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Prepared on behalf of

Harron Homes Ltd.

**Proposed Residential Development at Merchant Fields,
Kilroyd Drive / Hunsworth Lane, Cleckheaton**

Transport Assessment

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Acknowledgements:

Personal Injury Accident Data has been obtained from Leeds City Council

The TRICS database v7.3.2 has been used in this report to calculate traffic generations.

TEMPro 7 has been used to obtain traffic growth rates

Origin / Destination Statistics have been extracted from the NOMIS website (Dataset: WU03EW) to assign development traffic to the local highway network.

Disclaimer

The methodology adopted and the sources of information used by Sanderson Associates (Consulting Engineers) Ltd in providing its services are outlined within this Report.

Any information provided by third parties and referred to herein has not been checked or verified by Sanderson Associates (Consulting Engineers) Ltd, unless otherwise expressly stated within this report.

This report was checked and approved on the 16th December 2016 and the Report is therefore valid on this date, circumstances, regulations and professional standards do change which could subsequently affect the validity of this Report.

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Author:	Brett Littlewood		
Checked & Approved:	David Colley	**Date:**	16th December 2016

Contents

Page No

Appendices

APPENDIX A

Figure 1: Site Location Plan

Figure 2: Walking Plan

Figure 3: Cycling Plan

Figure 4: Public Transport Plan

Figure 5: 2014 Traffic Flows

Figure 6: 2017 Design Year Traffic Flows

Figure 7: 2023 Design Year Traffic Flows

Figure 8: Development Traffic Distribution %

Figure 9: Development Traffic

APPENDIX B

Scoping Response

APPENDIX C

Council Response

APPENDIX D

Traffic Survey Data

APPENDIX E

Accident Data

APPENDIX F

Drawing 9089-001 (subject to RSA) – Proposed Access Arrangement

APPENDIX G

Road Safety Audit

APPENDIX H

Designers Response

APPENDIX I

9529-001: Junction Improvement Plan

9529-002 Rev B: Proposed Access Arrangement

APPENDIX J

TRICS Data

APPENDIX K

Census Information

APPENDIX L

Kilroyd Drive / A58 Whitehall Road PICADY

APPENDIX M

B6121 Hunsworth Lane / Proposed Access PICADY

APPENDIX N

A58/A651 Roundabout ARCADY

APPENDIX O

A58/Whitehall Road /B6121 Hunsworth Lane LinSig

APPENDIX P

A638 Bradford Road /B6121 Hunsworth Lane LinSig

1 Introduction

1.1 Sanderson Associates (Consulting Engineers) Limited have been appointed by Harron Homes to advise on the transport elements of a proposed residential development at land off Kilroyd Drive / Hunsworth Lane, Cleckheaton. A site location plan can be found at **Appendix A, (Figure 1)**.

1.2 A Scoping Study was submitted to Kirklees Metropolitan Council and Highways England in May 2014 with a view to agreeing the content of a report to support a Planning Application. The Scoping Study allowed for a proposed residential development of approximately 312 dwellings with a mix of dwelling sizes and types, at a density of approximately 25 dwellings per hectare.

1.3 Kirklees Metropolitan Council and Highways England generally agreed with the findings of the Scoping Study and a copy of their response is included in **Appendix B**. The scope of junction counts and likely junction capacity assessments was discussed and the following junctions would need consideration as part of any planning application:

- A58 Whitehall Road / B6121 Hunsworth Lane (Signal Controlled)
- A638 Bradford Road / B6121 Hunsworth Lane (Signal Controlled)
- Kilroyd Drive / A58 Whitehall Road (Priority Junction)
- B6121 Hunsworth Lane / Proposed Site Access (Priority Junction)
- A58 Whitehall Road / A651 Bradford Road (Roundabout)

1.4 With regard to assessment of the Chainbar Motorway junction Highways England indicated that they had a committed scheme of improvements at Chain Bar roundabout (under construction January 2016) and from the traffic distribution presented in the scoping study this particular development would not trigger the need for any further interventions. A subsequent Transport Assessment prepared to support a planning applicant should confirm the evidence submitted within the scoping study.

1.5 Following scoping, a Transport Assessment (*ref: 9089-001-02*) was submitted to the Council as part of the site allocation process. The application was reviewed and the Council responded with a set of comments, which are included at **Appendix C**. Since then there has been further correspondence regarding the form of access from Hunsworth Lane and the parameters for junction capacity modelling. This has culminated in the preparation of this revised Transport Assessment.

1.6 This revised Transport Assessment seeks to address the Council's comments and considers the following aspects in relation to the latest proposals:

- the local highway network and its road traffic accident record;
- the access arrangements to the proposed development;
- the proposed development and its operational characteristics;
- the impact of the development on the local highway network in terms of highway safety and capacity at the site access;
- the accessibility of the site in relation to sustainable transport and local facilities and means to encourage the use of sustainable transport.
- the overall residual cumulative impact of the development in transport terms

1.7 It also examines the transport implications of the proposed development taking into account whether the following objectives, included in para' 32 of the National Policy Planning Framework (NPPF), are met:

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

- *The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure.*
- *Safe and suitable access to the site can be achieved for all people, and*

- *Improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of developments are severe.*

1.8 The site is included in Kirklees Council's *Publication Draft Local Plan (Nov 2016)*, under reference H69. The development use is residential and no employment uses are expected on the allocation.

2 Existing Situation

2.1 The Development Site

2.1.1 The site lies approximately 1.2 km to the north of Cleckheaton Town Centre, and is located to the east of the B6121 Hunsworth Lane and south east of Whitehall Road (A58). Vehicular access is taken from Kilroyd Drive which serves an existing complex of farm buildings and associated residential accommodation.

2.1.2 The site has an area of about 31 Acres (12.5 Hectares) and is bound by a combination of residential properties served via Links Avenue / Kilroyd Avenue and Brookfield View (to the south), agricultural land to the east, industrial properties and the B6121 Hunsworth Lane to the south west.

2.1.3 A definitive public footpath (FP No. Spe/41/10 and Spe/41/20) runs along the southern boundary between Hunsworth Lane and Kestrel View. Definitive public footpath (FP No. Spe/44/30) runs along the eastern boundary from Mazebrook Avenue in the north to Brookfields View in the south.

2.2 Local Highway Network

2.2.1 Hunsworth Lane the B6121 is a single, all-purpose carriageway which is subject to a speed limit of 30mph. It links between the A638 Bradford Road in the south west and Whitehall Road A58 in the north and is some 600m in length between these junctions. Both of the connections to the principal road network are signalised.

2.2.2 Kilroyd Drive forms a priority junction with Whitehall Road (A58) and is provided with a right turn lane. Kilroyd Drive is a residential street and serves the site and also Kilroyd Avenue with 76 properties plus the farm complex.

2.2.3 Whitehall Road joins to Junction 26 of the M62, known locally as Chain Bar, which forms a large signalised roundabout interchange with the local road network (A58 Whitehall Road (east and west arms), A638 Bradford Road (north and south arms), the M606 and M62.

2.2.4 Highways England are currently improving the M62 Junction 26 Chain Bar Roundabout. The improvements are scheduled from May 2015 until autumn 2016. The scheme is to improve traffic flow and reduce congestion and delays for the traveling public. The improvements consist of the following:

- Widening the roundabout running lanes from 3 to 4 to improve traffic capacity
- Improving the traffic signal configuration to improve flows
- Providing new lane markings and signs to make driving around the roundabout safer

2.2.5 Whitehall Road is a classified single carriageway. It is lit to main road standard and in the vicinity of the site (Kilroyd Drive) is subject to a 40mph speed restriction. In the north east Whitehall Road crosses the A651 Bradford Road which joins to the A650 in the north leading to Bradford (some 6.7km to the north) and in the south leads to Heckmondwike. The A58 carries on through Drighlington to Leeds some 12.3km to the north east.

2.3 Traffic Survey Data

2.3.1 A peak hour traffic survey was undertaken at the junction of Kilroyd Drive with the A58 Whitehall Road on Thursday 1st May 2014. Fully Classified turning count and through flow traffic was recorded. The junction was surveyed between the hours of 0700 to 0900 and 1600 to 1800, from this data its peaks hours of 0745-0845 and 1600-1700 have been identified. A copy of the traffic count results is included in **Appendix D**.

2.3.2 To determine the current levels of traffic on the surrounding highway network traffic surveys were undertaken at the following junctions:

- A58 Whitehall Road / B6121 Hunsworth Lane (Signal Controlled)
- A638 Bradford Road / B6121 Hunsworth Lane (Signal Controlled)
- A58 Whitehall Road / A651 Bradford Road (Roundabout)

2.3.3 The surveys were undertaken on Wednesday 25th June 2014 between 0700–0930hrs in the morning and 1600–1830hrs in the evening. From this data the peak hours on the network has been identified as 0730-0830hrs and 1630-1730hrs.

2.3.4 An Automatic Traffic Count (ATC) was carried out along Hunsworth Lane in the vicinity of the proposed site access on this road for a 7 day period between the 19th June 2014 and 25th June 2014. In addition to traffic flow, the ATC also recorded vehicle speeds in both directions in proximity to the location of the proposed site access. The recorded 7 day average 85th percentile speeds can be summarised as follows;

Northbound: 35.0mph

Southbound: 36.0mph

2.3.5 To take account of the downhill gradient for southbound traffic flows on Hunsworth Lane the Council consider that a visibility splay of 2.4m x 70m would be appropriate. A visibility splay of 2.4m x 48m to the left (south) is considered appropriate.

2.3.6 An additional radar speed survey was carried out on Wednesday 7th September 2016 of 100 northbound vehicles on approach to the proposed site access. The survey was undertaken in fine, dry conditions and identified an 85th percentile wet weather speed of 32.3mph. Using the stopping sight distances calculated using guidance contained in Manual for Streets 2, the required stopping sight distance equates to 48m.

2.3.7 The 5 day average of the traffic flows on Hunsworth Lane from the ATC are as follows: -

	Northbound	Southbound	Total 2-way
AM 0800 - 0900	306	273	579
PM 1700 - 1800	308	299	607

2.3.8 Full details of the traffic surveys are included at Appendix D of this report with the peak hour flows shown on **Figure 5** at **Appendix A**.

2.4 Personal Injury Accidents

2.4.1 Accident data has been obtained from Leeds City Council, which includes all incidents recorded within the study area in the last 5 year period. The study area is shown along with a full copy of the accident data, at **Appendix E**.

2.4.2 From the information provided 14 incidents have been recorded within the study area. Of which, 12 were classified as being 'slight' in severity, and 2 were 'serious' incidents. No fatal incidents have been recorded.

2.4.3 A summary of the data, and brief descriptions of the serious incidents are provided as follows:

	2011		2012		2013		2014		2015		2016		Total
	Sl	Se	Sl	Se	Sl	Se	Sl	Se	Sl	Se	Sl	Se	
Pedestrian													0
Cyclist					1								1
Rear Shunt	1				1		1		1				4
Changing Lanes	1		1										2
Loss of Control			1			1	1		1				4
Right Turn					1								1
Failed to Give Way					1								1
Poor Manoeuvre								1					1
Total	2	0	2	0	4	1	2	1	2	0	0	0	**14**

Table 2.4.3: Accident Data Summary – Year, Severity & Type

2.4.4 Serious incident ref: 130329776 occurred on 10/08/2013 at 01:03AM along Hunsworth Lane. The incident involved one vehicle (a car) losing control whilst negotiating a right-hand bend. The contributory factors recorded by the Police state that the driver of the vehicle was found to be impaired by alcohol.

2.4.5 Serious incident ref: 17A0213 occurred on 10/07/2014 at 06:10AM along Whitehall Road in proximity to Chain Bar roundabout. The incident involved a taxi (with fare) exiting the roundabout in an eastbound direction, then performing a "U-turn" manoeuvre to get to the layby on the opposite side of the carriageway. The driver of the taxi failed to notice a motorcycle travelling westbound, towards the roundabout, which resulted in a collision between the two and one further, unoccupied vehicle in the layby. Serious injuries were sustained by the rider of the motorcycle.

2.4.6 In terms of location; 7 incidents occurred on, or in close proximity to the Chain Bar motorway roundabout, 2 occurred on Bradford Road, 2 took place on Whitehall Road in between Chain Bar and Kilroyd Drive, 2 occurred at the Kilroyd Drive junction, and 1 occurred on Hunsworth Lane.

2.4.7 It is considered that over a 5 year period there are no significant accident trends in terms of either type or location.

3 Development Potential

3.1 Size and Description of the Proposal

3.1.1 This Transport Assessment is currently based on a residential development comprising 300 - 360 dwellings for assessment purposes.

3.1.2 It is considered that any development will consist of 2 to 4 bedroom houses, with proportion of dwellings allocated as affordable housing. The internal layout will also accommodate areas of public open space and landscaping together with other development constraints as design progresses.

3.2 Potential Site Access

3.2.1 Access to the site will be provided from an extension off Kilroyd Drive off the A58 Whitehall Road, as well as a new priority junction served off the B6121 Hunsworth Lane.

3.2.2 As requested in comments received from the Local Authority a Safety Audit took place on site on Friday 2nd September 2016 of a left in left our access arrangement. A copy of the access drawing 9089-001 that was subject to the Audit is included in **Appendix F**. A copy of the Road Safety Audit regarding this is included at **Appendix G.**

3.2.3 A Designers Response to the issues raised in the Road Safety Audit has been prepared and is included at **Appendix H**. As a result of the RSA an all movement access onto Hunsworth Lane was proposed (drawing 9529-002) and included in the Designers Response. Following further correspondence with the Council amendments were made to this drawing and the latest access proposal (drawing 9529-002 rev B) is included at **Appendix I**. The access provides 3.5m lanes for through traffic on Hunsworth Lane, and a 3.0m ghost right turn lane to assist vehicle movements turning right into the site. A pedestrian refuge island has been included just to the north of the proposed access.

3.2.4 Adequate stopping sight distance is provided for northbound vehicles to right turning vehicles waiting to enter the site, which equates to 48m based on the results of the radar speed survey undertaken on 7th September 2016.

3.2.5 2.0m footways are provided on both sides of the proposed access and along the site frontage which tie in with existing provisions on Hunsworth Lane. The footway to the north of the site access will be widened marginally to accommodate the visibility splay to the right.

3.2.6 Over-hanging trees / foliage will be cut-back and managed as part of the landscaping proposals for the development.

3.2.7 The Council have indicated in correspondence that the access road should not exceed gradients of more than 1 in 40 (2.5%) for the initial 12.0m with internal gradients being 1 in 20 (5%) and not exceeding 1 in 10 (10%). This has been investigated, based on an initial gradient of 1 in 40 for 12m, a 20m long vertical curve leading into gradients of between 1 in 20 and 1 in 10 which is considered achievable.

3.2.8 The access proposal (drawing 9529-002 rev B) included at **Appendix I** shows the swept path analysis of a 4 axle refuse vehicle 11.987m long responding to a request by the council to consider a vehicle 11.85m in length. Reference to Manual for Streets 1, paragraph 6.8.7 states that BS5906: 2005 indicates that the largest waste vehicles currently in use are around 11.6m long and therefore the swept analysis is considered robust.

4 Sustainable Travel

4.1 Introduction

4.1.1 This section of the report considers the accessibility of the development by the following modes of transport;

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

4.2 Accessibility on Foot

4.2.1 Walking is the most important mode of transport in the local level and can replace short car trips in journeys under 2km, which contribute to congestion and pollution, and the need for car parking. Walking is the most sustainable form of transport and provides one way of reducing pressure on the environment. People walking are also travelling at a pace that gives them a greater connection with their surroundings and can have positive benefits in relation to a community's security through increased surveillance.

4.2.2 Walking stimulates both personal health and the health of communities and local economies. Government health improvement advice states that just 30 minutes brisk walking 5 times a week can bring about significant reductions in the risk of coronary heart disease, high blood pressure and diabetes.

4.2.3 In relation to acceptable walking distances, Manual for Streets is the latest national guidance on the design of residential roads and offers the following guidance in Section 4.4 "The walkable neighbourhood".

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

4.2.4 It is noted that PPS 13 has been superseded by NPPF but the general guidance offered in PPG13 is considered relevant.

4.2.5 **Appendix A (Figure 2)** identifies 800m and 2000m walking radii from the site. It is noted that walking routes will not follow the simple radius of this plan and the plan is provided as an indication of where destinations lie and the general extent to which the local area can be accessed on foot.

4.2.6 Within an 800m walking distance of the site there are bus stops located at the end of Kilroyd Drive, approximately 190m north of the site. Also within 800m are facilities such as Cleckheaton Sports Club, 'The Silver Birch' & 'The Hunsworth' pub / restaurants, as well as Greggs, Subway and Starbucks Coffee shop.

4.2.7 Illuminated footways are provided on the surrounding street. It is therefore considered that local facilities are particularly accessible by pedestrians with a wide range of key amenities within a "walking neighbourhood" from the site.

4.3 Accessibility by Cycle

4.3.1 Like walking, cycling has an important part to play in reducing congestion, improving accessibility and reducing pollution. A further benefit of cycling is linked to increased general health and fitness which has personal benefits as well as economic benefits for the nation in terms of health service costs. The bicycle is generally more affordable than the car and hence there are social equity benefits to the promotion of cycling. Cycling may also allow people without cars to reach destinations that they may otherwise be unable to reach.

4.3.2 In relation to the application site; cycling distances from local residential centres within 5km, along with the corresponding cycle time based on 12 km per hour are as follows. The plan at **Appendix A** (**Figure 3**) indicates destinations which lie within a 5.0km radius of the application site. It is noted that cycling will not follow the simple radius of this plan and the plan is provided as an indication of where destinations lie and the general extent to which the site is accessible by cycle.

Origin/Destination	Distance	Time
Drub	1.3km	8 minutes
Cleckheaton	2.7km	10 minutes
Gomersal	3.0km	17 minutes
Birkenshaw	3.1km	18 minutes
Scholes	3.3km	18 minutes
Liversedge	4.4km	17 minutes
Birstall	4.6km	22 minutes

4.3.3 The local road network is suitable for cycling and the adjacent streets are shown on the Sustrans cycle map as suggested quieter routes including the NCN66 avoiding busy main roads.

4.3.4 The site is accessible by cycle and cycle parking for will be provided in accordance with current guidelines.

4.4 Bus Travel

4.4.1 The closest bus stops to the site are located along Whitehall Road, Hunsworth Lane and Bradford Road within 400m of the site boundaries. **Appendix A (Figure 4)** details the location of these stops and a summary of the services are as follows;

Whitehall Road West / Kilroyd Drive

Stop Reference:	45015448
Direction of Travel:	Buses travelling Westbound
Facilities:	Bus Timetable, Shelter with seating, Layby
Bus services:	225, 259

Stop Reference:	45015449
Direction of Travel:	Buses travelling Eastbound
Facilities:	Bus Timetable, Pole, Layby
Bus services:	256, X25

Hunsworth Lane

Stop Reference:	45015471
Direction of Travel:	Buses travelling Westbound
Facilities:	Bus Timetable, Pole stop
Bus services:	225, 256, 259

Stop Reference:	45015472
Direction of Travel:	Buses travelling Eastbound
Facilities:	Bus Timetable, Pole stop
Bus services:	256, 259, X25

Bradford Road

Stop Reference: 45015500
Direction of Travel: Buses travelling Southbound
Facilities: Shelter with seating, timetable, raised kerb and road markings
Bus services: 225, 256, 259, MAX 268 / 268A

Stop Reference: 45016701
Direction of Travel: Buses travelling Northbound
Facilities: Shelter with seating, timetable, raised kerb and road markings
Bus services: 256, 259, MAX 268/268A, X25

Summary of services		Frequency		
Route Number	**Overall Route**	**Daytime Frequency (Mon - Sat)**	**Evening Frequency (Mon – Sat)**	**Sunday Frequency**
225	Halifax Bus Station - Wyke Towngate - Cleckheaton Bus Station - Leeds City Bus Station	Irregular	None	None
X25	Brighouse Bus Station - Cleckheaton Bus Station- Leeds City Bus Station	Once per day 07:42 towards Leeds	-	-
256	Brighouse Bus Station - Cleckheaton Bus Station - Bradford Interchange	60 min (0609, 14:39-17:49)	-	-
259	Brighouse – Clifton – Hartshead – Scholes – Cleckheaton – Hunsworth – East Bierley	60 min (10:29–14:29)	-	-
MAX 268 /268A	Bradford – Cleckheaton - Dewsbury (268 extends to Wakefield)	10 mins	15 – 30 mins (268A only)	30 mins (268A only)

Table 4.4.1 – Summary of Bus Services

4.4.2 As can be seen from the previous table, there are services that can be used to access Brighouse, Leeds, Halifax and Cleckheaton, where a greater array of public transport options are available.

4.4.3 Cleckheaton Bus Station is visited by all the bus services mentioned in the table above. Collectively, these services are frequent (notably bus Nº 268/268A operates at 10 minutes intervals during the daytime) and the journey time between the site and the bus station is approximately 5 minutes. Multiple additional bus services serve Cleckheaton Bus Station, as such this facility is considered to be an accessible interchange which can be utilised by future residents.

4.5 Rail Travel

4.5.1 The closest train station to the development site is Brighouse and located approximately 8.8km north of the site.

4.5.2 Brighouse Railway Station under the management of Northern Rail. It has two platforms which have seating areas. The station has three cycle storage spaces. The station is accessible from the site by bus and by car, with a provision of a 65 space car park which is available free of charge.

4.6 Accessibility Summary

4.6.1 The site is accessible by both “active transport” to local facilities and amenities and to public passenger transport arrangements. As such residents, staff and visitors to the development will have a choice of sustainable travel options which will help reduce the need to travel by car.

5 Multimodal Trip Generations

5.1 The TRICS database (v7.3.2) has been used to predict the multimodal trip generation potential of the residential development. The full TRICS outputs are contained in **Appendix J**.

5.2 The TRICS search parameters have been refined to closely match the location and characteristics of the development site. The selection criteria is summarised below:

Land Use: 03 – Residential

Category: A – Houses privately owned

Selected Regions and Areas: Greater London and Ireland excluded

Parameter: Number of dwellings

Range: 100 – 500 dwellings (average 186 dwellings)

Date Range: 01/01/05 – 25/09/15

Selected Survey Days: Weekends excluded

Selected Locations: Suburban Area, Edge of Town and Neighbourhood Centre

Travel Plans: 1 of the 20 surveys was undertaken with a Travel Plan in place

5.3 The following provides details of the multimodal two-way trip rates along with the corresponding modal percentage split based on an assessment quantum of 360 dwellings. The data has been split between AM (0800-0900) and PM (1700-1800) weekday periods. A separate 24 hour modal trip rate has also been provided.

	Mode of Travel	Trip Rate	Modal Split %	Generations
AM Peak Period	Pedestrians	0.175	17.8%	63
	Cyclists	0.015	1.5%	5
	Public Transport Users	0.017	1.7%	6
	Vehicle Occupants	0.772	78.7%	278
	Total People Trips	0.981	100.0%	353
PM Peak Period	Pedestrians	0.09	9.7%	32
	Cyclists	0.018	1.9%	6
	Public Transport Users	0.014	1.5%	5
	Vehicle Occupants	0.803	86.8%	289
	Total People Trips	0.925	100.0%	333
Daily	Pedestrians	1.138	14.1%	410
	Cyclists	0.125	1.5%	45
	Public Transport Users	0.125	1.5%	45
	Vehicle Occupants	6.701	82.8%	2412
	Total People Trips	8.095	100.0%	2914

Table 5.3: Multimodal Trip Rates and Percentage Split (360 dwellings)

5.4 Based on the TRICS data the development could be expected to generate 21.3% of trips by walking, cycling and public transport modes in the AM peak hour and 13.2% in the PM peak hour. Over a 24 hour weekday period 17.2% of travel could be by sustainable modes.

5.5 This modal split has been compared to the 2011 Census travel to work data for the Kirklees 003 middle super output area (MSOA) in which the site is located, Kirklees and England, as summarised in the table overleaf:

	Kirklees 003	Kirklees	England
Method of Travel to Work	**% working**	**% working**	**% working**
Work Mainly at or From Home	4.6	4.5	5.4
Underground, Metro, Light Rail, Tram	0.1	0.1	4.1
Train	0.8	2.8	5.3
Bus, Minibus or Coach	6.3	7.9	7.5
Taxi	0.4	0.9	0.5
Motorcycle, Scooter or Moped	1.0	0.7	0.8
Driving a Car or Van	73.4	65.3	57.0
Passenger in a Car or Van	6.4	6.5	5.0
Bicycle	0.9	1.0	3.0
On Foot	5.8	9.9	10.7
Other Method of Travel to Work	0.3	0.5	0.6

Table 5.5 – 2011 Census: Method of Travel to Work Data

5.6 The data in the table above indicates that in the Kirklees 003 MSOA, 79.8% of people travel to work in a car or van as either the driver or passenger. This suggests that the modal split identified in Table 5.3 (82.8% daily vehicle occupants) is in the order of existing travel patterns and as such is a realistic prediction of potential trip generations.

5.7 It is considered that the additional demand for walking, cycling and public transport can be readily accommodated within the existing transport infrastructure

6 Traffic Impact Assessment

6.1 Growth Rates

6.1.1 To establish the likely growth in traffic flow for an opening year of 2017 and a future year of 2023 (year of application plus 6 years) the computer program TEMPro 7.0 with Data Set 7.0 has been utilised in conjunction with Data Set AF15 of the National Transport Model. The growth factors from a base year of 2014 (date of traffic surveys) to 2017 and 2023 are as follows:-

		Local Growth Figure			
		2014-2017		2014-2023	
Level	Area	AM	PM	AM	PM
E02002273	Kirklees 003	1.0269	1.0289	1.1080	1.1117

Table 6.1.1: Summary of TEMPro Growth Factors

6.1.2 Base traffic flow diagrams for the opening year of 2017 and a future year of 2023 are included on **Figure 6** and **Figure 7** respectively at **Appendix A**.

6.2 Proposed Traffic Generations

6.2.1 In order to predict the vehicular traffic generation potential of the proposed development, the TRICS database has been utilised to derive representative trip rates. The same search parameters were used as described in paragraph 5.2 and the resulting sites were ranked in order to identify 85th percentile trip rates.

6.2.2 The 85th percentile trip rates have been applied to a quantum of 360 dwellings (the largest number of dwellings proposed), therefore the following vehicle trip generations are considered to be robust;

	Arrivals	Departures	Arrivals	Departures	Total
AM	0.243	0.491	87	177	264
PM	0.463	0.296	167	107	273

Table 6.2.2 – 85th Percentile Trip Generations for 360 Dwellings

6.3 Traffic Distribution

6.3.1 To give an indication of the direction of traffic to and from the development, Origin / Destination statistics have been used from the 2011 Census data at 'Middle Super Output Area Level' (MSOA). This data identifies the existing travel to work patterns of residents within the sites representative MSOA, which for reference is 'Kirklees 003'.

6.3.2 The MSOA data has been sorted and refined to exclude MSOA's which attract less than 4 trips. The excluded data includes numerous destinations which are significantly remote from the site and therefore it is considered unreasonable to include all MSOA's within the assessment. A copy of the used sample data and is provided at **Appendix K**.

6.3.3 Traffic has been distributed to / from the site via the two potential accesses described earlier in section 3.2. A connection will be provided between the two accesses within the site to allow residents to use either access, however the internal site layout will be designed to discourage rat-running, with a prohibition on access by none domestic HGV traffic.

6.3.4 For the purpose of distributing the residential traffic, the following principles have been applied:

- All traffic arriving / departing via Whitechapel Road and Bradford Road (S) would enter / exit the site via the access on Hunsworth Lane.

- All traffic arriving / departing to the east via the A651 / A58 roundabout would enter / exit the site via Kilroyd Drive.

- Traffic via Chain Bar roundabout (M62: Junction 26): Departures have been split 50/50 between the Hunsworth Lane / Kilroyd Drive accesses, with the traffic departing via Hunsworth Lane split 50/50 between the Hunsworth Lane / A58 junction and the Hunsworth Lane / Bradford Road junction. Arrivals will also split 50/50 between the two proposed access, however all arrivals will go through the Hunsworth Lane / A58 junction.

- The remaining traffic - which comprises a small percentage destined to the employment area situated to the north-west of the site has been distributed 50/50 between Kilroyd Drive and Hunsworth Lane (via A58 junction).

6.3.5 **Figures 8** and **9** at **Appendix A** illustrate the % distributions and the resulting traffic generations for 360 dwellings, respectively.

7 Junction Modelling

7.1 The following junctions have been analysed as part of this assessment :-

1. Kilroyd Drive / A58 Whitehall Road (Priority Junction)
2. B6121 Hunsworth Lane / Proposed Site Access (Priority Junction)
3. A58 Whitehall Road / A651 Bradford Road (Roundabout Junction)
4. A58 Whitehall Road / Hunsworth Lane (Signalised Junction)
5. Hunsworth Lane / A638 Bradford Road (Signalised Junction)

7.2 The computer program, PICADY 5, has been used to model junctions 1 & 2, in order to assess the capacity, queuing and delay experienced at the proposed accesses.

7.3 In order to ascertain the level of impact the proposed development will have at the site accesses, they have been assessed using a base year of 2017, to coincide with the year of submission of the application, and design year of 2023 to allow for the development of around 60 dwellings per year. Base traffic flows are shown on Figures 6 and 7 with development traffic flows shown on Figure 9.

7.4 PICADY Assessments of Priority Junctions

Kilroyd Drive / A58 Whitehall Road

Arm A = A58 Whitehall Road East
Arm B = Kilroyd Drive
Arm C = A58 Whitehall Road West

	Weekday AM Peak		Weekday PM Peak	
	RFC	Queue	RFC	Queue
B – C	0.047	0.05	0.006	0.01
B - A	0.065	0.07	0.037	0.04
C - AB	0.014	0.01	0.033	0.03

Table 7.4(a) - 2017 Base Traffic

	Weekday AM Peak		Weekday PM Peak	
	RFC	Queue	RFC	Queue
B – C	0.051	0.05	0.007	0.01
B - A	0.086	0.09	0.053	0.06
C - AB	0.017	0.02	0.039	0.04

Table 7.4(b) - 2023 Base Traffic

	Weekday AM Peak		Weekday PM Peak	
	RFC	Queue	RFC	Queue
B – C	0.143	0.17	0.065	0.07
B - A	0.381	0.60	0.277	0.37
C - AB	0.065	0.07	0.134	0.15

Table 7.4(c) - 2017 Base Traffic + Development Flows

	Weekday AM Peak		Weekday PM Peak	
	RFC	Queue	RFC	Queue
B – C	0.155	0.18	0.070	0.07
B - A	0.460	0.82	0.359	0.54
C - AB	0.070	0.07	0.145	0.17

Table 7.4(d) - 2023 Base Traffic + Development Flows

7.4.1 From the above tables, it can be seen that there are no adverse queuing or capacity problems at the priority junction given that the ratio of flow to capacity (RFC) is well below 0.85. Sufficient spare capacity is available within this junction. The output results can be found in **Appendix L**.

B6121 Hunsworth Lane / Proposed Site Access

Arm A = B6121 Hunsworth Lane East
Arm B = Proposed Site Access
Arm C = B6121 Hunsworth Lane West

The base traffic flows on Hunsworth Lane used in this analysis utilises the data from the ATC with the HGV% calculated from the Hunsworth Lane / Whitehall Road flows.

	Weekday AM Peak		Weekday PM Peak	
	RFC	Queue	RFC	Queue
B – C	0.098	0.11	0.059	0.06
B – A	0.062	0.07	0.039	0.04
C - AB	0.031	0.3	0.062	0.07

Table 7.4(e) - 2017 Base Traffic + Development Flows

	Weekday AM Peak		Weekday PM Peak	
	RFC	Queue	RFC	Queue
B – C	0.099	0.11	0.060	0.06
B – A	0.064	0.07	0.040	0.04
C - AB	0.032	0.03	0.063	0.07

Table 7.4(f) - 2023 Base Traffic + Development Flows

7.4.2 From the above tables, it can be seen that there are no adverse queuing or capacity problems at the priority junction given that the ratio of flow to capacity (RFC) is well below 0.85. Sufficient spare capacity is available within this junction. The output results can be found in **Appendix M**.

7.5 ARCADY Assessment of A58 / A651 Roundabout Junction

7.5.1 The computer program, ARCADY 6, has been used to model this junction in order to assess the capacity, queuing and delay experienced in future year scenarios with the inclusion of development traffic. Base traffic flows are shown on Figures 6 and 7 with development traffic flows shown on Figure 9.

Arm A = A651 Bradford Road (North)
Arm B = A58 Whitehall Road (East)
Arm C = A651 Bradford Road (South)
Arm D = A58 Whitehall Road (West)

	Weekday AM Peak		Weekday PM Peak	
	RFC	Queue	RFC	Queue
Arm A	0.599	1.5	0.670	2.0
Arm B	0.740	2.8	0.773	3.3
Arm C	0.914	8.8	0.664	1.9
Arm D	0.836	4.7	0.651	1.8

Table 7.5(a) – 2017 Base Traffic

	Weekday AM Peak		Weekday PM Peak	
	RFC	Queue	RFC	Queue
Arm A	0.672	2.0	0.754	3.0
Arm B	0.820	4.3	0.873	6.1
Arm C	1.030	31.6	0.743	2.8
Arm D	0.937	10.3	0.728	2.6

Table 7.5(b) – 2023 Base Traffic

	Weekday AM Peak		Weekday PM Peak	
	RFC	Queue	RFC	Queue
Arm A	0.623	1.6	0.688	2.2
Arm B	0.759	3.1	0.793	3.7
Arm C	0.932	10.4	0.678	2.1
Arm D	0.895	7.2	0.679	2.1

Table 7.5(c) – 2017 Base Traffic + Development Flows

	Weekday AM Peak		Weekday PM Peak	
	RFC	Queue	RFC	Queue
Arm A	0.693	2.2	0.774	3.3
Arm B	0.839	4.9	0.895	7.3
Arm C	1.051	38.7	0.758	3.0
Arm D	0.990	18.2	0.757	3.0

Table 7.5(d) – 2023 Base Traffic + Development Flows

7.5.2 The following conclusions can be drawn from the information provided by the ARCADY output;

'*Arm A*' of the junction is predicted to operate with reserve capacity in both AM and PM peak periods, in all scenarios including with development traffic.

'*Arm B*' is predicted to operate with reserve capacity in 2017 in both peak periods, with and without development traffic. However, in 2023 this arm is predicted to operate over-capacity in the PM peak of both base, and base + development scenarios, with a maximum RFC value of 0.895. The impact of the development in terms of queuing equates to an additional 1 vehicle.

'*Arm C*' is predicted to operate over-capacity in all AM peak period scenarios, and with reserve capacity in all PM peak period scenarios. In the AM, the maximum RFC value identified in the 2023 Base + Development scenario is 1.051, this is an increase of 0.021 compared to the 2023 Base and equates to an increase of approximately 7 queuing vehicles.

'*Arm D*' is predicted to operate over-capacity in AM peak periods of the 2023 Base, 2017 Base + Development and 2023 Base + Development scenarios, and with little reserve capacity in the 2017 AM Base. In the PM peak period the junction is predicted to have reserve capacity in all scenarios. In the AM, the maximum RFC value identified in the 2023 Base + Development scenario is 0.990, this is an increase of 0.053 compared to the 2023 Base and equates to an increase of approximately 8 queuing vehicles.

7.5.3 It is considered that future traffic growth is the main contributory factor towards certain arms of the junction operating over-capacity, as the impact of the development traffic in terms of RFC values and queuing is identified to be minimal. The output results can be found in **Appendix N**.

7.6 LinSig Assessments

7.6.1 LinSig v3.2.29 has been used to assess the signalised junctions between the A58 Whitehall Road / B6121 Hunsworth Lane and A638 Bradford Road / B6121 Hunsworth Lane. The controller specifications for each junction were obtained from Kirklees Metropolitan Council and details of the junction operation abstracted from them.

7.6.2 The accepted threshold for degree of saturation for traffic signal controlled junctions is 90%, any approach with values higher than this are considered to be operating over capacity. A further value of capacity is the Practical Reserve Capacity (PRC) and any values greater than 0% indicate that there is still capacity within the junction.

A58 Whitehall Road / B6121 Hunsworth Lane

7.6.3 The junction operates with the VA (Vehicle Actuated Control) system and therefore the modelling results have been optimised to maximise the PRC. A cycle time of 120 seconds has been applied which is approximately consistent with the controller specifications provided by the Council.

7.6.4 During the traffic count undertaken (June 2014) at the junction the number of pedestrians crossing were recorded, with the results identifying 24 crossing movements (pedestrian strikes) in AM peak period and 11 pedestrian strikes in the PM peak period. From the crossing strikes, a total of 8 and 5 in the AM and PM peaks respectively would call a vehicle 'all red' pedestrian stage.

7.6.5 On-site observations taken on 07/09/2016 identified a pedestrian strikes approximately once every three cycles in the PM peak period. The following modelling reflects the observed pedestrian demand at this junction by running the pedestrian phase once every three cycles in the LinSig model.

7.6.6 The results of the assessment are presented in the following tables overleaf, and the full output results can be found in **Appendix O**.

Existing Layout		2017 AM Base (Ind Access: 1 in 3)		2017 PM Base (Ind Access: 1 in 3)		2017 AM Base + Dev (Ind Access & Peds: 1 in 3)		2017 PM Base + Dev (Ind Access & Peds: 1 in 3)	
Item	**Lane Description**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	**96.50%**	-	**95.00%**	-	**101.40%**	-	**97.90%**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	**96.50%**	-	**95.00%**	-	**101.40%**	-	**97.90%**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	60.10%	15.9	71.20%	19.9	64.30%	17.8	80.30%	24.3
2/1	Left Right Ahead	11.90%	0.8	17.10%	1.2	13.80%	0.9	18.50%	1.2
3/1	Hunsworth Lane North Right Left	96.40%	11	93.20%	9.9	99.30%	13	95.90%	11.3
4/1	A58 Whitehall Road West Ahead Right	96.50%	42.4	95.00%	38.4	101.20%	58.9	97.90%	44.8
5/1	B6121 Hunsworth Lane Right Left Ahead	95.90%	17.1	94.10%	17.1	101.40%	24.5	96.70%	19
6/1	A58 Whitehall Rd EB Left Ahead	50.20%	0.8	55.70%	0.9	51.20%	0.8	58.00%	1
7/1	A58 Whitehall Rd WB Ahead Left Right	85.20%	32.3	81.60%	28.7	87.50%	31.3	83.80%	28.8
		Cycle Time (s): 360		Cycle Time (s): 360		Cycle Time (s): 360		Cycle Time (s): 360	
		PRC Over All Lanes (%): -7.2		PRC Over All Lanes (%): -5.6		PRC Over All Lanes (%): -12.6		PRC Over All Lanes (%): -8.8	

Existing Layout		2023 AM Base (Ind Access: 1 in 3)		2023 PM Base (Ind Access: 1 in 3)		2023AM Base + Dev (Ind Access & Peds: 1 in 3)		2023 PM Base + Dev (Ind Access & Peds: 1 in 3)	
Item	**Lane Description**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	**102.40%**	-	**104.50%**	-	**106.80%**	-	**107.50%**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	**102.40%**	-	**104.50%**	-	**106.80%**	-	**107.50%**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	76.70%	23.9	65.20%	18.7	80.50%	23.8	73.30%	22.4
2/1	Left Right Ahead	20.10%	1.3	13.40%	0.9	20.10%	1.3	15.60%	1
3/1	Hunsworth Lane North Right Left	100.70%	14.6	104.50%	17.1	106.80%	19.1	107.50%	20.3
4/1	A58 Whitehall Road West Ahead Right	102.40%	62.1	104.30%	76.1	106.60%	86.3	107.10%	95.4
5/1	B6121 Hunsworth Lane Right Left Ahead	101.20%	24.5	104.00%	28.8	106.30%	39.3	106.70%	36
6/1	A58 Whitehall Rd EB Left Ahead	59.70%	1.1	53.70%	0.9	59.80%	1.1	55.60%	0.9
7/1	A58 Whitehall Rd WB Ahead Left Right	85.70%	31	88.40%	35.5	85.90%	30.6	87.60%	32.9
		Cycle Time (s): 360		Cycle Time (s): 360		Cycle Time (s): 360		Cycle Time (s): 360	
		PRC Over All Lanes (%): -13.8		PRC Over All Lanes (%): -16.1		PRC Over All Lanes (%): -18.6		PRC Over All Lanes (%): -19.5	

7.6.7 Based on the existing junction layout, the results show that the junction is predicted to operate over capacity in all scenarios with and without development traffic in both the AM and PM peak periods.

7.6.8 As part of the development, possible improvements at the junction have been investigated in the form of staggered pedestrian crossing facilities on the Hunsworth Lane (N) arm of the junction, and removal of the pedestrian crossing along the A58 (W) arm. These layout amendments would allow for all pedestrian phasing to be 'Walk with Traffic', thus removing the need for an all red vehicle stage. The suggested improvements are shown on drawing ref: 9529-001 which is included at **Appendix I**.

7.6.9 The modelling results for the base plus development scenarios can be summarised as follows;

Improved Layout (Walk with Traffic)		**2017 AM Base + Dev (Ind Access: 1 in 3)**		**2017 PM Base + Dev (Ind Access: 1 in 3)**		**2023 AM Base + Dev (Ind Access: 1 in 3)**		**2023 PM Base + Dev (Ind Access: 1 in 3)**	
Item	**Lane Description**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	**95.10%**	-	**91.80%**	-	**100.60%**	-	**100.90%**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	**95.10%**	-	**91.80%**	-	**100.60%**	-	**100.90%**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	60.5 : 60.5%	14.6	74.0 : 73.3%	19.9	76.2 : 76.2%	20.7	68.7 : 77.0%	18.1
2/1	Left Right Ahead	13.80%	0.9	18.50%	1.2	18.50%	1.3	15.60%	1
3/1	Hunsworth Lane North Right Left	93.80%	10.2	90.60%	9.5	97.90%	11.8	98.80%	14.4
4/1	A58 Whitehall Road West Ahead Right	95.10%	38.8	91.40%	33.3	100.60%	51	100.60%	52.8
5/1	B6121 Hunsworth Lane Right Left Ahead	94.60%	17.5	91.80%	17.3	99.60%	22.3	100.90%	23.7
6/1	A58 Whitehall Rd EB Left Ahead	48.40%	0.8	54.50%	1	57.50%	1.3	53.40%	1.1
7/1	A58 Whitehall Rd WB Ahead Left Right	84.30%	35.5	79.50%	30.3	87.20%	36.6	88.60%	39.2
		Cycle Time (s): 360		Cycle Time (s): 360		Cycle Time (s): 360		Cycle Time (s): 360	
		PRC Over All Lanes (%): -5.7		PRC Over All Lanes (%): -2.0		PRC Over All Lanes (%): -11.8		PRC Over All Lanes (%): -12.1	

7.6.10 The modelling results for the improved layout show that whilst the junction remains to be shown as over-capacity, the impact of the development traffic is actually nil-detriment when compared to the base scenario with the existing junction layout. In terms of queuing vehicles along the A58 (westbound) this equates to a reduction of approximately 11 vehicles in the 2023 AM scenario, and 23 vehicles in the 2023 PM scenario.

A638 Bradford Road / B6121 Hunsworth Lane

7.6.11 The junction operates with the VA (Vehicle Actuated Control) system and therefore the modelling results have been optimised to maximise the PRC. A cycle time of 120 seconds has been applied which is approximately consistent with the controller specifications provided by the Council.

7.6.12 The modelling results for the 2017 and 2023 Base and 'Base + Development' scenarios are summarised in the following tables and the full output results can be found in **Appendix P**.

		2017 AM Base		2017 PM Base		2017 AM Base + Dev		2017 PM Base + Dev	
Item	**Lane Description**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**
Network: A638 Bradford Road - B6121 Hunsworth Lane	-	**91.50%**	-	**94.70%**	-	**93.20%**	-	**99.70%**	-
A638 Bradford Road - B6121 Hunsworth lane	-	**91.50%**	-	**94.70%**	-	**93.20%**	-	**99.70%**	-
1/1+1/2	A638 North Ahead Right Left	48.9 : 48.9%	8.7	94.5 : 94.5%	31.2	50.9 : 50.9%	9	99.7 : 99.7%	39.4
2/1	Hunsworth Lane Left	89.40%	7.1	94.70%	12.4	92.40%	8.9	96.60%	14
2/2	Hunsworth Lane Ahead Right	53.20%	3.1	93.90%	12.6	59.60%	4.1	94.50%	13.4
3/1+3/2	A638 South Left Ahead Right	90.3 : 91.5%	25.7	88.0 : 93.3%	23	93.2 : 93.2%	27.7	88.8 : 94.1%	21.8
4/1	Whitechapel Road Right Left Ahead	89.00%	16.8	92.60%	10.6	92.70%	18.5	95.00%	11.7
		Cycle Time (s): 120		Cycle Time (s): 120		Cycle Time (s): 120		Cycle Time (s): 120	
		PRC Over All Lanes (%): -1.7		PRC Over All Lanes (%): -5.2		PRC Over All Lanes (%): -3.5		PRC Over All Lanes (%): -10.8	

		2023 AM Base		2023 PM Base		2023 AM Base + Dev		2023 PM Base + Dev	
Item	**Lane Description**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**	**Deg Sat (%)**	**Mean Max Queue (pcu)**
Network: A638 Bradford Road - B6121 Hunsworth Lane	-	**98.60%**	-	**102.30%**	-	**100.50%**	-	**107.70%**	-
A638 Bradford Road - B6121 Hunsworth lane	-	**98.60%**	-	**102.30%**	-	**100.50%**	-	**107.70%**	-
1/1+1/2	A638 North Ahead Right Left	52.7 : 52.7%	9.7	102.0 : 102.0%	49.9	54.9 : 54.9%	9.9	107.7 : 107.7%	70
2/1	Hunsworth Lane Left	96.60%	9.2	102.30%	17.5	98.40%	11.2	103.80%	19.8
2/2	Hunsworth Lane Ahead Right	57.80%	3.5	101.00%	17.2	63.50%	4.5	101.30%	18.3
3/1+3/2	A638 South Left Ahead Right	97.5 : 98.6%	35	95.1 : 101.0%	31.8	100.5 : 100.5%	41.7	94.4 : 100.8%	29.9
4/1	Whitechapel Road Right Left Ahead	96.00%	21.6	99.60%	14.1	100.10%	25.7	102.10%	16
		Cycle Time (s): 120		Cycle Time (s): 120		Cycle Time (s): 120		Cycle Time (s): 120	
		PRC Over All Lanes (%): -9.6		PRC Over All Lanes (%): -13.6		PRC Over All Lanes (%): -11.7		PRC Over All Lanes (%): -19.7	

7.6.13 Based on the existing junction layout, the results show that the junction is predicted to operate over capacity in all scenarios with and without development traffic in both the AM and PM peak periods.

7.6.14 In 2017 the AM and Pm peaks the junction is predicted to operate over capacity with a PRC of -1.7% and -5.2% respectively. When the development traffic is added in 2017 the junction is predicted to operate over capacity with a PRC of -3.5% and -10.8% respectively.

7.6.15 In 2023 the AM and Pm peaks the junction is predicted to operate over capacity with a PRC of -9.6% and -13.6% respectively. When the development traffic is added in 2023 the junction is predicted to operate over capacity with a PRC of -11.7% and -19.7% respectively.

7.6.16 It should also be noted that the simple application of growth factors to 2017 and 2023 results in the junction operating over capacity with no development traffic being added to the network. Junction modelling software such as LinSig does not accurately represent the queues generated on street when the degree of saturation is greater than 100%. The model tends to show the queue lengths increasing exponentially when in reality this does not occur.

7.6.17 As part of the development, it may be possible to extend the length of the right turn lanes along the A638 Bradford road on each approach. These improvements would improve capacity on lanes 1/1, 1/2, 3/1 and 3/2, as they would allow right turning vehicles to enter the correct lanes and reduce queue lengths on the A638 Bradford Road.

8 Conclusions

8.1 Sanderson Associates (Consulting Engineers) Limited has been appointed by Harron Homes Ltd to advise on traffic and transportation issues relating to a residential development comprising circa. 300 - 360 dwellings for assessment purposes.

8.2 Access to the site will be provided from and extension off Kilroyd Drive off the A58 Whitehall Road, as well as a new 'all-movement' priority junction served off the B6121 Hunsworth Lane.

8.3 A connection will be provided between the two accesses within the site to allow residents to use either access, however the internal site layout will be designed to discourage rat-running.

8.4 An analysis of the accident records has confirmed that there is no particular accident pattern or trend in the area that is likely to be exacerbated by the developed proposals. Although 7 incidents have been recorded on or in proximity to the Bradford Road (S) / Whitehall Road (E) arms of Chain Bar roundabout, it is considered that the additional development traffic using this junction will have no material impact to the existing accident risk at this location, or on the surrounding local highway network.

8.5 The site is considered to be in a sustainable location with respect to access to local facilities on foot or by cycle and to public transport facilities. As such residents and visitors of the development have the realistic option of choosing an alternative mode of transport to the private car.

8.6 The capacity assessments show that the priority junctions of Kilroyd Drive / A58 Whitehall Road and B6121 Hunsworth Lane / Proposed Site Access will operate within capacity for all modelled scenarios.

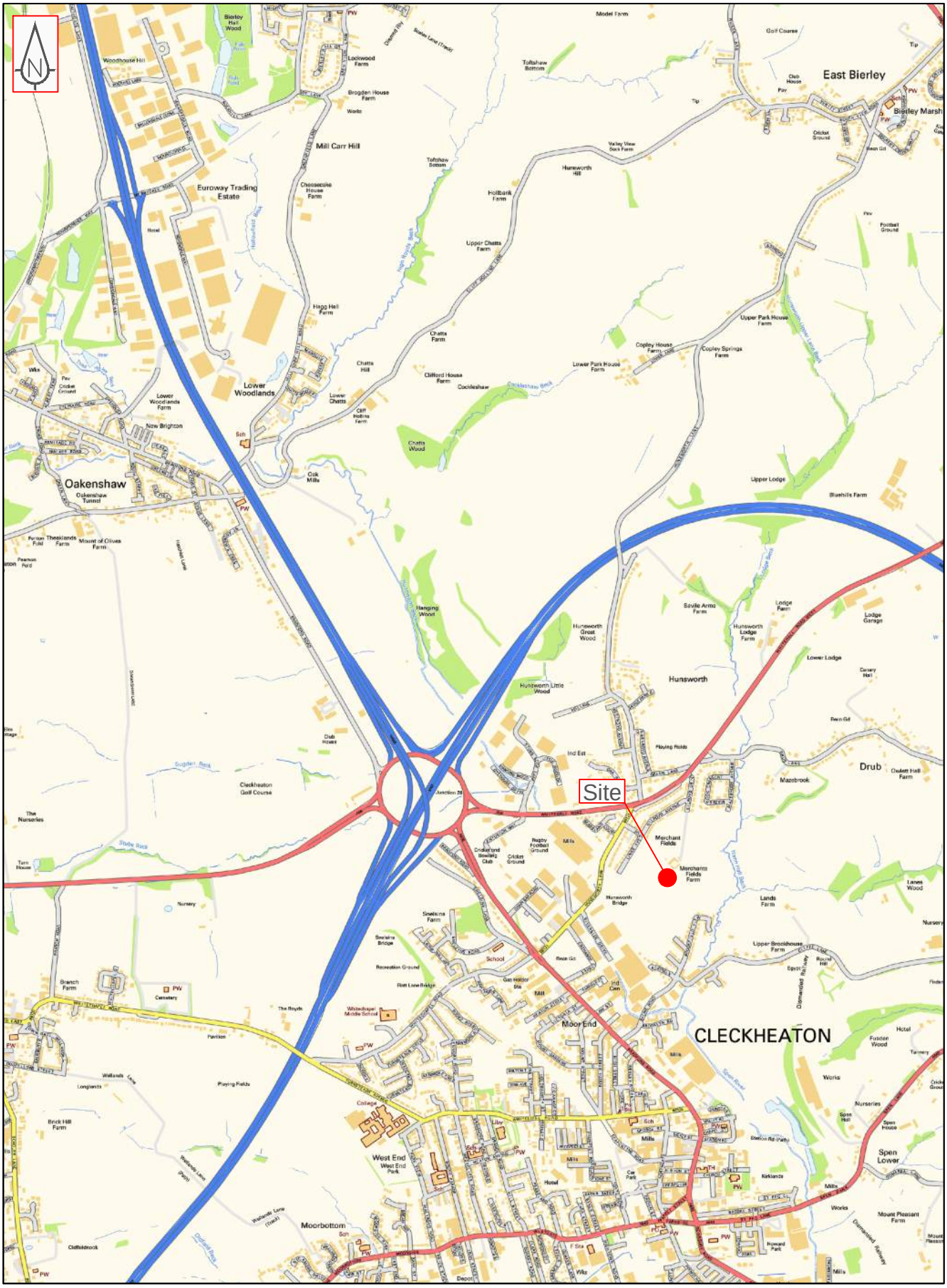
8.7 The A58 / A651 junction is predicted to operate marginally over-capacity in both 2017 and 2023 future years, with or without development traffic. It is considered that future traffic growth is the main contributory factor towards certain arms of the junction operating over-capacity, as the impact of the development traffic in terms of RFC values and queuing is identified to be minimal.

8.8 The A58 / Hunsworth Lane signalised junction is predicted to operate over capacity in all scenarios, with and without development traffic. However, an improved junction layout is proposed as part of the development which would accommodate the predicted development traffic flows without having a detrimental impact on the operation of the junction.

8.9 The Hunsworth Lane / Bradford Road signalised junction is predicted to operate over capacity in all future year scenarios, with and without development traffic. However the predicted impact of the development flows in terms of increased queuing vehicles at the junction is considered to be slight.

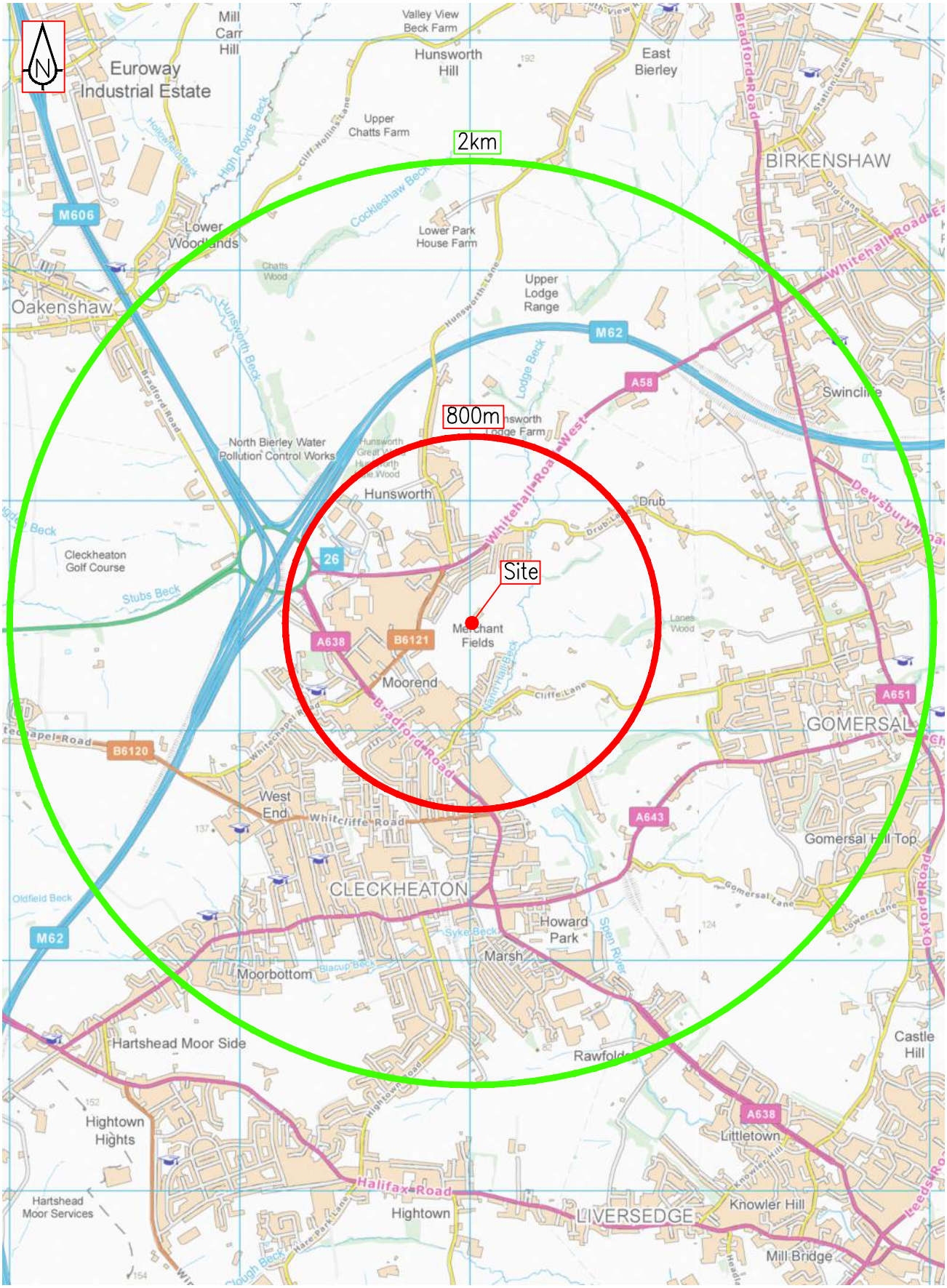
8.10 It is therefore considered that there are no transport reasons why this development site should not be allocated.

