OPTIMA
Intelligent Highways Solutions

Land South of Halifax Road, Penistone
Proposed Residential Development
Revised Transport Assessment

December 2020

Prepared on behalf of

Barratt Homes and David Wilson Homes Yorkshire West and Yorkshire Land Limited

Optima Highways and Transportation Consultancy Ltd
Suite 1, 3rd Floor, Goodbard House, Infirmary Street, Leeds LS1 2JP
Tel: 0113 245 1679 Fax: 0113 245 9042
www.optimahighways.com

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Prepared by	E Green	E A Green		
Signature		Elizabeth Green		
Checked by	T Pridmore	J Stackhouse		
Signature		J Stackhouse		
Authorised by	E Green	E A Green		
Signature		Elizabeth Green		

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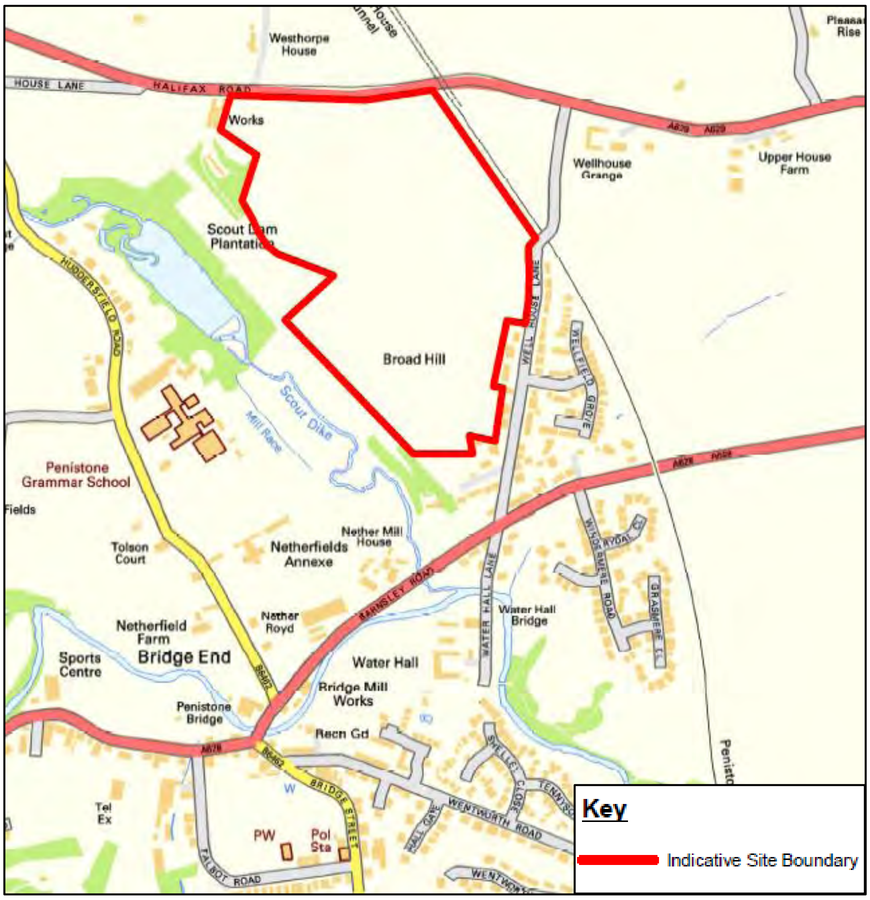
1. Introduction

1.1 INTRODUCTION

1.1.1 Optima Highways and Transportation Consultancy Ltd (Optima) prepared a Transport Assessment (the original TA) dated March 2020 which accompanied a full planning application for Residential Development, Open Space, Landscaping & Associated Infrastructure (Application Reference Number: 2020/0274).

1.1.2 The site location in its local context is shown in Figure 2 (Figure 1 shows the location of the site in a wider context) with an extract from Figure 2 shown in Image 1.1.

Image 1.1 Site Location – Local Context



1.2 SCHEME PROPOSAL AND SCOPE OF REPORT

1.2.1 On 24th June 2020, Highways Development Control at Barnsley Metropolitan Borough Council (BMBC) responded to the planning application with comments on the original TA and this Revised Transport Assessment (Revised TA) covers the points raised. The Revised TA also considers a lesser quantum of development than the original TA and is based on 410 dwellings (the revised Planning Layout shows 402 dwellings and therefore this is a robust assessment).

1.2.2 This TA has been prepared in accordance with the Department for Communities and Local Government (DCLG) 'National Planning Practice Guidance' published in 2014 which supersedes the Department for Transport (DfT) and DCLG's 'Guidance on Transport Assessment' (GTA) document. Cognisance has also been taken of the National Planning Policy Framework (NPPF), as well as the BMBC Local Plan.

1.2.3 This Revised TA should be read in conjunction with the Residential Travel Plan (RTP) also prepared by Optima and submitted with the planning application. The RTP gives a detailed description of the measures that will be implemented to achieve modal shift away from single occupancy car use when compared with initial modal split assumed within this Transport Assessment.

1.2.4 This report sets out the transport impacts relating to the development proposals and identifies what measures may be required to accommodate these impacts. The revised TA considers the sustainability and accessibility of the site, reviewing the provision for, and quality of, facilities and connections to and from the surrounding areas. The document structure is as follows:

- Section 2 - contains an overview of national and local Transport Policy relevant to the Site;
- Section 3 - describes the Site and the existing transport conditions including a review of collision data for the local highway network;
- Section 4 - defines the development proposals including the access strategy and considers on-site parking and connectivity for non-car modes;
- Section 5 - describes the accessibility of the Site by non-car modes including accessibility to local facilities / services;
- Section 6 - sets out the trip generation and distribution methodologies applied in the assessment of the highway network;
- Section 7 - describes the build-up of traffic flow information for the base and design years and provides a materiality assessment of the highway network;
- Section 8 - provides a commentary of the junction assessments that have been undertaken to determine the impact of the development; and
- Section 9 - summarises and concludes the Transport Assessment.

2. Planning Policy Context

2.1 INTRODUCTION

2.1.1 This section of the Revised TA sets out planning policy context against which the proposed development is to be considered insofar as it relates to transportation and highway matters. It sets out the relevant statements of planning policy within the statutory development plan and the National Planning Policy Framework (NPPF) that relate to the scheme. The Government also publishes National Planning Practice Guidance (NPPG) to explain how NPPF policy should be implemented.

2.1.2 S38(6) of the Planning and Compulsory Purchase Act 2014 states that *"If regard is to be has the development plan for the purpose of any determination to be made under the planning Acts the determination must be made in accordance with the plan unless material considerations indicate otherwise."* Therefore, the development plan is the starting point for the determination of planning applications.

2.1.3 The proposed development lies within the administrative boundary of Barnsley Metropolitan Borough Council (BMBC). BMBC is a Unitary Authority and consequently has responsibility for highways and transportation matters within its administrative boundary. Barnsley's Local Plan is the statutory development plan.

2.2 LOCAL POLICY

Barnsley Local Plan

2.2.1 Following public consultation and examination by an Independent Planning Inspector, Barnsley's Local Plan was adopted by Full Council on 3rd January 2019.

2.2.2 The Local Plan identifies Penistone as being a 'Principal Town' and as a long established Pennine rural market town which is an important shopping and service centre serving a large rural hinterland in the west of the borough. The Local Plan states that the Council wants Penistone to be the main local focus for development in the borough's rural west.

2.2.3 Policy LG2 'The Location of Growth' states that, after Urban Barnsley, priority will be given to development in Principal Towns followed by villages.

2.2.4 Penistone is identified to accommodate around 5% of the overall supply of housing for the Borough and the Site is part of a slightly larger housing allocation; HS75 - Land south of Halifax Road, Penistone. The Local Plan allocation considers that the overall site has an indicative capacity of 414 dwellings.

2.2.5 The policy description states that amongst other matters, the development will be expected to *"Provide appropriate off site road safety enhancements"* but it is not clear what the Council is proposing in this regard.

2.2.6 Policy T3 'New Development and Sustainable Travel' sets out the expectations of new development in relation to these matters. This policy sets out that new development should be located and designed to reduce the need to travel, be accessible to public transport and meet the needs of pedestrians and cyclists. Parking is to be provided to at least the minimum levels for cycles, motorbikes, scooters, mopeds and disabled people as set out in the relevant Supplementary Planning Document and Transport Assessments / Statements and Travel Plans are to be provided.

2.2.7 The Local Plan sets out detailed requirements for both Transport Assessments and Travel Plans and notes that Active Traffic Management and Integrated Demand Management types of intervention are preferable to capacity improvements.

2.2.8 Policy T4 'New Development and Transport Safety' is specifically concerned with development being "*expected to be designed and built to provide all transport users within and surrounding the development with safe, secure and convenient access and movement*."

Supplementary Planning Documents and Planning Advice Notes

2.2.9 Following the adoption of the Barnsley Local Plan, BMBC has also adopted several Supplementary Planning Documents (SPD) and Planning Advice Notes (PAN) of which the following, all adopted in November 2019, are concerned with highway and transport-related topics:

- Sustainable Travel SPD – seeks contributions for sustainable and active travel. This SPD also sets out the number of electric vehicle charging points to be provided by developments as a minimum;
- Section 278 Agreements SPD – sets out the process of Section 278 agreements which relate to works within the highway;
- Parking SPD – gives guidance on parking standards; and
- Section 38 Agreements PAN – sets out the process of Section 38 agreements which relate to adoption of highway.

Sheffield City Region Transport Strategy (2011-2026)

2.2.10 The Sheffield City Region Transport Strategy (2011-2026) (SCRTS) is part of the Third Local Transport Plan for South Yorkshire, which includes the districts of Barnsley, Doncaster, Rotherham and Sheffield. It is complemented by an implementation plan which explains how the strategic priorities identified in the SCRTS will be delivered. Due to its strong economic links to West Yorkshire, Barnsley also forms part of the Leeds City Region and is therefore also covered by the Leeds City Region Transport Strategy although as one of the four South Yorkshire districts, Barnsley's transport priorities are fully addressed in the SCRTS.

2.2.11 The SCRTS has four goals for the transport system which are underpinned by a set of 26 policies:

- To support the economic growth of the SCR;
- To enhance social inclusion and health;
- To reduce emissions from vehicles; and
- To make transport increasingly safe and secure.

2.2.12 The SCRTS also sets out the desired outcomes of the strategy following the same themes identified in the four goals. A development according with Policies T3 and T4 of the Barnsley Local Plan will play its part in contributing to the desired outcomes of the SCRTS across all four themes.

South Yorkshire Residential Design Guide (2011)

2.2.13 The South Yorkshire Residential Design Guide (SYRDG) was published in January 2011 and is for residential developers and their design professional, consultants and agents in formulating designs and making applications for planning permission for residential development in South

Yorkshire. It is used by the four South Yorkshire local authorities, including BMBC, to support their assessment of proposals and it incorporates both their planning and highway responsibilities.

2.2.14 The Residential Design Guide covers all aspects of design for residential development including provision for cyclists, pedestrians and users of public transport as well as street / junction design and parking provision.

2.2.15 At Section N1.2 the SYRDG covers Accessibility and tables walking distances for residential areas in different types of settlement to local services, the nearest bus/tram stop and primary health/education. In the context of the table at Section N1.2, it is considered that Penistone is a central area (smaller town) and therefore the residential area should be a 20 minute walk to local services, a 5-10 minute walk to a bus/tram stop depending on destination and a 20 minute walk / 30 minute journey to primary health/education.

2.3 NATIONAL POLICY

National Planning Policy Framework

2.3.1 The National Planning Policy Framework was originally published in March 2012 and this has now been replaced by the July 2018 version. Paragraph 1 of NPPF states that *"The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced."*

2.3.2 The new NPPF replaced the old NPPF immediately on publication, with one exception in relation to local plans where the old NPPF continues to apply to the examination of local plans submitted on or before 24th January 2019. The old NPPF is no longer relevant to the determination of planning applications and therefore it is the new NPPF that is the applicable planning policy for this planning application.

2.3.3 Section 9 of NPPF (paras. 102 to 111) is concerned with 'Promoting sustainable development'. Para. 102 states that:

> *"Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:*
>
> *a) the potential impacts of development on transport can be addressed;*
>
> *b) opportunities to promote walking, cycling and public transport use are identified and pursued;*
>
> *c) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
>
> *d) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places."*

2.3.4 Para. 103 notes that the planning system should actively manage patterns of growth in support of these objectives and significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. The NPPF recognises that opportunities to maximise transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-taking.

2.3.5 Paras. 108 to 111 are concerned with 'Considering development proposals'. Para. 108 states that:

"In assessing sites that may be allocated for development on plans, or specific applications for development, it should be ensured that:

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users; and

c) any significant impacts from the development on the transport network (in terms of capacity and congestion) or on highway safety, can be cost effectively mitigated to an acceptable degree."

2.3.6 Para. 109 concludes that *"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."*

2.3.7 At para. 110, NPPF provides details of what is expected from development proposals in terms of transport provision stating that:

"Within this context, applications for development should:

a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;

b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;

c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;

d) allow for efficient delivery of good, and access by service and emergency vehicles; and

e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations."

2.3.8 Finally, in this section of the NPPF it is stated that *"All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed."*

National Planning Policy Guidance

2.3.9 On 6th March 2014 the Department for Communities and Local Government launched its planning practice guidance web-based resource. The Ministry of Housing, Communities & Local Government continues to update this resource and will continue to do so, where necessary, to reflect changes to NPPF. Transportation and highways matters are addressed under the heading of 'Travel Plans, Transport Assessments and Statements', 6th March 2014 and 'Design', 6th March 2014.

Travel Plans, Transport Assessments and Statements

2.3.10 The NPPG explains that Travel Plans (TP) and Transport Assessments (TA) are ways of assessing and mitigating the negative transport impacts of development in order to promote sustainable development and that they are required for developments which generate significant amounts of traffic movements (Paragraph: 002 Reference ID: 42-002-20140306).

2.3.11 It goes on to advise that a TA may propose mitigation measures where these are necessary to avoid unacceptable or "severe" impacts. Travel Plans are identified as playing an effective role in taking forward those mitigation measures which relate to on-going occupation and operation of the development (Paragraph: 004 Reference ID: 42-005-21040306).

2.3.12 The guidance goes on to state (Paragraph: 006 Reference ID: 42-006-20140306) that TAs and TPs can positively contribute to:

- encouraging sustainable travel;
- lessening traffic generation and its detrimental impacts;
- reducing carbon emissions and climate impacts;
- creating accessible, connected, inclusive communities;
- improving health outcomes and quality of life;
- improving road safety; and
- reducing the need for new development to increase existing road capacity or provide new roads.

2.3.13 With regard to TPs, the guidance advises that these should identify the specific required outcomes, targets and measures, and set out clear future monitoring and management arrangements all of which should be proportionate. TPs should also consider what additional measures may be required to offset unacceptable impacts if targets are not met.

2.3.14 It is necessary for TPs to set out explicit outcomes rather than just identify processes to be followed. A TP should also address all journeys resulting from a proposed development by anyone who may need to visit or stay, and it should seek to fit in with wider strategies for transport in the area (Paragraph: 011 Reference ID: 42-011-20140306).

2.3.15 An important part of the overall strategy for the proposed development is the implementation, maintenance and monitoring of a Residential Travel Plan. The Residential Travel Plan in conjunction with the Transport Assessment are geared towards encouraging sustainable travel.

Design

2.3.16 In Paragraph: 042 Reference ID: 26-042-20140306, the NPPG notes that *"Successful streets are those where traffic and other activities have been integrated successfully, and where buildings and spaces, and the needs of people, not just their vehicles, shape the area."*

2.3.17 The NPPG also notes that *"The likelihood of people choosing to walk somewhere is influenced by not only distance but also by the quality of the walking experience. When considering pedestrians plan for wheelchair users and people with sensory or cognitive impairments. Legible design, which makes it easier for people to work out where they are and where they are going, is especially helpful for disabled people."*

2.3.18 The design of the proposed development very much responds to this part of the NPPG in that it aims to address the needs of people and to encourage all users of the development to use sustainable modes for travel both within and to and from the development.

3. The Site and Existing Highway Network

3.1 EXISTING SITE

3.1.1 The Site is located immediately to the south of A629 Halifax Road on the northern side of Penistone. Its location relative to the local highway network is shown in Figure 2 and an extract is shown in Image 1.1, Figure 1 shows its location in a more strategic setting.

3.1.2 The Site has an overall area of approximately 14.8 hectares (36.6 acres) and is given over to agricultural uses. The Site is bound to the north by A629 Halifax Road, to the east partly by the Penistone Line (the rail line between Huddersfield, Penistone, Barnsley and Sheffield), partly by Well House Lane and partly by the rear of existing properties that front on to Well House Lane, with its south west boundary being denoted by existing field boundaries.

3.1.3 There are two existing field access points into the Site from A629 Halifax Road and an existing field access from Well House Lane along the part of the frontage that is directly bound by the road. There is also a field access into the site from Well House Lane further to the south adjacent No. 15.

3.2 EXISTING LOCAL HIGHWAY NETWORK

Vehicular Network

3.2.1 The A629 is a key route between Huddersfield to the north west and Sheffield, via A61, to the south east. In the vicinity of the Site frontage, A629 Halifax Road is a wide single carriageway road, marked as two lanes and a hatched ghost island central reserve. There is a footway to the northern side of Halifax Road separated from the carriageway by a grass verge. There is no footway along the Site frontage. The road is subject to the National Speed Limit of 60mph for a single carriageway road. Currently weekday traffic flows on A629 Halifax Road in the vicinity of the Site frontage are typically:

- AM Peak Hour (two-way) – 1018 vehicles; and
- PM Peak Hour (two-way) – 778 vehicles.

3.2.2 Some 1.3km to the east of the Site frontage A629 Halifax Road meets A628 Barnsley Road at a four arm roundabout, known as Hoylandswaine Roundabout. The A628 runs in a generally west to east direction from A57 at Hollingworth, across the Woodhead Pass, skirting around the northern side of Penistone to Junction 37 of the M1 Motorway. To the east of Junction 37, the A628 provides a key radial route into the centre of Barnsley and then continues in a north-easterly direction through Cudworth and Ackworth into Pontefract. Current weekday traffic flows in the vicinity of the junction of A628 Barnsley Road and Well House Lane are typically:

- AM Peak Hour (two-way) – 1140 vehicles; and
- PM Peak Hour (two-way) – 1025 vehicles.

3.2.3 More local to the Site, Well House Lane provides a north to south link between A629 Halifax Road and A628 Barnsley Road, meeting each at a priority junction both with ghost island right turn holding lane. Well House Lane is a single carriageway road and, in the vicinity of the Site frontage, has a carriageway width of some 5.5m and a footway to its eastern side of some 2.7m in width. Along the Site frontage to Well House Lane there is currently a grassed verge of some 0.9m in width. Currently weekday traffic flows on Well House Lane in the vicinity of the Site frontage are typically:

- AM Peak Hour (two-way) – 202 vehicles; and
- PM Peak Hour (two-way) – 181 vehicles.

3.2.4 Some 200m south of its junction with Halifax Road, Well House Lane crosses the railway and, in order to reduce the skew and length of span of the bridge, the horizontal alignment of Well House Lane follows an 'S' bend. The speed limit on the southern end of Well House Lane is 30 mph and this changes to 60 mph part way along the site frontage. Street lighting is provided within the 30 mph zone. Well House Lane is also subject to a 7.5T weight limit restriction, except for access.

3.2.5 To the west of the Site, B6462 Huddersfield Road provides another generally north to south link between A629 Halifax Road and A628 Barnsley Road, again meeting each at a priority junction both with ghost island right turn holding lane.

3.2.6 Immediately to the south west of the junction of A628 Barnsley Road and B6462 Huddersfield Road, B6462 continues to the south into the centre of Penistone as Bridge Street from a traffic signal controlled junction with A628. At this junction A628 changes from Barnsley Road to Thurlstone Road as it continues in a westerly direction. B6462 Bridge Street leads into B6462 St Mary's Street at the four arm roundabout with Market Lane and Stottercliffe Road. Some 100m to the south of the roundabout, B6462 continues to the left as Shrewsbury Road and then Sheffield Road out to Oxspring before meeting A629 at Thurgoland.

Pedestrian and Cycle Network

3.2.7 There is a continuous footway on the eastern side of Well House Lane from the railway bridge south to the junction with A628 Barnsley Road. The footway on the west side of Well House Lane starts to the south of the Site frontage and this will be extended along the frontage to connect with the pedestrian infrastructure within the development.

3.2.8 At the southern end of Well House Lane pedestrians and cyclists can cross A628 Barnsley Road and continue in a southerly direction down Water Hall Lane into Penistone Town Centre. This route which is designated as a Public Bridleway (Footpath Number 75) leads through Water Royd Park and on to Wentworth Road before following a route on to B6462 Bridge Street.

3.2.9 There is a pedestrian refuge within the carriageway of A628 Barnsley Road at both ends of the right-turn holding lane for the junction with Well House Lane allowing pedestrians to safely cross the road on the route into the Town Centre and also to use the bus stop on the opposite side of Barnsley Road just to the north of the junction.

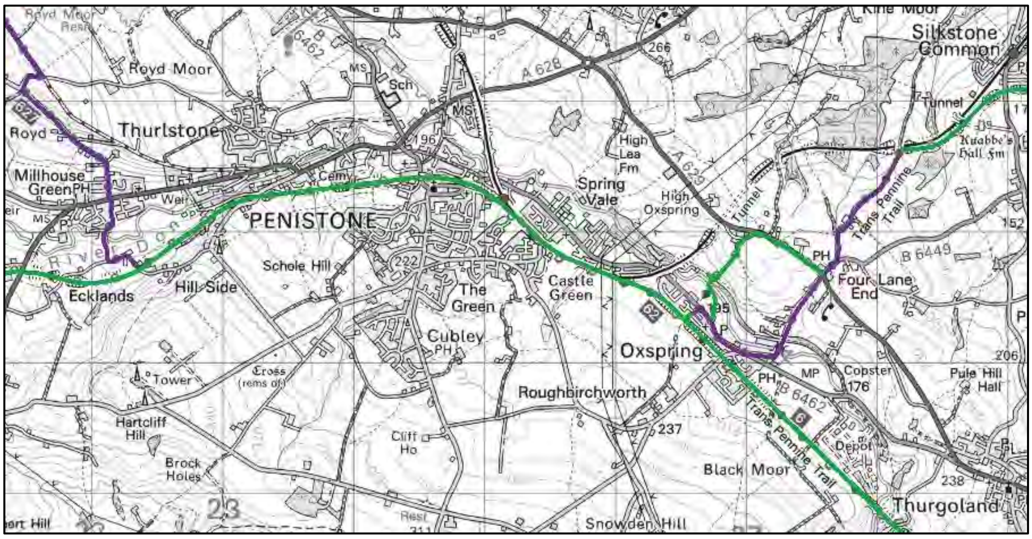
3.2.10 There are also continuous footways on both sides of A628 Barnsley Road leading B6462 Huddersfield Road and the traffic signal controlled junction with B6462 Bridge Street. There is a controlled pedestrian crossing facility on the A628 Barnsley Road arm of the junction. A footway continues up the western side of B6462 Huddersfield Road to Penistone Grammar School.

3.2.11 As well as on-road routes for cycles, Penistone lies on the National Cycle Network Route 62. National Route 62 connects Fleetwood in the Fylde region of Lancashire with Selby in North Yorkshire. It forms the west and central sections of the Trans Pennine Trail which is a long-distance path running coast to coast across northern England. To the west of Penistone is the on-road Route 627 which starts in Kirkburton and goes through Shepley and Millhouse Green before connecting to the Trans Pennine Trail off Shore Hall Lane.

3.2.12 This section of the Trans Pennine Trail follows the route of a disused railway and, to the east of Penistone, in Oxspring the route splits. One spur of the route continues to follow the disused railway line to the south towards Sheffield and Rotherham and another spur continues to the north east towards Barnsley before heading north to Wakefield and Leeds.

3.2.13 An extract from BMBC's cycle route network map is shown below in Image 3.1 with traffic free routes shown in green and on road routes shown in purple.

Image 3.1 Extract from BMBC's Cycle Route Network Map



3.3 EXISTING DATA

Junction Turning Counts

3.3.1 Fully classified turning count surveys have been obtained for a number of junctions on the local highway network. The surveys are scheduled in Table 2.1 and referenced on Figure 3.

Table 3.1 Fully Classified Junction Count Surveys

Ref	Location	Date Undertaken	Assessment Periods
1	A629 Halifax Road / Well House Lane	17th October 2018	07:00-10:00 and 15:00-19:00
2	A629 Halifax Road / A628 Barnsley Road / A629 High Lee Lane / A628 Barnsley Road	17th October 2018	07:00-10:00 and 15:00-19:00
3	A628 Barnsley Road / Well House Lane / Water Hall Lane	17th October 2018	07:00-10:00 and 15:00-19:00
4	A628 Barnsley Road / B6462 Huddersfield Road	17th October 2018	07:00-10:00 and 15:00-19:00
5	A628 Thurlstone Road / A628 Barnsley Road / B6462 Bridge Street	17th October 2018	07:00-10:00 and 15:00-19:00

3.3.2 The results of the traffic surveys identify the following existing weekday peak hours:

- Weekday AM Peak Hour: 07:30 – 08:30; and
- Weekday PM Peak Hour: 17:00 – 18:00

Speed Surveys

3.3.3 Radar gun speed surveys have been undertaken on A629 Halifax Road and Well House Lane in accordance with DMRB TA 22/81 'Vehicle Speed measurement on All Purpose Roads' and a copy of the data is contained at Appendix A.

3.3.4 The surveys were undertaken on Well House Lane on Wednesday 14th November 2018 and on A629 Halifax Road on Friday 16th November 2018 in locations suitable to obtain speed data to inform the design of the access junctions.

3.3.5 The 85th percentile wet weather values that have been calculated from the results of the speed surveys are as follows:

- Well House Lane (Northbound) – 37 mph;
- Well House Lane (Southbound) – 31 mph;
- A629 Halifax Road (Westbound) – 52 mph; and
- A629 Halifax Road (Eastbound) – 54 mph.

Personal Injury Collision Data

3.3.6 The original TA considers personal injury collision (PIC) data for the five year period between 1st January 2013 and 31st December 2017. The study area includes A629 Halifax Road from its junction with B6462 Huddersfield Road to its junction with A628 Barnsley Road, A628 Barnsley Road from its junction with A29 Halifax Road to its junction with B6462 Bridge Street, B6462 Bridge Street south to its junction with St Mary's Street and Market Lane, Well House Lane and B5462 Huddersfield Road.

3.3.7 During that five year period there has been a total of 21 personal injury collisions across the study area – 18 of which were classified as slight in nature and 3 classified as serious.

3.3.8 In the preparation of this Revised TA, the Crashmap website has been interrogated to understand whether there has been any change in road safety conditions over a more recent five year period between 2015 and 2019.

A629 Halifax Road Corridor

3.3.9 Between 2013 and 2017, nine of the collisions occurred on the A629 Halifax Road corridor including its junctions with B6462 Huddersfield Road and B628 Barnsley Road (Hoylandswaine Roundabout), 1 of which was classified as serious in severity with the remaining 8 being classified as slight.

3.3.10 In the more recent five-year period, there has been a total of eight collisions, 3 of which have been classified as serious in severity and the remaining 5 classified as slight. One of the collisions that was classified as serious in severity occurred at Hoylandswaine Roundabout and there was a single collision, classified as slight in severity, at the junction of A629 Halifax Road and Well House Lane.

A628 Barnsley Road Corridor

3.3.11 Between 2013 and 2017, eight of the collisions occurred on A628 Barnsley Road corridor including its junction with A628 Thurlstone Road / B6462 Bridge Street, 1 of which was classified as serious in severity with the remaining 7 being classified as slight. These statistics remain unchanged in the 2015-2019 period.

3.3.12 The serious collision occurred in 2017 at the junction of A628 Barnsley Road / B6462 Bridge Street / A628 Thurlstone Road which is traffic signal controlled and therefore appears in both sets of data. The collision was not as a result of the operation of the junction but involved a motor cycle colliding with a vehicle that was reversing into the parking area at The Bridge Public House.

B6464 Bridge Street / St Mary's Street

3.3.13 In the earlier period, two collisions occurred in the vicinity of the roundabout at the junction of B6462 Bridge Street / St Mary's Street / Market Lane / Slottercliffe Road both of which involved pedestrians and one of which was classified as serious in severity.

3.3.14 There has been no collisions at the roundabout in the latest five-year period which may indicate that road safety at this junction has improved over time as it was installed relatively recently as a result of the adjacent retail development.

B6462 Huddersfield Road

3.3.15 In the later period there has been one collision on B6462 Huddersfield Road (as opposed to two occurring in the earlier period).

Well House Lane

3.3.16 There have been no personal injury collisions reported on Well House Lane during either of the 5 year periods under consideration.

Summary

3.3.17 Having considered the personal injury collision data in detail it is considered that there are no trends in the data or locations that could be considered as 'blackspots' and there has also been no change in the road safety record in the area when comparing the earlier five year period between 2013 and 2017 with the later period of 2015-2019.

3.3.18 Therefore, there is no evidence to suggest that the additional traffic from the proposed development will exacerbate the current situation.

3.4 EXISTING PUBLIC TRANSPORT FACILITIES

Bus Services

3.4.1 There is a bus stop on both sides of A628 Barnsley Road close to the junction with Well House Lane. Both stops are equipped with a shelter, seating and timetable information. There is a pedestrian refuge in the middle of Barnsley Road which allows safer crossing to and from the bus stop on the southern side of the road. These bus stops are used by Service 20 Barnsley Centre - Cubley.

3.4.2 Whilst these are not evident on the ground, up-to-date Bus Service Timetable information for Services 23, 23a, 24, 24a shows that there are bus stops on Well House Lane which are used by Service 24 Barnsley Centre - Ingbirchworth.

3.4.3 Penistone Market Place is the interchange location for bus travel in and around Penistone and all services use the stop in Market Place with some using the nearby stop outside Penistone Church on Shrewsbury Road.

3.4.4 An extract from Barnsley Bus Partnership's Barnsley Bus Map showing the bus services in Penistone is shown in Image 3.2 below with details of the services provided in Table 3.2.

Image 3.2 Penistone Bus Services

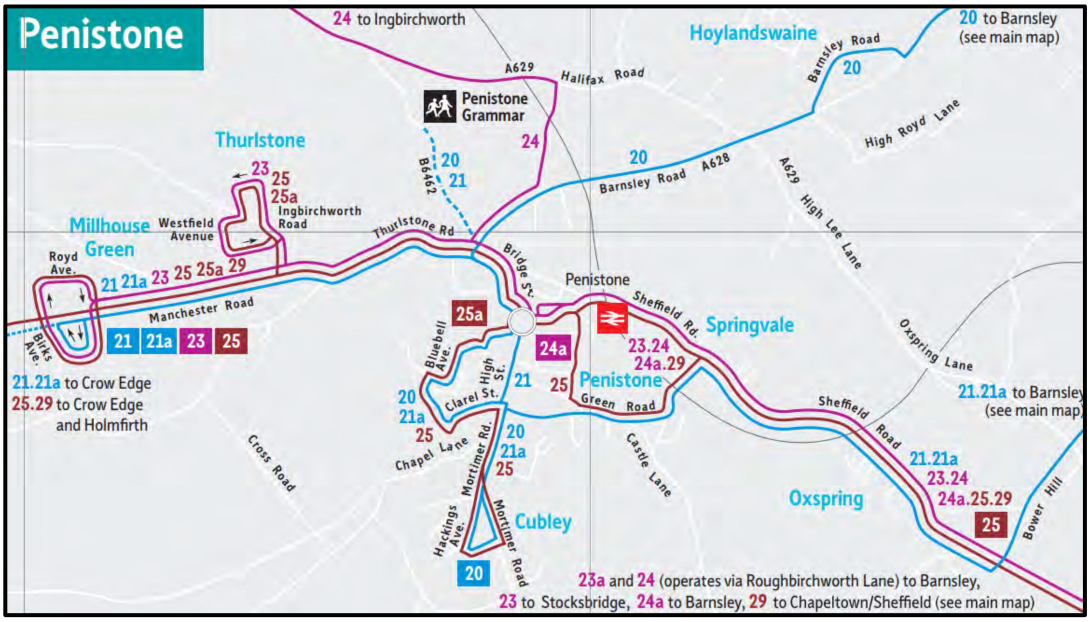


Table 3.2 Summary of Bus Services in Penistone

Service	Route	Days of Operation	Approx. Frequency Each direction	Time of Operation
20	Barnsley Interchange - Pogmoor - Dodworth - Silkstone - Hoylandswaine - Penistone - Cubley	Mon - Fri	1 per hour	07:45-18:30
		Sat	1 per hour	08:50-18:00
		Sun	No Service	-
21 / 21a	Barnsley Interchange - Pogmoor - Dodworth - Silkstone - Silkstone Common - Oxspring - Spring Vane - Penistone - Thurlstone - Millhouse Green - Hazlehead - Crow Edge	Mon - Fri	1 per hour	06:30-22:14
		Sat	1 per hour	07:32-22:14
		Sun	1 per hour	09:57-22:14
23	Millhouse Green - Thurlstone - Penistone - Spring Vane - Oxspring - Thurgoland - Wortley - Deepcar - Stocksbridge	Mon - Fri	1 every 2 hours	09:02-15:46
		Sat	1 every 2 hours	09:02-15:46
		Sun	No Service	-
24/24a	Barnsley Interchange - Kingstone - Gilroyd - Stainborough - Hood Green - Thurgoland - Crane Moor - Thurgoland - Green Moor - Oxspring - Spring Vale - Penistone - Ingbirchworth	Mon - Fri	1 every 2 hours	06:20-22:00
		Sat	1 every 2 hours	07:09-22:00
		Sun	1 every 2 hours	09:00-22:00
29	Sheffield - Burngreave - Chapeltown - High Green - Wortley - Thurgoland - Penistone - Millhouse Green - Dunford Bridge - Holmfirth	Mon - Fri	1 every 3 hours	07:10-23:07
		Sat	1 every 3 hours	07:15-23:07
		Sun	1 every 2 hours (Chapeltown-Penistone)	08:57-23:07

Rail Services

3.4.5 Penistone Railway Station is located approximately a 1.2 km straight line distance to the south east of the Site. Penistone is on the Northern Huddersfield to Sheffield (Penistone Line) which provides services between Penistone and Huddersfield, Barnsley, Meadowhall and Sheffield.

Between Penistone and Huddersfield, the local stations of Denby Dale, Shepley, Stocksmoor, Brockholes, Honley, Berry Brow and Lockwood are served.

3.4.6 The Penistone Line provides 1 train per hour in each direction, Monday to Saturday (06:20-23:26) and 1 train per hour in each direction on Sunday (09:41-20:23).

3.4.7 The station has cycle storage for 16 bicycles which is covered by CCTV and a free car park for 15 vehicles.

4. Development Proposals and Access Arrangements

4.1 PROPOSED DEVELOPMENT

4.1.1 The scheme proposals are shown on the STEN Architecture drawing 2001.01, a copy of which is contained at Appendix B. The proposals are for:

- Up to 402 residential units comprising a mix of terraced, semi-detached and detached properties of which 121 are affordable; and
- Associated access and parking; and landscaping including areas of Public Open Space (POS).

4.2 ACCESS ARRANGEMENTS

4.2.1 Two points of vehicular access will be provided into the site; a priority junction with ghost island right turn holding lane will be the means of access from A629 Halifax Road and a simple priority junction will provide access from Well House Lane. The layout for each junction is shown in Optima drawing nos. 20005-GA-01 Rev C and 20005-GA-02 Rev A respectively as contained at Appendix C.

4.2.2 The junction on A629 Halifax Road has been designed generally in accordance with Design Manual for Roads and Bridges (DMRB) CD 123 'Geometric design of at-grade priority and signal-controlled junctions'. The length of the visibility splays provided out of each junction has been informed by the radar speed surveys carried out on 14th and 16th November 2018.

4.2.3 BMBC Highways Development Control has requested swept path analysis for each of the junctions showing manoeuvres carried out by a refuse vehicle, a fire appliance and a public service vehicle. This analysis is shown on Optima drawing nos. 20005-ATR-05 and 20005-ATR-06 for the Halifax Road and Well House Lane junctions respectively as contained at Appendix D.

4.2.4 An independent Stage 1 Road Safety Audit (RSA) of the access proposals has been carried out by TMS Consultancy and a Response Report has been prepared by the Design Organisation for agreement with the Overseeing Organisation as part of the approval process for the preliminary access designs. A copy of the Response Report, which contains a copy of the RSA report as an appendix, is contained at Appendix E.

4.2.5 The Stage 1 RSA has raised no problems relating to the form of junction proposed at either access and therefore it is considered that a priority junction is appropriate to serve the development from both Halifax Road and Well House Lane.

4.2.6 There will be a separate pedestrian / cycle access out on to Well House Lane at the south east corner of the development at the location of the existing field access adjacent No. 15.

4.3 INTERNAL LAYOUT AND SERVICING

4.3.1 The proposed development will be served by a network of internal roads of varying hierarchy. There will be a primary route through the development linking Halifax Road and Well House Lane and lower order streets and private drives to serve five dwellings and under.

4.3.2 Turning heads are provided at the ends of any adopted culs-de-sac to allow adequate servicing. A swept path analysis of the internal layout has been undertaken and details of this are provided separately to accompany the full details of the proposed development as prepared by STEN Architecture.

4.4 PARKING PROVISION

4.4.1 BMBC has produced a Supplementary Planning Document (SPD) on 'Parking' which was adopted in November 2019 to support its emerging Local Plan. Table 1 of the Parking SPD sets out parking standards for broad categories of development and for C3 Dwelling Houses Borough wide (excluding Barnsley Urban) the maximum number of spaces allowed are 1 space for dwellings with 1 or 2 bedrooms and 2 spaces for dwellings with 3 or more bedrooms.

4.4.2 Table 1 of the Parking SPD also requires 1 visitor space per 4 dwellings subject to layout with flexibility for visitor parking being considered on a site by site basis.

4.4.3 The Parking SPD refers to the Sustainable Travel SPD in relation to the requirement for electric vehicle charging points (EVCPs) and the requirement for residential development is 1 charging point per dwelling with dedicated parking or 1 charging point per 10 spaces where parking is unallocated.

4.4.4 The SPD also refers to the South Yorkshire Residential Design Guide (SYRDG) for advice on the design of residential car parking and garages and states that developments will be expected to meet the standards for parking design set out in the SYRDG considering cycle, motorcycle and car parking as an integral part of the design of residential development.

4.4.5 Parking at the proposed development is in line with BMBC's standards and is provided as a mix of off-road parking spaces, driveways and garages. Visitor parking is provided on-street and it has been demonstrated that this can be accommodated whilst allowing satisfactory servicing of the development by the standard refuse vehicle.

5. Site Accessibility and Measures to Influence Travel Behaviour

5.1 ACCESSIBILITY ON FOOT

5.1.1 The measures proposed which will positively influence trips on foot by proposed residents include:

- Boundary connections with the existing highway network on both the northern frontage on to A629 Halifax Road and at two locations on the eastern frontage on to Well House Lane. This will also provide a through route for existing pedestrians wanting to walk between A629 Halifax Road and Penistone;
- Internal links and pedestrian routes to create the shortest possible distances to the boundary connections; and
- Travel Plan initiatives for residents.

5.1.2 The residential design guide 'Manual for Streets' (MfS) advises that *"walkable neighbourhoods are typically characterised by having a range of facilities within ten minutes (up to about 800m) walking distance of residential areas…"* (ref para 4.4.1). However, this is not regarded as an upper limit in MfS and reference is also made to walking offering *"the greatest potential to replace short car trips, particularly those under 2km".* The acceptability of walking trips up to 2km (an approximate 25 minutes' walk time) is also supported in the CIHT document 'Providing for Journeys on Foot', 2000.

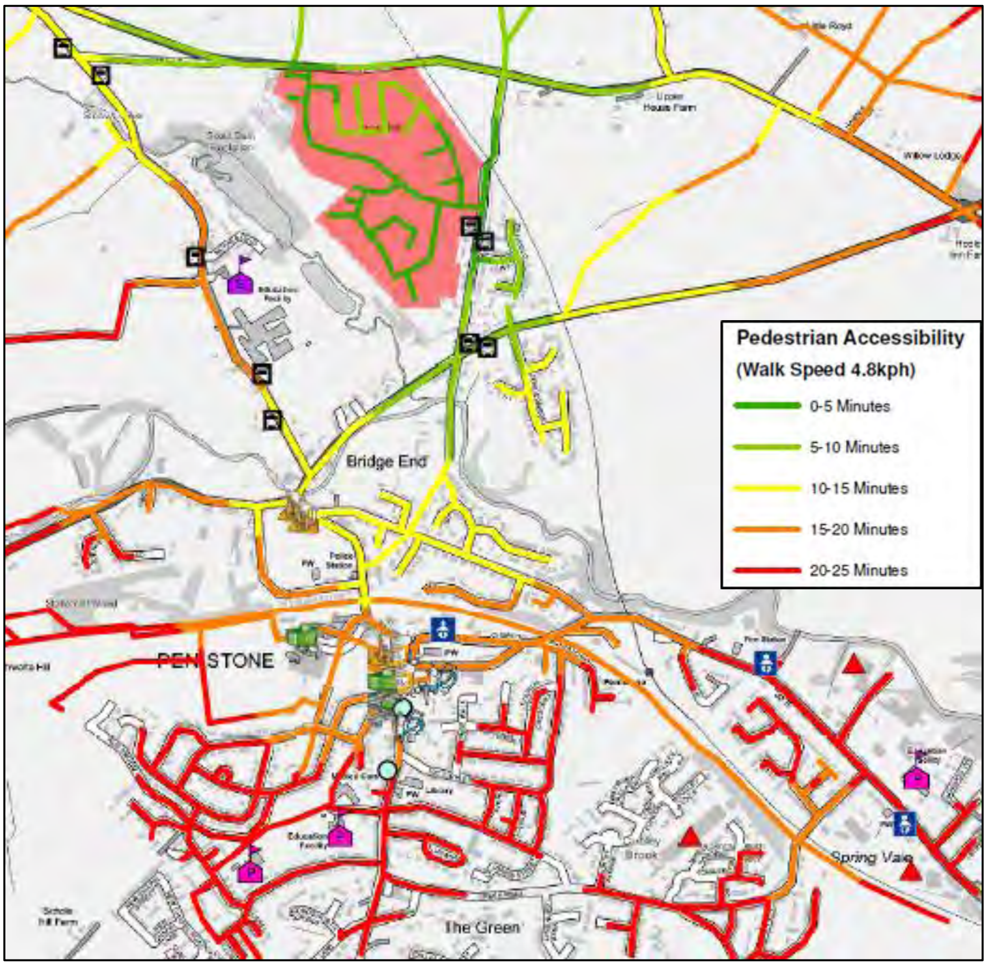
5.1.3 The Department for Education (DfE) statutory guidance document, 'Home to School Travel and Transport', July 2014, defines an even greater maximum walking distance to schools of 2 miles (3.2km) and 3 miles (4.8km) for children under and over 8 years respectively.

5.1.4 Using GIS Network Analysis software, typical walk times (up to 25 minutes which equates to a distance of 2km) from the centre of the Site are shown on Figure 4 with an extract provided in Image 5.1 below. The walking routes shown on the figure are a mix of adopted highways and Public Rights of Way. This figure and the extract demonstrate that the Site is within an easy walking distance of the following:

- Saint John the Baptist Primary School and Saint John the Baptist Church of England (VC) Infant School along with Spring Vale Primary School, within a 20-25 minute walk;
- Penistone Grammar School, within a 15-20 minute walk;
- The local shops and services including NatWest Bank, a Post Office, Tesco, The co-operative Food and a Spar, within a 15-20 minute walk; and
- Local medical facilities including Penistone Group Practice, a Dental Practice, several pharmacies and Auckland Opticians, within a 5-15 minute walk.

5.1.5 There is a good selection of takeaways, restaurants, public houses and cafes no more than 15 minutes' walk and local employment opportunities in Penistone Town Centre and at Springvale are within a 20 minute walk.

Image 5.1 Extract of Pedestrian Accessibility Plan



5.1.6 It is therefore concluded that the proposed residential development will be provided with good accessibility on foot to a wide range of services and facilities in accordance with national MfS, CIHT and DfE guidance.

5.1.7 The SYRDG also contains guidelines for accessibility and, in this regard, it is considered that Penistone is a central area (smaller town). The residential area should therefore be a 20 minute walk to local services, a 5-10 minute walk to a bus/tram stop and a 20 minute walk/30 minute journey to primary health/education. It has been demonstrated that the proposed development will meet these local accessibility criteria.

5.2 ACCESSIBILITY BY CYCLE

5.2.1 The measures proposed which will positively influence trips on foot by proposed residents include:

- Boundary connections with the existing highway network on both the northern frontage on to A629 Halifax Road and at two locations on the eastern frontage on to Well House Lane. This will also provide a through route for existing cyclists wanting to cycle between A629 Halifax Road and Penistone;
- Internal links and routes to create the shortest possible distances to the boundary connections; and

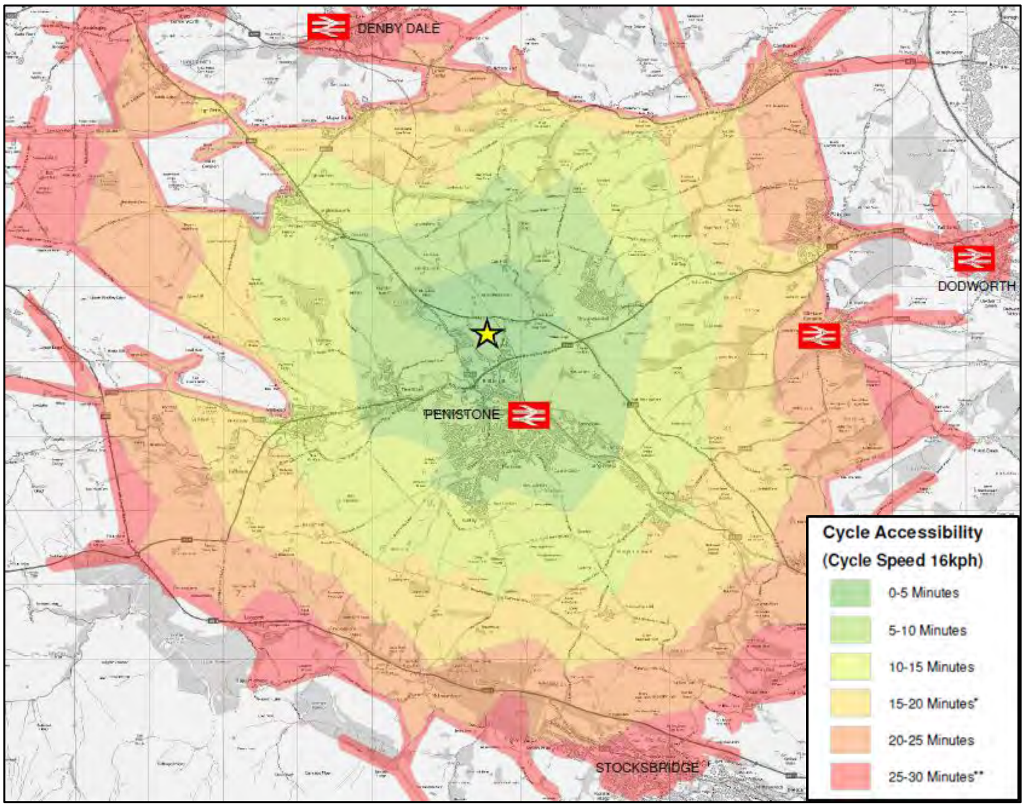
- Travel Plan initiatives for residents.

5.2.2 An acceptable and comfortable distance for general cycling trips is considered to be up to 5 kilometres as referred to in DfT's Local Transport Note 2/08. However, the same guidance also refers to commuting cycle trips of up to 8km. From the Site, an 8km catchment area encompasses all of Penistone, Denby Dale and parts of Stocksbridge and Dodworth which opens up a wider variety of employment opportunities for residents.

5.2.3 Using GIS Network Analyst software typical cycle times (up to 30 minutes which broadly equates to a distance of 8km) from the Site are shown in Figure 5 and an extract is provided in Image 5.2. Figure 5 illustrates that:

- The majority of Penistone including the wide variety of shops and services is within a 10 minute cycle ride; and
- The Railway Station at Penistone where cycle parking is provided is just over a 5 minute cycle ride.

Image 5.2 Extract of Cycle Accessibility Plan



5.2.4 It is concluded that the Site will be provided with good accessibility by cycle to a wide range of local services, facilities and employment opportunities, many of which are within a very short cycling distance.

5.3 ACCESSIBILITY BY BUS

5.3.1 The measures proposed which will positively influence trips by bus for proposed residents include:

- Boundary connections with the existing highway network on both the northern frontage on to A629 Halifax Road and at two locations on the eastern frontage on to Well House Lane. This will allow access to existing bus stops on Well House Lane and A628 Barnsley Road;
- Internal links and routes to create the shortest possible distances to the boundary connections and therefore the bus stops;
- The provision of on-site highway infrastructure that is capable of accommodating bus service provision within the development; and
- Travel Plan initiatives for residents.

5.3.2 The most frequent bus services are accessed from the stops on A628 Barnsley Road where there is one bus an hour to Barnsley Town Centre and return. The bus stops in Market Place and Shrewsbury Road which provide additional services are approximately 15 minutes' walking distance from the proposed development.

5.3.3 It is concluded that the Site will be provided with reasonable accessibility by bus to key local destinations which offer a wide range of services, facilities and employment opportunities.

5.4 ACCESSIBILITY BY RAIL

5.4.1 Penistone Railway Station provides regular, hourly connections to several key destinations within the local region including Huddersfield (30 minute journey time), Barnsley (16 minute journey time) and Sheffield (45 minute journey time). From Huddersfield it is possible to interchange on to trains to Leeds and Manchester. From Sheffield it is possible to interchange on to trains to Leeds, Birmingham and London.

5.4.2 The railway station can be accessed by:

- Walking – within a 15-20 minute journey time;
- Cycle – within a 5-10 minute journey time; and
- By car – typical 5 minute journey time (plus any walking time between car park and platforms)

5.4.3 It is therefore concluded that the Site will be provided with reasonable accessibility by rail to principal local and regional destinations which offer a vast range of services, facilities and employment opportunities.

5.5 RESIDENTIAL TRAVEL PLAN

5.5.1 A Residential Travel Plan has been prepared to accompany this Transport Assessment. This demonstrates the connectivity between the Site and surrounding amenities, highlighting the opportunities for future residents to access these by means other than the car. It also sets out the ways in which the applicant will facilitate and encourage trips by sustainable modes of travel, by implementing a series of measures including (but not limited to):

- The appointment of a Travel Plan Coordinator to ensure the Travel Plan is delivered to full effect;
- A development-specific travel information website, offering a one-stop shop for residents to easily access information to enable them to make informed decisions about how they travel;
- A travel information guide that will be displayed in the sales office to sell the accessibility of the development to potential future residents, this guide will also be provided to all new occupiers;

- The potential for personalised journey planning; and
- Ongoing communication with residents regarding local travel options via an annual newsletter.

5.5.2 The Travel Plan also includes targets, which reflect the trip generation within this Transport Assessment; monitoring will be undertaken on an annual basis, following first occupation and the results of this process reported to the Council.

5.6 SUMMARY

5.6.1 In summary it is concluded that the Site will be provided with good accessibility for pedestrians, cyclists and by public transport to a wide range of local services, facilities and employment facilities. This will be reinforced by the implementation, management and monitoring of a Residential Travel Plan at the development.

5.6.2 As such the Site is in a sustainable location and is compliant with NPPF which requires that *"appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location"* and *"safe and suitable access to the site can be achieved for all users"* (para 108) and states that *"applications for development should ….. give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus and other public transport services. And appropriate facilities that encourage public transport use"* (para 110).

6. Trip Generation and Distribution

6.1 VEHICULAR TRIP GENERATION

6.1.1 In order to obtain a suitable vehicular trip rate for the proposed development, the TRICS 7.5.3 on-line database has been interrogated using the following parameters:

- Land use: 03 – Residential, Category: A Houses Privately Owned;
- Calculation options: Vehicular trip rates selected;
- Regions: Greater London and Irish sites excluded;
- Number of dwellings: 50 to 600 units;
- Date range: 01/01/10 to 19/04/18;
- Survey days: Monday – Friday; and
- Location type: Suburban and Edge of Town.

6.1.2 The full TRICS output is contained at Appendix F with the 85th percentile weekday AM and PM peak hour trip rates and resultant generated traffic for 410 dwellings shown tabulated below in Table 6.1. 85th percentile trip rates have been calculated to ensure a robust assessment of the likely impact of the development traffic on the operation of the local highway network.

Table 6.1 85th Percentile Trip Rates and Resultant Traffic Generation

Time Period	Vehicular Trip Rates (per dwelling)			Traffic Generation (410 Dwellings)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM Peak 08:00-09:00	0.240	0.385	0.625	98	158	256
PM Peak 17:00-18:00	0.444	0.149	0.593	182	61	243

6.2 MULTI-MODAL TRIP GENERATION

6.2.1 In order to establish the base-line trip generation by mode for the proposed development the 2011 Census data has been interrogated for the residential areas surrounding the Site which are considered to best represent the likely future base-line travel characteristics for the Site.

6.2.2 The Site is within 2011 Barnsley 016 Super Output Area - Mid Layer, however this is a predominantly rural area and therefore Barnsley 024 has been selected as this covers Penistone and its main residential areas.

6.2.3 Image 6.1 shows the extents of Barnsley 024 2011 Super Output Area - Mid Layer and the mode splits taken from WU03EW – Location of usual residence and place of work by method of travel to work (MSOA level) dataset for this area are shown in Table 6.2.

Image 6.1 Barnsley 024 Super Output Area - Mid Layer

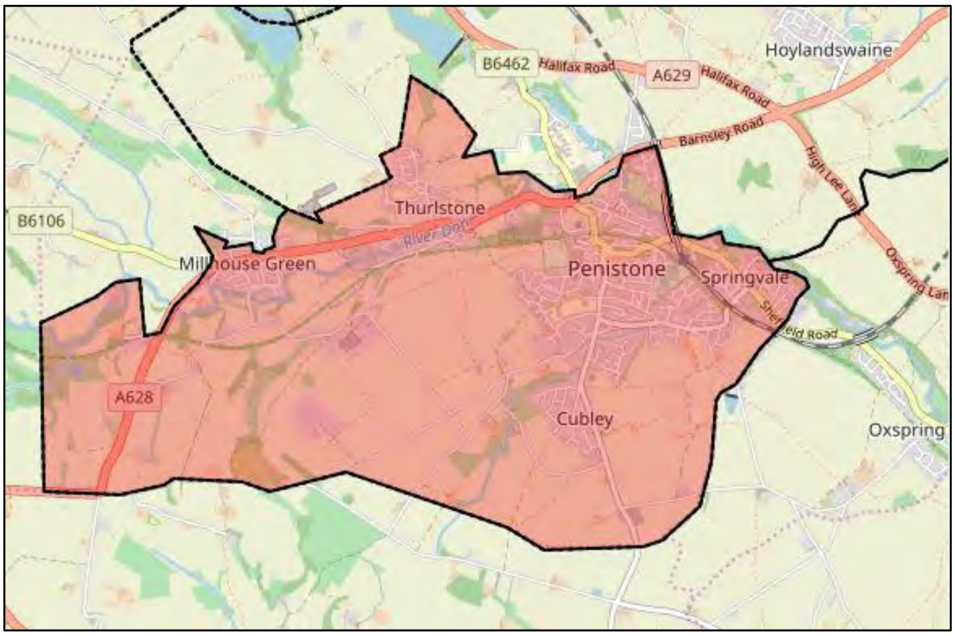


Table 6.2 Residential Census Mode Split (Barnsley 024 Super Output Area - Mid Layer)

Method of Travel to Work	Total Residents in SOAML	Percentage
Underground, Metro, Light Rail or Tram	6	0.1%
Train	104	2.5%
Bus, Minibus or Coach	109	2.6%
Taxi	7	0.2%
Motorcycle, Scooter or Moped	30	0.7%
Driving a Car or Van	3117	75.7%
Passenger in a Car or Van	228	5.6%
Bicycle	37	0.9%
On Foot	469	11.4%
Other	11	0.3%
Total	4118	100%

6.2.4 From the total vehicular trip generation from the TRICS data and the Census modal split for existing residents, it is possible to calculate the anticipated number of trips by mode for each of the weekday peak hours.

6.2.5 Highways Development Control has suggested that a total person trip rate should be obtained from TRICS and census modal split percentages applied to that rate to obtain a vehicular trip rate. This approach is flawed as census data applies to one journey type only i.e. travel to work, which is invariably high with respect to the number of car drivers and ignores the fact that many other peak hour journey types have a lower vehicular proportion. Peak hour traffic generation from residential development is made up of a variety of journey types.

6.2.6 This alternative methodology results in very high vehicular trip rates (often greater than 1.0 per dwelling) which also do not correlate well with local trip rates gathered from surveys of nearby residential development. Local surveys in a range of locations and with varying levels of accessibility tend to show trip rates no higher than those used in the this assessment.

6.2.7 The resulting predicted number of weekday AM and PM peak hour development trips by mode are shown in Tables 6.3 and 6.4 respectively.

Table 6.3 Proposed Weekday AM Multi Modal Trip Generation

Trip Type	AM Peak Hour Trip Generation by Mode		
	Arrivals	Departures	Total
Tram	0	0	0
Train	3	5	8
Bus	4	6	10
Taxi	0	0	0
Motorcycle	1	2	3
Vehicle Driver	98	158	256
Vehicle Passenger	7	12	19
Cyclist	1	2	3
Pedestrian	15	24	39
Other	0	0	0
Total	129	209	338

Table 6.4 Proposed Weekday PM Multi Modal Trip Generation

Trip Type	PM Peak Hour Trip Generation by Mode		
	Arrivals	Departures	Total
Tram	0	0	0
Train	6	2	8
Bus	6	2	8
Taxi	0	0	0
Motorcycle	2	1	3
Vehicle Driver	182	61	243
Vehicle Passenger	13	5	18
Cyclist	3	1	4
Pedestrian	27	9	36
Other	1	0	1
Total	240	81	321

6.3 RESIDENTIAL TRIP DISTRIBUTION AND ASSIGNMENT

6.3.1 Having established the weekday AM and PM peak hour vehicular trip generation for the proposed development, as shown in Table 6.1, a distribution exercise has been completed to predict the assignment of these trips on to the local highway network. The latest 2011 Census data for the Barnsley 024 Super Output Area - Mid Layer has been interrogated to obtain the places of work of residents by Super Output Area - Mid Layer.

6.3.2 Once the destinations for the trips has been ascertained, an assessment has been made based on journey time of the likely routes that will be taken and, from this, the trips have been assigned to the local highway network. The spreadsheet at Appendix G provides details of the trip distribution exercise and Figure 120 shows the route assignment on percentage terms and this is summarised in Table 6.5. The table sets out percentage assignment for traffic departing from the Site and the assumptions for the patterns of arrivals mirrors this assignment in reverse.

Table 6.5 Percentage Route Assignment

Route	Percentage Assignment
From Site Access Points	
A629 (W) from Halifax Road access	7.4%
A629 (E) from Halifax Road access	36.8%
Well House Lane (S)	18.4%
Well House Lane (N)	37.4%
On Wider Highway Network	
Well House Lane (N) to A629 (E)	18.4%
Well House Lane (S) to A628 (W)	19.0%
Well House Lane (S) to A628 (E)	18.4%
A628 (W) to A628 Thurlstone Road	7%
A628 (W) to B6462 Bridge Street	12%
A628 (E) to A628 Barnsley Road	12.8%
A628 (E) to A629 High Lee Lane	5.6%
A629 (E) to Renald Lane	2.2%
A629 (E) to A628 Barnsley Road	36.9%
A629 (E) to A629 High Lee Lane	16.1%

6.3.3 The assumed route assignment has been made on the basis of the layout of the proposed development in respect of the proposed access points and the attractiveness and convenience of routes once on to the local highway network.

6.3.4 The weekday AM and PM peak hour traffic flows from the proposed development are then shown in Figures 121 and 122 respectively.

7. Traffic Flows and Materiality Assessment

7.1 EXISTING PEAK HOUR TRAFFIC FLOWS

7.1.1 The October 2018 traffic surveys identified the following existing weekday peak hour periods:

- Weekday AM Peak Hour: 07:30 – 08:30; and
- Weekday PM Peak Hour: 17:00 – 18:00.

7.1.2 The traffic count flows for these periods at the junctions within the study area are shown in Figures 100 and 101 respectively.

7.2 BASE TRAFFIC FLOWS

Committed Development Flows

7.2.1 BMBC's Planning Portal has been interrogated to ascertain whether there are any significant development proposals in the area which are committed but the generated traffic flows will not have been included within the October 2018 traffic surveys.

7.2.2 A map-based search has revealed that there are no recent planning applications or planning permissions for any significant development proposals in the local area and therefore no additional traffic has been taken account of in this regard.

Future Assessment Year and Traffic Growth

7.2.3 Traffic growth is predicted based on a combination of proposed future development, car ownership and changing attitudes in the way people use and have access to their vehicles. To reflect the likely growth in existing traffic at the full Opening Year for the proposed development, TEMPro growth factors have been obtained to be applied to the 2018 existing peak hour flows.

7.2.4 A Design Year of 2033 has been assumed to represent the full Opening Year of the proposed development based on a construction period of some 10 years (50 dwellings per annum), starting in 2020.

7.2.5 Traffic growth rates, between 2018 and 2033, have been obtained from TEMPro v7.2b for the Barnsley 024 Super Output Area - Mid Layer. As the local traffic growth rates are based on the likely development that will take place in the area, there would be an element of double counting if the full growth rates were applied to the existing traffic flows and then the predicted traffic generation from the proposed development added. TEMPro allows a manual adjustment to be made to the growth rates to subtract the number of dwellings to be built at Halifax Road from the total number that has been assumed in the derivation of the growth rates.

7.2.6 The resulting values for the AM and PM peak hour growth between 2018 and 2033 are as follows with the TEMPro output provided at Appendix I:

- AM Peak TEMPro Traffic Growth Rate 2018-2033: 1.099; and
- PM Peak TEMPro Traffic Growth Rate 2018-2033: 1.094

7.2.7 The traffic growth rates have been applied to the 2018 AM and PM existing peak hour traffic flows to obtain 2033 Base AM and PM peak hour traffic flows and these are shown in Figures 110 and 111 respectively.

7.3 DESIGN TRAFFIC FLOWS

7.3.1 Adding the proposed development trips shown in Figures 121 and 122 for the AM and PM peak hours respectively to the 2033 Base Traffic Flows provides the 2033 Design Traffic Flows which are shown in Figures 130 and 131 for the AM and PM peak hours respectively.

7.4 MATERIAL IMPACT

7.4.1 A materiality assessment of the following junctions has been undertaken in order to determine if further capacity modelling is required:

- A629 Halifax Road / A628 Barnsley Road Roundabout (Hoylandswaine Roundabout);
- A629 Halifax Road / Well House Lane priority junction;
- A629 Halifax Road / B6462 Huddersfield Road priority junction;
- A628 Barnsley Road / Well House Lane / Water Hall Lane staggered priority junctions;
- A628 Barnsley Road / B6462 Huddersfield Road priority junction; and
- A628 Thurlstone Road / A628 Barnsley Road / B6462 Bridge Street traffic signal controlled junction.

