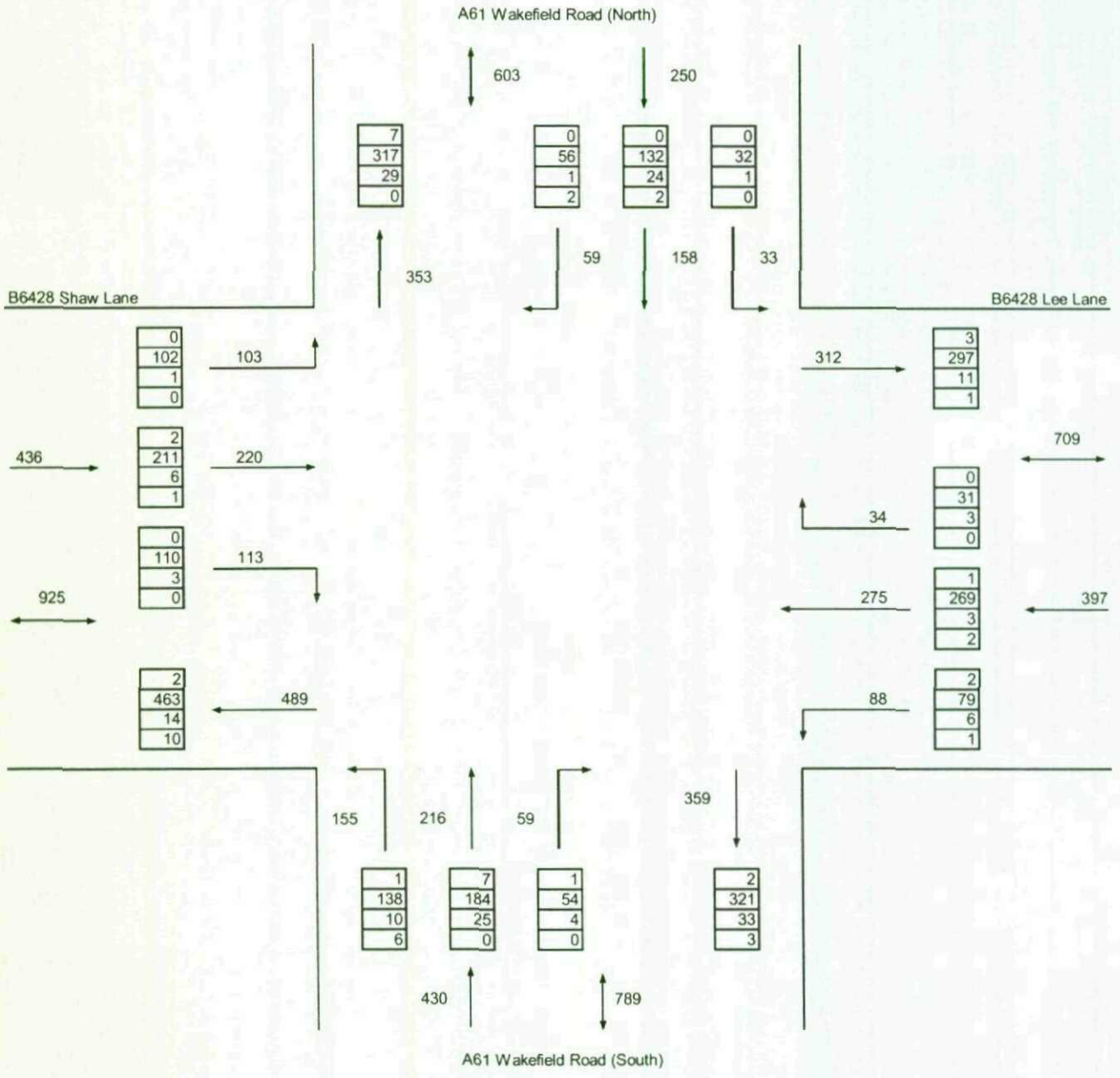
EXISTING VEHICULAR FLOWS
WAKEFIELD ROAD/BAR LANE
WEDNESDAY 02 JUNE 2008
5:00 pm - 6:00 pm



Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

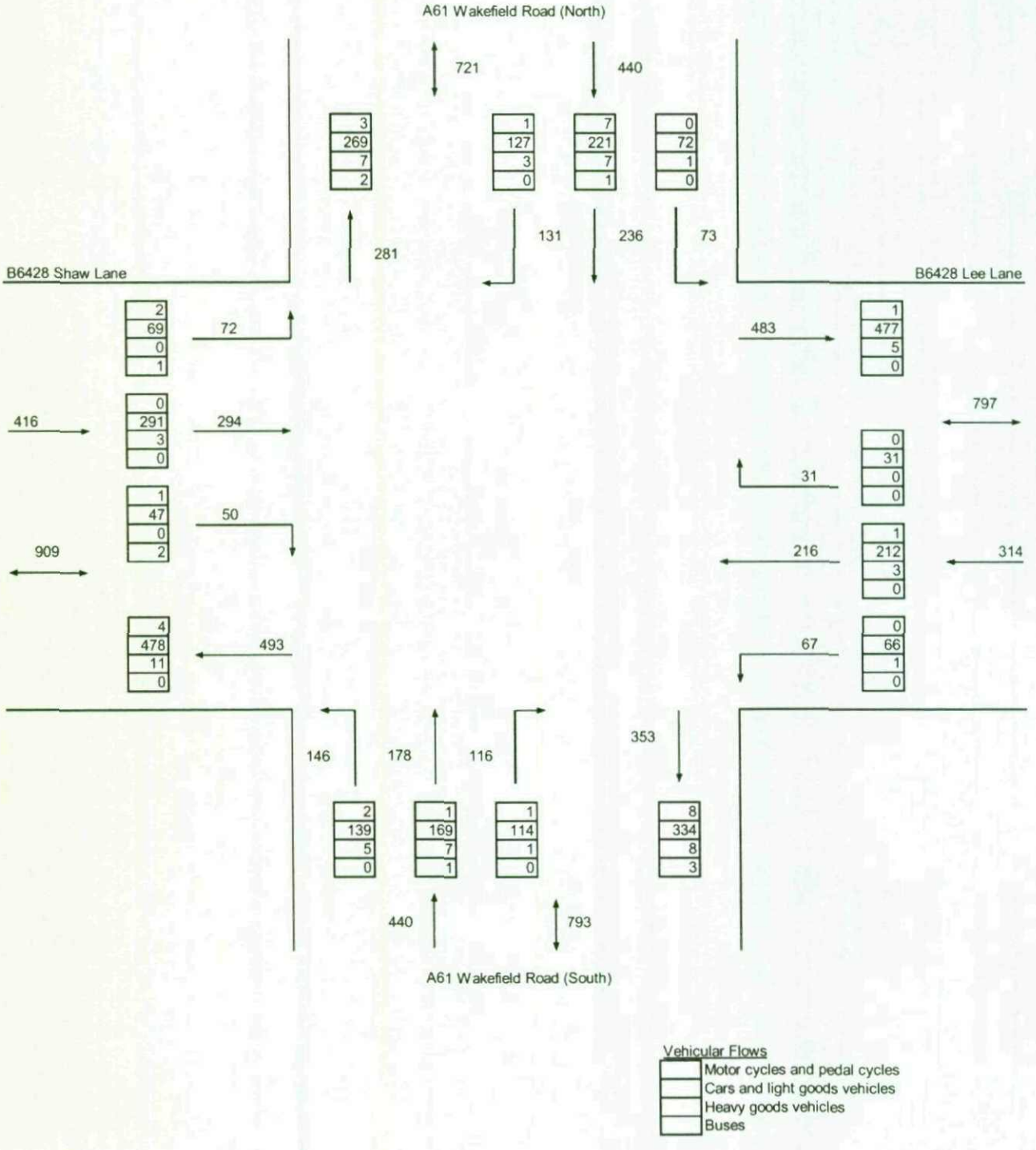
EXISTING VEHICULAR FLOWS
WAKEFIELD ROAD/SHAW LANE/LEE LANE
WEDNESDAY 02 JUNE 2008
8:00 am - 9:00 am



Vehicular Flows

	Motor cycles and pedal cycles
	Cars and light goods vehicles
	Heavy goods vehicles
	Buses

EXISTING VEHICULAR FLOWS
WAKEFIELD ROAD/SHAW LANE/LEE LANE
WEDNESDAY 02 JUNE 2008
5:00 pm - 6:00 pm



Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

APPENDIX BGH 3

TRL TRL VIEWER 3.0 AC y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Arcady\2008 Existing .

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-
"y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Arcady\2008 Existing AM Peak.vai"
(drive-on-the-left) at 16:08:40 on Wednesday, 15 October 2008

FILE PROPERTIES

RUN TITLE: Mini Roundabout 2008 Existing AM Peak
LOCATION: Mapplewell, Barnsley
DATE: 15/10/2008
CLIENT: Pipestone Group
ENUMERATOR: Asmith [AIMEE01]
JOB NUMBER: 08-334
STATUS: On-going
DESCRIPTION:

INPUT DATA

ARM A - A61 Wakefield Road (North)
ARM B - A633 Rotherham Road
ARM C - A61 Wakefield Road (South)

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

ARM A HAS A CENTRAL ISLAND
ARM B HAS A CENTRAL ISLAND
ARM C HAS A CENTRAL ISLAND

ARM	V (m)	E (m)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	6.10	6.70	24.00	5.90	20.00	21.00	0.00	1.504	37.265
ARM B	4.80	6.80	20.00	4.70	12.40	24.00	0.00	4.799	93.853
ARM C	4.60	5.60	14.00	4.20	20.00	21.40	0.00	1.647	35.458

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

WARNING ARM A:Entry corner kerb line distance is in range 20m-40m provided only for compatibility with accidents analysis. Treat capacities with increasing caution.
WARNING ARM B:Entry corner kerb line distance is in range 20m-40m provided only for compatibility with accidents analysis. Treat capacities with increasing caution.
WARNING ARM C:Entry corner kerb line distance is in range 20m-40m provided only for compatibility with accidents analysis. Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

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

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: Mini Roundabout 2008 Existing AM Peak

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	10.54	15.81	10.54
ARM B	15.00	45.00	75.00	5.38	8.06	5.38
ARM C	15.00	45.00	75.00	5.24	7.86	5.24

DEMAND SET TITLE: Mini Roundabout 2008 Existing AM Peak

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (VEH/HR) / (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000 0.0 (0.0)	0.302 255.0 (7.0)	0.698 588.0 (7.0)
	ARM B	0.705 303.0 (7.0)	0.000 0.0 (0.0)	0.295 127.0 (9.0)
	ARM C	0.862 361.0 (12.0)	0.138 58.0 (20.0)	0.000 0.0 (0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00								
ARM A	10.54	33.61	0.314		0.0	0.5	6.7	0.04
ARM B	5.38	52.25	0.103		0.0	0.1	1.7	0.02
ARM C	5.24	25.46	0.206		0.0	0.3	3.8	0.05

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15								
ARM A	12.58	33.37	0.377		0.5	0.6	8.9	0.05
ARM B	6.42	45.38	0.141		0.1	0.2	2.4	0.03
ARM C	6.25	24.31	0.257		0.3	0.3	5.1	0.06

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30								
ARM A	15.41	33.04	0.466		0.6	0.9	12.8	0.06
ARM B	7.86	35.99	0.218		0.2	0.3	4.1	0.04
ARM C	7.66	22.73	0.337		0.3	0.5	7.4	0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45								
ARM A	15.41	33.04	0.466		0.9	0.9	13.0	0.06
ARM B	7.86	35.93	0.219		0.3	0.3	4.2	0.04
ARM C	7.66	22.72	0.337		0.5	0.5	7.6	0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00								
ARM A	12.58	33.36	0.377		0.9	0.6	9.3	0.05
ARM B	6.42	45.28	0.142		0.3	0.2	2.5	0.03
ARM C	6.25	24.29	0.257		0.5	0.3	5.3	0.06

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	10.54	33.60	0.314		0.6	0.5	7.0	0.04
ARM B	5.38	52.12	0.103		0.2	0.1	1.7	0.02
ARM C	5.24	25.44	0.206		0.3	0.3	4.0	0.05

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	
08.15	0.6	*
08.30	0.9	*
08.45	0.9	*
09.00	0.6	*
09.15	0.5	

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.2
08.30	0.3
08.45	0.3
09.00	0.2
09.15	0.1

TRL TRL VIEWER 3.0 AC y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Arcady\2008 Existing ,

QUEUE AT ARM C

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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
A	1155.9	770.6	57.7	0.05	57.7	0.05
B	589.6	393.1	16.7	0.03	16.7	0.03
C	574.5	383.0	33.2	0.06	33.2	0.06
ALL	2320.1	1546.7	107.6	0.05	107.6	0.05

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

END OF JOB

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

[Printed at 16:09:07 on 15/10/2008]

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ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-
"y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Arcady\2008 Existing PM Peak.vai"
(drive-on-the-left) at 16:15:47 on Wednesday, 15 October 2008

FILE PROPERTIES

RUN TITLE: Mini Roundabout 2008 Existing PM Peak
LOCATION: Mapplewell, Barnsley
DATE: 15/10/2008
CLIENT: Pipestone Group
ENUMERATOR: Asmith [AIMEE01]
JOB NUMBER: 08-334
STATUS: On-going
DESCRIPTION:

INPUT DATA

ARM A - A61 Wakefield Road (North)
ARM B - A633 Rotherham Road
ARM C - A61 Wakefield Road (South)

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

ARM A HAS A CENTRAL ISLAND
ARM B HAS A CENTRAL ISLAND
ARM C HAS A CENTRAL ISLAND

ARM	V (m)	E (m)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	6.10	6.70	24.00	5.90	20.00	21.00	0.00	1.504	37.265
ARM B	4.80	6.80	20.00	4.70	12.40	24.00	0.00	4.799	93.853
ARM C	4.60	5.60	14.00	4.20	20.00	21.40	0.00	1.647	35.458

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

WARNING ARM A:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.
WARNING ARM B:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.
WARNING ARM C:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

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

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: Mini Roundabout 2008 Existing PM Peak

ARM	FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.90	14.85	9.90
ARM B	15.00	45.00	75.00	4.49	6.73	4.49
ARM C	15.00	45.00	75.00	8.19	12.28	8.19

DEMAND SET TITLE: Mini Roundabout 2008 Existing PM Peak

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (VEH/HR) (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000 0.0 (0.0)	0.504 399.0 (2.0)	0.496 393.0 (5.0)
	ARM B	0.919 330.0 (2.0)	0.000 0.0 (0.0)	0.081 29.0 (0.0)
	ARM C	0.934 612.0 (4.0)	0.066 43.0 (0.0)	0.000 0.0 (0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00								
ARM A	9.90	35.23	0.281		0.0	0.4	5.7	0.04
ARM B	4.49	67.91	0.066		0.0	0.1	1.1	0.02
ARM C	8.19	27.51	0.298		0.0	0.4	6.2	0.05

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15								
ARM A	11.82	35.08	0.337		0.4	0.5	7.5	0.04
ARM B	5.36	63.15	0.085		0.1	0.1	1.4	0.02
ARM C	9.78	26.21	0.373		0.4	0.6	8.7	0.06

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30								
ARM A	14.48	34.87	0.415		0.5	0.7	10.4	0.05
ARM B	6.56	56.64	0.116		0.1	0.1	2.0	0.02
ARM C	11.97	24.42	0.490		0.6	1.0	13.9	0.08

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45								
ARM A	14.48	34.87	0.415		0.7	0.7	10.6	0.05
ARM B	6.56	56.61	0.116		0.1	0.1	2.0	0.02
ARM C	11.97	24.41	0.491		1.0	1.0	14.3	0.08

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00								
ARM A	11.82	35.07	0.337		0.7	0.5	7.8	0.04
ARM B	5.36	63.10	0.085		0.1	0.1	1.4	0.02
ARM C	9.78	26.20	0.373		1.0	0.6	9.2	0.06

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	9.90	35.23	0.281		0.5	0.4	6.0	0.04
ARM B	4.49	67.83	0.066		0.1	0.1	1.1	0.02
ARM C	8.19	27.50	0.298		0.6	0.4	6.5	0.05

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.5	*
17.30	0.7	*
17.45	0.7	*
18.00	0.5	*
18.15	0.4	

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.1

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.6	*
17.30	1.0	*
17.45	1.0	*
18.00	0.6	*
18.15	0.4	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1086.0	724.0	48.0	0.04	48.0	0.04
B	492.3	328.2	8.8	0.02	8.8	0.02
C	898.1	598.8	58.8	0.07	58.8	0.07
ALL	2476.4	1650.9	115.6	0.05	115.6	0.05

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

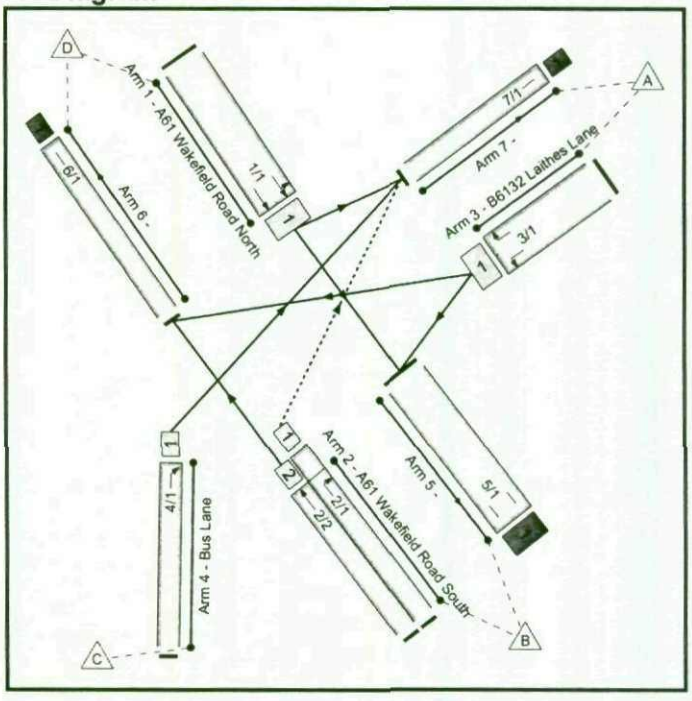
END OF JOB

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A61 Wakefield Road / B6132 Laithes Lane Existing 2008 Assessment

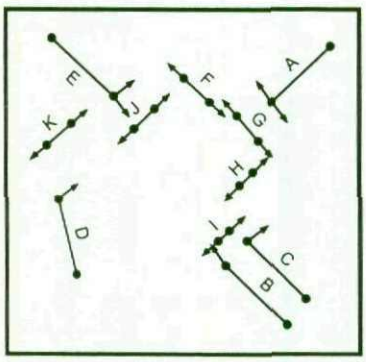
Junction Layout Diagram



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	Bus		7	7
E	Traffic		7	7
F	Pedestrian		9	9
G	Pedestrian		9	9
H	Pedestrian		9	9
I	Pedestrian		9	9
J	Pedestrian		9	9
K	Pedestrian		9	9

Phase Diagram



Intergreens Table

		Starting Phase										
		A	B	C	D	E	F	G	H	I	J	K
Terminating Phase	A		8	7	7	9	-	5	8	-	-	10
	B	8		-	6	-	-	-	-	5	-	10
	C	7	-		7	8	9	-	-	5	-	-
	D	7	6	7		8	8	-	-	-	-	-
	E	9	-	8	8		7	-	10	-	5	-
	F	-	-	8	8	8		-	-	-	-	-
	G	8	-	-	-	-	-		-	-	-	-
	H	8	-	-	-	8	-	-		-	-	-
	I	-	7	7	-	-	-	-	-		-	-
	J	-	-	-	-	9	-	-	-	-		-
	K	5	5	-	-	-	-	-	-	-	-	

Phase Delays

There are no phase delays defined in this stage stream

Prohibited Stage Changes Table

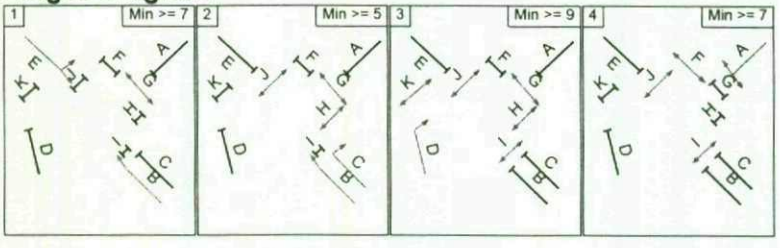
		To Stage			
		1	2	3	4
From Stage	1		10	10	9
	2	9		10	9
	3	9	7		8
	4	9	8	10	

Stage Data table

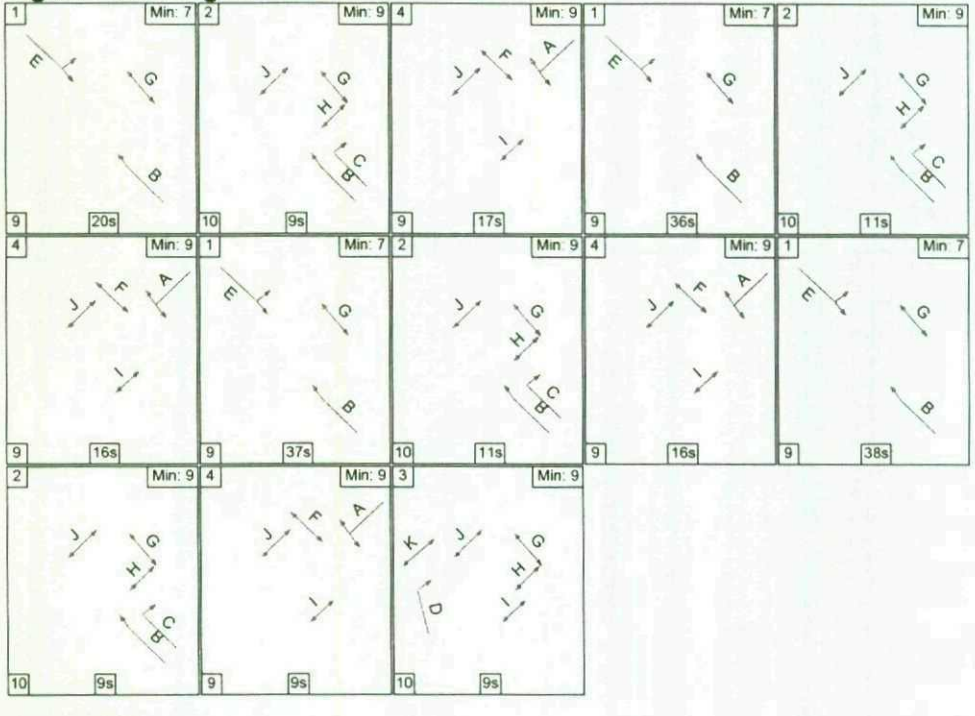
Stage No.	Phases in Stage
1	B E G
2	B C G H J
3	D G H I J K
4	A F I J

Scenario 1: 'Existing 2008 AM Peak'
Staging Plan 2: 'Bus every four cycles'
Flow Group 1: 'Existing 2008 AM Peak'

Stages Diagram

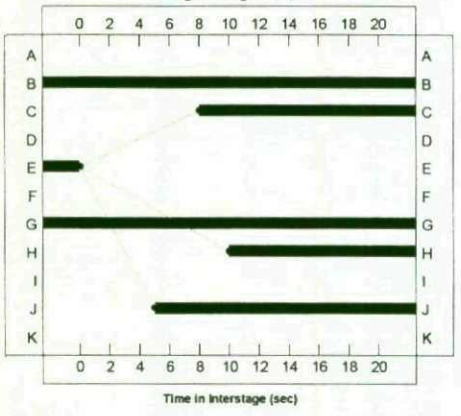


Signal Plan Diagram

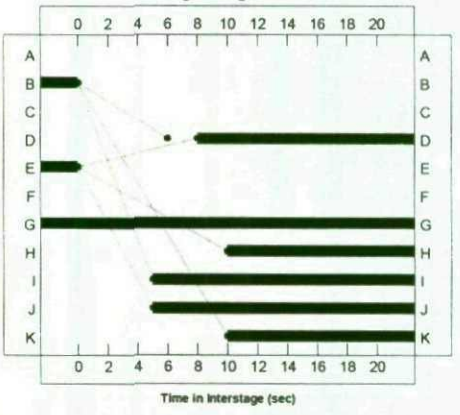


Interstage Diagram

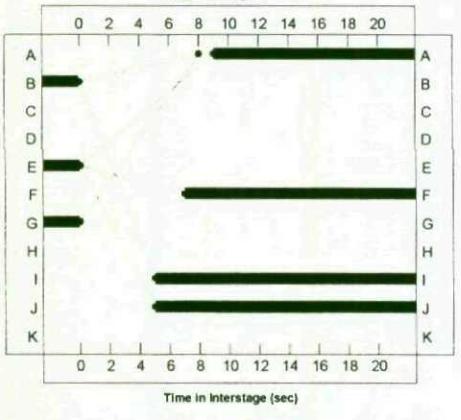
Stage Change 1 -> 2



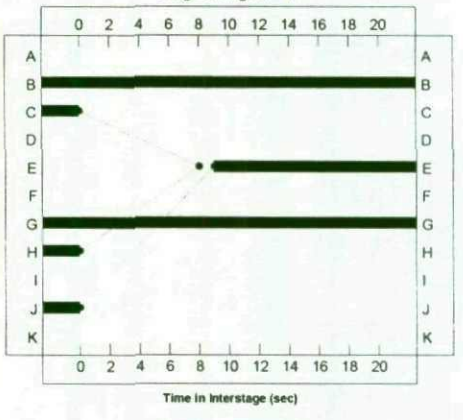
Stage Change 1 -> 3



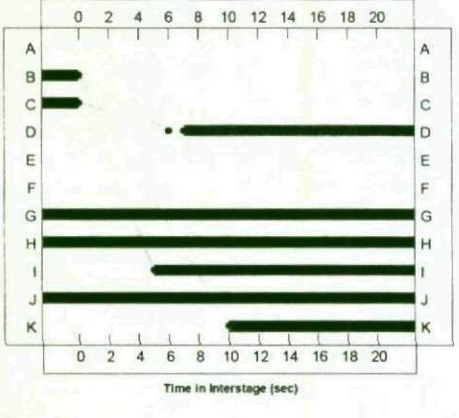
Stage Change 1 -> 4



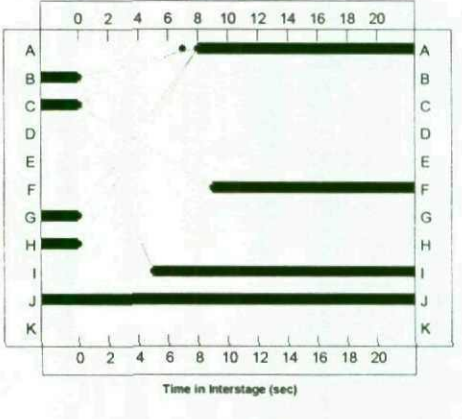
Stage Change 2 -> 1



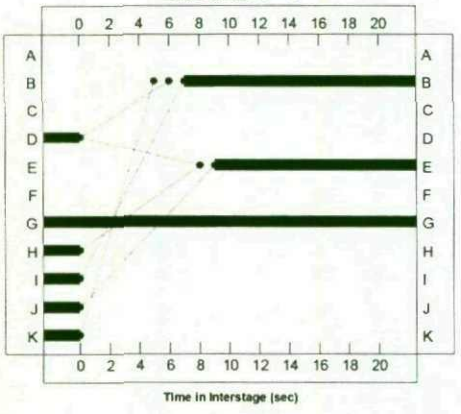
Stage Change 2 -> 3



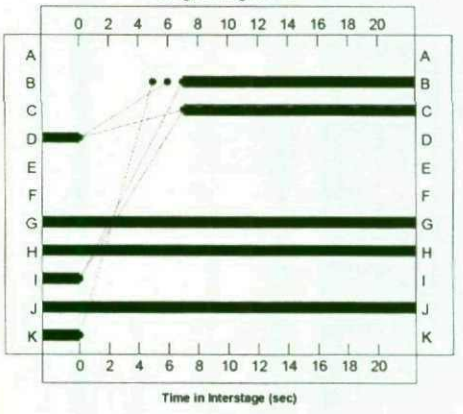
Stage Change 2 -> 4



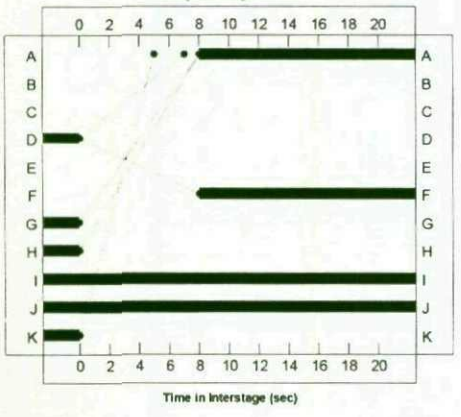
Stage Change 3 -> 1



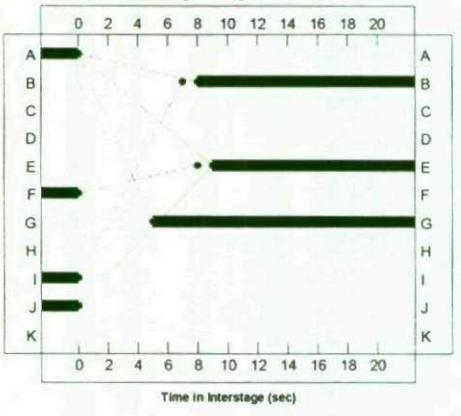
Stage Change 3 -> 2



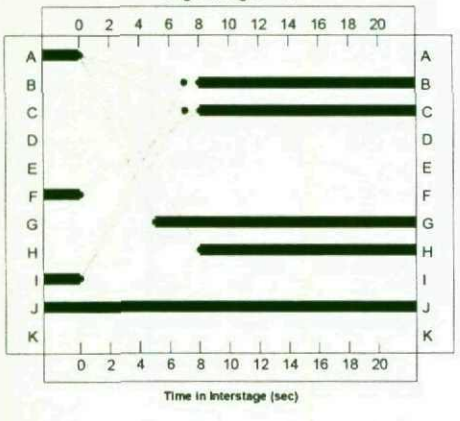
Stage Change 3 -> 4



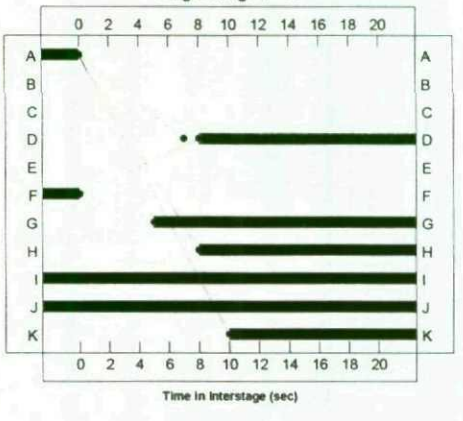
Stage Change 4 -> 1



Stage Change 4 -> 2



Stage Change 4 -> 3



Link data table

Arm/ Link	Link Name	Link Type	Num Lanes	Phases	Start Disp.	End Disp.
1/1	A61 Wakefield Road North Ahead Left	U	2	E	2	3
2/1	A61 Wakefield Road South Right	O	1	C	2	3
2/2	A61 Wakefield Road South Ahead	U	1	B	2	3
3/1	B6132 Laithes Lane Left Right	U	2	A	2	3
4/1	Bus Lane Right	U	1	D	2	3
5/1		U	2		2	3
6/1		U	1		2	3
7/1		U	1		2	3

Opposed Link Data Table

Arm/ Link	Link Name	Movement	Max Flow when Giving Way (PCU/Hr)	Opposing Link	Opp. Link Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	RTF	Right Turn Move up time (s)	Max Turns in Intergreen (PCU)
2/1	A61 Wakefield Road South Right	2/1 to 7/1	1439	1/1	1.09	1/1	2.00	0.50	2	2.00

Lane Data Table

Arm/ Lane	Link Num	Physical Length (PCU)	Expected Usage (PCU)	Sat Flow Type	User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)
1/1 (A61 Wakefield Road North Lane 1)	Link 1 (A61 Wakefield Road North Ahead Left)	Inf	Inf	Geom	1800	3.90	0.00	Y	Arm 5 Ahead	Inf
									Arm 7 Left	12.00
1/2 (A61 Wakefield Road North Lane 2)	Link 1 (A61 Wakefield Road North Ahead Left)	Inf	Inf	Geom	1800	3.90	0.00	N	Arm 5 Ahead	Inf
2/1 (A61 Wakefield Road South Lane 1)	Link 2 (A61 Wakefield Road South Ahead)	Inf	Inf	Geom	1800	3.35	0.00	Y	Arm 6 Ahead	Inf
2/2 (A61 Wakefield Road South Lane 2)	Link 1 (A61 Wakefield Road South Right)	Inf	Inf	Geom	1800	3.35	0.00	Y	Arm 7 Right	15.00
3/1 (B6132 Laithes Lane Lane 1)	Link 1 (B6132 Laithes Lane Left Right)	Inf	Inf	Geom	1800	3.50	0.00	Y	Arm 5 Left	15.00
3/2 (B6132 Laithes Lane Lane 2)	Link 1 (B6132 Laithes Lane Left Right)	Inf	Inf	Geom	1800	3.50	0.00	N	Arm 6 Right	30.00
4/1 (Bus Lane Lane 1)	Link 1 (Bus Lane Right)	Inf	Inf	Geom	1800	4.30	0.00	Y	Arm 7 Right	30.00
5/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.45	0.00	Y		
5/2	Link 1	Inf	Inf	Inf (Exit)	1800	3.45	0.00	N		
6/1	Link 1	Inf	Inf	Inf (Exit)	1800	4.60	0.00	Y		
7/1	Link 1	Inf	Inf	Inf (Exit)	1800	5.00	0.00	Y		

Lane Data Table

Flow Group 1: 'Existing 2008 AM Peak'

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (A61 Wakefield Road North Lane 1)	3.90	0.00	Y	Arm 5 Ahead	Inf	42.5 %	1870
				Arm 7 Left	12.00	57.5 %	
1/2 (A61 Wakefield Road North Lane 2)	3.90	0.00	N	Arm 5 Ahead	Inf	100.0 %	2145
2/1 (A61 Wakefield Road South Lane 1)	3.35	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1950
2/2 (A61 Wakefield Road South Lane 2)	3.35	0.00	Y	Arm 7 Right	15.00	100.0 %	1773
3/1 (B6132 Laithes Lane Lane 1)	3.50	0.00	Y	Arm 5 Left	15.00	100.0 %	1786
3/2 (B6132 Laithes Lane Lane 2)	3.50	0.00	N	Arm 6 Right	30.00	100.0 %	2005
4/1 (Bus Lane Lane 1)	4.30	0.00	Y	Arm 7 Right	30.00	100.0 %	1948
5/1	3.45	0.00	Y				1960
5/2	3.45	0.00	N				2100
6/1	4.60	0.00	Y				2075
7/1	5.00	0.00	Y				2115

Traffic Flow Matrix

Flow Group 1: 'Existing 2008 AM Peak'

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	165	-	286	451
	B	163	0	-	536	699
	C	2	0	-	0	2
	D	280	693	-	0	973
	Tot.	445	858	-	822	2125

Flow Group 2: 'Existing 2008 PM Peak'
Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	138	-	295	433
	B	167	0	-	726	893
	C	2	0	-	0	2
	D	267	659	-	0	926
	Tot.	436	797	-	1021	2254

Link Results

Scenario 1: 'Existing 2008 AM Peak'
Staging Plan 2: 'Bus every four cycles'
Flow Group 1: 'Existing 2008 AM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	A61 Wakefield Road North Ahead Left	U	E		4	131	-	973	4015	1506	64.6	26.7	22.7	23.6
2/1	A61 Wakefield Road South Right	O	C		4	48	-	163	1773	256	63.6	55.3	3.9	4.8
2/2	A61 Wakefield Road South Ahead	U	B		4	216	-	536	1950	1192	45.0	12.3	8.8	9.2
3/1	B6132 Laithes Lane Left Right	U	A		4	62	-	451	3791	695	64.9	41.4	10.4	11.3
4/1	Bus Lane Right	U	D		1	11	-	2	1948	65	3.1	197.3	0.2	0.2

PRC for Signalled Links (%): 38.7 Total Delay for Signalled Links (pcuHr): 16.85
PRC Over All Links (%): 38.7 Total Delay Over All Links(pcuHr): 16.85 Cycle Time (s): 360

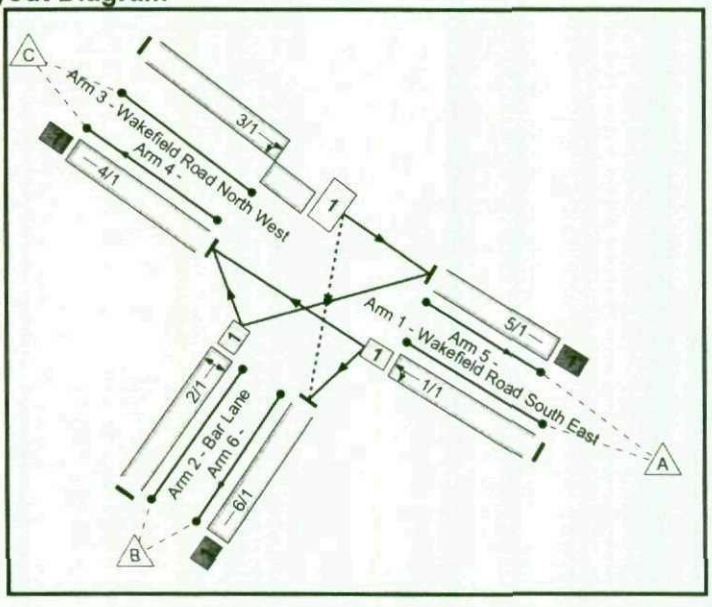
Scenario 2: 'Existing 2008 PM Peak'
Staging Plan 2: 'Bus every four cycles'
Flow Group 2: 'Existing 2008 PM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	A61 Wakefield Road North Ahead Left	U	E		4	129	-	926	4015	1483	62.4	26.6	21.3	22.2
2/1	A61 Wakefield Road South Right	O	C		4	50	-	167	1773	266	62.8	53.8	4.0	4.9
2/2	A61 Wakefield Road South Ahead	U	B		4	216	-	726	1950	1192	60.9	14.9	13.7	14.5
3/1	B6132 Laithes Lane Left Right	U	A		4	62	-	433	3791	695	62.3	40.7	10.2	11.0
4/1	Bus Lane Right	U	D		1	11	-	2	1948	65	3.1	197.3	0.2	0.2

PRC for Signalled Links (%): 43.3 Total Delay for Signalled Links (pcuHr): 17.35
PRC Over All Links (%): 43.3 Total Delay Over All Links(pcuHr): 17.35 Cycle Time (s): 360

A61 Wakefield Road / Bar Lane Existing 2008 Assessment

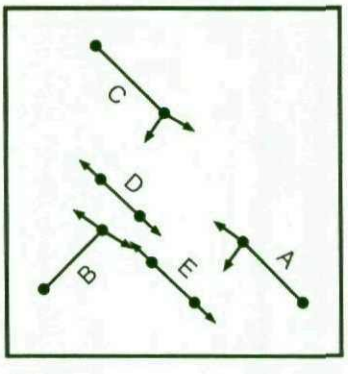
Junction Layout Diagram



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	Pedestrian		8	8
E	Pedestrian		8	8

Phase Diagram



Intergreens Table

		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		8	-	-	7
	B	6		7	5	-
	C	-	7		-	8
	D	-	7	-		-
	E	8	-	8	-	

Phase Delays

There are no phase delays defined in this stage stream

Prohibited Stage Changes Table

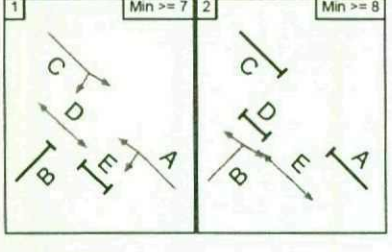
	To Stage		
		1	2
From Stage	1		8
	2	8	

Stage Data table

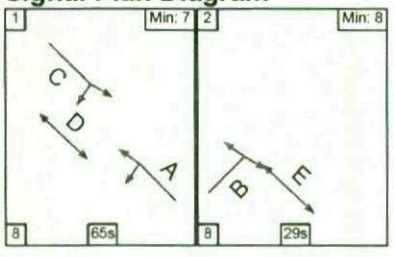
Stage No.	Phases in Stage
1	A C D
2	B E

Scenario 1: 'Existing 2008 Flows AM Peak'
Staging Plan 1: 'Staging Plan No. 1'
Flow Group 1: 'Existing 2008 Flows AM Peak'

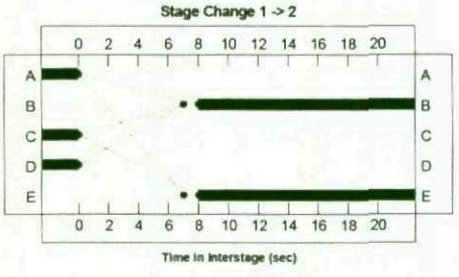
Stages Diagram

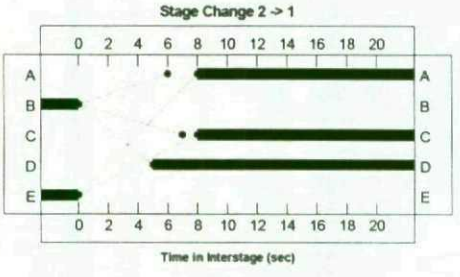


Signal Plan Diagram



Interstage Diagram





Link data table

Arm/ Link	Link Name	Link Type	Num Lanes	Phases	Start Disp.	End Disp.
1/1	Wakefield Road South East Ahead Left	U	1	A	2	3
2/1	Bar Lane Left Right	U	1	B	2	3
3/1	Wakefield Road North West Ahead Right	O	1	C	2	3
4/1		U	1		2	3
5/1		U	1		2	3
6/1		U	1		2	3

Opposed Link Data Table

Arm/ Link	Link Name	Movement	Max Flow when Giving Way (PCU/Hr)	Opposing Link	Opp. Link Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up time (s)	Max Turns i Intergre (PCU)
3/1	Wakefield Road North West Ahead Right	3/1 to 6/1	1400	1/1	0.01	1/1	3.00	3.00	0.50	3	2.00

Lane Data Table

Arm/ Lane	Link Num	Physical Length (PCU)	Expected Usage (PCU)	Sat Flow Type	User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)
1/1 (Wakefield Road South East Lane 1)	Link 1 (Wakefield Road South East Ahead Left)	Inf	Inf	Geom	1800	4.00	0.00	Y	Arm 4 Ahead	Inf
									Arm 6 Left	10.00
2/1 (Bar Lane Lane 1)	Link 1 (Bar Lane Left Right)	Inf	Inf	Geom	1800	5.00	0.00	Y	Arm 4 Left	20.00
									Arm 5 Right	20.00
3/1 (Wakefield Road North West Lane 1)	Link 1 (Wakefield Road North West Ahead *Right*)	Inf	Inf	Geom	1800	3.60	0.00	Y	Arm 5 Ahead	Inf
									Arm 6 Right	10.00
4/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		
5/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		
6/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		

Lane Data Table

Scenario 1: 'Existing 2008 Flows AM Peak'

Staging Plan 1: 'Staging Plan No. 1'

Flow Group 1: 'Existing 2008 Flows AM Peak'

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (Wakefield Road South East Lane 1)	4.00	0.00	Y	Arm 4 Ahead	Inf	60.2 %	1902
				Arm 6 Left	10.00	39.8 %	
2/1 (Bar Lane Lane 1)	5.00	0.00	Y	Arm 4 Left	20.00	4.0 %	1967
				Arm 5 Right	20.00	96.0 %	
3/1 (Wakefield Road North West Lane 1)	3.60	0.00	Y	Arm 5 Ahead	Inf	97.4 %	1967
				Arm 6 Right	10.00	2.6 %	
4/1	Infinite Saturation Flow (on Exit Link)						Inf
5/1	Infinite Saturation Flow (on Exit Link)						Inf
6/1	Infinite Saturation Flow (on Exit Link)						Inf

Traffic Flow Matrix

Flow Group 1: 'Existing 2008 Flows AM Peak'

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	336	509	845
	B	383	0	16	399
	C	531	14	0	545
	Tot.	914	350	525	1789

Flow Group 2: 'Existing 2008 Flows PM Peak'

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	460	485	945
	B	370	0	20	390
	C	600	27	0	627
	Tot.	970	487	505	1962

Link Results

Scenario 1: 'Existing 2008 Flows AM Peak'

Staging Plan 1: 'Staging Plan No. 1'

Flow Group 1: 'Existing 2008 Flows AM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	Wakefield Road South East Ahead Left	U	A		1	65	-	845	1902	1141	74.0	21.9	18.5	20.0
2/1	Bar Lane Left Right	U	B		1	29	-	399	1967	536	74.4	49.3	11.1	12.5
3/1	Wakefield Road North West Ahead Right	O	C		1	65	-	545	1967	1180	46.2	15.0	9.1	9.5

PRC for Signalled Links (%): 21.0 Total Delay for Signalled Links (pcuHr): 12.87

PRC Over All Links (%): 21.0 Total Delay Over All Links(pcuHr): 12.87 Cycle Time (s): 110

Scenario 2: 'Existing 2008 Flows PM Peak'

Staging Plan 1: 'Staging Plan No. 1'
Flow Group 2: 'Existing 2008 Flows PM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	Wakefield Road South East Ahead Left	U	A		1	68	-	945	1878	1178	80.2	23.0	21.5	23.5
2/1	Bar Lane Left Right	U	B		1	26	-	390	1967	483	80.8	57.7	11.2	13.2
3/1	Wakefield Road North West Ahead Right	O	C		1	68	-	627	1962	1231	50.9	14.2	10.5	11.0

PRC for Signalled Links (%): 11.4 Total Delay for Signalled Links (pcuHr): 14.75
PRC Over All Links (%): 11.4 Total Delay Over All Links(pcuHr): 14.75 Cycle Time (s): 110

TRL LIMITED

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

PICADY 5.0 ANALYSIS PROGRAM
RELEASE 3.0 (JUNE 2006)

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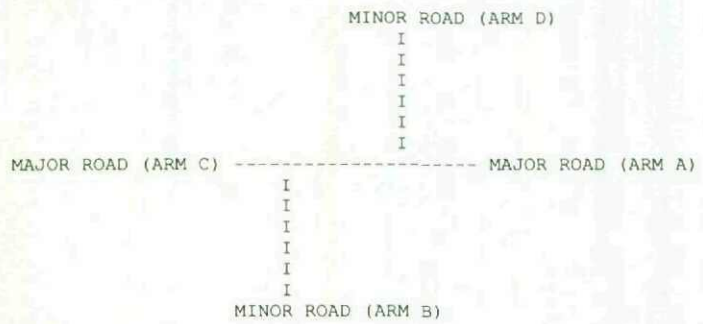
Run with file:-
"Y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Picady\Cross Roads\
Cross Roads Existing 2008 AM & PM Peak.vpi"
(drive-on-the-left) at 12:46:56 on Wednesday, 15 October 2008

RUN INFORMATION
****

RUN TITLE: Existing 2008 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads
LOCATION: Mapplewell, Barnsley
DATE: 15/10/08
CLIENT: Pipestone Group
ENUMERATOR: Asmith [AIMEE01]
JOB NUMBER: 08-334
STATUS: On-going
DESCRIPTION:

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

INPUT DATA



ARM A IS A61 Wakefield Road (North)
ARM B IS B6428 Lee Road
ARM C IS A61 Wakefield Road (South)
ARM D IS B6428 Shaw 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

DATA ITEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 9.20 M.	(W) 9.90 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 3.20 M.	(WA-D) 3.50 M.
- VISIBILITY	(VC-B) 120.0 M.	(VA-D) 120.0 M.
- BLOCKS TRAFFIC	NO	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 120.0 M.	(VD-A) 120.0 M.
- VISIBILITY TO RIGHT	(VB-A) 120.0 M.	(VD-C) 120.0 M.
- LANE 1 WIDTH	(WB-C) -	(WD-A) -
- LANE 2 WIDTH	(WB-A) -	(WD-C) -
- WIDTH AT 0 M FROM JUNC.	7.60 M.	10.00 M.
- WIDTH AT 5 M FROM JUNC.	5.60 M.	8.00 M.
- WIDTH AT 10 M FROM JUNC.	3.20 M.	5.50 M.
- WIDTH AT 15 M FROM JUNC.	3.50 M.	5.20 M.
- WIDTH AT 20 M FROM JUNC.	3.50 M.	4.00 M.
- LENGTH OF FLARED SECTION	DERIVED: 1 PCU	DERIVED: 3 PCU

.SLOPES AND INTERCPET

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

will be adjusted)

B-C Stream

Intercept For 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
643.46	0.21	0.21	0.08	0.08

B-AD Stream

Intercept For Stream B-AD	Slope For Opposing Stream A-C	Slope For Opposing Stream D-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-B
531.79	0.21	0.21	0.08	0.08

	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing Stream C-B	Slope For Opposing
	0.13	0.13	0.30	

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream D-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-B
643.46	0.21	0.21	0.08	0.08

D-BC Stream

Intercept For Stream D-BC	Slope For Opposing Stream C-A	Slope For Opposing Stream B-A	Slope For Opposing Stream C-D	Slope For Opposing Stream B-D
531.79	0.20	0.20	0.08	0.08

	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing Stream A-D	Slope For Opposing
	0.13	0.13	0.29	

C-B Stream

Intercept For Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-C	Slope For Opposing Stream D-B
713.49	0.24	0.24	0.24	0.24

A-D Stream

Intercept For Stream A-D	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing Stream B-A	Slope For Opposing Stream B-D
713.49	0.24	0.24	0.24	0.24

TRAFFIC DEMAND DATA

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

Demand set: Existing 2008 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	3.13	4.69	3.13
ARM B	15.00	45.00	75.00	4.96	7.44	4.96
ARM C	15.00	45.00	75.00	5.38	8.06	5.38
ARM D	15.00	45.00	75.00	5.45	8.17	5.45

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
07.45 - 09.15	ARM A	0.000	0.132	0.632	0.236
		0.0	33.0	158.0	59.0
		(0.0)	(3.0)	(16.0)	(5.0)
	ARM B	0.086	0.000	0.222	0.693
		34.0	0.0	88.0	275.0
		(9.0)	(0.0)	(8.0)	(2.0)
	ARM C	0.502	0.137	0.000	0.360
		216.0	59.0	0.0	155.0
		(12.0)	(7.0)	(0.0)	(10.0)
	ARM D	0.236	0.505	0.259	0.000
		103.0	220.0	113.0	0.0
		(1.0)	(3.0)	(3.0)	(0.0)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.10	6.91	0.160		0.00	0.19	2.7		0.17
	B-AD	3.88	8.06	0.481		0.00	0.90	12.5		0.23
	A-B	0.41								
	A-C	1.98								
	A-D	0.74	9.60	0.077		0.00	0.08	1.2		0.11
	D-A	1.29	8.54	0.151		0.00	0.18	2.5		0.14
	D-BC	4.18	8.68	0.482		0.00	0.90	12.6		0.22
	C-D	1.94								
	C-A	2.71								
	C-B	0.74	9.55	0.078		0.00	0.08	1.2		0.11

