Unit 2
The Office Campus
Paragon Business Park
Red Hall Court
Wakefield
WF1 2UY

PROPOSED RESIDENTIAL DEVELOPMENT ON LAND OFF BROADWAY, BARNSLEY

TRANSPORT ASSESSMENT

787 / April 2014

CONTENTS

APPENDICES

1 INTRODUCTION

1.1.1 The PAH Highway Consultants Ltd has been appointed to prepare this Transport Assessment relating to the proposed residential development on the site of the former Kingstone School off Broadway in Barnsley, South Yorkshire. Appendix A shows the site location in relation to the regional and local highway network.

1.1.2 The proposals are to develop the currently vacant site to provide around 163 dwellings served from a new access junction with Broadway. Drainage, street lighting and footways will be provided in accordance with Council guidance.

1.1.3 The scope of this Transport Assessment was discussed and agreed at a meeting with Highways Officers on 8 November 2013. The Authority asked that matters such as access, sustainability, car parking and servicing be addressed within the report which should present the proposals in relation to current guidance and data. The traffic impact associated with the revised development proposals is also required to be presented.

1.1.4 To encourage a reduction in private car use, a separate Travel Plan Framework has been prepared to accompany this Transport Assessment.

2 EXISTING CONDITIONS

2.1 Site Description

2.1.1 The site is currently vacant but was previously occupied by Kingstone School. The site lies to the west of and has two vehicular accesses onto the adjacent A6133 Broadway and is roughly rectangular in shape.

2.1.2 The A6133 Broadway forms the eastern boundary to the site with playing fields to the south and west and residential development to the north.

2.1.3 The site is located about 1500m to the west of the centre of Barnsley Normanton and 1000m south east of Junction 37 of the M1.

2.2 Local Highway Network

2.2.1 The A6133 Broadway is a main distributor road that connects the A628 Dodworth Road to areas to the south side of Barnsley and then eastwards towards Doncaster. To the north of the site it is predominantly residential in nature directly serving a number of residential properties and residential streets and is laid out as a single carriageway. To the south it forms a short length of dual carriageway through the traffic signal controlled junction with Keresforth Hill Road and to just beyond the staggered signal controlled junction with Racecommon Road and Keresforth Hall Road.

2.2.2 Within the vicinity of the site frontage Broadway has footways to either side the one immediately adjacent being shared with cyclists. The road benefits from a system of street lighting to a suitable standard and is subject to a 40mph speed limit which drops to 30mph just north of the junction with Keresforth Hill Road.

2.2.3 Keresforth Hill Road is classified as B6099 and has a signal controlled junction with Broadway. The B6099 provides an alternative route to Dodworth and to Junction 36 of the M1 to the south. There are push button crossing facilities for pedestrians and cyclists provided as part of the signalised Broadway junction.

2.2.4 The A628 Dodworth Road is a main arterial route in to Barnsley linking the town centre to Junction 37 of the M1. As such this route is busy throughout the day as is the motorway junction. However we are advised by the Council that they have received "Pinchpoint" funding to improve both of these junctions.

2.2.5 Keresforth Close lies opposite the development site and provides access to the Keresforth Centre run by South Yorkshire NHS.

2.2.6 The site is located within easy reach of the bus services available on Broadway. Further details of the bus services available from the local fare stages are shown below.

2.3 Road Traffic Accidents

2.3.1 The personal injury accident records for the last five years (from 1 January 2008 to 31 December 2012 as provided by the Council) along a section of Broadway adjacent to the site have been obtained and are included at Appendix C.

2.3.2 Of the 5 incidents recorded within the study area there was one which resulted in serious injuries with the rest having slight injuries. There has been an average of 1 incident recorded per annum with a peak of 2 in 2009.

2.3.3 One incident involved a pedestrian casualty resulting in serious injury but this may have been when the school was still in operation but is now closed. There are no significant clusters of incidents recorded with all of the other incidents appearing to be disparate events with no common causation factors and occurred at varying times of the day and lighting conditions.

2.3.4 The relatively good injury accident record in the vicinity of the site does not indicate a road safety problem or any trends of any significance which would warrant treatment or be a cause for concern as a result of slight change in peak hour flows as a result of the development proposals.

2.4 Transport Sustainability

2.4.1 The site is in a very sustainable location within a short walking distance of bus stops and local services in the surrounding area.

2.4.2 The National Planning Policy Framework (NPPF) was published on 27th March 2012. This document superseded a number of national Planning Policy Statements and Guidance Notes (PPS's and PPG's). The national transport policy relating to transport and development that was formerly set out in PPG 13 'Transport' is now replaced by Section 4 of the NPPF.

2.4.3 However the guidance within PPG 13 is still useful as a reference until such time as the Local Planning Authority publishes their specific transport policies.

2.4.4 Paragraph 35 of the NPPF states that "developments should be located and designed where practical to:

- accommodate the efficient delivery of goods and supplies;
- give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;
- incorporate facilities for charging plug-in and other ultra-low emission vehicles; and
- consider the needs of people with disabilities by all modes of transport.

2.4.5 Paragraph 36 of the NPPF goes on to say that "a key tool to facilitate this will be a Travel Plan. All developments which generate significant amounts of movement should be required to provide a Travel Plan." A separate travel plan framework has been prepared to accompany this report.

2.4.6 The catchment areas for the preferred maximum walking distance of 2km are shown on the plan at Appendix B. The site is well placed to for residents to walk to work or shop.

2.4.7 Broadway provides a good quality link to the nearest bus stops and local services. The local footway network is considered suitable in terms of width, construction, and lighting. In addition to the light controlled crossing adjacent to the site, there are shared pedestrian / cyclist crossing facilities at the junction with Keresforth Hill Road and several central islands to allow people to cross the highway in two halves.

2.4.8 The pedestrian catchment in Appendix B includes the centre of Barnsley and Dodworth and the local services and amenities within them including numerous retail outlets, banks, supermarkets, a post office, pharmacies, and the railway station. Barnsley Town Centre also provides excellent employment potential, given the large number of commercial properties located within walking distance of the site. There are also several schools within this catchment.

2.4.9 With regards to cycling, PPG 13: Transport stated that "Cycling also has the potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport". The plan at Appendix B also shows the 5km cycle catchment area from the site. Within the cycle catchment area is the whole of Barnsley, Staincross, Monk Bretton, Worsbrough and Birdwell.

2.4.10 Bus stops are located on Broadway within 400m of the centre of the site. Both of these stops have poles and timetable cases and the southbound stop has a shelter. These stops are used by the circular services of the 43 / 43A and 44 / 44A which run from Barnsley Interchange via Pogmoor (and the hospital) to Broadway and back to the Interchange and vice versa. The combination of these services provides 3 buses per hour during the day in either direction Monday to Saturday with an hourly service in the evening and half hourly on Sundays.

2.4.11 These bus services also travel to the nearest railway station at Barnsley Interchange. The bus services are therefore considered to be of a high standard and will provide a suitable alternative to the private car in line with current Government guidelines.

2.4.12 The nearest railway station from the application site is Barnsley Railway Station, which is located approximately 1800m to the east of the application site. The station is on the Hallam Line which has an hourly frequency of service (two hourly on Sunday) between Leeds, Castleford, Wakefield Kirkgate, Barnsley, Meadowhall and Sheffield. The addition of the services on the Penistone Line (hourly from Huddersfield to Sheffield) improves the frequency between Barnsley and Sheffield to about one train every 10 to 20 minutes during the day.

2.4.13 As can be identified from the train routes and services summarised above there are excellent train links with services every hour to the local cities of Leeds, Wakefield and Sheffield.

2.4.14 In summary, the site is in a very sustainable location being within close proximity of the nearest bus stops and within acceptable walking distance of the many local services and amenities. Barnsley Town Centre and railway station are also within walking distance. There are also several schools within this catchment. Within cycling distance of the site there is the whole of Barnsley, Staincross, Monk Bretton, Worsbrough and Birdwell and the excellent employment potential there. Therefore the site generally conforms to current Government directives for ensuring developments are located in a sustainable location.

3 THE DEVELOPMENT PROPOSALS

3.1 Proposed Development

3.1.1 The proposals are to develop the former site of Kingstone School to provide around 163 dwellings served from a new access junction with Broadway. There is a proposal to relocate the local fire station on to part of the site and the layout reflects that desire.

3.1.2 The internal road layout, drainage, street lighting and footways will be provided in accordance with Council guidance. A layout of the proposed development is included at Appendix D.

3.1.3 Secure cycle storage facilities will be provided within the site, the type and location is to be agreed by the LPA.

3.2 Vehicular Access

3.2.1 Vehicular access to the development will be provided from a new junction on to Broadway. This junction will be located opposite Keresforth Close. In discussions with the Council they require the said junction to be controlled by traffic signals which will incorporate pedestrian and cycle facilities to replace the crossing that would have to be removed from adjacent to the junction.

3.2.2 The drawing in Appendix D shows the proposed junction layout which has been safety audited in accordance with HD 19 / 03. A copy of the Audit and the Designer's Response can be found in Appendix H. The latter refers to discussions with Barnsley Council regarding the status of Keresforth Close and the ability to deliver the proposed layout which resolves the concerns of the Audit Team.

3.3 Parking Provision

3.3.1 The level of parking provision on the site will be in accordance with Council's Guidance.

3.4 Pedestrian and Cycle Provision

3.4.1 Pedestrian routes through the site will follow natural desire lines and lead pedestrians to existing and proposed crossing facilities.

3.4.2 Secure cycle storage facilities will be provided within the site, the type and location is to be agreed with the LPA.

3.4.3 These measures will give convenient and direct access via the adjacent footway network to the nearby commercial and shopping areas and to the adjacent bus stops and rail station. A shared footway / cycle facility will be provided across the site frontage to link to the other facilities in the area.

3.5 Servicing

3.5.1 Service vehicles will use the same access to the site as all other traffic. Turning heads will be provided to allow such vehicles to enter and leave the site in forward gear.

3.5.2 The servicing requirements for the proposed development can be adequately catered for.

3.6 Sustainable Travel Measures

3.6.1 To further encourage a reduction in private car use, a package of sustainable travel measures will be provided. The most effective way to promote sustainable travel at this development is considered to be via a Travel Plan a copy of which accompanies this report.

4 TRAFFIC IMPACT

4.1 Existing Traffic

4.1.1 A classified traffic count at the junction of Broadway with Keresforth Hill Road was carried out by an independent company in October 2013. From this the network peak hours have been determined as being 08:00 – 09:00 and 16:30 – 17:30. These are given at Figures 3 and 4 in Appendix E.

4.1.2 The flows have then been increased using TEMPRO for year of completion (2019) plus five years (2024) as agreed with the Council. The factors for the local area are 1.1381 and 1.1426 in the AM and PM peaks respectively. These are shown at Figures 5 and 6 in Appendix E.

4.2 Development Traffic

4.2.1 The proposed development is for circa 163 new dwellings and possibly the relocated fire station. For robustness we have assessed the impact of the development with 190 units which would allow for some scope in design and building mix.

4.2.2 We have initially considered the person trips that the proposed land use might generate. The TRICS output can be found in Appendix F and the derived rates and trips for the weekday AM and PM peak periods are given in the table below:

	Rates		Trips	
	AM Peak	PM Peak	AM Peak	PM Peak
Cycles	0.018	0.024	4	5
Veh Occs	0.818	0.826	155	157
Pedestrians	0.214	0.124	41	24
Public Trans	0.030	0.020	6	4
People	1.081	0.993	205	189

Table 1: Proposed Use Peak Hour Trip Rates and Flows

4.2.3 When the movements in the above table are distributed over the local road network (in relation to cycles and pedestrians) and the available bus services it is considered that these minor increases would not be discernible from the daily fluctuations in flows or occupancy of buses on the network.

4.2.4 The next stage of our analysis was to consider the likely traffic movements that the proposed land use might generate. The TRICS output can be found in Appendix F and the derived rates and trips for the weekday AM and PM peak periods are given in the table below:

	Rates		Trips	
	ARR	DEP	ARR	DEP
AM Peak	0.159	0.418	30	79
PM Peak	0.390	0.228	74	43

Table 2: Proposed Use Peak Hour Trip Rates and Flows

4.3 Distribution of Traffic

4.3.1 It has been agreed with Highways Officers that the most appropriate method of determining the distribution of traffic from the development is to use the Journey to Work data from the 2001 Census for the local Ward. The Yorkshire and Humber Region was selected as the initial destination area and any local authorities with nil trips were discounted as a first stage. The second stage was to consider the electoral wards within each local authority closest to the development site and any wards with nil trips were discounted.

4.3.2 The final stage was to identify which routes people on a journey to work might use from the site to access the major road network. These potential routes were identified as Keresforth Hill Road, A6133 (east), A628 (west and east) and Pogmoor Road.

4.3.3 The table in Appendix E shows the results of this calculation which determines the split in traffic at the site access would be 58.33 % towards the A628 and 41.67% towards the Keresforth Hill Road junction. At the former, 19.93%, 26.58% and 11.82% would use the A628 towards the M1, the A628 towards Barnsley Town Centre and Pogmoor Road respectively. This distribution is shown on Figure 7 in Appendix E and Figures 8 and 9 provide the distributed flows in the AM and PM peak periods respectively. .

4.3.4 Figures 10 and 11 give the 2024 base plus net development (190 units) flows in PCU's in the AM and PM peak periods respectively. These are shown at the site access junction with Broadway and at the Keresforth Hill Road junction based on the above distribution.

4.4 Traffic Impact

4.4.1 The Council has asked that the proposed site access junction with Broadway and the Broadway / Keresforth Hill Road junction is assessed in capacity and safety terms.

4.4.2 A junction capacity assessment has been carried out for the site access junction using the LinSig V3 computer program. We have modelled the junction in the network peak hours (08:00 – 09:00 and 16:30 – 17:30) in the design year 2024 with the development traffic.

4.4.3 It has been assumed that the two main road approaches and the two side road approaches will run together with any right turning traffic giving way to on-coming vehicles. Due to the traffic volumes involved, it is not anticipated that any assistance to right turners in the form of an indicative arrow will be required. It has also been assumed that the all red pedestrian stage will be called in every cycle during both peaks. This is likely to be an overestimation but provides a robust assessment of the operation of the proposed traffic signals.

4.4.4 The intergreen values within the model have been determined from the plan of the proposed traffic signals provided by the Council. Geometric saturation flows have also been calculated within LinSig.

4.4.5 The results of the LinSig assessments are included at Appendix G and are summarised in the table below.

Arm		2024 AM Peak + Dev		2024 PM Peak + Dev	
		DoS	MMQ	DoS	MMQ
1/1	A6133(S) A&LT	70.5	7.9	62.4	5.9
1/2	A6133(S) A&RT	51.3	1.5	54.4	3.6
2/1	A6133(N) A&LT	56.7	5.5	64.2	6
2/2	A6133(N) A&RT	57.8	5.8	62.6	5.4
3/1	Keresforth Close	44.6	1.9	64.9	4
4/1	Site Access	33.3	1.4	13.2	0.7
		PRC	27.7%	PRC	38.7%

Table 3: LinSig Results Proposed Access / Broadway / Keresforth Close

4.4.6 From the above analyses it can be seen that the proposed site access / Broadway / Keresforth Close junction will operate well within the normal requirements in the future design year of 2024 in all flow scenarios with significant practical reserve capacity (PRC) available to accommodate further traffic growth on the network.

4.4.7 It is therefore considered that the junction layout as proposed for the site access will provide a safe arrangement and will not cause any unnecessary delays to through traffic.

4.4.8 A junction capacity assessment has been carried out for the junction of Broadway with Keresforth Hill Road also using the LinSig V3 computer program. We have modelled the junction in the network peak hours (08:00 – 09:00 and 16:30 – 17:30) in the design year 2024 with and without the development traffic.

4.4.9 A site visit was undertaken to measure the intergreen timings, take measurements of the existing carriageway enable determination of geometric saturation flows within LinSig and generally observe the existing operation of the traffic signals.

4.4.10 The traffic counts that were undertaken at the junction also recorded the frequency of the all red pedestrian stage being called. The count showed that over the 16:30 - 17:30 peak hour, the pedestrian stage was called a total of six times. To provide a robust assessment of the junction, and to allow for an increased usage associated with pedestrian movements from the proposed development, the junction has been modelled with the pedestrian stage being called in alternate cycles.

4.4.11 The results of the LinSig assessments are included at Appendix G and are summarised in the table below.

Arm		2024 AM Peak		2024 PM Peak		2024 AM Peak + Dev		2024 PM Peak + Dev	
		DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
1/1	A6133(E) LT	54.7	8.4	82.6	14.2	54.7	8.5	83.8	15.0
1/2	A6133(E) Ahead 1								
1/3	A6133(E) Ahead 2	54.0	9.8	58.7	9.8	53.7	9.8	62.4	11.0
2/1	A6133(N) Ahead 1	56.7	10.2	41.7	6.2	58.5	10.8	81.7	16.4
2/2	A6133(N) Ahead 2	84.0	6.4	57.2	5.6	87.9	7.4	65.1	2.1
2/3	A6133 (N) RT								
3/1	Keresforth Hill Road	84.4	16.1	82.4	16.1	86.5	17.2	82.6	16.7
		PRC	6.6%	PRC	9.0%	PRC	2.4%	PRC	7.4%

Table 4: LinSig Results Broadway / Keresforth Hill Road

4.4.12 From the above analyses it can be seen that the junction of Broadway with Keresforth Hill Road will operate within the normal requirements in the future design year of 2024 in all flow scenarios.

4.4.13 The table shows that as a result of the traffic from the proposed development passing through this junction there will be very little increase in degree of saturation (DoS) or mean maximum queue length (MMQ) on any lane at the junction.

4.4.14 The one exception to this is on arm 2/1, Broadway (N) ahead lane 1, where there is an increase of 10 vehicles to the queue during the PM peak. Examination of the model shows that this is due to right turning traffic to Keresforth Hill Road blocking the second ahead lane. Once traffic is moving, vehicles from lane 1 will switch lanes to utilise lane 2 once it is clear.

4.4.15 Further examination of the LinSig model shows that reducing the flow turning right to Keresforth Hill Road by only four vehicles reduces the right turn queue and opens up lane 2 for ahead traffic. This does not have any impact on the overall capacity of the junction with the PRC remaining at 7.4%. The traffic flows through this junction will vary on a day to day basis so it is likely that on some days this blocking from the right turning traffic will not occur.

4.4.16 Taking the average pcu length of 5.75m, the proposed queue of 16 vehicles, if blocking from the right turn lane occurs, it will not encroach back to the proposed site access junction.

4.4.17 It is understood that the traffic signals at Broadway / Keresforth Hill Road and Broadway / Keresforth Hall Road / Racecommon Road link together under SCOOT during periods of congestion. As a result of this the cycle timings and stage timings vary on a cycle by cycle basis to accommodate the prevailing traffic conditions. The assessment that has been undertaken shows that without any overriding control strategies the junction is able to cope with the volume of traffic predicted to be passing through the junction.

4.4.18 It is also understood that certain constraints have been specified within the network management plans to hold traffic on the side roads to ensure that the reservoir on Broadway between the two junctions does not get full and cause blocking back problems.

4.4.19 Figures 8 and 9 show that there is very little proposed traffic likely to be travelling through this junction from the site therefore it is considered that this junction will continue to operate to the satisfaction of the Council.

4.4.20 As part of the network management of this corridor, the proposed site access junction will also be operated under SCOOT control and will be co-ordinated with the Broadway / Keresforth Hill Road junction. Given the significant spare capacity within the proposed site access junction it is not envisaged that there will be any problems integrating the junction into the existing SCOOT region.

5 TRANSPORT POLICY

5.1.1 When considering transport policy compliance for planning applications, the main thrust of local, regional and national policy is that new development should be conveniently accessible by a range of sustainable transport modes, including public transport, cycling and walking. This policy therefore sets out the framework for this report and the project's compliance with the policy objectives. Further details of the relevant policy documents are set out below.

National Planning Policy Framework – Promoting Sustainable Transport

5.1.2 The National Planning Policy Framework (NPPF) was published on 27th March 2012. This document superseded a number of national Planning Policy Statements and Guidance Notes (PPS's and PPG's). The national transport policy relating to transport and development that was formerly set out in PPG 13 'Transport' is now replaced by Section 4 of the NPPF.

5.1.3 Paragraph 35 of the NPPF states that "developments should be located and designed where practical to:

- accommodate the efficient delivery of goods and supplies;
- give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;
- incorporate facilities for charging plug-in and other ultra-low emission vehicles; and
- consider the needs of people with disabilities by all modes of transport.

5.1.4 Paragraph 36 of the NPPF goes on to say that "a key tool to facilitate this will be a Travel Plan. All developments which generate significant amounts of movement should be required to provide a Travel Plan."

Local Policies

5.1.5 The current Local Transport Plan is the third South Yorkshire Local Transport Plan which covers the period up to 2026. Local transport policy is set out in the Council's Local Development Framework and Core Strategy. The saved policies within that document identify the need to consider public transport, pedestrian and cycling access to new developments.

6 CONCLUSIONS

6.1.1 This report presents the proposals for the proposed residential development on the site of the former Kingstone School off Broadway in Barnsley, South Yorkshire. The proposals are to provide around 163 new dwellings served by a new access off Broadway. The report compares the traffic generations, highway safety and access proposals with the existing situation. Accident records were obtained and the vehicular access and sustainable elements of the scheme assessed.

6.1.2 The report concludes that even if 190 units were proposed on site, both capacity and safety elements of the proposals are acceptable. Since there is no significant accident record and a predicted slight increase in traffic flows along Broadway, the proposed development can be readily accommodated within the operation of the local highway network.

6.1.3 It is therefore concluded that the development is considered acceptable, and that there are no highway safety or efficiency reasons why planning consent for the proposed development should not be granted.