APPENDIX A

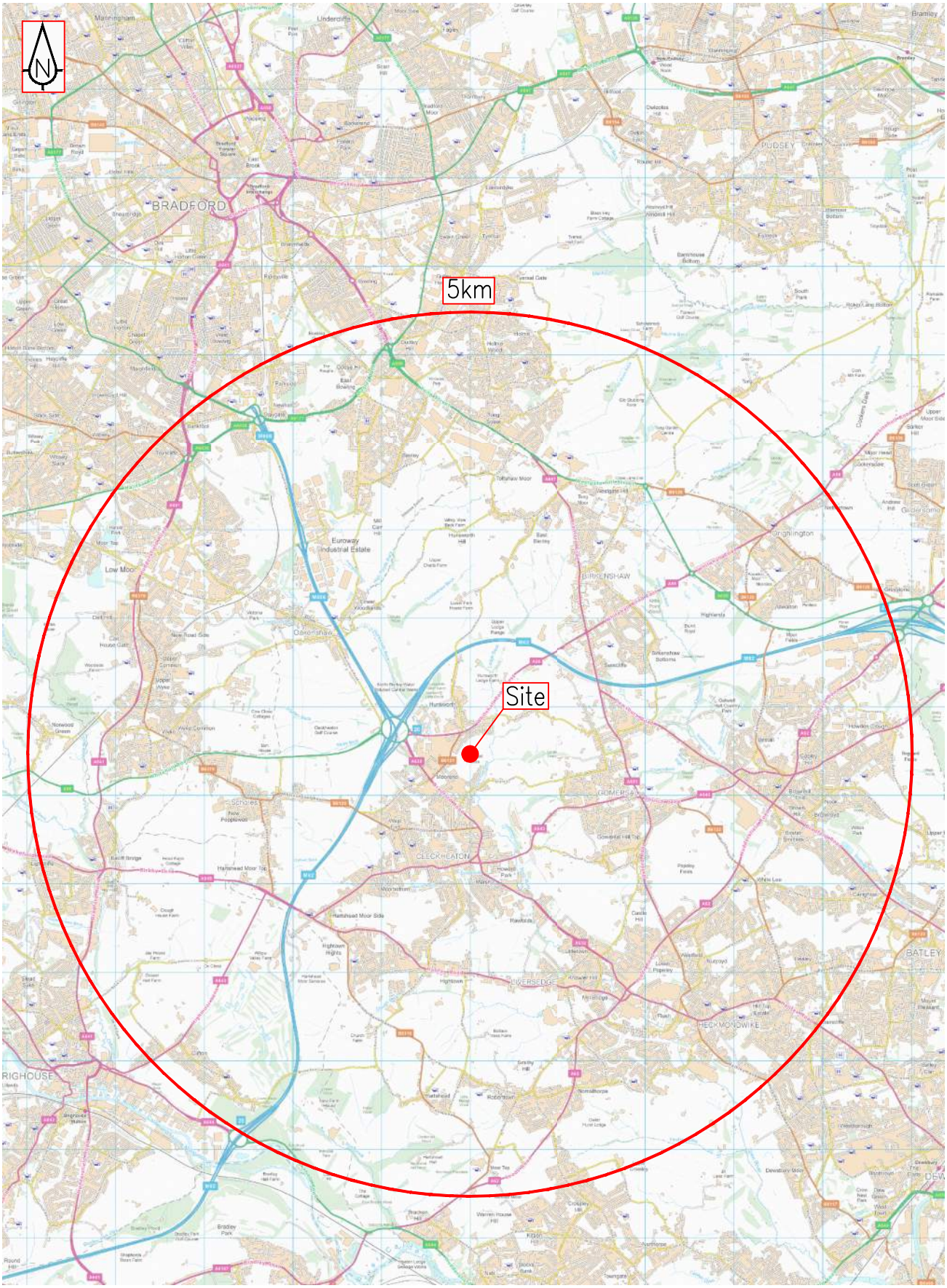


sanderson associates (consulting engineers) ltd Highways | Traffic | Transportation | Water T 01924 844080 mail@sandersonassociates.co.uk F 01924 844081 www.sandersonassociates.co.uk	Site Location Plan	Drawn: BL	Scale: NTS
		Checked: SB	Date: September 2016
	Hunsworth Lane, Cleckheaton	Approved: DJC	Drawing Number: Figure 1
			Size: A4

QIM S ISO 9001 REGISTERED FIRM



sanderson associates (consulting engineers) ltd Highways | Traffic | Transportation | Water T 01924 844080 mail@sandersonassociates.co.uk F 01924 844081 www.sandersonassociates.co.uk	800m and 2km Indicative Walking Distances	Drawn BL	Scale NTS	QIM ISO 9001 REGISTERED FIRM
		Checked SB	Date September 2016	
	Hunsworth Lane, Cleckheaton	Approved DJC	Drawing Number Figure 2	Size A4



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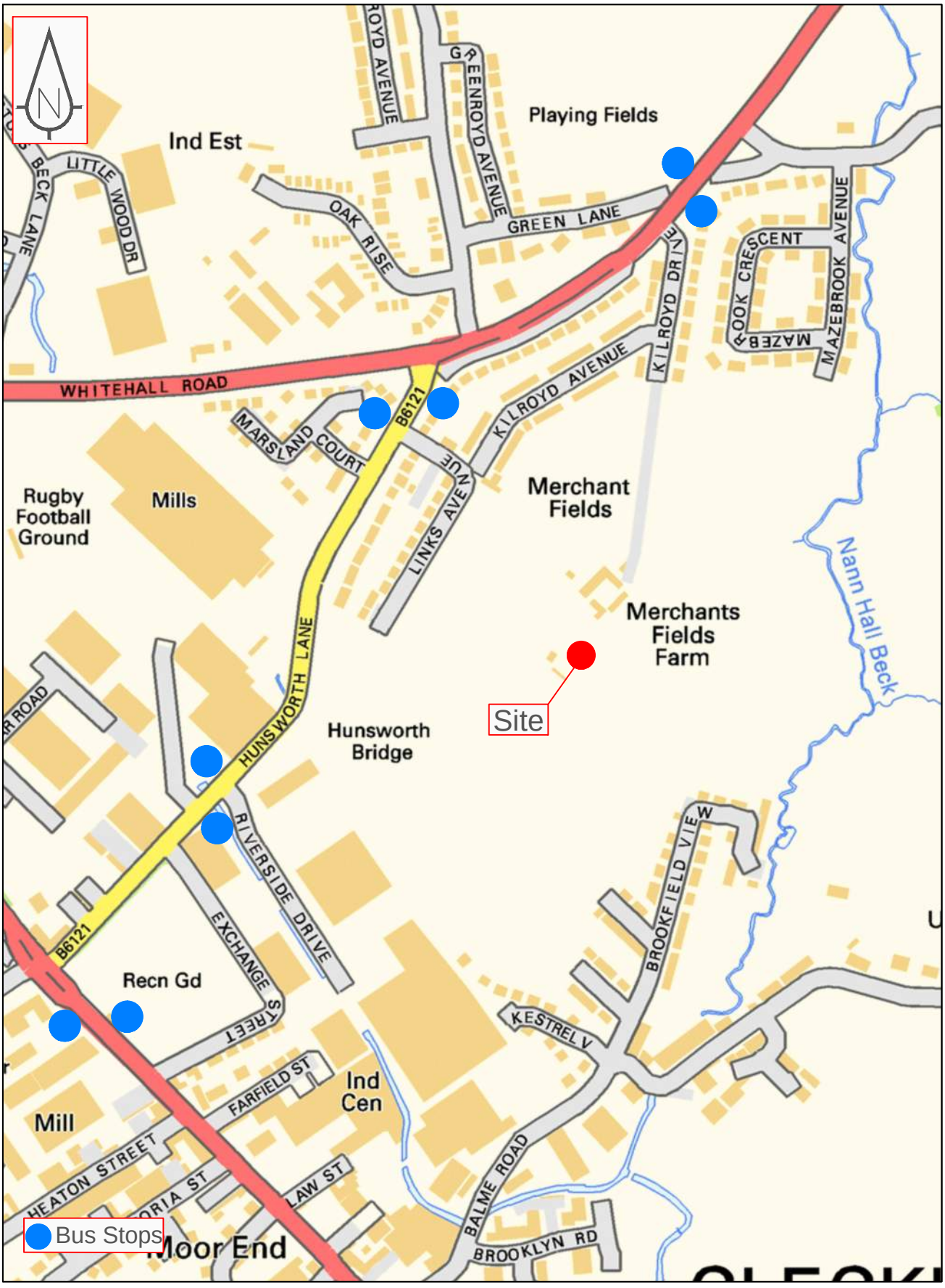
5km Cycling Radius

Hunsworth Lane, Cleckheaton

Drawn: BL	Scale: NTS	QIM S ISO 9001 REGISTERED FIRM	
Checked: SB	Date: September 2016		
Approved: DJC	Drawing Number: Figure 3	Size: A4	



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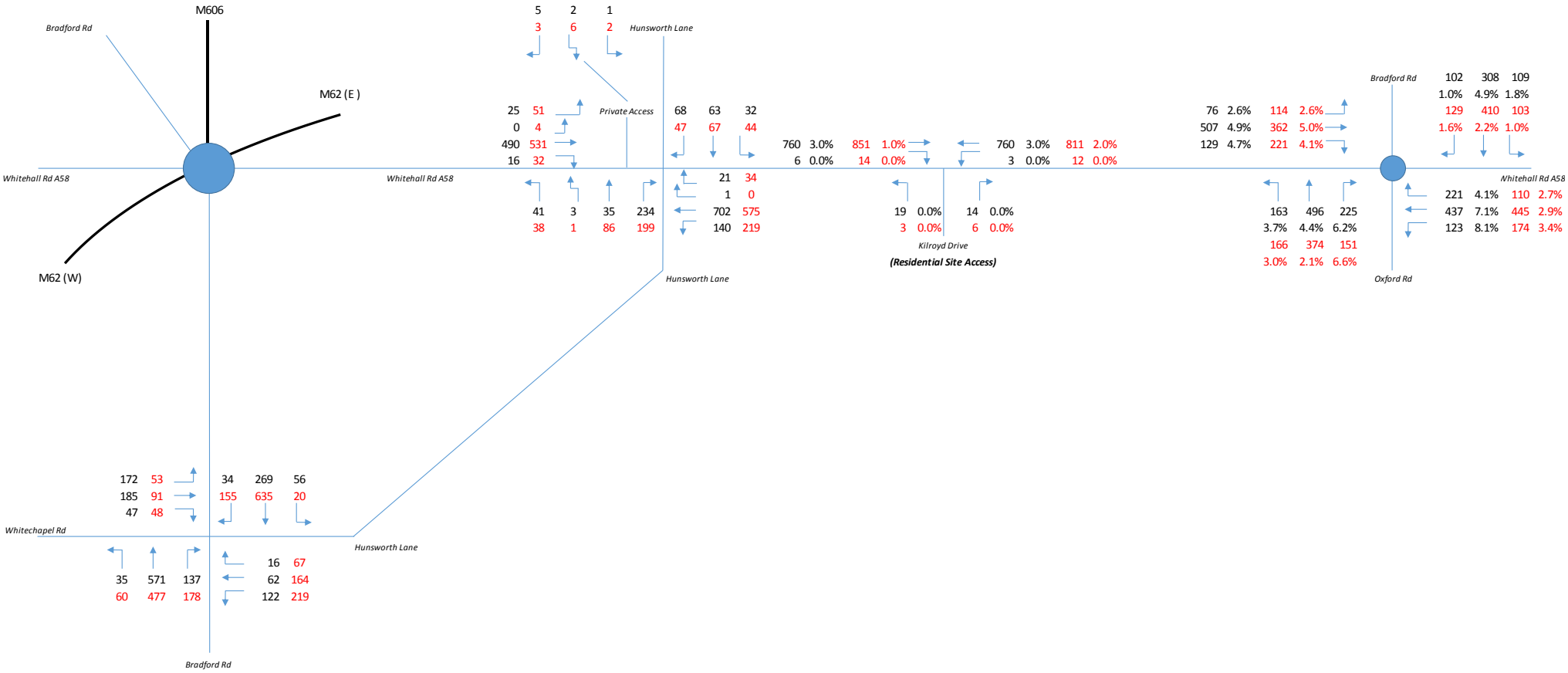
Location of Public Transport

Hunsworth Lane, Cleckheaton

Drawn	Scale	
BL	NTS	QIM ISO 9001 REGISTERED FIRM
Checked	Date	
SB	September 2016	
Approved	Drawing Number	Size
DJC	Figure 4	A4



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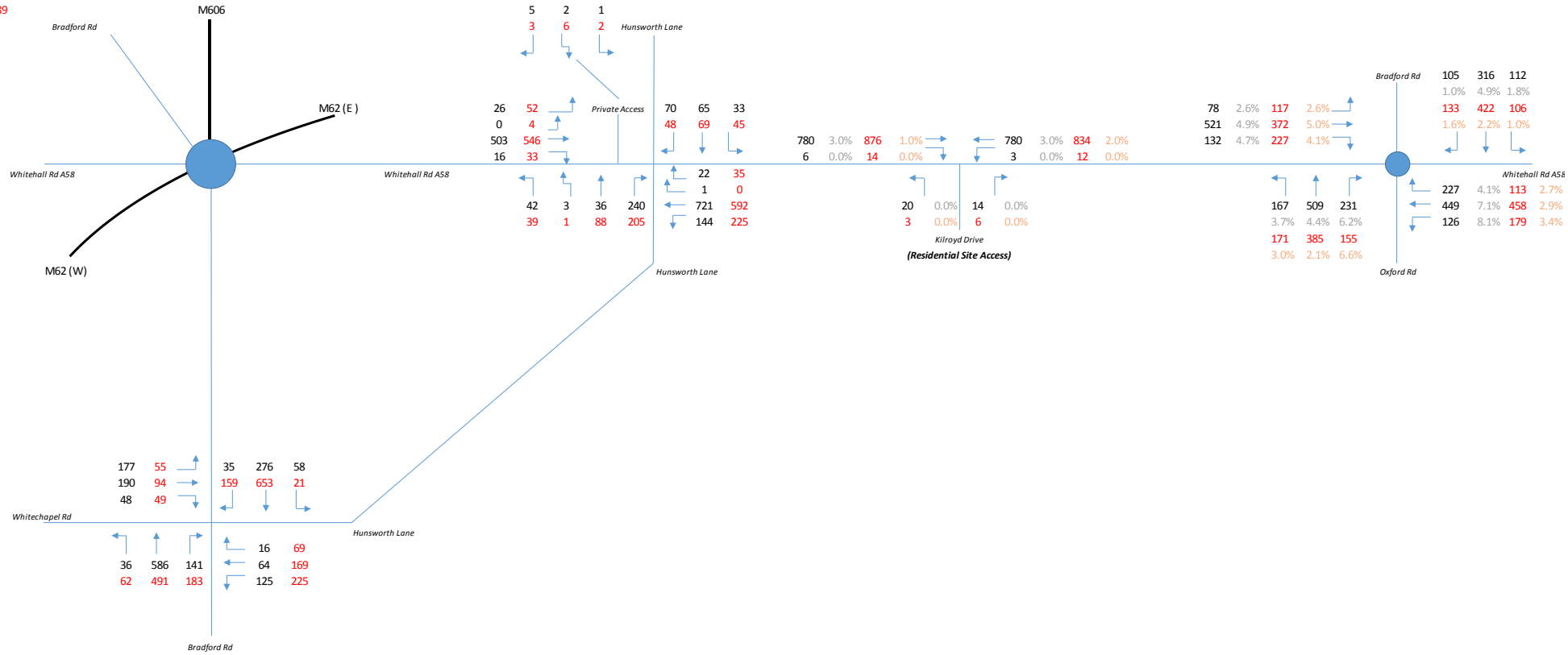
Merchant Fields
Kilroyd Drive / Hunsworth Lane
Cleckheaton

2014 Surveyed Traffic Flows

Rev	Amendment	Drawn	Date	Checked

Scale: NTS	Draw by: BL		
Drawing Size: A3	Checked by: SB		
Date: Sept 2016	Approved by: DJC		
	Drawing Number: FIGURE 5	Rev.	

2014-2017 Growth
AM 1.0269
PM 1.0289



Rev	Amendment	Drawn / Date / Checked

Merchant Fields
Kilroyd Drive / Hunsworth Lane
Cleckheaton

2017 Base Flows

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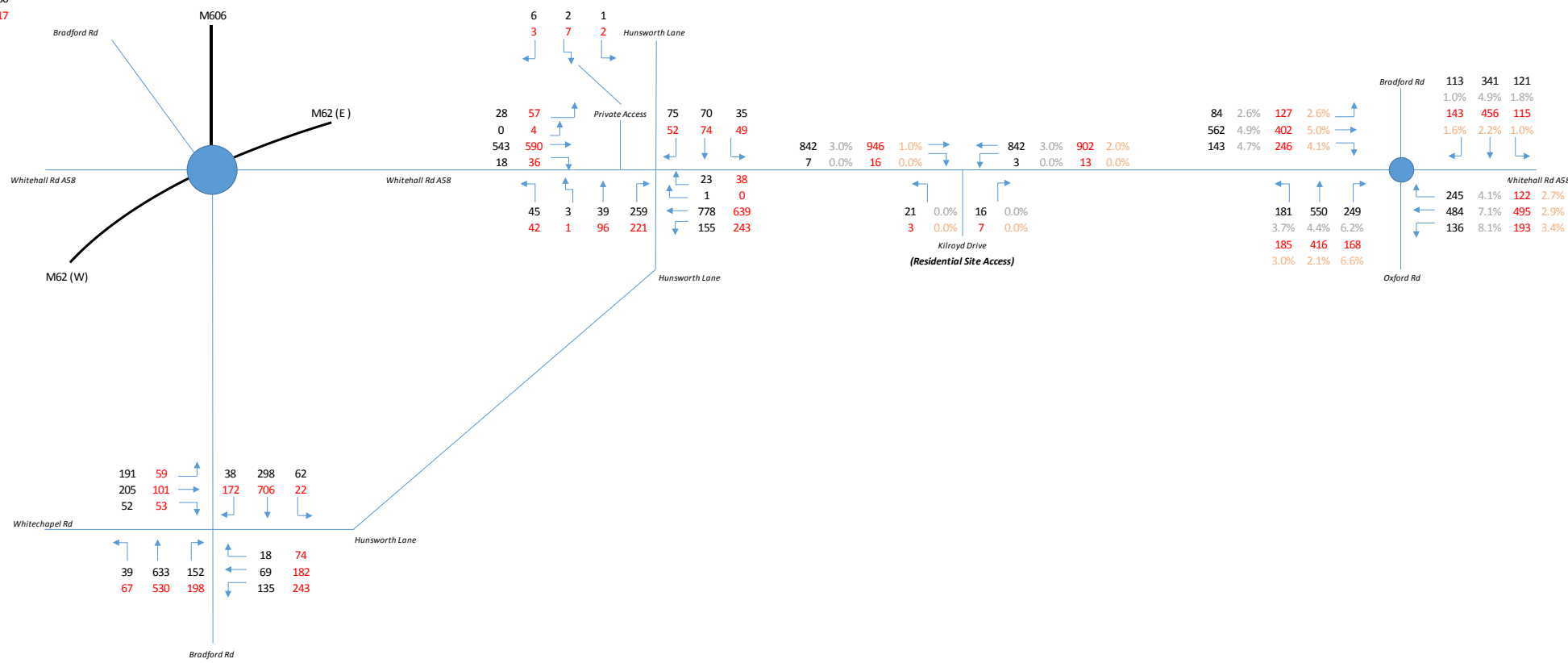
Scale: NTS	Draw by: BL
Drawing Size: A3	Checked by: SB
Date: Sept 2016	Approved by: DJC
Drawing Number: FIGURE 6	Rev.

2014-2023 Growth
AM 1.1080
PM 1.1117



Rev	Amendment	Drawn / Date / Checked

Merchant Fields
Kilroyd Drive / Hunsworth Lane
Cleckheaton

2023 Base Flows

sanderson associates (consulting engineers) ltd
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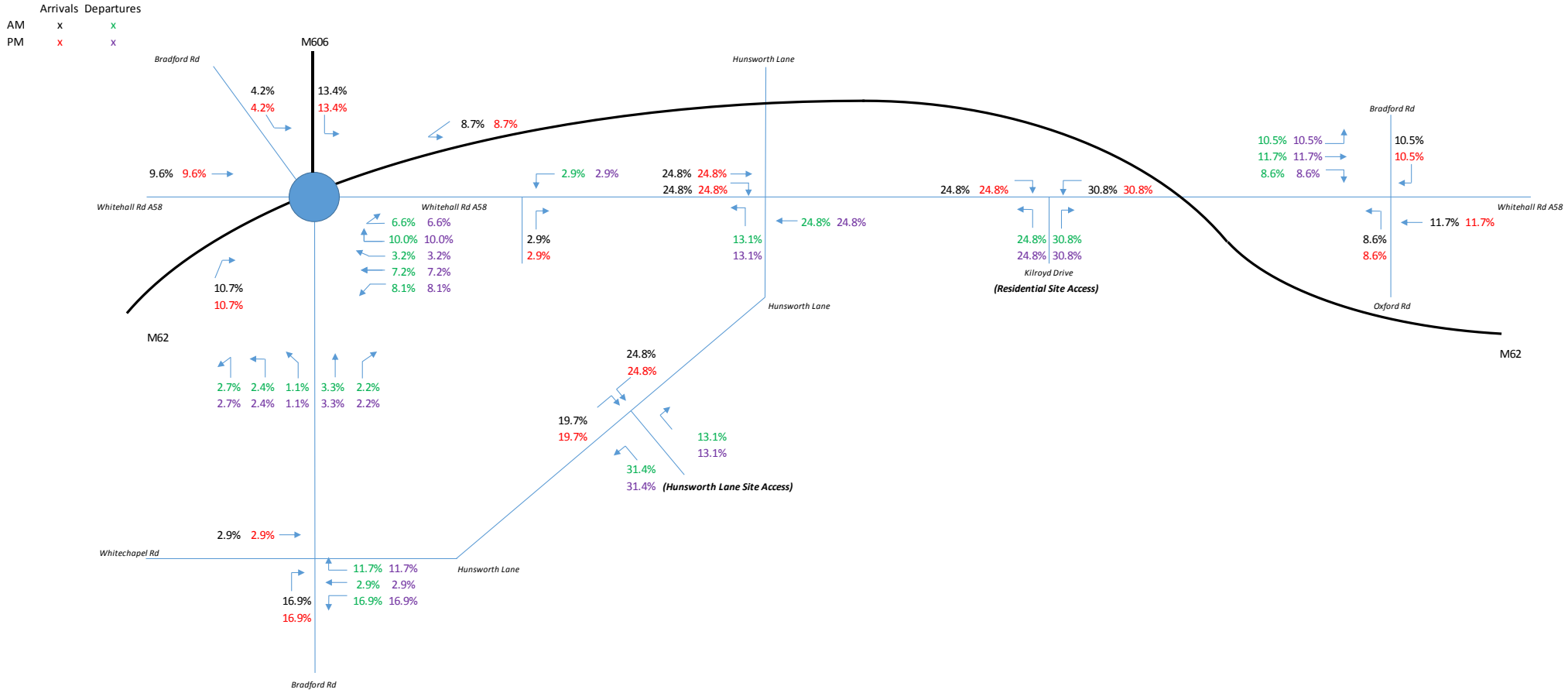
Scale: NTS	Draw by: BL
Drawing Size: A3	Checked by: SB
Date: Sept 2016	Approved by: DJC
Drawing Number: FIGURE 7	Rev.



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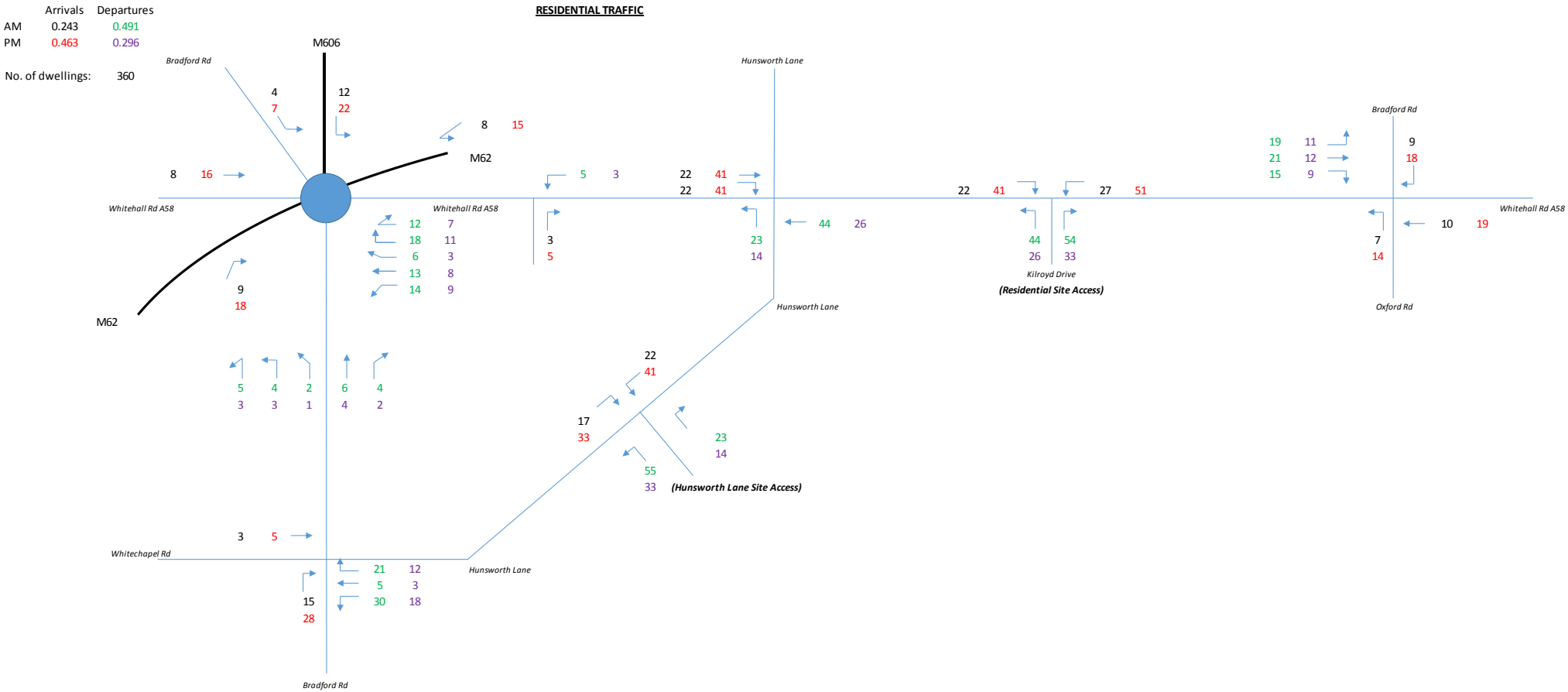
Merchant Fields
Kilroyd Drive / Hunsworth Lane
Cleckheaton

Proposed Residential Traffic Distribution %

Rev	Amendment	Drawn	Date	Checked

Scale: NTS	Draw by: BL		
Drawing Size: A3	Checked by: SB		
Date: Sept 2016	Approved by: DJC		
	Drawing Number: FIGURE 8	Rev.	



Rev	Amendment	Drawn	Date	Checked		

sanderson associates (consulting engineers) ltd
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F 01924 844081 www.sandersonassociates.co.uk

Merchant Fields
Kilroyd Drive / Hunsworth Lane
Cleckheaton

Proposed Residential Traffic

Scale: NTS	Draw by: BL
Drawing Size: A3	Checked by: SB
Date: Sept 2016	Approved by: DJC
Drawing Number: FIGURE 9	Rev.

APPENDIX B

Scoping Response

David Colley

From: David Colley
Sent: 18 June 2014 08:51
To: Steven Sampson
Subject: RE: SA8050:- RE: Residential Site at Cleckheaton

Thank you Steve.
We have put in hand traffic counts at three junctions and included queue observations of three arms of the Chain Bar roundabout that have been requested.
We are also doing an ATC on Hunsworth Lane on the site frontage.
David Colley

From: Steven Sampson <Steven.Sampson@kirklees.gov.uk>
Sent: 17 June 2014 14:23
To: David Colley
Cc: Highways DevelopmentControl
Subject: RE: SA8050:- RE: Residential Site at Cleckheaton

Dave,
I can confirm that the A58 Whitehall Road western arm queue length observations are also required..
Regards,
Steve

Steve Sampson MCIHT
Group Engineer - Highways Development Control
External: 01484 221000
Internal: X5568

From: David Colley [mailto:David.Colley@sandersonassociates.co.uk]
Sent: 13 June 2014 08:47
To: Steven Sampson
Subject: RE: SA8050:- RE: Residential Site at Cleckheaton

Steve
Thank you for your comments which are very helpful.
With regard to the junction counts I have obtained quotes for 3 junctions as follows:-

Site 1 – A58 Whitehall Road / B6121 Hunsworth Lane signalised staggered junction (4 arms and private access on north side of Whitehall Rd, west side of junction) recording all movements.
Site 2 – A638 Bradford Road / B6121 Hunsworth Lane / Whitechapel Road (4 arms) including the adjacent junction of Snelsins Lane with Bradford Road recording all movements.
Site 3 – A58 Whitehall Road / A651 Bradford Road 4 arm roundabout recording all movements.

and an ATC on Hunsworth Lane on the site frontage.the counts include queue observations.

The Highways Agency have provided traffic flows and model for Chain Bar Roundabout since they have an improvement scheme to implement next year which widens part of the circulatory carriageway so present conditions will change anyway. The HA have suggested that they would not require modelling of Chain Bar given the predicted flows provided in the Scope Report.

Could I clarify that you require queue observations for Chain Bar entry arms A58 Whitehall Road eastern arm, and Bradford Road Southern arm. Do you also wish to see A58 Whitehall Road western arm as well?? If this is the case i will obtain further quote for two way flow on these 2 or 3 arms including sample quote observations recording longest queue in 5 minute intervals.
please advise.

Thank you
David Colley

From: Steven Sampson <Steven.Sampson@kirklees.gov.uk>
Sent: 12 June 2014 08:12
To: David Colley
Cc: Highways DevelopmentControl; Andrew Rawlinson
Subject: RE: SA8050:- RE: Residential Site at Cleckheaton

Dave,
Please see my comments in red…
Regards
Steve

Steve Sampson MCIHT
Group Engineer - Highways Development Control
External: 01484 221000
Internal: X5568

Dear Steven

Residential Development at Kilroyd Drive / Hunsworth Lane, Cleckheaton.

I write with respect to the above residential proposals on land off Kilroyd Drive / Hunsworth Lane. I would be grateful for your comments on the proposals with regard to the effect of the development traffic on the local road network. I attach a highway Scoping Report which sets out our initial thoughts on trip rates and traffic distribution based on 312 units.

Vehicle Trip Generation

Vehicle trip rates for the residential proposals have been based on TRICS and also a count of the residential street, Kilroyd Drive. With regard to the residential trip rates we seek to agree the use of average TRICS trip rates and have undertaken traffic counts of Kilroyd Drive, a local residential cul-de-sac to substantiate their use as set out in the Scoping Report.

Traffic Distribution

The residential distribution pattern has been calculated using the Special Workplace Statistics from the 2001 Census data for those who currently live within the Cleckheaton ward and adjacent area. This is set out in the Scoping Report.
Agreed in principle…the web link to the data used should be provided within the TA. Note: No traffic appears to have been applied to M62 East?

Base Traffic
For assessment purposes and preparation of this Scoping Report a traffic count of the Kilroyd Drive / A58 junction has been undertaken. From this survey the peak hours were identified as 0745-0845 in the AM and 16:00-17:00 in the PM. Details are provided in the Scoping Report.
It is noted that a survey of Kilroyd Drive has been undertaken, however, the residential make up of Kilroyd Drive is not considered representative of a new build residential development. As such, 85%ile TRICS data should be used as detailed in para. 4.1.7

I would be grateful if you could advise on the extent of local junctions to be considered and specifically if the junctions identified would require assessment.
Junctions to be surveyed are to include the M62 Chain Bar junctions of flows and queue lengths are A58 Whitehall Road West; and Bradford Road

Also I would be grateful on your views about committed developments to be taken into account.
Plan Ref: 2012/90437, Centurion Way, 4 no. business units.

I would be grateful if you could advise if the Council holds any traffic count data for the junctions identified for assessment.
Please contact Andrew Rawlinson (UTC) 01484 225436 on this matter. Note: There is a charge for any data provided.

I would welcome your views on the content of the Scoping Report and agreement of the trip rates, distribution and methodology for the Transport Assessment. As you can see from the email thread below we have also consulted with the Highways Agency given the proximity to Chain Bar.

--
Kind Regards

David Colley BEng MCIHT
Tel: 01924 844080 Mob: 07825 854395
Associate Director
CLICK TO VIEW MY CONTACT DETAILS

From: David Colley
Sent: 22 May 2014 16:17
To: 'Rios, Toni'
Cc: Hardie, Chris
Subject: SA8050:- RE: Residential Site at Cleckheaton

Chris / Toni
SA8050:- Residential Development at Kilroyd Drive / Hunsworth Lane, Cleckheaton.

I write with respect to the above residential proposals on land off Kilroyd Drive / Hunsworth Lane I would be grateful for your comments on the proposals with regard to the effect of the development traffic on the Trunk Road network. I attach a highway Scoping Report which sets out our initial thoughts on trip rates and traffic distribution based on 312 units.

Vehicle Trip Generation

Vehicle trip rates for the residential proposals have been based on TRICS and also a count of the residential street, Kilroyd Drive. With regard to the residential trip rates we seek to agree the use of average TRICS trip rates and have undertaken traffic counts of Kilroyd Drive a local residential cul-de-sac to substantiate their use as set out in the Scoping Report.

Traffic Distribution

The residential distribution pattern has been calculated using the Special Workplace Statistics from the 2001 Census data for those who currently live within the Cleckheaton ward and adjacent area. This is set out in the Scoping Report.

Base Traffic
For assessment purposes and preparation of this Scoping Report a traffic count of the Kilroyd Drive A58 junction has been undertaken. From this survey the peak hour were identified as 0745-0845 in the AM and 16:00-17:00 in the PM. Details are provided in the Scoping Report.

I would be grateful if you could advise on the extent of junctions to be considered and specifically if the junctions identified would require assessment from your view point including whether Chain Bar roundabout would need assessment given the level of traffic generation and its distribution.

Also I would be grateful on your views about committed developments to be taken into account.

I would welcome your views on the content of the Scoping Report and agreement of the trip rates, distribution and methodology for the Transport Assessment.

At the moment I have not heard from Aone+ regarding the scheme at Chain Bar.
--
Kind Regards

David Colley BEng MCIHT
Tel: 01924 844080 Mob: 07825 854395
Associate Director
CLICK TO VIEW MY CONTACT DETAILS

From: Rios, Toni [mailto:Toni.Rios@highways.gsi.gov.uk]
Sent: 13 May 2014 13:15
To: David Colley
Cc: Hardie, Chris
Subject: Residential Site at Cleckheaton

David
I have asked our service provider Aone+ to send you through the committed scheme drawing, model and traffic counts for the improvement at Chain Bar. It might take a couple of days to put together but let me know if you haven't had it by the end of the week.
Also copied in is Chris Hardie who will deal with this application and any pre-app discussion you wish to have.
Regards
Toni

Toni Rios – Asset Manager
Highways Agency | Lateral | 8 City Walk | Leeds | LS11 9AT
Tel: +44 (0) 113 2834710 | **Mobile**: + 44 (0) 7881518079
Web: http://www.highways.gov.uk
GTN: 5173 4710

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Highways Agency, an executive agency of the Department for Transport.

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F 01924 844081 www.sandersonassociates.co.uk

Le Tour is coming… Sunday 6 July 2014
www.visithuddersfield.com

Le Tour is coming… Sunday 6 July 2014
www.visithuddersfield.com

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David Colley

From: Hardie, Chris <Chris.Hardie@highways.gsi.gov.uk>
Sent: 11 June 2014 10:14
To: David Colley
Cc: 'Steven Sampson'
Subject: RE: SA8050:- RE: Residential Site at Cleckheaton

David

Apologies for not replying earlier.

Given the size and location of this development, it is with reasonable confidence that we can conclude that the effect on the SRN will be “not significant”

As you have already noted yourselves, we already have a committed scheme for some improvements at Chain Bar and this particular development is certainly not going to trigger the need for any further interventions.

All I would ask, therefore, is that the TA provides sufficient analysis and evidence to confirm that the above is the right conclusion so that we can avoid the need for in depth junction assessment.

I hope that helps.

Best regards

Chris

Chris Hardie, Asset Manager
Highways Agency | Lateral | 8 City Walk | Leeds | LS11 9AT
Tel: +44 (0) 113 2836248 | **Mobile**: + 44 (0) 7769 282441
Web: http://www.highways.gov.uk
GTN: 5173 6248

Safe roads, reliable journeys, informed travellers
Highways Agency, an executive agency of the Department for Transport.

From: David Colley [mailto:David.Colley@sandersonassociates.co.uk]
Sent: 22 May 2014 16:17
To: Rios, Toni
Cc: Hardie, Chris
Subject: SA8050:- RE: Residential Site at Cleckheaton

Chris / Toni

SA8050:- Residential Development at Kilroyd Drive / Hunsworth Lane, Cleckheaton.

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trip rates and have undertaken traffic counts of Kilroyd Drive a local residential cul-de-sac to substantiate their use as set out in the Scoping Report.

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Base Traffic
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I would be grateful if you could advise on the extent of junctions to be considered and specifically if the junctions identified would require assessment from your view point including whether Chain Bar roundabout would need assessment given the level of traffic generation and its distribution.

Also I would be grateful on your views about committed developments to be taken into account.

I would welcome your views on the content of the Scoping Report and agreement of the trip rates, distribution and methodology for the Transport Assessment.

At the moment I have not heard from Aone+ regarding the scheme at Chain Bar.

--
Kind Regards

David Colley BEng MCIHT
Tel: 01924 844080 Mob: 07825 854395
Associate Director
CLICK TO VIEW MY CONTACT DETAILS

From: Rios, Toni [mailto:Toni.Rios@highways.gsi.gov.uk]
Sent: 13 May 2014 13:15
To: David Colley
Cc: Hardie, Chris
Subject: Residential Site at Cleckheaton

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Also copied in is Chris Hardie who will deal with this application and any pre-app discussion you wish to have.
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Toni Rios – Asset Manager
Highways Agency | Lateral | 8 City Walk | Leeds | LS11 9AT
Tel: +44 (0) 113 2834710 | **Mobile**: + 44 (0) 7881518079
Web: http://www.highways.gov.uk
GTN: 5173 4710

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APPENDIX C

Council Response

MX1914

HDM Comments on the Transport Assessment prepared by Sandersons dated February 2016

Section 2.3: Traffic Survey Data

Paragraph 2.3.2: It is noted that a peak hour count has been undertaken at the A58 Whitehall Road / A651 Bradford Road Roundabout however Figure 4 does not incorporate the turning flows at this junction.

Section 3.1: Size and Description of the Proposal

Paragraph 3.1.1: HDM considers a mixed use development to be two or more compatible land uses whereby the type of traffic serving the development is similar. HDM therefore do not consider a residential / industrial land use mix to be a true representation of a mixed use development particularly given the potential for conflicts between HGVs associated with the industrial development and vulnerable road users (i.e. pedestrians / cyclists) associated with the residential development.

Section 3.2: Potential Site Access

Paragraph 3.2.1: HDM note the lack of segregation between the light industry and residential land uses proposed. In the interests of highway safety industrial developments that generate HGV movements need to be separated from residential areas avoiding the need for employment traffic to use residential roads. HDM therefore do not accept the existing access arrangements proposed for this mixed use development. Assuming the industrial site is served from Hunsworth Lane, two access points would be required to serve the residential development. It is noted that one access point is proposed via an extension to Kilroyd Drive to the north of the site. However HDM are sceptical that the proposed 325 dwellings and associated transportation movements (pedestrian, cyclist, public transport and vehicles) could be confidently met safely and efficiently.

Paragraph 3.2.2: The access layout plan provided in Appendix E proposes a left in / left out access arrangement from Hunsworth Lane. Before this layout can be accepted by HDM, a Road Safety Audit (RSA) is required, the brief of which is to be agreed with HDM prior to the RSA being undertaken. Notwithstanding, the layout plan does not identify what traffic management measures are proposed to prevent vehicles travelling northbound along Hunsworth Lane from turning right into the site. HDM also have concerns as to where vehicles turn around on the network if they are restricted from turning right into the site from Hunsworth Lane? No swept path analysis has been undertaken at the A58 / Kilroyd Avenue junction.

Section 4.4 – Bus Travel

The 400m walking distance to the Whitehall Road West / Kilroyd Drive bus stops are noted together with the operational times of the 225 and 259 services which are limited from a

'commuting point of view' in terms of the their frequency and times of operation. As such, HDM considers that the option for residents to commute to and from work by bus to be unattractive.

Section 4.6 – Rail Travel

Para 4.6.2: Bus services 259 and X25 stop at Brighouse Bus Station and not Brighouse Railway Station as is noted in the TA. Notwithstanding this both services are limited from a 'commuting point of view' in terms of their frequency and times of operation. As such, HDM considers that the option for residents to commute to and from the rail station by bus to be unattractive.

Section 4.7 – Accessibility Summary

HDM considers that the options for residents, staff and visitors to the development by public transport are unattractive with limited services within the 'am' and 'pm' commuter peak hours.

Section 5.0 – Multi-modal Trip Generations

Paragraph 5.3: Further evidence is needed to confirm that the TRICS sites selected are representative of the proposed development. For example have population and car ownership levels in the vicinity of the site been defined when interrogating the TRICS database?

Table 5.4b: Table headings are incorrect.

Section 6.1 – Residential Traffic Generations

Para 6.1.1: HDM note that a survey of Kilroyd Drive has been undertaken to compare trip rates with the average vehicular trip rates obtained from TRICS. However HDM are of the view that the residential make up of Kilroyd Drive is not considered representative of a new build residential development and therefore does not provide a comparable assessment.

Para 6.1.9: Whilst the report states that average trip rates will be used for assessment, HDM consider that these trip rates are not representative of the development site and as such the forecast 'am' and 'pm' development trip rates are <u>not</u> accepted. Instead the AM and PM Peak total person trip rate should be identified within the TRICS database and multiplied by car mode share for those who live in the area in which the development site is located, using the 2011 Journey to Work census. Note: HDM's views on using 85%ile trip rates was made clear at the scoping stage as outlined in Appendix B of this report.

Table 6.1.9: Assessment period is incorrect (Row 2, Column 1).

Table 6.2.4: Table headings are incorrect – should be employment. Assessment period is incorrect (Row 2, Column 1).

Table 6.3.1: Assessment period is incorrect (Row 2, Column 1).

Section 6.2 – Employment Traffic Generations

HDM consider that average trip rates are not representative of the development site and as such the forecast 'am' and 'pm' development trip rates are not accepted. As stated above the AM and PM Peak total person trip rate should be identified within the TRICS database and multiplied by the car mode share for those who work within the area in which the site is located, using the 2011 Journey to Work census.

Section 6.3 – Summary

Para 6.3.1: As per the above HDM comments, the development flows are not agreed.

Section 7.1 – Growth Rates

Para: 7.1.1: This paragraph notes an opening year of 2016 and a future year of 2021? The methodology for calculating growth factors is accepted.

Section 7.2 – Trip Distribution

Para 7.2.1: HDM agree with the proposed methodology for estimating the trip distribution using 2011 Journey to Work census data.

Para 7.2.3: HDM do not accept the assignment of trips to the network based on the comments provided in Section 3.2 above with regard to access and the lack of segregation between industrial and residential land uses.

Para 7.2.4: The fourth bullet point states all residential traffic will enter via the Kilroyd Drive access. Based on the HDM comments provided above, two residential access points are required to serve a development of this scale. As such HDM do not accept the assignment of residential trips to the network. In terms of the employment traffic, Figure 8 shows all employment traffic arriving and departing via Hunsworth Lane even though a link through the site connecting Kilroyd Avenue with Hunsworth Lane is to be provided. As such a proportion of employee traffic is likely to use Kilroyd Avenue. HDM therefore do not accept the assignment of employment trips to the network.

Section 8 – Traffic Modelling

Based on the above comments regarding access, trip generation and trip assignment, HDM do not accept the modelling assessments provided.

Section 8.2: PICADY Assessments of Priority Junctions

It is unclear which peak hours have been assessed. The modelling outputs provided in Appendix H show the peak hours to be 08:00 – 09:00 and 17:00 – 18:00 yet the base flows used in the model are for the time period 07:45 – 08:45. In addition the output models show

the development traffic relates to the time periods 07:30 – 08:30 and 16:30 – 17:30. Note: A common peak period (using the highest figures) should be used throughout the document. HDM require further clarification on the flows used within the model.

Section 8.3: Change in Traffic Levels

HDM notes that further junction modelling will be undertaken at the following junctions and is considered acceptable:

- A58 Whitehall Rd / B6121 Hunsworth Lane;
- A638 Bradford Road / B6121 Hunsworth Lane;
- A58 Whitehall Road / A651 Bradford Road.

Based on the above comments regarding access, trip generation and trip assignment, HDM do not accept the proposed changes in traffic levels at each of these junctions.

Paragraph 8.3.2: LDF process should be 'Local Plan' process.

Section 9.0: Conclusion

Paragraph 9.8: LDF process should be 'Local Plan' process.

APPENDIX D

Traffic Survey Data

sanderson associates (consulting engineers) ltd

Speed Meter Reading - Results

Location Hunsworth Lane, Cleckheaton
Direction of Travel Northbound

Job Number 9529
Date of Survey 07/09/16
Start Time 14:40
Finish Time 15:47

Speed	No. of Readings	Speed	No. of Readings	Speed	No. of Readings	Speed	No. of Readings
1		26	2	51		76	
2		27	8	52		77	
3		28	5	53		78	
4		29	15	54		79	
5		30	11	55		80	
6		31	13	56		81	
7		32	11	57		82	
8		33	4	58		83	
9		34	6	59		84	
10		35	6	60		85	
11		36	6	61		86	
12		37	3	62		87	
13		38	2	63		88	
14		39	2	64		89	
15		40		65		90	
16		41	1	66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22	1	47		72		97	
23	1	48		73		98	
24	1	49		74		99	
25	2	50		75		100	

Number of Readings = 100
Mean Speed = 31.15
Standard Deviation = 3.6497544
85 Percentile Speed = 34.799754
85 Percentile Wet Weather Speed = 32.314754 **<<<<**

Dual C'way Y/N? n
Single C'way Y/N? y
Wet Road Surface Y/N? n

Note: Insert Y or N in boxes against carriageway type and road surface condition and then use 85 percentile speed as marked with **<<<<**.

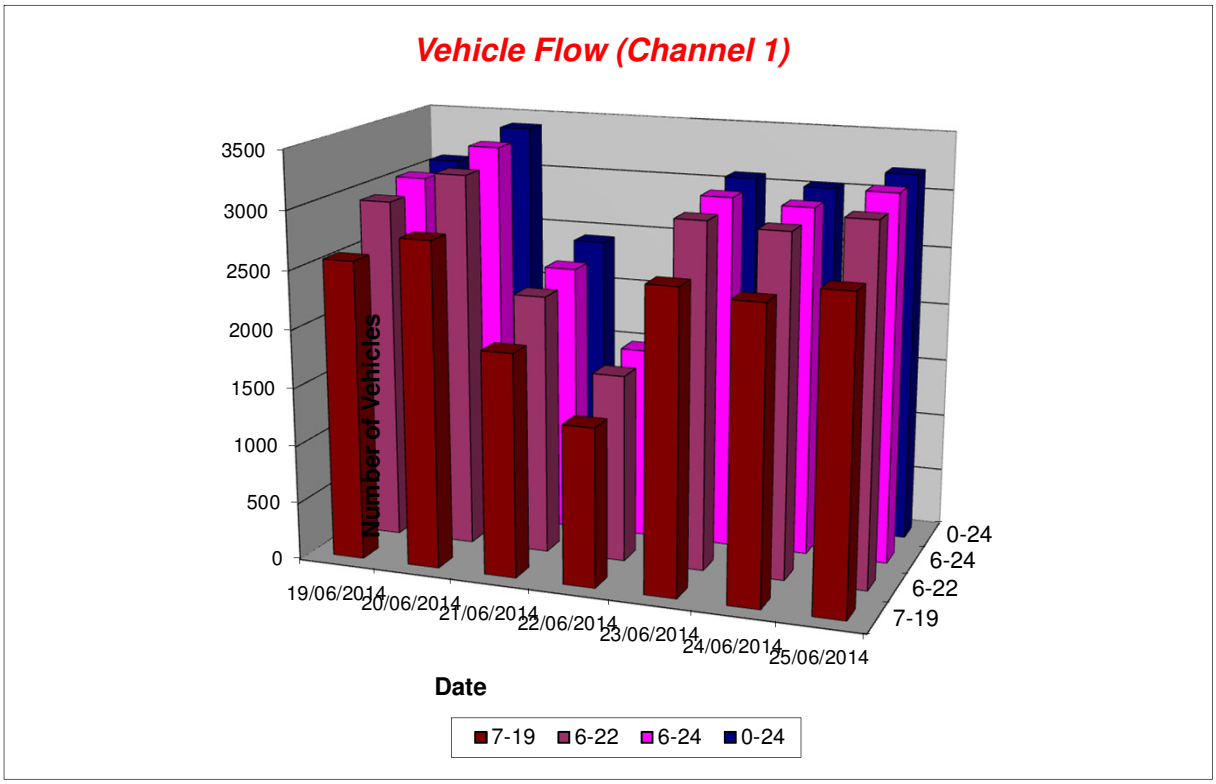
Cleckheaton ATC, Hunsworth Lane

Produced by Road Data Services Ltd.

Channel 1 - Northbound | **Vehicle Flow** | **Week 1**

Hr Ending	19/06/2014 Thursday	20/06/2014 Friday	21/06/2014 Saturday	22/06/2014 Sunday	23/06/2014 Monday	24/06/2014 Tuesday	25/06/2014 Wednesday	5 Day Ave	7 Day Ave
1	9	21	30	42	6	7	8	10	18
2	4	4	26	22	4	3	4	4	10
3	3	3	9	11	1	1	1	2	4
4	4	3	10	2	4	1	1	3	4
5	3	9	8	6	7	3	3	5	6
6	23	25	18	9	24	27	20	24	21
7	73	72	33	23	75	94	81	79	64
8	260	233	35	30	269	258	278	260	195
9	289	312	100	67	304	307	319	306	243
10	155	169	170	89	173	166	170	167	156
11	152	157	218	131	144	120	160	147	155
12	167	192	222	149	179	158	150	169	174
13	179	202	237	162	183	193	183	188	191
14	181	173	193	150	143	167	169	167	168
15	169	209	162	144	184	204	157	185	176
16	261	273	168	140	244	242	237	251	224
17	275	280	142	106	226	273	267	264	224
18	282	338	146	109	339	260	322	308	257
19	204	257	128	93	190	161	239	210	182
20	155	157	119	104	120	137	140	142	133
21	79	103	88	72	119	119	125	109	101
22	62	84	72	48	76	69	70	72	69
23	52	71	51	33	42	49	61	55	51
24	36	57	41	11	26	18	32	34	32

7-19	2574	2795	1921	1370	2578	2509	2651	2621	2343
6-22	2943	3211	2233	1617	2968	2928	3067	3023	2710
6-24	3031	3339	2325	1661	3036	2995	3160	3112	2792
0-24	3077	3404	2426	1753	3082	3037	3197	3159	2854



Cleckheaton ATC, Hunsworth Lane

Produced by Road Data Services Ltd.

Channel 1 - Northbound **Average Speed** **Week 1**

Hr Ending	19/06/2014 Thursday	20/06/2014 Friday	21/06/2014 Saturday	22/06/2014 Sunday	23/06/2014 Monday	24/06/2014 Tuesday	25/06/2014 Wednesday
1	33.1	32.0	30.2	29.5	27.2	32.1	29.3
2	29.3	32.0	30.8	29.5	33.0	32.0	29.5
3	30.3	31.7	28.7	30.9	39.0	36.0	41.0
4	33.3	30.0	28.8	35.5	27.0	30.0	15.0
5	34.3	32.8	28.9	32.2	35.6	30.3	35.3
6	31.5	32.7	32.8	29.4	32.5	33.3	31.3
7	32.0	32.7	33.4	31.7	31.8	31.7	31.7
8	30.6	30.6	32.5	30.8	31.4	30.7	31.4
9	30.2	31.0	31.7	31.2	30.6	31.0	30.8
10	30.3	31.4	30.5	31.4	30.1	30.5	30.6
11	29.5	30.1	30.2	31.3	31.5	30.3	30.1
12	29.9	29.8	30.2	31.2	30.8	30.3	29.9
13	30.6	30.3	30.9	31.0	30.2	29.3	29.9
14	30.8	30.9	30.8	31.8	30.2	29.3	30.0
15	30.3	29.5	29.2	30.8	28.6	29.6	30.3
16	30.8	30.0	29.9	32.0	29.7	30.3	29.2
17	31.3	30.7	30.8	31.9	30.8	30.4	29.8
18	28.9	28.1	30.9	31.3	29.6	30.7	29.7
19	31.3	31.2	31.5	32.3	31.0	31.7	31.0
20	32.1	31.8	31.6	31.5	32.4	32.4	30.9
21	31.9	30.8	30.6	31.9	31.2	31.3	30.4
22	32.1	31.1	31.4	31.6	29.8	29.4	30.2
23	31.5	30.5	30.9	31.4	32.2	31.2	30.2
24	30.9	30.6	31.2	30.2	30.1	32.1	29.3
10-12	29.7	29.9	30.2	31.2	31.1	30.3	30.0
14-16	30.6	29.8	29.6	31.4	29.2	30.0	29.7
0-24	30.6	30.4	30.7	31.4	30.5	30.6	30.3
						7 Day Ave	30.6

Channel 1 - Northbound **85th Percentile**

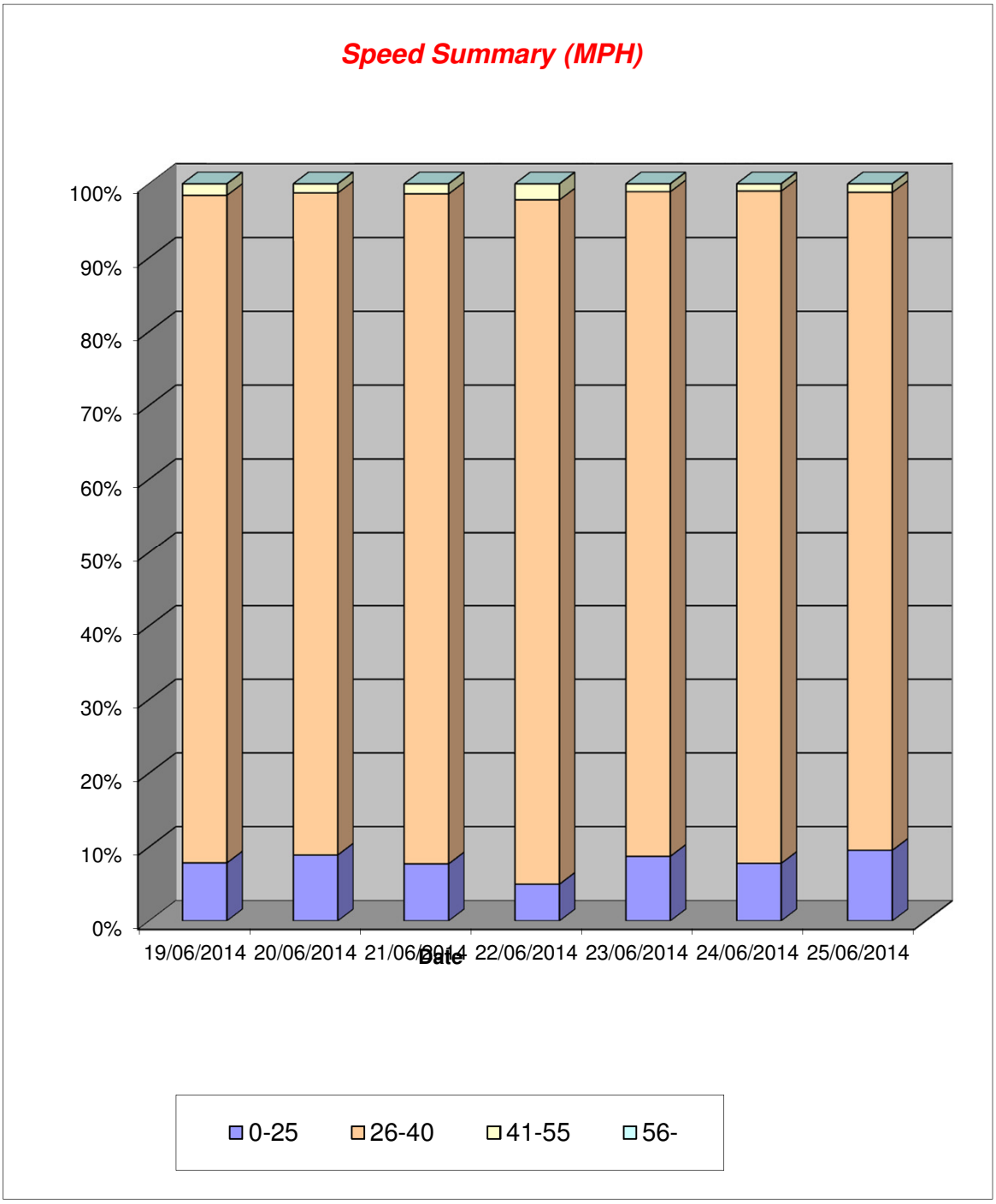
Hr Ending	19/06/2014 Thursday	20/06/2014 Friday	21/06/2014 Saturday	22/06/2014 Sunday	23/06/2014 Monday	24/06/2014 Tuesday	25/06/2014 Wednesday
1	38.0	35.0	34.7	34.9	34.0	40.0	32.9
2	34.1	34.1	36.0	32.9	40.1	37.2	33.6
3	36.1	37.5	32.6	34.0	-	-	-
4	36.1	33.7	32.7	36.6	30.8	-	-
5	35.4	36.8	33.9	34.3	38.6	33.9	37.4
6	35.7	36.8	37.3	33.0	34.6	38.1	35.0
7	37.2	37.0	38.2	37.0	35.0	35.0	36.0
8	35.0	35.0	35.0	33.7	35.0	34.0	35.0
9	34.0	35.0	36.0	35.2	35.0	35.0	35.0
10	35.0	36.0	35.0	35.0	34.0	35.0	35.0
11	34.0	34.0	35.0	36.0	35.0	35.0	34.0
12	34.0	34.0	35.0	35.0	35.0	34.0	34.7
13	35.0	35.0	35.0	35.0	34.7	34.0	34.0
14	35.0	35.0	35.0	35.0	34.7	35.0	34.0
15	35.0	34.0	34.0	35.0	34.0	35.0	35.0
16	35.0	35.0	34.0	36.0	35.0	34.0	34.0
17	35.0	35.0	35.0	36.0	35.0	35.0	35.0
18	34.0	35.0	35.0	35.0	34.0	35.0	35.0
19	35.0	34.0	35.0	36.0	35.0	36.0	35.0
20	36.0	36.0	35.0	36.0	38.0	35.6	35.0
21	35.0	35.0	35.0	36.4	35.0	35.0	35.0
22	35.9	35.0	36.0	36.0	33.8	34.0	34.7
23	35.0	35.0	34.5	35.2	37.7	35.0	35.0
24	35.0	35.0	35.0	33.0	36.5	36.5	33.0
10-12	34.0	34.0	35.0	36.0	35.0	35.0	34.0
14-16	35.0	34.0	34.0	35.0	34.0	34.0	34.0
0-24	35.0	35.0	35.0	35.0	35.0	35.0	35.0
						7 Day Ave	35.0

Cleckheaton ATC, Hunsworth Lane

Produced by Road Data Services Ltd.

Channel 1 - Northbound | **Speed Summary** | **Week 1**

Speed (MPH)	19/06/2014 Thursday	20/06/2014 Friday	21/06/2014 Saturday	22/06/2014 Sunday	23/06/2014 Monday	24/06/2014 Tuesday	25/06/2014 Wednesday
0-25	241	303	187	87	269	236	305
26-40	2788	3059	2206	1628	2780	2771	2855
41-55	48	42	33	38	33	30	37
56-	0	0	0	0	0	0	0
TOTAL	**3077**	**3404**	**2426**	**1753**	**3082**	**3037**	**3197**



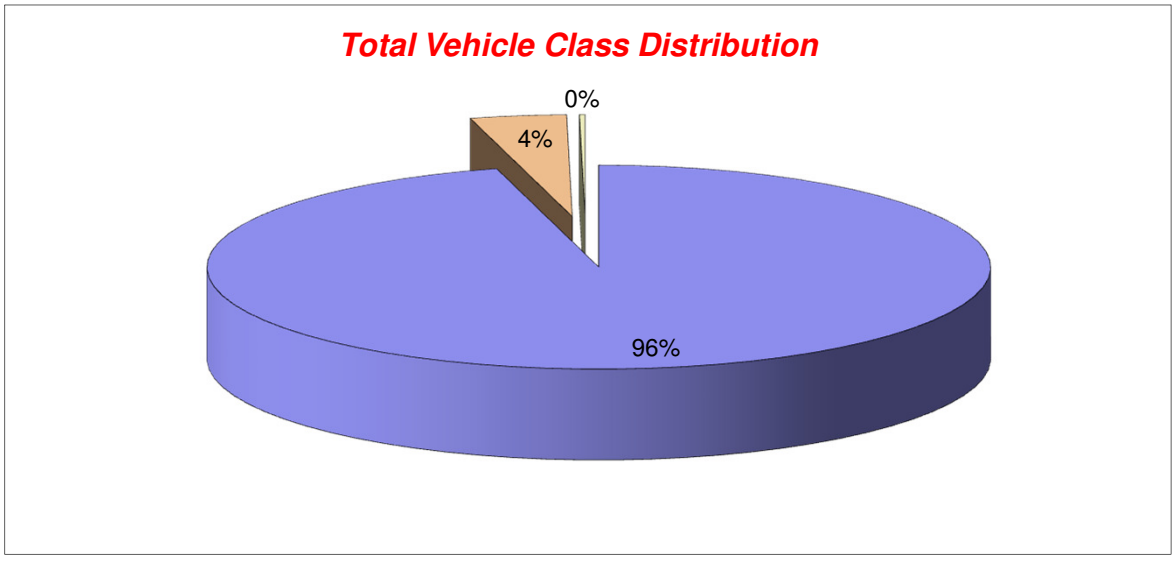
Cleckheaton ATC, Hunsworth Lane

Produced by Road Data Services Ltd.

Channel 1 - Northbound | **Vehicle Class** | **Week 1**

Classes / Day / Time	Car / LGV / Caravan - 1	OGV1 / Bus - 2,3,5,6,7,12	OGV2 - 4,8,9,10,11,13	TOTAL - 1-13
19/06/2014				
7-19	2447	122	5	2574
6-22	2804	134	5	2943
6-24	2891	135	5	3031
0-24	2936	136	5	3077
20/06/2014				
7-19	2663	125	7	2795
6-22	3068	135	8	3211
6-24	3195	136	8	3339
0-24	3256	140	8	3404
21/06/2014				
7-19	1865	50	6	1921
6-22	2172	55	6	2233
6-24	2262	57	6	2325
0-24	2356	64	6	2426
22/06/2014				
7-19	1337	31	2	1370
6-22	1580	35	2	1617
6-24	1623	36	2	1661
0-24	1713	38	2	1753
23/06/2014				
7-19	2430	139	9	2578
6-22	2806	152	10	2968
6-24	2873	153	10	3036
0-24	2915	157	10	3082
24/06/2014				
7-19	2385	118	6	2509
6-22	2798	124	6	2928
6-24	2865	124	6	2995
0-24	2906	125	6	3037
25/06/2014				
7-19	2529	115	7	2651
6-22	2931	128	8	3067
6-24	3021	130	9	3160
0-24	3055	133	9	3197

Average				
7-19	2237	100	6	2343
6-22	2594	109	6	2710
6-24	2676	110	7	2792
0-24	2734	113	7	2854



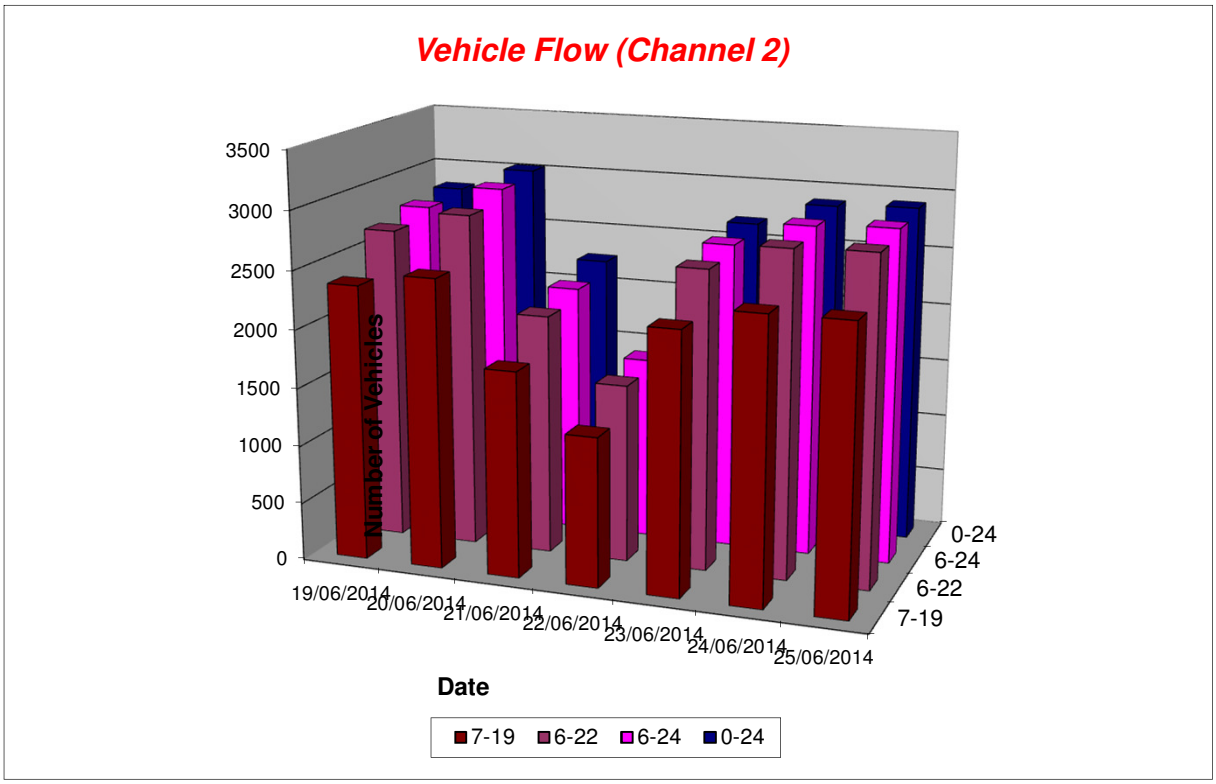
Cleckheaton ATC, Hunsworth Lane

Produced by Road Data Services Ltd.

Channel 2 - Southbound | **Vehicle Flow** | **Week 1**

Hr Ending	19/06/2014 Thursday	20/06/2014 Friday	21/06/2014 Saturday	22/06/2014 Sunday	23/06/2014 Monday	24/06/2014 Tuesday	25/06/2014 Wednesday	5 Day Ave	7 Day Ave
1	11	13	29	31	6	9	7	9	15
2	3	3	13	20	3	4	4	3	7
3	5	5	20	11	3	2	2	3	7
4	2	4	16	5	4	1	3	3	5
5	4	9	7	9	10	5	7	7	7
6	24	15	18	10	23	22	21	21	19
7	59	64	33	12	59	74	63	64	52
8	151	146	43	36	156	164	149	153	121
9	283	263	102	72	260	276	281	273	220
10	169	175	148	89	168	160	181	171	156
11	155	168	199	118	160	149	143	155	156
12	132	157	196	146	152	138	135	143	151
13	137	173	187	134	134	172	160	155	157
14	188	187	186	125	161	155	164	171	167
15	191	207	145	145	170	200	197	193	179
16	176	232	159	114	184	200	212	201	182
17	246	281	148	105	237	268	267	260	222
18	316	279	117	113	261	329	309	299	246
19	225	215	139	92	195	209	227	214	186
20	139	131	113	109	128	136	141	135	128
21	77	116	87	77	82	104	118	99	94
22	50	79	63	47	66	57	63	63	61
23	53	59	52	27	38	28	35	43	42
24	28	46	34	15	25	23	24	29	28

7-19	2369	2483	1769	1289	2238	2420	2425	2387	2142
6-22	2694	2873	2065	1534	2573	2791	2810	2748	2477
6-24	2775	2978	2151	1576	2636	2842	2869	2820	2547
0-24	2824	3027	2254	1662	2685	2885	2913	2867	2607



Cleckheaton ATC, Hunsworth Lane

Produced by Road Data Services Ltd.