7.4.2 The previous national 'Guidance on Transport Assessment', March 2007, (now withdrawn) suggested that a development traffic generation of 30 two-way trips represented an appropriate threshold figure above which further assessment may be required but below which the impact could be considered as non-material. Whilst the Government's current NPPG does not specifically refer to 30 trips, this remains a threshold which is generally applied within the industry including by local authorities and Highways England.

7.4.3 Therefore, in terms of assessing the materiality of the impact at the junctions above, Table 7.1 summaries the areas of maximum impact of the development traffic at each of the junctions.

Table 7.1 Materiality Assessment at Local Junctions

Junction	Area of Maximum Impact	AM Peak	PM Peak
Hoylandswaine Roundabout	A629 Halifax Road entry flow	83	33
	A628 Barnsley Road entry flow	49	90
A629 Halifax Road / Well House Lane priority junction	A628 Halifax Road two-way flow	94	89
A629 Halifax Road / B6462 Huddersfield Road priority junction	A628 Halifax Road two-way flow	21	20
A628 Barnsley Road / Well House Lane / Water Hall Lane staggered priority junctions	Well House Lane turning movements	59	23
	Right turn into Well House Lane	18	33
A628 Barnsley Road / B6462 Huddersfield Road priority junction	A628 Barnsley Road two-way flow	49	47
A628 Thurlstone Road / A628 Barnsley Road / B6462 Bridge Street traffic signal controlled junction	A628 Barnsley Road entry flow	30	11
	B6462 Bridge Street entry flow	12	22

7.4.4 From Table 7.1 all the listed junctions, apart from the priority junction of A629 Halifax Road and B6462 Huddersfield Road, are subject to additional flows as a result of the proposed development of more than 30 vehicles on one or more arms in each of the peak hours and therefore capacity modelling assessments have been carried out for each as detailed in Section 8.

8. Operational Assessment of Highway Network

8.1 INTRODUCTION

8.1.1 This section of the Transport Assessment sets out the results of the individual junction capacity assessments that have been undertaken to determine the impact of the development proposals on key junctions on the local highway network.

8.1.2 This section also contains the capacity assessment of the two development access junctions to demonstrate that the forms of junction that are proposed are adequate and appropriate to serve the quantum of development proposed.

8.1.3 The output for all junction capacity assessment is contained at Appendix I with the results summarised in the tables below.

8.2 EXISTING JUNCTION ASSESSMENTS

A629 Halifax Road / Well House Lane Priority Junction

8.2.1 This priority junction has been modelled using the PICADY 9 Priority Intersection module in the TRL software, Junctions 9. Three and four-arm unsignalised give-way intersections are modelled using well-established TRL/Kimber capacity relationships, which take into account key geometries such as road widths, visibility and the space available for traffic making an offside turn. This empirical framework intrinsically links priority junction geometry to driver behaviour and in turn to predicted capacities, queues and delays.

8.2.2 The existing layout of the junction is shown in Figure 7 and the junction has initially been modelled for the 2018 existing weekday AM and PM peak hours. The results of the modelling are summarised in Table 8.1.

Table 8.1 A629 Halifax Road / Well House Lane – 2018 Existing PICADY Results

Movement	AM Peak Hour			PM Peak Hour		
	RFC	Mean Queue	Recorded Queue	RFC	Mean Queue	Recorded Queue
Left turn – Well House Lane to A629 Halifax Road (B-C)	0.06	0.1	0.4	0.20	0.0	0.7
Right turn – Well House Lane to A629 Halifax Road (B-A)	0.47	1.0	0.4	0.21	0.3	0.7
Right turn – A629 Halifax Road to Well House Lane (C-AB)	0.03	0.0	5.7	0.20	0.0	4.3

8.2.3 A Ratio of Flow to Capacity (RFC) value below 0.85 indicates that a junction or arm is operating within spare capacity. An RFC value between 0.85 and 1.00 indicates that there may be occasions during the period modelled when queues will develop, and delays will occur. An RFC value greater than 1.00 indicates that the junction or arm is operating beyond its theoretical capacity.

8.2.4 The junction has then been modelled for the AM and PM 2033 Base and Design scenarios and the results are summarised in Tables 8.2 and 8.3.

Table 8.2 A629 Halifax Road / Well House Lane – 2033 Base PICADY Results

Movement	AM Peak Hour		PM Peak Hour	
	RFC	Mean Q	RFC	Mean Q
Left turn – Well House Lane to A629 Halifax Road (B-C)	0.07	0.1	0.03	0.0
Right turn – Well House Lane to A629 Halifax Road (B-A)	0.56	1.3	0.24	0.3
Right turn – A629 Halifax Road to Well House Lane (C-AB)	0.04	0.0	0.02	0.0

Table 8.3 A629 Halifax Road / Well House Lane – 2033 Design PICADY Results

Movement	AM Peak Hour		PM Peak Hour	
	RFC	Mean Q	RFC	Mean Q
Left turn – Well House Lane to A629 Halifax Road (B-C)	0.11	0.1	0.0	0.03
Right turn – Well House Lane to A629 Halifax Road (B-A)	0.72	2.6	0.5	0.30
Right turn – A629 Halifax Road to Well House Lane (C-AB)	0.04	0.0	0.0	0.02

8.2.5 The results in Table 8.1 demonstrate that the junction currently operates with significant spare capacity and minimal queues and delay. Even with the addition of general traffic growth to a Design Year of 2033, which represents the full Opening Year for the proposed development, and the traffic predicted to be generated by the development, the junction will continue to operate with significant spare capacity with RFC values well below 0.85, minimal queuing and delay.

8.2.6 No mitigation is therefore required at the existing A629 Halifax Road / Well House Lane priority junction.

A628 Barnsley Road / Well House Lane / Water Hall Lane Priority Staggered Cross Road Junction

8.2.7 This priority staggered cross road junction has also been modelled using the PICADY 9 Priority Intersection module in the TRL software, Junctions 9. The existing layout of the junction is shown in Figure 8 and the junction has initially been modelled for the 2018 existing weekday AM and PM peak hours. The results of the modelling are summarised in Table 8.4.

Table 8.4 A629 Halifax Road / Well House Lane / Water Hall Lane – 2018 Existing PICADY Results

Movement	AM Peak Hour			PM Peak Hour		
	RFC	Mean Queue	Recorded Queue	RFC	Mean Queue	Recorded Queue
Water Hall Lane (B-ACD)	0.03	0.0	0.0	0.00	0.0	0.7
A628 Barnsley Road (E) (A-BCD)	0.01	0.0	0.3	0.01	0.0	0.0
Well House Lane (D-ABC)	0.35	0.5	2.7	0.35	0.6	4.7
A628 Barnsley Road (W) (C-ABD)	0.00	0.0	0.3	0.00	0.0	0.3

8.2.8 The junction has then been modelled for the AM and PM 2033 Base and Design scenarios and the results are summarised in Tables 8.5 and 8.6.

Table 8.5 A629 Halifax Road / Well House Lane / Water Hall Lane – 2033 Base PICADY Results

Movement	AM Peak Hour		PM Peak Hour	
	RFC	Mean Q	RFC	Mean Q
Water Hall Lane (B-ACD)	0.05	0.1	0.00	0.0
A628 Barnsley Road (E) (A-BCD)	0.01	0.0	0.01	0.0
Well House Lane (D-ABC)	0.35	0.6	0.41	0.7
A628 Barnsley Road (W) (C-ABD)	0.00	0.0	0.00	0.0

Table 8.6 A629 Halifax Road / Well House Lane / Water Hall Lane – 2033 Design PICADY Results

Movement	AM Peak Hour		PM Peak Hour	
	RFC	Mean Q	RFC	Mean Q
Water Hall Lane (B-ACD)	0.05	0.1	0.00	0.0
A628 Barnsley Road (E) (A-BCD)	0.05	0.1	0.07	0.1
Well House Lane (D-ABC)	0.61	1.6	0.52	1.2
A628 Barnsley Road (W) (C-ABD)	0.00	0.0	0.00	0.0

8.2.9 The results in Table 8.4 demonstrate that the junction currently operates with significant spare capacity and minimal queues and delay. Even with the addition of general traffic growth to a Design Year of 2033, which represents the full Opening Year for the proposed development, and the traffic predicted to be generated by the development, the junction will continue to operate with significant spare capacity with RFC values well below 0.85, minimal queuing and delay.

8.2.10 No mitigation is therefore required at the existing A629 Halifax Road / Well House Lane / Water Hall Lane priority staggered cross road junction.

A628 Barnsley Road / B6462 Huddersfield Road Priority Junction

8.2.11 This priority junction has also been modelled using the PICADY 9 Priority Intersection module in the TRL software, Junctions 9. The layout of the junction is shown in Figure 9 and it can be seen that the left turning traffic from A628 Barnsley Road into B6462 Huddersfield Road gives way to traffic that has turned right into the junction from Barnsley Road. The junction has therefore been modelled in two parts to reflect this. The junction has initially been modelled for the 2018 existing weekday AM and PM peak hours and the results of the modelling are summarised in Table 8.7.

Table 8.7 A628 Barnsley Road / B6462 Huddersfield Road – 2018 Existing PICADY Results

Movement	AM Peak Hour			PM Peak Hour		
	RFC	Mean Queue	Recorded Queue	RFC	Mean Queue	Recorded Queue
Left turn – B6462 Huddersfield Road to A628 Barnsley Road (B-C)	0.16	0.2	1.3	0.08	0.1	0.7
Right turn – B6462 Huddersfield Road to A628 Barnsley Road (B-A)	0.47	1.0	9.7	0.52	1.2	9.7
Right turn – A628 Barnsley Road to B6462 Huddersfield Road (C-AB)	0.20	0.3	3.0	0.02	0.0	0.3

8.2.12 The junction has then been modelled for the AM and PM 2033 Base and Design scenarios and the results are summarised in Tables 8.8 and 8.9.

Table 8.8 A628 Barnsley Road / B6462 Huddersfield Road – 2033 Base PICADY Results

Movement	AM Peak Hour		PM Peak Hour	
	RFC	Mean Q	RFC	Mean Q
Left turn – B6462 Huddersfield Road to A628 Barnsley Road (B-C)	0.21	0.3	0.10	0.1
Right turn – B6462 Huddersfield Road to A628 Barnsley Road (B-A)	0.58	1.5	0.61	1.6
Right turn – A628 Barnsley Road to B6462 Huddersfield Road (C-AB)	0.20	0.3	0.02	0.0

Table 8.9 A628 Barnsley Road / B6462 Huddersfield Road – 2033 Design PICADY Results

Movement	AM Peak Hour		PM Peak Hour	
	RFC	Mean Q	RFC	Mean Q
Left turn – B6462 Huddersfield Road to A628 Barnsley Road (B-C)	0.22	0.3	0.11	0.1
Right turn – B6462 Huddersfield Road to A628 Barnsley Road (B-A)	0.61	1.6	0.63	1.8
Right turn – A628 Barnsley Road to B6462 Huddersfield Road (C-AB)	0.23	0.3	0.02	0.0

8.2.13 The results in Table 8.7 demonstrate that the junction currently operates with spare capacity and minimal queues and delay. Even with the addition of general traffic growth to a Design Year of 2033, which represents the full Opening Year for the proposed development, and the traffic predicted to be generated by the development, the junction will continue to operate with spare capacity with RFC values well below 0.85, minimal queuing and delay.

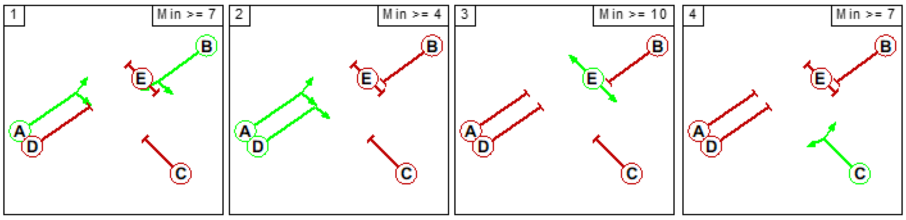
8.2.14 No mitigation is therefore required at the existing A628 Barnsley Road / B6462 Huddersfield Road priority junction.

A628 Barnsley Road / B6462 Bridge Street / A628 Thurlstone Road Traffic Signal Controlled Junction

8.2.15 The existing layout of this traffic signal controlled junction is shown in Figure 10 and it has been modelled using LinSig v3.2 software. The junction model has been calibrated using on site observations, recorded saturation flows, BMBC signal data and recorded queue information.

8.2.16 The junction operates on MOVA control with stages demand dependent (as such all models have been optimised). The average cycle length is typically 120 seconds including the pedestrian crossing phase. The signal stages are shown in Image 8.1.

Image 8.1 A628 / B6462 Bridge Street - Signal Stage Diagrams



8.2.17 The junction has been modelled for the 2018 existing weekday AM and PM peak hours and the results are summarised in Table 8.10.

Table 8.10 A628 / B6462 Traffic Signal Controlled Junction – 2018 Existing LinSig Results

Lane	AM Peak Hour			PM Peak Hour		
	DoS (%)	MMQ	Obs Queue	DoS (%)	MMQ	Obs Queue
A628 Barnsley Road Left/Ahead	77.8	17	10	90.6	27	12
B6462 Bridge Street Right/Left	78.7	17	16	91.1	21	19
A628 Thurlstone Road Ahead/Right	64.3	13	13	71.2	6	10

8.2.18 A Degree of Saturation (DoS) value below 90% indicates that a signalised junction is operating within its desirable practical capacity. A DoS value between 90% and 100% indicates that there are likely to be occasions during the period modelled when queues will develop, and delays will occur. A DoS value greater than 100% indicates that the junction or arm operates beyond its theoretical capacity with an associated increase in queuing and delay within that specified time period.

8.2.19 It can be seen from the summary results contained in Table 8.10 that the junction operates within the desired practical capacity (90% DoS) on all approaches in the AM peak hour and is operating slightly above its desirable practical reserve capacity in the PM peak hour.

8.2.20 The majority of modelled queues are slightly higher than those recorded on site by an independent survey company and therefore the model is deemed to be providing a robust assessment of the existing situation.

8.2.21 The junction has then been modelled for the AM and PM 2033 Base and Design scenarios and the results are summarised in Tables 8.11 and 8.12.

Table 8.11 A628 / B6462 Traffic Signal Controlled Junction – 2033 Base LinSig Results

Lane	AM Peak Hour		PM Peak Hour	
	DoS (%)	MMQ	DoS (%)	MMQ
A628 Barnsley Road Left/Ahead	85.6	20	99.2	39
B6462 Bridge Street Right/Left	84.2	21	99.1	29
A628 Thurlstone Road Ahead/Right	70.7	16	93.1	11

Table 8.12 A628 / B6462 Traffic Signal Controlled Junction – 2033 Design LinSig Results

Lane	AM Peak Hour		PM Peak Hour	
	DoS (%)	MMQ	DoS (%)	MMQ
Barnsley Road Left/Ahead	87.9	22	102.7	48
Bridge Street Right/Left	87.9	23	99.8	31
Thurlstone Road Ahead/Right	70.2	16	93.4	12

8.2.22 The results summarised in Table 8.11 demonstrate that as a result of general traffic growth the junction will be slightly over capacity in the PM peak hour whilst still operating within practical reserve capacity in the AM peak hour. With the addition of the traffic predicted to be generated by the proposed development the situation will slightly worsen, as shown in Table 8.12.

8.2.23 Taking the worst case PM peak hour and examining the additional traffic at the junction in 2033 as a result of the proposed development (see Figure 122), there will be an additional 22 trips on the B6462 Bridge Street arm, 13 additional trips on the A628 Thurlstone Road arm and 11 on the A628 Barnsley Road arm. This is an increase of 4% on B6462 Bridge Street, 3% on A628 Thurlstone Road and 1% on A628 Barnsley Road.

8.2.24 This level of increase in traffic which will amount to one additional vehicle on each arm every 3 minutes or less will be imperceptible over and above the normal fluctuations in daily traffic flows and therefore cannot be classed as a material impact.

8.2.25 BMBC Highways Development Control has commented that geometrically derived saturation flow values are often seen as being unrepresentative of traffic/driver behaviour in Barnsley and therefore the use of on-site recorded saturation flows is recommended as a sensitivity test. Geometrical data is input into LinSig and this information is utilised to generate the saturation flows, a process known as the RR67 calculation.

8.2.26 An on-site survey has been carried out on Thursday 24th September 2020 which recorded the observed saturation flows at the A628 / B6462 junction. A comparison between the recorded saturation flows and those generated by LinSig from geometric data has been undertaken and is shown in Table 8.13.

Table 8.13 A628 / B6462 Saturation Flow Comparison

Arm	AM Peak Hour			PM Peak Hour		
	Recorded Sat Flows (pcu/hr)	RR67 Sat Flows (pcu/hr)	Difference	Recorded Sat Flows (pcu/hr)	RR67 Sat Flows (pcu/hr)	Difference
Barnsley Road Left/Ahead	1761	2065	+304	1783	2065	+282
Bridge Street Right/Left	1343	1995	+652	1844	1995	+151
Thurlstone Road Ahead/Right	1490	1895	+405	1874	1895	+21

8.2.27 This comparison appears to back up BMBC's suggestion that, at this junction at least, geometrically derived saturation flow values are not fully representative of traffic/driver behaviour and therefore a sensitivity test has been carried out, rerunning the LinSig modelling using the recorded saturation flows. The results are provided in Tables 8.14 to 8.16 for the existing 2020, Base 2033 and Design 2033 scenarios respectively.

Table 8.14 A628 / B6462 Traffic Signal Controlled Junction – 2020 Existing LinSig Results (Recorded Saturation Flows)

Lane	AM Peak Hour			PM Peak Hour		
	DoS (%)	MMQ	Obs Q	DoS (%)	MMQ	Obs Q
Barnsley Road Left/Ahead	109.8	53	20	92.9	27	15
Bridge Street Right/Left	107.4	40	15	103.5	33	10
Thurlstone Road Ahead/Right	103.6	23	11	96.8	11	6

Table 8.15 A628 / B6462 Traffic Signal Controlled Junction – 2033 Base LinSig Results (Recorded Saturation Flows)

Lane	AM Peak Hour		PM Peak Hour	
	DoS (%)	MMQ	DoS (%)	MMQ
Barnsley Road Left/Ahead	117.5	75	107.7	58
Bridge Street Right/Left	114.8	58	106.6	41
Thurlstone Road Ahead/Right	111.0	39	101.9	17

Table 8.16 A628 / B6462 Traffic Signal Controlled Junction – 2033 Design LinSig Results (Recorded Saturation Flows)

Lane	AM Peak Hour		PM Peak Hour	
	DoS (%)	MMQ	DoS (%)	MMQ
Barnsley Road Left/Ahead	119.8	84	109.4	64
Bridge Street Right/Left	117.5	65	107.7	45
Thurlstone Road Ahead/Right	119.5	58	110.4	29

8.2.28 Whilst this sensitivity test has shown that the junction may not operate as efficiently as it is predicted to when using geometry-based saturation flows, it can be seen that the impact of the development traffic is still minimal over and above that from predicted background traffic growth.

8.2.29 The actual increases in peak hour traffic as a result of the proposed development as outlined in paragraphs 8.2.23 and 8.2.24 will be imperceptible over and above the usual daily fluctuations in peak hour traffic flows.

Hoylandswaine Roundabout

8.2.30 The roundabout has been modelled using the ARCADY 9 Roundabout module of the TRL software, Junctions 9. Roundabouts are modelled using the well-established TRL/Kimber capacity relationships which take into account key roundabout geometries such as entry width, approach width, flare length, conflict angle, inscribed circle diameter and entry radius. The empirical framework intrinsically links roundabout geometry to driver behaviour and in turn to predict capacities, queues and delays.

8.2.31 The existing layout of the junction is shown in Figure 11 and the junction has initially been modelled for the 2018 existing weekday AM and PM peak hours. The results of the modelling are summarised in Table 8.17.

Table 8.17 Hoylandswaine Roundabout – 2018 Existing ARCADY Results

Arm	AM Peak Hour			PM Peak Hour		
	RFC	Mean Queue	Recorded Queue	RFC	Mean Queue	Recorded Queue
A628 Barnsley Road (N)	0.42	0.8	4.0	0.56	1.4	4.3
A629 High Lee Lane	0.37	0.6	5.3	0.35	0.6	6.3
A628 Barnsley Road (S)	0.63	1.9	7.7	0.43	0.8	6.0
A629 Halifax Road	0.56	1.4	6.7	0.31	0.5	5.0

8.2.32 The roundabout has then been modelled for the AM and PM 2033 Base and Design scenarios and the results are summarised in Tables 8.18 and 8.19.

Table 8.18 Hoylandswaine Roundabout – 2033 Base ARCADY Results

Arm	AM Peak Hour		PM Peak Hour	
	RFC	Mean Q	RFC	Mean Q
A628 Barnsley Road (N)	0.47	0.8	0.62	1.7
A629 High Lee Lane	0.41	0.6	0.41	0.7
A628 Barnsley Road (S)	0.72	1.9	0.49	1.0
A629 Halifax Road	0.64	1.4	0.35	0.6

Table 8.19 Hoylandswaine Roundabout – 2033 Design ARCADY Results

Arm	AM Peak Hour		PM Peak Hour	
	RFC	Mean Q	RFC	Mean Q
A628 Barnsley Road (N)	0.52	1.2	0.69	2.4
A629 High Lee Lane	0.45	0.9	0.48	1.0
A628 Barnsley Road (S)	0.77	3.6	0.53	1.2
A629 Halifax Road	0.74	3.0	0.38	0.7

8.2.33 The results in Table 8.13 demonstrate that the roundabout currently operates with spare capacity and minimal queues and delay. Even with the addition of general traffic growth to a Design Year of 2033, which represents the full Opening Year for the proposed development, and the traffic predicted to be generated by the development, the roundabout will continue to operate with spare capacity with RFC values well below 0.85, minimal queuing and delay.

8.2.34 No mitigation is therefore required at the existing Hoylandswaine Roundabout.

8.3 PROPOSED ACCESS JUNCTION ASSESSMENTS

A628 Halifax Road Access

8.3.1 The layout of the proposed A628 Halifax Road Access junction is described in Section 4 and shown on the drawing in Appendix C.

8.3.2 The junction has been modelled using the PICADY module within the Junctions 9 software for the 'with development' 2033 Design scenario. The results for the AM and PM peak hour periods are summarised in Table 8.20.

Table 8.20 Proposed A628 Halifax Road Site Access Junction 2033 Design Scenario

Movement	AM		PM	
	RFC	Av Q (pcu)	RFC	Av Q (pcu)
B-C Left turn from Site Access on to A628 Halifax Road	0.02	0.0	0.01	0.0
B-A Right turn from Site Access on to A628 Halifax Road	0.23	0.3	0.08	0.1
C-AB Right turn from A628 Halifax Road into Site Access	0.01	0.0	0.03	0.0

8.3.3 A Ratio of Flow to Capacity value below 0.85 indicates that a junction or arm operates within its predicted capacity. An RFC value between 0.85 and 1.00 indicates that there may be occasions during the period modelled when queues will develop, and delays will occur. An RFC value greater than 1.00 indicates that the junction or arm operates beyond its theoretical capacity.

8.3.4 The results demonstrate that the proposed junction will operate comfortably within capacity during both the AM and PM peak hour periods in the 2033 Design scenario accommodating the traffic generated by 410 dwellings.

Well House Lane Access

8.3.5 The layout of the proposed Well House Lane Access junction is described in Section 4 and shown on the drawing in Appendix C.

8.3.6 The junction has been modelled using the PICADY module within the Junctions 9 software for the 'with development' 2033 Design scenario. The results for the AM and PM peak hour periods are summarised in Table 8.21.

Table 8.21 Proposed Well House Lane Site Access Junction 2033 Design Scenario

Movement	AM		PM	
	RFC	Av Q (pcu)	RFC	Av Q (pcu)
B-C Left turn from Site Access on to Well House Lane	0.05	0.1	0.02	0.0
B-A Right turn from Site Access on to Well House Lane	0.15	0.2	0.06	0.1
C-AB Right turn from Well House Lane into Site Access	0.04	0.1	0.07	0.1

8.3.7 The results demonstrate that the proposed junction will operate comfortably within capacity during both the AM and PM peak hour periods in the 2033 Design scenario accommodating the traffic generated by 410 dwellings.

9. Summary and Conclusions

9.1 SUMMARY

9.1.1 This Revised TA has been prepared by Optima Highways and Transportation Ltd to consider the highways and transportation matters associated with a proposed residential development on land to the south of Halifax Road in Penistone and to take account of comments made by BMBC Highways Development Control in respect of the original TA that accompanied the planning application.

9.1.2 The Revised TA considers a reduced quantum of development of c210 dwellings whilst the original TA was prepared on the basis of 459 dwellings.

9.1.3 The vehicular access into the proposed development will be via a priority junction on A629 Halifax Road with another simple priority junction on Well House Lane. Pedestrians and cyclists will be able to access the development from both Halifax Road and Well House Lane and, on Well House Lane, there will be an additional pedestrian/cycle access further to the south of the vehicular access.

9.1.4 Analysis has demonstrated that this form of junction is suitable to serve the level of development proposed and each will operate with significant spare capacity at the full Opening Year of 2033 and beyond. The junction on A629 Halifax Road has been designed in accordance with DMRB CD 123 'Geometric design of at-grade priority and signal-controlled junctions'.

9.1.5 An independent Stage 1 Road Safety Audit (RSA) of the access proposals has been carried out by TMS Consultancy and a Response Report has been prepared by the Design Organisation for agreement with the Overseeing Organisation as part of the approval process for the preliminary access designs. The Stage 1 RSA has raised no problems relating to the form of junction proposed at either access and therefore it is considered that a priority junction is appropriate to serve the development from both Halifax Road and Well House Lane.

9.1.6 This report has provided a commentary on the Site and its existing conditions. It has demonstrated that the Site is accessible by foot, cycle and public transport to numerous local facilities and employment opportunities. In accordance with the NPPF, this provides future residents with the choice to travel via alternatives modes of transport and minimise trips made by the private car. Furthermore, the additional use of these facilities by the residents at proposed development e.g. public transport and the local commerce, will assist in supporting and sustaining them.

9.1.7 A review of the personal injury collision data has been undertaken for the study area which has been updated to cover the latest five year period 2015-2019. This review has shown that there are no specific road safety concerns and it is considered that the proposed development will not materially exacerbate the existing highway safety situation.

9.1.8 Junction capacity assessments have been undertaken across the local highway network using industry standard software for a development Design Year of 2033. The capacity assessments have demonstrated that the majority of the junctions in the study area are operating well within capacity in the Base and Design scenarios and as such the impact of the development will be accommodated.

9.1.9 The junction of A628 / B6462 Bridge Street has been shown to be just over-capacity in the PM peak hour as a result of general traffic growth alone. The amount of additional traffic because of the proposed development is not considered to be material as it will be imperceptible over and above the usual daily fluctuations in peak hour traffic flows.

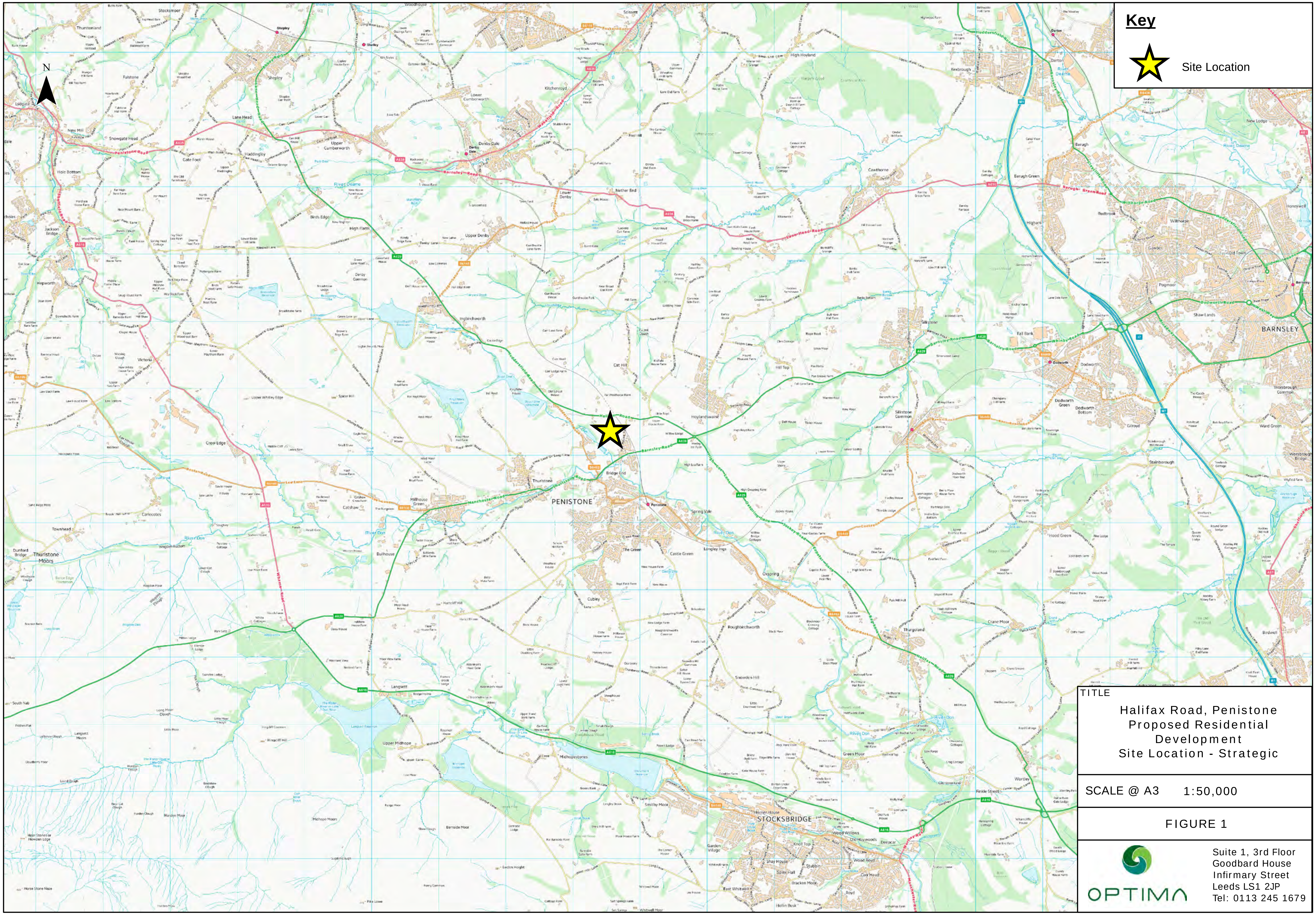
9.1.10 A sensitivity test for the A628 / B6462 junction has been carried out using recently recorded saturation flows and, whilst this has shown that the junction operates less efficiently than when modelled using saturation flows based on geometry, the impact of the development traffic is still minimal.

9.2 CONCLUSIONS

9.2.1 This Revised TA has further demonstrated that safe and suitable access to the proposed development can be achieved for all users and that there will be no unacceptable impacts from the development on the transport network or on highway safety.

9.2.2 It is therefore concluded that there are no reasons on highways or transport grounds why the development proposals should not be granted planning permission.

Figures



Key

Site Location

TITLE

Halifax Road, Penistone
Proposed Residential
Development
Site Location - Strategic

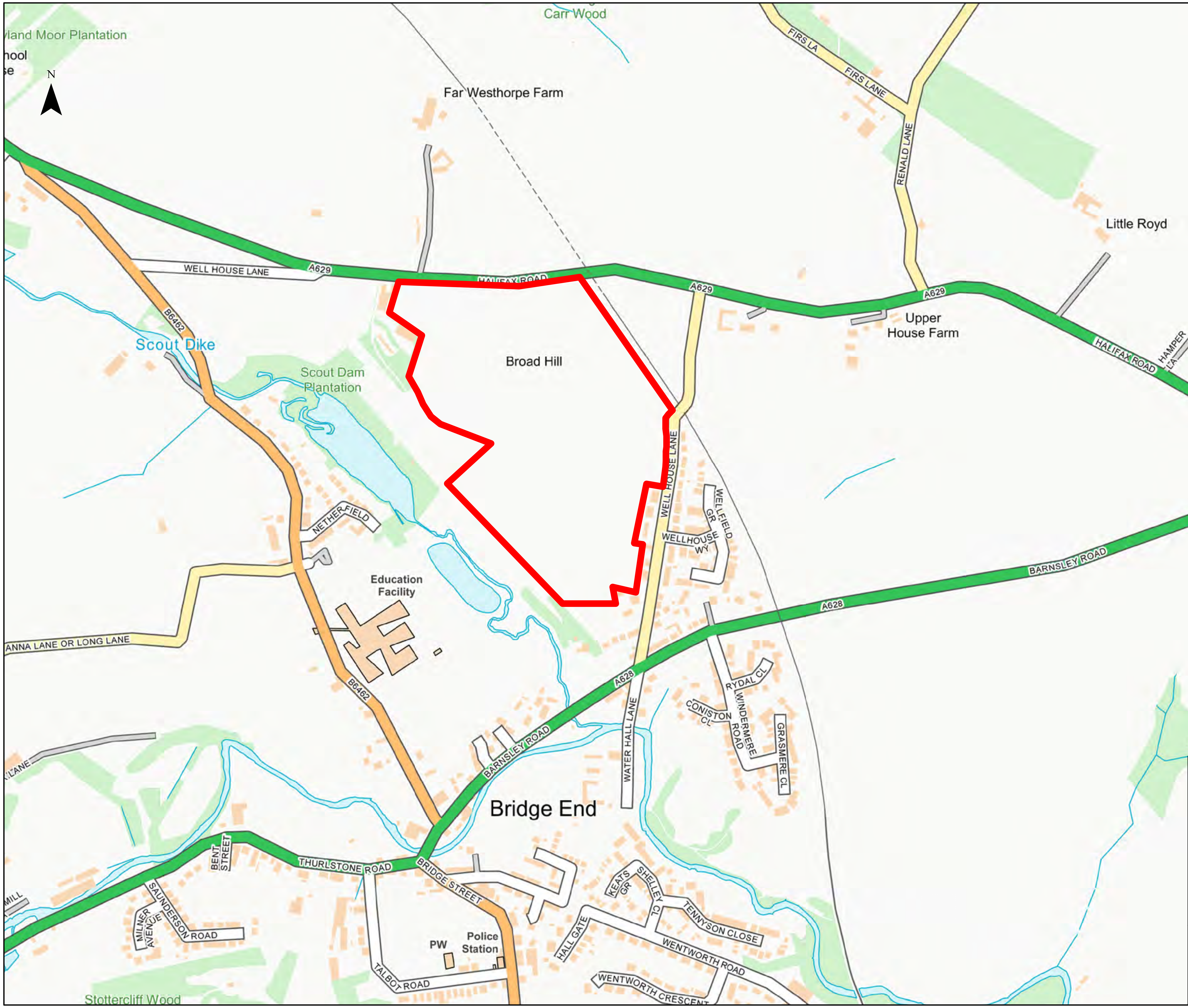
SCALE @ A3 1:50,000

FIGURE 1

OPTIMA

Suite 1, 3rd Floor
Goodbard House
Infirmary Street
Leeds LS1 2JP
Tel: 0113 245 1679

Path: O:\Halifax Road, Penistone\DRAWINGS\GIS\ARCEDITOR\Figure 1 - Site Location - Strategic.mxd



TITLE

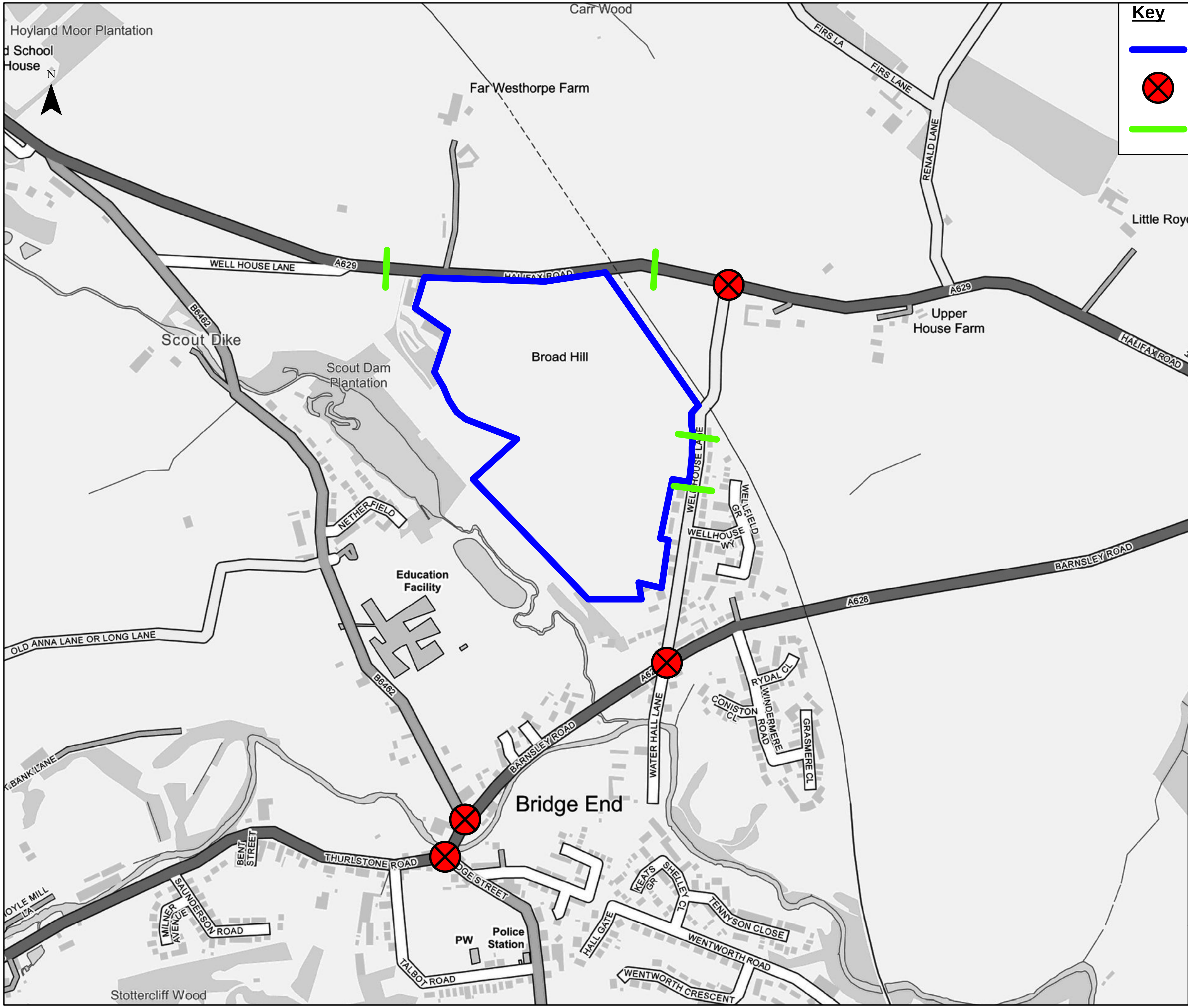
Halifax Road, Penistone
Proposed Residential
Development
Site Location - Local

SCALE @ A3 1:6,000

FIGURE 2

OPTIMA
Suite 1, 3rd Floor
Goodbard House
Infirmary Street
Leeds LS1 2JP
Tel: 0113 245 1679

Path: O:\Halifax Road, Penistone\DRAWINGS\GIS\ARCEDITOR\Figure 2 - Site Location - Local.mxd



Path: O:\Halifax Road, Penistone\DRAWINGS\GIS\ARCEDITOR\Figure 3 - Traffic Survey Locations.mxd

TITLE

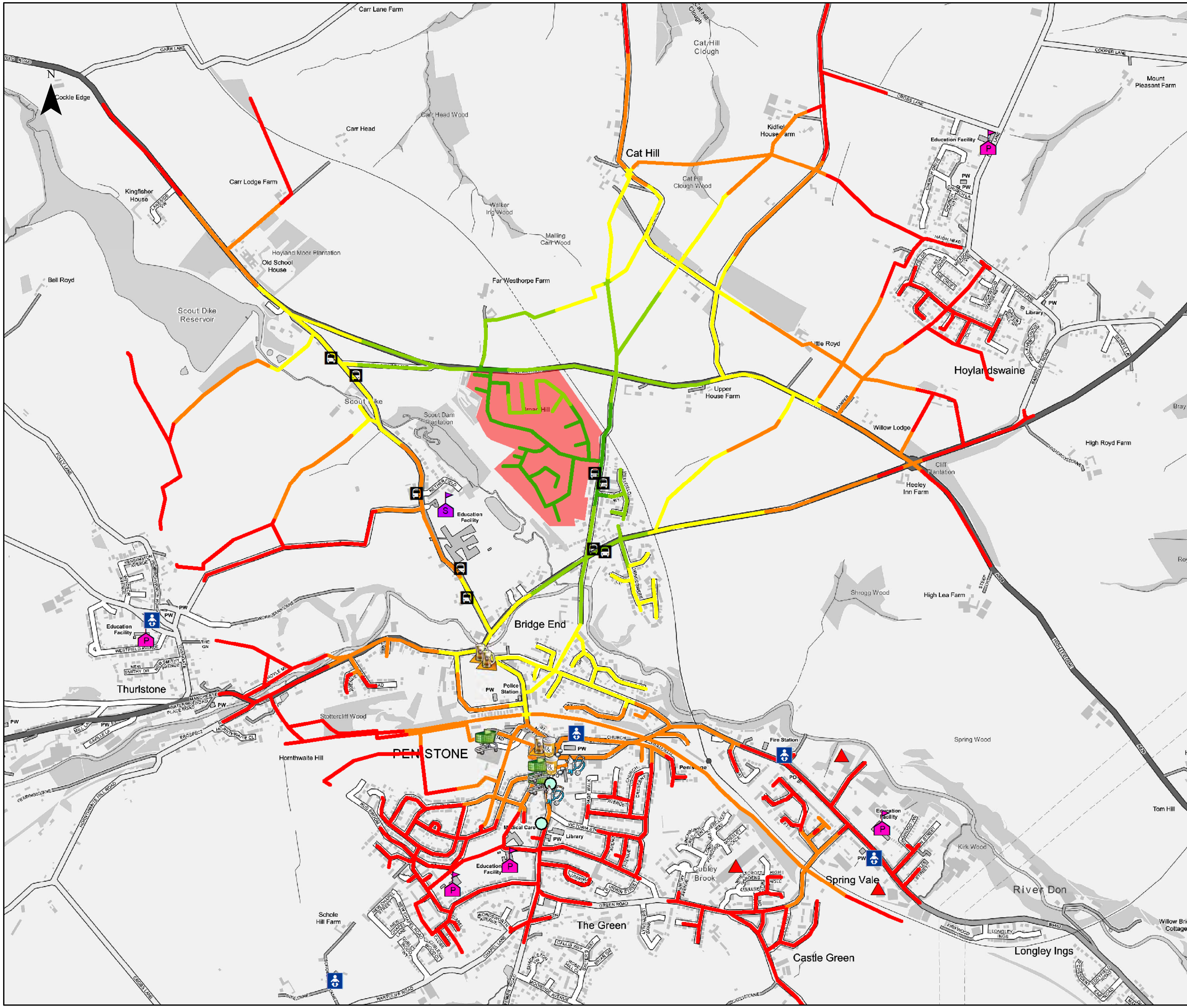
Halifax Road, Penistone
Proposed Residential
Development
Traffic Survey Locations

SCALE @ A3 1:6,000

FIGURE 3

OPTIMA

Suite 1, 3rd Floor
Goodbard House
Infirmary Street
Leeds LS1 2JP
Tel: 0113 245 1679



Key

Indicative Site Area

Pedestrian Accessibility (Walk Speed 4.8 kph)

- 0-5 Minutes
- 5-10 Minutes
- 10-15 Minutes
- 15-20 Minutes
- 20-25 Minutes*
- Existing Local Bus Stops
- Nurseries
- Primary School
- Secondary School
- GPs
- Dentists
- Pharmacies
- Food Store
- Local Public House
- Employment

*25 mins (2km) = IHT Standard in 'Providing for Journeys on Foot'
Isochrones generated using Network Analyst 10.0 Copyright (C) 1999-2010 ESRI Inc. All Rights Reserved

TITLE

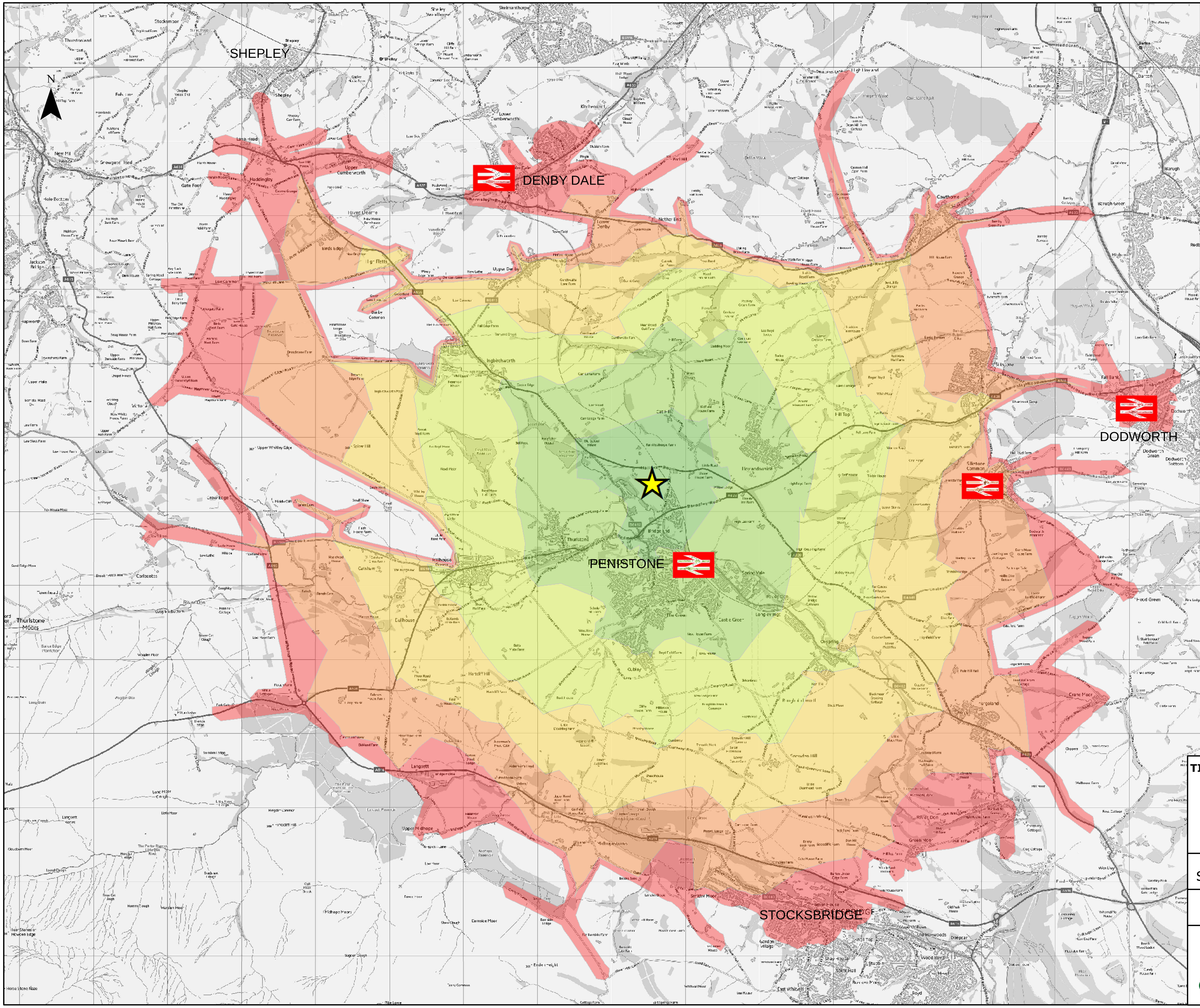
Halifax Road, Penistone Proposed Residential Development Pedestrian Accessibility Plan

SCALE @ A3 1:12,500

FIGURE 4

OPTIMA
Suite 1, 3rd Floor
Goodbard House
Infirmary Street
Leeds LS1 2JP
Tel: 0113 245 1679

Path: O:\Halifax Road, Penistone\DRAWINGS\GIS\ARCEDITOR\Figure 3 - Pedestrian Accessibility.mxd



Key

Site Location

Cycle Accessibility

(Cycle Speed 16 kph)

0-5 Minutes

5-10 Minutes

10-15 Minutes

15-20 Minutes*

20-25 Minutes

25-30 Minutes**

Train Station

*19 mins (5km) = LTN 2/08 Standard for General Cycling **30 mins (8km) = LTN 2/08 Standard for Commuting Isochrones generated using Network Analyst 10.0 Copyright (C) 1999-2010 ESRI Inc. All Rights Reserved

TITLE

Halifax Road, Penistone Proposed Residential Development Cycle Accessibility Plan

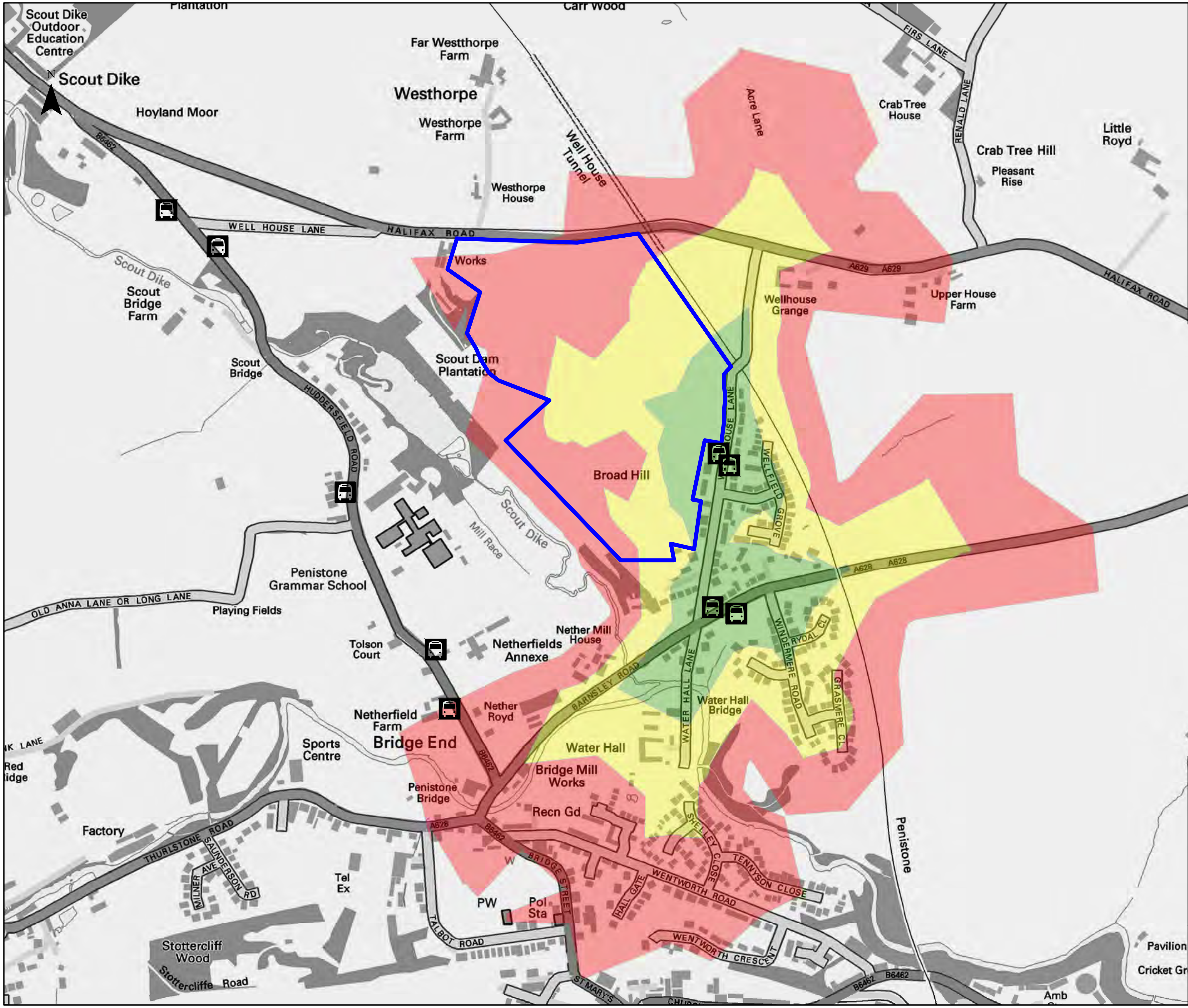
SCALE @ A3 1:50,000

FIGURE 5

OPTIMA

Suite 1, 3rd Floor
Goodbard House
Infirmary Street
Leeds LS1 2JP
Tel: 0113 245 1679

Path: O:\Halifax Road, Penistone\DRAWINGS\GIS\ARCEDITOR\Figure 4 - Cycle Accessibility.mxd



Key

Indicative Site Boundary

Existing Local Bus Stops

Bus Stop Accessibility

Bus Stop walk Distance

0-200m

200-400m

400-600m

TITLE

Halifax Road, Penistone Proposed Residential Development Bus Stop Accessibility Plan

SCALE @ A3 1:6,000

FIGURE **6**

OPTIMA
Suite 1, 3rd Floor
Goodbard House
Infirmary Street
Leeds LS1 2JP
Tel: 0113 245 1679

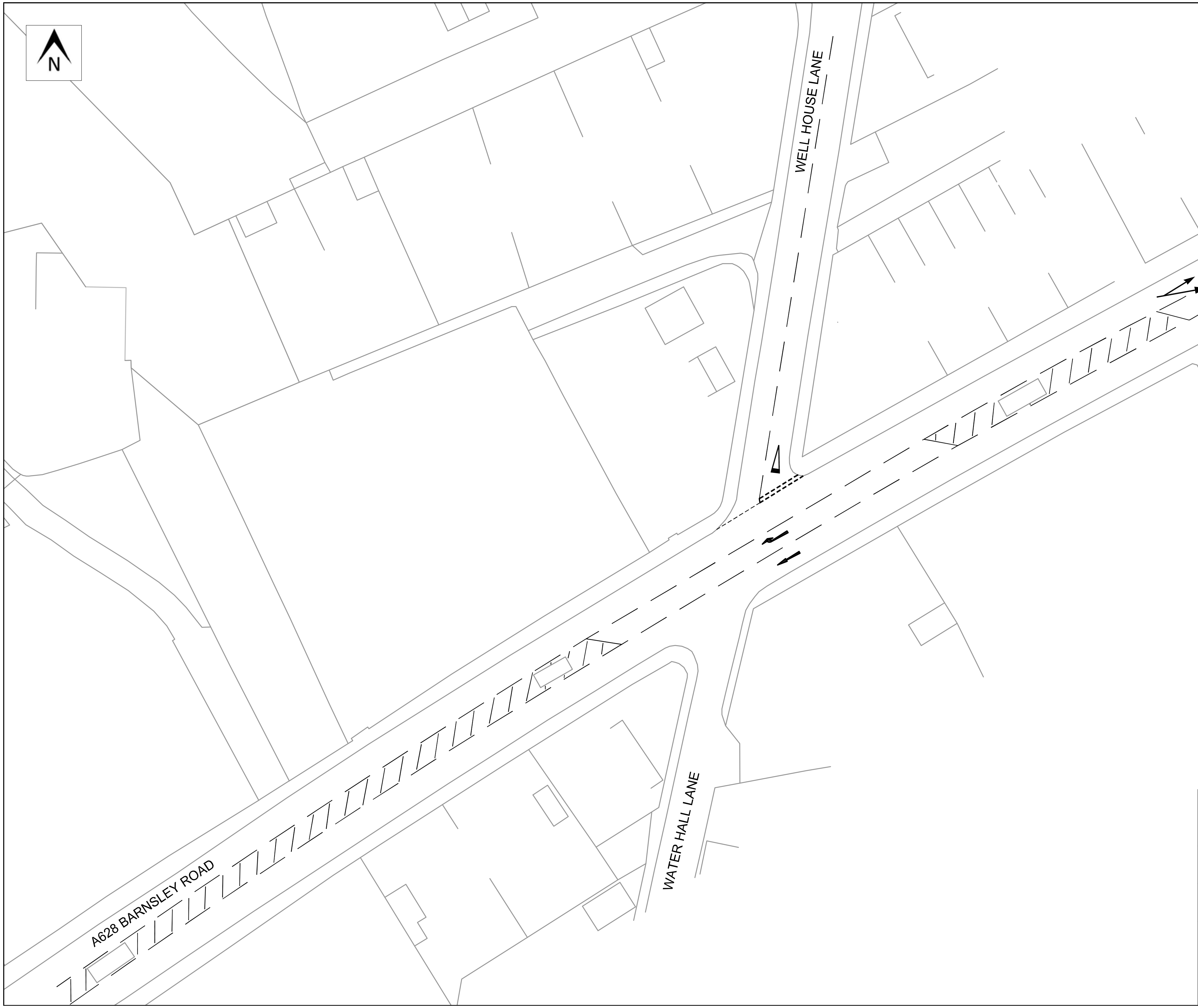
Path: O:\Halifax Road, Penistone\DRAWINGS\GIS\ARCEDITOR\Figure 5 - Bus Stop Accessibility.mxd

TITLE
A629 HALIFAX ROAD/WELL HOUSE LANE
EXISTING HIGHWAY LAYOUT

REF
FIGURE 7

SCALE
1:500 @ A3

OPTIMA
Intelligent Highway Solutions
Suite 1, 3rd Floor, Goodbard House, Infirmary Street
Leeds LS1 2JP



TITLE
BARNSLEY RD/WELL HOUSE LN/WATER HALL LN
EXISTING HIGHWAY LAYOUT

REF
FIGURE 8

SCALE
1:500 @ A3

OPTIMA
Intelligent Highway Solutions
Suite 1, 3rd Floor, Goodbard House, Infirmary Street
Leeds LS1 2JP

TITLE
A628 BARNSLEY RD/B6462 HUDDERSFIELD RD
EXISTING HIGHWAY LAYOUT

REF
FIGURE 9

SCALE
1:500 @ A3

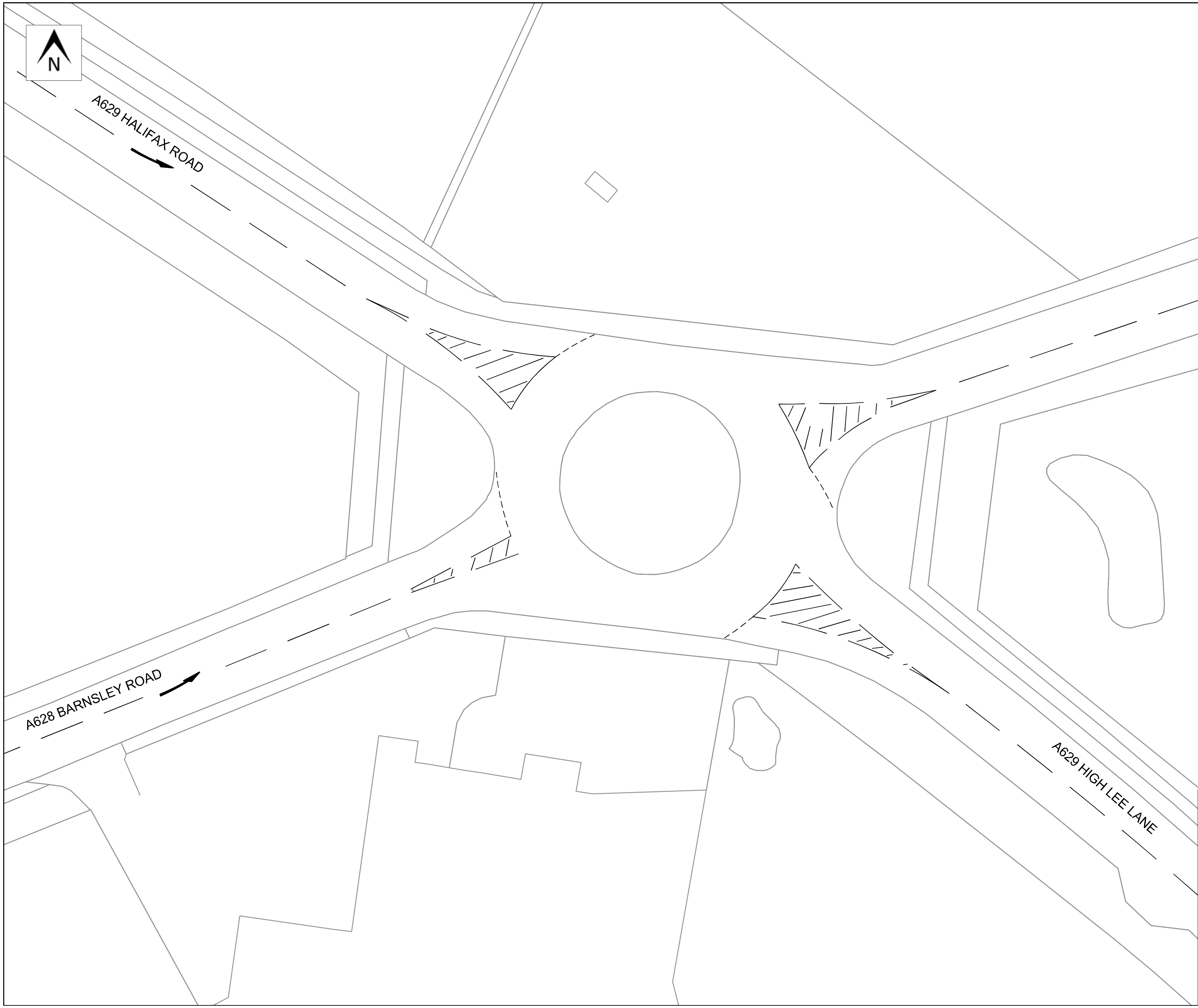
OPTIMA
Intelligent Highway Solutions
Suite 1, 3rd Floor, Goodbard House, Infirmary Street
Leeds LS1 2JP