Appendix A

Location plan

SITE LOCATION

BUS STOP

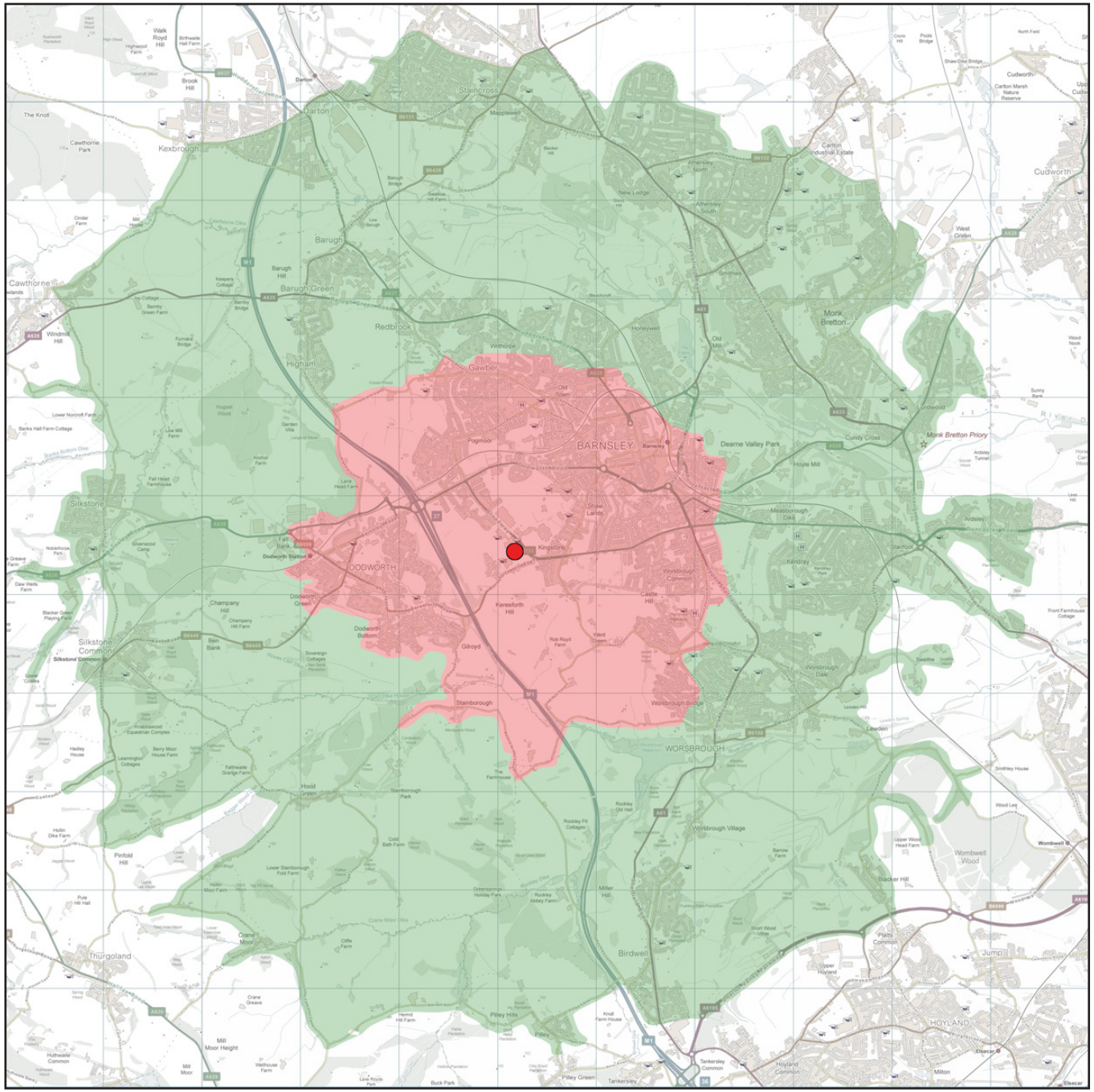
FIGURE 1

SITE LOCATION PLAN

PAH HIGHWAY CONSULTANTS

Appendix B

Pedestrian and Cycle Catchment



SITE LOCATION

2KM WALK CATCHMENT

5KM CYCLE CATCHMENT

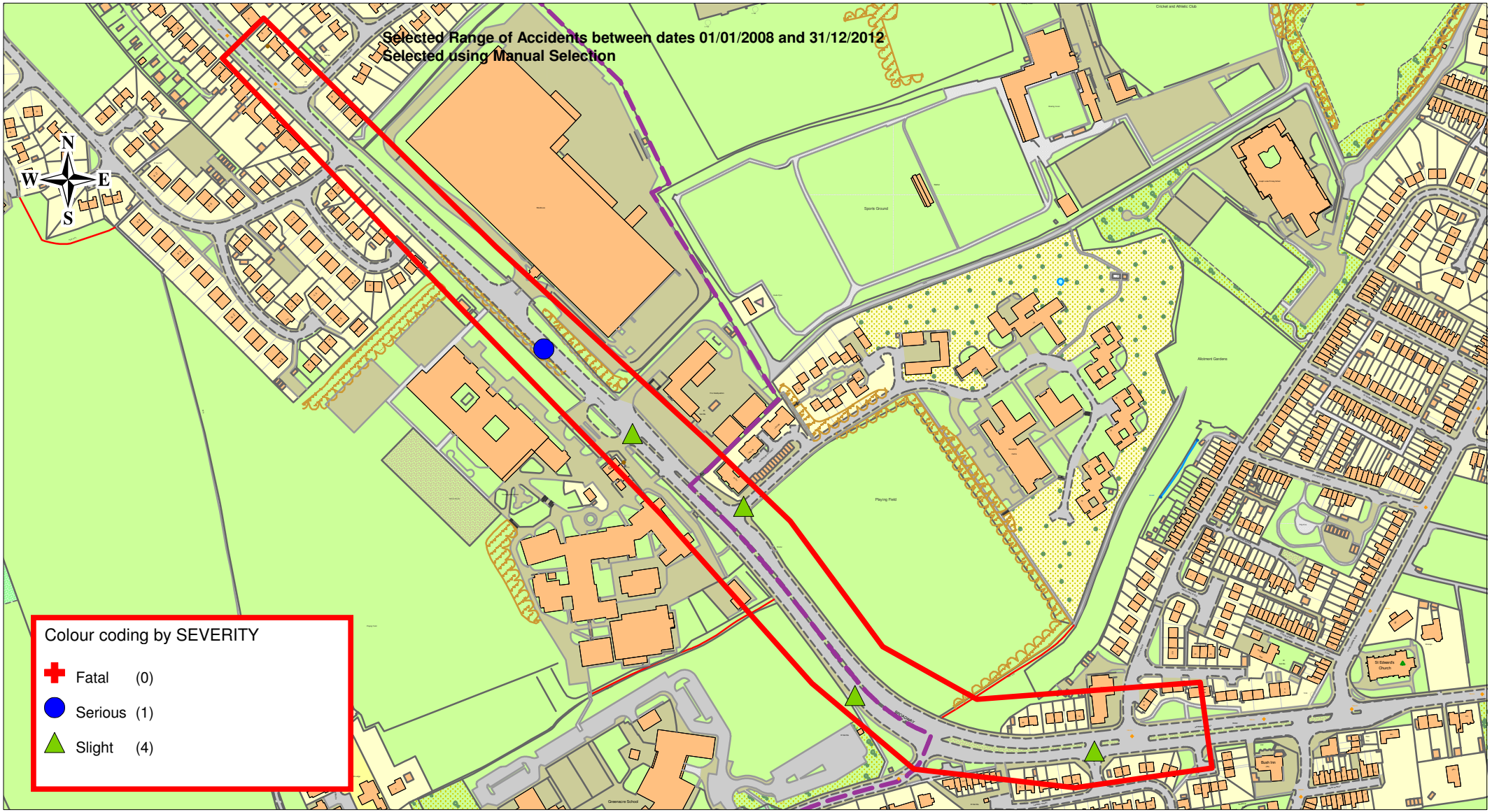
FIGURE 2

CYCLE / PEDESTRIAN CATCHMENT AREA

PAH HIGHWAY CONSULTANTS

Appendix C

Accident Data



MAKING SOUTH YORKSHIRE ROADS SAFER

Selected map area

SCALE	1 : 4001
DATE	11/02/2014
DRWG No.	
DRN BY	

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection: **Notes:**
Selected using Manual Selection **Howarth Consultancy - Ash Howarth**

B-00328-08 07/03/2008 Friday Time:1628 Vehicles 2 Casualties 2 Slight
Easting: 433,148 Northing: 405,600
Fine without high winds Road Surface:Dry Daylight:street lights present
Road Type: Dual carriageway Speed Limit: 40

Location: BROADWAY BARNSLEY AT J/W KINGSTONE SCHOOL
Description:V1 OVERTOOK A STATIONARY BUS AND AS IT DID V2 EMERGED FROM KINGSTONE SCHOOL TURNING RGT ACC PATH OF V1 AND COLL OCC.

Vehicle Reference:1 Car Going ahead
First point of impact:Front
Vehicle direction: SE to NW Journey: Journey as part of work
Age of Driver : 45 Breath test:Not applicable

Contributory Factors : 701

Casualty Reference 1 Age:45 Male Driver/rider Severity:Slight
Ped Dir: Ped Movement :
Ped Location:

Vehicle Reference:2 Car Turning right
First point of impact:Offside
Vehicle direction: NW to SE Journey: Journey as part of work
Age of Driver : 36 Breath test:Not applicable

Contributory Factors : 701

Casualty Reference 2 Age:36 Female Driver/rider Severity:Slight
Ped Dir: Ped Movement :
Ped Location:

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection: **Notes:**
Selected using Manual Selection **Howarth Consultancy - Ash Howarth**

B-01290-09 25/11/2009 Wednesday Time:1455 Vehicles 1 Casualties 2 Serious
Easting: 433,081 Northing: 405,664
Raining with high winds Road Surface:Wet/Damp Daylight: no street lighting
Road Type: Dual carriageway Speed Limit: 40

Location: BROADWAY BARNSLEY
Description:PED RAN ACC ROAD INTO SIDE OF VEHICLE.

Vehicle Reference:1 Car Moving off
First point of impact:Nearside
Vehicle direction: S to N Journey: Taking pupil to/from school
Age of Driver : 43 Breath test:Not applicable

Contributory Factors : 802 808

Casualty Reference:1 Age:43 Female Driver/rider Severity:Slight
Ped Dir:Pedestrian Dir Ped Movement : Not pedestrian
Ped Location:

Casualty Reference:2 Age:11 Male Pedestrian Severity:Serious
Ped Dir:Pedestrian Dir Ped Movement : Movement U/K
Ped Location:In carr not crossing

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection: **Notes:**
Selected using Manual Selection **Howarth Consultancy - Ash Howarth**

B-01480-09 26/12/2009 Saturday Time:0727 Vehicles 1 Casualties 1 Slight
Easting: 433,316 Northing: 405,402
Fine without high winds Road Surface:Frost/Ice Darkness: street lights present and lit
Road Type: Dual carriageway Speed Limit: 40

Location: BROADWAY BARNSLEY 75 MTS FROM KERESFORTH HILL RD
Description:DRIVER LOST CONTROL ON ICE COLLIDING WITH WALL.

Vehicle Reference:1 Car Going ahead
First point of impact:Front
Vehicle direction: SE to NW Journey: Journey as part of work
Age of Driver : 28 Breath test:Not applicable

Contributory Factors : 103

Casualty Reference:1 Age:28 Female Driver/rider Severity:Slight
Ped Dir:Pedestrian Di Ped Movement : Not pedestrian
Ped Location:

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection: **Notes:**
Selected using Manual Selection **Howarth Consultancy - Ash Howarth**

B-01113-10 20/10/2010 Wednesday Time:1515 Vehicles 2 Casualties 1 Slight
Easting: 433,232 Northing: 405,545
Fine without high winds Road Surface:Dry Daylight: no street lighting
Road Type: Single carriageway Speed Limit: 30

Location: KERESFORTH CL BARNSLEY AT J/W BRAODWAY
Description:V1 WAITING AT JCT TO MOVE OFF WHEN V2 COLL WITH REAR OF V1.

Vehicle Reference:1 Car Waiting to go ahead but held up
First point of impact:Back
Vehicle direction: NE to SW Journey: Journey as part of work
Age of Driver : 57 Breath test:Not applicable

Contributory Factors : 405

Casualty Reference:1 Age:57 Female Driver/rider Severity:Slight
Ped Dir:Pedestrian Di Ped Movement : Not pedestrian
Ped Location:

Vehicle Reference:2 Car Going ahead
First point of impact:Front
Vehicle direction: NE to SW Journey: Not known
Age of Driver : 37 Breath test:Not applicable

Contributory Factors : 405

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection: **Notes:**
Selected using Manual Selection **Howarth Consultancy - Ash Howarth**

B-01093-12 09/11/2012 Friday Time:1539 Vehicles 2 Casualties 1 Slight
Easting: 433,497 Northing: 405,360
Raining without high winds Road Surface:Wet/Damp Daylight:street lights present
Road Type: Dual carriageway Speed Limit: 30

Location: KERESFORTH HILL RD / BANTON DR BARNSLEY
Description:V1 IN LINE OF TF WAITING TO TV STRAIGHT FORWARD, DRIVER DECIDED TO MOVE INTO R/H LANE TO AVOID QUEUEING IN TF. V2 TV DOWN R/H LN WHEN V1 PULLED OUT. V2 BRAKED BUT WAS UNABLE TO AVOID COLLISION.

Vehicle Reference:1 Car Changing lane to right
First point of impact:Back
Vehicle direction: E to W Journey: Not known
Age of Driver : 64 Breath test:Negative

Contributory Factors : 403 405 406 710

Vehicle Reference:2 Van or Goods <= 3.5 tonnes m Going ahead
First point of impact:Front
Vehicle direction: E to W Journey: Journey as part of work
Age of Driver : 44 Breath test:Negative

Contributory Factors : 403 405 406 710

Casualty Reference 1 Age:26 Male Passenger Severity:Slight
Ped Dir:Pedestrian Di Ped Movement : Not pedestrian
Ped Location:

Accidents between dates 01/01/2008 and 31/12/2012 (60) months
Selection:
Selected using Manual Selection

Notes:
Howarth Consultancy - Ash Howarth

Accidents involving:

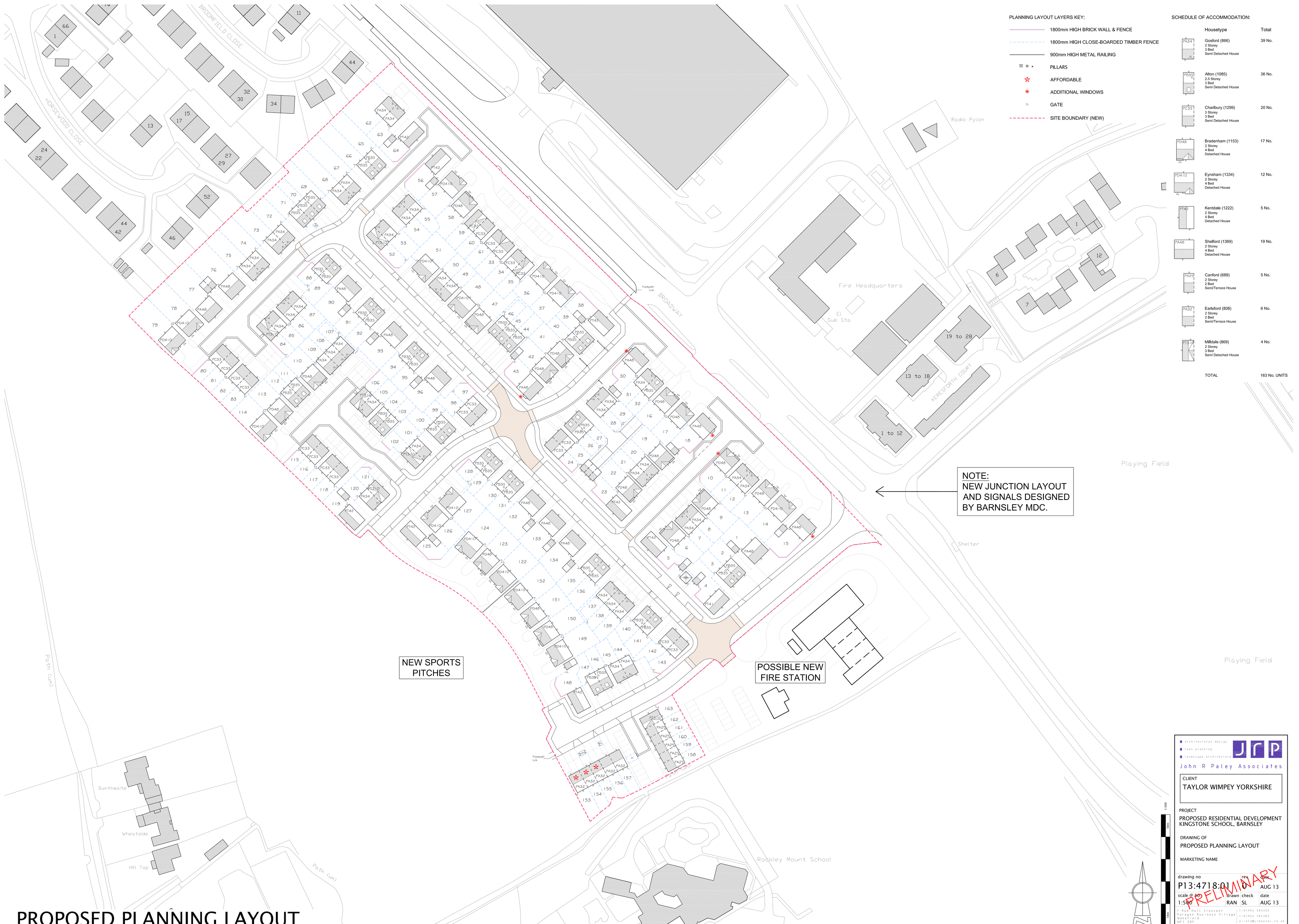
	Fatal	Serious	Slight	Total
Motor vehicles only excluding 2-wheels	0	1	4	5
2-wheeled motor vehicles	0	0	0	0
Pedal cycles	0	0	0	0
Horses & other	0	0	0	0
Total	0	1	4	5

Casualties:

	Fatal	Serious	Slight	Total
Vehicle driver	0	0	5	5
Passenger	0	0	1	1
Motorcycle ride	0	0	0	0
Cyclist	0	0	0	0
Pedestrian	0	1	0	1
Other	0	0	0	0
Total	0	1	6	7

Appendix D

Proposed Layout Plan



PLANNING LAYOUT LAYERS KEY:

- 1800mm HIGH BRICK WALL & FENCE
- 1800mm HIGH CLOSE-BOARDED TIMBER FENCE
- 900mm HIGH METAL RAILING
- PILLARS
- AFFORDABLE
- ADDITIONAL WINDOWS
- GATE
- SITE BOUNDARY (NEW)

SCHEDULE OF ACCOMMODATION:

Housetype		Total
PA34	Gosford (866) 2 Storey 3 Bed Semi Detached House	39 No.
PB35	Alton (1085) 2.5 Storey 3 Bed Semi Detached House	36 No.
PC33	Charlbury (1299) 3 Storey 3 Bed Semi Detached House	20 No.
PD46	Bradenham (1153) 2 Storey 4 Bed Detached House	17 No.
PD410	Eynsham (1334) 2 Storey 4 Bed Detached House	12 No.
PT42	Kentdale (1222) 2 Storey 4 Bed Detached House	5 No.
PA46	Shelford (1369) 2 Storey 4 Bed Detached House	19 No.
PA29	Canford (689) 2 Storey 2 Bed Semi/Terrace House	5 No.
PA32	Earlsford (808) 2 Storey 2 Bed Semi/Terrace House	6 No.
PF31	Milldale (869) 2 Storey 3 Bed Semi Detached House	4 No.
	TOTAL	163 No. UNITS

PROPOSED PLANNING LAYOUT

architectural design
town planning
landscape architecture
John R Paley Associates

CLIENT
TAYLOR WIMPEY YORKSHIRE

PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT
KINGSTONE SCHOOL, BARNSLEY

DRAWING OF
PROPOSED PLANNING LAYOUT

MARKETING NAME

drawing no	rev	date
P13:4718:01	D	AUG 13
scale @ A0	drawn	check	date
1:500	RAN	SL	AUG 13

PRELIMINARY

1 Wood Hall Crescent
Paragon Business Village
Wakefield
WF1 2DF
T:01924 383722
F:01924 384382
e-info@jrpassoc.co.uk

Appendix E

Flow Diagrams and Distribution Analysis Table

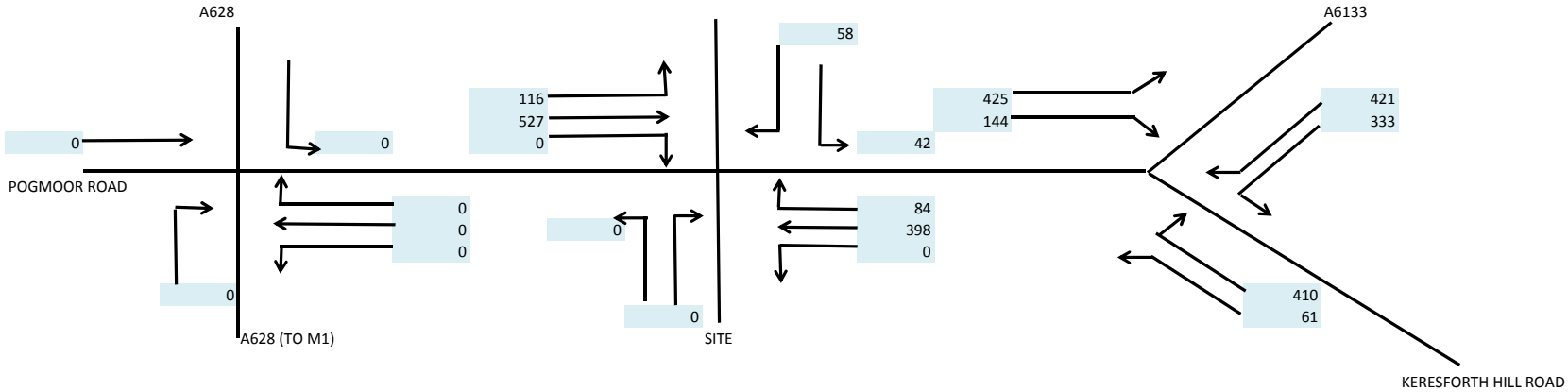
2001 census - UK travel flows (ward)