Channel 2 - Southbound **Average Speed** **Week 1**

Hr Ending	19/06/2014 Thursday	20/06/2014 Friday	21/06/2014 Saturday	22/06/2014 Sunday	23/06/2014 Monday	24/06/2014 Tuesday	25/06/2014 Wednesday
1	38.4	34.6	33.8	31.6	30.0	33.7	33.6
2	34.3	32.7	32.5	31.5	33.0	34.8	33.5
3	35.4	32.0	31.9	34.7	34.3	31.5	29.5
4	36.5	35.3	33.5	35.4	33.0	31.0	34.7
5	30.3	31.6	31.6	33.9	35.1	31.0	33.7
6	32.9	36.2	33.9	31.6	32.6	32.9	35.3
7	32.2	31.3	33.2	32.5	32.5	32.9	31.9
8	32.0	33.3	33.9	32.1	32.4	32.1	33.0
9	31.6	32.2	31.2	32.3	32.0	31.9	31.4
10	31.4	32.3	31.7	33.1	31.2	31.0	31.8
11	31.0	31.7	30.6	31.0	31.4	30.3	30.9
12	31.4	30.7	31.7	31.8	31.5	30.5	30.8
13	31.6	32.2	31.1	31.5	32.0	31.5	31.1
14	31.3	31.8	31.3	31.6	31.4	31.5	31.2
15	32.1	31.5	31.3	31.7	31.7	31.5	31.7
16	31.8	30.9	32.5	32.8	30.5	31.7	30.7
17	33.0	31.8	32.1	32.2	32.8	31.8	32.1
18	32.5	31.8	32.0	32.9	32.7	32.6	31.2
19	32.6	32.4	32.1	33.1	32.9	31.8	31.8
20	32.2	31.9	33.2	32.3	33.1	32.6	32.5
21	32.9	31.9	32.9	33.1	32.5	32.2	33.2
22	32.0	32.5	31.5	31.7	32.1	33.1	32.3
23	32.8	31.8	32.0	33.6	34.7	32.4	32.1
24	32.7	31.5	32.7	33.2	31.6	32.6	30.7
10-12	31.2	31.2	31.2	31.4	31.5	30.4	30.8
14-16	32.0	31.1	31.9	32.2	31.1	31.6	31.2
0-24	32.1	31.9	31.9	32.2	32.1	31.8	31.7
						7 Day Ave	31.9

Channel 2 - Southbound **85th Percentile**

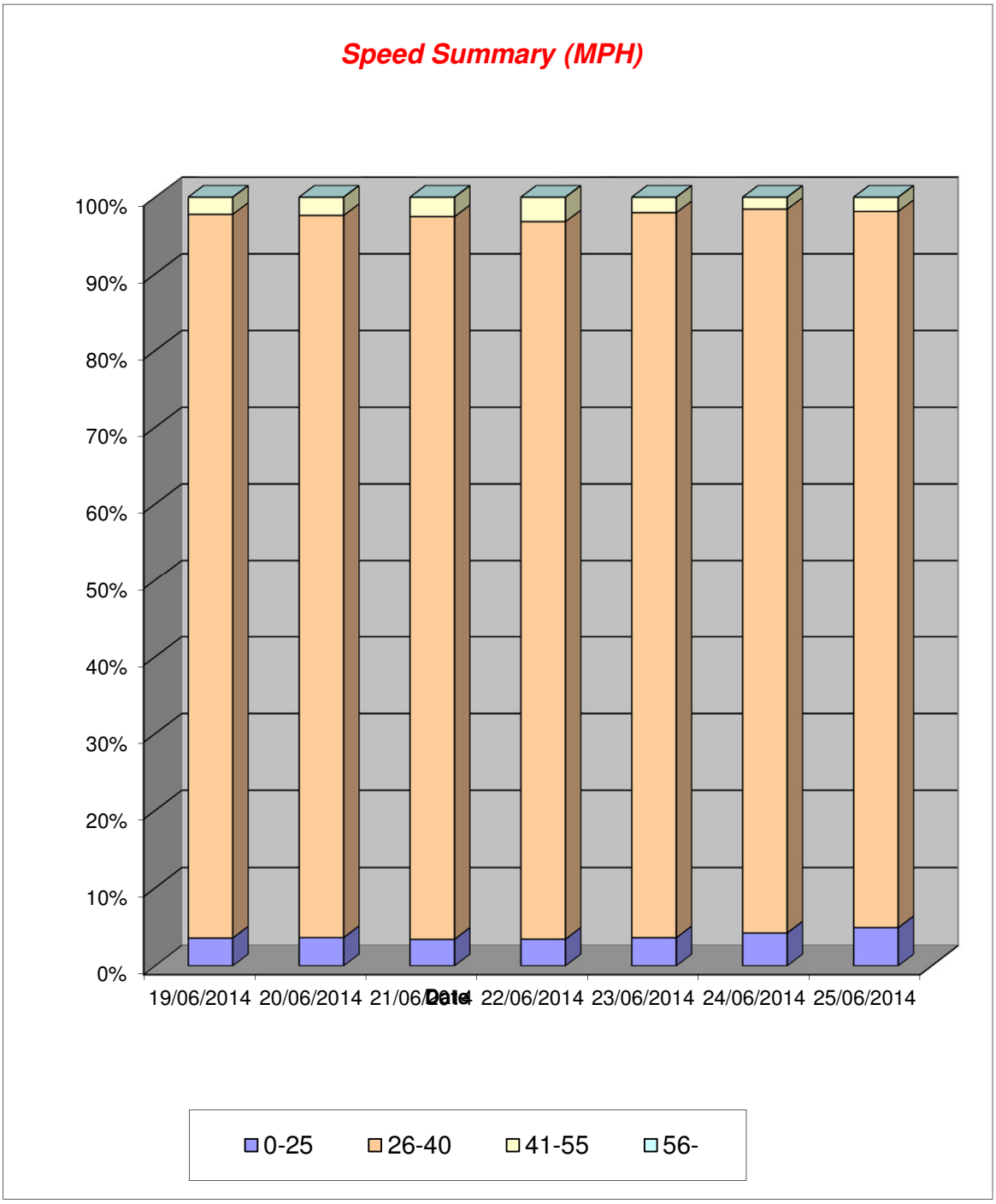
Hr Ending	19/06/2014 Thursday	20/06/2014 Friday	21/06/2014 Saturday	22/06/2014 Sunday	23/06/2014 Monday	24/06/2014 Tuesday	25/06/2014 Wednesday
1	40.5	40.8	38.0	36.0	35.0	39.2	35.9
2	35.0	33.4	35.2	35.2	36.4	40.3	34.6
3	38.8	36.8	38.2	40.0	40.2	33.3	30.6
4	39.0	36.6	36.8	41.2	36.2	-	36.8
5	34.6	33.8	35.0	39.4	39.3	33.4	40.0
6	37.0	40.0	38.5	36.3	36.0	38.0	39.0
7	35.0	35.0	38.4	36.8	38.0	39.0	36.7
8	36.0	39.0	38.0	38.0	37.0	37.0	38.0
9	35.0	35.0	35.0	37.4	36.0	35.0	35.0
10	35.0	36.9	36.0	38.0	35.0	35.0	35.0
11	34.0	35.0	35.0	35.0	35.2	35.0	35.0
12	35.0	35.0	35.0	35.0	35.0	35.0	35.0
13	36.6	36.0	35.0	35.0	35.0	35.0	35.0
14	35.0	35.0	35.0	35.0	35.0	35.0	35.0
15	36.0	35.0	35.0	36.0	35.0	35.0	35.0
16	35.0	35.0	35.3	37.1	35.0	35.0	35.0
17	38.0	35.0	35.0	36.0	37.0	35.0	35.0
18	36.0	36.0	35.6	37.0	36.0	37.0	35.0
19	37.0	36.0	35.0	38.0	37.0	35.0	36.0
20	35.0	37.0	38.0	36.8	38.0	38.0	37.0
21	37.0	35.8	38.1	37.6	38.0	37.0	37.0
22	36.7	37.0	35.0	35.1	36.3	38.6	36.4
23	38.2	38.0	39.0	38.0	39.5	37.0	36.0
24	39.0	37.0	38.1	38.7	39.4	37.4	38.1
10-12	34.0	35.0	35.0	35.0	35.2	35.0	35.0
14-16	35.0	35.0	35.0	36.0	35.0	35.0	35.0
0-24	36.0	36.0	36.0	37.0	36.0	35.4	35.0
						7 Day Ave	36.0

Cleckheaton ATC, Hunsworth Lane

Produced by Road Data Services Ltd.

Channel 2 - Southbound | **Speed Summary** | **Week 1**

Speed (MPH)	19/06/2014 Thursday	20/06/2014 Friday	21/06/2014 Saturday	22/06/2014 Sunday	23/06/2014 Monday	24/06/2014 Tuesday	25/06/2014 Wednesday
0-25	101	110	77	57	97	122	143
26-40	2660	2845	2120	1552	2534	2718	2716
41-55	63	72	57	53	54	45	54
56-	0	0	0	0	0	0	0
TOTAL	**2824**	**3027**	**2254**	**1662**	**2685**	**2885**	**2913**



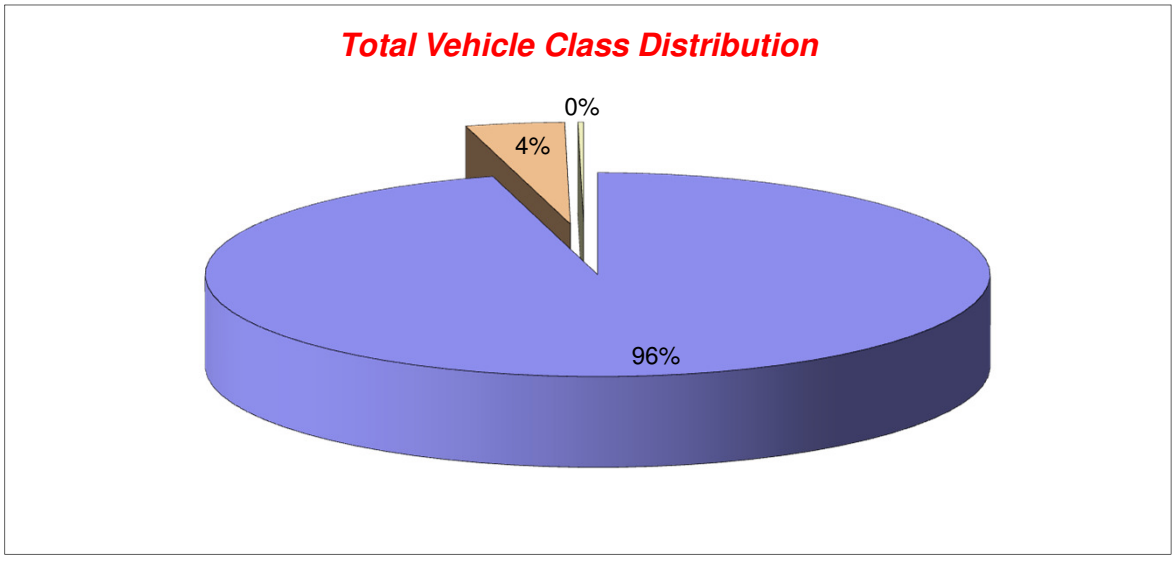
Cleckheaton ATC, Hunsworth Lane

Produced by Road Data Services Ltd.

Channel 2 - Southbound | **Vehicle Class** | **Week 1**

Classes / Day / Time	Car / LGV / Caravan - 1	OGV1 / Bus - 2,3,5,6,7,12	OGV2 - 4,8,9,10,11,13	TOTAL - 1-13
19/06/2014				
7-19	2256	111	2	2369
6-22	2576	116	2	2694
6-24	2655	118	2	2775
0-24	2703	118	3	2824
20/06/2014				
7-19	2356	123	4	2483
6-22	2734	134	5	2873
6-24	2836	137	5	2978
0-24	2883	139	5	3027
21/06/2014				
7-19	1716	49	4	1769
6-22	2002	59	4	2065
6-24	2086	61	4	2151
0-24	2183	67	4	2254
22/06/2014				
7-19	1256	29	4	1289
6-22	1498	31	5	1534
6-24	1538	33	5	1576
0-24	1621	36	5	1662
23/06/2014				
7-19	2118	111	9	2238
6-22	2443	121	9	2573
6-24	2505	122	9	2636
0-24	2553	123	9	2685
24/06/2014				
7-19	2291	121	8	2420
6-22	2648	134	9	2791
6-24	2698	135	9	2842
0-24	2739	137	9	2885
25/06/2014				
7-19	2303	114	8	2425
6-22	2683	119	8	2810
6-24	2741	120	8	2869
0-24	2782	123	8	2913

Average				
7-19	2042	94	6	2142
6-22	2369	102	6	2477
6-24	2437	104	6	2547
0-24	2495	106	6	2607



Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

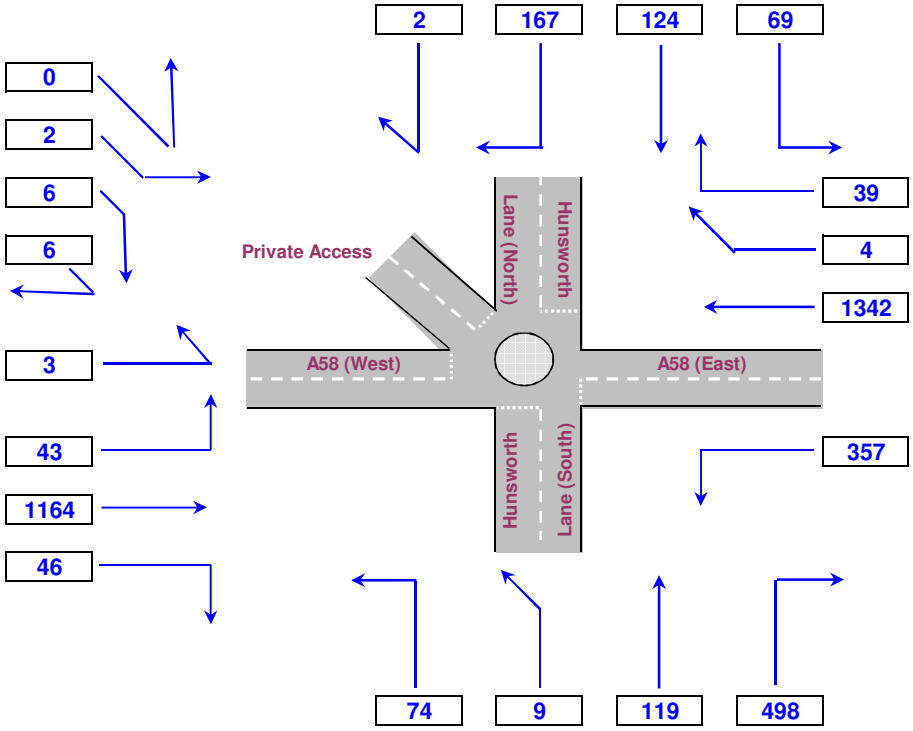
Junction: (1) Hunsworth Lane / A58 / Private Access

Vehicle Class: ALL CLASSES

Start Time: 1) 0700

End Time: 1) 0930

☐ **Peak Hour**



Note: The above diagram represents the Junction surveyed, although may not be the exact layout of the actual location.

Important Note: This spreadsheet & Interactive Vehicle Flow Diagram was produced based on specific parameters. Consequently, alteration to the spreadsheet format or it's properties may result in malfunction.

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (1) Hunsworth Lane / A58 / Private Access

Approach: Hunsworth Lane (North)

	Left to A58 (East)								S/B to Hunsworth Lane (South)								Right to A58 (West)								Last Right to Private Access							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
0700 - 0715	0	0	2	1	0	0	0	**3**	0	0	1	2	0	0	0	**3**	1	1	13	4	0	0	0	**19**	0	0	0	0	0	0	0	**0**
0715 - 0730	0	0	5	0	0	0	0	**5**	0	0	9	0	1	0	0	**10**	2	0	4	2	0	0	0	**8**	0	0	0	0	0	0	0	**0**
0730 - 0745	0	1	7	1	0	0	0	**9**	0	0	11	1	0	0	0	**12**	0	0	12	3	0	0	1	**16**	0	0	0	0	0	0	0	**0**
0745 - 0800	0	0	5	3	0	0	0	**8**	0	0	11	1	1	0	0	**13**	0	0	13	1	0	0	0	**14**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**1**	**19**	**5**	**0**	**0**	**0**	**25**	**0**	**0**	**32**	**4**	**2**	**0**	**0**	**38**	**3**	**1**	**42**	**10**	**0**	**0**	**1**	**57**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0800 - 0815	0	0	4	0	0	0	0	**4**	0	0	13	1	0	0	0	**14**	0	0	14	4	0	0	0	**18**	0	0	0	0	0	0	0	**0**
0815 - 0830	0	0	10	2	0	0	0	**12**	0	0	22	1	0	0	0	**23**	0	0	18	2	0	0	0	**20**	0	0	0	0	0	0	0	**0**
0830 - 0845	0	0	8	2	0	0	0	**10**	0	0	16	2	1	0	0	**19**	0	0	15	0	1	0	0	**16**	0	0	0	0	0	0	0	**0**
0845 - 0900	0	0	6	1	0	0	0	**7**	0	0	12	1	0	0	0	**13**	0	0	19	0	3	0	0	**22**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**28**	**5**	**0**	**0**	**0**	**33**	**0**	**0**	**63**	**5**	**1**	**0**	**0**	**69**	**0**	**0**	**66**	**6**	**4**	**0**	**0**	**76**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0900 - 0915	0	0	7	0	0	0	0	**7**	1	0	5	4	0	0	0	**10**	0	0	20	1	2	0	0	**23**	0	0	1	0	0	0	0	**1**
0915 - 0930	0	0	4	0	0	0	0	**4**	0	0	6	1	0	0	0	**7**	0	0	9	2	0	0	0	**11**	0	0	0	1	0	0	0	**1**
Hourly Total	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**11**	**1**	**0**	**11**	**5**	**0**	**0**	**0**	**17**	**0**	**0**	**29**	**3**	**2**	**0**	**0**	**34**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**
Session Total	**0**	**1**	**58**	**10**	**0**	**0**	**0**	**69**	**1**	**0**	**106**	**14**	**3**	**0**	**0**	**124**	**3**	**1**	**137**	**19**	**6**	**0**	**1**	**167**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**
1600 - 1615	0	0	7	3	0	0	0	**10**	0	0	9	2	0	0	0	**11**	0	0	10	1	0	0	0	**11**	0	0	0	0	0	0	0	**0**
1615 - 1630	0	0	8	3	0	0	0	**11**	0	0	18	1	0	0	1	**20**	0	0	6	0	0	0	1	**7**	0	0	0	0	0	0	0	**0**
1630 - 1645	0	0	6	1	0	0	0	**7**	0	0	12	0	1	0	1	**14**	0	0	12	1	0	0	0	**13**	0	0	0	0	0	0	0	**0**
1645 - 1700	0	0	7	0	0	0	0	**7**	0	0	14	1	0	0	0	**15**	0	0	5	2	0	0	0	**7**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**28**	**7**	**0**	**0**	**0**	**35**	**0**	**0**	**53**	**4**	**1**	**0**	**2**	**60**	**0**	**0**	**33**	**4**	**0**	**0**	**1**	**38**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
1700 - 1715	0	0	12	0	0	0	0	**12**	0	0	8	2	1	0	0	**11**	0	0	12	0	1	0	0	**13**	0	0	0	0	0	0	0	**0**
1715 - 1730	0	0	16	2	0	0	0	**18**	2	0	25	0	0	0	0	**27**	0	0	13	1	0	0	0	**14**	0	0	0	0	0	0	0	**0**
1730 - 1745	0	1	11	0	0	0	0	**12**	0	2	16	0	0	0	0	**18**	0	0	16	0	0	0	0	**16**	0	0	0	0	0	0	0	**0**
1745 - 1800	0	0	12	4	1	0	0	**17**	1	0	15	1	0	0	1	**18**	0	0	19	2	1	0	0	**22**	0	0	0	0	1	0	0	**1**
Hourly Total	**0**	**1**	**51**	**6**	**1**	**0**	**0**	**59**	**3**	**2**	**64**	**3**	**1**	**0**	**1**	**74**	**0**	**0**	**60**	**3**	**2**	**0**	**0**	**65**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**
1800 - 1815	0	0	2	3	0	0	0	**5**	0	0	16	3	0	0	0	**19**	0	1	3	1	0	0	0	**5**	0	0	0	0	0	0	0	**0**
1815 - 1830	0	0	5	0	1	0	0	**6**	0	0	12	0	1	0	0	**13**	0	0	12	1	0	0	0	**13**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**7**	**3**	**1**	**0**	**0**	**11**	**0**	**0**	**28**	**3**	**1**	**0**	**0**	**32**	**0**	**1**	**15**	**2**	**0**	**0**	**0**	**18**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Session Total	**0**	**1**	**86**	**16**	**2**	**0**	**0**	**105**	**3**	**2**	**145**	**10**	**3**	**0**	**3**	**166**	**0**	**1**	**108**	**9**	**2**	**0**	**1**	**121**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (1) Hunsworth Lane / A58 / Private Access

Approach: A58 (East)

	Left to Hunsworth Lane (South)								W/B to A58 (West)								Right to Private Access								Last Right to Hunsworth Lane (North)							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
0700 - 0715	1	0	15	1	2	0	0	**19**	0	2	85	10	2	4	0	**103**	0	0	0	0	0	0	0	**0**	0	0	0	1	0	0	0	**1**
0715 - 0730	1	0	19	5	0	0	0	**25**	0	1	124	21	2	3	0	**151**	0	0	0	0	0	0	0	**0**	0	0	2	1	0	0	0	**3**
0730 - 0745	0	0	20	3	0	0	1	**24**	0	3	145	21	7	2	0	**178**	0	0	0	0	0	0	0	**0**	0	0	3	0	0	0	0	**3**
0745 - 0800	0	0	22	4	1	0	0	**27**	1	1	141	24	14	1	0	**182**	0	0	1	0	0	0	0	**1**	0	0	5	0	0	0	0	**5**
Hourly Total	**2**	**0**	**76**	**13**	**3**	**0**	**1**	**95**	**1**	**7**	**495**	**76**	**25**	**10**	**0**	**614**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**10**	**2**	**0**	**0**	**0**	**12**
0800 - 0815	0	0	37	4	1	0	0	**42**	0	1	144	14	4	2	0	**165**	0	0	0	0	0	0	0	**0**	0	0	4	1	0	0	1	**6**
0815 - 0830	0	0	40	2	2	0	0	**44**	0	2	123	21	7	3	0	**156**	0	0	0	0	0	0	0	**0**	0	0	6	0	0	0	0	**6**
0830 - 0845	0	0	43	6	2	0	0	**51**	0	2	101	20	9	3	1	**136**	0	0	2	0	0	0	0	**2**	0	0	4	0	0	0	0	**4**
0845 - 0900	0	0	53	0	1	1	0	**55**	0	0	83	16	4	1	1	**105**	0	0	0	0	0	0	0	**0**	0	0	4	1	0	0	0	**5**
Hourly Total	**0**	**0**	**173**	**12**	**6**	**1**	**0**	**192**	**0**	**5**	**451**	**71**	**24**	**9**	**2**	**562**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**18**	**2**	**0**	**0**	**1**	**21**
0900 - 0915	0	0	34	4	1	0	0	**39**	0	0	73	11	3	3	0	**90**	0	0	1	0	0	0	0	**1**	0	1	2	0	0	0	0	**3**
0915 - 0930	0	0	28	2	1	0	0	**31**	0	0	59	11	5	1	0	**76**	0	0	0	0	0	0	0	**0**	0	0	2	1	0	0	0	**3**
Hourly Total	**0**	**0**	**62**	**6**	**2**	**0**	**0**	**70**	**0**	**0**	**132**	**22**	**8**	**4**	**0**	**166**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**4**	**1**	**0**	**0**	**0**	**6**
Session Total	**2**	**0**	**311**	**31**	**11**	**1**	**1**	**357**	**1**	**12**	**1078**	**169**	**57**	**23**	**2**	**1342**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**0**	**1**	**32**	**5**	**0**	**0**	**1**	**39**
1600 - 1615	0	1	34	5	1	0	0	**41**	0	0	90	21	3	4	0	**118**	0	0	0	0	0	0	0	**0**	0	1	6	0	0	0	0	**7**
1615 - 1630	0	0	32	8	1	0	0	**41**	1	1	99	17	3	0	1	**122**	0	0	1	1	0	0	0	**2**	0	0	4	2	0	0	0	**6**
1630 - 1645	0	1	44	11	0	1	0	**57**	1	6	118	22	4	2	0	**153**	0	0	0	0	0	0	0	**0**	0	0	4	0	0	0	0	**4**
1645 - 1700	0	1	48	3	2	0	0	**54**	2	3	126	18	5	2	1	**157**	0	0	0	0	0	0	0	**0**	0	0	11	1	0	0	0	**12**
Hourly Total	**0**	**3**	**158**	**27**	**4**	**1**	**0**	**193**	**4**	**10**	**433**	**78**	**15**	**8**	**2**	**550**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**1**	**25**	**3**	**0**	**0**	**0**	**29**
1700 - 1715	1	0	55	5	1	0	1	**63**	0	5	93	16	2	0	0	**116**	0	0	0	0	0	0	0	**0**	0	0	4	5	0	0	0	**9**
1715 - 1730	0	0	39	3	1	0	0	**43**	1	3	130	15	1	0	0	**150**	0	0	0	0	0	0	0	**0**	0	0	9	0	0	0	0	**9**
1730 - 1745	0	0	49	6	0	0	0	**55**	1	1	108	10	3	0	0	**123**	0	0	0	0	0	0	0	**0**	0	0	11	0	0	0	0	**11**
1745 - 1800	0	2	34	6	0	0	0	**42**	0	1	122	7	4	0	0	**134**	0	0	0	0	0	0	0	**0**	0	0	15	0	1	0	0	**16**
Hourly Total	**1**	**2**	**177**	**20**	**2**	**0**	**1**	**203**	**2**	**10**	**453**	**48**	**10**	**0**	**0**	**523**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**39**	**5**	**1**	**0**	**0**	**45**
1800 - 1815	0	1	50	2	1	0	0	**54**	1	1	103	8	1	1	0	**115**	0	0	0	0	0	0	0	**0**	0	0	5	0	0	0	0	**5**
1815 - 1830	1	0	33	2	0	0	1	**37**	1	5	84	9	0	0	0	**99**	0	0	0	0	0	0	0	**0**	0	1	6	0	0	0	0	**7**
Hourly Total	**1**	**1**	**83**	**4**	**1**	**0**	**1**	**91**	**2**	**6**	**187**	**17**	**1**	**1**	**0**	**214**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**11**	**0**	**0**	**0**	**0**	**12**
Session Total	**2**	**6**	**418**	**51**	**7**	**1**	**2**	**487**	**8**	**26**	**1073**	**143**	**26**	**9**	**2**	**1287**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**2**	**75**	**8**	**1**	**0**	**0**	**86**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (1) Hunsworth Lane / A58 / Private Access

Approach: Hunsworth Lane (South)

	First Left to A58 (West)								Second Left to Private Access								N/B to Hunsworth Lane (North)								Right to A58 (East)							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
0700 - 0715	0	0	3	2	0	1	0	**6**	0	0	2	0	0	0	0	**2**	0	0	6	1	0	0	1	**8**	1	0	35	5	1	0	0	**42**
0715 - 0730	0	0	7	1	0	0	0	**8**	0	0	0	0	0	0	0	**0**	0	0	9	0	0	0	0	**9**	0	0	46	4	1	0	0	**51**
0730 - 0745	0	0	5	1	0	0	0	**6**	0	0	0	2	0	0	0	**2**	0	0	11	1	0	0	1	**13**	0	2	48	4	2	0	0	**56**
0745 - 0800	0	0	8	0	0	0	0	**8**	0	0	0	0	0	0	0	**0**	0	0	6	0	0	0	0	**6**	1	0	59	4	2	0	1	**67**
Hourly Total	**0**	**0**	**23**	**4**	**0**	**1**	**0**	**28**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**32**	**2**	**0**	**0**	**2**	**36**	**2**	**2**	**188**	**17**	**6**	**0**	**1**	**216**
0800 - 0815	0	0	9	0	0	0	0	**9**	0	0	1	0	0	0	0	**1**	0	0	6	0	0	0	0	**6**	0	0	49	5	1	0	1	**56**
0815 - 0830	0	0	12	2	1	1	0	**16**	0	0	0	0	0	0	0	**0**	0	0	9	0	0	0	0	**9**	0	1	47	5	0	0	0	**53**
0830 - 0845	0	0	4	0	1	0	0	**5**	0	0	0	0	0	0	0	**0**	1	0	14	3	1	0	0	**19**	0	0	56	3	2	0	0	**61**
0845 - 0900	0	0	9	1	0	0	0	**10**	0	0	2	0	0	0	0	**2**	0	0	17	0	0	0	0	**17**	0	0	53	7	2	0	0	**62**
Hourly Total	**0**	**0**	**34**	**3**	**2**	**1**	**0**	**40**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**46**	**3**	**1**	**0**	**0**	**51**	**0**	**1**	**205**	**20**	**5**	**0**	**1**	**232**
0900 - 0915	0	0	4	0	0	0	0	**4**	0	0	0	0	0	0	0	**0**	0	0	13	3	0	0	0	**16**	0	0	26	1	1	0	0	**28**
0915 - 0930	0	0	2	0	0	0	0	**2**	0	0	1	1	0	0	0	**2**	0	0	11	5	0	0	0	**16**	0	0	16	3	3	0	0	**22**
Hourly Total	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**24**	**8**	**0**	**0**	**0**	**32**	**0**	**0**	**42**	**4**	**4**	**0**	**0**	**50**
Session Total	**0**	**0**	**63**	**7**	**2**	**2**	**0**	**74**	**0**	**0**	**6**	**3**	**0**	**0**	**0**	**9**	**1**	**0**	**102**	**13**	**1**	**0**	**2**	**119**	**2**	**3**	**435**	**41**	**15**	**0**	**2**	**498**
1600 - 1615	0	0	5	3	1	0	0	**9**	0	0	1	1	0	0	0	**2**	0	0	12	2	0	1	0	**15**	0	1	43	2	1	0	0	**47**
1615 - 1630	0	0	3	1	1	0	0	**5**	0	0	0	0	0	0	0	**0**	0	0	12	3	0	0	0	**15**	0	1	35	5	2	0	0	**43**
1630 - 1645	0	0	7	0	0	0	0	**7**	0	0	1	0	0	0	0	**1**	0	0	13	3	1	0	0	**17**	0	0	42	4	0	0	0	**46**
1645 - 1700	0	0	12	0	0	0	0	**12**	0	0	0	0	0	0	0	**0**	0	0	14	1	1	0	2	**18**	0	0	39	1	2	0	0	**42**
Hourly Total	**0**	**0**	**27**	**4**	**2**	**0**	**0**	**33**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**51**	**9**	**2**	**1**	**2**	**65**	**0**	**2**	**159**	**12**	**5**	**0**	**0**	**178**
1700 - 1715	0	0	11	0	0	0	0	**11**	0	0	0	0	0	0	0	**0**	0	0	22	1	0	0	0	**23**	0	1	53	8	2	0	1	**65**
1715 - 1730	0	0	6	2	0	0	0	**8**	0	0	0	0	0	0	0	**0**	0	0	25	0	0	0	0	**25**	0	0	40	4	0	0	0	**44**
1730 - 1745	0	0	9	0	0	0	0	**9**	0	0	0	0	0	0	0	**0**	0	0	16	2	1	0	0	**19**	0	0	49	2	0	0	0	**51**
1745 - 1800	0	0	4	0	0	0	0	**4**	0	0	0	0	0	0	0	**0**	0	0	15	3	0	1	1	**20**	0	1	41	3	2	0	0	**47**
Hourly Total	**0**	**0**	**30**	**2**	**0**	**0**	**0**	**32**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**78**	**6**	**1**	**1**	**1**	**87**	**0**	**2**	**183**	**17**	**4**	**0**	**1**	**207**
1800 - 1815	0	0	7	0	0	0	0	**7**	0	0	0	0	0	0	0	**0**	0	0	18	1	0	0	0	**19**	0	0	34	3	0	0	0	**37**
1815 - 1830	0	0	5	0	0	0	0	**5**	0	0	1	0	0	0	0	**1**	0	0	12	1	0	0	0	**13**	0	0	51	2	0	0	0	**53**
Hourly Total	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**30**	**2**	**0**	**0**	**0**	**32**	**0**	**0**	**85**	**5**	**0**	**0**	**0**	**90**
Session Total	**0**	**0**	**69**	**6**	**2**	**0**	**0**	**77**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**159**	**17**	**3**	**2**	**3**	**184**	**0**	**4**	**427**	**34**	**9**	**0**	**1**	**475**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

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Junction: (1) Hunsworth Lane / A58 / Private Access

Approach: A58 (West)

	First Left to Private Access								Second Left to Hunsworth Lane (North)								E/B to A58 (East)								Right to Hunsworth Lane (South)							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
0700 - 0715	0	0	0	0	1	0	0	**1**	0	0	0	1	0	0	0	**1**	3	0	106	18	3	2	0	**132**	0	0	2	0	0	0	0	**2**
0715 - 0730	0	0	0	0	0	0	0	**0**	0	0	1	1	0	0	0	**2**	0	4	96	21	2	3	0	**126**	0	0	3	0	0	0	0	**3**
0730 - 0745	0	0	0	0	0	0	0	**0**	0	0	6	0	0	0	0	**6**	1	3	83	19	3	3	0	**112**	0	0	2	1	0	0	0	**3**
0745 - 0800	0	0	0	0	0	0	0	**0**	0	0	3	2	0	0	0	**5**	3	4	96	17	7	0	0	**127**	0	0	4	1	0	1	0	**6**
Hourly Total	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**10**	**4**	**0**	**0**	**0**	**14**	**7**	**11**	**381**	**75**	**15**	**8**	**0**	**497**	**0**	**0**	**11**	**2**	**0**	**1**	**0**	**14**
0800 - 0815	0	0	0	0	0	0	0	**0**	0	0	5	1	1	0	0	**7**	4	7	95	15	3	2	0	**126**	0	0	5	0	0	0	0	**5**
0815 - 0830	0	0	0	0	0	0	0	**0**	0	0	6	0	0	0	0	**6**	0	2	98	15	7	1	0	**123**	0	0	1	0	0	0	0	**1**
0830 - 0845	0	0	0	0	0	0	0	**0**	0	0	4	2	0	0	0	**6**	1	2	92	15	2	3	0	**115**	0	0	4	0	0	0	0	**4**
0845 - 0900	0	0	0	0	0	0	0	**0**	0	0	1	3	0	0	0	**4**	0	4	92	16	6	2	0	**120**	0	0	4	2	0	0	0	**6**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**6**	**1**	**0**	**0**	**23**	**5**	**15**	**377**	**61**	**18**	**8**	**0**	**484**	**0**	**0**	**14**	**2**	**0**	**0**	**0**	**16**
0900 - 0915	0	0	0	1	1	0	0	**2**	0	0	2	1	0	0	0	**3**	0	1	64	20	5	2	1	**93**	0	0	6	1	1	0	0	**8**
0915 - 0930	0	0	0	0	0	0	0	**0**	0	0	1	1	1	0	0	**3**	0	2	69	7	8	3	1	**90**	0	0	7	1	0	0	0	**8**
Hourly Total	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**3**	**2**	**1**	**0**	**0**	**6**	**0**	**3**	**133**	**27**	**13**	**5**	**2**	**183**	**0**	**0**	**13**	**2**	**1**	**0**	**0**	**16**
Session Total	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**3**	**0**	**0**	**29**	**12**	**2**	**0**	**0**	**43**	**12**	**29**	**891**	**163**	**46**	**21**	**2**	**1164**	**0**	**0**	**38**	**6**	**1**	**1**	**0**	**46**
1600 - 1615	0	0	1	2	0	0	0	**3**	0	1	9	1	1	0	0	**12**	0	0	88	16	6	0	0	**110**	0	0	6	1	0	0	0	**7**
1615 - 1630	0	0	0	0	0	0	0	**0**	0	0	7	2	2	0	0	**11**	0	1	108	19	6	2	1	**137**	0	0	5	0	0	0	0	**5**
1630 - 1645	0	0	0	1	1	0	0	**2**	0	0	16	2	0	0	0	**18**	0	4	93	21	7	2	0	**127**	0	0	1	0	0	0	0	**1**
1645 - 1700	0	0	0	0	0	0	0	**0**	0	0	9	0	0	0	0	**9**	2	1	104	19	4	2	0	**132**	0	0	4	2	0	0	0	**6**
Hourly Total	**0**	**0**	**1**	**3**	**1**	**0**	**0**	**5**	**0**	**1**	**41**	**5**	**3**	**0**	**0**	**50**	**2**	**6**	**393**	**75**	**23**	**6**	**1**	**506**	**0**	**0**	**16**	**3**	**0**	**0**	**0**	**19**
1700 - 1715	0	0	0	0	1	0	0	**1**	0	0	19	1	0	0	0	**20**	0	3	117	5	7	0	0	**132**	0	0	15	2	0	0	0	**17**
1715 - 1730	0	0	0	0	0	0	0	**0**	0	0	2	2	0	0	0	**4**	0	2	109	18	3	0	0	**132**	0	0	7	1	0	0	0	**8**
1730 - 1745	0	0	0	0	0	0	0	**0**	0	0	13	1	0	0	0	**14**	0	1	127	11	2	1	0	**142**	0	0	10	0	0	0	0	**10**
1745 - 1800	0	0	0	0	1	0	0	**1**	0	0	16	2	0	0	0	**18**	0	5	105	14	5	1	0	**130**	0	0	2	0	0	0	0	**2**
Hourly Total	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**50**	**6**	**0**	**0**	**0**	**56**	**0**	**11**	**458**	**48**	**17**	**2**	**0**	**536**	**0**	**0**	**34**	**3**	**0**	**0**	**0**	**37**
1800 - 1815	0	0	0	0	2	0	0	**2**	0	0	15	2	0	0	0	**17**	0	2	81	16	3	0	0	**102**	0	0	4	2	0	0	0	**6**
1815 - 1830	0	0	0	0	0	0	0	**0**	0	0	9	1	0	0	0	**10**	0	0	64	7	4	3	0	**78**	0	0	2	0	0	0	0	**2**
Hourly Total	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**24**	**3**	**0**	**0**	**0**	**27**	**0**	**2**	**145**	**23**	**7**	**3**	**0**	**180**	**0**	**0**	**6**	**2**	**0**	**0**	**0**	**8**
Session Total	**0**	**0**	**1**	**3**	**5**	**0**	**0**	**9**	**0**	**1**	**115**	**14**	**3**	**0**	**0**	**133**	**2**	**19**	**996**	**146**	**47**	**11**	**1**	**1222**	**0**	**0**	**56**	**8**	**0**	**0**	**0**	**64**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (1) Hunsworth Lane / A58 / Private Access

Approach: Private Access

	First Left to Hunsworth Lane (North)								Second Left to A58 (East)								Right to Hunsworth Lane (South)								Last Right to A58 (West)							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
0700 - 0715	0	0	0	0	0	0	0	**0**	0	0	1	0	0	0	0	**1**	0	1	0	0	0	0	0	**1**	0	0	0	1	2	0	0	**3**
0715 - 0730	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	1	0	0	0	**1**	0	0	0	0	1	0	0	**1**
0730 - 0745	0	0	0	0	0	0	0	**0**	0	0	0	1	0	0	0	**1**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	1	0	**1**
0745 - 0800	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	1	0	0	**1**	0	0	0	0	0	1	0	**1**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**1**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**3**	**2**	**0**	**6**
0800 - 0815	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**
0815 - 0830	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**
0830 - 0845	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**
0845 - 0900	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0900 - 0915	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**
0915 - 0930	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	3	0	0	0	**3**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Session Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**4**	**1**	**0**	**0**	**6**	**0**	**0**	**0**	**1**	**3**	**2**	**0**	**6**
1600 - 1615	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**
1615 - 1630	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	1	0	0	0	**1**	0	0	0	1	0	0	0	**1**
1630 - 1645	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	1	0	0	0	**1**	0	0	0	0	0	0	0	**0**
1645 - 1700	0	0	0	0	0	0	0	**0**	0	0	2	0	0	0	0	**2**	0	0	1	0	0	0	0	**1**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**
1700 - 1715	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	3	0	0	0	0	**3**	0	0	0	0	0	0	0	**0**
1715 - 1730	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	1	0	0	0	**1**	0	0	1	0	1	0	0	**2**
1730 - 1745	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**
1745 - 1800	0	0	1	0	0	0	0	**1**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**2**
1800 - 1815	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	1	0	0	0	0	**1**	0	0	0	0	0	0	0	**0**
1815 - 1830	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	**0**	0	0	1	0	0	0	0	**1**	0	0	0	0	0	0	0	**0**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Session Total	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**6**	**3**	**0**	**0**	**0**	**9**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**3**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (2) A638 / B6121 / Whitechapel Road

Approach: A638 (North)

	Left to B6121								S/B to A638 (South)								Right to Whitechapel Road							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**
0700 - 0715	0	0	14	0	0	0	0	**14**	0	0	42	9	2	2	1	**56**	0	0	1	0	1	0	0	**2**
0715 - 0730	0	0	10	0	0	0	0	**10**	0	1	54	15	6	1	2	**79**	0	0	4	0	1	0	0	**5**
0730 - 0745	0	0	10	0	1	0	0	**11**	0	0	47	7	1	1	1	**57**	0	0	7	0	0	0	0	**7**
0745 - 0800	0	0	7	0	0	2	0	**9**	0	0	46	11	4	2	0	**63**	0	0	2	0	1	1	0	**4**
Hourly Total	**0**	**0**	**41**	**0**	**1**	**2**	**0**	**44**	**0**	**1**	**189**	**42**	**13**	**6**	**4**	**255**	**0**	**0**	**14**	**0**	**3**	**1**	**0**	**18**
0800 - 0815	0	0	11	0	1	0	0	**12**	0	0	45	9	4	0	0	**58**	0	0	7	1	0	0	0	**8**
0815 - 0830	0	0	15	2	2	0	0	**19**	0	0	59	8	4	2	2	**75**	0	0	11	1	1	0	0	**13**
0830 - 0845	0	0	11	1	0	0	0	**12**	0	0	67	19	4	0	2	**92**	0	0	17	0	0	0	0	**17**
0845 - 0900	0	0	5	1	0	0	0	**6**	0	1	73	14	6	3	1	**98**	0	0	10	2	0	0	0	**12**
Hourly Total	**0**	**0**	**42**	**4**	**3**	**0**	**0**	**49**	**0**	**1**	**244**	**50**	**18**	**5**	**5**	**323**	**0**	**0**	**45**	**4**	**1**	**0**	**0**	**50**
0900 - 0915	1	0	4	1	1	0	0	**7**	0	0	52	18	13	1	5	**89**	0	0	7	2	0	0	0	**9**
0915 - 0930	0	0	2	2	1	0	0	**5**	0	0	74	23	8	3	2	**110**	0	0	6	2	0	0	0	**8**
Hourly Total	**1**	**0**	**6**	**3**	**2**	**0**	**0**	**12**	**0**	**0**	**126**	**41**	**21**	**4**	**7**	**199**	**0**	**0**	**13**	**4**	**0**	**0**	**0**	**17**
Session Total	**1**	**0**	**89**	**7**	**6**	**2**	**0**	**105**	**0**	**2**	**559**	**133**	**52**	**15**	**16**	**777**	**0**	**0**	**72**	**8**	**4**	**1**	**0**	**85**
1600 - 1615	0	1	4	1	0	0	0	**6**	0	2	99	15	4	2	2	**124**	0	1	19	2	0	0	0	**22**
1615 - 1630	0	0	2	0	1	0	0	**3**	0	1	110	20	8	1	1	**141**	0	0	21	2	1	0	0	**24**
1630 - 1645	0	0	4	1	0	0	0	**5**	0	0	132	21	5	2	1	**161**	0	1	26	2	0	0	0	**29**
1645 - 1700	0	0	4	0	1	0	0	**5**	2	1	120	22	5	0	0	**150**	0	1	38	6	0	1	0	**46**
Hourly Total	**0**	**1**	**14**	**2**	**2**	**0**	**0**	**19**	**2**	**4**	**461**	**78**	**22**	**5**	**4**	**576**	**0**	**3**	**104**	**12**	**1**	**1**	**0**	**121**
1700 - 1715	0	0	3	2	0	0	0	**5**	0	2	128	11	3	1	2	**147**	0	1	33	3	0	0	0	**37**
1715 - 1730	0	0	4	0	0	0	0	**4**	0	1	134	18	5	2	1	**161**	0	0	39	4	0	0	0	**43**
1730 - 1745	0	0	11	0	0	0	0	**11**	0	0	124	11	6	1	2	**144**	0	1	36	1	1	0	0	**39**
1745 - 1800	0	0	5	0	0	0	0	**5**	1	1	143	16	1	0	1	**163**	0	0	34	1	0	0	0	**35**
Hourly Total	**0**	**0**	**23**	**2**	**0**	**0**	**0**	**25**	**1**	**4**	**529**	**56**	**15**	**4**	**6**	**615**	**0**	**2**	**142**	**9**	**1**	**0**	**0**	**154**
1800 - 1815	0	0	5	0	0	0	0	**5**	0	0	122	11	1	1	2	**137**	0	0	19	1	0	0	0	**20**
1815 - 1830	0	0	8	1	0	0	0	**9**	0	1	113	16	2	1	1	**134**	0	0	21	1	0	0	0	**22**
Hourly Total	**0**	**0**	**13**	**1**	**0**	**0**	**0**	**14**	**0**	**1**	**235**	**27**	**3**	**2**	**3**	**271**	**0**	**0**	**40**	**2**	**0**	**0**	**0**	**42**
Session Total	**0**	**1**	**50**	**5**	**2**	**0**	**0**	**58**	**3**	**9**	**1225**	**161**	**40**	**11**	**13**	**1462**	**0**	**5**	**286**	**23**	**2**	**1**	**0**	**317**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (2) A638 / B6121 / Whitechapel Road

Approach: B6121

	Left to A638 (South)								W/B to Whitechapel Road								Right to A638 (North)							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**
0700 - 0715	0	0	15	2	1	0	0	**18**	0	0	2	0	0	0	0	**2**	0	0	1	0	0	0	0	**1**
0715 - 0730	1	0	12	3	1	0	0	**17**	3	0	8	2	0	0	0	**13**	0	0	3	1	0	0	0	**4**
0730 - 0745	0	0	22	0	0	0	1	**23**	1	0	8	3	0	0	0	**12**	0	0	2	1	0	0	0	**3**
0745 - 0800	1	0	20	6	2	1	0	**30**	0	0	5	0	0	0	0	**5**	0	0	2	1	1	0	0	**4**
Hourly Total	**2**	**0**	**69**	**11**	**4**	**1**	**1**	**88**	**4**	**0**	**23**	**5**	**0**	**0**	**0**	**32**	**0**	**0**	**8**	**3**	**1**	**0**	**0**	**12**
0800 - 0815	0	0	29	4	1	0	0	**34**	0	0	17	1	0	0	0	**18**	0	0	2	0	1	0	0	**3**
0815 - 0830	0	0	27	2	2	0	0	**31**	0	0	27	1	0	0	0	**28**	0	0	5	0	0	0	0	**5**
0830 - 0845	0	0	28	5	1	0	0	**34**	0	0	45	4	1	0	0	**50**	0	0	3	2	1	0	0	**6**
0845 - 0900	0	0	35	3	2	0	0	**40**	0	0	19	1	0	0	0	**20**	0	0	3	1	1	0	0	**5**
Hourly Total	**0**	**0**	**119**	**14**	**6**	**0**	**0**	**139**	**0**	**0**	**108**	**7**	**1**	**0**	**0**	**116**	**0**	**0**	**13**	**3**	**3**	**0**	**0**	**19**
0900 - 0915	0	1	32	5	0	0	0	**38**	0	0	5	1	0	0	0	**6**	0	0	4	4	0	0	0	**8**
0915 - 0930	0	0	28	7	2	0	0	**37**	0	0	8	0	0	0	0	**8**	0	0	11	2	4	0	0	**17**
Hourly Total	**0**	**1**	**60**	**12**	**2**	**0**	**0**	**75**	**0**	**0**	**13**	**1**	**0**	**0**	**0**	**14**	**0**	**0**	**15**	**6**	**4**	**0**	**0**	**25**
Session Total	**2**	**1**	**248**	**37**	**12**	**1**	**1**	**302**	**4**	**0**	**144**	**13**	**1**	**0**	**0**	**162**	**0**	**0**	**36**	**12**	**8**	**0**	**0**	**56**
1600 - 1615	0	2	57	5	0	0	0	**64**	1	0	11	2	0	0	0	**14**	0	0	14	1	2	0	0	**17**
1615 - 1630	1	0	30	6	1	1	1	**40**	0	0	23	2	0	0	0	**25**	0	0	6	0	1	1	0	**8**
1630 - 1645	0	1	44	7	1	0	1	**54**	0	1	26	6	0	0	0	**33**	0	0	19	3	1	0	0	**23**
1645 - 1700	0	2	40	5	2	0	0	**49**	0	0	32	1	0	0	0	**33**	0	0	15	0	0	0	0	**15**
Hourly Total	**1**	**5**	**171**	**23**	**4**	**1**	**2**	**207**	**1**	**1**	**92**	**11**	**0**	**0**	**0**	**105**	**0**	**0**	**54**	**4**	**4**	**1**	**0**	**63**
1700 - 1715	1	0	59	4	3	0	1	**68**	0	0	53	5	1	0	0	**59**	0	0	17	0	0	0	0	**17**
1715 - 1730	0	0	43	1	1	0	0	**45**	2	0	36	3	0	0	0	**41**	0	0	11	0	0	0	0	**11**
1730 - 1745	0	2	52	3	0	0	0	**57**	0	0	43	0	0	0	0	**43**	0	0	9	1	0	0	0	**10**
1745 - 1800	0	1	28	1	0	0	1	**31**	1	0	25	4	1	0	0	**31**	0	0	8	1	0	0	0	**9**
Hourly Total	**1**	**3**	**182**	**9**	**4**	**0**	**2**	**201**	**3**	**0**	**157**	**12**	**2**	**0**	**0**	**174**	**0**	**0**	**45**	**2**	**0**	**0**	**0**	**47**
1800 - 1815	1	0	45	4	1	0	0	**51**	0	0	38	0	0	0	0	**38**	0	1	13	1	0	0	0	**15**
1815 - 1830	0	0	34	1	1	0	1	**37**	0	1	17	1	0	0	0	**19**	0	0	6	0	0	0	0	**6**
Hourly Total	**1**	**0**	**79**	**5**	**2**	**0**	**1**	**88**	**0**	**1**	**55**	**1**	**0**	**0**	**0**	**57**	**0**	**1**	**19**	**1**	**0**	**0**	**0**	**21**
Session Total	**3**	**8**	**432**	**37**	**10**	**1**	**5**	**496**	**4**	**2**	**304**	**24**	**2**	**0**	**0**	**336**	**0**	**1**	**118**	**7**	**4**	**1**	**0**	**131**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (2) A638 / B6121 / Whitechapel Road

Approach: A638 (South)

	Left to Whitechapel Road								N/B to A638 (North)								Right to B6121							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**
0700 - 0715	0	0	5	1	0	0	1	**7**	0	2	105	21	3	1	1	**133**	0	0	32	3	1	0	1	**37**
0715 - 0730	0	0	1	0	0	0	0	**1**	0	1	154	24	3	0	2	**184**	1	1	28	3	0	0	0	**33**
0730 - 0745	0	0	4	1	1	0	0	**6**	0	0	126	26	6	1	1	**160**	0	1	27	4	1	0	1	**34**
0745 - 0800	0	0	8	0	1	0	0	**9**	0	1	106	13	5	0	2	**127**	0	0	19	1	0	0	1	**21**
Hourly Total	**0**	**0**	**18**	**2**	**2**	**0**	**1**	**23**	**0**	**4**	**491**	**84**	**17**	**2**	**6**	**604**	**1**	**2**	**106**	**11**	**2**	**0**	**3**	**125**
0800 - 0815	0	0	6	2	0	0	0	**8**	0	0	107	15	9	0	1	**132**	0	1	46	3	0	0	0	**50**
0815 - 0830	0	0	9	2	0	0	0	**11**	0	1	109	14	8	0	1	**133**	0	0	26	5	0	0	0	**31**
0830 - 0845	0	0	3	2	0	0	0	**5**	0	0	96	13	9	0	2	**120**	0	0	17	3	2	0	0	**22**
0845 - 0900	0	0	11	0	0	0	0	**11**	0	1	73	18	4	1	1	**98**	0	0	40	4	0	0	0	**44**
Hourly Total	**0**	**0**	**29**	**6**	**0**	**0**	**0**	**35**	**0**	**2**	**385**	**60**	**30**	**1**	**5**	**483**	**0**	**1**	**129**	**15**	**2**	**0**	**0**	**147**
0900 - 0915	0	0	3	0	0	0	0	**3**	0	0	75	18	7	6	1	**107**	0	0	23	3	2	0	0	**28**
0915 - 0930	0	0	1	2	0	0	0	**3**	0	1	59	12	8	0	2	**82**	0	0	24	4	1	0	0	**29**
Hourly Total	**0**	**0**	**4**	**2**	**0**	**0**	**0**	**6**	**0**	**1**	**134**	**30**	**15**	**6**	**3**	**189**	**0**	**0**	**47**	**7**	**3**	**0**	**0**	**57**
Session Total	**0**	**0**	**51**	**10**	**2**	**0**	**1**	**64**	**0**	**7**	**1010**	**174**	**62**	**9**	**14**	**1276**	**1**	**3**	**282**	**33**	**7**	**0**	**3**	**329**
1600 - 1615	1	0	12	1	0	0	0	**14**	0	0	99	19	3	3	1	**125**	0	0	29	9	2	0	0	**40**
1615 - 1630	0	0	9	2	1	0	0	**12**	0	0	86	25	6	0	3	**120**	0	0	32	3	2	0	0	**37**
1630 - 1645	0	0	10	1	0	0	0	**11**	0	1	93	18	0	2	4	**118**	0	0	30	4	0	0	1	**35**
1645 - 1700	0	0	11	1	0	0	1	**13**	0	0	95	24	4	1	5	**129**	0	0	37	2	3	0	0	**42**
Hourly Total	**1**	**0**	**42**	**5**	**1**	**0**	**1**	**50**	**0**	**1**	**373**	**86**	**13**	**6**	**13**	**492**	**0**	**0**	**128**	**18**	**7**	**0**	**1**	**154**
1700 - 1715	0	0	21	1	0	0	0	**22**	0	0	75	25	4	0	5	**109**	0	1	45	3	0	0	1	**50**
1715 - 1730	0	0	13	0	0	0	0	**13**	1	2	76	16	3	0	1	**99**	0	1	45	3	0	0	0	**49**
1730 - 1745	0	0	10	1	1	0	0	**12**	1	0	80	12	1	2	1	**97**	0	0	28	3	0	0	0	**31**
1745 - 1800	0	0	16	3	0	0	0	**19**	0	0	68	12	3	2	1	**86**	0	1	32	2	1	1	1	**38**
Hourly Total	**0**	**0**	**60**	**5**	**1**	**0**	**0**	**66**	**2**	**2**	**299**	**65**	**11**	**4**	**8**	**391**	**0**	**3**	**150**	**11**	**1**	**1**	**2**	**168**
1800 - 1815	0	1	15	0	1	0	1	**18**	0	0	93	9	2	2	2	**108**	0	0	36	3	0	0	0	**39**
1815 - 1830	0	1	13	0	0	0	0	**14**	0	0	89	11	0	2	0	**102**	0	0	35	3	1	0	0	**39**
Hourly Total	**0**	**2**	**28**	**0**	**1**	**0**	**1**	**32**	**0**	**0**	**182**	**20**	**2**	**4**	**2**	**210**	**0**	**0**	**71**	**6**	**1**	**0**	**0**	**78**
Session Total	**1**	**2**	**130**	**10**	**3**	**0**	**2**	**148**	**2**	**3**	**854**	**171**	**26**	**14**	**23**	**1093**	**0**	**3**	**349**	**35**	**9**	**1**	**3**	**400**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (2) A638 / B6121 / Whitechapel Road

Approach: Whitechapel Road

	Left to A638 (North)								E/B to B6121								Right to A638 (South)							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**
0700 - 0715	0	0	21	2	0	0	0	**23**	2	0	19	5	0	0	0	**26**	0	0	8	1	0	0	0	**9**
0715 - 0730	0	2	34	1	1	0	0	**38**	1	0	38	2	0	0	0	**41**	0	2	6	0	1	0	0	**9**
0730 - 0745	0	0	35	3	0	1	0	**39**	0	0	33	0	0	0	0	**33**	0	0	9	3	1	0	0	**13**
0745 - 0800	0	0	44	4	1	0	0	**49**	0	0	47	4	1	0	0	**52**	0	0	8	0	1	0	0	**9**
Hourly Total	**0**	**2**	**134**	**10**	**2**	**1**	**0**	**149**	**3**	**0**	**137**	**11**	**1**	**0**	**0**	**152**	**0**	**2**	**31**	**4**	**3**	**0**	**0**	**40**
0800 - 0815	0	0	34	3	0	0	0	**37**	0	0	44	3	0	0	1	**48**	0	0	10	1	0	0	0	**11**
0815 - 0830	0	0	44	1	0	0	0	**45**	0	1	47	3	0	0	0	**51**	0	0	11	2	0	0	0	**13**
0830 - 0845	0	0	42	2	0	0	0	**44**	0	0	40	2	2	0	0	**44**	0	0	13	0	0	0	0	**13**
0845 - 0900	0	0	34	4	0	0	0	**38**	0	0	33	4	0	0	0	**37**	0	0	26	2	1	0	0	**29**
Hourly Total	**0**	**0**	**154**	**10**	**0**	**0**	**0**	**164**	**0**	**1**	**164**	**12**	**2**	**0**	**1**	**180**	**0**	**0**	**60**	**5**	**1**	**0**	**0**	**66**
0900 - 0915	0	0	26	2	1	0	0	**29**	0	0	24	1	0	0	0	**25**	0	0	20	1	0	0	0	**21**
0915 - 0930	0	0	13	1	1	0	0	**15**	0	0	10	2	1	0	0	**13**	0	0	11	2	0	0	0	**13**
Hourly Total	**0**	**0**	**39**	**3**	**2**	**0**	**0**	**44**	**0**	**0**	**34**	**3**	**1**	**0**	**0**	**38**	**0**	**0**	**31**	**3**	**0**	**0**	**0**	**34**
Session Total	**0**	**2**	**327**	**23**	**4**	**1**	**0**	**357**	**3**	**1**	**335**	**26**	**4**	**0**	**1**	**370**	**0**	**2**	**122**	**12**	**4**	**0**	**0**	**140**
1600 - 1615	0	0	10	2	0	0	0	**12**	0	0	8	0	0	0	0	**8**	0	0	6	1	0	0	0	**7**
1615 - 1630	0	0	12	2	0	0	0	**14**	0	0	14	1	1	0	0	**16**	0	0	4	1	0	0	0	**5**
1630 - 1645	0	0	20	1	0	0	0	**21**	0	0	27	1	0	0	0	**28**	0	0	7	1	0	0	1	**9**
1645 - 1700	0	0	11	1	0	0	0	**12**	0	0	16	1	1	0	1	**19**	1	0	16	0	0	0	0	**17**
Hourly Total	**0**	**0**	**53**	**6**	**0**	**0**	**0**	**59**	**0**	**0**	**65**	**3**	**2**	**0**	**1**	**71**	**1**	**0**	**33**	**3**	**0**	**0**	**1**	**38**
1700 - 1715	0	0	11	0	0	0	0	**11**	0	0	20	3	0	0	0	**23**	0	0	8	1	0	0	0	**9**
1715 - 1730	0	0	9	0	0	0	0	**9**	0	0	17	2	0	0	0	**19**	1	0	12	1	0	0	0	**14**
1730 - 1745	0	0	11	3	0	0	0	**14**	0	0	22	2	0	0	0	**24**	0	0	15	1	0	0	1	**17**
1745 - 1800	0	0	14	4	0	0	0	**18**	1	0	21	4	0	0	0	**26**	0	0	11	0	0	0	0	**11**
Hourly Total	**0**	**0**	**45**	**7**	**0**	**0**	**0**	**52**	**1**	**0**	**80**	**11**	**0**	**0**	**0**	**92**	**1**	**0**	**46**	**3**	**0**	**0**	**1**	**51**
1800 - 1815	0	0	18	0	2	0	0	**20**	0	0	17	1	0	0	0	**18**	0	0	17	1	2	0	0	**20**
1815 - 1830	0	0	19	0	0	0	0	**19**	0	0	3	0	0	0	0	**3**	0	2	9	1	1	0	0	**13**
Hourly Total	**0**	**0**	**37**	**0**	**2**	**0**	**0**	**39**	**0**	**0**	**20**	**1**	**0**	**0**	**0**	**21**	**0**	**2**	**26**	**2**	**3**	**0**	**0**	**33**
Session Total	**0**	**0**	**135**	**13**	**2**	**0**	**0**	**150**	**1**	**0**	**165**	**15**	**2**	**0**	**1**	**184**	**2**	**2**	**105**	**8**	**3**	**0**	**2**	**122**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

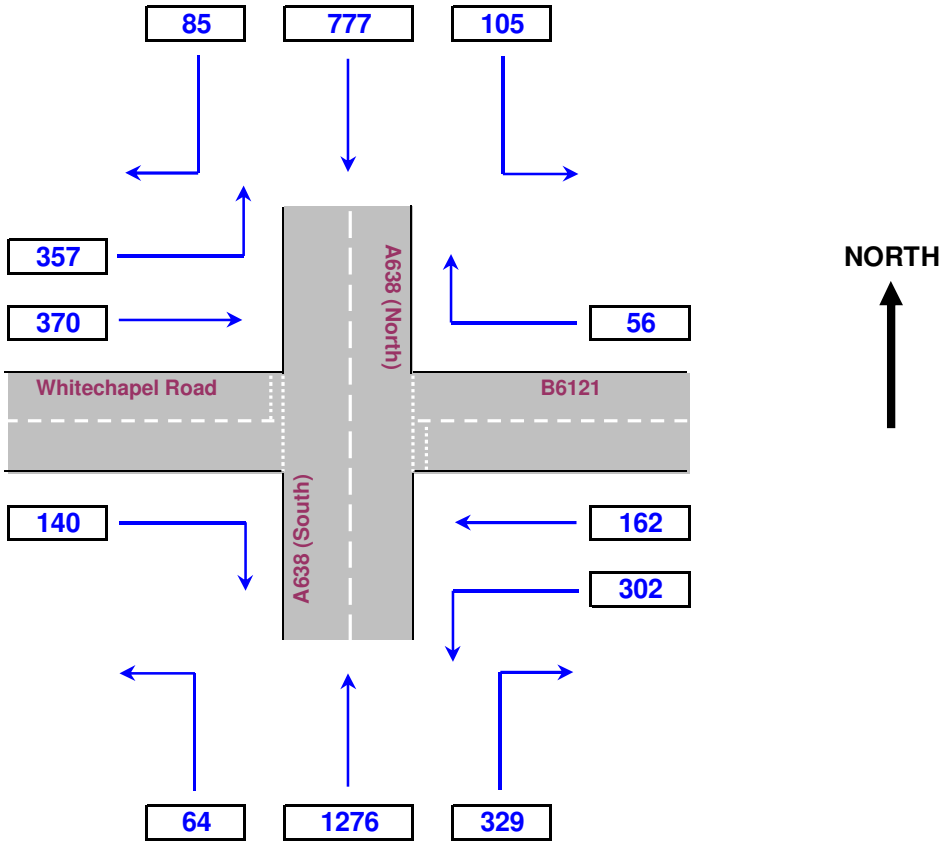
Junction: (2) A638 / B6121 / Whitechapel Road

Vehicle Class: ALL CLASSES

Start Time: 1) 0700

End Time: 1) 0930

☐ **Peak Hour**



Note: The above diagram represents the Junction surveyed, although may not be the exact layout of the actual location.

Important Note: This spreadsheet & Interactive Vehicle Flow Diagram was produced based on specific parameters. Consequently, alteration to the spreadsheet format or it's properties may result in malfunction.