TIME		DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15										
	B-C	1.32	5.75	0.229		0.19	0.29	4.2		0.22
	B-AD	4.63	7.52	0.615		0.90	1.52	21.0		0.34
	A-B	0.49								
	A-C	2.37								
	A-D	0.88	9.18	0.096		0.08	0.11	1.6		0.12
	D-A	1.54	7.67	0.201		0.18	0.25	3.6		0.16
	D-BC	4.99	8.25	0.605		0.90	1.46	20.4		0.30
	C-D	2.32								
	C-A	3.24								
	C-B	0.88	9.23	0.096		0.08	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)
08.15-08.30										
	B-C	1.61	3.37	0.479		0.29	0.86	11.5		0.55
	B-AD	5.67	6.71	0.845		1.52	4.16	50.9		0.73
	A-B	0.61								
	A-C	2.90								
	A-D	1.08	8.62	0.126		0.11	0.14	2.1		0.13
	D-A	1.89	5.62	0.337		0.25	0.49	7.0		0.27
	D-BC	6.11	7.66	0.797		1.46	3.35	42.9		0.56
	C-D	2.84								
	C-A	3.96								
	C-B	1.08	8.80	0.123		0.10	0.14	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)
08.30-08.45										
	B-C	1.61	3.00	0.538		0.86	1.08	15.2		0.70
	B-AD	5.67	6.65	0.852		4.16	4.78	67.9		0.91
	A-B	0.61								
	A-C	2.90								
	A-D	1.08	8.58	0.126		0.14	0.14	2.1		0.13
	D-A	1.89	5.35	0.353		0.49	0.53	7.8		0.29
	D-BC	6.11	7.64	0.800		3.35	3.63	52.7		0.63
	C-D	2.84								
	C-A	3.96								
	C-B	1.08	8.78	0.123		0.14	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	1.32	5.41	0.244		1.08	0.33	5.4		0.25
B-AD	4.63	7.47	0.620		4.78	1.73	30.6		0.40
A-B	0.49								
A-C	2.37								
A-D	0.88	9.12	0.097		0.14	0.11	1.7		0.12
D-A	1.54	7.48	0.206		0.53	0.26	4.1		0.17
D-BC	4.99	8.22	0.607		3.63	1.62	27.1		0.34
C-D	2.32								
C-A	3.24								
C-B	0.88	9.19	0.096		0.14	0.11	1.6		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	1.10	6.80	0.162		0.33	0.20	3.1		0.18
B-AD	3.88	8.04	0.482		1.73	0.96	15.4		0.25
A-B	0.41								
A-C	1.98								
A-D	0.74	9.57	0.077		0.11	0.08	1.3		0.11
D-A	1.29	8.47	0.153		0.26	0.18	2.8		0.14
D-BC	4.18	8.66	0.482		1.62	0.96	15.3		0.23
C-D	1.94								
C-A	2.71								
C-B	0.74	9.53	0.078		0.11	0.08	1.3		0.11

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.2	
08.15	0.3	
08.30	0.9	*
08.45	1.1	*
09.00	0.3	
09.15	0.2	

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.9	*
08.15	1.5	**
08.30	4.2	****
08.45	4.8	*****
09.00	1.7	**
09.15	1.0	*

QUEUE FOR STREAM A-D

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

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.2	
08.15	0.2	
08.30	0.5	
08.45	0.5	*
09.00	0.3	
09.15	0.2	

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.9	*
08.15	1.5	*
08.30	3.3	***
08.45	3.6	****
09.00	1.6	**
09.15	1.0	*

QUEUE FOR STREAM C-B

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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	121.1	80.8	42.1	0.35	42.1	0.35
B-AD	425.3	283.5	198.2	0.47	198.3	0.47
A-B	45.4	30.3				
A-C	217.5	145.0				
A-D	81.2	54.1	9.9	0.12	9.9	0.12
D-A	141.8	94.5	28.0	0.20	28.0	0.20
D-BC	458.3	305.6	171.0	0.37	171.0	0.37
C-D	213.3	142.2				
C-A	297.3	198.2				
C-B	81.2	54.1	9.8	0.12	9.8	0.12
ALL	2082.5	1388.4	459.0	0.22	459.1	0.22

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

END OF JOB

.SLOPES AND INTERCPET

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

will be adjusted)

B-C Stream

Intercept For 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
643.46	0.21	0.21	0.08	0.08

B-AD Stream

Intercept For Stream B-AD	Slope For Opposing Stream A-C	Slope For Opposing Stream D-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-B
531.79	0.21	0.21	0.08	0.08

Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing Stream C-B	Slope For Opposing
0.13	0.13	0.30	

D-A Stream

Intercept For Stream D-A	Slope For Opposing Stream C-A	Slope For Opposing Stream D-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-B
643.46	0.21	0.21	0.08	0.08

D-BC Stream

Intercept For Stream D-BC	Slope For Opposing Stream C-A	Slope For Opposing Stream B-A	Slope For Opposing Stream C-D	Slope For Opposing Stream B-D
531.79	0.20	0.20	0.08	0.08

Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing Stream A-D	Slope For Opposing

I	0.13	0.13	0.29	I

C-B Stream

I Intercept For Stream C-B	Slope For Opposing Stream A-C	Slope For Opposing Stream A-B	Slope For Opposing Stream D-C	Slope For Opposing Stream D-B
I 713.49	0.24	0.24	0.24	0.24

A-D Stream

I Intercept For Stream A-D	Slope For Opposing Stream C-A	Slope For Opposing Stream C-D	Slope For Opposing Stream B-A	Slope For Opposing Stream B-D
I 713.49	0.24	0.24	0.24	0.24

TRAFFIC DEMAND DATA

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

Demand set: Existing 2008 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads Demand

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	5.50	8.25	5.50
ARM B	15.00	45.00	75.00	3.92	5.89	3.92
ARM C	15.00	45.00	75.00	5.50	8.25	5.50
ARM D	15.00	45.00	75.00	5.20	7.80	5.20

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 18.15					
	ARM A	0.000	0.166	0.536	0.298
		0.0	73.0	236.0	131.0
		(0.0)	(1.0)	(3.0)	(2.0)
	ARM B	0.099	0.000	0.213	0.688
		31.0	0.0	67.0	216.0
		(0.0)	(0.0)	(1.0)	(1.0)
	ARM C	0.405	0.264	0.000	0.332
		178.0	116.0	0.0	146.0
		(4.0)	(1.0)	(0.0)	(3.0)
	ARM D	0.173	0.707	0.120	0.000
		72.0	294.0	50.0	0.0
		(1.0)	(1.0)	(4.0)	(0.0)

TURNING PROPORTIONS
TURNING COUNTS (VEH/HR)
(PERCENTAGE OF H.V.S)

TURNING PROPORTIONS ARE CALCULATED FROM TURNING COUNT DATA

THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	0.84	7.85	0.107		0.00	0.12	1.7		0.14
B-AD	3.10	8.05	0.385		0.00	0.61	8.6		0.20
A-B	0.92								
A-C	2.96								
A-D	1.64	10.30	0.160		0.00	0.19	2.7		0.12
D-A	0.90	8.50	0.106		0.00	0.12	1.7		0.13
D-BC	4.32	8.61	0.501		0.00	0.97	13.5		0.23
C-D	1.83								
C-A	2.23								
C-B	1.46	9.81	0.148		0.00	0.17	2.5		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)
17.00-17.15									
B-C	1.00	6.98	0.144		0.12	0.17	2.4		0.17
B-AD	3.70	7.51	0.493		0.61	0.94	13.4		0.26
A-B	1.09								
A-C	3.54								
A-D	1.96	9.96	0.197		0.19	0.24	3.6		0.12
D-A	1.08	7.50	0.144		0.12	0.17	2.4		0.16
D-BC	5.15	8.14	0.633		0.97	1.64	22.7		0.32
C-D	2.19								
C-A	2.67								
C-B	1.74	9.41	0.185		0.17	0.22	3.3		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)
17.15-17.30									
B-C	1.23	5.27	0.233		0.17	0.30	4.3		0.25
B-AD	4.53	6.73	0.673		0.94	1.90	25.6		0.43
A-B	1.34								
A-C	4.33								
A-D	2.40	9.50	0.253		0.24	0.33	4.9		0.14
D-A	1.32	4.73	0.279		0.17	0.38	5.3		0.29
D-BC	6.31	7.49	0.842		1.64	4.19	51.9		0.67
C-D	2.68								
C-A	3.27								
C-B	2.13	8.87	0.240		0.22	0.31	4.5		0.15

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	1.23	5.14	0.239		0.30	0.31	4.6		0.26
B-AD	4.53	6.70	0.676		1.90	1.99	29.4		0.46
A-B	1.34								
A-C	4.33								
A-D	2.40	9.49	0.253		0.33	0.34	5.0		0.14
D-A	1.32	4.28	0.309		0.38	0.43	6.3		0.34
D-BC	6.31	7.48	0.844		4.19	4.66	66.9		0.79
C-D	2.68								
C-A	3.27								
C-B	2.13	8.83	0.241		0.31	0.32	4.7		0.15

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	1.00	6.86	0.146		0.31	0.17	2.7		0.17
B-AD	3.70	7.47	0.496		1.99	1.02	16.4		0.27
A-B	1.09								
A-C	3.54								
A-D	1.96	9.94	0.197		0.34	0.25	3.8		0.13
D-A	1.08	7.23	0.149		0.43	0.18	2.8		0.16
D-BC	5.15	8.12	0.634		4.66	1.84	31.9		0.38
C-D	2.19								
C-A	2.67								
C-B	1.74	9.35	0.186		0.32	0.23	3.6		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)
18.00-18.15									
B-C	0.84	7.79	0.108		0.17	0.12	1.9		0.14
B-AD	3.10	8.03	0.386		1.02	0.64	10.1		0.20
A-B	0.92								
A-C	2.96								
A-D	1.64	10.29	0.160		0.25	0.19	2.9		0.12
D-A	0.90	8.42	0.107		0.18	0.12	1.9		0.13
D-BC	4.32	8.60	0.502		1.84	1.04	16.6		0.24
C-D	1.83								
C-A	2.23								
C-B	1.46	9.78	0.149		0.23	0.18	2.7		0.12

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	0.3	
17.45	0.3	
18.00	0.2	
18.15	0.1	

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.6	*
17.15	0.9	*
17.30	1.9	**
17.45	2.0	**
18.00	1.0	*
18.15	0.6	*

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.2
17.30	0.3
17.45	0.3
18.00	0.2
18.15	0.2

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.2
17.30	0.4
17.45	0.4
18.00	0.2
18.15	0.1

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.0	*
17.15	1.6	**
17.30	4.2	****
17.45	4.7	*****
18.00	1.8	**
18.15	1.0	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.2
17.30	0.3
17.45	0.3
18.00	0.2
18.15	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	92.2	61.5	17.6	0.19	17.6	0.19
B-AD	340.0	226.7	103.5	0.30	103.5	0.30
A-B	100.5	67.0				
A-C	324.8	216.6				
A-D	180.3	120.2	23.0	0.13	23.0	0.13
D-A	99.1	66.1	20.4	0.21	20.4	0.21
D-BC	473.5	315.7	203.5	0.43	203.6	0.43
C-D	201.0	134.0				
C-A	245.0	163.3				
C-B	159.7	106.4	21.3	0.13	21.3	0.13
ALL	2216.0	1477.4	389.3	0.18	389.4	0.18

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

END OF JOB

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

[Printed at 12:47:05 on 15/10/2008]

APPENDIX BGH 4

TRAFFMAP
AccsMap - Accident Analysis System

SUMMARY REPORT

Run on: **23/09/2008**

Accidents between dates **01/05/2003** **and** **30/04/2008** (60) months

Selection:

Selected using Build Query : Local_auth=210

Notes:

Police Ref.	Acc Class	Date	Time	Grid References	Casualties Ftl	Ser	Slt	Causation Factors/ Prob	Ped L MD	Light	Weather	Road Surface	Vehicle Types
D-00353-03	Slight	04/05/2003	1345	434030 409700	0	0	1	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	9 4
D-00440-03	Slight	06/06/2003	1757	434330 409500	0	0	2	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	9 4
D-00545-03	Slight	04/07/2003	1640	434560 409230	0	0	2	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	9 9 9
D-00543-03	Fatal	08/07/2003	2212	433430 410710	1	1	0	0 0 0 0 0 0	0 0 0	Dark	Fine without high winds	Dry	9 9
D-00595-03	Slight	30/07/2003	1010	434524 409314	0	0	1	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	9 9
D-00613-03	Serious	04/08/2003	1725	434490 409340	0	1	0	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	9 4
D-00681-03	Slight	02/09/2003	0900	434475 409356	0	0	2	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	11 19
D-00749-03	Slight	29/09/2003	1615	434511 409296	0	0	2	0 0 0 0 0 0	1 3	Light	Fine without high winds	Dry	9
D-00790-03	Fatal	14/10/2003	1035	434682 409098	1	0	1	0 0 0 0 0 0	5 3	Light	Fine without high winds	Dry	4
D-00814-03	Slight	24/10/2003	2005	434053 409658	0	0	2	0 0 0 0 0 0	0 0 0	Dark	Fine without high winds	Dry	9 9
B-00017-04	Slight	03/01/2004	1145	434830 408950	0	0	1	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Wet/Damp	9 9
B-00116-04	Fatal	25/01/2004	1959	433411 411098	2	1	0	0 0 0 0 0 0	0 0 0	Dark	Fine without high winds	Wet/Damp	9 9
B-00435-04	Slight	20/03/2004	1755	434516 409287	0	0	1	0 0 0 0 0 0	0 0 0	Light	Raining with high winds	Wet/Damp	9 9
B-00463-04	Serious	31/03/2004	1751	433412 410738	0	1	0	0 0 0 0 0 0	5 1	Light	Fine without high winds	Dry	9
B-00525-04	Serious	10/04/2004	0230	433411 410894	0	1	3	0 0 0 0 0 0	0 0 0	Dark	Fine without high winds	Dry	9
B-00614-04	Slight	02/05/2004	1350	433415 411114	0	0	1	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	9 9 3
B-00662-04	Slight	12/05/2004	0925	434299 409514	0	0	1	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	19
B-00918-04	Slight	08/07/2004	0810	434826 408956	0	0	1	0 0 0 0 0 0	0 0 0	Light	Raining without high winds	Wet/Damp	9 9
B-00935-04	Slight	08/07/2004	1300	433484 410562	0	0	1	0 0 0 0 0 0	0 0 0	Light	Raining without high winds	Wet/Damp	9 9
B-01011-04	Slight	29/07/2004	0810	434830 408950	0	0	1	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	9 9
B-01142-04	Slight	24/08/2004	0730	433705 410287	0	0	2	0 0 0 0 0 0	0 0 0	Light	Raining without high winds	Wet/Damp	19
B-01466-04	Serious	06/10/2004	1200	434058 409661	0	1	0	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	2 9
B-01344-04	Slight	08/10/2004	2130	434828 408940	0	0	1	0 0 0 0 0 0	0 0 0	Dark	Fine without high winds	Dry	19
B-01499-04	Slight	04/11/2004	1700	433485 410560	0	0	1	0 0 0 0 0 0	0 0 0	Dark	Fine without high winds	Dry	9 9
B-01568-04	Slight	17/11/2004	1201	434624 409148	0	0	1	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Wet/Damp	9 19 9
B-01587-04	Slight	22/11/2004	1000	434829 408950	0	0	1	0 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	11 9
B-01663-04	Slight	01/12/2004	1655	434367 409462	0	0	1	0 0 0 0 0 0	5 1	Dark	Fine without high winds	Dry	9
B-01800-04	Slight	17/12/2004	2109	433446 410611	0	0	2	0 0 0 0 0 0	0 0 0	Dark	Fine without high winds	Wet/Damp	9
B-00116-05	Slight	26/01/2005	0730	434046 409671	0	0	1	0 0 0 0 0 0	0 0 0	Dark	Fine without high winds	Wet/Damp	9 9
B-00140-05	Slight	26/01/2005	2030	434833 408948	0	0	1	0 0 0 0 0 0	0 0 0	Dark	Fine without high winds	Dry	9 11
B-00338-05	Slight	11/03/2005	0620	433418 410859	0	0	1	999V002A 0 0 0 0 0	0 0 0	Light	Fine with high winds	Dry	9 9

Accidents between dates **01/05/2003** and **30/04/2008** (60) months

Selection:

Selected using Build Query : Local_auth=210

Notes:

Police Ref.	Acc Class	Date	Time	Grid References	Casualties Ftl	Ser	Slt	Causation Factors/ Prob	Ped L MD	Light	Weather	Road Surface	Vehicle Types
B-00477-05	Slight	13/04/2005	0725	433574 410464	0	0	1	402V001A 405V002A 0 0 0 0	0 0 0	Light	Raining without high winds	Wet/Damp	9 9
B-00552-05	Serious	25/04/2005	1555	434730 409049	0	1	3	405V002A 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	9 9
B-00566-05	Slight	29/04/2005	0823	434328 409492	0	0	1	405V001A 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	9 1
B-00568-05	Slight	30/04/2005	1330	434058 409658	0	0	3	410V003A 0 0 0 0 0	0 0 0	Light	Fine without high winds	Wet/Damp	9 9 8
B-00778-05	Slight	09/06/2005	1515	434502 409303	0	0	1	804C001A 0 0 0 0 0	1 4 3	Light	Fine without high winds	Dry	9
B-00840-05	Slight	20/06/2005	1515	434650 409126	0	0	1	402V001A 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	11
B-01029-05	Slight	30/07/2005	1550	434832 408941	0	0	1	406V002A 0 0 0 0 0	0 0 0	Light	Raining without high winds	Wet/Damp	9 9
B-01227-05	Slight	08/09/2005	2026	433484 410561	0	0	2	602V002A 707V002A 0 0 0 0	0 0 0	Dark	Raining without high winds	Wet/Damp	9 9
B-01546-05	Slight	05/11/2005	1900	434527 409290	0	0	1	802C001A 0 0 0 0 0	8 1 9	Dark	Raining without high winds	Wet/Damp	9
B-01629-05	Serious	19/11/2005	0750	433417 410698	0	1	0	103V001A 0 0 0 0 0	0 0 0	Light	Fine without high winds	Frost/Ice	9
B-00048-06	Slight	13/01/2006	2240	434251 409542	0	0	2	405V002A 406V002A 501V002A 0 0 0	0 0 0	Dark	Fine without high winds	Dry	9 9
B-00508-06	Slight	25/03/2006	0822	434058 409676	0	0	1	901V001A 0 0 0 0 0	0 0 0	Light	Fine without high winds	Dry	9 1
B-00538-06	Serious	21/04/2006	0945	434370 409460	0	1	0	808C001A 0 0 0 0 0	5 3 3	Light	Fine without high winds	Wet/Damp	9 11
B-00597-06	Serious	03/05/2006	1746	434571 409234	0	1	0	701C001A 701V001A 801C001A 0 0 0	1 4 7	Light	Fine without high winds	Dry	9
B-00810-06	Slight	13/06/2006	1745	434506 409309	0	0	1	405V002B 0 0 0 0 0	0 0 0	Light	Other	Wet/Damp	3 9
B-00884-06	Serious	07/07/2006	1245	434756 409022	0	1	0	309V002A 602V002B 605V002B 406V001B 0 0	0 0 0	Light	Fine without high winds	Dry	9 2
B-00903-06	Slight	15/07/2006	0327	433730 410254	0	0	1	406V001A 405V001B 503V001B 0 0 0	0 0 0	Dark	Unknown	Dry	9
B-01356-06	Slight	14/10/2006	2315	434759 409018	0	0	2	306V001A 602V001A 406V002B 0 0 0	0 0 0	Dark	Fine without high winds	Dry	9 8
B-00349-07	Slight	11/03/2007	1240	434027 409649	0	0	2	406V1A 203V1B	0 0 0	Light	Fine without high winds	Dry	9 9

Accidents between dates **01/05/2003** **and** **30/04/2008** (60) months

Selection:

Selected using Build Query : Local_auth=210

Notes:

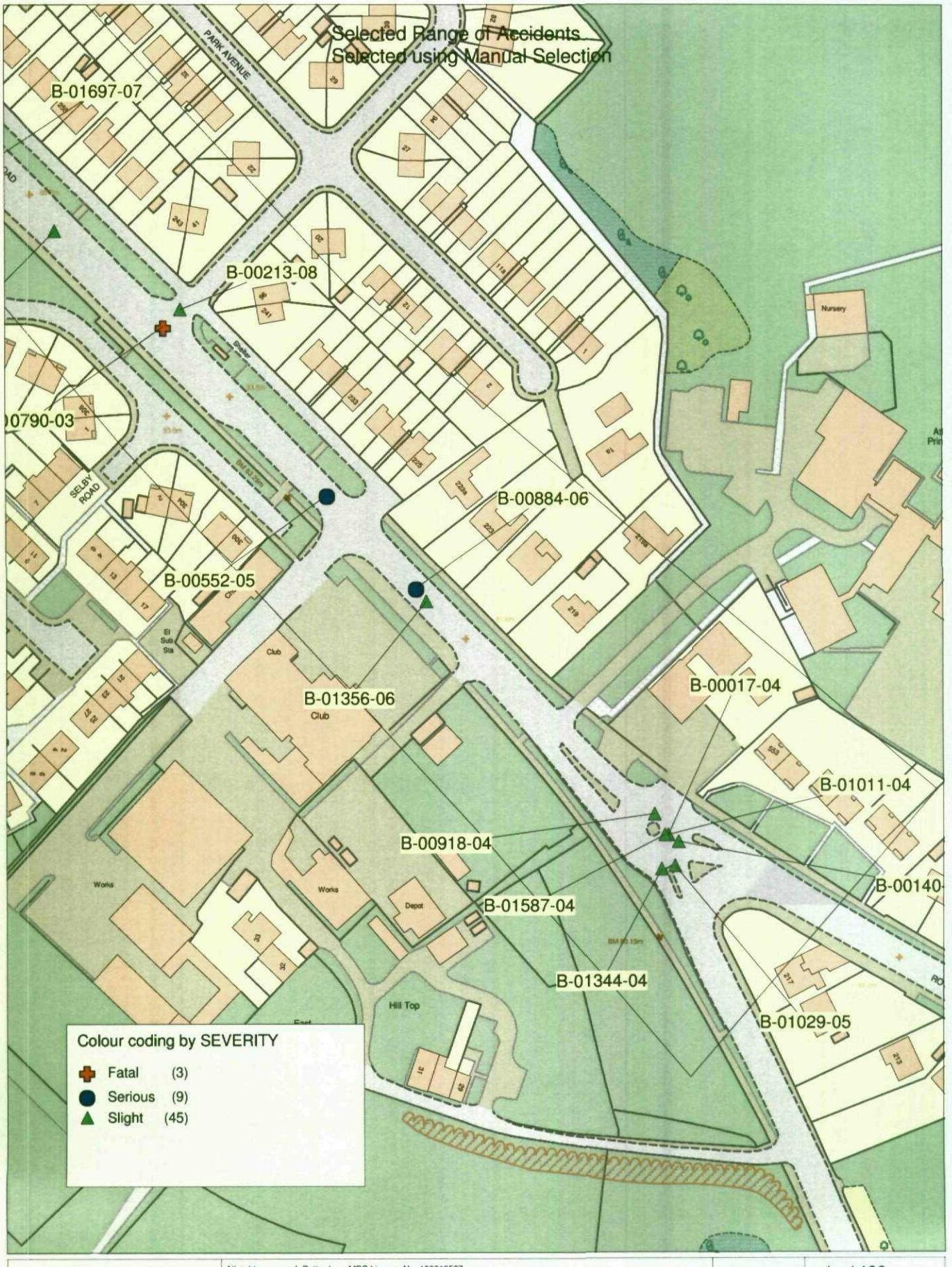
Police Ref.	Acc Class	Date	Time	Grid References	Casualties Ftl	Ser	Slt	Causation Factors/ Prob	Ped L M D	Light	Weather	Road Surface	Vehicle Types
B-00395-07	Slight	17/03/2007	1815	434513 409313	0	0	1	403V2B	0 0 0	Light	Fine without high winds	Dry	9 2
B-00538-07	Slight	17/04/2007	1130	434509 409310	0	0	1		0 0 0	Light	Fine without high winds	Dry	11
B-00540-07	Slight	20/04/2007	1750	433521 410527	0	0	1	405V2A	0 0 0	Light	Fine without high winds	Dry	9 9
B-00898-07	Slight	23/06/2007	1812	434591 409199	0	0	1	802C1A 808C1A	5 1 7	Light	Fine without high winds	Dry	9
B-01697-07	Slight	13/12/2007	1715	434628 409144	0	0	1	405V2A 103V2A	0 0 0	Dark	Fine without high winds	Frost/Ice	3 9
B-00008-08	Slight	05/01/2008	1500	434072 409654	0	0	1	308V2B	0 0 0	Light	Fine without high winds	Wet/Damp	5 9
B-00213-08	Slight	12/02/2008	1335	434687 409103	0	0	1	706V2A 706V3A 308V2B 308V3B	0 0 0	Light	Fine without high winds	Dry	9 9 9

Column Totals
No. of Accidents

Total number of accidents listed: 57

92

MBH5

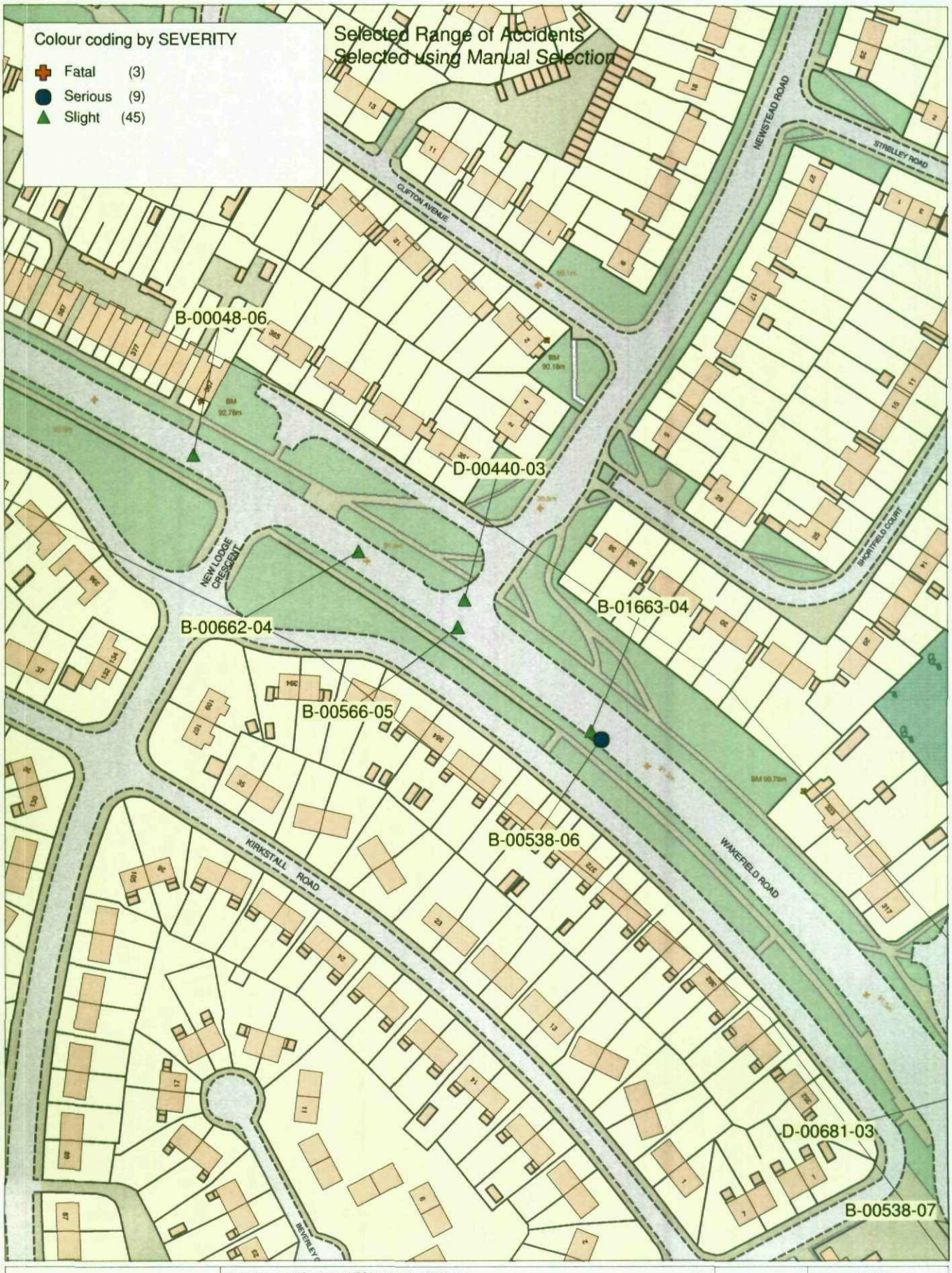


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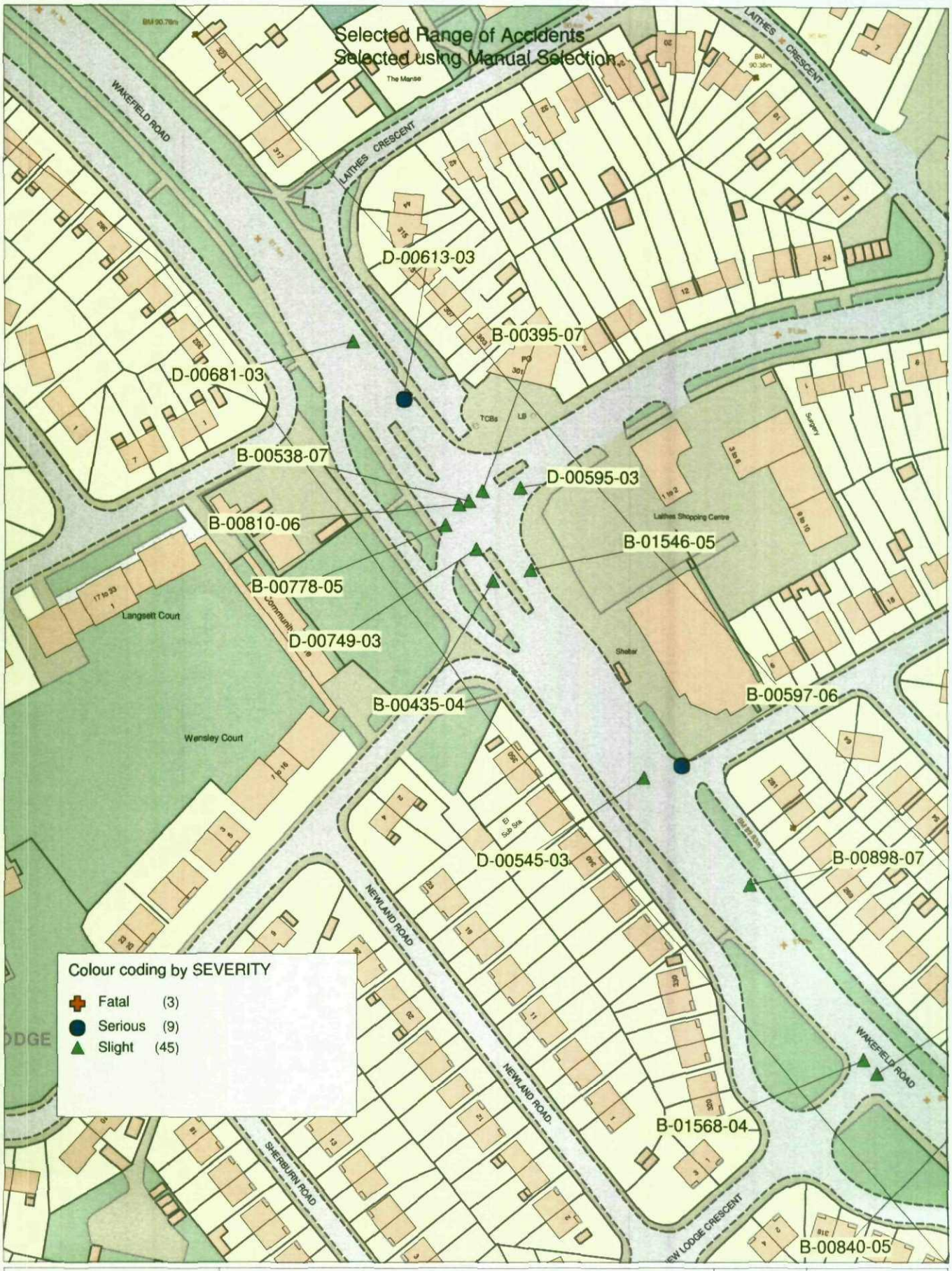


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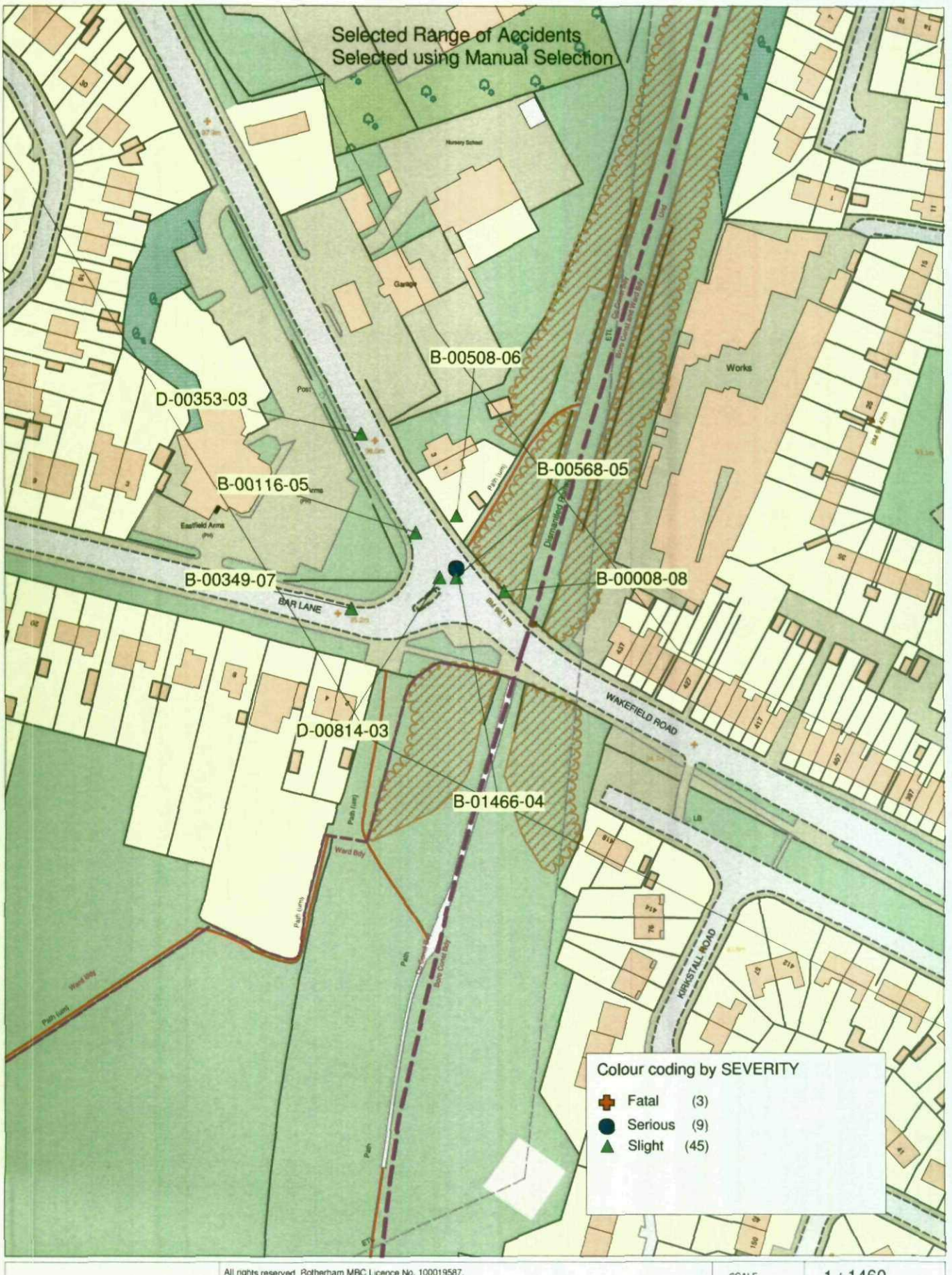


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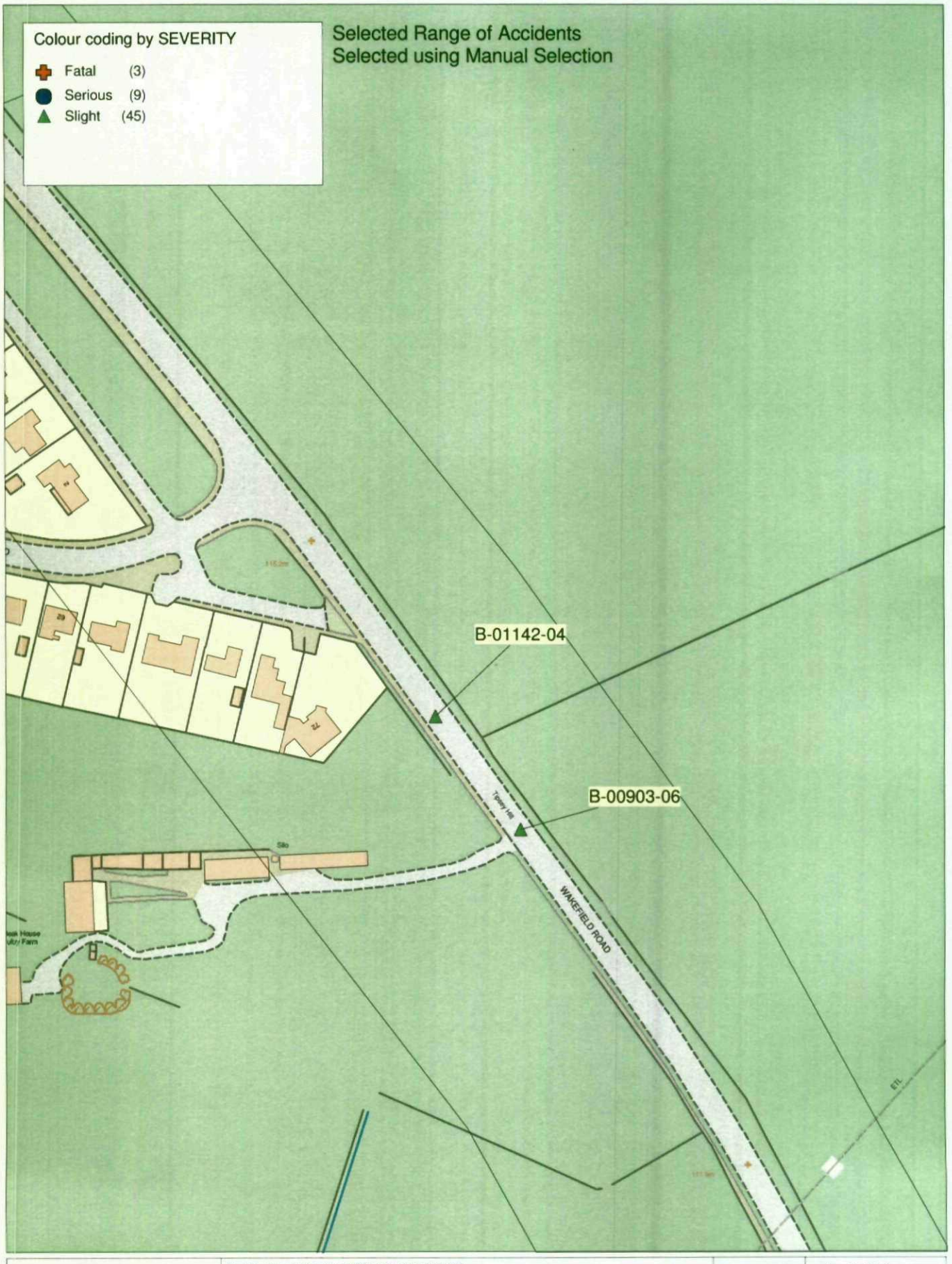


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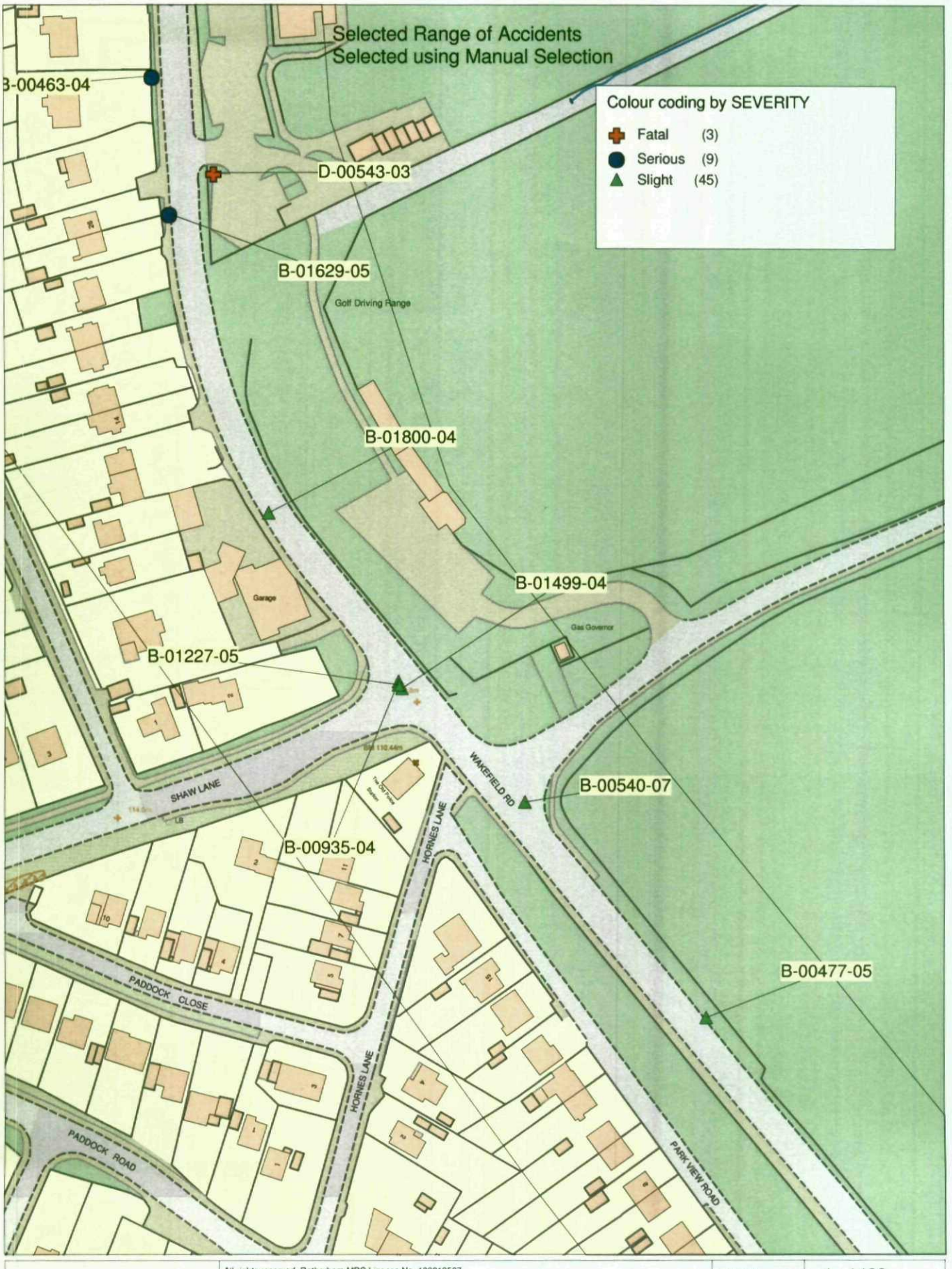


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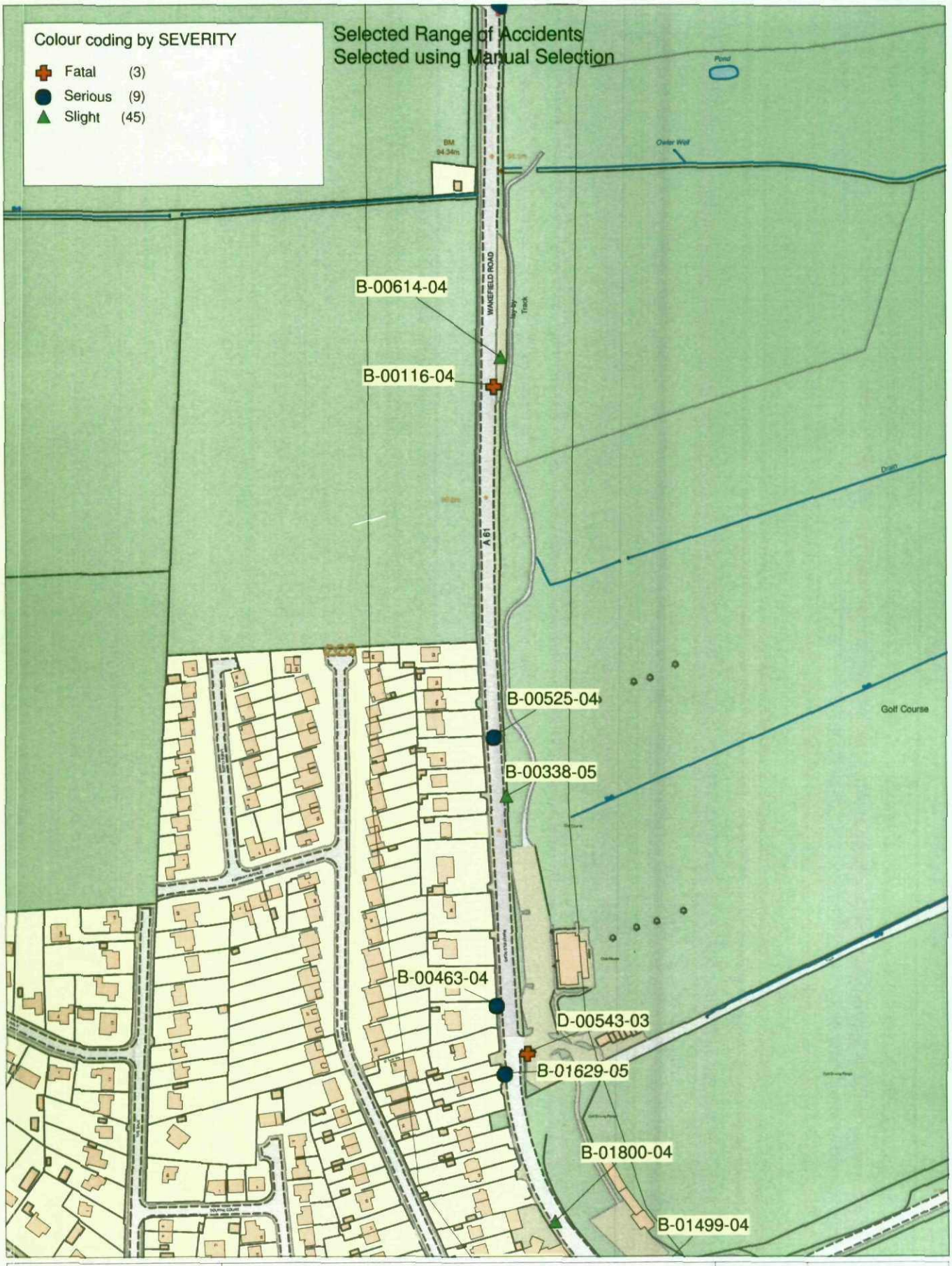


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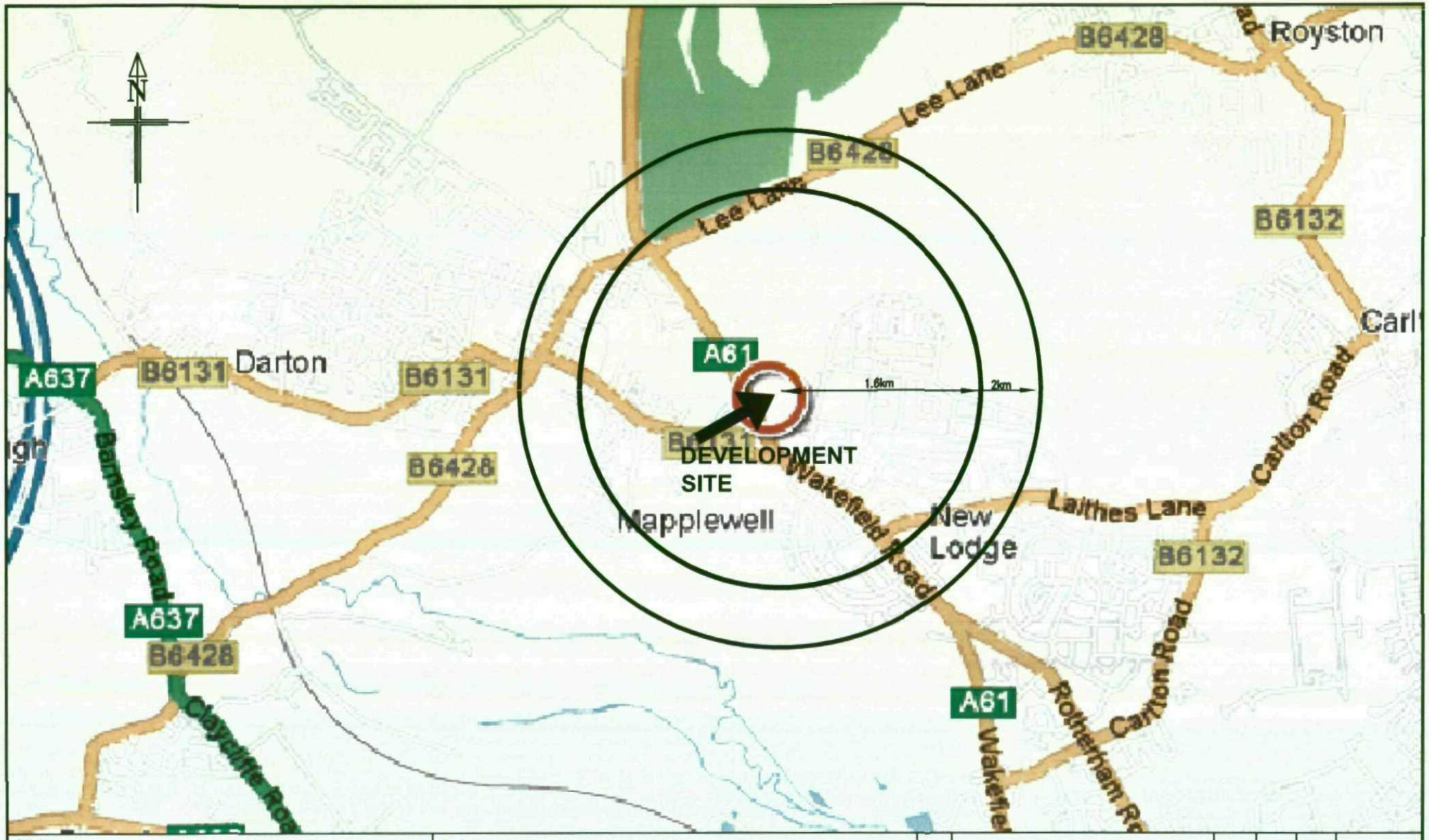
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Selected map area

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DATE	23/09/2008
DRAWING No.	
DRAWN BY	