area of residence 00CCFU : South West (2003 CAS ward)
date 2001

area of workplace	T203:1 (Total : All people)	T203:21 (Taxi : All people)	T203:25 (Car - driver : All people)	T203:29 (Car - passenger : All people)	T203:33 (Motorcycle etc : All people)					A628 (M1)	A628 Town Ctre	Pogmoor Rd	A6133 Town Ctre	Keresforth Hill Rd	total		A628 (M1)	A628 Town Ctre	Pogmoor Rd	A6133 Town Ctre	Keresforth Hill Rd
Bradford	18	0	18	0	0		18	0.76%		1					1		0.76%				
Calderdale	6	0	6	0	0		6	0.25%		1					1		0.25%				
Doncaster	51	0	48	3	0		51	2.14%			0.25		0.75		1			0.54%		1.61%	
Kirklees	47	0	39	3	0		42	1.76%		1					1		1.76%				
Leeds	143	0	124	6	3		133	5.59%		1					1		5.59%				
Selby	13	0	13	0	0		13	0.55%		1					1		0.55%				
Chesterfield	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
Corby	3	3	0	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
North East Derbyshire	6	0	6	0	0		6	0.25%		0.2				0.8	1		0.05%				0.20%
Barnsley																					
00CCFA : Ardsley	98	6	66	11	0		83	3.49%					1		1					3.49%	
00CCFB : Athersley	54	0	40	5	3		48	2.02%			1				1			2.02%			
00CCFC : Brierley	22	0	14	0	0		14	0.59%			0.6		0.4		1			0.35%		0.24%	
00CCFD : Central	760	7	294	59	0		360	15.12%			0.75		0.25		1			11.34%		3.78%	
00CCFE : Cudworth	14	0	11	3	0		14	0.59%			0.6		0.4		1			0.35%		0.24%	
00CCFF : Darfield	10	0	7	3	0		10	0.42%			0.2		0.8		1			0.08%		0.34%	
00CCFG : Darton	96	0	67	13	3		83	3.49%				1			1				3.49%		
00CCFH : Dearne South	13	0	10	0	0		10	0.42%			0.2		0.8		1			0.08%		0.34%	
00CCFJ : Dearne Thurnscoe	8	0	5	0	0		5	0.21%			0.2		0.8		1			0.04%		0.17%	
00CCFK : Dodworth	166	0	114	18	3		135	5.67%		0.25		0.5		0.25	1		1.42%		2.83%		1.42%
00CCFL : Hoyland East	20	0	14	6	0		20	0.84%					0.6	0.4	1					0.50%	0.34%
00CCFM : Hoyland West	42	0	29	3	3		35	1.47%					0.6	0.4	1					0.88%	0.59%
00CCFN : Monk Bretton	90	3	61	8	3		75	3.15%			0.75		0.25		1			2.36%		0.79%	
00CCFP : North West	124	0	50	5	0		55	2.31%			0.75	0.25			1			1.73%	0.58%		
00CCFQ : Park	85	6	36	7	6		55	2.31%					1		1					2.31%	
00CCFR : Penistone East	59	0	40	7	3		50	2.10%		0.25		0.25	0.25	0.25	1		0.52%		0.52%	0.52%	0.52%
00CCFS : Penistone West	38	0	25	3	3		31	1.30%		1					1		1.30%				
00CCFT : Royston	63	0	44	8	3		55	2.31%			1				1			2.31%			
00CCFU : South West	1,054	0	295	66	0		361	15.16%		0.05	0.23	0.22	0.5		1		0.76%	3.49%	3.34%	7.58%	
00CCFW : Wombwell North	55	0	35	3	3		41	1.72%					1		1					1.72%	
00CCFX : Wombwell South	33	0	22	5	0		27	1.13%					1		1					1.13%	
00CCFY : Worsbrough	27	0	21	3	0		24	1.01%					1		1					1.01%	
Rotherham																					
00CFFA : Anston and Woodsett	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CFFB : Aston, Orgreave and	7	0	7	0	0		7	0.29%		0.2				0.8	1		0.06%				0.24%
00CFFC : Boston	13	0	13	0	0		13	0.55%		0.2				0.8	1		0.11%				0.44%
00CFFD : Bramley, Ravenfield	7	0	7	0	0		7	0.29%		0.1			0.6	0.3	1		0.03%			0.18%	0.09%
00CFFE : Brampton, Melton and	13	0	13	0	0		13	0.55%					0.5	0.5	1					0.27%	0.27%
00CFFF : Brinsworth, Catcliffe a	3	0	0	3	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CFFG : Broom	0	0	0	0	0										0						
00CFFH : Central	30	0	24	6	0		30	1.26%		0.2				0.8	1		0.25%				1.01%
00CFFJ : Dalton, Hooton Rober	0	0	0	0	0										0						
00CFFK : Greasbrough	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CFFL : Herringthorpe	4	0	4	0	0		4	0.17%		0.1			0.6	0.3	1		0.02%			0.10%	0.05%
00CFFM : Kimberworth	0	0	0	0	0										0						
00CFFN : Kiveton Park	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CFFP : Maltby	0	0	0	0	0										0						
00CFFQ : Park	0	0	0	0	0										0						
00CFFR : Rawmarsh East	0	0	0	0	0										0						
00CFFS : Rawmarsh West	5	0	5	0	0		5	0.21%		0.1			0.2	0.7	1		0.02%			0.04%	0.15%
00CFFT : St. John's	3	0	3	0	0		3	0.13%		0.1			0.5	0.4	1		0.01%			0.06%	0.05%
00CFFU : Swinton	3	0	3	0	0		3	0.13%					0.8	0.2	1					0.10%	0.03%
00CFFW : Thorpe Hesley	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CFFX : Thurcroft and Whisto	0	0	0	0	0										0						
00CFFY : Wath	38	0	26	6	0		32	1.34%					0.75	0.25	1					1.01%	0.34%

Sheffield																					
00CGFA : Beauchief	0	0	0	0	0										0						
00CGFB : Birley	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CGFC : Brightside	6	0	6	0	0		6	0.25%		0.2				0.8	1		0.05%				0.20%
00CGFD : Broomhill	12	0	9	3	0		12	0.50%		0.2				0.8	1		0.10%				0.40%
00CGFE : Burngreave	31	0	19	6	3		28	1.18%		0.2				0.8	1		0.24%				0.94%
00CGFF : Castle	20	0	7	3	0		10	0.42%		0.2				0.8	1		0.08%				0.34%
00CGFG : Chapel Green	8	0	5	0	3		8	0.34%		0.2				0.8	1		0.07%				0.27%
00CGFH : Darnall	37	0	25	3	0		28	1.18%		0.2				0.8	1		0.24%				0.94%
00CGFJ : Dore	0	0	0	0	0										0						
00CGFK : Ecclesall	0	0	0	0	0										0						
00CGFL : Firth Park	17	0	14	0	0		14	0.59%		0.2				0.8	1		0.12%				0.47%
00CGFM : Hallam	0	0	0	0	0										0						
00CGFN : Handsworth	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CGFP : Heeley	0	0	0	0	0										0						
00CGFQ : Hillsborough	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CGFR : Intake	0	0	0	0	0										0						
00CGFS : Manor	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CGFT : Mosborough	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CGFU : Nether Edge	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CGFW : Nether Shire	0	0	0	0	0										0						
00CGFX : Netherthorpe	41	0	25	3	0		28	1.18%		0.2				0.8	1		0.24%				0.94%
00CGFY : Norton	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CGFZ : Owlerton	6	0	6	0	0		6	0.25%		0.2				0.8	1		0.05%				0.20%
00CGGA : Park	3	0	3	0	0		3	0.13%		0.2				0.8	1		0.03%				0.10%
00CGGB : Sharrow	22	0	15	0	0		15	0.63%		0.2				0.8	1		0.13%				0.50%
00CGGD : South Wortley	6	0	6	0	0		6	0.25%		0.2				0.8	1		0.05%				0.20%
00CGGC : Southey Green	0	0	0	0	0										0						
00CGGE : Stocksbridge	17	0	17	0	0		17	0.71%		0.2				0.8	1		0.14%				0.57%
00CGGF : Walkley	0	0	0	0	0										0						
Wakefield																					
00DBFA : Castleford Ferry Frys	0	0	0	0	0										0						
00DBFB : Castleford Glasshoug	0	0	0	0	0										0						
00DBFC : Castleford Whitwood	17	0	14	3	0		17	0.71%		0.75	0.25				1		0.54%	0.18%			
00DBFD : Crofton and Ackworth	6	0	3	3	0		6	0.25%			1				1			0.25%			
00DBFE : Featherstone	3	0	3	0	0		3	0.13%			1				1			0.13%			
00DBFF : Hemsworth	7	0	7	0	0		7	0.29%			1				1			0.29%			
00DBFG : Horbury	6	0	6	0	0		6	0.25%		0.75		0.25			1		0.19%		0.06%		
00DBFH : Knottingley	3	0	3	0	0		3	0.13%			0.5		0.5		1			0.06%		0.06%	
00DBFJ : Normanton and Sharl	0	0	0	0	0										0						
00DBFK : Ossett	8	0	5	3	0		8	0.34%		0.75		0.25			1		0.25%		0.08%		
00DBFL : Pontefract North	4	0	4	0	0		4	0.17%		0.75	0.25				1		0.13%	0.04%			
00DBFM : Pontefract South	0	0	0	0	0										0						
00DBFN : South Elmsall	8	0	5	3	0		8	0.34%			1				1			0.34%			
00DBFP : South Kirkby	11	0	8	3	0		11	0.46%			1				1			0.46%			
00DBFQ : Stanley and Altofts	10	0	4	0	0		4	0.17%		0.75		0.25			1		0.13%		0.04%		
00DBFR : Stanley and Wrentho	19	0	16	0	0		16	0.67%		0.75		0.25			1		0.50%		0.17%		
00DBFS : Wakefield Central	24	0	24	0	0		24	1.01%		0.75		0.25			1		0.76%		0.25%		
00DBFT : Wakefield East	28	0	25	3	0		28	1.18%		0.75		0.25			1		0.88%		0.29%		
00DBFU : Wakefield North	24	0	18	3	0		21	0.88%		1					1		0.88%				
00DBFW : Wakefield Rural	11	0	8	3	0		11	0.46%		0.75		0.25			1		0.35%		0.12%		
00DBFX : Wakefield South	4	0	4	0	0		4	0.17%			0.75	0.25			1			0.13%	0.04%		
							2,381	100.00%									19.93%	26.58%	11.82%	28.46%	13.21%

FIG 3 AM PEAK (08:00 TO 09:00) - TRAFFIC SURVEY FLOWS

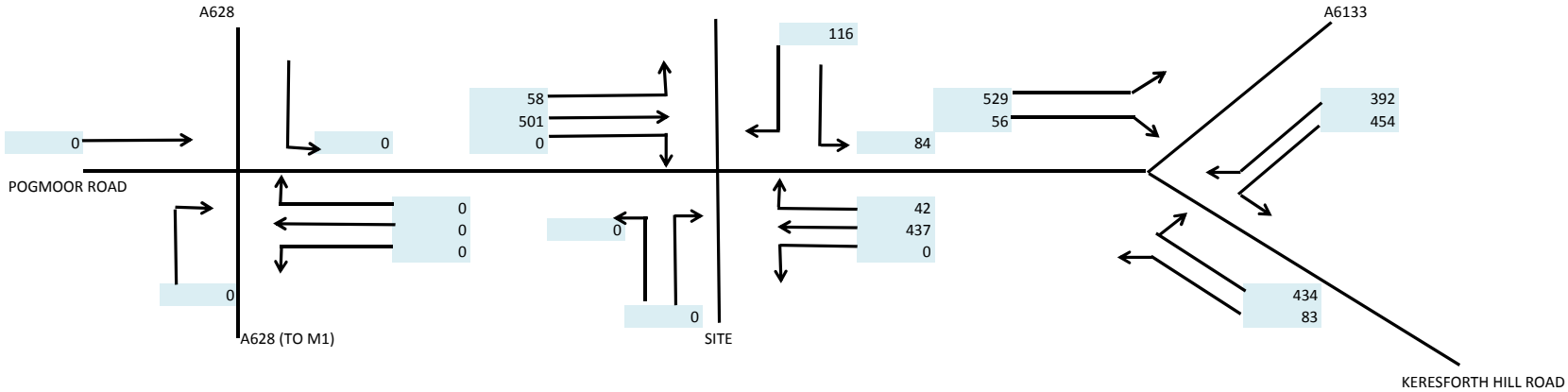


Junction 3 - A628 / Broadway / Pogmoor Road					
	TO				
FROM	A	B	C	D	
A	X	0	0	0	
B	0	X	0	0	
C	0	0	X	0	
D	0	0	0	X	

Junction 1 - Broadway / Site Access / Keresforth Close					
	TO				
FROM	A	B	C	D	
A	X	0	398	84	
B	0	X	0	0	
C	527	0	X	116	
D	42	0	58	X	

Junction 2 - Broadway / Keresforth Hill Road / A6133					
	TO				
FROM	A	B	C		
A	X	333	421		
B	410	X	61		
C	425	144	X		

FIG 4 PM PEAK (16:30 TO 17:30) - TRAFFIC SURVEY FLOWS



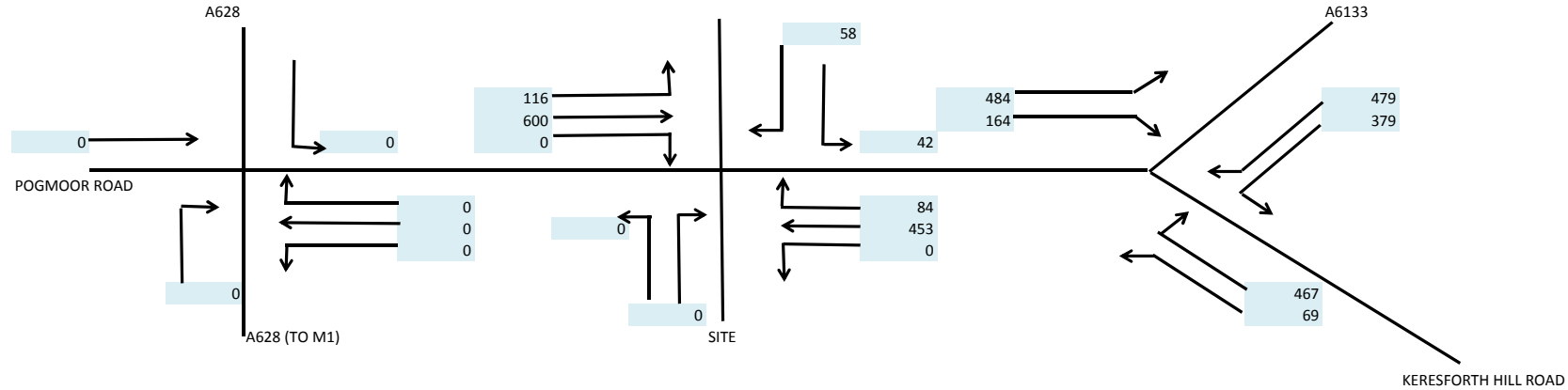
Junction 3 - A628 / Broadway / Pogmoor Road					
	TO				
FROM	A	B	C	D	
A	X	0	0	0	
B	0	X	0	0	
C	0	0	X	0	
D	0	0	0	X	

Junction 1 - Broadway / Site Access / Keresforth Close					
	TO				
FROM	A	B	C	D	
A	X	0	437	42	
B	0	X	0	0	
C	501	0	X	58	
D	84	0	116	X	

Junction 2 - Broadway / Keresforth Hill Road / A6133					
	TO				
FROM	A	B	C		
A	X	454	392		
B	434	X	83		
C	529	56	X		

FIG 5 AM PEAK 2024 DESIGN YEAR FLOWS

Traffic Growth Factor = 1.1381 2013 to 2024



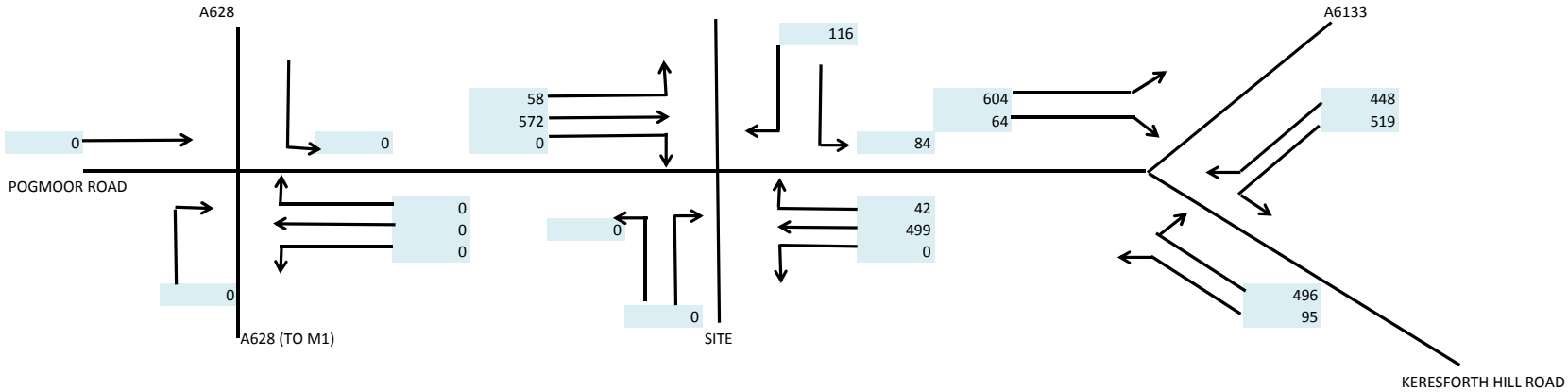
Junction 3 - A628 / Broadway / Pogmoor Road					
	TO				
FROM	A	B	C	D	
A	X	0	0	0	
B	0	X	0	0	
C	0	0	X	0	
D	0	0	0	X	

Junction 1 - Broadway / Site Access / Keresforth Close					
	TO				
FROM	A	B	C	D	
A	X	0	453	84	
B	0	X	0	0	
C	600	0	X	116	
D	42	0	58	X	

Junction 2 - Broadway / Keresforth Hill Road / A6133					
	TO				
FROM	A	B	C		
A	X	379	479		
B	467	X	69		
C	484	164	X		

FIG 6 PM PEAK 2024 DESIGN YEAR FLOWS

Traffic Growth Factor = 1.1426 2013 to 2024

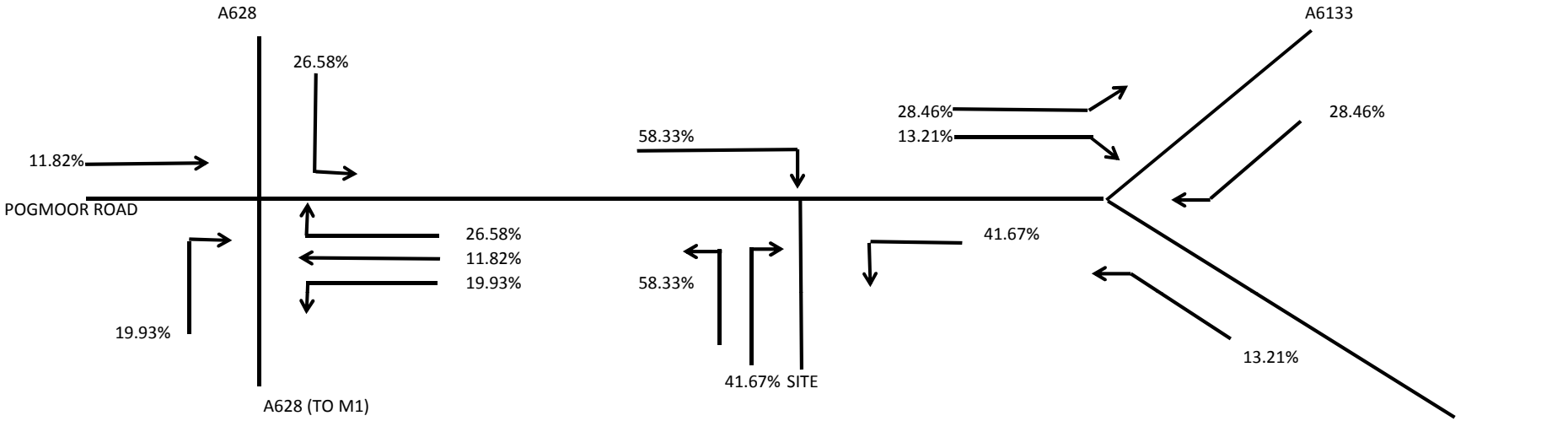


Junction 3 - A628 / Broadway / Pogmoor Road					
	TO				
FROM	A	B	C	D	
A	X	0	0	0	
B	0	X	0	0	
C	0	0	X	0	
D	0	0	0	X	

Junction 1 - Broadway / Site Access / Keresforth Close					
	TO				
FROM	A	B	C	D	
A	X	0	499	42	
B	0	X	0	0	
C	572	0	X	58	
D	84	0	116	X	

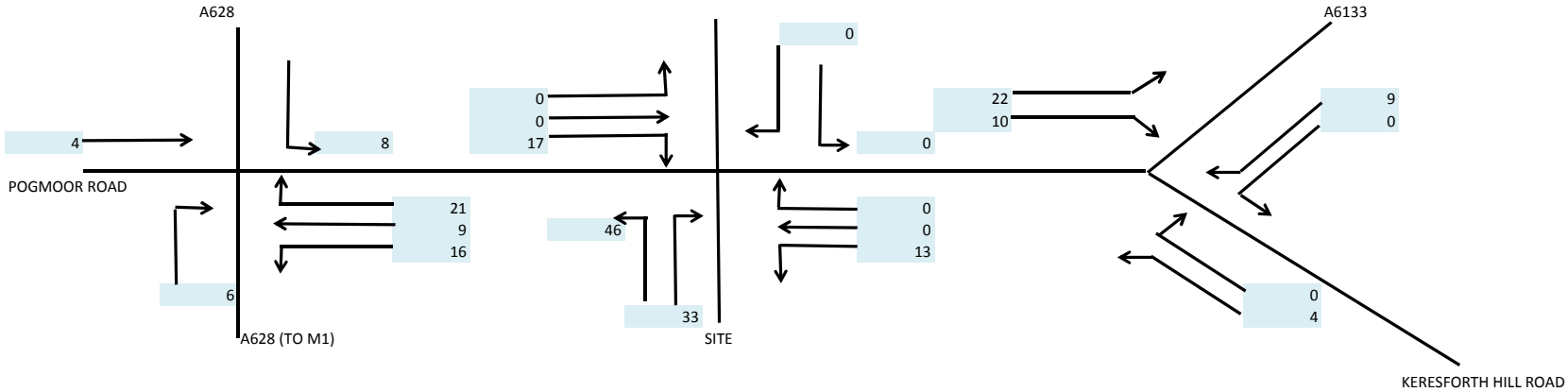
Junction 2 - Broadway / Keresforth Hill Road / A6133					
	TO				
FROM	A	B	C		
A	X	519	448		
B	496	X	95		
C	604	64	X		

FIG 7 PEAK FLOW DISTRIBUTIONS



TRIP DISTRIBUTION FROM CENSUS DATA

FIG 8 AM PEAK NEW DEVELOPMENT FLOWS



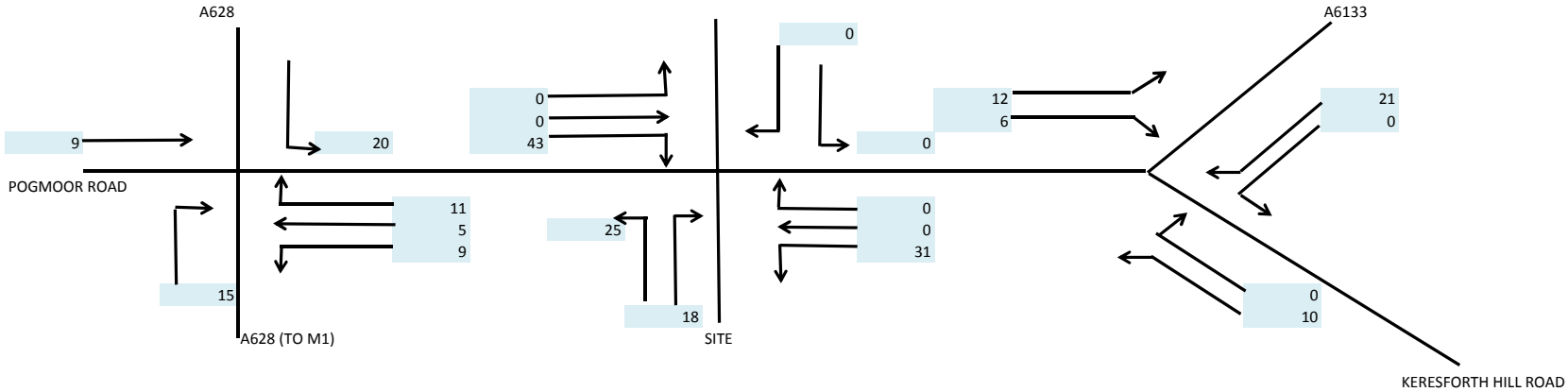
Junction 3 - A628 / Broadway / Pogmoor Road					
	TO				
FROM	A	B	C	D	
A	X	16	9	21	
B	6	X	0	0	
C	4	0	X	0	
D	8	0	0	X	