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

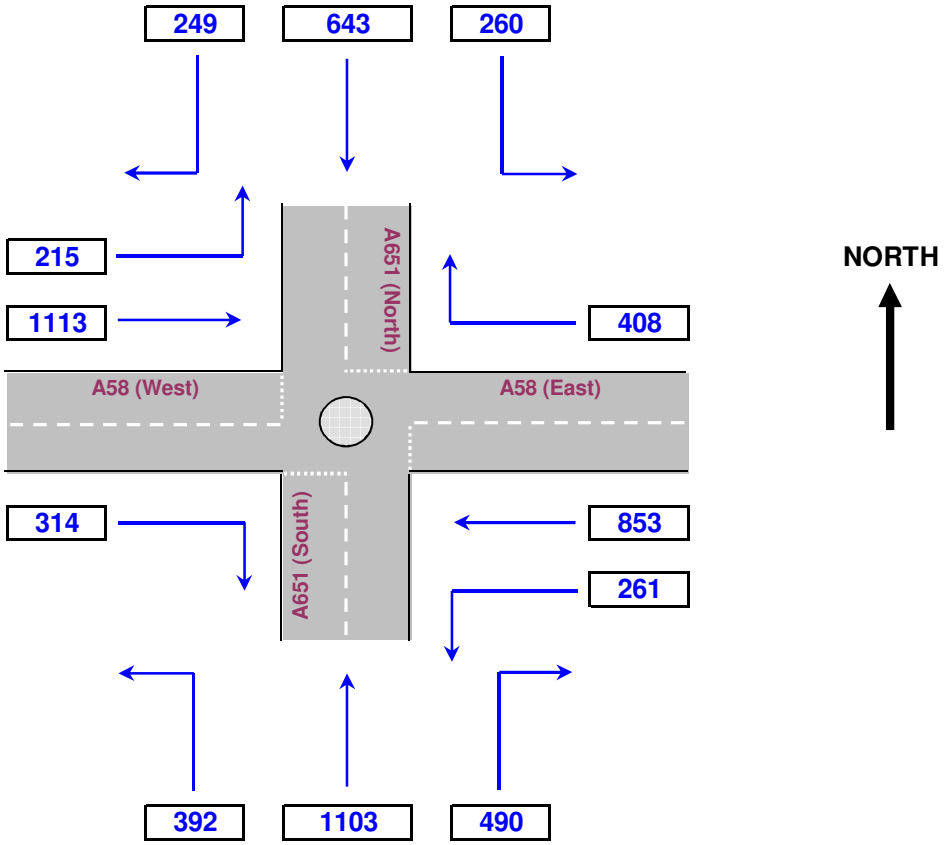
Junction: (3) A651 / A58

Vehicle Class: ALL CLASSES

Start Time: 1) 0700

End Time: 1) 0930

☐ **Peak Hour**



Note: The above diagram represents the Junction surveyed, although may not be the exact layout of the actual location.

Important Note: This spreadsheet & Interactive Vehicle Flow Diagram was produced based on specific parameters. Consequently, alteration to the spreadsheet format or it's properties may result in malfunction.

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (3) A651 / A58

Approach: A651 (North)

	Left to A58 (East)								S/B to A651 (South)								Right to A58 (West)							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**
0700 - 0715	0	0	20	1	1	0	0	**22**	1	1	36	8	2	0	0	**0**	0	0	13	1	0	1	0	**15**
0715 - 0730	0	0	19	2	0	0	0	**21**	5	2	52	6	2	0	0	**67**	0	0	16	1	1	0	0	**18**
0730 - 0745	0	0	25	0	1	0	0	**26**	0	2	66	10	2	0	0	**80**	0	0	23	4	0	0	0	**27**
0745 - 0800	0	0	17	4	0	0	1	**22**	0	0	50	6	4	2	2	**64**	0	0	18	3	0	0	0	**21**
Hourly Total	**0**	**0**	**81**	**7**	**2**	**0**	**1**	**91**	**6**	**5**	**204**	**30**	**10**	**2**	**2**	**259**	**0**	**0**	**70**	**9**	**1**	**1**	**0**	**81**
0800 - 0815	0	0	28	1	0	0	0	**29**	0	0	74	9	0	2	0	**85**	0	1	26	5	1	0	0	**33**
0815 - 0830	0	0	30	2	0	0	0	**32**	0	0	61	15	2	0	1	**79**	0	0	20	1	0	0	0	**21**
0830 - 0845	0	0	21	4	1	0	0	**26**	0	0	58	11	4	0	0	**73**	0	0	22	1	2	0	0	**25**
0845 - 0900	0	0	33	1	0	0	0	**34**	0	0	67	8	4	0	1	**80**	0	0	39	0	0	0	0	**39**
Hourly Total	**0**	**0**	**112**	**8**	**1**	**0**	**0**	**121**	**0**	**0**	**260**	**43**	**10**	**2**	**2**	**317**	**0**	**1**	**107**	**7**	**3**	**0**	**0**	**118**
0900 - 0915	0	0	22	5	0	0	0	**27**	0	0	57	3	1	2	1	**64**	0	0	27	3	1	0	0	**31**
0915 - 0930	0	0	17	3	1	0	0	**21**	0	0	35	10	6	0	0	**51**	0	0	16	3	0	0	0	**19**
Hourly Total	**0**	**0**	**39**	**8**	**1**	**0**	**0**	**48**	**0**	**0**	**92**	**13**	**7**	**2**	**1**	**115**	**0**	**0**	**43**	**6**	**1**	**0**	**0**	**50**
Session Total	**0**	**0**	**232**	**23**	**4**	**0**	**1**	**260**	**6**	**5**	**556**	**86**	**27**	**6**	**5**	**691**	**0**	**1**	**220**	**22**	**5**	**1**	**0**	**249**
1600 - 1615	0	0	22	5	0	0	0	**27**	0	2	86	10	2	0	1	**101**	1	0	24	3	0	1	0	**29**
1615 - 1630	0	0	22	3	1	0	0	**26**	1	2	83	14	1	0	0	**101**	0	0	11	5	1	0	0	**17**
1630 - 1645	0	0	22	3	0	0	0	**25**	1	3	91	13	0	0	0	**108**	0	1	36	6	0	0	0	**43**
1645 - 1700	0	0	14	1	0	1	0	**16**	0	0	75	10	3	0	0	**88**	0	1	26	3	1	0	0	**31**
Hourly Total	**0**	**0**	**80**	**12**	**1**	**1**	**0**	**94**	**2**	**7**	**335**	**47**	**6**	**0**	**1**	**398**	**1**	**2**	**97**	**17**	**2**	**1**	**0**	**120**
1700 - 1715	0	0	31	3	0	0	0	**34**	0	7	104	7	1	0	1	**120**	0	0	21	3	1	0	0	**25**
1715 - 1730	0	0	26	2	0	0	0	**28**	0	3	81	7	3	0	1	**95**	0	0	30	0	0	0	0	**30**
1730 - 1745	0	1	24	4	0	0	0	**29**	0	1	95	9	0	0	0	**105**	0	0	27	2	0	0	0	**29**
1745 - 1800	0	1	29	1	1	0	0	**32**	3	0	83	5	1	0	0	**92**	0	0	23	3	0	0	0	**26**
Hourly Total	**0**	**2**	**110**	**10**	**1**	**0**	**0**	**123**	**3**	**11**	**363**	**28**	**5**	**0**	**2**	**412**	**0**	**0**	**101**	**8**	**1**	**0**	**0**	**110**
1800 - 1815	1	0	32	0	0	0	0	**33**	1	0	91	11	2	0	0	**105**	0	0	30	0	0	0	0	**30**
1815 - 1830	0	1	13	0	1	0	0	**15**	0	2	96	5	1	1	1	**106**	0	0	26	1	0	0	0	**27**
Hourly Total	**1**	**1**	**45**	**0**	**1**	**0**	**0**	**48**	**1**	**2**	**187**	**16**	**3**	**1**	**1**	**211**	**0**	**0**	**56**	**1**	**0**	**0**	**0**	**57**
Session Total	**1**	**3**	**235**	**22**	**3**	**1**	**0**	**265**	**6**	**20**	**885**	**91**	**14**	**1**	**4**	**1021**	**1**	**2**	**254**	**26**	**3**	**1**	**0**	**287**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (3) A651 / A58

Approach: A58 (East)

	Left to A651 (South)								W/B to A58 (West)								Right to A651 (North)							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**
0700 - 0715	0	0	15	4	1	0	1	**21**	0	0	58	7	4	0	0	**69**	0	0	24	3	0	0	0	**27**
0715 - 0730	1	0	18	1	0	0	2	**22**	0	0	69	10	3	1	0	**83**	0	0	26	1	1	0	0	**28**
0730 - 0745	0	1	14	4	5	0	1	**25**	0	1	91	18	7	2	0	**119**	0	0	42	6	0	0	0	**48**
0745 - 0800	0	0	35	3	2	0	0	**40**	1	0	80	13	7	0	1	**102**	0	0	55	8	2	1	0	**66**
Hourly Total	**1**	**1**	**82**	**12**	**8**	**0**	**4**	**108**	**1**	**1**	**298**	**48**	**21**	**3**	**1**	**373**	**0**	**0**	**147**	**18**	**3**	**1**	**0**	**169**
0800 - 0815	0	1	23	5	1	0	1	**31**	0	0	84	8	4	2	0	**98**	0	0	50	1	2	3	0	**56**
0815 - 0830	0	0	24	3	0	0	0	**27**	0	2	91	18	6	1	1	**119**	0	0	46	4	1	0	0	**51**
0830 - 0845	0	1	28	2	1	0	2	**34**	0	2	70	15	4	2	1	**94**	0	0	48	3	1	0	0	**52**
0845 - 0900	0	0	16	1	3	0	1	**21**	0	0	50	11	2	2	0	**65**	0	0	27	3	0	1	0	**31**
Hourly Total	**0**	**2**	**91**	**11**	**5**	**0**	**4**	**113**	**0**	**4**	**295**	**52**	**16**	**7**	**2**	**376**	**0**	**0**	**171**	**11**	**4**	**4**	**0**	**190**
0900 - 0915	0	0	18	2	1	0	0	**21**	0	1	39	4	4	0	0	**48**	0	0	20	3	4	0	0	**27**
0915 - 0930	0	0	15	1	0	0	3	**19**	0	0	43	9	4	0	0	**56**	0	1	18	3	0	0	0	**22**
Hourly Total	**0**	**0**	**33**	**3**	**1**	**0**	**3**	**40**	**0**	**1**	**82**	**13**	**8**	**0**	**0**	**104**	**0**	**1**	**38**	**6**	**4**	**0**	**0**	**49**
Session Total	**1**	**3**	**206**	**26**	**14**	**0**	**11**	**261**	**1**	**6**	**675**	**113**	**45**	**10**	**3**	**853**	**0**	**1**	**356**	**35**	**11**	**5**	**0**	**408**
1600 - 1615	0	0	34	3	1	0	1	**39**	0	4	61	18	3	1	0	**87**	0	0	22	1	0	0	1	**24**
1615 - 1630	0	0	42	1	1	0	2	**46**	0	3	82	21	1	3	0	**110**	0	1	25	2	1	0	0	**29**
1630 - 1645	2	2	38	5	0	0	0	**47**	1	4	93	19	3	1	1	**122**	0	0	25	2	0	1	1	**29**
1645 - 1700	1	1	29	3	1	0	2	**37**	3	4	94	10	4	1	0	**116**	0	0	25	1	0	0	0	**26**
Hourly Total	**3**	**3**	**143**	**12**	**3**	**0**	**5**	**169**	**4**	**15**	**330**	**68**	**11**	**6**	**1**	**435**	**0**	**1**	**97**	**6**	**1**	**1**	**2**	**108**
1700 - 1715	0	0	44	6	0	0	0	**50**	2	3	97	15	1	0	1	**119**	0	0	22	1	1	0	0	**24**
1715 - 1730	1	1	37	2	2	0	1	**44**	3	2	82	9	1	0	0	**97**	0	0	29	2	0	0	0	**31**
1730 - 1745	0	0	47	3	0	0	2	**52**	0	0	84	7	2	0	0	**93**	0	0	35	1	0	0	0	**36**
1745 - 1800	0	0	48	2	0	0	2	**52**	0	2	101	3	3	0	0	**109**	0	0	26	3	0	0	0	**29**
Hourly Total	**1**	**1**	**176**	**13**	**2**	**0**	**5**	**198**	**5**	**7**	**364**	**34**	**7**	**0**	**1**	**418**	**0**	**0**	**112**	**7**	**1**	**0**	**0**	**120**
1800 - 1815	0	1	33	6	0	0	1	**41**	0	1	100	6	2	1	0	**110**	0	1	27	1	0	0	0	**29**
1815 - 1830	1	2	53	3	1	0	0	**60**	2	5	60	8	0	0	1	**76**	0	0	22	0	0	0	0	**22**
Hourly Total	**1**	**3**	**86**	**9**	**1**	**0**	**1**	**101**	**2**	**6**	**160**	**14**	**2**	**1**	**1**	**186**	**0**	**1**	**49**	**1**	**0**	**0**	**0**	**51**
Session Total	**5**	**7**	**405**	**34**	**6**	**0**	**11**	**468**	**11**	**28**	**854**	**116**	**20**	**7**	**3**	**1039**	**0**	**2**	**258**	**14**	**2**	**1**	**2**	**279**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (3) A651 / A58

Approach: A651 (South)

	Left to A58 (West)								N/B to A651 (North)								Right to A58 (East)							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**
0700 - 0715	1	1	31	5	1	0	0	**39**	1	2	105	18	1	1	0	**128**	2	0	50	2	0	0	1	**55**
0715 - 0730	0	0	40	13	1	0	0	**54**	1	3	107	15	2	0	1	**129**	2	0	44	7	1	0	1	**55**
0730 - 0745	0	0	32	2	0	0	0	**34**	2	2	104	19	3	0	1	**131**	1	0	54	5	2	0	1	**63**
0745 - 0800	0	0	38	2	3	0	0	**43**	1	1	114	11	4	0	1	**132**	1	1	33	8	1	0	2	**46**
Hourly Total	**1**	**1**	**141**	**22**	**5**	**0**	**0**	**170**	**5**	**8**	**430**	**63**	**10**	**1**	**3**	**520**	**6**	**1**	**181**	**22**	**4**	**0**	**5**	**219**
0800 - 0815	0	1	35	5	0	0	0	**41**	1	1	99	10	8	1	0	**120**	0	1	55	4	6	0	1	**67**
0815 - 0830	0	0	38	4	2	1	0	**45**	0	1	105	7	3	1	0	**117**	2	1	44	5	1	0	0	**53**
0830 - 0845	0	1	29	5	2	2	0	**39**	0	4	87	6	1	2	0	**100**	0	1	25	1	1	0	1	**29**
0845 - 0900	0	0	27	6	1	1	0	**35**	0	0	61	11	5	2	0	**79**	0	0	42	3	1	0	1	**47**
Hourly Total	**0**	**2**	**129**	**20**	**5**	**4**	**0**	**160**	**1**	**6**	**352**	**34**	**17**	**6**	**0**	**416**	**2**	**3**	**166**	**13**	**9**	**0**	**3**	**196**
0900 - 0915	0	0	29	4	1	1	0	**35**	0	1	78	5	2	1	0	**87**	0	0	41	3	0	0	1	**45**
0915 - 0930	0	0	21	3	2	1	0	**27**	2	0	61	10	4	2	1	**80**	0	0	25	4	1	0	0	**30**
Hourly Total	**0**	**0**	**50**	**7**	**3**	**2**	**0**	**62**	**2**	**1**	**139**	**15**	**6**	**3**	**1**	**167**	**0**	**0**	**66**	**7**	**1**	**0**	**1**	**75**
Session Total	**1**	**3**	**320**	**49**	**13**	**6**	**0**	**392**	**8**	**15**	**921**	**112**	**33**	**10**	**4**	**1103**	**8**	**4**	**413**	**42**	**14**	**0**	**9**	**490**
1600 - 1615	0	0	38	3	2	1	0	**44**	0	2	69	11	3	0	1	**86**	0	1	30	2	1	0	1	**35**
1615 - 1630	0	0	31	4	1	0	0	**36**	0	1	80	8	2	1	2	**94**	1	0	33	4	0	0	1	**39**
1630 - 1645	0	1	34	5	1	1	0	**42**	2	1	75	8	2	0	0	**88**	0	0	36	9	0	0	1	**46**
1645 - 1700	0	1	34	5	1	0	0	**41**	1	0	84	7	1	1	0	**94**	0	0	28	3	1	0	1	**33**
Hourly Total	**0**	**2**	**137**	**17**	**5**	**2**	**0**	**163**	**3**	**4**	**308**	**34**	**8**	**2**	**3**	**362**	**1**	**1**	**127**	**18**	**2**	**0**	**4**	**153**
1700 - 1715	0	1	30	4	1	0	0	**36**	1	0	82	13	0	0	1	**97**	1	0	28	2	2	0	1	**34**
1715 - 1730	0	1	42	3	1	0	0	**47**	0	0	87	9	2	0	1	**99**	0	0	33	2	3	0	1	**39**
1730 - 1745	0	0	30	5	0	0	0	**35**	2	1	82	8	1	0	0	**94**	0	1	35	0	0	0	1	**37**
1745 - 1800	0	3	32	3	1	0	0	**39**	0	1	77	11	1	0	0	**90**	0	0	37	6	0	0	1	**44**
Hourly Total	**0**	**5**	**134**	**15**	**3**	**0**	**0**	**157**	**3**	**2**	**328**	**41**	**4**	**0**	**2**	**380**	**1**	**1**	**133**	**10**	**5**	**0**	**4**	**154**
1800 - 1815	1	0	33	5	0	0	0	**39**	0	1	65	12	3	0	0	**81**	0	0	24	2	1	0	0	**27**
1815 - 1830	2	0	32	2	0	0	0	**36**	2	0	72	8	0	0	0	**82**	2	0	31	3	2	0	0	**38**
Hourly Total	**3**	**0**	**65**	**7**	**0**	**0**	**0**	**75**	**2**	**1**	**137**	**20**	**3**	**0**	**0**	**163**	**2**	**0**	**55**	**5**	**3**	**0**	**0**	**65**
Session Total	**3**	**7**	**336**	**39**	**8**	**2**	**0**	**395**	**8**	**7**	**773**	**95**	**15**	**2**	**5**	**905**	**4**	**2**	**315**	**33**	**10**	**0**	**8**	**372**

Cleckheaton - Manual Traffic Survey, Wednesday 25th June 2014

Produced by Road Data Services Ltd

Junction: (3) A651 / A58

Approach: A58 (West)

	Left to A651 (North)								E/B to A58 (East)								Right to A651 (South)							
TIME	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**	P/CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	**TOTAL**
0700 - 0715	0	0	23	2	0	0	0	**25**	3	0	72	11	5	1	0	**92**	0	0	25	3	0	0	0	**28**
0715 - 0730	0	0	30	3	0	0	0	**33**	3	3	101	12	4	2	0	**125**	0	1	25	2	0	0	0	**28**
0730 - 0745	0	0	11	3	0	0	0	**14**	1	3	106	19	2	3	0	**134**	0	3	29	1	1	0	0	**34**
0745 - 0800	0	0	16	1	0	0	0	**17**	2	0	106	14	7	0	2	**131**	0	4	22	3	1	0	0	**30**
Hourly Total	**0**	**0**	**80**	**9**	**0**	**0**	**0**	**89**	**9**	**6**	**385**	**56**	**18**	**6**	**2**	**482**	**0**	**8**	**101**	**9**	**2**	**0**	**0**	**120**
0800 - 0815	1	0	12	7	0	0	1	**21**	2	1	114	13	4	0	0	**134**	0	1	19	4	2	1	0	**27**
0815 - 0830	0	1	22	1	0	1	0	**25**	0	2	93	11	6	1	0	**113**	0	0	31	6	1	0	0	**38**
0830 - 0845	0	0	18	1	0	1	0	**20**	1	4	101	11	7	0	0	**124**	0	0	31	3	1	0	0	**35**
0845 - 0900	0	0	20	5	2	0	0	**27**	0	4	87	13	6	0	0	**110**	0	0	39	4	0	1	0	**44**
Hourly Total	**1**	**1**	**72**	**14**	**2**	**2**	**1**	**93**	**3**	**11**	**395**	**48**	**23**	**1**	**0**	**481**	**0**	**1**	**120**	**17**	**4**	**2**	**0**	**144**
0900 - 0915	0	0	18	1	0	1	0	**20**	0	1	64	13	2	1	1	**82**	0	0	20	4	3	0	0	**27**
0915 - 0930	0	0	9	2	2	0	0	**13**	0	1	52	7	5	2	1	**68**	0	1	20	1	1	0	0	**23**
Hourly Total	**0**	**0**	**27**	**3**	**2**	**1**	**0**	**33**	**0**	**2**	**116**	**20**	**7**	**3**	**2**	**150**	**0**	**1**	**40**	**5**	**4**	**0**	**0**	**50**
Session Total	**1**	**1**	**179**	**26**	**4**	**3**	**1**	**215**	**12**	**19**	**896**	**124**	**48**	**10**	**4**	**1113**	**0**	**10**	**261**	**31**	**10**	**2**	**0**	**314**
1600 - 1615	0	0	22	3	2	0	0	**27**	0	1	75	10	3	0	0	**89**	0	0	50	4	2	0	0	**56**
1615 - 1630	0	0	21	1	0	1	0	**23**	0	1	69	17	6	1	0	**94**	0	2	45	5	2	1	1	**56**
1630 - 1645	0	1	17	3	1	1	0	**23**	0	0	74	9	5	0	0	**88**	0	3	39	10	2	0	0	**54**
1645 - 1700	0	0	33	3	1	0	0	**37**	0	1	73	11	3	2	0	**90**	0	0	35	7	2	1	0	**45**
Hourly Total	**0**	**1**	**93**	**10**	**4**	**2**	**0**	**110**	**0**	**3**	**291**	**47**	**17**	**3**	**0**	**361**	**0**	**5**	**169**	**26**	**8**	**2**	**1**	**211**
1700 - 1715	0	1	23	1	0	0	0	**25**	0	2	83	9	5	0	1	**100**	2	0	56	4	3	0	0	**65**
1715 - 1730	0	0	21	8	0	0	0	**29**	0	1	76	5	2	0	0	**84**	0	0	53	5	1	0	0	**59**
1730 - 1745	0	0	31	3	0	0	0	**34**	0	1	80	6	0	0	0	**87**	0	0	48	5	0	0	0	**53**
1745 - 1800	0	2	22	2	2	0	0	**28**	0	2	74	8	8	1	0	**93**	0	1	43	1	0	0	0	**45**
Hourly Total	**0**	**3**	**97**	**14**	**2**	**0**	**0**	**116**	**0**	**6**	**313**	**28**	**15**	**1**	**1**	**364**	**2**	**1**	**200**	**15**	**4**	**0**	**0**	**222**
1800 - 1815	0	0	20	2	0	0	0	**22**	0	1	69	6	1	0	0	**77**	0	2	35	8	0	0	0	**45**
1815 - 1830	0	0	25	2	1	0	0	**28**	1	0	60	5	1	1	0	**68**	0	0	43	5	2	0	0	**50**
Hourly Total	**0**	**0**	**45**	**4**	**1**	**0**	**0**	**50**	**1**	**1**	**129**	**11**	**2**	**1**	**0**	**145**	**0**	**2**	**78**	**13**	**2**	**0**	**0**	**95**
Session Total	**0**	**4**	**235**	**28**	**7**	**2**	**0**	**276**	**1**	**10**	**733**	**86**	**34**	**5**	**1**	**870**	**2**	**8**	**447**	**54**	**14**	**2**	**1**	**528**

A58/Kilroyd Drive - Manual Traffic Survey, 01 May 2014

Vehicle Classification		Value
1	Pedal Cycle	0.2
2	Motor Cycle	0.4
3	Car	1.0
4	LGV	1.5
5	OGV	2.3
6	Bus	2.0

Junction: A58/ Kilroyd Drive

Job No: 8015

AM

	Left in Kilroyd Drive								Right in Kilroyd Drive								Left out kilroyd Drive								Right out Kilroyd Drive								A58 East								A58 West									
Time	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S
7.00 - 7.15	0	0	1	0	0	0	1	0%	1	0	0	0	0	0	0	0		0	0	1	3	0	0	0	4	0%	3	0	0	2	0	0	0	2	0%	2	1	3	102	3	2	0	111	2%	113	0	2	132	5	3	0	142	2%	147
7.15 - 7.30	0	0	1	0	0	0	1	0%	1	0	0	2	0	0	0	2	0%	2	0	0	5	0	0	0	5	0%	5	0	0	1	0	0	0	1	0%	1	1	1	142	4	4	0	152	3%	158	0	1	179	3	4	1	188	3%	195
7.30 - 7.45	0	0	0	0	0	0	0		0	0	0	1	0	0	0	1	0%	1	0	0	4	0	0	0	4	0%	4	0	0	4	0	0	0	4	0%	4	0	2	136	2	6	1	147	5%	156	1	0	199	5	4	3	212	3%	222
7.45 - 8.00	0	0	1	0	0	0	1	0%	1	0	0	3	0	0	0	3	0%	3	0	0	3	0	0	0	3	0%	3	0	0	5	0	0	0	5	0%	5	1	0	151	3	3	1	159	3%	165	1	1	178	7	2	0	189	1%	194
8.00 - 8.15	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0		0	0	0	5	1	0	0	6	0%	7	0	0	2	1	0	0	3	0%	4	2	7	188	4	5	1	207	3%	211	1	1	178	4	8	0	192	4%	203
8.15 - 8.30	0	0	1	0	0	0	1	0%	1	0	0	2	0	0	0	2	0%	2	0	0	4	0	0	0	4	0%	4	0	0	2	0	0	0	2	0%	2	1	4	189	2	8	1	205	4%	214	0	0	192	8	3	0	203	1%	211
8.30 - 8.45	0	0	1	0	0	0	1	0%	1	0	0	1	0	0	0	1	0%	1	0	0	6	0	0	0	6	0%	6	0	0	4	0	0	0	4	0%	4	1	0	180	4	4	0	189	2%	195	0	0	164	5	6	1	176	4%	187
8.45 - 9.00	0	0	1	0	0	0	1	0%	1	0	0	4	0	0	0	4	0%	4	0	0	6	0	0	0	6	0%	6	0	0	1	0	0	0	1	0%	1	0	1	147	4	4	0	156	3%	163	1	0	154	5	5	0	165	3%	173
Totals	**0**	**0**	**6**	**0**	**0**	**0**	**6**	**0%**	**6**	**0**	**0**	**13**	**0**	**0**	**0**	**13**	**0%**	**13**	**0**	**1**	**36**	**1**	**0**	**0**	**38**	**0%**	**38**	**0**	**0**	**21**	**1**	**0**	**0**	**22**	**0%**	**23**	**7**	**18**	**1235**	**26**	**36**	**4**	**1326**	**3%**	**1373**	**4**	**5**	**1376**	**42**	**35**	**5**	**1467**	**3%**	**1532**

	Total Vehicles	Total PCU'S
Total Movements	2872	2985

Hourly Total																																																												
7.00 - 8.00	0	0	3	0	0	0	3	0%	3	0	0	6	0	0	0	6	0%	6	0	1	15	0	0	0	16	0%	15	0	0	12	0	0	0	12	0%	12	3	6	531	12	15	2	569	3%	591	2	4	688	20	13	4	731	2%	758	9	1337	1385
7.15 - 8.15	0	0	2	0	0	0	2	0%	2	0	0	6	0	0	0	6	0%	6	0	0	17	1	0	0	18	0%	19	0	0	12	1	0	0	13	0%	14	4	10	617	13	18	3	665	3%	689	3	3	734	19	18	4	781	3%	814	8	1485	1542
7.30 - 8.30	0	0	2	0	0	0	2	0%	2	0	0	6	0	0	0	6	0%	6	0	0	16	1	0	0	17	0%	18	0	0	13	1	0	0	14	0%	15	4	13	664	11	22	4	718	4%	745	3	2	747	24	17	3	796	3%	830	8	1553	1615
7.45 - 8.45	0	0	3	0	0	0	3	0%	3	0	0	6	0	0	0	6	0%	6	0	0	18	1	0	0	19	0%	20	0	0	13	1	0	0	14	0%	15	5	11	708	13	20	3	760	3%	785	2	2	712	24	19	1	760	3%	795	9	1562	1623
8.00 - 9.00	0	0	3	0	0	0	3	0%	3	0	0	7	0	0	0	7	0%	7	0	0	21	1	0	0	22	0%	23	0	0	9	1	0	0	10	0%	11	4	12	704	14	21	2	757	3%	783	2	1	688	22	22	1	736	3%	774	10	1535	1600

PM

	Left in Kilroyd Drive								Right in Kilroyd Drive								Left out Kilroyd Drive								Right out Kilroyd Drive								A58 East								A58 West									
Time	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S	1	2	3	4	5	6	Total Vehicles	% HGV	Total PCU'S
16.00 - 16.15	0	0	6	0	0	0	6	0%	6	0	0	6	0	0	0	6	0%	6	0	0	0	0	0	0	0		0	0	0	3	0	0	0	3	0%	3	0	0	195	6	6	0	207	3%	218	0	0	216	15	0	0	231	0%	239
16.15 - 16.30	0	0	2	0	0	0	2	0%	2	0	0	4	0	0	0	4	0%	4	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0		0	0	1	187	3	5	0	196	3%	203	0	4	193	14	3	0	214	1%	223
16.30 - 16.45	0	0	0	0	0	0	0		0	0	0	1	0	0	0	1	0%	1	0	0	1	0	0	0	1	0%	1	0	0	2	0	0	0	2	0%	2	1	5	216	3	2	0	227	1%	227	0	1	185	6	0	0	192	0%	194
16.45 - 17.00	0	0	4	0	0	0	4	0%	4	0	1	2	0	0	0	3	0%	2	0	0	2	0	0	0	2	0%	2	0	0	1	0	0	0	1	0%	1	1	3	177	0	0	0	181	0%	178	1	7	199	5	1	1	214	1%	214
17.00 - 17.15	0	0	2	0	0	0	2	0%	2	1	0	2	0	0	0	3	0%	2	0	0	6	0	0	0	6	0%	6	0	0	1	0	0	0	1	0%	1	0	0	185	2	1	0	188	1%	190	0	0	223	5	5	0	233	2%	242
17.15 - 17.30	0	0	2	0	0	0	2	0%	2	0	0	7	0	0	0	7	0%	7	0	0	1	0	0	0	1	0%	1	0	0	0	0	0	0	0		0	1	2	195	4	3	0	205	1%	209	0	1	195	2	2	0	200	1%	203
17.30 - 17.45	0	0	4	0	0	0	4	0%	4	0	0	4	0	0	0	4	0%	4	0	0	3	0	0	0	3	0%	3	0	0	1	0	0	0	1	0%	1	2	4	203	6	5	1	221	3%	228	1	1	200	1	3	0	206	1%	209
17.45 - 18.00	0	0	2	0	0	0	2	0%	2	0	0	3	0	0	0	3	0%	3	0	0	1	0	0	0	1	0%	1	0	0	0	0	0	0	0		0	0	3	190	1	5	0	199	3%	204	2	2	153	3	4	0	164	2%	168
Totals	**0**	**0**	**22**	**0**	**0**	**0**	**22**	**0%**	**22**	**1**	**1**	**29**	**0**	**0**	**0**	**31**	**0%**	**30**	**0**	**0**	**14**	**0**	**0**	**0**	**14**	**0%**	**14**	**0**	**0**	**8**	**0**	**0**	**0**	**8**	**0%**	**8**	**5**	**18**	**1548**	**25**	**27**	**1**	**1624**	**2%**	**1658**	**4**	**16**	**1564**	**51**	**18**	**1**	**1654**	**1%**	**1691**

	Total Vehicles	Total PCU'S
Total Movements	3353	3423

Hourly Total																																																												
16.00 - 17.00	0	0	12	0	0	0	12	0%	12	0	1	13	0	0	0	14	0%	13	0	0	3	0	0	0	3	0%	3	0	0	6	0	0	0	6	0%	6	2	9	775	12	13	0	811	2%	827	1	12	793	40	4	1	851	1%	869	26	1697	1731
16.15 - 17.15	0	0	8	0	0	0	8	0%	8	1	1	9	0	0	0	11	0%	10	0	0	9	0	0	0	9	0%	9	0	0	4	0	0	0	4	0%	4	2	9	765	8	8	0	792	1%	799	1	12	800	30	9	1	853	1%	873	19	1677	1703
16.30 - 17.30	0	0	8	0	0	0	8	0%	8	1	1	12	0	0	0	14	0%	13	0	0	10	0	0	0	10	0%	10	0	0	4	0	0	0	4	0%	4	3	10	773	9	6	0	801	1%	805	1	9	802	18	8	1	839	1%	853	22	1676	1693
16.45 - 17.45	0	0	12	0	0	0	12	0%	12	1	1	15	0	0	0	17	0%	16	0	0	12	0	0	0	12	0%	12	0	0	3	0	0	0	3	0%	3	4	9	760	12	9	1	795	1%	805	2	9	817	13	11	1	853	1%	868	29	1692	1716
17.00 - 18.00	0	0	10	0	0	0	10	0%	10	1	0	16	0	0	0	17	0%	16	0	0	11	0	0	0	11	0%	11	0	0	2	0	0	0	2	0%	2	3	9	773	13	14	1	813	2%	831	3	4	771	11	14	0	803	2%	822	27	1656	1692

APPENDIX E

Accident Data

17A0
213

2A80
921

1202
82598

1100
14556

1205
45962

0AM1
017

1300
42526

11V1
281

2411
602

1103
23715

1303
20119

11A0
383

1301
51584

1303
29776

Hunsworth Lane, Cleckheaton.
Injury collisions five years prior to 03.01.2016.
Run 08.01.2016 N.T.S.

Key
Fatal Serious Slight P indicates pedestrian

Vicinity of Hunsworth Lane, Cleckheaton, Bradford, RTC five years prior to 12.12.2015

0AM1017 SLIGHT 22/10/2013 0015:41 418876 /426685 Junction of B6121 Hunsworth Lane and A58 Whitehall Road West

V1 is a motor vehicle travelling down Hunsworth lane towards Whitehall road west.V2 is a pedal cycle travelling in the same direction of V1.As both vehicles approach the traffic lights V1 clips the rider of V2 causing him to fall to the road surface resulting in very minor injuries to rider.

Vehicles			From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1	Car	Going ahead other	S	N	Male	44	Negative	1	Driver/Rider	SLIGHT	1	Male	44	
2	Pedal Cycle	Going ahead other	S	N	Male	69	Not applicable							

Contributory Factors

Fail to judge other person path or speed	V001 V.likely	Failed to look properly	V001 Possible

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110014556 SLIGHT 05/01/2011 0015:00 418477 /426678 Whitehall Road 5 Metres West of Stubs Beck Lane, Cleckheaton

Veh 1 is Stationary at Traffic Light Controlled Junction of Whitehall Road J/W Hanging Wood Way and Travelling in the Direction of Leeds. the Traffic Lights Are at Red Adn Veh 1 is Held to the Rear of Two Other Vehicles. as the Traffic Lights Changed to Green Driver of Veh 1 Moves to Release Handbrake and Whilst Stood Still is Collided from Behind by Veh 2

Vehicles			From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1	Car	Starting	W	E	Female	32	Not contacted	1	Driver/Rider	SLIGHT	1	Female	32	
2	Car	Stopping	W	E	Male	-1	Not contacted							

Contributory Factors

Too fast for conditions	V002 Possible	Disobeyed ATS	V002 Possible

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110323715 SLIGHT 15/07/2011 0007:44 418237 /426614 Chain Bar Roundabout Jw Bradford Road, Cleckheaton

V1 is in Lane 2 of Chain Bar Roundabout on Route to M606 and Bradford. V2 is in Lane 1 Also Intending to Exit Roundabout onto M606. as both Vehicles Reach Bradford Road, V1 Begins to Change Lanes from Lane2 to 1, Despite V2 Being Parallel with his Vehicle. V1 Driver Does Not See V2 and he Enters Lane1 Colliding with V2.

Vehicles			From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1	Goods > 7.5t	Change lane to left	NE	SW	Male	37	Negative	1	Driver/Rider	SLIGHT	2	Female	50	
2	Car	Going ahead other	NE	SW	Female	50	Negative							

Contributory Factors

Failed to look properly	V001 V.likely

11A0383 SLIGHT 10/01/2014 006:30 418470 /426307 Junction of A638 Bradford Road Cleckheaton and Chain Bar Road Cleckheaton

V2 IS STATIONARY ALONG THE A638 BRADFORD ROAD, CLECKHEATON NEAR TO THE JUNCTION WITH CHAINBAR ROAD. V1 FAILS TO SEE VEHICLES AHEAD SLOWING OR STATIONARY AND HAS BEEN UNABLE TO STOP IN TIME AND COLLIDES WITH REAR OF V2 CAUSING DAMAGE TO THE REAR BUMPER. V1 FAILS TO STOP AT SCENE AND DETAILS OF VEHICLE NOT OBTAINED DUE TO DRIVER OF V2 BEING IN SHOCK. MINOR INJURY SUSTAINED.

Vehicles		From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1 Car	Going ahead other	NW	SE	Not known	-1	Not contacted	1	Driver/Rider	SLIGHT	2	Female	24	
2 Car	Wait go ahead, held up	NW	SE	Female	24	Not contacted							

Contributory Factors

Failed to look properly	V001 Possible	Fail to judge other person path or speed	V001 Possible		

11V1281 SLIGHT 31/01/2014 018:40 418283 /426617 A638 Bradford Road

This collision involves two vehicle, Vehicle 1 is a Ford Fiesta motor car, which is being driven at the roundabout at Chain Bar. The vehicle exits the roundabout on to Bradford Road, travelling in the direction of Cleckheaton. On leaviing the roundabout the driver of the vehicle loses control and leaves the carriageway to the nearside mounting a grass verge, then collides with the wooden boundary fence of the Silver Birch public house, continues down a grassed bank into the car park of the public house and collides with vehicle 2 which is a parked and unattended Ford Kuga motor car, Driver of Vehicle 1 receives slight injuries.

Vehicles		From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1 Car	Going ahead LHB	NW	SE	Female	32	Negative	1	Driver/Rider	SLIGHT	1	Female	32	
2 Car	Parked	P	P	Male	34	Not requested							

Contributory Factors

Slippery road due to weather	V001 V.likely	Too fast for conditions	V001 Possible	Loss of control	V001 V.likely

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120282598 SLIGHT 28/06/2012 016:19 418286 /426662 Whitehall Road Jw Bradford Road, Cleckheaton

both Vehicles on Chain Bar Roundabout Looking to Exit on to A638 Towards Cleckheaton. Driver Veh1 Hgv Alleges was in Lane 2 when Felt a Bang which was Veh2 Car Colliding with Front Nearside of Veh1. Driver of Veh2 Alleges was in Lane 2 and Veh1 in Lane 1. Veh2 Alleges Veh1 Moved Sharply into Lane 2 and Collided with Rear Nearside. no Witnesses.

Vehicles		From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1 Goods > 7.5t	Going ahead other	N	S	Male	42	Negative	1	Driver/Rider	SLIGHT	2	Female	31	
2 Car	Going ahead other	N	S	Female	31	Negative							

Contributory Factors

Other	V001 Possible	Other	V002 Possible

120545962 SLIGHT 13/12/2012 0017:00 418747 /426687 Whitehall Road West, Cleckheaton

V1 was Travelling Along Whitehall Road West Towards Birkenshaw Approaching the Traffic Lights at the Junction with Hunsworth Lane. There was a Line of Stationary Traffic ahead which Included V2 and V4, Due to the Traffic Signals Being at Red. V1 Positions to the Offside of the Line of Stationary Vehicles and Enters the Crossed Hatched Markings to Pass These Vehicles to Their Offside in Order to Enter a Dedicated Lane for turning right onto Hunsworth Lane. as the Driver Does So he Believes V2 Moves out from the Line of Traffic as If to Check on Traffic Signals and in Doing So, V1 Collides with Offside Front Wheel of V1. V1 Rebounds from V2 Towards Wrong Side of Carriageway and Collides with V3 which was Travelling in the Opposite Direction. the Vehicle then Rebounds Further and Collides with V4 ahead of V2 Causing Further Damage.

Vehicles			From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1	Car	O/T moving veh on its N/S	W	E	Male	20	Negative	1	Driver/Rider	SLIGHT	1	Male	20	
2	Car	Wait go ahead, held up	W	E	Female	40	Negative	2	Driver/Rider	SLIGHT	2	Female	40	
3	Car	Going ahead other	E	W	Male	43	Negative							
4	Car	Wait go ahead, held up	W	E	Male	35	Negative							

Contributory Factors

Too fast for conditions	V001 Possible	Fail to judge other person path or speed	V001 Possible	Loss of control	V001 V.likely

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130042526 SLIGHT 30/01/2013 000:30 418885 /426707 Whitehall Road at Junction with Hunsworth Lane, Cleckheaton

Veh 1 Has Been Diverted off the M62 and onto the A58 the Driver Has Been Intending to Get to Leeds. Being Unfamilliar with the Location Decided to Turn right at J/W Hunsworth Lane. Veh 1 Has Reached the J/W Whitehall Road and Entered Road and Collided into Veh 2 which was Travelling Towards Junction. the Impact Has Pushed Veh 1 Back across the Road into Veh 3

Vehicles			From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1	Car	Turning right	W	S	Male	42	Negative	1	Driver/Rider	SLIGHT	1	Male	42	
2	Car	Going ahead other	E	W	Male	39	Not provided	2	Driver/Rider	SLIGHT	2	Male	39	
3	Van/Goods < 3.5t	Going ahead other	W	E	Male	55	Negative							

Contributory Factors

Poor turn or manoeuvre	V001 V.likely	Nervous, uncertain or panic	V001 V.likely

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130151584 SLIGHT 12/04/2013 0012:15 418518 /426223 Bradford Road at Junction with Snelsins Lane, Cleckheaton

V1 Waiting to Turn right into Bradford Road from Snelsins Lane. V2 Travels Along Bradford Road Approaching Jw Snelsins Lane to N/S. V1 Has Pulled out into Bradford Road Entering Path of V2 Resulting in Collision.

Vehicles			From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1	Car	Turning right	SW	NW	Female	21	Not provided	1	Driver/Rider	SLIGHT	1	Female	21	
2	Car	Going ahead other	SE	NW	Female	21	Not provided	2	Driver/Rider	SLIGHT	2	Female	21	
								3	Passenger	SLIGHT	2	Female	20	

Contributory Factors

Failed to look properly	V001 Possible	Failed to signal or misleading signal	V002 Possible	Fail to judge other person path or speed	V001 Possible
Unfamiliar with model of vehicle	V002 Possible				

130320119 SLIGHT 03/08/2013 0010:30 418239 /426614 Bradford Road , Cleckheaton

V1 & V2 Are both Negatiating Chain Bar Roundabout, and Are both Situated on Lane 4 of 4 (Inner Lane). Traffic Signals at Junction with A638 Bradford Road Turn to Red. Driver of V2 Notices Lights and Quickly Brakes and Comes to a Stop. V1 Also Brakes Quickly as Had Been Expecting V2 to Continue Through Lights. V1 is Unable to Avoid Collision and Collides with Rear of V2.

Vehicles			From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1	Car	Stopping	E	W	Male	38	Negative	1	Passenger	SLIGHT	2	Female	47	
2	Car	Stopping	E	W	Female	60	Negative							

Contributory Factors

Following too close	V001 V.likely	Sudden braking	V002 V.likely	Junction overshoot	V002 V.likely

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130329776 SERIOUS 10/08/2013 0001:03 418772 /426420 Hunsworth Lane, Cleckheaton

V1 Travelling Along Hunsworth Lane, Away from Birkenshaw Area. V1 Went to Negotiate a right Hand Bend in Road, Towards Hunsworth. V1 Lost Control and left Road to Nearside Crashing Through a Wooden/Barbed Wire Fence and Comes to a Stop in Field.

Vehicles			From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1	Car	Going ahead RHB	SW	NE	Male	19	Not provided	1	Driver/Rider	SERIOUS	1	Male	19	

Contributory Factors

Impaired by alcohol	V001 V.likely				

17A0213 SERIOUS 10/07/2014 006:10 418400 /426683 Junction of A58 Whitehall Road West and Stubs Beck Lane

V1, a private hire vehicle, travels down Whitehall Road West from Chain Bar roundabout in the direction of Hunslet. V1 is carrying a fare paying passenger and driver decides to perform U-turn to park in a layby on the opposite side of the carriageway. V2, a motorcycle, travels along Whitehall Road West towards Chain Bar. V3 is parked unattended in the layby facing towards Chain Bar. V1 continues with U-turn and strikes V2, causing both rider and bike to fall to floor and flip over. V2 then slides into the rear of V3, causing very minor damage to rear of V3. Suspected fracture to right leg of rider of V2 and numerous cuts and bruises.

Vehicles			From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1	Taxi	U Turn	W	E	Male	55	Negative	1	Driver/Rider	SERIOUS	2	Male	26	
2	M/cycle 50 - 125cc	Going ahead other	E	W	Male	26	Not provided							
3	Car	Parked	P	P	Not known	-1	Not contacted							

Contributory Factors

Failed to look properly V001 V.likely

2411602 SLIGHT 01/04/2015 022:45 418293 /426595 A638 Bradford Road

This is a one vehicle RTC resulting in minor injuries suffered to the driver. Vehicle one containing its driver and front seat passenger, has exited the Chain Bar roundabout and travelled towards Cleckheaton along the A638 Bradford Road. Whilst travelling around the first left hand bend from the roundabout the vehicle has lost control and exited the carriageway to the nearside, colliding with an illuminated street light. The driver suffers a 3 inch cut to her head, the passenger is un-injured. No other persons were involved in the collision. The road condition at the time was wet.

Vehicles			From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1	Car	Going ahead LHB	N	SE	Female	26	Not provided	1	Driver/Rider	SLIGHT	1	Female	26	

Contributory Factors

Loss of control V001 V.likely Exceeding speed limit V001 Possible

---

2A80921 SLIGHT 08/10/2015 015:28 418285 /426662 Junction of A58 Whitehall Road and A638 Bradford Road

Vehicle 1 is negotiating Chain Bar roundabout intending to exit the roundabout onto Bradford Road, Cleckheaton. vehicle two is following vehicle one intending to go in the same direction and at the time both are travelling lane 2 which becomes lane 1. Two unknown vehicles cut across vehicle one which is forced to brake heavily and vehicle two runs into the rear of vehicle one. The driver of vehicle one is wheel chair bound and unable to leave his vehicle. His vehicle has been suitably converted. This driver has suffered minor neck pain as a result of the collision. The driver of vehicle two is un injured.

Vehicles			From	To	Driver		Breath Test	Casualties			Veh	Sex	Age	Ped direction to
1	Van/Goods < 3.5t	Going ahead other	N	S	Male	40	Not requested	1	Driver/Rider	SLIGHT	1	Male	40	
2	Car	Going ahead other	N	S	Female	33	Not requested							

Contributory Factors

Sudden braking V001 V.likely Following too close V002 Possible

---

Vicinity of Hunsworth Lane, Cleckheaton, Bradford, RTC five years prior to 12.12.2015

ACCIDENT SEVERITY UPTO 2016

		2011	2012	2013	2014	2015	2016	Total
Fatal	0%	0	0	0	0	0	0	**0**
Serious	14%	0	0	1	1	0	0	**2**
Slight	86%	2	2	4	2	2	0	**12**
TOTAL		**2**	**2**	**5**	**3**	**2**	**0**	**14**

WEATHER

	No.	%
Fine	12	86
Rain	2	14
TOTAL	**14**	

ROAD SURFACE

	Number	%
Dry	8	57
Wet	6	43
TOTAL	**14**	

LIGHT CONDITIONS

	Number	%
Light	9	64
Dark	5	36
TOTAL	**14**	

PEDESTRIAN ACCIDENTS	**No.**	**%**
	0	0

SKIDDING ACCIDENTS	**No.**	**%**
	3	21

ACCIDENTS BY DAY AND TIME

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total
00.00 - 00:59	0	0	0	1	0	0	0	**1**
01:00 - 01:59	0	0	0	0	0	0	1	**1**
02:00 - 02:59	0	0	0	0	0	0	0	**0**
03:00 - 03:59	0	0	0	0	0	0	0	**0**
04:00 - 04:59	0	0	0	0	0	0	0	**0**
05:00 - 05:59	0	0	0	0	0	0	0	**0**
06:00 - 06:59	0	0	0	0	1	1	0	**2**
07:00 - 07:59	0	0	0	0	0	1	0	**1**
08:00 - 08:59	0	0	0	0	0	0	0	**0**
09:00 - 09:59	0	0	0	0	0	0	0	**0**
10:00 - 10:59	0	0	0	0	0	0	1	**1**
11:00 - 11:59	0	0	0	0	0	0	0	**0**
12:00 - 12:59	0	0	0	0	0	1	0	**1**
13:00 - 13:59	0	0	0	0	0	0	0	**0**
14:00 - 14:59	0	0	0	0	0	0	0	**0**
15:00 - 15:59	0	0	1	1	1	0	0	**3**
16:00 - 16:59	0	0	0	0	1	0	0	**1**
17:00 - 17:59	0	0	0	0	1	0	0	**1**
18:00 - 18:59	0	0	0	0	0	1	0	**1**
19:00 - 19:59	0	0	0	0	0	0	0	**0**
20:00 - 20:59	0	0	0	0	0	0	0	**0**
21:00 - 21:59	0	0	0	0	0	0	0	**0**
22:00 - 22:59	0	0	0	1	0	0	0	**1**
23:00 - 23:59	0	0	0	0	0	0	0	**0**
TOTAL	**0**	**0**	**1**	**3**	**4**	**4**	**2**	**14**
%	0%	0%	7%	21%	29%	29%	14%	100%

ACCIDENTS BY MONTH AND YEAR UPTO 2016

	2011	2012	2013	2014	2015	2016	Total
Jan	1	0	1	2	0	0	**4**
Feb	0	0	0	0	0	0	**0**
Mar	0	0	0	0	0	0	**0**
Apr	0	0	1	0	1	0	**2**
May	0	0	0	0	0	0	**0**
June	0	1	0	0	0	0	**1**
July	1	0	0	1	0	0	**2**
Aug	0	0	2	0	0	0	**2**
Sep	0	0	0	0	0	0	**0**
Oct	0	0	1	0	1	0	**2**
Nov	0	0	0	0	0	0	**0**
Dec	0	1	0	0	0	0	**1**
TOTAL	**2**	**2**	**5**	**3**	**2**	**0**	**14**
%	14%	14%	36%	21%	14%	0%	100%

Vicinity of Hunsworth Lane, Cleckheaton, Bradford, RTC five years prior to 12.12.2015

CASUALTY SEVERITY UPTO 2016

	2011	2012	2013	2014	2015	2016	Total
Fatal	0	0	0	0	0	0	**0**
Serious	0	0	1	1	0	0	**2**
Slight	2	3	7	2	2	0	**16**
TOTAL	**2**	**3**	**8**	**3**	**2**	**0**	**18**

JUNCTION DETAIL

	Number	%
Roundabout and mini	4	29
T or staggered	2	14
Cross roads	4	29
Not at junction	4	29
TOTAL	**14**	

JUNCTION CONTROLS

	Number	%
ATS	8	57
Give way sign	2	14
Not at junction	4	29
TOTAL	**14**	

CASUALTIES BY TYPE AND AGE GROUPING

	0 to 4	5 to 15	16 to 19	20 to 29	30 to 59	60 Plus	Total	%
PTW rider	0	0	0	1	0	0	**1**	6
Car driver	0	0	1	5	8	0	**14**	78
Car passenger	0	0	0	1	1	0	**2**	11
Goods driver	0	0	0	0	1	0	**1**	6
TOTAL	**0**	**0**	**1**	**7**	**10**	**0**	**18**	
%	0	0	6	39	56	0		

Number of Casualties with unknown age: 0

SPEED LIMIT

	Number	%
30 MPH	5	36
40 MPH	9	64
TOTAL	**14**	

ROAD CLASS

	Number	%
A	11	85
B	2	15
TOTAL	**13**	

VEHICLES INVOLVED BY TYPE AND AGE OF DRIVER

	0 to 15	16 to 19	20 to 29	30 to 59	60 Plus	Unknown	Total	%
Pedal Cycle	0	0	0	0	1	0	**1**	3
PTW	0	0	1	0	0	0	**1**	3
Car	0	1	5	13	1	3	**23**	77
Goods < 3.5T	0	0	0	2	0	0	**2**	7
Goods > 3.5T	0	0	0	2	0	0	**2**	7
Hackney/Private	0	0	0	1	0	0	**1**	3
TOTAL	**0**	**1**	**6**	**18**	**2**	**3**	**30**	
%	0	3	20	60	7	10		

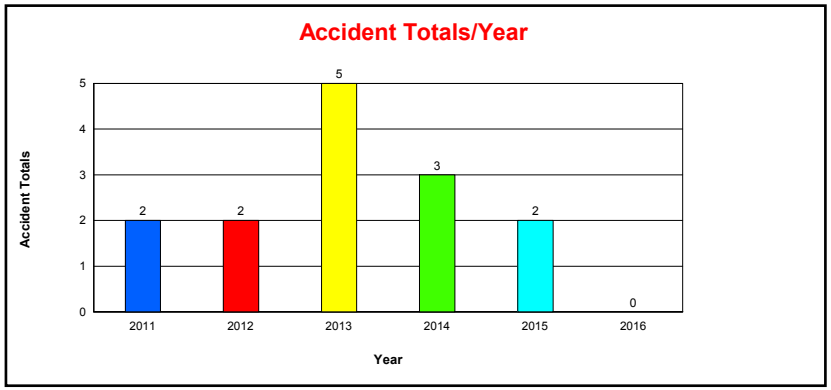
VEHICLE MANOEUVRES

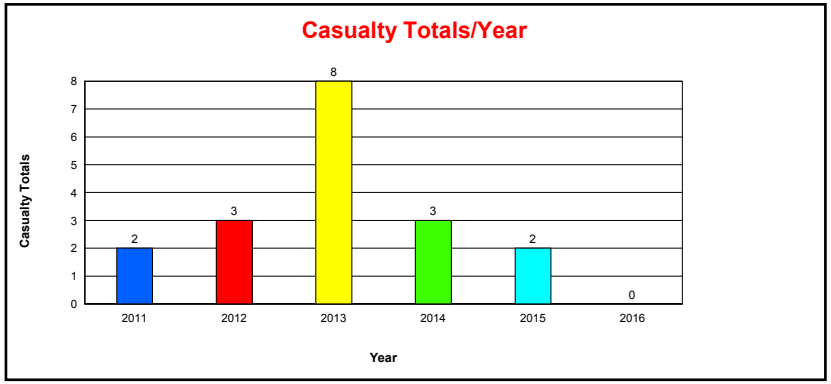
	Number	%
Parked	2	7
Waiting to go ahead but held up	3	10
Stopping	3	10
Starting	1	3
U turn	1	3
Turning right	2	7
Changing lane to left	1	3
Overtaking moving veh on its nearside	1	3
Going ahead left hand bend	2	7
Going ahead right hand bend	1	3
Going ahead other	13	43
TOTAL	**30**	

BREATH TEST

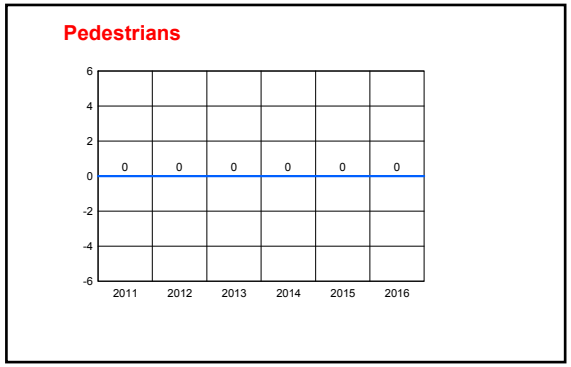
	Number	%
Not applicable	1	3
Negative	15	50
Not requested	3	10
Driver not contacted	5	17
Medical reasons	6	20
TOTAL	**30**	

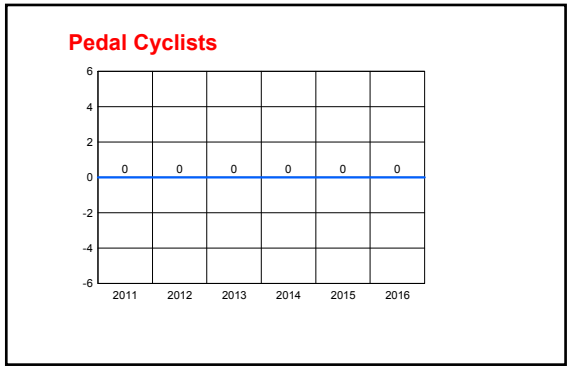
Vicinity of Hunsworth Lane, Cleckheaton, Bradford, RTC five years prior to 12.12.2015

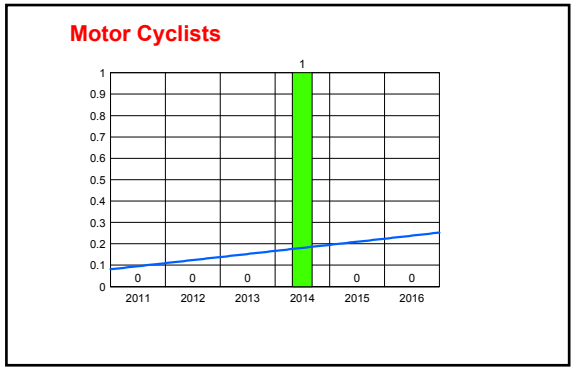


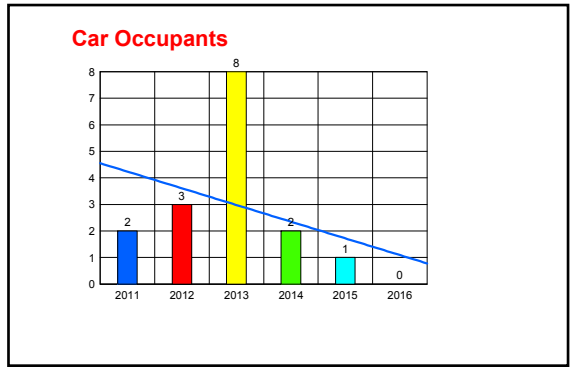


Casualty Data









Acc	2011	2012	2013	2014	2015	2016	Total
Fatal	0	0	0	0	0	0	0
Serious	0	0	1	1	0	0	2
Slight	2	2	4	2	2	0	12
Damage	0	0	0	0	0	0	0
Total	2	2	5	3	2	0	14

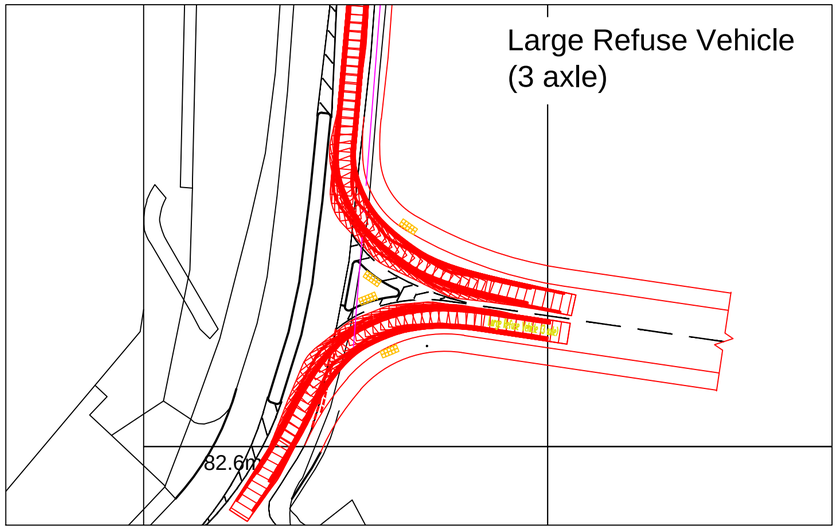
Cas	2011	2012	2013	2014	2015	2016	Total
Fatal	0	0	0	0	0	0	0
Serious	0	0	1	1	0	0	2
Slight	2	3	7	2	2	0	16
Total	2	3	8	3	2	0	18

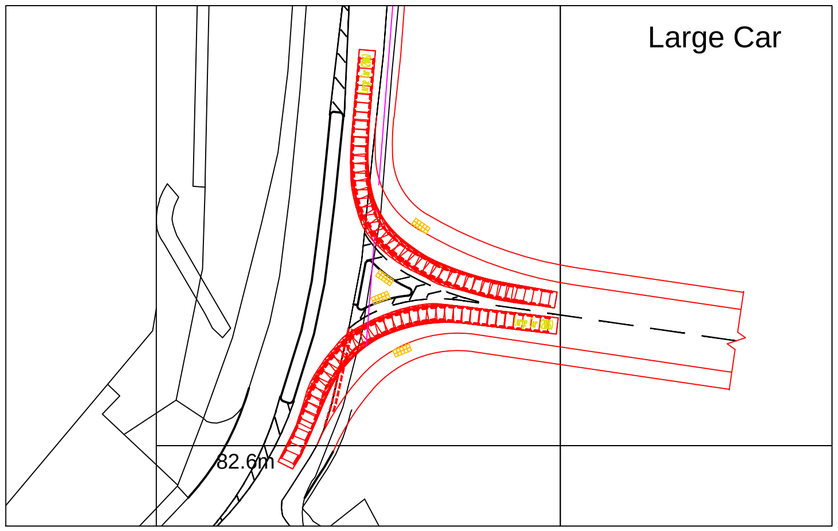
		PEDESTRIANS	PEDAL CYCLIST	PTW USER	HACKNEY PRI/HIRE	CAR DRIVER	CAR PASS	GOODS OCCUPANT	PSV	OTHER VEH OCCUPANT	TOTAL
0 to 4	Fatal	0	0	0	0	0	0	0	0	0	**0**
	Serious	0	0	0	0	0	0	0	0	0	**0**
	Slight	0	0	0	0	0	0	0	0	0	**0**
	TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5 to 15	Fatal	0	0	0	0	0	0	0	0	0	**0**
	Serious	0	0	0	0	0	0	0	0	0	**0**
	Slight	0	0	0	0	0	0	0	0	0	**0**
	TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
16 to 19	Fatal	0	0	0	0	0	0	0	0	0	**0**
	Serious	0	0	0	0	1	0	0	0	0	**1**
	Slight	0	0	0	0	0	0	0	0	0	**0**
	TOTAL	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
20 to 29	Fatal	0	0	0	0	0	0	0	0	0	**0**
	Serious	0	0	1	0	0	0	0	0	0	**1**
	Slight	0	0	0	0	5	1	0	0	0	**6**
	TOTAL	**0**	**0**	**1**	**0**	**5**	**1**	**0**	**0**	**0**	**7**
30 to 59	Fatal	0	0	0	0	0	0	0	0	0	**0**
	Serious	0	0	0	0	0	0	0	0	0	**0**
	Slight	0	0	0	0	8	1	1	0	0	**10**
	TOTAL	**0**	**0**	**0**	**0**	**8**	**1**	**1**	**0**	**0**	**10**
60+	Fatal	0	0	0	0	0	0	0	0	0	**0**
	Serious	0	0	0	0	0	0	0	0	0	**0**
	Slight	0	0	0	0	0	0	0	0	0	**0**
	TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
All Ages	Fatal	0	0	0	0	0	0	0	0	0	**0**
	Serious	0	0	1	0	1	0	0	0	0	**2**
	Slight	0	0	0	0	13	2	1	0	0	**16**
	TOTAL	**0**	**0**	**1**	**0**	**14**	**2**	**1**	**0**	**0**	**18**

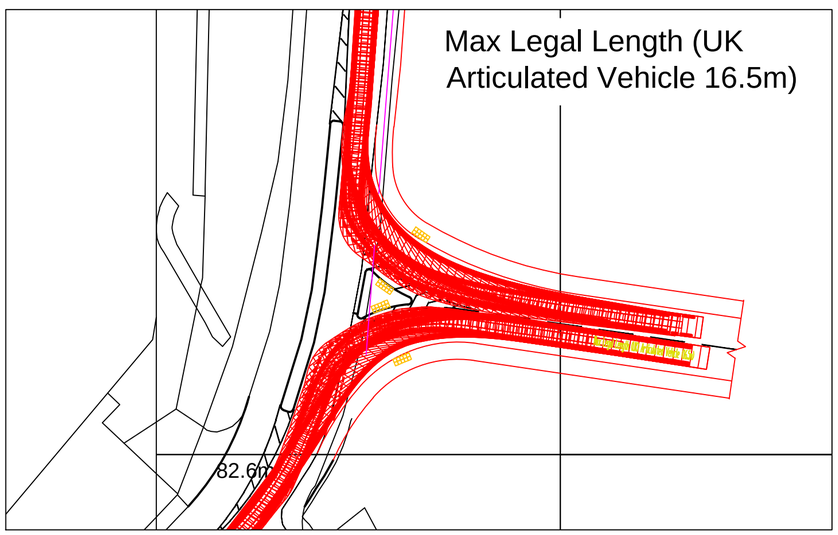
Number of Casualties with unknown age: 0

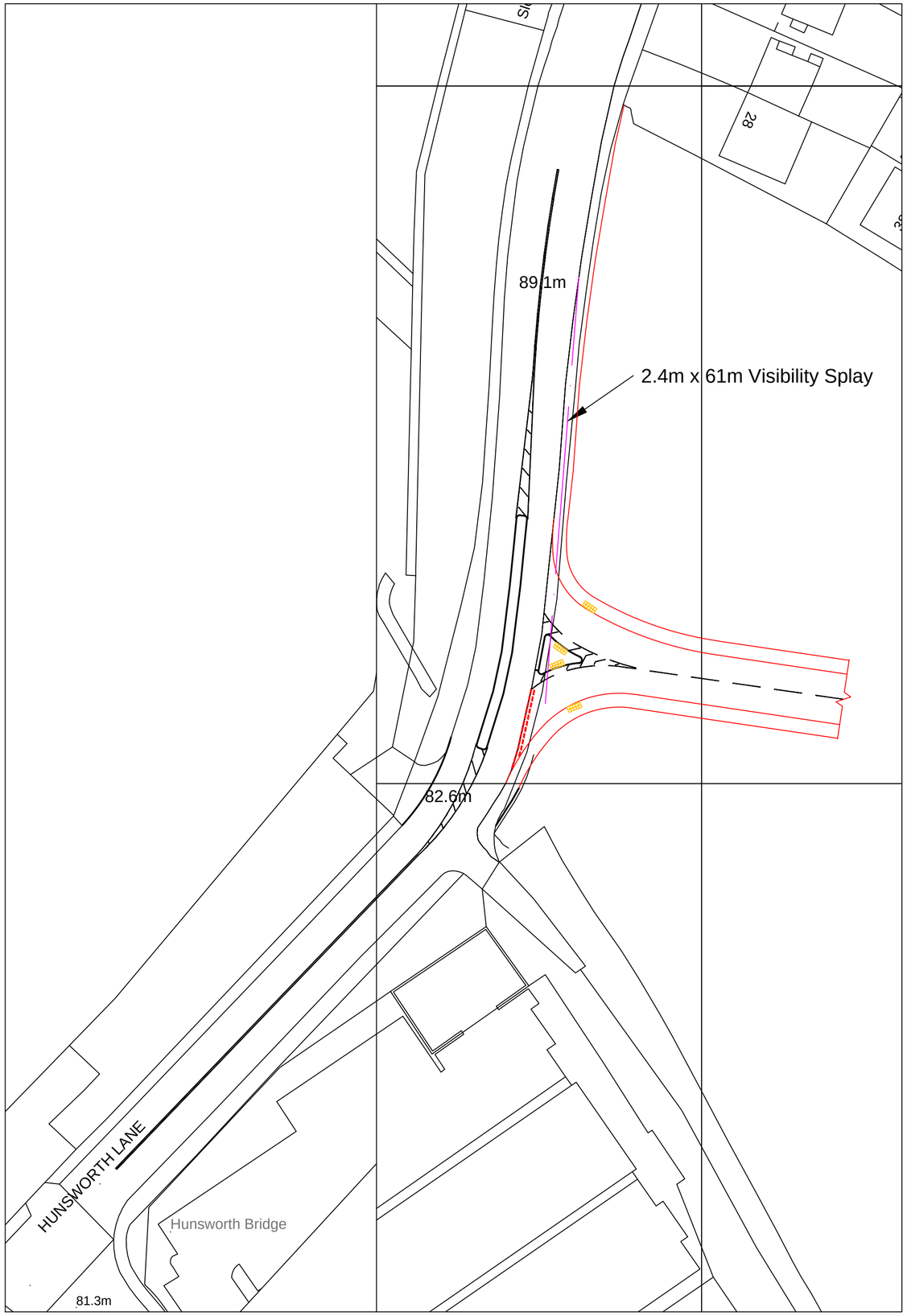
APPENDIX F

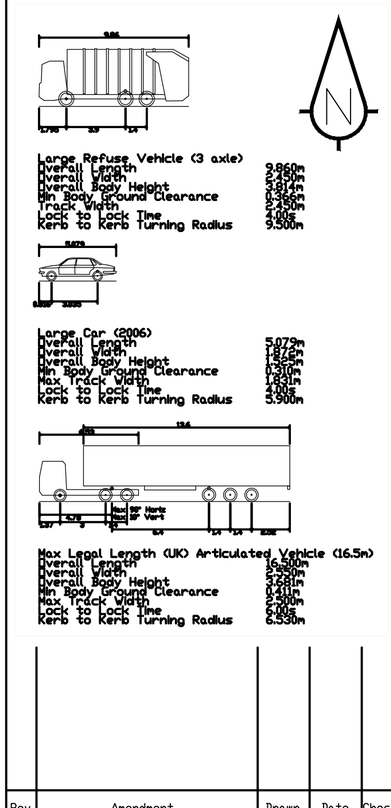
Drawing 9089-001 (subject to RSA) – Proposed Access Arrangement











Rev	Amendment	Drawn	Date	Checked

sanderson associates (consulting engineers) ltd
Highways | Traffic | Transportation | Water
T 01924 844080 mail@sandersonassociates.co.uk
F 01924 844081 www.sandersonassociates.co.uk

Client

Harron Homes Ltd.