TITLE
A628/B6462 BRIDGE STREET
EXISTING HIGHWAY LAYOUT

REF
FIGURE 10

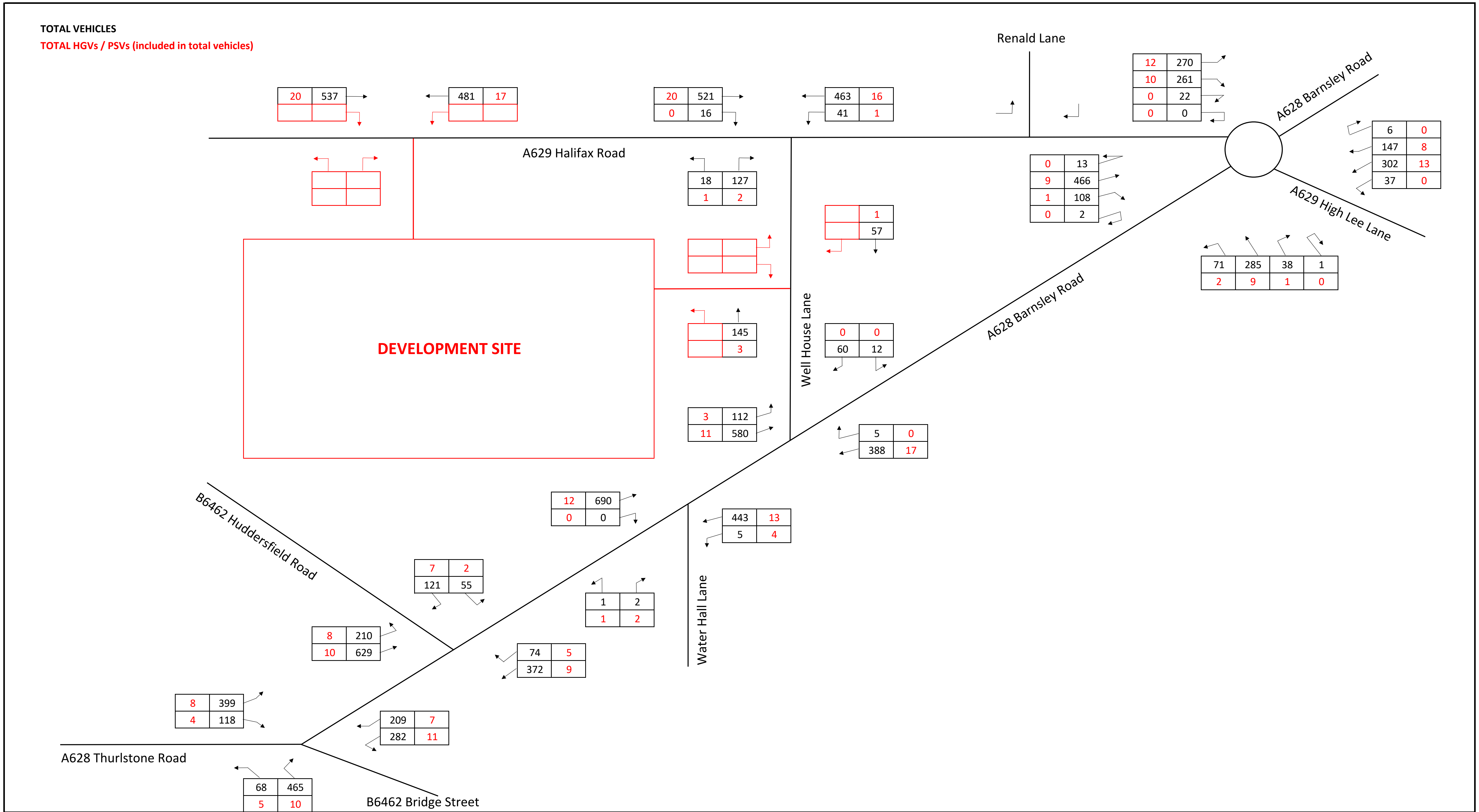
SCALE
1:500 @ A3

OPTIMA
Intelligent Highway Solutions
Suite 1, 3rd Floor, Goodbard House, Infirmary Street
Leeds LS1 2JP



TITLE	HOYLANDSWAINE ROUNDABOUT EXISTING HIGHWAY LAYOUT
REF	FIGURE 11
SCALE	1:500 @ A3

OPTIMA
Intelligent Highway Solutions
Suite 1, 3rd Floor, Goodbard House, Infirmary Street
Leeds LS1 2JP

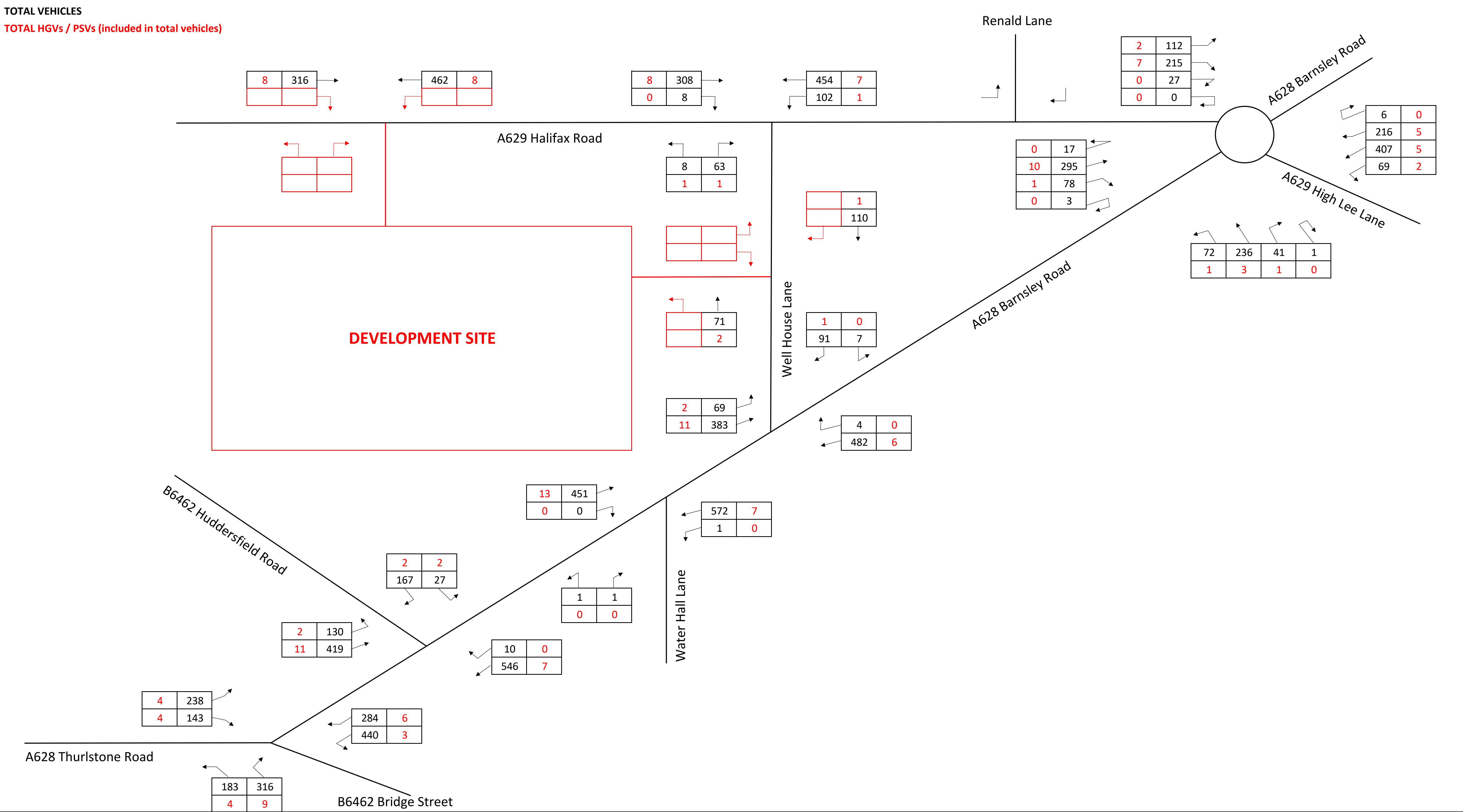


Project: Halifax Road, Penistone

2018 AM PEAK HOUR COUNT TRAFFIC FLOWS (07:30 - 08:30)

Figure: **100**

O:\Halifax Road, Penistone\ANALYSIS\SPREADSHEETS



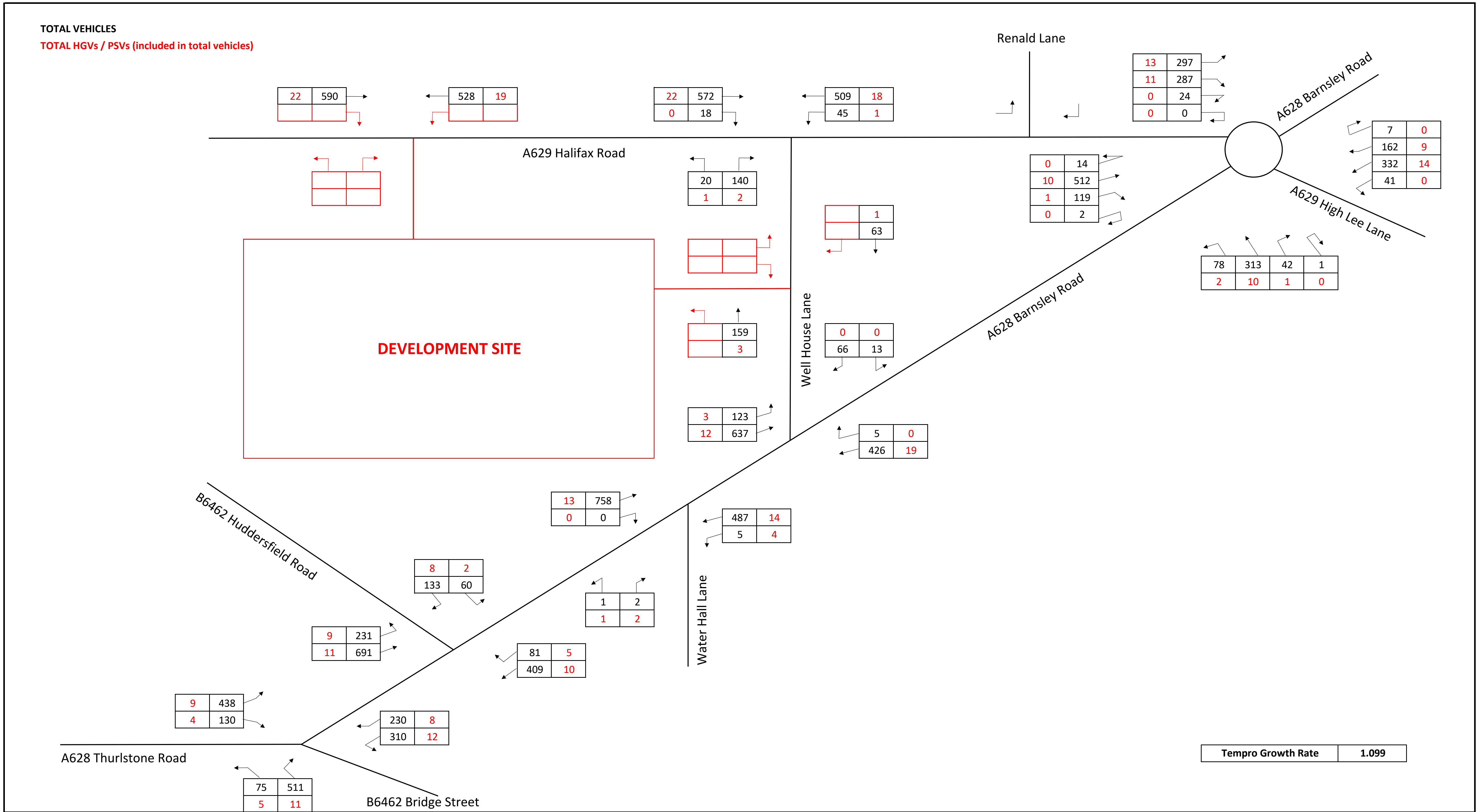
Project: Halifax Road, Penistone

OPTIMA Intelligent Highways Solutions

2018 PM PEAK HOUR COUNT TRAFFIC FLOWS (17:00 - 18:00)

Figure: **101**

O:\Halifax Road, Penistone\ANALYSIS\SPREADSHEETS

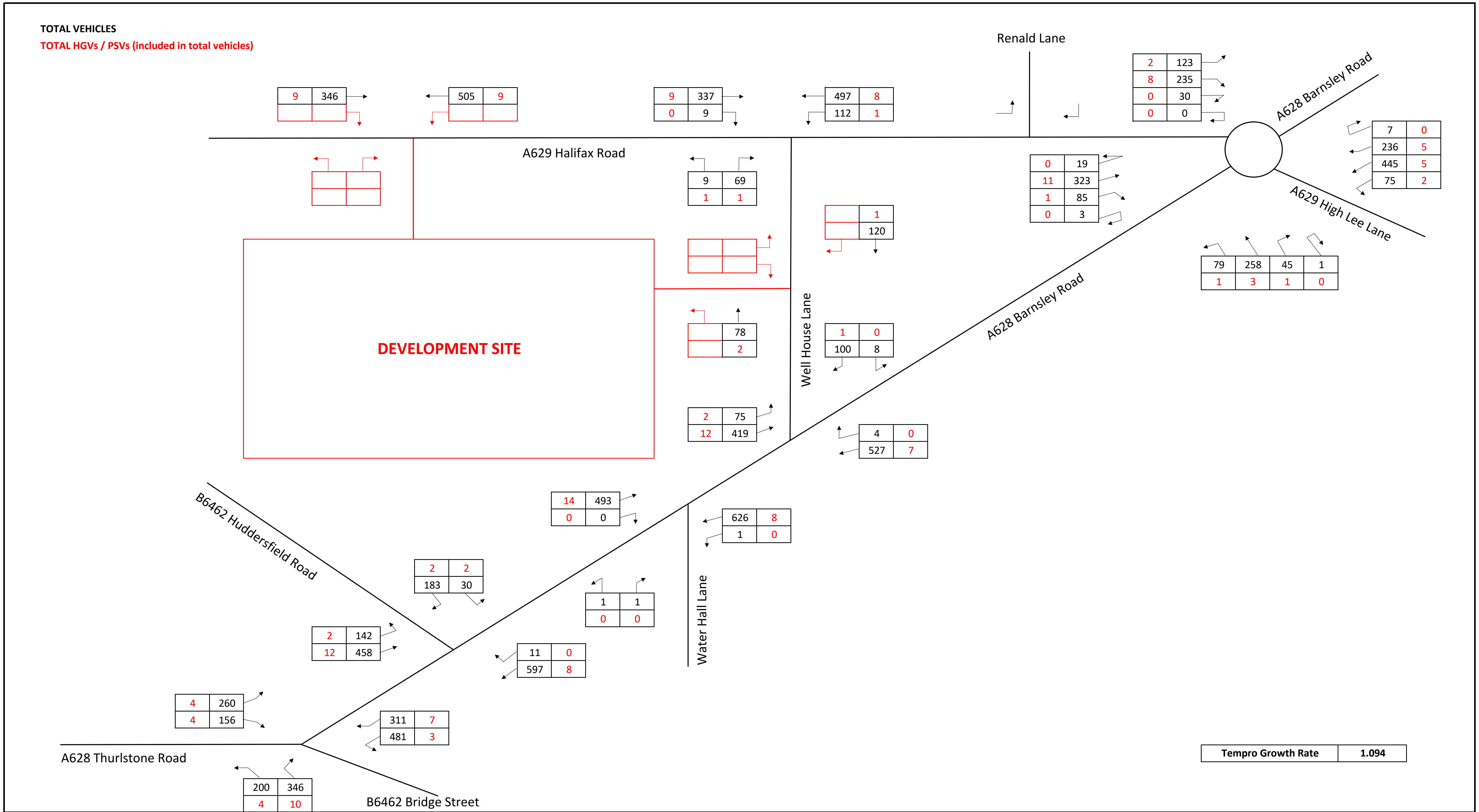


Project: Halifax Road, Penistone

2033 AM PEAK HOUR BASE TRAFFIC FLOWS

Figure: 110

O:\Halifax Road, Penistone\ANALYSIS\SPREADSHEETS



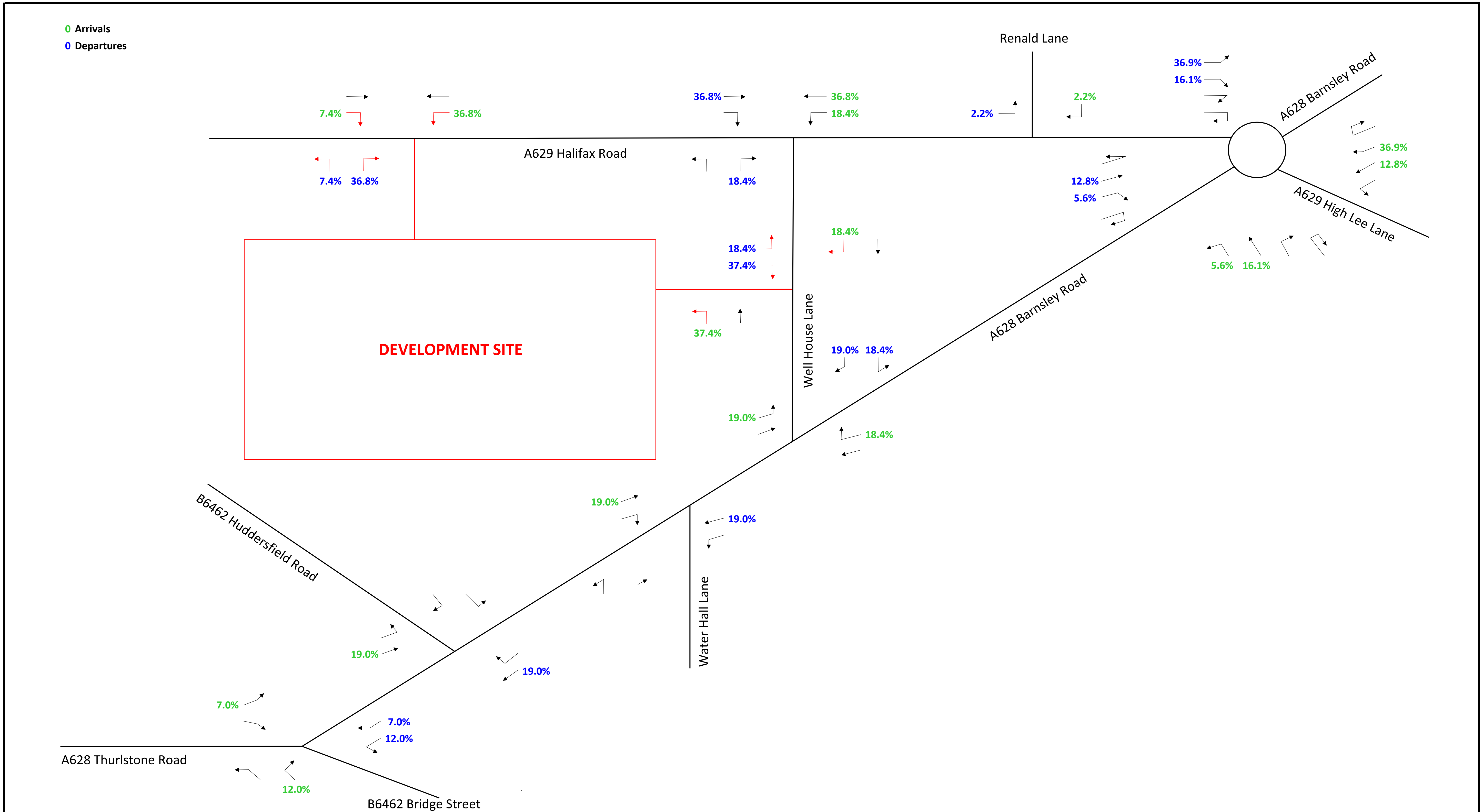
Project: Halifax Road, Penistone

2033 PM PEAK HOUR BASE TRAFFIC FLOWS

Figure:

111

O:\Halifax Road, Penistone\ANALYSIS\SPREADSHEETS

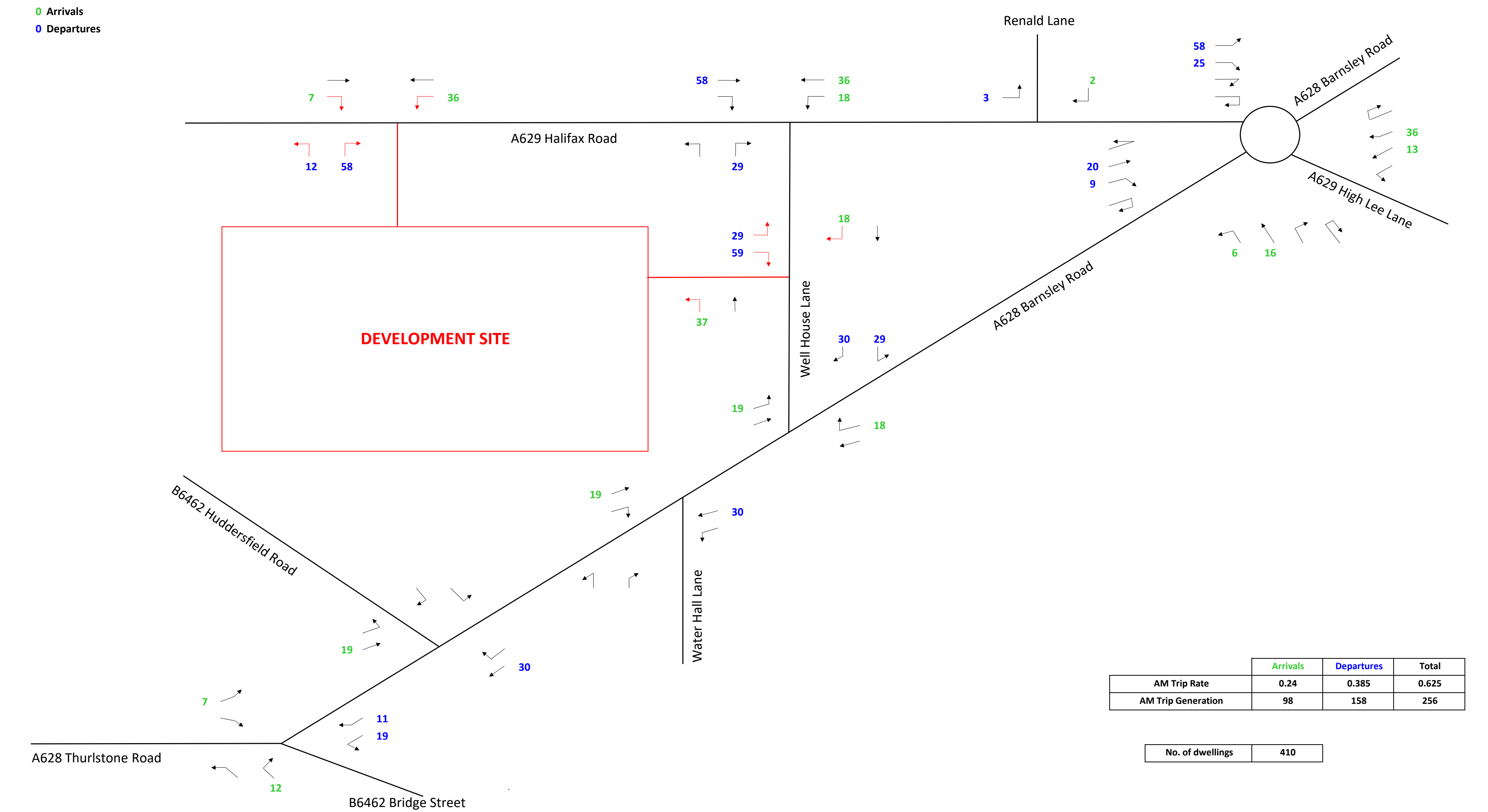


Project: Halifax Road, Penistone

RESIDENTIAL DEVELOPMENT PERCENTAGE DISTRIBUTION

Figure: **120**

O:\Halifax Road, Penistone\ANALYSIS\SPREADSHEETS



	Arrivals	Departures	Total
AM Trip Rate	0.24	0.385	0.625
AM Trip Generation	98	158	256

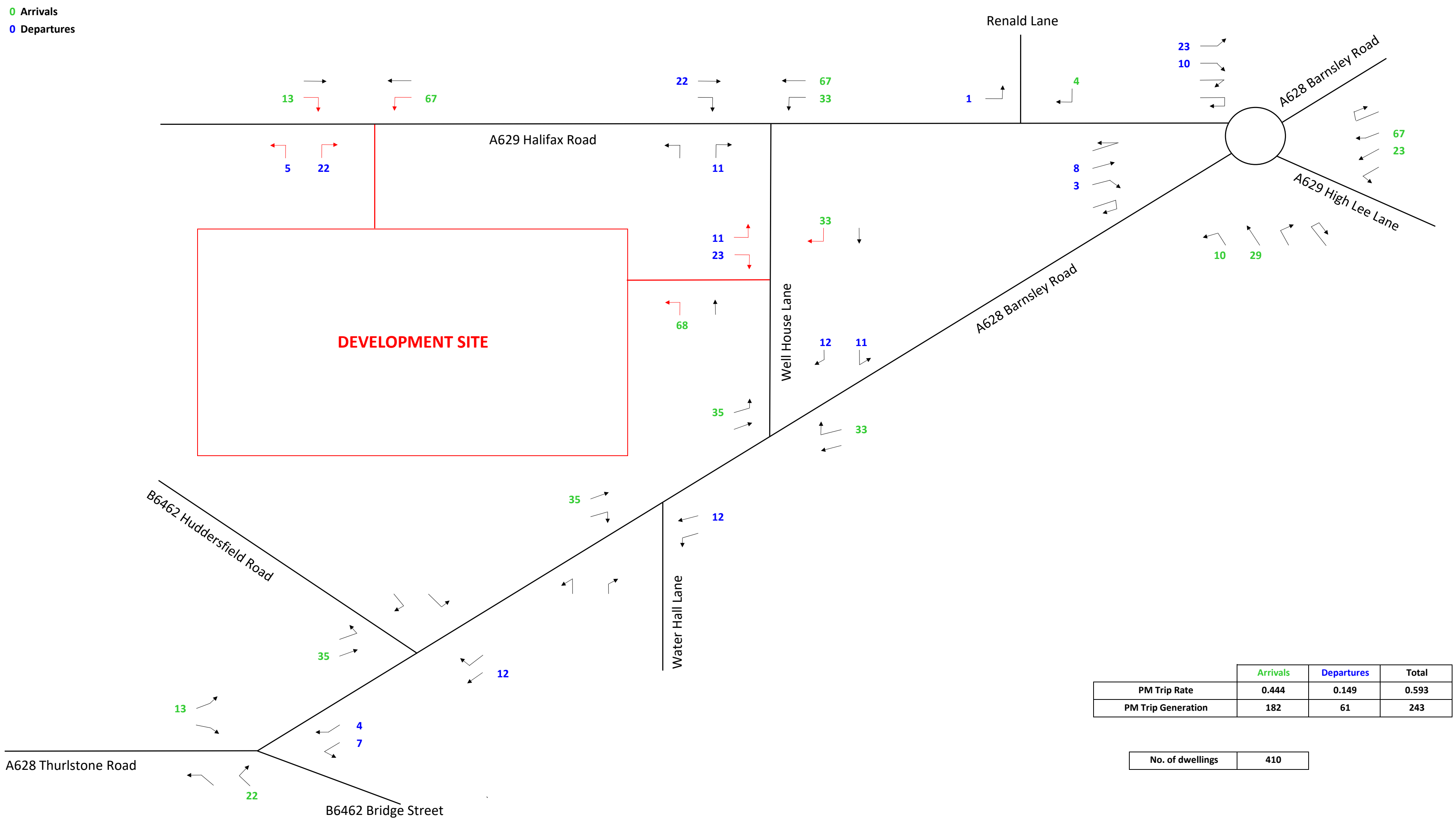
No. of dwellings	410

Project: Halifax Road, Penistone

AM PEAK HOUR DEVELOPMENT TRIPS

Figure: 121

O:\Halifax Road, Penistone\ANALYSIS\SPREADSHEETS



	Arrivals	Departures	Total
PM Trip Rate	0.444	0.149	0.593
PM Trip Generation	182	61	243

No. of dwellings	410

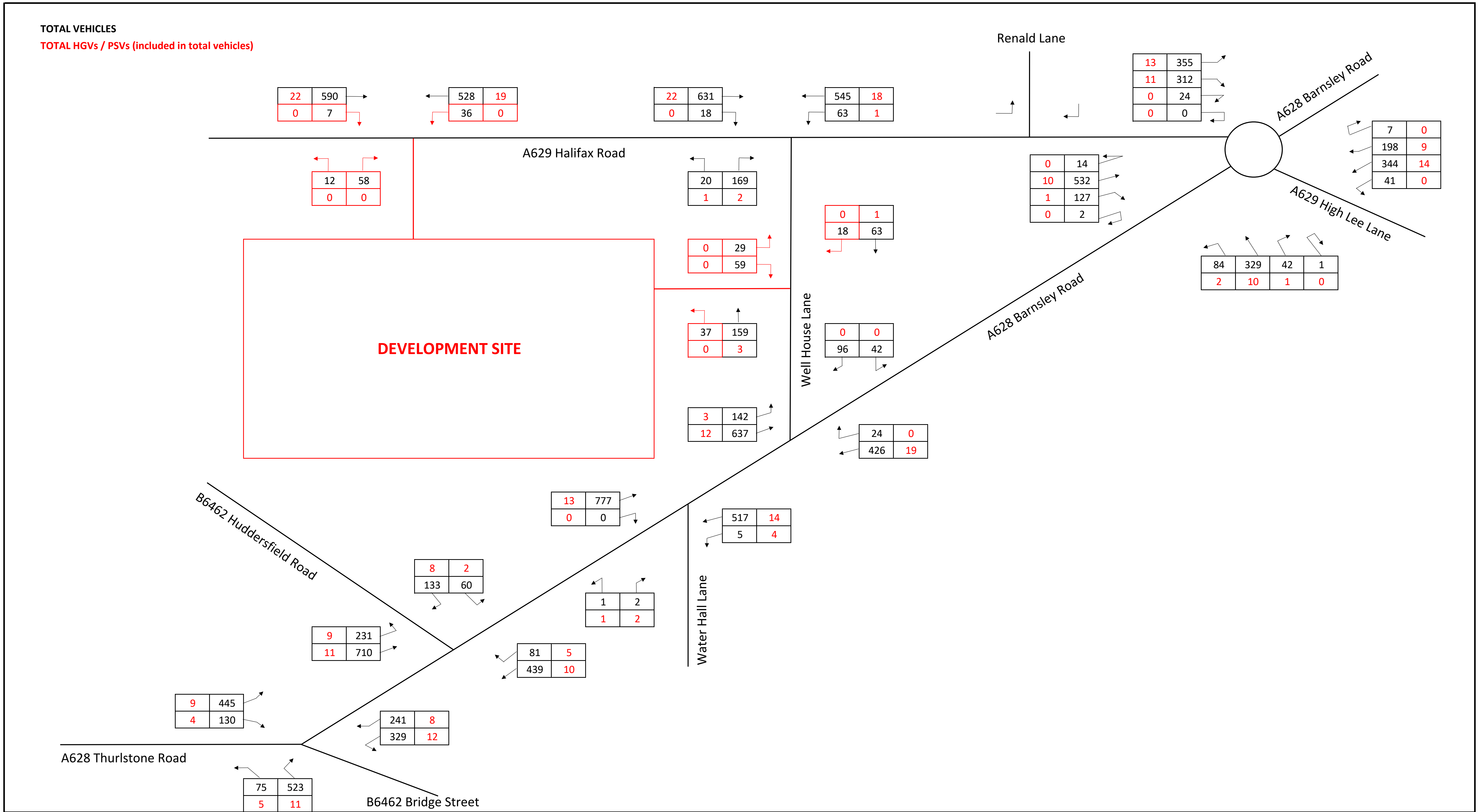
OPTIMA Intelligent Highways Solutions

Project: Halifax Road, Penistone

PM PEAK HOUR DEVELOPMENT TRIPS

O:\Halifax Road, Penistone\ANALYSIS\SPREADSHEETS

Figure: 122

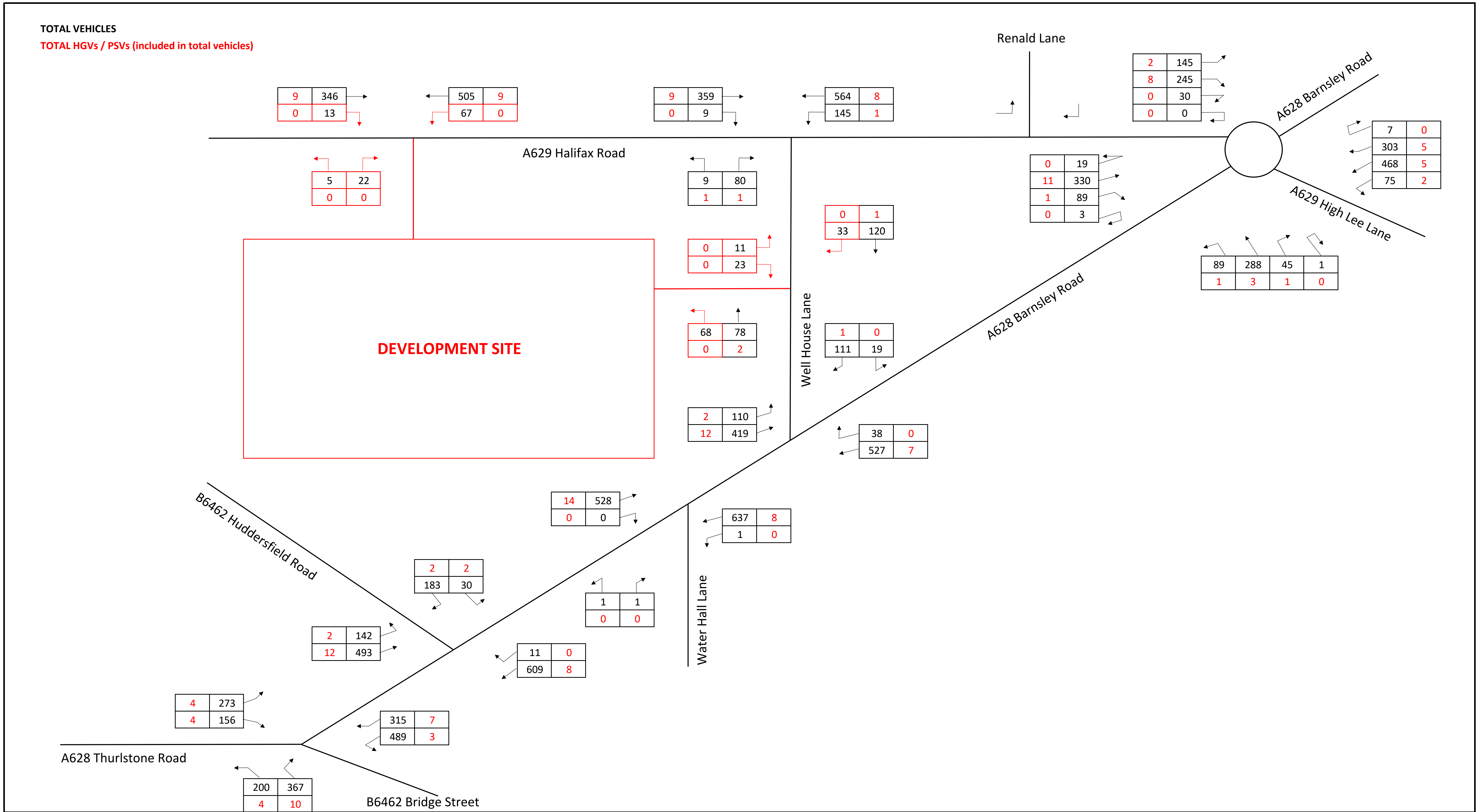


Project: Halifax Road, Penistone

2033 AM PEAK HOUR DESIGN TRAFFIC FLOWS

Figure: 130

O:\Halifax Road, Penistone\ANALYSIS\SPREADSHEETS



Project: Halifax Road, Penistone

2033 PM PEAK HOUR DESIGN TRAFFIC FLOWS

Figure: 131

O:\Halifax Road, Penistone\ANALYSIS\SPREADSHEETS

Appendices

Appendix A Speed Survey Data

Weather Conditions - Fine & Overcast/Road Surface - Dry

Westbound - To Huddersfield

48	40	50	47	42	38	49	42	51	37
40	43	37	36	47	39	48	41	52	44
42	46	36	42	46	39	46	51	44	38
40	42	48	44	38	41	43	48	52	44
42	38	44	40	55	43	48	38	57	43
45	43	49	38	32	49	40	45	38	43
39	49	46	36	41	54	47	59	38	40
42	52	38	46	43	47	51	41	56	48
45	39	41	47	51	39	49	43	40	45
37	42	46	42	44	54	50	38	46	51
42	52	35	44	37	41	57	42	59	46
43	49	40	52	41	46	39	44	52	43
42	36	56	40	45	54	41	49	38	43
37	41	48	43	49	44	65	49	44	52
42	45	57	46	42	53	43	46	50	44
33	41	39	50	43	75	52	44	46	42
45	42	53	45	42	50	42	57	51	44
51	36	56	43	50	37	54	43	48	54
44	41	48	54	42	49	36	41	46	44
42	46	40	55	45	41	56	42	46	50

Max - 75 **Min - 32** **85% - 52** **Ave - 45** **Sp. Limit - 60**

48 - Cars/LGV's **38 - HGV's/PSV's**

Weather Conditions - Fine & Overcast/Road Surface - Dry

Eastbound - To Rotherham

47	44	55	49	45	59	51	47	42	45
45	56	49	54	47	52	60	46	52	41
51	44	48	51	44	47	39	52	47	46
45	52	47	50	59	47	52	45	59	47
50	46	67	52	47	55	44	50	56	50
47	40	49	44	51	49	42	53	40	48
51	40	43	54	46	61	52	42	46	49
42	50	47	74	57	47	40	45	54	47
44	42	50	47	53	46	57	45	49	40
47	54	45	59	48	67	42	48	39	50
53	46	67	49	42	46	49	55	48	46
46	54	50	47	41	52	49	45	51	48
51	47	42	52	46	51	44	50	44	55
54	49	58	49	53	45	49	42	57	50
37	48	53	46	60	48	51	44	40	46
50	46	40	52	48	44	55	49	45	50
47	50	45	42	53	48	45	42	49	43
49	46	42	48	41	63	48	55	43	47
47	51	43	48	55	50	46	49	36	48
46	43	49	46	51	49	46	57	43	46

Max - 74 **Min - 36** **85% - 54** **Ave - 49** **Sp. Limit - 60**

47 - Cars/LGV's **45 - HGV's/PSV's**

Well House Lane, Penistone- Speed Survey (Thursday 15th November 2018)

Weather Conditions - Fine & Overcast/Road Surface - Dry

Northbound

31	24	34	26	29	41	32	39	30	35
38	29	40	32	37	22	29	36	25	33
29	40	25	37	29	35	38	30	35	24
38	34	31	36	34	37	32	38	29	36
28	33	37	32	43	36	33	35	28	32
37	32	31	34	28	37	35	38	29	33
33	36	44	33	35	25	31	34	37	32
38	33	36	31	33	37	26	34	32	39
33	31	38	34	31	28	36	39	31	34
29	39	33	30	35	31	41	35	29	31
32	30	34	43	31	36	33	44	31	35
35	39	28	34	37	31	28	32	35	39
31	36	34	29	36	25	31	34	30	23
35	33	30	35	29	33	37	30	26	31
34	32	35	30	24	33	42	32	29	34
30	34	26	30	34	44	32	36	30	27
30	34	29	34	30	33	31	27	32	29
24	53	31	23	34	31	29	26	32	30
33	30	32	36	31	40	29	33	37	34
38	32	36	40	26	31	34	41	31	39

Max - 53 **Min - 22** **85% - 37** **Ave - 33** **Sp. Limit - 30**

31 - Cars/LGV's **27 - HGV's/PSV's**

Well House Lane, Penistone- Speed Survey (Thursday 15th November 2018)

Weather Conditions - Fine & Overcast/Road Surface - Dry

Southbound

28	25	28	33	26	20	36	23	32	23
21	25	37	27	24	34	22	27	30	25
26	33	27	21	30	27	22	29	36	31
29	24	31	37	28	22	25	32	28	32
32	26	30	20	32	27	31	29	33	26
31	25	31	28	32	30	26	32	27	30
29	21	26	30	32	27	33	24	31	28
22	30	24	32	29	21	32	27	23	20
27	24	27	24	29	34	26	23	29	27
24	22	31	27	23	31	23	25	29	23
23	31	26	23	29	27	25	31	23	27
28	24	32	28	23	30	27	29	23	33
24	28	22	26	28	23	30	21	27	23
27	33	27	23	29	25	28	23	26	29
33	27	29	25	23	27	25	30	23	27
27	24	26	27	31	24	30	27	29	26
25	27	29	33	23	32	24	27	24	29
31	28	37	23	28	30	25	32	27	31
27	34	25	28	22	26	29	22	26	25
29	21	26	29	31	25	31	27	22	29

Max - 37 **Min - 20** **85% - 31** **Ave - 27** **Sp. Limit - 30**

28 - Cars/LGV's **25 - HGV's/PSV's**

Appendix B The Scheme Proposals

Notes:

This drawing, design and concept are copyright of STEN Architecture.

All Dimensions are to be verified on site before any work commences. If any discrepancies, errors or emissions are noted, these are to be reported to STEN Architecture immediately.

If any other drawings are referenced within this layout, please refer to the specific detailed drawing for design, materials and specific working practices.

PLANNING LAYOUT KEY:

Boundary treatments

- 1.8m Masonary wall
- 1.8m Close boarded timber fence
- 1.2m Estate railing
- 450 Knee rail

General

- Herringbone block paving; Brindle
- Affordable - Rented
- Affordable - Discounted market sale
- Tree/vegetation to be retained.
- Root protection Zone.
- BCP Bin collection point (bin collection day only)
- Reinforced tarmac to accomodate fire vehicle turn.
- Proposed 3m pedestrian/cycleway

Scaled @ 1:1000

0 50m 100m

ACCOMMODATION SCHEDULE

Private Barratt

Name	Floor Area Sq Ft	Beds	Units	Total
Denford Semi	624	2	2	1248
Denford End	624	2	2	1248
Denford Mid	624	2	1	624
Maidstone Semi	830	3	19	15770
Maidstone End	830	3	2	1660
Maidstone Mid	830	3	1	830
Ellerton Semi	830	3	20	16600
Ellerton End	830	3	2	1660
Ellerton Mid	830	3	1	830
Moresby Det	854	3	9	7686
Moresby Semi	854	3	7	5978
Denby	880	3	24	21120
Kingsville Semi	1072	4	6	6432
Kingsville End	1072	4	2	2144
Kingsville Mid	1072	4	2	2144
Brentford	1162	3	4	4648
Windermere	1073	4	20	21460
Kingsley	1080	4	17	18360
Woodcote Semi	1217	4	4	4868
Woodcote End	1217	4	2	2434
Woodcote Mid	1217	4	1	1217
Alderney	1225	4	7	8575
Sub Total			**155**	**146288**

Private DW

Name	Floor Area Sq Ft	Beds	Units	Total
H403 Ingleby	1081	4	18	19458
H442 Kirkdale	1354	4	11	14894
H433 Cornell	1374	4	20	27480
H417 Bradgate	1434	4	22	31548
H456 Avondale	1491	4	7	10437
H469 Holden	1536	4	36	55296
H497 Chelworth	1703	4	6	10218
H421 Winstone	1765	4	6	10590
Sub Total			**126**	**179921**

Affordable

Name	Floor Area Sq Ft	Beds	Units	Total
Severn	525	1	3	1575
Washington Mews	622	2	3	1866
Denford Mid	624	2	6	3744
Denford End	624	2	12	7488
Maidstone Mid	830	3	4	3320
Maidstone End	830	3	18	14940
Type 67 Mid	701	2	13	9113
Type 67 End	701	2	32	22432
Type 69 Mid	828	3	4	3312
Type 69 End	828	3	26	21528
Sub Total			**121**	**89318**

Grand Total	**402**	**415527**

STEN ARCHITECTURE

Suite 4, Unit 1,
Benton Office Park,
Bennett Avenue,
Horbury,
Wakefield,
WF4 5RA
Tel: 01924 669424

Web: www.sten-architecture.co.uk
Twitter: @STEN_arch
Facebook: stenarchitectureltd
Linkedin: Sten Architecture

CLIENT:

DAVID WILSON HOMES
WHERE QUALITY LIVES

BARRATT HOMES

SITE: Penistone

TITLE: Planning Layout

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1:1000	17.12.20	TS	SL
PROJECT NO:	DRAWING NO:		REVISION:
2001	2001.01		A

REV:	DESCRIPTION:	BY:	DATE:
A	Junction and road radii amend adjacent plots 271,85,176,70, 224 & 232 to incorporated vis splays and forward visibility	TS	18.12.20

Appendix C Optima Drg Nos 20005-GA-01 Rev C and 20005-GA-02 Rev A

DO NOT SCALE

SCHEME OVERVIEW AND VISIBILITY SPLAYS (SCALE - 1:1000@A1)

SCHEME DETAILS (SCALE - 1:250@A1)

KEY

- = 2.4 X 215M VISIBILITY SPLAY IN ACCORDANCE WITH DMRB FOR 60MPH SPEED LIMIT
- = TANGENTIAL VISIBILITY SPLAY
- = INDICATIVE ADOPTED HIGHWAY BOUNDARY

NOTES

1. PRELIMINARY LAYOUT SUBJECT TO DETAILED DESIGN INCLUDING FULL CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH/ DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND AVAILABILITY, CAPACITY ASSESSMENT AND LOCAL AUTHORITY APPROVAL.
2. THE EXTENT OF THE ADOPTED HIGHWAY BOUNDARY IS SHOWN IN ITS APPROXIMATE LOCATION DUE TO THE DISPARITIES BETWEEN THE TOPOGRAPHICAL SURVEY AND THE OS DATA ON WHICH THE INFORMATION IS PROVIDED.

REV	DATE	BY	DESCRIPTION	CHK	APP
C	16/12/20	JS	3m FOOTWAY/CYCLE WAY ADDED	EAG	EAG
B	15/12/20	JS	AMENDED TO RSA COMMENTS	EAG	EAG
A	01/12/20	MSP	AMENDED TO SUIT CURRENT INTERNAL LAYOUT	EAG	EAG
-	18/03/20	JS	INITIAL ISSUE	EAG	EAG

STATUS: PRELIMINARY

PROJECT: HALIFAX ROAD, PENISTONE

CLIENT: BARRATT HOMES

DRAWING TITLE: HALIFAX ROAD SITE ACCESS ARRANGEMENT

CHECKED	APPROVED	DRG No.	
EAG	EAG	20005/GA/01	
DRAWN BY:	SCALE @ A1	DATE	REV.
JS	AS SHOWN	16/12/20	C

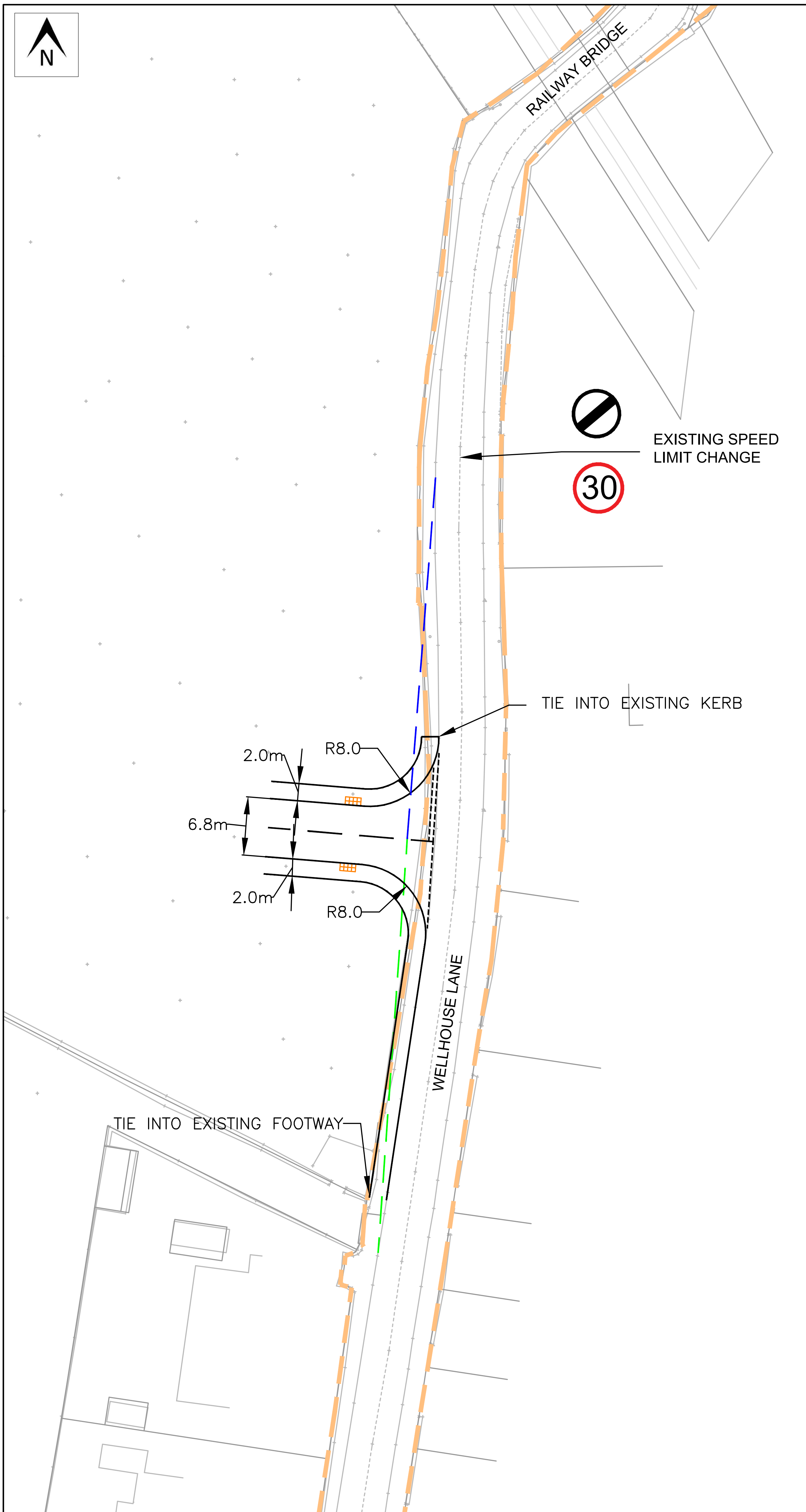
OPTIMA

Intelligent Highways Solutions

Atlas House, 31 King Street, Leeds, LS1 2HL

optimahighways.com

T 0113 245 1679 F 0113 245 9042



KEY

— — = 2.4 X 42M VISIBILITY SPLAY IN ACCORDANCE WITH MFS FOR A 30.5 MPH RECORDED SPEED

— — = 2.4 X 48M VISIBILITY SPLAY IN ACCORDANCE WITH MFS FOR A 33.8 MPH RECORDED SPEED

—— = INDICATIVE ADOPTED HIGHWAY BOUNDARY

NOTES

1. PRELIMINARY LAYOUT SUBJECT TO DETAILED DESIGN INCLUDING FULL CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH/ DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND AVAILABILITY, CAPACITY ASSESSMENT AND LOCAL AUTHORITY APPROVAL.
2. THE EXTENT OF THE ADOPTED HIGHWAY BOUNDARY IS SHOWN IN ITS APPROXIMATE LOCATION DUE TO THE DISPARITIES BETWEEN THE TOPOGRAPHICAL SURVEY AND THE OS DATA ON WHICH THE INFORMATION IS PROVIDED.

REV	DATE	BY	DESCRIPTION	CHK	APP
A	01/12/20	MSP	AMMENDED TO SUIT CURRENT INTERNAL LAYOUT	EAG	EAG
-	18/03/20	JS	INITIAL ISSUE	EAG	EAG

STATUS: PRELIMINARY

PROJECT: HALIFAX ROAD, PENISTONE

DRAWING TITLE: WELL HOUSE LANE SITE ACCESS ARRANGEMENT

CLIENT: BARRATT HOMES

CHECKED	APPROVED	DRG No.	
EAG	EAG	20005/GA/02	
DRAWN BY:	**SCALE @ A3**	**DATE**	**REV.**
JS	1:500	18/03/20	A

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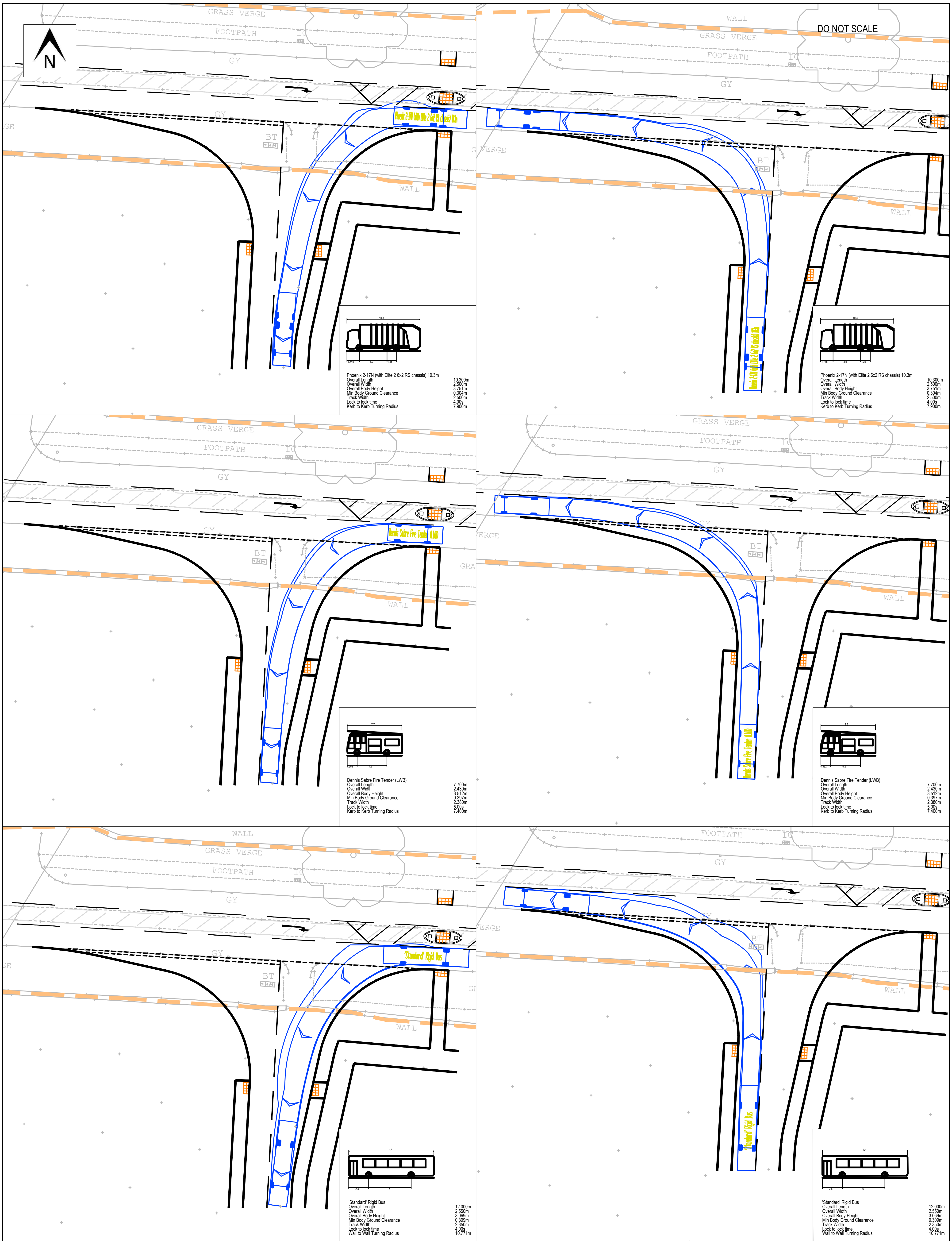
Atlas House, 31 King Street, Leeds, LS1 2HL
T 0113 245 1679 F 0113 245 9042

Appendix D Swept Path Analysis of Site Access Junctions



REV	DATE	BY	DESCRIPTION	CHK	APP
-	16/12/20	JS	INITIAL ISSUE	EAG	EAG

STATUS: PRELIMINARY

PROJECT: HALIFAX ROAD, PENISTONE

CLIENT: BARRATT DAVID WILSON HOMES

DRAWING TITLE: HALIFAX ROAD SITE ACCESS ARRANGEMENTS - VEHICLE SWEPT PATH ANALYSIS

CHECKED	APPROVED	DRG No.	
EAG	EAG	20005/ATR/05	
DRAWN BY:	**SCALE @ A3**	**DATE**	**REV.**
JS	1:500	15/12/20	-

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Intelligent Highway Solutions
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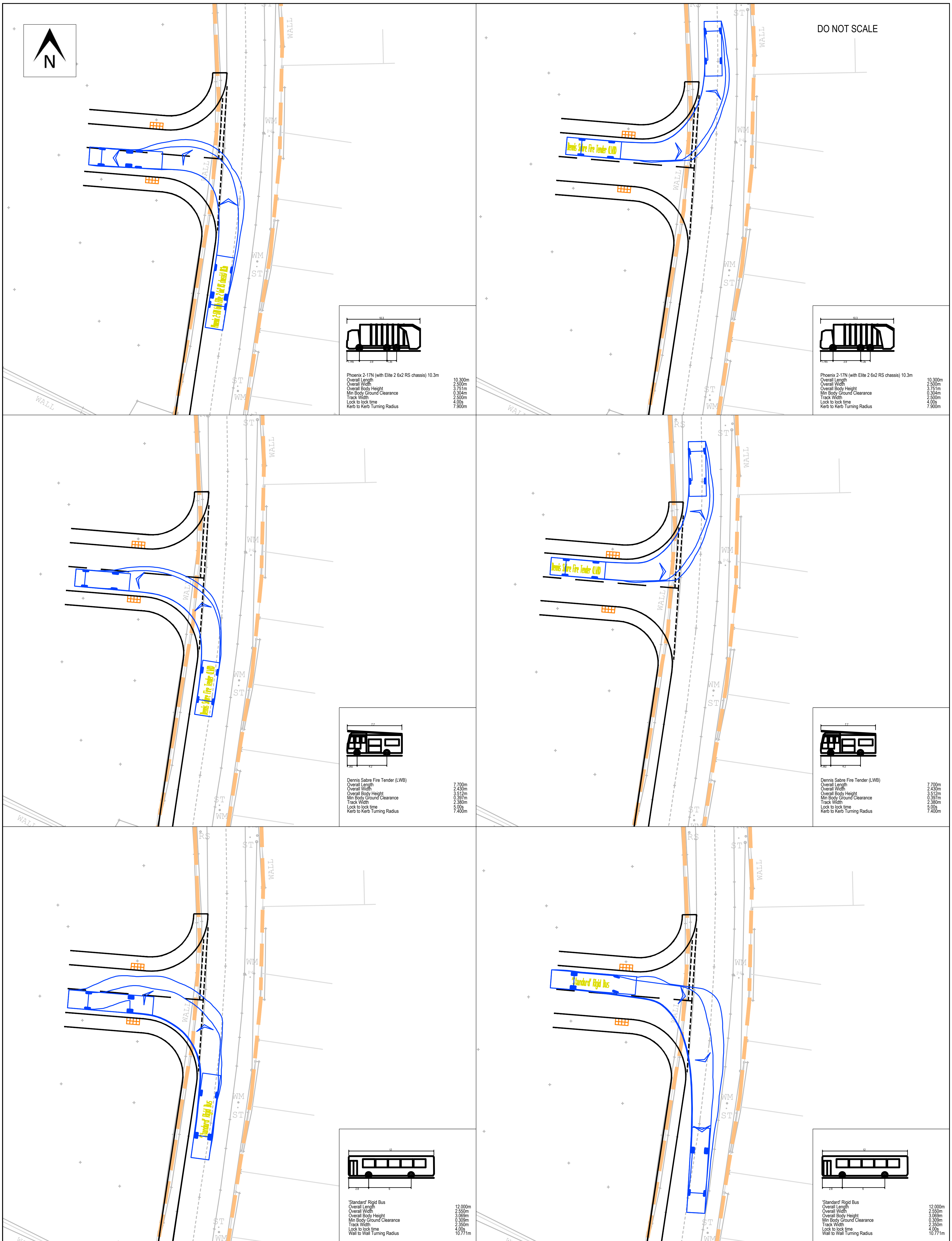
Leeds LS1 2JP
optimahighways.com T 0113 245 1679



REV	DATE	BY	DESCRIPTION	CHK	APP
-	16/12/20	JS	INITIAL ISSUE	EAG	EAG

STATUS
PRELIMINARY

PROJECT
HALIFAX ROAD, PENISTONE

CLIENT
BARRATT DAVID WILSON HOMES

DRAWING TITLE
WELL HOUSE LANE
SITE ACCESS ARRANGEMENTS - VEHICLE SWEPT PATH ANALYSIS

CHECKED	APPROVED	DRG No.	
EAG	EAG	20005/ATR/06	
DRAWN BY:	SCALE @ A3	DATE	REV.
JS	1:500	15/12/20	-

OPTIMA
Intelligent Highway Solutions
Suite 1, 3rd Floor, Goodbard House, Infirmary Street
Leeds LS1 2JP
optimahighways.com T 0113 245 1679

Appendix E Stage 1 RSA Response Report (containing TMS Consultancy Stage 1 RSA Report)

OPTIMA
Intelligent Highways Solutions

Halifax Road, Penistone
Proposed Site Access Arrangements
Response Report to Stage 1 Road Safety Audit

December 2020 (Initial Issue)

Prepared on behalf of

Barratt Homes & David Wilson Homes Yorkshire West

Optima Highways and Transportation Consultancy Ltd
Suite 1, 3rd Floor, Goodbard House, Infirmary Street, Leeds, LS1 2JP
Tel: 0113 245 1679
www.optimahighways.com

Quality Management

Halifax Road, Penistone – Response Report to Stage 1 Road Safety Audit Project No: 20005-P1				
File reference	O:\Halifax Road, Penistone\RECORD\CORRESPONDENCE\Stage 1 RSA\201216 Halifax Road, Penistone Stage 1 RSA Response Report.docx			
Issue/revision	**Initial Issue**	**Revision 1**	**Revision 2**	**Revision 3**
Remarks	Draft for BMBC Approval			
Date	16th December 2020			
Prepared by	E Green			
Signature				
Checked by	J Stackhouse			
Signature				
Authorised by	E Green			
Signature				

Contents

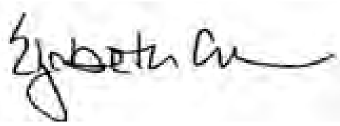
1. Introduction

1.1 PROJECT DETAILS

Table 1.1 Project Details

Report title	Halifax Road, Penistone Proposed Site Access Arrangements Response Report to Stage 1 Road Safety Audit
Date	16th December 2020
Document reference and revision	201216 Halifax Road, Penistone Stage 1 RSA Response Report – Initial Issue
Prepared by	Optima Highways and Transportation
On behalf of	Barnsley Metropolitan Borough Council (Overseeing Organisation)

Table 1.2 Authorisation Sheet

Project:	Halifax Road, Penistone Proposed Site Access Arrangements
Report Title:	Response Report to Stage 1 Road Safety Audit
Prepared by:	
Name:	Elizabeth Green BEng MSc CEng MICE FCIHT
Position:	Associate Director
Signed:	
Organisation:	Optima Highways & Transportation
Date:	16th December 2020
Approved by:	
Name:	
Position:	
Signed:	
Organisation:	Barnsley Metropolitan Borough Council
Date:	

1.2 INTRODUCTION

1.2.1 This report provides a response to the items raised within the Stage 1 Road Safety Audit (RSA) dated 15th December 2020 prepared by TMS Consultancy (at the request of BMBC) which considers the proposed site access arrangements from Halifax Road and Wellhouse Lane into a proposed residential development of some 410 dwellings at Halifax Road in Penistone.

