Yorkshire Wildlife Park, Branton, Doncaster, DN4 6TB

New Premises Licence

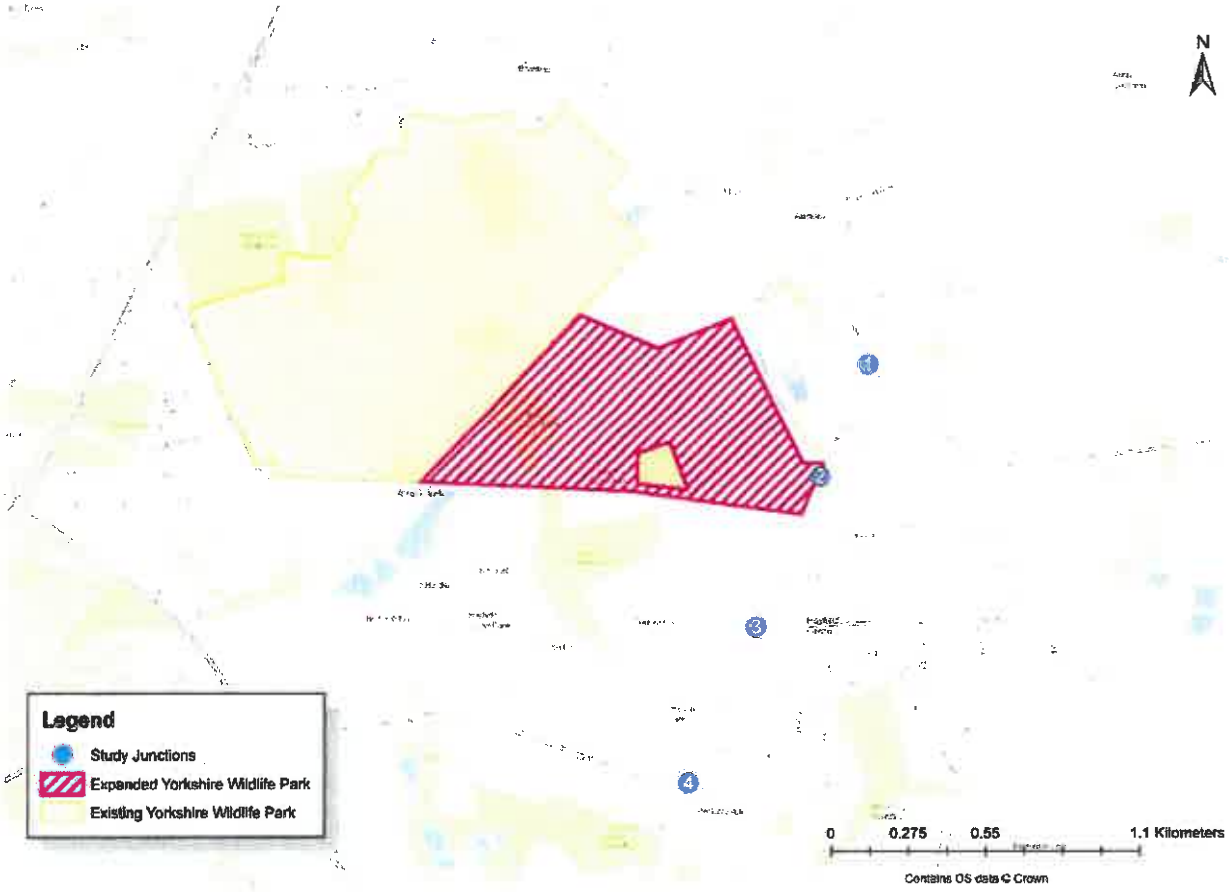
INDEX TO BUNDLE


1km
Existing Wildlife Park Site
Polar Car Park Site
Wildlife Park Expansion Site
Licensable Area

P1


WETLANDS
ANIMAL ATTRACTIONS AREA
'THE HUB' SUPPORTING FACILITIES
CAR PARK AND ACCESS
FIELDS AND WOODLANDS

Figure 1.1: Study Junctions



Source: Mott MacDonald

Additional Information

in Support of Premises Licence Application

January 2020

Yorkshire Wildlife Park

Brockholes Lane

Branton

Doncaster

DN3 3NH

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Contents

1. Background

Yorkshire Wildlife Park is an innovative visitor experience – a unique walkthrough Safari Park, and dynamic conservation and welfare centre. The Park engages its audience with wildlife, conservation and animal welfare, education, entertainment, and great facilities. In 10 years since opening it has grown from 66,000 visitors to 700,000. The staff team have incredible passion which is reflected in high levels of repeat visitors.

The Park is now recognised as a centre of excellence within the zoo and attractions world. With numerous developments over the last 10 years, the Park is justifiably famous for its world class animal facilities, and there are now dedicated education, conferencing, dining and retail facilities.

The Park attracts a wide demographic, all ages and a local, national and international audience. Approximately 60% of the Park's visitors are from Yorkshire. 35% from outside Yorkshire and 5% from overseas.

The good news stories surrounding the Park have brought international recognition for Doncaster, and its strategies of partnership, commercial focus, marketing and innovation have earned it many awards:

- Visitor Attractions Quality Assurance Standard Gold Award 2014, 2015, 2016, 2017
- Top rated attraction - Yorkshire Attractions Group research 2011-2015
- Business of the Year – Doncaster Chamber Awards 2011 and 2014
- Excellence in Customer Service Doncaster Chamber Awards 2013
- Business of the Year Yorkshire and Humber – British Chamber Awards 2012
- Best New Enclosure Lion Country Highly Commended - BIAZA Awards 2012
- Meritorious Award for Public Relations – Lion Rescue - BIAZA Awards 2012
- White Rose Awards - Large Attraction of the Year, Finalist 2012 and 2014
- Yorkshire's Most Magnificent Attraction 2014
- Large Business of the Year in the Sheffield City Region Awards 2015
- Highly Commended Large Visitor Attraction - White Rose Awards 2015
- Gold Award BIAZA Project Polar 2018
- TripAdvisor Hall of Fame 2015-19

Since opening the number of annual passes held by the local community has grown from 350 (2009) to in excess of 20,000 (to date). This great value scheme offers unlimited visits throughout the year.

Yorkshire Wildlife Park is also now a significant regional employer. In 2009 there were 27 employees at the Park, with approx. 13 full-time equivalent (FTE) roles. At the end of October 2019 the Park employs 227 people (FTE 167) in roles including managers, grounds workers, animal rangers, cleaners, shop assistants, chefs and catering and functions staff. In 2020 as the Park continues to develop it is expected numbers will grow to over 250 employees. 81% of employees live in a 'DN' postcode area. The Park is working with Doncaster College to provide apprenticeships, and internally staff have access to the 'Yorkshire Wildlife Park Academy' training programme, as well as a range of externally accredited training.

2. Regulation

The Park's activity discussed in this document is governed by key legislation and regulations, notably the Licensing Act 2003, but also the Environmental Protection Act 1990, the Health and Safety at Work etc. Act 1974 and its relevant statutory provisions, The Fire Precaution (Workplace) Regulations 1997 and the Regulatory Reform (Fire Safety) Order 2005. In all areas we aspire to follow best practice in adhering to, and exceeding the requirements of these acts and regulations.

In addition the activities at Yorkshire Wildlife Park are also controlled and regularly audited by Doncaster Metropolitan Borough Council (DMBC) under the Zoo Licensing Act 1981.

As would be expected, the Park's management team hold significant expertise in this area, having held positions in different zoos and wildlife parks in the UK

Yorkshire Wildlife Park became an accredited member to both BIAZA (British and Irish Association of Zoos and Aquariums) and EAZA (European Association of Zoos and Aquariums) within the first two years of the park opening. Both of these organisations operate a rigorous accreditation system, with regular inspections. To remain a member of these bodies, Yorkshire Wildlife Park has to achieve a very high standard of animal welfare and husbandry, support conservation projects and run a comprehensive education programme for visitors and schools.

The expertise of staff is recognised such that several staff from the Park sit on BIAZA and EAZA committees.

Yorkshire Wildlife Park's animal welfare policies are overseen by an ethics committee, which includes several independent external members, suitably qualified and experienced in this field, including Harold Hudson (former Licensing Officer at DMBC) and three veterinary surgeons.