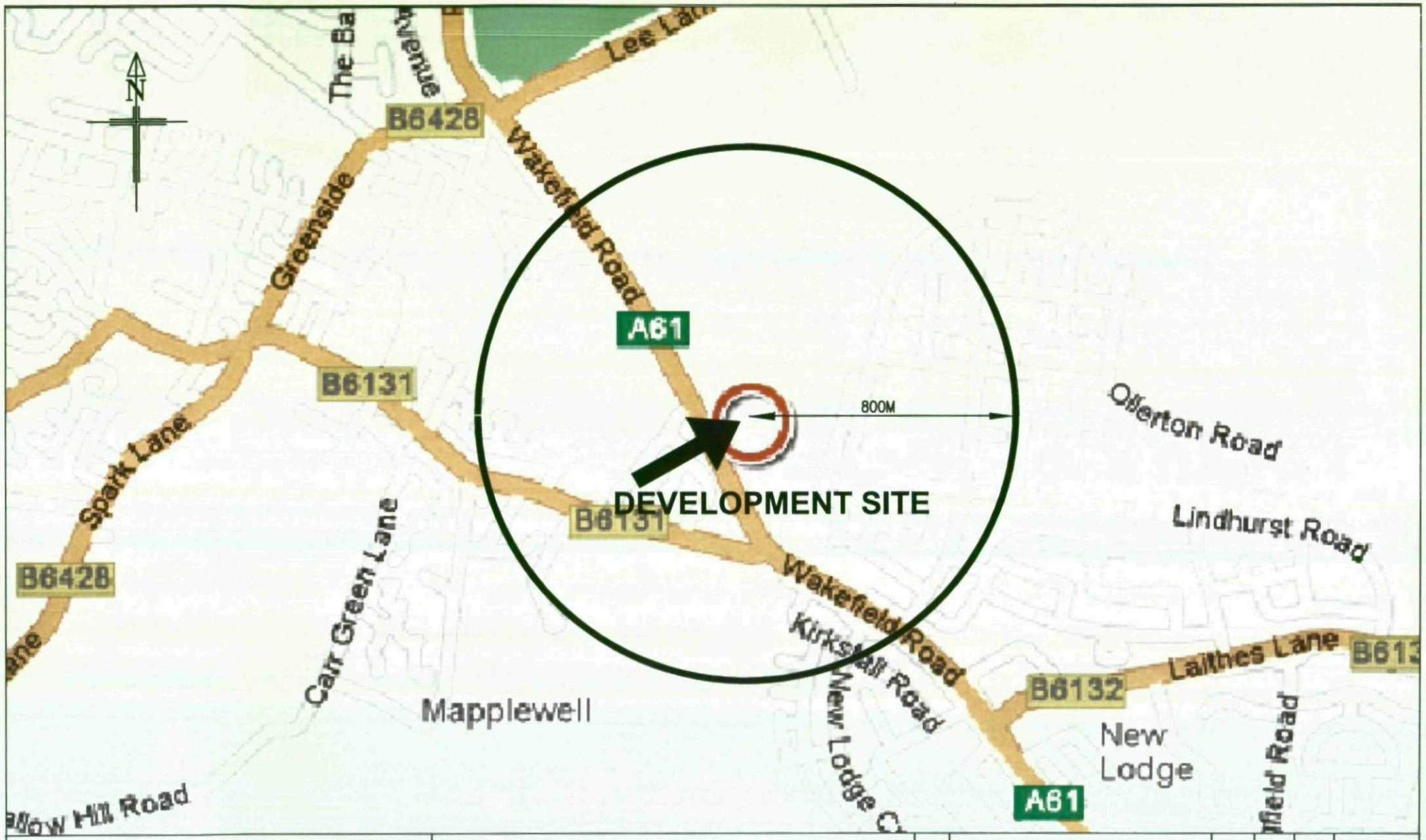
APPENDIX BGH 5



Client	PIPESTONE GROUP LTD	Project	WAKEFIELD ROAD, MAPPLEWELL BARNSLEY			
BRYAN · G · HALL consulting civil & transportation planning engineers	Bryan G Hall Ltd, 2 St Joseph's Mill, Hanover Walk, Leeds, LS3 1AB Tel: +44(0)113 246 1555 Fax: +44(0)113 234 2201 http://www.bryanghall.co.uk	Title	WALKING ISOCHRONES SHOWN AT 1.6KM AND 2KM DISTANCES			
		Rev	Amendments	Drawn	Chkd	Appr	Date
		Scale	NTS	Date	AUGUST 2008	Doc Sheet No	
		Drawn	ALS	Checked	EAG	Approved	EAG
		Job No	08-334	Drawing No	BGH5-01	Rev	-

FILENAME

101



Client	PIPESTONE GROUP LTD	Project	WAKEFIELD ROAD, MAPPLEWELL BARNSLEY				
BRYAN · G · HALL consulting civil & transportation planning engineers		Title	WALKING ISOCHRONE SHOWN AT 800 M DISTANCE	Rev	Amendments	Drawn	Chkd / Appr / Date
				Scale	NTS	Date	AUGUST 2008
				Drawn	ALS	Checked	EAG
				Job No	08-334	Drawing No	BGH5-02
				Doc Sheet No		Approved	EAG
				Rev	-		

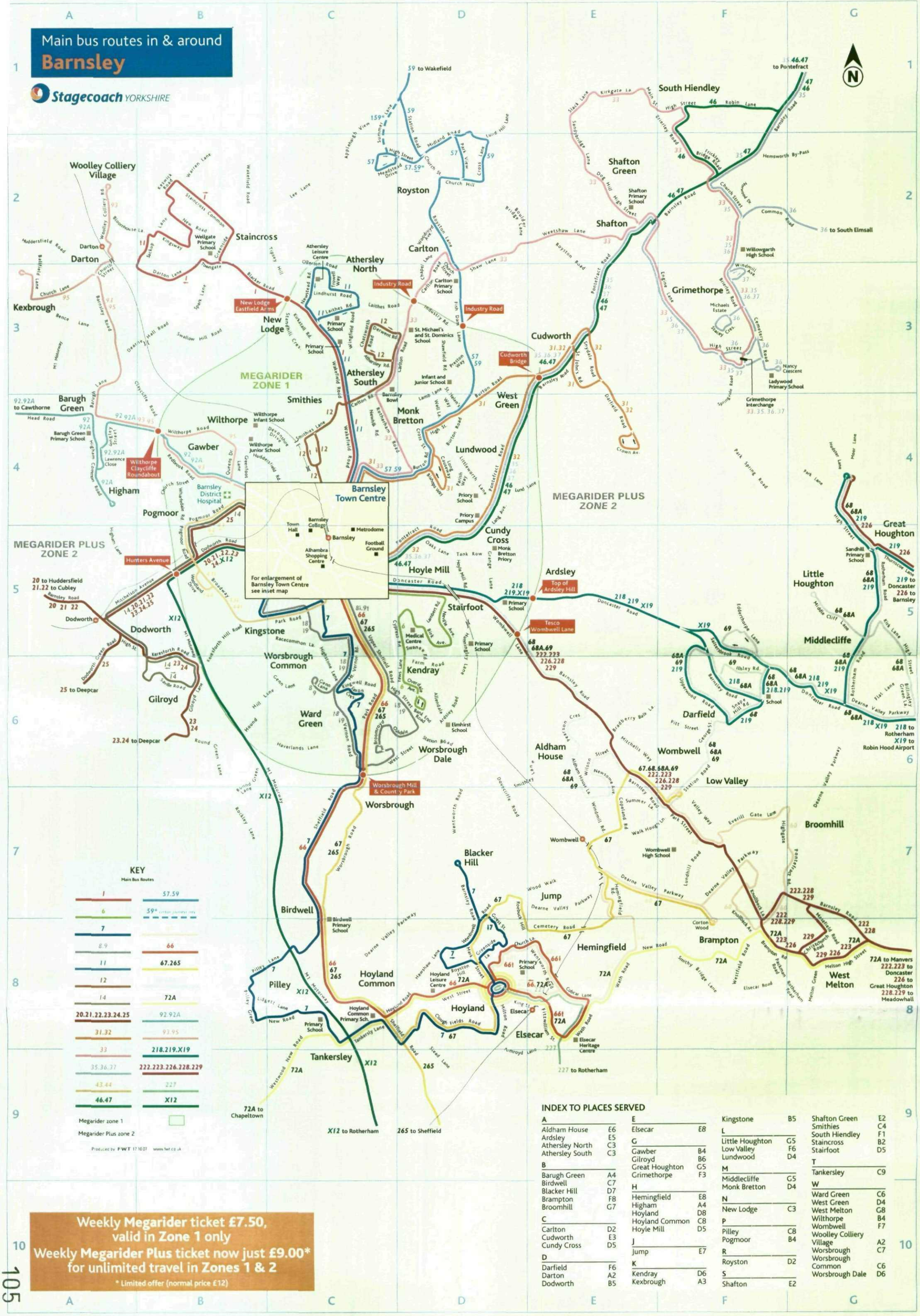
APPENDIX BGH 6

Buses Serving Blacker Road/Bar Lane, Mapplewell, Barnsley

			Frequency		
Service Number	Provider	Route	Mon-Fri	Saturday	Sunday
1	Stagecoach	Barnsley Interchange - Staincross - Barnsley Interchange	20 minutes	15 minutes	30 minutes
11	Stagecoach	Barnsley Interchange - Athersley - Barnsley Interchange	20 minutes	20 minutes	30 minutes

Main bus routes in & around Barnsley

Stagecoach YORKSHIRE



KEY

Main Bus Routes

1	57.59
6	59* certain journeys only
7	
8.9	66
11	67.265
12	
14	72A
20.21.22.23.24.25	92.92A
31.32	93.95
33	218.219.X19
35.36.37	222.223.226.228.229
43.44	227
46.47	X12

Megarider zone 1

Megarider Plus zone 2

Produced by FWT 17.10.07 www.fwt.co.uk

Weekly Megarider ticket £7.50, valid in Zone 1 only

Weekly Megarider Plus ticket now just £9.00* for unlimited travel in Zones 1 & 2

* Limited offer (normal price £12)

INDEX TO PLACES SERVED

A		**E**		Kingstone	B5	Shafton Green	E2
Aldham House	E6	Elsecar	E8	**L**		Smithies	C4
Ardsley	E5	**G**		Little Houghton	G5	South Hiendley	F1
Athersley North	C3	Gawber	B4	Low Valley	F6	Staincross	B2
Athersley South	C3	Gilroyd	B6	Lundwood	D4	Stairfoot	D5
B		Great Houghton	G5	**M**		**T**	
Barugh Green	A4	Grimethorpe	F3	Middlecliffe	G5	Tankersley	C9
Birdwell	C7	**H**		Monk Bretton	D4	**W**	
Blacker Hill	D7	Hemingfield	E8	**N**		Ward Green	C6
Brampton	F8	Higham	A4	New Lodge	C3	West Green	D4
Broomhill	G7	Hoyland	D8	**P**		West Melton	G8
C		Hoyland Common	C8	Pilley	C8	Wilthorpe	B4
Carlton	D2	Hoyle Mill	D5	Pogmoor	B4	Wombwell	F7
Cudworth	E3	**J**		**R**		Woolley Colliery Village	A2
Cundy Cross	D5	Jump	E7	Royston	D2	Worsbrough	C7
D		**K**		**S**		Worsbrough Common	C6
Darfield	F6	Kendray	D6	Shafton	E2	Worsbrough Dale	D6
Darton	A2	Kexbrough	A3				
Dodworth	B5						

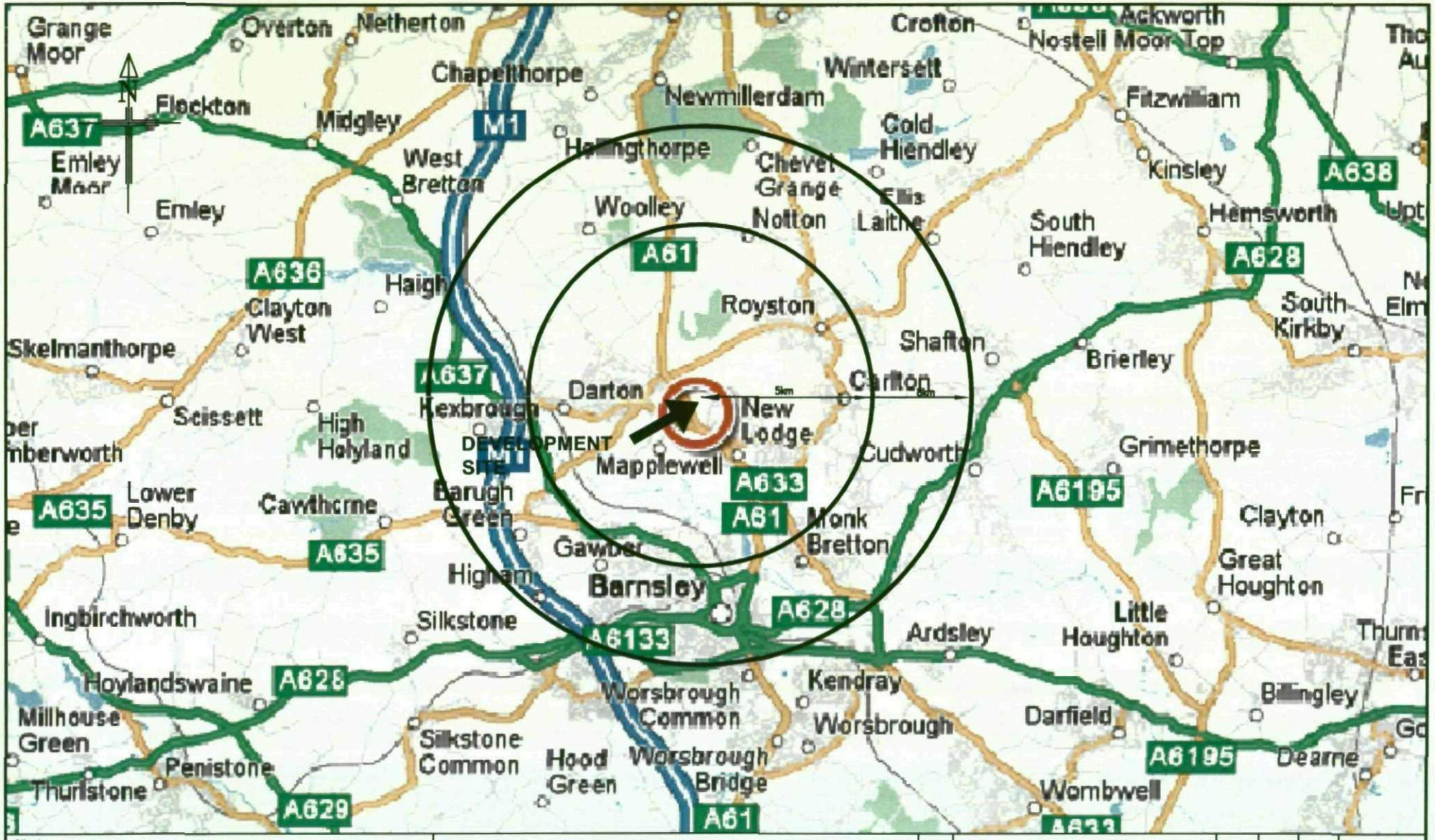
Summary of Trains at Darton Railway Station

Train	Geographical Areas Covered	Operator	Frequency
Leeds to Sheffield	Leeds - Woodlesford - Castleford - Normanton - Wakefield Kirkgate - Darton - Barnsley - Wombwell - Elsecar - Chapeltown - Meadowhall - Sheffield	Northern	60 minutes

Summary of Trains at Barnsley Interchange

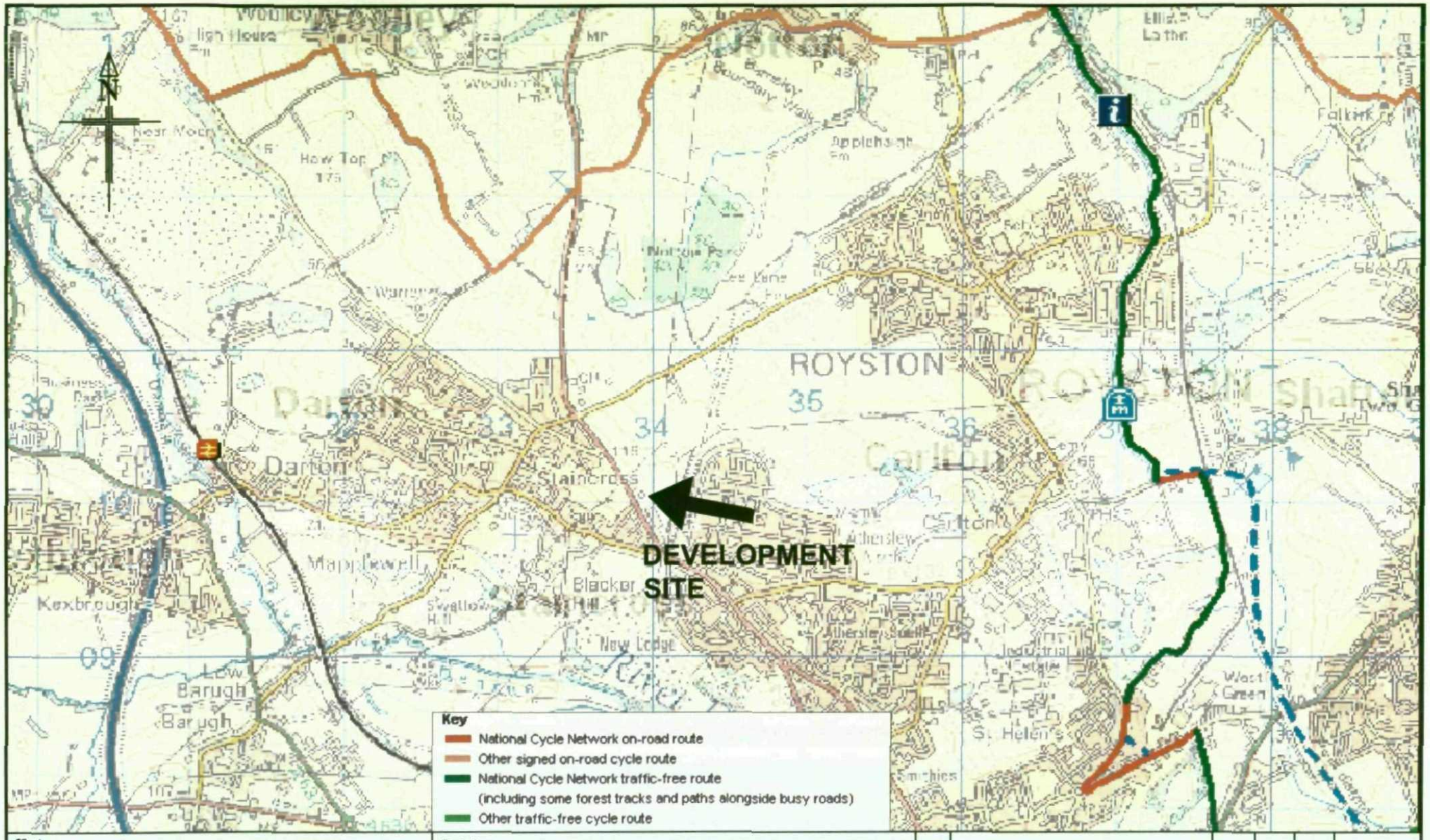
Train	Geographical Areas Covered	Operator	Frequency
Huddersfield to Sheffield	Huddersfield - Barnsley - Wombwell - Chapeltown - Meadowhall - Sheffield	Northern	60 minutes
Sheffield to Huddersfield	Sheffield - Meadowhall - Chapeltown - Elsecar - Wombwell - Barnsley - Dodworth - Silkstone Common - Penistone - Denby Dale - Shepley - Stocksmoor - Brockholes - Honley - Berry Brow - Lockwood - Huddersfield	Northern	30 minutes
Sheffield to Leeds	Sheffield - Meadowhall - Barnsley - Wakefield Kirkgate - Leeds	Northern	60 minutes

APPENDIX BGH 7



Client	PIPESTONE GROUP LTD	Project	WAKEFIELD ROAD, MAPPLEWELL BARNSLEY	Rev	Amendments	Drawn	Chkd	Appr	Date
BRYAN · G · HALL consulting civil & transportation planning engineers	Bryan G Hall Ltd, Suite 4E Joseph's Well, Hanover Walk, Leeds LS3 1AB Tel: +44(0)113 246 1505 Fax: +44(0)113 234 2201 http://www.bryanghall.co.uk	Title	CYCLING ISOCHRONES SHOWN AT 5KM AND 8KM DISTANCES	Scale	NTS	Date	AUGUST 2008	Doc Sheet No	
				Drawn	ALS	Checked	EAG	Approved	EAG
				Job No	08-334	Drawing No	BGH7-01	Rev	-

FILENAME



Client PIPESTONE GROUP LTD

Project WAKEFIELD ROAD, MAPPLEWELL
BARNSLEY

Title CYCLING MAP

BRYAN · G · HALL
consulting civil & transportation planning engineers

Bryan G Hall Ltd.
Suite 4c Joseph's Well
Hanover Walk
Leeds
LS3 1AB
Tel: +44(0)113 246 1555
Fax: +44(0)113 234 2201
http://www.bryanghall.co.uk

Rev	Amendments	Drawn	Chkd	Appr	Date

Scale NTS	Date AUGUST 2008	Doc Sheet No
Drawn ALS	Checked EAG	Approved EAG
Job No 08-334	Drawing No BGH7-02	Rev -

FILENAME

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APPENDIX BGH 8

PIPESTONE LTD

COMMERCIAL UNITS

OFFICE	2no.	6000 sqft	12000
A	2no.	4000 sqft	8000
B	1no.	9000 sqft	9000
C	1no.	3750 sqft	3750
D	1no.	3500 sqft	3500
E	1no.	7750 sqft	7750
F	1no.	2500 sqft	2500
G	2no.	6000 sqft	12000
H	1no.	6000 sqft	6000

Total : 12 units

Total sqft : 64500

60 metre standoff from line of pylon cable

GREEN BELT

GREEN BELT

TIPSEY COURT

WAKEFIELD ROAD

102.6m

97.9m

APTS A&B

COMMERCIAL G - 6000 SQFT

COMMERCIAL H - 6000 SQFT

COMMERCIAL G - 6000 SQFT

COMMERCIAL F - 2500 SQFT

COMMERCIAL E - 7750 SQFT

OFFICE - 6000 SQFT

COMMERCIAL D - 3500 SQFT

COMMERCIAL C - 3750 SQFT

COMMERCIAL B - 9000 SQFT

OFFICE - 6000 SQFT

COMMERCIAL A - 4000 SQFT

COMMERCIAL A - 4000 SQFT

Pylon and cable

Nursery School

SCHEDULE OF ACCOMODATION

Housetype	Description	Floor Area	Total Units
A	2 Bed/4 Person/2 Storey	625	10
B	3 Bed/5 Person/2 Storey	775	2
C	3 Bed/5 Person/2 Storey	900	6
D	3 Bed/5 Person/3 Storey	1000	14
E	4Bed/6 Person/2 Storey	1050	3
F	3 Bed/5 Person/2 Storey	1100	7
H	3 Bed/5 Person/2.5 Storey	1100	2
J	4 Bed/6 Person/2 Storey	1150	2
K	4Bed/8 Person/2 Storey	1150	1
L	3 Bed/6 Person/2.5 Storey	1150	8
M	4 Bed/7 Person/2 Storey	1200	3
N	4 Bed/7 Person/2 Storey	1200	5
P	4 Bed/6 Person/3 Storey	1300	2
R	4 Bed/8 Person/2.5 Storey	1450	2
S	5 Bed/8 Person/2.5 Storey	1850	2
T FOG	2 Bed/4 Person/2 Storey	650	2
V	1 Bed/2 Person/1 Storey	500	2
Apartment A	2 Bed/4 Person/1 Storey	650	6
Apartment B	2 Bed/3 Person/1 Storey	600	6
		Total	83

D08 4145 SK01 - Rev C

PROPOSED DEVELOPMENT, MAPPLEWELL, Nr BARNSLEY

0 10 20 30 (metres)

NORTH

architectural design
town planning
landscape architecture

John R Paley Associates

APPENDIX BGH 9

Tempro Output – NTM Traffic Growth Factors

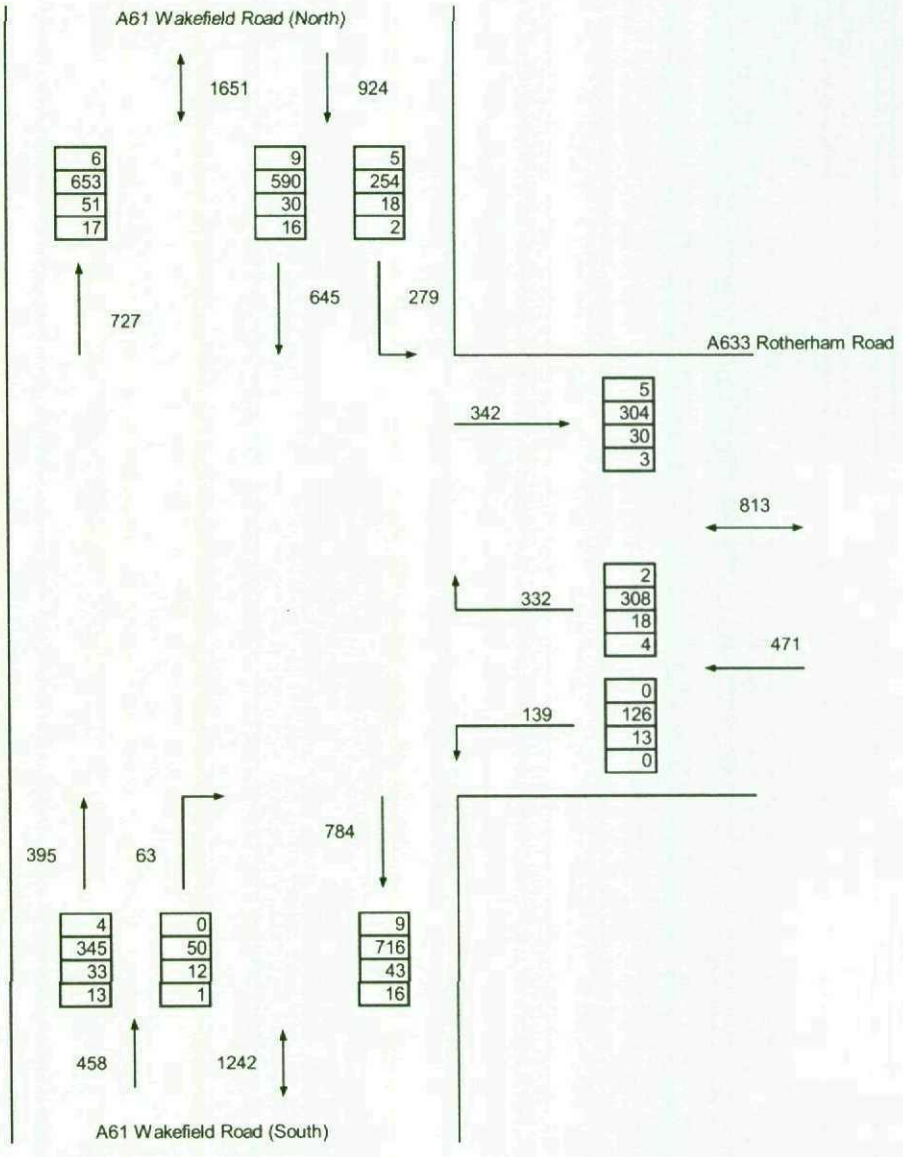
Level	Area	Local Growth Figure
00CC4	Darton	1.09546333635007

Level	Area	Local Growth Figure
00CC4	Darton	1.09361184902103

APPENDIX BGH 10

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/ROTHERHAM ROAD

8:00 am - 9:00 am

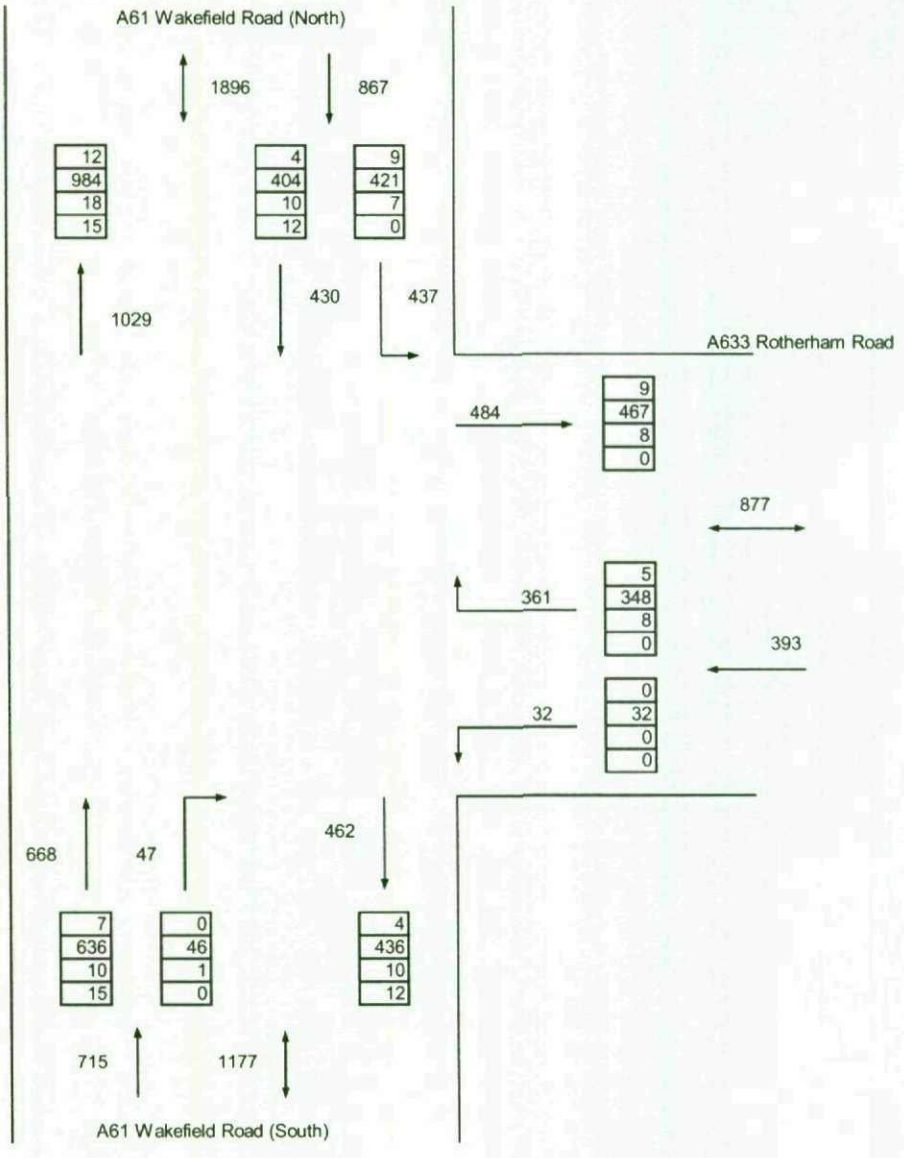


Vehicular Flows

	Motor cycles and pedal cycles
	Cars and light goods vehicles
	Heavy goods vehicles
	Buses