1.2.2 The proposed works for which the Stage 1 RSA has been completed comprise:

- A new priority T junction with ghost island right turn holding facilities on Halifax Road; and
- A new simple priority T junction on Wellhouse Lane.

1.2.3 A copy of the Stage 1 Road Safety Audit is provided in Appendix A.

1.2.4 This RSA Response Report has been prepared by Elizabeth Green BEng MSc CEng MICE FCIHT who represents the Design Organisation, Optima Highways & Transportation.

1.3 KEY PERSONNEL

1.3.1 Table 1.3 below contains the details of the key personnel involved in this Stage 1 RSA; representing the Overseeing Organisation, the RSA Team and the Design Organisation.

Table 1.3 Key Personnel

Overseeing organisation	tbc Barnsley Metropolitan Borough Council
RSA Team	Richard Marriott CertEd MCIHT MSoRSA Highways England Approved RSA Certificate of Competency Road Safety Audit Team Leader Road Safety Engineer, TMS Consultancy Phil Cook BSc CEng MICE MCIHT FIHE Highways England Approved RSA Certificate of Competency Road Safety Audit Team Member Director, TMS Consultancy
Design Organisation	Elizabeth Green BEng MSc CEng MICE FCIHT Associate Director Optima Highways and Transportation

1.3.2 Chapter 2 contains the RSA decision log which references each road safety issue/problem, associated recommendation made in the Stage 1 RSA, design organisation response, overseeing organisation response and the agreed RSA action.

2. Road Safety Audit Decision Log

RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
2.1 Problem ***Location*** – Well House Lane; pedestrian facilities ***Summary*** – *Increased risk of pedestrian trips and falls.* ***Detail*** – The current drawings do not show a pedestrian crossing point from the footway serving the new proposed development to the eastern footway. As this is a bus route, this will become a pedestrian desire line and an absence of pedestrian crossing facilities could lead to pedestrians crossing the road at inappropriate places, and / or tripping and falling over full height kerbs. This will be a particular hazard to those with mobility and visual impairments and for those with manual wheelchairs and pushchairs.	Pedestrian crossing facilities should be provided with a dropped kerb and tactile paving across Well House Lane.	The RSA recommendation is accepted and pedestrian crossing facilities will be provided on Well House Lane and will be included as part of the detailed access design once public transport provision is finalised for the development.	As Design Organisation response.	To provide pedestrian crossing facilities on Well House Lane to suit likely pedestrian desire lines. Details of the facilities will be included for consideration within a Stage 2 RSA following completion of the detailed design.
2.2 Problem ***Location*** – Well House Lane development access; pedestrian crossing. ***Summary*** – *Increased risk of pedestrian trips / falls / vehicle conflict.* ***Detail*** –The current drawings show the northern footway to be tied into the existing kerb which does not currently have a footway. Errant pedestrians may attempt to follow the kerb line northwards and risk being exposed to moving vehicles within the carriageway particularly those with visual impairments, should any delineation be excluded.	The correct tactile paving / delineation / footway termination point should be installed on the northern footway from the development.	The RSA recommendation is accepted and a suitable termination point will be provided.	As Design Organisation response.	To provide a suitable termination point on the northern footway from the development. The detail will be included for consideration within a Stage 2 RSA following completion of the detailed design

RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
2.3 Problem ***Location*** – Wellhouse Lane; proposed access ***Summary*** – *Increased risk of side swipe type collisions.* ***Detail*** – Vehicles parked on street opposite the location of the proposed junction could impede vehicles turning into and out of the junction which could increase the risk of side swipe or damage only type collisions. In addition, no swept path analysis has been provided for likely vehicle usage at the junction. A lack of suitable geometry at the junction could lead to likely vehicle users turning into or out of the junction into the path of other users, which may be exasperated by any parked vehicles.	Swept path analysis should be undertaken for likely vehicle usage at the junction and the geometry adjusted and parking restrictions introduced as necessary as part of the detailed design.	Whilst not disputing the observations of the audit team it is noted that the properties opposite the location of the proposed site access all benefit from off-road parking and most driveways appear able to accommodate more than one car. It is therefore not clear why there is such levels of on-street parking taking place and this is not always evident. A full swept path analysis has been carried out for the likely vehicle usage and it has been demonstrated that this can be accommodated whilst allowing some on-street parking. Further observations of the level of on-street parking will also be undertaken and restrictions, if required, will be investigated.	As Design Organisation response.	Further observations of existing levels of on-street parking will be undertaken and parking restrictions proposed, if required.
2.4 Problem ***Location*** – Halifax Road; proposed access. ***Summary*** – *Potential risk of side swipe type collisions.* ***Detail*** – No swept path analysis has been provided for likely vehicle usage at the proposed junction. A lack of	Swept path analysis should be undertaken for likely vehicle usage at the junction and the geometry adjusted, as necessary. Drawing number	The RSA recommendation is accepted and swept path analysis has been carried out. This has resulted in an amendment to the radii to increase these to 15m in line	As Design Organisation response.	To amend the design to fully accord with DBRB with regard to junction radii (as shown on drawing no. 20005/GA/10 Rev C).

RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
suitable geometry at the proposed junction could lead to likely vehicle users turning into or out of the junction into the path of other users or collide with the splitter island. In addition, large vehicles turning right within the right turn lane may swing out unexpectedly into the path of vehicles travelling eastbound.	20005/GA/01 Rev A shows the current radii of the junction at 10m, current guidance CD 123 (formerly 42/95) shows a minimum of 15m for rural roads with ghost island layouts. This should be amended for the detailed design.	with the RSA recommendation. The revised detail is shown on drawing no. 20005/GA/10 Rev C.		
2.5 Problem ***Location –*** Halifax Road; proposed pedestrian refuge island. ***Summary –*** *Risk of darkness related / loss of control collisions.* ***Detail –*** The A629 Halifax Road is an unlit road with a speed limit of 60mph and the presence of a refuge island could be hazardous to all road users as it may not be visible at night. This could result in loss of control type collisions / island strikes and loss of control due to sharp / late braking. Pedestrians wishing to use the crossing during the hours of darkness may not be conspicuous enough increasing the risk of collision with all road users.	The island should be suitably illuminated with a beacon pole / bollards and high level Keep Left signs. If street lighting is provided, this should extend to the junction area, including the right turn lane.	The RSA recommendation is accepted. Signage and street lighting will be reviewed at detailed design stage and appropriate provision will be made commensurate with the speed of the road.	As Design Organisation response.	Pedestrian crossing refuges will be provided with appropriate signage and beacon poles. The requirement for street lighting will also be reviewed at detailed design stage. All details will be included for consideration within a Stage 2 RSA following completion of the detailed design
2.6 Problem ***Location*** – A629 Halifax Road development access; pedestrian crossing, ***Summary –*** *Increased risk of pedestrian trips / falls / vehicle conflict.* ***Detail –*** As per problem 2.2 the current drawings show the footway leading to the west to be tied into the	The correct tactile paving / delineation / footway termination point should be installed on the footway leading west from the development.	The RSA recommendation is accepted and the design has been amended to omit the footway around the radius on the western side as is shown on drawing no 20005/GA/01 Rev C.	As Design Organisation response.	The footway is terminated within the development access and tactile paving and a dropped crossing are provided to allow pedestrians to cross to the opposite side of the access road.

RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
existing kerb which does not currently have a footway. Errant pedestrians may attempt to follow the kerb line northwards and risk being exposed to moving vehicles within the carriageway particularly those with visual impairments should any delineation be excluded.		Tactile paving and a dropped crossing are provided to allow pedestrians to cross to the opposite side of the access road.		
2.7 Problem ***Location*** – Halifax Road; proposed access ***Summary*** – *Potential risk of right turning collisions.* ***Detail*** – There is a levels difference between the proposed development land and the junction. A steep incline on approach to the junction from the development could lead to vehicles stalling when attempting to set off or setting off slowly. This could increase the risk of right turning type collisions occurring at the junction.	As part of the detailed design, it should be ensured that a level plateau is provided at the junction of the proposed access road for the length of the largest vehicle likely to use the junction.	The RSA recommendation is accepted, and the detailed design of the junction will ensure that there is an appropriate level plateau provided on the approach to the junction from the minor arm.	As Design Organisation response.	To provide an appropriate level plateau on the approach to the junction from the minor arm. Level information and other details will be included for consideration within a Stage 2 RSA following completion of the detailed design.

3. Design Organisation and Overseeing Organisation Statements

3.1 DESIGN ORGANISATION STATEMENT

3.1.1 On Behalf of the design organisation, I certify that:

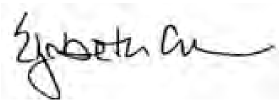
1) *the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the overseeing organisation.*

Name: Elizabeth Green BEng MSc CEng MICE FCIHT

Position: Associate Director

Organisation: Optima Highways & Transportation

Date: 16th December 2020



Signed: …………………………………….

3.2 OVERSEEING ORGANISATION STATEMENT

3.2.1 On Behalf of the overseeing organisation, I certify that:

1) *the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the design organisation; and*

2) *the agreed RSA actions will be progressed.*

Name:

Position:

Organisation: Barnsley Metropolitan Borough Council

Date:

Signed: …………………………………….

Appendices

Appendix A Stage 1 Road Safety Audit

safer roads for everyone

Proposed Residential Development, Halifax Road, Penistone (Revised Access)

Road Safety Audit Stage 1

on behalf of
Optima Highways & Transportation

TMS reference no: 16052
Date: 15th December 2020

THE CHARTERED INSTITUTION OF HIGHWAYS & TRANSPORTATION

IHE INSTITUTE OF HIGHWAY ENGINEERS

QMS ISO 9001 REGISTERED

Unit 1b, Sovereign Court 2,
University of Warwick Science Park,
Sir William Lyons Road, Coventry CV4 7EZ

Tel: +44 (0)24 7669 0900
Fax: +44 (0)24 7669 0274
Email: info@tmsconsultancy.co.uk
Web: www.tmsconsultancy.co.uk

Proposed Residential Development, Halifax Road, Penistone (Revised)

Road Safety Audit Stage 1

1. Introduction

1.1 This report describes a Stage 1 Road Safety Audit carried out on Halifax Road and Well House Lane in Penistone, on behalf of Optima Highways & Transportation The audit was carried out on Tuesday 15th December 2020 in the offices of TMS Consultancy. This RSA1 report supersedes TMS 15098, previously carried out in July 2019.

1.2 The audit team members were as follows:

Audit Team Leader

Richard Marriott – CertEd, MCIHT, MSoRSA
Highways England Approved RSA Certificate of Competency
Road Safety Engineer, TMS Consultancy

Audit Team Member

Phil Cook – BSc, CEng, MICE, MCIHT, FIHE
Highways England Approved RSA Certificate of Competency
Director, TMS Consultancy

1.3 The audit comprised an examination of the documents listed in **Appendix A**. The Road Safety Audit was undertaken in accordance with the Brief provided by Elizabeth Green of Optima Highways & Transportation.

1.4 The site was visited by the Audit Team on Monday 14th December 2020 at 10:00 hrs. The weather was bright with light rain. Traffic flows were low. Pedestrian flows were very low and cycle flows were not observed.

1.5 The terms of reference of the Road Safety Audit are as described in GG 119. 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 design to any other criteria.

1.6 All of the problems described in this report are considered by the audit team to require action in order to improve the safety of the scheme and minimise collision occurrence.

1.7 A scheme drawing is included in **Appendix B**, where the locations of specific problems are referenced. A location plan of the scheme is also included in this Appendix.

1.8 The scheme consists of access proposals into a residential development comprising a priority T junction with ghost island right turn holding facilities on Halifax Road and a simple priority T junction on Well House Lane.

1.9 **Road Safety Audit Response Report**

Following the completion of the road safety audit, the design team should prepare a road safety audit response report in collaboration with the Overseeing Organisation.

The response report should incorporate the following:

- **Decision Log** spreadsheet, where each Problem and Recommendation in the Safety Audit report is reiterated
- In the Decision Log, a response should be provided by the Design Team and Overseeing Organisation for each problem raised in the RSA report, together with an agreed action

Further information is provided in **GG 119 Sections 4.11 to 4.19** and **Appendix F** (where a road safety audit response report template is available).

The response report should be produced and finalised within *one month* of the issue of the RSA report. A copy of the response report should be issued to the Safety Audit Team for information.

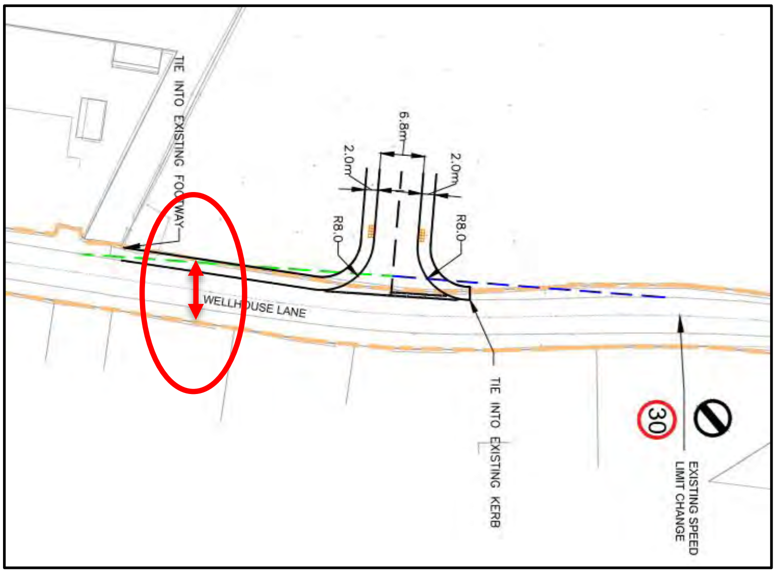
2. Items resulting from this Stage 1 Audit

2.1 PROBLEM

Location – Well House Lane; pedestrian facilities

Summary: Increased risk of pedestrian trips and falls

The current drawings do not show a pedestrian crossing point from the footway serving the new proposed development to the eastern footway. As this is a bus route, this will become a pedestrian desire line and an absence of pedestrian crossing facilities could lead to pedestrians crossing the road at inappropriate places, and / or tripping and falling over full height kerbs. This will be a particular hazard to those with mobility and visual impairments and for those with manual wheelchairs and pushchairs.



RECOMMENDATION

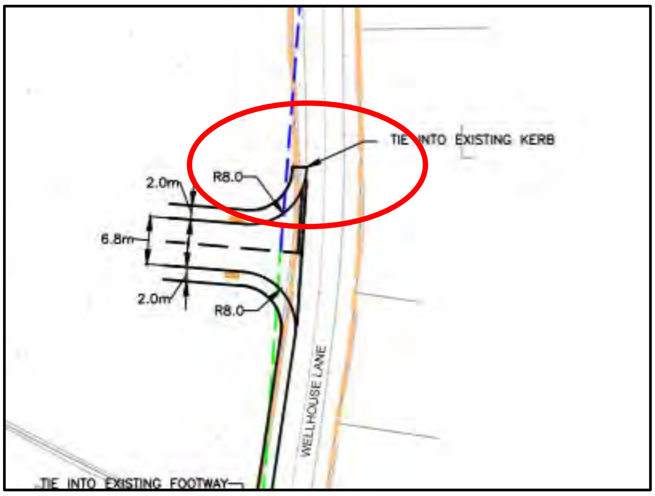
Pedestrian crossing facilities should be provided with a dropped kerb and tactile paving across Well House Lane.

2.2 PROBLEM

Location – Well House Lane development access; pedestrian crossing

Summary: Increased risk of pedestrian trips / falls / vehicle conflict

The current drawings show the northern footway to be tied into the existing kerb which does not currently have a footway. Errant pedestrians may attempt to follow the kerb line northwards and risk being exposed to moving vehicles within the carriageway particularly those with visual impairments, should any delineation be excluded.



RECOMMENDATION

The correct tactile paving / delineation / footway termination point should be installed on the northern footway from the development.

2.3 PROBLEM

Location – Well House Lane; proposed access

Summary: Increased risk of side swipe type collisions

Vehicles parked on street opposite the location of the proposed junction could impede vehicles turning into and out of the junction which could increase the risk of side swipe or damage only type collisions. In addition, no swept path analysis has been provided for likely vehicle usage at the junction. A lack of suitable geometry at the junction could lead to likely vehicle users turning into or out of the junction into the path of other users, which may be exasperated by any parked vehicles.

RECOMMENDATION

Swept path analysis should be undertaken for likely vehicle usage at the junction and the geometry adjusted and parking restrictions introduced as necessary as part of the detailed design.

2.4 PROBLEM

Location – A629 Halifax Road; proposed access

Summary: Potential risk of side swipe type collisions

No swept path analysis has been provided for likely vehicle usage at the proposed junction. A lack of suitable geometry at the proposed junction could lead to likely vehicle users turning into or out of the junction into the path of other users or collide with the splitter island. In addition, large vehicles turning right within the right turn lane may swing out unexpectedly into the path of vehicles travelling eastbound.

RECOMMENDATION

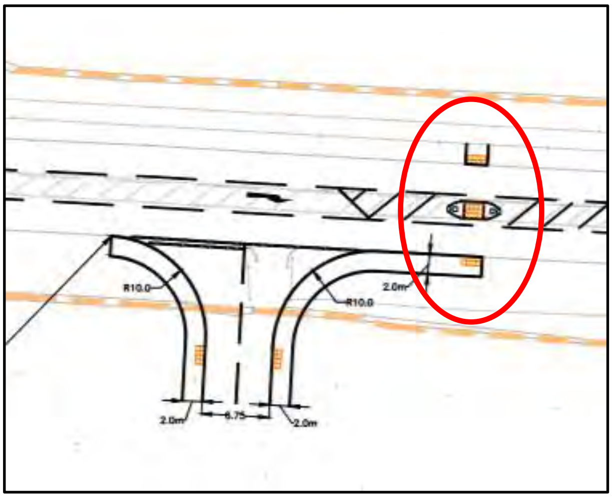
Swept path analysis should be undertaken for likely vehicle usage at the junction and the geometry adjusted, as necessary. Drawing number 20005/GA/0 Rev A shows the current radii of the junction at 10m, current guidance CD 123 (formerly 42/95) shows a minimum of 15m for rural roads with ghost island layouts. This should be amended for the detailed design.

2.5 PROBLEM

Location – A629 Halifax Road; proposed pedestrian refuge island

Summary: Risk of darkness related / loss of control collisions

The A629 Halifax Road is an unlit road with a speed limit of 60mph and the presence of a refuge island could be hazardous to all road users as it may not be visible at night. This could result in loss of control type collisions / island strikes and loss of control due to sharp / late braking. Pedestrians wishing to use the crossing during the hours of darkness may not be conspicuous enough increasing the risk of collision with all road users.



RECOMMENDATION

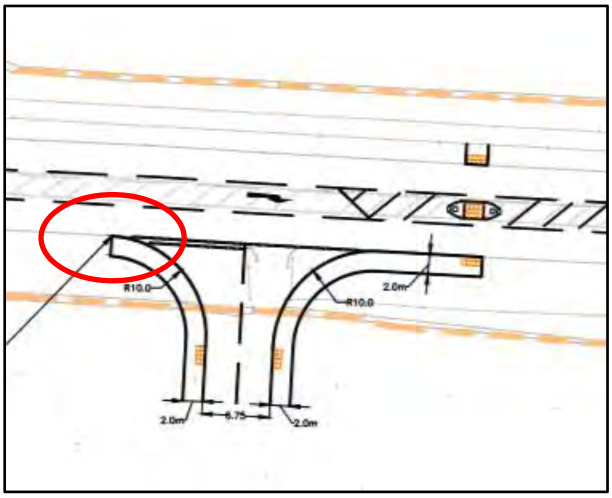
The island should be suitably illuminated with a beacon pole / bollards and high level Keep Left signs. If street lighting is provided, this should extend to the junction area, including the right turn lane.

2.6 PROBLEM

Location – A629 Halifax Road development access; pedestrian crossing

Summary: Increased risk of pedestrian trips / falls / vehicle conflict

As per problem 2.2 the current drawings show the footway leading to the west to be tied into the existing kerb which does not currently have a footway. Errant pedestrians may attempt to follow the kerb line northwards and risk being exposed to moving vehicles within the carriageway particularly those with visual impairments should any delineation be excluded.



RECOMMENDATION

The correct tactile paving / delineation / footway termination point should be installed on the footway leading west from the development.

2.7 PROBLEM

Location – A629 Halifax Road; proposed access

Summary: Potential risk of right turning collisions

There is a levels difference between the proposed development land and the junction. A steep incline on approach to the junction from the development could lead to vehicles stalling when attempting to set off or setting off slowly. This could increase the risk of right turning type collisions occurring at the junction.

RECOMMENDATION

As part of the detailed design, it should be ensured that a level plateau is provided at the junction of the proposed access road for the length of the largest vehicle likely to use the junction.

3. Audit Team Statement

We certify that the terms of reference of the road safety audit are as described in GG 119.

Audit Team Leader

Richard Marriott – CertEd, MCIHT, MSoRSA
Highways England Approved RSA Certificate of Competency
Road Safety Engineer, TMS Consultancy

Signed

Date 15th December 2020

Audit Team Member

Phil Cook – BSc, CEng, MICE, MCIHT, FIHE
Highways England Approved RSA Certificate of Competency
Director, TMS Consultancy

Signed

Date 15th December 2020

TMS Consultancy
Unit 1b, Sovereign Court 2,
University of Warwick Science Park
Sir William Lyons Road
Coventry,
CV4 7EZ

☏ + 44 (0)24 7669 0900
✉ info@tmsconsultancy.co.uk
www.tmsconsultancy.co.uk

Appendix A

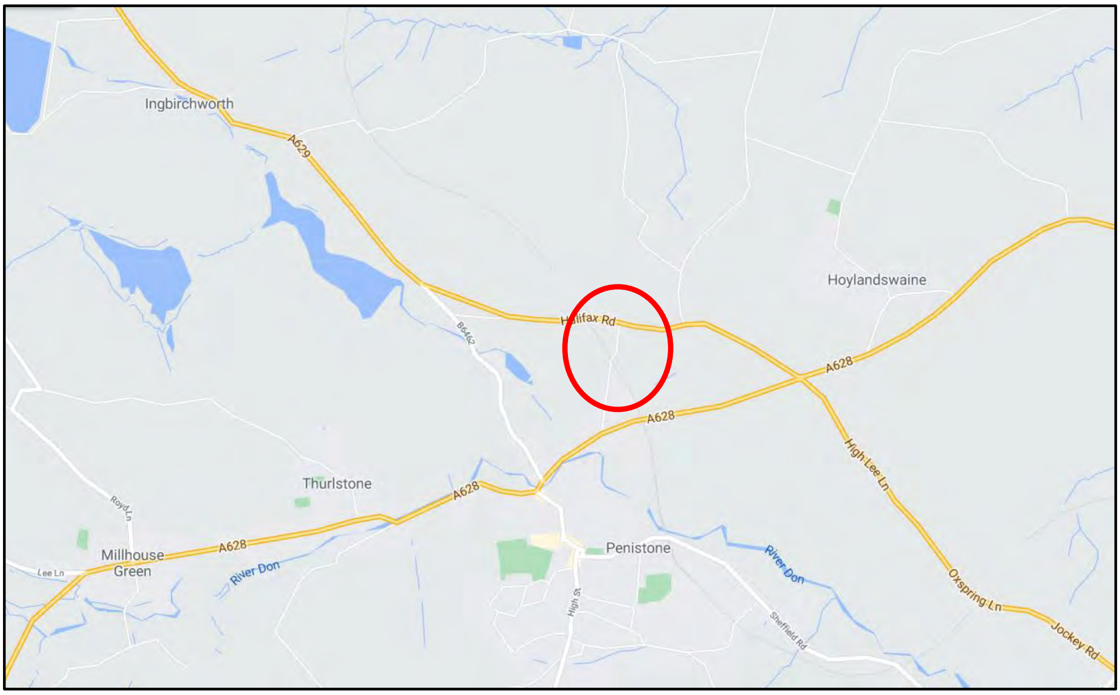
Documents Examined:

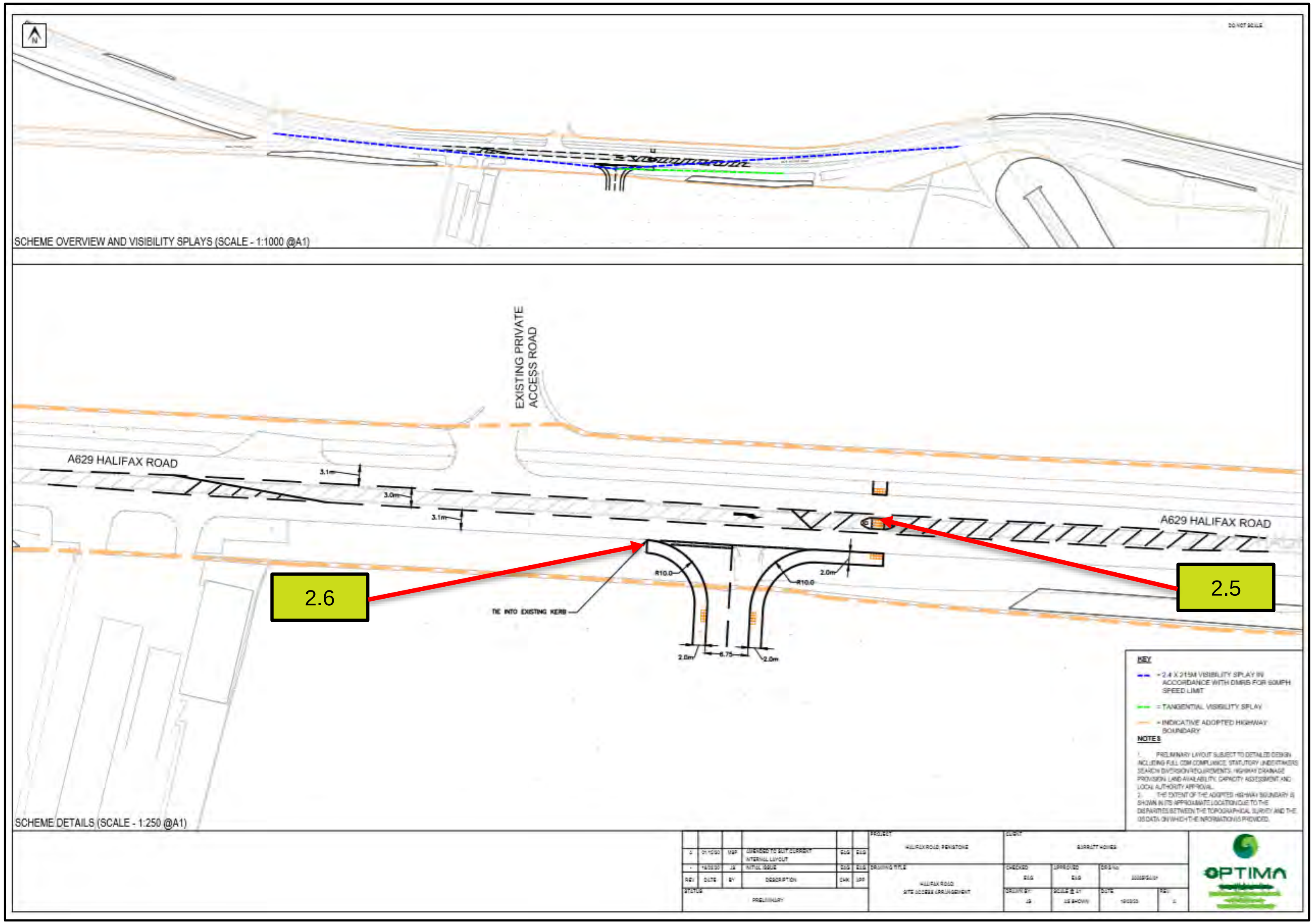
- 20005-GA-01-REV_A
- 20005-GA-02-REV_A
- Figure 1 - Site Location - Strategic
- Figure 2 - Site Location - Local
- Penistone Speeds 1
- Penistone Speeds 2
- Personal Injury Collision Data
- RSA1 - Checklist of Information Required

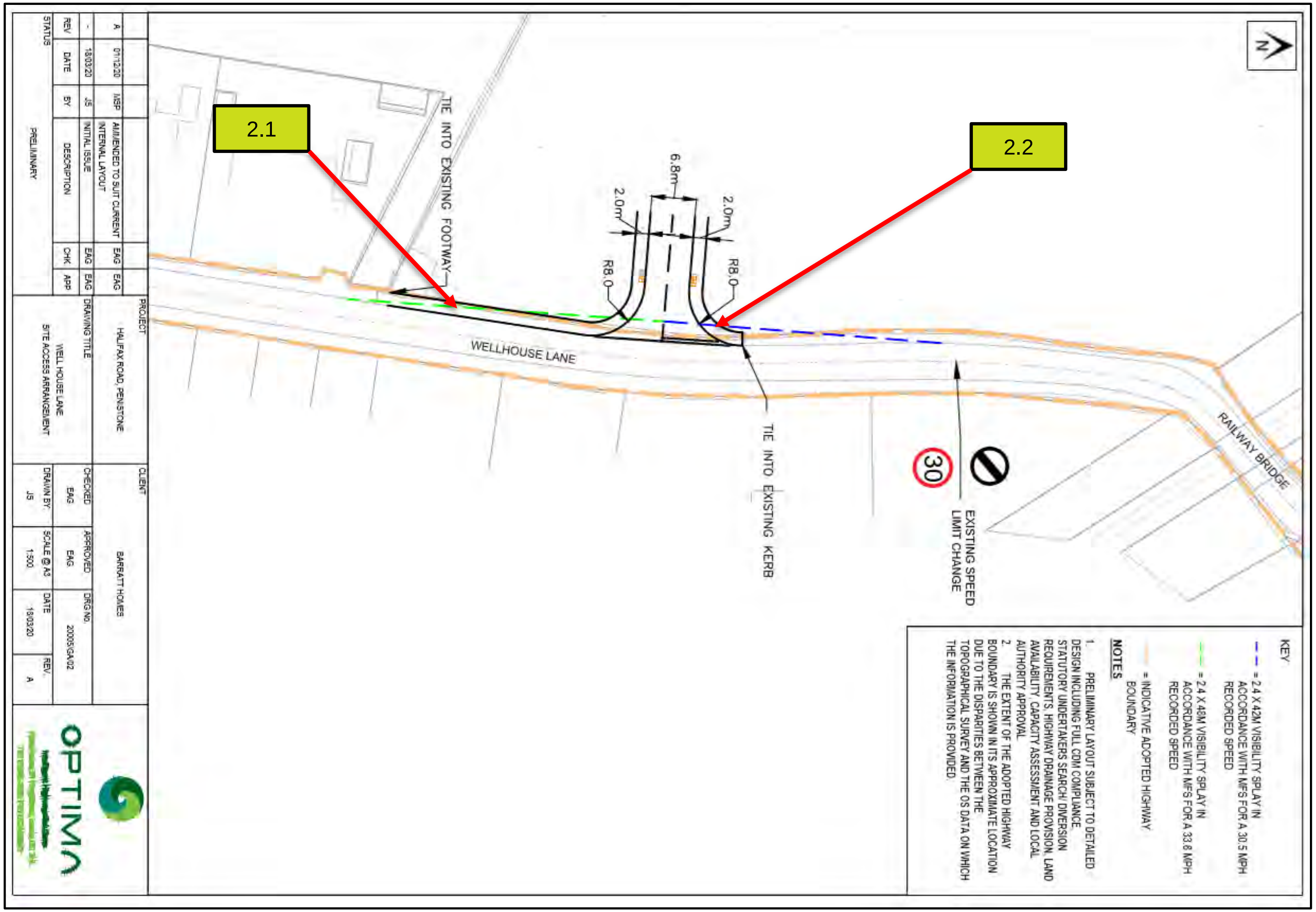
Appendix B

Please refer to the following page for a plan illustrating the locations of the problems identified as part of this audit (location numbers refer to paragraph numbers in the report).

The location of the scheme is shown below:




SCHEME OVERVIEW AND VISIBILITY SPLAYS (SCALE - 1:1000 @A1)
EXISTING PRIVATE ACCESS ROAD
A629 HALIFAX ROAD
3.1m
3.0m
3.1m
A629 HALIFAX ROAD
2.6
2.5
R10.0
R10.0
2.0m
TIE INTO EXISTING KERB
2.0m
6.75
2.0m
KEY
= 2.4 X 215M VISIBILITY SPLAY IN ACCORDANCE WITH DMRB FOR 60MPH SPEED LIMIT
= TANGENTIAL VISIBILITY SPLAY
= INDICATIVE ADOPTED HIGHWAY BOUNDARY
NOTES
SCHEME DETAILS (SCALE - 1:250 @A1)
OPTIMA


2.1
2.2
TIE INTO EXISTING FOOTWAY
6.8m
2.0m
2.0m
R8.0
R8.0
WELLHOUSE LANE
TIE INTO EXISTING KERB
EXISTING SPEED LIMIT CHANGE
30
RAILWAY BRIDGE
KEY
= 2.4 X 42M VISIBILITY SPLAY IN ACCORDANCE WITH MFS FOR A 30.5 MPH RECORDED SPEED
= 2.4 X 48M VISIBILITY SPLAY IN ACCORDANCE WITH MFS FOR A 33.8 MPH RECORDED SPEED
= INDICATIVE ADOPTED HIGHWAY BOUNDARY
NOTES
1. PRELIMINARY LAYOUT SUBJECT TO DETAILED DESIGN INCLUDING FULL CDM COMPLIANCE, STATUTORY UNDERTAKERS SEARCH/ DIVERSION REQUIREMENTS, HIGHWAY DRAINAGE PROVISION, LAND AVAILABILITY, CAPACITY ASSESSMENT AND LOCAL AUTHORITY APPROVAL.
2. THE EXTENT OF THE ADOPTED HIGHWAY BOUNDARY IS SHOWN IN ITS APPROXIMATE LOCATION DUE TO THE DISPARITIES BETWEEN THE TOPOGRAPHICAL SURVEY AND THE OS DATA ON WHICH THE INFORMATION IS PROVIDED.
A 01.12.20 MSP AMMENDED TO SUIT CURRENT INTERNAL LAYOUT EAG EAG
- 18.03.20 JS INITIAL ISSUE EAG EAG
REV DATE BY DESCRIPTION CHK APP
STATUS PRELIMINARY
PROJECT HALIFAX ROAD, PENISTONE
DRAWING TITLE WELL HOUSE LANE SITE ACCESS ARRANGEMENT
CLIENT BARRATT HOMES
CHECKED EAG
APPROVED EAG
DRG NO. 20005/GA/02
DRAWN BY JS
SCALE @ A3 1:500
DATE 18.03.20
REV. A
OPTIMA

Appendix F TRICS Data

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	2 days
	EX	ESSEX	1 days
	HC	HAMPSHIRE	1 days
	KC	KENT	4 days
	SC	SURREY	1 days
	WS	WEST SUSSEX	2 days
03	SOUTH WEST		
	DV	DEVON	2 days
04	EAST ANGLIA		
	NF	NORFOLK	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
	ST	STAFFORDSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	1 days
	NY	NORTH YORKSHIRE	3 days
	SY	SOUTH YORKSHIRE	1 days
09	NORTH		
	DH	DURHAM	1 days
11	SCOTLAND		
	FA	FALKIRK	1 days

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

Secondary Filtering selection:

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

Parameter: Number of dwellings
Actual Range: 50 to 432 (units:)
Range Selected by User: 50 to 600 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 19/04/18

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

Selected survey days:

Monday	7 days
Tuesday	2 days
Wednesday	5 days
Thursday	5 days
Friday	4 days

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

Selected survey types:

Manual count	23 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	11
Edge of Town	12

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

Selected Location Sub Categories:

Residential Zone	21
No Sub Category	2

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

Secondary Filtering selection:

<u>*Use Class:*</u>

C3	23 days

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

<u>*Population within 1 mile:*</u>

1,000 or Less	1 days
1,001 to 5,000	2 days
5,001 to 10,000	6 days
10,001 to 15,000	9 days
15,001 to 20,000	3 days
20,001 to 25,000	2 days

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

<u>*Population within 5 miles:*</u>

5,001 to 25,000	4 days
25,001 to 50,000	2 days
50,001 to 75,000	3 days
75,001 to 100,000	6 days
100,001 to 125,000	2 days
125,001 to 250,000	4 days
250,001 to 500,000	2 days

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

<u>*Car ownership within 5 miles:*</u>

0.6 to 1.0	5 days
1.1 to 1.5	18 days

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

<u>*Travel Plan:*</u>

Yes	3 days
No	20 days

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

<u>*PTAL Rating:*</u>

No PTAL Present	22 days
2 Poor	1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 DH-03-A-01 SEMI DETACHED DURHAM
GREENFIELDS ROAD
BISHOP AUCKLAND

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 50
Survey date: TUESDAY 28/03/17 Survey Type: MANUAL

2 DV-03-A-02 HOUSES & BUNGALOWS DEVON
MILLHEAD ROAD
HONITON

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

3 DV-03-A-03 TERRACED & SEMI DETACHED DEVON
LOWER BRAND LANE
HONITON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 70
Survey date: MONDAY 28/09/15 Survey Type: MANUAL

4 ES-03-A-03 MIXED HOUSES & FLATS EAST SUSSEX
SHEPHAM LANE
POLEGATE

Edge of Town
Residential Zone
Total Number of dwellings: 212
Survey date: MONDAY 11/07/16 Survey Type: MANUAL

5 ES-03-A-04 MIXED HOUSES & FLATS EAST SUSSEX
NEW LYDD ROAD
CAMBER

Edge of Town
Residential Zone
Total Number of dwellings: 134
Survey date: FRIDAY 15/07/16 Survey Type: MANUAL

6 EX-03-A-02 DETACHED & SEMI-DETACHED ESSEX
MANOR ROAD
CHIGWELL
GRANGE HILL
Edge of Town
Residential Zone
Total Number of dwellings: 97
Survey date: MONDAY 27/11/17 Survey Type: MANUAL

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

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

8 HC-03-A-19 HOUSES & FLATS HAMPSHIRE
CANADA WAY
LIPHOOK

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 62
Survey date: MONDAY 27/11/17 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9 KC-03-A-03 MIXED HOUSES & FLATS KENT
HYTHE ROAD
ASHFORD
WILLESBOROUGH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 51
Survey date: THURSDAY 14/07/16 Survey Type: MANUAL

10 KC-03-A-04 SEMI-DETACHED & TERRACED KENT
KILN BARN ROAD
AYLESFORD
DITTON
Edge of Town
Residential Zone
Total Number of dwellings: 110
Survey date: FRIDAY 22/09/17 Survey Type: MANUAL

11 KC-03-A-06 MIXED HOUSES & FLATS KENT
MARGATE ROAD
HERNE BAY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 363
Survey date: WEDNESDAY 27/09/17 Survey Type: MANUAL

12 KC-03-A-07 MIXED HOUSES KENT
RECULVER ROAD
HERNE BAY

Edge of Town
Residential Zone
Total Number of dwellings: 288
Survey date: WEDNESDAY 27/09/17 Survey Type: MANUAL

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

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

14 NF-03-A-02 HOUSES & FLATS NORFOLK
DEREHAM ROAD
NORWICH

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

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

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

16 NY-03-A-09 MIXED HOUSING NORTH YORKSHIRE
GRAMMAR SCHOOL LANE
NORTHALLERTON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 52
Survey date: MONDAY 16/09/13 Survey Type: MANUAL

<u>*LIST OF SITES relevant to selection parameters (Cont.)*</u>

17 NY-03-A-10 HOUSES AND FLATS NORTH YORKSHIRE
BOROUGHBRIDGE ROAD
RIPON

Edge of Town
No Sub Category
Total Number of dwellings: 71
Survey date: TUESDAY 17/09/13 Survey Type: MANUAL

18 SC-03-A-04 DETACHED & TERRACED SURREY
HIGH ROAD
BYFLEET

Edge of Town
Residential Zone
Total Number of dwellings: 71
Survey date: THURSDAY 23/01/14 Survey Type: MANUAL

19 SH-03-A-05 SEMI-DETACHED/TERRACED SHROPSHIRE
SANDCROFT
TELFORD
SUTTON HILL
Edge of Town
Residential Zone
Total Number of dwellings: 54
Survey date: THURSDAY 24/10/13 Survey Type: MANUAL

20 ST-03-A-07 DETACHED & SEMI-DETACHED STAFFORDSHIRE
BEACONSIDE
STAFFORD
MARSTON GATE
Edge of Town
Residential Zone
Total Number of dwellings: 248
Survey date: WEDNESDAY 22/11/17 Survey Type: MANUAL

21 SY-03-A-01 SEMI DETACHED HOUSES SOUTH YORKSHIRE
A19 BENTLEY ROAD
DONCASTER
BENTLEY RISE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 54
Survey date: WEDNESDAY 18/09/13 Survey Type: MANUAL

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

23 WS-03-A-08 MIXED HOUSES WEST SUSSEX
ROUNDSTONE LANE
ANGMERING

Edge of Town
Residential Zone
Total Number of dwellings: 180
Survey date: THURSDAY 19/04/18 Survey Type: MANUAL

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

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
VEHICLES
Ranking Type: TOTALS Time Range: 08:00-09:00
15th Percentile = No. 20 FA-03-A-02 Tot: 0.342
85th Percentile = No. 4 KC-03-A-07 Tot: 0.625

Median Values		Mean Values	
Arrivals:	0.091	Arrivals:	0.115
Departures:	0.386	Departures:	0.354
Totals:	0.477	Totals:	0.469

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals) Arrivals	Departures	Totals	Park Spaces Per Dwelling
1	KC-03-A-03	MIXED HOUSES &	ASHFORD	KENT	51	Thu	14/07/16	0.157	0.588	0.745	2.16
2	NY-03-A-10	HOUSES AND FLA	RIPON	NORTH YORKSHIRE	71	Tue	17/09/13	0.183	0.521	0.704	0.83
3	ES-03-A-03	MIXED HOUSES &	POLEGATE	EAST SUSSEX	212	Mon	11/07/16	0.165	0.462	0.627	1.68
4	**KC-03-A-07**	**MIXED HOUSES**	**HERNE BAY**	**KENT**	**288**	**Wed**	**27/09/17**	**0.240**	**0.385**	**0.625**	**3.09**
5	DV-03-A-03	TERRACED & SEM	HONITON	DEVON	70	Mon	28/09/15	0.086	0.529	0.615	1.66
6	KC-03-A-04	SEMI-DETACHED	AYLESFORD	KENT	110	Fri	22/09/17	0.127	0.473	0.600	1.77
7	HC-03-A-19	HOUSES & FLATS	LIPHOOK	HAMPSHIRE	62	Mon	27/11/17	0.113	0.403	0.516	2.19
8	SH-03-A-05	SEMI-DETACHED/	TELFORD	SHROPSHIRE	54	Thu	24/10/13	0.130	0.370	0.500	1.17
9	NY-03-A-06	BUNGALOWS & SE	BOROUGHBRIDGE	NORTH YORKSHIRE	115	Fri	14/10/11	0.096	0.400	0.496	3.50
10	SC-03-A-04	DETACHED & TER	BYFLEET	SURREY	71	Thu	23/01/14	0.141	0.352	0.493	2.49
11	ST-03-A-07	DETACHED & SEM	STAFFORD	STAFFORDSHIRE	248	Wed	22/11/17	0.105	0.383	0.488	3.55
12	KC-03-A-06	MIXED HOUSES &	HERNE BAY	KENT	363	Wed	27/09/17	0.091	0.386	0.477	2.17
13	WS-03-A-08	MIXED HOUSES	ANGMERING	WEST SUSSEX	180	Thu	19/04/18	0.106	0.367	0.473	2.93
14	NF-03-A-02	HOUSES & FLATS	NORWICH	NORFOLK	98	Mon	22/10/12	0.122	0.347	0.469	2.24
15	SY-03-A-01	SEMI DETACHED	DONCASTER	SOUTH YORKSHIRE	54	Wed	18/09/13	0.056	0.389	0.445	1.13
16	NE-03-A-02	SEMI DETACHED	SCUNTHORPE	NORTH EAST LINCOLNS	432	Mon	12/05/14	0.067	0.354	0.421	1.00
17	WS-03-A-04	MIXED HOUSES	HORSHAM	WEST SUSSEX	151	Thu	11/12/14	0.139	0.278	0.417	2.28
18	NY-03-A-09	MIXED HOUSING	NORTHALLERTON	NORTH YORKSHIRE	52	Mon	16/09/13	0.173	0.212	0.385	2.60
19	DV-03-A-02	HOUSES & BUNGA	HONITON	DEVON	116	Fri	25/09/15	0.103	0.241	0.344	2.25
20	**FA-03-A-02**	**MIXED HOUSES**	**FALKIRK**	**FALKIRK**	**161**	**Wed**	**29/05/13**	**0.062**	**0.280**	**0.342**	**1.66**
21	EX-03-A-02	DETACHED & SEM	CHIGWELL	ESSEX	97	Mon	27/11/17	0.103	0.155	0.258	0.87
22	ES-03-A-04	MIXED HOUSES &	CAMBER	EAST SUSSEX	134	Fri	15/07/16	0.052	0.134	0.186	1.91
23	DH-03-A-01	SEMI DETACHED	BISHOP AUCKLAND	DURHAM	50	Tue	28/03/17	0.020	0.140	0.160	1.74

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

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

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	2 days
	EX	ESSEX	1 days
	HC	HAMPSHIRE	1 days
	KC	KENT	4 days
	SC	SURREY	1 days
	WS	WEST SUSSEX	2 days
03	SOUTH WEST		
	DV	DEVON	2 days
04	EAST ANGLIA		
	NF	NORFOLK	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
	ST	STAFFORDSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	1 days
	NY	NORTH YORKSHIRE	3 days
	SY	SOUTH YORKSHIRE	1 days
09	NORTH		
	DH	DURHAM	1 days
11	SCOTLAND		
	FA	FALKIRK	1 days

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

Secondary Filtering selection:

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

Parameter: Number of dwellings
Actual Range: 50 to 432 (units:)
Range Selected by User: 50 to 600 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 19/04/18

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

Selected survey days:

Monday	7 days
Tuesday	2 days
Wednesday	5 days
Thursday	5 days
Friday	4 days

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

Selected survey types:

Manual count	23 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	11
Edge of Town	12

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

Selected Location Sub Categories:

Residential Zone	21
No Sub Category	2

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

Secondary Filtering selection:

<u>*Use Class:*</u>

C3	23 days

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

<u>*Population within 1 mile:*</u>

1,000 or Less	1 days
1,001 to 5,000	2 days
5,001 to 10,000	6 days
10,001 to 15,000	9 days
15,001 to 20,000	3 days
20,001 to 25,000	2 days

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

<u>*Population within 5 miles:*</u>

5,001 to 25,000	4 days
25,001 to 50,000	2 days
50,001 to 75,000	3 days
75,001 to 100,000	6 days
100,001 to 125,000	2 days
125,001 to 250,000	4 days
250,001 to 500,000	2 days

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

<u>*Car ownership within 5 miles:*</u>

0.6 to 1.0	5 days
1.1 to 1.5	18 days

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

<u>*Travel Plan:*</u>

Yes	3 days
No	20 days

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

<u>*PTAL Rating:*</u>

No PTAL Present	22 days
2 Poor	1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 DH-03-A-01 SEMI DETACHED DURHAM
GREENFIELDS ROAD
BISHOP AUCKLAND

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 50
Survey date: TUESDAY 28/03/17 Survey Type: MANUAL

2 DV-03-A-02 HOUSES & BUNGALOWS DEVON
MILLHEAD ROAD
HONITON

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

3 DV-03-A-03 TERRACED & SEMI DETACHED DEVON
LOWER BRAND LANE
HONITON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 70
Survey date: MONDAY 28/09/15 Survey Type: MANUAL

4 ES-03-A-03 MIXED HOUSES & FLATS EAST SUSSEX
SHEPHAM LANE
POLEGATE

Edge of Town
Residential Zone
Total Number of dwellings: 212
Survey date: MONDAY 11/07/16 Survey Type: MANUAL

5 ES-03-A-04 MIXED HOUSES & FLATS EAST SUSSEX
NEW LYDD ROAD
CAMBER

Edge of Town
Residential Zone
Total Number of dwellings: 134
Survey date: FRIDAY 15/07/16 Survey Type: MANUAL

6 EX-03-A-02 DETACHED & SEMI-DETACHED ESSEX
MANOR ROAD
CHIGWELL
GRANGE HILL
Edge of Town
Residential Zone
Total Number of dwellings: 97
Survey date: MONDAY 27/11/17 Survey Type: MANUAL

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

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

8 HC-03-A-19 HOUSES & FLATS HAMPSHIRE
CANADA WAY
LIPHOOK

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 62
Survey date: MONDAY 27/11/17 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9 KC-03-A-03 MIXED HOUSES & FLATS KENT
HYTHE ROAD
ASHFORD
WILLESBOROUGH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 51
Survey date: THURSDAY 14/07/16 Survey Type: MANUAL

10 KC-03-A-04 SEMI-DETACHED & TERRACED KENT
KILN BARN ROAD
AYLESFORD
DITTON
Edge of Town
Residential Zone
Total Number of dwellings: 110
Survey date: FRIDAY 22/09/17 Survey Type: MANUAL

11 KC-03-A-06 MIXED HOUSES & FLATS KENT
MARGATE ROAD
HERNE BAY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 363
Survey date: WEDNESDAY 27/09/17 Survey Type: MANUAL

12 KC-03-A-07 MIXED HOUSES KENT
RECULVER ROAD
HERNE BAY

Edge of Town
Residential Zone
Total Number of dwellings: 288
Survey date: WEDNESDAY 27/09/17 Survey Type: MANUAL

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

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

14 NF-03-A-02 HOUSES & FLATS NORFOLK
DEREHAM ROAD
NORWICH

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

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

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

16 NY-03-A-09 MIXED HOUSING NORTH YORKSHIRE
GRAMMAR SCHOOL LANE
NORTHALLERTON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 52
Survey date: MONDAY 16/09/13 Survey Type: MANUAL

<u>*LIST OF SITES relevant to selection parameters (Cont.)*</u>

17 NY-03-A-10 HOUSES AND FLATS NORTH YORKSHIRE
BOROUGHBRIDGE ROAD
RIPON

Edge of Town
No Sub Category
Total Number of dwellings: 71
Survey date: TUESDAY 17/09/13 Survey Type: MANUAL

18 SC-03-A-04 DETACHED & TERRACED SURREY
HIGH ROAD
BYFLEET

Edge of Town
Residential Zone
Total Number of dwellings: 71
Survey date: THURSDAY 23/01/14 Survey Type: MANUAL

19 SH-03-A-05 SEMI-DETACHED/TERRACED SHROPSHIRE
SANDCROFT
TELFORD
SUTTON HILL
Edge of Town
Residential Zone
Total Number of dwellings: 54
Survey date: THURSDAY 24/10/13 Survey Type: MANUAL

20 ST-03-A-07 DETACHED & SEMI-DETACHED STAFFORDSHIRE
BEACONSIDE
STAFFORD
MARSTON GATE
Edge of Town
Residential Zone
Total Number of dwellings: 248
Survey date: WEDNESDAY 22/11/17 Survey Type: MANUAL

21 SY-03-A-01 SEMI DETACHED HOUSES SOUTH YORKSHIRE
A19 BENTLEY ROAD
DONCASTER
BENTLEY RISE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 54
Survey date: WEDNESDAY 18/09/13 Survey Type: MANUAL

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

23 WS-03-A-08 MIXED HOUSES WEST SUSSEX
ROUNDSTONE LANE
ANGMERING

Edge of Town
Residential Zone
Total Number of dwellings: 180
Survey date: THURSDAY 19/04/18 Survey Type: MANUAL

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

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

Ranking Type: TOTALS Time Range: 17:00-18:00
15th Percentile = No. 20 SY-03-A-01 Tot: 0.334
85th Percentile = No. 4 KC-03-A-07 Tot: 0.593

Median Values		Mean Values	
Arrivals:	0.269	Arrivals:	0.312
Departures:	0.192	Departures:	0.145
Totals:	0.461	Totals:	0.457

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals) Arrivals	Departures	Totals	Park Spaces Per Dwelling
1	KC-03-A-03	MIXED HOUSES &	ASHFORD	KENT	51	Thu	14/07/16	0.569	0.314	0.883	2.16
2	ES-03-A-03	MIXED HOUSES &	POLEGATE	EAST SUSSEX	212	Mon	11/07/16	0.434	0.217	0.651	1.68
3	DV-03-A-02	HOUSES & BUNGA	HONITON	DEVON	116	Fri	25/09/15	0.388	0.233	0.621	2.25
4	**KC-03-A-07**	**MIXED HOUSES**	**HERNE BAY**	**KENT**	**288**	**Wed**	**27/09/17**	**0.444**	**0.149**	**0.593**	**3.09**
5	NY-03-A-10	HOUSES AND FLA	RIPON	NORTH YORKSHIRE	71	Tue	17/09/13	0.479	0.099	0.578	0.83
6	KC-03-A-06	MIXED HOUSES &	HERNE BAY	KENT	363	Wed	27/09/17	0.380	0.198	0.578	2.17
7	FA-03-A-02	MIXED HOUSES	FALKIRK	FALKIRK	161	Wed	29/05/13	0.317	0.224	0.541	1.66
8	WS-03-A-08	MIXED HOUSES	ANGMERING	WEST SUSSEX	180	Thu	19/04/18	0.278	0.206	0.484	2.93
9	DV-03-A-03	TERRACED & SEM	HONITON	DEVON	70	Mon	28/09/15	0.371	0.100	0.471	1.66
10	NY-03-A-06	BUNGALOWS & SE	BOROUGHBRIDGE	NORTH YORKSHIRE	115	Fri	14/10/11	0.296	0.174	0.470	3.50
11	SC-03-A-04	DETACHED & TER	BYFLEET	SURREY	71	Thu	23/01/14	0.366	0.099	0.465	2.49
12	NY-03-A-09	MIXED HOUSING	NORTHALLERTON	NORTH YORKSHIRE	52	Mon	16/09/13	0.269	0.192	0.461	2.60
13	ST-03-A-07	DETACHED & SEM	STAFFORD	STAFFORDSHIRE	248	Wed	22/11/17	0.319	0.125	0.444	3.55
14	NE-03-A-02	SEMI DETACHED	SCUNTHORPE	NORTH EAST LINCOLNS	432	Mon	12/05/14	0.257	0.162	0.419	1.00
15	HC-03-A-19	HOUSES & FLATS	LIPHOOK	HAMPSHIRE	62	Mon	27/11/17	0.258	0.129	0.387	2.19
16	NF-03-A-02	HOUSES & FLATS	NORWICH	NORFOLK	98	Mon	22/10/12	0.235	0.143	0.378	2.24
17	WS-03-A-04	MIXED HOUSES	HORSHAM	WEST SUSSEX	151	Thu	11/12/14	0.252	0.119	0.371	2.28
18	SH-03-A-05	SEMI-DETACHED/	TELFORD	SHROPSHIRE	54	Thu	24/10/13	0.241	0.130	0.371	1.17
19	KC-03-A-04	SEMI-DETACHED	AYLESFORD	KENT	110	Fri	22/09/17	0.273	0.064	0.337	1.77
20	**SY-03-A-01**	**SEMI DETACHED**	**DONCASTER**	**SOUTH YORKSHIRE**	**54**	**Wed**	**18/09/13**	**0.278**	**0.056**	**0.334**	**1.13**
21	ES-03-A-04	MIXED HOUSES &	CAMBER	EAST SUSSEX	134	Fri	15/07/16	0.157	0.112	0.269	1.91
22	DH-03-A-01	SEMI DETACHED	BISHOP AUCKLAND	DURHAM	50	Tue	28/03/17	0.220	0.020	0.240	1.74
23	EX-03-A-02	DETACHED & SEM	CHIGWELL	ESSEX	97	Mon	27/11/17	0.103	0.062	0.165	0.87

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

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

Appendix G Trip Distribution

Place of Work: 2011 Super Output Area - Middle Layer	E02001532: Barnsley 024	
Barnsley 016 Renald Lane		0.81
E02001509 : Barnsley 001	8	0.26
E02001512 : Barnsley 004	10	0.32
E02001513 : Barnsley 005	24	0.77
E02001524 : Barnsley 016	101	2.43
E02001725 : Newcastle upon Tyne 018	3	0.10
E02001730 : Newcastle upon Tyne 023	1	0.03
E02001822 : Sunderland 032	1	0.03
E02002724 : East Riding of Yorkshire 041	1	0.03
E02002663 : Kingston upon Hull 012	2	0.06
E02002678 : Kingston upon Hull 027	1	0.03
E02006813 : Kingston upon Hull 033	1	0.03
E02005775 : Harrogate 015	1	0.03
E02005809 : Selby 001	1	0.03
E02005812 : Selby 004	3	0.10
E02005813 : Selby 005	2	0.06
E02005818 : Selby 010	1	0.03
E02001510 : Barnsley 002	27	0.87
E02001511 : Barnsley 003	7	0.22
E02001514 : Barnsley 006	10	0.32
E02001515 : Barnsley 007	17	0.55
E02001516 : Barnsley 008	9	0.29
E02001517 : Barnsley 009	7	0.22
E02001518 : Barnsley 010	41	1.32
E02001519 : Barnsley 011	9	0.29
E02001520 : Barnsley 012	126	4.04
E02001521 : Barnsley 013	223	7.15
E02001523 : Barnsley 015	62	1.99
E02001525 : Barnsley 017	19	0.61
E02001526 : Barnsley 018	7	0.22
E02001527 : Barnsley 019	49	1.57
E02001528 : Barnsley 020	3	0.10
E02001540 : Doncaster 002	1	0.03
E02001578 : Rotherham 001	11	0.35
E02001579 : Rotherham 002	44	1.41
E02001580 : Rotherham 003	6	0.19
E02001585 : Rotherham 008	7	0.22
E02001586 : Rotherham 009	2	0.06
E02001588 : Rotherham 011	1	0.03
E02001591 : Rotherham 014	14	0.45
E02001592 : Rotherham 015	7	0.22
E02001593 : Rotherham 016	11	0.35
E02001594 : Rotherham 017	26	0.83
E02001595 : Rotherham 018	6	0.19
E02001596 : Rotherham 019	1	0.03
E02001597 : Rotherham 020	3	0.10
E02001600 : Rotherham 023	13	0.42
E02001601 : Rotherham 024	2	0.06
E02001602 : Rotherham 025	17	0.55
E02001603 : Rotherham 026	2	0.06
E02001604 : Rotherham 027	9	0.29
E02001605 : Rotherham 028	3	0.10
E02001606 : Rotherham 029	1	0.03
E02001609 : Rotherham 032	6	0.19
E02001617 : Sheffield 007	2	0.06
E02001620 : Sheffield 010	2	0.06
E02001624 : Sheffield 014	19	0.61
E02001628 : Sheffield 018	58	1.86
E02001632 : Sheffield 022	57	1.83
E02001637 : Sheffield 027	20	0.64
E02001642 : Sheffield 032	14	0.45
E02001647 : Sheffield 037	1	0.03
E02001649 : Sheffield 039	8	0.26
E02001654 : Sheffield 044	1	0.03
E02001659 : Sheffield 049	1	0.03

A628E	A628W	A629S	Renald Lane	B6462 South	Local	A629N
49.69	7.03	21.75	2.16	11.97	0	7.41

Barnsley 016	Hoylandswaine, Cawthorne, Silkstone	25% Renald Lane; 75% A628E
Barnsley 024	Penistone, Thurlstone, Millhouse Green	25% A628W; 75% B6462 South

E02001666 : Sheffield 056	1	0.03
E02001673 : Sheffield 063	1	0.03
E02001675 : Sheffield 065	1	0.03
E02006868 : Sheffield 075	19	0.61
E02006869 : Sheffield 076	2	0.06
E02002184 : Bradford 002	2	0.06
E02002190 : Bradford 008	1	0.03
E02002208 : Bradford 026	1	0.03
E02002220 : Bradford 038	1	0.03
E02002221 : Bradford 039	4	0.13
E02002222 : Bradford 040	2	0.06
E02002223 : Bradford 041	1	0.03
E02002226 : Bradford 044	1	0.03
E02002227 : Bradford 045	2	0.06
E02002228 : Bradford 046	6	0.19
E02002230 : Bradford 048	1	0.03
E02002235 : Bradford 053	1	0.03
E02002238 : Bradford 056	1	0.03
E02002242 : Bradford 060	3	0.10
E02002271 : Kirklees 001	1	0.03
E02002272 : Kirklees 002	3	0.10
E02002275 : Kirklees 005	4	0.13
E02002280 : Kirklees 010	2	0.06
E02002283 : Kirklees 013	1	0.03
E02002284 : Kirklees 014	2	0.06
E02002286 : Kirklees 016	1	0.03
E02002287 : Kirklees 017	3	0.10
E02002289 : Kirklees 019	4	0.13
E02002337 : Leeds 008	1	0.03
E02002339 : Leeds 010	1	0.03
E02002347 : Leeds 018	3	0.10
E02002348 : Leeds 019	1	0.03
E02002354 : Leeds 025	1	0.03
E02002356 : Leeds 027	2	0.06
E02002358 : Leeds 029	1	0.03
E02002367 : Leeds 038	1	0.03
E02002371 : Leeds 042	1	0.03
E02002384 : Leeds 055	3	0.10
E02002385 : Leeds 056	3	0.10
E02002392 : Leeds 063	8	0.26
E02002393 : Leeds 064	5	0.16
E02002395 : Leeds 066	2	0.06
E02002400 : Leeds 071	4	0.13
E02002402 : Leeds 073	7	0.22
E02002403 : Leeds 074	2	0.06
E02002404 : Leeds 075	5	0.16
E02002407 : Leeds 078	1	0.03
E02002409 : Leeds 080	1	0.03
E02002410 : Leeds 081	1	0.03
E02002411 : Leeds 082	2	0.06
E02002412 : Leeds 083	4	0.13
E02002415 : Leeds 086	1	0.03
E02002416 : Leeds 087	3	0.10
E02002418 : Leeds 089	1	0.03
E02002419 : Leeds 090	7	0.22
E02002420 : Leeds 091	5	0.16
E02002422 : Leeds 093	2	0.06
E02002424 : Leeds 095	1	0.03
E02002426 : Leeds 097	1	0.03
E02002428 : Leeds 099	2	0.06
E02002431 : Leeds 102	2	0.06
E02002435 : Leeds 106	6	0.19
E02002437 : Leeds 108	1	0.03
E02006852 : Leeds 109	3	0.10
E02006861 : Leeds 110	2	0.06
E02006875 : Leeds 111	43	1.38
E02006876 : Leeds 112	6	0.19
E02002439 : Wakefield 002	1	0.03