3. Licensable Activities

3.1. Current Activities

As part of its operation as a popular regional visitor attraction, the Park wishes to enhance its facilities and services for visitors, expanding the attraction's capacity to respond to its growing visitor numbers, and also keep the facilities and appeal of the attraction 'fresh'.

To sustain the Park's image as a nationally leading visitor attraction, and growth as a regional asset, employer and visitor destination, Yorkshire Wildlife Park has to continue to develop, with a multi-faceted operation. This includes a core focus on history, education and conservation, complimented with restaurants, retail and special activities including gala weekends, weddings, private events, public concerts, etc.

The Park currently holds two Premises License;

LN/201500693 for the general Wildlife Park site

This covers the whole Wildlife Park for public entertainment, and the sale of alcohol 10:00 – 02:00.

LN/201601265 for the Polar Car Park site.

Covers just the Polar Car Park site, specifically for large events up to 10,000 people with a terminal hour of 10:00pm. These are limited to a maximum 12 occasions per year, including 4 occasions during the summer 6 week school holidays.

3.2. Proposed Activities

The Park is applying for a new, additional premises license to cover activities on its new expansion site. This site is currently being developed and is scheduled to open in July. The license is to cover the sale of alcohol and other licensable activities within the restaurants, hotel and courtyard of a new visitor hub and indoor function / conference / exhibition centre.

The application will be similar to the current licence operating on Yorkshire Wildlife Park's existing main site, which covers the restaurants and corporate events, conference facilities and wedding venues. However, one minor change associated with the new site is that the application includes a request for the hotel to have a 24-hour licence for alcohol, to facilitate the provision of room service or mini bars for hotel residents in their rooms.

The 'licensable' activity that is applied for, is as follows:

Sale of Alcohol on & off premises

- Provision of late night refreshment (hot food after 11pm)
- Theatrical Performance
- Showing A Film
- Indoor Sporting Event
- Live Music
- Recorded Music
- Dance
- Facilities For Making Music
- Dancing Facilities

The application is for a maximum 5,000 people to attend the premises taking part in licensable activity at one time. This does not cover the large outdoor concert events, the Park usually hosts in August. If Yorkshire Wildlife Park wishes to relocate these events, or transfer of the current licence to another location within the Park, this would be subject to a further, separate licence application.

The Park is applying for permission to cover the whole of the new expansion site, however activity will in general be focused around the new visitor 'hub' development, and mostly contained within these buildings.

The key spaces within the site, their uses and typical opening times are detailed below:

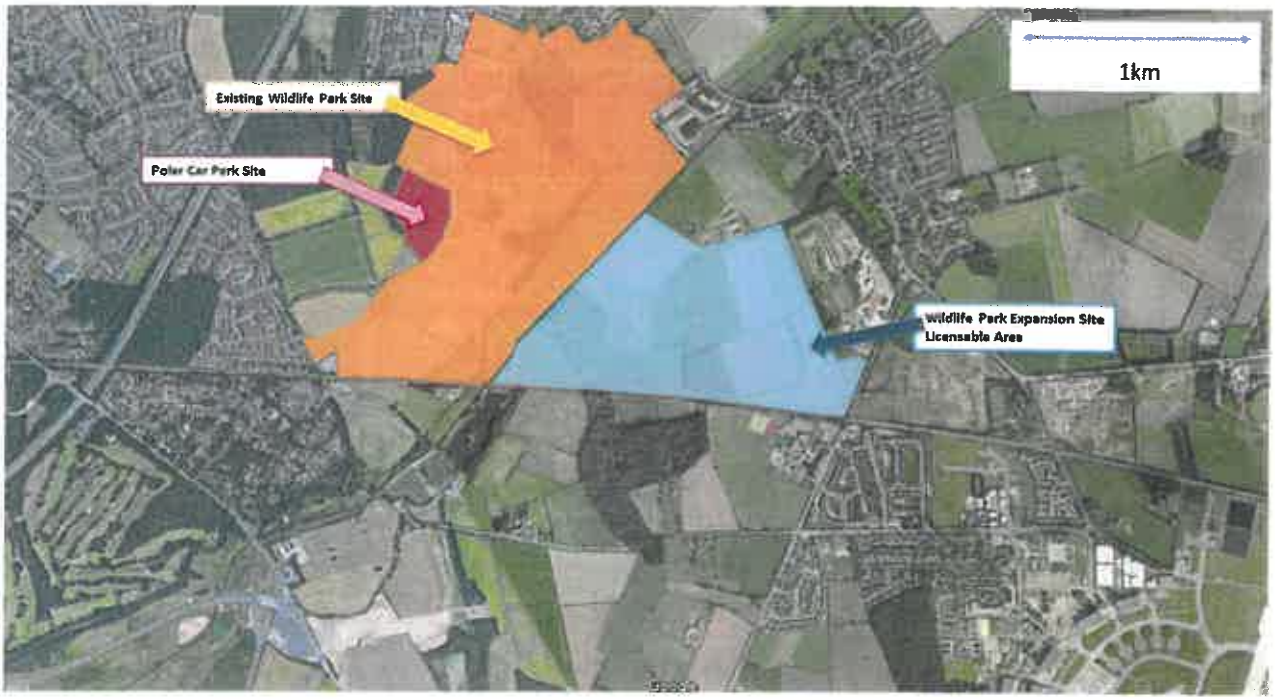
Building Type	Use	Typical Opening Hours
Restaurants	Three restaurants: café / bistro, themed restaurant, brasserie	Sun – Thurs 09.30 - 23.00 Fri - Sat 00.00
Hotel	Room service / mini-bar	24 hour room service for residents
Function / Conference Venue	Weddings, conferences, parties	Sun – Thurs typically daytime hours only 09.00 – 18.00 Fri, Sat evening events could run until Midnight, occasionally until 2am
Amphitheatre		All days 10.00 – 22.00
Gift Shops	Gift shop and specialist alcohol sales e.g. 'Yorkshire Gin'	All days 10.00 – 18.00

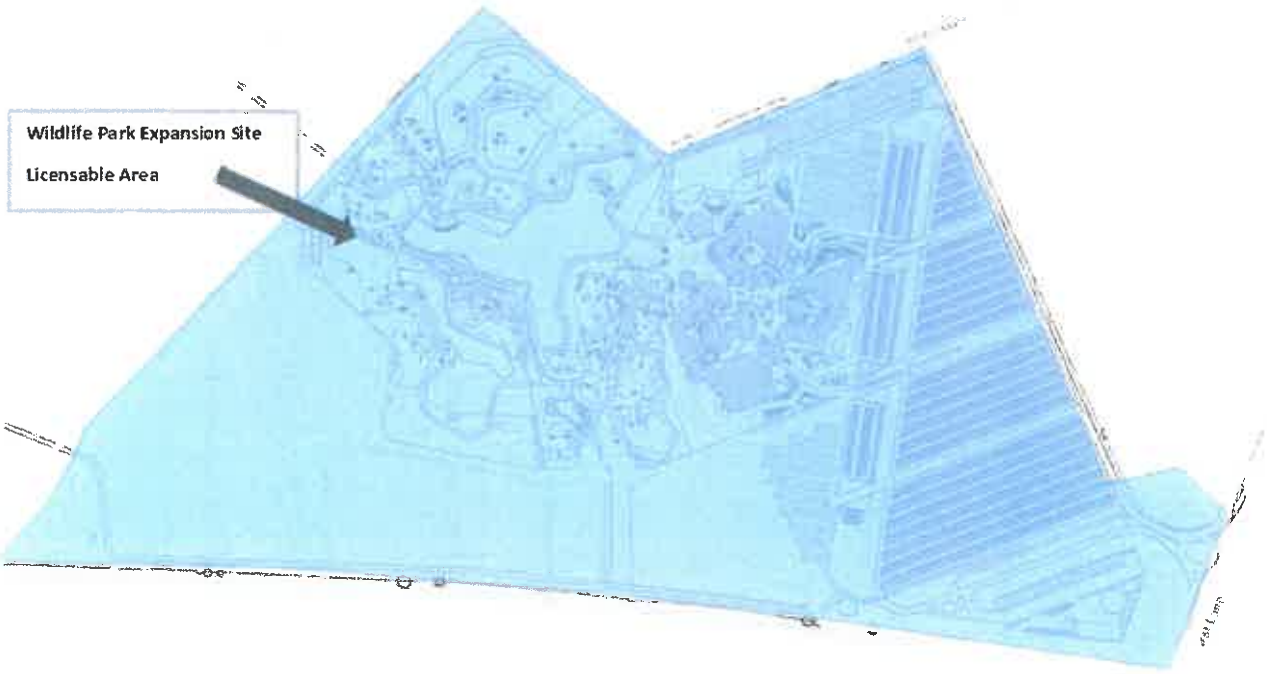
There will be occasional 'licensable' entertainment (live music, dancing, etc) in the above listed venues, within the typical operating hours listed. For Plays, Films, Live Music and Indoor Sporting Events the times applied for are applying for 10.00 – 00.00. For Recorded Music the requested hours are 10.00 – 02.00.