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/ROTHERHAM ROAD

5:00 pm - 6:00 pm

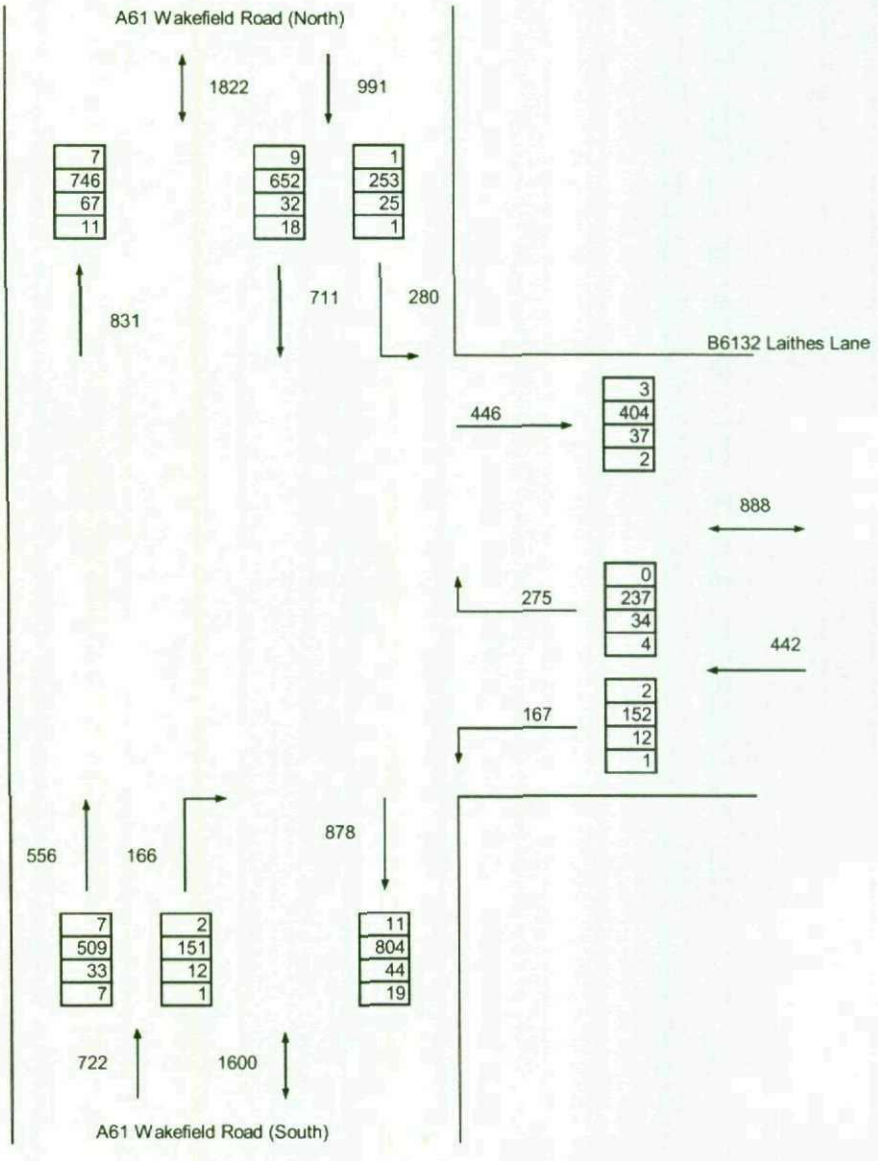


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/LAITHES LANE

8:00 am - 9:00 am

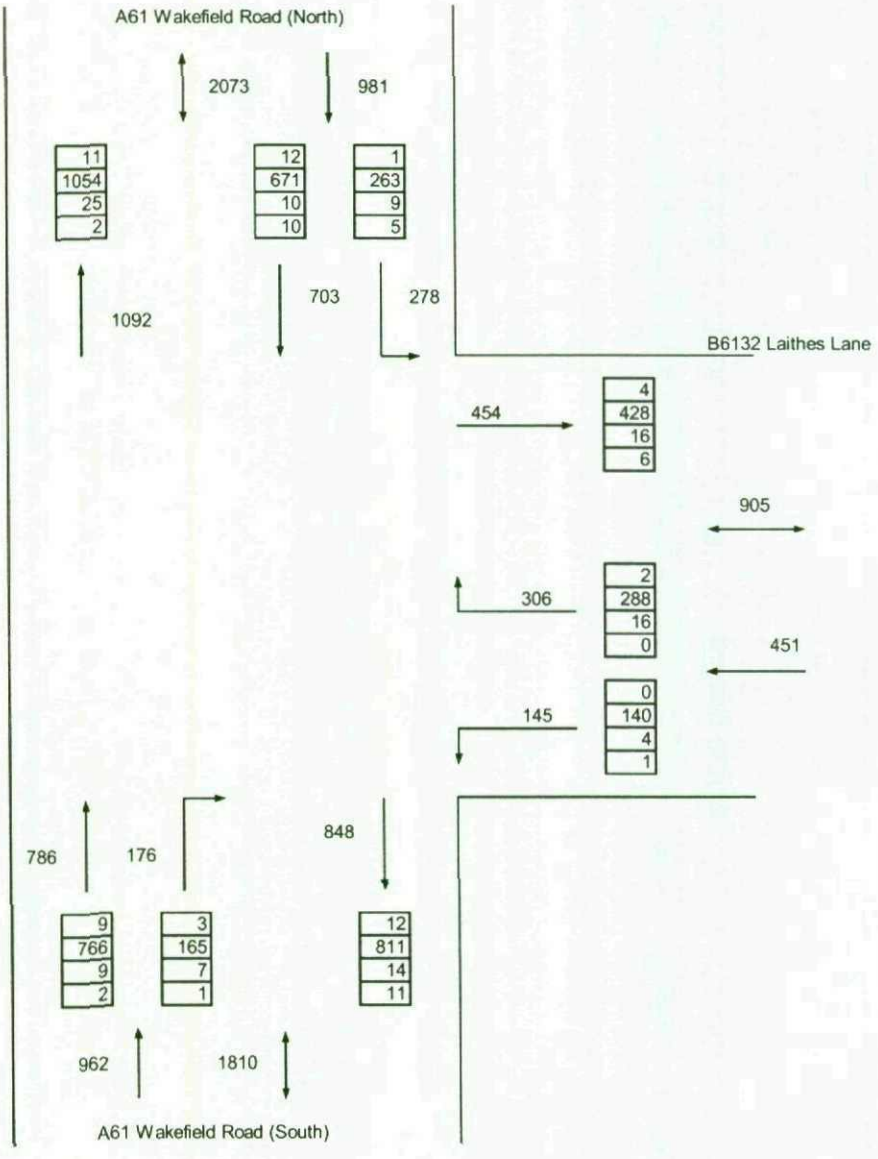


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/LAITHES LANE

5:00 pm - 6:00 pm

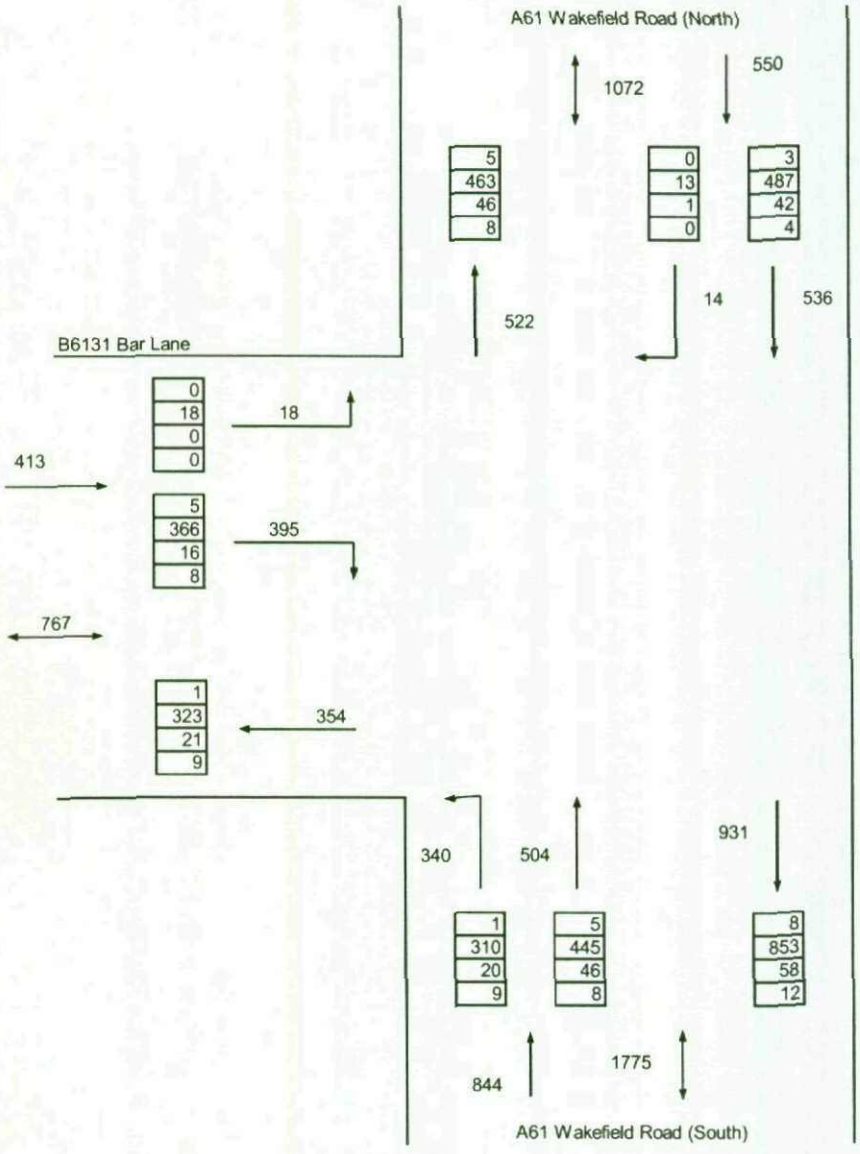


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/BAR LANE

8:00 am - 9:00 am

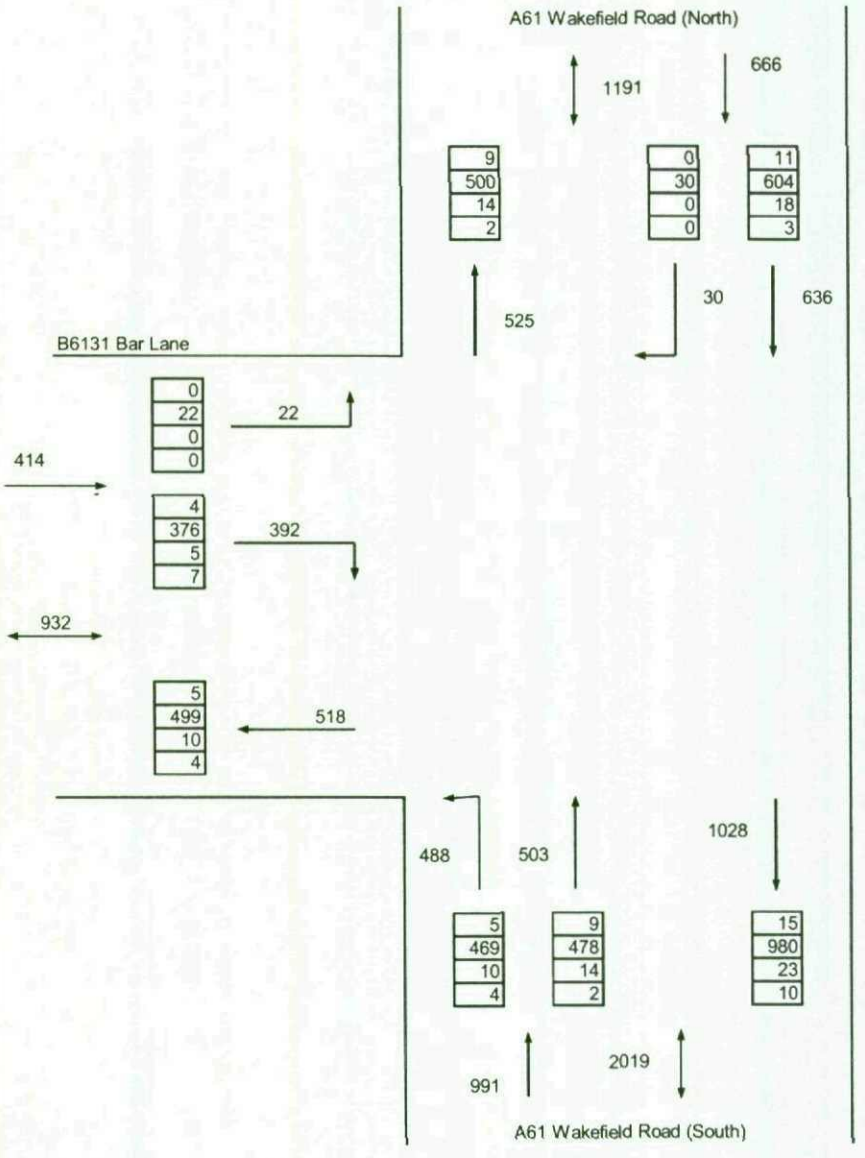


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/BAR LANE

5:00 pm - 6:00 pm

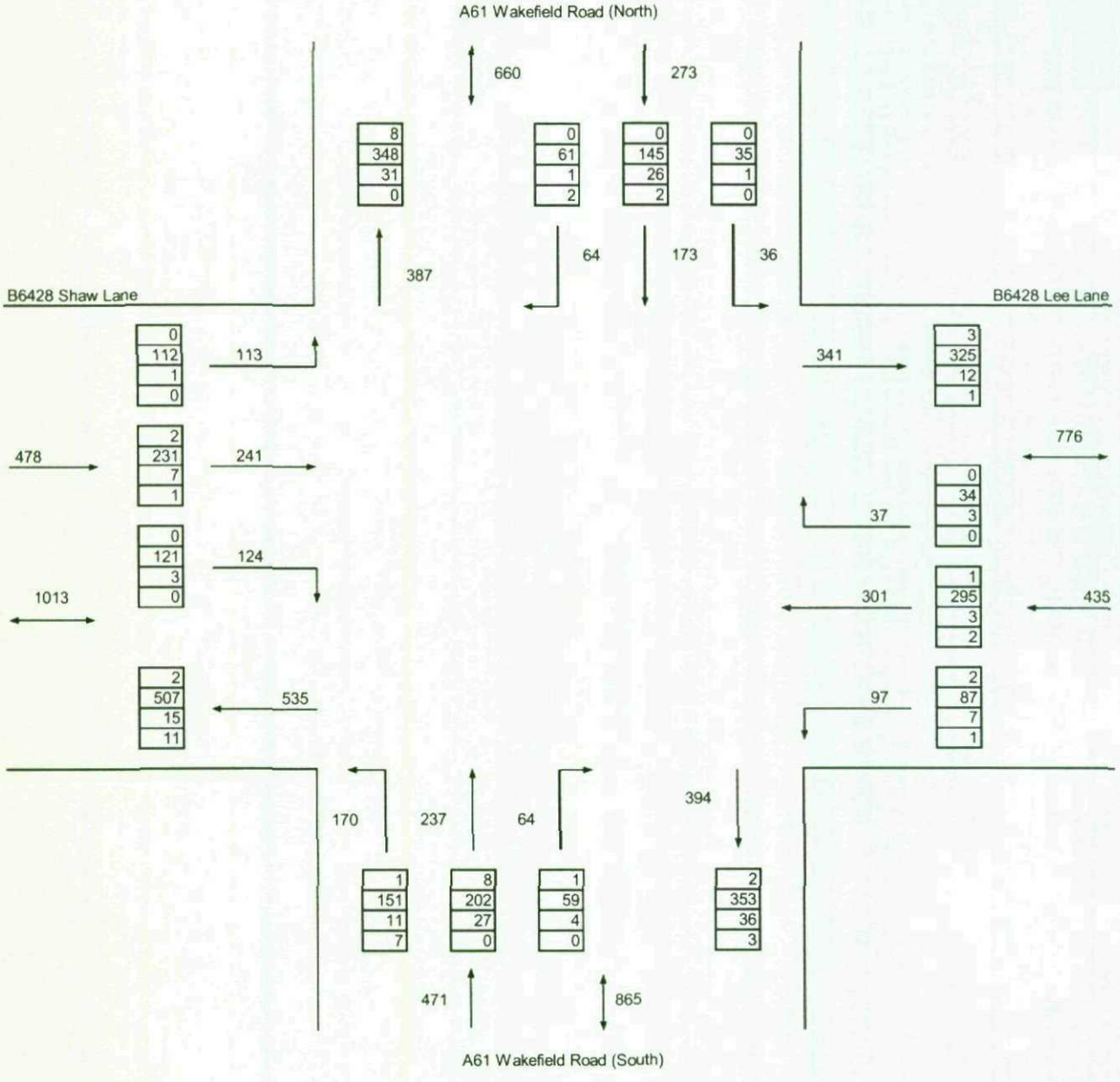


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/SHAW LANE/LEE LANE

8:00 am - 9:00 am

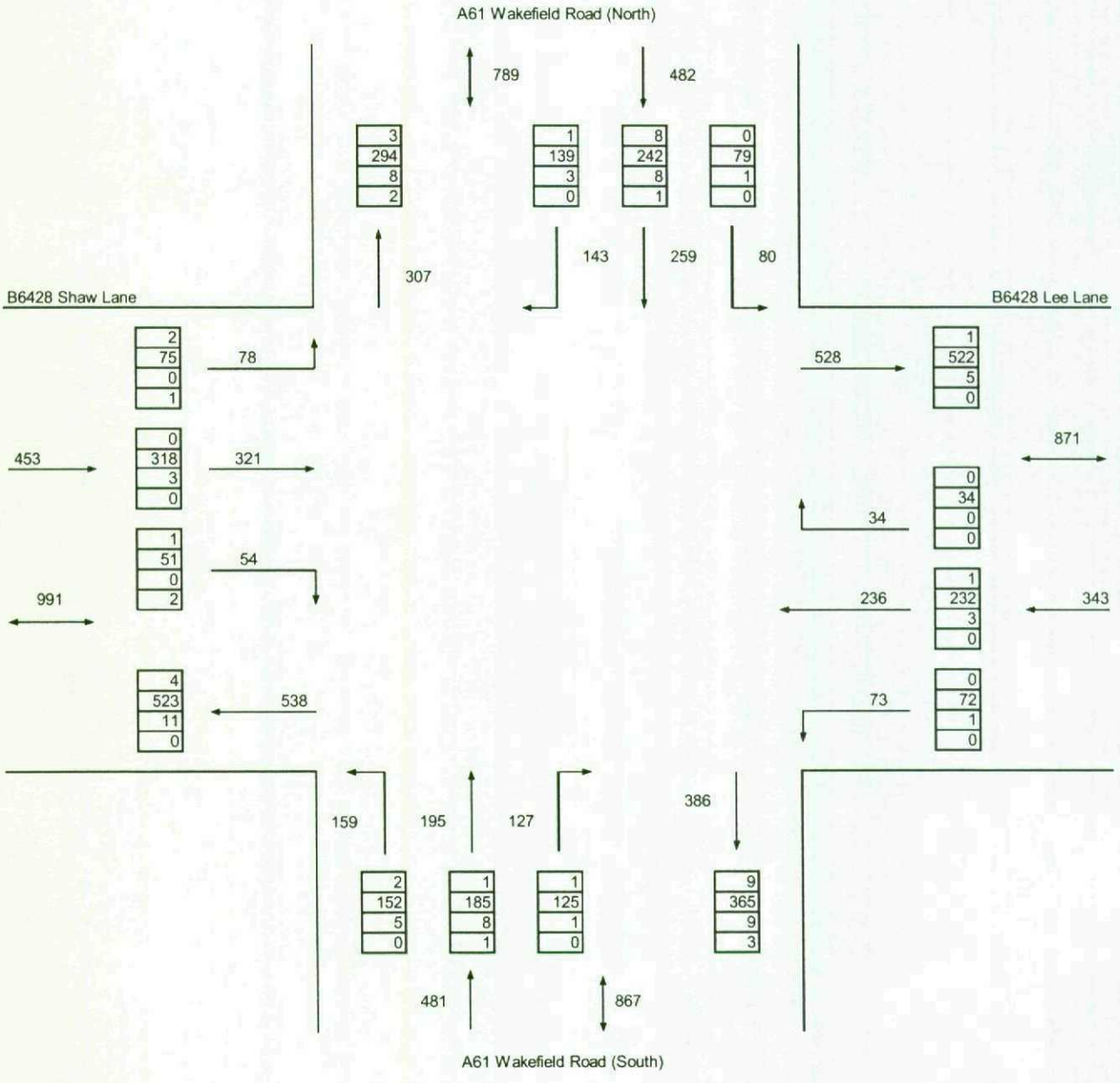


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/SHAW LANE/LEE LANE

5:00 pm - 6:00 pm

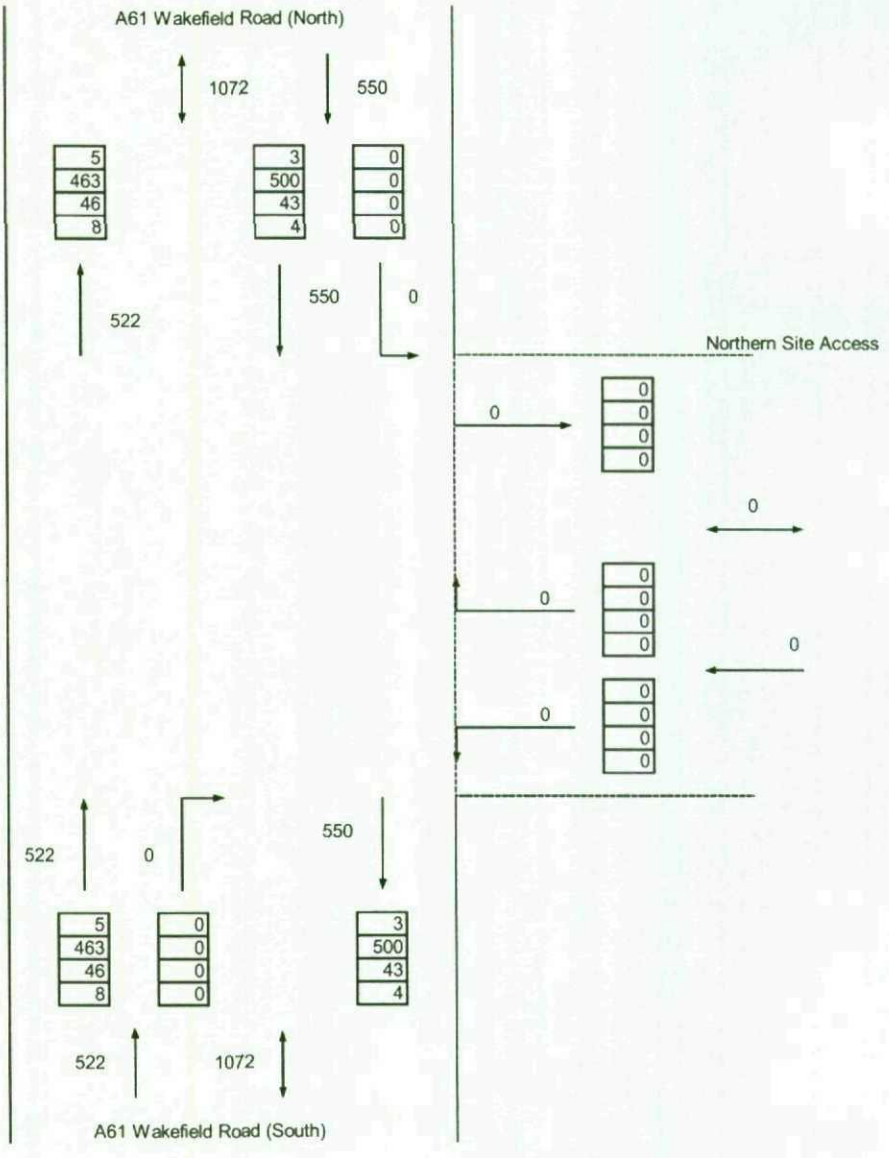


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/NORTHERN SITE ACCESS

8:00 am - 9:00 am

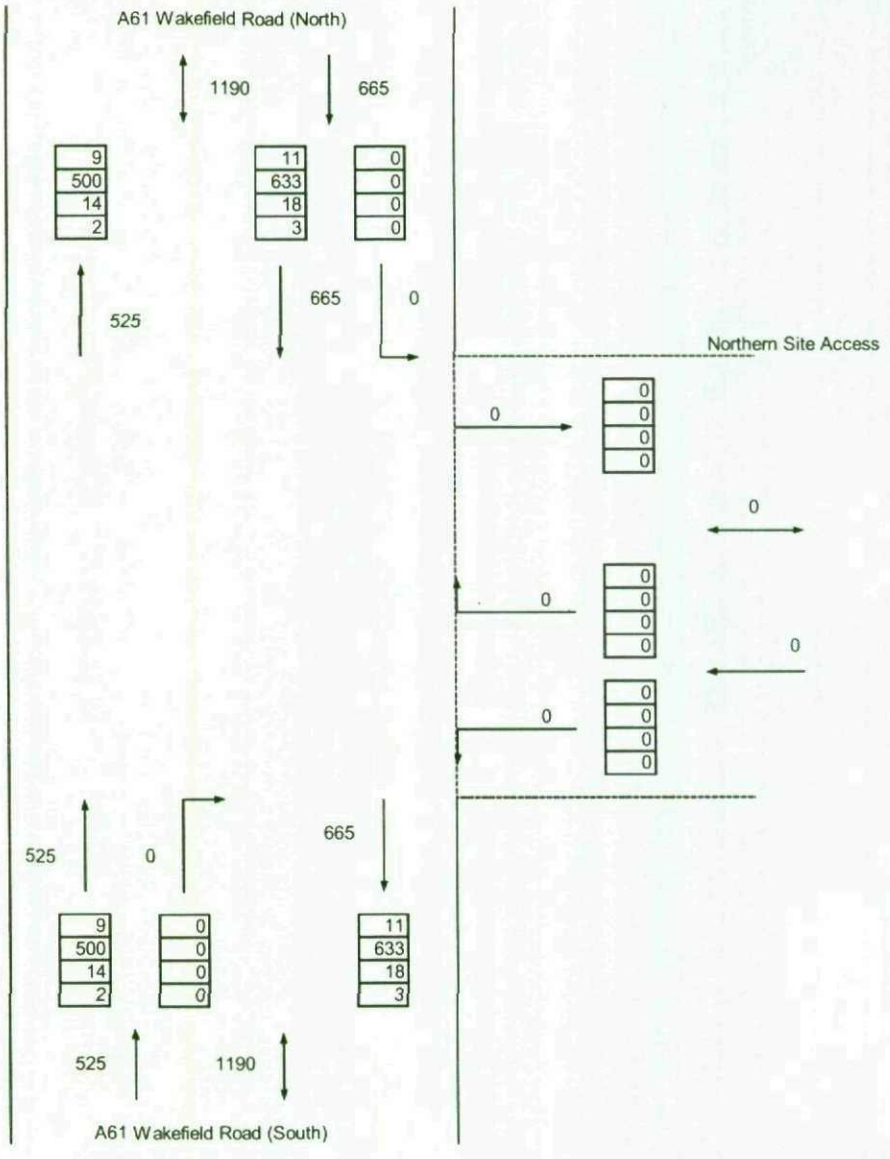


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/NORTHERN SITE ACCESS

5:00 pm - 6:00 pm

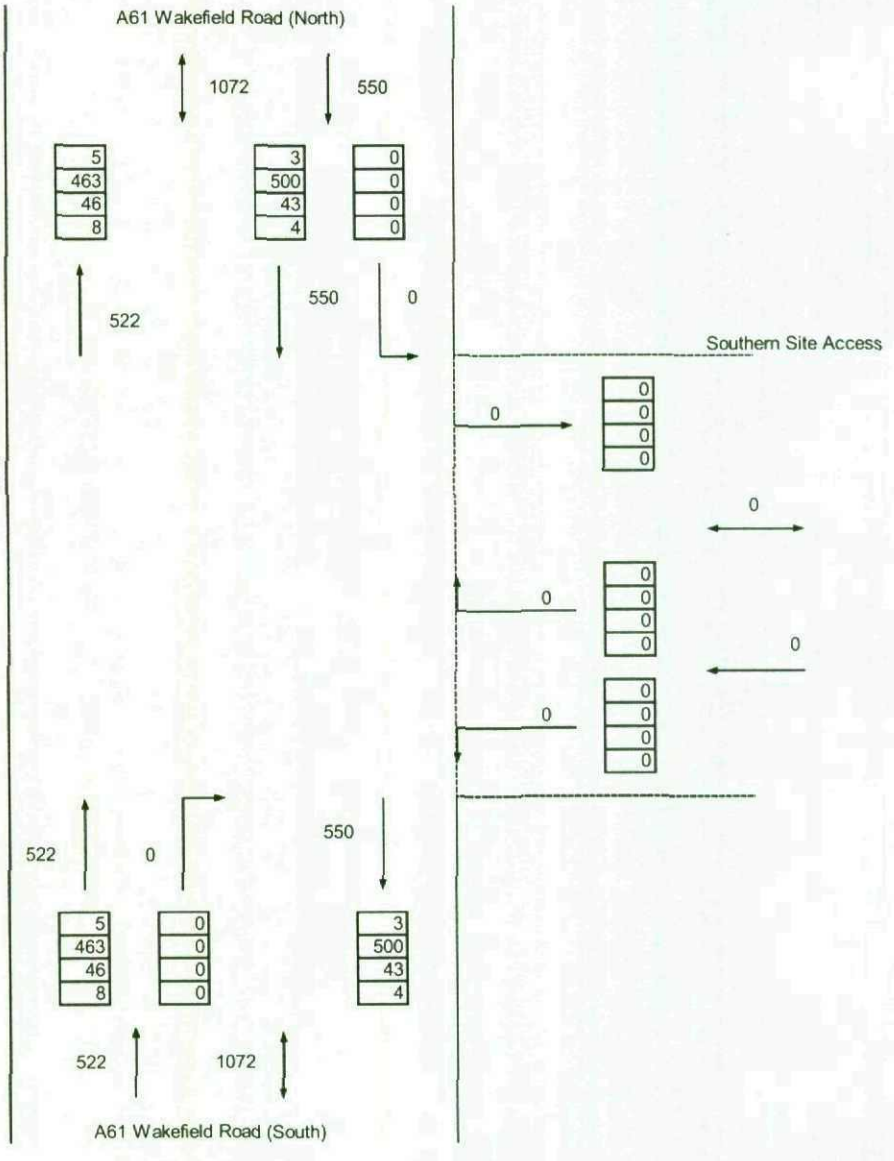


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/SOUTHERN SITE ACCESS

8:00 am - 9:00 am

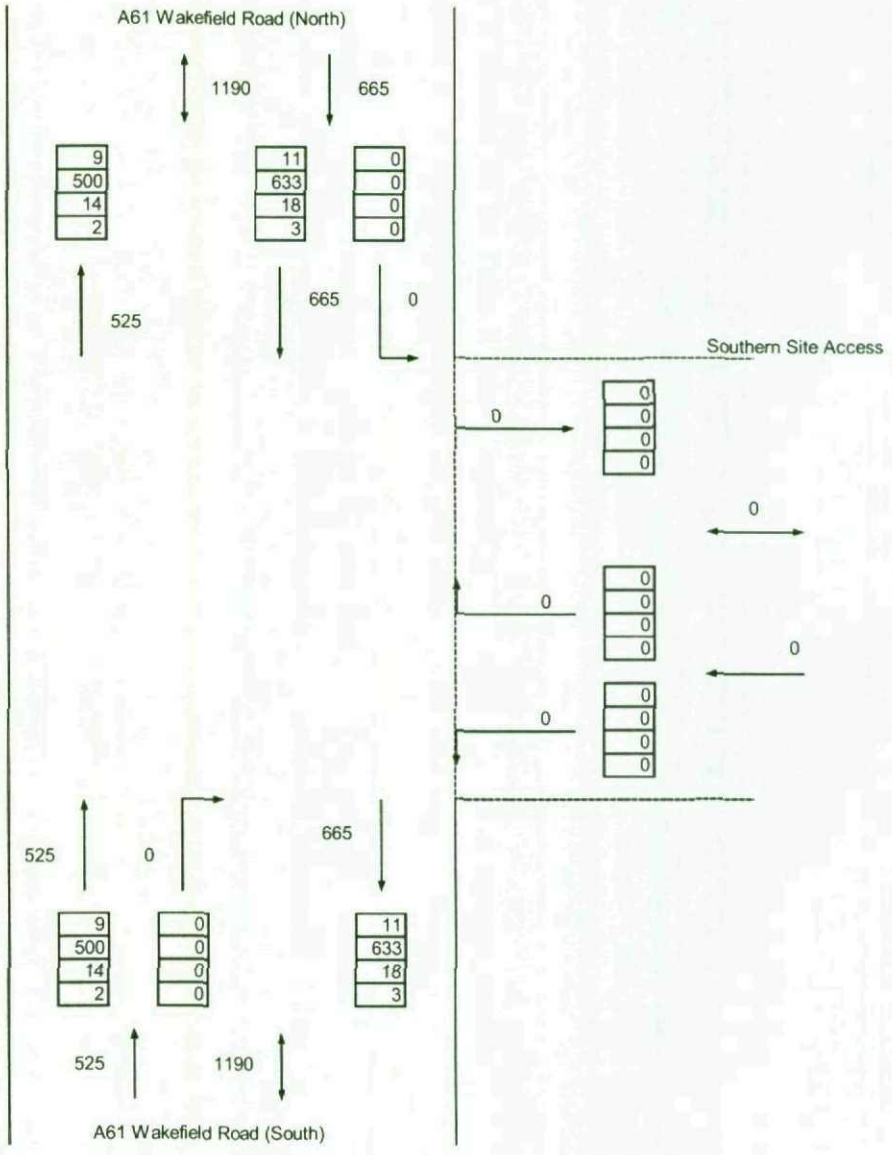


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

BASE 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/SOUTHERN SITE ACCESS

5:00 pm - 6:00 pm



Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

APPENDIX BGH 11

TRL TRL VIEWER 3.0 AC y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Arcady\2014 Base A

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Web: www.trlsoftware.co.uk

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

Run with file:-
"y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Arcady\2014 Base AM Peak.vai"
(drive-on-the-left) at 08:11:50 on Friday, 17 July 2009

FILE PROPERTIES

RUN TITLE: Mini Roundabout 2014 Base AM Peak
LOCATION: Mapplewell, Barnsley
DATE: 15/10/2008
CLIENT: Pipestone Group
ENUMERATOR: Asmith [AIMEE01]
JOB NUMBER: 08-334
STATUS: On-going
DESCRIPTION:

INPUT DATA

ARM A - A61 Wakefield Road (North)
ARM B - A633 Rotherham Road
ARM C - A61 Wakefield Road (South)

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

ARM A HAS A CENTRAL ISLAND
ARM B HAS A CENTRAL ISLAND
ARM C HAS A CENTRAL ISLAND

ARM	V (m)	E (m)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	6.10	6.70	24.00	5.90	20.00	21.00	0.00	1.504	37.265
ARM B	4.80	6.80	20.00	4.70	12.40	24.00	0.00	4.799	93.853
ARM C	4.60	5.60	14.00	4.20	20.00	21.40	0.00	1.647	35.458

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

WARNING ARM A:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.
WARNING ARM B:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.
WARNING ARM C:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

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

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: Mini Roundabout 2014 Base AM Peak

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS IFALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	11.55	17.33	11.55
ARM B	15.00	45.00	75.00	5.89	8.83	5.89
ARM C	15.00	45.00	75.00	5.72	8.59	5.72

DEMAND SET TITLE: Mini Roundabout 2014 Base AM Peak

TIME	TURNING PROPORTIONS / TURNING COUNTS (VEH/HR) (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000 0.0 (0.0)	0.302 279.0 (7.1)	0.698 645.0 (7.1)
	ARM B	0.705 332.0 (6.6)	0.000 0.0 (0.0)	0.295 139.0 (9.4)
	ARM C	0.862 395.0 (11.6)	0.138 63.0 (20.6)	0.000 0.0 (0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00								
ARM A	11.55	33.47	0.345		0.0	0.5	7.7	0.05
ARM B	5.89	48.91	0.120		0.0	0.1	2.0	0.02
ARM C	5.72	24.98	0.229		0.0	0.3	4.4	0.05

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15								
ARM A	13.79	33.20	0.415		0.5	0.7	10.4	0.05
ARM B	7.03	41.34	0.170		0.1	0.2	3.0	0.03
ARM C	6.84	23.72	0.288		0.3	0.4	5.9	0.06

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30								
ARM A	16.89	32.85	0.514		0.7	1.0	15.4	0.06
ARM B	8.61	31.03	0.278		0.2	0.4	5.6	0.04
ARM C	8.37	21.99	0.381		0.4	0.6	8.9	0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45								
ARM A	16.89	32.84	0.514		1.0	1.1	15.8	0.06
ARM B	8.61	30.95	0.278		0.4	0.4	5.8	0.04
ARM C	8.37	21.98	0.381		0.6	0.6	9.2	0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00								
ARM A	13.79	33.20	0.415		1.1	0.7	10.9	0.05
ARM B	7.03	41.23	0.171		0.4	0.2	3.1	0.03
ARM C	6.84	23.70	0.288		0.6	0.4	6.2	0.06

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	11.55	33.46	0.345		0.7	0.5	8.1	0.05
ARM B	5.89	48.75	0.121		0.2	0.1	2.1	0.02
ARM C	5.72	24.96	0.229		0.4	0.3	4.6	0.05

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	*
08.15	0.7	*
08.30	1.0	*
08.45	1.1	*
09.00	0.7	*
09.15	0.5	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.2
08.30	0.4
08.45	0.4
09.00	0.2
09.15	0.1

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.3	
08.15	0.4	
08.30	0.6	*
08.45	0.6	*
09.00	0.4	
09.15	0.3	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1267.0	844.7	68.3	0.05	68.3	0.05
B	645.8	430.6	21.7	0.03	21.7	0.03
C	628.0	418.7	39.2	0.06	39.2	0.06
ALL	2540.9	1693.9	129.2	0.05	129.2	0.05

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

END OF JOB

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

[Printed at 08:12:33 on 17/07/2009]

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Run with file:-
"y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Arcady\2014 Base PM Peak.vai"
(drive-on-the-left) at 10:17:29 on Friday, 17 July 2009

FILE PROPERTIES
****

RUN TITLE: Mini Roundabout 2014 Base PM Peak
LOCATION: Mapplewell, Barnsley
DATE: 15/10/2008
CLIENT: Pipestone Group
ENUMERATOR: Asmith [AIMEE01]
JOB NUMBER: 08-334
STATUS: On-going
DESCRIPTION:

INPUT DATA
****

ARM A - A61 Wakefield Road (North)
ARM B - A633 Rotherham Road
ARM C - A61 Wakefield Road (South)

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

ARM A HAS A CENTRAL ISLAND
ARM B HAS A CENTRAL ISLAND
ARM C HAS A CENTRAL ISLAND

ARM	V (m)	E (m)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	6.10	6.70	24.00	5.90	20.00	21.00	0.00	1.504	37.265
ARM B	4.80	6.80	20.00	4.70	12.40	24.00	0.00	4.799	93.853
ARM C	4.60	5.60	14.00	4.20	20.00	21.40	0.00	1.647	35.458

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

WARNING ARM A:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.
WARNING ARM B:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.
WARNING ARM C:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

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

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: Mini Roundabout 2014 Base PM Peak

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	10.84	16.26	10.84
ARM B	15.00	45.00	75.00	4.91	7.37	4.91
ARM C	15.00	45.00	75.00	8.94	13.41	8.94

DEMAND SET TITLE: Mini Roundabout 2014 Base PM Peak

TIME	TURNING PROPORTIONS / TURNING COUNTS (VEH/HR) (PERCENTAGE OF H.V.S) FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.504	0.496
		0.0	437.0	430.0
		(0.0)	(1.6)	(5.1)
	ARM B	0.919	0.000	0.081
		361.0	0.0	32.0
		(2.2)	(0.0)	(0.0)
	ARM C	0.934	0.066	0.000
		668.0	47.0	0.0
		(3.7)	(2.1)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00								
ARM A	10.84	35.19	0.308		0.0	0.4	6.5	0.04
ARM B	4.91	65.49	0.075		0.0	0.1	1.2	0.02
ARM C	8.94	26.90	0.332		0.0	0.5	7.3	0.06

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15								
ARM A	12.94	35.02	0.370		0.4	0.6	8.6	0.05
ARM B	5.87	60.28	0.097		0.1	0.1	1.6	0.02
ARM C	10.67	25.48	0.419		0.5	0.7	10.5	0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30								
ARM A	15.85	34.79	0.456		0.6	0.8	12.2	0.05
ARM B	7.18	53.17	0.135		0.1	0.2	2.3	0.02
ARM C	13.07	23.51	0.556		0.7	1.2	17.9	0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45								
ARM A	15.85	34.79	0.456		0.8	0.8	12.5	0.05
ARM B	7.18	53.13	0.135		0.2	0.2	2.3	0.02
ARM C	13.07	23.51	0.556		1.2	1.2	18.6	0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00								
ARM A	12.94	35.02	0.370		0.8	0.6	9.0	0.05
ARM B	5.87	60.22	0.097		0.2	0.1	1.6	0.02
ARM C	10.67	25.47	0.419		1.2	0.7	11.2	0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	10.84	35.19	0.308		0.6	0.4	6.8	0.04
ARM B	4.91	65.40	0.075		0.1	0.1	1.2	0.02
ARM C	8.94	26.89	0.332		0.7	0.5	7.6	0.06

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.4	
17.15	0.6	*
17.30	0.8	*
17.45	0.8	*
18.00	0.6	*
18.15	0.4	

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.2
17.45	0.2
18.00	0.1
18.15	0.1

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.5	
17.15	0.7	*
17.30	1.2	*
17.45	1.2	*
18.00	0.7	*
18.15	0.5	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1188.8	792.6	55.7	0.05	55.7	0.05
B	538.9	359.3	10.3	0.02	10.3	0.02
C	980.4	653.6	73.1	0.07	73.1	0.07
ALL	2708.1	1805.4	139.1	0.05	139.1	0.05

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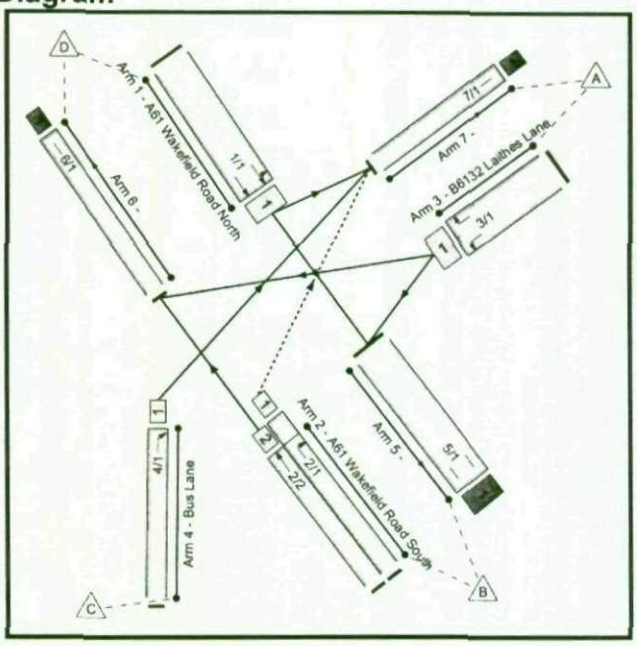
END OF JOB

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[Printed at 10:17:39 on 17/07/2009]

A61 Wakefield Road / B6132 Laithes Lane Base 2014 Assessment

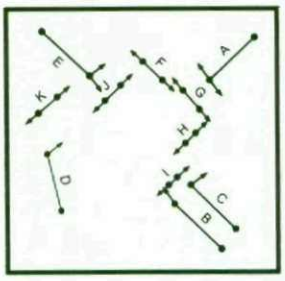
Junction Layout Diagram



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	Bus		7	7
E	Traffic		7	7
F	Pedestrian		9	9
G	Pedestrian		9	9
H	Pedestrian		9	9
I	Pedestrian		9	9
J	Pedestrian		9	9
K	Pedestrian		9	9

Phase Diagram



Intergreens Table

		Starting Phase										
		A	B	C	D	E	F	G	H	I	J	K
Terminating Phase	A		8	7	7	9	-	5	8	-	-	10
	B	8		-	6	-	-	-	-	5	-	10
	C	7	-		7	8	9	-	-	5	-	-
	D	7	6	7		8	8	-	-	-	-	-
	E	9	-	8	8		7	-	10	-	5	-
	F	-	-	8	8	8		-	-	-	-	-
	G	8	-	-	-	-	-		-	-	-	-
	H	8	-	-	-	8	-	-		-	-	-
	I	-	7	7	-	-	-	-	-		-	-
	J	-	-	-	-	9	-	-	-	-		-
	K	5	5	-	-	-	-	-	-	-	-	

Phase Delays

There are no phase delays defined in this stage stream

Prohibited Stage Changes Table

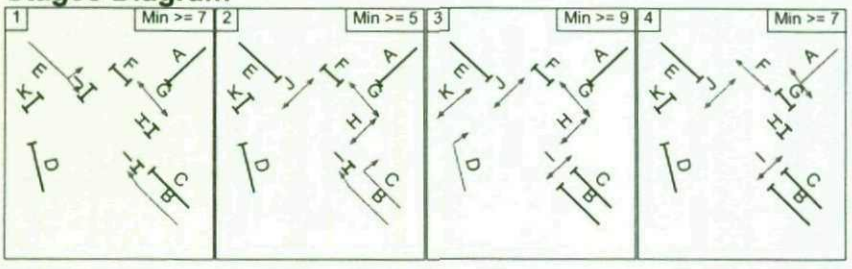
	To Stage				
		1	2	3	4
From Stage	1		10	10	9
	2	9		10	9
	3	9	7		8
	4	9	8	10	

Stage Data table

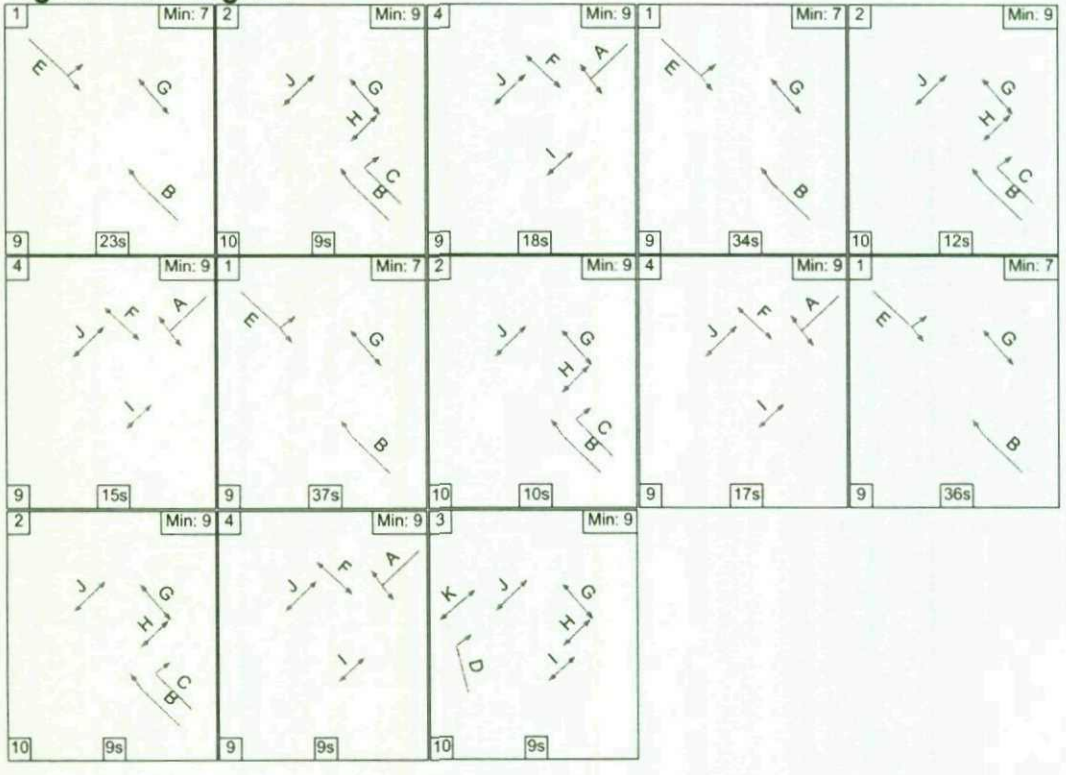
Stage No.	Phases in Stage
1	B E G
2	B C G H J
3	D G H I J K
4	A F I J

Scenario 3: 'Base 2014 AM Peak'
Staging Plan 2: 'Bus every four cycles'
Flow Group 3: 'Base 2014 AM Peak'

Stages Diagram

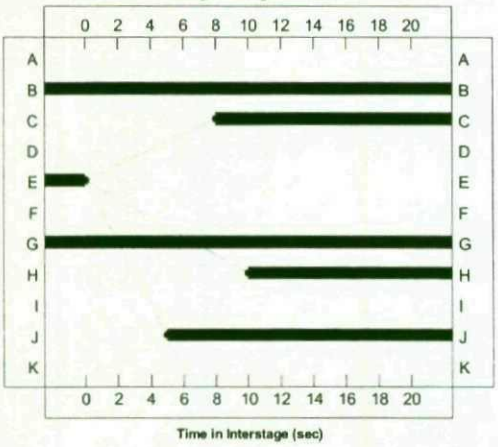


Signal Plan Diagram

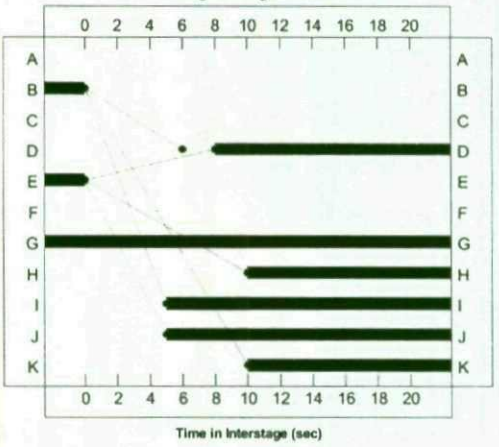


Interstage Diagram

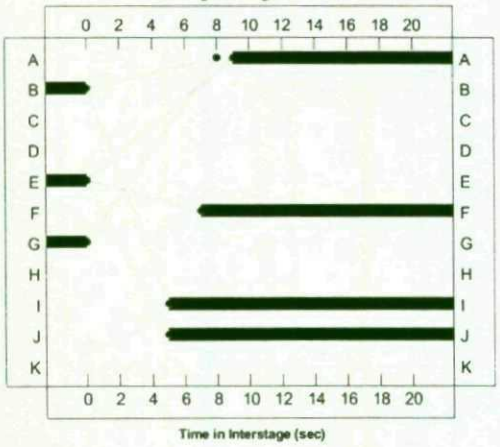
Stage Change 1 -> 2



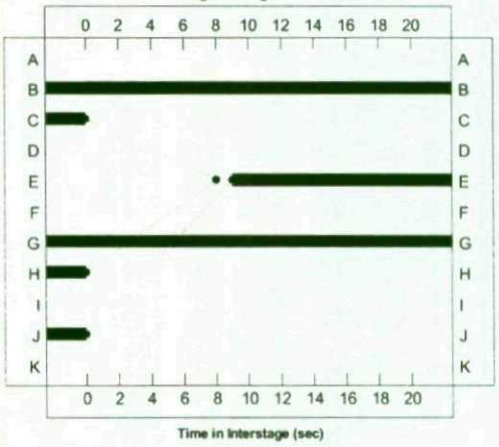
Stage Change 1 -> 3



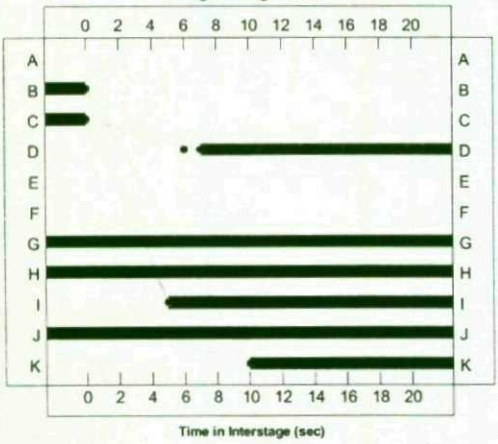
Stage Change 1 -> 4



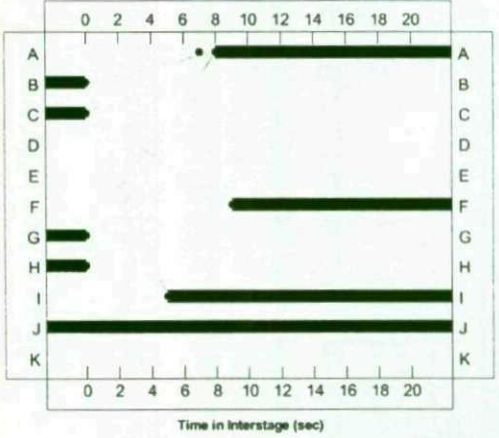
Stage Change 2 -> 1



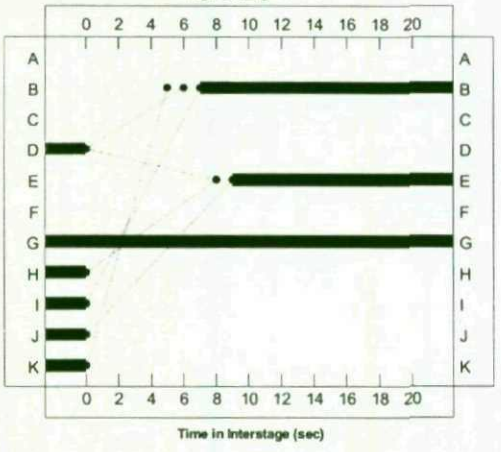
Stage Change 2 -> 3



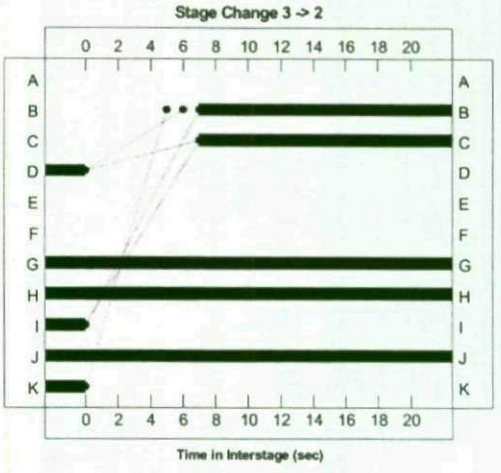
Stage Change 2 -> 4



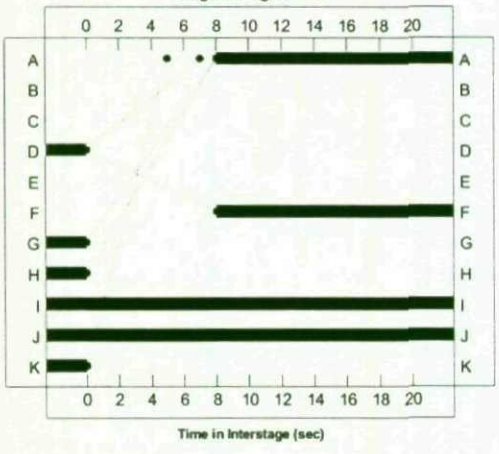
Stage Change 3 -> 1



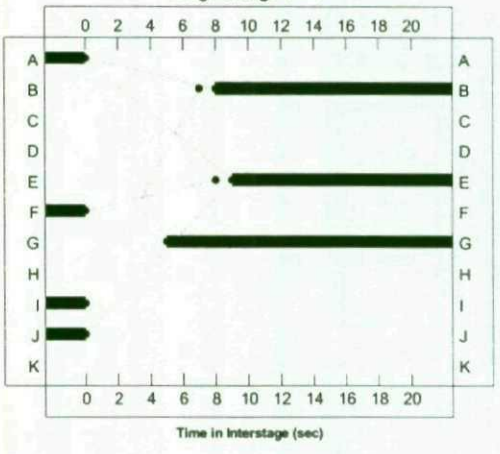
Stage Change 3 -> 2



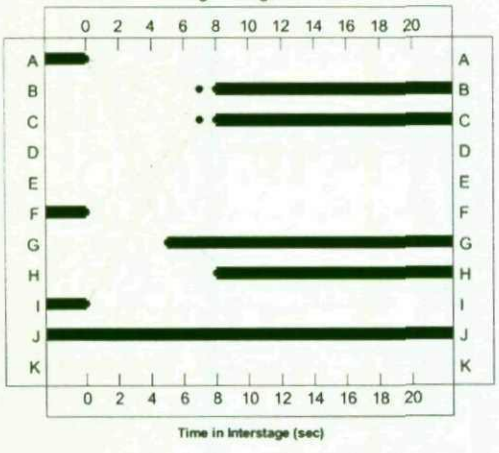
Stage Change 3 -> 4



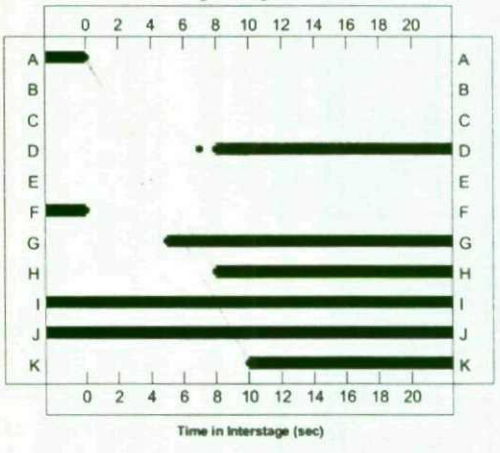
Stage Change 4 -> 1



Stage Change 4 -> 2



Stage Change 4 -> 3



Link data table

Arm/ Link	Link Name	Link Type	Num Lanes	Phases	Start Disp.	End Disp.
1/1	A61 Wakefield Road North Ahead Left	U	2	E	2	3
2/1	A61 Wakefield Road South Right	O	1	C	2	3
2/2	A61 Wakefield Road South Ahead	U	1	B	2	3
3/1	B6132 Laithes Lane Left Right	U	2	A	2	3
4/1	Bus Lane Right	U	1	D	2	3
5/1		U	2		2	3
6/1		U	1		2	3
7/1		U	1		2	3

Opposed Link Data Table

Arm/ Link	Link Name	Movement	Max Flow when Giving Way (PCU/Hr)	Opposing Link	Opp. Link Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	RTF	Right Turn Move up time (s)	Max Turns in Intergreen (PCU)
2/1	A61 Wakefield Road South Right	2/1 to 7/1	1439	1/1	1.09	1/1	2.00	0.50	2	2.00

Lane Data Table

Arm/ Lane	Link Num	Physical Length (PCU)	Expected Usage (PCU)	Sat Flow Type	User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)
1/1 (A61 Wakefield Road North Lane 1)	Link 1 (A61 Wakefield Road North Ahead Left)	Inf	Inf	Geom	1800	3.90	0.00	Y	Arm 5 Ahead	Inf
									Arm 7 Left	12.00
1/2 (A61 Wakefield Road North Lane 2)	Link 1 (A61 Wakefield Road North Ahead Left)	Inf	Inf	Geom	1800	3.90	0.00	N	Arm 5 Ahead	Inf
2/1 (A61 Wakefield Road South Lane 1)	Link 2 (A61 Wakefield Road South Ahead)	Inf	Inf	Geom	1800	3.35	0.00	Y	Arm 6 Ahead	Inf
2/2 (A61 Wakefield Road South Lane 2)	Link 1 (A61 Wakefield Road South Right)	Inf	Inf	Geom	1800	3.35	0.00	Y	Arm 7 Right	15.00
3/1 (B6132 Laithes Lane Lane 1)	Link 1 (B6132 Laithes Lane Left Right)	Inf	Inf	Geom	1800	3.50	0.00	Y	Arm 5 Left	15.00
3/2 (B6132 Laithes Lane Lane 2)	Link 1 (B6132 Laithes Lane Left Right)	Inf	Inf	Geom	1800	3.50	0.00	N	Arm 6 Right	30.00
4/1 (Bus Lane Lane 1)	Link 1 (Bus Lane Right)	Inf	Inf	Geom	1800	4.30	0.00	Y	Arm 7 Right	30.00
5/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.45	0.00	Y		
5/2	Link 1	Inf	Inf	Inf (Exit)	1800	3.45	0.00	N		
6/1	Link 1	Inf	Inf	Inf (Exit)	1800	4.60	0.00	Y		
7/1	Link 1	Inf	Inf	Inf (Exit)	1800	5.00	0.00	Y		

Lane Data Table

Flow Group 3: 'Base 2014 AM Peak'

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (A61 Wakefield Road North Lane 1)	3.90	0.00	Y	Arm 5 Ahead Arm 7 Left	Inf 12.00	41.9 % 58.1 %	1869
1/2 (A61 Wakefield Road North Lane 2)	3.90	0.00	N	Arm 5 Ahead	Inf	100.0 %	2145
2/1 (A61 Wakefield Road South Lane 1)	3.35	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1950
2/2 (A61 Wakefield Road South Lane 2)	3.35	0.00	Y	Arm 7 Right	15.00	100.0 %	1773
3/1 (B6132 Laithes Lane Lane 1)	3.50	0.00	Y	Arm 5 Left	15.00	100.0 %	1786
3/2 (B6132 Laithes Lane Lane 2)	3.50	0.00	N	Arm 6 Right	30.00	100.0 %	2005
4/1 (Bus Lane Lane 1)	4.30	0.00	Y	Arm 7 Right	30.00	100.0 %	1948
5/1	3.45	0.00	Y				1960
5/2	3.45	0.00	N				2100
6/1	4.60	0.00	Y				2075
7/1	5.00	0.00	Y				2115

Traffic Flow Matrix

Flow Group 3: 'Base 2014 AM Peak'

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	183	-	323	506
	B	182	0	-	601	783
	C	2	0	-	0	2
	D	313	765	-	0	1078
	Tot.	497	948	-	924	2369

Flow Group 4: 'Base 2014 PM Peak'
Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	151	-	324	475
	B	184	0	-	794	978
	C	2	0	-	0	2
	D	294	718	-	0	1012
	Tot.	480	869	-	1118	2467

Link Results

Scenario 3: 'Base 2014 AM Peak'
Staging Plan 2: 'Bus every four cycles'
Flow Group 3: 'Base 2014 AM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	A61 Wakefield Road North Ahead Left	U	E		4	130	-	1078	4014	1494	72.2	28.7	26.1	27.3
2/1	A61 Wakefield Road South Right	O	C		4	48	-	182	1773	256	71.1	60.3	4.3	5.5
2/2	A61 Wakefield Road South Ahead	U	B		4	215	-	601	1950	1186	50.7	13.2	10.4	10.9
3/1	B6132 Laithes Lane Left Right	U	A		4	63	-	506	3791	706	71.7	43.3	12.4	13.6
4/1	Bus Lane Right	U	D		1	11	-	2	1948	65	3.1	197.3	0.2	0.2

PRC for Signalled Links (%): 24.7 Total Delay for Signalled Links (pcuHr): 20.05
PRC Over All Links (%): 24.7 Total Delay Over All Links(pcuHr): 20.05 Cycle Time (s): 360

Scenario 4: 'Base 2014 PM Peak'

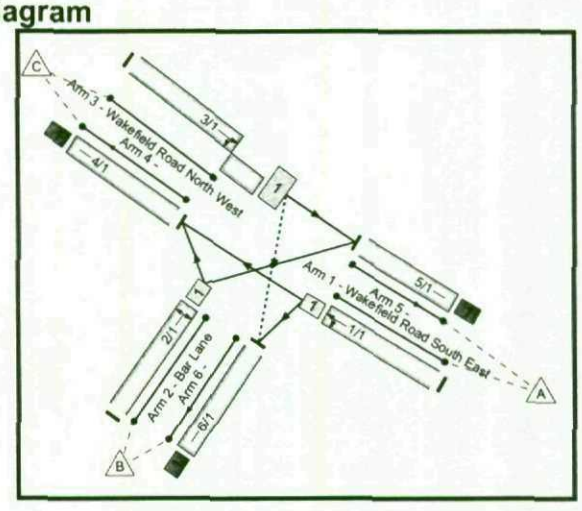
Staging Plan 2: 'Bus every four cycles'
Flow Group 4: 'Base 2014 PM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	A61 Wakefield Road North Ahead Left	U	E		4	128	-	1012	4014	1472	68.8	28.2	23.9	25.0
2/1	A61 Wakefield Road South Right	O	C		4	51	-	184	1773	271	67.9	56.3	4.4	5.5
2/2	A61 Wakefield Road South Ahead	U	B		4	216	-	794	1950	1192	66.6	16.2	15.9	16.9
3/1	B6132 Laithes Lane Left Right	U	A		4	62	-	475	3791	695	68.3	42.4	11.3	12.4
4/1	Bus Lane Right	U	D		1	11	-	2	1948	65	3.1	197.3	0.2	0.2

PRC for Signalled Links (%): 30.9 Total Delay for Signalled Links (pcuHr): 20.08
PRC Over All Links (%): 30.9 Total Delay Over All Links(pcuHr): 20.08 Cycle Time (s): 360

A61 Wakefield Road / Bar Lane Base 2014 Assessment

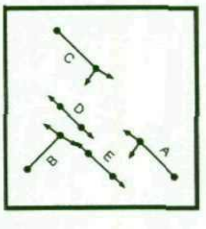
Junction Layout Diagram



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	Pedestrian		8	8
E	Pedestrian		8	8

Phase Diagram



Intergreens Table

		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		8	-	-	7
	B	6		7	5	-
	C	-	7		-	8
	D	-	7	-		-
	E	8	-	8	-	

Phase Delays

There are no phase delays defined in this stage stream

Prohibited Stage Changes Table

From Stage	To Stage 1	To Stage 2
1		8
2	8	

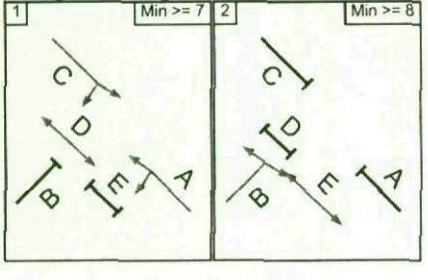
Stage Data table

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

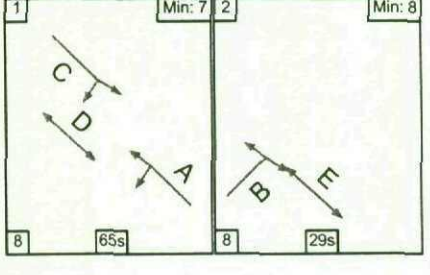
Scenario 3: 'Base 2014 Flows AM Peak'

Staging Plan 1: 'Staging Plan No. 1'
Flow Group 3: 'Base 2014 Flows AM Peak'

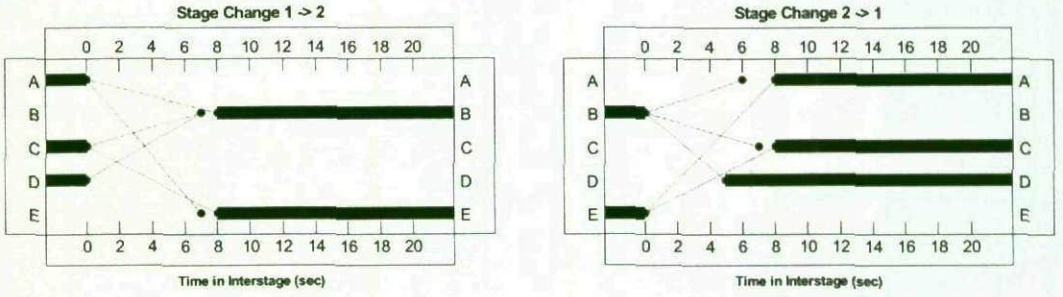
Stages Diagram



Signal Plan Diagram



Interstage Diagram



Link data table

Arm/ Link	Link Name	Link Type	Num Lanes	Phases	Start Disp.	End Disp.
1/1	Wakefield Road South East Ahead Left	U	1	A	2	3
2/1	Bar Lane Left Right	U	1	B	2	3
3/1	Wakefield Road North West Ahead Right	O	1	C	2	3
4/1		U	1		2	3
5/1		U	1		2	3
6/1		U	1		2	3

Opposed Link Data Table

Arm/ Link	Link Name	Movement	Max Flow when Giving Way (PCU/Hr)	Opposing Link	Opp. Link Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up time (s)	Tu Inte (I
3/1	Wakefield Road North West Ahead Right	3/1 to 6/1	1400	1/1	0.01	1/1	3.00	3.00	0.50	3	

Lane Data Table

Arm/ Lane	Link Num	Physical Length (PCU)	Expected Usage (PCU)	Sat Flow Type	User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)
1/1 (Wakefield Road South East Lane 1)	Link 1 (Wakefield Road South East Ahead Left)	Inf	Inf	Geom	1800	4.00	0.00	Y	Arm 4 Ahead	Inf
									Arm 6 Left	10.00
2/1 (Bar Lane Lane 1)	Link 1 (Bar Lane Left Right)	Inf	Inf	Geom	1800	5.00	0.00	Y	Arm 4 Left	20.00
									Arm 5 Right	20.00
3/1 (Wakefield Road North West Lane 1)	Link 1 (Wakefield Road North West Ahead Right)	Inf	Inf	Geom	1800	3.60	0.00	Y	Arm 5 Ahead	Inf
									Arm 6 Right	10.00
4/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		
5/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		
6/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		

Lane Data Table

Scenario 3: 'Base 2014 Flows AM Peak'

Staging Plan 1: 'Staging Plan No. 1'

Flow Group 3: 'Base 2014 Flows AM Peak'

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (Wakefield Road South East Lane 1)	4.00	0.00	Y	Arm 4 Ahead	Inf	60.3 %	1902
				Arm 6 Left	10.00	39.7 %	
2/1 (Bar Lane Lane 1)	5.00	0.00	Y	Arm 4 Left	20.00	4.1 %	1967
				Arm 5 Right	20.00	95.9 %	
3/1 (Wakefield Road North West Lane 1)	3.60	0.00	Y	Arm 5 Ahead	Inf	97.5 %	1968
				Arm 6 Right	10.00	2.5 %	
4/1	Infinite Saturation Flow (on Exit Link)						Inf
5/1	Infinite Saturation Flow (on Exit Link)						Inf
6/1	Infinite Saturation Flow (on Exit Link)						Inf

Traffic Flow Matrix

Flow Group 3: 'Base 2014 Flows AM Peak'

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	374	569	943
	B	421	0	18	439
	C	593	15	0	608
	Tot.	1014	389	587	1990

Flow Group 4: 'Base 2014 Flows PM Peak'

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	506	517	1023
	B	403	0	22	425
	C	654	30	0	684
	Tot.	1057	536	539	2132

Link Results

Scenario 3: 'Base 2014 Flows AM Peak'

Staging Plan 1: 'Staging Plan No. 1'

Flow Group 3: 'Base 2014 Flows AM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	Wakefield Road South East Ahead Left	U	A		1	65	-	943	1902	1141	82.6	26.3	22.8	25.1
2/1	Bar Lane Left Right	U	B		1	29	-	439	1967	536	81.8	55.1	12.4	14.6
3/1	Wakefield Road North West Ahead Right	O	C		1	65	-	608	1968	1181	51.5	15.9	10.6	11.2

PRC for Signalled Links (%): 8.9 Total Delay for Signalled Links (pcuHr): 16.30

PRC Over All Links (%): 8.9 Total Delay Over All Links(pcuHr): 16.30 Cycle Time (s): 110

Scenario 4: 'Base 2014 Flows PM Peak'

Staging Plan 1: 'Staging Plan No. 1'
Flow Group 4: 'Base 2014 Flows PM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	Wakefield Road South East Ahead Left	U	A		1	68	-	1023	1876	1177	86.9	28.0	25.6	28.8
2/1	Bar Lane Left Right	U	B		1	26	-	425	1967	483	88.0	67.9	12.4	15.7
3/1	Wakefield Road North West Ahead Right	O	C		1	68	-	684	1962	1231	55.6	15.0	11.8	12.4

PRC for Signalled Links (%): 2.2 Total Delay for Signalled Links (pcuHr): 18.84
PRC Over All Links (%): 2.2 Total Delay Over All Links(pcuHr): 18.84 Cycle Time (s): 110

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 4.0 (SEPT 2008)

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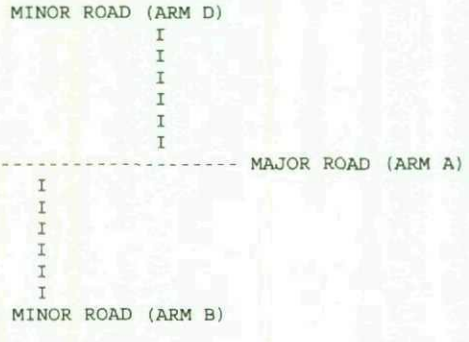
Run with file:-
"Y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Picady\Cross Roads\
Cross Roads Base 2014 AM & PM Peak.vpi"
(drive-on-the-left) at 09:38:44 on Friday, 17 July 2009

RUN INFORMATION
****

RUN TITLE	: Base 2014 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads
LOCATION	: Mapplewell, Barnsley
DATE	: 15/10/08
CLIENT	: Pipestone Group
ENUMERATOR	: Asmith [AIMEE01]
JOB NUMBER	: 08-334
STATUS	: On-going
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS A61 Wakefield Road (North)
ARM B IS B6428 Lee Road
ARM C IS A61 Wakefield Road (South)
ARM D IS B6428 Shaw 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

DATA ITEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	*(W) 9.20 M.*	*(W) 9.90 M.*
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 3.20 M.	(WA-D) 3.50 M.
- VISIBILITY	(VC-B) 120.00 M.	(VA-D) 120.00 M.
- BLOCKS TRAFFIC	NO	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 120.0 M.	(VD-A) 120.0 M.
- VISIBILITY TO RIGHT	(VB-A) 120.0 M.	(VD-C) 120.0 M.
- *LANE 1 WIDTH*	(WB-C) -	(WD-A) -
- LANE 2 WIDTH	(WB-A) -	(WD-C) -
WIDTH AT 0 M FROM JUNCTION	7.60 M.	10.00 M.
WIDTH AT 5 M FROM JUNCTION	5.60 M.	8.00 M.
WIDTH AT 10 M FROM JUNCTION	3.20 M.	5.50 M.
WIDTH AT 15 M FROM JUNCTION	3.50 M.	5.20 M.
WIDTH AT 20 M FROM JUNCTION	3.50 M.	4.00 M.
- LENGTH OF FLARED SECTION	DERIVED: 1 PCU	DERIVED: 3 PCU