Junction 1 - Broadway / Site Access / Keresforth Close					
	TO				
FROM	A	B	C	D	
A	X	13	0	0	
B	33	X	46	0	
C	0	17	X	0	
D	0	0	0	X	

arr	30
dep	79

Junction 2 - Broadway / Keresforth Hill Road / A6133					
	TO				
FROM	A	B	C		
A	X	0	9		
B	0	X	4		
C	22	10	X		

FIG 9 PM PEAK NEW DEVELOPMENT FLOWS



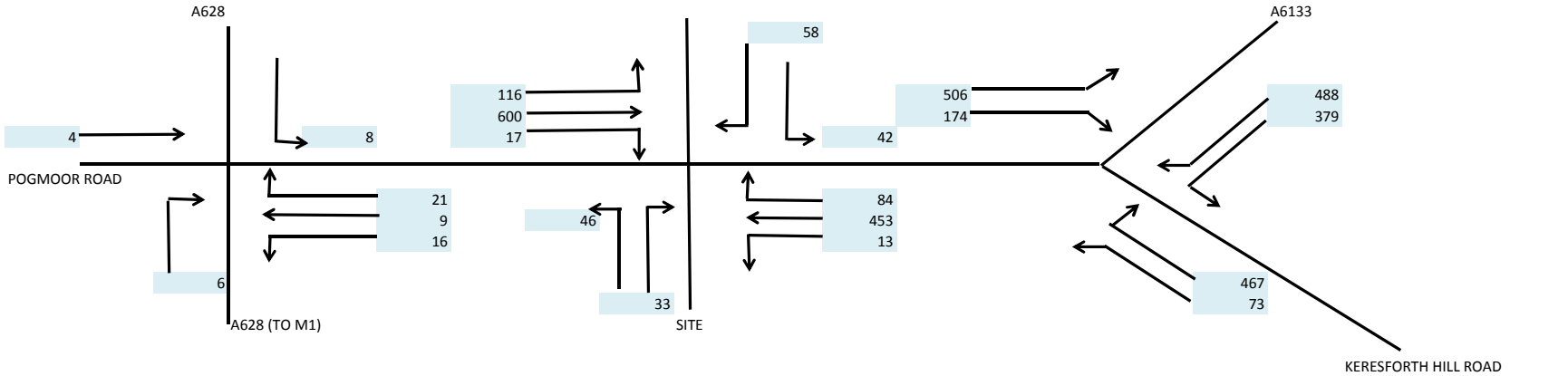
Junction 3 - A628 / Broadway / Pogmoor Road					
	TO				
FROM	A	B	C	D	
A	X	9	5	11	
B	15	X	0	0	
C	9	0	X	0	
D	20	0	0	X	

Junction 1 - Broadway / Site Access / Keresforth Close					
	TO				
FROM	A	B	C	D	
A	X	31	0	0	
B	18	X	25	0	
C	0	43	X	0	
D	0	0	0	X	

arr	74
dep	43

Junction 2 - Broadway / Keresforth Hill Road / A6133					
	TO				
FROM	A	B	C		
A	X	0	21		
B	0	X	10		
C	12	6	X		

FIG 10 AM PEAK BASE + NEW DEVELOPMENT FLOWS

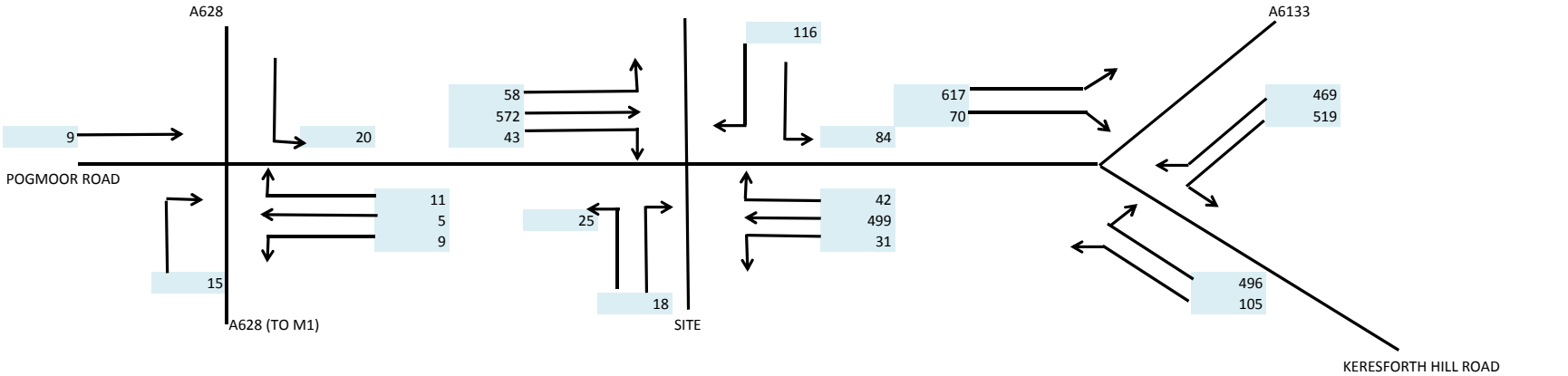


Junction 3 - A628 / Broadway / Pogmoor Road					
	TO				
FROM	A	B	C	D	
A	X	16	9	21	
B	6	X	0	0	
C	4	0	X	0	
D	8	0	0	X	

Junction 1 - Broadway / Site Access / Keresforth Close					
	TO				
FROM	A	B	C	D	
A	X	13	453	84	
B	33	X	46	0	
C	600	17	X	116	
D	42	0	58	X	

Junction 2 - Broadway / Keresforth Hill Road / A6133					
	TO				
FROM	A	B	C		
A	X	379	488		
B	467	X	73		
C	506	174	X		

FIG 11 PM PEAK BASE + NEW DEVELOPMENT FLOWS



Junction 3 - A628 / Broadway / Pogmoor Road					
	TO				
FROM	A	B	C	D	
A	X	9	5	11	
B	15	X	0	0	
C	9	0	X	0	
D	20	0	0	X	

Junction 1 - Broadway / Site Access / Keresforth Close					
	TO				
FROM	A	B	C	D	
A	X	31	499	42	
B	18	X	25	0	
C	572	43	X	58	
D	84	0	116	X	

Junction 2 - Broadway / Keresforth Hill Road / A6133					
	TO				
FROM	A	B	C		
A	X	519	469		
B	496	X	105		
C	617	70	X		

Appendix F

TRICS Data

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	BD	BEDFORDSHIRE	2 days
	EX	ESSEX	1 days
	HF	HERTFORDSHIRE	1 days
	SC	SURREY	2 days
03	SOUTH WEST		
	CW	CORNWALL	2 days
	GS	GLOUCESTERSHIRE	1 days
	WL	WILTSHIRE	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
	SF	SUFFOLK	3 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
	LE	LEICESTERSHIRE	1 days
	LN	LINCOLNSHIRE	2 days
	NT	NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	2 days
	ST	STAFFORDSHIRE	1 days
	WM	WEST MIDLANDS	3 days
	WO	WORCESTERSHIRE	4 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	3 days
08	NORTH WEST		
	CH	CHESHIRE	2 days
	LC	LANCASHIRE	2 days
	MS	MERSEYSIDE	1 days
09	NORTH		
	CB	CUMBRIA	3 days
	TV	TEES VALLEY	1 days
	TW	TYNE & WEAR	1 days
10	WALES		
	CF	CARDIFF	3 days
	CP	CAERPHILLY	1 days
	WR	WREXHAM	1 days

Filtering Stage 2 selection:

Parameter: Number of dwellings
Range: 10 to 372 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/02 to 05/09/10

Selected survey days:

Monday	10 days
Tuesday	12 days
Wednesday	6 days
Thursday	13 days
Friday	6 days

Selected survey types:

Manual count	47 days
Directional ATC Count	0 days

Selected Locations:

Edge of Town Centre	4
Suburban Area (PPS6 Out of Centre)	19
Edge of Town	21
Neighbourhood Centre (PPS6 Local Centre)	3

Selected Location Sub Categories:

Residential Zone	33
Village	1
Out of Town	1
No Sub Category	12

LIST OF SITES relevant to selection parameters

1 BD-03-A-01 SEMI DETACHED, LUTON BEDFORDSHIRE
NEW BEDFORD ROAD

LUTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 131

2 BD-03-A-02 SEMI DETACHED, LUTON BEDFORDSHIRE
RIDDY LANE

LUTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 82

3 CA-03-A-02 MIXED HOUSES, PETERBOROUGH CAMBRIDGESHIRE
THORPE ROAD

PETERBOROUGH
Edge of Town Centre
Residential Zone
Total Number of dwellings: 363

4 CB-03-A-02 SEMI DETACHED, WORKINGTON CUMBRIA
HAWKSHEAD AVENUE

WORKINGTON
Edge of Town
Residential Zone
Total Number of dwellings: 40

5 CB-03-A-03 SEMI DETACHED, WORKINGTON CUMBRIA
HAWKSHEAD AVENUE

WORKINGTON
Edge of Town
Residential Zone
Total Number of dwellings: 40

6 CB-03-A-04 SEMI DETACHED, WORKINGTON CUMBRIA
MOORCLOSE ROAD
SALTERBACK
WORKINGTON
Edge of Town
No Sub Category
Total Number of dwellings: 82

7 CF-03-A-01 MIXED HOUSES, CARDIFF CARDIFF
VIRGIL STREET
NINIAN PARK
CARDIFF
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 222

8 CF-03-A-02 MIXED HOUSES, CARDIFF CARDIFF
DROPE ROAD

CARDIFF
Edge of Town
Residential Zone
Total Number of dwellings: 196

9 CF-03-A-03 DETACHED, CARDIFF CARDIFF
LLANTRISANT ROAD

CARDIFF
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 29

LIST OF SITES relevant to selection parameters (Cont.)

10 CH-03-A-05 DETACHED, CREWE CHESHIRE
SYDNEY ROAD
SYDNEY
CREWE
Edge of Town
Residential Zone
Total Number of dwellings: 17

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

CREWE
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 129

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

PENGAM
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 41

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

PENZANCE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 13

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

TRURO
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 73

15 DS-03-A-01 SEMI D./TERRACED, DRONFIELD DERBYSHIRE
THE AVENUE
HOLMESDALE
DRONFIELD
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Number of dwellings: 20

16 EX-03-A-01 SEMI-DET., STANFORD-LE-HOPE ESSEX
MILTON ROAD
CORRINGHAM
STANFORD-LE-HOPE
Edge of Town
Residential Zone
Total Number of dwellings: 237

17 GS-03-A-01 SEMI D./TERRACED, GLOUCESTER GLOUCESTERSHIRE
KINGSHOLM ROAD
KINGSHOLM
GLOUCESTER
Edge of Town Centre
No Sub Category
Total Number of dwellings: 73

18 HF-03-A-01 MIXED HOUSES, WELWYN GC HERTFORDSHIRE
LONGCROFT LANE

WELWYN GARDEN CITY
Edge of Town Centre
Residential Zone
Total Number of dwellings: 53

LIST OF SITES relevant to selection parameters (Cont.)

19 LC-03-A-22 BUNGALOWS, BLACKPOOL LANCASHIRE
CLIFTON DRIVE NORTH

BLACKPOOL
Edge of Town
Residential Zone
Total Number of dwellings: 98

20 LC-03-A-29 DETACHED/SEMI D., BLACKBURN LANCASHIRE
REVIDGE ROAD
FOUR LANE ENDS
BLACKBURN
Edge of Town
Residential Zone
Total Number of dwellings: 185

21 LE-03-A-01 DETACHED, MELTON MOWBRAY LEICESTERSHIRE
REDWOOD AVENUE

MELTON MOWBRAY
Edge of Town
Residential Zone
Total Number of dwellings: 11

22 LN-03-A-01 MIXED HOUSES, LINCOLN LINCOLNSHIRE
BRANT ROAD
BRACEBRIDGE
LINCOLN
Edge of Town
Residential Zone
Total Number of dwellings: 150

23 LN-03-A-02 MIXED HOUSES, LINCOLN LINCOLNSHIRE
HYKEHAM ROAD

LINCOLN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 186

24 MS-03-A-01 TERRACED, RUNCORN MERSEYSIDE
PALACE FIELDS AVENUE

RUNCORN
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Number of dwellings: 372

25 NT-03-A-03 SEMI DETACHED,KIRKBY-IN-ASHFD NOTTINGHAMSHIRE
B6018 SUTTON ROAD

KIRKBY-IN-ASHFIELD
Edge of Town
Residential Zone
Total Number of dwellings: 166

26 NY-03-A-01 MIXED HOUSES,NORTHALLERTON NORTH YORKSHIRE
GRAMMAR SCHOOL LANE

NORTHALLERTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 52

27 NY-03-A-03 PRIVATE HOUSING, BOROUGHBRIDGE NORTH YORKSHIRE
NEW ROW

BOROUGHBRIDGE
Edge of Town Centre
Residential Zone
Total Number of dwellings: 14

LIST OF SITES relevant to selection parameters (Cont.)

28 NY-03-A-05 HOUSES AND FLATS, RIPON NORTH YORKSHIRE
BOROUGHBRIDGE ROAD

RIPON
Edge of Town
No Sub Category
Total Number of dwellings: 71

29 SC-03-A-03 DETACHED, EAST MOLESEY SURREY
A3050 HURST ROAD
HURST PARK
EAST MOLESEY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 54

30 SC-03-A-04 HOUSES & FLATS,NEAR FRIMLEY SURREY
DEEPCUT BRIDGE ROAD
DEEPCUT
NEAR FRIMLEY
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Number of dwellings: 288

31 SF-03-A-01 SEMI DETACHED, IPSWICH SUFFOLK
A1156 FELIXSTOWE ROAD
RACECOURSE
IPSWICH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 77

32 SF-03-A-02 SEMI DET./TERRACED, IPSWICH SUFFOLK
STOKE PARK DRIVE
MAIDENHALL
IPSWICH
Edge of Town
Residential Zone
Total Number of dwellings: 230

33 SF-03-A-03 MIXED HOUSES, BURY ST EDMDS SUFFOLK
BARTON HILL
FORNHAM ST MARTIN
BURY ST EDMUNDS
Edge of Town
Out of Town
Total Number of dwellings: 101

34 SH-03-A-03 DETATCHED, SHREWSBURY SHROPSHIRE
SOMERBY DRIVE
BICTON HEATH
SHREWSBURY
Edge of Town
No Sub Category
Total Number of dwellings: 10

35 SH-03-A-04 TERRACED, SHREWSBURY SHROPSHIRE
ST MICHAEL'S STREET

SHREWSBURY
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 108

36 ST-03-A-05 TERRACED/DETACHED, STOKE STAFFORDSHIRE
WATERMEET GROVE
ETRURIA
STOKE-ON-TRENT
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 14

LIST OF SITES relevant to selection parameters (Cont.)

37 TV-03-A-01 MIXED HOUSES/FLATS, HARTLEPL TEES VALLEY
POWLETT ROAD

HARTLEPOOL
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 225

38 TW-03-A-01 SEMI DETACHED, SUNDERLAND TYNE & WEAR
LEECHMERE ROAD
HILLVIEW
SUNDERLAND
Edge of Town
Residential Zone
Total Number of dwellings: 81

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

WOOTTON BASSETT
Edge of Town
Residential Zone
Total Number of dwellings: 99

40 WM-03-A-01 TERRACED, COVENTRY WEST MIDLANDS
FOLESHILL ROAD
FOLESHILL
COVENTRY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 79

41 WM-03-A-02 DETACHED/SEMI D., STRBRIDGE WEST MIDLANDS
HEATH STREET

STOURBRIDGE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 12

42 WM-03-A-03 MIXED HOUSING, COVENTRY WEST MIDLANDS
BASELEY WAY
ROWLEYS GREEN
COVENTRY
Edge of Town
Residential Zone
Total Number of dwellings: 84

43 WO-03-A-01 DETACHED, BROMSGROVE WORCESTERSHIRE
MARLBOROUGH AVENUE
ASTON FIELDS
BROMSGROVE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 10

44 WO-03-A-02 SEMI DETACHED, REDDITCH WORCESTERSHIRE
MEADOWHILL ROAD

REDDITCH
Edge of Town
No Sub Category
Total Number of dwellings: 48

45 WO-03-A-03 DETACHED, KIDDERMINSTER WORCESTERSHIRE
BLAKEBROOK
BLAKEBROOK
KIDDERMINSTER
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 138

LIST OF SITES relevant to selection parameters (Cont.)

46	WO-03-A-06	DET./TERRACED, BROMSGROVE	WORCESTERSHIRE
	ST GODWALDS ROAD		
	ASTON FIELDS		
	BROMSGROVE		
	Edge of Town		
	No Sub Category		
	Total Number of dwellings:	232	
47	WR-03-A-01	SEMI DETACHED, WREXHAM	WREXHAM
	MOLD ROAD		
	RHOSDDU		
	WREXHAM		
	Edge of Town		
	No Sub Category		
	Total Number of dwellings:	82	

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	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	47	109	0.076	47	109	0.263	47	109	0.339
08:00 - 09:00	47	109	0.159	47	109	0.418	47	109	0.577
09:00 - 10:00	47	109	0.175	47	109	0.220	47	109	0.395
10:00 - 11:00	47	109	0.149	47	109	0.186	47	109	0.335
11:00 - 12:00	47	109	0.177	47	109	0.177	47	109	0.354
12:00 - 13:00	47	109	0.203	47	109	0.180	47	109	0.383
13:00 - 14:00	47	109	0.186	47	109	0.181	47	109	0.367
14:00 - 15:00	47	109	0.191	47	109	0.194	47	109	0.385
15:00 - 16:00	47	109	0.285	47	109	0.214	47	109	0.499
16:00 - 17:00	47	109	0.329	47	109	0.205	47	109	0.534
17:00 - 18:00	47	109	0.390	47	109	0.228	47	109	0.618
18:00 - 19:00	47	109	0.282	47	109	0.215	47	109	0.497
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			2.602			2.681			5.283

Parameter summary

Trip rate parameter range selected:	10 - 372 (units:)
Survey date date range:	01/01/02 - 05/09/10
Number of weekdays (Monday-Friday):	47
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL OGVS
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	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	47	109	0.002	47	109	0.003	47	109	0.005
08:00 - 09:00	47	109	0.003	47	109	0.003	47	109	0.006
09:00 - 10:00	47	109	0.005	47	109	0.004	47	109	0.009
10:00 - 11:00	47	109	0.003	47	109	0.004	47	109	0.007
11:00 - 12:00	47	109	0.002	47	109	0.003	47	109	0.005
12:00 - 13:00	47	109	0.005	47	109	0.004	47	109	0.009
13:00 - 14:00	47	109	0.004	47	109	0.004	47	109	0.008
14:00 - 15:00	47	109	0.002	47	109	0.003	47	109	0.005
15:00 - 16:00	47	109	0.002	47	109	0.002	47	109	0.004
16:00 - 17:00	47	109	0.002	47	109	0.001	47	109	0.003
17:00 - 18:00	47	109	0.001	47	109	0.001	47	109	0.002
18:00 - 19:00	47	109	0.000	47	109	0.001	47	109	0.001
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			0.031			0.033			0.064

Parameter summary

Trip rate parameter range selected:	10 - 372 (units:)
Survey date date range:	01/01/02 - 05/09/10
Number of weekdays (Monday-Friday):	47
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PSVS
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	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	47	109	0.000	47	109	0.000	47	109	0.000
08:00 - 09:00	47	109	0.001	47	109	0.001	47	109	0.002
09:00 - 10:00	47	109	0.000	47	109	0.001	47	109	0.001
10:00 - 11:00	47	109	0.000	47	109	0.001	47	109	0.001
11:00 - 12:00	47	109	0.001	47	109	0.000	47	109	0.001
12:00 - 13:00	47	109	0.000	47	109	0.001	47	109	0.001
13:00 - 14:00	47	109	0.000	47	109	0.000	47	109	0.000
14:00 - 15:00	47	109	0.000	47	109	0.000	47	109	0.000
15:00 - 16:00	47	109	0.001	47	109	0.001	47	109	0.002
16:00 - 17:00	47	109	0.001	47	109	0.000	47	109	0.001
17:00 - 18:00	47	109	0.000	47	109	0.000	47	109	0.000
18:00 - 19:00	47	109	0.001	47	109	0.000	47	109	0.001
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			0.005			0.005			0.010

Parameter summary

Trip rate parameter range selected:	10 - 372 (units:)
Survey date date range:	01/01/02 - 05/09/10
Number of weekdays (Monday-Friday):	47
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

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	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	47	109	0.006	47	109	0.011	47	109	0.017
08:00 - 09:00	47	109	0.004	47	109	0.014	47	109	0.018
09:00 - 10:00	47	109	0.002	47	109	0.004	47	109	0.006
10:00 - 11:00	47	109	0.003	47	109	0.004	47	109	0.007
11:00 - 12:00	47	109	0.004	47	109	0.003	47	109	0.007
12:00 - 13:00	47	109	0.004	47	109	0.004	47	109	0.008
13:00 - 14:00	47	109	0.003	47	109	0.003	47	109	0.006
14:00 - 15:00	47	109	0.004	47	109	0.003	47	109	0.007
15:00 - 16:00	47	109	0.012	47	109	0.008	47	109	0.020
16:00 - 17:00	47	109	0.013	47	109	0.010	47	109	0.023
17:00 - 18:00	47	109	0.014	47	109	0.010	47	109	0.024
18:00 - 19:00	47	109	0.010	47	109	0.007	47	109	0.017
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			0.079			0.081			0.160

Parameter summary

Trip rate parameter range selected:	10 - 372 (units:)
Survey date date range:	01/01/02 - 05/09/10
Number of weekdays (Monday-Friday):	47
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

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	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	47	109	0.085	47	109	0.316	47	109	0.401
08:00 - 09:00	47	109	0.194	47	109	0.624	47	109	0.818
09:00 - 10:00	47	109	0.210	47	109	0.286	47	109	0.496
10:00 - 11:00	47	109	0.187	47	109	0.244	47	109	0.431
11:00 - 12:00	47	109	0.220	47	109	0.222	47	109	0.442
12:00 - 13:00	47	109	0.254	47	109	0.229	47	109	0.483
13:00 - 14:00	47	109	0.239	47	109	0.231	47	109	0.470
14:00 - 15:00	47	109	0.250	47	109	0.245	47	109	0.495
15:00 - 16:00	47	109	0.443	47	109	0.287	47	109	0.730
16:00 - 17:00	47	109	0.448	47	109	0.290	47	109	0.738
17:00 - 18:00	47	109	0.515	47	109	0.311	47	109	0.826
18:00 - 19:00	47	109	0.368	47	109	0.307	47	109	0.675
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			3.413			3.592			7.005