Project Title

Hunsworth Lane, Cleckheaton

Drawing Title

Proposed Access Arrangement

Scale 1:500	Drawn By SB
Drawing Size A2	Checked By DJC
Date Jan 2016	Approved By DJC

QMS ISO 9001 REGISTERED FIRM

Drawing Number 9089-001

Rev

FILE REF:

APPENDIX G

Road Safety Audit

sanderson associates (consulting engineers) ltd

Highways | Traffic | Transportation | Water

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Prepared on behalf of

Harron Homes Ltd

Hunsworth Lane, Cleckheaton

Stage 1 Road Safety Audit

VAT No. GB 873219218
Company No. 3235830
Registered Office
Sanderson House, Jubilee Way
Grange Moor WF4 4TD

ISO 9001 REGISTERED FIRM

IHE

Disclaimer

The methodology adopted and the sources of information used by Sanderson Associates (Consulting Engineers) Ltd in providing its services are outlined within this Report.

Any information provided by third parties and referred to herein has not been checked or verified by Sanderson Associates (Consulting Engineers) Ltd, unless otherwise expressly stated within this report.

This report was checked and approved on the 7th September 2016 and the Report is therefore valid on this date, circumstances, regulations and professional standards do change which could subsequently affect the validity of this Report.

Copyright

Report Ref:	9530/AND/001/01		September 2016
Author:	Adam Darwin		
Checked & Approved:	Darren Hawkyard	**Date:**	7th September 2016

Contents

Page No

Appendices

APPENDIX A

Marked Up Plan

1 Introduction

1.1 Sanderson Associates (Consulting Engineers) Ltd have been appointed by Harron Homes Ltd to carry out a Stage 1 Road Safety Audit of their site access proposals on to Hunsworth Lane, Cleckheaton.

1.2 A new site access is proposed on to Hunsworth Lane as shown on drawing 9089/001. The access is proposed to be left in/out only, with an associated central traffic island on Hunsworth Lane to restrict right turn movements.

1.3 An audit brief has been provided to the Audit Team that includes various background information, including traffic speed/flow data and personal injury accident data.

1.4 The Audit Team membership is given in Section 3 of this report. The Audit took place on site on Friday 2nd September 2016 and was discussed further at the office of Sanderson Associates. During the site visit the weather was dry and traffic conditions appeared to be normal.

1.5 The Audit report follows the Stage 1 table of contents list in Annex A of HD19/15. For instance a problem identified under list A1: General, item – Access will be referenced A1.8.1 where A1 refers to the particular list, 8 refers to the eighth item in list A1 i.e. Access and the third figure refers to the problem number. Therefore if a second problem has been identified under the same list and item this will be numbered A1.8.2.

1.6 The Audit considers and reports on the safety implications of the proposed highway works. Comments made in this report relate to those points that are considered to be worthy of attention in respect of safety only.

1.7 A marked up plan is included in **Appendix A**, which identifies the general location of problems that have been raised. General problems or those with multiple locations have not all been shown.

1.8 Any recommendations included within this report should not be regarded as being prescriptive design solutions to the problems raised. They are intended only to indicate a proportionate means of eliminating or mitigating the identified problem. It is noted that there may be alternative methods of addressing a problem that would be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.

2 Items raised at the Stage 1 Audit

A1 GENERAL

A1.8.1 **Problem:** Access

Location: Private access to the southwest of the proposed traffic island.

Summary: A private access exists to the southwest of the proposed traffic island on Hunsworth Lane. The proposed traffic island is likely to make it more difficult for vehicles to enter and exit the access, which could result in large vehicles overrunning the proposed traffic island and colliding with associated street furniture.

Recommendation: Swept path analysis should be undertaken to confirm that the use of the access if not adversely affected by the proposed traffic island; and if so, the design should be amended as necessary.

A1.12.1 **Problem:** Basic Design Principles

Location: Proposed Traffic Island

Summary: The access proposals restrict movements at the site access to left in/out only, by the provision of a central traffic island on Hunsworth Lane. However, some drivers may try to turn right in to the access by either overrunning the traffic island or by u-turning passed the island and then turning left into the access. Similarly outbound traffic could attempt to turn right over the island. Should drivers attempt these manoeuvres, there is the potential for collisions with passing traffic that would not be expecting drivers to be undertaking these manoeuvres; and may also cause damage to the island that would then become a hazard.

Recommendation: The site access arrangement should be redesigned to safely accommodate all turning movements. If this is not possible due to layout constraints, further measures should be incorporated into the design to discourage drivers from attempting to right in/out of the access.

A1.12.2 **Problem:** Basic Design Principles

Location: Proposed Central Island

Summary: The lane widths passed the proposed traffic island on Hunsworth Lane appear to be approximately 3.8m. However, the lane width passed islands are normally required to be between 4.0-4.5m to allow a vehicle to pass a cyclist. Therefore, the current narrow lane widths could result in cyclists being struck by an overtaking vehicles, or pedestrians on the footways being struck by passing vehicle wind mirrors.

Recommendation: Widen the carriageway adjacent to the island to enable a vehicle to safely pass a cyclist with adequate clearance from kerbs. It is noted that as the island is located on a bend, additional widening is likely to be required to take account of the swept path of large vehicles.

A2 LOCAL ALIGNMENT

A2.1.1 **Problem:** Visibility

Location: Proposed Traffic Island

Summary: The proposed traffic island is located on a bend and at the bottom of a relatively steep gradient. These features restrict forward visibility to the proposed traffic island, particularly from the south where existing properties would restrict visibility to the island so that it could not be fully observed on approach. Should drivers fail to observe the island or reduce their speed sufficiently on approach, they may lose control and collide with the central island.

Recommendation: Whilst existing slow road markings exist on approach to the bend, these should be reinforced by additional measures to encourage slow speeds thought the bend passed the island, with signage also provided to ensure that drivers are aware of the junction layout and presences of the island. Illuminated bollards should also be provided on the traffic island to ensure that it is conspicuous.

A3 JUNCTIONS

A3.2.1 **Problem:** Visibility

Location: Proposed site access

Summary: There is a significant amount of vegetation located along the site frontage that could restrict visibility to/from the site access for both drivers; and pedestrians crossing the site access. Should adequate visibility not be provided (and maintained), this could result in turning type collision with outbound vehicles from the site access colliding with passing traffic; and inbound vehicles colliding with pedestrians.

Recommendation: Ensure that the vegetation is cut back sufficiently to enable visibility to be maintained at all times, taking into account the future growth of the trees and tree movement during windy conditions.

A5 Road Signs, Carriageway Markings and Lighting

A5.2.1 **Problem:** Street Lighting

Location: Hunsworth Lane

Summary: The existing street lighting columns on Hunsworth Lane within the vicinity of the works are obscured by tree branches. This is likely to adversely affect the quality of lighting. Inadequate lighting within the vicinity of the proposed traffic island and access could result in drivers failing to read the highway layout, which could exacerbate a number of the problems already raised.

Recommendation: Ensure that adequate street lighting is provided within the vicinity (and on approach) to the works.

3 Audit Team Statement

3.1 We certify that we have examined the works with the sole purpose of identifying any features, or combination of feature that could be modified such as to improve the overall safety of the scheme. The problems this Road Safety Audit identifies have been noted together with suggestions for improvement, which we recommend for consideration. No one on the Audit Team has been involved with the scheme design.

Audit Team Leader:

Adam Darwin FIHE

Associate at Sanderson Associates (Consulting Engineers) Ltd

Signed:  Dated: 5th September 2016

Audit Team Members:

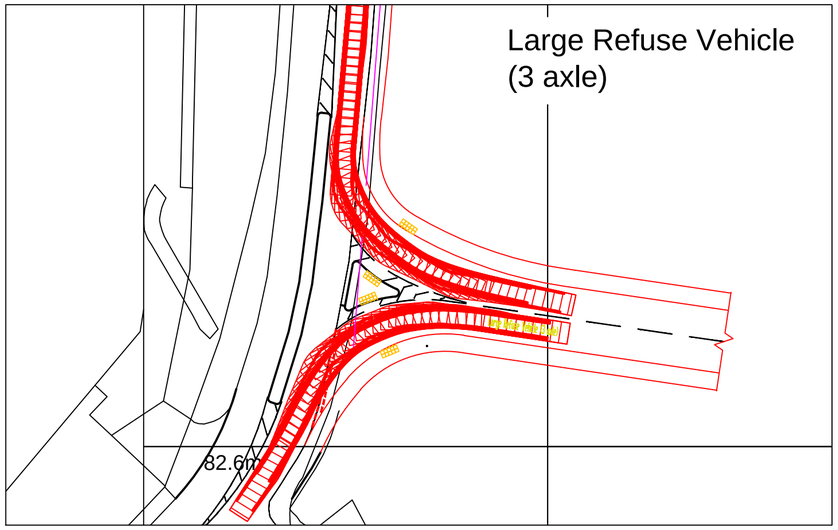
Darren Hawkyard MIHE

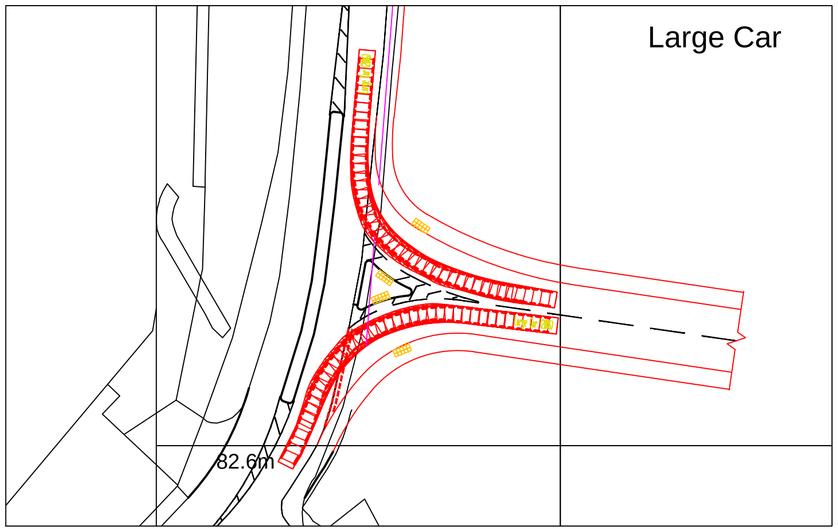
Senior Engineer at Sanderson Associates (Consulting Engineers) Ltd

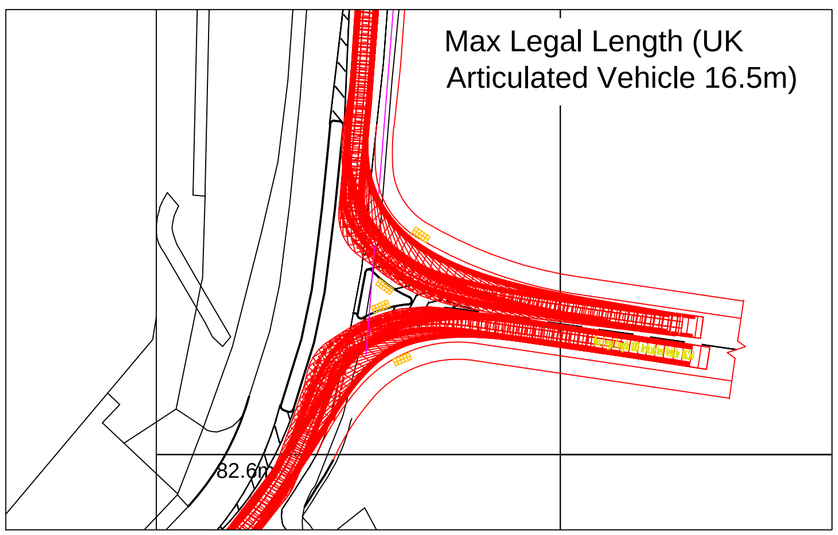
Signed:  Dated: 5th September 2016

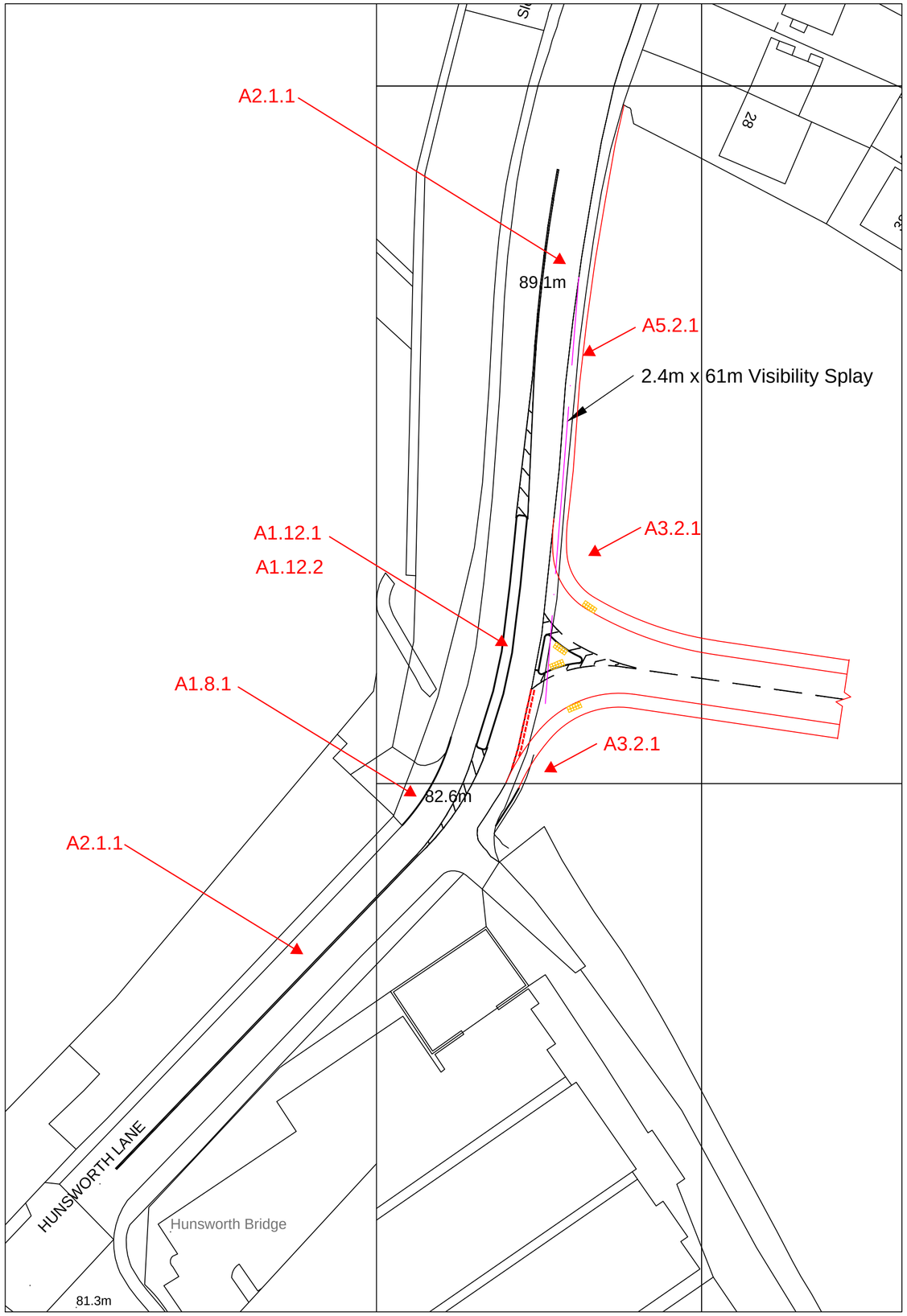
APPENDIX A

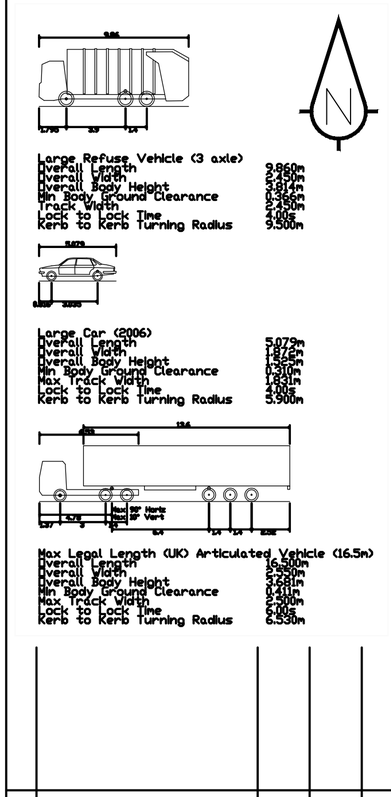
Marked Up Plan











Rev	Amendment	Drawn	Date	Checked

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Client

Harron Homes Ltd.

Project Title

Hunsworth Lane, Cleckheaton

Drawing Title

Proposed Access Arrangement

Scale 1:500	Drawn By SB
Drawing Size A2	Checked By DJC
Date Jan 2016	Approved By DJC

ISO 9001 REGISTERED FIRM

Drawing Number 9089-001

Rev

FILE REF:

APPENDIX H

Designers Response

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Prepared on behalf of

Harron Homes Ltd

Hunsworth Lane, Cleckheaton

Designers Response to

Stage 1 Road Safety Audit

VAT No. GB 873219218
Company No. 3235830
Registered Office
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ISO 9001 REGISTERED FIRM

Disclaimer

The methodology adopted and the sources of information used by Sanderson Associates (Consulting Engineers) Ltd in providing its services are outlined within this Report.

Any information provided by third parties and referred to herein has not been checked or verified by Sanderson Associates (Consulting Engineers) Ltd, unless otherwise expressly stated within this report.

This report was checked and approved on the 9th September 2016 and the Report is therefore valid on this date, circumstances, regulations and professional standards do change which could subsequently affect the validity of this Report.

Copyright

Report Ref:	9529/002/01		September 2016
Author:	Simon Burkinshaw		
Checked & Approved:	David Colley	**Date:**	9th September 2016

Contents

Page No

Appendices

APPENDIX A

Marked Up Plan From the Stage 1 RSA

APPENDIX B

9529-002 Proposed Access Plan

1 Introduction

1.1 Sanderson Associates (Consulting Engineers) Ltd were appointed by Harron Homes Ltd to carry out a Stage 1 Road Safety Audit of their site access proposals on to Hunsworth Lane, Cleckheaton.

1.2 This report is a Designers Response to the issues raised in the Stage 1 Road Safety Audit, and for ease of reference the recommendations of the Road Safety Audit Team (RSAT) are reproduced with responses to each item. The Audit took place on site on Friday 2nd September 2016.

1.3 The response to the Audit has resulted in the production of an amended scheme plan and details, reference 9529-002 which now includes an all movement site access onto Hunsworth Lane, as suggested in the Safety Audit. Drawing 9529-002 is included at **Appendix B.**

1.4 The location of the items raised from the Road Safety Audit are shown on the marked up plans included in Appendix A for reference.

1.5 The audited works included a new site access on to Hunsworth Lane as shown on drawing 9089/001. The access was proposed to be left in/out only, with an associated central traffic island on Hunsworth Lane to restrict right turn movements both in and out of the site.

1.6 The Audit Team were not made aware of any departures from standard.

2 Designers Response to Stage 1 Audit

A1 GENERAL

A1.8.1 **Problem:** Access

Location: Private access to the southwest of the proposed traffic island.

Summary: A private access exists to the southwest of the proposed traffic island on Hunsworth Lane. The proposed traffic island is likely to make it more difficult for vehicles to enter and exit the access, which could result in large vehicles overrunning the proposed traffic island and colliding with associated street furniture.

Recommendation: Swept path analysis should be undertaken to confirm that the use of the access if not adversely affected by the proposed traffic island; and if so, the design should be amended as necessary.

Designers Response

The form of the junction has been reviewed and the central island has been removed as part of the revised proposals for an all movement junction and therefore this issue is addressed.

A1.12.1 **Problem:** Basic Design Principles

Location: Proposed Traffic Island

Summary: The access proposals restrict movements at the site access to left in/out only, by the provision of a central traffic island on Hunsworth Lane. However, some drivers may try to turn right in to the access by either overrunning the traffic island or by u-turning passed the island and then turning left into the access. Similarly outbound traffic could attempt to turn right over the island. Should drivers attempt these manoeuvres, there is the potential for collisions with passing traffic that would not be expecting drivers to be undertaking these manoeuvres; and may also cause damage to the island that would then become a hazard.

Recommendation: The site access arrangement should be redesigned to safely accommodate all turning movements. If this is not possible due to layout constraints, further measures should be incorporated into the design to discourage drivers from attempting to right in/out of the access.

Designers Response

The proposed plan 9529-002 allows for an all movement junction on to Hunsworth Lane and therefore this issue is addressed..

A1.12.2 **Problem:** Basic Design Principles

Location: Proposed Central Island

Summary: The lane widths passed the proposed traffic island on Hunsworth Lane appear to be approximately 3.8m. However, the lane width passed islands are normally required to be between 4.0-4.5m to allow a vehicle to pass a cyclist. Therefore, the current narrow lane widths could result in cyclists being struck by an overtaking vehicles, or pedestrians on the footways being struck by passing vehicle wind mirrors.

Recommendation: Widen the carriageway adjacent to the island to enable a vehicle to safely pass a cyclist with adequate clearance from kerbs. It is noted that as the island is located on a bend, additional widening is likely to be required to take account of the swept path of large vehicles.

Designers Response

The central island has been omitted as part of the revised proposals for an all movement junction and therefore this issue is no longer relevant.

A2 **LOCAL ALIGNMENT**

A2.1.1 **Problem:** Visibility

Location: Proposed Traffic Island

Summary: The proposed traffic island is located on a bend and at the bottom of a relatively steep gradient. These features restrict forward visibility to the proposed traffic island, particularly from the south where existing properties would restrict visibility to the island so that it could not be fully observed on approach. Should drivers fail to observe the island or reduce their speed sufficiently on approach, they may lose control and collide with the central island.

Recommendation: Whilst existing slow road markings exist on approach to the bend, these should be reinforced by additional measures to encourage slow speeds thought the bend passed the island, with signage also provided to ensure that drivers are aware of the junction layout and presences of the island. Illuminated bollards should also be provided on the traffic island to ensure that it is conspicuous.

Designers Response

The central island has been omitted as part of the revised proposals for an all movement junction. A speed survey was undertaken on northern approach to the

site along Hunsworth Lane and revealed a wet weather speed of 32.3mph which equates to a stopping site distance requirement of 48m. 48m forward vision can be achieved to right turning vehicles waiting to enter the site within the central right turn lane..

A3 JUNCTIONS

A3.2.1 **Problem:** Visibility

Location: Proposed site access

Summary: There is a significant amount of vegetation located along the site frontage that could restrict visibility to/from the site access for both drivers; and pedestrians crossing the site access. Should adequate visibility not be provided (and maintained), this could result in turning type collision with outbound vehicles from the site access colliding with passing traffic; and inbound vehicles colliding with pedestrians.

Recommendation: Ensure that the vegetation is cut back sufficiently to enable visibility to be maintained at all times, taking into account the future growth of the trees and tree movement during windy conditions.

Designers Response

Over hanging vegetation will cleared to provide the appropriate vision splays.

A5 Road Signs, Carriageway Markings and Lighting

A5.2.1 **Problem:** Street Lighting

Location: Hunsworth Lane

Summary: The existing street lighting columns on Hunsworth Lane within the vicinity of the works are obscured by tree branches. This is likely to adversely affect the quality of lighting. Inadequate lighting within the vicinity of the proposed traffic island and access could result in drivers failing to read the highway layout, which could exacerbate a number of the problems already raised.

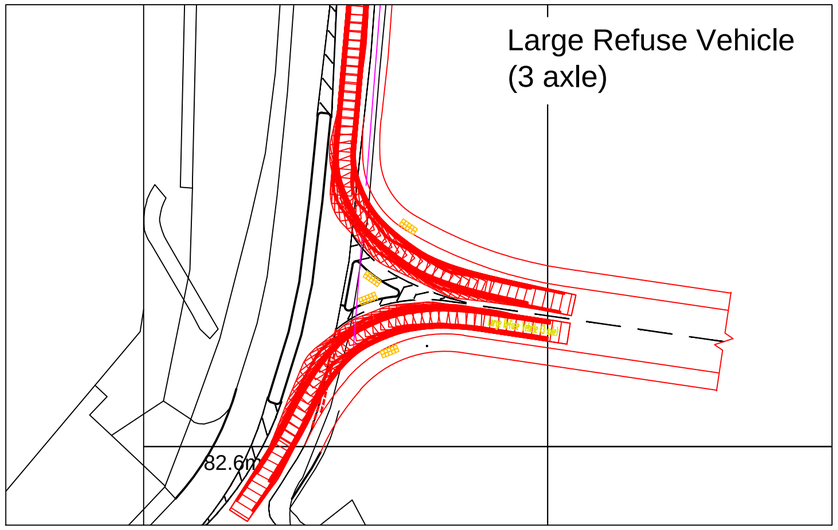
Recommendation: Ensure that adequate street lighting is provided within the vicinity (and on approach) to the works.

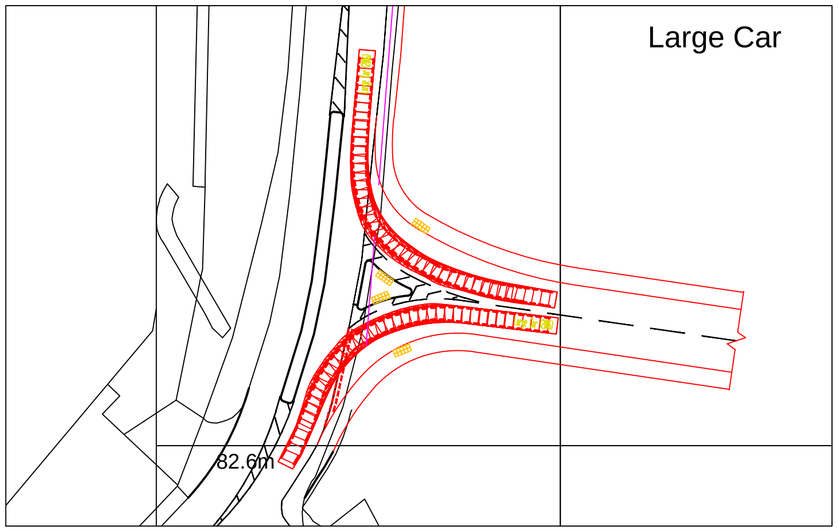
Designers Response

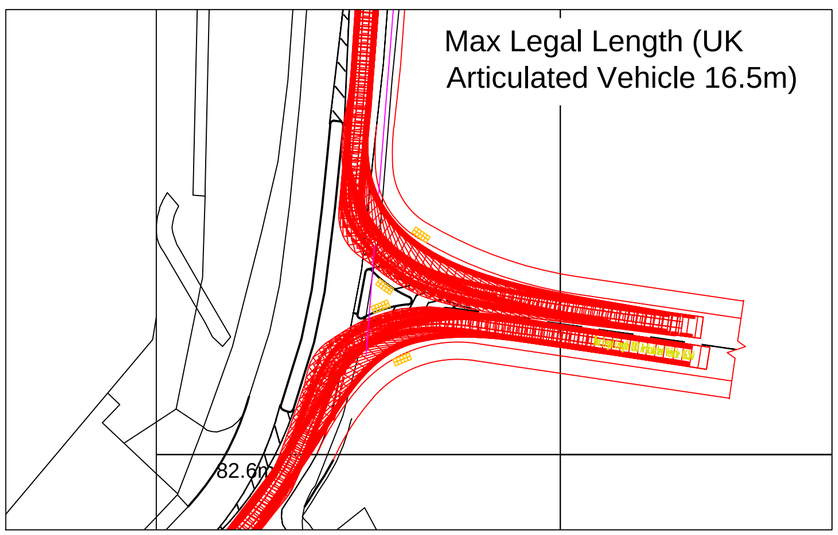
Over hanging vegetation will cleared and adequate street lighting will be provided as part of the proposals.

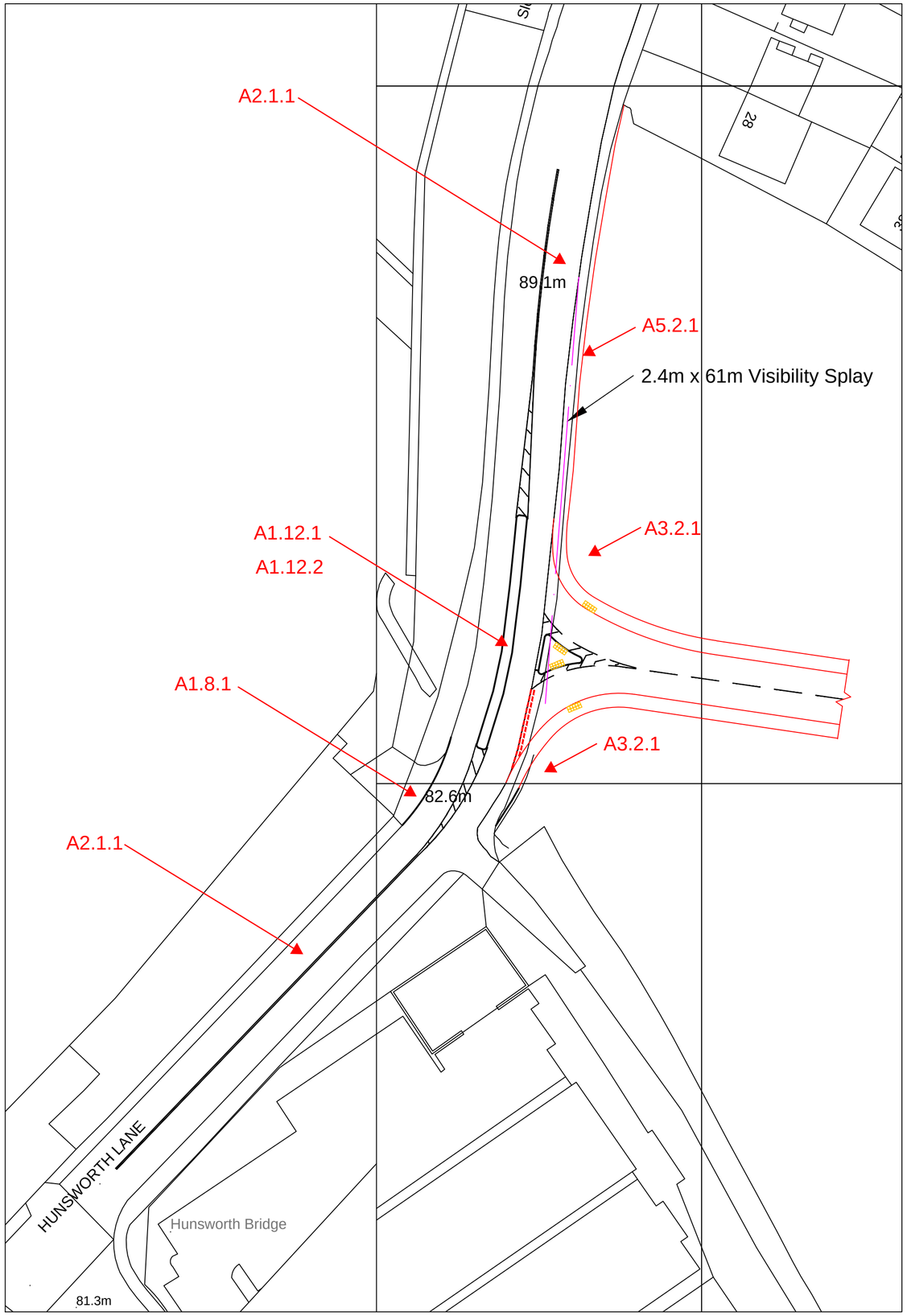
APPENDIX A

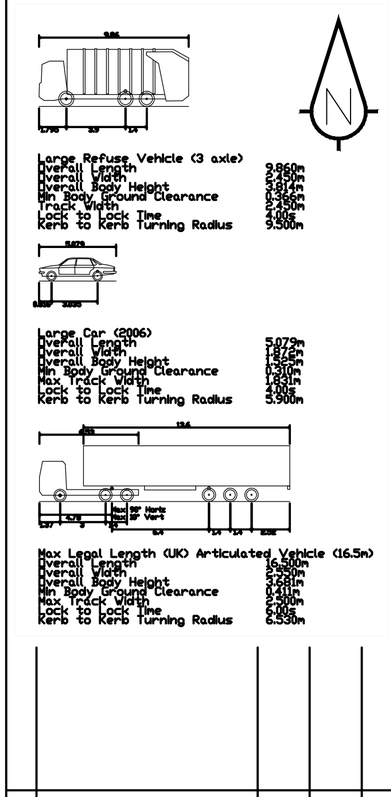
Marked Up Plan From the Stage 1 RSA











Rev	Amendment	Drawn	Date	Checked

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Client

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Project Title

Hunsworth Lane, Cleckheaton

Drawing Title

Proposed Access Arrangement

Scale 1:500	Drawn By SB
Drawing Size A2	Checked By DJC
Date Jan 2016	Approved By DJC

ISO 9001 REGISTERED FIRM

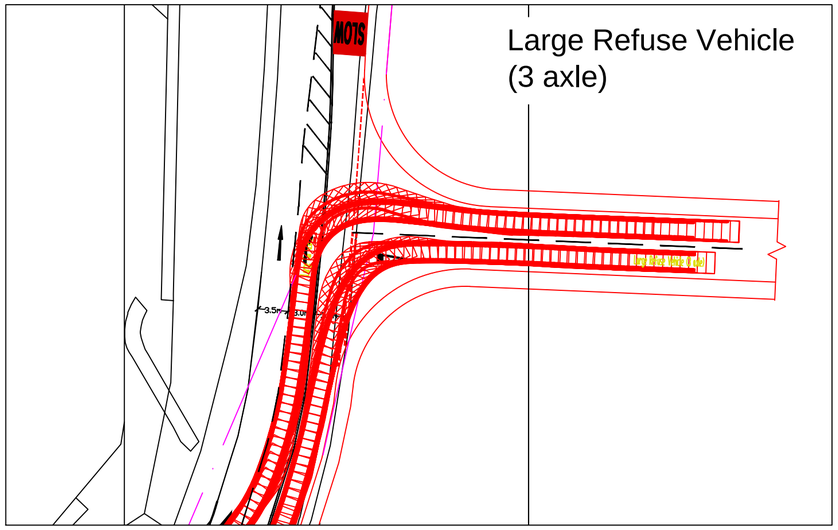
Drawing Number 9089-001

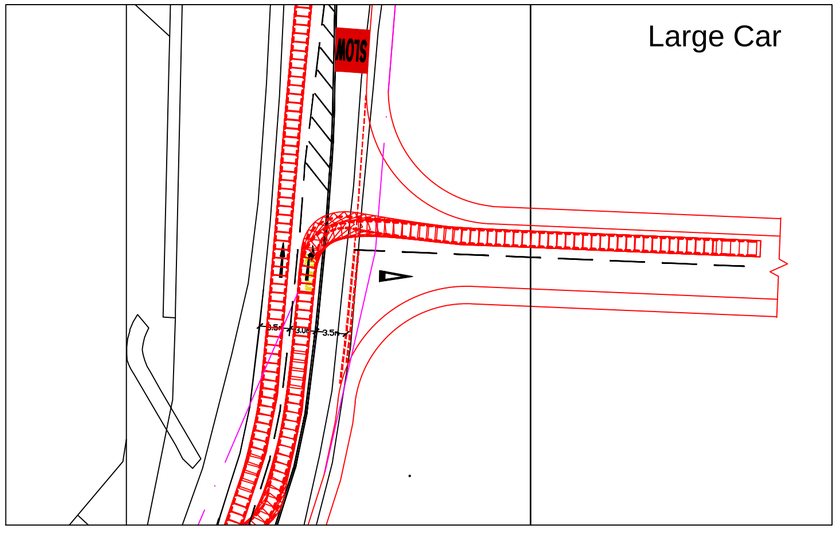
Rev

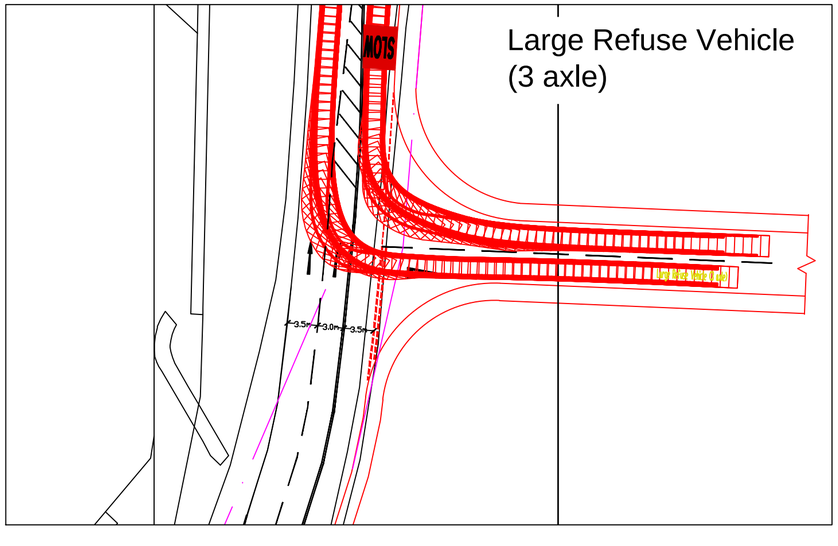
FILE REF:

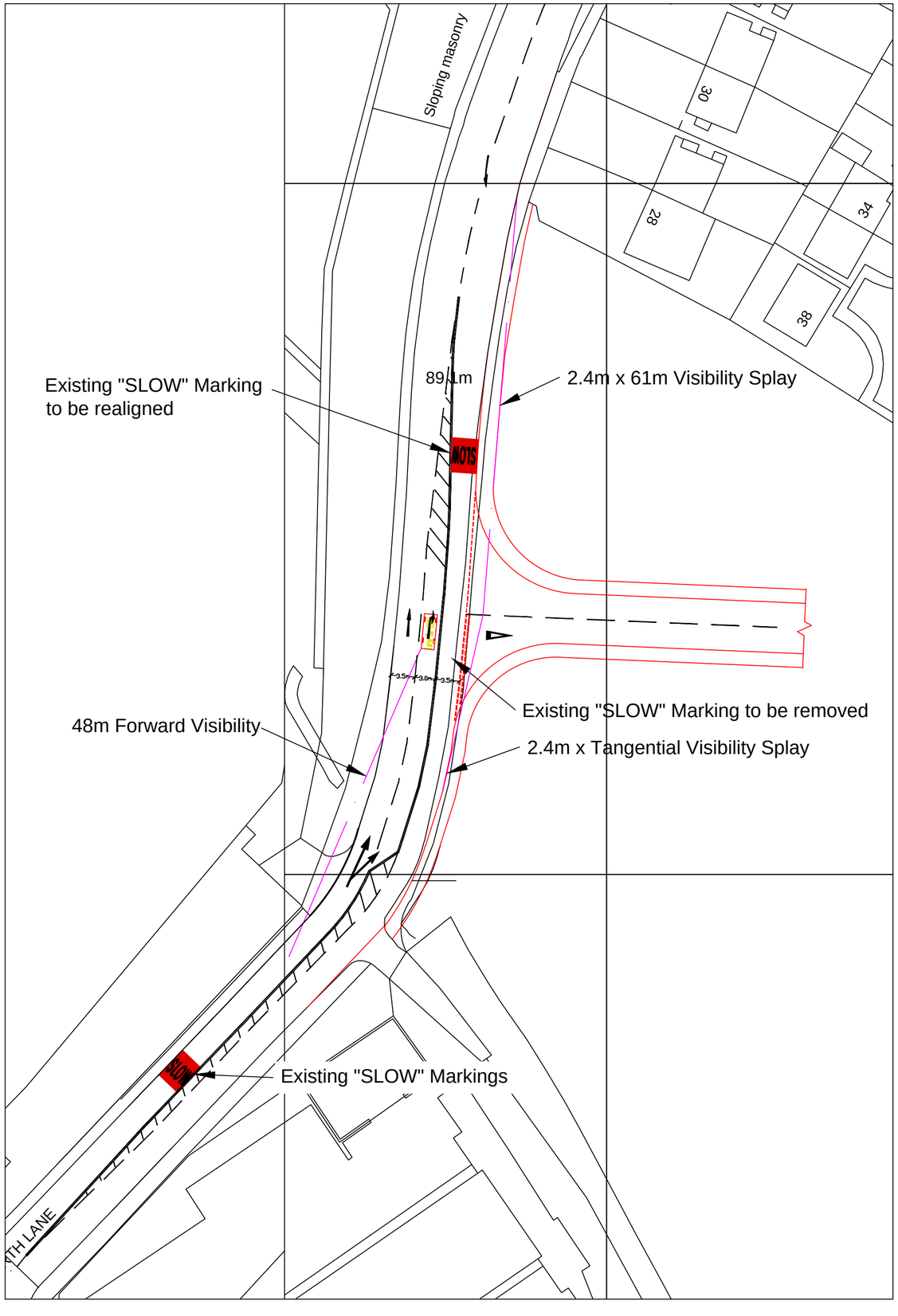
APPENDIX B

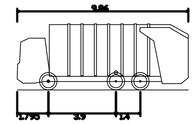
9529-002 Proposed Access Plan





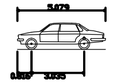






Large Refuse Vehicle (3 axle)

Overall Length	9.860m
Overall Width	2.450m
Overall Body Height	3.814m
Min Body Ground Clearance	0.366m
Track Width	2.450m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	9.500m



Large Car (2006)

Overall Length	5.079m
Overall Width	1.972m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.931m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	5.900m

Rev	Amendment	Drawn	Date	Checked

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Drawing Title

Proposed Access Arrangement

Scale 1:500	Drawn By SB
Drawing Size A2	Checked By DJC
Date Sept 2016	Approved By DJC

QMS ISO 9001 REGISTERED FIRM

Drawing Number 9529-002

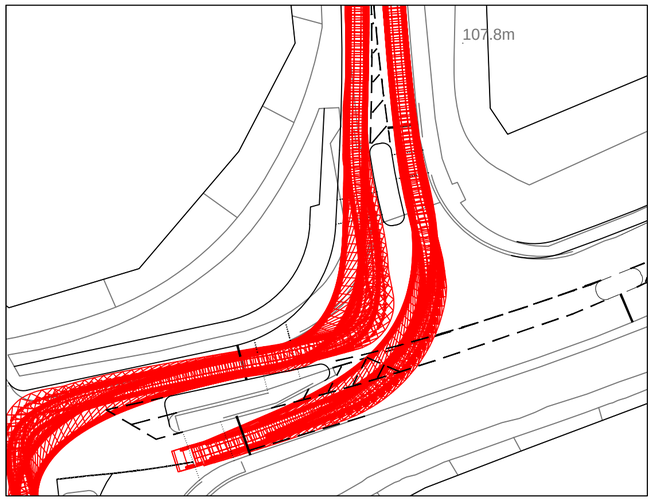
Rev

FILE REF:

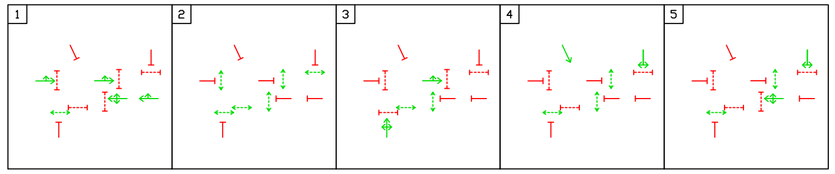
APPENDIX I

9529-001: Junction Improvement Plan

9529-002 Rev B: Proposed Access Arrangement



Existing Staging



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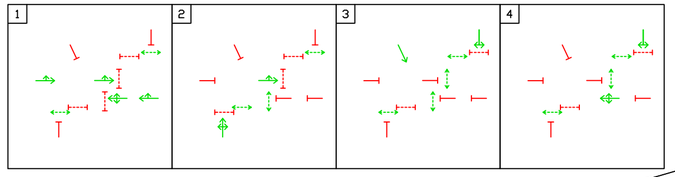

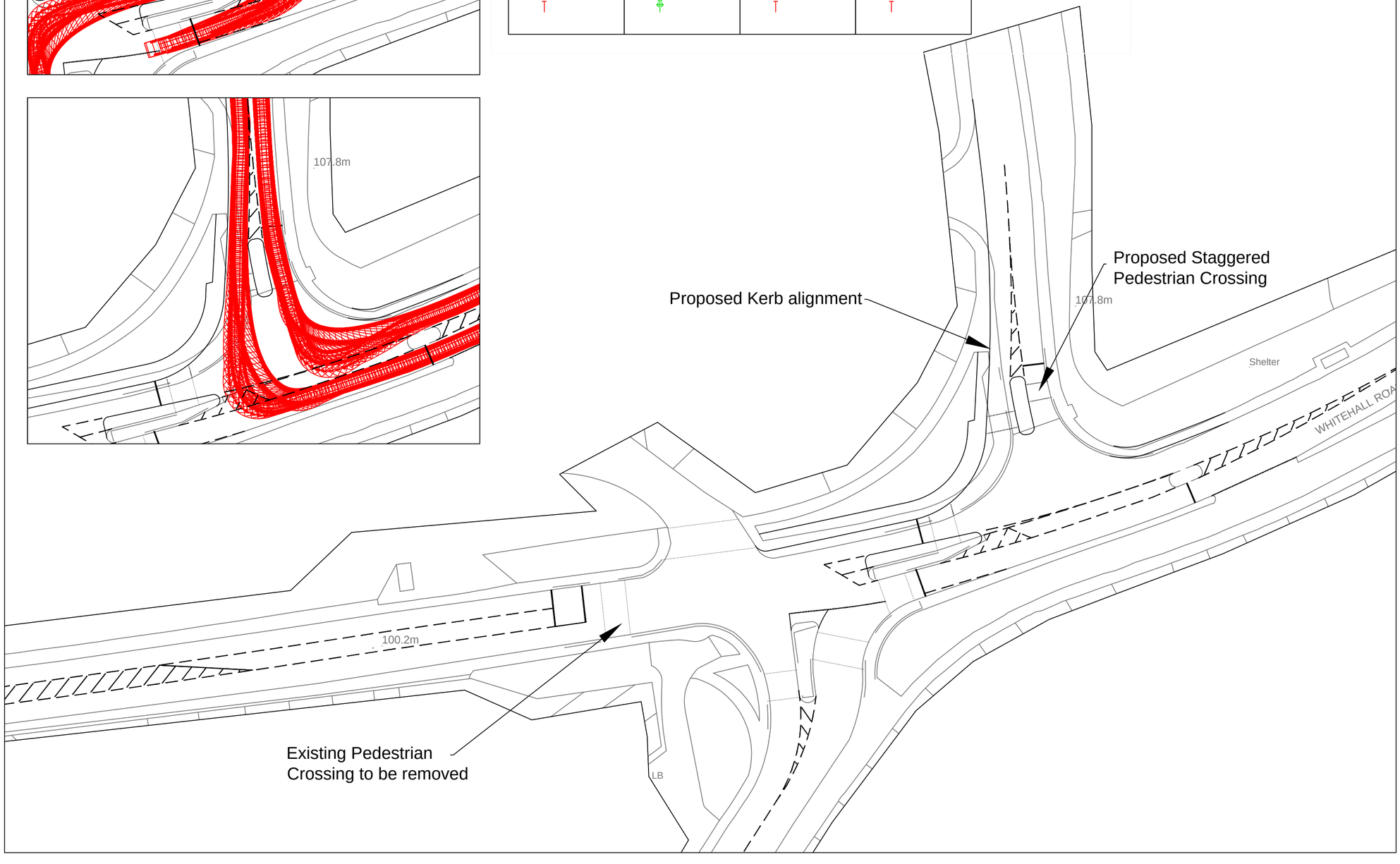

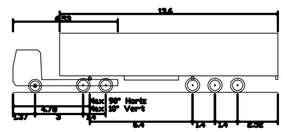

Max Legal Length (UK) Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.881m
Min Body Ground Clearance	0.410m
Max Track Width	2.500m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	6.530m

Rev	Amendment	Drawn	Date	Checked

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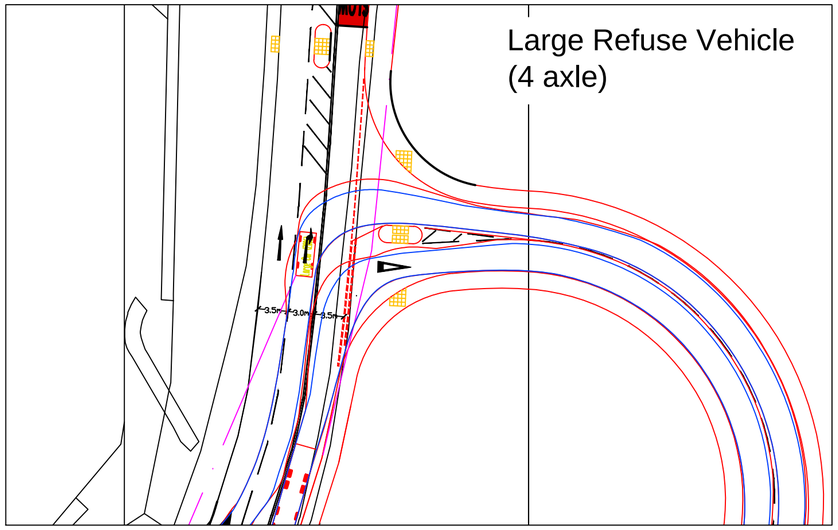
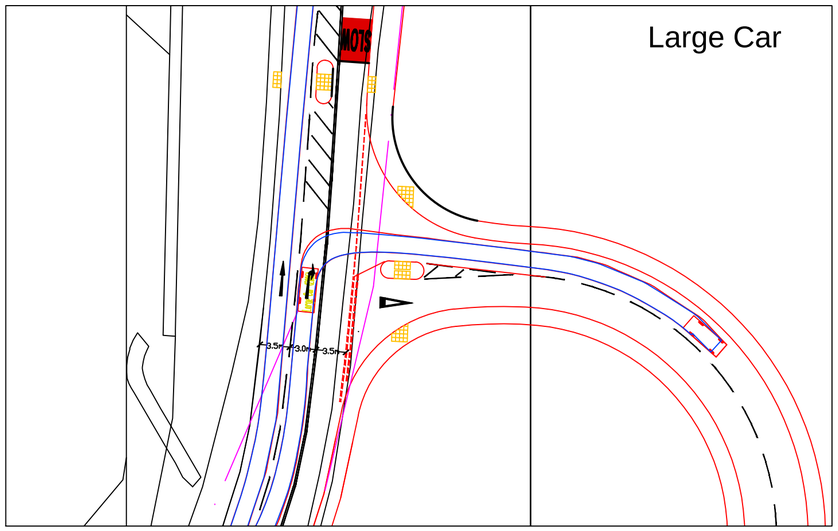
Drawing Title

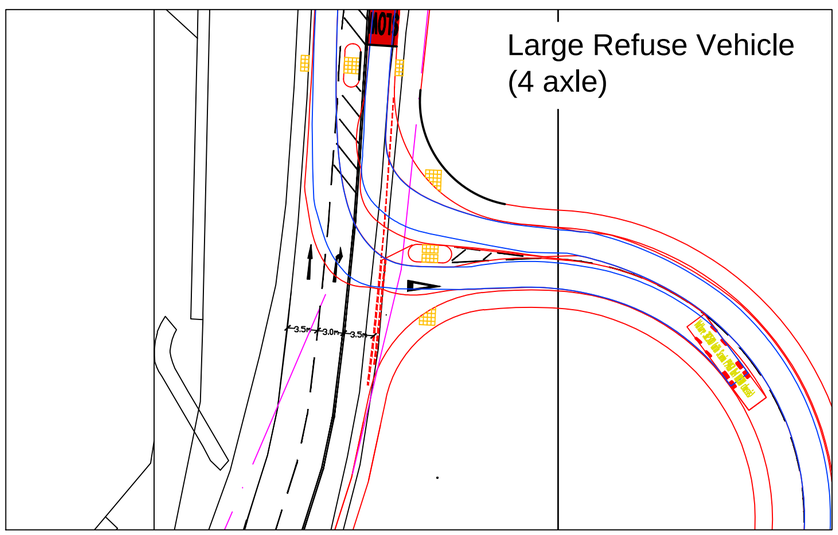
Junction Improvements

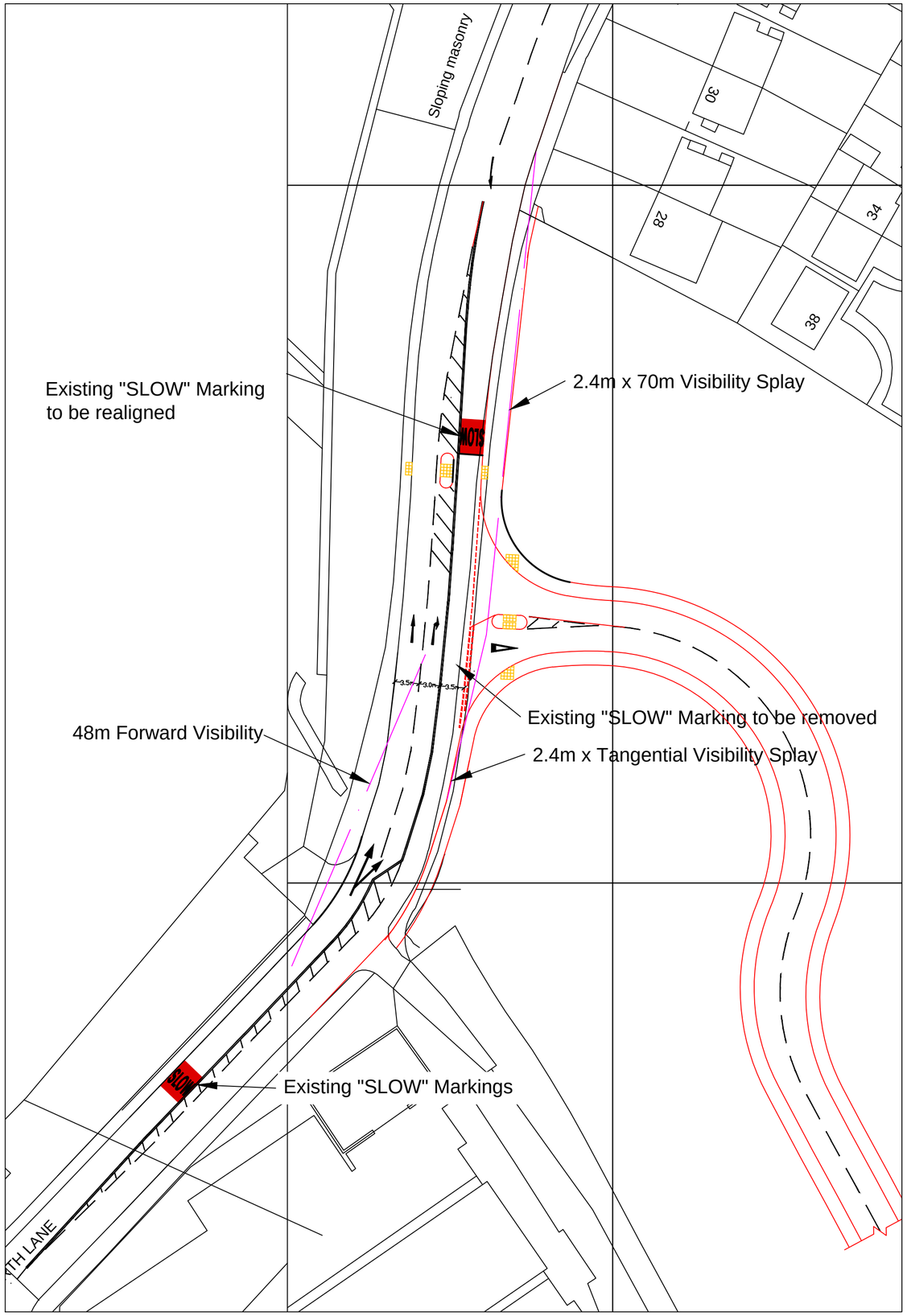
Scale	1:500	Drawn By	SB
Drawing Size	A2	Checked By	DJC
Date	Sept 16	Approved By	DJC
ISO 9001 REGISTERED FIRM		Drawing Number	9529-001
		Rev	

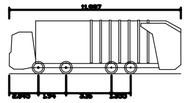
FILE REF:











Vulture 3025(N) (with Scania P94GB 8x4 NB300 chassis)

Overall Length	11.985m
Overall Width	2.490m
Overall Body Height	3.743m
Min Body Ground Clearance	0.440m
Track Width	2.410m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	10.800m

Large Car (2006)

Overall Length	5.079m
Overall Width	1.870m
Overall Body Height	1.560m
Min Body Ground Clearance	0.310m
Max Track Width	1.931m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	5.900m

Rev	Amendment	Drawn	Date	Checked
A	Layout Amended	SB	Dec 16	DJC
A	Layout Amended	SB	Nov 16	DJC

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Scale 1:500	Drawn By SB
Drawing Size A2	Checked By DJC
Date Sept 2016	Approved By DJC

ISO 9001 REGISTERED FIRM

Drawing Number 9529-002

Rev B

FILE REF:

APPENDIX J

TRICS Data

Calculation Reference: AUDIT-311901-160831-0849

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	1 days
	WS	WEST SUSSEX	1 days
03	SOUTH WEST		
	DV	DEVON	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	2 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	2 days
	NT	NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
	WO	WORCESTERSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	1 days
	NY	NORTH YORKSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	1 days
	MS	MERSEYSIDE	1 days
09	NORTH		
	TV	TEES VALLEY	1 days
10	WALES		
	CF	CARDIFF	1 days
11	SCOTLAND		
	FA	FALKIRK	1 days
	FI	FIFE	1 days
	SR	STIRLING	1 days

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

Filtering Stage 2 selection:

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

Parameter:	Number of dwellings
Actual Range:	101 to 432 (units:)
Range Selected by User:	100 to 500 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 25/09/15

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

Selected survey days:

Monday	5 days
Tuesday	3 days
Wednesday	2 days
Thursday	6 days
Friday	4 days

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

Selected survey types:

Manual count	20 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	9
Edge of Town	10
Neighbourhood Centre (PPS6 Local Centre)	1

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

Selected Location Sub Categories:

Residential Zone	14
Out of Town	1
No Sub Category	5

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

Filtering Stage 3 selection:

Use Class:

C3	20 days

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

Filtering Stage 3 selection (Cont.):

Population within 1 mile:

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

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

Population within 5 miles:

5,001 to 25,000	2 days
50,001 to 75,000	3 days
75,001 to 100,000	6 days
100,001 to 125,000	4 days
125,001 to 250,000	5 days

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

Car ownership within 5 miles:

0.6 to 1.0	8 days
1.1 to 1.5	12 days

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

Travel Plan:

Yes	1 days
No	19 days

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

LIST OF SITES relevant to selection parameters

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

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

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

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

3 DV-03-A-02 HOUSES & BUNGALOWS DEVON
MILLHEAD ROAD

HONITON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 116
Survey date: FRIDAY 25/09/15 Survey Type: MANUAL

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

5 FA-03-A-02 MIXED HOUSES FALKIRK
ROSEBANK AVENUE & SPRINGFIELD DRIVE

FALKIRK
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 161
Survey date: WEDNESDAY 29/05/13 Survey Type: MANUAL

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

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

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

LIST OF SITES relevant to selection parameters (Cont.)