.SLOPES AND INTERCEPT

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

B-C Stream

Intercept For 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
0.00	0.00	0.00	0.00	0.00

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

B-AD Stream

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

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

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

C-B Stream

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

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-A	Slope For Opposing STREAM B-D
713.49	0.24	0.24	0.24	0.24

A-D Stream

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-A	Slope For Opposing STREAM B-D
713.49	0.24	0.24	0.24	0.24

TRAFFIC DEMAND DATA

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

Demand set: Existing 2008 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	3.42	5.14	3.42
ARM B	15.00	45.00	75.00	5.44	8.16	5.44
ARM C	15.00	45.00	75.00	5.89	8.83	5.89
ARM D	15.00	45.00	75.00	5.97	8.96	5.97

Demand set: Existing 2008 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads

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

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
07.45 - 08.00	ARM A	0.000	0.131	0.631	0.237
		0.0	36.0	173.0	65.0
		(0.0)	(2.8)	(16.2)	(4.7)
	ARM B	0.085	0.000	0.223	0.692
		37.0	0.0	97.0	301.0
		(8.1)	*(0.0)*	(1.7)	(8.2)
	ARM C	0.503	0.136	0.000	0.361
		237.0	64.0	0.0	170.0
		(11.4)	(6.3)	(0.0)	(10.6)
	ARM D	0.236	0.504	0.259	0.000
		113.0	241.0	124.0	0.0
		(0.9)	(3.3)	(2.4)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.22	6.60	0.184		0.00	0.22	3.2		0.18
B-AD	4.24	7.43	0.571		0.00	1.27	17.2		0.30
A-B	0.45								
A-C	2.17								
A-D	0.82	9.38	0.087		0.00	0.09	1.4		0.12
D-A	1.42	8.16	0.174		0.00	0.21	3.0		0.15
D-BC	4.58	8.45	0.542		0.00	1.14	15.7		0.25
C-D	2.13								
C-A	2.97								
C-B	0.80	9.46	0.085		0.00	0.09	1.3		0.12

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	1.45	4.76	0.305		0.22	0.43	6.0		0.30
B-AD	5.06	6.84	0.740		1.27	2.53	33.5		0.51
A-B	0.54								
A-C	2.59								
A-D	0.97	8.91	0.109		0.09	0.12	1.8		0.13
D-A	1.69	6.94	0.244		0.21	0.32	4.6		0.19
D-BC	5.47	7.98	0.685		1.14	2.03	27.6		0.38
C-D	2.55								
C-A	3.55								
C-B	0.96	9.11	0.105		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)
08.15-08.30									
B-C	1.78	1.70	1.047		0.43	5.33	50.6		2.76
B-AD	6.20	5.99	1.035		2.53	11.35	113.8		1.63
A-B	0.66								
A-C	3.17								
A-D	1.19	8.26	0.144		0.12	0.17	2.4		0.14
D-A	2.07	3.56	0.582		0.32	1.27	16.5		0.62
D-BC	6.70	7.31	0.916		2.03	6.30	72.5		0.91
C-D	3.12								
C-A	4.35								
C-B	1.17	8.63	0.136		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)
08.30-08.45									
B-C	1.78	1.81	0.983		5.33	7.00	93.2		4.15
B-AD	6.20	5.90	1.051		11.35	18.04	222.0		2.88
A-B	0.66								
A-C	3.17								
A-D	1.19	8.12	0.147		0.17	0.17	2.5		0.14
D-A	2.07	2.51	0.826		1.27	3.06	36.5		1.54
D-BC	6.70	7.22	0.927		6.30	7.97	108.6		1.28
C-D	3.12								
C-A	4.35								
C-B	1.17	8.57	0.137		0.16	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)
08.45-09.00									
B-C	1.45	2.46	0.592		7.00	1.73	47.2		1.84
B-AD	5.06	6.52	0.776		18.04	4.56	150.3		1.86
A-B	0.54								
A-C	2.59								
A-D	0.97	8.63	0.113		0.17	0.13	2.0		0.13
D-A	1.69	6.19	0.273		3.06	0.38	7.3		0.24
D-BC	5.47	7.83	0.698		7.97	2.53	50.3		0.57
C-D	2.55								
C-A	3.55								
C-B	0.96	9.00	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)
09.00-09.15									
B-C	1.22	6.21	0.196		1.73	0.25	4.3		0.21
B-AD	4.24	7.37	0.576		4.56	1.42	25.4		0.36
A-B	0.45								
A-C	2.17								
A-D	0.82	9.30	0.088		0.13	0.10	1.5		0.12
D-A	1.42	8.01	0.177		0.38	0.22	3.4		0.15
D-BC	4.58	8.41	0.544		2.53	1.24	20.1		0.27
C-D	2.13								
C-A	2.97								
C-B	0.80	9.42	0.085		0.12	0.09	1.4		0.12

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.2	
08.15	0.4	
08.30	5.3	*****
08.45	7.0	*******
09.00	1.7	**
09.15	0.2	

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.3	*
08.15	2.5	***
08.30	11.4	***********
08.45	18.0	******************
09.00	4.6	*****
09.15	1.4	*

QUEUE FOR STREAM A-D

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

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.2	
08.15	0.3	
08.30	1.3	*
08.45	3.1	***
09.00	0.4	
09.15	0.2	

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.1	*
08.15	2.0	**
08.30	6.3	******
08.45	8.0	********
09.00	2.5	***
09.15	1.2	*

QUEUE FOR STREAM C-B

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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	133.5	89.0	204.5	1.53	204.6	1.53
B-AD	465.2	310.2	562.2	1.21	562.3	1.21
A-B	49.6	33.0				
A-C	238.1	158.7				
A-D	89.5	59.6	11.6	0.13	11.6	0.13
D-A	155.5	103.7	71.2	0.46	71.2	0.46
D-BC	502.4	334.9	294.7	0.59	294.8	0.59
C-D	234.0	156.0				
C-A	326.2	217.5				
C-B	88.1	58.7	11.0	0.12	11.0	0.12
ALL	2282.1	1521.4	1155.3	0.51	1155.5	0.51

* 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

Intercept For 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
0.00	0.00	0.00	0.00	0.00

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

B-AD Stream

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

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

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

C-B Stream

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-C	Slope For Opposing STREAM D-B
713.49	0.24	0.24	0.24	0.24

A-D Stream

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-A	Slope For Opposing STREAM B-D
713.49	0.24	0.24	0.24	0.24

TRAFFIC DEMAND DATA

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

Demand set: Existing 2008 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads Demand

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	6.03	9.04	6.03
ARM B	15.00	45.00	75.00	4.29	6.43	4.29
ARM C	15.00	45.00	75.00	6.01	9.02	6.01
ARM D	15.00	45.00	75.00	5.66	8.49	5.66

Demand set: Existing 2008 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads Demand

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

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 17.00	ARM A	0.000	0.166	0.537	0.297
		0.0	80.0	259.0	143.0
		(0.0)	(1.3)	(3.5)	(2.0)
	ARM B	0.099	0.000	0.213	0.688
		34.0	0.0	73.0	236.0
		(0.0)	(0.0)	(1.4)	(1.3)
	ARM C	0.405	0.264	0.000	0.331
		195.0	127.0	0.0	159.0
		(4.6)	(0.8)	(0.0)	(3.1)
	ARM D	0.172	0.709	0.119	0.000
		78.0	321.0	54.0	0.0
		(1.3)	(0.9)	(3.7)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	0.92	7.44	0.123		0.00	0.14	2.0		0.15
B-AD	3.39	7.77	0.436		0.00	0.75	10.5		0.22
A-B	1.00								
A-C	3.25								
A-D	1.79	10.14	0.177		0.00	0.21	3.1		0.12
D-A	0.98	8.09	0.121		0.00	0.14	2.0		0.14
D-BC	4.71	8.39	0.561		0.00	1.23	16.8		0.26
C-D	2.00								
C-A	2.45								
C-B	1.59	9.64	0.165		0.00	0.20	2.8		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)
17.00-17.15									
B-C	1.09	6.32	0.173		0.14	0.21	3.0		0.19
B-AD	4.05	7.16	0.565		0.75	1.24	17.3		0.31
A-B	1.20								
A-C	3.88								
A-D	2.14	9.77	0.219		0.21	0.28	4.1		0.13
D-A	1.17	6.63	0.176		0.14	0.21	3.1		0.18
D-BC	5.62	7.87	0.714		1.23	2.28	30.8		0.42
C-D	2.38								
C-A	2.92								
C-B	1.90	9.20	0.207		0.20	0.26	3.8		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)
17.15-17.30									
B-C	1.34	3.96	0.338		0.21	0.49	6.9		0.38
B-AD	4.95	6.29	0.788		1.24	3.11	39.4		0.64
A-B	1.47								
A-C	4.75								
A-D	2.62	9.26	0.283		0.28	0.39	5.7		0.15
D-A	1.43	1.93	0.741		0.21	2.04	23.3		1.42
D-BC	6.88	7.16	0.962		2.28	8.17	89.1		1.11
C-D	2.92								
C-A	3.58								
C-B	2.33	8.60	0.271		0.26	0.37	5.3		0.16

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	1.34	3.62	0.370		0.49	0.57	8.2		0.44
B-AD	4.95	6.22	0.797		3.11	3.47	49.9		0.75
A-B	1.47								
A-C	4.75								
A-D	2.62	9.23	0.284		0.39	0.39	5.9		0.15
D-A	1.43	1.51	0.950		2.04	4.23	49.3		2.90
D-BC	6.88	7.14	0.964		8.17	10.76	143.6		1.64
C-D	2.92								
C-A	3.58								
C-B	2.33	8.51	0.274		0.37	0.37	5.6		0.16

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	1.09	6.01	0.182		0.57	0.23	3.6		0.21
B-AD	4.05	7.07	0.572		3.47	1.40	23.8		0.36
A-B	1.20								
A-C	3.88								
A-D	2.14	9.72	0.220		0.39	0.29	4.4		0.13
D-A	1.17	5.63	0.207		4.23	0.27	6.5		0.25
D-BC	5.62	7.84	0.717		10.76	2.82	64.9		0.72
C-D	2.38								
C-A	2.92								
C-B	1.90	9.05	0.210		0.37	0.27	4.2		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)
18.00-18.15									
B-C	0.92	7.34	0.125		0.23	0.14	2.2		0.16
B-AD	3.39	7.74	0.438		1.40	0.80	12.7		0.23
A-B	1.00								
A-C	3.25								
A-D	1.79	10.12	0.177		0.29	0.22	3.3		0.12
D-A	0.98	7.94	0.123		0.27	0.14	2.2		0.14
D-BC	4.71	8.37	0.562		2.82	1.33	21.8		0.29
C-D	2.00								
C-A	2.45								
C-B	1.59	9.59	0.166		0.27	0.20	3.1		0.13

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	0.5	
17.45	0.6	*
18.00	0.2	
18.15	0.1	

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.8	*
17.15	1.2	*
17.30	3.1	***
17.45	3.5	***
18.00	1.4	*
18.15	0.8	*

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	2.0	**
17.45	4.2	****
18.00	0.3	
18.15	0.1	

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.2	*
17.15	2.3	**
17.30	8.2	********
17.45	10.8	**********
18.00	2.8	***
18.15	1.3	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	100.5	67.0	25.9	0.26	25.9	0.26
B-AD	371.6	247.8	153.8	0.41	153.8	0.41
A-B	110.1	73.4				
A-C	356.5	237.7				
A-D	196.8	131.2	26.5	0.13	26.5	0.13
D-A	107.4	71.6	86.3	0.80	86.3	0.80
D-BC	516.2	344.1	367.2	0.71	367.3	0.71
C-D	218.9	145.9				
C-A	268.4	178.9				
C-B	174.8	116.5	24.8	0.14	24.8	0.14
ALL	2421.1	1614.1	684.4	0.28	684.5	0.28

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

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

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

Printed at 09:38:52 on 17/07/2009]

APPENDIX BGH 12

RANK ORDER for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

MULTI-MODAL TOTAL PEOPLE

Ranking Type: **ARRIVALS** Time Range: 08:00-09:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. **12 (**)**

85th Percentile = No. **3 (**)**

Median Values

Arrivals: 0.123
Departures: 0.587
Totals: 0.710

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Arrivals)			Travel Plan
							Arrivals	Departures	Totals	
1	DC-03-C-01	BLOCKS OF FLATS, WEYMOUT	DORSET	27	Tue	08/07/08	0.296	0.370	0.666	
2	WY-03-C-02	BLOCK OF FLATS, HUDDERSF	WEST YORKSHIRE	12	Wed	13/09/06	0.167	0.583	0.750	
3 **	**NR-03-C-01**	**BLOCK OF FLATS, CORBY**	**NORTHAMPTONSHIRE**	**20**	**Fri**	**21/11/08**	**0.150**	**0.500**	**0.650**	
4	NY-03-C-01	BLOCKS OF FLATS, NTHALLE	NORTH YORKSHIRE	30	Mon	22/09/03	0.133	0.500	0.633	
5	CH-03-C-01	BLOCKS OF FLATS, CHESTER	CHESHIRE	60	Fri	17/10/08	0.133	0.450	0.583	
6	MS-03-C-01	BLOCKS OF FLATS, LIVERPO	MERSEYSIDE	114	Thu	16/10/03	0.132	0.404	0.536	
7	TV-03-C-01	APARTMENTS BLOCKS, M'BOR	TEES VALLEY	85	Mon	06/10/08	0.129	0.506	0.635	
8	WM-03-C-03	FLATS, SOLIHULL	WEST MIDLANDS	60	Fri	21/09/07	0.117	0.667	0.784	
9	CA-03-C-01	BLOCK OF FLATS, P.BORO	CAMBRIDGESHIRE	44	Wed	07/05/08	0.114	0.568	0.682	
10	HF-03-C-02	FLATS, WELWYN GARDEN CIT	HERTFORDSHIRE	86	Wed	16/07/08	0.105	0.407	0.512	
11	SC-03-C-01	FLATS, CAMBERLEY	SURREY	140	Mon	21/07/08	0.093	0.521	0.614	
12 **	**WY-03-C-01**	**BLOCK OF FLATS, LEEDS**	**WEST YORKSHIRE**	**127**	**Thu**	**13/11/03**	**0.087**	**0.441**	**0.528**	
13	SC-03-C-02	FLATS, WOKING	SURREY	36	Wed	23/07/08	0.083	0.639	0.722	
14	ST-03-C-01	BLOCKS OF FLATS, STOKE	STAFFORDSHIRE	33	Wed	26/11/08	0.000	0.364	0.364	

RANK ORDER for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

MULTI-MODAL TOTAL PEOPLE

Ranking Type: **DEPARTURES** Time Range: 08:00-09:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. **12 (**)**

85th Percentile = No. **3 (**)**

Median Values

Arrivals: 0.142
Departures: 0.500
Totals: 0.641

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Departures)			Travel Plan
							Arrivals	Departures	Totals	
1	WM-03-C-03	FLATS, SOLIHULL	WEST MIDLANDS	60	Fri	21/09/07	0.117	0.667	0.784	
2	SC-03-C-02	FLATS, WOKING	SURREY	36	Wed	23/07/08	0.083	0.639	0.722	
3 **	**WY-03-C-02**	**BLOCK OF FLATS, HUDDERSF**	**WEST YORKSHIRE**	**12**	**Wed**	**13/09/06**	**0.167**	**0.583**	**0.750**	
4	CA-03-C-01	BLOCK OF FLATS, P.BORO	CAMBRIDGESHIRE	44	Wed	07/05/08	0.114	0.568	0.682	
5	SC-03-C-01	FLATS, CAMBERLEY	SURREY	140	Mon	21/07/08	0.093	0.521	0.614	
6	TV-03-C-01	APARTMENTS BLOCKS, M'BOR	TEES VALLEY	85	Mon	06/10/08	0.129	0.506	0.635	
7	NR-03-C-01	BLOCK OF FLATS, CORBY	NORTHAMPTONSHIRE	20	Fri	21/11/08	0.150	0.500	0.650	
8	NY-03-C-01	BLOCKS OF FLATS, NTHALLE	NORTH YORKSHIRE	30	Mon	22/09/03	0.133	0.500	0.633	
9	CH-03-C-01	BLOCKS OF FLATS, CHESTER	CHESHIRE	60	Fri	17/10/08	0.133	0.450	0.583	
10	WY-03-C-01	BLOCK OF FLATS, LEEDS	WEST YORKSHIRE	127	Thu	13/11/03	0.087	0.441	0.528	
11	HF-03-C-02	FLATS, WELWYN GARDEN CIT	HERTFORDSHIRE	86	Wed	16/07/08	0.105	0.407	0.512	
12 **	**MS-03-C-01**	**BLOCKS OF FLATS, LIVERPO**	**MERSEYSIDE**	**114**	**Thu**	**16/10/03**	**0.132**	**0.404**	**0.536**	
13	DC-03-C-01	BLOCKS OF FLATS, WEYMOUT	DORSET	27	Tue	08/07/08	0.296	0.370	0.666	
14	ST-03-C-01	BLOCKS OF FLATS, STOKE	STAFFORDSHIRE	33	Wed	26/11/08	0.000	0.364	0.364	

RANK ORDER for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE

Ranking Type: **ARRIVALS** Time Range: 17:00-18:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. **12 (**)**
85th Percentile = No. **3 (**)**

Median Values
Arrivals: 0.368
Departures: 0.153
Totals: 0.521

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Arrivals)			Travel Plan
							Arrivals	Departures	Totals	
1	TV-03-C-01	APARTMENTS BLOCKS, M'BOR	TEES VALLEY	85	Mon	06/10/08	0.694	0.329	1.023	
2	NR-03-C-01	BLOCK OF FLATS, CORBY	NORTHAMPTONSHIRE	20	Fri	21/11/08	0.600	0.500	1.100	
3 **	**CA-03-C-01**	**BLOCK OF FLATS, P.BORO**	**CAMBRIDGESHIRE**	**44**	**Wed**	**07/05/08**	**0.523**	**0.159**	**0.682**	
4	SC-03-C-01	FLATS, CAMBERLEY	SURREY	140	Mon	21/07/08	0.471	0.221	0.692	
5	WY-03-C-02	BLOCK OF FLATS, HUDDERSF	WEST YORKSHIRE	12	Wed	13/09/06	0.417	0.250	0.667	
6	CH-03-C-01	BLOCKS OF FLATS, CHESTER	CHESHIRE	60	Fri	17/10/08	0.400	0.233	0.633	
7	MS-03-C-01	BLOCKS OF FLATS, LIVERPO	MERSEYSIDE	114	Thu	16/10/03	0.386	0.123	0.509	
8	WM-03-C-03	FLATS, SOLIHULL	WEST MIDLANDS	60	Fri	21/09/07	0.350	0.183	0.533	
9	HF-03-C-02	FLATS, WELWYN GARDEN CIT	HERTFORDSHIRE	86	Wed	16/07/08	0.337	0.198	0.535	
10	NY-03-C-01	BLOCKS OF FLATS, NTHALLE	NORTH YORKSHIRE	30	Mon	22/09/03	0.300	0.200	0.500	
11	SC-03-C-02	FLATS, WOKING	SURREY	36	Wed	23/07/08	0.278	0.167	0.445	
12 **	**WY-03-C-01**	**BLOCK OF FLATS, LEEDS**	**WEST YORKSHIRE**	**127**	**Thu**	**13/11/03**	**0.244**	**0.110**	**0.354**	
13	DC-03-C-01	BLOCKS OF FLATS, WEYMOUT	DORSET	27	Tue	08/07/08	0.222	0.185	0.407	
14	ST-03-C-01	BLOCKS OF FLATS, STOKE	STAFFORDSHIRE	33	Wed	26/11/08	0.212	0.030	0.242	

RANK ORDER for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

MULTI-MODAL TOTAL PEOPLE

Ranking Type: **DEPARTURES** Time Range: 17:00-18:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. **12 (**)**

85th Percentile = No. **3 (**)**

Median Values

Arrivals: 0.280
Departures: 0.192
Totals: 0.471

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Departures)			Travel Plan
							Arrivals	Departures	Totals	
1	NR-03-C-01	BLOCK OF FLATS, CORBY	NORTHAMPTONSHIRE	20	Fri	21/11/08	0.600	0.500	1.100	
2	TV-03-C-01	APARTMENTS BLOCKS, M'BOR	TEES VALLEY	85	Mon	06/10/08	0.694	0.329	1.023	
3 **	**WY-03-C-02**	**BLOCK OF FLATS, HUDDERSF**	**WEST YORKSHIRE**	**12**	**Wed**	**13/09/06**	**0.417**	**0.250**	**0.667**	
4	CH-03-C-01	BLOCKS OF FLATS, CHESTER	CHESHIRE	60	Fri	17/10/08	0.400	0.233	0.633	
5	SC-03-C-01	FLATS, CAMBERLEY	SURREY	140	Mon	21/07/08	0.471	0.221	0.692	
6	NY-03-C-01	BLOCKS OF FLATS, NTHALLE	NORTH YORKSHIRE	30	Mon	22/09/03	0.300	0.200	0.500	
7	HF-03-C-02	FLATS, WELWYN GARDEN CIT	HERTFORDSHIRE	86	Wed	16/07/08	0.337	0.198	0.535	
8	DC-03-C-01	BLOCKS OF FLATS, WEYMOUT	DORSET	27	Tue	08/07/08	0.222	0.185	0.407	
9	WM-03-C-03	FLATS, SOLIHULL	WEST MIDLANDS	60	Fri	21/09/07	0.350	0.183	0.533	
10	SC-03-C-02	FLATS, WOKING	SURREY	36	Wed	23/07/08	0.278	0.167	0.445	
11	CA-03-C-01	BLOCK OF FLATS, P.BORO	CAMBRIDGESHIRE	44	Wed	07/05/08	0.523	0.159	0.682	
12 **	**MS-03-C-01**	**BLOCKS OF FLATS, LIVERPO**	**MERSEYSIDE**	**114**	**Thu**	**16/10/03**	**0.386**	**0.123**	**0.509**	
13	WY-03-C-01	BLOCK OF FLATS, LEEDS	WEST YORKSHIRE	127	Thu	13/11/03	0.244	0.110	0.354	
14	ST-03-C-01	BLOCKS OF FLATS, STOKE	STAFFORDSHIRE	33	Wed	26/11/08	0.212	0.030	0.242	

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE

Ranking Type: **ARRIVALS** Time Range: 08:00-09:00
15th Percentile = No. **35 (**)**
85th Percentile = No. **7 (**)**

Median Values
Arrivals: 0.235
Departures: 1.471
Totals: 1.706

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Arrivals)			Travel Plan
							Arrivals	Departures	Totals	
1	BD-03-A-02	SEMI DETACHED, LUTON	BEDFORDSHIRE	82	Tue	06/07/04	0.744	1.317	2.061	
2	WO-03-A-01	DETACHED, BROMSGROVE	WORCESTERSHIRE	10	Thu	23/06/05	0.600	1.100	1.700	
3	DS-03-A-01	SEMI D./TERRACED, DRONFI	DERBYSHIRE	20	Thu	22/06/06	0.600	0.650	1.250	
4	CA-03-A-01	SEMI D./TERRACED, CAMBRI	CAMBRIDGESHIRE	124	Tue	06/02/01	0.460	1.629	2.089	
5	SF-03-A-02	SEMI DET./TERRACED, IPSW	SUFFOLK	230	Thu	24/05/07	0.443	1.074	1.517	
6	WM-03-A-03	MIXED HOUSING, COVENTRY	WEST MIDLANDS	84	Mon	24/09/07	0.405	0.905	1.310	
7 **	**CW-03-A-01**	**TERRACED, PENZANCE**	**CORNWALL**	**13**	**Thu**	**30/06/05**	**0.385**	**0.231**	**0.616**	
8	WO-03-A-03	DETACHED, KIDDERMINSTER	WORCESTERSHIRE	138	Fri	05/05/06	0.384	1.058	1.442	
9	WM-03-A-01	TERRACED, COVENTRY	WEST MIDLANDS	79	Fri	03/02/06	0.380	0.886	1.266	
10	EX-03-A-01	SEMI-DET., STANFORD-LE-H	ESSEX	237	Tue	13/05/08	0.367	1.152	1.519	
11	LE-03-A-01	DETACHED, MELTON MOWBRAY	LEICESTERSHIRE	11	Tue	03/05/05	0.364	1.273	1.637	
12	GM-03-A-07	SEMI DETACHED, MANCHESTE	GREATER MANCHESTER	138	Fri	09/11/01	0.355	1.094	1.449	
13	WM-03-A-02	DETACHED/SEMI D., STRBRI	WEST MIDLANDS	12	Wed	26/04/06	0.333	0.667	1.000	
14	LN-03-A-02	MIXED HOUSES, LINCOLN	LINCOLNSHIRE	186	Mon	14/05/07	0.301	0.790	1.091	
15	WO-03-A-02	SEMI DETACHED, REDDITCH	WORCESTERSHIRE	48	Tue	02/05/06	0.292	0.917	1.209	
16	CA-03-A-02	MIXED HOUSES, PETERBOROU	CAMBRIDGESHIRE	363	Thu	13/05/04	0.273	0.702	0.975	
17	NY-03-A-01	MIXED HOUSES,NORTHALLERT	NORTH YORKSHIRE	52	Tue	25/09/07	0.269	1.000	1.269	
18	LC-03-A-22	BUNGALOWS, BLACKPOOL	LANCASHIRE	98	Tue	18/10/05	0.255	0.469	0.724	
19	TW-03-A-01	SEMI DETACHED, SUNDERLAN	TYNE & WEAR	81	Wed	18/09/02	0.247	1.012	1.259	
20	LN-03-A-01	MIXED HOUSES, LINCOLN	LINCOLNSHIRE	150	Tue	15/05/07	0.247	0.920	1.167	
21	CH-03-A-05	DETACHED, CREWE	CHESHIRE	17	Tue	14/10/08	0.235	1.471	1.706	
22	CB-03-A-02	SEMI DETACHED, WORKINGTO	CUMBRIA	40	Mon	20/06/05	0.225	1.175	1.400	
23	CH-03-A-06	SEMI-DET./BUNGALOWS,CREW	CHESHIRE	129	Tue	14/10/08	0.225	0.457	0.682	
24	SF-03-A-03	MIXED HOUSES, BURY ST ED	SUFFOLK	101	Mon	15/05/06	0.218	1.010	1.228	
25	ST-03-A-05	TERRACED/DETACHED, STOKE	STAFFORDSHIRE	14	Wed	26/11/08	0.214	0.714	0.928	
26	NY-03-A-05	HOUSES AND FLATS, RIPON	NORTH YORKSHIRE	71	Mon	22/09/08	0.211	0.676	0.887	
27	BD-03-A-01	SEMI DETACHED, LUTON	BEDFORDSHIRE	131	Thu	08/07/04	0.206	0.870	1.076	
28	SC-03-A-03	DETACHED, EAST MOLESEY	SURREY	54	Tue	12/11/02	0.204	0.667	0.871	
29	TV-03-A-01	MIXED HOUSES/FLATS, HART	TEES VALLEY	225	Thu	14/04/05	0.196	0.764	0.960	
30	ES-03-A-01	MIXED HOUSES/FLATS, LEWE	EAST SUSSEX	491	Thu	29/03/01	0.196	0.976	1.172	
31	GS-03-A-01	SEMI D./TERRACED, GLOUCE	GLOUCESTERSHIRE	73	Tue	25/05/04	0.192	0.616	0.808	
32	CW-03-A-02	SEMI D./DETATCHED, TRURO	CORNWALL	73	Tue	18/09/07	0.178	0.877	1.055	

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Arrivals)			Travel Plan
							Arrivals	Departures	Totals	
33	HF-03-A-01	MIXED HOUSES, WELWYN GC	HERTFORDSHIRE	53	Fri	06/09/02	0.170	0.453	0.623	
34	NT-03-A-03	SEMI DETACHED,KIRKBY-IN-	NOTTINGHAMSHIRE	166	Wed	28/06/06	0.169	0.687	0.856	
35 **	**LC-03-A-29**	**DETACHED/SEMI D., BLACKB**	**LANCASHIRE**	**185**	**Thu**	**10/06/04**	**0.162**	**1.016**	**1.178**	
36	NY-03-A-03	PRIVATE HOUSING, BOROUGH	NORTH YORKSHIRE	14	Mon	15/09/08	0.143	0.357	0.500	
37	GM-03-A-08	SEMI DETACHED, STOCKPORT	GREATER MANCHESTER	247	Fri	12/10/01	0.134	0.761	0.895	
38	WO-03-A-06	DET./TERRACED, BROMSGROV	WORCESTERSHIRE	232	Thu	30/06/05	0.129	0.927	1.056	
39	SF-03-A-01	SEMI DETACHED, IPSWICH	SUFFOLK	77	Wed	23/05/07	0.117	0.805	0.922	
40	MS-03-A-01	TERRACED, RUNCORN	MERSEYSIDE	372	Thu	06/10/05	0.110	0.478	0.588	
41	WL-03-A-01	SEMI D./TERRACED W. BASS	WILTSHIRE	99	Mon	02/10/06	0.081	0.636	0.717	

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE

Ranking Type: **DEPARTURES** Time Range: 08:00-09:00
15th Percentile = No. **35 (**)**
85th Percentile = No. **7 (**)**

Median Values
Arrivals: 0.178
Departures: 0.877
Totals: 1.055

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Departures)			Travel Plan
							Arrivals	Departures	Totals	
1	CA-03-A-01	SEMI D./TERRACED, CAMBRI	CAMBRIDGESHIRE	124	Tue	06/02/01	0.460	1.629	2.089	
2	CH-03-A-05	DETACHED, CREWE	CHESHIRE	17	Tue	14/10/08	0.235	1.471	1.706	
3	BD-03-A-02	SEMI DETACHED, LUTON	BEDFORDSHIRE	82	Tue	06/07/04	0.744	1.317	2.061	
4	LE-03-A-01	DETACHED, MELTON MOWBRAY	LEICESTERSHIRE	11	Tue	03/05/05	0.364	1.273	1.637	
5	CB-03-A-02	SEMI DETACHED, WORKINGTO	CUMBRIA	40	Mon	20/06/05	0.225	1.175	1.400	
6	EX-03-A-01	SEMI-DET., STANFORD-LE-H	ESSEX	237	Tue	13/05/08	0.367	1.152	1.519	
7 **	**WO-03-A-01**	**DETACHED, BROMSGROVE**	**WORCESTERSHIRE**	**10**	**Thu**	**23/06/05**	**0.600**	**1.100**	**1.700**	
8	GM-03-A-07	SEMI DETACHED, MANCHESTE	GREATER MANCHESTER	138	Fri	09/11/01	0.355	1.094	1.449	
9	SF-03-A-02	SEMI DET./TERRACED, IPSW	SUFFOLK	230	Thu	24/05/07	0.443	1.074	1.517	
10	WO-03-A-03	DETACHED, KIDDERMINSTER	WORCESTERSHIRE	138	Fri	05/05/06	0.384	1.058	1.442	
11	LC-03-A-29	DETACHED/SEMI D., BLACKB	LANCASHIRE	185	Thu	10/06/04	0.162	1.016	1.178	
12	TW-03-A-01	SEMI DETACHED, SUNDERLAN	TYNE & WEAR	81	Wed	18/09/02	0.247	1.012	1.259	
13	SF-03-A-03	MIXED HOUSES, BURY ST ED	SUFFOLK	101	Mon	15/05/06	0.218	1.010	1.228	
14	NY-03-A-01	MIXED HOUSES,NORTHALLERT	NORTH YORKSHIRE	52	Tue	25/09/07	0.269	1.000	1.269	
15	ES-03-A-01	MIXED HOUSES/FLATS, LEWE	EAST SUSSEX	491	Thu	29/03/01	0.196	0.976	1.172	
16	WO-03-A-06	DET./TERRACED, BROMSGROV	WORCESTERSHIRE	232	Thu	30/06/05	0.129	0.927	1.056	
17	LN-03-A-01	MIXED HOUSES, LINCOLN	LINCOLNSHIRE	150	Tue	15/05/07	0.247	0.920	1.167	
18	WO-03-A-02	SEMI DETACHED, REDDITCH	WORCESTERSHIRE	48	Tue	02/05/06	0.292	0.917	1.209	
19	WM-03-A-03	MIXED HOUSING, COVENTRY	WEST MIDLANDS	84	Mon	24/09/07	0.405	0.905	1.310	
20	WM-03-A-01	TERRACED, COVENTRY	WEST MIDLANDS	79	Fri	03/02/06	0.380	0.886	1.266	
21	CW-03-A-02	SEMI D./DETATCHED, TRURO	CORNWALL	73	Tue	18/09/07	0.178	0.877	1.055	
22	BD-03-A-01	SEMI DETACHED, LUTON	BEDFORDSHIRE	131	Thu	08/07/04	0.206	0.870	1.076	
23	SF-03-A-01	SEMI DETACHED, IPSWICH	SUFFOLK	77	Wed	23/05/07	0.117	0.805	0.922	
24	LN-03-A-02	MIXED HOUSES, LINCOLN	LINCOLNSHIRE	186	Mon	14/05/07	0.301	0.790	1.091	
25	TV-03-A-01	MIXED HOUSES/FLATS, HART	TEES VALLEY	225	Thu	14/04/05	0.196	0.764	0.960	
26	GM-03-A-08	SEMI DETACHED, STOCKPORT	GREATER MANCHESTER	247	Fri	12/10/01	0.134	0.761	0.895	
27	ST-03-A-05	TERRACED/DETACHED, STOKE	STAFFORDSHIRE	14	Wed	26/11/08	0.214	0.714	0.928	
28	CA-03-A-02	MIXED HOUSES, PETERBOROU	CAMBRIDGESHIRE	363	Thu	13/05/04	0.273	0.702	0.975	
29	NT-03-A-03	SEMI DETACHED,KIRKBY-IN-	NOTTINGHAMSHIRE	166	Wed	28/06/06	0.169	0.687	0.856	
30	NY-03-A-05	HOUSES AND FLATS, RIPON	NORTH YORKSHIRE	71	Mon	22/09/08	0.211	0.676	0.887	
31	WM-03-A-02	DETACHED/SEMI D., STRBRI	WEST MIDLANDS	12	Wed	26/04/06	0.333	0.667	1.000	
32	SC-03-A-03	DETACHED, EAST MOLESEY	SURREY	54	Tue	12/11/02	0.204	0.667	0.871	

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Departures)			Travel Plan
							Arrivals	Departures	Totals	
33	DS-03-A-01	SEMI D./TERRACED, DRONFI	DERBYSHIRE	20	Thu	22/06/06	0.600	0.650	1.250	
34	WL-03-A-01	SEMI D./TERRACED W. BASS	WILTSHIRE	99	Mon	02/10/06	0.081	0.636	0.717	
35 **	**GS-03-A-01**	**SEMI D./TERRACED, GLOUCE**	**GLOUCESTERSHIRE**	**73**	**Tue**	**25/05/04**	**0.192**	**0.616**	**0.808**	
36	MS-03-A-01	TERRACED, RUNCORN	MERSEYSIDE	372	Thu	06/10/05	0.110	0.478	0.588	
37	LC-03-A-22	BUNGALOWS, BLACKPOOL	LANCASHIRE	98	Tue	18/10/05	0.255	0.469	0.724	
38	CH-03-A-06	SEMI-DET./BUNGALOWS,CREW	CHESHIRE	129	Tue	14/10/08	0.225	0.457	0.682	
39	HF-03-A-01	MIXED HOUSES, WELWYN GC	HERTFORDSHIRE	53	Fri	06/09/02	0.170	0.453	0.623	
40	NY-03-A-03	PRIVATE HOUSING, BOROUGH	NORTH YORKSHIRE	14	Mon	15/09/08	0.143	0.357	0.500	
41	CW-03-A-01	TERRACED, PENZANCE	CORNWALL	13	Thu	30/06/05	0.385	0.231	0.616	

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE

Ranking Type: **ARRIVALS** Time Range: 17:00-18:00
15th Percentile = No. **35 (**)**
85th Percentile = No. **7 (**)**

Median Values
Arrivals: 0.615
Departures: 0.308
Totals: 0.923

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Arrivals)			Travel Plan
							Arrivals	Departures	Totals	
1	CB-03-A-02	SEMI DETACHED, WORKINGTO	CUMBRIA	40	Mon	20/06/05	1.125	1.175	2.300	
2	LC-03-A-29	DETACHED/SEMI D., BLACKB	LANCASHIRE	185	Thu	10/06/04	0.897	0.589	1.486	
3	TW-03-A-01	SEMI DETACHED, SUNDERLAN	TYNE & WEAR	81	Wed	18/09/02	0.864	0.543	1.407	
4	CW-03-A-02	SEMI D./DETATCHED, TRURO	CORNWALL	73	Tue	18/09/07	0.822	0.397	1.219	
5	WO-03-A-03	DETACHED, KIDDERMINSTER	WORCESTERSHIRE	138	Fri	05/05/06	0.812	0.399	1.211	
6	WM-03-A-03	MIXED HOUSING, COVENTRY	WEST MIDLANDS	84	Mon	24/09/07	0.798	0.560	1.358	
7 **	**SF-03-A-02**	**SEMI DET./TERRACED, IPSW**	**SUFFOLK**	**230**	**Thu**	**24/05/07**	**0.778**	**0.517**	**1.295**	
8	GM-03-A-08	SEMI DETACHED, STOCKPORT	GREATER MANCHESTER	247	Fri	12/10/01	0.773	0.457	1.230	
9	LN-03-A-02	MIXED HOUSES, LINCOLN	LINCOLNSHIRE	186	Mon	14/05/07	0.769	0.548	1.317	
10	WM-03-A-01	TERRACED, COVENTRY	WEST MIDLANDS	79	Fri	03/02/06	0.759	0.392	1.151	
11	CA-03-A-01	SEMI D./TERRACED, CAMBRI	CAMBRIDGESHIRE	124	Tue	06/02/01	0.734	0.532	1.266	
12	SF-03-A-03	MIXED HOUSES, BURY ST ED	SUFFOLK	101	Mon	15/05/06	0.713	0.337	1.050	
13	GM-03-A-07	SEMI DETACHED, MANCHESTE	GREATER MANCHESTER	138	Fri	09/11/01	0.688	0.449	1.137	
14	EX-03-A-01	SEMI-DET., STANFORD-LE-H	ESSEX	237	Tue	13/05/08	0.675	0.481	1.156	
15	NY-03-A-05	HOUSES AND FLATS, RIPON	NORTH YORKSHIRE	71	Mon	22/09/08	0.662	0.225	0.887	
16	GS-03-A-01	SEMI D./TERRACED, GLOUCE	GLOUCESTERSHIRE	73	Tue	25/05/04	0.658	0.219	0.877	
17	WO-03-A-02	SEMI DETACHED, REDDITCH	WORCESTERSHIRE	48	Tue	02/05/06	0.646	0.354	1.000	
18	NT-03-A-03	SEMI DETACHED,KIRKBY-IN-	NOTTINGHAMSHIRE	166	Wed	28/06/06	0.645	0.464	1.109	
19	NY-03-A-03	PRIVATE HOUSING, BOROUGH	NORTH YORKSHIRE	14	Mon	15/09/08	0.643	0.214	0.857	
20	WO-03-A-06	DET./TERRACED, BROMSGROV	WORCESTERSHIRE	232	Thu	30/06/05	0.629	0.259	0.888	
21	CW-03-A-01	TERRACED, PENZANCE	CORNWALL	13	Thu	30/06/05	0.615	0.308	0.923	
22	WO-03-A-01	DETACHED, BROMSGROVE	WORCESTERSHIRE	10	Thu	23/06/05	0.600	0.600	1.200	
23	LN-03-A-01	MIXED HOUSES, LINCOLN	LINCOLNSHIRE	150	Tue	15/05/07	0.587	0.280	0.867	
24	BD-03-A-01	SEMI DETACHED, LUTON	BEDFORDSHIRE	131	Thu	08/07/04	0.573	0.290	0.863	
25	ST-03-A-05	TERRACED/DETACHED, STOKE	STAFFORDSHIRE	14	Wed	26/11/08	0.571	0.286	0.857	
26	TV-03-A-01	MIXED HOUSES/FLATS, HART	TEES VALLEY	225	Thu	14/04/05	0.556	0.351	0.907	
27	ES-03-A-01	MIXED HOUSES/FLATS, LEWE	EAST SUSSEX	491	Thu	29/03/01	0.521	0.246	0.767	
28	SC-03-A-03	DETACHED, EAST MOLESEY	SURREY	54	Tue	12/11/02	0.519	0.241	0.760	
29	LC-03-A-22	BUNGALOWS, BLACKPOOL	LANCASHIRE	98	Tue	18/10/05	0.510	0.306	0.816	
30	HF-03-A-01	MIXED HOUSES, WELWYN GC	HERTFORDSHIRE	53	Fri	06/09/02	0.509	0.226	0.735	
31	WL-03-A-01	SEMI D./TERRACED W. BASS	WILTSHIRE	99	Mon	02/10/06	0.505	0.293	0.798	
32	SF-03-A-01	SEMI DETACHED, IPSWICH	SUFFOLK	77	Wed	23/05/07	0.494	0.377	0.871	

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Arrivals)			Travel Plan
							Arrivals	Departures	Totals	
33	CH-03-A-05	DETACHED, CREWE	CHESHIRE	17	Tue	14/10/08	0.471	0.353	0.824	
34	LE-03-A-01	DETACHED, MELTON MOWBRAY	LEICESTERSHIRE	11	Tue	03/05/05	0.455	0.364	0.819	
35 **	**CA-03-A-02**	**MIXED HOUSES, PETERBOROU**	**CAMBRIDGESHIRE**	**363**	**Thu**	**13/05/04**	**0.444**	**0.358**	**0.802**	
36	BD-03-A-02	SEMI DETACHED, LUTON	BEDFORDSHIRE	82	Tue	06/07/04	0.415	0.476	0.891	
37	NY-03-A-01	MIXED HOUSES,NORTHALLERT	NORTH YORKSHIRE	52	Tue	25/09/07	0.404	0.365	0.769	
38	MS-03-A-01	TERRACED, RUNCORN	MERSEYSIDE	372	Thu	06/10/05	0.395	0.277	0.672	
39	DS-03-A-01	SEMI D./TERRACED, DRONFI	DERBYSHIRE	20	Thu	22/06/06	0.250	0.350	0.600	
40	CH-03-A-06	SEMI-DET./BUNGALOWS,CREW	CHESHIRE	129	Tue	14/10/08	0.178	0.225	0.403	
41	WM-03-A-02	DETACHED/SEMI D., STRBRI	WEST MIDLANDS	12	Wed	26/04/06	0.167	0.750	0.917	

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE

Ranking Type: **DEPARTURES** Time Range: 17:00-18:00
15th Percentile = No. **35 (**)**
85th Percentile = No. **7 (**)**

Median Values
Arrivals: 0.444
Departures: 0.358
Totals: 0.802

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Departures)			Travel Plan
							Arrivals	Departures	Totals	
1	CB-03-A-02	SEMI DETACHED, WORKINGTO	CUMBRIA	40	Mon	20/06/05	1.125	1.175	2.300	
2	WM-03-A-02	DETACHED/SEMI D., STRBRI	WEST MIDLANDS	12	Wed	26/04/06	0.167	0.750	0.917	
3	WO-03-A-01	DETACHED, BROMSGROVE	WORCESTERSHIRE	10	Thu	23/06/05	0.600	0.600	1.200	
4	LC-03-A-29	DETACHED/SEMI D., BLACKB	LANCASHIRE	185	Thu	10/06/04	0.897	0.589	1.486	
5	WM-03-A-03	MIXED HOUSING, COVENTRY	WEST MIDLANDS	84	Mon	24/09/07	0.798	0.560	1.358	
6	LN-03-A-02	MIXED HOUSES, LINCOLN	LINCOLNSHIRE	186	Mon	14/05/07	0.769	0.548	1.317	
7 **	**TW-03-A-01**	**SEMI DETACHED, SUNDERLAN**	**TYNE & WEAR**	**81**	**Wed**	**18/09/02**	**0.864**	**0.543**	**1.407**	
8	CA-03-A-01	SEMI D./TERRACED, CAMBRI	CAMBRIDGESHIRE	124	Tue	06/02/01	0.734	0.532	1.266	
9	SF-03-A-02	SEMI DET./TERRACED, IPSW	SUFFOLK	230	Thu	24/05/07	0.778	0.517	1.295	
10	EX-03-A-01	SEMI-DET., STANFORD-LE-H	ESSEX	237	Tue	13/05/08	0.675	0.481	1.156	
11	BD-03-A-02	SEMI DETACHED, LUTON	BEDFORDSHIRE	82	Tue	06/07/04	0.415	0.476	0.891	
12	NT-03-A-03	SEMI DETACHED,KIRKBY-IN-	NOTTINGHAMSHIRE	166	Wed	28/06/06	0.645	0.464	1.109	
13	GM-03-A-08	SEMI DETACHED, STOCKPORT	GREATER MANCHESTER	247	Fri	12/10/01	0.773	0.457	1.230	
14	GM-03-A-07	SEMI DETACHED, MANCHESTE	GREATER MANCHESTER	138	Fri	09/11/01	0.688	0.449	1.137	
15	WO-03-A-03	DETACHED, KIDDERMINSTER	WORCESTERSHIRE	138	Fri	05/05/06	0.812	0.399	1.211	
16	CW-03-A-02	SEMI D./DETATCHED, TRURO	CORNWALL	73	Tue	18/09/07	0.822	0.397	1.219	
17	WM-03-A-01	TERRACED, COVENTRY	WEST MIDLANDS	79	Fri	03/02/06	0.759	0.392	1.151	
18	SF-03-A-01	SEMI DETACHED, IPSWICH	SUFFOLK	77	Wed	23/05/07	0.494	0.377	0.871	
19	NY-03-A-01	MIXED HOUSES,NORTHALLERT	NORTH YORKSHIRE	52	Tue	25/09/07	0.404	0.365	0.769	
20	LE-03-A-01	DETACHED, MELTON MOWBRAY	LEICESTERSHIRE	11	Tue	03/05/05	0.455	0.364	0.819	
21	CA-03-A-02	MIXED HOUSES, PETERBOROU	CAMBRIDGESHIRE	363	Thu	13/05/04	0.444	0.358	0.802	
22	WO-03-A-02	SEMI DETACHED, REDDITCH	WORCESTERSHIRE	48	Tue	02/05/06	0.646	0.354	1.000	
23	CH-03-A-05	DETACHED, CREWE	CHESHIRE	17	Tue	14/10/08	0.471	0.353	0.824	
24	TV-03-A-01	MIXED HOUSES/FLATS, HART	TEES VALLEY	225	Thu	14/04/05	0.556	0.351	0.907	
25	DS-03-A-01	SEMI D./TERRACED, DRONFI	DERBYSHIRE	20	Thu	22/06/06	0.250	0.350	0.600	
26	SF-03-A-03	MIXED HOUSES, BURY ST ED	SUFFOLK	101	Mon	15/05/06	0.713	0.337	1.050	
27	CW-03-A-01	TERRACED, PENZANCE	CORNWALL	13	Thu	30/06/05	0.615	0.308	0.923	
28	LC-03-A-22	BUNGALOWS, BLACKPOOL	LANCASHIRE	98	Tue	18/10/05	0.510	0.306	0.816	
29	WL-03-A-01	SEMI D./TERRACED W. BASS	WILTSHIRE	99	Mon	02/10/06	0.505	0.293	0.798	
30	BD-03-A-01	SEMI DETACHED, LUTON	BEDFORDSHIRE	131	Thu	08/07/04	0.573	0.290	0.863	
31	ST-03-A-05	TERRACED/DETACHED, STOKE	STAFFORDSHIRE	14	Wed	26/11/08	0.571	0.286	0.857	
32	LN-03-A-01	MIXED HOUSES, LINCOLN	LINCOLNSHIRE	150	Tue	15/05/07	0.587	0.280	0.867	

Rank	Site-Ref	Description	Area	DWELLS	Day	Date	Trip Rate (Sorted by Departures)			Travel Plan
							Arrivals	Departures	Totals	
33	MS-03-A-01	TERRACED, RUNCORN	MERSEYSIDE	372	Thu	06/10/05	0.395	0.277	0.672	
34	WO-03-A-06	DET./TERRACED, BROMSGROV	WORCESTERSHIRE	232	Thu	30/06/05	0.629	0.259	0.888	
35 **	**ES-03-A-01**	**MIXED HOUSES/FLATS, LEWE**	**EAST SUSSEX**	**491**	**Thu**	**29/03/01**	**0.521**	**0.246**	**0.767**	
36	SC-03-A-03	DETACHED, EAST MOLESEY	SURREY	54	Tue	12/11/02	0.519	0.241	0.760	
37	HF-03-A-01	MIXED HOUSES, WELWYN GC	HERTFORDSHIRE	53	Fri	06/09/02	0.509	0.226	0.735	
38	NY-03-A-05	HOUSES AND FLATS, RIPON	NORTH YORKSHIRE	71	Mon	22/09/08	0.662	0.225	0.887	
39	CH-03-A-06	SEMI-DET./BUNGALOWS,CREW	CHESHIRE	129	Tue	14/10/08	0.178	0.225	0.403	
40	GS-03-A-01	SEMI D./TERRACED, GLOUCE	GLOUCESTERSHIRE	73	Tue	25/05/04	0.658	0.219	0.877	
41	NY-03-A-03	PRIVATE HOUSING, BOROUGH	NORTH YORKSHIRE	14	Mon	15/09/08	0.643	0.214	0.857	

RANK ORDER for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

MULTI-MODAL TOTAL PEOPLE

Ranking Type: **DEPARTURES** Time Range: 08:00-09:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. **12 (**)**

85th Percentile = No. **3 (**)**

Median Values

Arrivals:	0.765
Departures:	0.328
Totals:	1.093

Rank	Site-Ref	Description	Area	GFA	Day	Date	Trip Rate (Sorted by Departures)			Travel Plan
							Arrivals	Departures	Totals	
1	NB-02-D-01	INDUSTRIAL ESTATE, HEXHA	NORTHUMBERLAND	10525	Mon	23/05/05	1.900	1.140	3.040	
2	KH-02-D-02	INDUSTRIAL ESTATE, HULL	KINGSTON UPON HULL	2220	Thu	18/10/01	2.117	0.946	3.063	
3 **	**WL-02-D-01**	**IND. ESTATE, WOOTTON BAS**	**WILTSHIRE**	**7050**	**Tue**	**03/10/06**	**1.404**	**0.723**	**2.127**	
4	CA-02-D-01	IND. ESTATE, PETERBOROUG	CAMBRIDGESHIRE	4300	Tue	13/05/08	0.581	0.512	1.093	
5	LC-02-D-04	INDUSTRIAL ESTATE, GARST	LANCASHIRE	4555	Fri	16/06/06	0.724	0.461	1.185	
6	CW-02-D-02	INDUSTRIAL ESTATE, CAMBO	CORNWALL	6515	Fri	21/09/07	0.906	0.430	1.336	
7	LN-02-D-01	INDUSTRIAL ESTATE, GRANT	LINCOLNSHIRE	5347	Thu	12/05/05	0.748	0.374	1.122	
8	CH-02-D-02	INDUSTRIAL EST., NORTHWI	CHESHIRE	22000	Fri	15/06/07	0.782	0.282	1.064	
9	SF-02-D-02	INDUSTRIAL ESTATE, IPSWI	SUFFOLK	102000	Tue	22/05/07	0.367	0.217	0.584	
10	TW-02-D-06	INDUSTRIAL ESTATE, N. SH	TYNE & WEAR	23000	Thu	19/10/06	0.396	0.204	0.600	
11	NT-02-D-01	IND. ESTATE, SUTTON-IN-A	NOTTINGHAMSHIRE	26400	Fri	30/06/06	0.356	0.197	0.553	
12 **	**CB-02-D-03**	**INDUSTRIAL ESTATE, BRAMP**	**CUMBRIA**	**13700**	**Thu**	**23/06/05**	**0.504**	**0.182**	**0.686**	
13	WY-02-D-02	INDUSTRIAL EST., HUDDERS	WEST YORKSHIRE	20824	Mon	11/09/06	0.283	0.082	0.365	
14	MS-02-D-05	INDUSTRIAL ESTATE, ST HE	MERSEYSIDE	11700	Tue	18/10/05	0.085	0.051	0.136	