E02002441 : Wakefield 004	1	0.03
E02002442 : Wakefield 005	5	0.16
E02002443 : Wakefield 006	5	0.16
E02002444 : Wakefield 007	2	0.06
E02002446 : Wakefield 009	4	0.13
E02002448 : Wakefield 011	1	0.03
E02002450 : Wakefield 013	5	0.16
E02002451 : Wakefield 014	10	0.32
E02002452 : Wakefield 015	1	0.03
E02002453 : Wakefield 016	1	0.03
E02002454 : Wakefield 017	21	0.67
E02002456 : Wakefield 019	16	0.51
E02002457 : Wakefield 020	3	0.10
E02002458 : Wakefield 021	5	0.16
E02002459 : Wakefield 022	2	0.06
E02002461 : Wakefield 024	2	0.06
E02002462 : Wakefield 025	2	0.06
E02002463 : Wakefield 026	1	0.03
E02002464 : Wakefield 027	2	0.06
E02002465 : Wakefield 028	10	0.32
E02002466 : Wakefield 029	2	0.06
E02002467 : Wakefield 030	8	0.26
E02002468 : Wakefield 031	1	0.03
E02002469 : Wakefield 032	4	0.13
E02002470 : Wakefield 033	3	0.10
E02002472 : Wakefield 035	4	0.13
E02002473 : Wakefield 036	8	0.26
E02002474 : Wakefield 037	4	0.13
E02002475 : Wakefield 038	5	0.16
E02002478 : Wakefield 041	2	0.06
E02002479 : Wakefield 042	1	0.03
E02002480 : Wakefield 043	4	0.13
E02002481 : Wakefield 044	2	0.06
E02002802 : Derby 007	1	0.03
E02002803 : Derby 008	1	0.03
E02006851 : Leicester 041	1	0.03
E02002903 : Nottingham 036	1	0.03
E02004031 : Amber Valley 003	3	0.10
E02004035 : Amber Valley 007	1	0.03
E02004045 : Bolsover 001	1	0.03
E02004055 : Chesterfield 001	2	0.06
E02004056 : Chesterfield 002	2	0.06
E02004058 : Chesterfield 004	1	0.03
E02004061 : Chesterfield 007	1	0.03
E02004064 : Chesterfield 010	3	0.10
E02004066 : Chesterfield 012	3	0.10
E02004068 : Derbyshire Dales 001	1	0.03
E02004086 : Erewash 009	1	0.03
E02004096 : High Peak 004	1	0.03
E02004104 : High Peak 012	1	0.03
E02006872 : High Peak 013	3	0.10
E02004105 : North East Derbyshire 001	2	0.06
E02004106 : North East Derbyshire 002	1	0.03
E02004108 : North East Derbyshire 004	2	0.06
E02004116 : North East Derbyshire 012	1	0.03
E02004122 : South Derbyshire 005	1	0.03
E02005482 : South Kesteven 007	1	0.03
E02005500 : West Lindsey 009	1	0.03
E02005677 : Northampton 028	1	0.03
E02005821 : Ashfield 003	1	0.03
E02005822 : Ashfield 004	1	0.03
E02005828 : Ashfield 010	1	0.03
E02005838 : Bassetlaw 004	1	0.03
E02005849 : Bassetlaw 015	1	0.03
E02006903 : Bassetlaw 016	1	0.03
E02005891 : Mansfield 012	1	0.03
E02005892 : Mansfield 013	1	0.03
E02005919 : Rushcliffe 014	3	0.10

E02002908 : Herefordshire 004	1	0.03
E02006013 : Shropshire 034	5	0.16
E02002965 : Stoke-on-Trent 015	1	0.03
E02006171 : Newcastle-under-Lyme 014	2	0.06
E02006190 : Stafford 003	1	0.03
E02006198 : Stafford 011	1	0.03
E02006473 : North Warwickshire 006	2	0.06
E02006506 : Stratford-on-Avon 003	1	0.03
E02006516 : Stratford-on-Avon 013	1	0.03
E02001884 : Birmingham 058	1	0.03
E02001949 : Birmingham 123	1	0.03
E02002089 : Solihull 009	1	0.03
E02002095 : Solihull 015	1	0.03
E02003278 : Luton 021	1	0.03
E02003793 : South Cambridgeshire 019	1	0.03
E02004571 : Rochford 009	1	0.03
E02004976 : Watford 009	2	0.06
E02005552 : King's Lynn and West Norfolk 002	1	0.03
E02005564 : King's Lynn and West Norfolk 014	1	0.03
E02000970 : Westminster 011	1	0.03
E02000972 : Westminster 013	1	0.03
E02000979 : Westminster 020	1	0.03
E02000980 : Westminster 021	2	0.06
E02003475 : Milton Keynes 017	1	0.03
E02003375 : West Berkshire 009	1	0.03
E02003429 : Windsor and Maidenhead 009	1	0.03
E02004685 : Basingstoke and Deane 011	1	0.03
E02004704 : East Hampshire 008	2	0.06
E02005954 : Oxford 015	1	0.03
E02005958 : South Oxfordshire 001	3	0.10
E02005998 : West Oxfordshire 006	2	0.06
E02006578 : Crawley 004	2	0.06
E02003092 : South Gloucestershire 003	1	0.03
E02004227 : Torridge 008	1	0.03
W02000225 : Bridgend 008	1	0.03
E02001532 : Barnsley 024 Penistone	404	9.72
E02001611 : Sheffield 001	55	1.76
E02001618 : Sheffield 008	9	0.29
E02001633 : Sheffield 023	5	0.16
E02001651 : Sheffield 041	1	0.03
Barnsley 024 West		3.24
E02003829 : Cheshire East 038	1	0.03
E02003854 : Cheshire East 002	3	0.10
E02003849 : Cheshire West and Chester 011	1	0.03
E02002593 : Warrington 004	1	0.03
E02002603 : Warrington 014	1	0.03
E02003993 : Carlisle 007	1	0.03
E02004006 : Copeland 007	1	0.03
E02000999 : Bolton 016	1	0.03
E02001005 : Bolton 022	1	0.03
E02001015 : Bolton 032	1	0.03
E02001026 : Bury 008	6	0.19
E02001059 : Manchester 015	1	0.03
E02001062 : Manchester 018	2	0.06
E02001077 : Manchester 033	1	0.03
E02001089 : Manchester 045	2	0.06
E02001094 : Manchester 050	1	0.03
E02001096 : Manchester 052	1	0.03
E02001097 : Manchester 053	3	0.10
E02006902 : Manchester 054	3	0.10
E02006912 : Manchester 055	1	0.03
E02006917 : Manchester 060	5	0.16
E02001106 : Oldham 009	1	0.03
E02001110 : Oldham 013	1	0.03
E02001114 : Oldham 017	1	0.03
E02001116 : Oldham 019	1	0.03
E02001135 : Rochdale 004	3	0.10
E02001141 : Rochdale 010	2	0.06

E02001151 : Rochdale 020	1	0.03
E02001182 : Salford 026	1	0.03
E02001212 : Stockport 026	2	0.06
E02001235 : Tameside 007	1	0.03
E02001241 : Tameside 013	3	0.10
E02001260 : Trafford 002	2	0.06
E02001264 : Trafford 006	1	0.03
E02001283 : Trafford 025	1	0.03
E02001301 : Wigan 015	1	0.03
E02005256 : Preston 004	12	0.38
E02001490 : Wirral 024	1	0.03
E02002322 : Kirklees 052	1	0.03
E02002325 : Kirklees 055	2	0.06
E02002328 : Kirklees 058	7	0.22
E02002329 : Kirklees 059	35	1.12
E02001535 : Barnsley 027	162	5.20
E02002727 : North East Lincolnshire 002	1	0.03
E02002749 : North Lincolnshire 001	1	0.03
E02002753 : North Lincolnshire 005	1	0.03
E02002755 : North Lincolnshire 007	1	0.03
E02002756 : North Lincolnshire 008	1	0.03
E02002763 : North Lincolnshire 015	1	0.03
E02002768 : North Lincolnshire 020	1	0.03
E02001522 : Barnsley 014	8	0.26
E02001529 : Barnsley 021	11	0.35
E02001530 : Barnsley 022	14	0.45
E02001531 : Barnsley 023	10	0.32
E02001533 : Barnsley 025	4	0.13
E02001534 : Barnsley 026	16	0.51
E02001536 : Barnsley 028	55	1.76
E02001537 : Barnsley 029	6	0.19
E02001538 : Barnsley 030	11	0.35
E02001547 : Doncaster 009	2	0.06
E02001551 : Doncaster 013	1	0.03
E02001552 : Doncaster 014	1	0.03
E02001553 : Doncaster 015	2	0.06
E02001556 : Doncaster 018	1	0.03
E02001557 : Doncaster 019	4	0.13
E02001558 : Doncaster 020	2	0.06
E02001560 : Doncaster 022	1	0.03
E02001563 : Doncaster 025	1	0.03
E02001566 : Doncaster 028	10	0.32
E02001568 : Doncaster 030	1	0.03
E02001569 : Doncaster 031	1	0.03
E02001571 : Doncaster 033	3	0.10
E02001574 : Doncaster 036	1	0.03
E02001576 : Doncaster 038	1	0.03
E02001612 : Sheffield 002	9	0.29
E02001613 : Sheffield 003	5	0.16
E02001614 : Sheffield 004	40	1.28
E02001615 : Sheffield 005	17	0.55
E02001616 : Sheffield 006	10	0.32
E02001619 : Sheffield 009	3	0.10
E02001622 : Sheffield 012	1	0.03
E02001623 : Sheffield 013	2	0.06
E02001625 : Sheffield 015	9	0.29
E02001626 : Sheffield 016	1	0.03
E02001627 : Sheffield 017	15	0.48
E02001629 : Sheffield 019	7	0.22
E02001630 : Sheffield 020	8	0.26
E02001636 : Sheffield 026	16	0.51
E02001640 : Sheffield 030	27	0.87
E02001646 : Sheffield 036	18	0.58
E02001648 : Sheffield 038	2	0.06
E02001650 : Sheffield 040	8	0.26
E02001652 : Sheffield 042	9	0.29
E02001653 : Sheffield 043	5	0.16
E02001656 : Sheffield 046	2	0.06

E02001660 : Sheffield 050	6	0.19
E02001661 : Sheffield 051	3	0.10
E02001663 : Sheffield 053	3	0.10
E02001665 : Sheffield 055	4	0.13
E02001669 : Sheffield 059	3	0.10
E02001671 : Sheffield 061	4	0.13
E02001674 : Sheffield 064	4	0.13
E02001678 : Sheffield 068	2	0.06
E02006843 : Sheffield 073	71	2.28
E02006844 : Sheffield 074	28	0.90
E02002293 : Kirklees 023	3	0.10
E02002294 : Kirklees 024	1	0.03
E02002298 : Kirklees 028	2	0.06
E02002244 : Calderdale 001	1	0.03
E02002250 : Calderdale 007	1	0.03
E02002251 : Calderdale 008	7	0.22
E02002258 : Calderdale 015	2	0.06
E02002259 : Calderdale 016	1	0.03
E02002260 : Calderdale 017	1	0.03
E02002261 : Calderdale 018	1	0.03
E02002268 : Calderdale 025	3	0.10
E02002269 : Calderdale 026	1	0.03
E02002291 : Kirklees 021	3	0.10
E02002292 : Kirklees 022	3	0.10
E02002295 : Kirklees 025	5	0.16
E02002296 : Kirklees 026	2	0.06
E02002297 : Kirklees 027	2	0.06
E02002299 : Kirklees 029	33	1.06
E02002301 : Kirklees 031	4	0.13
E02002302 : Kirklees 032	2	0.06
E02002303 : Kirklees 033	11	0.35
E02002304 : Kirklees 034	2	0.06
E02002305 : Kirklees 035	4	0.13
E02002306 : Kirklees 036	1	0.03
E02002307 : Kirklees 037	2	0.06
E02002308 : Kirklees 038	1	0.03
E02002309 : Kirklees 039	6	0.19
E02002310 : Kirklees 040	1	0.03
E02002312 : Kirklees 042	20	0.64
E02002313 : Kirklees 043	3	0.10
E02002314 : Kirklees 044	5	0.16
E02002316 : Kirklees 046	2	0.06
E02002317 : Kirklees 047	2	0.06
E02002319 : Kirklees 049	5	0.16
E02002320 : Kirklees 050	5	0.16
E02002321 : Kirklees 051	10	0.32
E02002323 : Kirklees 053	5	0.16
E02002324 : Kirklees 054	5	0.16
E02002326 : Kirklees 056	19	0.61
E02002327 : Kirklees 057	44	1.41
	3117	99.99852

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies

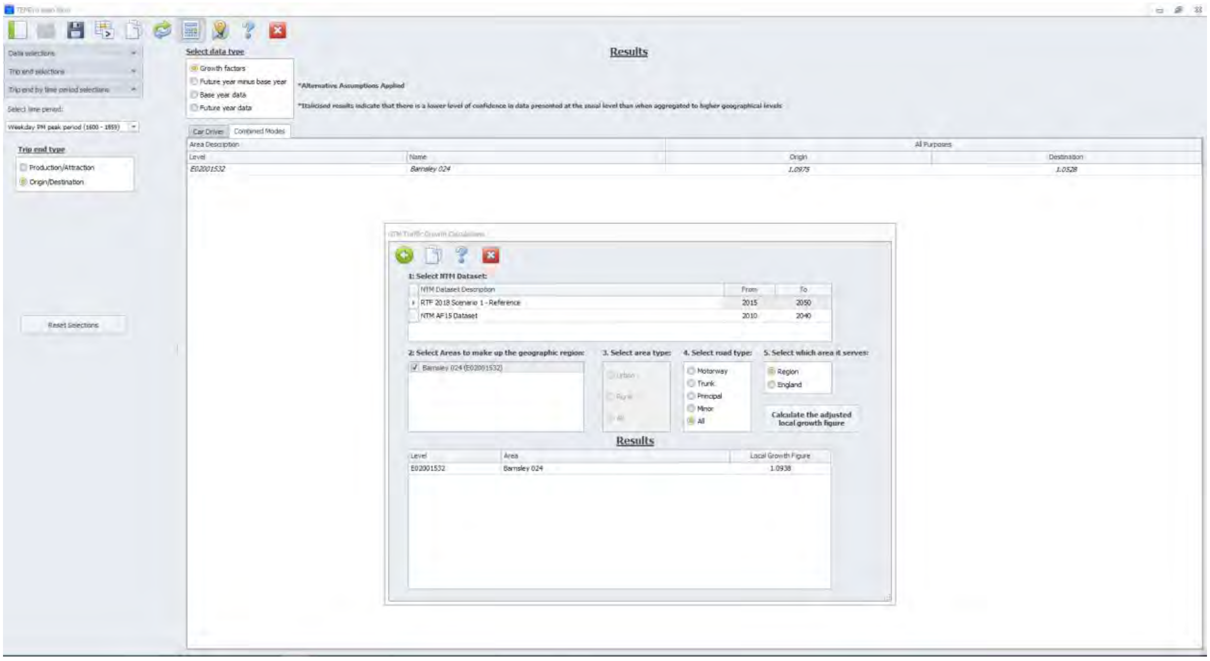
Appendix H TEMPro Growth Rates

AM PEAK 2018 – 2033 Level Area Local Growth Figure

E02001532 Barnsley 024 1.09869670674406

PM PEAK 2018 – 2033 Level	Area	Local Growth Figure

E02001532	Barnsley 024	1.09376274468137



Appendix I Junction Modelling Output

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: A269 Halifax Road - Site Access.j9
Path: O:\Halifax Road, Penistone\ANALYSIS\CAPACITY\Priority Junctions\October 2020 TA REV 1\Halifax Road-Site Access
Report generation date: 16/10/2020 12:06:29

»2033 Design , AM
»2033 Design, PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2033 Design					
Stream B-C	0.0	6.85	0.02	0.0	6.31	0.01
Stream B-A	0.3	17.25	0.23	0.1	12.23	0.08
Stream C-B	0.0	6.72	0.01	0.0	6.80	0.03

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

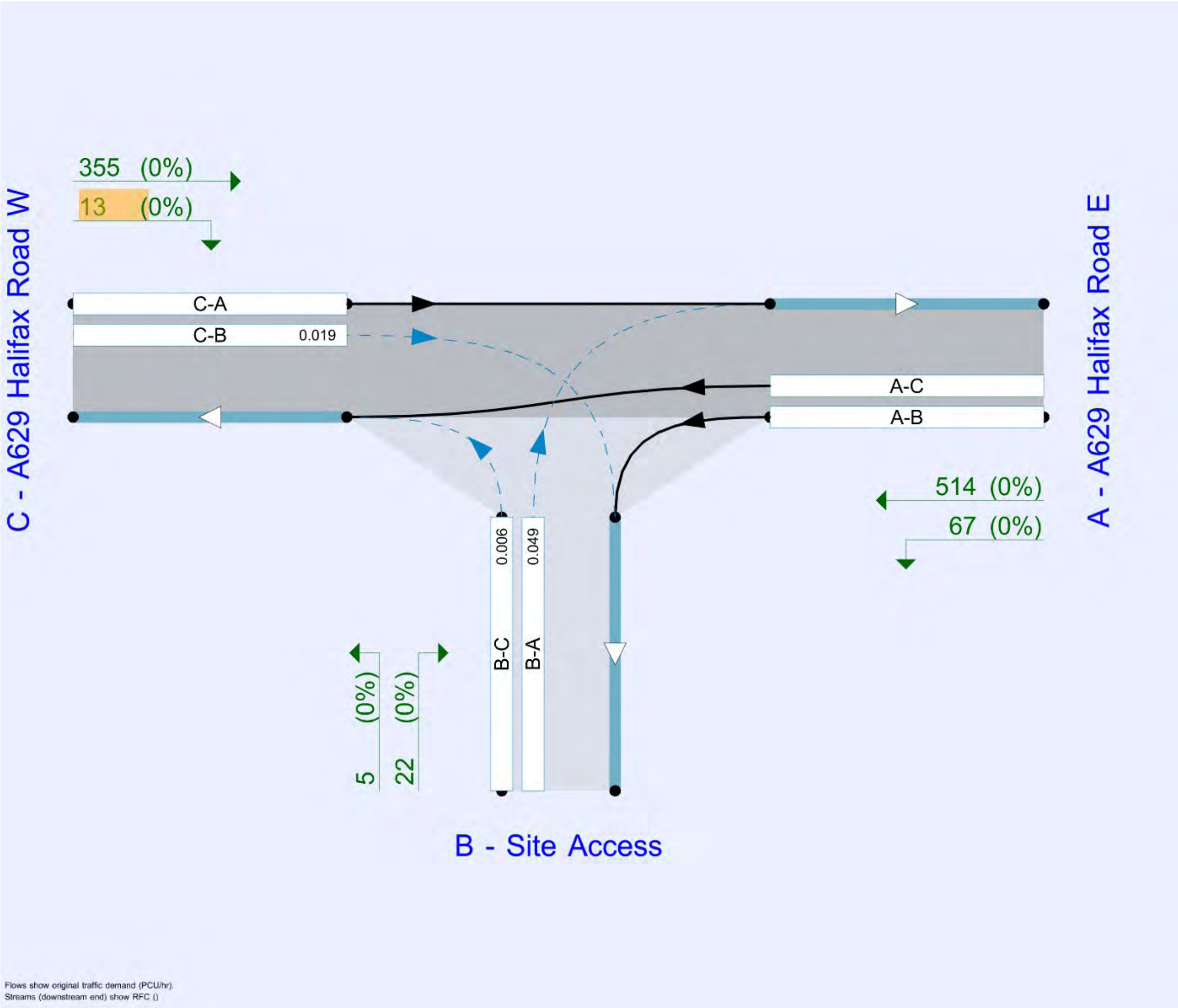
File summary

File Description

Title	
Location	
Site number	
Date	20/03/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	OPTIMA\Optima
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2033 Design	AM	ONE HOUR	07:15	08:45	15	✓
D2	2033 Design	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2033 Design , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	B - Site Access - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A629 Halifax Road/Site Access	T-Junction	Two-way		0.89	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A629 Halifax Road E		Major
B	Site Access		Minor
C	A629 Halifax Road W		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - A629 Halifax Road W	6.15		✓	3.00	155.0		-

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane plus flare	10.00	4.30	3.00	3.00	3.00	✓	1.00	22	17

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	526	0.095	0.240	0.151	0.343
B-C	762	0.116	0.293	-	-
C-B	722	0.278	0.278	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2033 Design	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A629 Halifax Road E		ONE HOUR	✓	583	100.000
B - Site Access		ONE HOUR	✓	70	100.000
C - A629 Halifax Road W		ONE HOUR	✓	619	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A629 Halifax Road E	B - Site Access	C - A629 Halifax Road W
From	A - A629 Halifax Road E	0	36	547
	B - Site Access	58	0	12
	C - A629 Halifax Road W	612	7	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A629 Halifax Road E	B - Site Access	C - A629 Halifax Road W
From	A - A629 Halifax Road E	0	0	0
	B - Site Access	0	0	0
	C - A629 Halifax Road W	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.02	6.85	0.0	A	11	17
B-A	0.23	17.25	0.3	C	53	80
C-A					562	842
C-B	0.01	6.72	0.0	A	6	10
A-B					33	50
A-C					502	753

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	2	617	0.015	9	0.0	0.0	5.920	A
B-A	44	11	353	0.124	43	0.0	0.1	11.612	B
C-A	461	115			461				
C-B	5	1	600	0.009	5	0.0	0.0	6.056	A
A-B	27	7			27				
A-C	412	103			412				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	3	586	0.018	11	0.0	0.0	6.257	A
B-A	52	13	319	0.163	52	0.1	0.2	13.470	B
C-A	550	138			550				
C-B	6	2	576	0.011	6	0.0	0.0	6.318	A
A-B	32	8			32				
A-C	492	123			492				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	13	3	539	0.025	13	0.0	0.0	6.841	A
B-A	64	16	272	0.234	63	0.2	0.3	17.184	C
C-A	674	168			674				
C-B	8	2	543	0.014	8	0.0	0.0	6.721	A
A-B	40	10			40				
A-C	602	151			602				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	13	3	539	0.025	13	0.0	0.0	6.845	A
B-A	64	16	272	0.234	64	0.3	0.3	17.251	C
C-A	674	168			674				
C-B	8	2	543	0.014	8	0.0	0.0	6.721	A
A-B	40	10			40				
A-C	602	151			602				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	3	586	0.018	11	0.0	0.0	6.262	A
B-A	52	13	319	0.163	53	0.3	0.2	13.533	B
C-A	550	138			550				
C-B	6	2	576	0.011	6	0.0	0.0	6.321	A
A-B	32	8			32				
A-C	492	123			492				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	2	617	0.015	9	0.0	0.0	5.927	A
B-A	44	11	353	0.124	44	0.2	0.1	11.670	B
C-A	461	115			461				
C-B	5	1	600	0.009	5	0.0	0.0	6.058	A
A-B	27	7			27				
A-C	412	103			412				

2033 Design, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	B - Site Access - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A629 Halifax Road/Site Access	T-Junction	Two-way		0.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2033 Design	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A629 Halifax Road E		ONE HOUR	✓	581	100.000
B - Site Access		ONE HOUR	✓	27	100.000
C - A629 Halifax Road W		ONE HOUR	✓	368	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A629 Halifax Road E	B - Site Access	C - A629 Halifax Road W
From	A - A629 Halifax Road E	0	67	514
	B - Site Access	22	0	5
	C - A629 Halifax Road W	355	13	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A629 Halifax Road E	B - Site Access	C - A629 Halifax Road W
From	A - A629 Halifax Road E	0	0	0
	B - Site Access	0	0	0
	C - A629 Halifax Road W	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	6.31	0.0	A	5	7
B-A	0.08	12.23	0.1	B	20	30
C-A					326	489
C-B	0.03	6.80	0.0	A	12	18
A-B					61	92
A-C					472	707

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	0.94	635	0.006	4	0.0	0.0	5.698	A
B-A	17	4	384	0.043	16	0.0	0.0	9.787	A
C-A	267	67			267				
C-B	10	2	600	0.016	10	0.0	0.0	6.098	A
A-B	50	13			50				
A-C	387	97			387				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	610	0.007	4	0.0	0.0	5.940	A
B-A	20	5	357	0.055	20	0.0	0.1	10.687	B
C-A	319	80			319				
C-B	12	3	576	0.020	12	0.0	0.0	6.373	A
A-B	60	15			60				
A-C	462	116			462				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	1	576	0.010	5	0.0	0.0	6.312	A
B-A	24	6	319	0.076	24	0.1	0.1	12.224	B
C-A	391	98			391				
C-B	14	4	544	0.026	14	0.0	0.0	6.797	A
A-B	74	18			74				
A-C	566	141			566				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	1	576	0.010	6	0.0	0.0	6.313	A
B-A	24	6	319	0.076	24	0.1	0.1	12.231	B
C-A	391	98			391				
C-B	14	4	544	0.026	14	0.0	0.0	6.797	A
A-B	74	18			74				
A-C	566	141			566				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	610	0.007	5	0.0	0.0	5.940	A
B-A	20	5	357	0.055	20	0.1	0.1	10.697	B
C-A	319	80			319				
C-B	12	3	576	0.020	12	0.0	0.0	6.374	A
A-B	60	15			60				
A-C	462	116			462				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	0.94	635	0.006	4	0.0	0.0	5.699	A
B-A	17	4	384	0.043	17	0.1	0.0	9.801	A
C-A	267	67			267				
C-B	10	2	600	0.016	10	0.0	0.0	6.101	A
A-B	50	13			50				
A-C	387	97			387				

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: Wellhouse Lane-Site Access.j9
Path: O:\Halifax Road, Penistone\ANALYSIS\CAPACITY\Priority Junctions\October 2020 TA REV 1\Wellhouse Lane-Site Access
Report generation date: 16/10/2020 12:12:50

»2033 Design , AM
»2033 Design , PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2033 Design					
Stream B-C	0.1	5.93	0.05	0.0	5.41	0.02
Stream B-A	0.2	9.46	0.15	0.1	8.50	0.06
Stream C-AB	0.1	6.53	0.04	0.1	6.18	0.07

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

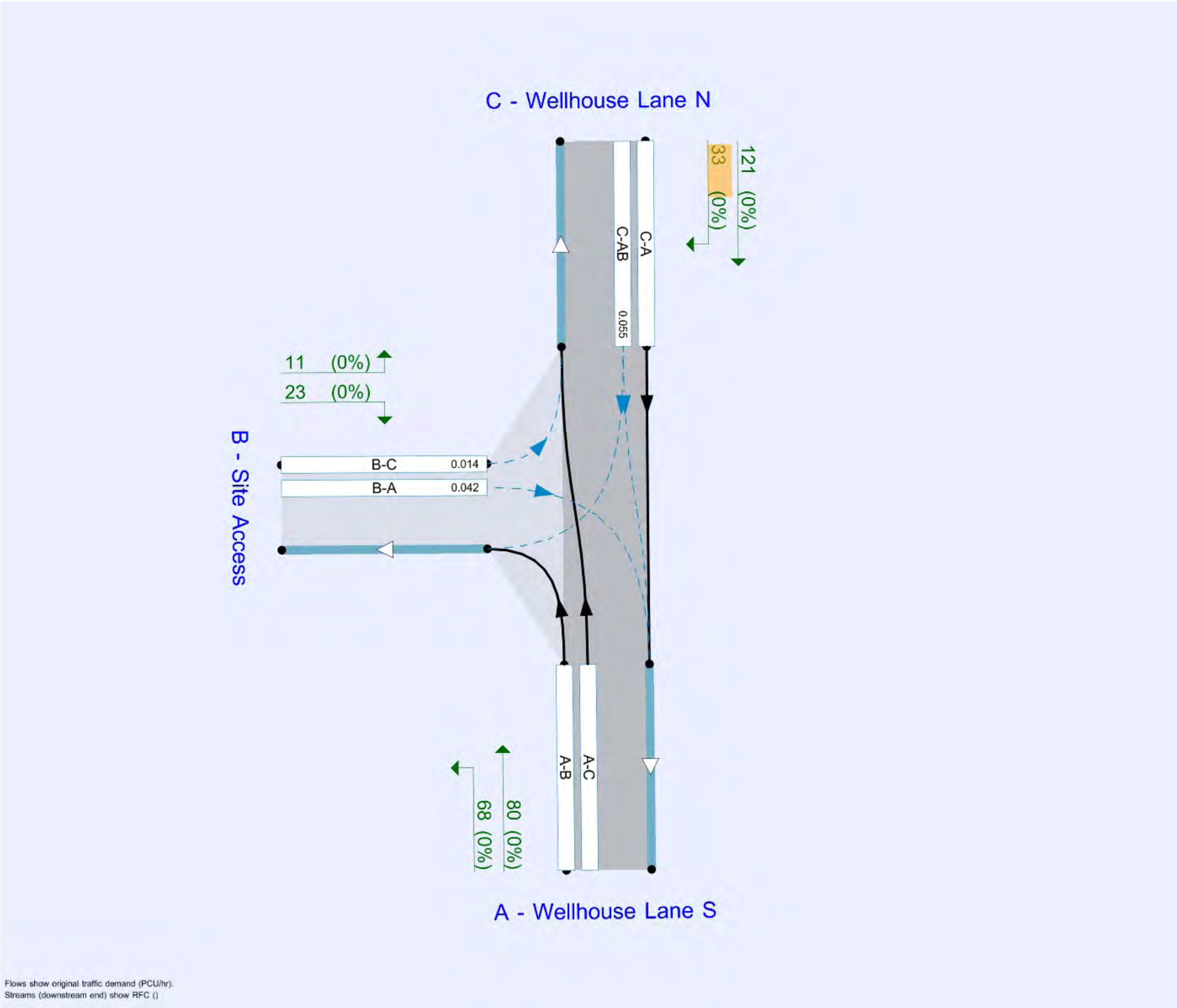
File summary

File Description

Title	
Location	
Site number	
Date	20/03/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	OPTIMA\Optima
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2033 Design	AM	ONE HOUR	07:15	08:45	15	✓
D2	2033 Design	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2033 Design , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	B - Site Access - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Major arm width	C - Wellhouse Lane N - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Wellhouse Lane/Site Access	T-Junction	Two-way		2.33	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Wellhouse Lane S		Major
B	Site Access		Minor
C	Wellhouse Lane N		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Wellhouse Lane N	5.25			0.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane plus flare	9.37	3.10	3.00	3.00	3.00	✓	1.00	14	16

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	511	0.096	0.243	0.153	0.347
B-C	721	0.114	0.288	-	-
C-B	574	0.230	0.230	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2033 Design	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Wellhouse Lane S		ONE HOUR	✓	199	100.000
B - Site Access		ONE HOUR	✓	88	100.000
C - Wellhouse Lane N		ONE HOUR	✓	82	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Wellhouse Lane S	B - Site Access	C - Wellhouse Lane N
From	A - Wellhouse Lane S	0	37	162
	B - Site Access	59	0	29
	C - Wellhouse Lane N	64	18	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Wellhouse Lane S	B - Site Access	C - Wellhouse Lane N
From	A - Wellhouse Lane S	0	0	0
	B - Site Access	0	0	0
	C - Wellhouse Lane N	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.05	5.93	0.1	A	27	40
B-A	0.15	9.46	0.2	A	54	81
C-AB	0.04	6.53	0.1	A	18	28
C-A					57	85
A-B					34	51
A-C					149	223

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	22	5	666	0.033	22	0.0	0.0	5.587	A
B-A	44	11	466	0.095	44	0.0	0.1	8.519	A
C-AB	15	4	573	0.026	15	0.0	0.0	6.445	A
C-A	47	12			47				
A-B	28	7			28				
A-C	122	30			122				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	26	7	655	0.040	26	0.0	0.0	5.727	A
B-A	53	13	458	0.116	53	0.1	0.1	8.894	A
C-AB	18	4	573	0.031	18	0.0	0.0	6.481	A
C-A	56	14			56				
A-B	33	8			33				
A-C	146	36			146				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	32	8	639	0.050	32	0.0	0.1	5.932	A
B-A	65	16	446	0.146	65	0.1	0.2	9.449	A
C-AB	23	6	574	0.039	23	0.0	0.1	6.532	A
C-A	68	17			68				
A-B	41	10			41				
A-C	178	45			178				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	32	8	639	0.050	32	0.1	0.1	5.933	A
B-A	65	16	446	0.146	65	0.2	0.2	9.457	A
C-AB	23	6	574	0.039	23	0.1	0.1	6.533	A
C-A	68	17			68				
A-B	41	10			41				
A-C	178	45			178				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	26	7	654	0.040	26	0.1	0.0	5.729	A
B-A	53	13	458	0.116	53	0.2	0.1	8.907	A
C-AB	18	5	573	0.031	18	0.1	0.0	6.482	A
C-A	56	14			56				
A-B	33	8			33				
A-C	146	36			146				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	22	5	666	0.033	22	0.0	0.0	5.591	A
B-A	44	11	466	0.095	45	0.1	0.1	8.538	A
C-AB	15	4	573	0.026	15	0.0	0.0	6.446	A
C-A	47	12			47				
A-B	28	7			28				
A-C	122	30			122				

2033 Design , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	B - Site Access - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Major arm width	C - Wellhouse Lane N - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Wellhouse Lane/Site Access	T-Junction	Two-way		1.50	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2033 Design	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Wellhouse Lane S		ONE HOUR	✓	148	100.000
B - Site Access		ONE HOUR	✓	34	100.000
C - Wellhouse Lane N		ONE HOUR	✓	154	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Wellhouse Lane S	B - Site Access	C - Wellhouse Lane N
From	A - Wellhouse Lane S	0	68	80
	B - Site Access	23	0	11
	C - Wellhouse Lane N	121	33	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Wellhouse Lane S	B - Site Access	C - Wellhouse Lane N
From	A - Wellhouse Lane S	0	0	0
	B - Site Access	0	0	0
	C - Wellhouse Lane N	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.02	5.41	0.0	A	10	15
B-A	0.06	8.50	0.1	A	21	32
C-AB	0.07	6.18	0.1	A	37	56
C-A					104	156
A-B					62	94
A-C					73	110

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	691	0.012	8	0.0	0.0	5.270	A
B-A	17	4	469	0.037	17	0.0	0.0	7.972	A
C-AB	29	7	612	0.048	29	0.0	0.1	6.176	A
C-A	87	22			87				
A-B	51	13			51				
A-C	60	15			60				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	10	2	685	0.014	10	0.0	0.0	5.329	A
B-A	21	5	460	0.045	21	0.0	0.0	8.187	A
C-AB	36	9	619	0.058	36	0.1	0.1	6.170	A
C-A	102	26			102				
A-B	61	15			61				
A-C	72	18			72				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	12	3	677	0.018	12	0.0	0.0	5.412	A
B-A	25	6	449	0.056	25	0.0	0.1	8.494	A
C-AB	46	12	630	0.073	46	0.1	0.1	6.164	A
C-A	123	31			123				
A-B	75	19			75				
A-C	88	22			88				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	12	3	677	0.018	12	0.0	0.0	5.412	A
B-A	25	6	449	0.056	25	0.1	0.1	8.496	A
C-AB	46	12	630	0.073	46	0.1	0.1	6.166	A
C-A	123	31			123				
A-B	75	19			75				
A-C	88	22			88				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	10	2	685	0.014	10	0.0	0.0	5.331	A
B-A	21	5	460	0.045	21	0.1	0.0	8.192	A
C-AB	36	9	619	0.058	36	0.1	0.1	6.176	A
C-A	102	26			102				
A-B	61	15			61				
A-C	72	18			72				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	691	0.012	8	0.0	0.0	5.273	A
B-A	17	4	468	0.037	17	0.0	0.0	7.981	A
C-AB	29	7	612	0.048	29	0.1	0.1	6.184	A
C-A	87	22			87				
A-B	51	13			51				
A-C	60	15			60				

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

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Filename: Barnsley Rd-Well House Ln-Water Hall Ln.j9
Path: O:\Halifax Road, Penistone\ANALYSIS\CAPACITY\Priority Junctions\October 2020 TA REV 1\Barnsley Road-Well House Lane-Water Hall Lane
Report generation date: 16/10/2020 11:43:05

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2018 COUNT					
Stream B-ACD	0.0	14.55	0.03	0.0	0.00	0.00
Stream A-BCD	0.0	7.59	0.01	0.0	6.45	0.01
Stream D-ABC	0.5	21.37	0.33	0.6	19.55	0.35
Stream C-ABD	0.0	0.00	0.00	0.0	0.00	0.00
	2033 BASE					
Stream B-ACD	0.1	17.10	0.05	0.0	0.00	0.00
Stream A-BCD	0.0	8.00	0.01	0.0	6.62	0.01
Stream D-ABC	0.6	24.41	0.35	0.7	22.88	0.41
Stream C-ABD	0.0	0.00	0.00	0.0	0.00	0.00
	2033 DESIGN					
Stream B-ACD	0.1	18.83	0.05	0.0	0.00	0.00
Stream A-BCD	0.1	8.57	0.05	0.1	7.35	0.07
Stream D-ABC	1.6	39.79	0.61	1.2	29.99	0.52
Stream C-ABD	0.0	0.00	0.00	0.0	0.00	0.00

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

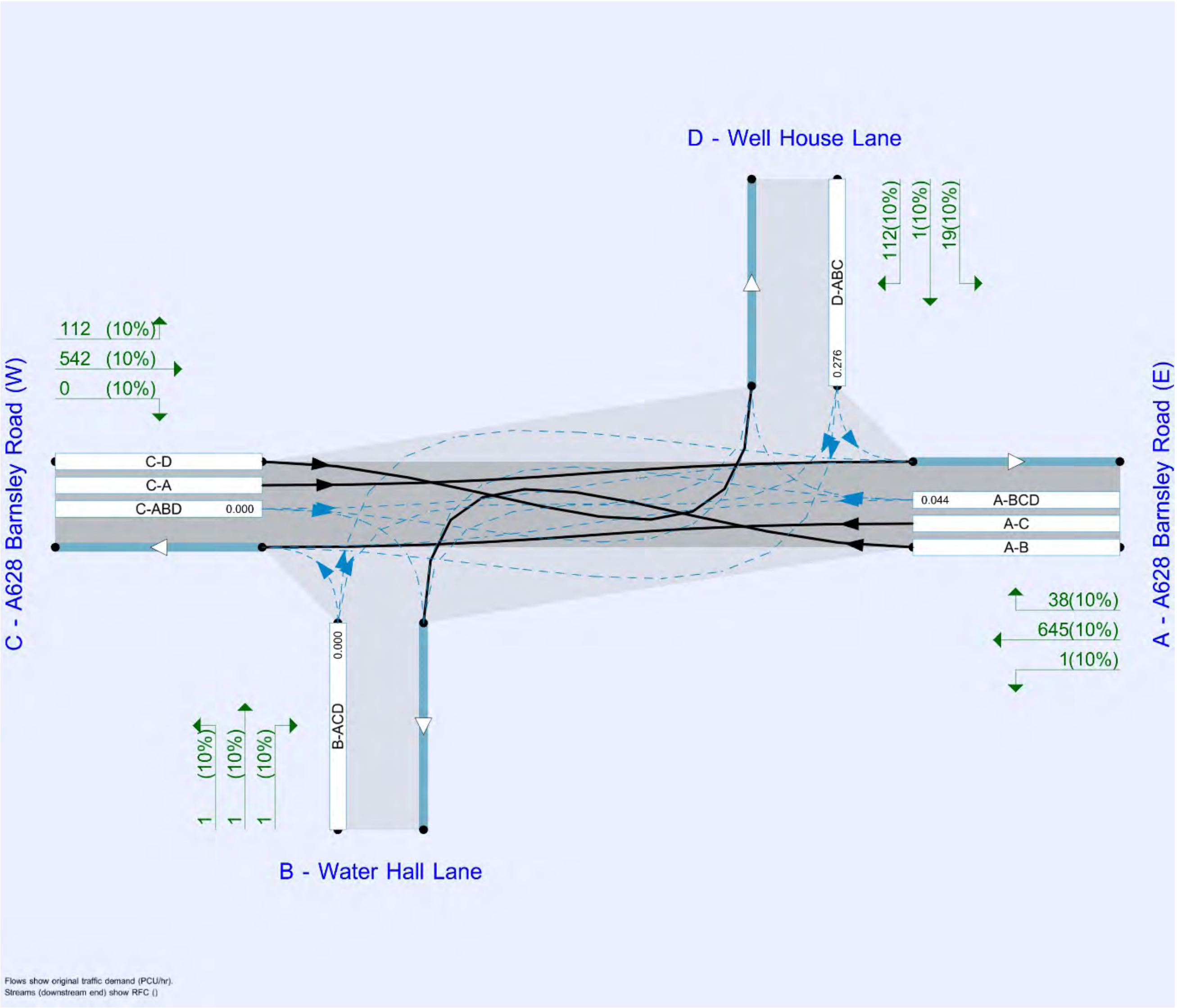
File summary

File Description

Title	Barnsley Road/Well House Lane/Water Hall Lane
Location	
Site number	
Date	13/11/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UK
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2018 COUNT	AM	ONE HOUR	07:15	08:45	15
D2	2018 COUNT	PM	ONE HOUR	16:45	18:15	15
D3	2033 BASE	AM	ONE HOUR	07:15	08:45	15
D4	2033 BASE	PM	ONE HOUR	16:45	18:15	15
D5	2033 DESIGN	AM	ONE HOUR	07:15	08:45	15
D6	2033 DESIGN	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2018 COUNT, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Barnsley Road/Well House Lane/Water Hall Lane	Right-Left Stagger	Two-way		1.36	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A628 Barnsley Road (E)		Major
B	Water Hall Lane		Minor
C	A628 Barnsley Road (W)		Major
D	Well House Lane		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - A628 Barnsley Road (E)	7.20		✓	3.10	250.0	✓	4.00
C - A628 Barnsley Road (W)	7.00		✓	3.10	75.0	✓	2.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Water Hall Lane	One lane	2.84	10	16
D - Well House Lane	One lane	3.48	15	23

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-B	Slope for D-C
A-D	789	-	-	-	0.290	0.290	0.290	-	0.290	-	-
B-AD	481	0.084	0.212	-	-	-	0.133	0.303	0.133	0.084	0.212
B-C	624	0.091	0.231	-	-	-	-	-	-	0.091	0.231
C-B	678	0.251	0.251	-	-	-	-	-	-	0.251	0.251
D-A	669	-	-	-	0.246	0.097	0.246	-	0.097	-	-
D-BC	518	0.142	0.142	0.323	0.226	0.089	0.226	-	0.089	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2018 COUNT	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (E)		✓	470	100.000
B - Water Hall Lane		✓	7	100.000
C - A628 Barnsley Road (W)		✓	817	100.000
D - Well House Lane		✓	81	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	0	9	456	5
	B - Water Hall Lane	4	0	2	1
	C - A628 Barnsley Road (W)	702	0	0	115
	D - Well House Lane	12	9	60	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	10	10	10	10
	B - Water Hall Lane	10	10	10	10
	C - A628 Barnsley Road (W)	10	10	10	10
	D - Well House Lane	10	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.03	14.55	0.0	B
A-BCD	0.01	7.59	0.0	A
A-B				
A-C				
D-ABC	0.33	21.37	0.5	C
C-ABD	0.00	0.00	0.0	A
C-D				
C-A				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	5	357	0.015	5	0.0	11.249	B
A-BCD	4	610	0.006	4	0.0	6.533	A
A-B	7			7			
A-C	343			343			
D-ABC	61	358	0.170	60	0.2	13.263	B
C-ABD	0	1154	0.000	0	0.0	0.000	A
C-D	87			87			
C-A	529			529			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	6	325	0.019	6	0.0	12.419	B
A-BCD	4	575	0.008	4	0.0	6.940	A
A-B	8			8			
A-C	410			410			
D-ABC	73	323	0.225	72	0.3	15.784	C
C-ABD	0	1114	0.000	0	0.0	0.000	A
C-D	103			103			
C-A	631			631			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	8	280	0.028	8	0.0	14.543	B
A-BCD	6	527	0.010	5	0.0	7.594	A
A-B	10			10			
A-C	502			502			
D-ABC	89	274	0.325	88	0.5	21.202	C
C-ABD	0	1060	0.000	0	0.0	0.000	A
C-D	127			127			
C-A	773			773			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	8	280	0.028	8	0.0	14.553	B
A-BCD	6	527	0.010	6	0.0	7.594	A
A-B	10			10			
A-C	502			502			
D-ABC	89	274	0.325	89	0.5	21.373	C
C-ABD	0	1059	0.000	0	0.0	0.000	A
C-D	127			127			
C-A	773			773			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	6	325	0.019	6	0.0	12.430	B
A-BCD	4	575	0.008	5	0.0	6.943	A
A-B	8			8			
A-C	410			410			
D-ABC	73	323	0.225	74	0.3	15.931	C
C-ABD	0	1114	0.000	0	0.0	0.000	A
C-D	103			103			
C-A	631			631			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	5	357	0.015	5	0.0	11.262	B
A-BCD	4	610	0.006	4	0.0	6.536	A
A-B	7			7			
A-C	343			343			
D-ABC	61	358	0.170	61	0.2	13.373	B
C-ABD	0	1153	0.000	0	0.0	0.000	A
C-D	87			87			
C-A	529			529			

2018 COUNT, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Barnsley Road/Well House Lane/Water Hall Lane	Right-Left Stagger	Two-way		1.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2018 COUNT	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (E)		✓	584	100.000
B - Water Hall Lane		✓	3	100.000
C - A628 Barnsley Road (W)		✓	535	100.000
D - Well House Lane		✓	100	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	0	1	579	4
	B - Water Hall Lane	1	0	1	1
	C - A628 Barnsley Road (W)	464	0	0	71
	D - Well House Lane	7	1	92	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	10	10	10	10
	B - Water Hall Lane	10	10	10	10
	C - A628 Barnsley Road (W)	10	10	10	10
	D - Well House Lane	10	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.00	0.00	0.0	A
A-BCD	0.01	6.45	0.0	A
A-B				
A-C				
D-ABC	0.35	19.55	0.6	C
C-ABD	0.00	0.00	0.0	A
C-D				
C-A				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	392	0.000	0	0.0	0.000	A
A-BCD	3	672	0.004	3	0.0	5.915	A
A-B	0.75			0.75			
A-C	436			436			
D-ABC	75	380	0.198	74	0.3	12.892	B
C-ABD	0	1101	0.000	0	0.0	0.000	A
C-D	53			53			
C-A	349			349			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	362	0.000	0	0.0	0.000	A
A-BCD	4	650	0.006	4	0.0	6.127	A
A-B	0.90			0.90			
A-C	521			521			
D-ABC	90	352	0.255	89	0.4	15.062	C
C-ABD	0	1051	0.000	0	0.0	0.000	A
C-D	64			64			
C-A	417			417			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	318	0.000	0	0.0	0.000	A
A-BCD	4	618	0.007	4	0.0	6.448	A
A-B	1			1			
A-C	637			637			
D-ABC	110	313	0.352	109	0.6	19.397	C
C-ABD	0	983	0.000	0	0.0	0.000	A
C-D	78			78			
C-A	511			511			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	318	0.000	0	0.0	0.000	A
A-BCD	4	618	0.007	4	0.0	6.448	A
A-B	1			1			
A-C	637			637			
D-ABC	110	313	0.352	110	0.6	19.549	C
C-ABD	0	982	0.000	0	0.0	0.000	A
C-D	78			78			
C-A	511			511			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	361	0.000	0	0.0	0.000	A
A-BCD	4	650	0.006	4	0.0	6.130	A
A-B	0.90			0.90			
A-C	521			521			
D-ABC	90	352	0.255	91	0.4	15.203	C
C-ABD	0	1051	0.000	0	0.0	0.000	A
C-D	64			64			
C-A	417			417			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	392	0.000	0	0.0	0.000	A
A-BCD	3	672	0.004	3	0.0	5.917	A
A-B	0.75			0.75			
A-C	436			436			
D-ABC	75	380	0.198	76	0.3	13.018	B
C-ABD	0	1100	0.000	0	0.0	0.000	A
C-D	53			53			
C-A	349			349			

2033 BASE, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Barnsley Road/Well House Lane/Water Hall Lane	Right-Left Stagger	Two-way		1.44	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2033 BASE	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (E)		✓	515	100.000
B - Water Hall Lane		✓	10	100.000
C - A628 Barnsley Road (W)		✓	896	100.000
D - Well House Lane		✓	80	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	0	9	501	5
	B - Water Hall Lane	4	0	2	4
	C - A628 Barnsley Road (W)	771	0	0	125
	D - Well House Lane	13	1	66	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	10	10	10	10
	B - Water Hall Lane	10	10	10	10
	C - A628 Barnsley Road (W)	10	10	10	10
	D - Well House Lane	10	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.05	17.10	0.1	C
A-BCD	0.01	8.00	0.0	A
A-B				
A-C				
D-ABC	0.35	24.41	0.6	C
C-ABD	0.00	0.00	0.0	A
C-D				
C-A				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	8	328	0.023	7	0.0	12.344	B
A-BCD	4	592	0.006	4	0.0	6.732	A
A-B	7			7			
A-C	377			377			
D-ABC	60	342	0.176	59	0.2	13.948	B
C-ABD	0	1137	0.000	0	0.0	0.000	A
C-D	94			94			
C-A	580			580			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	9	293	0.031	9	0.0	13.959	B
A-BCD	4	554	0.008	4	0.0	7.210	A
A-B	8			8			
A-C	450			450			
D-ABC	72	304	0.237	72	0.3	17.011	C
C-ABD	0	1095	0.000	0	0.0	0.000	A
C-D	112			112			
C-A	693			693			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	11	243	0.045	11	0.1	17.077	C
A-BCD	6	501	0.011	5	0.0	7.997	A
A-B	10			10			
A-C	552			552			
D-ABC	88	250	0.352	87	0.6	24.135	C
C-ABD	0	1036	0.000	0	0.0	0.000	A
C-D	138			138			
C-A	849			849			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	11	243	0.045	11	0.1	17.101	C
A-BCD	6	501	0.011	6	0.0	7.997	A
A-B	10			10			
A-C	552			552			
D-ABC	88	250	0.352	88	0.6	24.406	C
C-ABD	0	1036	0.000	0	0.0	0.000	A
C-D	138			138			
C-A	849			849			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	9	292	0.031	9	0.0	13.981	B
A-BCD	4	554	0.008	5	0.0	7.211	A
A-B	8			8			
A-C	450			450			
D-ABC	72	304	0.237	73	0.3	17.212	C
C-ABD	0	1094	0.000	0	0.0	0.000	A
C-D	112			112			
C-A	693			693			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	8	328	0.023	8	0.0	12.366	B
A-BCD	4	592	0.006	4	0.0	6.732	A
A-B	7			7			
A-C	377			377			
D-ABC	60	342	0.176	61	0.2	14.082	B
C-ABD	0	1137	0.000	0	0.0	0.000	A
C-D	94			94			
C-A	580			580			

2033 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Barnsley Road/Well House Lane/Water Hall Lane	Right-Left Stagger	Two-way		1.89	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2033 BASE	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (E)		✓	638	100.000
B - Water Hall Lane		✓	3	100.000
C - A628 Barnsley Road (W)		✓	585	100.000
D - Well House Lane		✓	109	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	0	1	633	4
	B - Water Hall Lane	1	0	1	1
	C - A628 Barnsley Road (W)	508	0	0	77
	D - Well House Lane	8	0	101	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	10	10	10	10
	B - Water Hall Lane	10	10	10	10
	C - A628 Barnsley Road (W)	10	10	10	10
	D - Well House Lane	10	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.00	0.00	0.0	A
A-BCD	0.01	6.62	0.0	A
A-B				
A-C				
D-ABC	0.41	22.88	0.7	C
C-ABD	0.00	0.00	0.0	A
C-D				
C-A				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	378	0.000	0	0.0	0.000	A
A-BCD	3	662	0.005	3	0.0	6.012	A
A-B	0.75			0.75			
A-C	477			477			
D-ABC	82	367	0.223	81	0.3	13.768	B
C-ABD	0	1078	0.000	0	0.0	0.000	A
C-D	58			58			
C-A	382			382			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	344	0.000	0	0.0	0.000	A
A-BCD	4	637	0.006	4	0.0	6.253	A
A-B	0.90			0.90			
A-C	569			569			
D-ABC	98	336	0.292	97	0.4	16.554	C
C-ABD	0	1023	0.000	0	0.0	0.000	A
C-D	69			69			
C-A	457			457			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	296	0.000	0	0.0	0.000	A
A-BCD	4	602	0.007	4	0.0	6.620	A
A-B	1			1			
A-C	697			697			
D-ABC	120	293	0.410	119	0.7	22.593	C
C-ABD	0	948	0.000	0	0.0	0.000	A
C-D	85			85			
C-A	559			559			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	295	0.000	0	0.0	0.000	A
A-BCD	4	602	0.007	4	0.0	6.620	A
A-B	1			1			
A-C	697			697			
D-ABC	120	293	0.410	120	0.7	22.875	C
C-ABD	0	948	0.000	0	0.0	0.000	A
C-D	85			85			
C-A	559			559			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	344	0.000	0	0.0	0.000	A
A-BCD	4	637	0.006	4	0.0	6.253	A
A-B	0.90			0.90			
A-C	569			569			
D-ABC	98	336	0.292	99	0.5	16.789	C
C-ABD	0	1022	0.000	0	0.0	0.000	A
C-D	69			69			
C-A	457			457			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	377	0.000	0	0.0	0.000	A
A-BCD	3	662	0.005	3	0.0	6.015	A
A-B	0.75			0.75			
A-C	477			477			
D-ABC	82	367	0.223	83	0.3	13.943	B
C-ABD	0	1077	0.000	0	0.0	0.000	A
C-D	58			58			
C-A	382			382			

2033 DESIGN, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Barnsley Road/Well House Lane/Water Hall Lane	Right-Left Stagger	Two-way		3.59	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2033 DESIGN	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (E)		✓	564	100.000
B - Water Hall Lane		✓	10	100.000
C - A628 Barnsley Road (W)		✓	935	100.000
D - Well House Lane		✓	139	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	0	9	531	24
	B - Water Hall Lane	4	0	2	4
	C - A628 Barnsley Road (W)	790	0	0	145
	D - Well House Lane	42	1	96	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	10	10	10	10
	B - Water Hall Lane	10	10	10	10
	C - A628 Barnsley Road (W)	10	10	10	10
	D - Well House Lane	10	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.05	18.83	0.1	C
A-BCD	0.05	8.57	0.1	A
A-B				
A-C				
D-ABC	0.61	39.79	1.6	E
C-ABD	0.00	0.00	0.0	A
C-D				
C-A				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	8	314	0.024	7	0.0	12.896	B
A-BCD	18	583	0.031	18	0.0	7.001	A
A-B	7			7			
A-C	400			400			
D-ABC	105	351	0.298	103	0.5	15.854	C
C-ABD	0	1115	0.000	0	0.0	0.000	A
C-D	109			109			
C-A	595			595			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	9	276	0.033	9	0.0	14.833	B
A-BCD	22	543	0.040	22	0.0	7.587	A
A-B	8			8			
A-C	477			477			
D-ABC	125	310	0.403	124	0.7	21.188	C
C-ABD	0	1067	0.000	0	0.0	0.000	A
C-D	130			130			
C-A	710			710			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	11	222	0.050	11	0.1	18.780	C
A-BCD	26	488	0.054	26	0.1	8.572	A
A-B	10			10			
A-C	585			585			
D-ABC	153	252	0.608	150	1.6	37.693	E
C-ABD	0	1002	0.000	0	0.0	0.000	A
C-D	160			160			
C-A	870			870			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	11	221	0.050	11	0.1	18.834	C
A-BCD	26	488	0.054	26	0.1	8.574	A
A-B	10			10			
A-C	585			585			
D-ABC	153	252	0.608	153	1.6	39.786	E
C-ABD	0	1001	0.000	0	0.0	0.000	A
C-D	160			160			
C-A	870			870			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	9	275	0.033	9	0.0	14.885	B
A-BCD	22	543	0.040	22	0.0	7.589	A
A-B	8			8			
A-C	477			477			
D-ABC	125	310	0.404	128	0.8	22.221	C
C-ABD	0	1066	0.000	0	0.0	0.000	A
C-D	130			130			
C-A	710			710			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	8	314	0.024	8	0.0	12.930	B
A-BCD	18	583	0.031	18	0.0	7.007	A
A-B	7			7			
A-C	400			400			
D-ABC	105	351	0.298	106	0.5	16.239	C
C-ABD	0	1114	0.000	0	0.0	0.000	A
C-D	109			109			
C-A	595			595			

2033 DESIGN, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Barnsley Road/Well House Lane/Water Hall Lane	Right-Left Stagger	Two-way		2.88	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2033 DESIGN	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (E)		✓	684	100.000
B - Water Hall Lane		✓	3	100.000
C - A628 Barnsley Road (W)		✓	654	100.000
D - Well House Lane		✓	132	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	0	1	645	38
	B - Water Hall Lane	1	0	1	1
	C - A628 Barnsley Road (W)	542	0	0	112
	D - Well House Lane	19	1	112	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - A628 Barnsley Road (E)	B - Water Hall Lane	C - A628 Barnsley Road (W)	D - Well House Lane
From	A - A628 Barnsley Road (E)	10	10	10	10
	B - Water Hall Lane	10	10	10	10
	C - A628 Barnsley Road (W)	10	10	10	10
	D - Well House Lane	10	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.00	0.00	0.0	A
A-BCD	0.07	7.35	0.1	A
A-B				
A-C				
D-ABC	0.52	29.99	1.2	D
C-ABD	0.00	0.00	0.0	A
C-D				
C-A				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	368	0.000	0	0.0	0.000	A
A-BCD	29	646	0.044	28	0.1	6.406	A
A-B	0.75			0.75			
A-C	486			486			
D-ABC	99	360	0.276	98	0.4	15.012	C
C-ABD	0	1069	0.000	0	0.0	0.000	A
C-D	84			84			
C-A	408			408			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	332	0.000	0	0.0	0.000	A
A-BCD	34	619	0.055	34	0.1	6.772	A
A-B	0.90			0.90			
A-C	580			580			
D-ABC	119	325	0.365	118	0.6	19.015	C
C-ABD	0	1012	0.000	0	0.0	0.000	A
C-D	101			101			
C-A	487			487			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	280	0.000	0	0.0	0.000	A
A-BCD	42	581	0.072	42	0.1	7.350	A
A-B	1			1			
A-C	710			710			
D-ABC	145	277	0.525	143	1.1	29.160	D
C-ABD	0	935	0.000	0	0.0	0.000	A
C-D	123			123			
C-A	597			597			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	280	0.000	0	0.0	0.000	A
A-BCD	42	581	0.072	42	0.1	7.350	A
A-B	1			1			
A-C	710			710			
D-ABC	145	277	0.525	145	1.2	29.986	D
C-ABD	0	934	0.000	0	0.0	0.000	A
C-D	123			123			
C-A	597			597			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	332	0.000	0	0.0	0.000	A
A-BCD	34	619	0.055	34	0.1	6.774	A
A-B	0.90			0.90			
A-C	580			580			
D-ABC	119	325	0.365	121	0.7	19.558	C
C-ABD	0	1011	0.000	0	0.0	0.000	A
C-D	101			101			
C-A	487			487			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	0	368	0.000	0	0.0	0.000	A
A-BCD	29	646	0.044	29	0.1	6.409	A
A-B	0.75			0.75			
A-C	486			486			
D-ABC	99	360	0.276	100	0.4	15.305	C
C-ABD	0	1068	0.000	0	0.0	0.000	A
C-D	84			84			
C-A	408			408			

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: A629 Halifax Road-Well House Lane.j9
Path: O:\Halifax Road, Penistone\ANALYSIS\CAPACITY\Priority Junctions\October 2020 TA REV 1\A629 Halifax Road-Well House Lane\201015 Halifax Road-Well House Lane
Report generation date: 16/10/2020 11:12:40

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2018 COUNT					
Stream B-C	0.1	11.50	0.06	0.0	9.27	0.02
Stream B-A	1.0	24.74	0.47	0.3	14.75	0.21
Stream C-AB	0.0	7.63	0.03	0.0	7.67	0.02
	2033 BASE					
Stream B-C	0.1	13.43	0.07	0.0	9.67	0.03
Stream B-A	1.3	31.78	0.56	0.3	16.16	0.24
Stream C-AB	0.0	7.88	0.04	0.0	7.92	0.02
	2033 DESIGN					
Stream B-C	0.1	21.22	0.11	0.0	10.43	0.03
Stream B-A	2.6	53.29	0.72	0.5	18.91	0.30
Stream C-AB	0.0	8.12	0.04	0.0	8.38	0.02

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

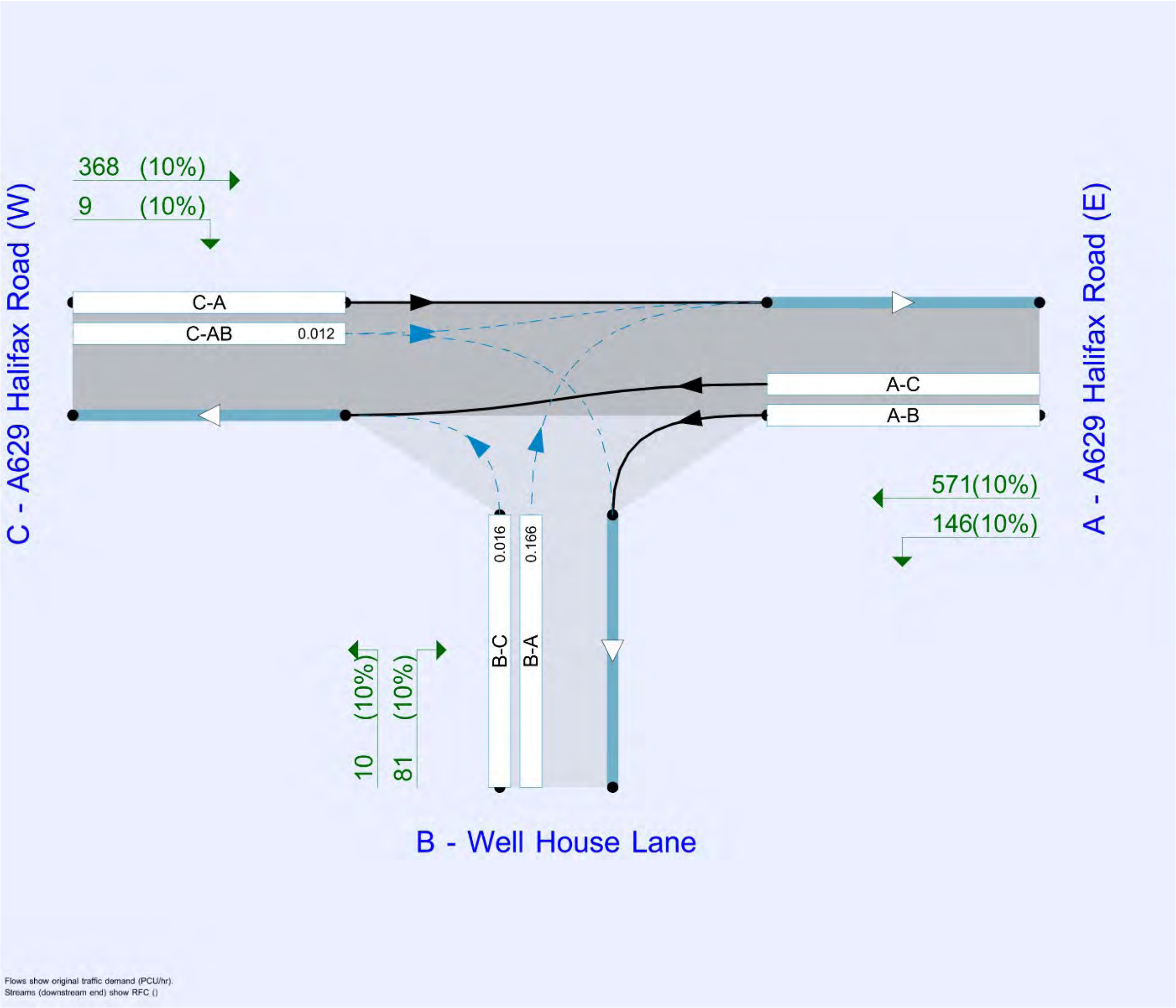
File summary

File Description

Title	A629 Halifax Road/Well House Lane
Location	
Site number	
Date	13/11/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UK
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2018 COUNT	AM	ONE HOUR	07:15	08:45	15
D2	2018 COUNT	PM	ONE HOUR	16:45	18:15	15
D3	2033 BASE	AM	ONE HOUR	07:15	08:45	15
D4	2033 BASE	PM	ONE HOUR	16:45	18:15	15
D5	2033 DESIGN	AM	ONE HOUR	07:15	08:45	15
D6	2033 DESIGN	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2018 COUNT, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A629 Halifax Road/Well House Lane	T-Junction	Two-way		2.88	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A629 Halifax Road (E)		Major
B	Well House Lane		Minor
C	A629 Halifax Road (W)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - A629 Halifax Road (W)	7.05		✓	2.40	160.0	✓	13.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Well House Lane	One lane plus flare	7.20	3.80	2.80	2.70	2.70		1.00	30	20