Parameter summary

Trip rate parameter range selected:	10 - 372 (units:)
Survey date date range:	01/01/02 - 05/09/10
Number of weekdays (Monday-Friday):	47
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

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	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	47	109	0.022	47	109	0.051	47	109	0.073
08:00 - 09:00	47	109	0.041	47	109	0.173	47	109	0.214
09:00 - 10:00	47	109	0.042	47	109	0.056	47	109	0.098
10:00 - 11:00	47	109	0.031	47	109	0.044	47	109	0.075
11:00 - 12:00	47	109	0.041	47	109	0.042	47	109	0.083
12:00 - 13:00	47	109	0.045	47	109	0.035	47	109	0.080
13:00 - 14:00	47	109	0.041	47	109	0.042	47	109	0.083
14:00 - 15:00	47	109	0.037	47	109	0.044	47	109	0.081
15:00 - 16:00	47	109	0.152	47	109	0.061	47	109	0.213
16:00 - 17:00	47	109	0.079	47	109	0.049	47	109	0.128
17:00 - 18:00	47	109	0.073	47	109	0.051	47	109	0.124
18:00 - 19:00	47	109	0.058	47	109	0.052	47	109	0.110
19:00 - 20:00	1	29	0.069	1	29	0.034	1	29	0.103
20:00 - 21:00	1	29	0.034	1	29	0.000	1	29	0.034
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			0.765			0.734			1.499

Parameter summary

Trip rate parameter range selected:	10 - 372 (units:)
Survey date date range:	01/01/02 - 05/09/10
Number of weekdays (Monday-Friday):	47
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

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	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	47	109	0.001	47	109	0.016	47	109	0.017
08:00 - 09:00	47	109	0.006	47	109	0.024	47	109	0.030
09:00 - 10:00	47	109	0.005	47	109	0.008	47	109	0.013
10:00 - 11:00	47	109	0.004	47	109	0.009	47	109	0.013
11:00 - 12:00	47	109	0.006	47	109	0.008	47	109	0.014
12:00 - 13:00	47	109	0.005	47	109	0.007	47	109	0.012
13:00 - 14:00	47	109	0.007	47	109	0.005	47	109	0.012
14:00 - 15:00	47	109	0.006	47	109	0.004	47	109	0.010
15:00 - 16:00	47	109	0.013	47	109	0.007	47	109	0.020
16:00 - 17:00	47	109	0.014	47	109	0.004	47	109	0.018
17:00 - 18:00	47	109	0.016	47	109	0.004	47	109	0.020
18:00 - 19:00	47	109	0.009	47	109	0.003	47	109	0.012
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			0.092			0.099			0.191

Parameter summary

Trip rate parameter range selected:	10 - 372 (units:)
Survey date date range:	01/01/02 - 05/09/10
Number of weekdays (Monday-Friday):	47
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

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	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	47	109	0.114	47	109	0.394	47	109	0.508
08:00 - 09:00	47	109	0.246	47	109	0.835	47	109	1.081
09:00 - 10:00	47	109	0.258	47	109	0.355	47	109	0.613
10:00 - 11:00	47	109	0.224	47	109	0.300	47	109	0.524
11:00 - 12:00	47	109	0.272	47	109	0.275	47	109	0.547
12:00 - 13:00	47	109	0.309	47	109	0.274	47	109	0.583
13:00 - 14:00	47	109	0.289	47	109	0.281	47	109	0.570
14:00 - 15:00	47	109	0.297	47	109	0.296	47	109	0.593
15:00 - 16:00	47	109	0.620	47	109	0.364	47	109	0.984
16:00 - 17:00	47	109	0.554	47	109	0.353	47	109	0.907
17:00 - 18:00	47	109	0.618	47	109	0.375	47	109	0.993
18:00 - 19:00	47	109	0.446	47	109	0.369	47	109	0.815
19:00 - 20:00	1	29	0.069	1	29	0.034	1	29	0.103
20:00 - 21:00	1	29	0.034	1	29	0.000	1	29	0.034
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			4.350			4.505			8.855

Parameter summary

Trip rate parameter range selected:	10 - 372 (units:)
Survey date date range:	01/01/02 - 05/09/10
Number of weekdays (Monday-Friday):	47
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

Appendix G

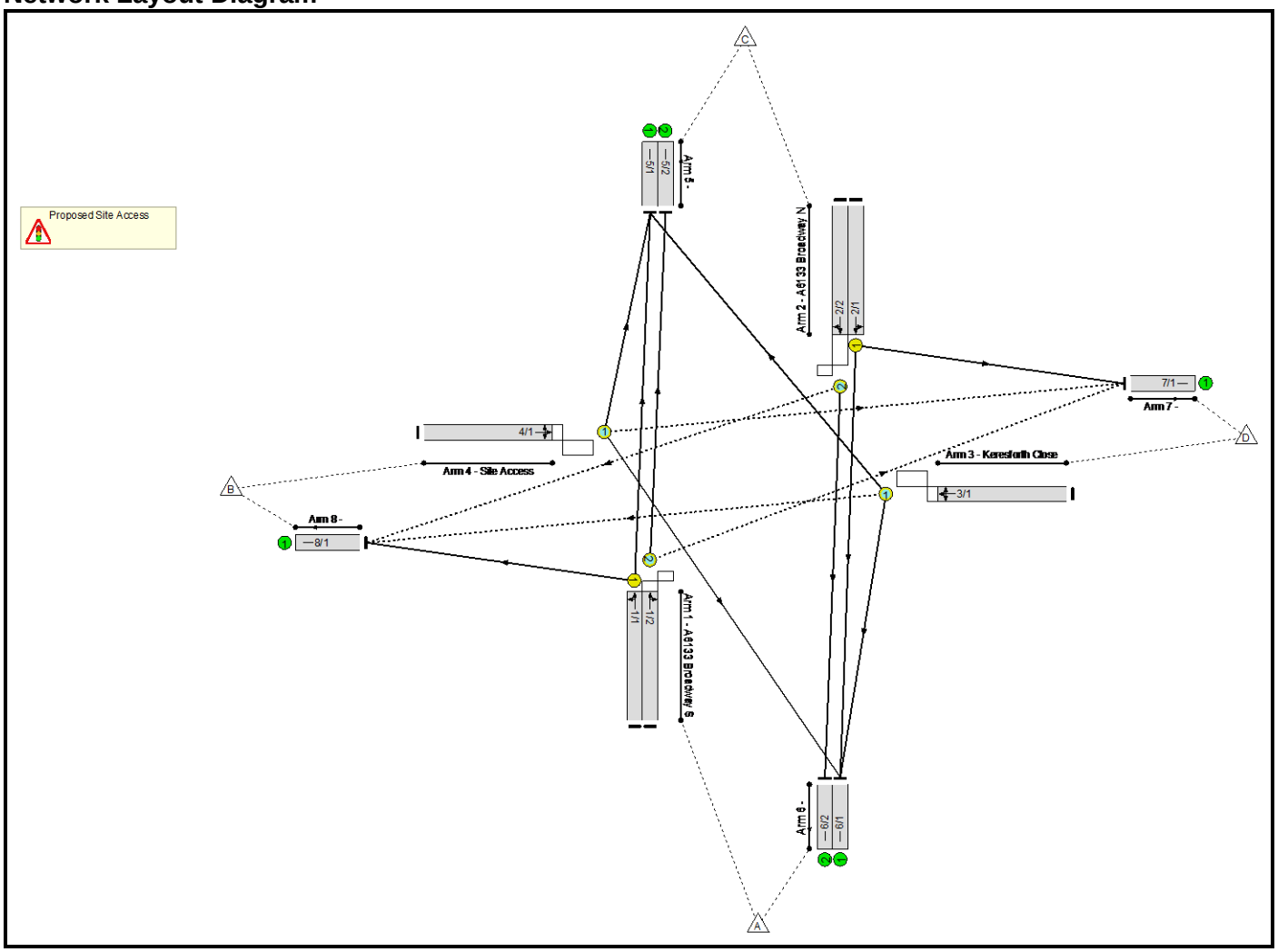
LINSIG Results

Full Input Data And Results

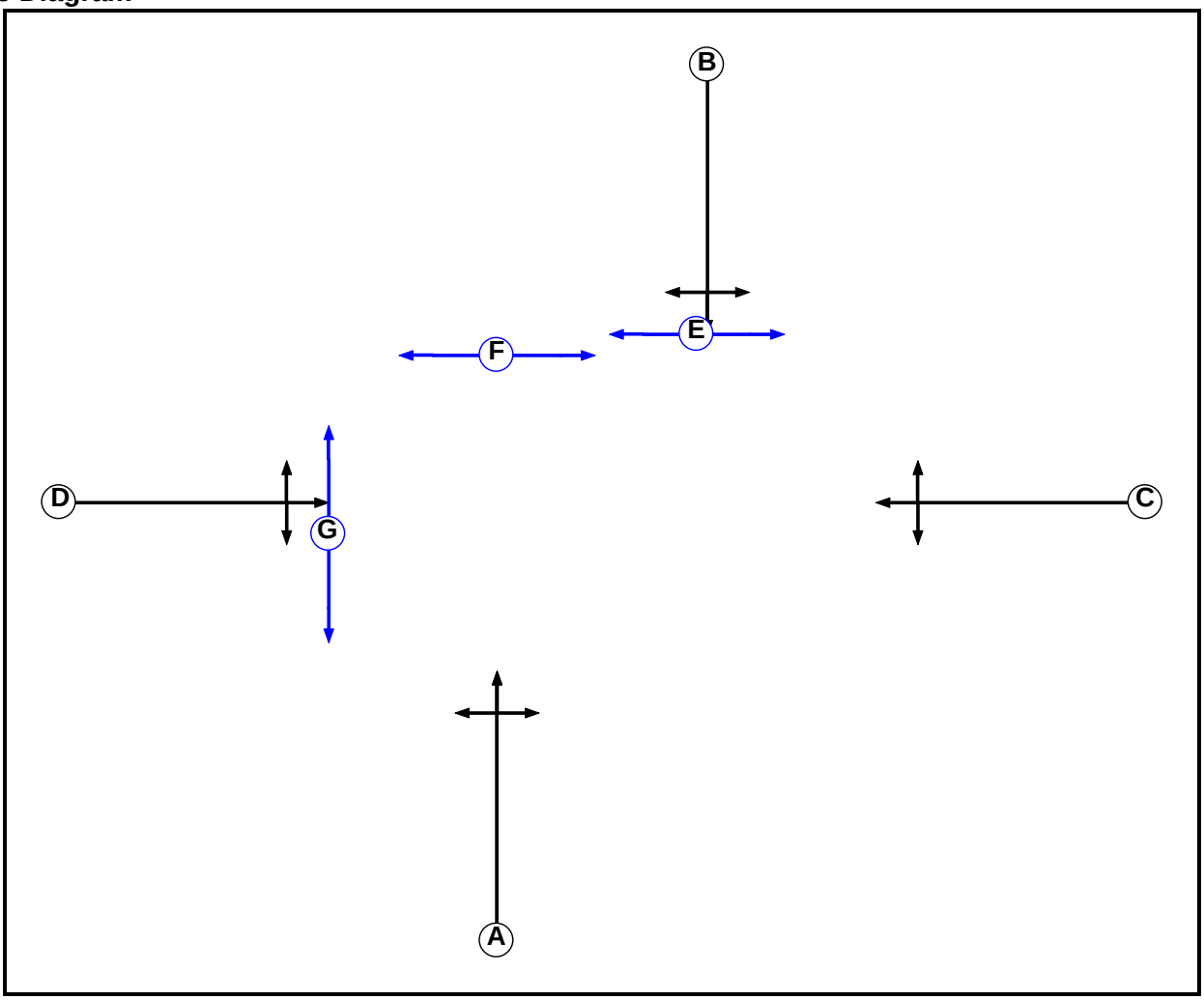
User and Project Details

Project:	**Kingstone School**
Title:	**Proposed Access Assessment**
Location:	Broadway / Keresforth Close
File name:	Site Access.lsg3x
Company:	PAH Highway Consultants
Address:	Unit 2 The Office Campus, Paragon Business Village, Red Hall Court, Wakefield, WF1 2UY

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		4	4
F	Pedestrian		5	0
G	Pedestrian		9	9

Full Input Data And Results

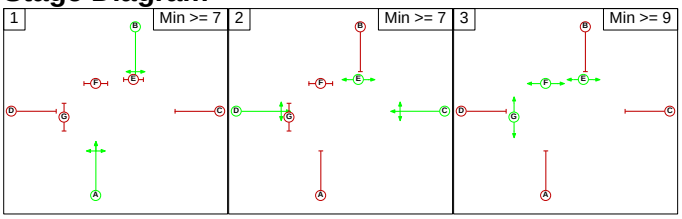
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G
A		-	6	5	-	8	6
B	-		6	5	5	-	9
C	6	5		-	-	9	9
D	5	5	-		-	7	5
E	-	6	-	-		-	-
F	5	-	5	6	-		-
G	10	8	8	11	-	-	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	D	Gaining absolute	6	6
3	1	E	Losing	4	4
3	1	F	Losing	5	5
3	2	C	Gaining absolute	11	11
3	2	F	Losing	5	5

Prohibited Stage Change

From Stage \ To Stage	1	2	3
1		6	9
2	6		9
3	10	11	

Give-Way Lane Input Data

Junction: Proposed Site Access											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
1/2 (A6133 Broadway S)	7/1 (Right)	1439	0	2/1	1.09	All	2.00	1.00	0.50	2	2.00
				2/2	1.09	To 6/2 (Ahead)					
2/2 (A6133 Broadway N)	8/1 (Right)	1439	0	1/1	1.09	All	4.00	1.00	0.50	4	2.00
				1/2	1.09	To 5/2 (Ahead)					
3/1 (Keresforth Close)	8/1 (Ahead)	1439	0	4/1	1.09	To 5/1 (Left) To 7/1 (Ahead)	4.00	3.00	0.50	4	2.00
4/1 (Site Access)	7/1 (Ahead)	1439	0	3/1	1.09	To 6/1 (Left) To 8/1 (Ahead)	4.00	3.00	0.50	4	2.00

Lane Input Data

Junction: Proposed Site Access												
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 (A6133 Broadway S)	U	A	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	12.00
1/2 (A6133 Broadway S)	O	A	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 5 Ahead	Inf
											Arm 7 Right	15.00
2/1 (A6133 Broadway N)	U	B	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 6 Ahead	Inf
											Arm 7 Left	10.00
2/2 (A6133 Broadway N)	O	B	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 6 Ahead	Inf
											Arm 8 Right	10.00
3/1 (Keresforth Close)	O	C	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 5 Right	12.00
											Arm 6 Left	8.00
											Arm 8 Ahead	Inf
4/1 (Site Access)	O	D	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Left	14.00
											Arm 6 Right	15.00
											Arm 7 Ahead	Inf
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/2	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: '2013 AM Peak Base'	07:45	08:45	01:00	
2: '2013 PM Peak Base'	16:15	17:15	01:00	
3: '2024 AM Peak Base'	07:45	08:45	01:00	
4: '2024 PM Peak Base'	16:15	17:45	01:30	
7: '2024 AM Peak Base + Dev'	07:45	08:45	01:00	F3+F5
8: '2024 PM Peak Base + Dev'	16:15	17:15	01:00	F4+F6

Scenario 1: '2024 AM Peak Base + Dev' (FG7: '2024 AM Peak Base + Dev', Plan 1: 'All Demand')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	13	453	84	550
	B	33	0	46	0	79
	C	600	17	0	116	733
	D	42	0	58	0	100
	Tot.	675	30	557	200	1462

Traffic Lane Flows

Lane	Scenario 1: 2024 AM Peak Base + Dev
Junction: Proposed Site Access	
1/1	466
1/2	84
2/1	359
2/2	374
3/1	100
4/1	79
5/1	557
5/2	0
6/1	318
6/2	357
7/1	200
8/1	30

Lane Saturation Flows

Junction: Proposed Site Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A6133 Broadway S)	3.75	0.00	Y	Arm 5 Ahead	Inf	97.2 %	1983	1983
				Arm 8 Left	12.00	2.8 %		
1/2 (A6133 Broadway S)	3.75	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1809	1809
				Arm 7 Right	15.00	100.0 %		
2/1 (A6133 Broadway N)	3.75	0.00	Y	Arm 6 Ahead	Inf	67.7 %	1898	1898
				Arm 7 Left	10.00	32.3 %		
2/2 (A6133 Broadway N)	3.75	0.00	Y	Arm 6 Ahead	Inf	95.5 %	1977	1977
				Arm 8 Right	10.00	4.5 %		
3/1 (Keresforth Close)	3.20	0.00	Y	Arm 5 Right	12.00	58.0 %	1681	1681
				Arm 6 Left	8.00	42.0 %		
				Arm 8 Ahead	Inf	0.0 %		
4/1 (Site Access)	3.50	0.00	Y	Arm 5 Left	14.00	58.2 %	1780	1780
				Arm 6 Right	15.00	41.8 %		
				Arm 7 Ahead	Inf	0.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2024 PM Peak Base + Dev' (FG8: '2024 PM Peak Base + Dev', Plan 1: 'All Demand')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	31	499	42	572
	B	18	0	25	0	43
	C	572	43	0	58	673
	D	84	0	116	0	200
	Tot.	674	74	640	100	1488

Traffic Lane Flows

Lane	Scenario 2: 2024 PM Peak Base + Dev
Junction: Proposed Site Access	
1/1	348
1/2	224
2/1	353
2/2	320
3/1	200
4/1	43
5/1	458
5/2	182
6/1	397
6/2	277
7/1	100
8/1	74

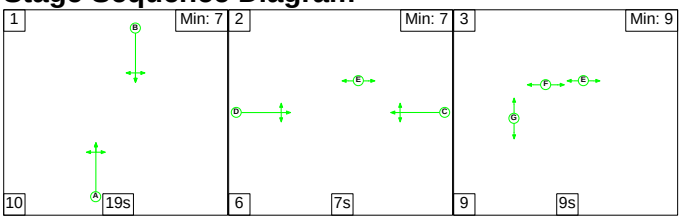
Lane Saturation Flows

Junction: Proposed Site Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A6133 Broadway S)	3.75	0.00	Y	Arm 5 Ahead	Inf	91.1 %	1968	1968
				Arm 8 Left	12.00	8.9 %		
1/2 (A6133 Broadway S)	3.75	0.00	Y	Arm 5 Ahead	Inf	81.3 %	1953	1953
				Arm 7 Right	15.00	18.8 %		
2/1 (A6133 Broadway N)	3.75	0.00	Y	Arm 6 Ahead	Inf	83.6 %	1942	1942
				Arm 7 Left	10.00	16.4 %		
2/2 (A6133 Broadway N)	3.75	0.00	Y	Arm 6 Ahead	Inf	86.6 %	1951	1951
				Arm 8 Right	10.00	13.4 %		
3/1 (Keresforth Close)	3.20	0.00	Y	Arm 5 Right	12.00	58.0 %	1681	1681
				Arm 6 Left	8.00	42.0 %		
				Arm 8 Ahead	Inf	0.0 %		
4/1 (Site Access)	3.50	0.00	Y	Arm 5 Left	14.00	58.1 %	1780	1780
				Arm 6 Right	15.00	41.9 %		
				Arm 7 Ahead	Inf	0.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 1: '2024 AM Peak Base + Dev' (FG7: '2024 AM Peak Base + Dev', Plan 1: 'All Demand')

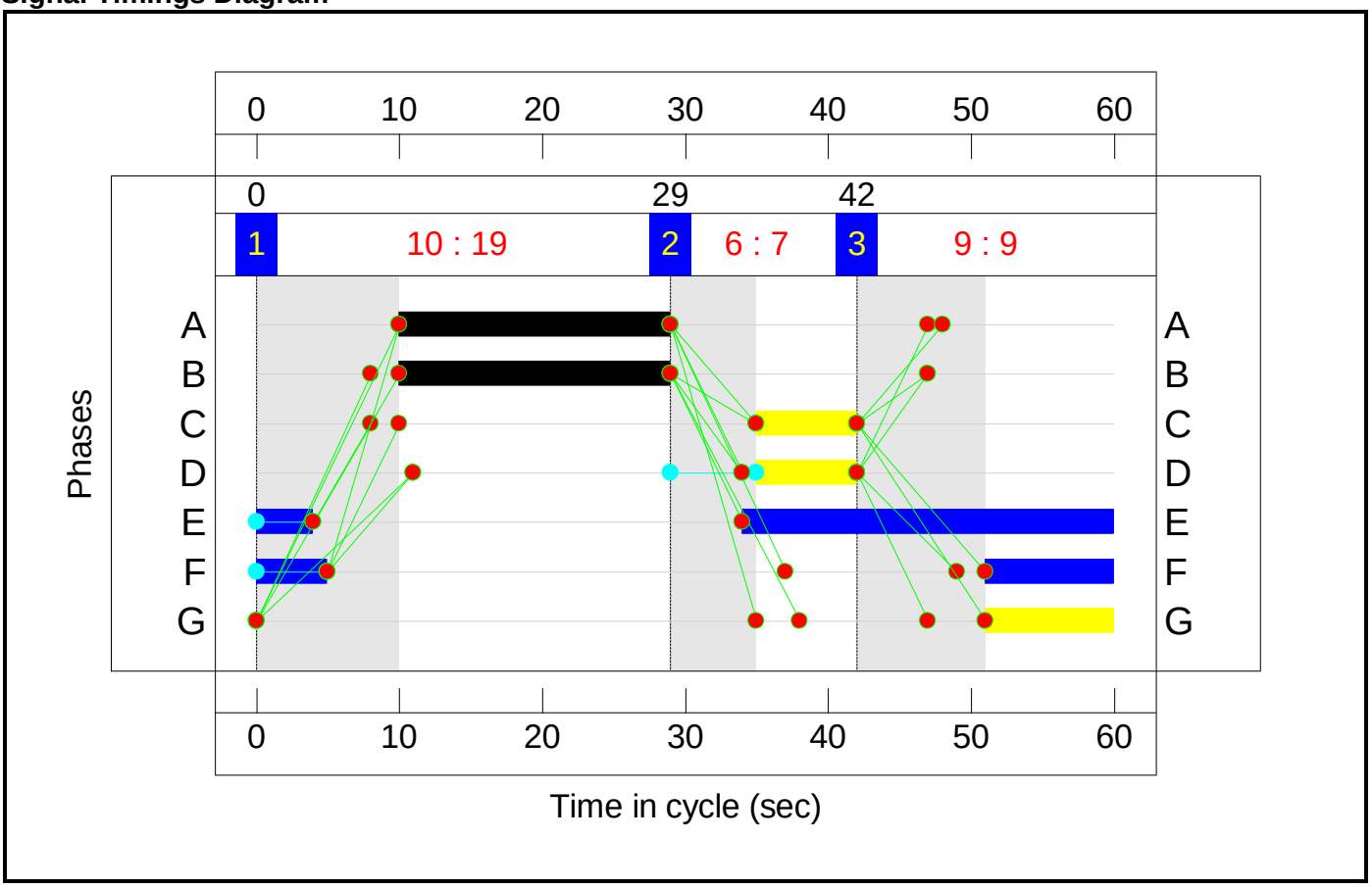
Stage Sequence Diagram



Stage Timings

Stage	1	2	3
Duration	19	7	9
Change Point	0	29	42

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/1	A6133 Broadway S Ahead Left	U	N/A	N/A	A		1	19	-	466	1983	661	70.5%
1/2	A6133 Broadway S Ahead Right	O	N/A	N/A	A		1	19	-	84	1809	164	51.3%
2/1	A6133 Broadway N Ahead Left	U	N/A	N/A	B		1	19	-	359	1898	633	56.7%
2/2	A6133 Broadway N Ahead Right	O	N/A	N/A	B		1	19	-	374	1977	647	57.8%
3/1	Keresforth Close Right Left Ahead	O	N/A	N/A	C		1	7	-	100	1681	224	44.6%
4/1	Site Access Left Right Ahead	O	N/A	N/A	D		1	7	-	79	1780	237	33.3%