RANK ORDER for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

MULTI-MODAL TOTAL PEOPLE

Ranking Type: **ARRIVALS** Time Range: 17:00-18:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. **12 (**)**

85th Percentile = No. **3 (**)**

Median Values

Arrivals:	0.173
Departures:	0.937
Totals:	1.110

Rank	Site-Ref	Description	Area	GFA	Day	Date	Trip Rate (Sorted by Arrivals)			Travel Plan
							Arrivals	Departures	Totals	
1	LN-02-D-01	INDUSTRIAL ESTATE, GRANT	LINCOLNSHIRE	5347	Thu	12/05/05	0.898	0.860	1.758	
2	CA-02-D-01	IND. ESTATE, PETERBOROUG	CAMBRIDGESHIRE	4300	Tue	13/05/08	0.605	1.093	1.698	
3 **	**NB-02-D-01**	**INDUSTRIAL ESTATE, HEXHA**	**NORTHUMBERLAND**	**10525**	**Mon**	**23/05/05**	**0.475**	**1.159**	**1.634**	
4	CW-02-D-02	INDUSTRIAL ESTATE, CAMBO	CORNWALL	6515	Fri	21/09/07	0.460	1.167	1.627	
5	KH-02-D-02	INDUSTRIAL ESTATE, HULL	KINGSTON UPON HULL	2220	Thu	18/10/01	0.405	1.577	1.982	
6	CB-02-D-03	INDUSTRIAL ESTATE, BRAMP	CUMBRIA	13700	Thu	23/06/05	0.219	0.613	0.832	
7	LC-02-D-04	INDUSTRIAL ESTATE, GARST	LANCASHIRE	4555	Fri	16/06/06	0.176	0.768	0.944	
8	WL-02-D-01	IND. ESTATE, WOOTTON BAS	WILTSHIRE	7050	Tue	03/10/06	0.170	1.106	1.276	
9	SF-02-D-02	INDUSTRIAL ESTATE, IPSWI	SUFFOLK	102000	Tue	22/05/07	0.152	0.340	0.492	
10	NT-02-D-01	IND. ESTATE, SUTTON-IN-A	NOTTINGHAMSHIRE	26400	Fri	30/06/06	0.125	0.231	0.356	
11	CH-02-D-02	INDUSTRIAL EST., NORTHWI	CHESHIRE	22000	Fri	15/06/07	0.109	0.459	0.568	
12 **	**WY-02-D-02**	**INDUSTRIAL EST., HUDDERS**	**WEST YORKSHIRE**	**20824**	**Mon**	**11/09/06**	**0.106**	**0.264**	**0.370**	
13	TW-02-D-06	INDUSTRIAL ESTATE, N. SH	TYNE & WEAR	23000	Thu	19/10/06	0.091	0.348	0.439	
14	MS-02-D-05	INDUSTRIAL ESTATE, ST HE	MERSEYSIDE	11700	Tue	18/10/05	0.060	0.060	0.120	

RANK ORDER for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

MULTI-MODAL TOTAL PEOPLE

Ranking Type: **DEPARTURES** Time Range: 17:00-18:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. **12 (**)**

85th Percentile = No. **3 (**)**

Median Values

Arrivals: 0.198

Departures: 0.691

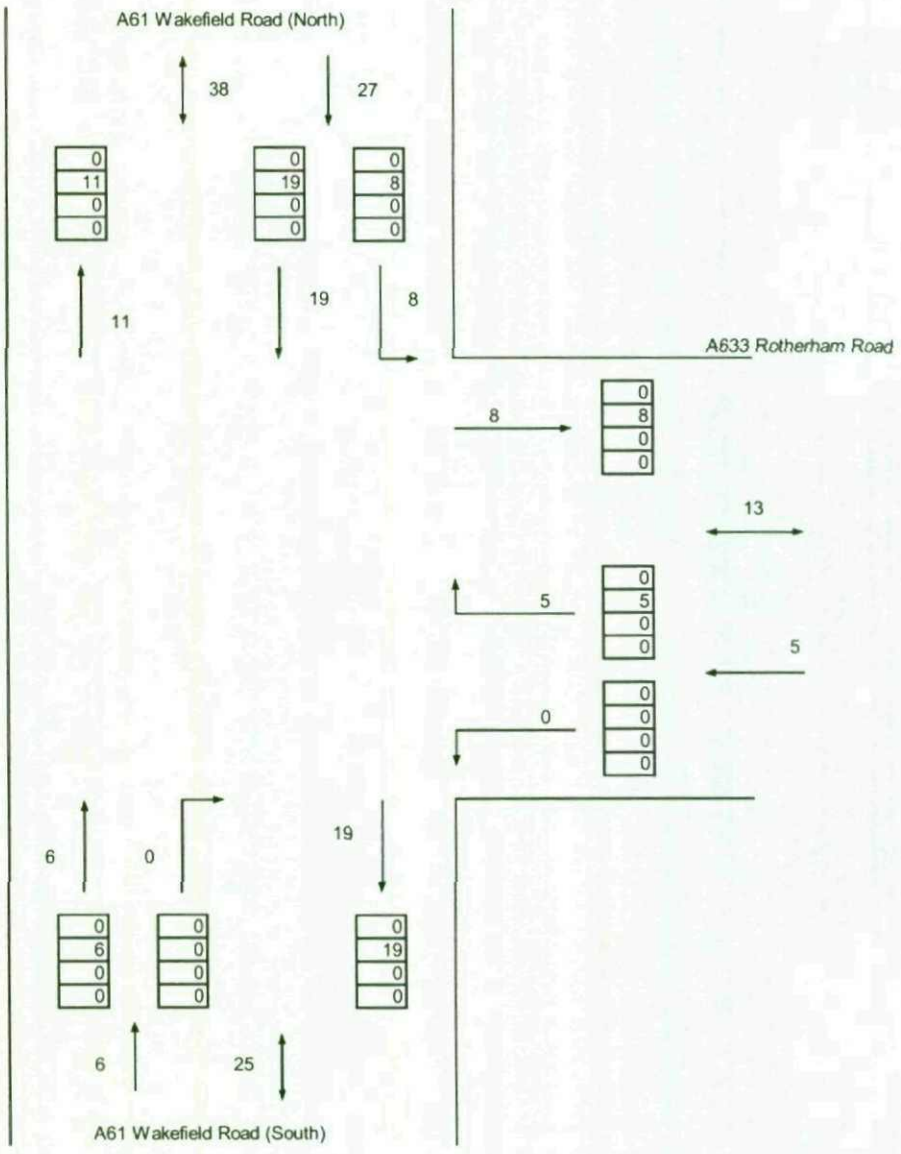
Totals: 0.888

Rank	Site-Ref	Description	Area	GFA	Day	Date	Trip Rate (Sorted by Departures)			Travel Plan
							Arrivals	Departures	Totals	
1	KH-02-D-02	INDUSTRIAL ESTATE, HULL	KINGSTON UPON HULL	2220	Thu	18/10/01	0.405	1.577	1.982	
2	CW-02-D-02	INDUSTRIAL ESTATE, CAMBO	CORNWALL	6515	Fri	21/09/07	0.460	1.167	1.627	
3 **	**NB-02-D-01**	**INDUSTRIAL ESTATE, HEXHA**	**NORTHUMBERLAND**	**10525**	**Mon**	**23/05/05**	**0.475**	**1.159**	**1.634**	
4	WL-02-D-01	IND. ESTATE, WOOTTON BAS	WILTSHIRE	7050	Tue	03/10/06	0.170	1.106	1.276	
5	CA-02-D-01	IND. ESTATE, PETERBOROUG	CAMBRIDGESHIRE	4300	Tue	13/05/08	0.605	1.093	1.698	
6	LN-02-D-01	INDUSTRIAL ESTATE, GRANT	LINCOLNSHIRE	5347	Thu	12/05/05	0.898	0.860	1.758	
7	LC-02-D-04	INDUSTRIAL ESTATE, GARST	LANCASHIRE	4555	Fri	16/06/06	0.176	0.768	0.944	
8	CB-02-D-03	INDUSTRIAL ESTATE, BRAMP	CUMBRIA	13700	Thu	23/06/05	0.219	0.613	0.832	
9	CH-02-D-02	INDUSTRIAL EST., NORTHWI	CHESHIRE	22000	Fri	15/06/07	0.109	0.459	0.568	
10	TW-02-D-06	INDUSTRIAL ESTATE, N. SH	TYNE & WEAR	23000	Thu	19/10/06	0.091	0.348	0.439	
11	SF-02-D-02	INDUSTRIAL ESTATE, IPSWI	SUFFOLK	102000	Tue	22/05/07	0.152	0.340	0.492	
12 **	**WY-02-D-02**	**INDUSTRIAL EST., HUDDERS**	**WEST YORKSHIRE**	**20824**	**Mon**	**11/09/06**	**0.106**	**0.264**	**0.370**	
13	NT-02-D-01	IND. ESTATE, SUTTON-IN-A	NOTTINGHAMSHIRE	26400	Fri	30/06/06	0.125	0.231	0.356	
14	MS-02-D-05	INDUSTRIAL ESTATE, ST HE	MERSEYSIDE	11700	Tue	18/10/05	0.060	0.060	0.120	

APPENDIX BGH 13

GENERTED VEHICULAR FLOWS
WAKEFIELD ROAD/ROTHERHAM ROAD

8:00 am - 9:00 am

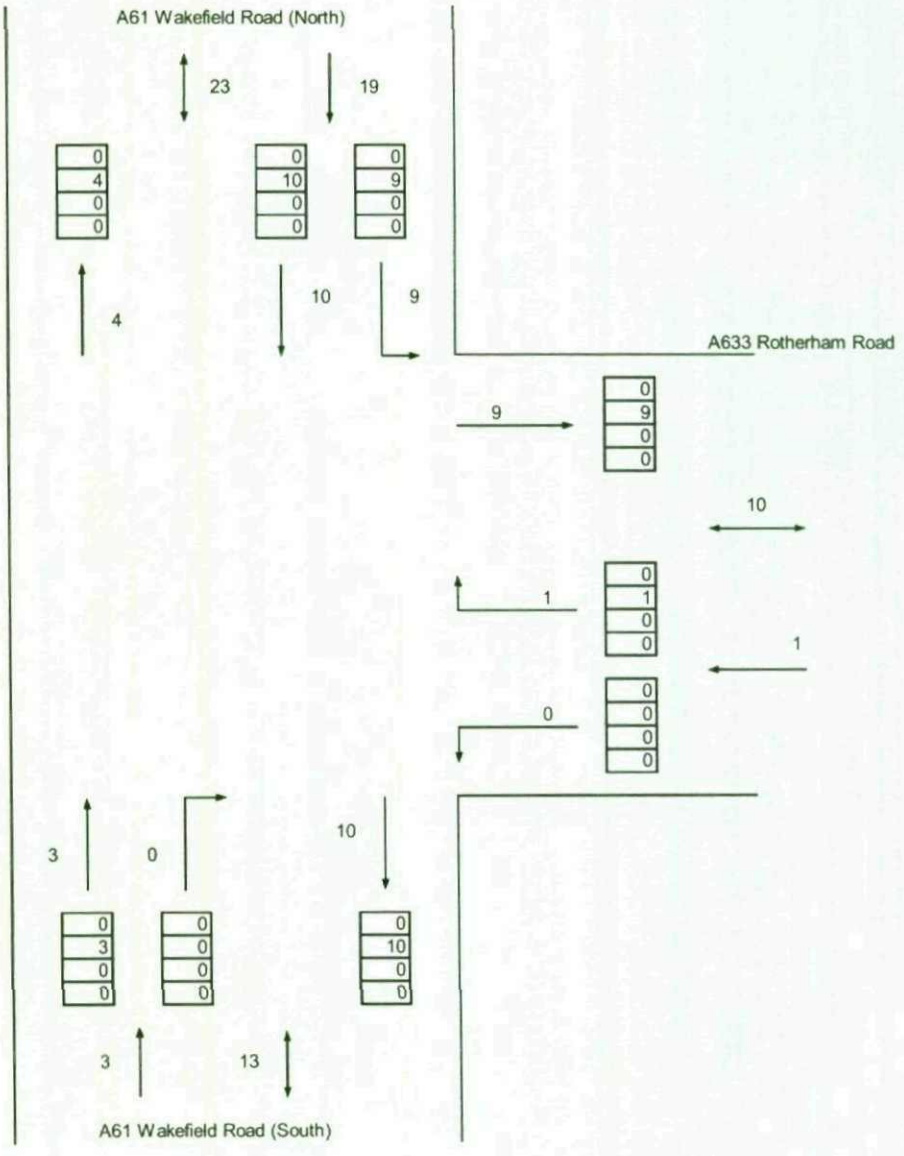


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

GENERATED VEHICULAR FLOWS
WAKEFIELD ROAD/ROTHERHAM ROAD

5:00 pm - 6:00 pm

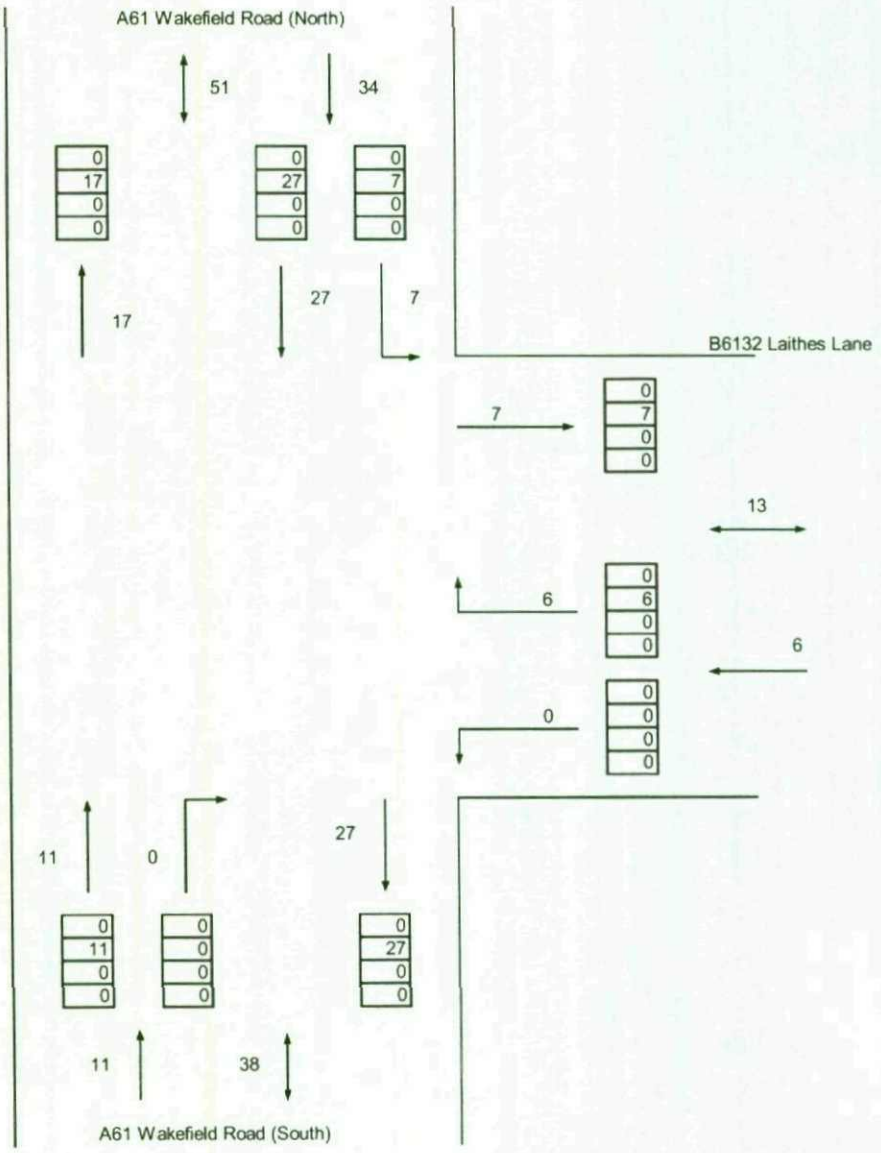


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

GENERATED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/LAITHES LANE

8:00 am - 9:00 am

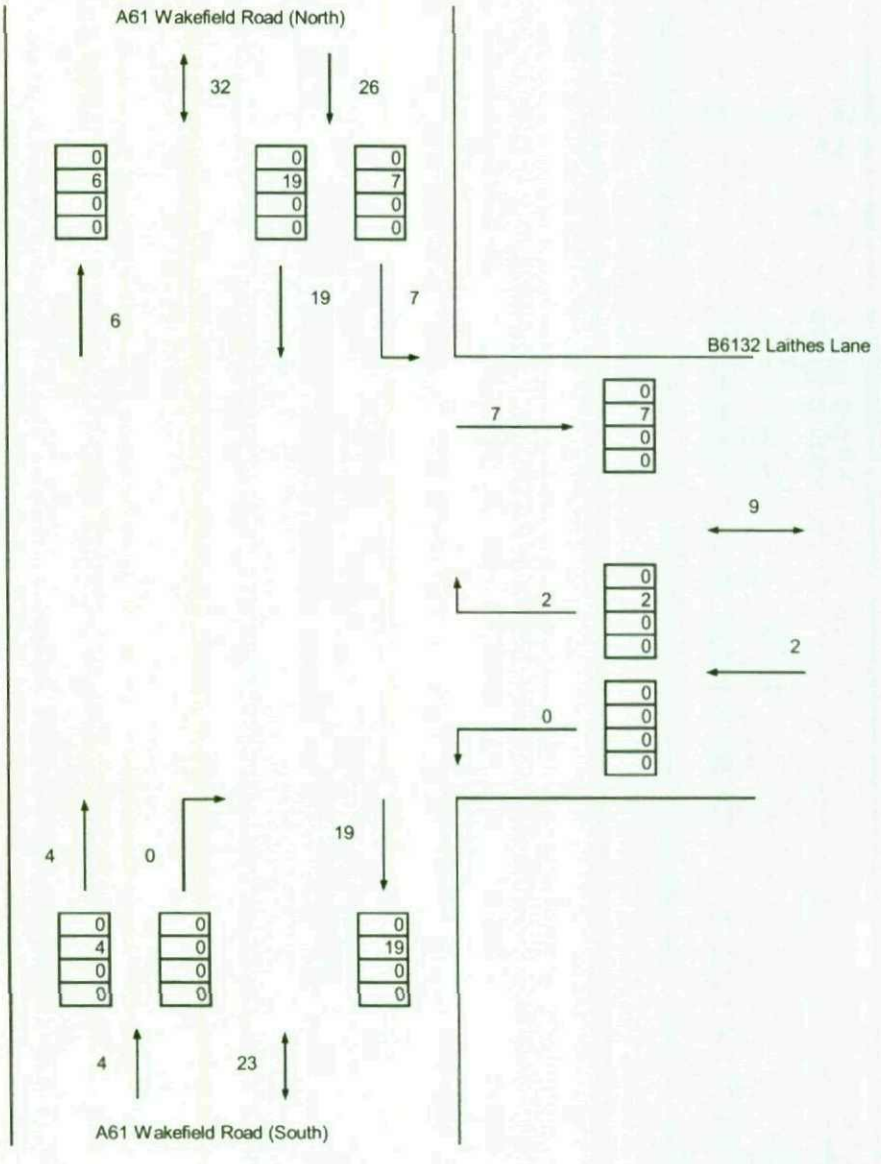


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

GENERATED VEHICULAR FLOWS
WAKEFIELD ROAD/LAITHES LANE

5:00 pm - 6:00 pm

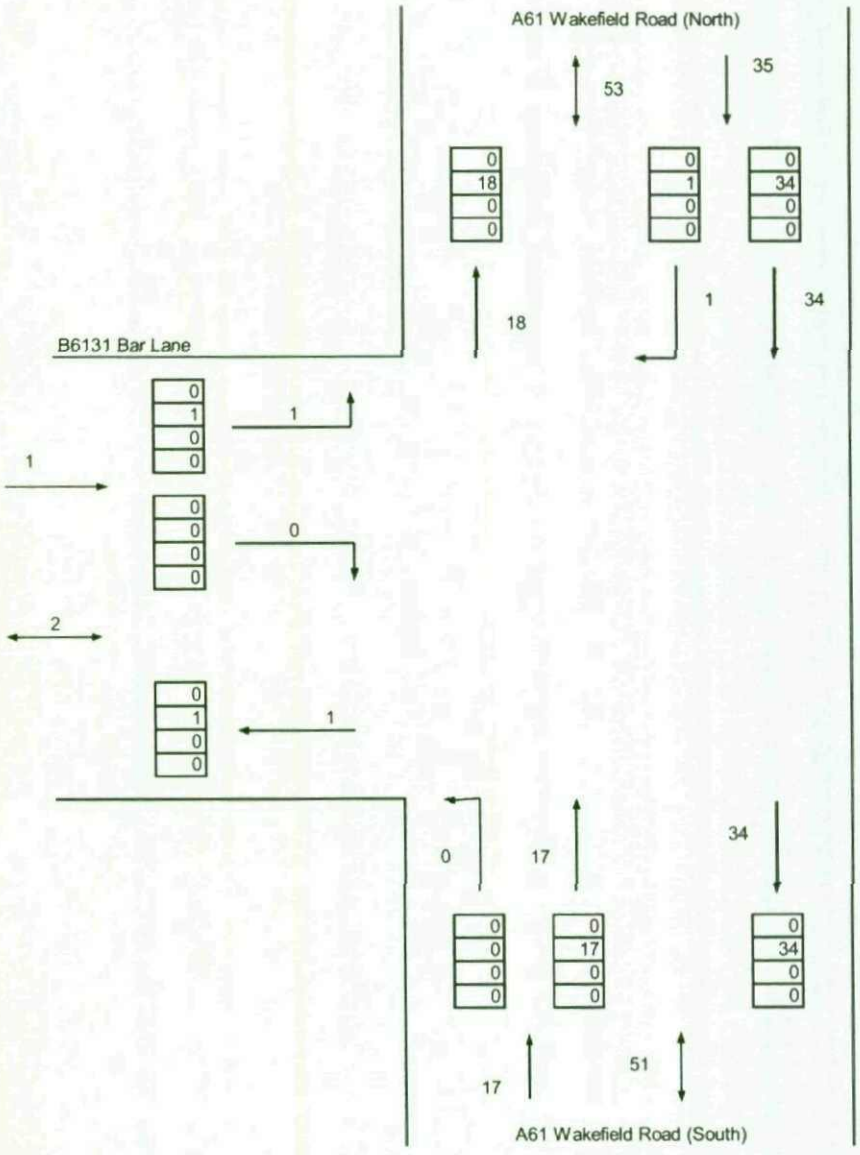


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

GENERATED VEHICULAR FLOWS
WAKEFIELD ROAD/BAR LANE

8:00 am - 9:00 am

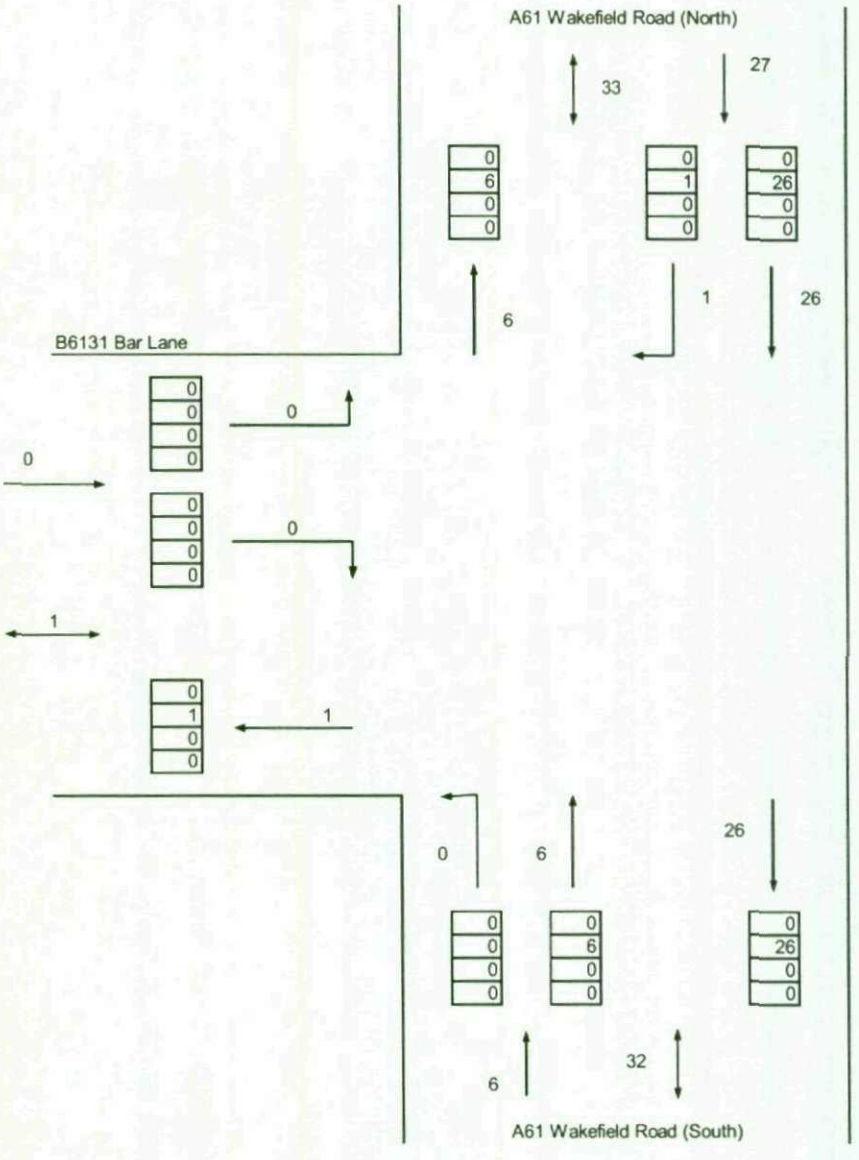


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

GENERATED VEHICULAR FLOWS
WAKEFIELD ROAD/BAR LANE

5:00 pm - 6:00 pm

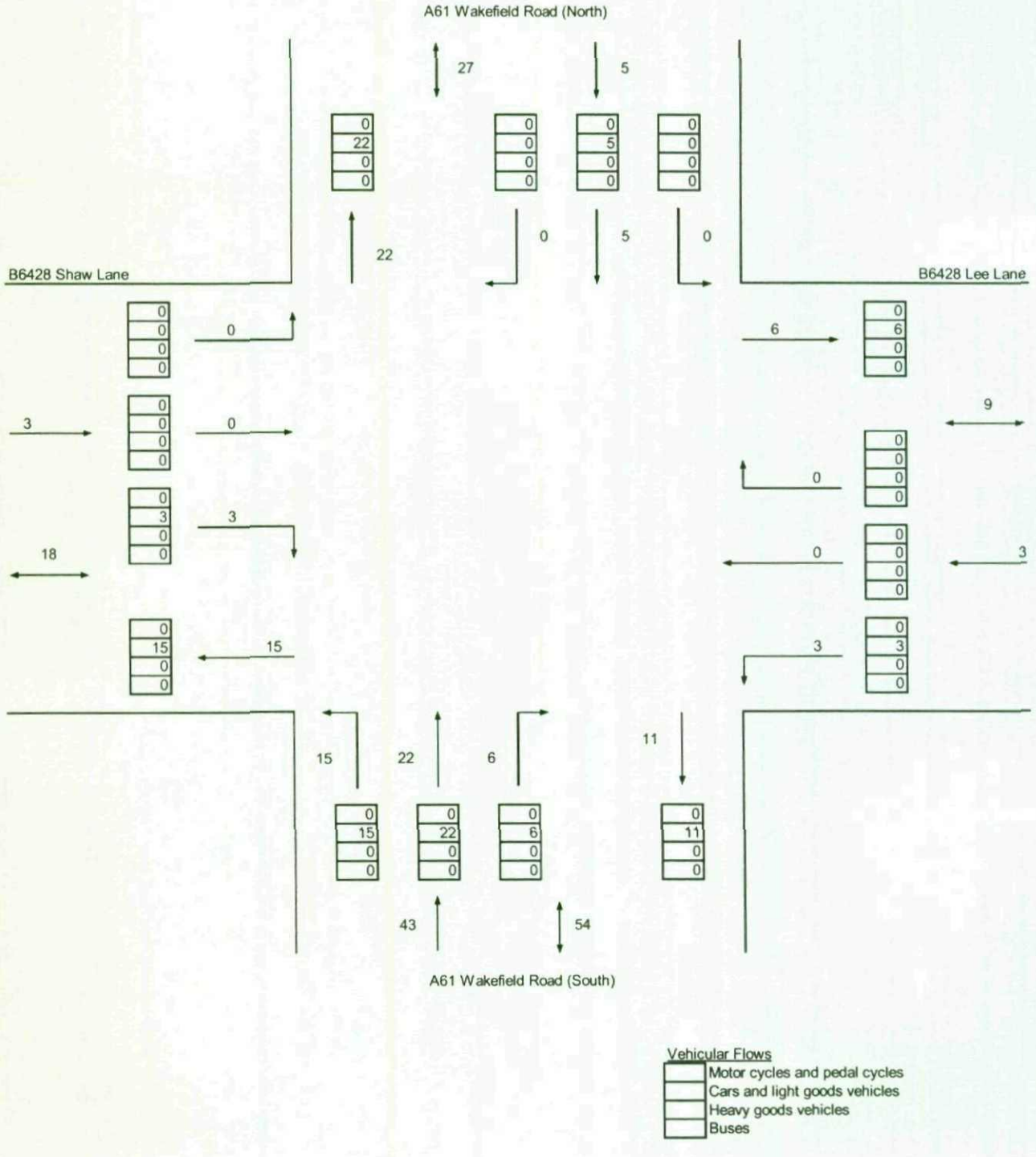


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

GENERATED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/SHAW LANE/LEE LANE

8:00 am - 9:00 am

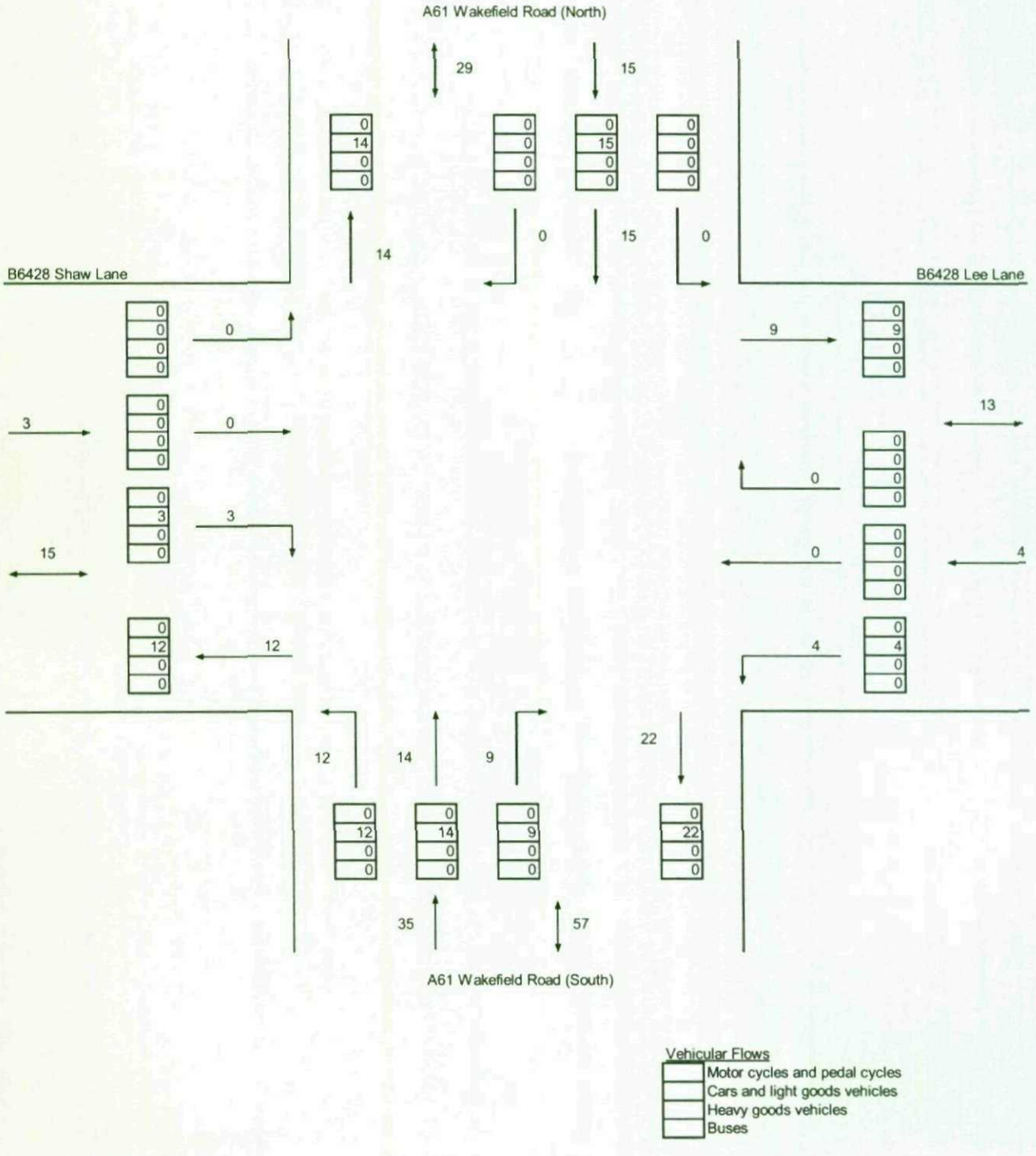


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

GENERATED VEHICULAR FLOWS
WAKEFIELD ROAD/SHAW LANE/LEE LANE

5:00 pm - 6:00 pm

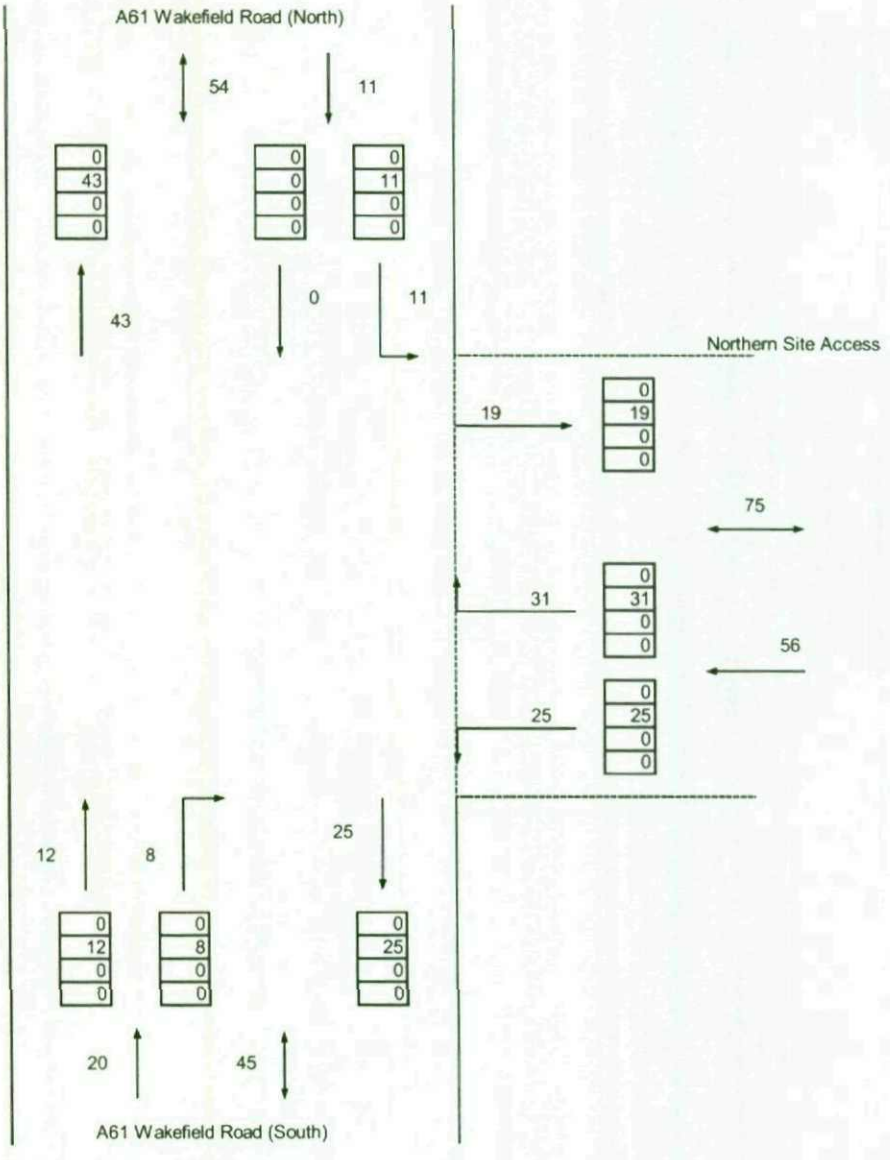


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

GENERATED VEHICULAR FLOWS
WAKEFIELD ROAD/NORTHERN SITE ACCESS

8:00 am - 9:00 am

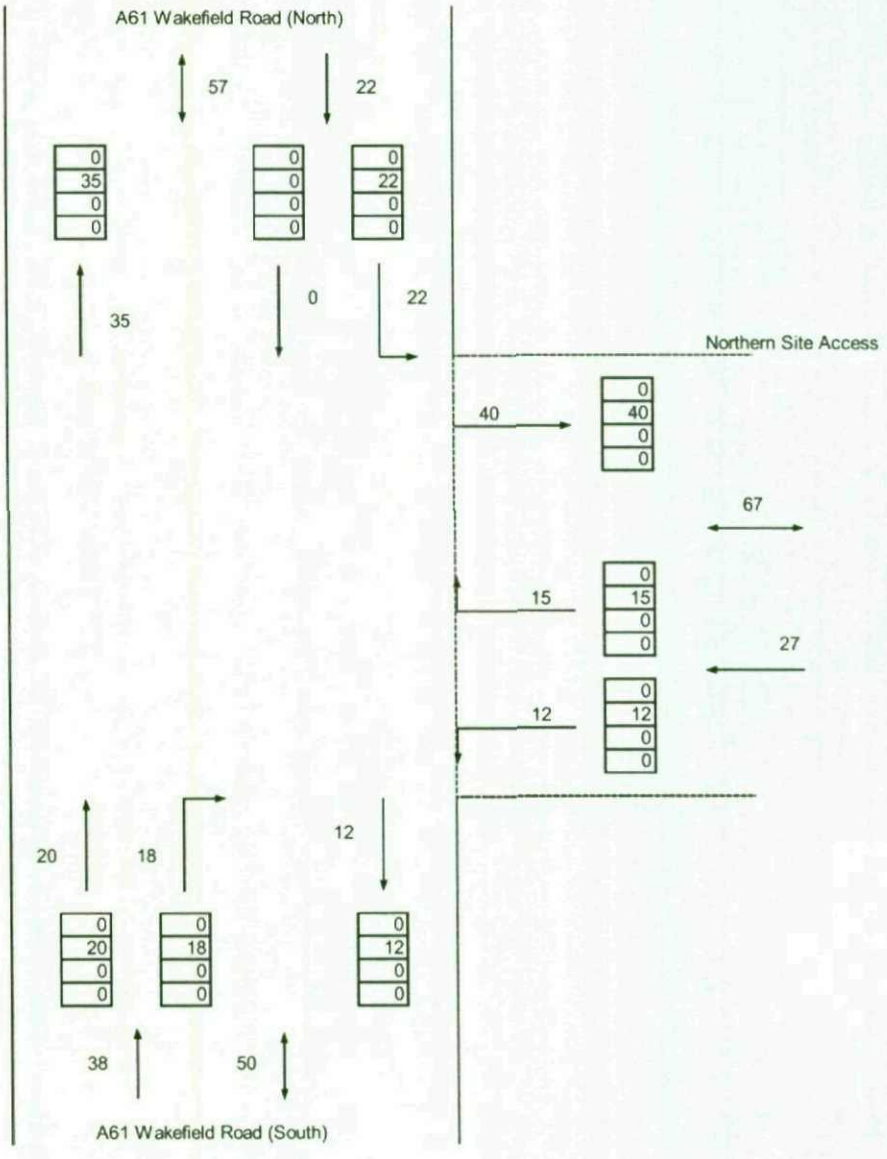


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

GENERATED VEHICULAR FLOWS
WAKEFIELD ROAD/NORTHERN SITE ACCESS

5:00 pm - 6:00 pm

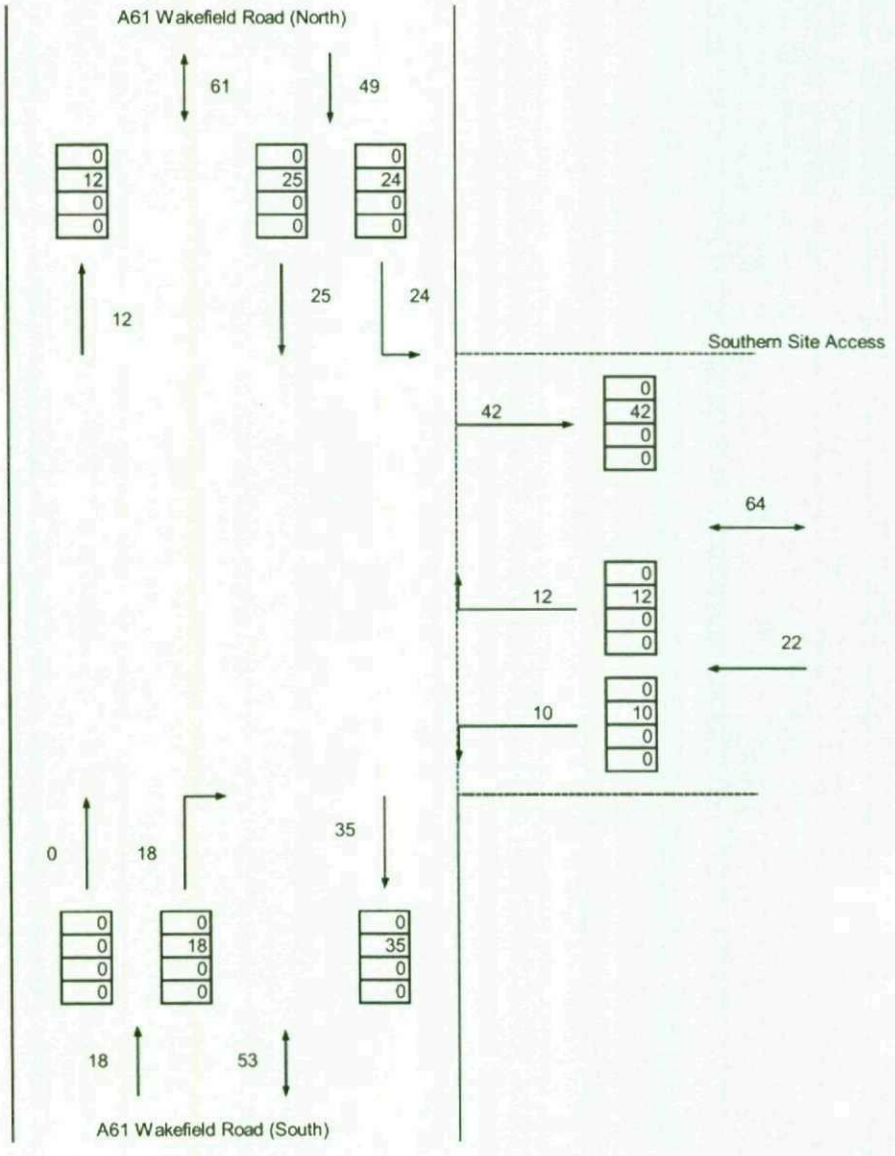


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

GENERATED VEHICULAR FLOWS
WAKEFIELD ROAD/SOUTHERN SITE ACCESS

8:00 am - 9:00 am

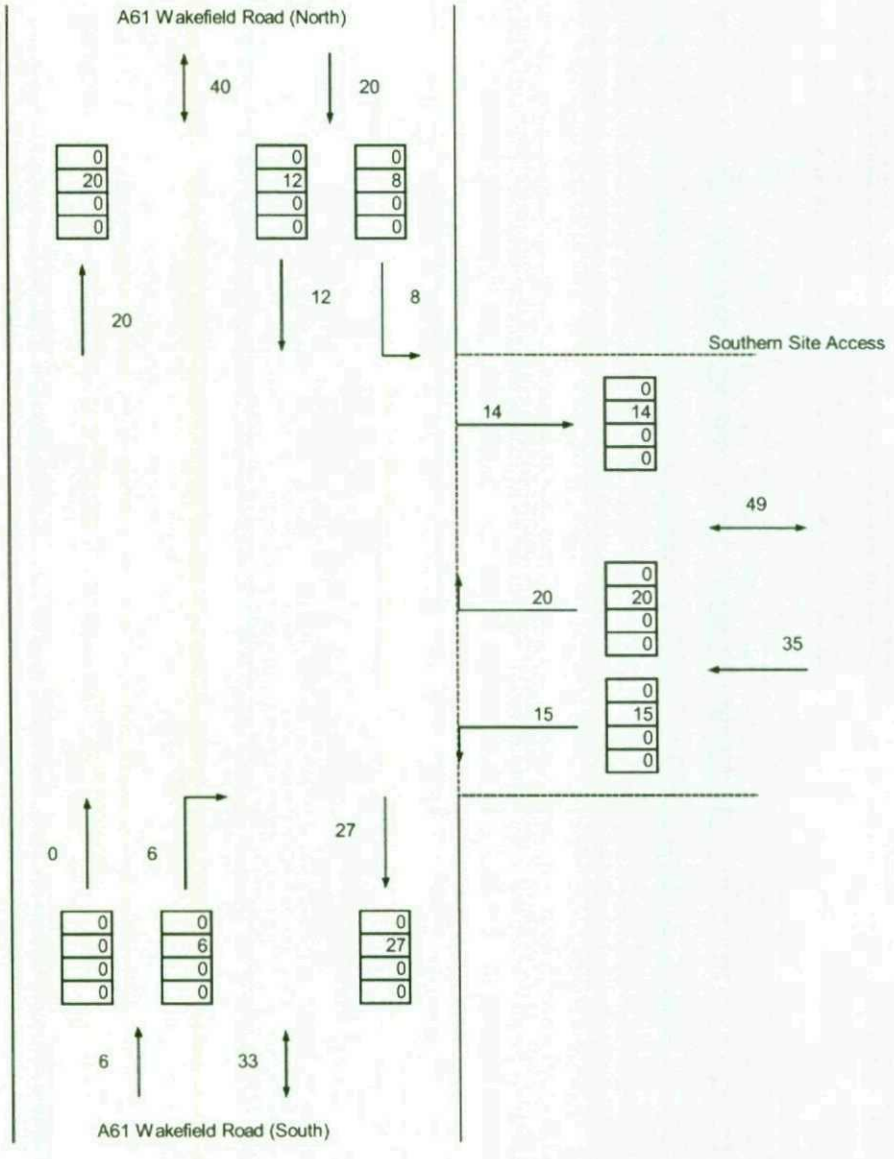


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

GENERATED VEHICULAR FLOWS
WAKEFIELD ROAD/SOUTHERN SITE ACCESS

5:00 pm - 6:00 pm



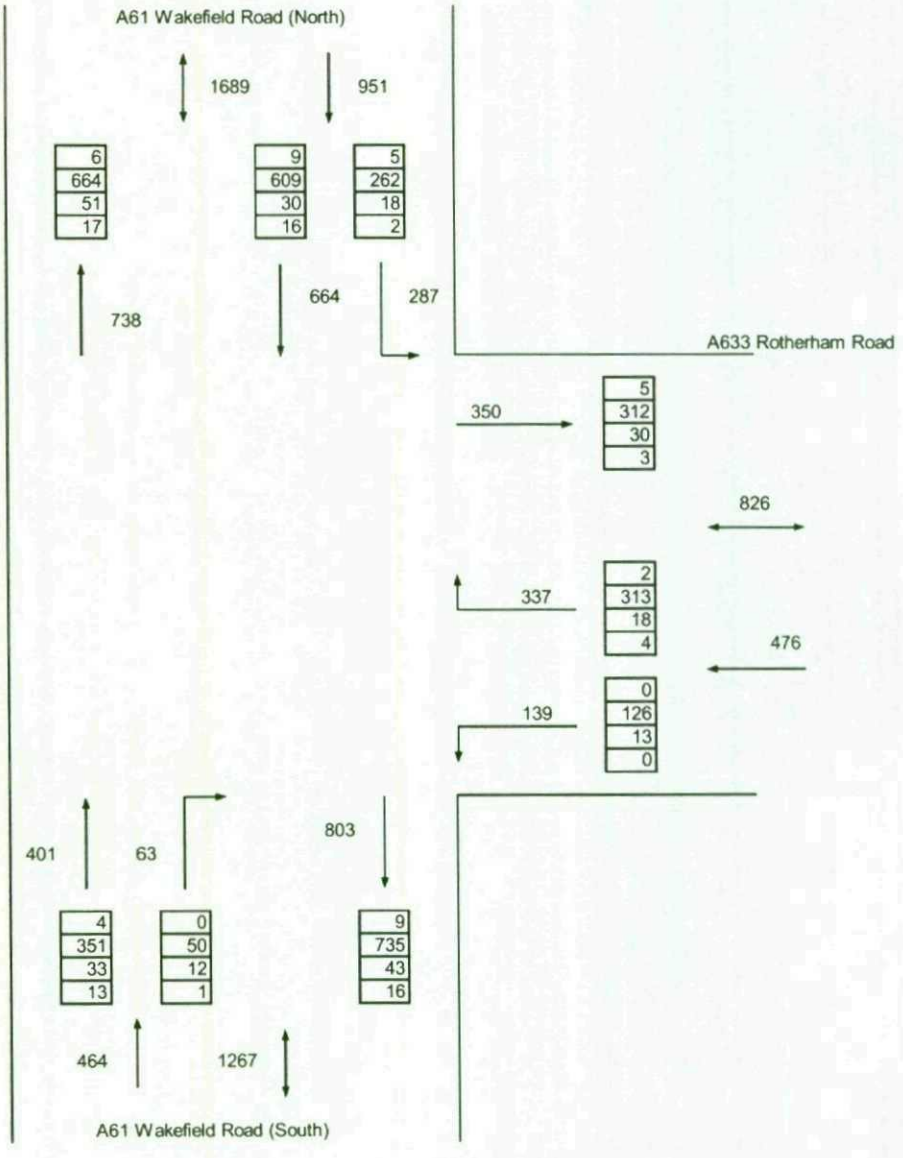
Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