The proposed amphitheatre is located within one of the central courtyards of the complex, the buildings wrapping around the space. The proposal is also that the space is sunk into the ground, allowing for raked seating, also reducing the risk of noise propagation. In terms of its use the amphitheatre is intended to be used like the one at the existing park, where shows are both educational and entertaining, and typically 20 minutes long taking place at various intervals throughout the day. Although this space will involve regular outdoor entertainment and use of a PA system, it is not expected that the proposal will lead to any disturbance to local residents, due to its location, and position within the new buildings complex. Further details can be found in the attached Noise Management Strategy.

4. Location Plan

Location of the existing Park and expansion site:



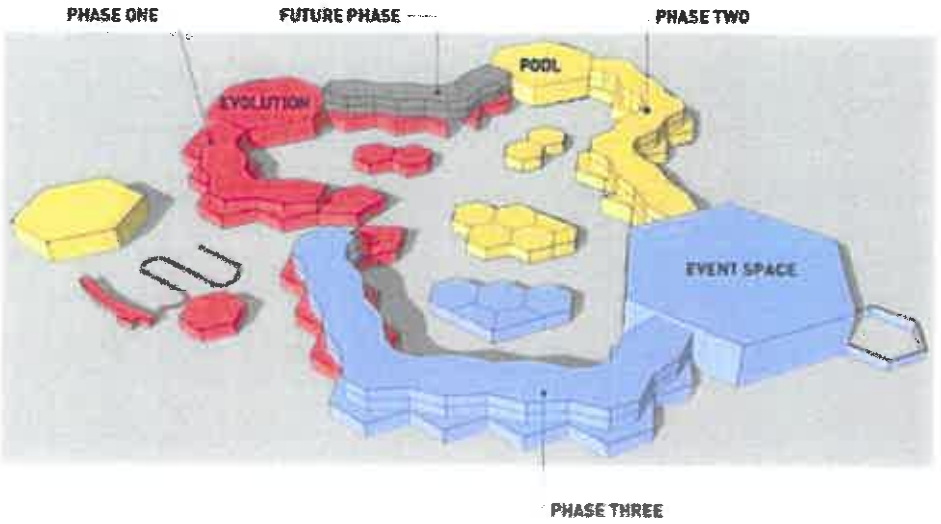


Site Plan:

Within the total licensable area there is a cluster of buildings, where most licensable activity will take place.

5. Site Layout

It is proposed that the site will be developed over a period of time with the first phase opening in 2020



following final design work. At this time, it is believed that this will be three distinct phases.

Phase I

The first offering provides for a bistro, visitor information building, play barn, themed restaurant, amphitheatre, retail & security / back of house.

Phase II

Phase two looks to provide for a additional gift shops, hotel & back of house facilities.

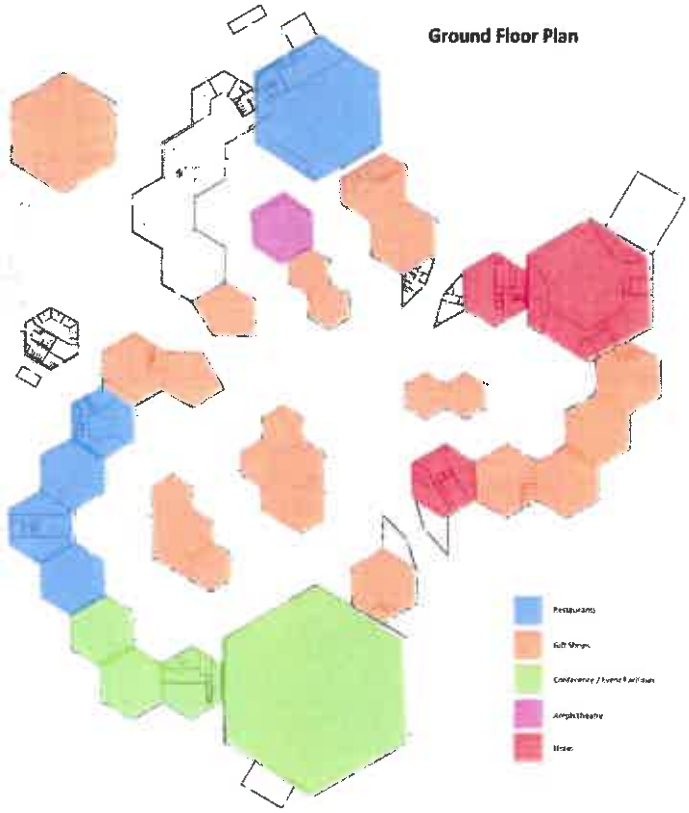
Phase III

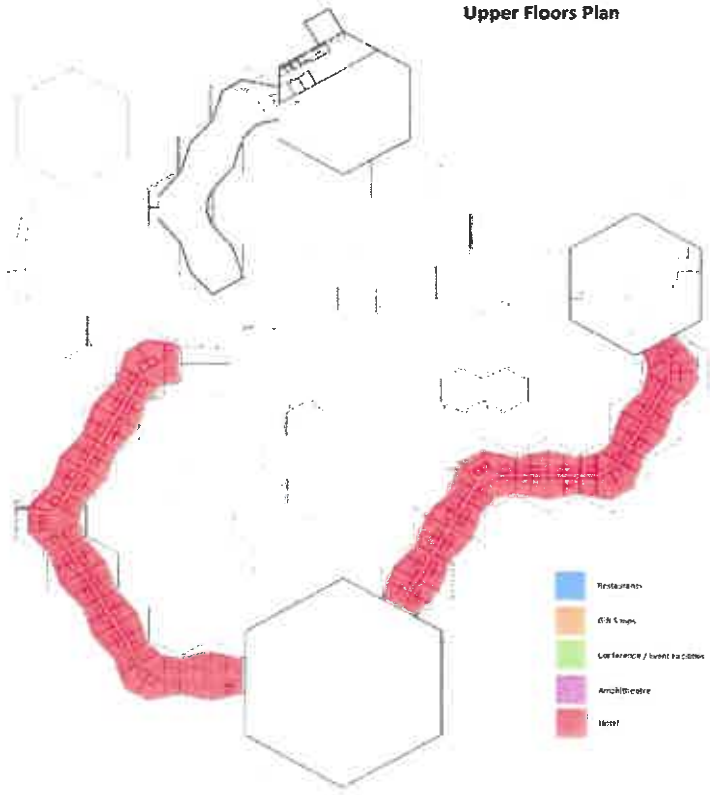
The final phase looks to provide for further hotel provision, brasserie, retail & event space and pool.

The space is orientated around a series of courtyards, enclosed spaces with buildings of varying heights. The intention behind the design provides a pleasant and welcoming environment consisting of multiple spaces.

In terms of the proposed uses of the spaces these are varied and the final end uses of buildings over all phases are not necessarily known at this time. The exact size and location of catering outlets, toilets and other facilities will be determined as the construction develops, and the plans below include phases 2 and 3, and are illustrative only.

Detail of cluster buildings - the 'Hub':





6. Impact on the Surrounding Community

YWP has a Consultative Committee of local councillors, parish councillors and other related organisations, regarding the ongoing Park development. An ongoing dialogue is maintained with this Committee, with regular meetings held throughout the year.

A meeting of this Consultative Committee was held on the 8th January 2020 to review this license request as part of the consultation process and identify any concerns. Following this meeting, a letter was sent to local residents in Auckley and Branton, inviting further comment on the application. A copy of this letter, and details of its distribution can be found in the Appendix. To date no comments have been received.

Licensable activity (particularly the provision of regulated entertainment), specifically amplified music, has the potential to cause disturbance, and recognising this we have engaged with DMBC Environmental Health Department, and contracted the services of suitably qualified, and experienced acoustic consultants, to review activity at the Park, and to develop a Noise Management Protocol. A draft version of this policy is included at the end of this document. In summary the policy provides for the following:

6.1. Noise Management Process

A robust and flexible way to manage noise both proactively and cost effectively. The approach used is proven to be effective, categorising potential activity based on the likelihood of disturbance.