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	517	0.090	0.227	0.143	0.325
B-C	586	0.086	0.217	-	-
C-B	681	0.252	0.252	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2018 COUNT	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A629 Halifax Road (E)		✓	521	100.000
B - Well House Lane		✓	148	100.000
C - A629 Halifax Road (W)		✓	557	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	0	42	479
	B - Well House Lane	129	0	19
	C - A629 Halifax Road (W)	541	16	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	10	10	10
	B - Well House Lane	10	10	10
	C - A629 Halifax Road (W)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.06	11.50	0.1	B
B-A	0.47	24.74	1.0	C
C-AB	0.03	7.63	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	14	463	0.031	14	0.0	8.824	A
B-A	97	370	0.262	96	0.4	14.351	B
C-AB	12	582	0.021	12	0.0	6.942	A
C-A	407			407			
A-B	32			32			
A-C	361			361			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	17	428	0.040	17	0.0	9.623	A
B-A	116	341	0.340	115	0.6	17.458	C
C-AB	14	563	0.026	14	0.0	7.214	A
C-A	486			486			
A-B	38			38			
A-C	431			431			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	21	367	0.057	21	0.1	11.429	B
B-A	142	302	0.471	141	0.9	24.320	C
C-AB	18	537	0.033	18	0.0	7.628	A
C-A	596			596			
A-B	46			46			
A-C	527			527			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	21	365	0.057	21	0.1	11.498	B
B-A	142	302	0.471	142	1.0	24.745	C
C-AB	18	537	0.033	18	0.0	7.628	A
C-A	596			596			
A-B	46			46			
A-C	527			527			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	17	427	0.040	17	0.0	9.674	A
B-A	116	341	0.340	117	0.6	17.798	C
C-AB	14	563	0.026	14	0.0	7.215	A
C-A	486			486			
A-B	38			38			
A-C	431			431			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	14	461	0.031	14	0.0	8.859	A
B-A	97	370	0.262	98	0.4	14.590	B
C-AB	12	582	0.021	12	0.0	6.943	A
C-A	407			407			
A-B	32			32			
A-C	361			361			

2018 COUNT, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A629 Halifax Road/Well House Lane	T-Junction	Two-way		1.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2018 COUNT	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A629 Halifax Road (E)		✓	564	100.000
B - Well House Lane		✓	73	100.000
C - A629 Halifax Road (W)		✓	324	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	0	103	461
	B - Well House Lane	64	0	9
	C - A629 Halifax Road (W)	316	8	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	10	10	10
	B - Well House Lane	10	10	10
	C - A629 Halifax Road (W)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.02	9.27	0.0	A
B-A	0.21	14.75	0.3	B
C-AB	0.02	7.67	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	487	0.014	7	0.0	8.237	A
B-A	48	395	0.122	48	0.2	11.370	B
C-AB	6	574	0.010	6	0.0	6.968	A
C-A	238			238			
A-B	78			78			
A-C	347			347			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	467	0.017	8	0.0	8.631	A
B-A	58	372	0.155	57	0.2	12.592	B
C-AB	7	553	0.013	7	0.0	7.248	A
C-A	284			284			
A-B	93			93			
A-C	414			414			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	10	437	0.023	10	0.0	9.270	A
B-A	70	339	0.208	70	0.3	14.713	B
C-AB	9	525	0.017	9	0.0	7.674	A
C-A	348			348			
A-B	113			113			
A-C	508			508			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	10	437	0.023	10	0.0	9.274	A
B-A	70	339	0.208	70	0.3	14.751	B
C-AB	9	525	0.017	9	0.0	7.674	A
C-A	348			348			
A-B	113			113			
A-C	508			508			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	467	0.017	8	0.0	8.637	A
B-A	58	372	0.155	58	0.2	12.634	B
C-AB	7	553	0.013	7	0.0	7.251	A
C-A	284			284			
A-B	93			93			
A-C	414			414			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	7	487	0.014	7	0.0	8.244	A
B-A	48	395	0.122	48	0.2	11.422	B
C-AB	6	574	0.010	6	0.0	6.969	A
C-A	238			238			
A-B	78			78			
A-C	347			347			

2033 BASE, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A629 Halifax Road/Well House Lane	T-Junction	Two-way		3.67	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2033 BASE	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A629 Halifax Road (E)		✓	572	100.000
B - Well House Lane		✓	163	100.000
C - A629 Halifax Road (W)		✓	612	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	0	46	526
	B - Well House Lane	142	0	21
	C - A629 Halifax Road (W)	594	18	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	10	10	10
	B - Well House Lane	10	10	10
	C - A629 Halifax Road (W)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.07	13.43	0.1	B
B-A	0.56	31.78	1.3	D
C-AB	0.04	7.88	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	16	447	0.035	16	0.0	9.185	A
B-A	107	356	0.301	105	0.5	15.701	C
C-AB	14	573	0.024	13	0.0	7.081	A
C-A	447			447			
A-B	35			35			
A-C	396			396			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	19	404	0.047	19	0.1	10.278	B
B-A	128	324	0.394	127	0.7	19.976	C
C-AB	16	552	0.029	16	0.0	7.394	A
C-A	534			534			
A-B	41			41			
A-C	473			473			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	23	322	0.072	23	0.1	13.245	B
B-A	156	280	0.558	154	1.3	30.746	D
C-AB	20	523	0.038	20	0.0	7.877	A
C-A	654			654			
A-B	51			51			
A-C	579			579			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	23	318	0.073	23	0.1	13.432	B
B-A	156	280	0.558	156	1.3	31.783	D
C-AB	20	523	0.038	20	0.0	7.877	A
C-A	654			654			
A-B	51			51			
A-C	579			579			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	19	401	0.047	19	0.1	10.380	B
B-A	128	324	0.394	130	0.7	20.657	C
C-AB	16	552	0.029	16	0.0	7.395	A
C-A	534			534			
A-B	41			41			
A-C	473			473			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	16	445	0.036	16	0.0	9.240	A
B-A	107	355	0.301	108	0.5	16.063	C
C-AB	14	573	0.024	14	0.0	7.085	A
C-A	447			447			
A-B	35			35			
A-C	396			396			

2033 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A629 Halifax Road/Well House Lane	T-Junction	Two-way		1.23	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2033 BASE	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A629 Halifax Road (E)		✓	617	100.000
B - Well House Lane		✓	80	100.000
C - A629 Halifax Road (W)		✓	355	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	0	113	504
	B - Well House Lane	70	0	10
	C - A629 Halifax Road (W)	346	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	10	10	10
	B - Well House Lane	10	10	10
	C - A629 Halifax Road (W)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.03	9.67	0.0	A
B-A	0.24	16.16	0.3	C
C-AB	0.02	7.92	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	478	0.016	7	0.0	8.420	A
B-A	53	384	0.137	52	0.2	11.913	B
C-AB	7	564	0.012	7	0.0	7.103	A
C-A	260			260			
A-B	85			85			
A-C	379			379			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	455	0.020	9	0.0	8.884	A
B-A	63	358	0.176	63	0.2	13.404	B
C-AB	8	541	0.015	8	0.0	7.423	A
C-A	311			311			
A-B	102			102			
A-C	453			453			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	421	0.026	11	0.0	9.662	A
B-A	77	322	0.239	77	0.3	16.106	C
C-AB	10	510	0.019	10	0.0	7.917	A
C-A	381			381			
A-B	124			124			
A-C	555			555			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	421	0.026	11	0.0	9.668	A
B-A	77	322	0.239	77	0.3	16.160	C
C-AB	10	510	0.019	10	0.0	7.917	A
C-A	381			381			
A-B	124			124			
A-C	555			555			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	454	0.020	9	0.0	8.893	A
B-A	63	358	0.176	63	0.2	13.466	B
C-AB	8	541	0.015	8	0.0	7.427	A
C-A	311			311			
A-B	102			102			
A-C	453			453			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	477	0.016	8	0.0	8.429	A
B-A	53	384	0.137	53	0.2	11.979	B
C-AB	7	564	0.012	7	0.0	7.107	A
C-A	260			260			
A-B	85			85			
A-C	379			379			

2033 DESIGN, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A629 Halifax Road/Well House Lane	T-Junction	Two-way		6.52	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2033 DESIGN	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A629 Halifax Road (E)		✓	626	100.000
B - Well House Lane		✓	192	100.000
C - A629 Halifax Road (W)		✓	670	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	0	64	562
	B - Well House Lane	171	0	21
	C - A629 Halifax Road (W)	652	18	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	10	10	10
	B - Well House Lane	10	10	10
	C - A629 Halifax Road (W)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.11	21.22	0.1	C
B-A	0.72	53.29	2.6	F
C-AB	0.04	8.12	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	16	420	0.038	16	0.0	9.799	A
B-A	129	342	0.377	126	0.6	18.156	C
C-AB	14	562	0.024	13	0.0	7.213	A
C-A	491			491			
A-B	48			48			
A-C	423			423			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	19	358	0.053	19	0.1	11.671	B
B-A	154	308	0.500	152	1.0	25.192	D
C-AB	16	539	0.030	16	0.0	7.567	A
C-A	586			586			
A-B	58			58			
A-C	505			505			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	23	223	0.104	23	0.1	19.742	C
B-A	188	260	0.724	183	2.4	48.020	E
C-AB	20	508	0.039	20	0.0	8.118	A
C-A	718			718			
A-B	70			70			
A-C	619			619			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	23	210	0.110	23	0.1	21.221	C
B-A	188	260	0.724	188	2.6	53.291	F
C-AB	20	508	0.039	20	0.0	8.118	A
C-A	718			718			
A-B	70			70			
A-C	619			619			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	19	347	0.054	19	0.1	12.084	B
B-A	154	308	0.500	160	1.2	27.690	D
C-AB	16	539	0.030	16	0.0	7.571	A
C-A	586			586			
A-B	58			58			
A-C	505			505			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	16	415	0.038	16	0.0	9.914	A
B-A	129	342	0.377	131	0.7	18.915	C
C-AB	14	562	0.024	14	0.0	7.217	A
C-A	491			491			
A-B	48			48			
A-C	423			423			

2033 DESIGN, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A629 Halifax Road/Well House Lane	T-Junction	Two-way		1.44	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2033 DESIGN	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A629 Halifax Road (E)		✓	717	100.000
B - Well House Lane		✓	91	100.000
C - A629 Halifax Road (W)		✓	377	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	0	146	571
	B - Well House Lane	81	0	10
	C - A629 Halifax Road (W)	368	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A629 Halifax Road (E)	B - Well House Lane	C - A629 Halifax Road (W)
From	A - A629 Halifax Road (E)	10	10	10
	B - Well House Lane	10	10	10
	C - A629 Halifax Road (W)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.03	10.43	0.0	B
B-A	0.30	18.91	0.5	C
C-AB	0.02	8.38	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	461	0.016	7	0.0	8.736	A
B-A	61	368	0.166	60	0.2	12.835	B
C-AB	7	545	0.012	7	0.0	7.354	A
C-A	277			277			
A-B	110			110			
A-C	430			430			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	433	0.021	9	0.0	9.335	A
B-A	73	339	0.215	72	0.3	14.858	B
C-AB	8	519	0.016	8	0.0	7.753	A
C-A	331			331			
A-B	131			131			
A-C	513			513			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	391	0.028	11	0.0	10.418	B
B-A	89	299	0.299	89	0.5	18.796	C
C-AB	10	482	0.021	10	0.0	8.382	A
C-A	405			405			
A-B	161			161			
A-C	629			629			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	11	391	0.028	11	0.0	10.431	B
B-A	89	299	0.299	89	0.5	18.906	C
C-AB	10	482	0.021	10	0.0	8.382	A
C-A	405			405			
A-B	161			161			
A-C	629			629			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	433	0.021	9	0.0	9.348	A
B-A	73	339	0.215	73	0.3	14.963	B
C-AB	8	519	0.016	8	0.0	7.755	A
C-A	331			331			
A-B	131			131			
A-C	513			513			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	460	0.016	8	0.0	8.749	A
B-A	61	368	0.166	61	0.2	12.942	B
C-AB	7	545	0.012	7	0.0	7.357	A
C-A	277			277			
A-B	110			110			
A-C	430			430			

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: A628 Barnsley Road-B6462 Huddersfield Road (E).j9
Path: O:\Halifax Road, Penistone\ANALYSIS\CAPACITY\Priority Junctions\October 2020 TA REV 1\A628 Barnsley Road-B6462 Huddersfield Road
Report generation date: 16/10/2020 11:59:47

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2018 COUNT					
Stream B-C	0.2	12.10	0.16	0.1	10.78	0.08
Stream B-A	1.0	24.88	0.47	1.2	23.08	0.52
Stream C-AB	0.3	11.13	0.20	0.0	7.75	0.02
	2033 BASE					
Stream B-C	0.3	15.38	0.21	0.1	12.96	0.10
Stream B-A	1.5	35.11	0.58	1.6	30.09	0.61
Stream C-AB	0.3	12.16	0.23	0.0	7.99	0.02
	2033 DESIGN					
Stream B-C	0.3	16.47	0.22	0.1	13.91	0.11
Stream B-A	1.6	38.95	0.61	1.8	33.09	0.63
Stream C-AB	0.3	12.36	0.23	0.0	8.14	0.02

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

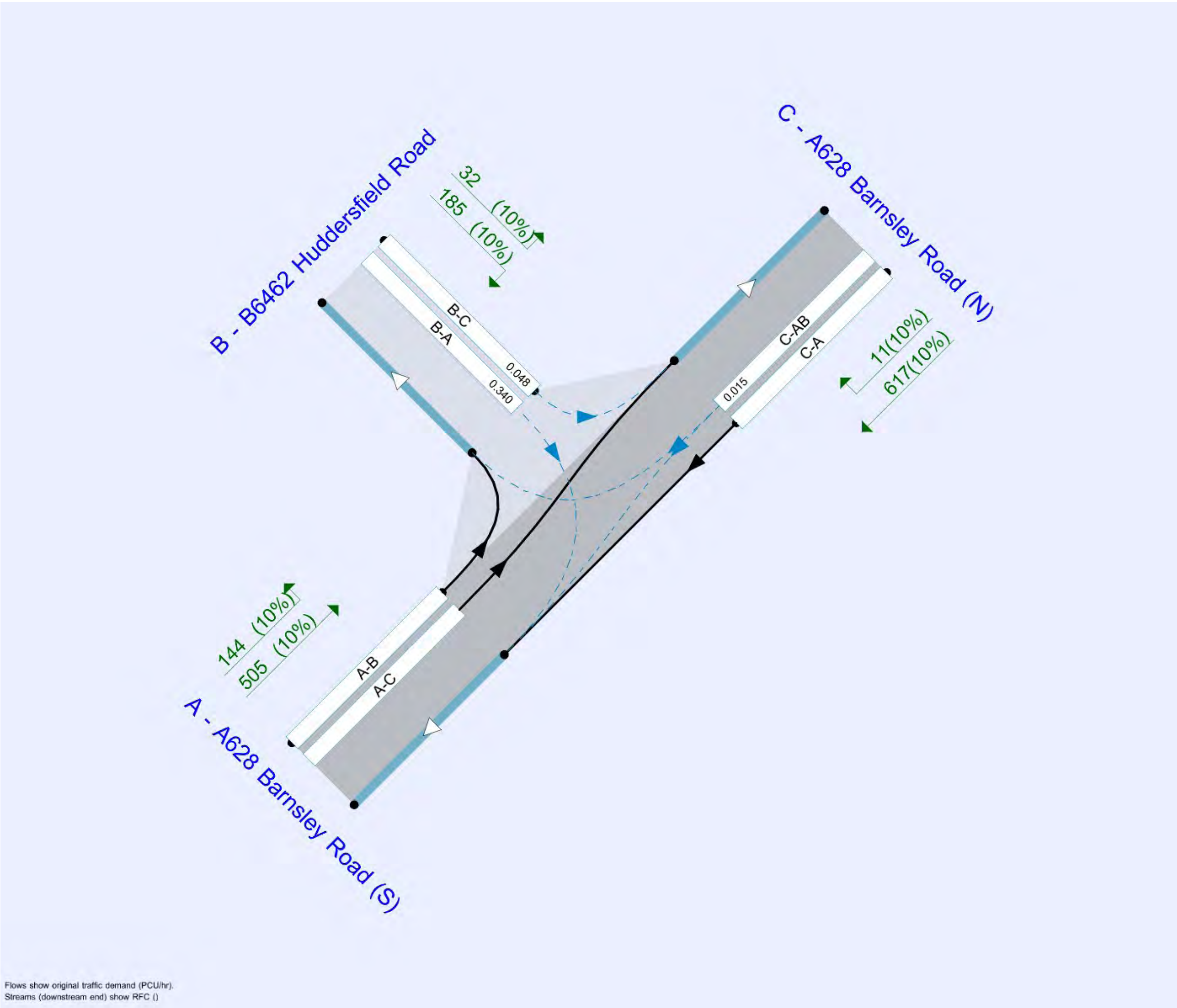
File summary

File Description

Title	A628 Barnsley Road-B6462 Huddersfield Road (E)
Location	
Site number	
Date	13/11/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UK
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2018 COUNT	AM	ONE HOUR	07:15	08:45	15
D2	2018 COUNT	PM	ONE HOUR	16:45	18:15	15
D3	2033 BASE	AM	ONE HOUR	07:15	08:45	15
D4	2033 BASE	PM	ONE HOUR	16:45	18:15	15
D5	2033 DESIGN	AM	ONE HOUR	07:15	08:45	15
D6	2033 DESIGN	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2018 COUNT, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A628 Barnsley Road/B6462 Huddersfield Road (E)	T-Junction	Two-way		3.17	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A628 Barnsley Road (S)		Major
B	B6462 Huddersfield Road		Minor
C	A628 Barnsley Road (N)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - A628 Barnsley Road (N)	7.50		✓	3.16	60.0	✓	5.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - B6462 Huddersfield Road	One lane plus flare	10.00	6.00	4.20	3.30	3.30		1.00	70	70

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	620	0.105	0.267	0.168	0.381
B-C	696	0.100	0.252	-	-
C-B	672	0.243	0.243	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2018 COUNT	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (S)		✓	857	100.000
B - B6462 Huddersfield Road		✓	185	100.000
C - A628 Barnsley Road (N)		✓	460	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	0	218	639
	B - B6462 Huddersfield Road	128	0	57
	C - A628 Barnsley Road (N)	381	79	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	10	10	10
	B - B6462 Huddersfield Road	10	10	10
	C - A628 Barnsley Road (N)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.16	12.10	0.2	B
B-A	0.47	24.88	1.0	C
C-AB	0.20	11.13	0.3	B
C-A				
A-B				
A-C				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	43	518	0.083	43	0.1	8.323	A
B-A	96	403	0.239	95	0.3	12.821	B
C-AB	59	515	0.115	59	0.1	8.668	A
C-A	287			287			
A-B	164			164			
A-C	481			481			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	51	473	0.108	51	0.1	9.392	A
B-A	115	360	0.320	114	0.5	16.097	C
C-AB	71	485	0.147	71	0.2	9.563	A
C-A	343			343			
A-B	196			196			
A-C	574			574			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	63	392	0.160	62	0.2	11.992	B
B-A	141	300	0.470	139	0.9	24.400	C
C-AB	87	443	0.197	87	0.3	11.110	B
C-A	419			419			
A-B	240			240			
A-C	704			704			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	63	390	0.161	63	0.2	12.099	B
B-A	141	300	0.470	141	1.0	24.884	C
C-AB	87	443	0.197	87	0.3	11.129	B
C-A	419			419			
A-B	240			240			
A-C	704			704			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	51	470	0.109	52	0.1	9.460	A
B-A	115	360	0.320	117	0.5	16.408	C
C-AB	71	485	0.147	71	0.2	9.586	A
C-A	343			343			
A-B	196			196			
A-C	574			574			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	43	516	0.083	43	0.1	8.369	A
B-A	96	402	0.239	97	0.4	13.000	B
C-AB	59	515	0.115	60	0.1	8.697	A
C-A	287			287			
A-B	164			164			
A-C	481			481			

2018 COUNT, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A628 Barnsley Road/B6462 Huddersfield Road (E)	T-Junction	Two-way		3.24	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2018 COUNT	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (S)		✓	562	100.000
B - B6462 Huddersfield Road		✓	198	100.000
C - A628 Barnsley Road (N)		✓	563	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	0	132	430
	B - B6462 Huddersfield Road	169	0	29
	C - A628 Barnsley Road (N)	553	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	10	10	10
	B - B6462 Huddersfield Road	10	10	10
	C - A628 Barnsley Road (N)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.08	10.78	0.1	B
B-A	0.52	23.08	1.2	C
C-AB	0.02	7.75	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	22	524	0.042	22	0.0	7.884	A
B-A	127	434	0.293	125	0.4	12.773	B
C-AB	8	569	0.013	7	0.0	7.048	A
C-A	416			416			
A-B	99			99			
A-C	324			324			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	26	481	0.054	26	0.1	8.705	A
B-A	152	402	0.378	151	0.7	15.747	C
C-AB	9	549	0.016	9	0.0	7.328	A
C-A	497			497			
A-B	119			119			
A-C	387			387			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	32	402	0.079	32	0.1	10.696	B
B-A	186	357	0.521	184	1.1	22.606	C
C-AB	11	522	0.021	11	0.0	7.754	A
C-A	609			609			
A-B	145			145			
A-C	473			473			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	32	399	0.080	32	0.1	10.780	B
B-A	186	357	0.521	186	1.2	23.075	C
C-AB	11	522	0.021	11	0.0	7.754	A
C-A	609			609			
A-B	145			145			
A-C	473			473			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	26	478	0.055	26	0.1	8.760	A
B-A	152	402	0.378	154	0.7	16.096	C
C-AB	9	549	0.016	9	0.0	7.328	A
C-A	497			497			
A-B	119			119			
A-C	387			387			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	22	522	0.042	22	0.0	7.921	A
B-A	127	434	0.293	128	0.5	13.000	B
C-AB	8	569	0.013	8	0.0	7.051	A
C-A	416			416			
A-B	99			99			
A-C	324			324			

2033 BASE, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A628 Barnsley Road/B6462 Huddersfield Road (E)	T-Junction	Two-way		4.21	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2033 BASE	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (S)		✓	942	100.000
B - B6462 Huddersfield Road		✓	203	100.000
C - A628 Barnsley Road (N)		✓	505	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	0	240	702
	B - B6462 Huddersfield Road	141	0	62
	C - A628 Barnsley Road (N)	419	86	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	10	10	10
	B - B6462 Huddersfield Road	10	10	10
	C - A628 Barnsley Road (N)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.21	15.38	0.3	C
B-A	0.58	35.11	1.5	E
C-AB	0.23	12.16	0.3	B
C-A				
A-B				
A-C				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	47	496	0.094	46	0.1	8.798	A
B-A	106	381	0.278	104	0.4	14.223	B
C-AB	65	500	0.130	64	0.2	9.078	A
C-A	315			315			
A-B	181			181			
A-C	529			529			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	56	440	0.127	56	0.2	10.286	B
B-A	127	334	0.380	126	0.7	18.931	C
C-AB	77	466	0.166	77	0.2	10.172	B
C-A	377			377			
A-B	216			216			
A-C	631			631			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	68	331	0.206	68	0.3	15.013	C
B-A	155	267	0.581	152	1.4	33.543	D
C-AB	95	420	0.226	94	0.3	12.136	B
C-A	461			461			
A-B	264			264			
A-C	773			773			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	68	326	0.210	68	0.3	15.385	C
B-A	155	267	0.581	155	1.5	35.109	E
C-AB	95	420	0.226	95	0.3	12.165	B
C-A	461			461			
A-B	264			264			
A-C	773			773			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	56	436	0.128	56	0.2	10.443	B
B-A	127	334	0.380	130	0.7	19.665	C
C-AB	77	466	0.166	78	0.2	10.202	B
C-A	377			377			
A-B	216			216			
A-C	631			631			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	47	494	0.095	47	0.1	8.868	A
B-A	106	381	0.278	107	0.4	14.509	B
C-AB	65	500	0.130	65	0.2	9.116	A
C-A	315			315			
A-B	181			181			
A-C	529			529			

2033 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A628 Barnsley Road/B6462 Huddersfield Road (E)	T-Junction	Two-way		4.19	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2033 BASE	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (S)		✓	614	100.000
B - B6462 Huddersfield Road		✓	217	100.000
C - A628 Barnsley Road (N)		✓	616	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	0	144	470
	B - B6462 Huddersfield Road	185	0	32
	C - A628 Barnsley Road (N)	605	11	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	10	10	10
	B - B6462 Huddersfield Road	10	10	10
	C - A628 Barnsley Road (N)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.10	12.96	0.1	B
B-A	0.61	30.09	1.6	D
C-AB	0.02	7.99	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	24	505	0.048	24	0.1	8.229	A
B-A	139	418	0.333	137	0.5	13.982	B
C-AB	8	560	0.015	8	0.0	7.179	A
C-A	455			455			
A-B	108			108			
A-C	354			354			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	29	452	0.064	29	0.1	9.365	A
B-A	166	383	0.434	165	0.8	18.060	C
C-AB	10	538	0.018	10	0.0	7.498	A
C-A	544			544			
A-B	129			129			
A-C	423			423			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	346	0.102	35	0.1	12.718	B
B-A	204	334	0.609	201	1.6	28.911	D
C-AB	12	508	0.024	12	0.0	7.990	A
C-A	666			666			
A-B	159			159			
A-C	517			517			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	341	0.103	35	0.1	12.957	B
B-A	204	334	0.609	203	1.6	30.089	D
C-AB	12	508	0.024	12	0.0	7.990	A
C-A	666			666			
A-B	159			159			
A-C	517			517			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	29	447	0.064	29	0.1	9.480	A
B-A	166	383	0.434	169	0.9	18.772	C
C-AB	10	538	0.018	10	0.0	7.499	A
C-A	544			544			
A-B	129			129			
A-C	423			423			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	24	502	0.048	24	0.1	8.285	A
B-A	139	418	0.333	141	0.6	14.319	B
C-AB	8	560	0.015	8	0.0	7.180	A
C-A	455			455			
A-B	108			108			
A-C	354			354			

2033 DESIGN, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A628 Barnsley Road/B6462 Huddersfield Road (E)	T-Junction	Two-way		4.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2033 DESIGN	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (S)		✓	961	100.000
B - B6462 Huddersfield Road		✓	203	100.000
C - A628 Barnsley Road (N)		✓	535	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	0	240	721
	B - B6462 Huddersfield Road	141	0	62
	C - A628 Barnsley Road (N)	449	86	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	10	10	10
	B - B6462 Huddersfield Road	10	10	10
	C - A628 Barnsley Road (N)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.22	16.47	0.3	C
B-A	0.61	38.95	1.6	E
C-AB	0.23	12.36	0.3	B
C-A				
A-B				
A-C				

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	47	491	0.095	46	0.1	8.891	A
B-A	106	374	0.284	104	0.4	14.617	B
C-AB	65	496	0.131	64	0.2	9.151	A
C-A	338			338			
A-B	181			181			
A-C	543			543			

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	56	433	0.129	56	0.2	10.477	B
B-A	127	325	0.390	126	0.7	19.781	C
C-AB	77	462	0.167	77	0.2	10.283	B
C-A	404			404			
A-B	216			216			
A-C	648			648			

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	68	315	0.216	68	0.3	15.957	C
B-A	155	256	0.606	152	1.5	36.823	E
C-AB	95	415	0.228	94	0.3	12.325	B
C-A	494			494			
A-B	264			264			
A-C	794			794			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	68	309	0.221	68	0.3	16.472	C
B-A	155	256	0.607	155	1.6	38.949	E
C-AB	95	415	0.228	95	0.3	12.356	B
C-A	494			494			
A-B	264			264			
A-C	794			794			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	56	420	0.133	56	0.2	10.893	B
B-A	127	308	0.412	130	0.8	22.637	C
C-AB	77	462	0.167	78	0.2	10.315	B
C-A	404			404			
A-B	216			216			
A-C	648			648			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	47	489	0.096	47	0.1	8.971	A
B-A	106	374	0.284	108	0.4	14.960	B
C-AB	65	496	0.131	65	0.2	9.190	A
C-A	338			338			
A-B	181			181			
A-C	543			543			

2033 DESIGN, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A628 Barnsley Road/B6462 Huddersfield Road (E)	T-Junction	Two-way		4.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2033 DESIGN	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A628 Barnsley Road (S)		✓	649	100.000
B - B6462 Huddersfield Road		✓	217	100.000
C - A628 Barnsley Road (N)		✓	628	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	0	144	505
	B - B6462 Huddersfield Road	185	0	32
	C - A628 Barnsley Road (N)	617	11	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - A628 Barnsley Road (S)	B - B6462 Huddersfield Road	C - A628 Barnsley Road (N)
From	A - A628 Barnsley Road (S)	10	10	10
	B - B6462 Huddersfield Road	10	10	10
	C - A628 Barnsley Road (N)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.11	13.91	0.1	B
B-A	0.63	33.09	1.8	D
C-AB	0.02	8.14	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	24	497	0.048	24	0.1	8.363	A
B-A	139	410	0.340	137	0.6	14.393	B
C-AB	8	553	0.015	8	0.0	7.264	A
C-A	465			465			
A-B	108			108			
A-C	380			380			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	29	441	0.065	29	0.1	9.609	A
B-A	166	373	0.445	165	0.9	18.895	C
C-AB	10	530	0.019	10	0.0	7.609	A
C-A	555			555			
A-B	129			129			
A-C	454			454			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	327	0.108	35	0.1	13.576	B
B-A	204	322	0.632	200	1.7	31.518	D
C-AB	12	498	0.024	12	0.0	8.144	A
C-A	679			679			
A-B	159			159			
A-C	556			556			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	35	320	0.110	35	0.1	13.907	B
B-A	204	322	0.632	203	1.8	33.086	D
C-AB	12	498	0.024	12	0.0	8.144	A
C-A	679			679			
A-B	159			159			
A-C	556			556			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	29	435	0.066	29	0.1	9.756	A
B-A	166	373	0.445	170	0.9	19.777	C
C-AB	10	530	0.019	10	0.0	7.612	A
C-A	555			555			
A-B	129			129			
A-C	454			454			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	24	494	0.049	24	0.1	8.423	A
B-A	139	410	0.340	141	0.6	14.770	B
C-AB	8	553	0.015	8	0.0	7.264	A
C-A	465			465			
A-B	108			108			
A-C	380			380			

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Hoylandswaine Roundabout.j9
Path: O:\Halifax Road, Penistone\ANALYSIS\CAPACITY\Roundabouts\Hoylandswaine Roundabout\201015
Report generation date: 16/10/2020 10:53:29

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2018 COUNT					
1 - A628 Barnsley Road (N)	0.8	5.00	0.42	1.4	6.33	0.56
2 - A629 High Lee Lane	0.6	5.11	0.37	0.6	5.57	0.35
3 - A628 Barnsley Road (S)	1.9	10.41	0.63	0.8	6.75	0.43
4 - A629 Halifax Road	1.4	7.93	0.56	0.5	4.55	0.31
	2033 BASE					
1 - A628 Barnsley Road (N)	1.0	5.59	0.47	1.7	7.43	0.62
2 - A629 High Lee Lane	0.8	5.69	0.41	0.7	6.30	0.41
3 - A628 Barnsley Road (S)	2.7	13.82	0.72	1.0	7.67	0.49
4 - A629 Halifax Road	1.9	10.10	0.64	0.6	4.93	0.35
	2033 DESIGN					
1 - A628 Barnsley Road (N)	1.2	6.28	0.52	2.4	9.35	0.69
2 - A629 High Lee Lane	0.9	6.23	0.45	1.0	7.60	0.48
3 - A628 Barnsley Road (S)	3.6	17.61	0.77	1.2	8.87	0.53
4 - A629 Halifax Road	3.0	14.04	0.74	0.7	5.21	0.38

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

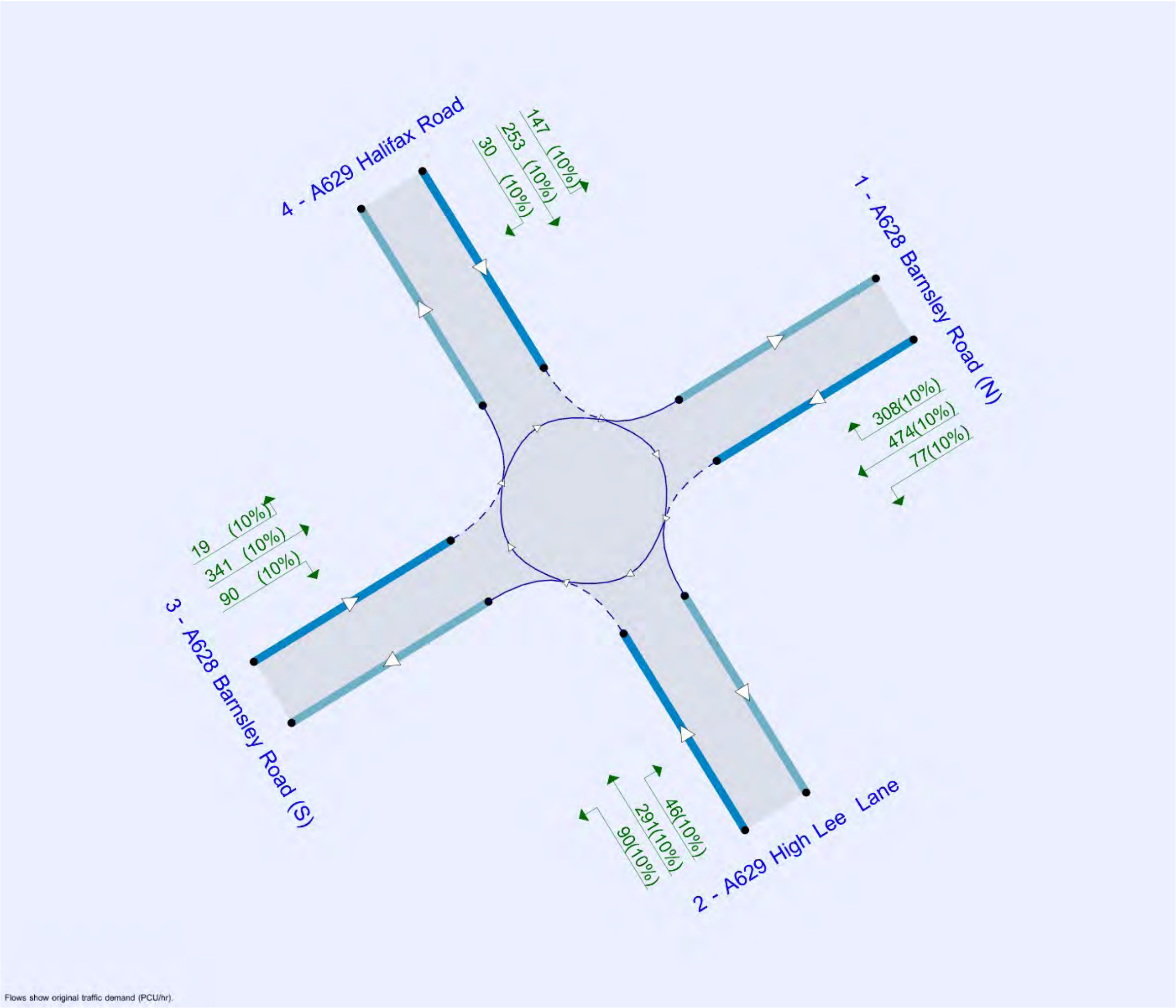
File summary

File Description

Title	Hoylandswaine Roundabout
Location	
Site number	
Date	14/11/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UK
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2018 COUNT	AM	ONE HOUR	07:15	08:45	15
D2	2018 COUNT	PM	ONE HOUR	16:45	18:15	15
D3	2033 BASE	AM	ONE HOUR	07:15	08:45	15
D4	2033 BASE	PM	ONE HOUR	16:45	18:15	15
D5	2033 DESIGN	AM	ONE HOUR	07:15	08:45	15
D6	2033 DESIGN	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2018 COUNT, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Hoylandswaine Roundabout	Standard Roundabout		1, 2, 3, 4	7.38	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A628 Barnsley Road (N)	
2	A629 High Lee Lane	
3	A628 Barnsley Road (S)	
4	A629 Halifax Road	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A628 Barnsley Road (N)	5.10	6.10	1.6	11.0	38.0	19.8	
2 - A629 High Lee Lane	4.40	4.80	15.6	163.0	38.0	15.3	
3 - A628 Barnsley Road (S)	4.60	5.40	1.3	9.0	38.0	40.0	
4 - A629 Halifax Road	4.60	4.90	12.5	38.0	38.0	17.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A628 Barnsley Road (N)	0.633	1639
2 - A629 High Lee Lane	0.651	1581
3 - A628 Barnsley Road (S)	0.544	1336
4 - A629 Halifax Road	0.643	1579

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2018 COUNT	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A628 Barnsley Road (N)		✓	513	100.000
2 - A629 High Lee Lane		✓	407	100.000
3 - A628 Barnsley Road (S)		✓	599	100.000
4 - A629 Halifax Road		✓	575	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	6	37	315	155
	2 - A629 High Lee Lane	39	1	73	294
	3 - A628 Barnsley Road (S)	475	109	2	13
	4 - A629 Halifax Road	282	271	22	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	10	10	10	10
	2 - A629 High Lee Lane	10	10	10	10
	3 - A628 Barnsley Road (S)	10	10	10	10
	4 - A629 Halifax Road	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - A628 Barnsley Road (N)	0.42	5.00	0.8	A
2 - A629 High Lee Lane	0.37	5.11	0.6	A
3 - A628 Barnsley Road (S)	0.63	10.41	1.9	B
4 - A629 Halifax Road	0.56	7.93	1.4	A

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	386	303	1447	0.267	385	0.4	3.723	A
2 - A629 High Lee Lane	306	375	1337	0.229	305	0.3	3.833	A
3 - A628 Barnsley Road (S)	451	371	1134	0.398	448	0.7	5.748	A
4 - A629 Halifax Road	433	473	1275	0.339	431	0.6	4.676	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	461	363	1409	0.327	461	0.5	4.174	A
2 - A629 High Lee Lane	366	449	1289	0.284	365	0.4	4.287	A
3 - A628 Barnsley Road (S)	538	444	1094	0.492	537	1.1	7.092	A
4 - A629 Halifax Road	517	567	1215	0.426	516	0.8	5.657	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	565	444	1358	0.416	564	0.8	4.981	A
2 - A629 High Lee Lane	448	550	1223	0.366	447	0.6	5.098	A
3 - A628 Barnsley Road (S)	660	544	1040	0.634	656	1.9	10.236	B
4 - A629 Halifax Road	633	693	1134	0.558	631	1.4	7.836	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	565	446	1357	0.416	565	0.8	5.000	A
2 - A629 High Lee Lane	448	550	1223	0.367	448	0.6	5.112	A
3 - A628 Barnsley Road (S)	660	545	1039	0.635	659	1.9	10.413	B
4 - A629 Halifax Road	633	696	1132	0.559	633	1.4	7.934	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	461	366	1407	0.328	462	0.5	4.195	A
2 - A629 High Lee Lane	366	450	1288	0.284	367	0.4	4.302	A
3 - A628 Barnsley Road (S)	538	446	1093	0.493	542	1.1	7.218	A
4 - A629 Halifax Road	517	571	1212	0.427	519	0.8	5.735	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	386	306	1445	0.267	387	0.4	3.744	A
2 - A629 High Lee Lane	306	377	1336	0.229	307	0.3	3.852	A
3 - A628 Barnsley Road (S)	451	373	1133	0.398	452	0.7	5.832	A
4 - A629 Halifax Road	433	477	1272	0.340	434	0.6	4.729	A

2018 COUNT, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Hoylandswaine Roundabout	Standard Roundabout		1, 2, 3, 4	5.92	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2018 COUNT	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A628 Barnsley Road (N)		✓	710	100.000
2 - A629 High Lee Lane		✓	355	100.000
3 - A628 Barnsley Road (S)		✓	404	100.000
4 - A629 Halifax Road		✓	363	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	6	71	412	221
	2 - A629 High Lee Lane	42	1	73	239
	3 - A628 Barnsley Road (S)	305	79	3	17
	4 - A629 Halifax Road	114	222	27	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	10	10	10	10
	2 - A629 High Lee Lane	10	10	10	10
	3 - A628 Barnsley Road (S)	10	10	10	10
	4 - A629 Halifax Road	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - A628 Barnsley Road (N)	0.56	6.33	1.4	A
2 - A629 High Lee Lane	0.35	5.57	0.6	A
3 - A628 Barnsley Road (S)	0.43	6.75	0.8	A
4 - A629 Halifax Road	0.31	4.55	0.5	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	535	249	1481	0.361	532	0.6	4.161	A
2 - A629 High Lee Lane	267	501	1255	0.213	266	0.3	4.001	A
3 - A628 Barnsley Road (S)	304	381	1128	0.270	303	0.4	4.786	A
4 - A629 Halifax Road	273	327	1369	0.200	272	0.3	3.606	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	638	298	1450	0.440	637	0.9	4.865	A
2 - A629 High Lee Lane	319	601	1190	0.268	319	0.4	4.543	A
3 - A628 Barnsley Road (S)	363	457	1087	0.334	363	0.5	5.459	A
4 - A629 Halifax Road	326	391	1328	0.246	326	0.4	3.953	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	782	365	1408	0.555	780	1.4	6.283	A
2 - A629 High Lee Lane	391	735	1103	0.354	390	0.6	5.551	A
3 - A628 Barnsley Road (S)	445	559	1032	0.431	444	0.8	6.722	A
4 - A629 Halifax Road	400	479	1271	0.314	399	0.5	4.537	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	782	366	1408	0.555	782	1.4	6.327	A
2 - A629 High Lee Lane	391	737	1102	0.355	391	0.6	5.571	A
3 - A628 Barnsley Road (S)	445	560	1031	0.431	445	0.8	6.754	A
4 - A629 Halifax Road	400	480	1271	0.315	400	0.5	4.546	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	638	299	1450	0.440	640	0.9	4.904	A
2 - A629 High Lee Lane	319	603	1188	0.269	320	0.4	4.565	A
3 - A628 Barnsley Road (S)	363	459	1086	0.334	364	0.6	5.494	A
4 - A629 Halifax Road	326	393	1326	0.246	327	0.4	3.965	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	535	250	1480	0.361	536	0.6	4.195	A
2 - A629 High Lee Lane	267	505	1252	0.213	268	0.3	4.022	A
3 - A628 Barnsley Road (S)	304	384	1127	0.270	305	0.4	4.820	A
4 - A629 Halifax Road	273	329	1368	0.200	274	0.3	3.622	A

2033 BASE, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Hoylandswaine Roundabout	Standard Roundabout		1, 2, 3, 4	9.20	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2033 BASE	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A628 Barnsley Road (N)		✓	564	100.000
2 - A629 High Lee Lane		✓	447	100.000
3 - A628 Barnsley Road (S)		✓	658	100.000
4 - A629 Halifax Road		✓	632	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	7	41	346	170
	2 - A629 High Lee Lane	43	1	80	323
	3 - A628 Barnsley Road (S)	522	120	2	14
	4 - A629 Halifax Road	310	298	24	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	10	10	10	10
	2 - A629 High Lee Lane	10	10	10	10
	3 - A628 Barnsley Road (S)	10	10	10	10
	4 - A629 Halifax Road	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - A628 Barnsley Road (N)	0.47	5.59	1.0	A
2 - A629 High Lee Lane	0.41	5.69	0.8	A
3 - A628 Barnsley Road (S)	0.72	13.82	2.7	B
4 - A629 Halifax Road	0.64	10.10	1.9	B

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	425	333	1428	0.297	423	0.5	3.932	A
2 - A629 High Lee Lane	337	411	1313	0.256	335	0.4	4.043	A
3 - A628 Barnsley Road (S)	495	408	1114	0.445	492	0.9	6.329	A
4 - A629 Halifax Road	476	520	1245	0.382	473	0.7	5.112	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	507	399	1386	0.366	506	0.6	4.497	A
2 - A629 High Lee Lane	402	493	1260	0.319	401	0.5	4.608	A
3 - A628 Barnsley Road (S)	592	488	1070	0.553	590	1.3	8.209	A
4 - A629 Halifax Road	568	623	1179	0.482	567	1.0	6.456	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	621	487	1331	0.467	620	1.0	5.560	A
2 - A629 High Lee Lane	492	603	1188	0.414	491	0.8	5.671	A
3 - A628 Barnsley Road (S)	724	598	1011	0.717	719	2.6	13.344	B
4 - A629 Halifax Road	696	760	1091	0.638	692	1.9	9.854	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	621	490	1329	0.467	621	1.0	5.593	A
2 - A629 High Lee Lane	492	604	1188	0.414	492	0.8	5.694	A
3 - A628 Barnsley Road (S)	724	599	1010	0.717	724	2.7	13.817	B
4 - A629 Halifax Road	696	765	1087	0.640	696	1.9	10.097	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	507	403	1384	0.366	508	0.6	4.528	A
2 - A629 High Lee Lane	402	495	1259	0.319	403	0.5	4.633	A
3 - A628 Barnsley Road (S)	592	490	1069	0.553	597	1.4	8.476	A
4 - A629 Halifax Road	568	630	1174	0.484	572	1.0	6.609	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	425	336	1426	0.298	425	0.5	3.959	A
2 - A629 High Lee Lane	337	414	1311	0.257	337	0.4	4.067	A
3 - A628 Barnsley Road (S)	495	410	1113	0.445	497	0.9	6.454	A
4 - A629 Halifax Road	476	525	1242	0.383	477	0.7	5.190	A

2033 BASE, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Hoylandswaine Roundabout	Standard Roundabout		1, 2, 3, 4	6.77	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2033 BASE	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A628 Barnsley Road (N)		✓	775	100.000
2 - A629 High Lee Lane		✓	389	100.000
3 - A628 Barnsley Road (S)		✓	442	100.000
4 - A629 Halifax Road		✓	398	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	7	77	450	241
	2 - A629 High Lee Lane	46	1	81	261
	3 - A628 Barnsley Road (S)	334	86	3	19
	4 - A629 Halifax Road	125	243	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	10	10	10	10
	2 - A629 High Lee Lane	10	10	10	10
	3 - A628 Barnsley Road (S)	10	10	10	10
	4 - A629 Halifax Road	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - A628 Barnsley Road (N)	0.62	7.43	1.7	A
2 - A629 High Lee Lane	0.41	6.30	0.7	A
3 - A628 Barnsley Road (S)	0.49	7.67	1.0	A
4 - A629 Halifax Road	0.35	4.93	0.6	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	583	272	1467	0.398	581	0.7	4.455	A
2 - A629 High Lee Lane	293	548	1224	0.239	291	0.3	4.238	A
3 - A628 Barnsley Road (S)	333	417	1109	0.300	331	0.5	5.075	A
4 - A629 Halifax Road	300	357	1350	0.222	298	0.3	3.761	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	697	326	1433	0.486	695	1.0	5.364	A
2 - A629 High Lee Lane	350	656	1154	0.303	349	0.5	4.917	A
3 - A628 Barnsley Road (S)	397	499	1064	0.373	397	0.6	5.924	A
4 - A629 Halifax Road	358	428	1304	0.274	357	0.4	4.181	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	853	399	1386	0.615	851	1.7	7.351	A
2 - A629 High Lee Lane	428	802	1059	0.405	427	0.7	6.261	A
3 - A628 Barnsley Road (S)	487	610	1004	0.485	485	1.0	7.614	A
4 - A629 Halifax Road	438	524	1243	0.353	437	0.6	4.914	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	853	400	1386	0.616	853	1.7	7.431	A
2 - A629 High Lee Lane	428	805	1057	0.405	428	0.7	6.296	A
3 - A628 Barnsley Road (S)	487	612	1003	0.485	487	1.0	7.670	A
4 - A629 Halifax Road	438	525	1242	0.353	438	0.6	4.928	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	697	327	1432	0.487	699	1.1	5.426	A
2 - A629 High Lee Lane	350	660	1152	0.304	351	0.5	4.953	A
3 - A628 Barnsley Road (S)	397	502	1063	0.374	399	0.7	5.974	A
4 - A629 Halifax Road	358	430	1303	0.275	359	0.4	4.197	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	583	274	1466	0.398	585	0.7	4.501	A
2 - A629 High Lee Lane	293	552	1222	0.240	293	0.3	4.268	A
3 - A628 Barnsley Road (S)	333	419	1108	0.300	334	0.5	5.119	A
4 - A629 Halifax Road	300	360	1348	0.222	300	0.3	3.779	A

2033 DESIGN, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Hoylandswaine Roundabout	Standard Roundabout		1, 2, 3, 4	11.63	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2033 DESIGN	AM	ONE HOUR	07:15	08:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A628 Barnsley Road (N)		✓	614	100.000
2 - A629 High Lee Lane		✓	469	100.000
3 - A628 Barnsley Road (S)		✓	686	100.000
4 - A629 Halifax Road		✓	715	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	7	41	359	207
	2 - A629 High Lee Lane	43	1	86	339
	3 - A628 Barnsley Road (S)	542	128	2	14
	4 - A629 Halifax Road	368	323	24	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	10	10	10	10
	2 - A629 High Lee Lane	10	10	10	10
	3 - A628 Barnsley Road (S)	10	10	10	10
	4 - A629 Halifax Road	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - A628 Barnsley Road (N)	0.52	6.28	1.2	A
2 - A629 High Lee Lane	0.45	6.23	0.9	A
3 - A628 Barnsley Road (S)	0.77	17.61	3.6	C
4 - A629 Halifax Road	0.74	14.04	3.0	B

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	462	357	1413	0.327	460	0.5	4.148	A
2 - A629 High Lee Lane	353	449	1289	0.274	351	0.4	4.218	A
3 - A628 Barnsley Road (S)	516	447	1093	0.473	513	1.0	6.784	A
4 - A629 Halifax Road	538	540	1232	0.437	535	0.8	5.655	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	552	428	1368	0.404	551	0.7	4.844	A
2 - A629 High Lee Lane	422	538	1231	0.343	421	0.6	4.889	A
3 - A628 Barnsley Road (S)	617	536	1044	0.591	614	1.5	9.159	A
4 - A629 Halifax Road	643	648	1163	0.553	641	1.3	7.556	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	676	522	1309	0.517	674	1.2	6.227	A
2 - A629 High Lee Lane	516	658	1153	0.448	515	0.9	6.197	A
3 - A628 Barnsley Road (S)	755	656	979	0.771	748	3.4	16.586	C
4 - A629 Halifax Road	787	788	1072	0.734	781	2.9	13.318	B

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	676	526	1306	0.518	676	1.2	6.285	A
2 - A629 High Lee Lane	516	659	1152	0.448	516	0.9	6.232	A
3 - A628 Barnsley Road (S)	755	657	978	0.772	755	3.6	17.605	C
4 - A629 Halifax Road	787	796	1068	0.737	787	3.0	14.039	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	552	434	1364	0.405	554	0.8	4.898	A
2 - A629 High Lee Lane	422	540	1229	0.343	423	0.6	4.919	A
3 - A628 Barnsley Road (S)	617	538	1043	0.591	624	1.6	9.629	A
4 - A629 Halifax Road	643	658	1156	0.556	649	1.4	7.900	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	462	361	1410	0.328	463	0.5	4.186	A
2 - A629 High Lee Lane	353	452	1287	0.274	354	0.4	4.246	A
3 - A628 Barnsley Road (S)	516	450	1091	0.473	519	1.0	6.955	A
4 - A629 Halifax Road	538	547	1228	0.438	540	0.9	5.781	A

2033 DESIGN, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Hoylandswaine Roundabout	Standard Roundabout		1, 2, 3, 4	8.09	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2033 DESIGN	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A628 Barnsley Road (N)		✓	866	100.000
2 - A629 High Lee Lane		✓	428	100.000
3 - A628 Barnsley Road (S)		✓	453	100.000
4 - A629 Halifax Road		✓	430	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	7	77	474	308
	2 - A629 High Lee Lane	46	1	90	291
	3 - A628 Barnsley Road (S)	341	90	3	19
	4 - A629 Halifax Road	147	253	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A628 Barnsley Road (N)	2 - A629 High Lee Lane	3 - A628 Barnsley Road (S)	4 - A629 Halifax Road
From	1 - A628 Barnsley Road (N)	10	10	10	10
	2 - A629 High Lee Lane	10	10	10	10
	3 - A628 Barnsley Road (S)	10	10	10	10
	4 - A629 Halifax Road	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - A628 Barnsley Road (N)	0.69	9.35	2.4	A
2 - A629 High Lee Lane	0.48	7.60	1.0	A
3 - A628 Barnsley Road (S)	0.53	8.87	1.2	A
4 - A629 Halifax Road	0.38	5.21	0.7	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	652	282	1460	0.447	648	0.9	4.860	A
2 - A629 High Lee Lane	322	616	1180	0.273	321	0.4	4.598	A
3 - A628 Barnsley Road (S)	341	489	1070	0.319	339	0.5	5.403	A
4 - A629 Halifax Road	324	365	1344	0.241	322	0.3	3.870	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	779	338	1425	0.546	777	1.3	6.097	A
2 - A629 High Lee Lane	385	737	1101	0.349	384	0.6	5.517	A
3 - A628 Barnsley Road (S)	407	586	1017	0.400	406	0.7	6.474	A
4 - A629 Halifax Road	387	438	1298	0.298	386	0.5	4.342	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	953	414	1377	0.693	949	2.4	9.165	A
2 - A629 High Lee Lane	471	901	994	0.474	470	1.0	7.522	A
3 - A628 Barnsley Road (S)	499	716	946	0.527	497	1.2	8.774	A
4 - A629 Halifax Road	473	535	1235	0.383	473	0.7	5.188	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	953	415	1376	0.693	953	2.4	9.355	A
2 - A629 High Lee Lane	471	905	992	0.475	471	1.0	7.604	A
3 - A628 Barnsley Road (S)	499	719	945	0.528	499	1.2	8.875	A
4 - A629 Halifax Road	473	537	1234	0.384	473	0.7	5.207	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	779	340	1424	0.547	783	1.3	6.222	A
2 - A629 High Lee Lane	385	743	1097	0.351	386	0.6	5.583	A
3 - A628 Barnsley Road (S)	407	590	1015	0.401	409	0.7	6.555	A
4 - A629 Halifax Road	387	441	1296	0.298	387	0.5	4.364	A

18:00 - 18:15

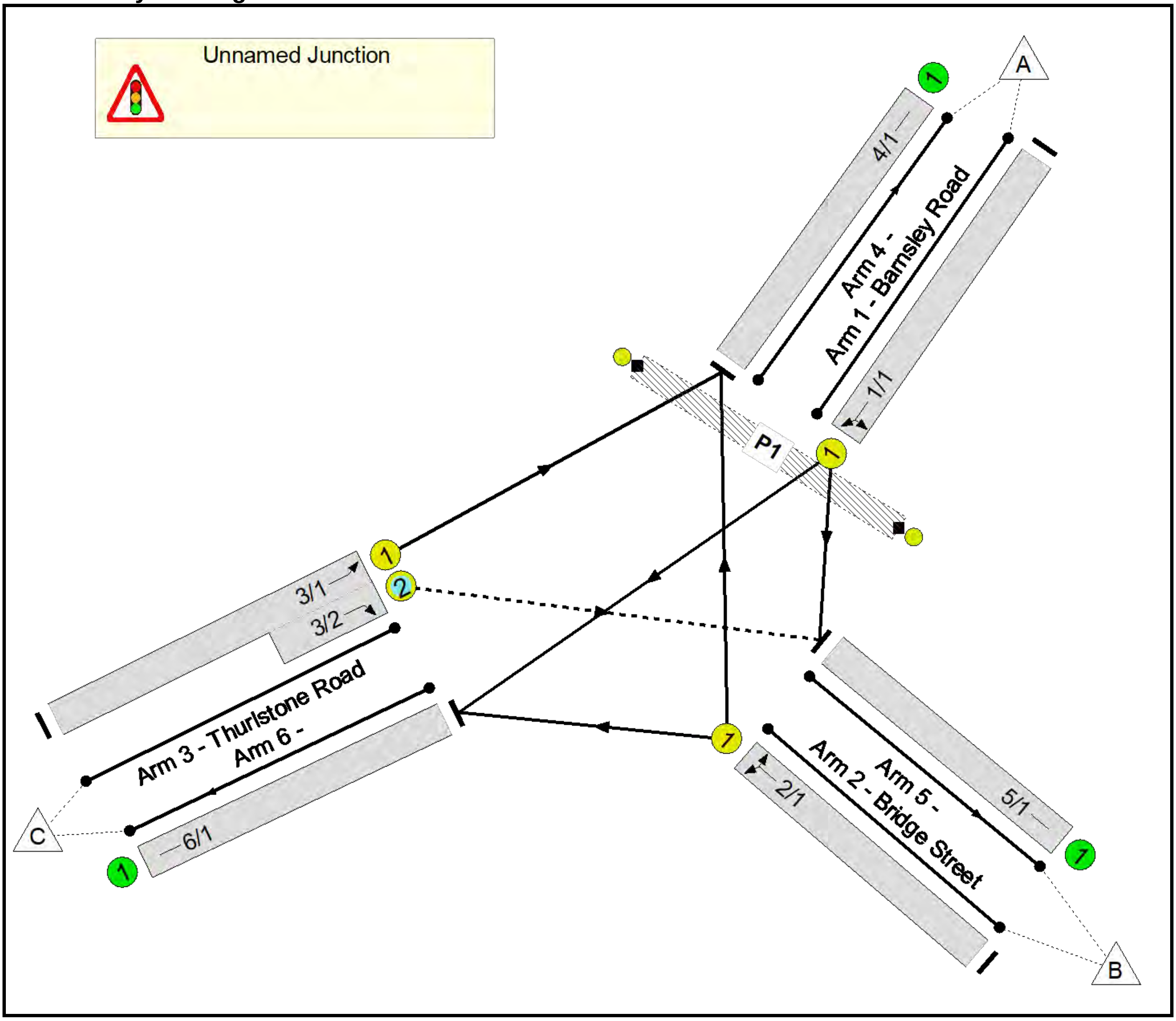
Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A628 Barnsley Road (N)	652	284	1459	0.447	654	0.9	4.929	A
2 - A629 High Lee Lane	322	621	1177	0.274	323	0.4	4.640	A
3 - A628 Barnsley Road (S)	341	493	1068	0.319	342	0.5	5.461	A
4 - A629 Halifax Road	324	368	1342	0.241	324	0.4	3.890	A

Full Input Data And Results
Full Input Data And Results

User and Project Details

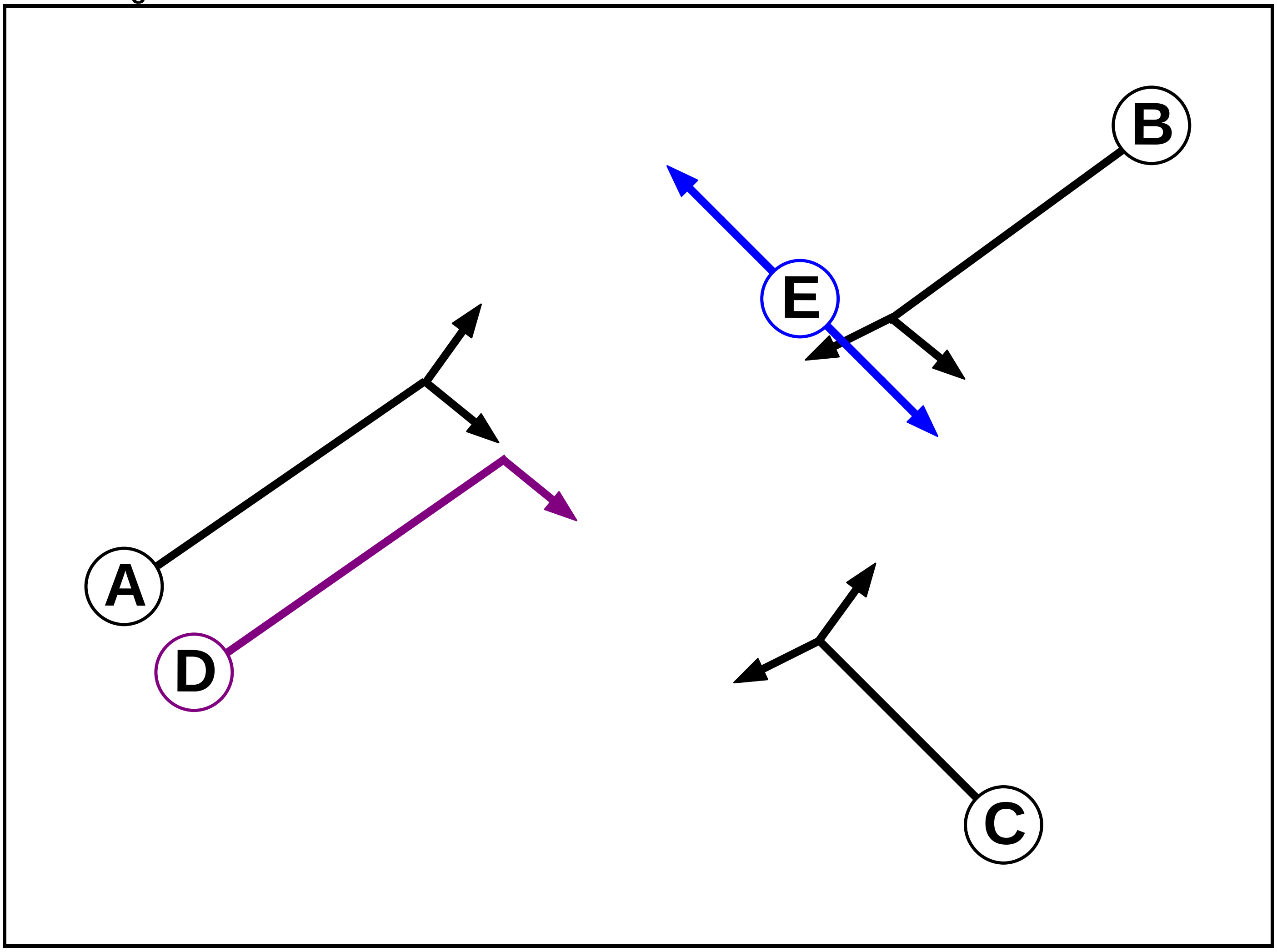
Project:	
Title:	
Location:	
Additional detail:	
File name:	201106 Thurston Road-Bridge Street-Barnsley.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Full Input Data And Results