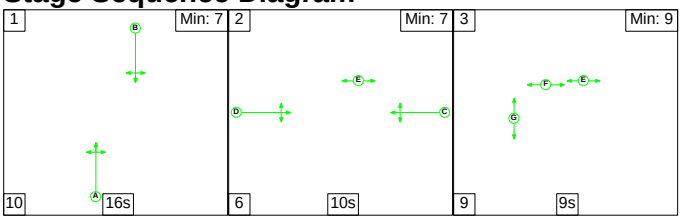
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
1/1	466	466	-	-	-	2.3	1.2	-	3.4	26.6	6.7	1.2	7.9
1/2	84	84	66	0	18	0.3	0.5	0.3	1.2	50.0	1.0	0.5	1.5
2/1	359	359	-	-	-	1.6	0.7	-	2.3	23.0	4.9	0.7	5.5
2/2	374	374	16	0	1	1.7	0.7	0.0	2.4	23.3	5.1	0.7	5.8
3/1	100	100	0	0	0	0.7	0.4	0.0	1.1	38.4	1.5	0.4	1.9
4/1	79	79	0	0	0	0.5	0.2	0.0	0.8	35.0	1.2	0.2	1.4

C1 PRC for Signalled Lanes (%): 27.7 Total Delay for Signalled Lanes (pcuHr): 11.15 Cycle Time (s): 60
PRC Over All Lanes (%): 27.7 Total Delay Over All Lanes(pcuHr): 11.15

Full Input Data And Results

Scenario 2: '2024 PM Peak Base + Dev' (FG8: '2024 PM Peak Base + Dev', Plan 1: 'All Demand')

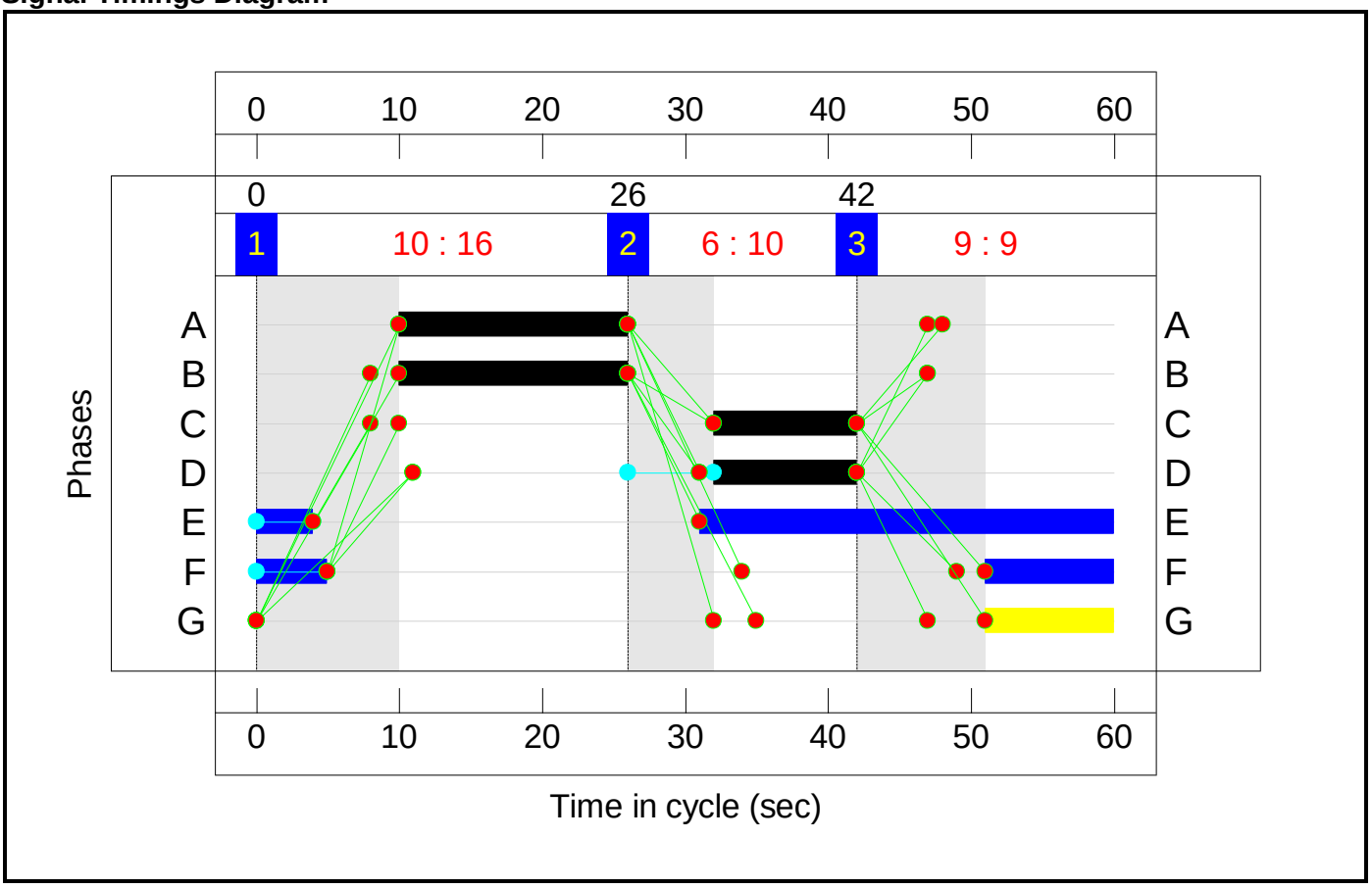
Stage Sequence Diagram



Stage Timings

Stage	1	2	3
Duration	16	10	9
Change Point	0	26	42

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/1	A6133 Broadway S Ahead Left	U	N/A	N/A	A		1	16	-	348	1968	558	62.4%
1/2	A6133 Broadway S Ahead Right	O	N/A	N/A	A		1	16	-	224	1953	412	54.4%
2/1	A6133 Broadway N Ahead Left	U	N/A	N/A	B		1	16	-	353	1942	550	64.2%
2/2	A6133 Broadway N Ahead Right	O	N/A	N/A	B		1	16	-	320	1951	511	62.6%
3/1	Keresforth Close Right Left Ahead	O	N/A	N/A	C		1	10	-	200	1681	308	64.9%
4/1	Site Access Left Right Ahead	O	N/A	N/A	D		1	10	-	43	1780	326	13.2%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
1/1	348	348	-	-	-	1.8	0.8	-	2.6	27.2	5.0	0.8	5.9
1/2	224	224	41	0	1	1.1	0.6	0.1	1.8	28.8	3.0	0.6	3.6
2/1	353	353	-	-	-	1.8	0.9	-	2.7	27.9	5.1	0.9	6.0
2/2	320	320	41	0	2	1.6	0.8	0.0	2.5	28.3	4.5	0.8	5.4
3/1	200	200	0	0	0	1.3	0.9	0.0	2.2	39.1	3.1	0.9	4.0
4/1	43	43	0	0	0	0.2	0.1	0.0	0.3	26.9	0.6	0.1	0.7

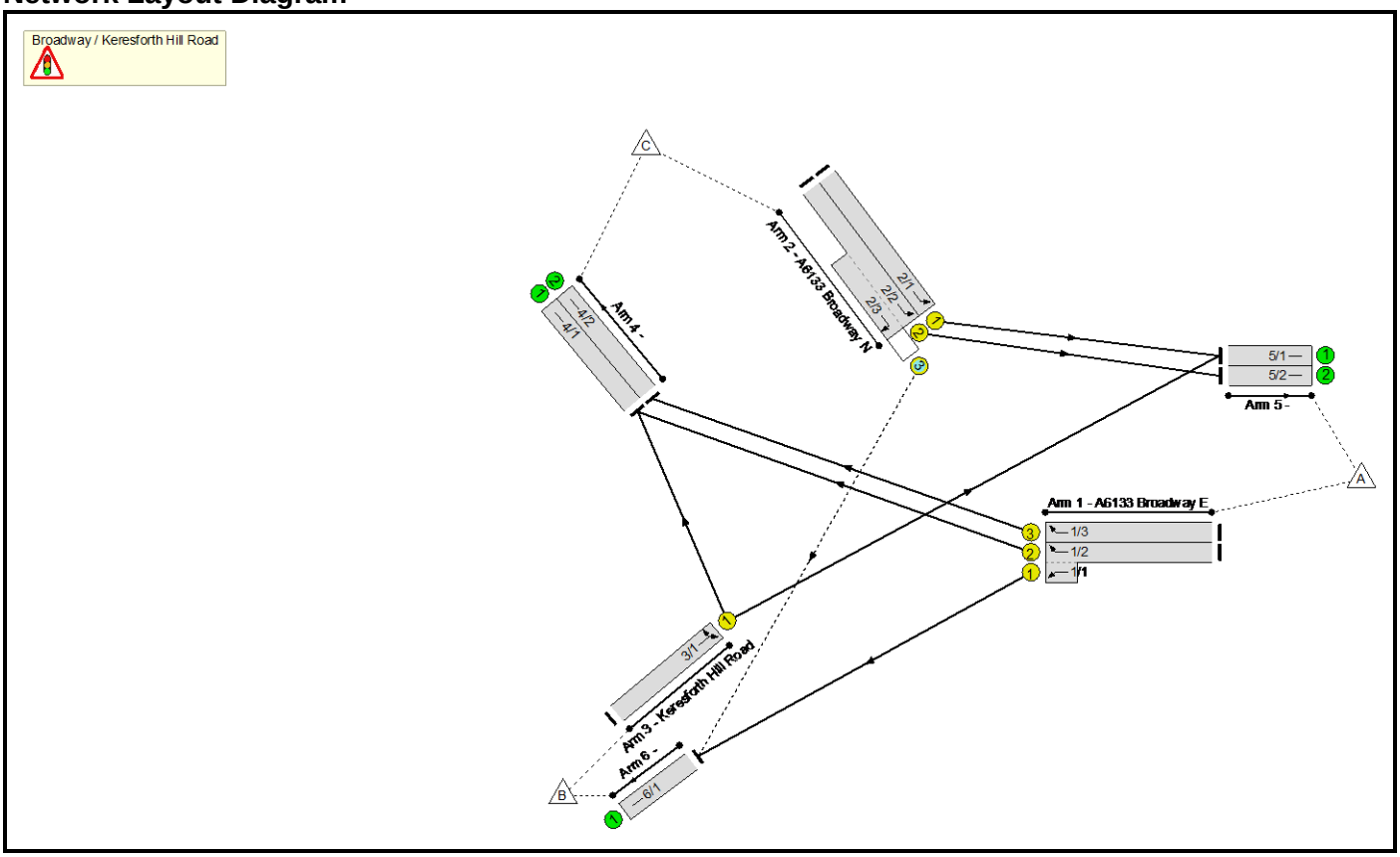
C1 PRC for Signalled Lanes (%): 38.7 Total Delay for Signalled Lanes (pcuHr): 12.17 Cycle Time (s): 60
PRC Over All Lanes (%): 38.7 Total Delay Over All Lanes(pcuHr): 12.17

Full Input Data And Results

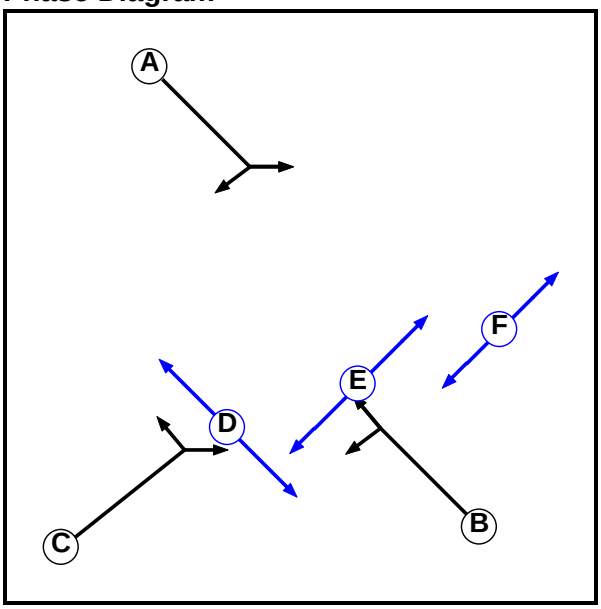
User and Project Details

Project:	**Kingstone School**
Title:	**Broadway / Keresforth Hill**
Location:	Broadway / Keresforth Hill
File name:	Keresforth Hill Road.lsg3x
Company:	PAH Highway Consultants
Address:	Unit 2 The Office Campus, Paragon Business Village, Red Hall Court, Wakefield, WF1 2UY

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		12	12
E	Pedestrian		9	9
F	Pedestrian		8	8

Phase Intergreens Matrix

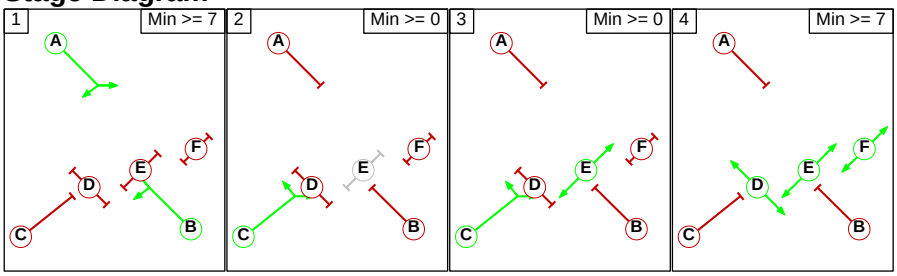
		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A		-	7	-	-	-
	B	-		7	-	5	-
	C	8	6		5	-	9
	D	7	9	-		-	-
	E	-	9	-	-		-
	F	7	-	-	-	-	

Phases in Stage

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

Full Input Data And Results

Stage Diagram



Phase Delays

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

Prohibited Stage Change

From Stage \ To Stage	1	2	3	4
1		7	7	5
2	8		0	9
3	9	0		9
4	9	2	2	

Give-Way Lane Input Data

Junction: Broadway / Keresforth Hill Road											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
2/3 (A6133 Broadway N)	6/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					
				1/3	1.09	All					

Lane Input Data

Junction: Broadway / Keresforth Hill Road												
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 (A6133 Broadway E)	U	B	2	3	2.4	Geom	-	3.75	0.00	Y	Arm 6 Ahead	7.00
1/2 (A6133 Broadway E)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 4 Right	Inf
1/3 (A6133 Broadway E)	U	B	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 4 Right	Inf
2/1 (A6133 Broadway N)	U	A	2	3	60.0	Geom	-	3.80	0.00	Y	Arm 5 Left	Inf
2/2 (A6133 Broadway N)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	Inf
2/3 (A6133 Broadway N)	O	A	2	3	7.0	Geom	-	3.80	0.00	Y	Arm 6 Right	Inf
3/1 (Keresforth Hill Road)	U	C	2	3	60.0	Geom	-	3.80	0.00	Y	Arm 4 Left	15.00
											Arm 5 Ahead	25.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
4/2	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2013 AM Peak Base'	07:45	08:45	01:00	
2: '2013 PM Peak Base'	16:15	17:15	01:00	
3: '2024 AM Peak Base'	07:45	08:45	01:00	F1*1.1381
4: '2024 PM Peak Base'	16:15	17:15	01:00	F2*1.1426
7: '2024 AM Peak Base + Dev'	07:45	08:45	01:00	F3+F5
8: '2024 PM Peak Base + Dev'	16:15	17:15	01:00	F4+F6

Scenario 1: '2024 AM Peak Base Alt Peds' (FG3: '2024 AM Peak Base', Plan 3: 'Peds Alt')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	379	479	858
	B	467	0	69	536
	C	484	164	0	648
	Tot.	951	543	548	2042

Traffic Lane Flows

Lane	Scenario 1: 2024 AM Peak Base Alt Peds
Junction: Broadway / Keresforth Hill Road	
1/1 (short)	379
1/2 (with short)	398(In) 19(Out)
1/3	460
2/1	484
2/2 (with short)	164(In) 0(Out)
2/3 (short)	164
3/1	536
4/1	88
4/2	460
5/1	951
5/2	0
6/1	543

Lane Saturation Flows

Junction: Broadway / Keresforth Hill Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A6133 Broadway E)	3.75	0.00	Y	Arm 6 Ahead	7.00	100.0 %	1639	1639
1/2 (A6133 Broadway E)	3.50	0.00	Y	Arm 4 Right	Inf	100.0 %	1965	1965
1/3 (A6133 Broadway E)	3.75	0.00	Y	Arm 4 Right	Inf	100.0 %	1990	1990
2/1 (A6133 Broadway N)	3.80	0.00	Y	Arm 5 Left	Inf	100.0 %	1995	1995
2/2 (A6133 Broadway N)	3.00	0.00	Y	Arm 5 Left	Inf	0.0 %	1915	1915
2/3 (A6133 Broadway N)	3.80	0.00	Y	Arm 6 Right	Inf	100.0 %	1995	1995
3/1 (Keresforth Hill Road)	3.80	0.00	Y	Arm 4 Left	15.00	12.9 %	1873	1873
				Arm 5 Ahead	25.00	87.1 %		
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2024 PM Peak Base Alt Peds' (FG4: '2024 PM Peak Base', Plan 3: 'Peds Alt')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	519	448	967
	B	496	0	95	591
	C	604	64	0	668
	Tot.	1100	583	543	2226

Traffic Lane Flows

Lane	Scenario 2: 2024 PM Peak Base Alt Peds
Junction: Broadway / Keresforth Hill Road	
1/1 (short)	519
1/2 (with short)	519(In) 0(Out)
1/3	448
2/1	319
2/2 (with short)	349(In) 285(Out)
2/3 (short)	64
3/1	591
4/1	95
4/2	448
5/1	815
5/2	285
6/1	583

Lane Saturation Flows

Junction: Broadway / Keresforth Hill Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A6133 Broadway E)	3.75	0.00	Y	Arm 6 Ahead	7.00	100.0 %	1639	1639
1/2 (A6133 Broadway E)	3.50	0.00	Y	Arm 4 Right	Inf	0.0 %	1965	1965
1/3 (A6133 Broadway E)	3.75	0.00	Y	Arm 4 Right	Inf	100.0 %	1990	1990
2/1 (A6133 Broadway N)	3.80	0.00	Y	Arm 5 Left	Inf	100.0 %	1995	1995
2/2 (A6133 Broadway N)	3.00	0.00	Y	Arm 5 Left	Inf	100.0 %	1915	1915
2/3 (A6133 Broadway N)	3.80	0.00	Y	Arm 6 Right	Inf	100.0 %	1995	1995
3/1 (Keresforth Hill Road)	3.80	0.00	Y	Arm 4 Left	15.00	16.1 %	1871	1871
				Arm 5 Ahead	25.00	83.9 %		
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2024 AM Peak Base + Dev Alt Peds' (FG7: '2024 AM Peak Base + Dev', Plan 3: 'Peds Alt')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	379	488	867
	B	467	0	73	540
	C	506	174	0	680
	Tot.	973	553	561	2087

Traffic Lane Flows

Lane	Scenario 3: 2024 AM Peak Base + Dev Alt Peds
Junction: Broadway / Keresforth Hill Road	
1/1 (short)	379
1/2 (with short)	404(In) 25(Out)
1/3	463
2/1	506
2/2 (with short)	174(In) 0(Out)
2/3 (short)	174
3/1	540
4/1	98
4/2	463
5/1	973
5/2	0
6/1	553

Lane Saturation Flows

Junction: Broadway / Keresforth Hill Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A6133 Broadway E)	3.75	0.00	Y	Arm 6 Ahead	7.00	100.0 %	1639	1639
1/2 (A6133 Broadway E)	3.50	0.00	Y	Arm 4 Right	Inf	100.0 %	1965	1965
1/3 (A6133 Broadway E)	3.75	0.00	Y	Arm 4 Right	Inf	100.0 %	1990	1990
2/1 (A6133 Broadway N)	3.80	0.00	Y	Arm 5 Left	Inf	100.0 %	1995	1995
2/2 (A6133 Broadway N)	3.00	0.00	Y	Arm 5 Left	Inf	0.0 %	1915	1915
2/3 (A6133 Broadway N)	3.80	0.00	Y	Arm 6 Right	Inf	100.0 %	1995	1995
3/1 (Keresforth Hill Road)	3.80	0.00	Y	Arm 4 Left	15.00	13.5 %	1873	1873
				Arm 5 Ahead	25.00	86.5 %		
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2024 PM Peak Base + Dev Alt Peds' (FG8: '2024 PM Peak Base + Dev', Plan 3: 'Peds Alt')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	519	469	988
	B	496	0	105	601
	C	616	70	0	686
	Tot.	1112	589	574	2275

Traffic Lane Flows

Lane	Scenario 4: 2024 PM Peak Base + Dev Alt Peds
Junction: Broadway / Keresforth Hill Road	
1/1 (short)	519
1/2 (with short)	519(In) 0(Out)
1/3	469
2/1	616
2/2 (with short)	70(In) 0(Out)
2/3 (short)	70
3/1	601
4/1	105
4/2	469
5/1	1112
5/2	0
6/1	589