APPENDIX BGH 14

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/ROTHERHAM ROAD

8:00 am - 9:00 am

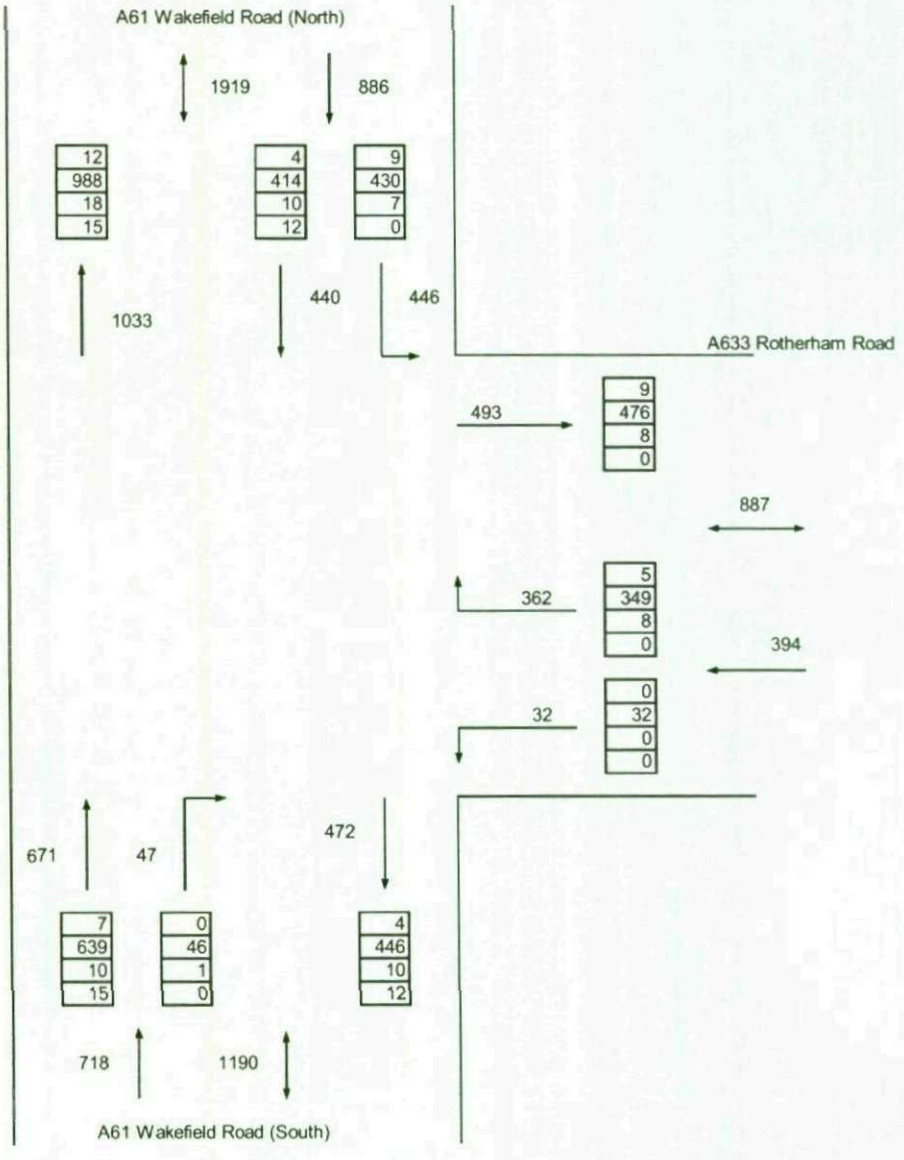


Vehicular Flows

	Motor cycles and pedal cycles
	Cars and light goods vehicles
	Heavy goods vehicles
	Buses

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/ROTHERHAM ROAD

5:00 pm - 6:00 pm

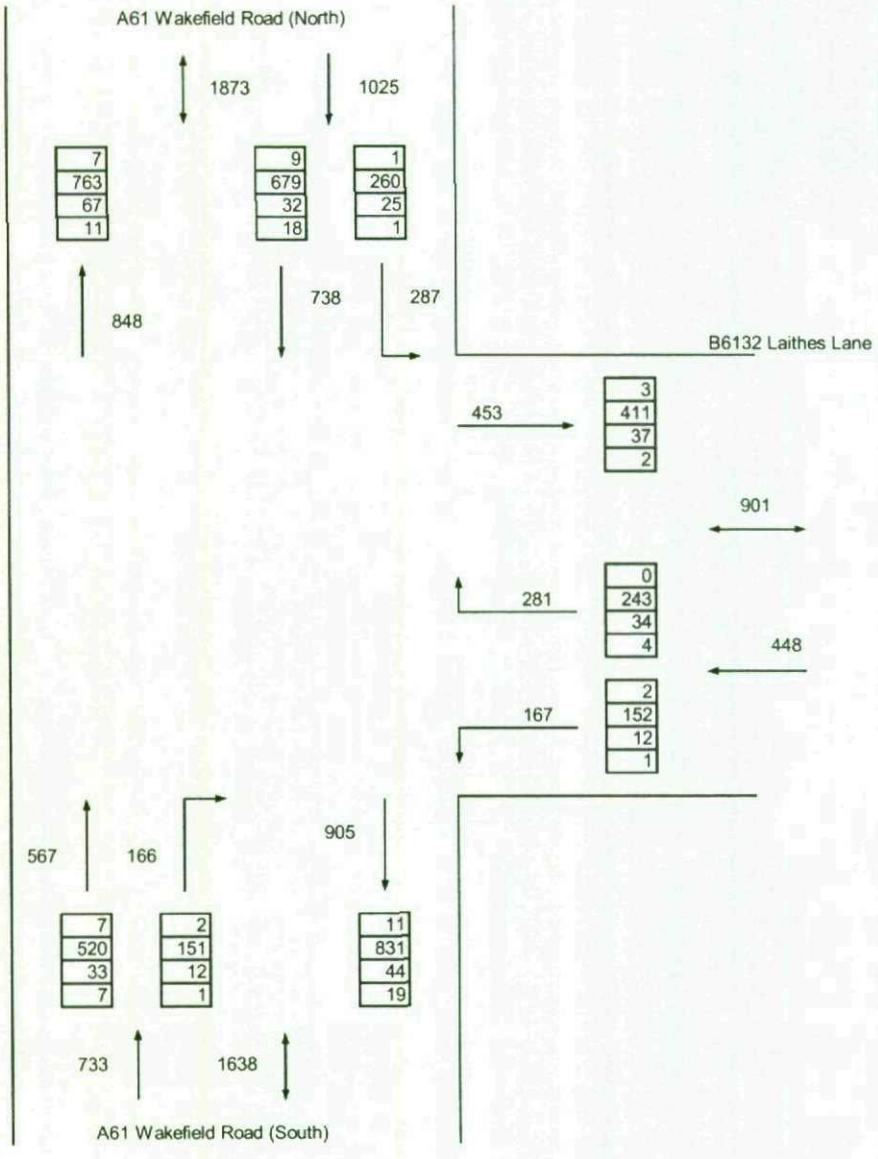


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/LAITHES LANE

8:00 am - 9:00 am

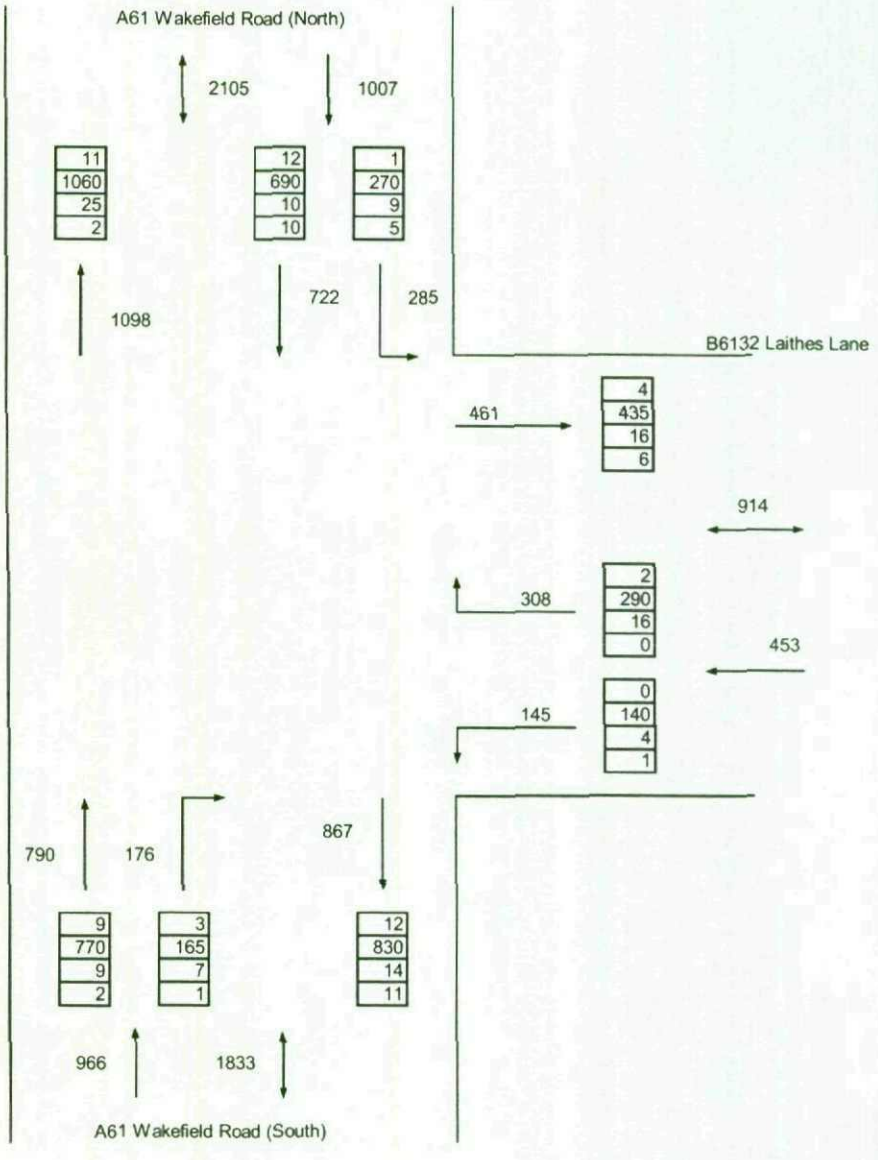


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/LAITHES LANE

5:00 pm - 6:00 pm

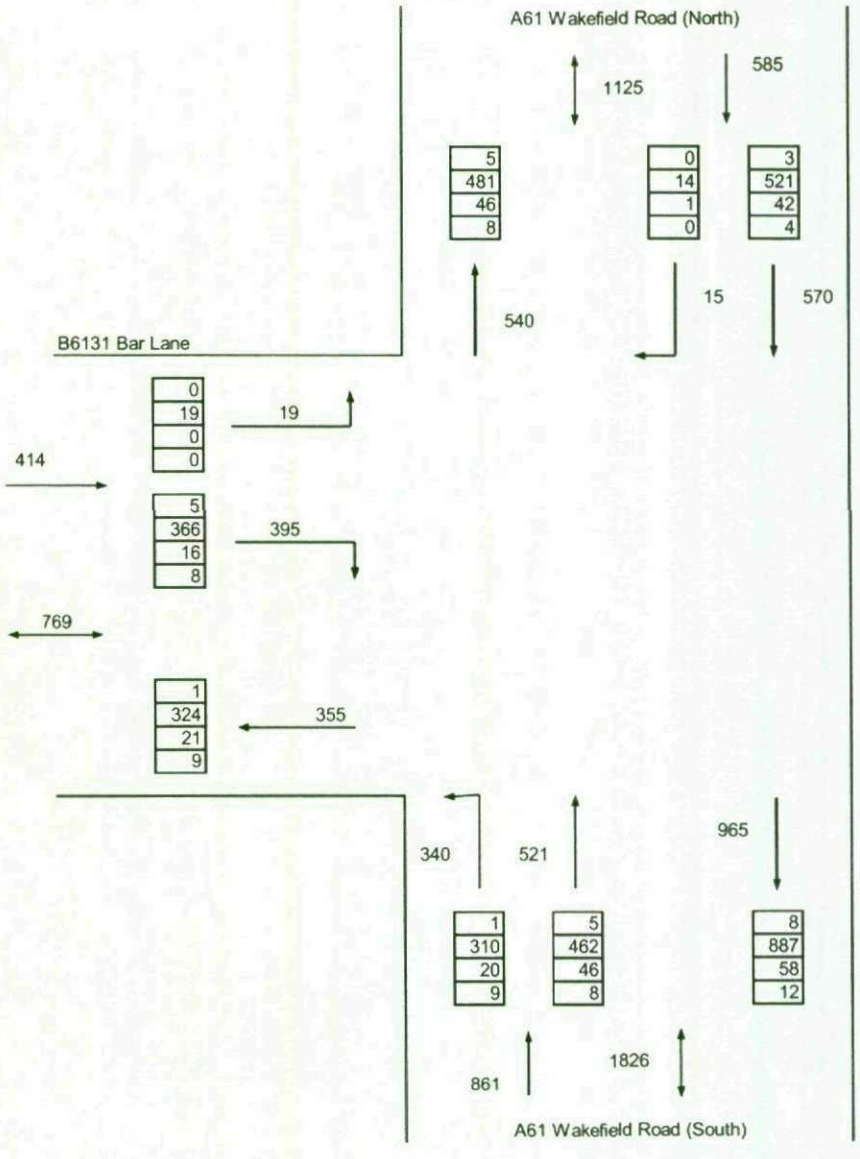


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/BAR LANE

8:00 am - 9:00 am

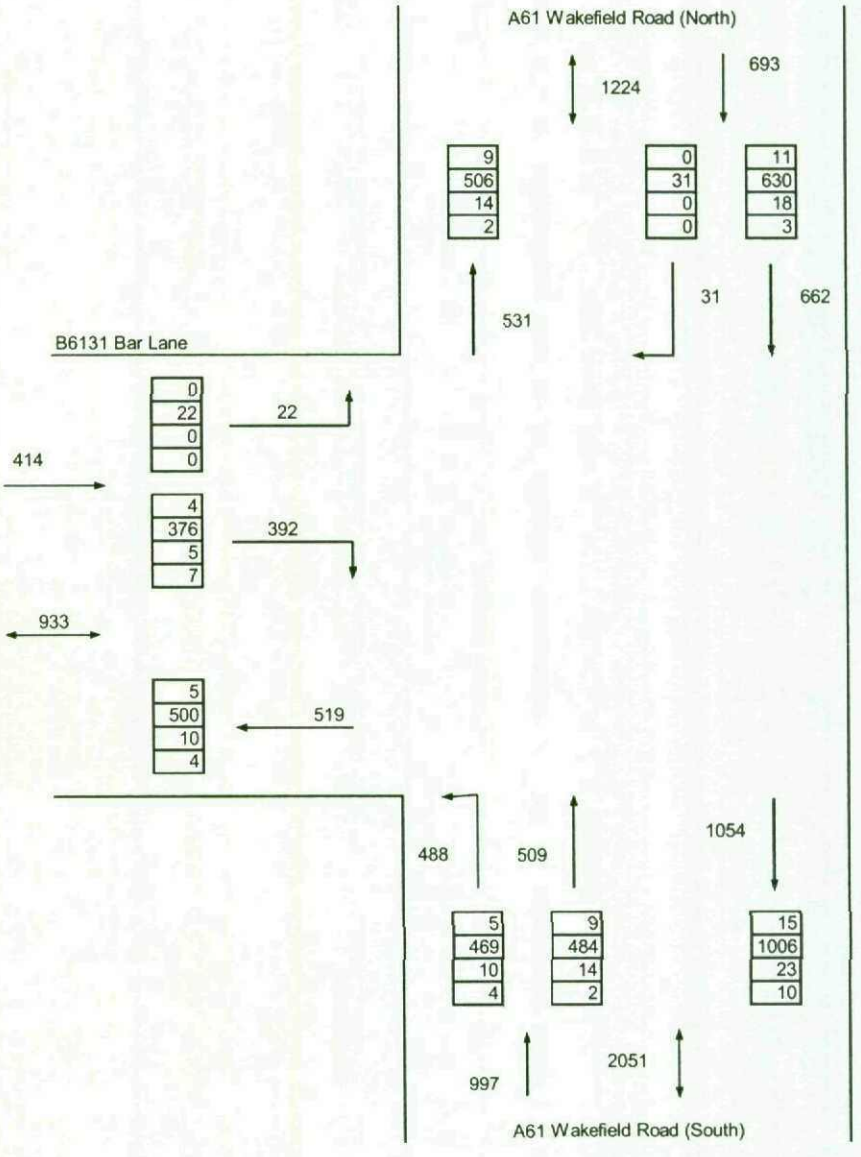


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/BAR LANE

5:00 pm - 6:00 pm

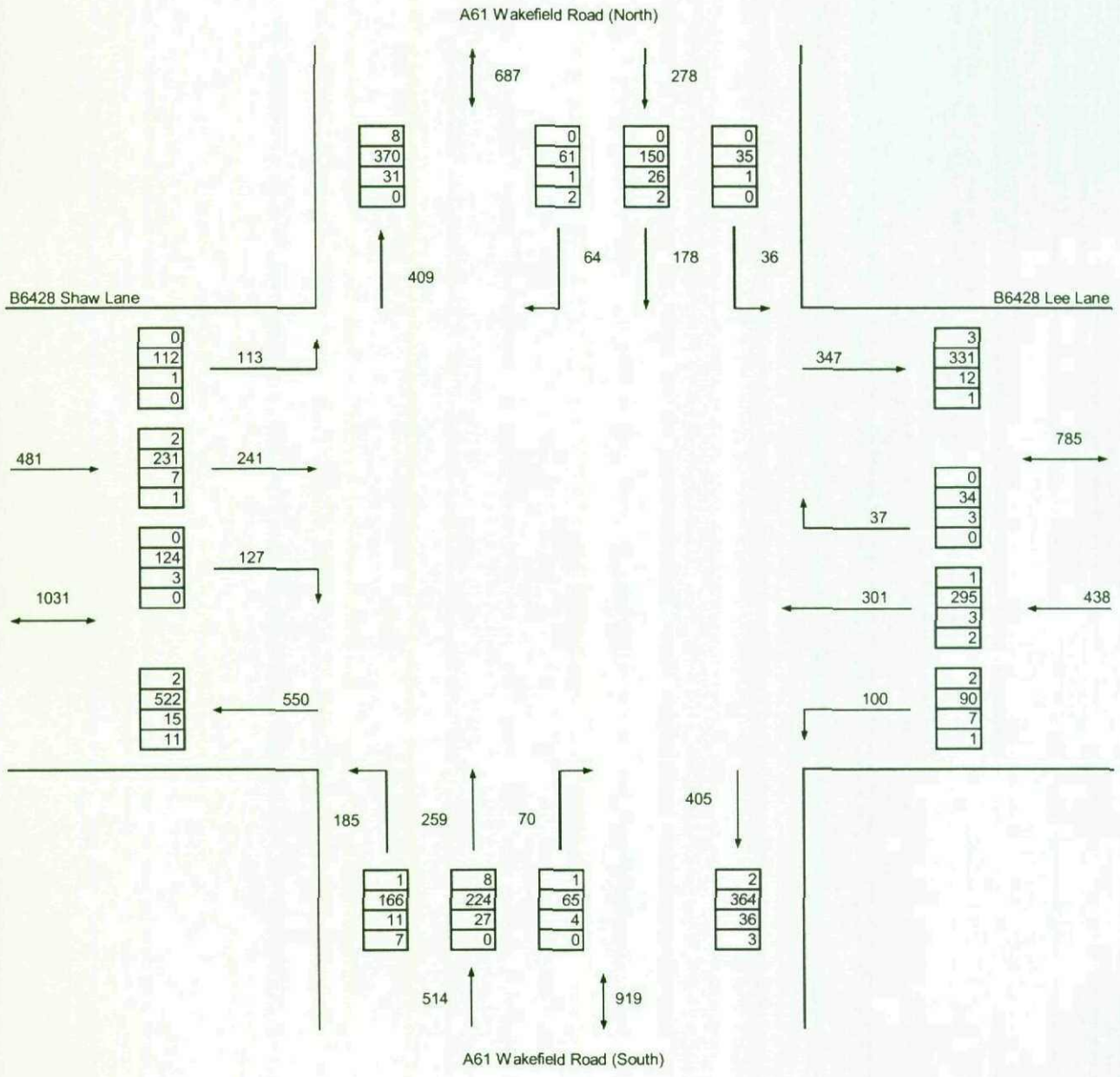


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/SHAW LANE/LEE LANE

8:00 am - 9:00 am

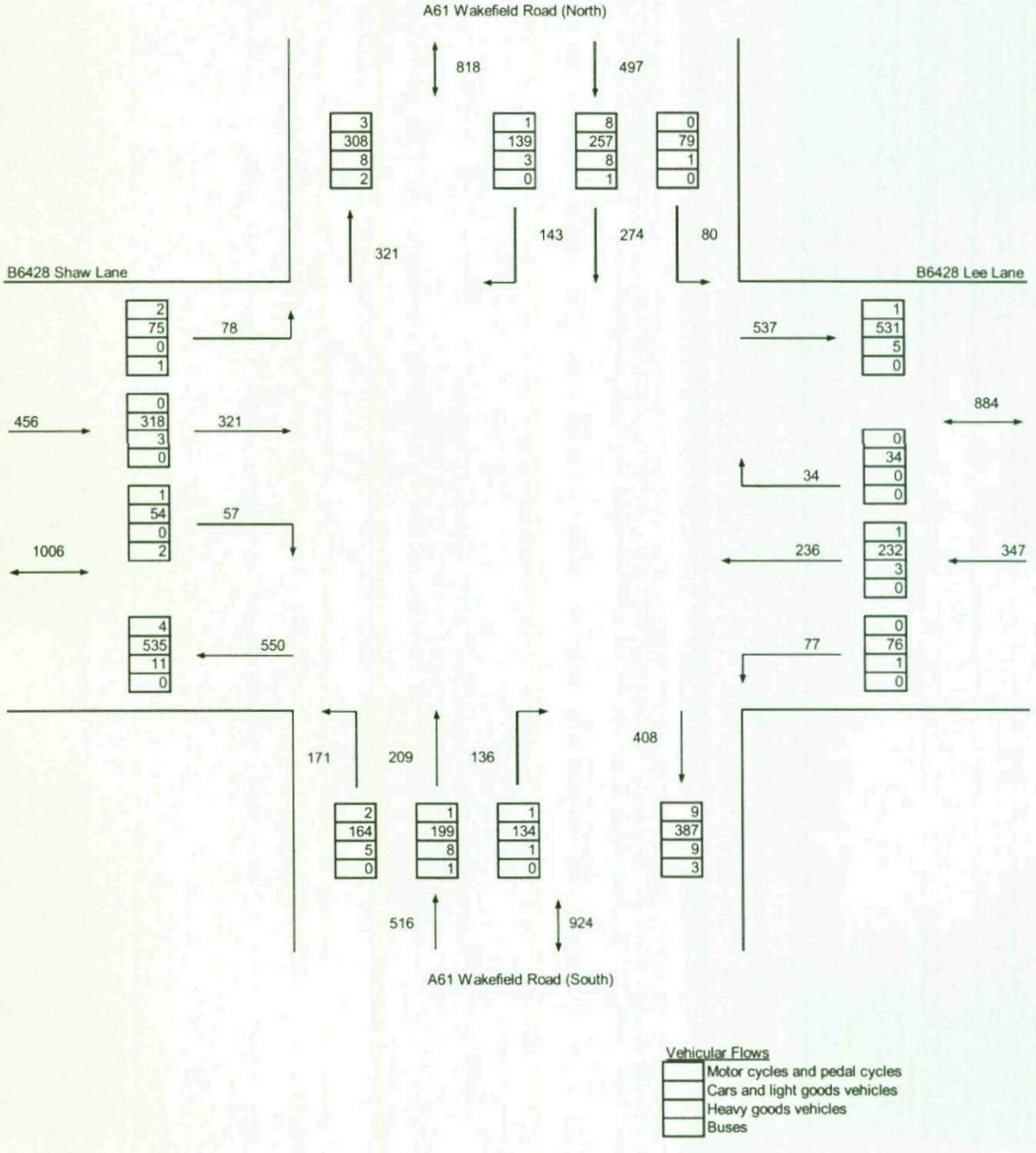


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/SHAW LANE/LEE LANE

5:00 pm - 6:00 pm



Vehicular Flows

	Motor cycles and pedal cycles
	Cars and light goods vehicles
	Heavy goods vehicles
	Buses

APPENDIX BGH 15

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
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Run with file:-
"y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Arcady\2014 Predicted AM Peak.vai"
(drive-on-the-left) at 10:10:10 on Friday, 17 July 2009

FILE PROPERTIES

RUN TITLE: Mini Roundabout 2014 Predicted AM Peak
LOCATION: Mapplewell, Barnsley
DATE: 15/10/2008
CLIENT: Pipestone Group
ENUMERATOR: Asmith [AIMEE01]
JOB NUMBER: 08-334
STATUS: On-going
DESCRIPTION:

INPUT DATA

ARM A - A61 Wakefield Road (North)
ARM B - A633 Rotherham Road
ARM C - A61 Wakefield Road (South)

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

ARM A HAS A CENTRAL ISLAND
ARM B HAS A CENTRAL ISLAND
ARM C HAS A CENTRAL ISLAND

ARM	V (m)	E (m)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	6.10	6.70	24.00	5.90	20.00	21.00	0.00	1.504	37.265
ARM B	4.80	6.80	20.00	4.70	12.40	24.00	0.00	4.799	93.853
ARM C	4.60	5.60	14.00	4.20	20.00	21.40	0.00	1.647	35.458

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

WARNING ARM A:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.
WARNING ARM B:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.
WARNING ARM C:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

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

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: Mini Roundabout 2014 Predicted AM Peak

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	11.89	17.83	11.89
ARM B	15.00	45.00	75.00	5.95	8.92	5.95
ARM C	15.00	45.00	75.00	5.80	8.70	5.80

DEMAND SET TITLE: Mini Roundabout 2014 Predicted AM Peak

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (VEH/HR) (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000 0.0 (0.0)	0.302 287.0 (3.4)	0.698 664.0 (6.9)
	ARM B	0.708 337.0 (6.5)	0.000 0.0 (0.0)	0.292 139.0 (9.4)
	ARM C	0.864 401.0 (11.5)	0.136 63.0 (20.0)	0.000 0.0 (0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00								
ARM A	11.89	33.87	0.351		0.0	0.5	7.9	0.05
ARM B	5.95	47.88	0.124		0.0	0.1	2.1	0.02
ARM C	5.80	24.93	0.233		0.0	0.3	4.4	0.05

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15								
ARM A	14.19	33.61	0.422		0.5	0.7	10.7	0.05
ARM B	7.10	40.11	0.177		0.1	0.2	3.2	0.03
ARM C	6.93	23.65	0.293		0.3	0.4	6.1	0.06

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30								
ARM A	17.39	33.25	0.523		0.7	1.1	15.9	0.06
ARM B	8.70	29.50	0.295		0.2	0.4	6.1	0.05
ARM C	8.48	21.90	0.387		0.4	0.6	9.2	0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45								
ARM A	17.39	33.24	0.523		1.1	1.1	16.3	0.06
ARM B	8.70	29.42	0.296		0.4	0.4	6.3	0.05
ARM C	8.48	21.88	0.388		0.6	0.6	9.4	0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00								
ARM A	14.19	33.60	0.422		1.1	0.7	11.3	0.05
ARM B	7.10	39.98	0.178		0.4	0.2	3.3	0.03
ARM C	6.93	23.63	0.293		0.6	0.4	6.4	0.06

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15								
ARM A	11.89	33.86	0.351		0.7	0.5	8.3	0.05
ARM B	5.95	47.72	0.125		0.2	0.1	2.2	0.02
ARM C	5.80	24.91	0.233		0.4	0.3	4.6	0.05

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	*
08.15	0.7	*
08.30	1.1	*
08.45	1.1	*
09.00	0.7	*
09.15	0.5	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.1
08.15	0.2
08.30	0.4
08.45	0.4
09.00	0.2
09.15	0.1

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.3	
08.15	0.4	
08.30	0.6	*
08.45	0.6	*
09.00	0.4	
09.15	0.3	

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1304.0	869.3	70.4	0.05	70.4	0.05
B	652.7	435.1	23.2	0.04	23.2	0.04
C	636.2	424.2	40.2	0.06	40.2	0.06
ALL	2593.0	1728.6	133.8	0.05	133.8	0.05

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

END OF JOB

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

[Printed at 10:10:18 on 17/07/2009]

TRL TRL VIEWER 3.0 AC y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Arcady\2014 Predic

ARCADY 6

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 3.0 (JUNE 2005)

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Web: www.trlsoftware.co.uk

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Run with file:-
"y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Arcady\2014 Predicted PM Peak.vai"
(drive-on-the-left) at 10:10:54 on Friday, 17 July 2009

FILE PROPERTIES

RUN TITLE: Mini Roundabout 2014 Predicted PM Peak
LOCATION: Mapplewell, Barnsley
DATE: 15/10/2008
CLIENT: Pipestone Group
ENUMERATOR: Asmith [AIMEE01]
JOB NUMBER: 08-334
STATUS: On-going
DESCRIPTION:

INPUT DATA

ARM A - A61 Wakefield Road (North)
ARM B - A633 Rotherham Road
ARM C - A61 Wakefield Road (South)

MINI-ROUNDABOUT GEOMETRIC DATA

LIGHTING CONDITIONS : NORMAL

ROAD SURFACE CONDITION: NORMAL

ARM A HAS A CENTRAL ISLAND
ARM B HAS A CENTRAL ISLAND
ARM C HAS A CENTRAL ISLAND

ARM	V (m)	E (m)	Lm(M)	Vm(M)	A (M)	K (M)	G (%)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	6.10	6.70	24.00	5.90	20.00	21.00	0.00	1.504	37.265
ARM B	4.80	6.80	20.00	4.70	12.40	24.00	0.00	4.799	93.853
ARM C	4.60	5.60	14.00	4.20	20.00	21.40	0.00	1.647	35.458

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

WARNING ARM A:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.
WARNING ARM B:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.
WARNING ARM C:Entry corner kerb line distance is in range 20m-40m
provided only for compatibility with accidents analysis.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

(Only sets included in the current run are shown)

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

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

DEMAND SET TITLE: Mini Roundabout 2014 Predicted PM Peak

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS IFALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	11.07	16.61	11.07
ARM B	15.00	45.00	75.00	4.93	7.39	4.93
ARM C	15.00	45.00	75.00	8.98	13.46	8.98

DEMAND SET TITLE: Mini Roundabout 2014 Predicted PM Peak

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (VEH/HR) (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000 0.0 (0.0)	0.503 446.0 (1.6)	0.497 440.0 (5.0)
	ARM B	0.919 362.0 (2.2)	0.000 0.0 (0.0)	0.081 32.0 (0.0)
	ARM C	0.935 671.0 (3.7)	0.065 47.0 (2.1)	0.000 0.0 (0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00								
ARM A	11.07	35.21	0.315		0.0	0.5	6.7	0.04
ARM B	4.93	64.90	0.076		0.0	0.1	1.2	0.02
ARM C	8.98	26.88	0.334		0.0	0.5	7.3	0.06

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15								
ARM A	13.22	35.04	0.377		0.5	0.6	8.9	0.05
ARM B	5.88	59.58	0.099		0.1	0.1	1.6	0.02
ARM C	10.72	25.45	0.421		0.5	0.7	10.6	0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30								
ARM A	16.20	34.80	0.465		0.6	0.9	12.7	0.05
ARM B	7.20	52.31	0.138		0.1	0.2	2.4	0.02
ARM C	13.13	23.48	0.559		0.7	1.2	18.1	0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45								
ARM A	16.20	34.80	0.465		0.9	0.9	13.0	0.05
ARM B	7.20	52.26	0.138		0.2	0.2	2.4	0.02
ARM C	13.13	23.48	0.559		1.2	1.3	18.8	0.10

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00								
ARM A	13.22	35.03	0.378		0.9	0.6	9.3	0.05
ARM B	5.88	59.51	0.099		0.2	0.1	1.7	0.02
ARM C	10.72	25.44	0.421		1.3	0.7	11.3	0.07

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	CROSSING USE PER MIN	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15								
ARM A	11.07	35.20	0.315		0.6	0.5	7.0	0.04
ARM B	4.93	64.80	0.076		0.1	0.1	1.2	0.02
ARM C	8.98	26.87	0.334		0.7	0.5	7.7	0.06

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.5	
17.15	0.6	*
17.30	0.9	*
17.45	0.9	*
18.00	0.6	*
18.15	0.5	

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.2
17.45	0.2
18.00	0.1
18.15	0.1

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.5	
17.15	0.7	*
17.30	1.2	*
17.45	1.3	*
18.00	0.7	*
18.15	0.5	*

TRL TRL VIEWER 3.0 AC y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Arcady\2014 Predic

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1214.9	809.9	57.7	0.05	57.7	0.05
B	540.3	360.2	10.5	0.02	10.5	0.02
C	984.5	656.4	73.8	0.07	73.8	0.07
ALL	2739.7	1826.5	142.0	0.05	142.0	0.05

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

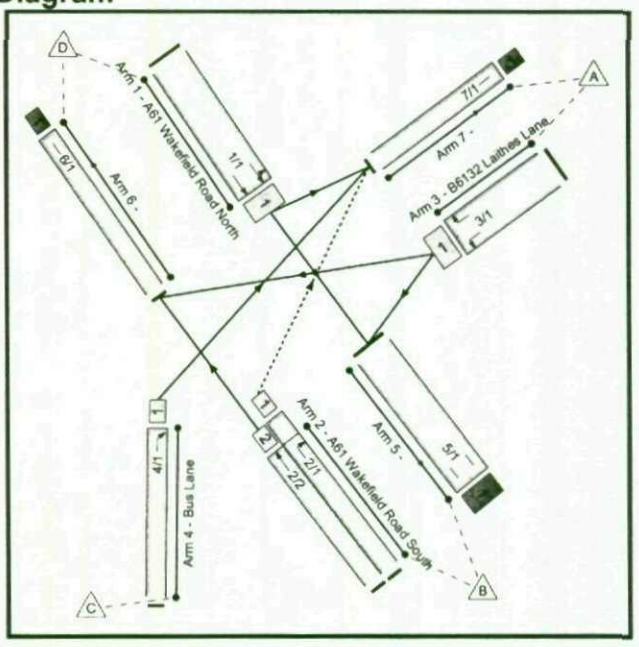
END OF JOB

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A61 Wakefield Road / B6132 Laithes Lane Predicted 2014 Assessment

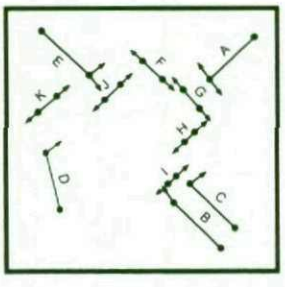
Junction Layout Diagram



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	Bus		7	7
E	Traffic		7	7
F	Pedestrian		9	9
G	Pedestrian		9	9
H	Pedestrian		9	9
I	Pedestrian		9	9
J	Pedestrian		9	9
K	Pedestrian		9	9

Phase Diagram



Intergreens Table

		Starting Phase										
		A	B	C	D	E	F	G	H	I	J	K
Terminating Phase	A		8	7	7	9	-	5	8	-	-	10
	B	8		-	6	-	-	-	-	5	-	10
	C	7	-		7	8	9	-	-	5	-	-
	D	7	6	7		8	8	-	-	-	-	-
	E	9	-	8	8		7	-	10	-	5	-
	F	-	-	8	8	8		-	-	-	-	-
	G	8	-	-	-	-	-		-	-	-	-
	H	8	-	-	-	8	-	-		-	-	-
	I	-	7	7	-	-	-	-	-		-	-
	J	-	-	-	-	9	-	-	-	-		-
	K	5	5	-	-	-	-	-	-	-	-	

Phase Delays

There are no phase delays defined in this stage stream

Prohibited Stage Changes Table

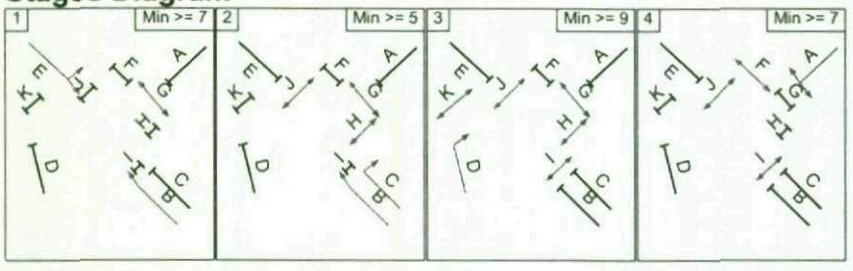
		To Stage			
		1	2	3	4
From Stage	1		10	10	9
	2	9		10	9
	3	9	7		8
	4	9	8	10	

Stage Data table

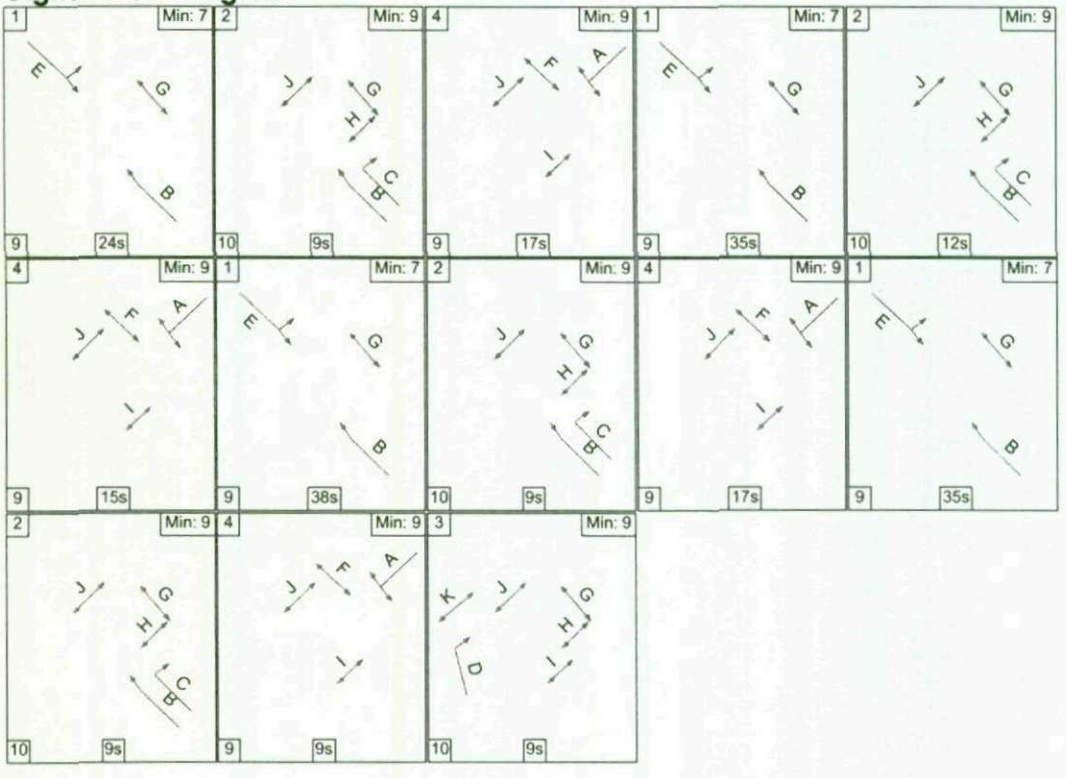
Stage No.	Phases in Stage
1	B E G
2	B C G H J
3	D G H I J K
4	A F I J

Scenario 5: 'Predicted 2014 AM Peak'
Staging Plan 2: 'Bus every four cycles'
Flow Group 5: 'Predicted 2014 AM Peak'

Stages Diagram

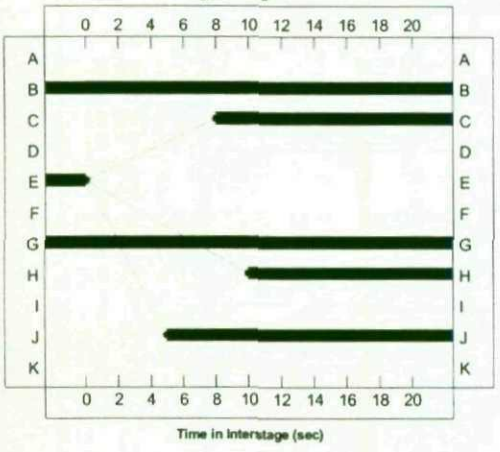


Signal Plan Diagram

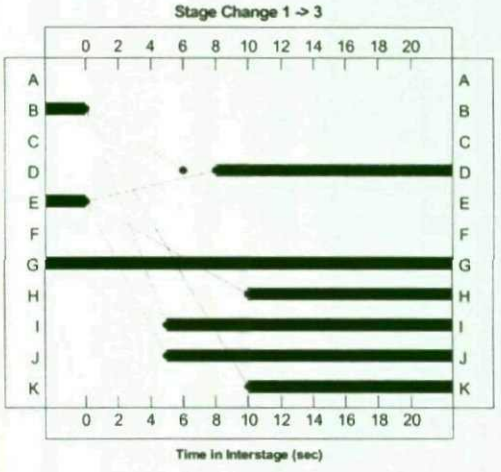


Interstage Diagram

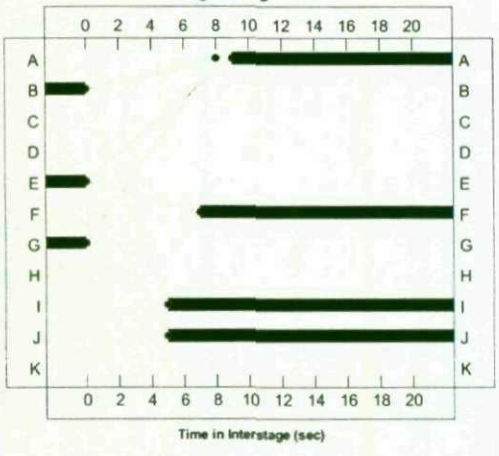
Stage Change 1 -> 2



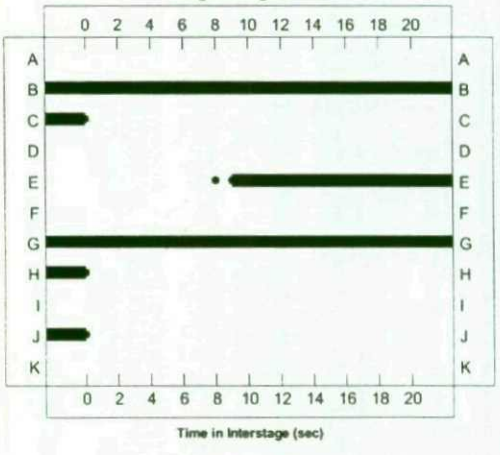
Stage Change 1 -> 3



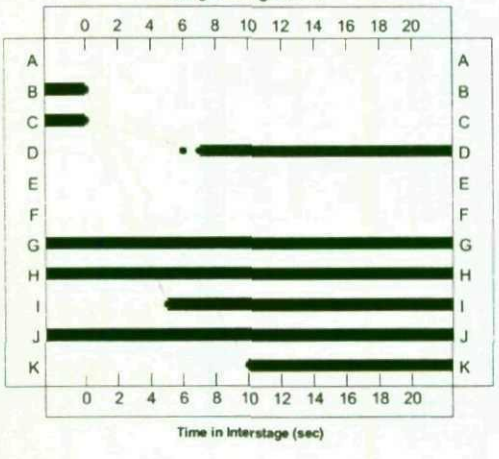
Stage Change 1 -> 4



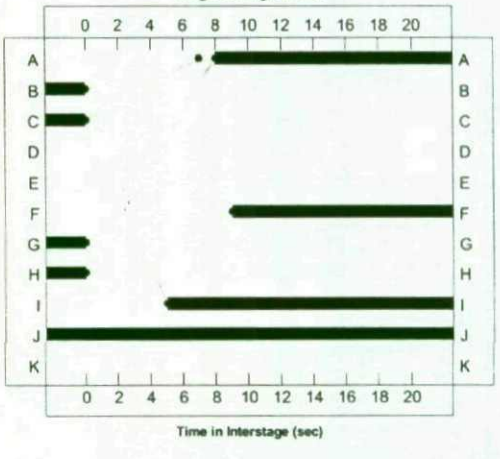
Stage Change 2 -> 1



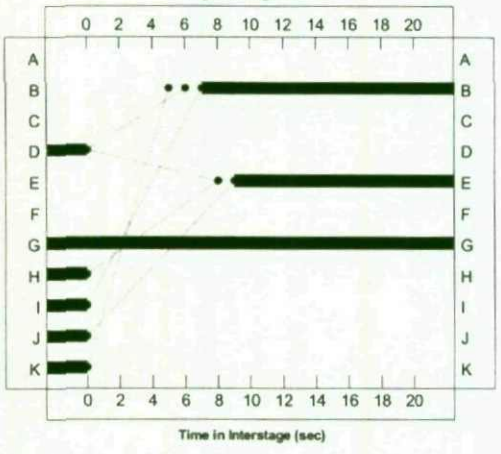
Stage Change 2 -> 3



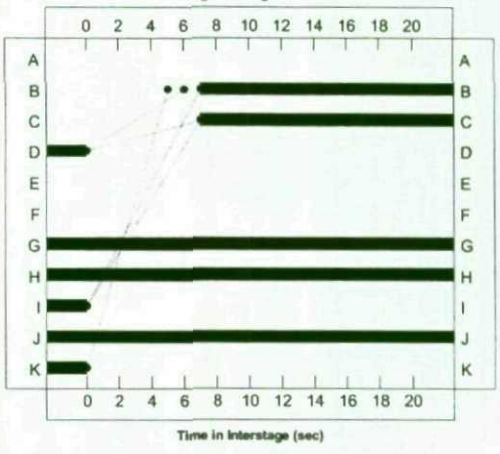
Stage Change 2 -> 4



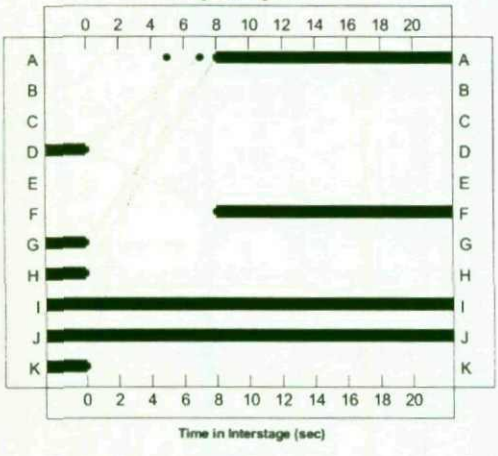
Stage Change 3 -> 1



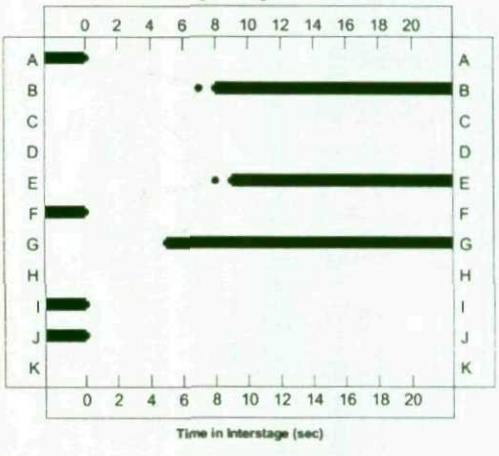
Stage Change 3 -> 2



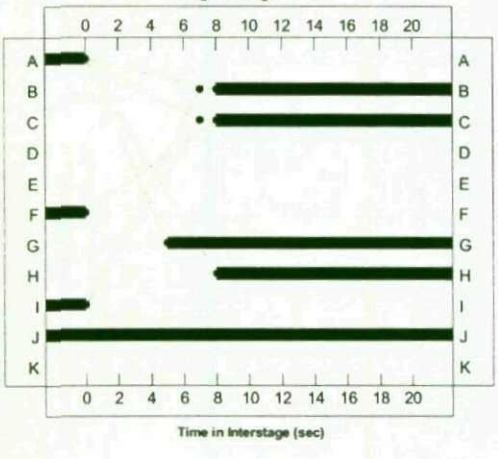
Stage Change 3 -> 4



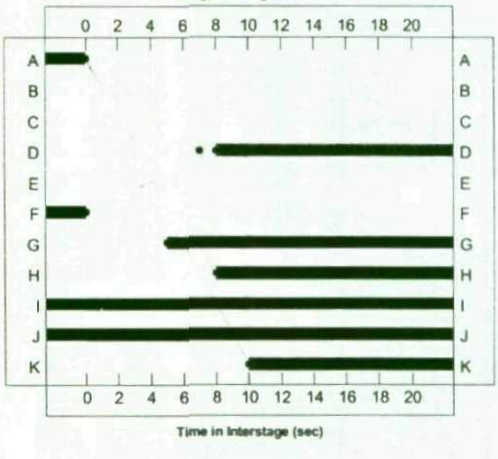
Stage Change 4 -> 1



Stage Change 4 -> 2



Stage Change 4 -> 3



Link data table

Arm/ Link	Link Name	Link Type	Num Lanes	Phases	Start Disp.	End Disp.
1/1	A61 Wakefield Road North Ahead Left	U	2	E	2	3
2/1	A61 Wakefield Road South Right	O	1	C	2	3
2/2	A61 Wakefield Road South Ahead	U	1	B	2	3
3/1	B6132 Laithes Lane Left Right	U	2	A	2	3
4/1	Bus Lane Right	U	1	D	2	3
5/1		U	2		2	3
6/1		U	1		2	3
7/1		U	1		2	3

Opposed Link Data Table

Arm/ Link	Link Name	Movement	Max Flow when Giving Way (PCU/Hr)	Opposing Link	Opp. Link Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	RTF	Right Turn Move up time (s)	Max Turns in Intergreen (PCU)
2/1	A61 Wakefield Road South Right	2/1 to 7/1	1439	1/1	1.09	1/1	2.00	0.50	2	2.00

Lane Data Table

Arm/ Lane	Link Num	Physical Length (PCU)	Expected Usage (PCU)	Sat Flow Type	User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)
1/1 (A61 Wakefield Road North Lane 1)	Link 1 (A61 Wakefield Road North Ahead Left)	Inf	Inf	Geom	1800	3.90	0.00	Y	Arm 5 Ahead	Inf
									Arm 7 Left	12.00
1/2 (A61 Wakefield Road North Lane 2)	Link 1 (A61 Wakefield Road North Ahead Left)	Inf	Inf	Geom	1800	3.90	0.00	N	Arm 5 Ahead	Inf
2/1 (A61 Wakefield Road South Lane 1)	Link 2 (A61 Wakefield Road South Ahead)	Inf	Inf	Geom	1800	3.35	0.00	Y	Arm 6 Ahead	Inf
2/2 (A61 Wakefield Road South Lane 2)	Link 1 (A61 Wakefield Road South Right)	Inf	Inf	Geom	1800	3.35	0.00	Y	Arm 7 Right	15.00
3/1 (B6132 Laithes Lane Lane 1)	Link 1 (B6132 Laithes Lane Left Right)	Inf	Inf	Geom	1800	3.50	0.00	Y	Arm 5 Left	15.00
3/2 (B6132 Laithes Lane Lane 2)	Link 1 (B6132 Laithes Lane Left Right)	Inf	Inf	Geom	1800	3.50	0.00	N	Arm 6 Right	30.00
4/1 (Bus Lane Lane 1)	Link 1 (Bus Lane Right)	Inf	Inf	Geom	1800	4.30	0.00	Y	Arm 7 Right	30.00
5/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.45	0.00	Y		
5/2	Link 1	Inf	Inf	Inf (Exit)	1800	3.45	0.00	N		
6/1	Link 1	Inf	Inf	Inf (Exit)	1800	4.60	0.00	Y		
7/1	Link 1	Inf	Inf	Inf (Exit)	1800	5.00	0.00	Y		

Lane Data Table

Flow Group 5: 'Predicted 2014 AM Peak'

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (A61 Wakefield Road North Lane 1)	3.90	0.00	Y	Arm 5 Ahead Arm 7 Left	Inf 12.00	42.5 % 57.5 %	1870
1/2 (A61 Wakefield Road North Lane 2)	3.90	0.00	N	Arm 5 Ahead	Inf	100.0 %	2145
2/1 (A61 Wakefield Road South Lane 1)	3.35	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1950
2/2 (A61 Wakefield Road South Lane 2)	3.35	0.00	Y	Arm 7 Right	15.00	100.0 %	1773
3/1 (B6132 Laithes Lane Lane 1)	3.50	0.00	Y	Arm 5 Left	15.00	100.0 %	1786
3/2 (B6132 Laithes Lane Lane 2)	3.50	0.00	N	Arm 6 Right	30.00	100.0 %	2005
4/1 (Bus Lane Lane 1)	4.30	0.00	Y	Arm 7 Right	30.00	100.0 %	1948
5/1	3.45	0.00	Y				1960
5/2	3.45	0.00	N				2100
6/1	4.60	0.00	Y				2075
7/1	5.00	0.00	Y				2115

Traffic Flow Matrix

Flow Group 5: 'Predicted 2014 AM Peak'

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	183	-	329	512
	B	182	0	-	612	794
	C	2	0	-	0	2
	D	320	792	-	0	1112
	Tot.	504	975	-	941	2420

Flow Group 6: 'Predicted 2014 PM Peak'
Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	151	-	328	479
	B	184	0	-	798	982
	C	2	0	-	0	2
	D	301	737	-	0	1038
	Tot.	487	888	-	1126	2501