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	Ind. Arrow	A	4	4
E	Pedestrian		10	10

Full Input Data And Results

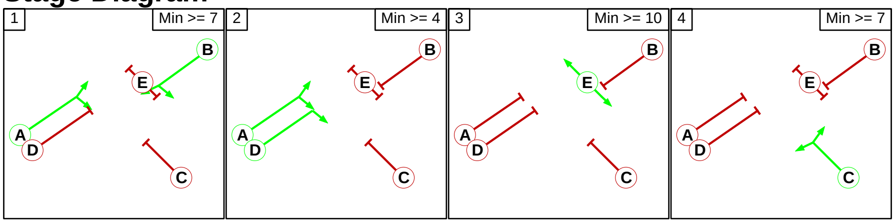
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

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

Prohibited Stage Change

		To Stage			
		1	2	3	4
From Stage	1		6	6	6
	2	5		6	6
	3	8	8		8
	4	7	X	8	

Give-Way Lane Input Data

Junction: Unnamed Junction											
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)**
3/2 (Thurlstone Road)	5/1 (Right)	1439	0	1/1	1.09	All	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction												
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 (Barnsley Road)	U	B	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 5 Left	Inf
											Arm 6 Ahead	Inf
2/1 (Bridge Street)	U	C	2	3	60.0	Geom	-	3.80	0.00	Y	Arm 4 Right	Inf
											Arm 6 Left	Inf
3/1 (Thurlstone Road)	U	A	2	3	60.0	Geom	-	2.80	0.00	Y	Arm 4 Ahead	Inf
3/2 (Thurlstone Road)	O	A D	2	3	5.0	Geom	-	3.00	0.00	N	Arm 5 Right	Inf
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	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: '2018 AM Peak Hour'	07:30	08:30	01:00	
2: '2018 PM Peak Hour'	17:00	18:00	01:00	
3: '2033 AM Base'	07:30	08:30	01:00	
4: '2033 PM Base'	17:00	18:00	01:00	
5: '2033 AM Design'	07:30	08:30	01:00	
6: '2033 PM Design'	17:00	18:00	01:00	

Scenario 1: '2018 AM Peak Hour' (FG1: '2018 AM Peak Hour', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	293	216	509
	B	475	0	73	548
	C	407	122	0	529
	Tot.	882	415	289	1586

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2018 AM Peak Hour
Junction: Unnamed Junction	
1/1	509
2/1	548
3/1 (with short)	529(In) 407(Out)
3/2 (short)	122
4/1	882
5/1	415
6/1	289

Lane Saturation Flows

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
Junction: Unnamed Junction								
1/1 (Barnsley Road)	4.50	0.00	Y	Arm 5 Left	Inf	57.6 %	2065	2065
				Arm 6 Ahead	Inf	42.4 %		
2/1 (Bridge Street)	3.80	0.00	Y	Arm 4 Right	Inf	86.7 %	1995	1995
				Arm 6 Left	Inf	13.3 %		
3/1 (Thurlstone Road)	2.80	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1895	1895
3/2 (Thurlstone Road)	3.00	0.00	N	Arm 5 Right	Inf	100.0 %	2055	2055
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2018 PM Peak Hour' (FG2: '2018 PM Peak Hour', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	443	290	733
	B	328	0	187	515
	C	242	147	0	389
	Tot.	570	590	477	1637

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2018 PM Peak Hour
Junction: Unnamed Junction	
1/1	733
2/1	515
3/1 (with short)	389(In) 242(Out)
3/2 (short)	147
4/1	570
5/1	590
6/1	477

Lane Saturation Flows

Junction: Unnamed Junction								
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 (Barnsley Road)	4.50	0.00	Y	Arm 5 Left	Inf	60.4 %	2065	2065
				Arm 6 Ahead	Inf	39.6 %		
2/1 (Bridge Street)	3.80	0.00	Y	Arm 4 Right	Inf	63.7 %	1995	1995
				Arm 6 Left	Inf	36.3 %		
3/1 (Thurlstone Road)	2.80	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1895	1895
3/2 (Thurlstone Road)	3.00	0.00	N	Arm 5 Right	Inf	100.0 %	2055	2055
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2033 AM Base' (FG3: '2033 AM Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	322	238	560
	B	522	0	80	602
	C	447	134	0	581
	Tot.	969	456	318	1743

Traffic Lane Flows

Lane	Scenario 3: 2033 AM Base
Junction: Unnamed Junction	
1/1	560
2/1	602
3/1 (with short)	581(In) 447(Out)
3/2 (short)	134
4/1	969
5/1	456
6/1	318

Lane Saturation Flows

Junction: Unnamed Junction								
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 (Barnsley Road)	4.50	0.00	Y	Arm 5 Left	Inf	57.5 %	2065	2065
				Arm 6 Ahead	Inf	42.5 %		
2/1 (Bridge Street)	3.80	0.00	Y	Arm 4 Right	Inf	86.7 %	1995	1995
				Arm 6 Left	Inf	13.3 %		
3/1 (Thurlstone Road)	2.80	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1895	1895
3/2 (Thurlstone Road)	3.00	0.00	N	Arm 5 Right	Inf	100.0 %	2055	2055
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2033 PM Base' (FG4: '2033 PM Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	484	318	802
	B	356	0	204	560
	C	264	160	0	424
	Tot.	620	644	522	1786

Traffic Lane Flows

Lane	Scenario 4: 2033 PM Base
Junction: Unnamed Junction	
1/1	802
2/1	560
3/1 (with short)	424(In) 264(Out)
3/2 (short)	160
4/1	620
5/1	644
6/1	522

Lane Saturation Flows

Junction: Unnamed Junction								
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 (Barnsley Road)	4.50	0.00	Y	Arm 5 Left	Inf	60.3 %	2065	2065
				Arm 6 Ahead	Inf	39.7 %		
2/1 (Bridge Street)	3.80	0.00	Y	Arm 4 Right	Inf	63.6 %	1995	1995
				Arm 6 Left	Inf	36.4 %		
3/1 (Thurlstone Road)	2.80	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1895	1895
3/2 (Thurlstone Road)	3.00	0.00	N	Arm 5 Right	Inf	100.0 %	2055	2055
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2033 AM Design' (FG5: '2033 AM Design', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	341	249	590
	B	534	0	80	614
	C	454	134	0	588
	Tot.	988	475	329	1792

Traffic Lane Flows

Lane	Scenario 5: 2033 AM Design
Junction: Unnamed Junction	
1/1	590
2/1	614
3/1 (with short)	588(In) 454(Out)
3/2 (short)	134
4/1	988
5/1	475
6/1	329

Lane Saturation Flows

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
Junction: Unnamed Junction								
1/1 (Barnsley Road)	4.50	0.00	Y	Arm 5 Left	Inf	57.8 %	2065	2065
				Arm 6 Ahead	Inf	42.2 %		
2/1 (Bridge Street)	3.80	0.00	Y	Arm 4 Right	Inf	87.0 %	1995	1995
				Arm 6 Left	Inf	13.0 %		
3/1 (Thurlstone Road)	2.80	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1895	1895
3/2 (Thurlstone Road)	3.00	0.00	N	Arm 5 Right	Inf	100.0 %	2055	2055
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2033 PM Design' (FG6: '2033 PM Design', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
Origin		A	B	C	Tot.
	A	0	492	321	813
	B	377	0	204	581
	C	277	160	0	437
	Tot.	654	652	525	1831

Full Input Data And Results

Traffic Lane Flows

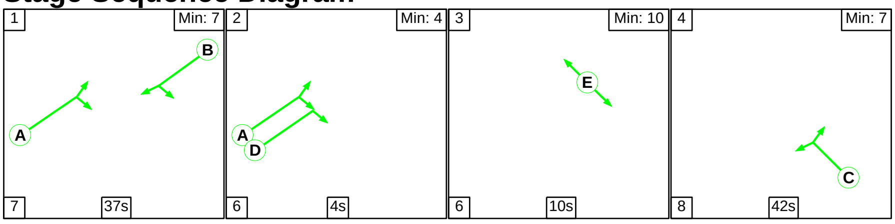
Lane	Scenario 6: 2033 PM Design
Junction: Unnamed Junction	
1/1	813
2/1	581
3/1 (with short)	437(In) 277(Out)
3/2 (short)	160
4/1	654
5/1	652
6/1	525

Lane Saturation Flows

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
Junction: Unnamed Junction								
1/1 (Barnsley Road)	4.50	0.00	Y	Arm 5 Left	Inf	60.5 %	2065	2065
				Arm 6 Ahead	Inf	39.5 %		
2/1 (Bridge Street)	3.80	0.00	Y	Arm 4 Right	Inf	64.9 %	1995	1995
				Arm 6 Left	Inf	35.1 %		
3/1 (Thurlstone Road)	2.80	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1895	1895
3/2 (Thurlstone Road)	3.00	0.00	N	Arm 5 Right	Inf	100.0 %	2055	2055
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2018 AM Peak Hour' (FG1: '2018 AM Peak Hour', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

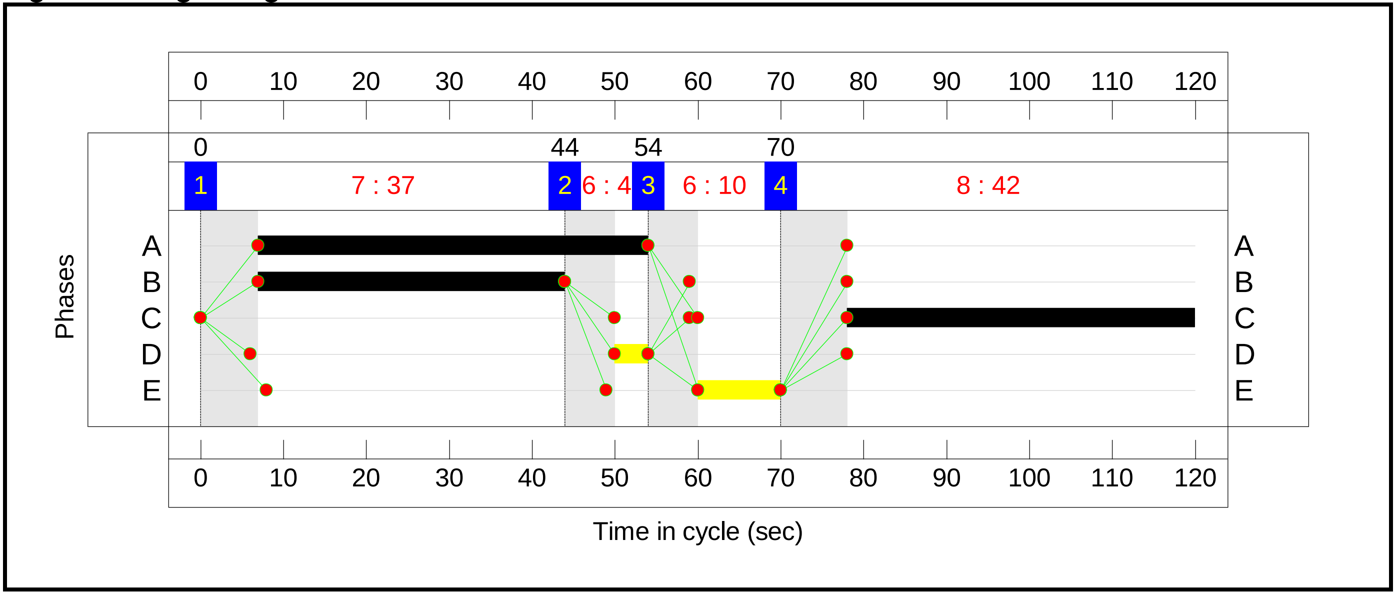


Stage Timings

Stage	1	2	3	4
Duration	37	4	10	42
Change Point	0	44	54	70

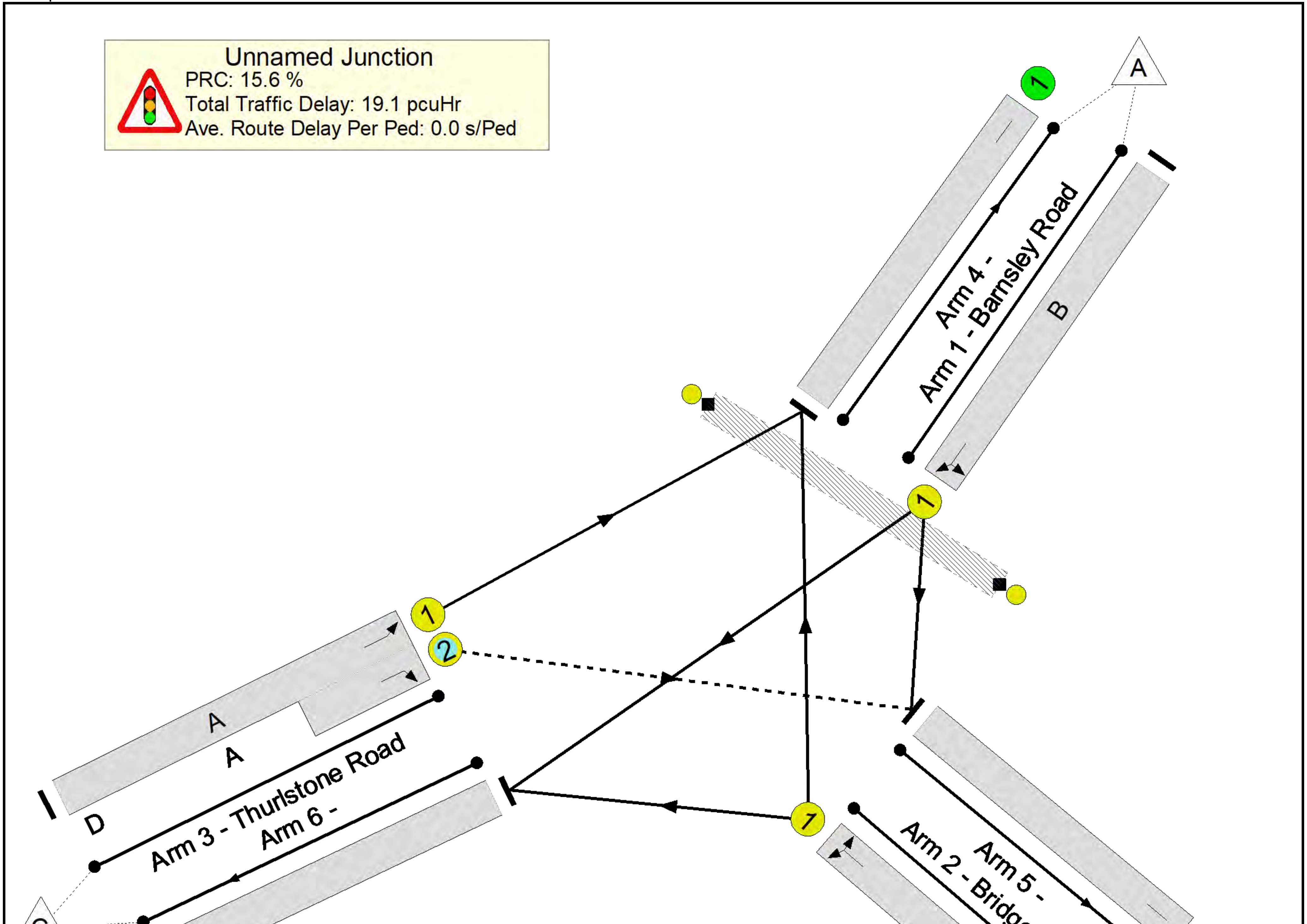
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Unnamed Junction
PRC: 15.6 %
Total Traffic Delay: 19.1 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
1
Arm 4 -
Arm 1 - Barnsley Road
B
1
1
2
A
A
D
Arm 3 - Thurlstone Road
Arm 6 -
1
Arm 5 -
Arm 2 - Bridg

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.8%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.8%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	37	-	509	2065	654	77.8%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	42	-	548	1995	715	76.7%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	47	4	529	1895:2055	633+190	64.3 : 64.3%
4/1		U	N/A	N/A	-		-	-	-	882	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	415	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	289	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**80**	**42**	**0**	**14.9**	**4.2**	**0.0**	**19.1**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**80**	**42**	**0**	**14.9**	**4.2**	**0.0**	**19.1**	**-**	**-**	**-**	**-**
1/1	509	509	-	-	-	5.3	1.7	-	7.0	49.3	15.3	1.7	17.0
2/1	548	548	-	-	-	5.2	1.6	-	6.8	44.6	16.1	1.6	17.7
3/1+3/2	529	529	80	42	0	4.4	0.9	-	5.3	36.3	12.3	0.9	13.2
4/1	882	882	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	415	415	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	289	289	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

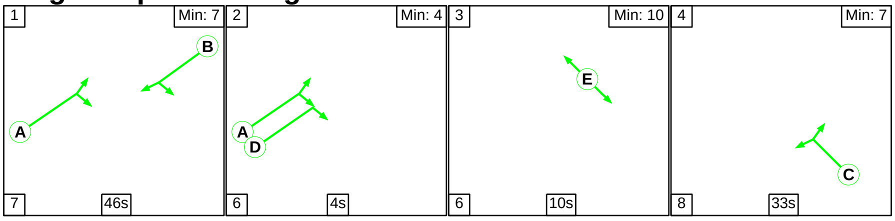
Full Input Data And Results

C1	PRC for Signalled Lanes (%):	15.6	Total Delay for Signalled Lanes (pcuHr):	19.10	Cycle Time (s):	120
	PRC Over All Lanes (%):	15.6	Total Delay Over All Lanes(pcuHr):	19.10		

Full Input Data And Results

Scenario 2: '2018 PM Peak Hour' (FG2: '2018 PM Peak Hour', Plan 1: 'Network Control Plan 1')

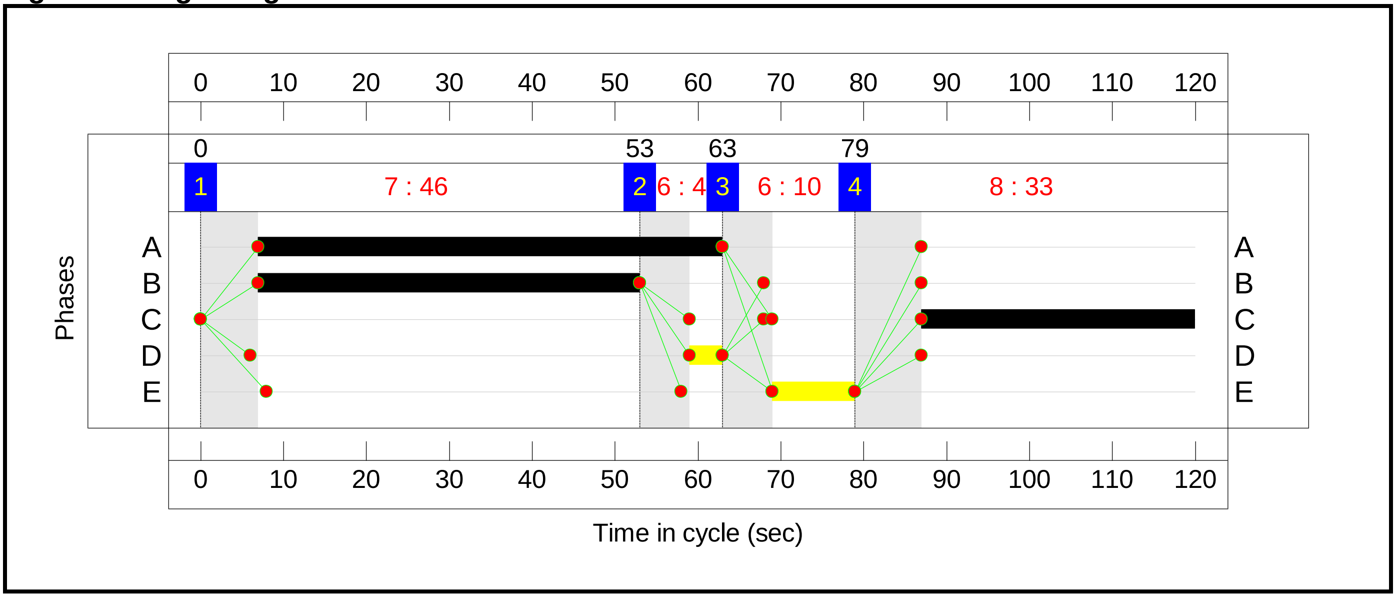
Stage Sequence Diagram



Stage Timings

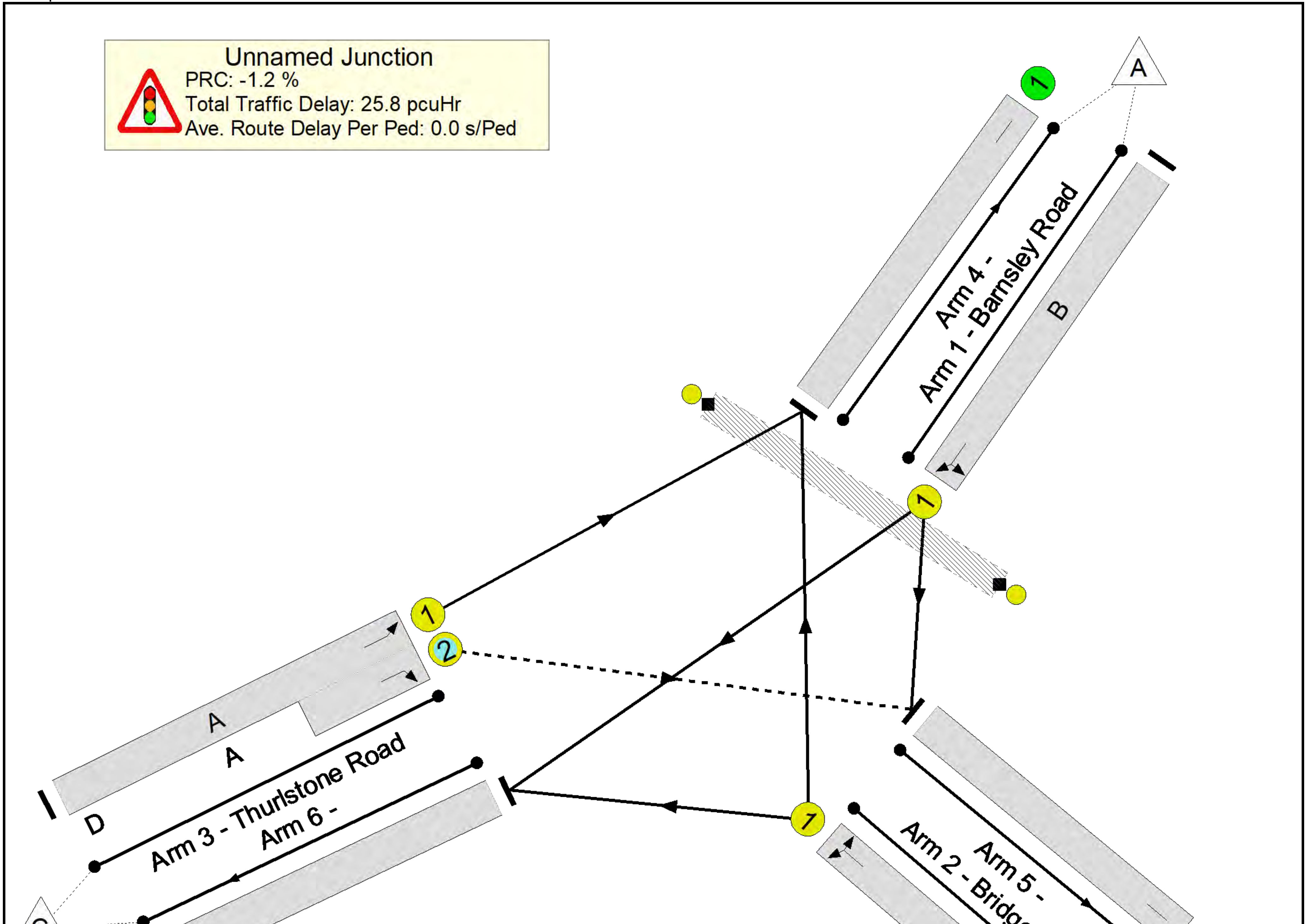
Stage	1	2	3	4
Duration	46	4	10	33
Change Point	0	53	63	79

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Unnamed Junction
PRC: -1.2 %
Total Traffic Delay: 25.8 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
Arm 4 -
Arm 1 - Barnsley Road
B
A
A
D
Arm 3 - Thurlstone Road
Arm 6 -
Arm 5 -
Arm 2 - Bridg

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.1%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.1%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	46	-	733	2065	809	90.6%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	33	-	515	1995	565	91.1%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	56	4	389	1895:2055	340+207	71.2 : 71.2%
4/1		U	N/A	N/A	-		-	-	-	570	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	590	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	477	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**35**	**112**	**0**	**15.9**	**9.9**	**0.0**	**25.8**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**35**	**112**	**0**	**15.9**	**9.9**	**0.0**	**25.8**	**-**	**-**	**-**	**-**
1/1	733	733	-	-	-	7.0	4.3	-	11.3	55.7	23.0	4.3	27.3
2/1	515	515	-	-	-	5.9	4.4	-	10.3	72.1	16.5	4.4	20.8
3/1+3/2	389	389	35	112	0	3.0	1.2	-	4.2	38.7	4.8	1.2	6.1
4/1	570	570	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	590	590	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	477	477	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

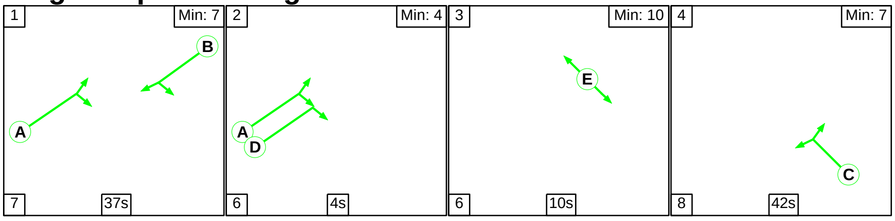
Full Input Data And Results

C1	PRC for Signalled Lanes (%):	-1.2	Total Delay for Signalled Lanes (pcuHr):	25.83	Cycle Time (s):	120
	PRC Over All Lanes (%):	-1.2	Total Delay Over All Lanes(pcuHr):	25.83		

Full Input Data And Results

Scenario 3: '2033 AM Base' (FG3: '2033 AM Base', Plan 1: 'Network Control Plan 1')

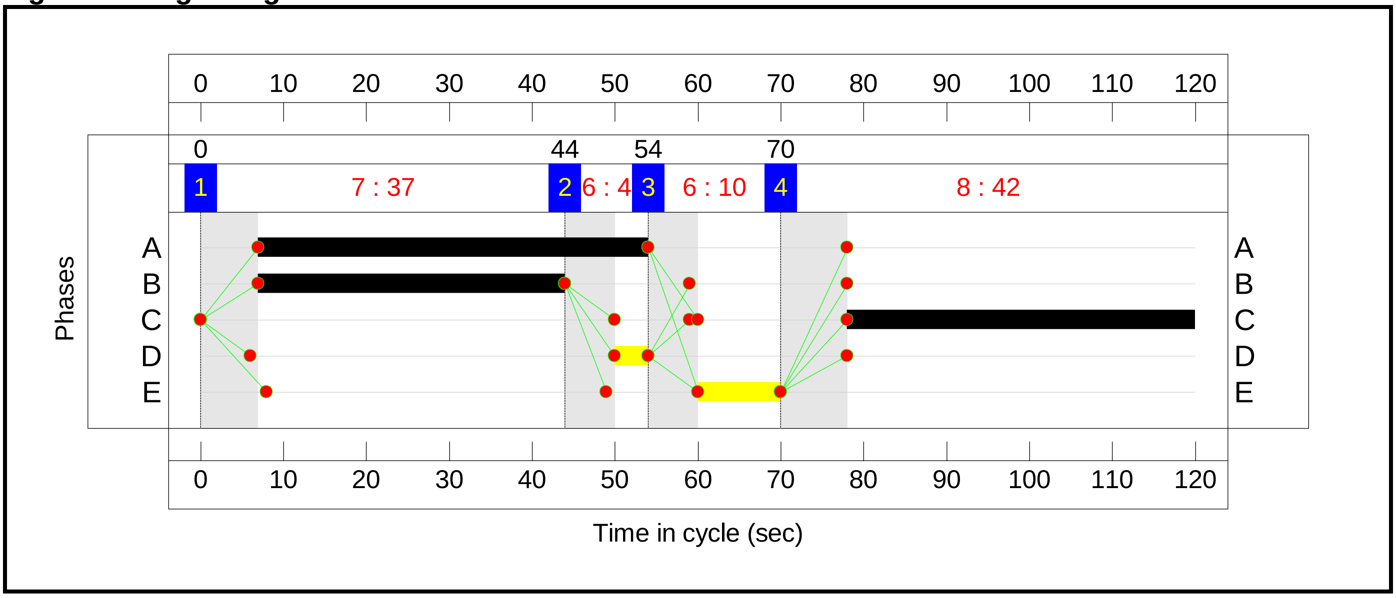
Stage Sequence Diagram



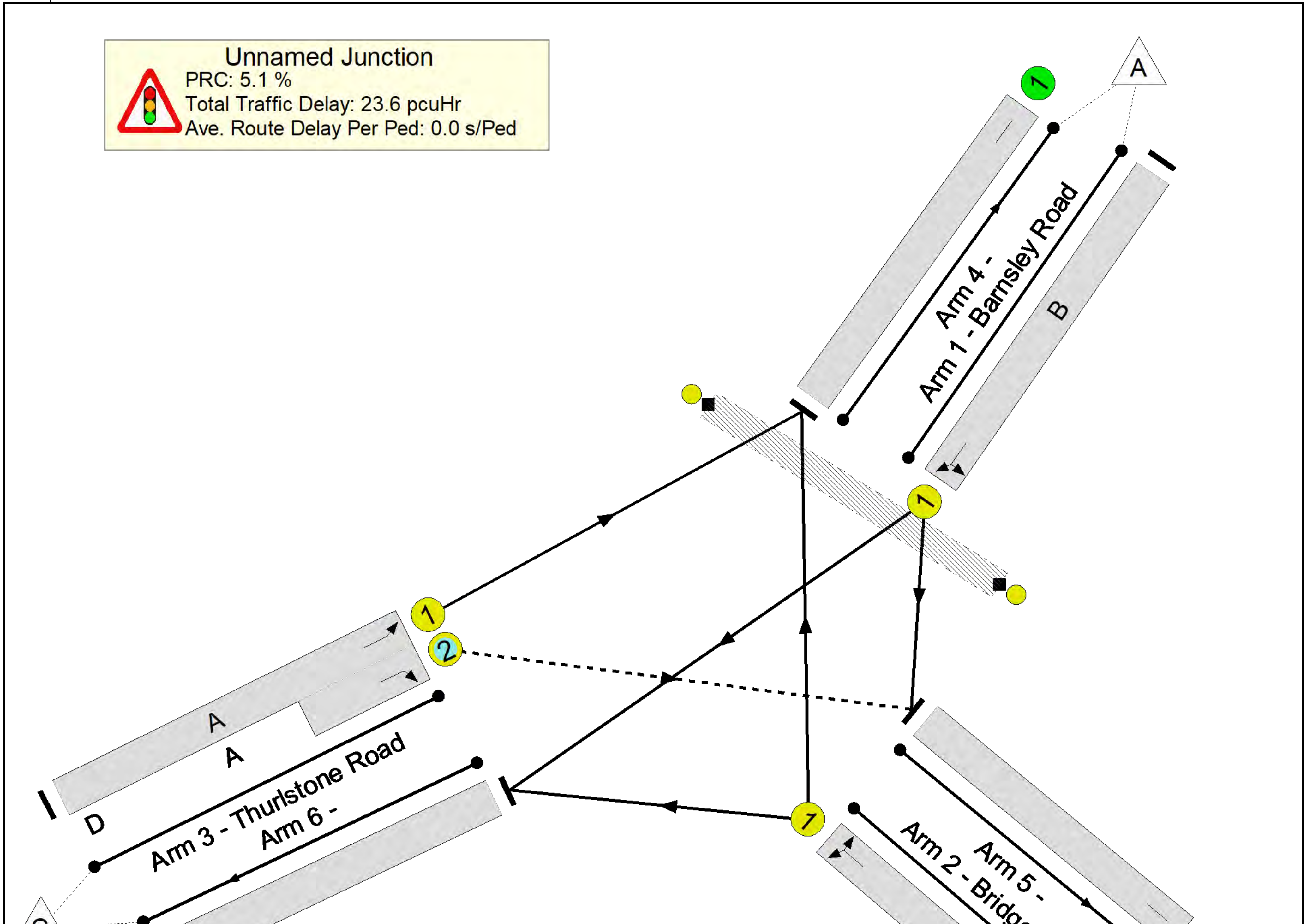
Stage Timings

Stage	1	2	3	4
Duration	37	4	10	42
Change Point	0	44	54	70

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram


Unnamed Junction
PRC: 5.1 %
Total Traffic Delay: 23.6 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
B
Arm 4 -
Arm 1 - Barnsley Road
A
A
D
Arm 3 - Thurlstone Road
Arm 6 -
Arm 5 -
Arm 2 - Bridg

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.6%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.6%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	37	-	560	2065	654	85.6%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	42	-	602	1995	715	84.2%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	47	4	581	1895:2055	632+190	70.7 : 70.7%
4/1		U	N/A	N/A	-		-	-	-	969	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	456	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	318	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**48**	**86**	**0**	**17.0**	**6.6**	**0.0**	**23.6**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**48**	**86**	**0**	**17.0**	**6.6**	**0.0**	**23.6**	**-**	**-**	**-**	**-**
1/1	560	560	-	-	-	6.0	2.8	-	8.8	56.5	17.4	2.8	20.2
2/1	602	602	-	-	-	5.9	2.6	-	8.5	50.6	18.4	2.6	20.9
3/1+3/2	581	581	48	86	0	5.1	1.2	-	6.3	39.2	14.3	1.2	15.5
4/1	969	969	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	456	456	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	318	318	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

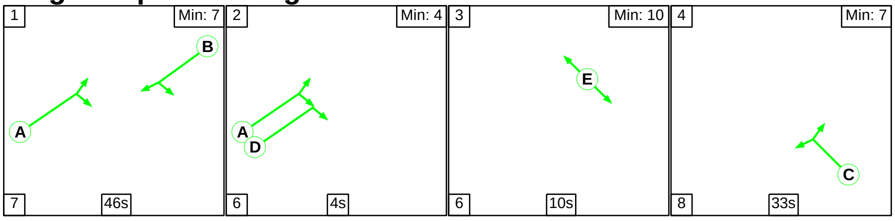
Full Input Data And Results

C1	PRC for Signalled Lanes (%):	5.1	Total Delay for Signalled Lanes (pcuHr):	23.59	Cycle Time (s):	120
	PRC Over All Lanes (%):	5.1	Total Delay Over All Lanes(pcuHr):	23.59		

Full Input Data And Results

Scenario 4: '2033 PM Base' (FG4: '2033 PM Base', Plan 1: 'Network Control Plan 1')

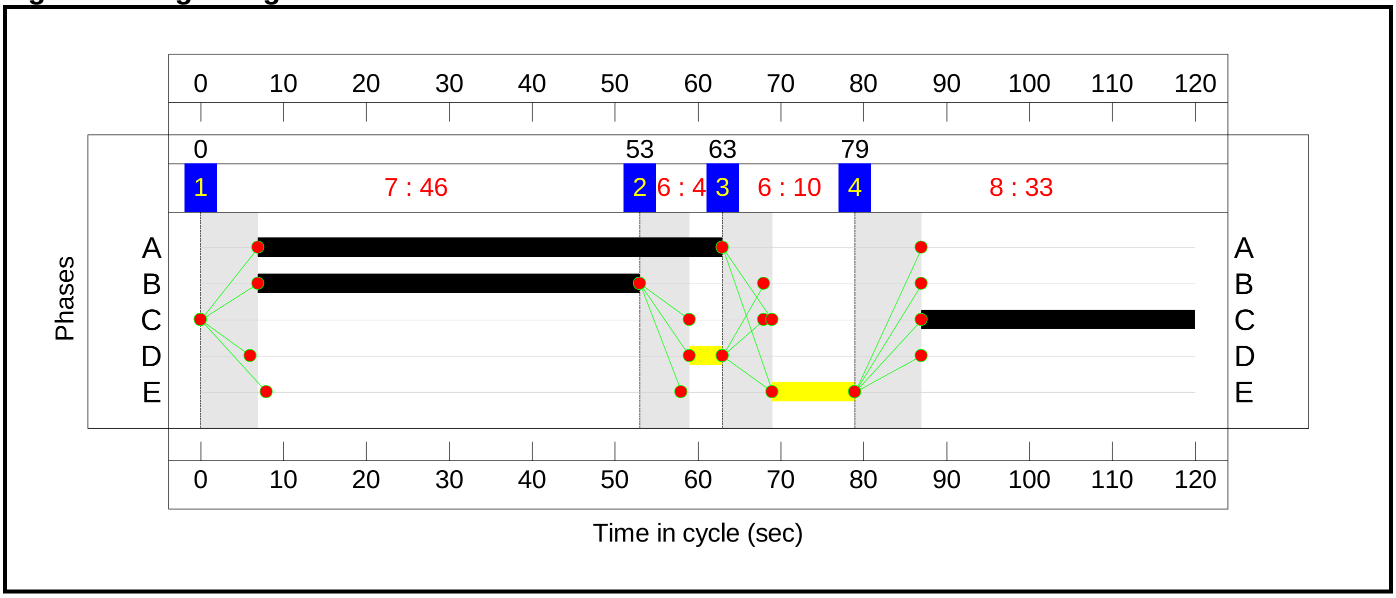
Stage Sequence Diagram



Stage Timings

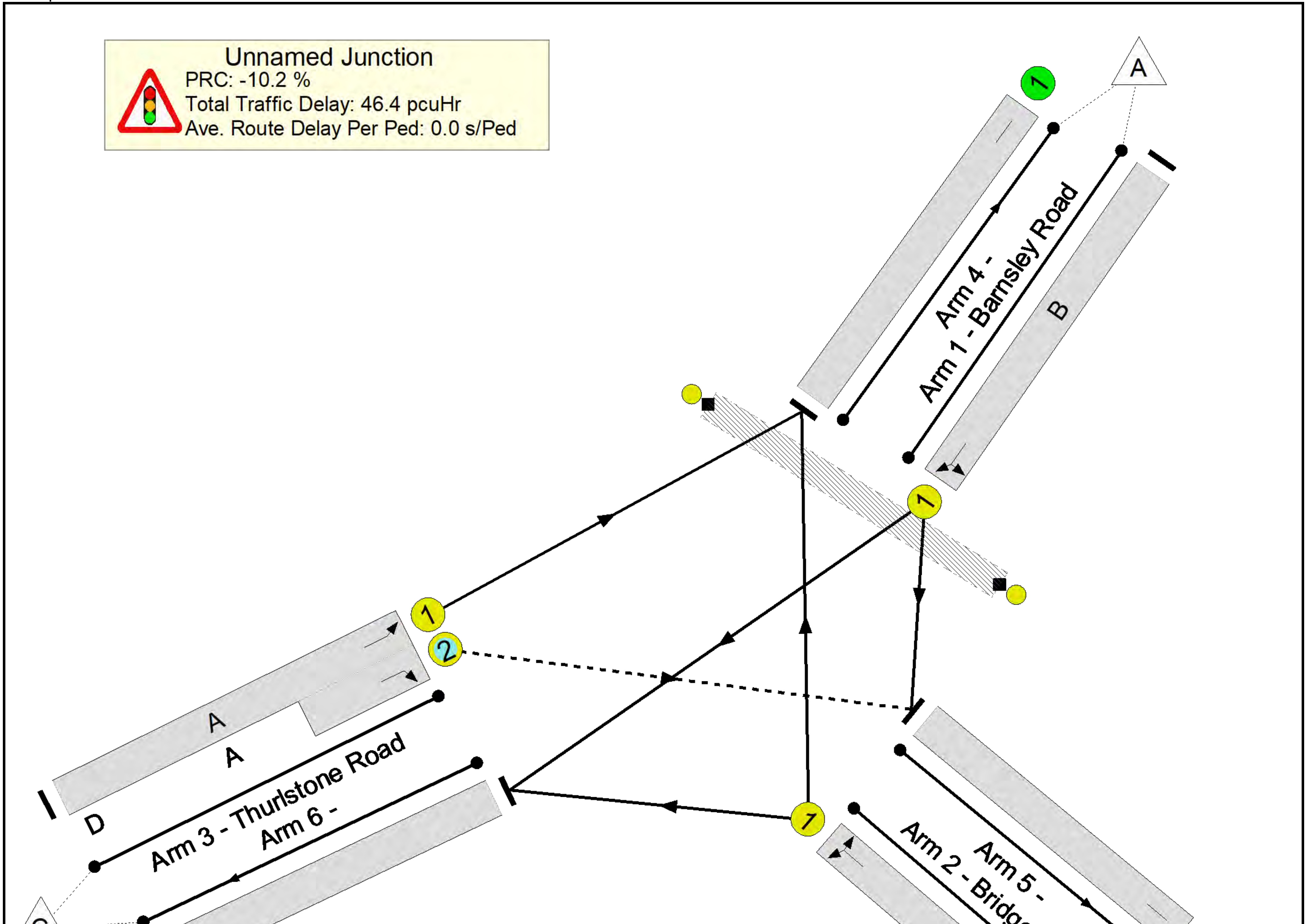
Stage	1	2	3	4
Duration	46	4	10	33
Change Point	0	53	63	79

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Unnamed Junction
PRC: -10.2 %
Total Traffic Delay: 46.4 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
B
Arm 4 -
Arm 1 - Barnsley Road
A
A
D
Arm 3 - Thurlstone Road
Arm 6 -
Arm 5 -
Arm 2 - Bridg

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.2%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.2%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	46	-	802	2065	809	99.2%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	33	-	560	1995	565	99.1%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	56	4	424	1895:2055	284+172	93.1 : 93.1%
4/1		U	N/A	N/A	-		-	-	-	620	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	644	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	522	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**1**	**159**	**0**	**18.1**	**28.2**	**0.0**	**46.4**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**1**	**159**	**0**	**18.1**	**28.2**	**0.0**	**46.4**	**-**	**-**	**-**	**-**
1/1	802	802	-	-	-	8.1	12.6	-	20.7	92.7	26.5	12.6	39.1
2/1	560	560	-	-	-	6.7	10.6	-	17.3	110.9	18.5	10.6	29.1
3/1+3/2	424	424	1	159	0	3.4	5.1	-	8.5	72.0	5.6	5.1	10.7
4/1	620	620	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	644	644	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	522	522	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

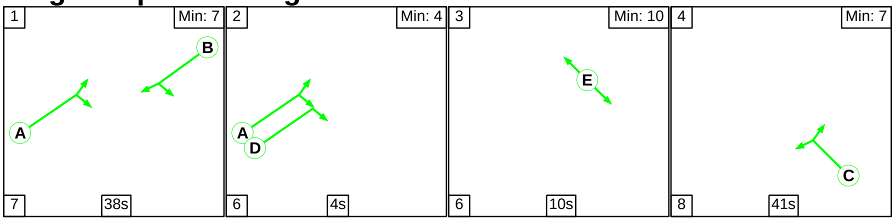
Full Input Data And Results

C1	PRC for Signalled Lanes (%):	-10.2	Total Delay for Signalled Lanes (pcuHr):	46.39	Cycle Time (s):	120
	PRC Over All Lanes (%):	-10.2	Total Delay Over All Lanes(pcuHr):	46.39		

Full Input Data And Results

Scenario 5: '2033 AM Design' (FG5: '2033 AM Design', Plan 1: 'Network Control Plan 1')

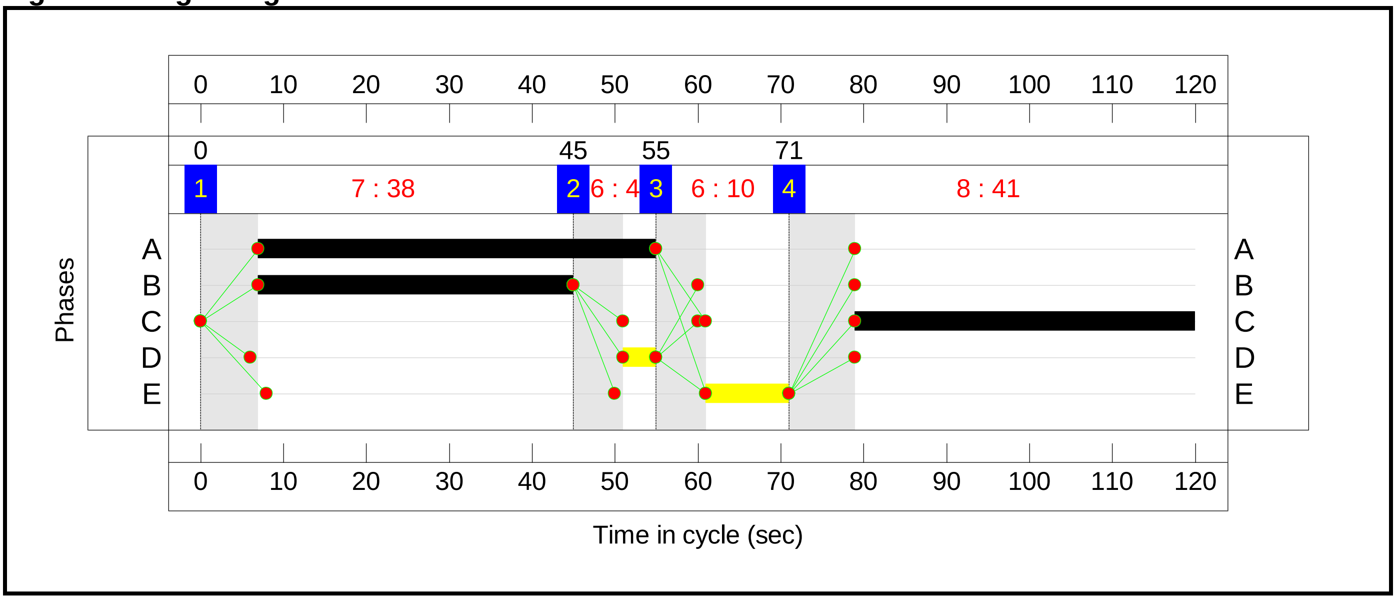
Stage Sequence Diagram



Stage Timings

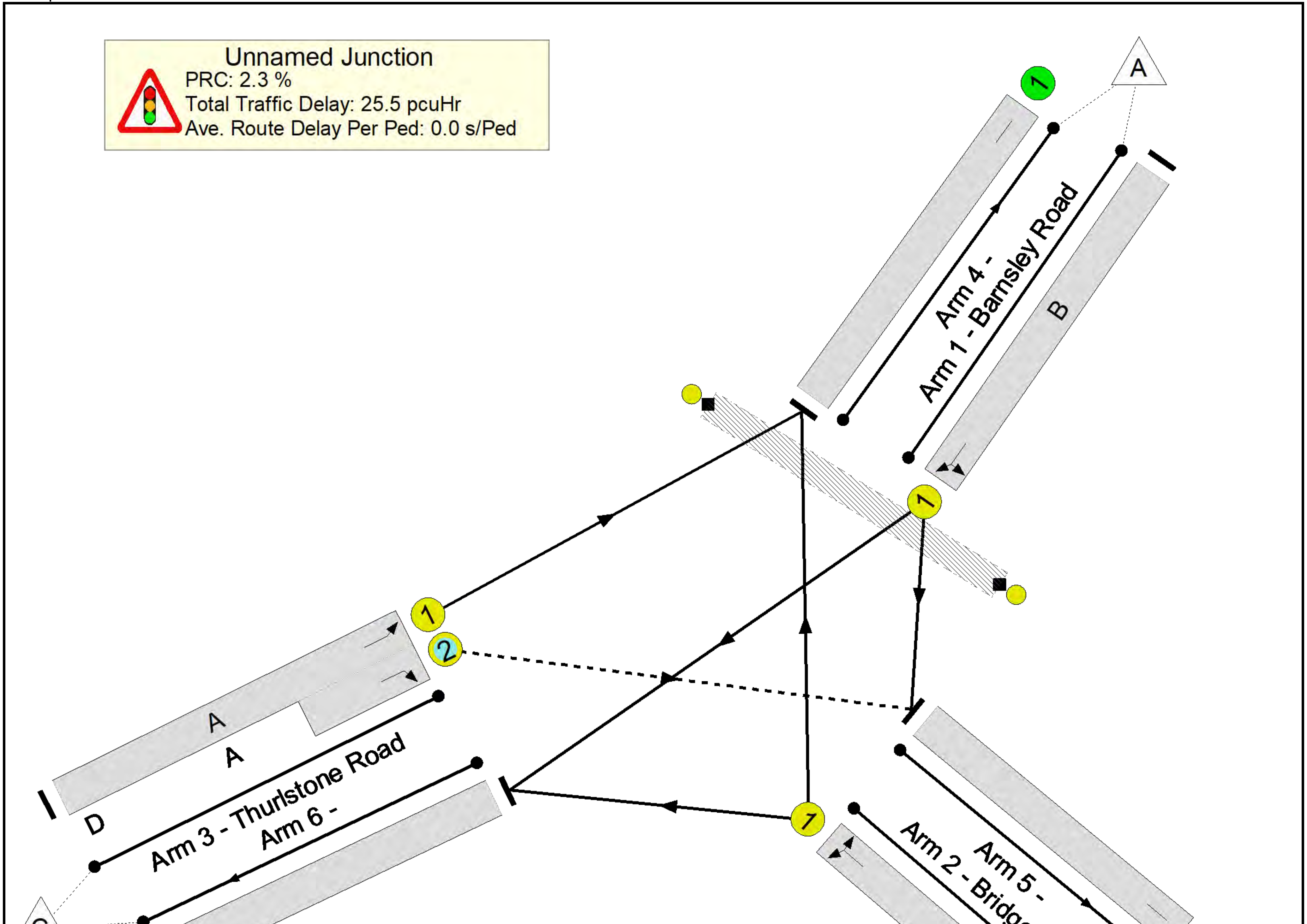
Stage	1	2	3	4
Duration	38	4	10	41
Change Point	0	45	55	71

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Unnamed Junction
PRC: 2.3 %
Total Traffic Delay: 25.5 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
B
Arm 4 -
Arm 1 - Barnsley Road
A
A
D
Arm 3 - Thurlstone Road
Arm 6 -
Arm 5 -
Arm 2 - Bridg

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.9%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.9%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	38	-	590	2065	671	87.9%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	41	-	614	1995	698	87.9%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	48	4	588	1895:2055	647+191	70.2 : 70.2%
4/1		U	N/A	N/A	-		-	-	-	988	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	475	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	329	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**41**	**93**	**0**	**17.6**	**7.9**	**0.0**	**25.5**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**41**	**93**	**0**	**17.6**	**7.9**	**0.0**	**25.5**	**-**	**-**	**-**	**-**
1/1	590	590	-	-	-	6.3	3.4	-	9.6	58.8	18.5	3.4	21.9
2/1	614	614	-	-	-	6.2	3.4	-	9.6	56.4	19.1	3.4	22.5
3/1+3/2	588	588	41	93	0	5.1	1.2	-	6.3	38.5	14.4	1.2	15.5
4/1	988	988	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	475	475	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	329	329	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

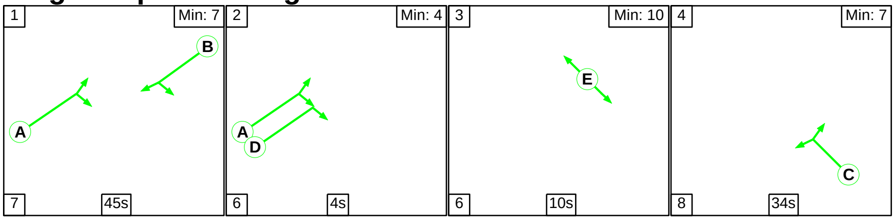
Full Input Data And Results

C1	PRC for Signalled Lanes (%):	2.3	Total Delay for Signalled Lanes (pcuHr):	25.53	Cycle Time (s):	120
	PRC Over All Lanes (%):	2.3	Total Delay Over All Lanes(pcuHr):	25.53		

Full Input Data And Results

Scenario 6: '2033 PM Design' (FG6: '2033 PM Design', Plan 1: 'Network Control Plan 1')

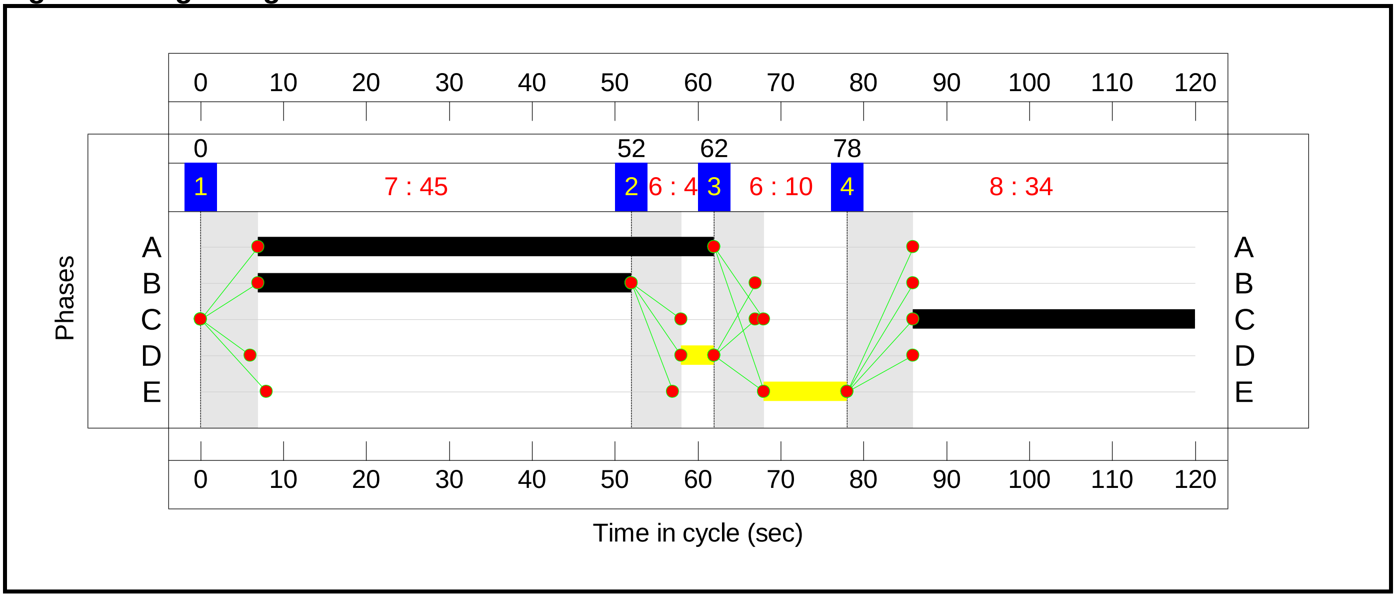
Stage Sequence Diagram



Stage Timings

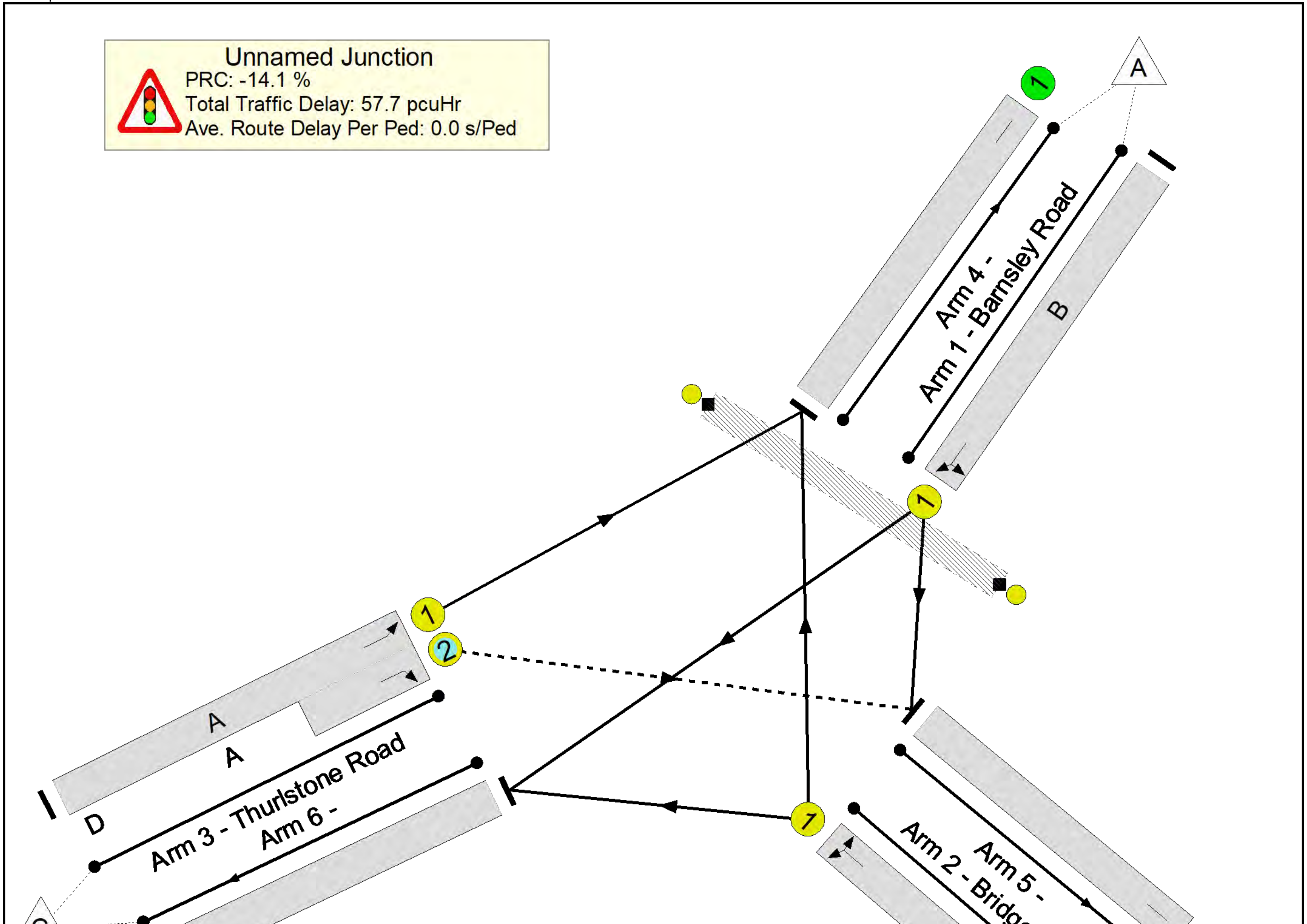
Stage	1	2	3	4
Duration	45	4	10	34
Change Point	0	52	62	78

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Unnamed Junction
PRC: -14.1 %
Total Traffic Delay: 57.7 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
B
Arm 4 -
Arm 1 - Barnsley Road
A
A
D
Arm 3 - Thurlstone Road
Arm 6 -
Arm 5 -
Arm 2 - Bridg

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**102.7%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**102.7%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	45	-	813	2065	792	102.7%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	34	-	581	1995	582	99.8%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	55	4	437	1895:2055	296+171	93.4 : 93.4%
4/1		U	N/A	N/A	-		-	-	-	654	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	652	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	525	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**160**	**0**	**20.0**	**37.7**	**0.0**	**57.7**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**160**	**0**	**20.0**	**37.7**	**0.0**	**57.7**	**-**	**-**	**-**	**-**
1/1	813	792	-	-	-	9.6	20.6	-	30.2	133.6	27.8	20.6	48.4
2/1	581	581	-	-	-	6.9	11.8	-	18.7	115.8	19.2	11.8	31.0
3/1+3/2	437	437	0	160	0	3.5	5.3	-	8.8	72.7	6.2	5.3	11.5
4/1	654	654	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	639	639	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	517	517	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

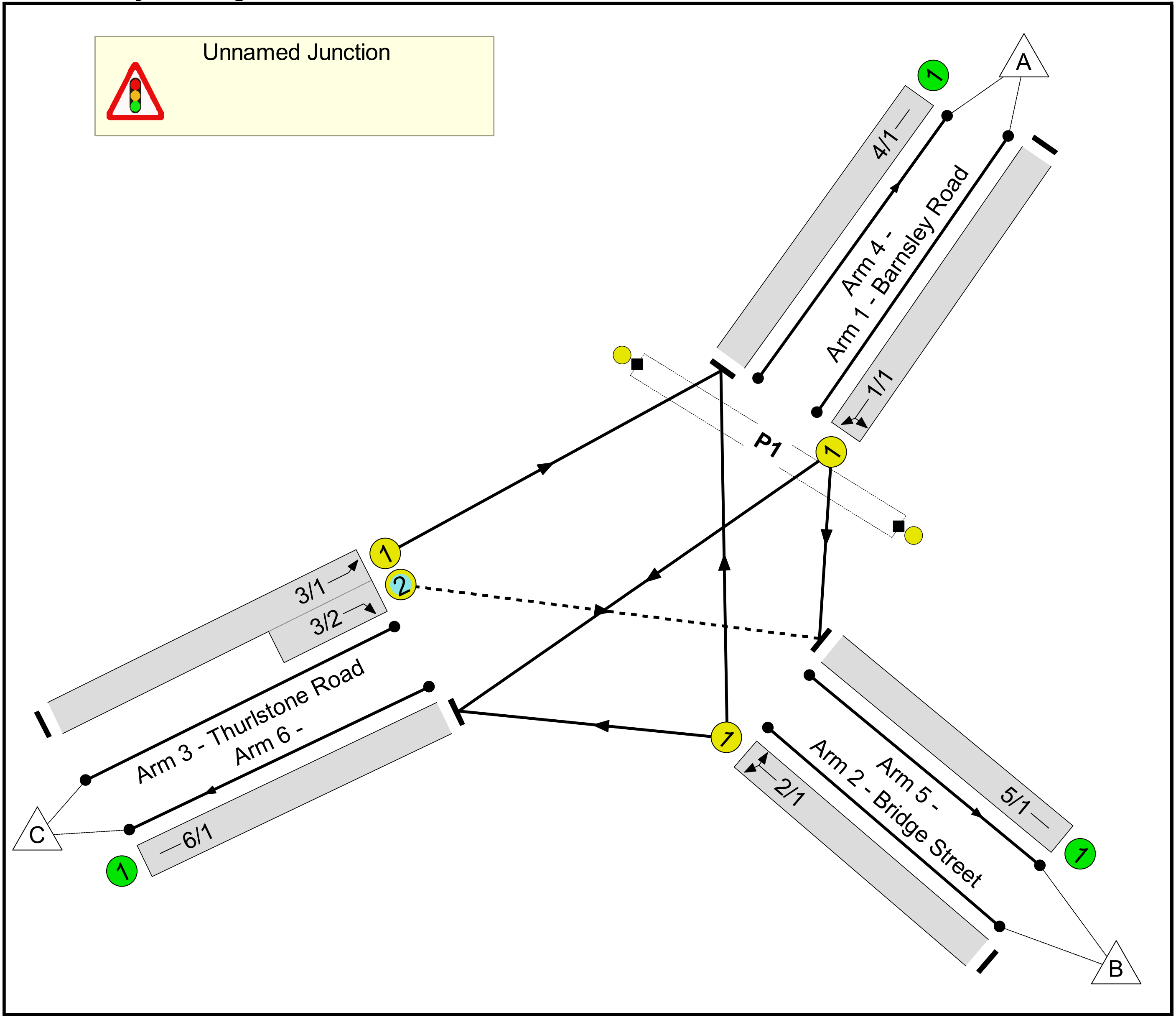
C1	PRC for Signalled Lanes (%):	-14.1	Total Delay for Signalled Lanes (pcuHr):	57.69	Cycle Time (s):	120
	PRC Over All Lanes (%):	-14.1	Total Delay Over All Lanes(pcuHr):	57.69		