ɔise Impact Categorisation		*Example Events*
Category 1 *High Risk* *of Noise Impact*		*Events where live or recorded music is a major component* *Outdoor Events* *Cinemas* *Food Festivals (where music is not incidental)* *Parties (Indoors & Outdoors) after 18.00hrs* *Music Events (Indoors & Outdoors) after 18.00hrs*
Category 2 *Medium Risk* *of Noise Impact*		*Promotions involving an element of music up to 18.00hrs* *Exhibitions* *Product Launches (music element)* *Food Festivals (low key music element)* *Outdoor events where live or recorded music is incidental*
Category 3 *Low Risk* *of Noise Impact*		*Trade Shows* *Fashion Shows* *Farmers Markets* *Community Engagement Events* *Sporting Activities* *Product Launches (no music element)* *Conferences* *Formal Dinners* *Awards Ceremonies*

The categorisation is awarded to planned activity as a result of an initial review by those responsible for the site. On the basis of the categorisation those responsible carry out varying degrees of assessment

work in preparation for noise control associated with the activity. The generic requirements for each category are set out below:

Category 1 Events – a specialist noise contractor will be in attendance to offer advice and support, and maintain overall control of noise. It must be noted that it is likely to be proven that for some repeat events, that the risk of impact is minimal and in such instances, consultants may not need to be in attendance at future events.

Category 2 Events – refer to those events where there is a limited risk of impact at receptors and for the most part it is expected that music noise shall not exceed the ambient background when observed from residential and other noise sensitive premises. It is not expected that technical specialist will need to be in attendance, but checks will be conducted regularly for due diligence purposes.

Category 3 Events – are considered low impact and not requiring any form of noise management. Due diligence checks by those responsible are encouraged and for the most part the requirement is to simply comply with the Noise Management Plan.

Those responsible at YWP will make the ultimate decision, as to whether the nature of the event is likely to be critical in terms of noise impact and/or whether there is overriding risk factors which require that the event is monitored for due diligence purposes. However, in all cases specialist contractors following receipt of a justified complaint or enquiry will be appointed to assist.

6.2. Procedure for Responding to and Dealing with complaints

YWP will ensure that an appropriate form of communication will be made with local residents ahead of the park opening, directing them towards YWP's website where a list of upcoming events and details of community engagement will be displayed. A dedicated number for noise enquiries will also be published and manned during opening hours of the site.

Should any noise enquiries be received, the YWP team would investigate and if noise levels are deemed unacceptable, immediate action would be taken to reduce the levels of the noise source. A complaints log would be maintained, detailing addresses of complaints, times and actions. Such would also be available to the Local Authority on request along with actions taken, etc. Should it become apparent that specific incidents are being repeated then YWP will appoint appropriate consultants to investigate the matter on their behalf and make necessary recommendations.

6.3. Noise Monitoring Procedure

Throughout periods when monitoring is identified as necessary, competent persons will remain responsible for proactively monitoring noise. This is done through conducting subjective / objective measurements at predetermined locations both internally and externally of the site. Such positions are dependent on final site layout, findings of sound checks, weather etc.

It is not expected that professional acoustic consultants will need to be in regular attendance and therefore checks will be typically conducted by the site Management Team. These will depend on the nature of the activities taking place and consist of checks internally around the boundary. Should these

observations note any form of impact then additional checks are conducted externally of the venue as appropriate.

6.4. Noise Strategy Review Procedure

In order to ensure that the strategy continues to fulfil its aims and objectives it will be reviewed and updated regularly. Whilst this is a continual exercise, a formal review and report will be conducted at least annually. The results of which will be made available to the various stakeholders as necessary.

With respect to the involvement of Doncaster Council, specific consultation and agreements will be sought with the Environmental Health and Licensing Team where there are any proposed amendments to limits, monitoring arrangements and following any significant amendments following the annual review. Likewise, those responsible will consider any formal comments received from Doncaster Council and make any necessary changes to the strategy as deemed necessary.

6.5. Traffic Impact

Engineering consultants Mott MacDonald have carried out traffic assessments for the Wildlife Park's development as part of their planning application (17/02189/OUTA). These considered the potential impact of daytime visitors to the Park, on the local highway network, and as a result significant investment has gone into building a roundabout at the entrance to the Park, and improvements to the junction at Mosham Road. Mott MacDonald have had discussions with the Transportation Unit at Doncaster Metropolitan Borough Council (DMBC) with regard to this application and what scenario best represented typical usage. As a result, Mott MacDonald has undertaken an assessment of 1,000 people attending a function in the new function/conference venue on a Saturday evening.

The largest building in the new development is the function / conference venue. This has a seated maximum capacity of 1,000 and a maximum standing capacity of 3,000. This venue is intended to be used for conferences, and occasional evening events such as conference dinners, weddings or parties.

The Hexagon Function Traffic Assessment (see appendix) has assessed the impact that a 1,000-attendance Saturday evening function would have on the surrounding highway network during the peak function arrival and departure hours when added to typical summer month Wildlife Park and background traffic levels. It is noted that 1,000 is the seated capacity of the venue and that guest numbers would usually fall below this threshold. However, the assessment makes allowance for 1,000 guests arriving at a lower vehicle occupancy, compared to general visits to the park and that only a small proportion of visitors are likely to stay in the new hotel on site. The impact assessment outputs have shown that the surrounding highway network is able to operate within capacity if this 1,000-attendance function is held.

The assessment concludes that the implementation of mitigation measures would be unnecessary for evening functions as detailed above, due to the ability of the highway network to operate within capacity. Notwithstanding this a Framework Function Traffic Management Plan has been prepared that indicates potential mitigation should this be necessary.

7. Operational Policies and Procedures

We would like to provide an overview of our operational policies with respect to the Promotion of the Licensing Objectives.

All licensable activities, including the sale and supply of alcohol, will be supervised by the Designated Premises Supervisor, Cheryl Williams, Director of Yorkshire Wildlife Park Ltd. Licensable activity will be delivered in a manner that is safe, organised and meets all statutory obligations under relevant legislation, principally the Licensing Act 2003 and subsequent revisions. Yorkshire Wildlife Park is in contact with relevant authorities including DMBC Licensing and Environmental Health Departments, South Yorkshire Police (SYP), South Yorkshire Fire Authority, and will continue to consult with these bodies and follow guidance issued.

The activity will be delivered in a manner that is safe, organised and meets all statutory obligations under relevant legislation, principally the Licensing Act 2003 and subsequent revisions.

Activity will operate in line with the Noise Management Protocol which has been specifically designed for Yorkshire Wildlife Park by consultants Joynes Nash Environmental Consultants.

Specifically in order to promote the four objectives of the Licensing Act (2003) we will:

7.1. To prevent Crime and Disorder;

- Closely control the sale of alcohol – the Park will ensure that there is always at least one Personal License Holder or a suitably experienced nominated Supervisor on duty at all times alcohol is available for sale.
- Ensure all staff involved in the sale of alcohol have received guidance on responsible retailing, and ensure these policies are followed and reminders are given as part of staff briefings prior to shifts commencing
- Not serve intoxicated customers any intoxicated person shall not be served and will be requested to leave the Park.
- Recognise that customers arriving later in the day, may have been drinking earlier, and this will affect their response to alcohol and level of intoxication
- Inform SYP of any occurrences of significant crime or disorder and pass on evidence that may assist in any prosecution or prevention of future occurrences.
- CCTV is installed at key locations around the park, and records 24 hours per day
- When appropriate, contract professional security personnel registered with the Security Industry Authority (SIA), in sufficient number
- Sufficient trained staff will be on duty to minimise queues
- No drinks promotions will be operated which may contribute to excess consumption

7.2. To ensure Public Safety;

- The Park has undertaken full Risk Assessments for all routine activities.
- Ensure all activity operates in line with risk assessments and operational plans developed based on best practice, and experience of previous similar activity
- All staff receive Health and Safety training and in addition there are IOSH and NEBOSH trained staff for in house support.
- One-off and special events are subject to risk assessment based on their requirements.
- All accidents (staff and customer) are reported, logged and reviewed by staff with specific responsibility for health and safety
- A minimum of 15 minutes "drinking up" time will be implemented in order to dissipate the dispersal of guests.
- Customers will be advised that they may not take alcoholic drinks off the premises

7.3. To prevent Public Nuisance;

- Constrain all licensable activities within the running times laid out in this document

- Appoint a member of staff to coordinate the control of noise from the events, in line with the adopted Noise Management Protocol.
- Contract professional sound engineers to control the use of sound systems at the events, and ensure that these staff are well briefed, and understand the controls required by the Noise Management protocol.
- All areas are cleaned promptly after closure to ensure that there is no litter or attraction to pests.
- Due to the nature of the primary business, loud noises are controlled e.g. low-noise fireworks, in order not to alarm or distress the animals within the park.
- We are aware of the potential for nuisance caused by operational noise – this includes noise from emptying bottle skips, refuse collection, load outs from evening events, and deliveries. We have no identified problems in the area as a result of our isolated location but maintain an awareness and willingness to review operating policies on receipt of any complaints in this area.
- In conjunction with DMBC and the Highways Agency, we developed an entrance, and traffic signage to cope with a high volume of visitors.