Link Results

Scenario 5: 'Predicted 2014 AM Peak'
Staging Plan 2: 'Bus every four cycles'
Flow Group 5: 'Predicted 2014 AM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	A61 Wakefield Road North Ahead Left	U	E		4	132	-	1112	4015	1517	73.3	28.7	27.2	28.5
2/1	A61 Wakefield Road South Right	O	C		4	47	-	182	1773	251	72.5	62.1	4.3	5.6
2/2	A61 Wakefield Road South Ahead	U	B		4	216	-	612	1950	1192	51.4	13.2	10.5	11.1
3/1	B6132 Laithes Lane Left Right	U	A		4	62	-	512	3791	695	73.7	44.4	12.8	14.2
4/1	Bus Lane Right	U	D		1	11	-	2	1948	65	3.1	197.3	0.2	0.2

PRC for Signalled Links (%): 22.2 Total Delay for Signalled Links (pcuHr): 20.67
PRC Over All Links (%): 22.2 Total Delay Over All Links(pcuHr): 20.67 Cycle Time (s): 360

Scenario 6: 'Predicted 2014 PM Peak'

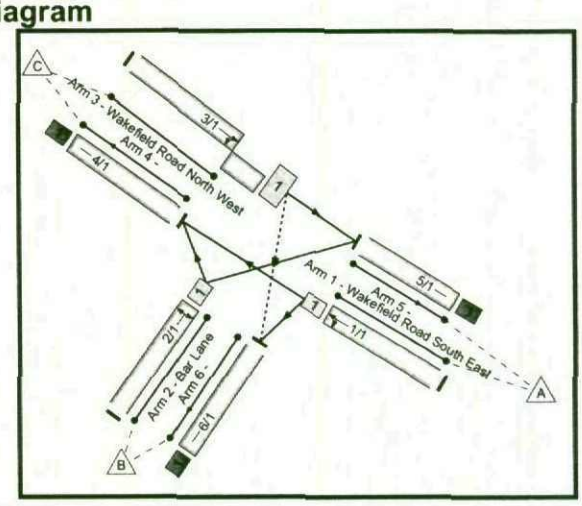
Staging Plan 2: 'Bus every four cycles'
Flow Group 6: 'Predicted 2014 PM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	A61 Wakefield Road North Ahead Left	U	E		4	130	-	1038	4014	1494	69.5	28.0	24.8	25.9
2/1	A61 Wakefield Road South Right	O	C		4	50	-	184	1773	266	69.2	57.7	4.5	5.6
2/2	A61 Wakefield Road South Ahead	U	B		4	217	-	798	1950	1197	66.7	16.1	16.0	17.0
3/1	B6132 Laithes Lane Left Right	U	A		4	61	-	479	3791	684	70.0	43.3	11.4	12.6
4/1	Bus Lane Right	U	D		1	11	-	2	1948	65	3.1	197.3	0.2	0.2

PRC for Signalled Links (%): 28.6 Total Delay for Signalled Links (pcuHr): 20.45
PRC Over All Links (%): 28.6 Total Delay Over All Links(pcuHr): 20.45 Cycle Time (s): 360

A61 Wakefield Road / Bar Lane Predicted 2014 Assessment

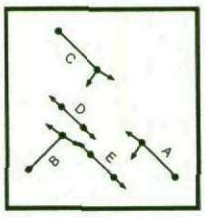
Junction Layout Diagram



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	Pedestrian		8	8
E	Pedestrian		8	8

Phase Diagram



Intergreens Table

		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		8	-	-	7
	B	6		7	5	-
	C	-	7		-	8
	D	-	7	-		-
	E	8	-	8	-	

Phase Delays

There are no phase delays defined in this stage stream

Prohibited Stage Changes Table

From Stage \ To Stage	1	2
1		8
2	8	

Stage Data table

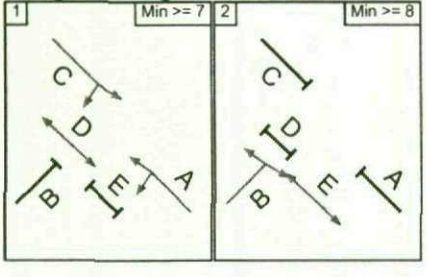
Stage No.	Phases in Stage
1	A C D
2	B E

Scenario 5: 'Predicted 2014 Flows AM Peak'

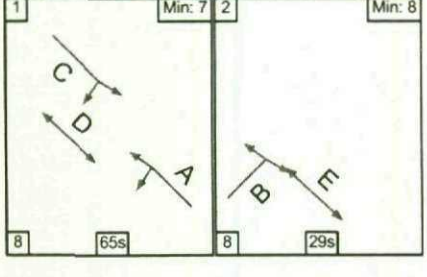
Staging Plan 1: 'Staging Plan No. 1'

Flow Group 5: 'Predicted 2014 Flows AM Peak'

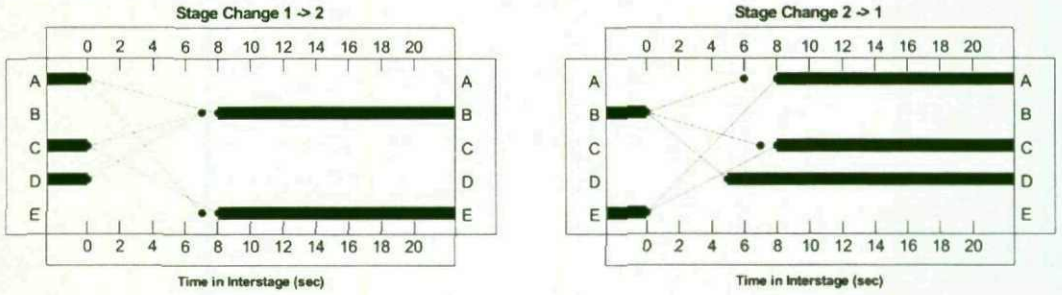
Stages Diagram



Signal Plan Diagram



Interstage Diagram



Link data table

Arm/ Link	Link Name	Link Type	Num Lanes	Phases	Start Disp.	End Disp.
1/1	Wakefield Road South East Ahead Left	U	1	A	2	3
2/1	Bar Lane Left Right	U	1	B	2	3
3/1	Wakefield Road North West Ahead Right	O	1	C	2	3
4/1		U	1		2	3
5/1		U	1		2	3
6/1		U	1		2	3

Opposed Link Data Table

Arm/ Link	Link Name	Movement	Max Flow when Giving Way (PCU/Hr)	Opposing Link	Opp. Link Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up time (s)	Tu Inte (I
3/1	Wakefield Road North West Ahead Right	3/1 to 6/1	1400	1/1	0.01	1/1	3.00	3.00	0.50	3	

Lane Data Table

Arm/ Lane	Link Num	Physical Length (PCU)	Expected Usage (PCU)	Sat Flow Type	User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)
1/1 (Wakefield Road South East Lane 1)	Link 1 (Wakefield Road South East Ahead Left)	Inf	Inf	Geom	1800	4.00	0.00	Y	Arm 4 Ahead	Inf
									Arm 6 Left	10.00
2/1 (Bar Lane Lane 1)	Link 1 (Bar Lane Left Right)	Inf	Inf	Geom	1800	5.00	0.00	Y	Arm 4 Left	20.00
									Arm 5 Right	20.00
3/1 (Wakefield Road North West Lane 1)	Link 1 (Wakefield Road North West Ahead Right)	Inf	Inf	Geom	1800	3.60	0.00	Y	Arm 5 Ahead	Inf
									Arm 6 Right	10.00
4/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		
5/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		
6/1	Link 1	Inf	Inf	Inf (Exit)	1800	3.25	0.00	Y		

Lane Data Table

Scenario 5: 'Predicted 2014 Flows AM Peak'

Staging Plan 1: 'Staging Plan No. 1'

Flow Group 5: 'Predicted 2014 Flows AM Peak'

Arm/ Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat flow (PCU/Hr)
1/1 (Wakefield Road South East Lane 1)	4.00	0.00	Y	Arm 4 Ahead	Inf	61.0 %	1904
				Arm 6 Left	10.00	39.0 %	
2/1 (Bar Lane Lane 1)	5.00	0.00	Y	Arm 4 Left	20.00	4.3 %	1967
				Arm 5 Right	20.00	95.7 %	
3/1 (Wakefield Road North West Lane 1)	3.60	0.00	Y	Arm 5 Ahead	Inf	97.5 %	1968
				Arm 6 Right	10.00	2.5 %	
4/1	Infinite Saturation Flow (on Exit Link)						Inf
5/1	Infinite Saturation Flow (on Exit Link)						Inf
6/1	Infinite Saturation Flow (on Exit Link)						Inf

Traffic Flow Matrix

Flow Group 5: 'Predicted 2014 Flows AM Peak'

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	374	586	960
	B	421	0	19	440
	C	627	16	0	643
	Tot.	1048	390	605	2043

Flow Group 6: 'Predicted 2014 Flow PM Peak'

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	502	523	1025
	B	403	0	22	425
	C	680	31	0	711
	Tot.	1083	533	545	2161

Link Results

Scenario 5: 'Predicted 2014 Flows AM Peak'

Staging Plan 1: 'Staging Plan No. 1'

Flow Group 5: 'Predicted 2014 Flows AM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	Wakefield Road South East Ahead Left	U	A		1	65	-	960	1904	1142	84.0	27.3	23.5	26.0
2/1	Bar Lane Left Right	U	B		1	29	-	440	1967	536	82.0	55.3	12.6	14.8
3/1	Wakefield Road North West Ahead Right	O	C		1	65	-	643	1968	1181	54.5	16.4	11.6	12.2

PRC for Signalled Links (%): 7.1 Total Delay for Signalled Links (pcuHr): 16.99

PRC Over All Links (%): 7.1 Total Delay Over All Links(pcuHr): 16.99 Cycle Time (s): 110

Scenario 6: 'Predicted 2014 Flows PM Peak'

Staging Plan 1: 'Staging Plan No. 1'
Flow Group 6: 'Predicted 2014 Flow PM Peak'

Link Num	Link Desc	Link Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Max Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Av. Delay Per Veh (s/pcu)	Max. Back of Uniform Queue (pcu)	Mean Max Queue (pcu)
1/1	Wakefield Road South East Ahead Left	U	A		1	68	-	1025	1877	1177	87.1	28.2	25.6	28.9
2/1	Bar Lane Left Right	U	B		1	26	-	425	1967	483	88.0	67.9	12.4	15.7
3/1	Wakefield Road North West Ahead Right	O	C		1	68	-	711	1962	1231	57.8	15.4	12.6	13.3

PRC for Signalled Links (%): 2.2 Total Delay for Signalled Links (pcuHr): 19.08
PRC Over All Links (%): 2.2 Total Delay Over All Links(pcuHr): 19.08 Cycle Time (s): 110

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

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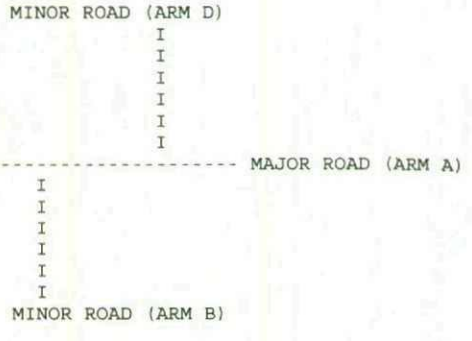
Run with file:-
"Y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Picady\Cross Roads\
Cross Roads Predicted 2014 AM & PM Peak.vpi"
(drive-on-the-left) at 09:44:14 on Friday, 17 July 2009

RUN INFORMATION
****

RUN TITLE	: Predicted 2014 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads
LOCATION	: Mapplewell, Barnsley
DATE	: 15/10/08
CLIENT	: Pipestone Group
ENUMERATOR	: Asmith [AIMEE01]
JOB NUMBER	: 08-334
STATUS	: On-going
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS A61 Wakefield Road (North)
ARM B IS B6428 Lee Road
ARM C IS A61 Wakefield Road (South)
ARM D IS B6428 Shaw 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

DATA ITEM	MINOR ROAD B	MINOR ROAD D
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 9.20 M.	(W) 9.90 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 3.20 M.	(WA-D) 3.50 M.
- VISIBILITY	(VC-B)120.00 M.	(VA-D)120.00 M.
- BLOCKS TRAFFIC	NO	NO
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 120.0 M.	(VD-A) 120.0 M.
- VISIBILITY TO RIGHT	(VB-A) 120.0 M.	(VD-C) 120.0 M.
- LANE 1 WIDTH	(WB-C) -	(WD-A) -
- LANE 2 WIDTH	(WB-A) -	(WD-C) -
WIDTH AT 0 M FROM JUNCTION	7.60 M.	10.00 M.
WIDTH AT 5 M FROM JUNCTION	5.60 M.	8.00 M.
WIDTH AT 10 M FROM JUNCTION	3.20 M.	5.50 M.
WIDTH AT 15 M FROM JUNCTION	3.50 M.	5.20 M.
WIDTH AT 20 M FROM JUNCTION	3.50 M.	4.00 M.
- LENGTH OF FLARED SECTION	DERIVED: 1 PCU	DERIVED: 3 PCU

.SLOPES AND INTERCEPT

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

B-C Stream

Intercept For 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
0.00	0.00	0.00	0.00	0.00

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

B-AD Stream

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

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

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

C-B Stream

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

I	713.49	0.24	0.24	0.24	0.24 I

A-D Stream

I Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-A	Slope For Opposing STREAM B-D
I 713.49	0.24	0.24	0.24	0.24 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: Existing 2008 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

I ARM I	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
I ARM A I	15.00	45.00	75.00	3.47	5.21	3.47 I
I ARM B I	15.00	45.00	75.00	5.47	8.21	5.47 I
I ARM C I	15.00	45.00	75.00	6.43	9.64	6.43 I
I ARM D I	15.00	45.00	75.00	6.01	9.02	6.01 I

Demand set: Existing 2008 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads

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

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
07.45 - 08.00	ARM A	0.000	0.129	0.640	0.230
		0.0	36.0	178.0	64.0
		(0.0)	(2.8)	(15.7)	(4.7)
	ARM B	0.084	0.000	0.228	0.687
		37.0	0.0	100.0	301.0
		(8.1)	(0.0)	(8.0)	(1.7)
	ARM C	0.504	0.136	0.000	0.360
		259.0	70.0	0.0	185.0
		(10.4)	(5.7)	(0.0)	(9.7)
	ARM D	0.235	0.501	0.264	0.000
		113.0	241.0	127.0	0.0
		(0.9)	(3.3)	(2.4)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.25	6.38	0.197		0.00	0.24	3.4		0.19
B-AD	4.24	7.70	0.551		0.00	1.18	16.1		0.28
A-B	0.45								
A-C	2.23								
A-D	0.80	9.33	0.086		0.00	0.09	1.4		0.12
D-A	1.42	8.07	0.176		0.00	0.21	3.0		0.15
D-BC	4.62	8.39	0.550		0.00	1.18	16.2		0.25
C-D	2.32								
C-A	3.25								
C-B	0.88	9.49	0.093		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)
08.00-08.15									
B-C	1.50	4.76	0.315		0.24	0.45	6.3		0.30
B-AD	5.06	7.05	0.718		1.18	2.31	30.8		0.47
A-B	0.54								
A-C	2.67								
A-D	0.96	8.85	0.108		0.09	0.12	1.8		0.13
D-A	1.69	6.78	0.250		0.21	0.33	4.7		0.20
D-BC	5.51	7.90	0.698		1.18	2.13	28.9		0.40
C-D	2.77								
C-A	3.88								
C-B	1.05	9.13	0.115		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)
08.15-08.30									
B-C	1.84	1.78	1.030		0.45	5.21	50.0		2.62
B-AD	6.20	6.07	1.021		2.31	10.56	106.8		1.52
A-B	0.66								
A-C	3.27								
A-D	1.17	8.20	0.143		0.12	0.17	2.4		0.14
D-A	2.07	3.11	0.666		0.33	1.71	21.2		0.83
D-BC	6.75	7.21	0.936		2.13	7.05	79.2		1.00
C-D	3.39								
C-A	4.75								
C-B	1.28	8.65	0.149		0.13	0.17	2.5		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	1.84	1.88	0.974		5.21	6.81	90.9		3.88
B-AD	6.20	5.96	1.040		10.56	16.70	206.2		2.67
A-B	0.66								
A-C	3.27								
A-D	1.17	8.07	0.146		0.17	0.17	2.5		0.15
D-A	2.07	2.16	0.960		1.71	4.88	53.6		2.25
D-BC	6.75	7.14	0.946		7.05	9.20	123.5		1.44
C-D	3.39								
C-A	4.75								
C-B	1.28	8.57	0.150		0.17	0.18	2.6		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)
08.45-09.00									
B-C	1.50	2.88	0.519		6.81	1.21	34.8		1.23
B-AD	5.06	6.69	0.757		16.70	3.85	125.1		1.55
A-B	0.54								
A-C	2.67								
A-D	0.96	8.61	0.111		0.17	0.13	1.9		0.13
D-A	1.69	5.93	0.286		4.88	0.41	9.6		0.27
D-BC	5.51	7.77	0.710		9.20	2.71	57.2		0.64
C-D	2.77								
C-A	3.88								
C-B	1.05	9.01	0.116		0.18	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)
09.00-09.15									
B-C	1.25	6.09	0.206		1.21	0.26	4.4		0.21
B-AD	4.24	7.65	0.555		3.85	1.30	22.5		0.32
A-B	0.45								
A-C	2.23								
A-D	0.80	9.27	0.087		0.13	0.10	1.5		0.12
D-A	1.42	7.92	0.179		0.41	0.22	3.4		0.15
D-BC	4.62	8.35	0.553		2.71	1.28	21.0		0.28
C-D	2.32								
C-A	3.25								
C-B	0.88	9.45	0.093		0.13	0.10	1.6		0.12

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.2	
08.15	0.4	
08.30	5.2	*****
08.45	6.8	*******
09.00	1.2	*
09.15	0.3	

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.2	*
08.15	2.3	**
08.30	10.6	**********
08.45	16.7	**********
09.00	3.8	****
09.15	1.3	*

QUEUE FOR STREAM A-D

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

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.2	
08.15	0.3	
08.30	1.7	**
08.45	4.9	*****
09.00	0.4	
09.15	0.2	

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.2	*
08.15	2.1	**
08.30	7.0	*******
08.45	9.2	*********
09.00	2.7	***
09.15	1.3	*

QUEUE FOR STREAM C-B

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

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-C	137.6	91.8	189.8	1.38	189.8	1.38
B-AD	465.2	310.2	507.4	1.09	507.5	1.09
A-B	49.6	33.0				
A-C	245.0	163.3				
A-D	88.1	58.7	11.5	0.13	11.5	0.13
D-A	155.5	103.7	95.6	0.61	95.6	0.61
D-BC	506.5	337.7	326.0	0.64	326.1	0.64
C-D	254.6	169.8				
C-A	356.5	237.7				
C-B	96.3	64.2	12.1	0.13	12.1	0.13
ALL	2355.1	1570.0	1142.4	0.49	1142.6	0.49

* 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

Intercept For 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
0.00	0.00	0.00	0.00	0.00

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

B-AD Stream

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

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

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

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

D-A Stream

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

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

D-BC Stream

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

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

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

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

C-B Stream

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM D-C	Slope For Opposing STREAM D-B
713.49	0.24	0.24	0.24	0.24

A-D Stream

Intercept For STREAM A-D	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-D	Slope For Opposing STREAM B-A	Slope For Opposing STREAM B-D
713.49	0.24	0.24	0.24	0.24

TRAFFIC DEMAND DATA

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

Demand set: Existing 2008 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads Demand

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	6.21	9.32	6.21
ARM B	15.00	45.00	75.00	4.34	6.51	4.34
ARM C	15.00	45.00	75.00	6.45	9.67	6.45
ARM D	15.00	45.00	75.00	5.70	8.55	5.70

Demand set: Existing 2008 Flows - Wakefield Road / Shaw Lane / Lee Lane Cross Roads Demand

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

TIME	FROM/TO	ARM A	ARM B	ARM C	ARM D
16.45 - 17.00	ARM A	0.000	0.161	0.551	0.288
		0.0	80.0	274.0	143.0
		(0.0)	(1.3)	(3.3)	(2.0)
	ARM B	0.098	0.000	0.222	0.680
		34.0	0.0	77.0	236.0
		(0.0)	(0.0)	(1.3)	(1.3)
	ARM C	0.405	0.264	0.000	0.331
		209.0	136.0	0.0	171.0
		(4.3)	(0.7)	(0.0)	(2.9)
	ARM D	0.171	0.704	0.125	0.000
		78.0	321.0	57.0	0.0
		(1.3)	(0.9)	(3.5)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-C	0.97	7.38	0.131		0.00	0.15	2.1		0.16
B-AD	3.39	7.61	0.445		0.00	0.78	10.9		0.23
A-B	1.00								
A-C	3.44								
A-D	1.79	10.06	0.178		0.00	0.21	3.1		0.12
D-A	0.98	7.98	0.123		0.00	0.14	2.0		0.14
D-BC	4.74	8.31	0.571		0.00	1.28	17.4		0.27
C-D	2.15								
C-A	2.62								
C-B	1.71	9.59	0.178		0.00	0.21	3.1		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)
17.00-17.15									
B-C	1.15	6.18	0.187		0.15	0.23	3.3		0.20
B-AD	4.05	6.96	0.581		0.78	1.32	18.4		0.33
A-B	1.20								
A-C	4.11								
A-D	2.14	9.67	0.221		0.21	0.28	4.1		0.13
D-A	1.17	6.41	0.182		0.14	0.22	3.2		0.19
D-BC	5.66	7.77	0.729		1.28	2.44	32.7		0.44
C-D	2.56								
C-A	3.13								
C-B	2.04	9.14	0.223		0.21	0.28	4.1		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	1.41	3.58	0.395		0.23	0.62	8.5		0.45
B-AD	4.95	6.03	0.822		1.32	3.63	44.7		0.74
A-B	1.47								
A-C	5.03								
A-D	2.62	9.15	0.287		0.28	0.40	5.8		0.15
D-A	1.43	1.43	1.000		0.22	4.19	40.3		2.72
D-BC	6.94	7.03	0.987		2.44	9.45	99.9		1.25
C-D	3.14								
C-A	3.84								
C-B	2.50	8.53	0.293		0.28	0.41	5.9		0.17

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	1.41	3.13	0.452		0.62	0.78	11.1		0.57
B-AD	4.95	5.95	0.833		3.63	4.19	59.4		0.91
A-B	1.47								
A-C	5.03								
A-D	2.62	9.11	0.288		0.40	0.40	6.0		0.15
D-A	1.43	1.58	0.904		4.19	4.91	68.6		3.49
D-BC	6.94	7.00	0.991		9.45	13.15	171.2		1.96
C-D	3.14								
C-A	3.84								
C-B	2.50	8.42	0.296		0.41	0.42	6.2		0.17

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	1.15	5.76	0.200		0.78	0.25	4.1		0.22
B-AD	4.05	6.84	0.591		4.19	1.53	26.8		0.40
A-B	1.20								
A-C	4.11								
A-D	2.14	9.62	0.223		0.40	0.29	4.5		0.13
D-A	1.17	5.01	0.233		4.91	0.31	8.5		0.31
D-BC	5.66	7.73	0.733		13.15	3.13	82.3		0.90
C-D	2.56								
C-A	3.13								
C-B	2.04	8.95	0.228		0.42	0.30	4.6		0.15

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18 15									
B-C	0.97	7.27	0.133		0.25	0.16	2.4		0.16
B-AD	3.39	7.57	0.448		1.53	0.83	13.3		0.24
A-B	1.00								
A-C	3.44								
A-D	1.79	10.04	0.179		0.29	0.22	3.4		0.12
D-A	0.98	7.81	0.125		0.31	0.14	2.3		0.15
D-BC	4.74	8.29	0.572		3.13	1.39	23.1		0.30
C-D	2.15								
C-A	2.62								
C-B	1.71	9.54	0.179		0.30	0.22	3.4		0.13

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	0.6	*
17.45	0.8	*
18.00	0.3	
18.15	0.2	

QUEUE FOR STREAM B-AD

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.8	*
17.15	1.3	*
17.30	3.6	****
17.45	4.2	****
18.00	1.5	**
18.15	0.8	*

QUEUE FOR STREAM A-D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

QUEUE FOR STREAM D-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.1	
17.15	0.2	
17.30	4.2	****
17.45	4.9	*****
18.00	0.3	
18.15	0.1	

QUEUE FOR STREAM D-BC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	1.3	*
17.15	2.4	**
17.30	9.4	*********
17.45	13.2	*************
18.00	3.1	***
18.15	1.4	*

QUEUE FOR STREAM C-B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.2
17.15	0.3
17.30	0.4
17.45	0.4
18.00	0.3
18.15	0.2

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	106.0	70.7	31.5	0.30	31.5	0.30
B-AD	371.6	247.8	173.5	0.47	173.5	0.47
A-B	110.1	73.4				
A-C	377.1	251.4				
A-D	196.8	131.2	26.8	0.14	26.8	0.14
D-A	107.4	71.6	124.9	1.16	124.9	1.16
D-BC	520.3	346.9	426.6	0.82	426.7	0.82
C-D	235.4	156.9				
C-A	287.7	191.8				
C-B	187.2	124.8	27.4	0.15	27.4	0.15
ALL	2499.6	1666.4	810.6	0.32	810.8	0.32

* 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*******

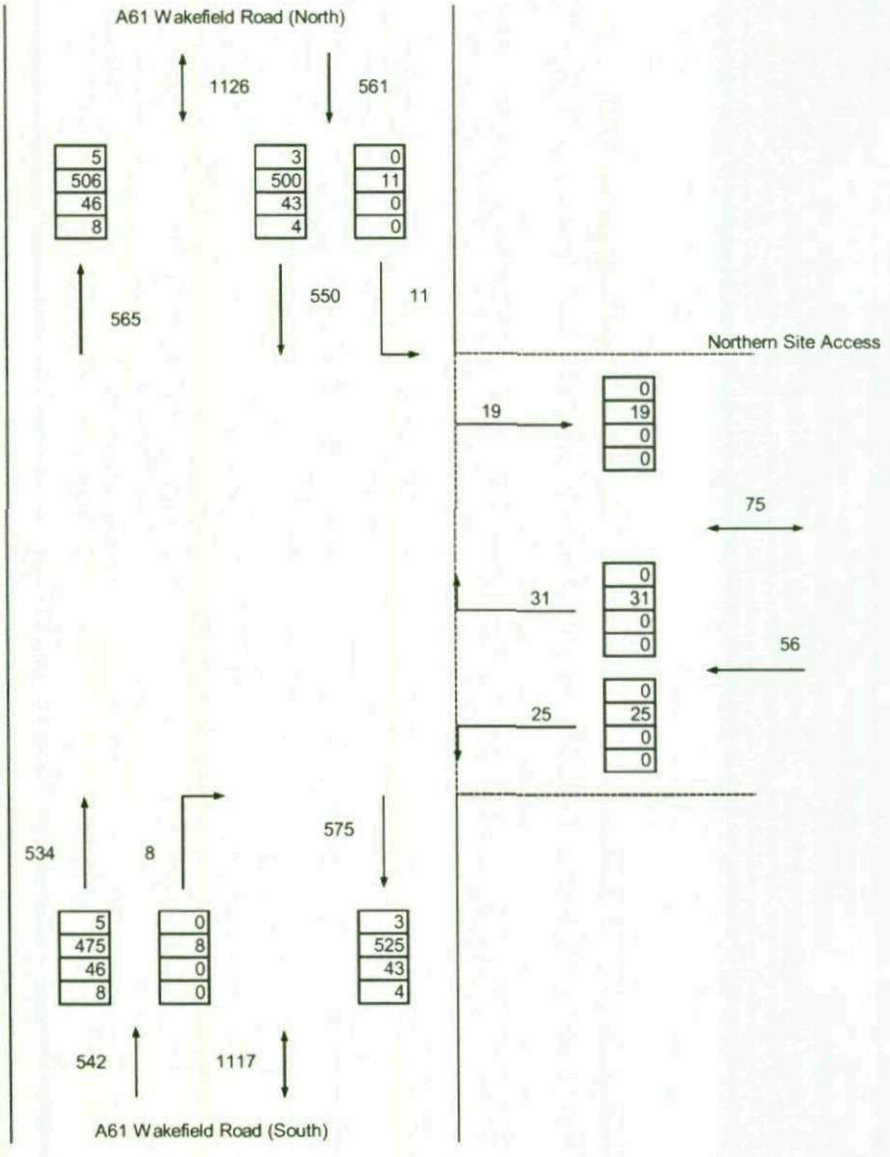
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APPENDIX BGH 16

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/NORTHERN SITE ACCESS

8:00 am - 9:00 am

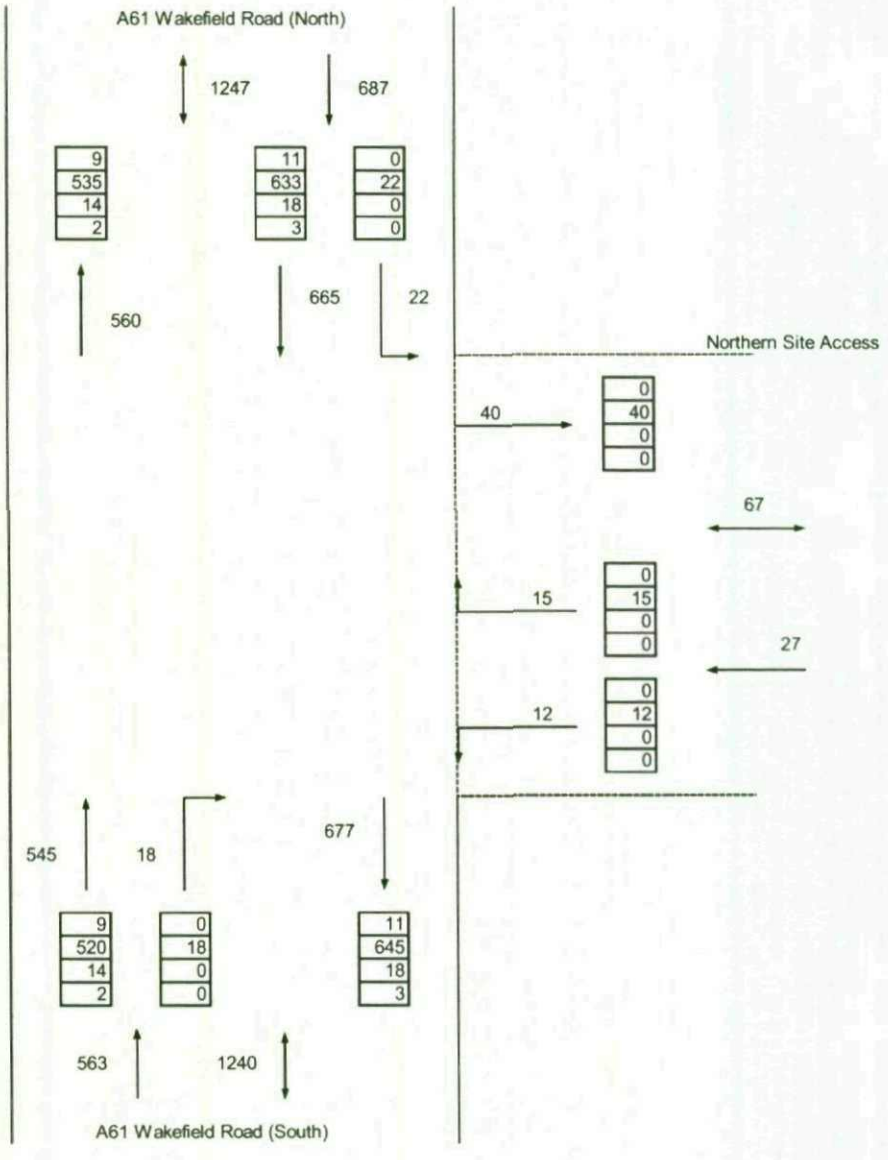


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/NORTHERN SITE ACCESS

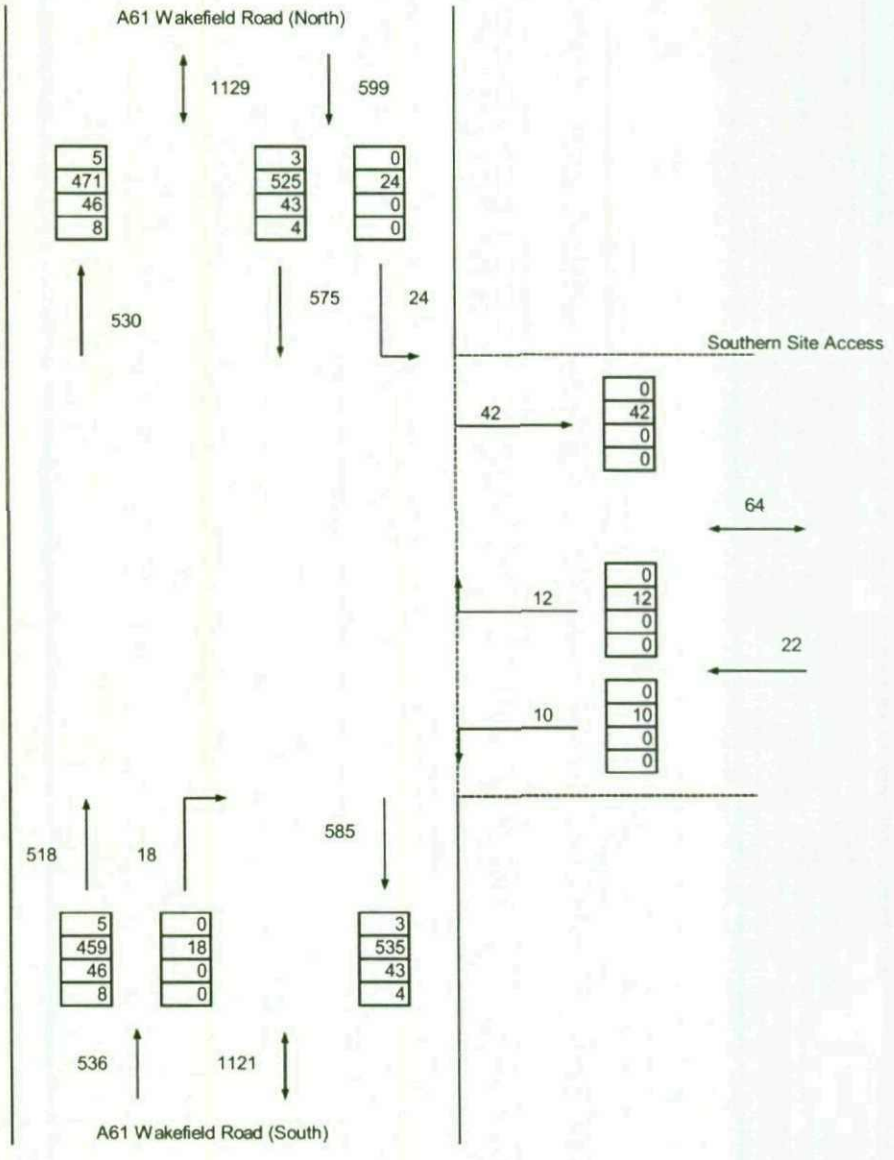
5:00 pm - 6:00 pm



Vehicular Flows
- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/SOUTHERN SITE ACCESS

8:00 am - 9:00 am

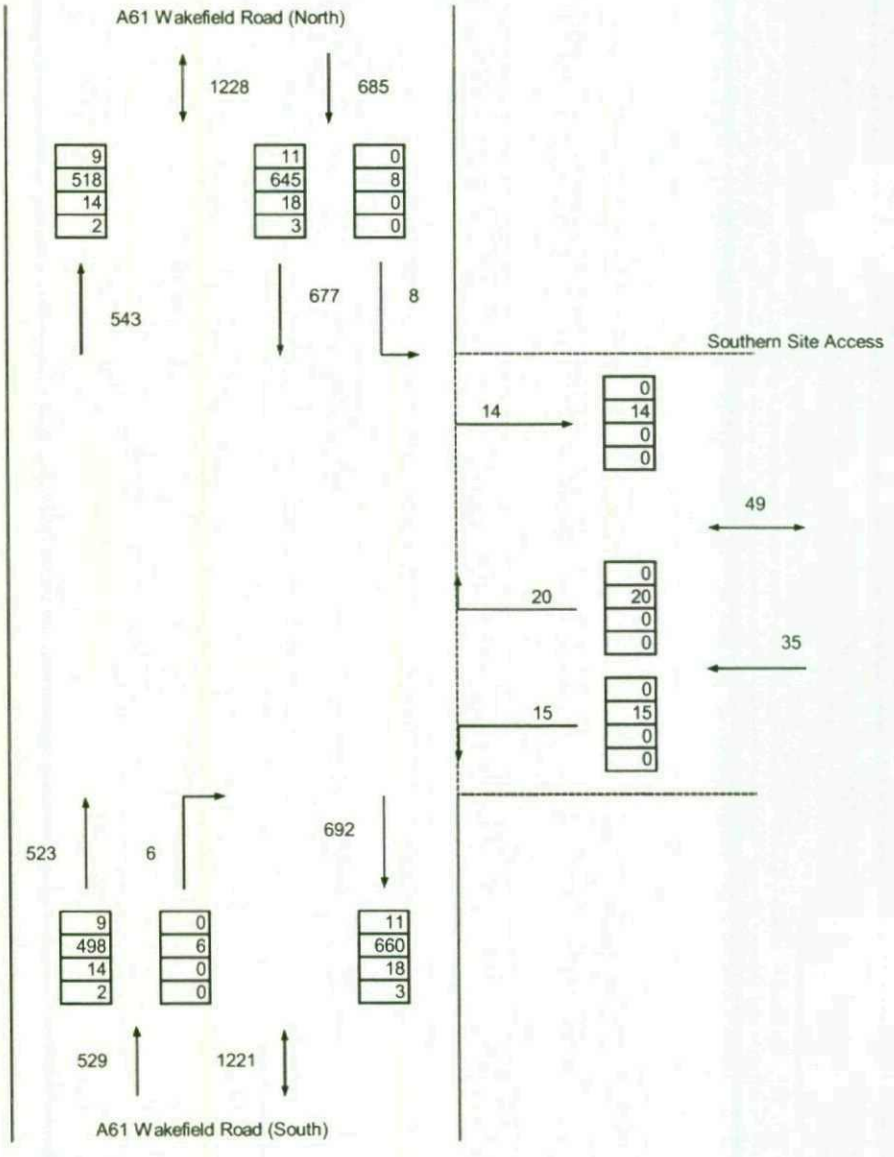


Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

PREDICTED 2014 VEHICULAR FLOWS
WAKEFIELD ROAD/SOUTHERN SITE ACCESS

5:00 pm - 6:00 pm



Vehicular Flows

- Motor cycles and pedal cycles
- Cars and light goods vehicles
- Heavy goods vehicles
- Buses

APPENDIX BGH 17

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 4.0 (SEPT 2008)

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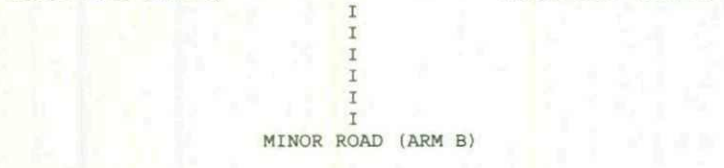
Run with file:-
"Y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Picady\Site Access\
Northern Site Access 2014 Predicted.vpi"
(drive-on-the-left) at 13:56:15 on Thursday, 16 July 2009

RUN INFORMATION
****

RUN TITLE	: Northern Site Access / A61 Wakefield Road - 2014 Predicted
LOCATION	: Mapplewell, Barnsley
DATE	: 15/10/08
CLIENT	: Pipestone Group
ENUMERATOR	: Asmith [AIMEE01]
JOB NUMBER	: 08-334
STATUS	: On-going
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA



ARM A IS A61 Wakefield Road (North)
ARM B IS Northern Site Access
ARM C IS A61 Wakefield Road (South)

STREAM LABELLING CONVENTION

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

GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.60 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 120.00 M.
- BLOCKS TRAFFIC	YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 85.0 M.
- VISIBILITY TO RIGHT	(VB-A) 60.0 M.
- LANE 1 WIDTH	(WB-C) 3.00 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
661.71	0.24	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
535.18	0.23	0.09	0.14	0.33

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
643.46	0.23	0.23

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

TRAFFIC DEMAND DATA

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

Demand set: Site Access / A61 Wakefield Road - 2014 Predicted

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.01	10.52	7.01
ARM B	15.00	45.00	75.00	0.70	1.05	0.70
ARM C	15.00	45.00	75.00	6.78	10.16	6.78

Demand set: Site Access / A61 Wakefield Road - 2014 Predicted

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 08.00		TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S)		
	ARM A	0.000 0.0 (0.0)	0.020 11.0 (0.0)	0.980 550.0 (8.2)
	ARM B	0.554 31.0 (0.0)	0.000 0.0 (0.0)	0.446 25.0 (0.0)
	ARM C	0.985 534.0 (10.1)	0.015 8.0 (0.0)	0.000 0.0 (0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	0.70	7.19	0.098		0.00	0.11	1.5		0.15
C-AB	0.19	13.28	0.014		0.00	0.02	0.2		0.08
C-A	6.62								
A-B	0.14								
A-C	6.90								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	0.84	6.67	0.126		0.11	0.14	2.1		0.17
C-AB	0.25	13.78	0.018		0.02	0.02	0.3		0.07
C-A	7.87								
A-B	0.16								
A-C	8.24								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	1.03	5.93	0.173		0.14	0.21	3.0		0.20
C-AB	0.36	14.47	0.025		0.02	0.03	0.5		0.07
C-A	9.59								
A-B	0.20								
A-C	10.09								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	1.03	5.93	0.173		0.21	0.21	3.1		0.20
C-AB	0.36	14.47	0.025		0.03	0.03	0.5		0.07
C-A	9.59								
A-B	0.20								
A-C	10.09								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.84	6.67	0.126		0.21	0.15	2.3		0.17
C-AB	0.25	13.79	0.018		0.03	0.02	0.3		0.07
C-A	7.87								
A-B	0.16								
A-C	8.24								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.70	7.19	0.098		0.15	0.11	1.7		0.15
C-AB	0.19	13.28	0.014		0.02	0.02	0.2		0.08
C-A	6.61								
A-B	0.14								
A-C	6.90								

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

QUEUE FOR STREAM B-AC

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

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	77.1	51.4	13.7	0.18	13.7	0.18
C-AB	23.7	15.8	2.0	0.09	2.0	0.09
C-A	722.3	481.5				
A-B	15.1	10.1				
A-C	757.0	504.7				
ALL	1595.3	1063.5	15.7	0.01	15.7	0.01

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

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

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
661.71	0.24	0.09

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
535.18	0.23	0.09	0.14	0.33

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
643.46	0.23	0.23

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

TRAFFIC DEMAND DATA

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

Demand set: Site Access / A61 Wakefield Road - 2014 Predicted Demand Set

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	8.59	12.88	8.59
ARM B	15.00	45.00	75.00	0.34	0.51	0.34
ARM C	15.00	45.00	75.00	7.04	10.56	7.04

Demand set: Site Access / A61 Wakefield Road - 2014 Predicted Demand Set

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 17.00	ARM A	0.000 0.0 (0.0)	0.032 22.0 (0.0)	0.968 665.0 (3.1)
	ARM B	0.556 15.0 (0.0)	0.000 0.0 (0.0)	0.444 12.0 (0.0)
	ARM C	0.968 545.0 (2.9)	0.032 18.0 (0.0)	0.000 0.0 (0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	0.34	6.90	0.049		0.00	0.05	0.7		0.15
C-AB	0.43	13.27	0.032		0.00	0.04	0.6		0.08
C-A	6.64								
A-B	0.28								
A-C	8.34								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	0.40	6.32	0.064		0.05	0.07	1.0		0.17
C-AB	0.58	13.79	0.042		0.04	0.06	0.9		0.08
C-A	7.86								
A-B	0.33								
A-C	9.96								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-AC	0.50	5.50	0.090		0.07	0.10	1.4		0.20
C-AB	0.93	14.88	0.063		0.06	0.10	1.6		0.07
C-A	9.40								
A-B	0.40								
A-C	12.20								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	0.50	5.50	0.090		0.10	0.10	1.5		0.20
C-AB	0.94	14.88	0.063		0.10	0.10	1.6		0.07
C-A	9.40								
A-B	0.40								
A-C	12.20								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	0.40	6.32	0.064		0.10	0.07	1.1		0.17
C-AB	0.58	13.79	0.042		0.10	0.06	0.9		0.08
C-A	7.86								
A-B	0.33								
A-C	9.96								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	0.34	6.90	0.049		0.07	0.05	0.8		0.15
C-AB	0.43	13.28	0.032		0.06	0.04	0.7		0.08
C-A	6.64								
A-B	0.28								
A-C	8.34								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.1

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	37.2	24.8	6.5	0.17	6.5	0.17
C-AB	58.2	38.8	6.2	0.11	6.2	0.11
C-A	716.7	477.8				
A-B	30.3	20.2				
A-C	915.3	610.2				
ALL	1757.7	1171.8	12.7	0.01	12.7	0.01

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

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

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

Printed at 13:56:23 on 16/07/2009]

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 4.0 (SEPT 2008)

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Run with file:-
"Y:\2008\08-326 to 08-350\08-334 Wakefield Road, Barnsley\Modelling\Picady\Site Access\
Southern Site Access 2014 Predicted.vpi"
(drive-on-the-left) at 13:57:07 on Thursday, 16 July 2009

RUN INFORMATION
****

RUN TITLE	: Southern Site Access / A61 Wakefield Road - 2014 Predicted
LOCATION	: Mapplewell, Barnsley
DATE	: 15/10/08
CLIENT	: Pipestone Group
ENUMERATOR	: Asmith [AIMEE01]
JOB NUMBER	: 08-334
STATUS	: On-going
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY
****

INPUT DATA

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

ARM A IS A61 Wakefield Road (North)
ARM B IS Southern Site Access
ARM C IS A61 Wakefield Road (South)

STREAM LABELLING CONVENTION

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

GEOMETRIC DATA

DATA ITEM	MINOR ROAD B
TOTAL MAJOR ROAD CARRIAGEWAY WIDTH	(W) 7.60 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B) 120.00 M.
- BLOCKS TRAFFIC	YES
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 66.0 M.
- VISIBILITY TO RIGHT	(VB-A) 80.0 M.
- LANE 1 WIDTH	(WB-C) 3.00 M.
- LANE 2 WIDTH	(WB-A) 0.00 M.

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
674.30	0.24	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
538.90	0.23	0.09	0.15	0.33

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
643.46	0.23	0.23

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

TRAFFIC DEMAND DATA

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

Demand set: Site Access / A61 Wakefield Road - 2014 Predicted

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	7.49	11.23	7.49
ARM B	15.00	45.00	75.00	0.28	0.41	0.28
ARM C	15.00	45.00	75.00	6.70	10.05	6.70

Demand set: Site Access / A61 Wakefield Road - 2014 Predicted

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 08.00	ARM A	0.000	0.040	0.960
		0.0	24.0	575.0
		(0.0)	(0.0)	(8.2)
	ARM B	0.545	0.000	0.455
		12.0	0.0	10.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.966	0.034	0.000
		518.0	18.0	0.0
		(10.2)	(0.0)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-AC	0.28	7.19	0.038		0.00	0.04	0.6		0.14
C-AB	0.41	13.07	0.032		0.00	0.04	0.6		0.08
C-A	6.31								
A-B	0.30								
A-C	7.21								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-AC	0.33	6.64	0.050		0.04	0.05	0.8		0.16
C-AB	0.56	13.54	0.041		0.04	0.06	0.9		0.08
C-A	7.48								
A-B	0.36								
A-C	8.62								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-AC	0.40	5.86	0.069		0.05	0.07	1.1		0.18
C-AB	0.89	14.52	0.061		0.06	0.10	1.5		0.07
C-A	8.95								
A-B	0.44								
A-C	10.55								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-AC	0.40	5.86	0.069		0.07	0.07	1.1		0.18
C-AB	0.89	14.52	0.061		0.10	0.10	1.5		0.07
C-A	8.95								
A-B	0.44								
A-C	10.55								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-AC	0.33	6.64	0.050		0.07	0.05	0.8		0.16
C-AB	0.56	13.54	0.041		0.10	0.06	0.9		0.08
C-A	7.47								
A-B	0.36								
A-C	8.62								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-AC	0.28	7.19	0.038		0.05	0.04	0.6		0.14
C-AB	0.42	13.07	0.032		0.06	0.04	0.6		0.08
C-A	6.31								
A-B	0.30								
A-C	7.21								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.0

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.1
08.30	0.1
08.45	0.1
09.00	0.1
09.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND (VEH)	TOTAL DEMAND (VEH/H)	* QUEUEING * DELAY * (MIN)	* QUEUEING * DELAY * (MIN/VEH)	* INCLUSIVE QUEUEING * DELAY * (MIN)	* INCLUSIVE QUEUEING * DELAY * (MIN/VEH)
B-AC	30.3	20.2	4.9	0.16	4.9	0.16
C-AB	55.8	37.2	6.0	0.11	6.0	0.11
C-A	682.0	454.7				
A-B	33.0	22.0				
A-C	791.4	527.6				
ALL	1592.5	1061.7	11.0	0.01	11.0	0.01

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

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

.SLOPES AND INTERCEPT

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

Intercept For STREAM B-C	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
674.30	0.24	0.10

Intercept For STREAM B-A	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B	Slope For Opposing STREAM C-A	Slope For Opposing STREAM C-B
538.90	0.23	0.09	0.15	0.33

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
643.46	0.23	0.23

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

TRAFFIC DEMAND DATA

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

Demand set: Site Access / A61 Wakefield Road - 2014 Predicted Demand Set

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	8.56	12.84	8.56
ARM B	15.00	45.00	75.00	0.44	0.66	0.44
ARM C	15.00	45.00	75.00	6.61	9.92	6.61

Demand set: Site Access / A61 Wakefield Road - 2014 Predicted Demand Set

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 17.00				
	ARM A	0.000	0.012	0.988
		0.0	8.0	677.0
		(0.0)	(0.0)	(3.1)
	ARM B	0.571	0.000	0.429
		20.0	0.0	15.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.989	0.011	0.000
		523.0	6.0	0.0
		(2.9)	(0.0)	(0.0)

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

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.45-17.00									
B-AC	0.44	6.98	0.063		0.00	0.07	1.0		0.15
C-AB	0.14	13.11	0.011		0.00	0.01	0.2		0.08
C-A	6.50								
A-B	0.10								
A-C	8.49								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-AC	0.52	6.41	0.082		0.07	0.09	1.3		0.17
C-AB	0.19	13.59	0.014		0.01	0.02	0.2		0.07
C-A	7.74								
A-B	0.12								
A-C	10.14								

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-AC	0.64	5.60	0.115		0.09	0.13	1.9		0.20
C-AB	0.27	14.26	0.019		0.02	0.02	0.3		0.07
C-A	9.44								
A-B	0.15								
A-C	12.42								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-AC	0.64	5.60	0.115		0.13	0.13	1.9		0.20
C-AB	0.27	14.26	0.019		0.02	0.02	0.3		0.07
C-A	9.44								
A-B	0.15								
A-C	12.42								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-AC	0.52	6.41	0.082		0.13	0.09	1.4		0.17
C-AB	0.19	13.59	0.014		0.02	0.02	0.2		0.07
C-A	7.74								
A-B	0.12								
A-C	10.14								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-AC	0.44	6.98	0.063		0.09	0.07	1.0		0.15
C-AB	0.14	13.11	0.011		0.02	0.01	0.2		0.08
C-A	6.50								
A-B	0.10								
A-C	8.49								

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

QUEUE FOR STREAM B-AC

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.1
17.15	0.1
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.1

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-AC	48.2	32.1	8.5	0.18	8.5	0.18
C-AB	18.0	12.0	1.5	0.08	1.5	0.08
C-A	710.2	473.4				
A-B	11.0	7.3				
A-C	931.8	621.2				
ALL	1719.2	1146.1	10.0	0.01	10.0	0.01

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

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

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

Printed at 13:57:16 on 16/07/2009]