Full Input Data And Results

User and Project Details

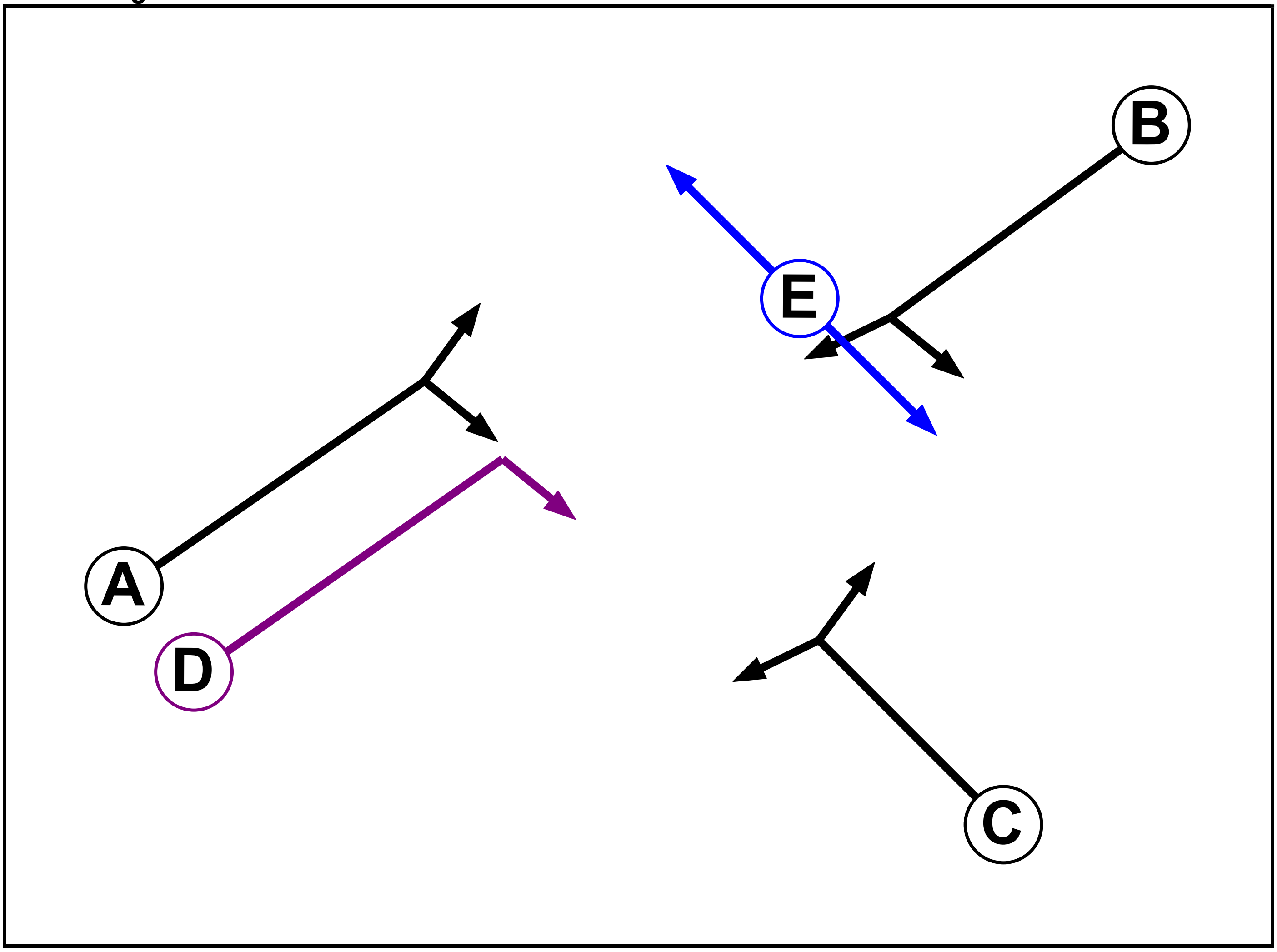
Project:	
Title:	
Location:	
Additional detail:	
File name:	201109 Thurston Road-Bridge Street-Barnsley Sensitivity.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Full Input Data And Results

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	Ind. Arrow	A	4	4
E	Pedestrian		10	10

Full Input Data And Results

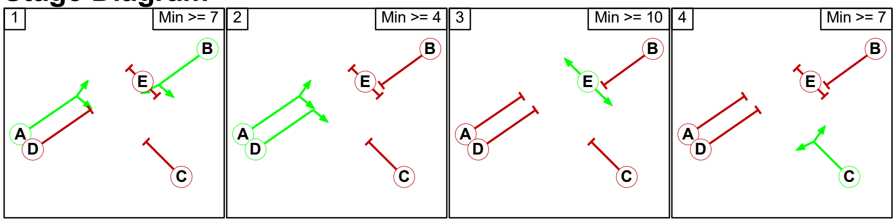
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

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

Prohibited Stage Change

	To Stage				
		1	2	3	4
From Stage	1		6	6	6
	2	5		6	6
	3	8	8		8
	4	7	X	8	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Unnamed Junction											
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)**
3/2 (Thurlstone Road)	5/1 (Right)	1439	0	1/1	1.09	All	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction												
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 (Barnsley Road)	U	B	2	3	60.0	User	1800	-	-	-	-	-
2/1 (Bridge Street)	U	C	2	3	60.0	User	1800	-	-	-	-	-
3/1 (Thurlstone Road)	U	A	2	3	60.0	User	1800	-	-	-	-	-
3/2 (Thurlstone Road)	O	A D	2	3	5.0	User	1800	-	-	-	-	-
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	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: '2020 AM Peak Hour'	08:15	09:15	01:00	
2: '2020 PM Peak Hour'	16:30	17:30	01:00	
3: '2033 AM Base'	08:15	09:15	01:00	
4: '2033 PM Base'	16:30	17:30	01:00	
5: '2033 AM Design'	08:15	09:15	01:00	
6: '2033 PM Design'	16:30	17:30	01:00	

Scenario 1: '2018 AM Peak Hour' (FG1: '2020 AM Peak Hour', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	393	203	596
	B	371	0	110	481
	C	282	170	0	452
	Tot.	653	563	313	1529

Traffic Lane Flows

Lane	Scenario 1: 2018 AM Peak Hour
Junction: Unnamed Junction	
1/1	596
2/1	481
3/1 (with short)	452(In) 282(Out)
3/2 (short)	170
4/1	653
5/1	563
6/1	313

Lane Saturation Flows

Junction: Unnamed Junction								
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 (Barnsley Road Lane 1)	This lane uses a directly entered Saturation Flow						1761	1761
2/1 (Bridge Street Lane 1)	This lane uses a directly entered Saturation Flow						1343	1343
3/1 (Thurlstone Road Lane 1)	This lane uses a directly entered Saturation Flow						1490	1490
3/2 (Thurlstone Road Lane 2)	This lane uses a directly entered Saturation Flow						1406	1406
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2018 PM Peak Hour' (FG2: '2020 PM Peak Hour', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	413	277	690
	B	343	0	150	493
	C	233	141	0	374
	Tot.	576	554	427	1557

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2018 PM Peak Hour
Junction: Unnamed Junction	
1/1	690
2/1	493
3/1 (with short)	374(In) 233(Out)
3/2 (short)	141
4/1	576
5/1	554
6/1	427

Lane Saturation Flows

Junction: Unnamed Junction								
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 (Barnsley Road Lane 1)	This lane uses a directly entered Saturation Flow						1783	1783
2/1 (Bridge Street Lane 1)	This lane uses a directly entered Saturation Flow						1844	1844
3/1 (Thurlstone Road Lane 1)	This lane uses a directly entered Saturation Flow						1874	1874
3/2 (Thurlstone Road Lane 2)	This lane uses a directly entered Saturation Flow						1359	1359
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2033 AM Base' (FG3: '2033 AM Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	421	217	638
	B	397	0	117	514
	C	301	182	0	483
	Tot.	698	603	334	1635

Traffic Lane Flows

Lane	Scenario 3: 2033 AM Base
Junction: Unnamed Junction	
1/1	638
2/1	514
3/1 (with short)	483(In) 301(Out)
3/2 (short)	182
4/1	698
5/1	603
6/1	334

Lane Saturation Flows

Junction: Unnamed Junction									
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 (Barnsley Road Lane 1)	This lane uses a directly entered Saturation Flow						1761	1761
2/1 (Bridge Street Lane 1)	This lane uses a directly entered Saturation Flow						1343	1343
3/1 (Thurlstone Road Lane 1)	This lane uses a directly entered Saturation Flow						1490	1490
3/2 (Thurlstone Road Lane 2)	This lane uses a directly entered Saturation Flow						1406	1406
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2033 PM Base' (FG4: '2033 PM Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	441	295	736
	B	365	0	159	524
	C	248	150	0	398
	Tot.	613	591	454	1658

Traffic Lane Flows

Lane	Scenario 4: 2033 PM Base
Junction: Unnamed Junction	
1/1	736
2/1	524
3/1 (with short)	398(In) 248(Out)
3/2 (short)	150
4/1	613
5/1	591
6/1	454

Lane Saturation Flows

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
Junction: Unnamed Junction								
1/1 (Barnsley Road Lane 1)	This lane uses a directly entered Saturation Flow						1783	1783
2/1 (Bridge Street Lane 1)	This lane uses a directly entered Saturation Flow						1844	1844
3/1 (Thurlstone Road Lane 1)	This lane uses a directly entered Saturation Flow						1874	1874
3/2 (Thurlstone Road Lane 2)	This lane uses a directly entered Saturation Flow						1359	1359
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2033 AM Design' (FG5: '2033 AM Design', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	440	228	668
	B	409	0	117	526
	C	308	182	0	490
	Tot.	717	622	345	1684

Traffic Lane Flows

Lane	Scenario 5: 2033 AM Design
Junction: Unnamed Junction	
1/1	668
2/1	526
3/1 (with short)	490(In) 308(Out)
3/2 (short)	182
4/1	717
5/1	622
6/1	345

Lane Saturation Flows

Junction: Unnamed Junction								
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 (Barnsley Road Lane 1)	This lane uses a directly entered Saturation Flow						1761	1761
2/1 (Bridge Street Lane 1)	This lane uses a directly entered Saturation Flow						1343	1343
3/1 (Thurlstone Road Lane 1)	This lane uses a directly entered Saturation Flow						1490	1490
3/2 (Thurlstone Road Lane 2)	This lane uses a directly entered Saturation Flow						1406	1406
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2033 PM Design' (FG6: '2033 PM Design', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination				
		A	B	C	Tot.
Origin	A	0	448	300	748
	B	387	0	159	546
	C	261	150	0	411
	Tot.	648	598	459	1705

Full Input Data And Results

Traffic Lane Flows

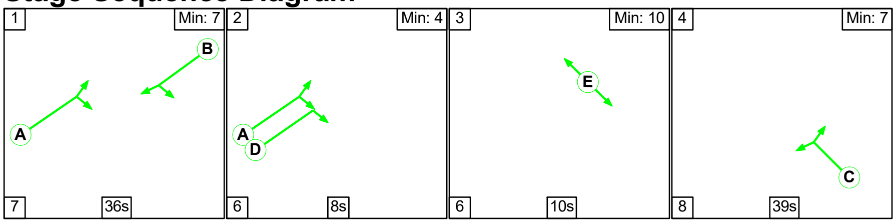
Lane	Scenario 6: 2033 PM Design
Junction: Unnamed Junction	
1/1	748
2/1	546
3/1 (with short)	411(In) 261(Out)
3/2 (short)	150
4/1	648
5/1	598
6/1	459

Lane Saturation Flows

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
Junction: Unnamed Junction								
1/1 (Barnsley Road Lane 1)	This lane uses a directly entered Saturation Flow						1783	1783
2/1 (Bridge Street Lane 1)	This lane uses a directly entered Saturation Flow						1844	1844
3/1 (Thurlstone Road Lane 1)	This lane uses a directly entered Saturation Flow						1874	1874
3/2 (Thurlstone Road Lane 2)	This lane uses a directly entered Saturation Flow						1359	1359
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2018 AM Peak Hour' (FG1: '2020 AM Peak Hour', Plan 1: 'Network Control Plan 1')

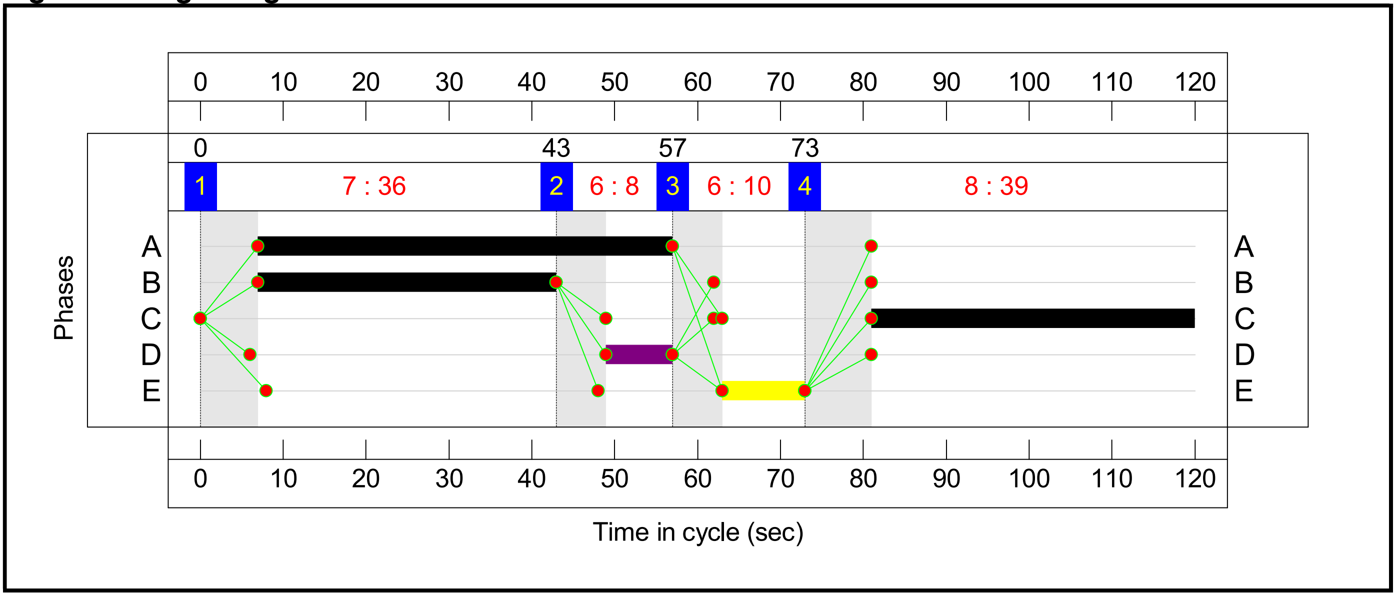
Stage Sequence Diagram



Stage Timings

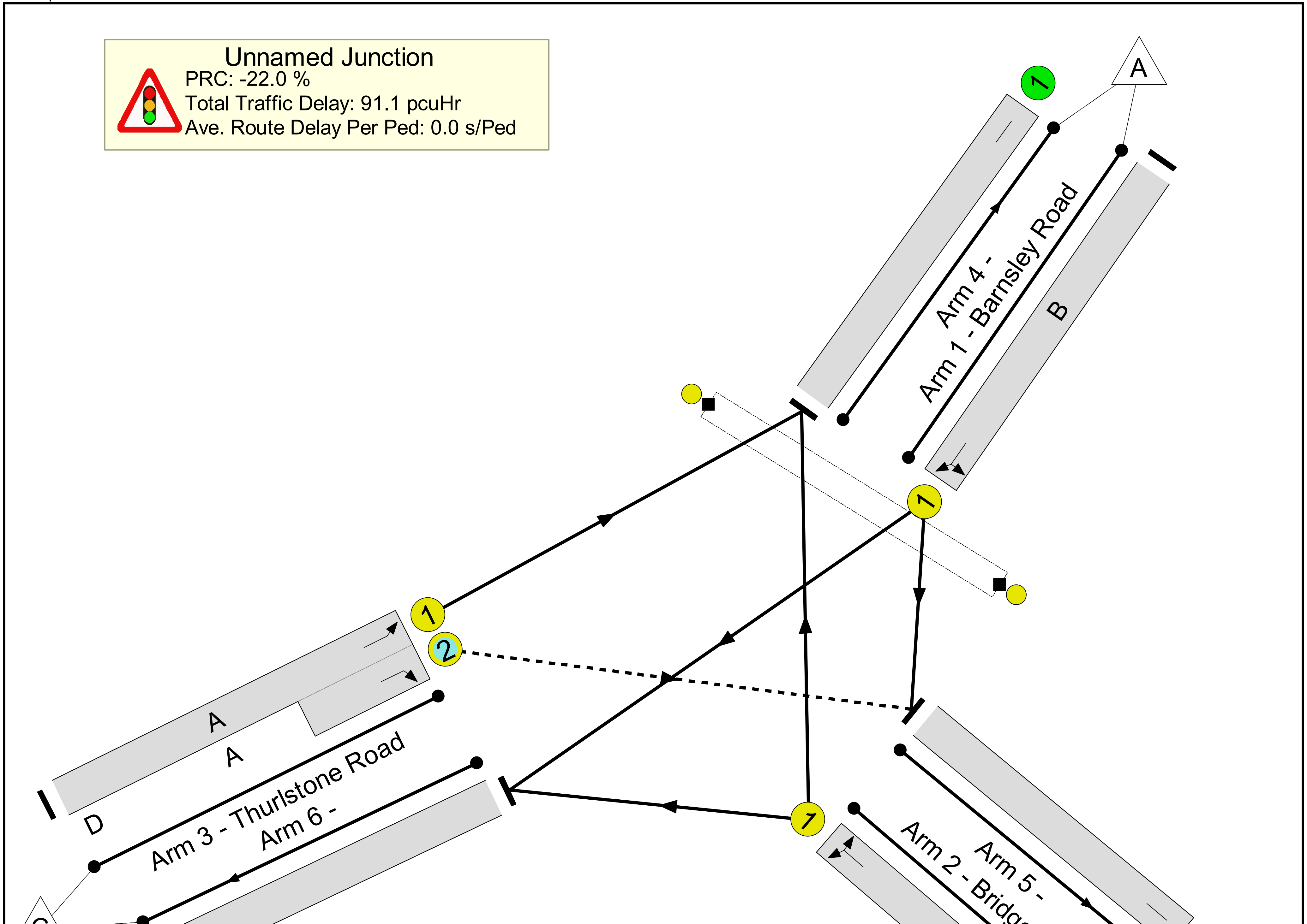
Stage	1	2	3	4
Duration	36	8	10	39
Change Point	0	43	57	73

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


Unnamed Junction
PRC: -22.0 %
Total Traffic Delay: 91.1 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
B
Arm 4 -
Arm 1 - Barnsley Road
A
A
D
Arm 3 - Thurlstone Road
Arm 6 -
Arm 5 -
Arm 2 - Bridg

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**109.8%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**109.8%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	36	-	596	1761	543	109.8%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	39	-	481	1343	448	107.4%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	50	8	452	1490:1406	272+164	103.6 : 103.6%
4/1		U	N/A	N/A	-		-	-	-	653	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	563	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	313	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**164**	**0**	**22.4**	**68.7**	**0.0**	**91.1**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**164**	**0**	**22.4**	**68.7**	**0.0**	**91.1**	**-**	**-**	**-**	**-**
1/1	596	543	-	-	-	10.0	31.3	-	41.3	249.4	21.6	31.3	52.9
2/1	481	448	-	-	-	7.7	22.1	-	29.8	223.3	17.9	22.1	40.0
3/1+3/2	452	439	0	164	0	4.6	15.3	-	19.9	158.8	8.0	15.3	23.3
4/1	621	621	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	522	522	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	287	287	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

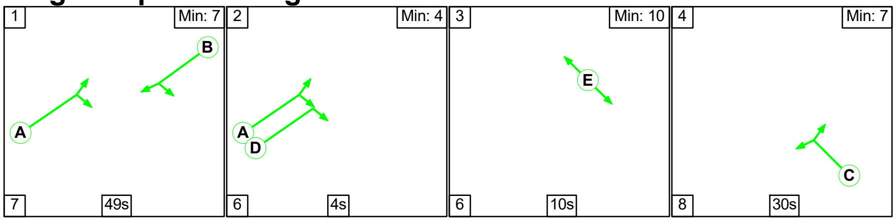
Full Input Data And Results

C1	PRC for Signalled Lanes (%):	-22.0	Total Delay for Signalled Lanes (pcuHr):	91.05	Cycle Time (s):	120
	PRC Over All Lanes (%):	-22.0	Total Delay Over All Lanes(pcuHr):	91.05		

Full Input Data And Results

Scenario 2: '2018 PM Peak Hour' (FG2: '2020 PM Peak Hour', Plan 1: 'Network Control Plan 1')

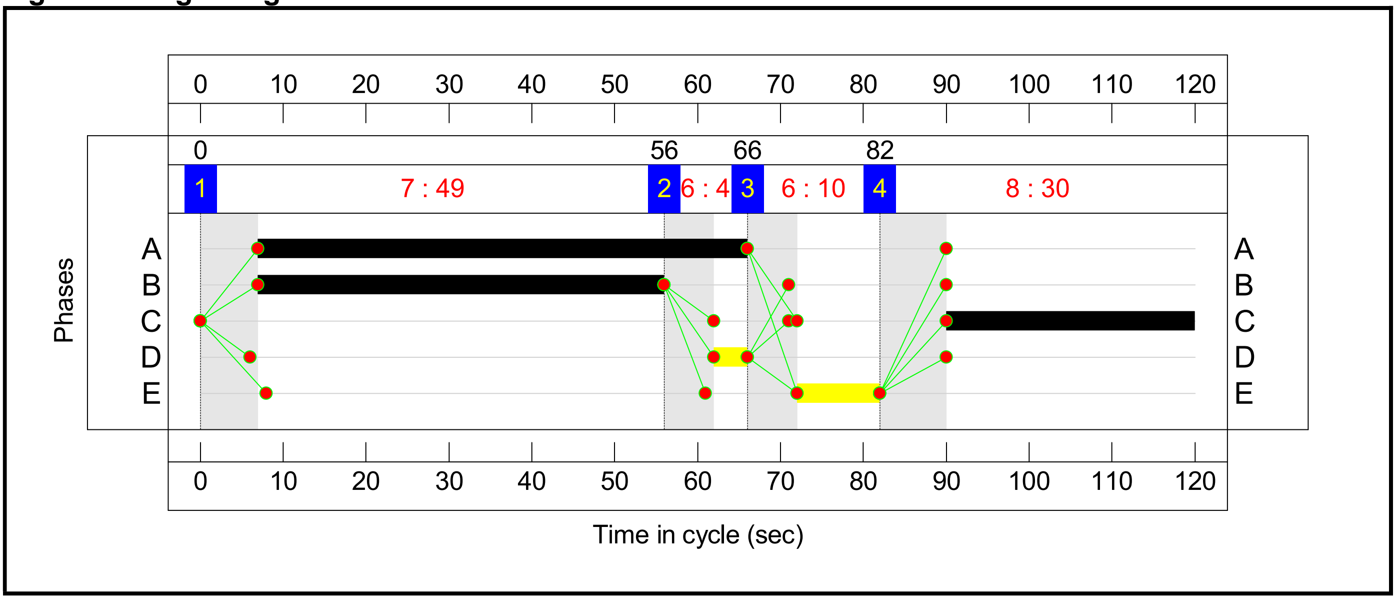
Stage Sequence Diagram



Stage Timings

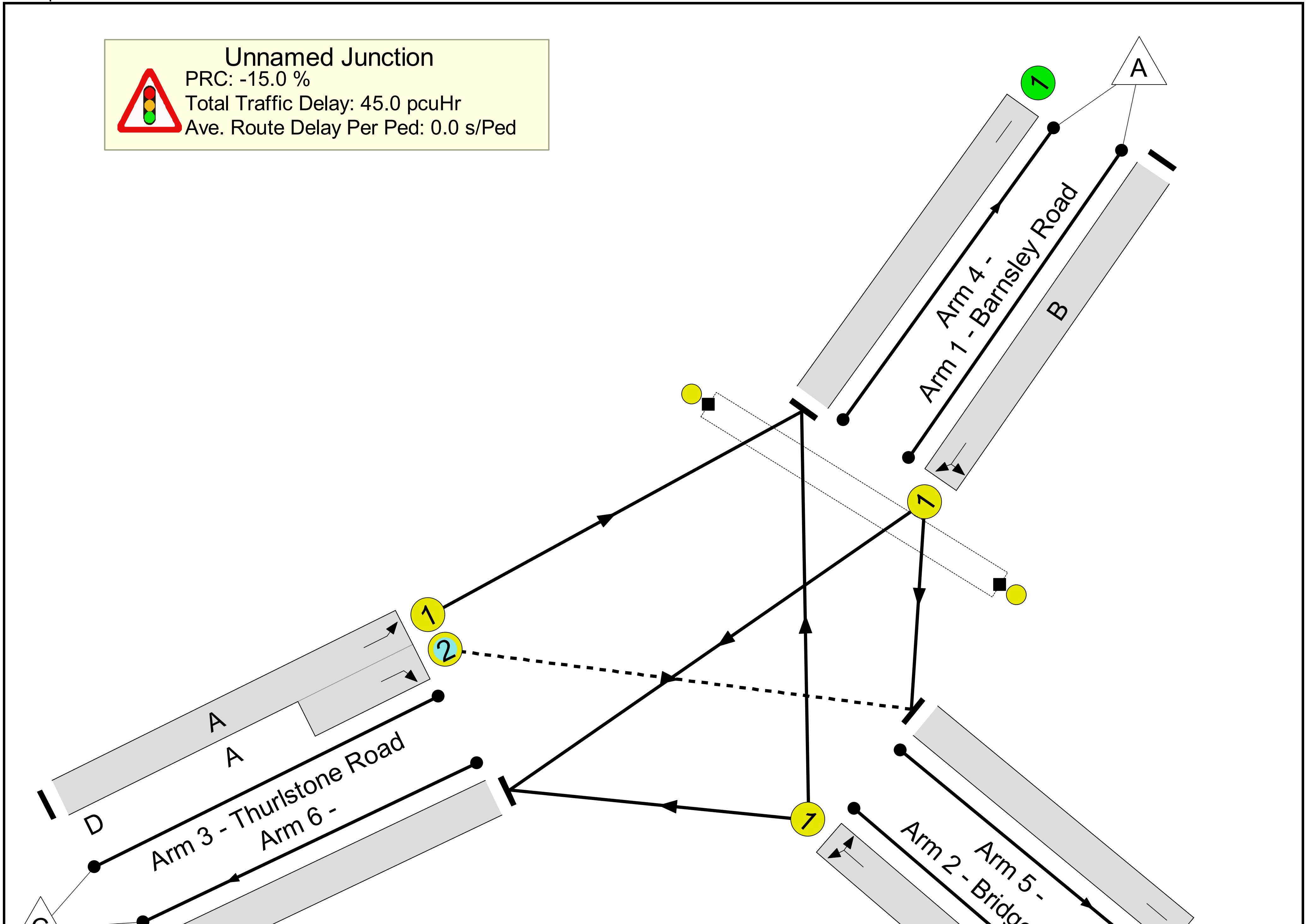
Stage	1	2	3	4
Duration	49	4	10	30
Change Point	0	56	66	82

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Unnamed Junction
PRC: -15.0 %
Total Traffic Delay: 45.0 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
Arm 4 -
Arm 1 - Barnsley Road
B
A
A
D
Arm 3 - Thurlstone Road
Arm 6 -
Arm 5 -
Arm 2 - Bridg

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**103.5%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**103.5%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	49	-	690	1783	743	92.9%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	30	-	493	1844	476	103.5%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	59	4	374	1874:1359	241+146	96.8 : 96.8%
4/1		U	N/A	N/A	-		-	-	-	576	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	554	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	427	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**32**	**109**	**0**	**16.5**	**28.5**	**0.0**	**45.0**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**32**	**109**	**0**	**16.5**	**28.5**	**0.0**	**45.0**	**-**	**-**	**-**	**-**
1/1	690	690	-	-	-	6.4	5.4	-	11.8	61.5	21.9	5.4	27.3
2/1	493	476	-	-	-	7.3	16.0	-	23.3	170.0	17.1	16.0	33.1
3/1+3/2	374	374	32	109	0	2.9	7.0	-	9.9	95.6	4.7	7.0	11.7
4/1	564	564	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	554	554	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

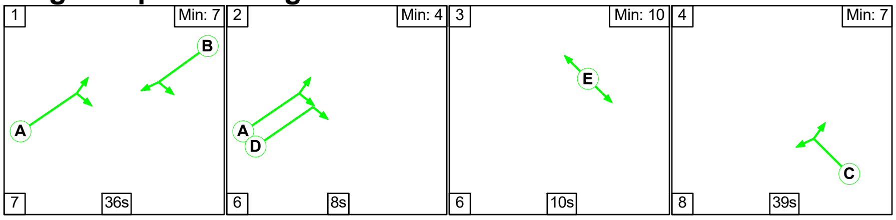
Full Input Data And Results

C1	PRC for Signalled Lanes (%):	-15.0	Total Delay for Signalled Lanes (pcuHr):	45.00	Cycle Time (s):	120
	PRC Over All Lanes (%):	-15.0	Total Delay Over All Lanes(pcuHr):	45.00		

Full Input Data And Results

Scenario 3: '2033 AM Base' (FG3: '2033 AM Base', Plan 1: 'Network Control Plan 1')

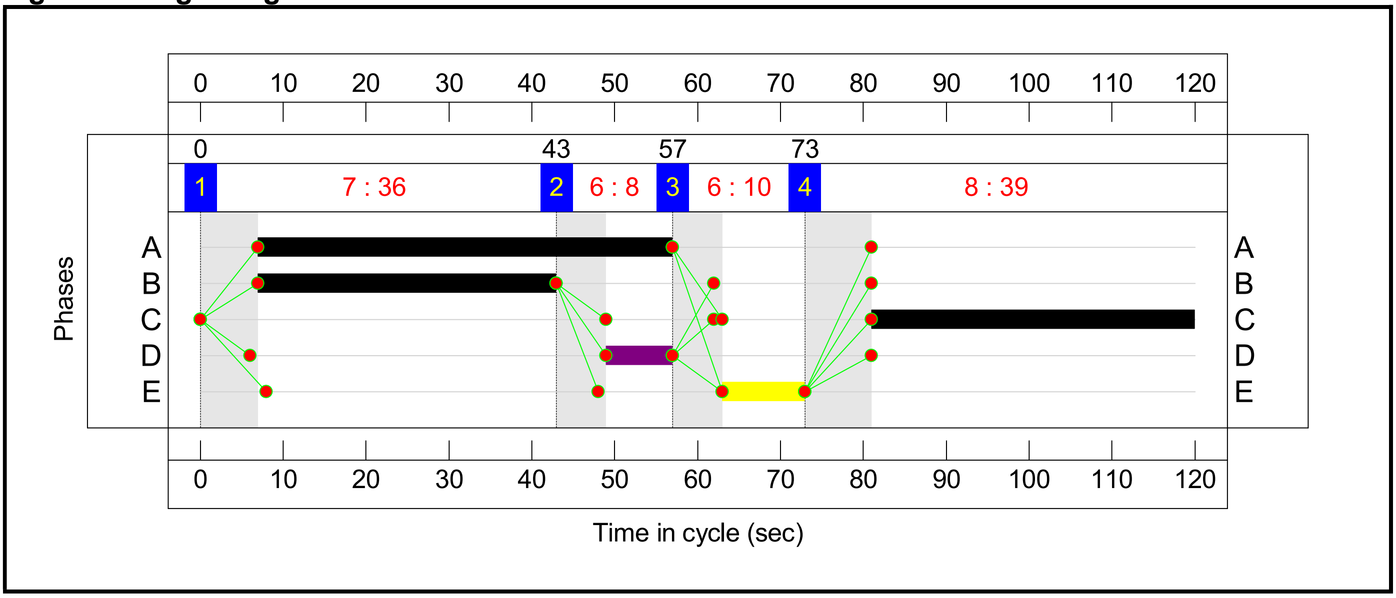
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	36	8	10	39
Change Point	0	43	57	73

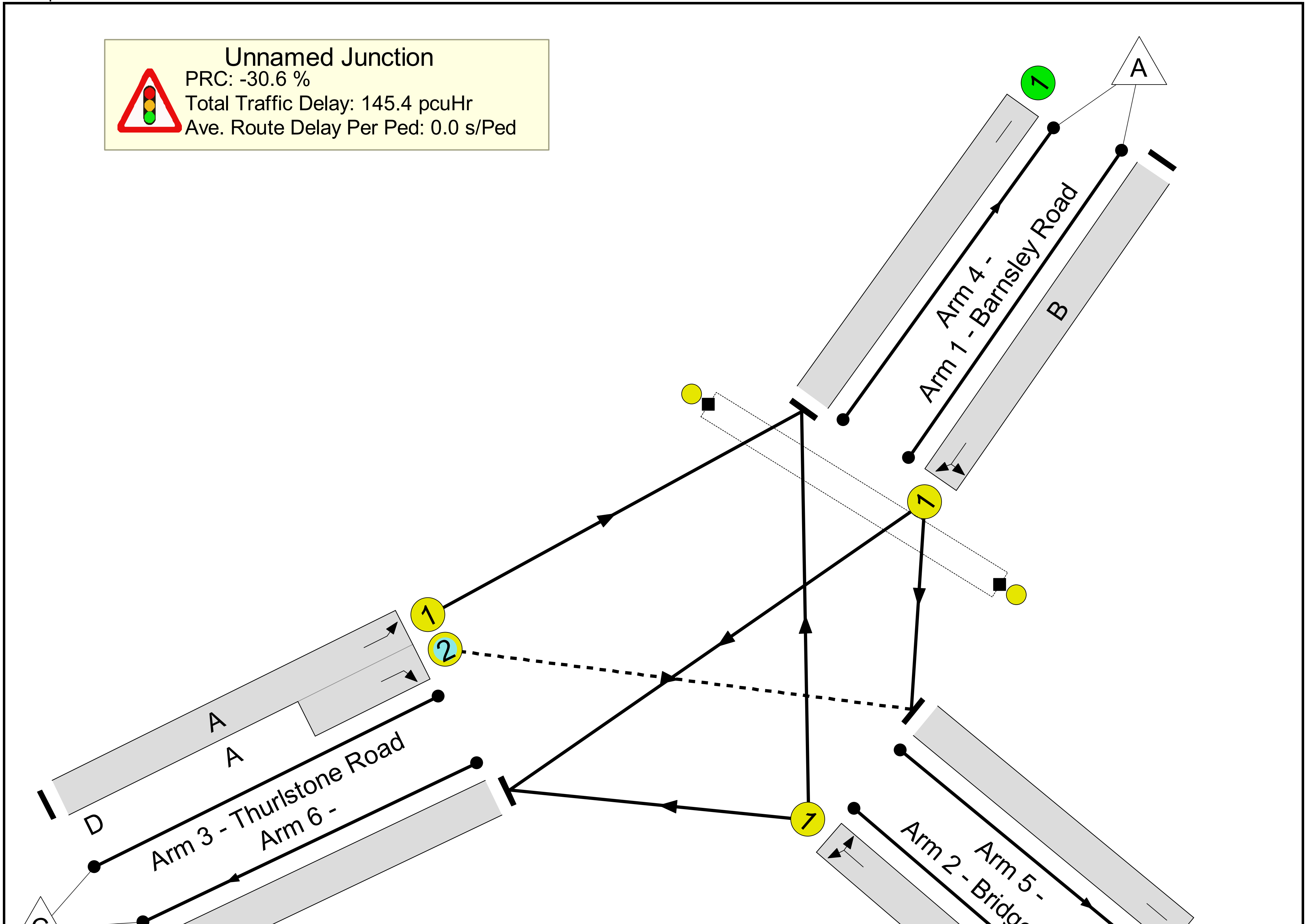
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**117.5%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**117.5%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	36	-	638	1761	543	117.5%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	39	-	514	1343	448	114.8%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	50	8	483	1490:1406	271+164	111.0 : 111.0%
4/1		U	N/A	N/A	-		-	-	-	698	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	603	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	334	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**164**	**0**	**30.0**	**115.5**	**0.0**	**145.4**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**164**	**0**	**30.0**	**115.5**	**0.0**	**145.4**	**-**	**-**	**-**	**-**
1/1	638	543	-	-	-	13.0	50.7	-	63.6	359.1	24.4	50.7	75.1
2/1	514	448	-	-	-	10.5	36.7	-	47.1	330.1	21.1	36.7	57.8
3/1+3/2	483	435	0	164	0	6.5	28.1	-	34.7	258.4	10.5	28.1	38.6
4/1	617	617	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	522	522	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	287	287	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

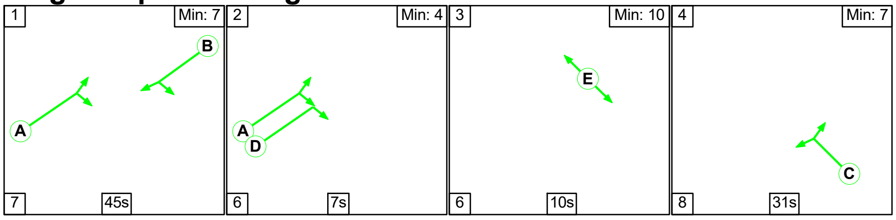
Full Input Data And Results

C1	PRC for Signalled Lanes (%):	-30.6	Total Delay for Signalled Lanes (pcuHr):	145.44	Cycle Time (s):	120
	PRC Over All Lanes (%):	-30.6	Total Delay Over All Lanes(pcuHr):	145.44		

Full Input Data And Results

Scenario 4: '2033 PM Base' (FG4: '2033 PM Base', Plan 1: 'Network Control Plan 1')

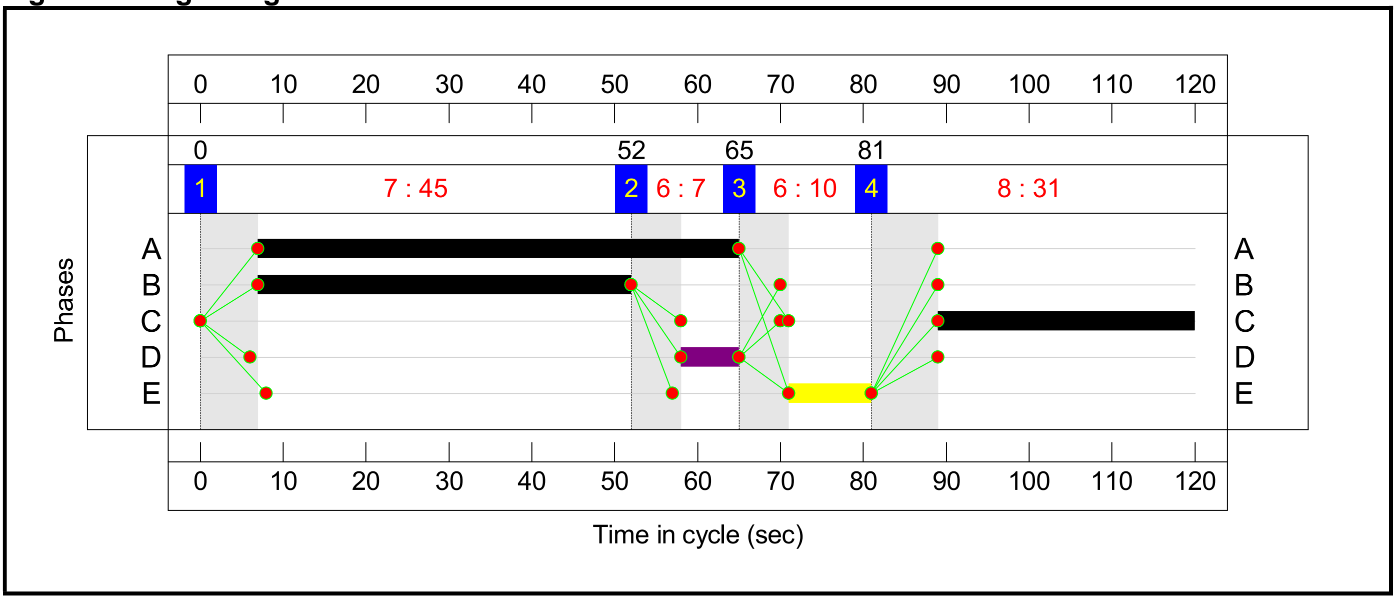
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	45	7	10	31
Change Point	0	52	65	81

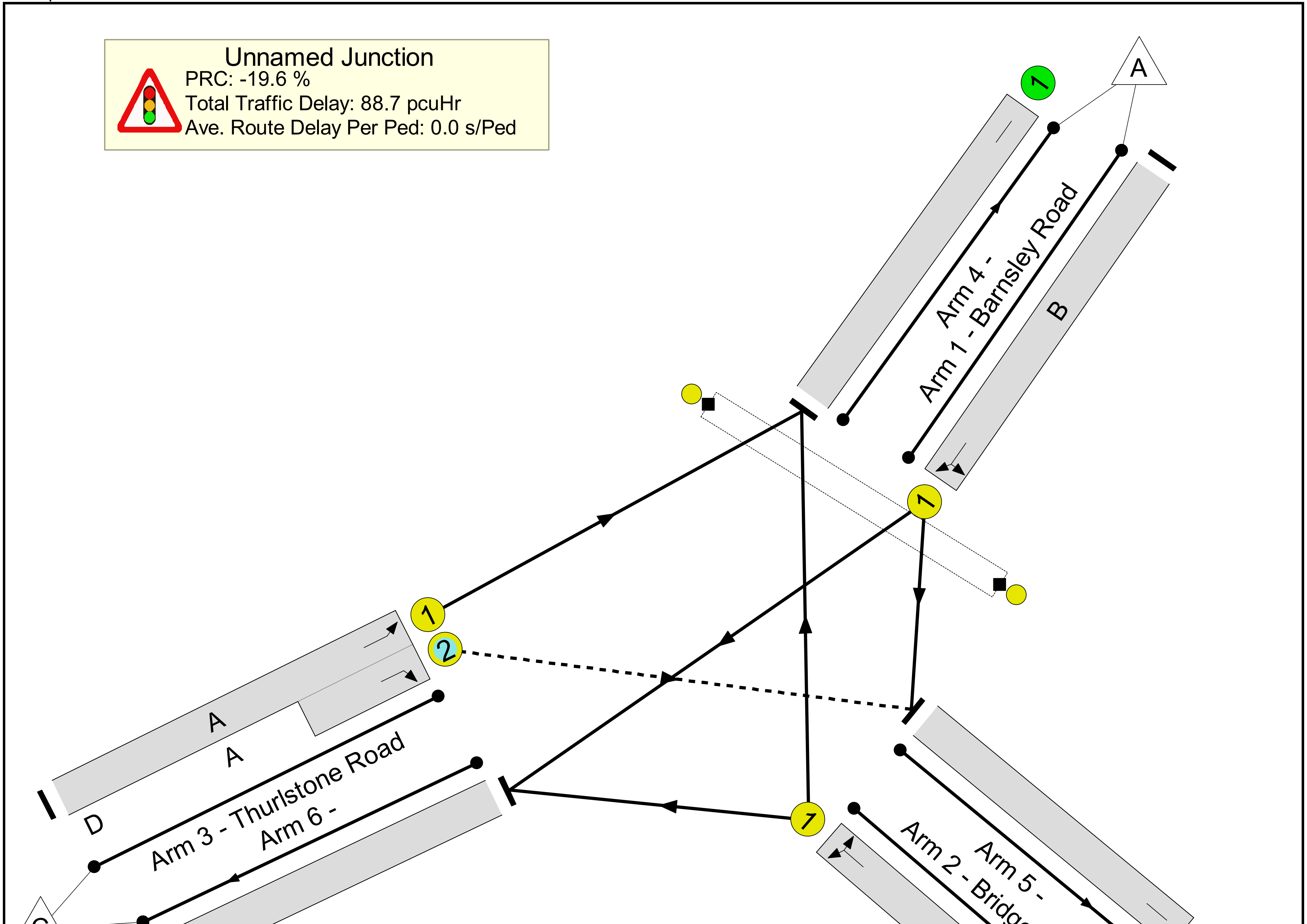
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**107.7%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**107.7%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	45	-	736	1783	683	107.7%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	31	-	524	1844	492	106.6%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	58	7	398	1874:1359	243+147	101.9 : 101.9%
4/1		U	N/A	N/A	-		-	-	-	613	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	591	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	454	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**147**	**0**	**22.6**	**66.1**	**0.0**	**88.7**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**147**	**0**	**22.6**	**66.1**	**0.0**	**88.7**	**-**	**-**	**-**	**-**
1/1	736	683	-	-	-	10.6	32.0	-	42.6	208.4	26.3	32.0	58.3
2/1	524	492	-	-	-	8.7	22.1	-	30.7	211.2	19.2	22.1	41.3
3/1+3/2	398	395	0	147	0	3.3	12.0	-	15.3	138.3	5.1	12.0	17.1
4/1	591	591	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	557	557	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	423	423	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

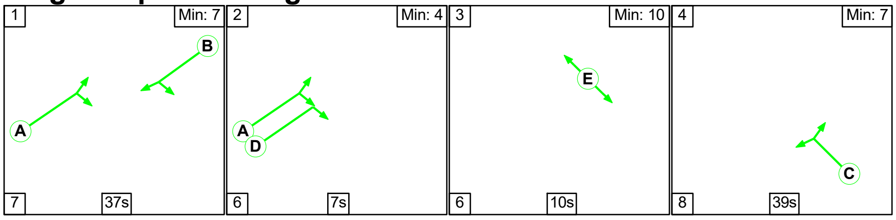
Full Input Data And Results

C1	PRC for Signalled Lanes (%):	-19.6	Total Delay for Signalled Lanes (pcuHr):	88.65	Cycle Time (s):	120
	PRC Over All Lanes (%):	-19.6	Total Delay Over All Lanes(pcuHr):	88.65		

Full Input Data And Results

Scenario 5: '2033 AM Design' (FG5: '2033 AM Design', Plan 1: 'Network Control Plan 1')

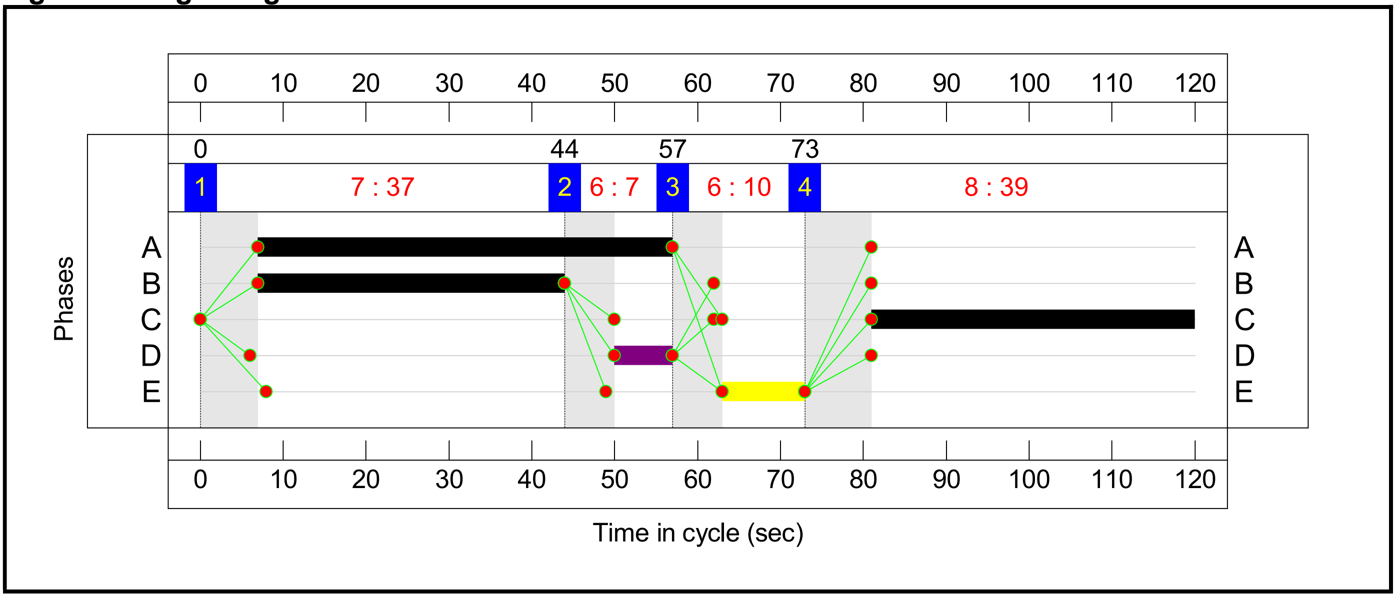
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	37	7	10	39
Change Point	0	44	57	73

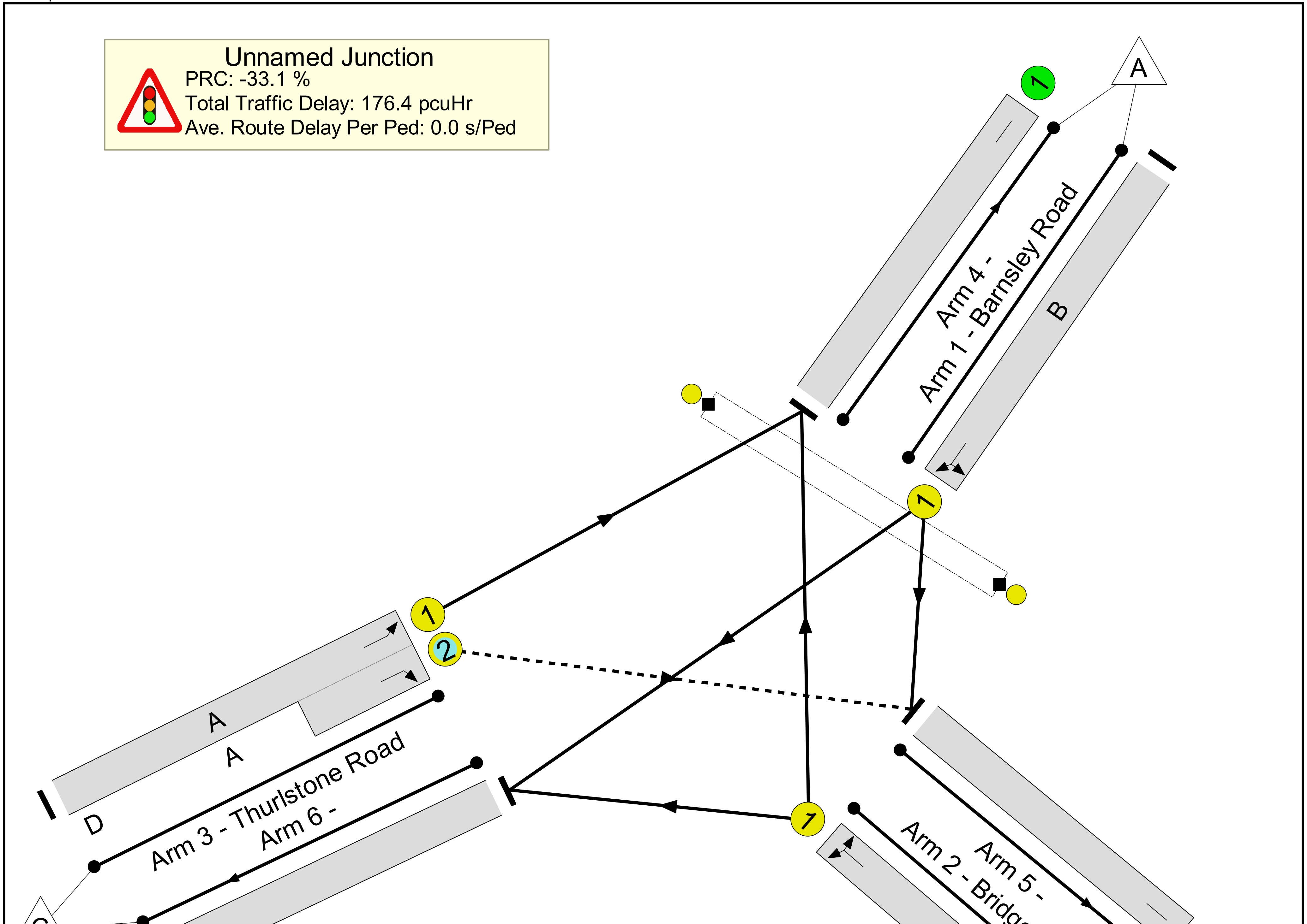
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**119.8%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**119.8%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	37	-	668	1761	558	119.8%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	39	-	526	1343	448	117.5%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	50	7	490	1490:1406	258+152	119.5 : 119.5%
4/1		U	N/A	N/A	-		-	-	-	717	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	622	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	345	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**152**	**0**	**33.3**	**143.1**	**0.0**	**176.4**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**152**	**0**	**33.3**	**143.1**	**0.0**	**176.4**	**-**	**-**	**-**	**-**
1/1	668	558	-	-	-	14.1	58.1	-	72.2	389.0	25.9	58.1	84.0
2/1	526	448	-	-	-	11.4	42.3	-	53.7	367.7	22.3	42.3	64.6
3/1+3/2	490	410	0	152	0	7.7	42.8	-	50.5	371.3	15.2	42.8	58.1
4/1	606	606	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	520	520	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	290	290	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

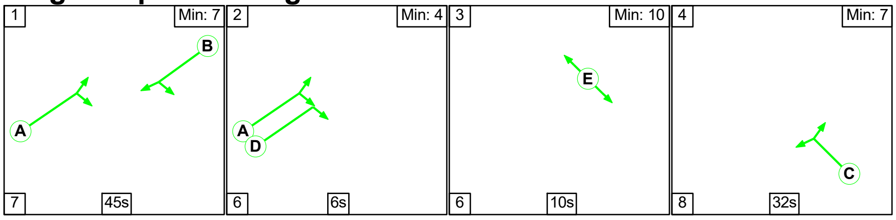
Full Input Data And Results

C1	PRC for Signalled Lanes (%):	-33.1	Total Delay for Signalled Lanes (pcuHr):	176.43	Cycle Time (s):	120
	PRC Over All Lanes (%):	-33.1	Total Delay Over All Lanes(pcuHr):	176.43		

Full Input Data And Results

Scenario 6: '2033 PM Design' (FG6: '2033 PM Design', Plan 1: 'Network Control Plan 1')

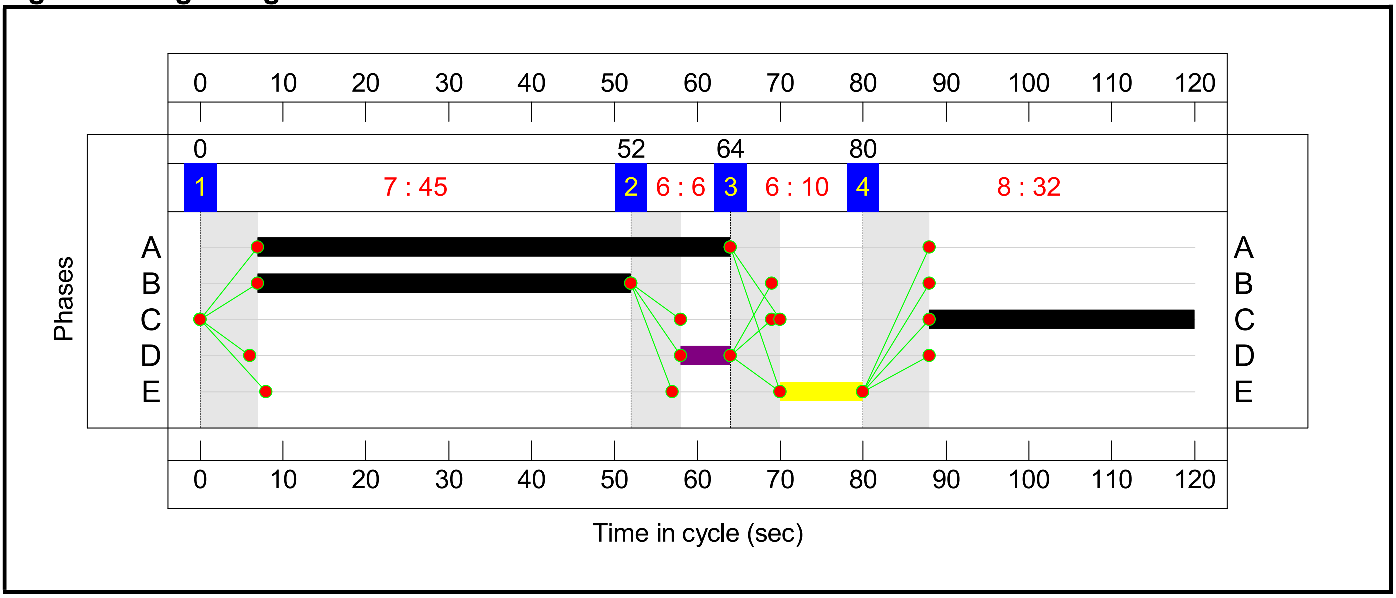
Stage Sequence Diagram



Stage Timings

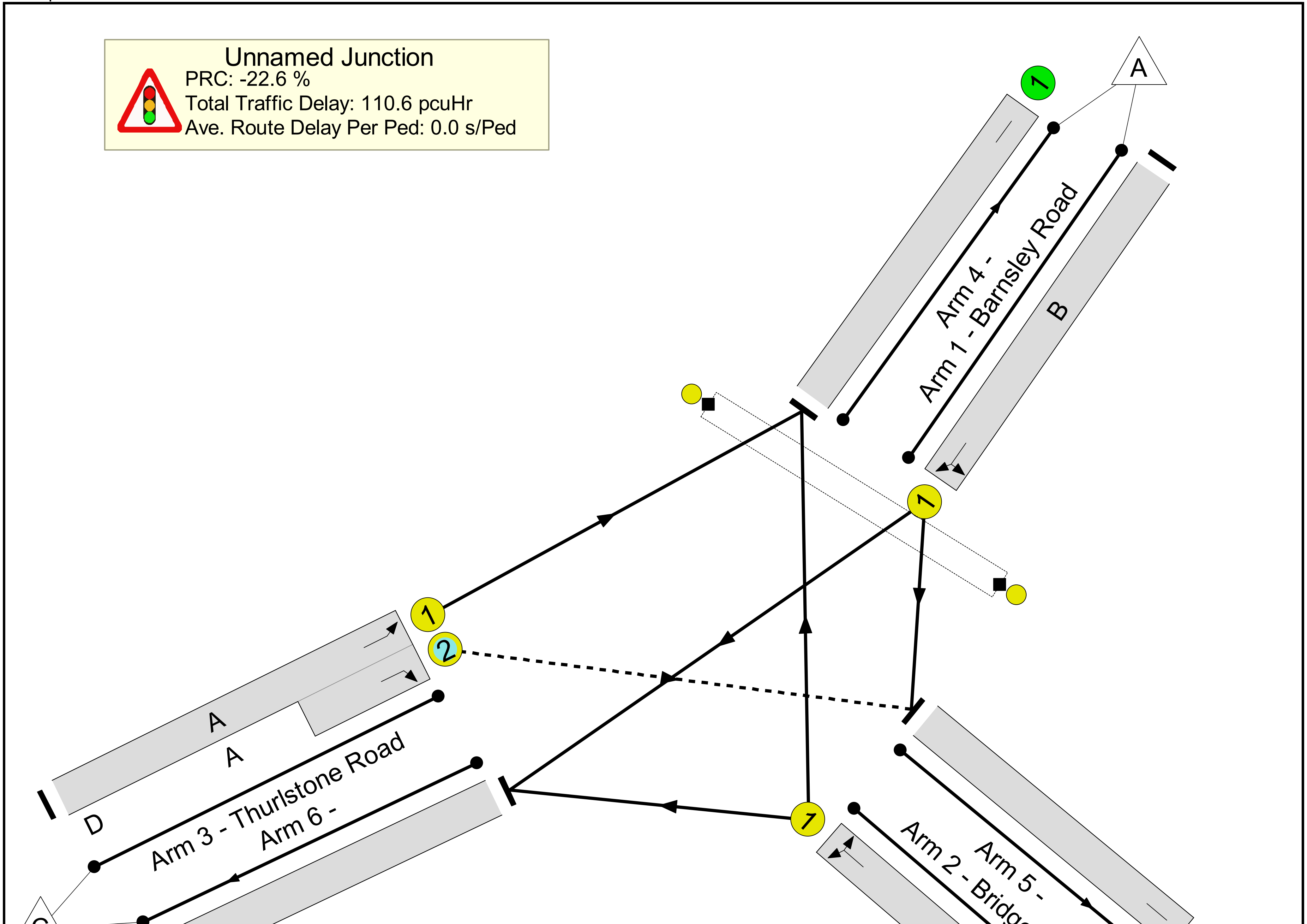
Stage	1	2	3	4
Duration	45	6	10	32
Change Point	0	52	64	80

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Unnamed Junction
PRC: -22.6 %
Total Traffic Delay: 110.6 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
A
B
Arm 4 -
Arm 1 - Barnsley Road
A
A
D
Arm 3 - Thurlstone Road
Arm 6 -
Arm 5 -
Arm 2 - Bridg

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**110.4%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**110.4%**
1/1	Barnsley Road Left Ahead	U	N/A	N/A	B		1	45	-	748	1783	683	109.4%
2/1	Bridge Street Right Left	U	N/A	N/A	C		1	32	-	546	1844	507	107.7%
3/1+3/2	Thurlstone Road Ahead Right	U+O	N/A	N/A	A	D	1	57	6	411	1874:1359	236+136	110.4 : 110.4%
4/1		U	N/A	N/A	-		-	-	-	648	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	598	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	459	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**136**	**0**	**24.8**	**85.9**	**0.0**	**110.6**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**136**	**0**	**24.8**	**85.9**	**0.0**	**110.6**	**-**	**-**	**-**	**-**
1/1	748	683	-	-	-	11.4	37.3	-	48.7	234.4	27.1	37.3	64.4
2/1	546	507	-	-	-	9.3	24.9	-	34.3	225.9	20.3	24.9	45.3
3/1+3/2	411	397	0	136	0	4.0	23.7	-	27.7	242.4	5.6	23.7	29.2
4/1	620	620	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	545	545	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

C1	PRC for Signalled Lanes (%):	-22.6	Total Delay for Signalled Lanes (pcuHr):	110.64	Cycle Time (s):	120
	PRC Over All Lanes (%):	-22.6	Total Delay Over All Lanes(pcuHr):	110.64		