7.4. To protect Children from Harm;

- Observe DMBC and SYP guidance in this area
- Operate a challenge 25 scheme and maintain a refusals book
- We only accept passport, photo driving license, or identification approved by the PASS Accreditation System as proof of age.
- Report any concerns about a young person to DMBC Safeguarding and record in incident book
- There is an established lost child procedure in place on the Park
- Refuse entry to any under 18's observed consuming alcohol outside premises
- Staff will monitor the potential consumption of alcohol by anyone under the age of 18 via proxy sales, and as necessary remind customers it is an offence to buy or obtain alcohol for anyone under 18 years of age, and / or refuse service as appropriate
- Ensure there shall be no adult entertainment or other entertainment that may give rise to concern in respect of children
- Where films are exhibited, the classification restrictions relating to the film as set out by the British Board of Film Classification (BBFC) shall be clearly displayed and admission rules strictly enforced. If the film has not been given a BBFC classification the admission of children to the exhibition of any film will be restricted in accordance with any recommendation given by the Licensing Authority.

8. Summary

We believe Yorkshire Wildlife Park is a great asset to the local community, as a dynamic and forward thinking visitor attraction, as a provider of education, and centre of wildlife conservation and animal welfare.

We recognise our legal obligation to uphold the licensing objectives of the Licensing Act (2003), and to carry out our business with social responsibility, continuing to make a positive contribution to the community in which we operate

The provision of a safe and secure environment is a key business objective founded in our business plans and staff policies. We have a responsibility to provide this environment to our staff and customers, and it is a strength that we do so.

We recognise concerns about the ongoing development raised by local residents and councillors in their representations on planning applications, and previous license applications and have respect for their opinions and views. We are keen to engage with them in an ongoing, constructive dialogue as the Park develops into the future. We hope that the concerns previously raised will be alleviated by the construction of new facilities, and the majority of licensable activity taking place indoors, within the built environment of this new development. In addition, a Noise Management Protocol has been compiled with expert advice, as well other measures outlined in this document, in order to uphold the objectives of the Licensing Act (2003).

1. Appendix 1 - Letter to Residents

Dear Local Resident

Premises Licence application for Yorkshire Wildlife Park visitor hub

Background

Yorkshire Wildlife Park was formally granted planning permission in July 2018 for a new entrance, visitor hub and facilities and expanded animal reserves.

Work is now progressing well on the new animal reserves and landscaping. You have most likely also seen the developments that are progressing on the site of the Yorkshire Wildlife Park expansion, the frames going up for the buildings that are part of the new entrance, visitor hub and hotel and the initial changes to the local road network requested by DMBC to help mitigate traffic in the area. Thank you for your patience during all of these works.

Application for a Premises License

Yorkshire Wildlife Park will shortly be applying for a Premises Licence for the visitor hub. This is to cover the sale of alcohol and other licensable activities within the restaurants, hotel and courtyard of the visitor hub and the indoor function / conference / exhibition centre. Notices with details of where to find information on the full application will be posted locally and through the DMBC website.

The application will be in line with the current site licence for YWP for the existing main site venues which covers the restaurants and corporate events, conference facilities and wedding venues. However, one minor change associated with the new Visitor Hub is that the application will include a request for the hotel to have a 24-hour licence for alcohol, which is to facilitate the provision of room service or mini bars for hotel residents in their rooms.

This application does **not** cover the separate licence for events such as Safari Nights. If YWP wishes to apply for a similar event licence for the new facilities, or transfer of the current licence to another location within the Park, this would be subject to a further, different, licence application.

Consultative Committee

YWP has a Consultative Committee of local councillors, parish councillors and other related organisations. A meeting of this Consultative Committee was held on the 8th January 2020 to review this license request as part of the consultation process and identify any concerns.

If you have any feedback on the proposed license application, please can you email your comments to consultation@yorkshirewildlifepark.com. Your comments will be collated and reported back to the Consultative Committee so that all views are considered prior to submitting the licence application.

Please note that any comments made via the above email address will not affect your right to comment to Doncaster Council during the statutory consultation period which will start once the application has been submitted.

For further information regarding the licence application please visit https://www.yorkshirewildlifepark.com/licensingapplication.

Yours faithfully

Yorkshire Wildlife Park Limited

2. **Appendix 2 - Noise Management Policy**
(enclosed)

3. **Appendix 3 - Hexagon Function Traffic Assessment**
(enclosed)

‖ January 2020 ‖ Version 1.3 ‖

Noise Management Strategy

Yorkshire Wildlife Park Expansion

Application for Premises License

Joynes Nash

Acoustics · Environmental · Public Health

Client	Yorkshire Wildlife Park
Date:	22nd January 20290
Author:	Simon Joynes
Status:	Final
Version:	1.3
Signature:	

DISCLAIMER

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The opinions and interpretations presented in this report represent our reasonable technical interpretation of the data made available to us. However, due to the uncertainty inherent in the estimation of all parameters, we cannot, and do not guarantee the accuracy or correctness of any interpretation and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. Joynes Nash accepts no responsibility for data provided by others.

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An introduction to Joynes Nash

Joynes Nash is a leading consultancy for the live events industry. We have extensive experience of live music events and a proven track record of working with event organisers to enhance the audience's experience, whilst preserving the image of events and venues.

Our consultants experience has ranged from relatively small scale to major events staged both in urban and residential environments, providing for tens of thousands of people. Projects and clients have included Junction 2, Carfest (North and South), Garage Nation Festival, BBC Introducing, Guards Polo Club, Tramlines Festival, Liverpool Sound City, Red Bull Music Academy. We are also responsible for looking after the interests of venues such as Donington Park Racing Circuit, Saracens Rugby Club and Tobacco Dock with respect to live events.

We consider despite the many technical challenges that events bring, that relationships between all interested parties are of paramount importance and that each and every one of these understands situations clearly. We therefore approach each event not in isolation, but carefully consider the public image of events, the venues and the thoughts of the wider community to make events successful and to secure venues for future years.

About The Team

Pete Nash BSc (Hons), MSc, CEnvH, MCIEH, MIOA

Peter Nash has 16 years' experience as a Local Authority Environmental Health Officer, up to Technical Manager Level and has 12 years of Professional Practice within the Environment Industry. He holds a BSc(Hons) in Environmental Health, the IOA Diploma in Acoustics and Noise Control and an MSc in Applied Acoustics. He is a Chartered Environmental Health Practitioner and registered with the Environmental Health Registration Board. Peter is a Member of the Chartered Institute of Environmental Health, and a Member of the Institute of Acoustics. He has appeared as an expert witness in a number of significant noise nuisance and planning cases, public enquiries and appeals. Peter is also a guest lecturer at the University of Birmingham, where he teaches the Acoustics and Noise Control elements of three of their MSc courses.

Simon Joynes BSc(Hons), MSc, CEnvH, MCIEH, AMILM, AMIOA

Simon Joynes has over 19 years' experience in both Private Sector and Local Government. He has acted as a senior advisor and has significant experience in the technical aspects and practical application of environmental law, including acting as an expert witness in courts and planning enquiries and the preparation and reviewing of environmental reports and mitigation strategies. (Air Quality, Land Contamination, Acoustics, Water Quality, Odour Management & Industry Regulation). He holds a BSc (Hons) Environmental Health, MSc in Contaminated Land Remediation, Certificates of Competence in Environmental Noise Assessment and Environmental Impact Assessments. He also holds affiliations with the Chartered Institute of Environmental Health and is an Associate Member of the Institute of Leadership and Management.