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

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

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

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

10 NE-03-A-02 SEMI DETACHED & DETACHED NORTH EAST LINCOLNSHIRE
HANOVER WALK

SCUNTHORPE
Edge of Town
No Sub Category
Total Number of dwellings: 432
Survey date: MONDAY 12/05/14 Survey Type: MANUAL

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

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

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

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

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

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

LIST OF SITES relevant to selection parameters (Cont.)

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

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

16 SR-03-A-01 DETACHED STIRLING
BENVIEW

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

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

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

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

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

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

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	20	186	0.071	20	186	0.275	20	186	0.346
08:00 - 09:00	20	186	0.136	20	186	0.406	20	186	0.542
09:00 - 10:00	20	186	0.162	20	186	0.197	20	186	0.359
10:00 - 11:00	20	186	0.146	20	186	0.184	20	186	0.330
11:00 - 12:00	20	186	0.161	20	186	0.166	20	186	0.327
12:00 - 13:00	20	186	0.181	20	186	0.173	20	186	0.354
13:00 - 14:00	20	186	0.180	20	186	0.172	20	186	0.352
14:00 - 15:00	20	186	0.178	20	186	0.189	20	186	0.367
15:00 - 16:00	20	186	0.291	20	186	0.207	20	186	0.498
16:00 - 17:00	20	186	0.317	20	186	0.194	20	186	0.511
17:00 - 18:00	20	186	0.385	20	186	0.225	20	186	0.610
18:00 - 19:00	20	186	0.264	20	186	0.219	20	186	0.483
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.472			2.607			5.079

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

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

Parameter summary

Trip rate parameter range selected:	101 - 432 (units:)
Survey date date range:	01/01/05 - 25/09/15
Number of weekdays (Monday-Friday):	20
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	20	186	0.005	20	186	0.007	20	186	0.012
08:00 - 09:00	20	186	0.003	20	186	0.012	20	186	0.015
09:00 - 10:00	20	186	0.003	20	186	0.002	20	186	0.005
10:00 - 11:00	20	186	0.001	20	186	0.004	20	186	0.005
11:00 - 12:00	20	186	0.003	20	186	0.002	20	186	0.005
12:00 - 13:00	20	186	0.003	20	186	0.004	20	186	0.007
13:00 - 14:00	20	186	0.003	20	186	0.003	20	186	0.006
14:00 - 15:00	20	186	0.003	20	186	0.002	20	186	0.005
15:00 - 16:00	20	186	0.012	20	186	0.008	20	186	0.020
16:00 - 17:00	20	186	0.008	20	186	0.005	20	186	0.013
17:00 - 18:00	20	186	0.009	20	186	0.009	20	186	0.018
18:00 - 19:00	20	186	0.009	20	186	0.005	20	186	0.014
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.062			0.063			0.125

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

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

Parameter summary

Trip rate parameter range selected:	101 - 432 (units:)
Survey date date range:	01/01/05 - 25/09/15
Number of weekdays (Monday-Friday):	20
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	20	186	0.079	20	186	0.322	20	186	0.401
08:00 - 09:00	20	186	0.171	20	186	0.601	20	186	0.772
09:00 - 10:00	20	186	0.186	20	186	0.251	20	186	0.437
10:00 - 11:00	20	186	0.180	20	186	0.237	20	186	0.417
11:00 - 12:00	20	186	0.196	20	186	0.211	20	186	0.407
12:00 - 13:00	20	186	0.224	20	186	0.219	20	186	0.443
13:00 - 14:00	20	186	0.226	20	186	0.219	20	186	0.445
14:00 - 15:00	20	186	0.225	20	186	0.243	20	186	0.468
15:00 - 16:00	20	186	0.453	20	186	0.279	20	186	0.732
16:00 - 17:00	20	186	0.437	20	186	0.276	20	186	0.713
17:00 - 18:00	20	186	0.498	20	186	0.305	20	186	0.803
18:00 - 19:00	20	186	0.347	20	186	0.316	20	186	0.663
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.222			3.479			6.701

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

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

Parameter summary

Trip rate parameter range selected:	101 - 432 (units:)
Survey date date range:	01/01/05 - 25/09/15
Number of weekdays (Monday-Friday):	20
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	20	186	0.026	20	186	0.046	20	186	0.072
08:00 - 09:00	20	186	0.035	20	186	0.140	20	186	0.175
09:00 - 10:00	20	186	0.039	20	186	0.050	20	186	0.089
10:00 - 11:00	20	186	0.037	20	186	0.036	20	186	0.073
11:00 - 12:00	20	186	0.027	20	186	0.031	20	186	0.058
12:00 - 13:00	20	186	0.032	20	186	0.025	20	186	0.057
13:00 - 14:00	20	186	0.024	20	186	0.032	20	186	0.056
14:00 - 15:00	20	186	0.038	20	186	0.040	20	186	0.078
15:00 - 16:00	20	186	0.136	20	186	0.055	20	186	0.191
16:00 - 17:00	20	186	0.064	20	186	0.042	20	186	0.106
17:00 - 18:00	20	186	0.051	20	186	0.039	20	186	0.090
18:00 - 19:00	20	186	0.048	20	186	0.045	20	186	0.093
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.557			0.581			1.138

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

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

Parameter summary

Trip rate parameter range selected:	101 - 432 (units:)
Survey date date range:	01/01/05 - 25/09/15
Number of weekdays (Monday-Friday):	20
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	20	186	0.000	20	186	0.010	20	186	0.010
08:00 - 09:00	20	186	0.002	20	186	0.015	20	186	0.017
09:00 - 10:00	20	186	0.002	20	186	0.006	20	186	0.008
10:00 - 11:00	20	186	0.003	20	186	0.005	20	186	0.008
11:00 - 12:00	20	186	0.003	20	186	0.005	20	186	0.008
12:00 - 13:00	20	186	0.006	20	186	0.006	20	186	0.012
13:00 - 14:00	20	186	0.008	20	186	0.002	20	186	0.010
14:00 - 15:00	20	186	0.003	20	186	0.001	20	186	0.004
15:00 - 16:00	20	186	0.010	20	186	0.005	20	186	0.015
16:00 - 17:00	20	186	0.009	20	186	0.003	20	186	0.012
17:00 - 18:00	20	186	0.011	20	186	0.003	20	186	0.014
18:00 - 19:00	20	186	0.006	20	186	0.001	20	186	0.007
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.063			0.062			0.125

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

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

Parameter summary

Trip rate parameter range selected:	101 - 432 (units:)
Survey date date range:	01/01/05 - 25/09/15
Number of weekdays (Monday-Friday):	20
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	20	186	0.111	20	186	0.385	20	186	0.496
08:00 - 09:00	20	186	0.212	20	186	0.769	20	186	0.981
09:00 - 10:00	20	186	0.230	20	186	0.309	20	186	0.539
10:00 - 11:00	20	186	0.221	20	186	0.282	20	186	0.503
11:00 - 12:00	20	186	0.230	20	186	0.249	20	186	0.479
12:00 - 13:00	20	186	0.265	20	186	0.254	20	186	0.519
13:00 - 14:00	20	186	0.261	20	186	0.257	20	186	0.518
14:00 - 15:00	20	186	0.270	20	186	0.286	20	186	0.556
15:00 - 16:00	20	186	0.611	20	186	0.347	20	186	0.958
16:00 - 17:00	20	186	0.518	20	186	0.326	20	186	0.844
17:00 - 18:00	20	186	0.569	20	186	0.356	20	186	0.925
18:00 - 19:00	20	186	0.410	20	186	0.367	20	186	0.777
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.908			4.187			8.095

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

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

Parameter summary

Trip rate parameter range selected:	101 - 432 (units:)
Survey date date range:	01/01/05 - 25/09/15
Number of weekdays (Monday-Friday):	20
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	1 days
	WS	WEST SUSSEX	1 days
03	SOUTH WEST		
	DV	DEVON	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	2 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	2 days
	NT	NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
	WO	WORCESTERSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	1 days
	NY	NORTH YORKSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	1 days
	MS	MERSEYSIDE	1 days
09	NORTH		
	TV	TEES VALLEY	1 days
10	WALES		
	CF	CARDIFF	1 days
11	SCOTLAND		
	FA	FALKIRK	1 days
	FI	FIFE	1 days
	SR	STIRLING	1 days

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

Filtering Stage 2 selection:

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

Parameter:	Number of dwellings
Actual Range:	101 to 432 (units:)
Range Selected by User:	100 to 500 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 25/09/15

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

Selected survey days:

Monday	5 days
Tuesday	3 days
Wednesday	2 days
Thursday	6 days
Friday	4 days

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

Selected survey types:

Manual count	20 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	9
Edge of Town	10
Neighbourhood Centre (PPS6 Local Centre)	1

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

Selected Location Sub Categories:

Residential Zone	14
Out of Town	1
No Sub Category	5

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

Filtering Stage 3 selection:

Use Class:

C3	20 days

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

Filtering Stage 3 selection (Cont.):

Population within 1 mile:

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

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

Population within 5 miles:

5,001 to 25,000	2 days
50,001 to 75,000	3 days
75,001 to 100,000	6 days
100,001 to 125,000	4 days
125,001 to 250,000	5 days

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

Car ownership within 5 miles:

0.6 to 1.0	8 days
1.1 to 1.5	12 days

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

Travel Plan:

Yes	1 days
No	19 days

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

LIST OF SITES relevant to selection parameters

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

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

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

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

3 DV-03-A-02 HOUSES & BUNGALOWS DEVON
MILLHEAD ROAD

HONITON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 116
Survey date: FRIDAY 25/09/15 Survey Type: MANUAL

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

5 FA-03-A-02 MIXED HOUSES FALKIRK
ROSEBANK AVENUE & SPRINGFIELD DRIVE

FALKIRK
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 161
Survey date: WEDNESDAY 29/05/13 Survey Type: MANUAL

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

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

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

LIST OF SITES relevant to selection parameters (Cont.)

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

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

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

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

10 NE-03-A-02 SEMI DETACHED & DETACHED NORTH EAST LINCOLNSHIRE
HANOVER WALK

SCUNTHORPE
Edge of Town
No Sub Category
Total Number of dwellings: 432
Survey date: MONDAY 12/05/14 Survey Type: MANUAL

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

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

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

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

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

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

LIST OF SITES relevant to selection parameters (Cont.)

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

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

16 SR-03-A-01 DETACHED STIRLING
BENVIEW

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

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

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

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

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

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

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

Sanderson Associates (CE) Ltd Jubilee Way, Grange Moor Huddersfield Licence No: 311901

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

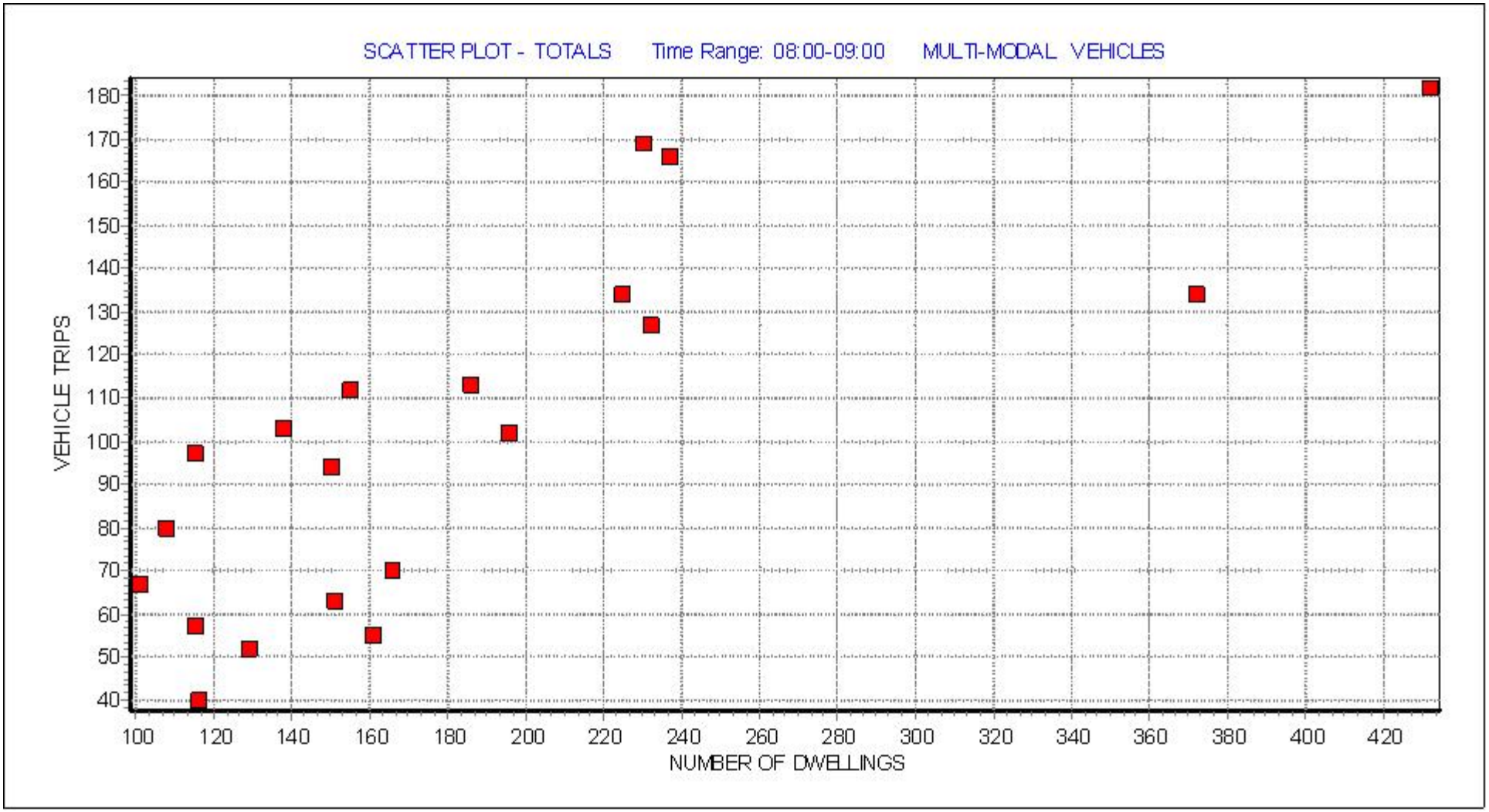
Ranking Type: TOTALS Time Range: 08:00-09:00
15th Percentile = No. 17 CH-03-A-06 Tot: 0.403
85th Percentile = No. 4 SF-03-A-02 Tot: 0.734

Median Values		Mean Values	
Arrivals:	0.119	Arrivals:	0.145
Departures:	0.453	Departures:	0.418
Totals:	0.572	Totals:	0.563

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces Per Dwelling
								Arrivals	Departures	Totals	
1	SR-03-A-01	DETACHED	STIRLING	STIRLING	115	Mon	23/04/07	0.165	0.678	0.843	2.86
2	WO-03-A-03	DETACHED	KIDDERMINSTER	WORCESTERSHIRE	138	Fri	05/05/06	0.203	0.543	0.746	3.14
3	SH-03-A-04	TERRACED	SHREWSBURY	SHROPSHIRE	108	Thu	11/06/09	0.287	0.454	0.741	1.86
4	SF-03-A-02	SEMI DET./TERR	IPSWICH	SUFFOLK	230	Thu	24/05/07	0.243	0.491	0.734	2.48
5	FI-03-A-03	MIXED HOUSES	DUNFERMLINE	FIFE	155	Mon	30/04/07	0.174	0.548	0.722	2.84
6	EX-03-A-01	SEMI-DET.	STANFORD-LE-HOPE	ESSEX	237	Tue	13/05/08	0.177	0.523	0.700	2.53
7	SF-03-A-03	MIXED HOUSES	BURY ST EDMUNDS	SUFFOLK	101	Mon	15/05/06	0.109	0.554	0.663	4.34
8	LN-03-A-01	MIXED HOUSES	LINCOLN	LINCOLNSHIRE	150	Tue	15/05/07	0.187	0.440	0.627	4.91
9	LN-03-A-02	MIXED HOUSES	LINCOLN	LINCOLNSHIRE	186	Mon	14/05/07	0.183	0.425	0.608	4.13
10	TV-03-A-01	HOUSES & FLATS	HARTLEPOOL	TEES VALLEY	225	Thu	14/04/05	0.138	0.458	0.596	2.28
11	WO-03-A-06	DET./TERRACED	BROMSGROVE	WORCESTERSHIRE	232	Thu	30/06/05	0.099	0.448	0.547	1.78
12	CF-03-A-02	MIXED HOUSES	CARDIFF	CARDIFF	196	Fri	05/10/07	0.107	0.413	0.520	1.98
13	NY-03-A-06	BUNGALOWS & SE	BOROUGHBRIDGE	NORTH YORKSHIRE	115	Fri	14/10/11	0.096	0.400	0.496	3.50
14	NT-03-A-03	SEMI DETACHED	KIRKBY-IN-ASHFIELD	NOTTINGHAMSHIRE	166	Wed	28/06/06	0.108	0.313	0.421	1.61
15	NE-03-A-02	SEMI DETACHED	SCUNTHORPE	NORTH EAST LINCOLNS	432	Mon	12/05/14	0.067	0.354	0.421	1.00
16	WS-03-A-04	MIXED HOUSES	HORSHAM	WEST SUSSEX	151	Thu	11/12/14	0.139	0.278	0.417	2.28
17	CH-03-A-06	SEMI-DET./BUNG	CREWE	CHESHIRE	129	Tue	14/10/08	0.163	0.240	0.403	2.59
18	MS-03-A-01	TERRACED	RUNCORN	MERSEYSIDE	372	Thu	06/10/05	0.091	0.269	0.360	1.46
19	DV-03-A-02	HOUSES & BUNGA	HONITON	DEVON	116	Fri	25/09/15	0.103	0.241	0.344	2.25
20	FA-03-A-02	MIXED HOUSES	FALKIRK	FALKIRK	161	Wed	29/05/13	0.062	0.280	0.342	1.66

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceeding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.



This graph is a visual representation of the correlation between the selected trip rate calculation parameter and the rank order trip rates generated by each individual survey day in the selected set. The range of the trip rate parameter is shown along the x axis, with the level of trips shown on the y axis. The selected time range used to create the rank order list from which the graph is derived is displayed at the top of the graph (unless the peak period irrespective of time range has been selected). A line of best fit is sometimes displayed in the graph, should it be selected for inclusion by the user.

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	1 days
	WS	WEST SUSSEX	1 days
03	SOUTH WEST		
	DV	DEVON	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	2 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	2 days
	NT	NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
	WO	WORCESTERSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	1 days
	NY	NORTH YORKSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	1 days
	MS	MERSEYSIDE	1 days
09	NORTH		
	TV	TEES VALLEY	1 days
10	WALES		
	CF	CARDIFF	1 days
11	SCOTLAND		
	FA	FALKIRK	1 days
	FI	FIFE	1 days
	SR	STIRLING	1 days

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

Filtering Stage 2 selection:

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

Parameter:	Number of dwellings
Actual Range:	101 to 432 (units:)
Range Selected by User:	100 to 500 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 25/09/15

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

Selected survey days:

Monday	5 days
Tuesday	3 days
Wednesday	2 days
Thursday	6 days
Friday	4 days

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

Selected survey types:

Manual count	20 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	9
Edge of Town	10
Neighbourhood Centre (PPS6 Local Centre)	1

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

Selected Location Sub Categories:

Residential Zone	14
Out of Town	1
No Sub Category	5

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

Filtering Stage 3 selection:

Use Class:

C3	20 days

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

Filtering Stage 3 selection (Cont.):

Population within 1 mile:

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

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

Population within 5 miles:

5,001 to 25,000	2 days
50,001 to 75,000	3 days
75,001 to 100,000	6 days
100,001 to 125,000	4 days
125,001 to 250,000	5 days

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

Car ownership within 5 miles:

0.6 to 1.0	8 days
1.1 to 1.5	12 days

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

Travel Plan:

Yes	1 days
No	19 days

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

LIST OF SITES relevant to selection parameters

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

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

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

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

3 DV-03-A-02 HOUSES & BUNGALOWS DEVON
MILLHEAD ROAD

HONITON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 116
Survey date: FRIDAY 25/09/15 Survey Type: MANUAL

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

5 FA-03-A-02 MIXED HOUSES FALKIRK
ROSEBANK AVENUE & SPRINGFIELD DRIVE

FALKIRK
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 161
Survey date: WEDNESDAY 29/05/13 Survey Type: MANUAL

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

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

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

LIST OF SITES relevant to selection parameters (Cont.)

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

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

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

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

10 NE-03-A-02 SEMI DETACHED & DETACHED NORTH EAST LINCOLNSHIRE
HANOVER WALK

SCUNTHORPE
Edge of Town
No Sub Category
Total Number of dwellings: 432
Survey date: MONDAY 12/05/14 Survey Type: MANUAL

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

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

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

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

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

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

LIST OF SITES relevant to selection parameters (Cont.)

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

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

16 SR-03-A-01 DETACHED STIRLING
BENVIEW

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

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

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

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

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

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

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

Sanderson Associates (CE) Ltd Jubilee Way, Grange Moor Huddersfield Licence No: 311901

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

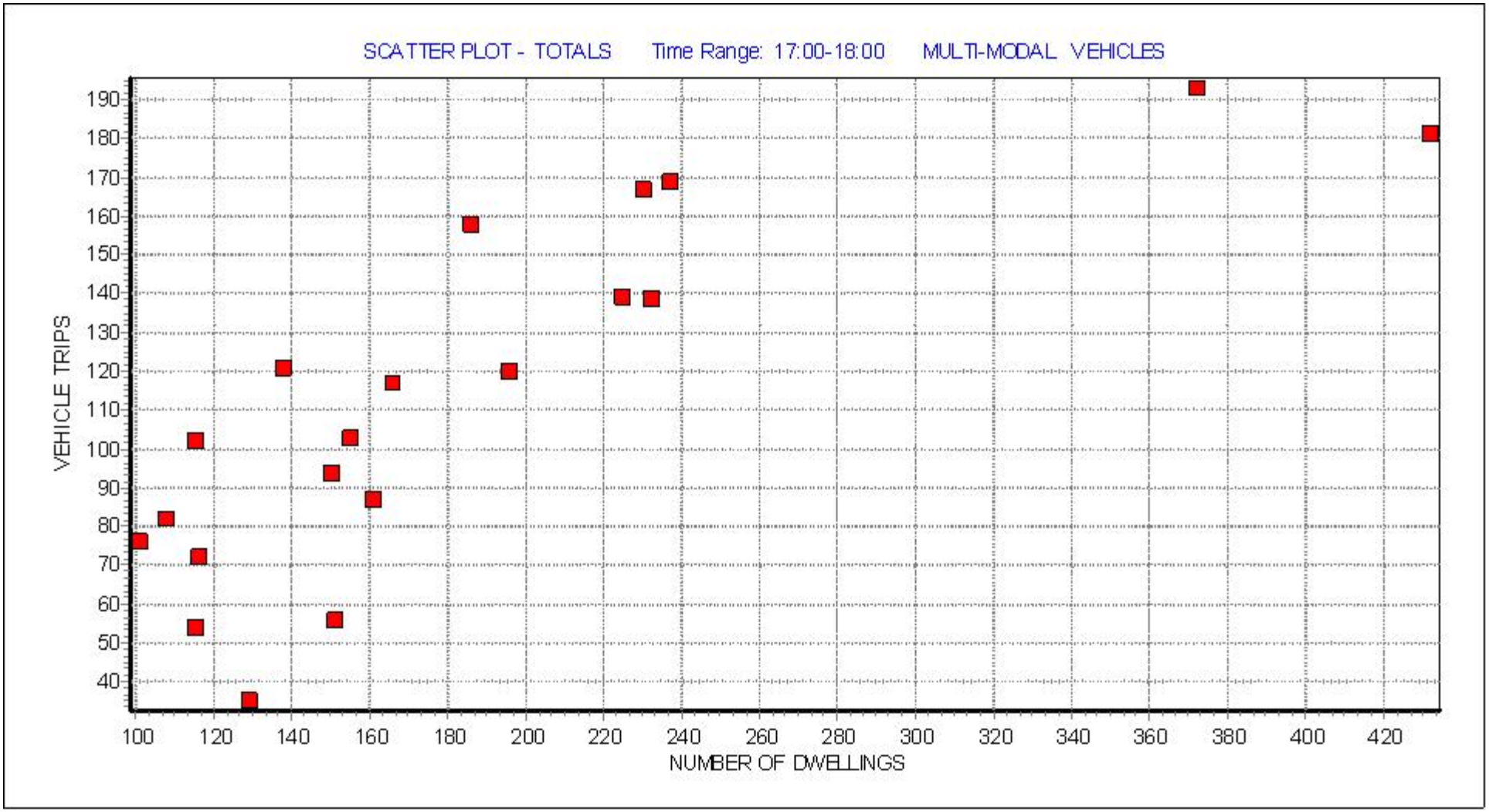
Ranking Type: TOTALS Time Range: 17:00-18:00
15th Percentile = No. 17 NY-03-A-06 Tot: 0.470
85th Percentile = No. 4 SH-03-A-04 Tot: 0.759

Median Values		Mean Values	
Arrivals:	0.400	Arrivals:	0.398
Departures:	0.223	Departures:	0.232
Totals:	0.623	Totals:	0.630

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces Per Dwelling
								Arrivals	Departures	Totals	
1	SR-03-A-01	DETACHED	STIRLING	STIRLING	115	Mon	23/04/07	0.583	0.304	0.887	2.86
2	WO-03-A-03	DETACHED	KIDDERMINSTER	WORCESTERSHIRE	138	Fri	05/05/06	0.558	0.319	0.877	3.14
3	LN-03-A-02	MIXED HOUSES	LINCOLN	LINCOLNSHIRE	186	Mon	14/05/07	0.495	0.355	0.850	4.13
4	SH-03-A-04	TERRACED	SHREWSBURY	SHROPSHIRE	108	Thu	11/06/09	0.463	0.296	0.759	1.86
5	SF-03-A-03	MIXED HOUSES	BURY ST EDMUNDS	SUFFOLK	101	Mon	15/05/06	0.525	0.228	0.753	4.34
6	SF-03-A-02	SEMI DET./TERR	IPSWICH	SUFFOLK	230	Thu	24/05/07	0.478	0.248	0.726	2.48
7	EX-03-A-01	SEMI-DET.	STANFORD-LE-HOPE	ESSEX	237	Tue	13/05/08	0.439	0.274	0.713	2.53
8	NT-03-A-03	SEMI DETACHED	KIRKBY-IN-ASHFIELD	NOTTINGHAMSHIRE	166	Wed	28/06/06	0.398	0.307	0.705	1.61
9	FI-03-A-03	MIXED HOUSES	DUNFERMLINE	FIFE	155	Mon	30/04/07	0.419	0.245	0.664	2.84
10	LN-03-A-01	MIXED HOUSES	LINCOLN	LINCOLNSHIRE	150	Tue	15/05/07	0.413	0.213	0.626	4.91
11	DV-03-A-02	HOUSES & BUNGA	HONITON	DEVON	116	Fri	25/09/15	0.388	0.233	0.621	2.25
12	TV-03-A-01	HOUSES & FLATS	HARTLEPOOL	TEES VALLEY	225	Thu	14/04/05	0.409	0.209	0.618	2.28
13	CF-03-A-02	MIXED HOUSES	CARDIFF	CARDIFF	196	Fri	05/10/07	0.398	0.214	0.612	1.98
14	WO-03-A-06	DET./TERRACED	BROMSGROVE	WORCESTERSHIRE	232	Thu	30/06/05	0.414	0.185	0.599	1.78
15	FA-03-A-02	MIXED HOUSES	FALKIRK	FALKIRK	161	Wed	29/05/13	0.317	0.224	0.541	1.66
16	MS-03-A-01	TERRACED	RUNCORN	MERSEYSIDE	372	Thu	06/10/05	0.325	0.194	0.519	1.46
17	NY-03-A-06	BUNGALOWS & SE	BOROUGHBRIDGE	NORTH YORKSHIRE	115	Fri	14/10/11	0.296	0.174	0.470	3.50
18	NE-03-A-02	SEMI DETACHED	SCUNTHORPE	NORTH EAST LINCOLNS	432	Mon	12/05/14	0.257	0.162	0.419	1.00
19	WS-03-A-04	MIXED HOUSES	HORSHAM	WEST SUSSEX	151	Thu	11/12/14	0.252	0.119	0.371	2.28
20	CH-03-A-06	SEMI-DET./BUNG	CREWE	CHESHIRE	129	Tue	14/10/08	0.132	0.140	0.272	2.59

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceeding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.



This graph is a visual representation of the correlation between the selected trip rate calculation parameter and the rank order trip rates generated by each individual survey day in the selected set. The range of the trip rate parameter is shown along the x axis, with the level of trips shown on the y axis. The selected time range used to create the rank order list from which the graph is derived is displayed at the top of the graph (unless the peak period irrespective of time range has been selected). A line of best fit is sometimes displayed in the graph, should it be selected for inclusion by the user.

APPENDIX K

Census Information

WU03EW - Location of usual residence and place of work by method of travel to work (M

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

place of work : 2011 super output area - middle layer	**usual residence Kirklees 003**	**%**
Kirklees 005	139	8.4%
Kirklees 003	**95**	**5.7%**
Bradford 039	91	5.5%
Leeds 111	69	4.2%
Bradford 057	67	4.0%
Bradford 060	61	3.7%
Kirklees 029	55	3.3%
Kirklees 002	45	2.7%
Calderdale 008	42	2.5%
Bradford 045	39	2.4%
Calderdale 015	32	1.9%
Bradford 061	31	1.9%
Kirklees 017	30	1.8%
Kirklees 009	29	1.7%
Leeds 112	28	1.7%
Calderdale 019	27	1.6%
Kirklees 015	27	1.6%
Calderdale 025	26	1.6%
Kirklees 001	26	1.6%
Bradford 046	24	1.4%
Leeds 093	22	1.3%
Kirklees 016	21	1.3%
Bradford 037	20	1.2%
Kirklees 004	19	1.1%
Bradford 053	18	1.1%
Bradford 059	18	1.1%
Kirklees 010	17	1.0%
Kirklees 008	16	1.0%
Kirklees 042	16	1.0%
Leeds 106	16	1.0%
Bradford 044	15	0.9%
Kirklees 011	15	0.9%
Leeds 063	14	0.8%
Leeds 066	13	0.8%

Leeds 091	13	0.8%
Leeds 095	13	0.8%
Leeds 096	13	0.8%
Leeds 104	13	0.8%
Bradford 020	12	0.7%
Kirklees 024	12	0.7%
Bradford 048	11	0.7%
Kirklees 006	11	0.7%
Kirklees 021	11	0.7%
Leeds 090	11	0.7%
Bradford 051	10	0.6%
Calderdale 018	10	0.6%
Kirklees 023	10	0.6%
Kirklees 025	9	0.5%
Bradford 038	8	0.5%
Kirklees 031	8	0.5%
Leeds 071	8	0.5%
Leeds 102	8	0.5%
Wakefield 021	8	0.5%
Calderdale 021	7	0.4%
Calderdale 023	7	0.4%
Calderdale 024	7	0.4%
Leeds 081	7	0.4%
Leeds 083	7	0.4%
Wakefield 017	7	0.4%
Wakefield 019	7	0.4%
Bradford 041	6	0.4%
Bradford 049	6	0.4%
Kirklees 013	6	0.4%
Kirklees 014	6	0.4%
Kirklees 019	6	0.4%
Kirklees 022	6	0.4%
Kirklees 049	6	0.4%
Leeds 002	6	0.4%
Wakefield 015	6	0.4%
Bradford 019	5	0.3%
Bradford 034	5	0.3%
Bradford 040	5	0.3%
Bradford 050	5	0.3%
Bradford 052	5	0.3%
Calderdale 010	5	0.3%
Calderdale 012	5	0.3%
Kirklees 026	5	0.3%
Kirklees 034	5	0.3%
Kirklees 043	5	0.3%
Leeds 070	5	0.3%
Leeds 073	5	0.3%

Leeds 075	5	0.3%
Leeds 085	5	0.3%
Wakefield 013	5	0.3%
Wakefield 014	5	0.3%
Wakefield 028	5	0.3%
Bradford 022	4	0.2%
Bradford 025	4	0.2%
Bradford 026	4	0.2%
Bradford 042	4	0.2%
Bradford 055	4	0.2%
Calderdale 003	4	0.2%
Calderdale 005	4	0.2%
Kirklees 033	4	0.2%
Leeds 027	4	0.2%
Leeds 052	4	0.2%
Leeds 079	4	0.2%
Leeds 082	4	0.2%
	1,658	

APPENDIX L

Kilroyd Drive / A58 Whitehall Road PICADY

TRL LIMITED

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: software@trl.co.uk

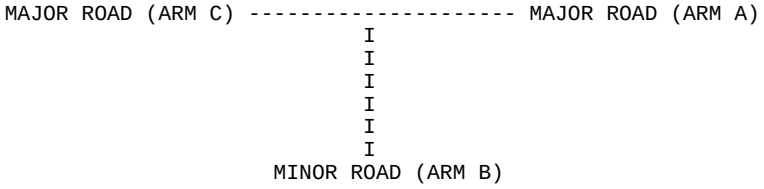
Run with file:-
"J:\9000\9500\9529_MerchantsFieldsKilro\engineering\Traffic_Programs\Picady\Kilroyd Drive 50-50 split\
September 2016 Assessment - Hunsworth Lane all movements\A58 Whitehall Road - Kilroyd Drive 50-50 split.vpi"
(drive-on-the-left) at 12:32:25 on Thursday, 8 September 2016

RUN INFORMATION

RUN TITLE	: A58 Whitehall Road - Kilroyd Drive
LOCATION	: Cleckheaton
DATE	: 22/12/15
CLIENT	: Harron Homes
ENUMERATOR	: ashley.armitage [PC114]
JOB NUMBER	: 9089
STATUS	: Preliminary
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A58 Whitehall Rd (north east)
ARM B IS Kilroyd Drive
ARM C IS A58 Whitehall Road (south west)

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) 7.10 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)250.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (3)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 75.0 M.
- VISIBILITY TO RIGHT	(VB-A) 90.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	10.00 M.
WIDTH AT 5 M FROM JUNCTION	4.15 M.
WIDTH AT 10 M FROM JUNCTION	2.75 M.
WIDTH AT 15 M FROM JUNCTION	2.75 M.
WIDTH AT 20 M FROM JUNCTION	2.75 M.
- LENGTH OF FLARED SECTION	DERIVED: 0 PCU

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.27	0.27

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

TRAFFIC DEMAND DATA

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

Demand set: Proposed Resi AM Traffic

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	0.34	0.51	0.34
ARM B	15.00	45.00	75.00	1.23	1.84	1.23
ARM C	15.00	45.00	75.00	0.28	0.41	0.28

Demand set: 2017 Base Traffic AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.79	14.68	9.79
ARM B	15.00	45.00	75.00	0.43	0.64	0.43
ARM C	15.00	45.00	75.00	9.82	14.74	9.82

Demand set: Proposed Resi AM Traffic

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000 0.0 (0.0)	1.000 27.0 (0.0)	0.000 0.0 (0.0)
	ARM B	0.551 54.0 (0.0)	0.000 0.0 (0.0)	0.449 44.0 (0.0)
	ARM C	0.000 0.0 (0.0)	1.000 22.0 (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

Demand set: 2017 Base Traffic AM

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15				
	ARM A	0.000	0.004	0.996
		0.0	3.0	780.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.412	0.000	0.588
		14.0	0.0	20.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.992	0.008	0.000
		780.0	6.0	0.0
		(3.0)	(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 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	0.80	10.11	0.079		0.00	0.09	1.2		0.11
B-A	0.85	5.26	0.162		0.00	0.19	2.7		0.23
C-AB	0.35	9.21	0.038		0.00	0.04	0.6		0.11
A-B	0.38								
A-C	9.79								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.96	9.36	0.102		0.09	0.11	1.7		0.12
B-A	1.02	4.43	0.230		0.19	0.29	4.2		0.29
C-AB	0.42	8.67	0.048		0.04	0.05	0.8		0.12
A-B	0.45								
A-C	11.69								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	1.17	8.23	0.143		0.11	0.16	2.4		0.14
B-A	1.25	3.28	0.381		0.29	0.59	8.1		0.48
C-AB	0.51	7.92	0.065		0.05	0.07	1.0		0.13
A-B	0.55								
A-C	14.31								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.17	8.21	0.143		0.16	0.17	2.5		0.14
B-A	1.25	3.28	0.381		0.59	0.60	8.9		0.49
C-AB	0.51	7.92	0.065		0.07	0.07	1.0		0.14
A-B	0.55								
A-C	14.31								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.96	9.34	0.103		0.17	0.12	1.8		0.12
B-A	1.02	4.43	0.230		0.60	0.31	4.9		0.30
C-AB	0.42	8.67	0.048		0.07	0.05	0.8		0.12
A-B	0.45								
A-C	11.69								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.80	10.09	0.080		0.12	0.09	1.3		0.11
B-A	0.85	5.26	0.162		0.31	0.20	3.1		0.23
C-AB	0.35	9.21	0.038		0.05	0.04	0.6		0.11
A-B	0.38								
A-C	9.79								

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

QUEUE FOR STREAM B-C

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

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.2	
08.15	0.3	
08.30	0.6	*
08.45	0.6	*
09.00	0.3	
09.15	0.2	

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		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	88.1	58.7	10.9	0.12	10.9	0.12
B-A	93.6	62.4	31.8	0.34	31.8	0.34
C-AB	38.5	25.7	4.8	0.12	4.8	0.12
A-B	41.3	27.5				
A-C	1073.6	715.7				
ALL	2408.7	1605.8	47.5	0.02	47.5	0.02

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

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

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.27	0.27

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

TRAFFIC DEMAND DATA

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

Demand set: Proposed Resi PM Traffic

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	0.64	0.96	0.64
ARM B	15.00	45.00	75.00	0.74	1.11	0.74
ARM C	15.00	45.00	75.00	0.51	0.77	0.51

Demand set: 2017 Base Traffic PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

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	10.57	15.86	10.57
ARM B	15.00	45.00	75.00	0.11	0.17	0.11
ARM C	15.00	45.00	75.00	11.13	16.69	11.13

Demand set: Proposed Resi PM Traffic

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	1.000	0.000
		0.0	51.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.559	0.000	0.441
		33.0	0.0	26.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.000	1.000	0.000
		0.0	41.0	0.0
		(0.0)	(0.0)	(0.0)

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

Demand set: 2017 Base Traffic PM

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.014	0.986
		0.0	12.0	834.0
		(0.0)	(0.0)	(2.0)
	ARM B	0.667	0.000	0.333
		6.0	0.0	3.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.984	0.016	0.000
		876.0	14.0	0.0
		(1.0)	(0.0)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	0.36	10.04	0.036		0.00	0.04	0.5		0.10
B-A	0.49	4.79	0.102		0.00	0.11	1.6		0.23
C-AB	0.69	8.94	0.077		0.00	0.08	1.2		0.12
A-B	0.79								
A-C	10.46								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.43	9.29	0.047		0.04	0.05	0.7		0.11
B-A	0.58	3.86	0.151		0.11	0.17	2.5		0.30
C-AB	0.82	8.35	0.099		0.08	0.11	1.6		0.13
A-B	0.94								
A-C	12.50								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.53	8.16	0.065		0.05	0.07	1.0		0.13
B-A	0.72	2.59	0.277		0.17	0.37	5.0		0.53
C-AB	1.01	7.53	0.134		0.11	0.15	2.3		0.15
A-B	1.16								
A-C	15.30								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	0.53	8.14	0.065		0.07	0.07	1.0		0.13
B-A	0.72	2.58	0.277		0.37	0.37	5.6		0.54
C-AB	1.01	7.53	0.134		0.15	0.15	2.3		0.15
A-B	1.16								
A-C	15.30								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	0.43	9.28	0.047		0.07	0.05	0.8		0.11
B-A	0.58	3.86	0.151		0.37	0.18	2.9		0.31
C-AB	0.82	8.35	0.099		0.15	0.11	1.7		0.13
A-B	0.94								
A-C	12.50								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	0.36	10.03	0.036		0.05	0.04	0.6		0.10
B-A	0.49	4.79	0.102		0.18	0.12	1.8		0.23
C-AB	0.69	8.94	0.077		0.11	0.08	1.3		0.12
A-B	0.79								
A-C	10.46								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.1
17.45	0.1
18.00	0.0
18.15	0.0

QUEUE FOR STREAM B-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 C-AB

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

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	39.9	26.6	4.7	0.12	4.7	0.12
B-A	53.7	35.8	19.4	0.36	19.4	0.36
C-AB	75.7	50.5	10.4	0.14	10.4	0.14
A-B	86.7	57.8				
A-C	1147.9	765.3				
ALL	2609.7	1739.8	34.5	0.01	34.5	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 12:32:34 on 08/09/2016]

TRL LIMITED

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: software@trl.co.uk

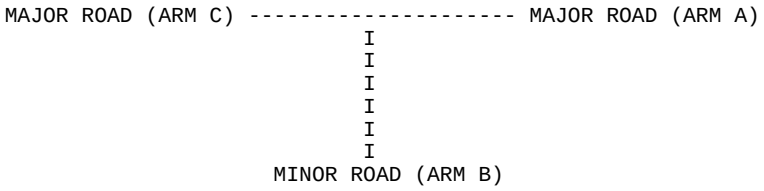
Run with file:-
"H:\Sept 2016 Kilroyd Drive\Picady\Kilroyd Drive 50-50 split\A58 Whitehall Road - Kilroyd Drive 50-50 split.vpi"
(drive-on-the-left) at 15:33:32 on Wednesday, 31 August 2016

RUN INFORMATION

RUN TITLE	: A58 Whitehall Road - Kilroyd Drive
LOCATION	: Cleckheaton
DATE	: 22/12/15
CLIENT	: Harron Homes
ENUMERATOR	: ashley.armitage [PC114]
JOB NUMBER	: 9089
STATUS	: Preliminary
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A58 Whitehall Rd (north east)
ARM B IS Kilroyd Drive
ARM C IS A58 Whitehall Road (south west)

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) 7.10 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)250.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (3)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 75.0 M.
- VISIBILITY TO RIGHT	(VB-A) 90.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	10.00 M.
WIDTH AT 5 M FROM JUNCTION	4.15 M.
WIDTH AT 10 M FROM JUNCTION	2.75 M.
WIDTH AT 15 M FROM JUNCTION	2.75 M.
WIDTH AT 20 M FROM JUNCTION	2.75 M.
- LENGTH OF FLARED SECTION	DERIVED: 0 PCU

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.27	0.27

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

TRAFFIC DEMAND DATA

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

Demand set: 2017 Base Traffic AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	TO TOP OF PEAK	FLOW STOPS	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	9.79	14.68	9.79
ARM B	15.00	45.00	75.00	0.43	0.64	0.43
ARM C	15.00	45.00	75.00	9.82	14.74	9.82

Demand set: 2017 Base Traffic AM

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

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.004	0.996
		0.0	3.0	780.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.412	0.000	0.588
		14.0	0.0	20.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.992	0.008	0.000
		780.0	6.0	0.0
		(3.0)	(0.0)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	0.25	9.17	0.027		0.00	0.03	0.4		0.11
B-A	0.18	6.18	0.028		0.00	0.03	0.4		0.17
C-AB	0.08	9.30	0.008		0.00	0.01	0.1		0.11
A-B	0.04								
A-C	9.79								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.30	8.63	0.035		0.03	0.04	0.5		0.12
B-A	0.21	5.26	0.040		0.03	0.04	0.6		0.20
C-AB	0.09	8.78	0.010		0.01	0.01	0.2		0.12
A-B	0.04								
A-C	11.69								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	0.37	7.87	0.047		0.04	0.05	0.7		0.13
B-A	0.26	3.98	0.065		0.04	0.07	1.0		0.27
C-AB	0.11	8.06	0.014		0.01	0.01	0.2		0.13
A-B	0.06								
A-C	14.31								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	0.37	7.87	0.047		0.05	0.05	0.7		0.13
B-A	0.26	3.98	0.065		0.07	0.07	1.0		0.27
C-AB	0.11	8.06	0.014		0.01	0.01	0.2		0.13
A-B	0.06								
A-C	14.31								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.30	8.63	0.035		0.05	0.04	0.6		0.12
B-A	0.21	5.26	0.040		0.07	0.04	0.7		0.20
C-AB	0.09	8.78	0.010		0.01	0.01	0.2		0.12
A-B	0.04								
A-C	11.69								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.25	9.17	0.027		0.04	0.03	0.4		0.11
B-A	0.18	6.18	0.028		0.04	0.03	0.5		0.17
C-AB	0.08	9.30	0.008		0.01	0.01	0.1		0.11
A-B	0.04								
A-C	9.79								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.1
08.45	0.1
09.00	0.0
09.15	0.0

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	27.5	18.4	3.4	0.12	3.4	0.12
B-A	19.3	12.8	4.1	0.21	4.1	0.21
C-AB	8.3	5.5	1.0	0.12	1.0	0.12
A-B	4.1	2.8				
A-C	1073.6	715.7				
ALL	2206.4	1470.9	8.5	0.00	8.5	0.00

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

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

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.27	0.27

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

TRAFFIC DEMAND DATA

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

Demand set: 2017 Base Traffic PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

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	10.57	15.86	10.57
ARM B	15.00	45.00	75.00	0.11	0.17	0.11
ARM C	15.00	45.00	75.00	11.13	16.69	11.13

Demand set: 2017 Base Traffic PM

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

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.014	0.986
		0.0	12.0	834.0
		(0.0)	(0.0)	(2.0)
	ARM B	0.667	0.000	0.333
		6.0	0.0	3.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.984	0.016	0.000
		876.0	14.0	0.0
		(1.0)	(0.0)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	0.04	10.34	0.004		0.00	0.00	0.1		0.10
B-A	0.08	5.04	0.015		0.00	0.01	0.2		0.20
C-AB	0.18	9.11	0.019		0.00	0.02	0.3		0.11
A-B	0.15								
A-C	10.46								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.04	9.70	0.005		0.00	0.00	0.1		0.10
B-A	0.09	4.16	0.022		0.01	0.02	0.3		0.25
C-AB	0.21	8.55	0.025		0.02	0.03	0.4		0.12
A-B	0.18								
A-C	12.50								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.06	8.80	0.006		0.00	0.01	0.1		0.11
B-A	0.11	2.95	0.037		0.02	0.04	0.5		0.35
C-AB	0.26	7.78	0.033		0.03	0.03	0.5		0.13
A-B	0.22								
A-C	15.30								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	0.06	8.80	0.006		0.01	0.01	0.1		0.11
B-A	0.11	2.95	0.037		0.04	0.04	0.6		0.35
C-AB	0.26	7.78	0.033		0.03	0.03	0.5		0.13
A-B	0.22								
A-C	15.30								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	0.04	9.70	0.005		0.01	0.00	0.1		0.10
B-A	0.09	4.16	0.022		0.04	0.02	0.4		0.25
C-AB	0.21	8.55	0.025		0.03	0.03	0.4		0.12
A-B	0.18								
A-C	12.50								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	0.04	10.34	0.004		0.00	0.00	0.1		0.10
B-A	0.08	5.04	0.015		0.02	0.02	0.2		0.20
C-AB	0.18	9.11	0.019		0.03	0.02	0.3		0.11
A-B	0.15								
A-C	10.46								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
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-C	4.1	2.8	0.4	0.11	0.4	0.11
B-A	8.3	5.5	2.2	0.27	2.2	0.27
C-AB	19.3	12.8	2.4	0.12	2.4	0.12
A-B	16.5	11.0				
A-C	1147.9	765.3				
ALL	2401.9	1601.2	5.0	0.00	5.0	0.00

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

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

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

Printed at 15:33:40 on 31/08/2016]

TRL LIMITED

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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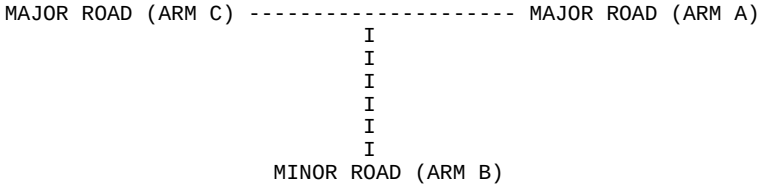
Run with file:-
"J:\9000\9500\9529_MerchantsFieldsKilro\engineering\Traffic_Programs\Picady\Kilroyd Drive 50-50 split\
September 2016 Assessment - Hunsworth Lane all movements\A58 Whitehall Road - Kilroyd Drive 50-50 split.vpi"
(drive-on-the-left) at 12:33:14 on Thursday, 8 September 2016

RUN INFORMATION

RUN TITLE	: A58 Whitehall Road - Kilroyd Drive
LOCATION	: Cleckheaton
DATE	: 22/12/15
CLIENT	: Harron Homes
ENUMERATOR	: ashley.armitage [PC114]
JOB NUMBER	: 9089
STATUS	: Preliminary
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A58 Whitehall Rd (north east)
ARM B IS Kilroyd Drive
ARM C IS A58 Whitehall Road (south west)

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) 7.10 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)250.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (3)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 75.0 M.
- VISIBILITY TO RIGHT	(VB-A) 90.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	10.00 M.
WIDTH AT 5 M FROM JUNCTION	4.15 M.
WIDTH AT 10 M FROM JUNCTION	2.75 M.
WIDTH AT 15 M FROM JUNCTION	2.75 M.
WIDTH AT 20 M FROM JUNCTION	2.75 M.
- LENGTH OF FLARED SECTION	DERIVED: 0 PCU

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.27	0.27

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

TRAFFIC DEMAND DATA

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

Demand set: Proposed Resi AM Traffic

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	0.34	0.51	0.34
ARM B	15.00	45.00	75.00	1.23	1.84	1.23
ARM C	15.00	45.00	75.00	0.28	0.41	0.28

Demand set: 2023 Base Traffic AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

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	10.56	15.84	10.56
ARM B	15.00	45.00	75.00	0.46	0.69	0.46
ARM C	15.00	45.00	75.00	10.61	15.92	10.61

Demand set: Proposed Resi AM Traffic

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

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	1.000	0.000
		0.0	27.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.551	0.000	0.449
		54.0	0.0	44.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.000	1.000	0.000
		0.0	22.0	0.0
		(0.0)	(0.0)	(0.0)

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

Demand set: 2023 Base Traffic AM

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15				
	ARM A	0.000	0.004	0.996
		0.0	3.0	842.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.432	0.000	0.568
		16.0	0.0	21.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.992	0.008	0.000
		842.0	7.0	0.0
		(3.0)	(0.0)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	0.82	9.83	0.083		0.00	0.09	1.3		0.11
B-A	0.88	4.93	0.178		0.00	0.21	3.0		0.25
C-AB	0.36	8.99	0.040		0.00	0.04	0.6		0.12
A-B	0.38								
A-C	10.57								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.97	9.01	0.108		0.09	0.12	1.8		0.12
B-A	1.05	4.03	0.260		0.21	0.34	4.9		0.33
C-AB	0.43	8.41	0.052		0.04	0.05	0.8		0.13
A-B	0.45								
A-C	12.62								

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-C	1.19	7.73	0.154		0.12	0.18	2.6		0.15
B-A	1.28	2.79	0.460		0.34	0.79	10.6		0.64
C-AB	0.53	7.61	0.070		0.05	0.07	1.1		0.14
A-B	0.55								
A-C	15.45								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.19	7.70	0.155		0.18	0.18	2.7		0.15
B-A	1.28	2.79	0.460		0.79	0.82	12.1		0.66
C-AB	0.53	7.61	0.070		0.07	0.07	1.1		0.14
A-B	0.55								
A-C	15.45								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.97	8.99	0.108		0.18	0.12	1.9		0.12
B-A	1.05	4.03	0.260		0.82	0.36	5.9		0.34
C-AB	0.43	8.41	0.052		0.07	0.05	0.8		0.13
A-B	0.45								
A-C	12.62								

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-C	0.82	9.82	0.083		0.12	0.09	1.4		0.11
B-A	0.88	4.93	0.178		0.36	0.22	3.5		0.25
C-AB	0.36	8.99	0.040		0.05	0.04	0.6		0.12
A-B	0.38								
A-C	10.57								

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

QUEUE FOR STREAM B-C

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

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.2	
08.15	0.3	
08.30	0.8	*
08.45	0.8	*
09.00	0.4	
09.15	0.2	

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		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	89.5	59.6	11.7	0.13	11.7	0.13
B-A	96.3	64.2	40.0	0.41	40.0	0.41
C-AB	39.9	26.6	5.1	0.13	5.1	0.13
A-B	41.3	27.5				
A-C	1159.0	772.6				
ALL	2584.9	1723.3	56.8	0.02	56.8	0.02

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

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

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.27	0.27

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

TRAFFIC DEMAND DATA

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

Demand set: Proposed Resi PM Traffic

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	0.64	0.96	0.64
ARM B	15.00	45.00	75.00	0.74	1.11	0.74
ARM C	15.00	45.00	75.00	0.51	0.77	0.51

Demand set: 2023 Base Traffic PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	11.44	17.16	11.44
ARM B	15.00	45.00	75.00	0.13	0.19	0.13
ARM C	15.00	45.00	75.00	12.02	18.04	12.02

Demand set: Proposed Resi PM Traffic

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

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	1.000	0.000
		0.0	51.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.559	0.000	0.441
		33.0	0.0	26.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.000	1.000	0.000
		0.0	41.0	0.0
		(0.0)	(0.0)	(0.0)

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

Demand set: 2023 Base Traffic PM

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.014	0.986
		0.0	13.0	902.0
		(0.0)	(0.0)	(2.0)
	ARM B	0.700	0.000	0.300
		7.0	0.0	3.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.983	0.017	0.000
		946.0	16.0	0.0
		(1.0)	(0.0)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	0.36	9.76	0.037		0.00	0.04	0.6		0.11
B-A	0.50	4.42	0.114		0.00	0.13	1.8		0.25
C-AB	0.72	8.71	0.082		0.00	0.09	1.3		0.12
A-B	0.80								
A-C	11.32								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.43	8.93	0.049		0.04	0.05	0.7		0.12
B-A	0.60	3.42	0.175		0.13	0.21	2.9		0.35
C-AB	0.85	8.07	0.106		0.09	0.12	1.8		0.14
A-B	0.96								
A-C	13.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.53	7.62	0.070		0.05	0.07	1.1		0.14
B-A	0.73	2.05	0.359		0.21	0.52	7.0		0.74
C-AB	1.05	7.19	0.145		0.12	0.17	2.5		0.16
A-B	1.17								
A-C	16.55								

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)
17.30-17.45									
B-C	0.53	7.60	0.070		0.07	0.07	1.1		0.14
B-A	0.73	2.04	0.359		0.52	0.54	8.0		0.76
C-AB	1.05	7.19	0.145		0.17	0.17	2.6		0.16
A-B	1.17								
A-C	16.55								

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)
17.45-18.00									
B-C	0.43	8.91	0.049		0.07	0.05	0.8		0.12
B-A	0.60	3.42	0.175		0.54	0.22	3.6		0.36
C-AB	0.85	8.07	0.106		0.17	0.12	1.8		0.14
A-B	0.96								
A-C	13.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-C	0.36	9.75	0.037		0.05	0.04	0.6		0.11
B-A	0.50	4.42	0.114		0.22	0.13	2.1		0.26
C-AB	0.72	8.71	0.082		0.12	0.09	1.4		0.13
A-B	0.80								
A-C	11.32								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
17.00	0.0	
17.15	0.1	
17.30	0.1	
17.45	0.1	
18.00	0.1	
18.15	0.0	

QUEUE FOR STREAM B-A

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

QUEUE FOR STREAM C-AB

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

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	39.9	26.6	4.9	0.12	4.9	0.12
B-A	55.1	36.7	25.3	0.46	25.3	0.46
C-AB	78.5	52.3	11.3	0.14	11.3	0.14
A-B	88.1	58.7				
A-C	1241.5	827.7				
ALL	2805.2	1870.1	41.5	0.01	41.5	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 12:33:22 on 08/09/2016]

TRL LIMITED

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: software@trl.co.uk

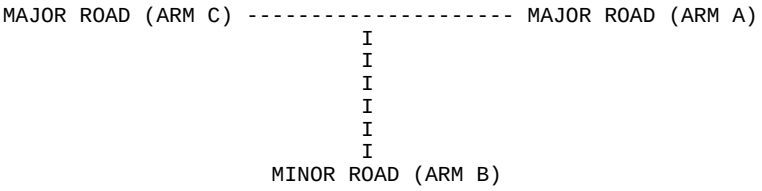
Run with file:-
"H:\Sept 2016 Kilroyd Drive\Picady\Kilroyd Drive 50-50 split\A58 Whitehall Road - Kilroyd Drive 50-50 split.vpi"
(drive-on-the-left) at 15:33:59 on Wednesday, 31 August 2016

RUN INFORMATION

RUN TITLE	: A58 Whitehall Road - Kilroyd Drive
LOCATION	: Cleckheaton
DATE	: 22/12/15
CLIENT	: Harron Homes
ENUMERATOR	: ashley.armitage [PC114]
JOB NUMBER	: 9089
STATUS	: Preliminary
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS A58 Whitehall Rd (north east)
ARM B IS Kilroyd Drive
ARM C IS A58 Whitehall Road (south west)

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) 7.10 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 2.20 M.
- VISIBILITY	(VC-B)250.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (3)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 75.0 M.
- VISIBILITY TO RIGHT	(VB-A) 90.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	10.00 M.
WIDTH AT 5 M FROM JUNCTION	4.15 M.
WIDTH AT 10 M FROM JUNCTION	2.75 M.
WIDTH AT 15 M FROM JUNCTION	2.75 M.
WIDTH AT 20 M FROM JUNCTION	2.75 M.
- LENGTH OF FLARED SECTION	DERIVED: 0 PCU

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.27	0.27

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

TRAFFIC DEMAND DATA

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

Demand set: 2023 Base Traffic AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

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	10.56	15.84	10.56
ARM B	15.00	45.00	75.00	0.46	0.69	0.46
ARM C	15.00	45.00	75.00	10.61	15.92	10.61

Demand set: 2023 Base Traffic AM

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.004	0.996
		0.0	3.0	842.0
		(0.0)	(0.0)	(3.0)
	ARM B	0.432	0.000	0.568
		16.0	0.0	21.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.992	0.008	0.000
		842.0	7.0	0.0
		(3.0)	(0.0)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 1

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
07.45-08.00									
B-C	0.26	8.94	0.029		0.00	0.03	0.4		0.12
B-A	0.20	5.80	0.035		0.00	0.04	0.5		0.18
C-AB	0.09	9.08	0.010		0.00	0.01	0.1		0.11
A-B	0.04								
A-C	10.57								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.31	8.36	0.038		0.03	0.04	0.6		0.12
B-A	0.24	4.80	0.050		0.04	0.05	0.8		0.22
C-AB	0.10	8.52	0.012		0.01	0.01	0.2		0.12
A-B	0.04								
A-C	12.62								

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-C	0.39	7.53	0.051		0.04	0.05	0.8		0.14
B-A	0.29	3.42	0.086		0.05	0.09	1.3		0.32
C-AB	0.13	7.74	0.017		0.01	0.02	0.3		0.13
A-B	0.06								
A-C	15.45								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	0.39	7.53	0.051		0.05	0.05	0.8		0.14
B-A	0.29	3.42	0.086		0.09	0.09	1.4		0.32
C-AB	0.13	7.74	0.017		0.02	0.02	0.3		0.13
A-B	0.06								
A-C	15.45								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.31	8.36	0.038		0.05	0.04	0.6		0.12
B-A	0.24	4.80	0.050		0.09	0.05	0.8		0.22
C-AB	0.10	8.52	0.012		0.02	0.01	0.2		0.12
A-B	0.04								
A-C	12.62								

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-C	0.26	8.94	0.029		0.04	0.03	0.5		0.12
B-A	0.20	5.80	0.035		0.05	0.04	0.6		0.18
C-AB	0.09	9.08	0.010		0.01	0.01	0.1		0.11
A-B	0.04								
A-C	10.57								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
08.30	0.1
08.45	0.1
09.00	0.0
09.15	0.0

QUEUE FOR STREAM B-A

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	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	28.9	19.3	3.7	0.13	3.7	0.13
B-A	22.0	14.7	5.4	0.24	5.4	0.24
C-AB	9.6	6.4	1.2	0.12	1.2	0.12
A-B	4.1	2.8				
A-C	1159.0	772.6				
ALL	2382.6	1588.4	10.2	0.00	10.2	0.00

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

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

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
718.74	0.27	0.27

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

TRAFFIC DEMAND DATA

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

Demand set: 2023 Base Traffic PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	TOP OF PEAK IS REACHED	FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.00	45.00	75.00	11.44	17.16	11.44
ARM B	15.00	45.00	75.00	0.13	0.19	0.13
ARM C	15.00	45.00	75.00	12.02	18.04	12.02

Demand set: 2023 Base Traffic PM

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

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	0.014	0.986
		0.0	13.0	902.0
		(0.0)	(0.0)	(2.0)
	ARM B	0.700	0.000	0.300
		7.0	0.0	3.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.983	0.017	0.000
		946.0	16.0	0.0
		(1.0)	(0.0)	(0.0)

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

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

FOR COMBINED DEMAND SETS
AND FOR TIME PERIOD 2

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	0.04	10.07	0.004		0.00	0.00	0.1		0.10
B-A	0.09	4.67	0.019		0.00	0.02	0.3		0.22
C-AB	0.20	8.87	0.023		0.00	0.02	0.3		0.12
A-B	0.16								
A-C	11.32								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.04	9.37	0.005		0.00	0.00	0.1		0.11
B-A	0.10	3.72	0.028		0.02	0.03	0.4		0.28
C-AB	0.24	8.27	0.029		0.02	0.03	0.4		0.12
A-B	0.19								
A-C	13.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.06	8.38	0.007		0.00	0.01	0.1		0.12
B-A	0.13	2.41	0.053		0.03	0.05	0.8		0.44
C-AB	0.29	7.44	0.039		0.03	0.04	0.6		0.14
A-B	0.24								
A-C	16.55								

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)
17.30-17.45									
B-C	0.06	8.38	0.007		0.01	0.01	0.1		0.12
B-A	0.13	2.41	0.053		0.05	0.06	0.8		0.44
C-AB	0.29	7.44	0.039		0.04	0.04	0.6		0.14
A-B	0.24								
A-C	16.55								

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)
17.45-18.00									
B-C	0.04	9.37	0.005		0.01	0.00	0.1		0.11
B-A	0.10	3.72	0.028		0.06	0.03	0.5		0.28
C-AB	0.24	8.27	0.029		0.04	0.03	0.5		0.12
A-B	0.19								
A-C	13.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-C	0.04	10.07	0.004		0.00	0.00	0.1		0.10
B-A	0.09	4.67	0.019		0.03	0.02	0.3		0.22
C-AB	0.20	8.87	0.023		0.03	0.02	0.3		0.12
A-B	0.16								
A-C	11.32								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.1
17.45	0.1
18.00	0.0
18.15	0.0

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-C	4.1	2.8	0.5	0.11	0.5	0.11
B-A	9.6	6.4	3.0	0.32	3.0	0.32
C-AB	22.0	14.7	2.8	0.13	2.8	0.13
A-B	17.9	11.9				
A-C	1241.5	827.7				
ALL	2597.3	1731.5	6.3	0.00	6.3	0.00

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

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

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

Printed at 15:34:19 on 31/08/2016]

APPENDIX M

B6121 Hunsworth Lane / Proposed Access PICADY

TRL LIMITED

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

FOR SALES AND DISTRIBUTION INFORMATION,
PROGRAM ADVICE AND MAINTENANCE CONTACT:
TRL SOFTWARE SALES
TEL: CROWTHORNE (01344) 770758, FAX: 770356
EMAIL: software@trl.co.uk