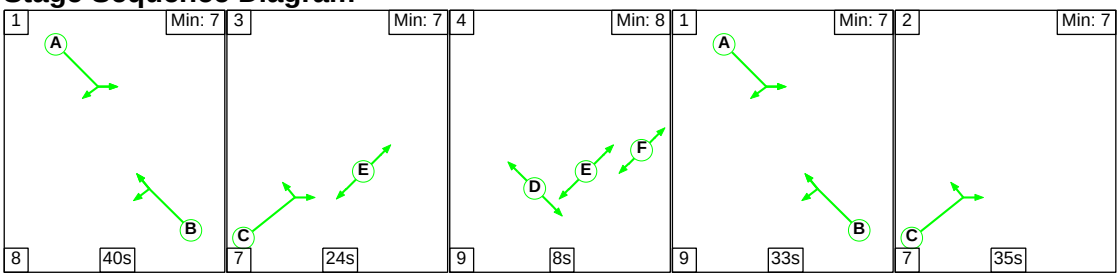
Lane Saturation Flows

Junction: Broadway / Keresforth Hill Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (A6133 Broadway E)	3.75	0.00	Y	Arm 6 Ahead	7.00	100.0 %	1639	1639
1/2 (A6133 Broadway E)	3.50	0.00	Y	Arm 4 Right	Inf	0.0 %	1965	1965
1/3 (A6133 Broadway E)	3.75	0.00	Y	Arm 4 Right	Inf	100.0 %	1990	1990
2/1 (A6133 Broadway N)	3.80	0.00	Y	Arm 5 Left	Inf	100.0 %	1995	1995
2/2 (A6133 Broadway N)	3.00	0.00	Y	Arm 5 Left	Inf	0.0 %	1915	1915
2/3 (A6133 Broadway N)	3.80	0.00	Y	Arm 6 Right	Inf	100.0 %	1995	1995
3/1 (Keresforth Hill Road)	3.80	0.00	Y	Arm 4 Left	15.00	17.5 %	1870	1870
				Arm 5 Ahead	25.00	82.5 %		
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 1: '2024 AM Peak Base Alt Peds' (FG3: '2024 AM Peak Base', Plan 3: 'Peds Alt')

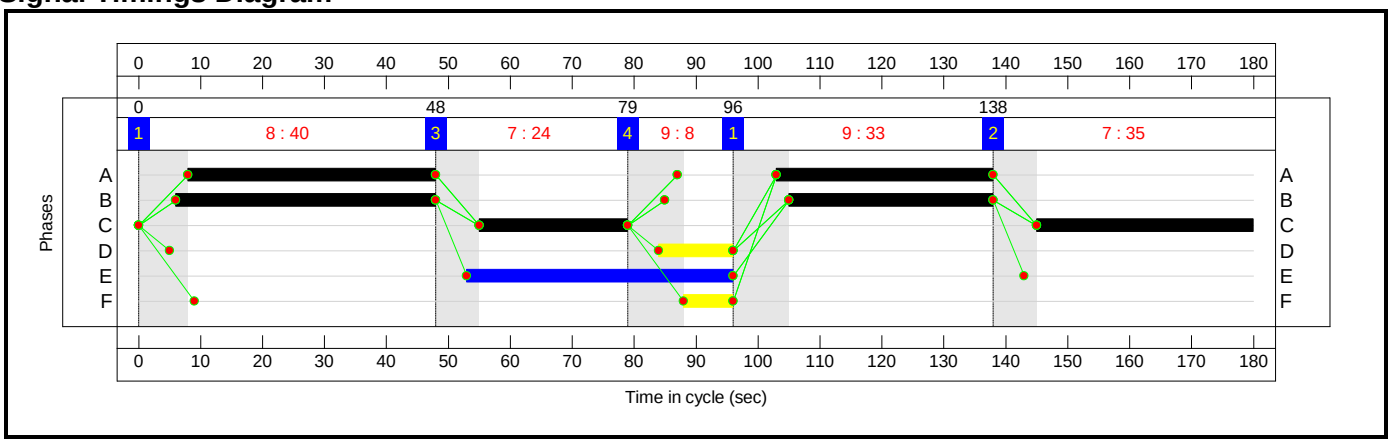
Stage Sequence Diagram



Stage Timings

Stage	1	3	4	1	2
Duration	40	24	8	33	35
Change Point	0	48	79	96	138

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/2+1/1	A6133 Broadway E Right Ahead	U	N/A	N/A	B		2	75	-	398	1965:1639	35+692	54.7 : 54.7%
1/3	A6133 Broadway E Right	U	N/A	N/A	B		2	75	-	460	1990	851	54.0%
2/1	A6133 Broadway N Left	U	N/A	N/A	A		2	75	-	484	1995	853	56.7%
2/2+2/3	A6133 Broadway N Left Right	U+O	N/A	N/A	A		2	75	-	164	1915:1995	0+195	0.0 : 84.0%
3/1	Keresforth Hill Road Left Ahead	U	N/A	N/A	C		2	59	-	536	1873	635	84.4%

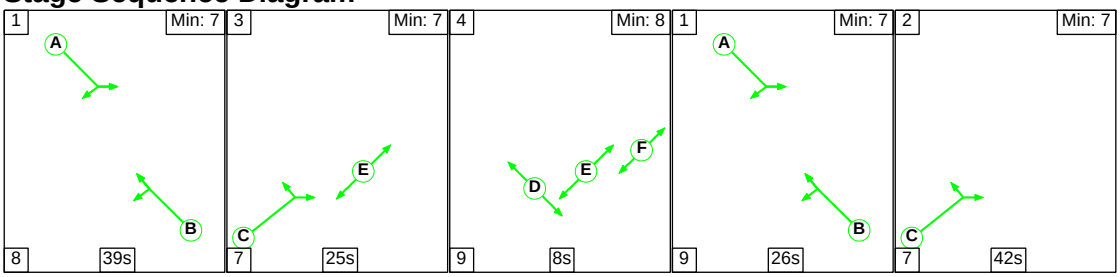
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
1/2+1/1	398	398	-	-	-	2.1	0.6	-	2.7	24.7	7.8	0.6	8.4
1/3	460	460	-	-	-	2.5	0.6	-	3.1	23.9	9.2	0.6	9.8
2/1	484	484	-	-	-	2.6	0.7	-	3.3	24.4	9.5	0.7	10.2
2/2+2/3	164	164	126	0	38	1.0	2.3	0.7	3.9	86.3	4.1	2.3	6.4
3/1	536	536	-	-	-	4.1	2.6	-	6.7	45.1	13.5	2.6	16.1

C1 PRC for Signalled Lanes (%): 6.6 Total Delay for Signalled Lanes (pcuHr): 19.71 Cycle Time (s): 180
PRC Over All Lanes (%): 6.6 Total Delay Over All Lanes(pcuHr): 19.71

Full Input Data And Results

Scenario 2: '2024 PM Peak Base Alt Peds' (FG4: '2024 PM Peak Base', Plan 3: 'Peds Alt')

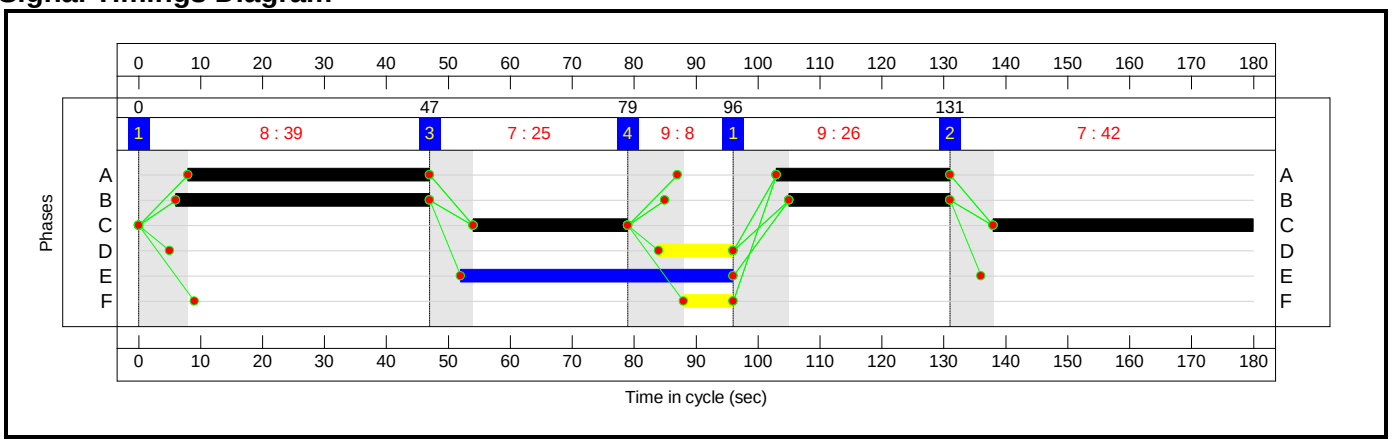
Stage Sequence Diagram



Stage Timings

Stage	1	3	4	1	2
Duration	39	25	8	26	42
Change Point	0	47	79	96	131

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/2+1/1	A6133 Broadway E Right Ahead	U	N/A	N/A	B		2	67	-	519	1965:1639	0+628	0.0 : 82.6%
1/3	A6133 Broadway E Right	U	N/A	N/A	B		2	67	-	448	1990	763	58.7%
2/1	A6133 Broadway N Left	U	N/A	N/A	A		2	67	-	319	1995	765	41.7%
2/2+2/3	A6133 Broadway N Left Right	U+O	N/A	N/A	A		2	67	-	349	1915:1995	656+112	43.4 : 57.2%
3/1	Keresforth Hill Road Left Ahead	U	N/A	N/A	C		2	67	-	591	1871	717	82.4%

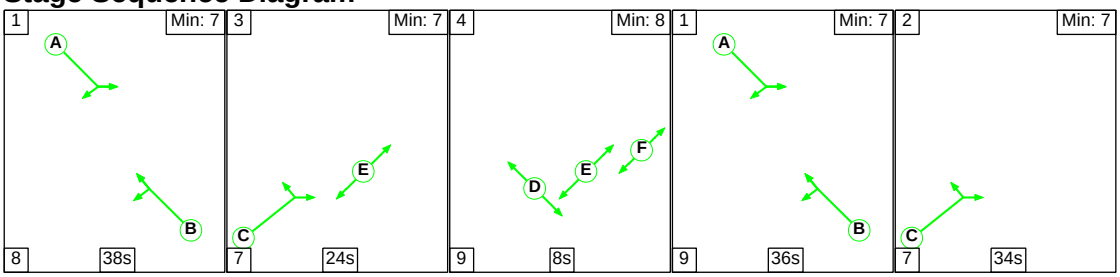
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
1/2+1/1	519	519	-	-	-	3.6	2.3	-	5.9	40.9	12.0	2.3	14.2
1/3	448	448	-	-	-	2.8	0.7	-	3.5	27.8	9.1	0.7	9.8
2/1	319	319	-	-	-	1.8	0.4	-	2.2	24.4	5.8	0.4	6.2
2/2+2/3	349	349	34	0	30	1.9	0.4	0.4	2.7	28.2	5.1	0.4	5.6
3/1	591	591	-	-	-	4.1	2.3	-	6.4	38.8	13.8	2.3	16.1

C1 PRC for Signalled Lanes (%): 9.0 Total Delay for Signalled Lanes (pcuHr): 20.63 Cycle Time (s): 180
PRC Over All Lanes (%): 9.0 Total Delay Over All Lanes(pcuHr): 20.63

Full Input Data And Results

Scenario 3: '2024 AM Peak Base + Dev Alt Peds' (FG7: '2024 AM Peak Base + Dev', Plan 3: 'Peds Alt')

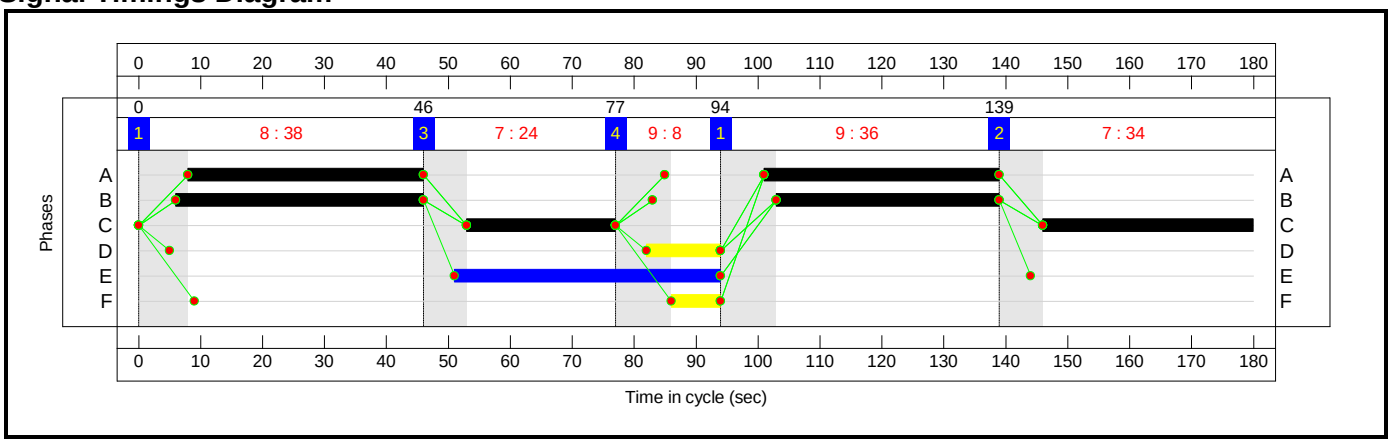
Stage Sequence Diagram



Stage Timings

Stage	1	3	4	1	2
Duration	38	24	8	36	34
Change Point	0	46	77	94	139

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/2+1/1	A6133 Broadway E Right Ahead	U	N/A	N/A	B		2	76	-	404	1965:1639	46+693	54.7 : 54.7%
1/3	A6133 Broadway E Right	U	N/A	N/A	B		2	76	-	463	1990	862	53.7%
2/1	A6133 Broadway N Left	U	N/A	N/A	A		2	76	-	506	1995	865	58.5%
2/2+2/3	A6133 Broadway N Left Right	U+O	N/A	N/A	A		2	76	-	174	1915:1995	0+198	0.0 : 87.9%
3/1	Keresforth Hill Road Left Ahead	U	N/A	N/A	C		2	58	-	540	1873	624	86.5%

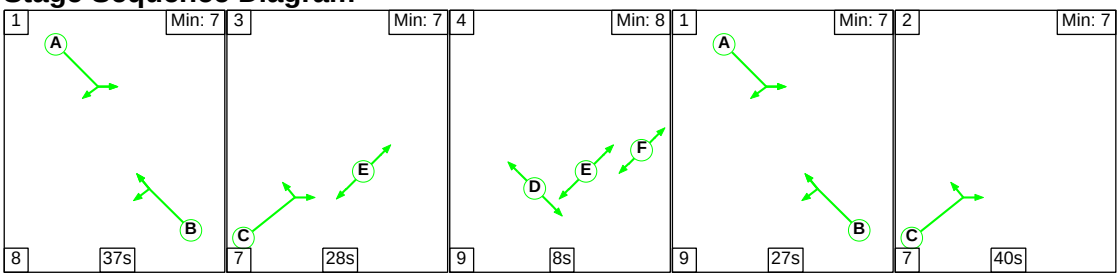
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
1/2+1/1	404	404	-	-	-	2.1	0.6	-	2.7	24.3	7.9	0.6	8.5
1/3	463	463	-	-	-	2.4	0.6	-	3.0	23.5	9.3	0.6	9.8
2/1	506	506	-	-	-	2.7	0.7	-	3.4	24.4	10.1	0.7	10.8
2/2+2/3	174	174	129	0	45	1.1	2.9	0.7	4.7	97.1	4.5	2.9	7.4
3/1	540	540	-	-	-	4.3	3.0	-	7.3	48.5	14.2	3.0	17.2

C1 PRC for Signalled Lanes (%): 2.4 Total Delay for Signalled Lanes (pcuHr): 21.16 Cycle Time (s): 180
PRC Over All Lanes (%): 2.4 Total Delay Over All Lanes(pcuHr): 21.16

Full Input Data And Results

Scenario 4: '2024 PM Peak Base + Dev Alt Peds' (FG8: '2024 PM Peak Base + Dev', Plan 3: 'Peds Alt')

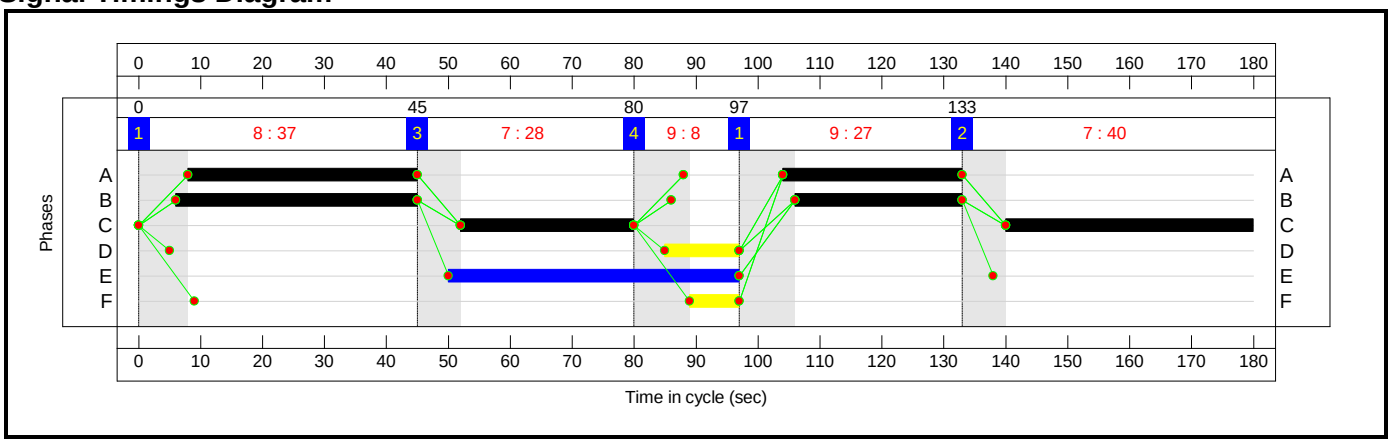
Stage Sequence Diagram



Stage Timings

Stage	1	3	4	1	2
Duration	37	28	8	27	40
Change Point	0	45	80	97	133

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
1/2+1/1	A6133 Broadway E Right Ahead	U	N/A	N/A	B		2	66	-	519	1965:1639	0+619	0.0 : 83.8%
1/3	A6133 Broadway E Right	U	N/A	N/A	B		2	66	-	469	1990	752	62.4%
2/1	A6133 Broadway N Left	U	N/A	N/A	A		2	66	-	616	1995	754	81.7%
2/2+2/3	A6133 Broadway N Left Right	U+O	N/A	N/A	A		2	66	-	70	1915:1995	0+108	0.0 : 65.1%
3/1	Keresforth Hill Road Left Ahead	U	N/A	N/A	C		2	68	-	601	1870	727	82.6%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
1/2+1/1	519	519	-	-	-	3.7	2.5	-	6.2	42.8	12.5	2.5	15.0
1/3	469	469	-	-	-	3.0	0.8	-	3.8	29.2	10.2	0.8	11.0
2/1	616	616	-	-	-	4.3	2.2	-	6.5	37.9	14.2	2.2	16.4
2/2+2/3	70	70	32	0	38	0.4	0.9	0.5	1.7	88.1	1.2	0.9	2.1
3/1	601	601	-	-	-	4.2	2.3	-	6.5	38.7	14.4	2.3	16.7

C1 PRC for Signalled Lanes (%): 7.4 Total Delay for Signalled Lanes (pcuHr): 24.63 Cycle Time (s): 180
PRC Over All Lanes (%): 7.4 Total Delay Over All Lanes(pcuHr): 24.63

Appendix H

Road Safety Audit and Designer's Response

TRANSPORT ASSESSMENT
TRAVEL PLAN
TRANSPORT STATEMENT
ROAD SAFETY AUDIT
TRAFFIC MANAGEMENT PLAN
TRAFFIC SURVEY

HY CONSULTING

PROPOSED HIGHWAY WORKS
AT BROADWAY / KERESFORTH CLOSE, BARNSLEY

14023 / Feb 2014

CONTENTS

APPENDICES

1 INTRODUCTION

1.1 HY Consulting Ltd has been appointed to carry out a Stage 1 Road Safety Audit of the proposed highways works as identified in the Audit Brief. The highway works are associated with a proposed development of 163 residential dwellings on the site of Kingstone School off Broadway, Barnsley.

1.2 The Audit Team Membership is given in Section 3 of this report. This Audit was undertaken in accordance with HD 19/03. A site visit was carried out on the 19th February 2014. The weather during the site visit was dry with sunny spells and broken cloud. The plans were discussed at the site meeting and were analysed in more detail at the offices of HY Consulting.

1.3 The scope of the Road Safety Audit is set out in the Audit Brief (included at Appendix A) which was prepared by PAH Highway Consultants, who are working alongside Taylor Wimpey and Barnsley Council to deliver the highway works. The proposals include the introduction of a four arm traffic signal controlled junction incorporating Broadway, Keresforth Close and a new arm to serve the proposed residential development. An existing staggered traffic signal controlled pedestrian crossing facility will be replaced by the new junction which will incorporate pedestrian and cycle facilities.

1.4 It is understood that the proposed traffic signal drawing has been designed by Barnsley Council. The proposals are shown on drawing P13:4718:01 (presented in the audit brief) as provided by PAH Highway Consultants.

1.5 The terms of reference of the audit are as described in HD 19/03 'Road Safety Audit' that forms part of Volume 5 of the Design Manual for Roads and Bridges. The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.

1.6 The problems identified have been referenced to the Stage 1 checklist contained within Annex A of HD19/03. For instance a problem identified under List A1: General, Item – Lay-bys will be referenced A1.7.1 where A1 refers to the particular list, 7 refers to the seventh item in List 1 ie. Lay-bys and the second 1 refers to the problem number. Therefore if a second problem has been identified under the same list and item this will be numbered A1.7.2.

1.7 The audit considers and reports on the safety implications of the proposed works identified within paragraph 1.3. The Audit Team have considered all factors prevalent to managing risk prior to determining likely road safety problems, including on site conditions such as traffic volumes, site location, and the likelihood of a collision occurring. Recommendations are made in this report regarding problems that are considered to be worthy of attention in respect of safety. The Audit Team has not been made aware of any departures from standards.

2 ITEMS RAISED IN STAGE 1 ROAD SAFETY AUDIT

A1 General

A1.4.1 Problem: (Drainage)

Location: Centre of proposed junction

Summary:

An existing gully found in the centre of the proposed junction is likely to be in the path of turning vehicles which may compromise the skid resistance for turning vehicles and the integrity of the drainage chamber.

Observations on site showed an existing gully which will be in the centre of the proposed junction. It is likely that this gully will be in the path of turning vehicles which may reduce skid resistance for turning vehicles leading to loss of control type incidents. Furthermore, due to an increased volume of traffic passing over the gully, it could lead to the deterioration of the construction of the drainage chamber.

Recommendation

The drainage should be reviewed at the detailed design stage and if necessary the gully should be relocated.

A1.5.1 Problem: (Landscaping)

Location: On northwest-bound approach to proposed traffic signals on Broadway

Summary:

An existing tree overhangs the footway, during the summer months the leaves may obscure visibility of the nearside primary signal head and the adjacent streetlight.

On site observations highlighted an existing tree which overhangs the carriageway. Whilst there are currently no leaves on the tree, during the summer months it is envisaged that the leaves will obscure the existing streetlight adjacent to the tree and may obscure visibility of the proposed nearside primary signal head.