Contents

1. Introduction

Joynes Nash has been tasked by Yorkshire Wildlife Park (YWP) to consider the approach to noise management, for the proposed 150-acre innovative expansion of the park at its site in Doncaster.

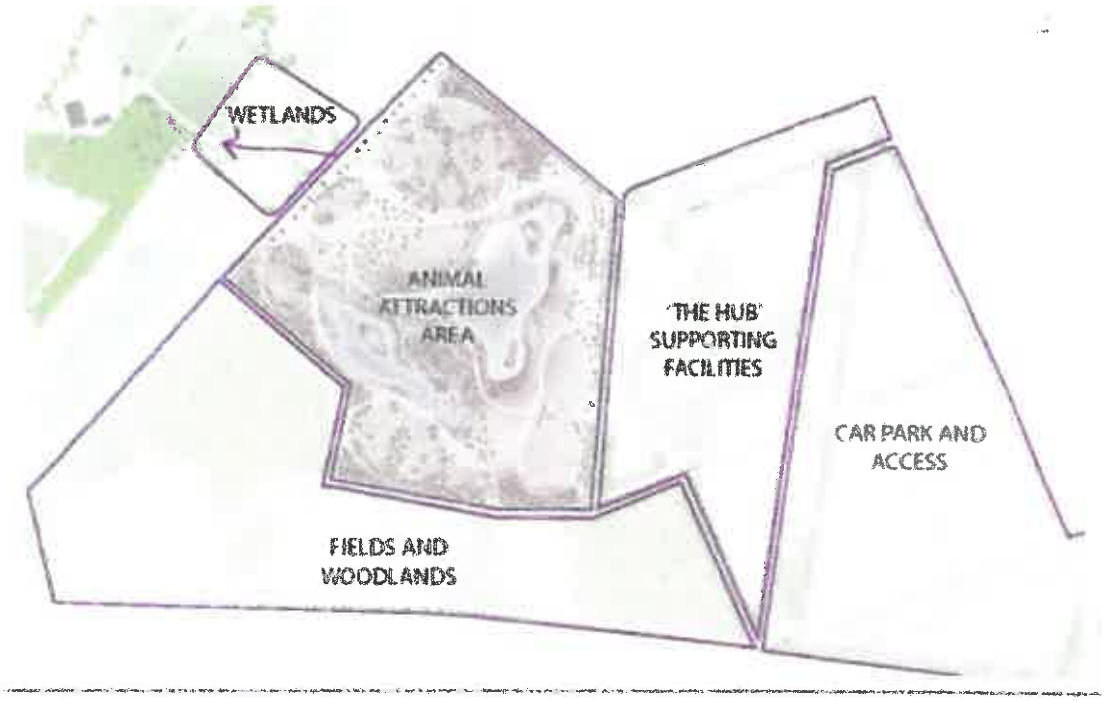
2. About the Noise Management Strategy

YWP and its advisors are committed to proactively manage noise. This Strategy therefore looks to consider the outline feasibility of the proposed new venues, outline mechanisms for the control of noise, ensure that the site can be operated in accordance with relevant guidance, does not cause a Public Nuisance and ensure that mechanisms are in place to manage complaints.

This strategy is therefore intended to support an application for a revised Premises License.

3. Site Context & History

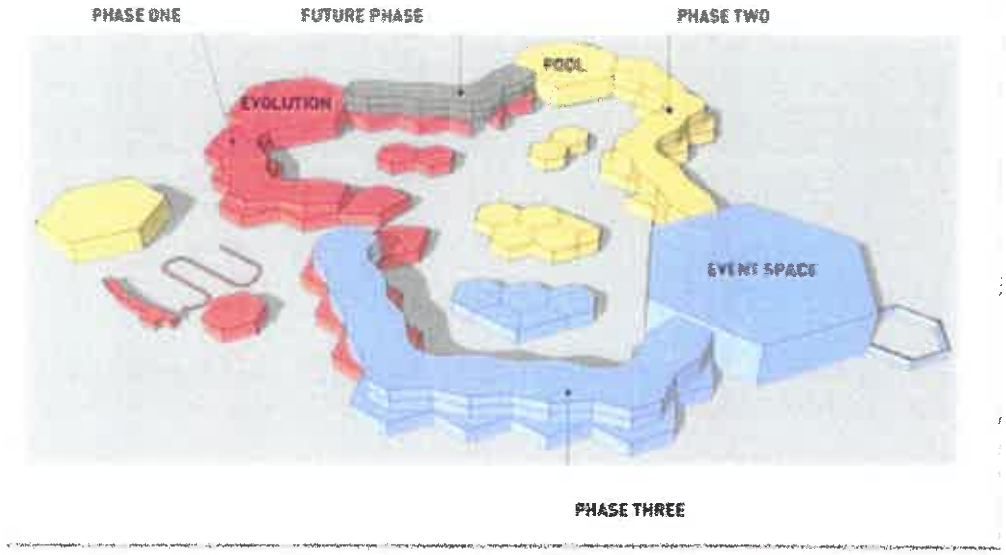
Yorkshire Wildlife Park is situated in Branton, Doncaster and have successfully operated the existing facility for many years. Recently the facility was granted planning permission to expand onto adjacent land to improve facilities and increase the species of animals cared for at the park. This will include new animal reserves, lakes and landscaping and a visitor support hub at the new entrance with restaurants and a destination hotel. It includes a new access off Hurst Lane, where modelling has been undertaken to demonstrate capacity in the highway network.



Because of its scale, whilst the site is largely rural there are residential premises in neighbouring villages and hamlets which may be impacted in terms of noise, including Warning Tongue Lane / Riding Close, Poppyfields Way, Willow Glen and Riverside Gardens. The expansion also brings the proposed facility closer to Auckley, Finningley and the residential properties situated around this area.

4. A Phased Development

It is proposed that the site will be developed over a period of time with the first phase opening in 2020 following final design work. At this time, it is believed that this will be three distinct phases.



Phase I

The first offering provides for a bistro, visitor information building, play barn, themed restaurant, amphitheatre, retail and security / back of house.

Phase II

Phase two looks to provide for a pool, additional gift shops, hotel and back of house facilities.

Phase III

The final phase looks to provide for further hotel provision, brasserie, retail and event space.

The space is orientated around a series of courtyards, enclosed spaces with buildings of varying heights. The intention behind the design not only provides a pleasant and welcoming environment consisting of multiple spaces but also provides additional benefits in terms of noise management, with many of the spaces been confined within buildings which themselves provide barriers.

In terms of the proposed uses of the spaces these are incredibly varied and the final end uses are not necessarily known at this time. Key spaces in terms of noise output include the bistro, themed restaurant, amphitheatre and during the latter phase the conference / event space. No doubt such final uses will come about as the site is brought into fruition and the Wildlife Park team look at all opportunities.

5. Premises Licences

The organisers are seeking a premises licence for the whole site, which does not include for the provision of outdoor live music concerts (referred to as Safari Nights), which typically occur in August and are covered by a separate premises license LN/201601265 (any changes to this license will be subject to a separate application). The use of the new premises will evolve year on year, as the new buildings are brought into use, lessons are learnt and feedback is received from both regulatory authorities and the local community.

It is therefore invited that a single condition relating to noise control is imposed on any license, requiring the submission of a Noise Management Strategy agreed by the Local Authority. This is done so to allow the appropriate flexibility for the site. In fact, any such document such as this submitted in support of the application will be subject to constant review and revision to allow for lessons to be learnt and continuous improvement by YWP in the management of the site. It will also allow for any changes arising from revisions to relevant national guidance and codes of practice.

6. The Licensing Act 2003

The Licensing Act 2003 introduced fundamental changes to the licensing of many premises serving alcohol and refreshments or providing entertainment. One of the four key licensing objectives is the prevention of public nuisance and whilst public nuisance is given a statutory meaning in many pieces of legislation it is, however, not narrowly defined in the Licensing Act 2003 and retains its broad common law meaning.

The Secretary of State has produced guidance on the application of the Act and case law is now shaping the interpretation and implementation of the Act.

7. General Considerations

The aim of this strategy is to put in place reasonable measures to reduce the noise impact associated with the proposals. One of the significant benefits of the proposal is its isolation from residential premises, this means that matters which typically present a risk of causing a noise nuisance, such as noise from patrons, background music, deliveries, car parking can be classed as low risk and do not require any detailed consideration. In contrast, the spaces being created have the potential to host a wide range of events and functions and it is these areas which each require detailed attention to reduce risk.