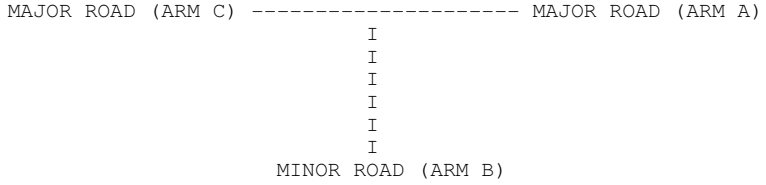
Run with file:-
"J:\9000\9500\9529_MerchantsFieldsKilro\engineering\Traffic_Programs\Picady\Hunsworth Lane\
September 2016 - Hunsworth Lane all movements\Hunsworth Lane - Site Access V3.vpi"
(drive-on-the-left) at 09:44:45 on Tuesday, 13 December 2016

RUN INFORMATION

RUN TITLE	: Hunsworth Lane - Proposed Site Access
LOCATION	: Cleckheaton
DATE	: 22/12/15
CLIENT	: Harron Homes
ENUMERATOR	: ashley.armitage [PC114]
JOB NUMBER	: 9089
STATUS	: Preliminary
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Hunsworth Lane (north east)
ARM B IS Proposed Site Access
ARM C IS Hunsworth Lane (south west)

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) 7.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 3.00 M.
- VISIBILITY	(VC-B)100.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (6)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 100.0 M.
- VISIBILITY TO RIGHT	(VB-A) 33.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	10.00 M.
WIDTH AT 5 M FROM JUNCTION	6.20 M.
WIDTH AT 10 M FROM JUNCTION	3.86 M.
WIDTH AT 15 M FROM JUNCTION	3.65 M.
WIDTH AT 20 M FROM JUNCTION	3.65 M.
- LENGTH OF FLARED SECTION	DERIVED: 1 PCU

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
686.89	0.25	0.25

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

TRAFFIC DEMAND DATA

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

Demand set: Proposed Resi AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

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	0.28	0.41	0.28
ARM B	15.00	45.00	75.00	0.98	1.46	0.98
ARM C	15.00	45.00	75.00	0.21	0.32	0.21

Demand set: 2017 AM Base

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

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	3.50	5.25	3.50
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	3.92	5.89	3.92

Demand set: Proposed Resi AM

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

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	1.000	0.000
		0.0	22.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.295	0.000	0.705
		23.0	0.0	55.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.000	1.000	0.000
		0.0	17.0	0.0
		(0.0)	(0.0)	(0.0)

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

Demand set: 2017 AM Base

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

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.000	1.000
		0.0	0.0	280.0
		(0.0)	(0.0)	(3.7)
	ARM B	0.000	0.000	0.000
		0.0	0.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		314.0	0.0	0.0
		(3.3)	(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-C	0.69	10.83	0.064		0.00	0.07	1.0		0.10
B-A	0.29	7.54	0.038		0.00	0.04	0.6		0.14
C-AB	0.21	10.45	0.020		0.00	0.02	0.3		0.10
A-B	0.28								
A-C	3.51								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.82	10.62	0.078		0.07	0.08	1.2		0.10
B-A	0.34	7.23	0.048		0.04	0.05	0.7		0.15
C-AB	0.25	10.26	0.025		0.02	0.03	0.4		0.10
A-B	0.33								
A-C	4.20								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	1.01	10.31	0.098		0.08	0.11	1.6		0.11
B-A	0.42	6.79	0.062		0.05	0.07	1.0		0.16
C-AB	0.31	9.99	0.031		0.03	0.03	0.5		0.10
A-B	0.40								
A-C	5.14								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.30-08.45									
B-C	1.01	10.31	0.098		0.11	0.11	1.6		0.11
B-A	0.42	6.79	0.062		0.07	0.07	1.0		0.16
C-AB	0.31	9.99	0.031		0.03	0.03	0.5		0.10
A-B	0.40								
A-C	5.14								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.82	10.61	0.078		0.11	0.08	1.3		0.10
B-A	0.34	7.23	0.048		0.07	0.05	0.8		0.15
C-AB	0.25	10.26	0.025		0.03	0.03	0.4		0.10
A-B	0.33								
A-C	4.20								

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)
09.00-09.15									
B-C	0.69	10.83	0.064		0.08	0.07	1.0		0.10
B-A	0.29	7.54	0.038		0.05	0.04	0.6		0.14
C-AB	0.21	10.45	0.020		0.03	0.02	0.3		0.10
A-B	0.28								
A-C	3.51								

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

QUEUE FOR STREAM B-C

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

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
08.00	0.0
08.15	0.0
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	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	75.7	50.5	7.8	0.10	7.8	0.10
B-A	31.7	21.1	4.6	0.15	4.6	0.15
C-AB	23.4	15.6	2.4	0.10	2.4	0.10
A-B	30.3	20.2				
A-C	385.4	256.9				
ALL	978.6	652.4	14.8	0.02	14.8	0.02

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

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

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
686.89	0.25	0.25

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

TRAFFIC DEMAND DATA

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

Demand set: Proposed Resi PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

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	0.51	0.77	0.51
ARM B	15.00	45.00	75.00	0.59	0.88	0.59
ARM C	15.00	45.00	75.00	0.41	0.62	0.41

Demand set: 2017 PM Base

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

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	3.85	5.77	3.85
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	3.96	5.94	3.96

Demand set: Proposed Resi PM

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

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	1.000	0.000
		0.0	41.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.298	0.000	0.702
		14.0	0.0	33.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.000	1.000	0.000
		0.0	33.0	0.0
		(0.0)	(0.0)	(0.0)

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

Demand set: 2017 PM Base

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000 0.0 (0.0)	0.000 0.0 (0.0)	1.000 308.0 (2.8)
	ARM B	0.000 0.0 (0.0)	0.000 0.0 (0.0)	0.000 0.0 (0.0)
	ARM C	1.000 317.0 (2.8)	0.000 0.0 (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-C	0.41	10.76	0.038		0.00	0.04	0.6		0.10
B-A	0.18	7.37	0.024		0.00	0.02	0.4		0.14
C-AB	0.41	10.31	0.040		0.00	0.04	0.6		0.10
A-B	0.51								
A-C	3.86								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.49	10.53	0.047		0.04	0.05	0.7		0.10
B-A	0.21	7.02	0.030		0.02	0.03	0.4		0.15
C-AB	0.49	10.08	0.049		0.04	0.05	0.8		0.10
A-B	0.61								
A-C	4.61								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.61	10.21	0.059		0.05	0.06	0.9		0.10
B-A	0.26	6.55	0.039		0.03	0.04	0.6		0.16
C-AB	0.61	9.78	0.062		0.05	0.07	1.0		0.11
A-B	0.75								
A-C	5.65								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	0.61	10.21	0.059		0.06	0.06	0.9		0.10
B-A	0.26	6.55	0.039		0.04	0.04	0.6		0.16
C-AB	0.61	9.78	0.062		0.07	0.07	1.0		0.11
A-B	0.75								
A-C	5.65								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	0.49	10.53	0.047		0.06	0.05	0.8		0.10
B-A	0.21	7.02	0.030		0.04	0.03	0.5		0.15
C-AB	0.49	10.08	0.049		0.07	0.05	0.8		0.10
A-B	0.61								
A-C	4.61								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	0.41	10.76	0.038		0.05	0.04	0.6		0.10
B-A	0.18	7.37	0.024		0.03	0.02	0.4		0.14
C-AB	0.41	10.31	0.040		0.05	0.04	0.6		0.10
A-B	0.51								
A-C	3.86								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.1
17.45	0.1
18.00	0.0
18.15	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
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		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	45.4	30.3	4.5	0.10	4.5	0.10
B-A	19.3	12.8	2.9	0.15	2.9	0.15
C-AB	45.4	30.3	4.8	0.11	4.8	0.11
A-B	56.4	37.6				
A-C	423.9	282.6				
ALL	1026.8	684.5	12.2	0.01	12.2	0.01

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

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

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

Printed at 09:44:55 on 13/12/2016]

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

PICADY 5.1 ANALYSIS PROGRAM
RELEASE 5.0 (JUNE 2010)

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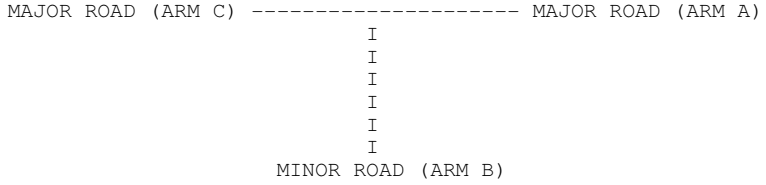
Run with file:-
"J:\9000\9500\9529_MerchantsFieldsKilro\engineering\Traffic_Programs\Picady\Hunsworth Lane\
September 2016 - Hunsworth Lane all movements\Hunsworth Lane - Site Access V3.vpi"
(drive-on-the-left) at 09:18:12 on Tuesday, 13 December 2016

RUN INFORMATION

RUN TITLE	: Hunsworth Lane - Proposed Site Access
LOCATION	: Cleckheaton
DATE	: 22/12/15
CLIENT	: Harron Homes
ENUMERATOR	: ashley.armitage [PC114]
JOB NUMBER	: 9089
STATUS	: Preliminary
DESCRIPTION	:

MAJOR/MINOR JUNCTION CAPACITY AND DELAY

INPUT DATA



ARM A IS Hunsworth Lane (north east)
ARM B IS Proposed Site Access
ARM C IS Hunsworth Lane (south west)

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) 7.00 M.
CENTRAL RESERVE WIDTH	(WCR) 0.00 M.
MAJOR ROAD RIGHT TURN - WIDTH	(WC-B) 3.00 M.
- VISIBILITY	(VC-B)100.00 M.
- BLOCKS TRAFFIC (SPACES)	YES (6)
MINOR ROAD - VISIBILITY TO LEFT	(VB-C) 100.0 M.
- VISIBILITY TO RIGHT	(VB-A) 33.0 M.
- LANE 1 WIDTH	(WB-C) -
- LANE 2 WIDTH	(WB-A) -
WIDTH AT 0 M FROM JUNCTION	10.00 M.
WIDTH AT 5 M FROM JUNCTION	6.20 M.
WIDTH AT 10 M FROM JUNCTION	3.86 M.
WIDTH AT 15 M FROM JUNCTION	3.65 M.
WIDTH AT 20 M FROM JUNCTION	3.65 M.
- LENGTH OF FLARED SECTION	DERIVED: 1 PCU

.SLOPES AND INTERCEPT

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

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

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
686.89	0.25	0.25

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

TRAFFIC DEMAND DATA

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

Demand set: Proposed Resi AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

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	0.28	0.41	0.28
ARM B	15.00	45.00	75.00	0.98	1.46	0.98
ARM C	15.00	45.00	75.00	0.21	0.32	0.21

Demand set: 2023 AM Base

TIME PERIOD BEGINS 07.45 AND ENDS 09.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

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	3.78	5.66	3.78
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	4.28	6.41	4.28

Demand set: Proposed Resi AM

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

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	1.000	0.000
		0.0	22.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.295	0.000	0.705
		23.0	0.0	55.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.000	1.000	0.000
		0.0	17.0	0.0
		(0.0)	(0.0)	(0.0)

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

Demand set: 2023 AM Base

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

TIME	FROM/TO	ARM A	ARM B	ARM C
07.45 - 09.15	ARM A	0.000	0.000	1.000
		0.0	0.0	302.0
		(0.0)	(0.0)	(3.7)
	ARM B	0.000	0.000	0.000
		0.0	0.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM C	1.000	0.000	0.000
		342.0	0.0	0.0
		(3.3)	(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-C	0.69	10.76	0.064		0.00	0.07	1.0		0.10
B-A	0.29	7.41	0.039		0.00	0.04	0.6		0.14
C-AB	0.21	10.38	0.021		0.00	0.02	0.3		0.10
A-B	0.28								
A-C	3.79								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.00-08.15									
B-C	0.82	10.52	0.078		0.07	0.08	1.2		0.10
B-A	0.34	7.08	0.049		0.04	0.05	0.7		0.15
C-AB	0.25	10.17	0.025		0.02	0.03	0.4		0.10
A-B	0.33								
A-C	4.52								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.15-08.30									
B-C	1.01	10.20	0.099		0.08	0.11	1.6		0.11
B-A	0.42	6.61	0.064		0.05	0.07	1.0		0.16
C-AB	0.31	9.88	0.032		0.03	0.03	0.5		0.10
A-B	0.40								
A-C	5.54								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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	1.01	10.20	0.099		0.11	0.11	1.6		0.11
B-A	0.42	6.61	0.064		0.07	0.07	1.0		0.16
C-AB	0.31	9.88	0.032		0.03	0.03	0.5		0.10
A-B	0.40								
A-C	5.54								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
08.45-09.00									
B-C	0.82	10.52	0.078		0.11	0.09	1.3		0.10
B-A	0.34	7.08	0.049		0.07	0.05	0.8		0.15
C-AB	0.25	10.17	0.025		0.03	0.03	0.4		0.10
A-B	0.33								
A-C	4.52								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
09.00-09.15									
B-C	0.69	10.76	0.064		0.09	0.07	1.1		0.10
B-A	0.29	7.41	0.039		0.05	0.04	0.6		0.14
C-AB	0.21	10.38	0.021		0.03	0.02	0.3		0.10
A-B	0.28								
A-C	3.79								

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

QUEUE FOR STREAM B-C

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

QUEUE FOR STREAM B-A

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	0.0
08.30	0.0
08.45	0.0
09.00	0.0
09.15	0.0

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

STREAM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
B-C	75.7	50.5	7.8	0.10	7.8	0.10
B-A	31.7	21.1	4.7	0.15	4.7	0.15
C-AB	23.4	15.6	2.4	0.10	2.4	0.10
A-B	30.3	20.2				
A-C	415.7	277.1				
ALL	1047.5	698.3	15.0	0.01	15.0	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
0.00	0.00	0.00

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

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

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

Intercept For STREAM C-B	Slope For Opposing STREAM A-C	Slope For Opposing STREAM A-B
686.89	0.25	0.25

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

TRAFFIC DEMAND DATA

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

Demand set: Proposed Resi PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

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	0.51	0.77	0.51
ARM B	15.00	45.00	75.00	0.59	0.88	0.59
ARM C	15.00	45.00	75.00	0.41	0.62	0.41

Demand set: 2023 PM Base

TIME PERIOD BEGINS 16.45 AND ENDS 18.15

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

DEMAND FLOW PROFILES ARE SYNTHESISED FROM TURNING COUNT DATA

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	4.15	6.23	4.15
ARM B	15.00	45.00	75.00	0.00	0.00	0.00
ARM C	15.00	45.00	75.00	4.28	6.41	4.28

Demand set: Proposed Resi PM

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

TIME	FROM/TO	ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000	1.000	0.000
		0.0	41.0	0.0
		(0.0)	(0.0)	(0.0)
	ARM B	0.298	0.000	0.702
		14.0	0.0	33.0
		(0.0)	(0.0)	(0.0)
	ARM C	0.000	1.000	0.000
		0.0	33.0	0.0
		(0.0)	(0.0)	(0.0)

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

Demand set: 2023 PM Base

TIME	FROM/TO	TURNING PROPORTIONS / TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C
16.45 - 18.15	ARM A	0.000 0.0 (0.0)	0.000 0.0 (0.0)	1.000 332.0 (2.8)
	ARM B	0.000 0.0 (0.0)	0.000 0.0 (0.0)	0.000 0.0 (0.0)
	ARM C	1.000 342.0 (2.8)	0.000 0.0 (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-C	0.41	10.68	0.039		0.00	0.04	0.6		0.10
B-A	0.18	7.25	0.024		0.00	0.02	0.4		0.14
C-AB	0.41	10.23	0.040		0.00	0.04	0.6		0.10
A-B	0.51								
A-C	4.17								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.00-17.15									
B-C	0.49	10.43	0.047		0.04	0.05	0.7		0.10
B-A	0.21	6.88	0.031		0.02	0.03	0.5		0.15
C-AB	0.49	9.99	0.049		0.04	0.05	0.8		0.11
A-B	0.61								
A-C	4.97								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.15-17.30									
B-C	0.61	10.09	0.060		0.05	0.06	0.9		0.11
B-A	0.26	6.37	0.040		0.03	0.04	0.6		0.16
C-AB	0.61	9.66	0.063		0.05	0.07	1.0		0.11
A-B	0.75								
A-C	6.09								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.30-17.45									
B-C	0.61	10.09	0.060		0.06	0.06	1.0		0.11
B-A	0.26	6.37	0.040		0.04	0.04	0.6		0.16
C-AB	0.61	9.66	0.063		0.07	0.07	1.0		0.11
A-B	0.75								
A-C	6.09								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
17.45-18.00									
B-C	0.49	10.43	0.047		0.06	0.05	0.8		0.10
B-A	0.21	6.88	0.031		0.04	0.03	0.5		0.15
C-AB	0.49	9.99	0.049		0.07	0.05	0.8		0.11
A-B	0.61								
A-C	4.97								

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
18.00-18.15									
B-C	0.41	10.68	0.039		0.05	0.04	0.6		0.10
B-A	0.18	7.25	0.024		0.03	0.03	0.4		0.14
C-AB	0.41	10.23	0.040		0.05	0.04	0.6		0.10
A-B	0.51								
A-C	4.17								

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

QUEUE FOR STREAM B-C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.1
17.45	0.1
18.00	0.1
18.15	0.0

QUEUE FOR STREAM B-A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
17.15	0.0
17.30	0.0
17.45	0.0
18.00	0.0
18.15	0.0

QUEUE FOR STREAM C-AB

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
17.00	0.0
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-C	45.4	30.3	4.6	0.10	4.6	0.10
B-A	19.3	12.8	2.9	0.15	2.9	0.15
C-AB	45.4	30.3	4.8	0.11	4.8	0.11
A-B	56.4	37.6				
A-C	457.0	304.6				
ALL	1094.3	729.5	12.3	0.01	12.3	0.01

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

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

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

Printed at 09:43:31 on 13/12/2016]

APPENDIX N

A58/A651 Roundabout ARCADY

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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For sales and distribution information,
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Run with file:-
"h:\Sept 2016 Kilroyd Drive\Arcady\A58 Whitehall Road - A651 Bradford Road AM.vai"
(drive-on-the-left) at 16:29:25 on Wednesday, 31 August 2016

FILE PROPERTIES

RUN TITLE: A58 Whitehall Road - A651 Bradford Road
LOCATION: Cleckheaton
DATE: 22/12/15
CLIENT: Harron Homes
ENUMERATOR: ashley.armitage [PC114]
JOB NUMBER: 9089
STATUS: Preliminary
DESCRIPTION:

INPUT DATA

ARM A - A651 Bradford Road (north)
ARM B - A58 Whitehall Road (east)
ARM C - A651 Bradford Road (south)
ARM D - A58 Whitehall Road (west)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.80	6.20	60.00	9.00	30.00	36.5	0.622	27.470
ARM B	4.50	5.80	6.00	35.00	30.00	17.5	0.678	28.313
ARM C	3.70	7.50	14.00	18.00	30.00	26.0	0.671	29.199
ARM D	4.50	5.80	14.00	45.00	30.00	18.5	0.695	29.650

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 THE TURNING COUNT DATA

DEMAND SET TITLE: 2017 AM Base Traffic

T15

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	6.66	9.99	6.66
ARM B	15.00	45.00	75.00	10.02	15.04	10.02
ARM C	15.00	45.00	75.00	11.34	17.01	11.34
ARM D	15.00	45.00	75.00	9.14	13.71	9.14

DEMAND SET TITLE: Resi Development AM

T15

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	0.11	0.17	0.11
ARM B	15.00	45.00	75.00	0.13	0.19	0.13
ARM C	15.00	45.00	75.00	0.09	0.13	0.09
ARM D	15.00	45.00	75.00	0.69	1.03	0.69

DEMAND SET TITLE: 2017 AM Base Traffic

T33

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
07.45 - 09.15		TURNING PROPORTIONS			
		TURNING COUNTS			
		(PERCENTAGE OF H.V.S)			
	ARM A	0.000	0.210	0.593	0.197
		0.0	112.0	316.0	105.0
		(0.0)	(1.8)	(4.9)	(1.0)
	ARM B	0.283	0.000	0.157	0.560
		227.0	0.0	126.0	449.0
		(4.1)	(0.0)	(8.1)	(7.1)
	ARM C	0.561	0.255	0.000	0.184
		509.0	231.0	0.0	167.0
		(4.4)	(6.2)	(0.0)	(3.7)
	ARM D	0.107	0.713	0.181	0.000
		78.0	521.0	132.0	0.0
		(2.6)	(4.9)	(4.7)	(0.0)

DEMAND SET TITLE: Resi Development AM

T33

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

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
07.45 - 09.15	ARM A	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	9.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM B	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	10.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM C	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	7.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM D	0.345	0.382	0.273	0.000
		19.0	21.0	15.0	0.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	6.80	19.32	0.352	- - -	0.0	0.5	7.8	-	0.079
ARM B	10.19	21.86	0.466	- - -	0.0	0.9	12.5	-	0.085
ARM C	11.47	21.15	0.542	- - -	0.0	1.2	16.7	-	0.102
ARM D	9.86	20.02	0.493	- - -	0.0	1.0	13.8	-	0.097
08.00-08.15									
ARM A	8.12	17.90	0.454	- - -	0.5	0.8	11.9	-	0.102
ARM B	12.17	20.92	0.582	- - -	0.9	1.4	19.7	-	0.114
ARM C	13.69	19.82	0.691	- - -	1.2	2.2	30.4	-	0.160
ARM D	11.78	18.36	0.641	- - -	1.0	1.7	24.7	-	0.149
08.15-08.30									
ARM A	9.95	16.13	0.616	- - -	0.8	1.6	22.2	-	0.159
ARM B	14.90	19.68	0.757	- - -	1.4	3.0	40.7	-	0.200
ARM C	16.77	18.05	0.929	- - -	2.2	8.8	102.1	-	0.491
ARM D	14.42	16.31	0.884	- - -	1.7	6.1	75.4	-	0.412
08.30-08.45									
ARM A	9.95	15.96	0.623	- - -	1.6	1.6	24.1	-	0.166
ARM B	14.90	19.62	0.759	- - -	3.0	3.1	45.3	-	0.211
ARM C	16.77	17.99	0.932	- - -	8.8	10.4	145.9	-	0.663
ARM D	14.42	16.11	0.895	- - -	6.1	7.2	101.6	-	0.531

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	8.12	17.58	0.462	- - -	1.6	0.9	13.6	-	0.107
ARM B	12.17	20.83	0.584	- - -	3.1	1.4	22.6	-	0.118
ARM C	13.69	19.73	0.694	- - -	10.4	2.4	44.8	-	0.198
ARM D	11.78	17.99	0.655	- - -	7.2	2.0	34.2	-	0.180

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	6.80	19.23	0.354	- - -	0.9	0.6	8.5	-	0.081
ARM B	10.19	21.81	0.467	- - -	1.4	0.9	13.7	-	0.087
ARM C	11.47	21.09	0.544	- - -	2.4	1.2	18.9	-	0.106
ARM D	9.86	19.91	0.495	- - -	2.0	1.0	15.5	-	0.101

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	*
08.15	0.8	*
08.30	1.6	**
08.45	1.6	**
09.00	0.9	*
09.15	0.6	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.9	*
08.15	1.4	*
08.30	3.0	***
08.45	3.1	***
09.00	1.4	*
09.15	0.9	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.2	*
08.15	2.2	**
08.30	8.8	*********
08.45	10.4	**********
09.00	2.4	**
09.15	1.2	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.0	*
08.15	1.7	**
08.30	6.1	******
08.45	7.2	*******
09.00	2.0	**
09.15	1.0	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

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	746.0	497.3	88.1	0.12	88.1	0.12
B	1117.7	745.1	154.5	0.14	154.5	0.14
C	1258.1	838.7	358.9	0.29	358.9	0.29
D	1081.9	721.2	265.2	0.25	265.2	0.25
ALL	4203.6	2802.4	866.7	0.21	866.8	0.21

* 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 16:29:35 on 31/08/2016]

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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Nine Mile Ride Email: software@trl.co.uk
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RG40 3GA,UK

Run with file:-
"h:\Sept 2016 Kilroyd Drive\Arcady\A58 Whitehall Road - A651 Bradford Road AM.vai"
(drive-on-the-left) at 16:55:15 on Wednesday, 31 August 2016

FILE PROPERTIES

RUN TITLE: A58 Whitehall Road - A651 Bradford Road
LOCATION: Cleckheaton
DATE: 22/12/15
CLIENT: Harron Homes
ENUMERATOR: ashley.armitage [PC114]
JOB NUMBER: 9089
STATUS: Preliminary
DESCRIPTION:

INPUT DATA

ARM A - A651 Bradford Road (north)
ARM B - A58 Whitehall Road (east)
ARM C - A651 Bradford Road (south)
ARM D - A58 Whitehall Road (west)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.80	6.20	60.00	9.00	30.00	36.5	0.622	27.470
ARM B	4.50	5.80	6.00	35.00	30.00	17.5	0.678	28.313
ARM C	3.70	7.50	14.00	18.00	30.00	26.0	0.671	29.199
ARM D	4.50	5.80	14.00	45.00	30.00	18.5	0.695	29.650

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 THE TURNING COUNT DATA

DEMAND SET TITLE: 2017 AM Base Traffic

T15

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	6.66	9.99	6.66
ARM B	15.00	45.00	75.00	10.02	15.04	10.02
ARM C	15.00	45.00	75.00	11.34	17.01	11.34
ARM D	15.00	45.00	75.00	9.14	13.71	9.14

DEMAND SET TITLE: 2017 AM Base Traffic

T33

TIME	FROM/T	TURNING PROPORTIONS TURNING COUNTS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
07.45 - 09.15	ARM A	0.000	0.210	0.593	0.197
		0.0	112.0	316.0	105.0
		(0.0)	(1.8)	(4.9)	(1.0)
	ARM B	0.283	0.000	0.157	0.560
		227.0	0.0	126.0	449.0
		(4.1)	(0.0)	(8.1)	(7.1)
	ARM C	0.561	0.255	0.000	0.184
		509.0	231.0	0.0	167.0
		(4.4)	(6.2)	(0.0)	(3.7)
	ARM D	0.107	0.713	0.181	0.000
		78.0	521.0	132.0	0.0
		(2.6)	(4.9)	(4.7)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	6.69	19.58	0.342	- -	0.0	0.5	7.5	-	0.077
ARM B	10.06	22.03	0.457	- -	0.0	0.8	12.0	-	0.083
ARM C	11.38	21.30	0.534	- -	0.0	1.1	16.2	-	0.099
ARM D	9.17	19.95	0.460	- -	0.0	0.8	12.1	-	0.092

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	7.99	18.21	0.439	- - -	0.5	0.8	11.3	-	0.098
ARM B	12.02	21.13	0.569	- - -	0.8	1.3	18.7	-	0.109
ARM C	13.59	20.00	0.680	- - -	1.1	2.1	29.1	-	0.153
ARM D	10.95	18.30	0.598	- - -	0.8	1.5	20.9	-	0.134

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	9.78	16.46	0.594	- - -	0.8	1.4	20.4	-	0.148
ARM B	14.72	19.93	0.739	- - -	1.3	2.7	37.4	-	0.186
ARM C	16.64	18.26	0.912	- - -	2.1	7.7	91.6	-	0.441
ARM D	13.41	16.22	0.827	- - -	1.5	4.3	55.3	-	0.317

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	9.78	16.32	0.599	- - -	1.4	1.5	21.9	-	0.153
ARM B	14.72	19.89	0.740	- - -	2.7	2.8	41.2	-	0.193
ARM C	16.64	18.20	0.914	- - -	7.7	8.8	124.6	-	0.564
ARM D	13.41	16.04	0.836	- - -	4.3	4.7	68.0	-	0.369

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	7.99	17.99	0.444	- - -	1.5	0.8	12.6	-	0.101
ARM B	12.02	21.07	0.570	- - -	2.8	1.3	21.3	-	0.113
ARM C	13.59	19.92	0.682	- - -	8.8	2.2	40.1	-	0.181
ARM D	10.95	17.99	0.609	- - -	4.7	1.6	26.2	-	0.151

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	6.69	19.50	0.343	- - -	0.8	0.5	8.1	-	0.078
ARM B	10.06	21.99	0.458	- - -	1.3	0.9	13.2	-	0.084
ARM C	11.38	21.24	0.536	- - -	2.2	1.2	18.3	-	0.103
ARM D	9.17	19.85	0.462	- - -	1.6	0.9	13.5	-	0.094

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.5	*
08.15	0.8	*
08.30	1.4	*
08.45	1.5	*
09.00	0.8	*
09.15	0.5	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.8	*
08.15	1.3	*
08.30	2.7	***
08.45	2.8	***
09.00	1.3	*
09.15	0.9	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.1	*
08.15	2.1	**
08.30	7.7	********
08.45	8.8	*********
09.00	2.2	**
09.15	1.2	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.8	*
08.15	1.5	*
08.30	4.3	****
08.45	4.7	*****
09.00	1.6	**
09.15	0.9	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	733.6	489.1	81.7	0.11	81.7	0.11
B	1103.9	735.9	143.8	0.13	143.9	0.13
C	1248.4	832.3	319.9	0.26	319.9	0.26
D	1006.2	670.8	196.0	0.19	196.1	0.19
ALL	4092.1	2728.1	741.4	0.18	741.5	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 16:55:22 on 31/08/2016]

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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RG40 3GA,UK

Run with file:-
"h:\Sept 2016 Kilroyd Drive\Arcady\A58 Whitehall Road - A651 Bradford Road PM.vai"
(drive-on-the-left) at 16:33:46 on Wednesday, 31 August 2016

FILE PROPERTIES

RUN TITLE: A58 Whitehall Road - A651 Bradford Road
LOCATION: Cleckheaton
DATE: 22/12/15
CLIENT: Harron Homes
ENUMERATOR: ashley.armitage [PC114]
JOB NUMBER: 9089
STATUS: Preliminary
DESCRIPTION:

INPUT DATA

ARM A - A651 Bradford Road (north)
ARM B - A58 Whitehall Road (east)
ARM C - A651 Bradford Road (south)
ARM D - A58 Whitehall Road (west)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.80	6.20	60.00	9.00	30.00	36.5	0.622	27.470
ARM B	4.50	5.80	6.00	35.00	30.00	17.5	0.678	28.313
ARM C	3.70	7.50	14.00	18.00	30.00	26.0	0.671	29.199
ARM D	4.50	5.80	14.00	45.00	30.00	18.5	0.695	29.650

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

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

TIME PERIOD BEGINS(16.15)AND ENDS(17.45)

LENGTH OF TIME PERIOD -(90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2017 PM Base Traffic

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
	TO RISE					
ARM A	15.00	45.00	75.00	8.26	12.39	8.26
ARM B	15.00	45.00	75.00	9.38	14.06	9.38
ARM C	15.00	45.00	75.00	8.89	13.33	8.89
ARM D	15.00	45.00	75.00	8.95	13.42	8.95

DEMAND SET TITLE: Resi Development PM

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
	TO RISE					
ARM A	15.00	45.00	75.00	0.11	0.17	0.11
ARM B	15.00	45.00	75.00	0.13	0.19	0.13
ARM C	15.00	45.00	75.00	0.09	0.13	0.09
ARM D	15.00	45.00	75.00	0.40	0.60	0.40

DEMAND SET TITLE: 2017 PM Base Traffic

T33

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

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.160	0.638	0.201
		0.0	106.0	422.0	133.0
		(0.0)	(1.0)	(2.2)	(1.6)
	ARM B	0.151	0.000	0.239	0.611
		113.0	0.0	179.0	458.0
		(2.7)	(0.0)	(3.4)	(2.9)
	ARM C	0.541	0.218	0.000	0.241
		385.0	155.0	0.0	171.0
		(2.1)	(6.6)	(0.0)	(3.0)
	ARM D	0.163	0.520	0.317	0.000
		117.0	372.0	227.0	0.0
		(2.6)	(5.0)	(4.1)	(0.0)

DEMAND SET TITLE: Resi Development PM

T33

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

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	9.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM B	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	10.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM C	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	7.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM D	0.344	0.375	0.281	0.000
		11.0	12.0	9.0	0.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.15-16.30									
ARM A	8.41	20.77	0.405	- -	0.0	0.7	9.8	-	0.080
ARM B	9.54	20.76	0.459	- -	0.0	0.8	12.1	-	0.088
ARM C	9.01	22.26	0.405	- -	0.0	0.7	9.8	-	0.075
ARM D	9.39	22.85	0.411	- -	0.0	0.7	10.0	-	0.074
16.30-16.45									
ARM A	10.04	19.55	0.514	- -	0.7	1.0	15.1	-	0.105
ARM B	11.39	19.43	0.586	- -	0.8	1.4	20.0	-	0.123
ARM C	10.76	21.08	0.510	- -	0.7	1.0	15.0	-	0.096
ARM D	11.21	21.75	0.515	- -	0.7	1.1	15.3	-	0.094
16.45-17.00									
ARM A	12.29	17.91	0.687	- -	1.0	2.1	29.6	-	0.174
ARM B	13.95	17.65	0.790	- -	1.4	3.5	46.8	-	0.251
ARM C	13.18	19.52	0.675	- -	1.0	2.0	28.4	-	0.154
ARM D	13.73	20.27	0.677	- -	1.1	2.0	28.8	-	0.150
17.00-17.15									
ARM A	12.29	17.86	0.688	- -	2.1	2.2	32.2	-	0.179
ARM B	13.95	17.59	0.793	- -	3.5	3.7	53.9	-	0.272
ARM C	13.18	19.44	0.678	- -	2.0	2.1	30.7	-	0.159
ARM D	13.73	20.22	0.679	- -	2.0	2.1	30.9	-	0.154

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	10.04	19.49	0.515	- - -	2.2	1.1	16.9	-	0.107
ARM B	11.39	19.35	0.588	- - -	3.7	1.5	23.4	-	0.130
ARM C	10.76	20.97	0.513	- - -	2.1	1.1	16.7	-	0.099
ARM D	11.21	21.68	0.517	- - -	2.1	1.1	16.9	-	0.097

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	8.41	20.72	0.406	- - -	1.1	0.7	10.6	-	0.082
ARM B	9.54	20.70	0.461	- - -	1.5	0.9	13.4	-	0.090
ARM C	9.01	22.21	0.406	- - -	1.1	0.7	10.6	-	0.076
ARM D	9.39	22.81	0.411	- - -	1.1	0.7	10.9	-	0.075

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.0	*
17.00	2.1	**
17.15	2.2	**
17.30	1.1	*
17.45	0.7	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.4	*
17.00	3.5	***
17.15	3.7	****
17.30	1.5	*
17.45	0.9	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.0	*
17.00	2.0	**
17.15	2.1	**
17.30	1.1	*
17.45	0.7	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.1	*
17.00	2.0	**
17.15	2.1	**
17.30	1.1	*
17.45	0.7	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

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	922.2	614.8	114.2	0.12	114.2	0.12
B	1046.1	697.4	169.6	0.16	169.6	0.16
C	988.3	658.8	111.1	0.11	111.1	0.11
D	1029.6	686.4	112.8	0.11	112.8	0.11
ALL	3986.1	2657.4	507.7	0.13	507.7	0.13

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

END OF JOB

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

Printed at 16:33:54 on 31/08/2016]

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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For sales and distribution information,
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Run with file:-
"h:\Sept 2016 Kilroyd Drive\Arcady\A58 Whitehall Road - A651 Bradford Road PM.vai"
(drive-on-the-left) at 16:55:52 on Wednesday, 31 August 2016

FILE PROPERTIES

RUN TITLE: A58 Whitehall Road - A651 Bradford Road
LOCATION: Cleckheaton
DATE: 22/12/15
CLIENT: Harron Homes
ENUMERATOR: ashley.armitage [PC114]
JOB NUMBER: 9089
STATUS: Preliminary
DESCRIPTION:

INPUT DATA

ARM A - A651 Bradford Road (north)
ARM B - A58 Whitehall Road (east)
ARM C - A651 Bradford Road (south)
ARM D - A58 Whitehall Road (west)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.80	6.20	60.00	9.00	30.00	36.5	0.622	27.470
ARM B	4.50	5.80	6.00	35.00	30.00	17.5	0.678	28.313
ARM C	3.70	7.50	14.00	18.00	30.00	26.0	0.671	29.199
ARM D	4.50	5.80	14.00	45.00	30.00	18.5	0.695	29.650

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

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

TIME PERIOD BEGINS(16.15)AND ENDS(17.45)

LENGTH OF TIME PERIOD -(90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2017 PM Base Traffic

T15

ARM	NUMBER OF MINUTES FROM START TO RISE	NUMBER OF MINUTES FROM START TO 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	8.26	12.39	8.26
ARM B	15.00	45.00	75.00	9.38	14.06	9.38
ARM C	15.00	45.00	75.00	8.89	13.33	8.89
ARM D	15.00	45.00	75.00	8.95	13.42	8.95

DEMAND SET TITLE: 2017 PM Base Traffic

T33

TIME	FROM/T	TURNING PROPORTIONS / TURNING COUNTS / (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.160	0.638	0.201
		0.0	106.0	422.0	133.0
		(0.0)	(1.0)	(2.2)	(1.6)
	ARM B	0.151	0.000	0.239	0.611
		113.0	0.0	179.0	458.0
		(2.7)	(0.0)	(3.4)	(2.9)
	ARM C	0.541	0.218	0.000	0.241
		385.0	155.0	0.0	171.0
		(2.1)	(6.6)	(0.0)	(3.0)
	ARM D	0.163	0.520	0.317	0.000
		117.0	372.0	227.0	0.0
		(2.6)	(5.0)	(4.1)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.15-16.30									
ARM A	8.29	20.93	0.396	- -	0.0	0.7	9.5	-	0.079
ARM B	9.41	20.90	0.450	- -	0.0	0.8	11.7	-	0.086
ARM C	8.92	22.41	0.398	- -	0.0	0.7	9.5	-	0.074
ARM D	8.98	22.81	0.394	- -	0.0	0.6	9.4	-	0.072

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.30-16.45									
ARM A	9.90	19.73	0.502	- -	-	0.7	1.0	14.4	-	0.101
ARM B	11.24	19.60	0.573	- -	-	0.8	1.3	19.0	-	0.118
ARM C	10.65	21.25	0.501	- -	-	0.7	1.0	14.4	-	0.094
ARM D	10.73	21.71	0.494	- -	-	0.6	1.0	14.1	-	0.091

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	12.13	18.13	0.669	- -	-	1.0	2.0	27.6	-	0.163
ARM B	13.76	17.85	0.771	- -	-	1.3	3.2	42.8	-	0.231
ARM C	13.05	19.73	0.661	- -	-	1.0	1.9	26.9	-	0.147
ARM D	13.14	20.22	0.650	- -	-	1.0	1.8	25.7	-	0.139

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	12.13	18.09	0.670	- -	-	2.0	2.0	29.7	-	0.167
ARM B	13.76	17.80	0.773	- -	-	3.2	3.3	48.5	-	0.246
ARM C	13.05	19.66	0.664	- -	-	1.9	1.9	28.9	-	0.151
ARM D	13.14	20.18	0.651	- -	-	1.8	1.8	27.4	-	0.142

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	9.90	19.68	0.503	- -	-	2.0	1.0	16.0	-	0.104
ARM B	11.24	19.53	0.575	- -	-	3.3	1.4	22.0	-	0.124
ARM C	10.65	21.16	0.503	- -	-	1.9	1.0	16.0	-	0.096
ARM D	10.73	21.65	0.496	- -	-	1.8	1.0	15.5	-	0.093

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	8.29	20.88	0.397	- -	-	1.0	0.7	10.2	-	0.080
ARM B	9.41	20.85	0.451	- -	-	1.4	0.8	12.9	-	0.088
ARM C	8.92	22.36	0.399	- -	-	1.0	0.7	10.3	-	0.075
ARM D	8.98	22.77	0.395	- -	-	1.0	0.7	10.1	-	0.073

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.0	*
17.00	2.0	**
17.15	2.0	**
17.30	1.0	*
17.45	0.7	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.3	*
17.00	3.2	***
17.15	3.3	***
17.30	1.4	*
17.45	0.8	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.7	*
16.45	1.0	*
17.00	1.9	**
17.15	1.9	**
17.30	1.0	*
17.45	0.7	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.6	*
16.45	1.0	*
17.00	1.8	**
17.15	1.8	**
17.30	1.0	*
17.45	0.7	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	909.8	606.5	107.5	0.12	107.5	0.12
B	1032.3	688.2	156.9	0.15	157.0	0.15
C	978.6	652.4	106.0	0.11	106.0	0.11
D	985.5	657.0	102.1	0.10	102.1	0.10
ALL	3906.3	2604.2	472.6	0.12	472.6	0.12

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

END OF JOB

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

Printed at 16:56:00 on 31/08/2016]

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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Run with file:-
"h:\Sept 2016 Kilroyd Drive\Arcady\A58 Whitehall Road - A651 Bradford Road AM.vai"
(drive-on-the-left) at 16:30:08 on Wednesday, 31 August 2016

FILE PROPERTIES

RUN TITLE: A58 Whitehall Road - A651 Bradford Road
LOCATION: Cleckheaton
DATE: 22/12/15
CLIENT: Harron Homes
ENUMERATOR: ashley.armitage [PC114]
JOB NUMBER: 9089
STATUS: Preliminary
DESCRIPTION:

INPUT DATA

ARM A - A651 Bradford Road (north)
ARM B - A58 Whitehall Road (east)
ARM C - A651 Bradford Road (south)
ARM D - A58 Whitehall Road (west)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.80	6.20	60.00	9.00	30.00	36.5	0.622	27.470
ARM B	4.50	5.80	6.00	35.00	30.00	17.5	0.678	28.313
ARM C	3.70	7.50	14.00	18.00	30.00	26.0	0.671	29.199
ARM D	4.50	5.80	14.00	45.00	30.00	18.5	0.695	29.650

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 THE TURNING COUNT DATA

DEMAND SET TITLE: 2023 AM Base Traffic

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	7.19	10.78	7.19
ARM B	15.00	45.00	75.00	10.81	16.22	10.81
ARM C	15.00	45.00	75.00	12.25	18.38	12.25
ARM D	15.00	45.00	75.00	9.86	14.79	9.86

DEMAND SET TITLE: Resi Development AM

T15

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	0.11	0.17	0.11
ARM B	15.00	45.00	75.00	0.13	0.19	0.13
ARM C	15.00	45.00	75.00	0.09	0.13	0.09
ARM D	15.00	45.00	75.00	0.69	1.03	0.69

DEMAND SET TITLE: 2023 AM Base Traffic

T33

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
07.45 - 09.15	ARM A	0.000	0.210	0.593	0.197
		0.0	121.0	341.0	113.0
		(0.0)	(1.8)	(4.9)	(1.0)
	ARM B	0.283	0.000	0.157	0.560
		245.0	0.0	136.0	484.0
		(4.1)	(0.0)	(8.1)	(7.1)
	ARM C	0.561	0.254	0.000	0.185
		550.0	249.0	0.0	181.0
		(4.4)	(6.2)	(0.0)	(3.7)
	ARM D	0.106	0.712	0.181	0.000
		84.0	562.0	143.0	0.0
		(2.6)	(4.9)	(4.7)	(0.0)

DEMAND SET TITLE: Resi Development AM

T33

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

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
07.45 - 09.15	ARM A	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	9.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM B	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	10.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM C	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	7.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%
	ARM D	0.345	0.382	0.273	0.000
		19.0	21.0	15.0	0.0
		(0.0)%	(0.0)%	(0.0)%	(0.0)%

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	7.33	18.78	0.390	- - -	0.0	0.6	9.2	-	0.087
ARM B	10.98	21.50	0.511	- - -	0.0	1.0	14.8	-	0.094
ARM C	12.38	20.64	0.600	- - -	0.0	1.5	20.8	-	0.118
ARM D	10.59	19.35	0.547	- - -	0.0	1.2	17.0	-	0.112
08.00-08.15									
ARM A	8.75	17.26	0.507	- - -	0.6	1.0	14.6	-	0.117
ARM B	13.11	20.49	0.640	- - -	1.0	1.7	24.8	-	0.134
ARM C	14.79	19.21	0.770	- - -	1.5	3.2	43.0	-	0.216
ARM D	12.65	17.58	0.719	- - -	1.2	2.5	34.0	-	0.196
08.15-08.30									
ARM A	10.72	15.69	0.683	- - -	1.0	2.1	28.9	-	0.195
ARM B	16.06	19.20	0.836	- - -	1.7	4.6	59.9	-	0.284
ARM C	18.11	17.34	1.044	- - -	3.2	23.2	218.3	-	1.004
ARM D	15.49	15.85	0.977	- - -	2.5	12.6	133.4	-	0.712
08.30-08.45									
ARM A	10.72	15.46	0.693	- - -	2.1	2.2	32.3	-	0.210
ARM B	16.06	19.13	0.839	- - -	4.6	4.9	71.5	-	0.318
ARM C	18.11	17.24	1.051	- - -	23.2	38.7	466.8	-	1.985
ARM D	15.49	15.64	0.990	- - -	12.6	18.2	233.8	-	1.194

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	8.75	16.31	0.537	- - -	2.2	1.2	18.6	-	0.135
ARM B	13.11	20.31	0.645	- - -	4.9	1.9	30.5	-	0.147
ARM C	14.79	19.06	0.776	- - -	38.7	3.9	220.6	-	0.860
ARM D	12.65	16.16	0.783	- - -	18.2	4.0	100.4	-	0.496

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	7.33	18.59	0.394	- - -	1.2	0.7	10.2	-	0.089
ARM B	10.98	21.42	0.512	- - -	1.9	1.1	16.6	-	0.097
ARM C	12.38	20.56	0.602	- - -	3.9	1.5	24.8	-	0.127
ARM D	10.59	19.18	0.552	- - -	4.0	1.3	20.3	-	0.121

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.6	*
08.15	1.0	*
08.30	2.1	**
08.45	2.2	**
09.00	1.2	*
09.15	0.7	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.0	*
08.15	1.7	**
08.30	4.6	*****
08.45	4.9	*****
09.00	1.9	**
09.15	1.1	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.5	*
08.15	3.2	***
08.30	23.2	**********
08.45	38.7	**********
09.00	3.9	****
09.15	1.5	**

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.2	*
08.15	2.5	**
08.30	12.6	**********
08.45	18.2	**********
09.00	4.0	****
09.15	1.3	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

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	803.8	535.9	113.7	0.14	113.8	0.14
B	1204.4	802.9	218.2	0.18	218.2	0.18
C	1358.5	905.7	994.4	0.73	994.4	0.73
D	1161.7	774.5	538.9	0.46	539.0	0.46
ALL	4528.4	3019.0	1865.2	0.41	1865.4	0.41

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

END OF JOB

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

Printed at 16:30:16 on 31/08/2016]

_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"h:\Sept 2016 Kilroyd Drive\Arcady\A58 Whitehall Road - A651 Bradford Road AM.vai"
(drive-on-the-left) at 16:54:34 on Wednesday, 31 August 2016

FILE PROPERTIES

RUN TITLE: A58 Whitehall Road - A651 Bradford Road
LOCATION: Cleckheaton
DATE: 22/12/15
CLIENT: Harron Homes
ENUMERATOR: ashley.armitage [PC114]
JOB NUMBER: 9089
STATUS: Preliminary
DESCRIPTION:

INPUT DATA

ARM A - A651 Bradford Road (north)
ARM B - A58 Whitehall Road (east)
ARM C - A651 Bradford Road (south)
ARM D - A58 Whitehall Road (west)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.80	6.20	60.00	9.00	30.00	36.5	0.622	27.470
ARM B	4.50	5.80	6.00	35.00	30.00	17.5	0.678	28.313
ARM C	3.70	7.50	14.00	18.00	30.00	26.0	0.671	29.199
ARM D	4.50	5.80	14.00	45.00	30.00	18.5	0.695	29.650

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

ARM	FLOW SCALE(%)
A	100
B	100
C	100
D	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 THE TURNING COUNT DATA

DEMAND SET TITLE: 2023 AM Base Traffic

T15

ARM	NUMBER OF MINUTES FROM START WHEN FLOW STARTS TO RISE	NUMBER OF MINUTES FROM START WHEN TOP OF PEAK IS REACHED	NUMBER OF MINUTES FROM START WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	RATE OF FLOW (VEH/MIN) AT TOP OF PEAK	RATE OF FLOW (VEH/MIN) AFTER PEAK
ARM A	15.00	45.00	75.00	7.19	10.78	7.19
ARM B	15.00	45.00	75.00	10.81	16.22	10.81
ARM C	15.00	45.00	75.00	12.25	18.38	12.25
ARM D	15.00	45.00	75.00	9.86	14.79	9.86

DEMAND SET TITLE: 2023 AM Base Traffic

T33

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

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
07.45 - 09.15	ARM A	0.000	0.210	0.593	0.197
		0.0	121.0	341.0	113.0
		(0.0)	(1.8)	(4.9)	(1.0)
	ARM B	0.283	0.000	0.157	0.560
		245.0	0.0	136.0	484.0
		(4.1)	(0.0)	(8.1)	(7.1)
	ARM C	0.561	0.254	0.000	0.185
		550.0	249.0	0.0	181.0
		(4.4)	(6.2)	(0.0)	(3.7)
	ARM D	0.106	0.712	0.181	0.000
		84.0	562.0	143.0	0.0
		(2.6)	(4.9)	(4.7)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	7.21	19.03	0.379	- -	-	0.0	0.6	8.8	-	0.084
ARM B	10.85	21.67	0.501	- -	-	0.0	1.0	14.3	-	0.091
ARM C	12.30	20.79	0.592	- -	-	0.0	1.4	20.2	-	0.115
ARM D	9.90	19.29	0.513	- -	-	0.0	1.0	14.9	-	0.105

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	8.62	17.57	0.490	- - -	0.6	0.9	13.8	-	0.111
ARM B	12.96	20.70	0.626	- - -	1.0	1.6	23.5	-	0.128
ARM C	14.68	19.39	0.757	- - -	1.4	3.0	40.7	-	0.203
ARM D	11.82	17.53	0.675	- - -	1.0	2.0	28.2	-	0.171

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	10.55	15.90	0.664	- - -	0.9	1.9	26.7	-	0.183
ARM B	15.87	19.43	0.817	- - -	1.6	4.1	54.3	-	0.258
ARM C	17.98	17.54	1.025	- - -	3.0	19.9	193.5	-	0.894
ARM D	14.48	15.69	0.923	- - -	2.0	8.1	94.0	-	0.525

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	10.55	15.69	0.672	- - -	1.9	2.0	29.5	-	0.194
ARM B	15.87	19.37	0.820	- - -	4.1	4.3	63.3	-	0.283
ARM C	17.98	17.45	1.030	- - -	19.9	31.6	388.9	-	1.667
ARM D	14.48	15.46	0.937	- - -	8.1	10.3	140.1	-	0.757

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	8.62	16.93	0.509	- - -	2.0	1.1	16.5	-	0.122
ARM B	12.96	20.59	0.630	- - -	4.3	1.7	28.1	-	0.137
ARM C	14.68	19.25	0.763	- - -	31.6	3.5	153.9	-	0.584
ARM D	11.82	16.36	0.722	- - -	10.3	2.7	52.8	-	0.275

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	7.21	18.90	0.382	- - -	1.1	0.6	9.6	-	0.086
ARM B	10.85	21.61	0.502	- - -	1.7	1.0	15.9	-	0.094
ARM C	12.30	20.71	0.594	- - -	3.5	1.5	23.7	-	0.123
ARM D	9.90	19.14	0.517	- - -	2.7	1.1	17.2	-	0.111

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	0.6	*
08.15	0.9	*
08.30	1.9	**
08.45	2.0	**
09.00	1.1	*
09.15	0.6	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.0	*
08.15	1.6	**
08.30	4.1	****
08.45	4.3	****
09.00	1.7	**
09.15	1.0	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.4	*
08.15	3.0	***
08.30	19.9	********************
08.45	31.6	********************************
09.00	3.5	****
09.15	1.5	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
08.00	1.0	*
08.15	2.0	**
08.30	8.1	********
08.45	10.3	**********
09.00	2.7	***
09.15	1.1	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	791.4	527.6	104.9	0.13	105.0	0.13
B	1190.6	793.7	199.3	0.17	199.3	0.17
C	1348.9	899.3	820.9	0.61	820.9	0.61
D	1086.0	724.0	347.1	0.32	347.1	0.32
ALL	4417.0	2944.6	1472.2	0.33	1472.3	0.33

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

END OF JOB

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

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_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

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RG40 3GA,UK

Run with file:-
"h:\Sept 2016 Kilroyd Drive\Arcady\A58 Whitehall Road - A651 Bradford Road PM.vai"
(drive-on-the-left) at 16:33:19 on Wednesday, 31 August 2016

FILE PROPERTIES

RUN TITLE: A58 Whitehall Road - A651 Bradford Road
LOCATION: Cleckheaton
DATE: 22/12/15
CLIENT: Harron Homes
ENUMERATOR: ashley.armitage [PC114]
JOB NUMBER: 9089
STATUS: Preliminary
DESCRIPTION:

INPUT DATA

ARM A - A651 Bradford Road (north)
ARM B - A58 Whitehall Road (east)
ARM C - A651 Bradford Road (south)
ARM D - A58 Whitehall Road (west)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.80	6.20	60.00	9.00	30.00	36.5	0.622	27.470
ARM B	4.50	5.80	6.00	35.00	30.00	17.5	0.678	28.313
ARM C	3.70	7.50	14.00	18.00	30.00	26.0	0.671	29.199
ARM D	4.50	5.80	14.00	45.00	30.00	18.5	0.695	29.650

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

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

TIME PERIOD BEGINS(16.15)AND ENDS(17.45)

LENGTH OF TIME PERIOD -(90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: Resi Development PM

T15

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	0.11	0.17	0.11
ARM B	15.00	45.00	75.00	0.13	0.19	0.13
ARM C	15.00	45.00	75.00	0.09	0.13	0.09
ARM D	15.00	45.00	75.00	0.40	0.60	0.40

DEMAND SET TITLE: 2023 PM Base Traffic

T15

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	8.93	13.39	8.93
ARM B	15.00	45.00	75.00	10.13	15.19	10.13
ARM C	15.00	45.00	75.00	9.61	14.42	9.61
ARM D	15.00	45.00	75.00	9.69	14.53	9.69

DEMAND SET TITLE: Resi Development PM

T33

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

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	9.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM B	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	10.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM C	0.000	0.000	0.000	1.000
		0.0	0.0	0.0	7.0
		(0.0)	(0.0)	(0.0)	(0.0)
	ARM D	0.344	0.375	0.281	0.000
		11.0	12.0	9.0	0.0
		(0.0)	(0.0)	(0.0)	(0.0)

DEMAND SET TITLE: 2023 PM Base Traffic

T33

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

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.161	0.639	0.200
		0.0	115.0	456.0	143.0
		(0.0)	(1.0)	(2.2)	(1.6)
	ARM B	0.151	0.000	0.238	0.611
		122.0	0.0	193.0	495.0
		(2.7)	(0.0)	(3.4)	(2.9)
	ARM C	0.541	0.218	0.000	0.241
		416.0	168.0	0.0	185.0
		(2.1)	(6.6)	(0.0)	(3.0)
	ARM D	0.164	0.519	0.317	0.000
		127.0	402.0	246.0	0.0
		(2.6)	(5.0)	(4.1)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.15-16.30									
ARM A	9.07	20.28	0.447	- - -	0.0	0.8	11.6	-	0.088
ARM B	10.29	20.23	0.509	- - -	0.0	1.0	14.7	-	0.099
ARM C	9.74	21.80	0.447	- - -	0.0	0.8	11.6	-	0.082
ARM D	10.13	22.40	0.452	- - -	0.0	0.8	11.8	-	0.081
16.30-16.45									
ARM A	10.83	18.96	0.571	- - -	0.8	1.3	18.8	-	0.122
ARM B	12.29	18.80	0.654	- - -	1.0	1.8	26.0	-	0.151
ARM C	11.63	20.53	0.566	- - -	0.8	1.3	18.5	-	0.111
ARM D	12.09	21.20	0.570	- - -	0.8	1.3	18.8	-	0.109
16.45-17.00									
ARM A	13.27	17.20	0.771	- - -	1.3	3.2	42.7	-	0.239
ARM B	15.05	16.90	0.890	- - -	1.8	6.4	78.9	-	0.414
ARM C	14.24	18.92	0.753	- - -	1.3	2.9	39.6	-	0.205
ARM D	14.81	19.63	0.754	- - -	1.3	2.9	40.1	-	0.198
17.00-17.15									
ARM A	13.27	17.14	0.774	- - -	3.2	3.3	48.6	-	0.256
ARM B	15.05	16.81	0.895	- - -	6.4	7.3	104.2	-	0.517
ARM C	14.24	18.78	0.758	- - -	2.9	3.0	44.7	-	0.219
ARM D	14.81	19.55	0.757	- - -	2.9	3.0	44.8	-	0.209

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	10.83	18.86	0.574	- - -	3.3	1.4	22.0	-	0.128
ARM B	12.29	18.67	0.658	- - -	7.3	2.0	34.7	-	0.175
ARM C	11.63	20.30	0.573	- - -	3.0	1.4	21.6	-	0.118
ARM D	12.09	21.09	0.573	- - -	3.0	1.4	21.6	-	0.114

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	9.07	20.22	0.449	- - -	1.4	0.8	12.7	-	0.090
ARM B	10.29	20.16	0.510	- - -	2.0	1.1	16.5	-	0.103
ARM C	9.74	21.72	0.448	- - -	1.4	0.8	12.7	-	0.084
ARM D	10.13	22.34	0.453	- - -	1.4	0.8	12.9	-	0.082

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.3	*
17.00	3.2	***
17.15	3.3	***
17.30	1.4	*
17.45	0.8	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.8	**
17.00	6.4	******
17.15	7.3	*******
17.30	2.0	**
17.45	1.1	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.3	*
17.00	2.9	***
17.15	3.0	***
17.30	1.4	*
17.45	0.8	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.3	*
17.00	2.9	***
17.15	3.0	***
17.30	1.4	*
17.45	0.8	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	995.2	663.4	156.4	0.16	156.4	0.16
B	1128.7	752.4	274.9	0.24	274.9	0.24
C	1068.1	712.1	148.7	0.14	148.7	0.14
D	1110.8	740.5	150.1	0.14	150.1	0.14
ALL	4302.7	2868.5	730.1	0.17	730.2	0.17

* 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 ==========

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_____ A R C A D Y 6 _____

ASSESSMENT OF ROUNDABOUT CAPACITY AND DELAY

Analysis Program: Release 7.0 (FEBRUARY 2010)

_____

For sales and distribution information,
program advice and maintenance, contact:

TRL Limited Tel: +44 (0) 1344 770758
Crowthorne House Fax: +44 (0) 1344 770356
Nine Mile Ride Email: software@trl.co.uk
Wokingham, Berks. Web: www.trlsoftware.co.uk
RG40 3GA,UK

Run with file:-
"h:\Sept 2016 Kilroyd Drive\Arcady\A58 Whitehall Road - A651 Bradford Road PM.vai"
(drive-on-the-left) at 16:56:26 on Wednesday, 31 August 2016

FILE PROPERTIES

RUN TITLE: A58 Whitehall Road - A651 Bradford Road
LOCATION: Cleckheaton
DATE: 22/12/15
CLIENT: Harron Homes
ENUMERATOR: ashley.armitage [PC114]
JOB NUMBER: 9089
STATUS: Preliminary
DESCRIPTION:

INPUT DATA

ARM A - A651 Bradford Road (north)
ARM B - A58 Whitehall Road (east)
ARM C - A651 Bradford Road (south)
ARM D - A58 Whitehall Road (west)

GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	3.80	6.20	60.00	9.00	30.00	36.5	0.622	27.470
ARM B	4.50	5.80	6.00	35.00	30.00	17.5	0.678	28.313
ARM C	3.70	7.50	14.00	18.00	30.00	26.0	0.671	29.199
ARM D	4.50	5.80	14.00	45.00	30.00	18.5	0.695	29.650

V = approach half-width L = effective flare length D = inscribed circle diameter
E = entry width R = entry radius PHI = entry angle

WARNING ARM A Effective flare length is outside normal range.
Treat capacities with increasing caution.