This could lead to drivers only seeing a red signal at the last moment and possibly result in sharp braking and potential shunt type incidents over shooting the stop line and colliding with other traffic within the junction.

Recommendation

The tree should be cut back or removed to avoid the possibility of the primary signal head being masked by the tree.

A1.8.1 **Problem: (Access)**

Location: Nearside of Broadway on northwest-bound carriageway

Summary:

Existing site access points do not appear to be closed as part of the proposals.

From the supplied drawing, it appears that the three vehicle and one pedestrian access points into the existing site will not be closed even though they will be redundant as a result of the proposals.

Failure to close the redundant access points leads to unnecessary sections of the footway having no physical segregation from the carriageway (normally provided by full height kerbs) which could potentially lead to vehicle / pedestrian conflict.

Recommendation

The existing redundant access points should be closed off and any footway crossing points should have tactile paving and dropped kerbs removed and be restored to full footway construction.

A1.8.2 **Problem: (Access)**

Location: Central reserve, north side of proposed traffic signals

Summary:

The existing central reserve gap associated with vehicle exit from school site.

From the supplied drawing, it appears that the central reserve gap associated with the vehicle exit from the school will not be closed even though it will be redundant as a result of the proposals. This may encourage 'U' turn manoeuvres within close proximity of the junction, potentially leading to sudden braking and shunt type incidents.

Recommendation

The existing redundant central reserve gap should be closed off, the bollards removed and the central island reinstated.

A1.9.1 **Problem: (Emergency Vehicles)**

Location: Proposed Traffic Signals

Summary:

There are no details provided on the traffic signal drawing of any hurry call facility for the existing fire station opposite the proposed development site.

The drawings provided show the proposed layout of the traffic signals but no information has been provided with regards to any hurry call facility for appliances exiting from the fire station.

When a fire station is located close to a traffic signal controlled installation, a hurry call facility is usually installed. A push button within the fire station links to the signals, as the fire appliance leaves the station the button is pressed and it forces a change at the signals to ensure a green light on the correct approach to allow immediate progression for the fire appliance.

It is understood that the fire station may move onto the development site, the same requirement for a hurry call would also apply on the new site.

Recommendation

At the detailed signal design stage a hurry call facility within the proposed junction should be considered and specified if necessary.

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

Location: Keresforth Close

Summary:

Keresforth Close appears to be a private road.

The road marking, street lighting provision and pin kerbs on Keresforth Close suggest that it is a private road.

The proposed traffic signal scheme drawing shows a number of detection loops to be sited along Keresforth Close, if Keresforth Close is a private road and if suitable agreements are not in place regarding the siting and maintenance of signal equipment then this scheme cannot be delivered. If the equipment associated with the exit from Keresforth Close cannot satisfactorily be sited and maintained then the proposed junction cannot be delivered as there would be a severe safety implication with leaving an uncontrolled access into a traffic signal controlled junction.

Recommendation

Check the status of Keresforth Close and if it is a private road ensure that suitable agreements can be put in place to ensure that the scheme can be delivered.

A3 Junctions

A3.1.1 **Problem: (Layout)**

Location: Northwest-bound bus stop on site frontage

Summary:

The existing bus stop along the site frontage could lead to conflict between parked buses and vehicles turning left out of the development site.

Whilst on site the Audit Team observed the location of the existing bus stop on the site frontage.

The introduction of the new junction could lead to vehicles turning out of the site when a bus is stationary at the stop. This could lead to confusion, lane weaving movements and the possibility of queuing traffic back into the new junction, which may lead to side collisions and shunt type incidents.

In addition, the bus stop location is close to where the two traffic lanes merge back into one lane which may cause further confusion for approaching motorists.

Recommendation

Relocate the bus stop further to the northwest and introduce white lining and deflection arrows to highlight the merging of the two traffic lanes back into one.

A4 Non Motorised User Provision

A4.2.1 **Problem: (Pedestrians / Cyclists)**

Location: Site frontage

Summary:

The existing cycle facilities do not continue along the site frontage and could lead to potential conflicts between traffic and vulnerable road users.

Cycle facilities, both on and off carriageway are provided around the Broadway / Keresforth Hill traffic signal controlled junction to the southeast of the site. These stop approximately 60m from the Broadway / Keresforth Hill junction with cyclists forced back onto the live carriageway which may lead to vehicles colliding with cyclists. A combined cycle / footway then begins to the northwest of the site, adjacent to the exit from the school site.

Recommendation

As the exit from the school will be redundant as a result of this proposal, the combined cycle / footway should be extended along the site frontage to provide continuous cycle provision. This will also tie in with proposed toucan crossing facilities across the proposed site access within the traffic signal controlled junction.

A4.2.2 **Problem: (Pedestrians / Cyclists)**

Location: All crossing points within proposed junction

Summary:

No details have been provided for tactile paving at the crossing points within the proposed junction.

Pedestrian and cycle crossing points will be provided within the proposed traffic signal controlled junction but no details of tactile paving have been provided. This may cause difficulties for visually impaired to align with the dropped kerb on the opposite side which may lead to trip type incidents.

Recommendation

Red tactile paving should be provided for the signal controlled crossing points, with buff tactile paving provided for the uncontrolled crossing over Keresforth Close.

A4.2.3 **Problem: (Pedestrians / Cyclists)**

Location: Broadway Approaches

Summary:

No details have been provided for any cycle facilities on both Broadway approaches.

Traffic free cycle lanes are currently provided to the north and south of the proposed junction (along the southern kerbline), however both of which are non-existent on the approaches to the new junction. A toucan crossing facility is proposed across the new access to the proposed development. It is unclear how this cycle facility will merge and diverge from Broadway within the vicinity of the proposed junction. Furthermore, no cycle facilities are proposed on the southbound approach.

Recommendation

Cycle facilities and the interaction of the traffic free cycle lanes with Broadway should be considered on both approaches to the proposed traffic signals.

A4.2.4 **Problem: (Pedestrians / Cyclists)**

Location: Crossing on Keresforth Close

Summary:

There are no details provided with regards to the location of the uncontrolled crossing over Keresforth Close, it has been assumed that it will remain in the existing on site position.

On site observations of the crossing point over Keresforth Close highlighted that visibility down Keresforth Close is severely limited by the existing brick pillar within the fence line. As pedestrian flows are likely to increase as a result of the development, there is an increase risk of pedestrians colliding with oncoming vehicles.

Recommendation

Realign the crossing point over Keresforth Close to ensure pedestrians have good visibility of emerging vehicles.

A5 Road Signs, Carriageway Markings And Lighting

A5.1.1 Problem: (Signs)

Location: All approaches to proposed junction

Summary:

No details have been provided for temporary signs advising of the new traffic signal junction.

The drawing provided does not show any proposed signs to highlight the introduction of a traffic signal controlled junction in this location. Major changes to the form of junction control need to be brought to the attention of motorists using them so they take greater care in the months after completion. Failure to do so could result in drivers becoming confused and disobeying signals leading to the potential for incidents.

Recommendation

Signs to Diagram 7014 of the TSRGD shall be provided on all approaches to the junction denoting “New Traffic Signals”. These temporary signs shall be removed three months post completion of the works.

A5.2.1 Problem: (Lighting)

Location: Proposed site access

Summary:

On site observations show that the existing lighting column '30' will be in the centre of the proposed site access.

The Audit Team noted on the site visit that the existing lighting column '30' will be located within the centre of the proposed site access. Merely removing this street light may mean that the street lighting provision around the new signal controlled junction is not adequate, leading to reduced visibility for all road users.

Recommendation

The street lighting provision should be reviewed at detailed design stage to ensure that a suitable level of lighting is provided for the new junction. The positioning of any new streetlights should be carefully considered to ensure that they do not obstruct any of the new traffic signal heads.

A5.3.1 **Comment: (Poles / Columns)**

Location: End of Keresforth Close

Summary:

One of the proposed traffic signal poles is shown in the centre of the footway.

The drawing supplied to the Audit Team shows one of the proposed traffic signal poles being located within the centre of the footway at the end of Keresforth Close, which presents an unnecessary obstruction within the footway. The traffic signal pole is hosting the secondary signal for vehicles exiting from the proposed site access, it is also questioned if this is necessary and if the secondary head could be located on the pole on the central reserve which also hosts the secondary heads for the northwest-bound Broadway and Keresforth Close.

Recommendation

The traffic signal design should be reviewed and the requirement for the pole should be assessed. If it is decided that the pole is necessary then the siting should be reconsidered to be either at a suitable offset from the kerb face or at the rear of the footway, possibly on a cranked pole rotated over the footway.

A5.4.1 **Problem: (Road Markings)**

Location: Throughout whole junction

Summary:

No details have been provided as to the new road markings throughout the junction.

Due to the incorporation of the existing traffic signal controlled pedestrian crossing facility into the proposed junction, it will be necessary to remove the existing zig-zag markings and alter the existing road markings in the vicinity of the new junction.

Recommendation

The detailed design drawings should clearly indicate what road marking are to be removed or retained and what new markings are to be provided.

A5.4.2 **Problem: (Road Markings)**

Location: Exit from existing fire station

Summary:

No details have been provided regarding any alterations to the white lining when exiting the existing fire station.

The exit from the existing fire station is close to the stopline for the proposed traffic signals. The existing arrangement introduces the second lane directly from the fire station exit and may lead to weaving and lane changing on the approach to the traffic signals, leading to side collisions.

Whilst this does not differ from the existing layout, the traffic signals will be changing to red more frequently for the main Broadway approach to allow traffic from Keresforth Close and the site access to exit into the junction, therefore increasing the likelihood of shunt accidents when lane changing is occurring.

It is understood that the fire station may be relocated to the development site, however this is not part of this application so it cannot be assumed that it will happen at the same time as this proposed development.

Recommendation

Review the road markings on the exit from the exiting fire station to minimise lane changing / weaving movements in close proximity to the traffic signals.

A5.4.3 **Problem: (Road Markings)**

Location: Throughout junction

Summary:

It is envisaged that new road markings will be required within the proposed junction area and, as outlined in the Audit Brief, high skid resistant surfacing will be provided on all approaches. The road surface is not in a suitable condition for road markings and high skid resistant surfacing to be laid.

The overall condition of the carriageway throughout the junction is poor, as demonstrated on the photographs below.

High skid resistant surfacing and road markings cannot be satisfactorily laid on the existing road surface due to the poor condition. Laying road markings and high skid resistant surfacing on such a surface would lead to quick deterioration of the road surface, subsequently leading to highway safety problems through compromised skid resistance and unclear road markings, leading to shunt type incidents.

Recommendation

The whole junction area should be resurfaced as part of the works to ensure that the road markings and high skid resistance surfacing can be laid satisfactorily and will not deteriorate quickly.

3 AUDIT TEAM STATEMENT

3.1 I certify that this Audit has been carried out in accordance with HD 19/03.

AUDIT TEAM LEADER
Leigh Ogden
HY Consulting
Unit 2 The Office Campus
Paragon Business Village
Red Hall Court
Wakefield WF1 2UY

Signed…....
Date 20th February 2014

AUDIT TEAM MEMBER
Chris Yarrow BEng MCIHT
Director
HY Consulting
Unit 2 The Office Campus
Paragon Business Village
Red Hall Court
Wakefield WF1 2UY

AUDIT TEAM OBSERVER
Louise Hewlett MEng MIHE
Director
HY Consulting
Unit 2 The Office Campus
Paragon Business Village
Red Hall Court
Wakefield WF1 2UY

PAH HIGHWAY CONSULTANTS
10 Rose Farm Meadows - Altofts - Wakefield - WF6 2HY
t: 07854 048 918 - e: mail@howarthconsultancy.co.uk

A6133 Broadway / New Site Access, Barnsley

Stage 1 RSA Audit Brief

Our client is developing the site of the former Kingstone School off Broadway in Barnsley, South Yorkshire to provide circa 163 dwellings and the potential relocation of the local fire station. The Council has required that the access be created opposite the existing junction with Keresforth Close. An existing staggered traffic signal controlled crossing facility is to be replaced with a traffic signal controlled junction with pedestrian crossing and cycle facilities. This new junction will be linked in operational terms to the adjacent traffic signal controlled junction with Keresforth Hill Road.

The works on site will provide high skid resistant surfacing on the approaches with appropriate vehicle detection equipment for the speed of traffic along Broadway.

To further assist you I hereby attach the following:

1 A copy of the draft Transport Assessment prepared by PAH Highways Consultants Ltd for the development which has details of anticipated traffic flows and capacity analyses.
2 A copy of the drawing of the works to be included in the Audit.

Please carry out a Stage 1 RSA in accordance with HD 19 / 03.

Brief prepared by PAH Highway Consultants
17 February 2014

PLANNING LAYOUT LAYERS KEY:

- BRICK WALL
- BRICK WALL & FENCE
- TIMBER FENCE
- PROPERTY DIVISION
- AFFORDABLE
- SITE BOUNDARY (NEW)

SCHEDULE OF ACCOMMODATION:

Housetype	Total
Gosford (866) 2 Storey 3 Bed Semi Detached House	40 No.
Alton (1085) 2.5 Storey 3 Bed Semi Detached House	36 No.
Charlbury (1299) 3 Storey 3 Bed Semi Detached House	20 No.
Bradenham (1153) 2 Storey 4 Bed Detached House	17 No.
Eynsham (1334) 2 Storey 4 Bed Detached House	12 No.
Kentdale (1222) 2 Storey 4 Bed Detached House	6 No.
Shelford (1369) 2 Storey 4 Bed Detached House	18 No.
Canford (689) 2 Storey 2 Bed Semi/Terrace House	5 No.
Earlsford (808) 2 Storey 2 Bed Semi/Terrace House	6 No.
Millidale (869) 2 Storey 3 Bed Semi Detached House	3 No.
TOTAL	163 No. UNITS

NOTE:
NEW JUNCTION LAYOUT AND SIGNALS DESIGNED BY BARNSLEY MDC.

Tie into existing signal ducting system

PROPOSED PLANNING LAYOUT

architectural design
town planning
landscape architecture
John R Paley Associates

CLIENT
TAYLOR WIMPEY YORKSHIRE

PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT
KINGSTONE SCHOOL, BARNSLEY

DRAWING OF
PROPOSED PLANNING LAYOUT

MARKETING NAME

drawing no	rev	date
P13:4718:01	D	AUG 13
scale @ A1	drawn	check	date
1:500	RAN	SL	AUG 13

PRELIMINARY

1 Red Hall Crescent
Paragon Business Village
Wakefield
WF1 2DF
T:01924 383722
F:01924 384382
e-info@jrpassoc.co.uk

PAH HIGHWAY CONSULTANTS
10 Rose Farm Meadows - Altofts - Wakefield - WF6 2HY
t: 07854 048 918 - e: mail@howarthconsultancy.co.uk

Our Ref: PAH/787
Date: 1st April 2014

RE: PROPOSED DEVELOPMENT AT KINGSTONE SCHOOL, BROADWAY, bARNSLEY
STAGE 1 – 2 RSA
DESIGNERS RESPONSE

I refer to the Stage 1 Road Safety Audit dated February 2014 prepared by HY Consulting Ltd in respect of the above site to which I would like to make the following comments:

A1.4.1 – Drainage – Drainage provision will be reviewed as part of the detailed design and if necessary the gully will be relocated as requested.

A1.5.1 – Landscaping – The offending tree should be cut back or removed to avoid the possibility of the primary signal head being masked by the tree.

A1.8.1 – Access – All redundant access points will be removed and restored to full footway construction as part of the development proposals.

A1.8.2 – Access – The redundant gap in the central reservation will be closed as part of the development proposals.

A1.9.1 – Emergency Vehicles – If the fire station is relocated to the site then a hurry call facility within the proposed junction will be considered and specified if necessary.

A1.12.1 – Basic Design Principle – It has been determined that Keresforth Close is not adopted but following detailed discussions with Barnsley Council as Highway Authority it has been determined that there will be no need to install the level of equipment originally thought along this road (see attached email). This matter has been advised to the RSA Team and their response is also appended. Consequently there is a design solution which removes this problem.

A3.1.1 – Layout – The position of the bus stop and modifications to lining will be considered as part of the detailed design process.

A4.2.1 – Pedestrians / Cyclists – A shared pedestrian / cycle facility is to be provided along the site frontage to link to the adjacent facilities' provided in the area.

A4.2.2 – Pedestrians / Cyclists – Tactile paving will be provided at all new crossing points as part of the detailed design.

PAH HIGHWAY CONSULTANTS
10 Rose Farm Meadows - Altofts - Wakefield - WF6 2HY
t: 07854 048 918 - e: mail@howarthconsultancy.co.uk

A4.2.3 – Pedestrians / Cyclists – It is understood that the Council will be reviewing the provision of cycle facilities in the vicinity of the site as part of the detailed design process and the Auditors recommendation will be including within that review.

A4.2.3 – Pedestrians / Cyclists – The position / alignment of the crossing point on Keresforth Close will be reviewed as part of the detailed design process.

A5.1.1 – Signs – Temporary warning signs for the new junction layout will be provided as per the Auditors recommendation.

A5.2.1 – Lighting – The level of street lighting and location of columns will be included as part of the detailed design process.

A5.3.1 – Poles / Columns - The position of the traffic signal pole will be revised as part of the detailed design process.

A5.4.1 – Road Markings – The detailed design drawings will indicate what road marking are to be removed or retained and what new markings are to be provided as per the recommendation.

A5.4.2 – Road Markings – The road markings on the exit from the exiting fire station will be revised as part of the detailed design process to minimise lane changing / weaving movements in close proximity to the traffic signals.

A5.4.3 – Road Markings – The condition of the existing road surface will be assessed as part of the detailed design process and remedial works undertaken to ensure that high skid resistant materials and road markings will adhere to the surface.

Yours Sincerely

P A Howarth
Paul A Howarth
MCIHT MIHE

Eric Appleton

Subject: FW: Kingstone School Site, Broadway, Barnsley | Site Access

---

From: Leigh Ogden [mailto:leigh@hyconsulting.com]
Sent: 18 March 2014 13:43
To: 'Paul Howarth'
Subject: FW: Kingstone School Site, Broadway, Barnsley | Site Access

Dear Paul,

In respect to the amended proposals on Keresforth Close, I would like to make the following comments: -

Having reviewed the revised proposal which I note removes all the inductive loops along Keresforth Close and replaces the stopline loop with a stopline camera I do not have any issues with the revised signal layout. It must be ensured that a cranked pole is used to house the signal equipment and that it is angled out over the footway. Visibility to the primary signal head must be checked to ensure that it is not blocked by the large brick column in the fence line.

In terms of the swept path analysis of the large refuse vehicle turning left into Keresforth Close, there is some concern that the swept path encroaches over the centre line on Keresforth Close. However, on balance given the frequency of these manoeuvres, the risk to stationary traffic on Keresforth Close would be relatively small. Therefore, the revised proposals appear acceptable. I would point out that notwithstanding that Keresforth Close appears to meet the definition of a road within the Road Traffic Regulation Act in terms of public access, as it is a private road the maintenance of the line markings may be an issue, and as such these markings should be included as part of Barnsley Council's maintenance program.

Regards

Leigh Ogden
Tel: 01924 291536
Mob: 07825373165
Fax: 01924 386276

Consulting Ltd
Unit 2 The Office Campus, Paragon Business Village
Red Hall Court, Wakefield, West Yorkshire, WF1 2UY

E: chris@hyconsulting.com

Company Registered as HY Consulting (West Yorkshire Ltd) No: 6515518

From: Paul Howarth [mailto:mail@howarthconsultancy.co.uk]
Sent: 13 March 2014 14:07
To: 'Chris Yarrow'
Subject: FW: Kingstone School Site, Broadway, Barnsley | Site Access

Dear Chris
Following on from your original Stage 1 RSA for the above, please find attached further propoasls to deal with the issues raised for Keresforth Close.
I should be obliged if you would let me have your comments on same as soon as possible.

Regards

Paul Howarth
PAH Highway Consultants Ltd
TEL - Office - 01924 291536
Mob - 07854 048918

From: McNaught , Gary [mailto:GaryMcNaught@barnsley..gov.uk]
Sent: 13 March 2014 13:08
To: 'Jordan Gresham - TW Yorkshire'; Paul Howarth
Cc: Wilson , Barbara; Hartley , Tim; Wilson , Ian; Eric Appleton (eric@howarthconsultancy.co.uk); Athey , Luke
Subject: Kingstone School Site, Broadway, Barnsley | Site Access

Jordan / Paul,

As promised at yesterday's meeting please find attached the drawing showing the signal pole and stop line locations for Keresforth Close using MVD and AGD detection. Unfortunately, the original drawing has been corrupted thus another extract has been produced for this particular area. Again we have used OS as a detailed survey is not available. Please note an exit lane width of 2.8 metres on Keresforth Close has been used. TRACK runs for the largest refuse lorry, pantechnicon, various fire engines and maximum permitted articulated vehicle have been carried out and these are shown on the drawing. As you will see the body of the HGV just protrudes over the stop line by approximately 250mm. However, TRACK is generous and we are confident the vehicle can over articulate to safely carry out this manoeuvre. As discussed the use of such a vehicle along this road is either non-existent or extremely low and all other large vehicles can easily carry out the left turn .

In addition, please find attached confirmation for the Council's legal team that the Highway Authority does have powers to erect a sign on Keresforth Close. A sign for legal purposes also covers lines and signals poles.

I trust the above is satisfactory and is sufficient to progress the works. Please contact me if you require any further information.

Kind regards

Gary McNaught, Group Leader - Traffic.

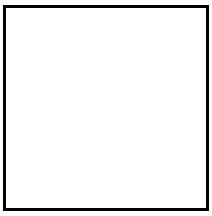
Environmental Services,
Barnsley Metropolitan Borough Council,
PO Box 601, Barnsley. S70 9FA

Tel +44 (0) 1226 772174
Mobile: 07786 525526
Fax +44 (0) 1226 772110

E-mail GaryMcNaught@barnsley.gov.uk
Web http://www.barnsley.gov.uk

(Sat Nav Postcode - Westgate - S70 2DR)

Barnsley MBC has secured £1.264m from the European Regional Development Fund for the Urban Centre Infrastructure for a 21st Century Market Town project. The European Regional Development Fund in Yorkshire and The Humber is managed by the Department for Communities and Local Government to support the region's economic development.



3m distance between limit of adoption and traffic signal stop line

As per Highway Code it is likely that any large vehicle making a tight turn would straddle the central line to make the turn

Line shows limit of highway adoption

N

COMPUTER FILE NAME

BARNSLEY
Metropolitan Borough Council

PROPOSED SIGNAL STOP LINE LOCATION
AUTOTRACKS AND ADOPTION LIMIT

Scale	NTS
Drawn	LJA
Date	MAR14
Checked	
File	

M Gladstone, Interim Executive Director
Development, Environment & Culture
Westgate Plaza One, Westgate
Barnsley, S70 2DR.
Tel. (01226) 773555 Fax. (01226) 772110

Drawing No. ATD/TEMP1