Likewise, it must be remembered that the site is unusual, in that it will eventually accommodate guests in the hotel and therefore, will need to manage noise output on the site itself to protect these individuals. This is likely to lead to greater controls being implemented than would be the case if local residents were solely being protected.

8. Risk Minimisation – General Operation of Yorkshire Wildlife Park

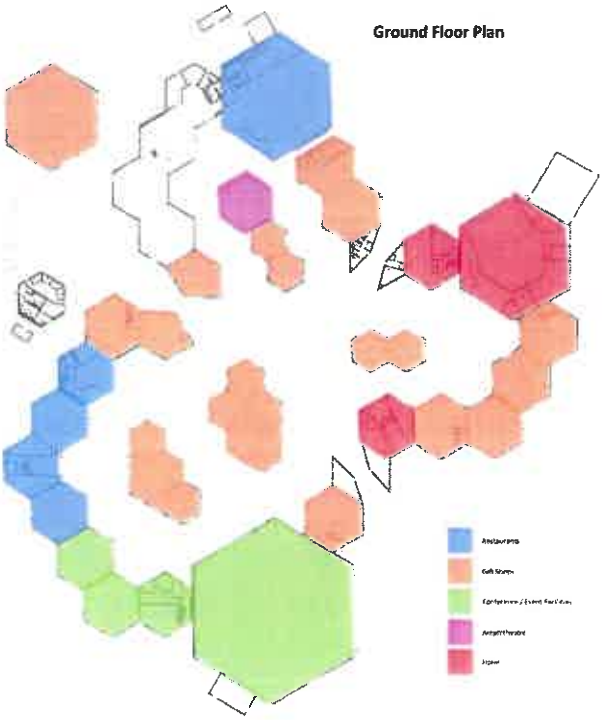
In terms of the general operation of the park the following controls are considered necessary:

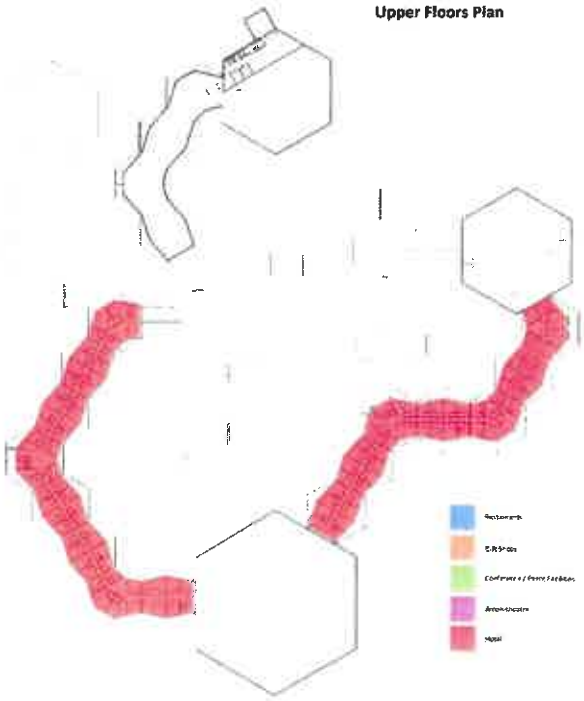
Source of Noise	Possible Effects & Impacts	Mitigation & Controls
Internal Music	Volume	Control – e.g. limiters, live or recorded and cooling down period.
	Doors and Windows	Keep closed at all or certain times / self closers
	Ventilation	Use of Acoustic Baffles
	Building Design	Sound insulation improvements and lobbies
	Location of Speakers	Away from doors, windows
	Bass Control	Limited as it can travel long distances
Outside Music	Hours	Ensure acceptable hours
	Volume	Ensure background level not audible at residential premises
	Direction of Speakers	Point away from residents
Deliveries	Times of Day	Restrict sensitive deliveries
	Days of the Week	Restrict where necessary
Customers and Car Parks	Misuse	Control Access
	Leaving Customers	Staff Monitoring
Refuse bins, bottles and stores, barrels	General Noise	Follow good working practices, appropriate times of days. Site refuse stores away from sensitive areas.
Complaints	Response and attitude	Policy including the recording date, time, name and action taken. Consider neighbour liaison approach.

This list is not exhaustive and will be updated in the policy on an ongoing basis.

9. Detailed Consideration of Phase I Activities

The first offering provides for a bistro, visitor information building, play barn, themed restaurant, amphitheatre, retail and security / back of house. In fact, it is only the bistro, themed restaurant and amphitheatre which will offer activities which may give rise to public nuisance and require control. The relative positions within the development and specific controls are detailed below.


Ground Floor Plan


Upper Floors Plan

The Bistro

It is intended that this will be a restaurant, serving moderately priced simple meals in a modest setting with alcohol. It may involve the provision of amplified music, but this will be largely restricted to music which provides ambient background and incidental to the main offering. There may be opportunities for live and amplified music, but this is most likely to be again restricted to small scale performances by a limited number of performers, such as string quartets, jazz bands and vocalists etc.

Noise from such activities can be accommodated within the structure proposed, with basic management practices being implemented in order to control noise. In fact, the Bistro is likely to be dual aspect, with the large proportion of doors and windows facing east over the expanse of the wider park, rather than the closest residents to the west and indeed where the reminder of the development provides a form of barrier. The primary controls to be adopted will therefore be maintaining the integrity of the structure through keeping doors and windows shut and controlling noise levels internally through the use of a localised speaker system and appropriate limiters.

Themed restaurant Space

Named Themed restaurant, the space is intended to create a restaurant / dining space which explores the wider world, including for things such as waterfalls, aquariums, animatronic creatures with a focus on global food and family menus, much the same as concepts such as Rainforest Café in London.

Very much like the bistro, whilst offering an entertainment space, licensable activity are expected to be limited to background ambience and will allow guests to continue communicating. Once again noise from such activities can be accommodated within the structure proposed with basic management practices being implemented in order to control noise.

In fact, the space is largely single aspect, with the large proportion of doors and windows facing east over the internal courtyard of the complex and includes the provision of an acoustic lobby. The doors to the western façade are simply service doors which can be kept shut. The primary controls to be adopted will therefore once again be maintaining the integrity of the structure through keeping doors and windows shut and controlling noise levels internally through the use of a localised speaker system and appropriate limiters.

Amphitheatre

The proposed amphitheatre is located within one of the central courtyards of the complex, the buildings providing some significant barrier to any activities which may take. The proposal is also that the space is sunken against the natural landscape, allowing for speakers to kept below ground level and reducing any noise propagation. In terms of its use the amphitheatre is intended to be used like the one at the existing park, where shows are educational and typically 20 minutes long taking place at various intervals throughout the day. Current shows include 'Big Bugs', and 'Deadly bugs'; interactive family shows that explores the fascinating world of giant insects.

In terms of impact it is not expected that the proposal will lead to any disturbance at residential units. This is largely because the current similar operation does not despite its location. Likewise the proposed location in the courtyard will assist in controlling noise through barrier effects offered and any sound system deployed within this area will be localised so as not to interfere with neighboring land uses at the park, and be fitted with appropriate controls and limiters to manage.

10. Noise from Additional Phases

Given the scale of the project it is largely impracticable at this time to define any control measures albeit discussions between Yorkshire Wildlife Park and its advisors continue to take place to develop and the proposals. At suitable times this Noise Management Strategy will therefore be updated.

11. Noise Management Process

In using the venue for a wide variety of events, the challenge has been to provide a robust and flexible way to manage noise both proactively and cost effectively. The approach is used and proven to be effective is to categorise potential events based on the likelihood of disturbance.