TRAFFIC DEMAND DATA

Only sets included in the current run are shown

SCALING FACTORS

T13

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

TIME PERIOD BEGINS(16.15)AND ENDS(17.45)

LENGTH OF TIME PERIOD -(90) MINUTES

LENGTH OF TIME SEGMENT - (15) MINUTES

DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE TURNING COUNT DATA

DEMAND SET TITLE: 2023 PM Base Traffic

T15

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	8.93	13.39	8.93
ARM B	15.00	45.00	75.00	10.13	15.19	10.13
ARM C	15.00	45.00	75.00	9.61	14.42	9.61
ARM D	15.00	45.00	75.00	9.69	14.53	9.69

DEMAND SET TITLE: 2023 PM Base Traffic

T33

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

TIME	FROM/T	ARM A	ARM B	ARM C	ARM D
16.15 - 17.45	ARM A	0.000	0.161	0.639	0.200
		0.0	115.0	456.0	143.0
		(0.0)	(1.0)	(2.2)	(1.6)
	ARM B	0.151	0.000	0.238	0.611
		122.0	0.0	193.0	495.0
		(2.7)	(0.0)	(3.4)	(2.9)
	ARM C	0.541	0.218	0.000	0.241
		416.0	168.0	0.0	185.0
		(2.1)	(6.6)	(0.0)	(3.0)
	ARM D	0.164	0.519	0.317	0.000
		127.0	402.0	246.0	0.0
		(2.6)	(5.0)	(4.1)	(0.0)

QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT

T70

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.15-16.30									
ARM A	8.96	20.43	0.438	- -	0.0	0.8	11.2	-	0.086
ARM B	10.16	20.37	0.499	- -	0.0	1.0	14.1	-	0.097
ARM C	9.65	21.95	0.440	- -	0.0	0.8	11.3	-	0.081
ARM D	9.72	22.36	0.435	- -	0.0	0.8	11.1	-	0.079

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)	AVERAGE DELAY PER ARRIVING VEHICLE (MIN)
16.30-16.45									
ARM A	10.70	19.14	0.559	- - -	0.8	1.2	18.0	-	0.118
ARM B	12.14	18.97	0.640	- - -	1.0	1.7	24.6	-	0.144
ARM C	11.52	20.70	0.556	- - -	0.8	1.2	17.9	-	0.108
ARM D	11.61	21.17	0.549	- - -	0.8	1.2	17.3	-	0.104

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	13.10	17.43	0.752	- - -	1.2	2.9	39.1	-	0.220
ARM B	14.86	17.10	0.869	- - -	1.7	5.6	70.0	-	0.368
ARM C	14.11	19.12	0.738	- - -	1.2	2.7	37.1	-	0.192
ARM D	14.22	19.59	0.726	- - -	1.2	2.5	35.3	-	0.180

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	13.10	17.37	0.754	- - -	2.9	3.0	43.9	-	0.233
ARM B	14.86	17.03	0.873	- - -	5.6	6.1	88.8	-	0.439
ARM C	14.11	19.00	0.743	- - -	2.7	2.8	41.4	-	0.204
ARM D	14.22	19.52	0.728	- - -	2.5	2.6	38.8	-	0.188

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	10.70	19.06	0.561	- - -	3.0	1.3	20.7	-	0.123
ARM B	12.14	18.86	0.644	- - -	6.1	1.9	31.4	-	0.162
ARM C	11.52	20.51	0.562	- - -	2.8	1.3	20.6	-	0.114
ARM D	11.61	21.06	0.551	- - -	2.6	1.2	19.6	-	0.108

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/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									
ARM A	8.96	20.38	0.440	- - -	1.3	0.8	12.3	-	0.088
ARM B	10.16	20.31	0.501	- - -	1.9	1.0	15.8	-	0.100
ARM C	9.65	21.88	0.441	- - -	1.3	0.8	12.3	-	0.082
ARM D	9.72	22.30	0.436	- - -	1.2	0.8	12.0	-	0.080

QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.2	*
17.00	2.9	***
17.15	3.0	***
17.30	1.3	*
17.45	0.8	*

QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	1.0	*
16.45	1.7	**
17.00	5.6	******
17.15	6.1	******
17.30	1.9	**
17.45	1.0	*

QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.2	*
17.00	2.7	***
17.15	2.8	***
17.30	1.3	*
17.45	0.8	*

QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
16.30	0.8	*
16.45	1.2	*
17.00	2.5	***
17.15	2.6	***
17.30	1.2	*
17.45	0.8	*

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

T75

ARM	TOTAL DEMAND		* QUEUEING * DELAY *		* INCLUSIVE QUEUEING * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	982.8	655.2	145.1	0.15	145.1	0.15
B	1114.9	743.3	244.8	0.22	244.9	0.22
C	1058.5	705.6	140.5	0.13	140.5	0.13
D	1066.7	711.2	134.1	0.13	134.1	0.13
ALL	4222.9	2815.3	664.5	0.16	664.6	0.16

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

END OF JOB

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

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APPENDIX O

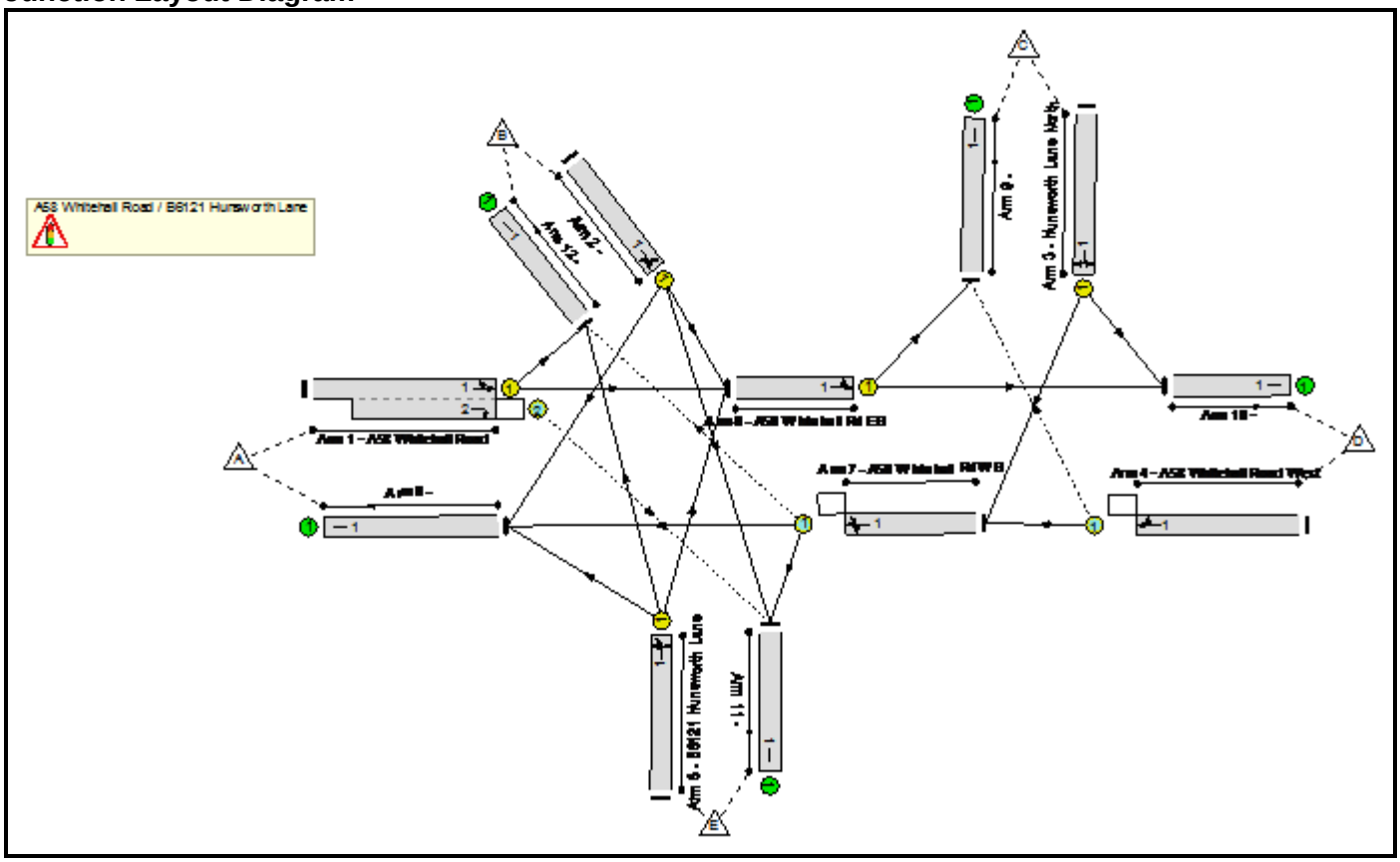
A58/Whitehall Road /B6121 Hunsworth Lane LinSig

9089 A58 Whitehall Road - B6121 Hunsworth Lane Improved Layout

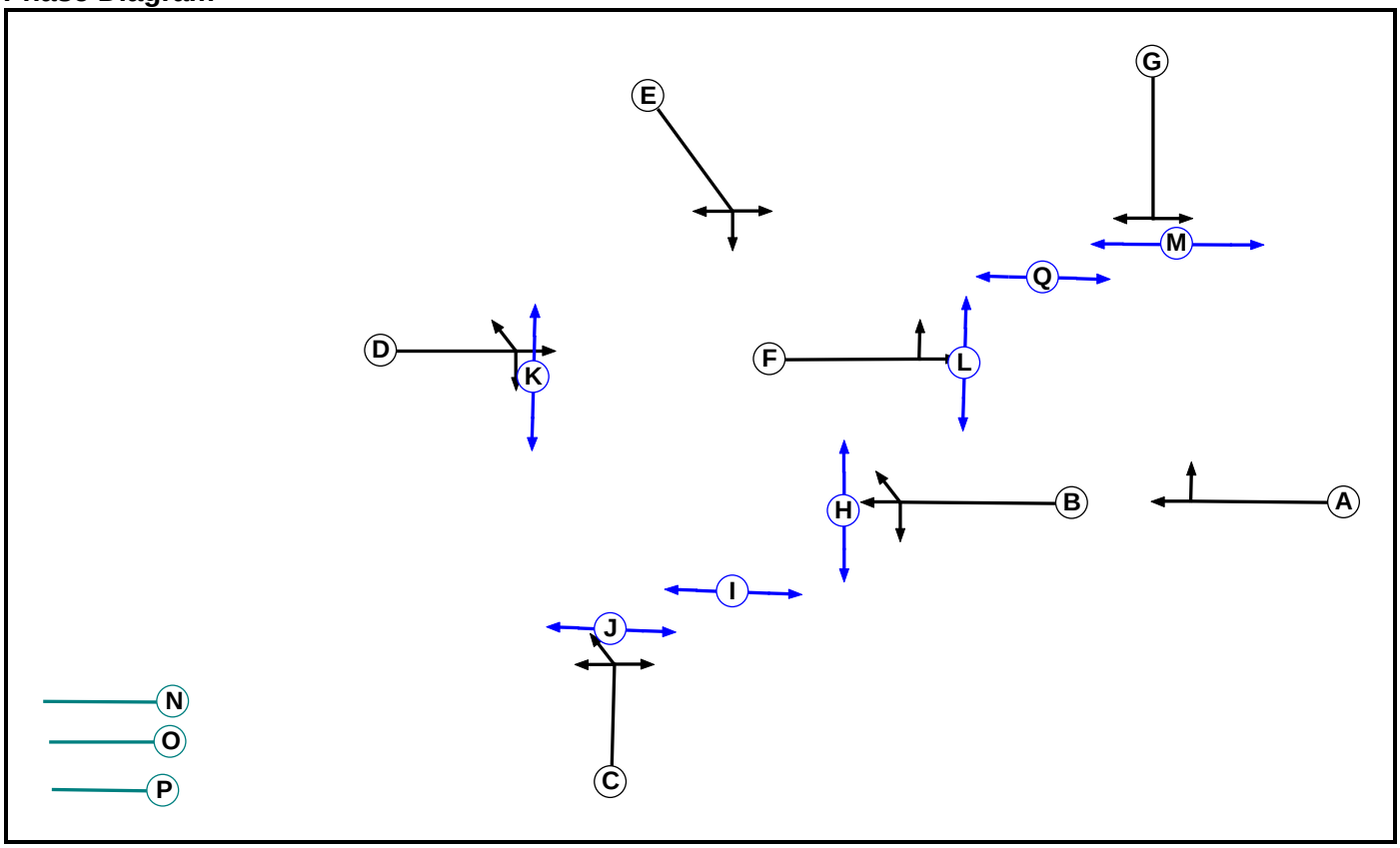
User and Project Details

Project:	**A638 Bradford Road / Hunsworth Lane junction**
Title:	**A58 Whitehall Road / B6121 Hunsworth Lane**
Location:	A58 Whitehall Road / B6121 Hunsworth Lane
File name:	A58 Whitehall Road - B6121 Hunsworth Lane walk with peds.lsg3x
Author:	Sanderson Associates
Company:	Sanderson Associates
Address:	
Notes:	Improved Layout

Junction Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	4
G	Traffic		7	7
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5
K	Pedestrian		6	6
L	Pedestrian		5	5
M	Pedestrian		5	5
N	Dummy		2	2
O	Dummy		2	2
P	Dummy		2	2
Q	Pedestrian		5	5

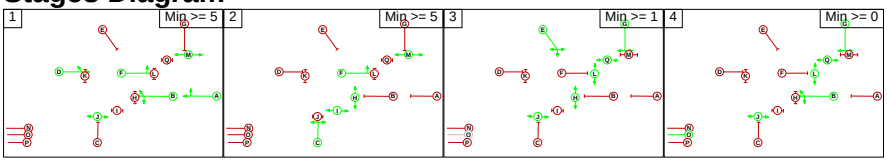
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
A		-	-	-	-	-	6	10	-	-	-	-	-	10	6	8	8
B	-		6	-	8	-	-	5	6	-	10	-	-	5	-	3	-
C	-	6		6	6	-	-	-	-	5	8	10	-	5	-	3	-
D	-	-	7		7	-	-	-	10	-	6	12	-	12	-	8	-
E	-	6	5	5		-	-	-	8	-	9	-	-	9	-	3	-
F	-	-	-	-	-		5	-	-	-	-	5	-	5	5	3	9
G	5	-	-	-	-	5		-	-	-	15	-	7	7	-	3	-
H	5	6	-	-	-	-	-		-	-	-	-	-	-	-	3	-
I	-	8	-	6	6	-	-	-		-	-	-	-	-	-	3	-
J	-	-	5	-	-	-	-	-	-		-	-	-	-	-	3	-
K	-	5	6	9	6	-	0	-	-	-		-	-	-	-	3	-
L	-	-	0	5	-	5	-	-	-	-	-		-	-	-	3	-
M	-	-	-	-	-	-	8	-	-	-	-	-		-	-	-	-
N	5	5	5	5	5	5	5	-	-	-	-	-	-		-	3	-
O	5	-	-	-	-	5	-	-	-	-	-	-	-	-		3	-
P	3	3	3	3	3	3	3	3	3	3	3	3	-	3	3		3
Q	5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	3	

Phases in Stage

Stage No.	Phases in Stage
1	A B D F J M
2	C F H I M
3	E G H J L Q
4	B G J L O Q

Stages Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	B	Losing	5	5
1	3	B	Losing	5	5
1	3	F	Losing	5	5
1	4	F	Losing	5	5
2	3	F	Losing	3	3
2	4	F	Losing	5	5
4	2	B	Losing	5	5

Prohibited Stage Changes

		To Stage			
		1	2	3	4
From Stage	1		11	14	14
	2	8		12	14
	3	7	8		6
	4	7	11	8	

Lane Input Data

Junction: A58 Whitehall Road / B6121 Hunsworth Lane

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A58 Whitehall Road)	U	D	2	3	60.0	Geom	-	2.60	0.00	Y	Arm 6 Ahead	Inf
											Arm 12 Left	8.00
1/2 (A58 Whitehall Road)	O	D	2	3	10.4	Geom	-	2.70	0.00	Y	Arm 11 Right	11.00
2/1	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Left	7.00
											Arm 8 Right	12.00
											Arm 11 Ahead	Inf
3/1 (Hunsworth Lane North)	U	G	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 7 Right	20.00
											Arm 10 Left	15.00
4/1 (A58 Whitehall Road West)	O	A	2	3	60.0	Geom	-	3.30	0.00	Y	Arm 7 Ahead	Inf
											Arm 9 Right	10.00
5/1 (B6121 Hunsworth Lane)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Right	12.00
											Arm 8 Left	11.00
											Arm 12 Ahead	Inf
6/1 (A58 Whitehall Rd EB)	U	F	2	3	60.0	Geom	-	4.40	0.00	Y	Arm 9 Left	Inf
											Arm 10 Ahead	Inf
7/1 (A58 Whitehall Rd WB)	O	B	2	3	60.0	Geom	-	3.40	0.00	Y	Arm 8 Ahead	Inf
											Arm 11 Left	12.00
											Arm 12 Right	12.00
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1	U		2	3	60.0	Inf	-	-	-	-	-	-

12/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2014 Base Traffic AM Peak '	08:00	09:00	01:00	
2: '2014 Base Traffic PM Peak '	17:00	18:00	01:00	
3: '2017 Base Traffic AM Peak '	08:00	09:00	01:00	F1*1.0269
4: '2017 Base Traffic PM Peak '	17:00	18:00	01:00	F2*1.0289
5: '2023 Base Traffic AM Peak '	08:00	09:00	01:00	F2*1.1080
6: '2023 Base Traffic PM Peak '	17:00	18:00	01:00	F1*1.1117
7: 'Resi AM Dev'	08:00	09:00	01:00	
8: 'Resi PM Dev'	17:00	18:00	01:00	
9: '2017 Base Traffic + Dev AM Peak '	08:00	09:00	01:00	F3+F7
10: '2017 Base Traffic + Dev PM Peak '	17:00	18:00	01:00	F4+F8
11: '2023 Base Traffic + Dev AM Peak '	08:00	09:00	01:00	F5+F7
12: '2023 Base Traffic + Dev PM Peak '	17:00	18:00	01:00	F6+F8

Link Results

Scenario 5: '2017 AM Base + Dev (Ind Access 1 in 3)' (FG9: '2017 Base Traffic + Dev AM Peak ', Plan 1: 'Industrial Access 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**95.1%**	**18.6**	**40.2**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**95.1%**	**18.6**	**40.2**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	179	-	589	910+63	60.5 : 60.5%	3.4	4.4	14.6
2/1	Left Right Ahead	U	E		1	11	-	8	58	13.8%	0.4	0.5	0.9
3/1	Hunsworth Lane North Right Left	U	G		3	33	-	168	179	93.8%	2.6	6.9	10.2
4/1	A58 Whitehall Road West Ahead Right	O	A		3	179	-	932	980	95.1%	7.3	14.8	38.8
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	72	-	344	364	94.6%	4.5	10.1	17.5
6/1	A58 Whitehall Rd EB Left Ahead	U	F		3	297	-	828	1712	48.4%	0.0	0.5	0.8
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	231	-	1045	1240	84.3%	0.5	3.1	35.5

C1 PRC for Signalled Lanes (%): -5.7 Total Delay for Signalled Lanes (pcuHr): 40.16 Cycle Time (s): 360
PRC Over All Lanes (%): -5.7 Total Delay Over All Lanes(pcuHr): 40.16

Scenario 6: '2017 PM Base + Dev (Ind Access 1 in 3)' (FG10: '2017 Base Traffic + Dev PM Peak ', Plan 1: 'Industrial Access 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**91.8%**	**19.2**	**36.4**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**91.8%**	**19.2**	**36.4**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	176	-	717	869+101	74.0 : 73.3%	4.6	6.5	19.9
2/1	Left Right Ahead	U	E		1	11	-	11	60	18.5%	0.5	0.6	1.2
3/1	Hunsworth Lane North Right Left	U	G		3	33	-	162	179	90.6%	2.4	5.9	9.5
4/1	A58 Whitehall Road West Ahead Right	O	A		3	176	-	878	961	91.4%	6.8	11.7	33.3
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	75	-	347	378	91.8%	4.5	8.8	17.3
6/1	A58 Whitehall Rd EB Left Ahead	U	F		3	297	-	934	1712	54.5%	0.0	0.6	1.0
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	228	-	960	1208	79.5%	0.4	2.3	30.3

C1 PRC for Signalled Lanes (%): -2.0 Total Delay for Signalled Lanes (pcuHr): 36.36 Cycle Time (s): 360
PRC Over All Lanes (%): -2.0 Total Delay Over All Lanes(pcuHr): 36.36

Scenario 7: '2023 AM Base + Dev (Ind Access 1 in 3)' (FG11: '2023 Base Traffic + Dev AM Peak ', Plan 1: 'Industrial Access 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**100.6%**	**23.2**	**61.5**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**100.6%**	**23.2**	**61.5**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	175	-	728	881+75	76.2 : 76.2%	4.8	6.8	20.7
2/1	Left Right Ahead	U	E		1	12	-	12	65	18.5%	0.6	0.7	1.3
3/1	Hunsworth Lane North Right Left	U	G		3	33	-	175	179	97.9%	2.7	8.4	11.8
4/1	A58 Whitehall Road West Ahead Right	O	A		3	175	-	962	956	100.6%	9.3	26.4	51.0
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	76	-	381	383	99.6%	5.2	14.5	22.3
6/1	A58 Whitehall Rd EB Left Ahead	U	F		3	297	-	984	1712	57.5%	0.0	0.7	1.3
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	226	-	1050	1198	87.2%	0.7	3.9	36.6

C1 PRC for Signalled Lanes (%): -11.8 Total Delay for Signalled Lanes (pcuHr): 61.47 Cycle Time (s): 360
PRC Over All Lanes (%): -11.8 Total Delay Over All Lanes(pcuHr): 61.47

Scenario 8: '2023 PM Base + Dev (Ind Access 1 in 3)' (FG12: '2023 Base Traffic + Dev PM Peak ', Plan 1: 'Industrial Access 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**100.9%**	**23.8**	**63.7**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**100.9%**	**23.8**	**63.7**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	179	-	673	894+77	68.7 : 77.0%	4.0	5.6	18.1
2/1	Left Right Ahead	U	E		1	11	-	9	58	15.6%	0.4	0.5	1.0
3/1	Hunsworth Lane North Right Left	U	G		3	34	-	182	184	98.8%	3.7	10.0	14.4
4/1	A58 Whitehall Road West Ahead Right	O	A		3	179	-	986	980	100.6%	9.4	26.8	52.8
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	71	-	362	359	100.9%	5.4	15.8	23.7
6/1	A58 Whitehall Rd EB Left Ahead	U	F		3	296	-	914	1707	53.4%	0.0	0.6	1.1
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	232	-	1109	1244	88.6%	0.7	4.4	39.2

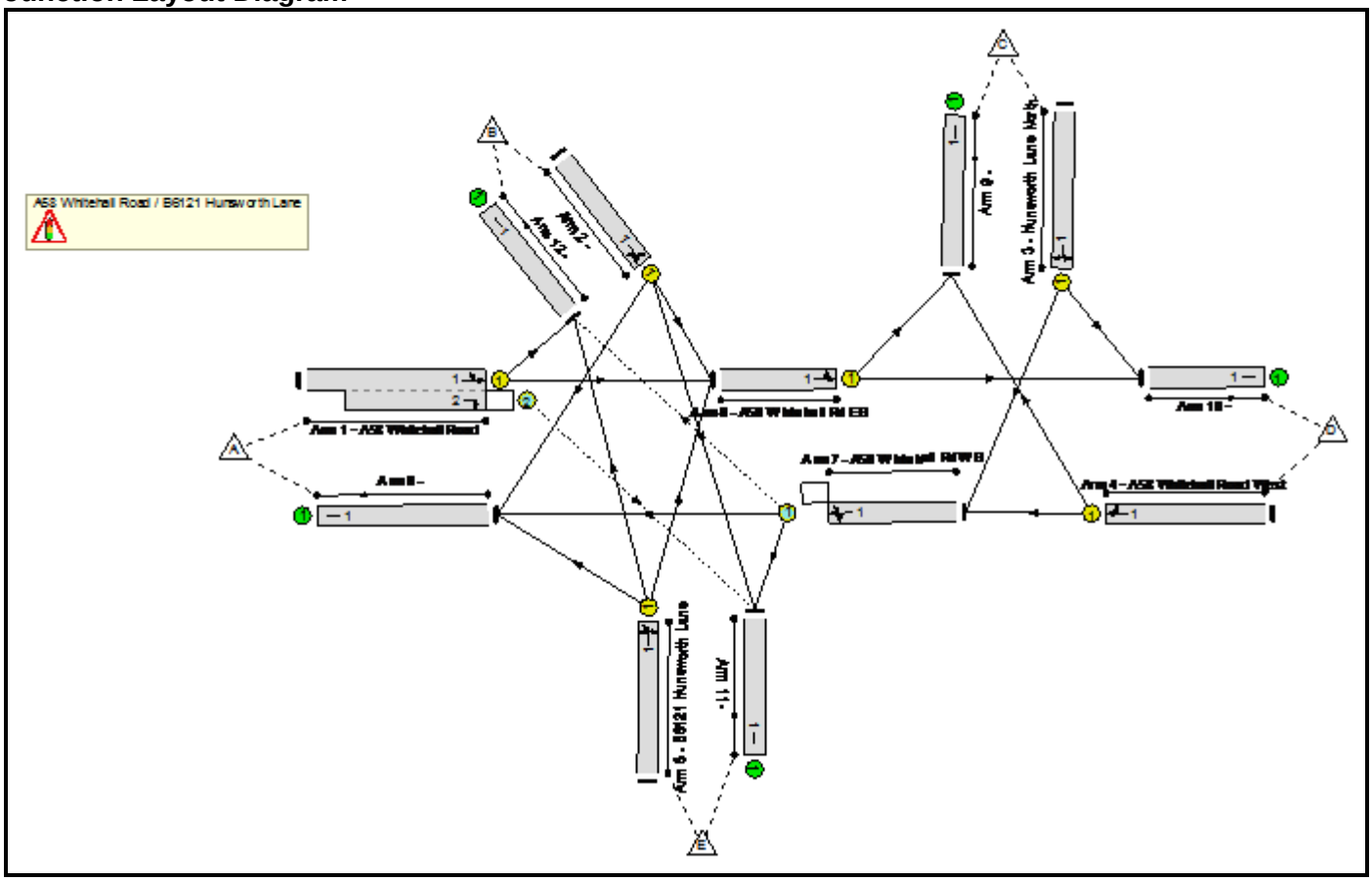
C1 PRC for Signalled Lanes (%): -12.1 Total Delay for Signalled Lanes (pcuHr): 63.74 Cycle Time (s): 360
PRC Over All Lanes (%): -12.1 Total Delay Over All Lanes(pcuHr): 63.74

9529 A58 Whitehall Road - B6121 Hunsworth Lane Existing layout

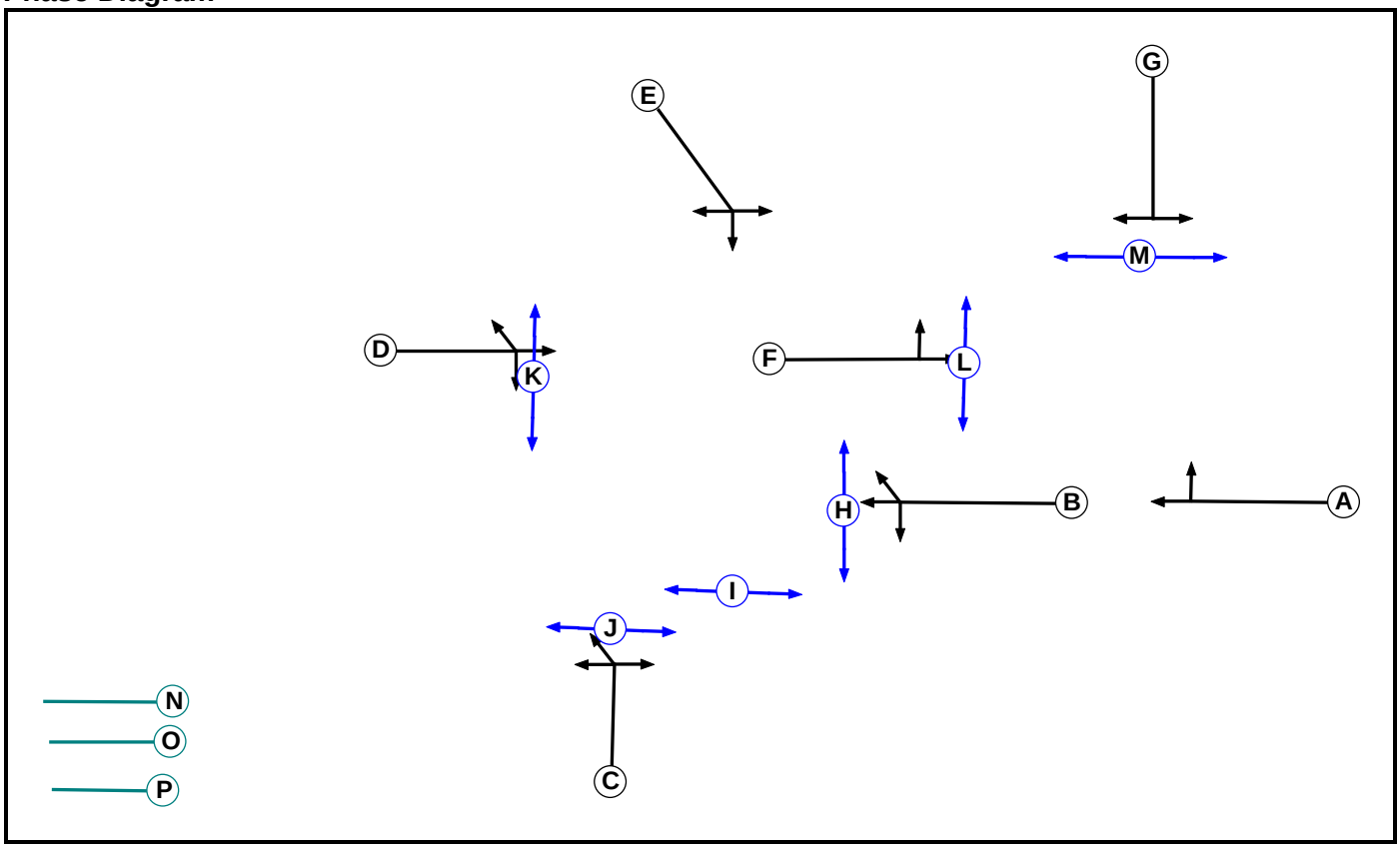
User and Project Details

Project:	**A638 Bradford Road / Hunsworth Lane junction**
Title:	**A58 Whitehall Road / B6121 Hunsworth Lane**
Location:	A58 Whitehall Road / B6121 Hunsworth Lane
File name:	A58 Whitehall Road - B6121 Hunsworth Lane.lsg3x
Author:	Sanderson Associates
Company:	Sanderson Associates
Address:	
Notes:	Existing Layout

Junction Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	2
G	Traffic		7	7
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5
K	Pedestrian		6	6
L	Pedestrian		5	5
M	Pedestrian		5	5
N	Dummy		2	2
O	Dummy		2	2
P	Dummy		2	2

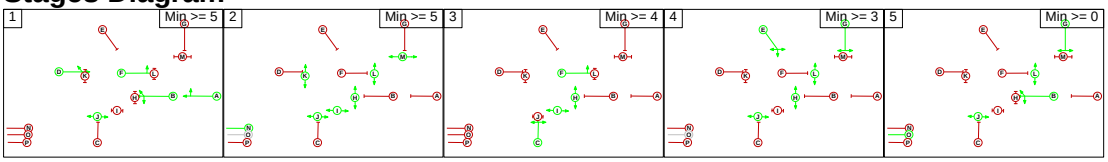
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A		-	-	-	-	-	6	10	-	-	-	-	8	10	6	8
B	-		6	-	8	-	-	5	6	-	10	-	-	5	-	3
C	-	6		6	6	-	-	-	-	5	8	10	-	5	-	3
D	-	-	7		7	-	-	-	10	-	6	12	-	12	-	8
E	-	6	5	5		-	-	-	8	-	9	-	-	9	-	3
F	-	-	-	-	-		5	-	-	-	-	5	9	5	5	3
G	5	-	-	-	-	5		-	-	-	15	-	7	7	-	3
H	5	6	-	-	-	-	-		-	-	-	-	-	-	-	3
I	-	8	-	6	6	-	-	-		-	-	-	-	-	-	3
J	-	-	5	-	-	-	-	-	-		-	-	-	-	-	3
K	-	5	6	9	6	-	0	-	-	-		-	-	-	-	3
L	-	-	0	5	-	5	-	-	-	-	-		-	-	-	3
M	5	-	-	-	-	5	8	-	-	-	-	-		-	-	3
N	5	5	5	5	5	5	5	-	-	-	-	-	-		-	3
O	5	-	-	-	-	5	-	-	-	-	-	-	-	-		3
P	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	

Phases in Stage

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

Stages Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	B	Losing	5	5
1	2	F	Losing	5	5
1	3	B	Losing	5	5
1	4	B	Losing	5	5
1	4	F	Losing	5	5
1	5	F	Losing	5	5
3	2	F	Losing	5	5
3	4	F	Losing	5	5
3	5	F	Losing	5	5
5	2	B	Losing	5	5
5	3	B	Losing	5	5

Prohibited Stage Changes

		To Stage				
		1	2	3	4	5
From Stage	1		15	11	13	12
	2	9		6	8	8
	3	8	14		10	10
	4	6	15	8		6
	5	5	15	11	8	

Lane Input Data

Junction: A58 Whitehall Road / B6121 Hunsworth Lane

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A58 Whitehall Road)	U	D	2	3	60.0	Geom	-	2.60	0.00	Y	Arm 6 Ahead	Inf
											Arm 12 Left	8.00
1/2 (A58 Whitehall Road)	O	D	2	3	10.4	Geom	-	2.70	0.00	Y	Arm 11 Right	11.00
2/1	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Left	7.00
											Arm 8 Right	12.00
											Arm 11 Ahead	Inf
3/1 (Hunsworth Lane North)	U	G	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 7 Right	20.00
											Arm 10 Left	15.00
4/1 (A58 Whitehall Road West)	U	A	2	3	60.0	Geom	-	3.30	0.00	Y	Arm 7 Ahead	Inf
											Arm 9 Right	10.00
5/1 (B6121 Hunsworth Lane)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Right	12.00
											Arm 8 Left	11.00
											Arm 12 Ahead	Inf
6/1 (A58 Whitehall Rd EB)	U	F	2	3	60.0	Geom	-	4.40	0.00	Y	Arm 9 Left	Inf
											Arm 10 Ahead	Inf
7/1 (A58 Whitehall Rd WB)	O	B	2	3	60.0	Geom	-	3.40	0.00	Y	Arm 8 Ahead	Inf
											Arm 11 Left	12.00
											Arm 12 Right	12.00
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1	U		2	3	60.0	Inf	-	-	-	-	-	-

12/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2014 Base Traffic AM Peak '	08:00	09:00	01:00	
2: '2014 Base Traffic PM Peak '	17:00	18:00	01:00	
3: '2017 Base Traffic AM Peak '	08:00	09:00	01:00	F1*1.0269
4: '2017 Base Traffic PM Peak '	17:00	18:00	01:00	F2*1.0289
5: '2023 Base Traffic AM Peak '	08:00	09:00	01:00	F2*1.1080
6: '2023 Base Traffic PM Peak '	17:00	18:00	01:00	F1*1.1117
7: 'Resi AM Dev'	08:00	09:00	01:00	
8: 'Resi PM Dev'	17:00	18:00	01:00	
9: '2017 Base Traffic + Dev AM Peak '	08:00	09:00	01:00	F3+F7
10: '2017 Base Traffic + Dev PM Peak '	17:00	18:00	01:00	F4+F8
11: '2023 Base Traffic + Dev AM Peak '	08:00	09:00	01:00	F5+F7
12: '2023 Base Traffic + Dev PM Peak '	17:00	18:00	01:00	F6+F8

Link Results

Scenario 1: '2017 AM Base (Ind Access 1 in 3)' (FG3: '2017 Base Traffic AM Peak ', Plan 5: ' Industrial Access & ped 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**96.5%**	**18.9**	**43.2**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**96.5%**	**18.9**	**43.2**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	168	-	545	907	60.1%	3.5	4.4	15.9
2/1	Left Right Ahead	U	E		1	13	-	8	67	11.9%	0.4	0.4	0.8
3/1	Hunsworth Lane North Right Left	U	G		3	32	-	168	174	96.4%	2.5	7.6	11.0
4/1	A58 Whitehall Road West Ahead Right	U	A		3	168	-	888	921	96.5%	7.7	16.5	42.4
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	66	-	321	335	95.9%	4.3	10.5	17.1
6/1	A58 Whitehall Rd EB Left Ahead	U	F		4	277	-	806	1604	50.2%	0.0	0.5	0.8
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	219	-	1001	1175	85.2%	0.4	3.2	32.3

C1 PRC for Signalled Lanes (%): -7.2 Total Delay for Signalled Lanes (pcuHr): 43.19 Cycle Time (s): 360
PRC Over All Lanes (%): -7.2 Total Delay Over All Lanes(pcuHr): 43.19

Scenario 2: '2017 PM Base (Ind Access 1 in 3)' (FG4: '2017 Base Traffic PM Peak ', Plan 5: ' Industrial Access & ped 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**95.0%**	**19.7**	**40.5**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**95.0%**	**19.7**	**40.5**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	164	-	635	892	71.2%	4.5	5.9	19.9
2/1	Left Right Ahead	U	E		1	12	-	11	64	17.1%	0.5	0.6	1.2
3/1	Hunsworth Lane North Right Left	U	G		3	32	-	162	174	93.2%	2.5	6.6	9.9
4/1	A58 Whitehall Road West Ahead Right	U	A		3	164	-	852	897	95.0%	7.4	14.6	38.4
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	70	-	333	354	94.1%	4.4	9.7	17.1
6/1	A58 Whitehall Rd EB Left Ahead	U	F		4	277	-	893	1604	55.7%	0.0	0.7	0.9
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	216	-	934	1144	81.6%	0.3	2.5	28.7

C1 PRC for Signalled Lanes (%): -5.6 Total Delay for Signalled Lanes (pcuHr): 40.54 Cycle Time (s): 360
PRC Over All Lanes (%): -5.6 Total Delay Over All Lanes(pcuHr): 40.54

Scenario 3: '2023 AM Base (Ind Access 1 in 3)' (FG5: '2023 Base Traffic AM Peak ', Plan 5: ' Industrial Access & ped 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**102.4%**	**28.1**	**72.6**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**102.4%**	**28.1**	**72.6**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	164	-	684	891	76.7%	5.1	6.9	23.9
2/1	Left Right Ahead	U	E		1	11	-	12	60	20.1%	0.6	0.7	1.3
3/1	Hunsworth Lane North Right Left	U	G		3	32	-	175	174	100.7%	3.3	10.2	14.6
4/1	A58 Whitehall Road West Ahead Right	U	A		3	164	-	918	897	102.4%	13.0	34.4	62.1
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	70	-	358	354	101.2%	5.8	16.3	24.5
6/1	A58 Whitehall Rd EB Left Ahead	U	F		4	277	-	962	1604	59.7%	0.0	0.8	1.1
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	217	-	1006	1150	85.7%	0.3	3.2	31.0

C1 PRC for Signalled Lanes (%): -13.8 Total Delay for Signalled Lanes (pcuHr): 72.58 Cycle Time (s): 360
PRC Over All Lanes (%): -13.8 Total Delay Over All Lanes(pcuHr): 72.58

Scenario 4: '2023 PM Base (Ind Access 1 in 3)' (FG6: '2023 Base Traffic PM Peak ', Plan 5: ' Industrial Access & ped 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**104.5%**	**33.7**	**89.5**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**104.5%**	**33.7**	**89.5**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	168	-	591	907	65.2%	4.0	5.0	18.7
2/1	Left Right Ahead	U	E		1	13	-	9	67	13.4%	0.4	0.5	0.9
3/1	Hunsworth Lane North Right Left	U	G		3	32	-	182	174	104.5%	4.4	13.4	17.1
4/1	A58 Whitehall Road West Ahead Right	U	A		3	168	-	960	921	104.3%	16.4	44.7	76.1
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	66	-	348	335	104.0%	7.7	21.0	28.8
6/1	A58 Whitehall Rd EB Left Ahead	U	F		4	277	-	873	1604	53.7%	0.0	0.6	0.9
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	219	-	1083	1175	88.4%	0.8	4.4	35.5

C1 PRC for Signalled Lanes (%): -16.1 Total Delay for Signalled Lanes (pcuHr): 89.49 Cycle Time (s): 360
PRC Over All Lanes (%): -16.1 Total Delay Over All Lanes(pcuHr): 89.49

Scenario 5: '2017 AM Base + Dev (Ind Access & Peds 1 in 3)' (FG9: '2017 Base Traffic + Dev AM Peak ', Plan 5: ' Industrial Access & ped 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**101.4%**	**24.0**	**64.2**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**101.4%**	**24.0**	**64.2**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	168	-	589	916	64.3%	3.9	5.0	17.8
2/1	Left Right Ahead	U	E		1	11	-	8	58	13.8%	0.4	0.5	0.9
3/1	Hunsworth Lane North Right Left	U	G		3	31	-	168	169	99.3%	3.0	9.2	13.0
4/1	A58 Whitehall Road West Ahead Right	U	A		3	168	-	932	921	101.2%	10.7	29.0	58.9
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	67	-	344	339	101.4%	5.6	16.1	24.5
6/1	A58 Whitehall Rd EB Left Ahead	U	F		4	278	-	828	1610	51.2%	0.0	0.6	0.8
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	220	-	1045	1181	87.5%	0.5	3.8	31.3

C1 PRC for Signalled Lanes (%): -12.6 Total Delay for Signalled Lanes (pcuHr): 64.18 Cycle Time (s): 360
PRC Over All Lanes (%): -12.6 Total Delay Over All Lanes(pcuHr): 64.18

Scenario 6: '2017 PM Base + Dev (Ind Access & Peds 1 in 3)' (FG10: '2017 Base Traffic + Dev PM Peak ', Plan 5: ' Industrial Access & ped 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**97.9%**	**21.3**	**49.8**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**97.9%**	**21.3**	**49.8**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	164	-	717	893	80.3%	5.3	7.9	24.3
2/1	Left Right Ahead	U	E		1	11	-	11	60	18.5%	0.5	0.6	1.2
3/1	Hunsworth Lane North Right Left	U	G		3	31	-	162	169	95.9%	2.8	7.7	11.3
4/1	A58 Whitehall Road West Ahead Right	U	A		3	164	-	878	897	97.9%	7.9	18.7	44.8
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	71	-	347	359	96.7%	4.6	11.4	19.0
6/1	A58 Whitehall Rd EB Left Ahead	U	F		4	278	-	934	1610	58.0%	0.0	0.7	1.0
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	216	-	960	1145	83.8%	0.2	2.8	28.8

C1 PRC for Signalled Lanes (%): -8.8 Total Delay for Signalled Lanes (pcuHr): 49.76 Cycle Time (s): 360
PRC Over All Lanes (%): -8.8 Total Delay Over All Lanes(pcuHr): 49.76

Scenario 7: '2023 AM Base + Dev (Ind Access & Peds 1 in 3)' (FG11: '2023 Base Traffic + Dev AM Peak ', Plan 5: ' Industrial Access & ped 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**106.8%**	**42.4**	**111.9**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**106.8%**	**42.4**	**111.9**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	165	-	728	904	80.5%	5.5	7.9	23.8
2/1	Left Right Ahead	U	E		1	11	-	12	60	20.1%	0.6	0.7	1.3
3/1	Hunsworth Lane North Right Left	U	G		3	30	-	175	164	106.8%	5.3	15.3	19.1
4/1	A58 Whitehall Road West Ahead Right	U	A		3	165	-	962	903	106.6%	20.4	56.8	86.3
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	71	-	381	358	106.3%	10.3	27.2	39.3
6/1	A58 Whitehall Rd EB Left Ahead	U	F		4	279	-	984	1615	59.8%	0.0	0.8	1.1
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	216	-	1050	1146	85.9%	0.3	3.3	30.6

C1 PRC for Signalled Lanes (%): -18.6 Total Delay for Signalled Lanes (pcuHr): 111.86 Cycle Time (s): 360
PRC Over All Lanes (%): -18.6 Total Delay Over All Lanes(pcuHr): 111.86

Scenario 8: '2023 PM Base + Dev (Ind Access& Peds 1 in 3)' (FG12: '2023 Base Traffic + Dev PM Peak ', Plan 5: ' Industrial Access & ped 1 in 3 ')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**107.5%**	**42.4**	**114.8**	-
A58 Whitehall Road / B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**107.5%**	**42.4**	**114.8**	-
1/1+1/2	A58 Whitehall Road Ahead Right Left	U+O	D		3	168	-	673	918	73.3%	4.7	6.6	22.4
2/1	Left Right Ahead	U	E		1	11	-	9	58	15.6%	0.4	0.5	1.0
3/1	Hunsworth Lane North Right Left	U	G		3	31	-	182	169	107.5%	5.6	16.2	20.3
4/1	A58 Whitehall Road West Ahead Right	U	A		3	168	-	986	921	107.1%	21.7	60.7	95.4
5/1	B6121 Hunsworth Lane Right Left Ahead	U	C		3	67	-	362	339	106.7%	9.5	26.3	36.0
6/1	A58 Whitehall Rd EB Left Ahead	U	F		4	278	-	914	1610	55.6%	0.0	0.7	0.9
7/1	A58 Whitehall Rd WB Ahead Left Right	O	B		3	220	-	1109	1181	87.6%	0.5	3.9	32.9

C1 PRC for Signalled Lanes (%): -19.5 Total Delay for Signalled Lanes (pcuHr): 114.82 Cycle Time (s): 360
PRC Over All Lanes (%): -19.5 Total Delay Over All Lanes(pcuHr): 114.82

APPENDIX P

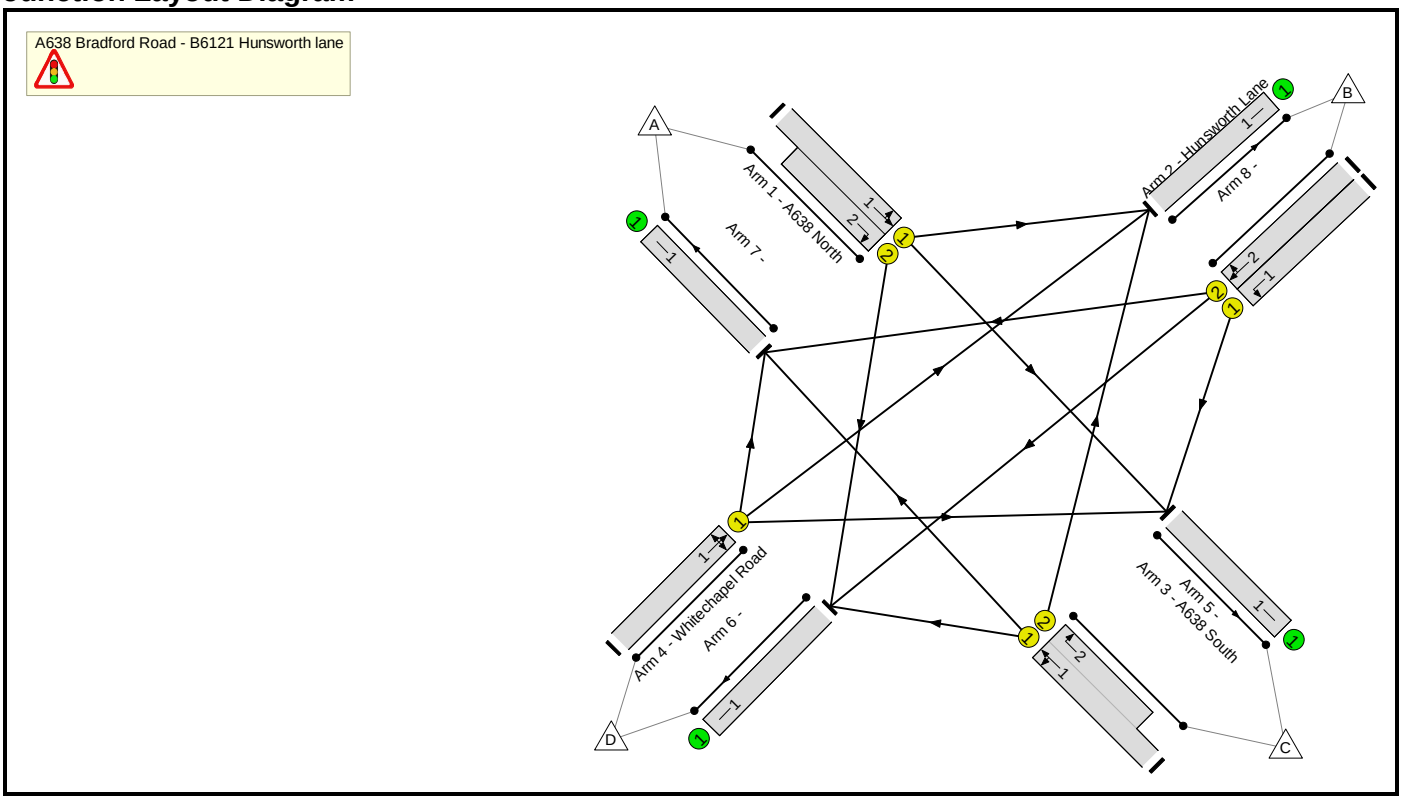
A638 Bradford Road /B6121 Hunsworth Lane LinSig

9529 A638 Bradford Road - B6121 Hunsworth lane

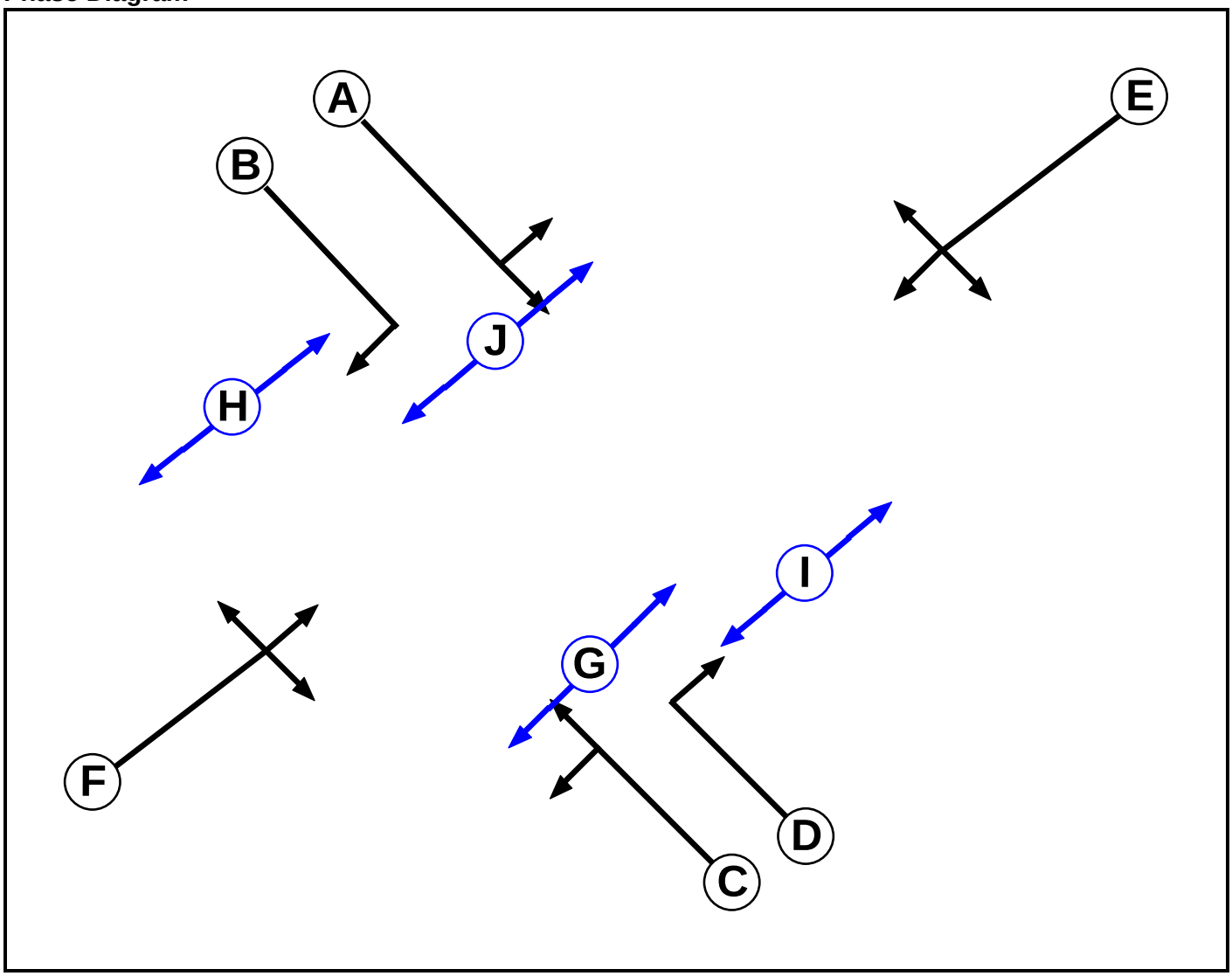
User and Project Details

Project:	**Hunsworth Lane - Cleckheaton**
Title:	**A638 Bradford Road - B6121 Hunsworth Lane**
Location:	A638 Bradford Road - B6121 Hunsworth Lane
File name:	A638 Bradford Road - B6121 Hunsworth Lane.lsg3x
Author:	Sanderson Associates
Company:	Sanderson Associates
Address:	
Notes:	

Junction Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		5	5
H	Pedestrian		5	5
I	Pedestrian		5	5
J	Pedestrian		5	5

9529 A638 Bradford Road - B6121 Hunsworth lane

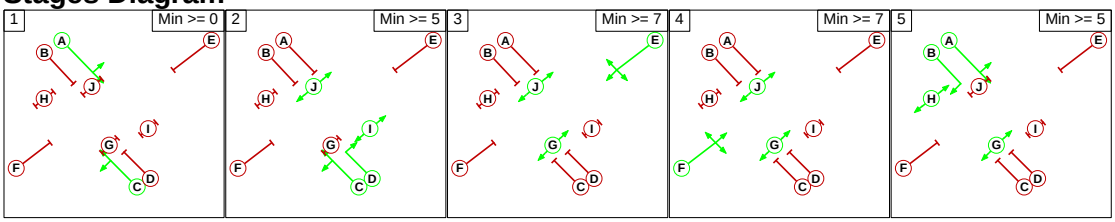
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J
A		-	-	6	7	6	-	-	10	6
B	-		6	6	6	6	-	-	-	6
C	-	7		-	6	8	6	10	-	-
D	6	6	-		6	6	6	-	-	-
E	5	6	5	5		7	-	11	9	-
F	5	5	5	5	7		-	8	11	-
G	-	-	7	7	-	-		-	-	-
H	-	-	6	-	6	6	-		-	-
I	5	-	-	-	5	5	-	-		-
J	7	7	-	-	-	-	-	-	-	

Phases in Stage

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

Stages Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	I	Gaining absolute	2	2
2	3	I	Losing	1	1
2	4	I	Losing	3	3
5	1	H	Losing	1	1

Prohibited Stage Changes

From Stage	To Stage					
		1	2	3	4	5
	1		10	7	8	10
	2	7		6	8	10
	3	7	9		7	11
	4	7	11	7		8
	5	7	10	7	6	

Lane Input Data

Junction: A638 Bradford Road - B6121 Hunsworth lane												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (A638 North)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	9.00
1/2 (A638 North)	U	B	2	3	8.0	Geom	-	3.00	0.00	Y	Arm 6 Right	9.00
2/1 (Hunsworth Lane)	U	E	2	3	60.0	Geom	-	2.30	0.00	Y	Arm 5 Left	15.00
2/2 (Hunsworth Lane)	U	E	2	3	60.0	Geom	-	2.30	0.00	Y	Arm 6 Ahead	Inf
											Arm 7 Right	14.00
3/1 (A638 South)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Left	10.00
											Arm 7 Ahead	Inf
3/2 (A638 South)	U	D	2	3	9.4	Geom	-	2.95	0.00	Y	Arm 8 Right	11.00
4/1 (Whitechapel Road)	U	F	2	3	60.0	Geom	-	4.20	0.00	Y	Arm 5 Right	12.00
											Arm 7 Left	Inf
											Arm 8 Ahead	9.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2014 Base Traffic AM Peak '	08:00	09:00	01:00	
2: '2014 Base Traffic PM Peak '	17:00	18:00	01:00	
3: '2017 Base Traffic AM Peak '	08:00	09:00	01:00	F1*1.0269
4: '2017 Base Traffic PM Peak '	17:00	18:00	01:00	F2*1.0289
5: '2023 Base Traffic AM Peak '	08:00	09:00	01:00	F1*1.1080
6: '2023 Base Traffic PM Peak '	17:00	18:00	01:00	F2*1.1117
7: 'Resi Development AM'	08:00	09:00	01:00	
8: 'Resi Development PM'	17:00	18:00	01:00	
9: '2017 Base Traffic + Dev AM Peak '	08:00	09:00	01:00	F3+F7
10: '2017 Base Traffic + Dev PM Peak '	17:00	18:00	01:00	F4+F8
11: '2023 Base Traffic + Dev AM Peak '	08:00	09:00	01:00	F5+F7
12: '2023 Base Traffic + Dev PM Peak '	17:00	18:00	01:00	F6+F8

Link Results

Scenario 1: '2017 Base Traffic AM ' (FG3: '2017 Base Traffic AM Peak ', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A638 Bradford Road - B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**91.5%**	**18.7**	**30.6**	-
A638 Bradford Road - B6121 Hunsworth lane	-	-	-		-	-	-	-	-	**91.5%**	**18.7**	**30.6**	-
1/1+1/2	A638 North Ahead Right Left	U	A B		1	46:7	-	369	684+72	48.9 : 48.9%	3.0	3.5	8.7
2/1	Hunsworth Lane Left	U	E		1	9	-	125	140	89.4%	1.9	4.9	7.1
2/2	Hunsworth Lane Ahead Right	U	E		1	9	-	80	151	53.2%	1.2	1.7	3.1
3/1+3/2	A638 South Left Ahead Right	U	C D		1	48:10	-	763	689+154	90.3 : 91.5%	7.6	11.9	25.7
4/1	Whitechapel Road Right Left Ahead	U	F		1	29	-	415	466	89.0%	5.0	8.5	16.8

C1 PRC for Signalled Lanes (%): -1.7 Total Delay for Signalled Lanes (pcuHr): 30.61 Cycle Time (s): 120
PRC Over All Lanes (%): -1.7 Total Delay Over All Lanes(pcuHr): 30.61

Scenario 2: '2017 Base Traffic PM ' (FG4: '2017 Base Traffic PM Peak ', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A638 Bradford Road - B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**94.7%**	**26.5**	**50.9**	-
A638 Bradford Road - B6121 Hunsworth lane	-	-	-		-	-	-	-	-	**94.7%**	**26.5**	**50.9**	-
1/1+1/2	A638 North Ahead Right Left	U	A B		1	52:18	-	833	714+168	94.5 : 94.5%	9.5	16.2	31.2
2/1	Hunsworth Lane Left	U	E		1	16	-	225	238	94.7%	3.2	8.2	12.4
2/2	Hunsworth Lane Ahead Right	U	E		1	16	-	238	253	93.9%	3.4	8.1	12.6
3/1+3/2	A638 South Left Ahead Right	U	C D		1	46:13	-	736	628+196	88.0 : 93.3%	7.6	11.4	23.0
4/1	Whitechapel Road Right Left Ahead	U	F		1	13	-	198	214	92.6%	2.9	7.0	10.6

C1 PRC for Signalled Lanes (%): -5.2 Total Delay for Signalled Lanes (pcuHr): 50.90 Cycle Time (s): 120
PRC Over All Lanes (%): -5.2 Total Delay Over All Lanes(pcuHr): 50.90

Scenario 3: '2023 Base Traffic AM ' (FG5: '2023 Base Traffic AM Peak ', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A638 Bradford Road - B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**98.6%**	**20.7**	**44.0**	-
A638 Bradford Road - B6121 Hunsworth lane	-	-	-		-	-	-	-	-	**98.6%**	**20.7**	**44.0**	-
1/1+1/2	A638 North Ahead Right Left	U	A B		1	46:7	-	398	683+72	52.7 : 52.7%	3.3	3.9	9.7
2/1	Hunsworth Lane Left	U	E		1	9	-	135	140	96.6%	2.1	6.8	9.2
2/2	Hunsworth Lane Ahead Right	U	E		1	9	-	87	150	57.8%	1.3	2.0	3.5
3/1+3/2	A638 South Left Ahead Right	U	C D		1	48:10	-	824	689+154	97.5 : 98.6%	8.6	18.9	35.0
4/1	Whitechapel Road Right Left Ahead	U	F		1	29	-	448	466	96.0%	5.5	12.5	21.6

C1	PRC for Signalled Lanes (%):	-9.6	Total Delay for Signalled Lanes (pcuHr):	43.96	Cycle Time (s):	120
	PRC Over All Lanes (%):	-9.6	Total Delay Over All Lanes(pcuHr):	43.96		

Scenario 4: '2023 Base Traffic PM ' (FG6: '2023 Base Traffic PM Peak ', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A638 Bradford Road - B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**102.3%**	**31.0**	**85.7**	-
A638 Bradford Road - B6121 Hunsworth lane	-	-	-		-	-	-	-	-	**102.3%**	**31.0**	**85.7**	-
1/1+1/2	A638 North Ahead Right Left	U	A B		1	52:18	-	900	713+169	102.0 : 102.0%	11.8	32.0	49.9
2/1	Hunsworth Lane Left	U	E		1	16	-	243	238	102.3%	3.7	13.0	17.5
2/2	Hunsworth Lane Ahead Right	U	E		1	16	-	256	254	101.0%	3.8	12.4	17.2
3/1+3/2	A638 South Left Ahead Right	U	C D		1	46:13	-	795	628+196	95.1 : 101.0%	8.6	18.1	31.8
4/1	Whitechapel Road Right Left Ahead	U	F		1	13	-	213	214	99.6%	3.1	10.2	14.1

C1	PRC for Signalled Lanes (%):	-13.6	Total Delay for Signalled Lanes (pcuHr):	85.70	Cycle Time (s):	120
	PRC Over All Lanes (%):	-13.6	Total Delay Over All Lanes(pcuHr):	85.70		

Scenario 5: '2017 Base + Dev Traffic AM ' (FG9: '2017 Base Traffic + Dev AM Peak ', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A638 Bradford Road - B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**93.2%**	**20.2**	**35.8**	-
A638 Bradford Road - B6121 Hunsworth lane	-	-	-		-	-	-	-	-	**93.2%**	**20.2**	**35.8**	-
1/1+1/2	A638 North Ahead Right Left	U	A B		1	44:7	-	369	656+69	50.9 : 50.9%	3.2	3.7	9.0
2/1	Hunsworth Lane Left	U	E		1	11	-	155	168	92.4%	2.3	6.1	8.9
2/2	Hunsworth Lane Ahead Right	U	E		1	11	-	106	178	59.6%	1.5	2.2	4.1
3/1+3/2	A638 South Left Ahead Right	U	C D		1	47:11	-	778	668+167	93.2 : 93.2%	8.0	13.7	27.7
4/1	Whitechapel Road Right Left Ahead	U	F		1	28	-	418	451	92.7%	5.2	10.1	18.5

C1 PRC for Signalled Lanes (%): -3.5 Total Delay for Signalled Lanes (pcuHr): 35.82 Cycle Time (s): 120
PRC Over All Lanes (%): -3.5 Total Delay Over All Lanes(pcuHr): 35.82

Scenario 6: '2017 Base + Dev Traffic PM ' (FG10: '2017 Base Traffic + Dev PM Peak ', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A638 Bradford Road - B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**99.7%**	**27.3**	**61.3**	-
A638 Bradford Road - B6121 Hunsworth lane	-	-	-		-	-	-	-	-	**99.7%**	**27.3**	**61.3**	-
1/1+1/2	A638 North Ahead Right Left	U	A B		1	49:11	-	833	676+160	99.7 : 99.7%	10.3	24.0	39.4
2/1	Hunsworth Lane Left	U	E		1	17	-	243	252	96.6%	3.4	9.4	14.0
2/2	Hunsworth Lane Ahead Right	U	E		1	17	-	253	268	94.5%	3.6	8.7	13.4
3/1+3/2	A638 South Left Ahead Right	U	C D		1	52:15	-	764	623+224	88.8 : 94.1%	7.1	11.3	21.8
4/1	Whitechapel Road Right Left Ahead	U	F		1	13	-	203	214	95.0%	3.0	7.9	11.7

C1	PRC for Signalled Lanes (%):	-10.8	Total Delay for Signalled Lanes (pcuHr):	61.31	Cycle Time (s):	120
	PRC Over All Lanes (%):	-10.8	Total Delay Over All Lanes(pcuHr):	61.31		

Scenario 7: '2023 Base + Dev Traffic AM ' (FG11: '2023 Base Traffic + Dev AM Peak ', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A638 Bradford Road - B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**100.5%**	**22.6**	**56.2**	-
A638 Bradford Road - B6121 Hunsworth lane	-	-	-		-	-	-	-	-	**100.5%**	**22.6**	**56.2**	-
1/1+1/2	A638 North Ahead Right Left	U	A B		1	44:7	-	398	656+69	54.9 : 54.9%	3.5	4.1	9.9
2/1	Hunsworth Lane Left	U	E		1	11	-	165	168	98.4%	2.5	8.3	11.2
2/2	Hunsworth Lane Ahead Right	U	E		1	11	-	113	178	63.5%	1.6	2.5	4.5
3/1+3/2	A638 South Left Ahead Right	U	C D		1	47:11	-	839	668+166	100.5 : 100.5%	9.3	25.0	41.7
4/1	Whitechapel Road Right Left Ahead	U	F		1	28	-	451	451	100.1%	5.7	16.4	25.7

C1	PRC for Signalled Lanes (%):	-11.7	Total Delay for Signalled Lanes (pcuHr):	56.18	Cycle Time (s):	120
	PRC Over All Lanes (%):	-11.7	Total Delay Over All Lanes(pcuHr):	56.18		

Scenario 8: '2023 Base + Dev Traffic PM ' (FG12: '2023 Base Traffic + Dev PM Peak ', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Capacity (pcu)	Deg Sat (%)	Uniform Delay (pcuHr)	Total Delay (pcuHr)	Mean Max Queue (pcu)
Network: A638 Bradford Road - B6121 Hunsworth Lane	-	-	-		-	-	-	-	-	**107.7%**	**34.5**	**110.2**	-
A638 Bradford Road - B6121 Hunsworth lane	-	-	-		-	-	-	-	-	**107.7%**	**34.5**	**110.2**	-
1/1+1/2	A638 North Ahead Right Left	U	A B		1	49:11	-	900	676+160	107.7 : 107.7%	14.9	53.0	70.0
2/1	Hunsworth Lane Left	U	E		1	17	-	261	252	103.8%	4.1	14.9	19.8
2/2	Hunsworth Lane Ahead Right	U	E		1	17	-	271	268	101.3%	4.0	13.1	18.3
3/1+3/2	A638 South Left Ahead Right	U	C D		1	52:15	-	823	632+224	94.4 : 100.8%	8.0	17.2	29.9
4/1	Whitechapel Road Right Left Ahead	U	F		1	13	-	218	214	102.1%	3.4	11.9	16.0

C1 PRC for Signalled Lanes (%): -19.7 Total Delay for Signalled Lanes (pcuHr): 110.16 Cycle Time (s): 120
PRC Over All Lanes (%): -19.7 Total Delay Over All Lanes(pcuHr): 110.16