Noise Impact Categorisation		Example Events
Category 1 High Risk of Noise Impact		Events where live or recorded music is a major component Outdoor Events Cinemas Food Festivals (where music is not incidental) Parties (Indoors & Outdoors) after 18.00hrs Music Events (Indoors & Outdoors) after 18.00hrs
Category 2 Medium Risk of Noise Impact		Promotions involving an element of music up to 18.00hrs Exhibitions Product Launches (music element) Food Festivals (low key music element) Outdoor events where live or recorded music is incidental
Category 3 Low Risk of Noise Impact		Trade Shows Fashion Shows Farmers Markets Community Engagement Events Sporting Activities Product Launches (no music element) Conferences Formal Dinners Awards Ceremonies

Table 2: Indicative list of categorised events

The categorisation is awarded to each planned event as a result of an initial review by those responsible for the venue. On the basis of the categorisation those responsible carry out varying

degrees of assessment work in preparation for noise control associated with the event. The generic requirements for each category are set out below:

Category 1 Events – For such events a specialist noise contractor will be in attendance to offer advice and support. The consultant will remain in attendance throughout the duration of the event and maintain overall control. It must be noted that it is likely to be proven that for some repeat events for example that the risk of impact is minimal and in such instances, consultants may not need to be in attendance at future events.

Category 2 Events – refer to those events where there is a limited risk of impact at receptors and for the most part it is expected that music noise shall not exceed the ambient background when observed from residential and other noise sensitive premises. It is not expected that technical specialist will need to be in attendance, but it is largely expected that checks will be conducted throughout the event for due diligence purposes.

Category 3 Events – are considered low impact and not requiring any form of noise management. Due diligence checks by those responsible are encouraged and for the most part the requirement is to simply comply with the Specific Noise Management Plan detailed in Appendix D.

Those responsible at YWP will make the ultimate decision, as to whether the nature of the event is likely to be critical in terms of noise impact and/or whether there is overriding risk factors which require that the event is monitored for due diligence purposes. However, in all cases specialist contractors following receipt of a justified complaint or enquiry will be appointed to assist.

12. Procedure for Responding to and Dealing with complaints

Good Public relations is a key pre-requisite of any work conducted by either Joynes Nash or YWP, as it has been repeatedly proven that prior awareness of an events is important in managing resident's expectations and allaying concerns. Government research supports the fact that as prior awareness of events increases, the likelihood of being annoyed by noise falls.

YWP would therefore ensure that an appropriate form of communication will be made with local residents ahead of the park opening, directing them towards YWP's website where a list of upcoming events and details of community engagement will be displayed. A dedicated number for noise enquiries will also be published and manned during opening hours of the site.

Should any noise enquiries be received, the YWP team would investigate and if noise levels are deemed unacceptable, immediate action would be taken to reduce the levels of the noise source.

A complaints log would be maintained, detailing addresses of complaints, times and actions. Such would also be available to the Local Authority on request along with actions taken, etc.

Should it become apparent that specific incidents are being repeated then YWP will appoint appropriate consultants to investigate the matter on their behalf and make necessary recommendations.

13. Noise Monitoring Procedure

Throughout events where monitoring is identified as necessary, competent persons will remain responsible for proactively monitoring noise. This is done through conducting subjective / objective measurements at predetermined locations both internally and externally of the site. Such positions are dependent on final site layout, findings of sound checks, weather etc.

It is not expected that professional acoustic consultants will need to be in regular attendance and therefore checks will be typically conducted by The YWP Management Team. These will depend on the nature of the activities taking place and consist of checks internally around the boundary. Should these observations note any form of impact then additional checks are conducted externally of the venue as appropriate.

14. Record Management and Reporting

Those responsible manage records to enable them to be reported in a timely manner to relevant bodies and authorities. These can also be requested from the venue management team.

15. Strategy Review Procedure

In order to ensure that the strategy continues to fulfil its aims and objectives it is reviewed and updated regularly. Whilst this is a continual exercise, a formal review and report is conducted at least annually for the venue. This includes an assessment of compliance of noise and time limits, review of complaints data and any community or regulatory feedback. The results of which are made available to the various stakeholders as necessary.

With respect to the involvement of Doncaster Council, specific consultation and agreements will be sought with the Licensing Team where there are any proposed amendments to limits, monitoring arrangements and following any significant amendments following the annual review. Likewise, those responsible will consider any formal comments received from Doncaster Council and make any necessary changes to the strategy as deemed necessary.

16. Conclusion

The implementation of this Core Noise Management Strategy will continue to provide a robust but flexible way to manage noise and proactively prevent public nuisance being caused. The

strategy builds on existing principles and practices and the review mechanism continues to be used successfully to learn and develop the strategy to minimise any impact and disturbance.

Any events are under the direct control of those responsible for the venue and any third-party hirer are contractually obliged to observe and implement any instructions of either them or their technical advisors. It is accepted by YWP that in its initial operating Phase that professional consultants will be required to assist in the setting of limits and indeed influencing the design of individual elements of the expansion programme and this work remains ongoing. Likewise, professional assistance may be required following the receipt of justified complaints / enquiries.

This document is a 'working document' that will be updated as required and reviewed at least annually with input from the regulatory authorities. It is the intention of our client to implement improved procedures year on year for the control and management of noise.

MOTT MACDONALD

Yorkshire Wildlife Park

Hexagon Function Traffic Assessment

12 February 2020

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Hexagon Function Traffic Assessment

12 February 2020

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B	05.02.2020	M. Hughes	R. Cockman	M. Staniland	Second Issue
C	10.02.2020	M. Hughes	L. Webster	M. Staniland	Third Issue

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Contents

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Figures

1 Introduction

1.1 Background

The expansion of Yorkshire Wildlife Park (YWP) was granted planning permission in July 2018. To accompany this expansion, the park plans to host occasional functions on their new site such as private hires, weddings, conferences, award ceremonies and entertainment experiences.

This Traffic Assessment evaluates the impact that additional visitors arriving and departing the site for these functions may have on the surrounding highway. This report should be read in conjunction with an accompanying document entitled 'Framework Function Traffic Management Plan' which outlines proposals for managing the additional function traffic entering and exiting the expanded site.

1.2 Site Information

The expanded YWP site is located adjacent to the existing park, bounded by the River Torne, Hurst Lane, the Doncaster to Lincoln Railway and a quarry works off Hurst Lane. The site lies wholly within the Finningley Ward of Doncaster, approximately 7km south-east of Doncaster Town Centre. For full details of the site and surrounding highway network see the YWP Expansion Transport Assessment (TA) and other documentation associated with the approved planning application (reference 17/02189/OUTA).

As part of the site's expansion new supporting facilities are being introduced to the park such as a hotel, spa and restaurants, which will operate extended opening hours outside of the wildlife parks usual opening and closing times.

1.3 Proposed Function Scenario

The function scenario being assessed in this report is one located at the Hexagon, which is a supporting leisure facility and flexible indoor space situated on the expanded site. Seated capacity for this venue is 1,000 people and the assessed function would be held on a Saturday evening, commencing from 19:00 and lasting one and a half hours until 20:30. These details have been discussed with Doncaster Metropolitan Borough Council (DMBC) and have been deemed appropriate for this assessment.

The Hexagon venue has the capability to host a wide range of activities. It is noted that whilst this assessment considers a function ending at 20:30, functions can vary and may be longer than one and a half hours in duration, resulting in a later departure time. However, later departure periods will coincide with lower levels of background traffic on the local road network and therefore lower overall traffic levels and impacts. Additionally, visitor profiles, and therefore vehicle occupancy and transport mode share, are also likely to vary dependent on the type of function.

To account for these variation, the assessment within this report aims to take a worst-case approach to forecast the traffic outcomes associated with a 1,000-attendance function finishing at 20:30.

1.4 Assumptions

To forecast arrivals and departures at the new site, information has been gathered from the YWP expansion TA along with observations from YWP's experience of hosting functions on their current site. The following bullet points outline the key assumptions for a 1,000-attendance function at the Hexagon:

- Attendee vehicle occupancy is assumed to be 2 persons per vehicle. This is reduced from the 3.2 person vehicle occupancy for visits associated with the wildlife park. This is a robust approach that should accommodate a range of function types and visitor profiles.
- The assumption used in the YWP expansion TA was that the on-site hotel will be 85% occupied on a standard weekend night. It is expected that on function days, the 148-bedroom hotel will be at full occupancy. For a function it is likely that the hotel would be booked in advance, with the majority of rooms being occupied by function attendees. However, to take a worst-case approach this assessment has assumed that only the remaining 15% of rooms will be occupied by function attendees.
- Staffing for a function evening will be 50 staff, half being made up of those already on site, the others arriving up to 30 minutes before 'doors open'.
- All attendees will travel via private car- this is a worst-case approach to a Hexagon function.
- Staff modal split has been taken from the outputs of the Staff Travel Survey outlined in the YWP expansion Travel Plan submitted as part of the approved planning application (reference 17/02189/OUTA).

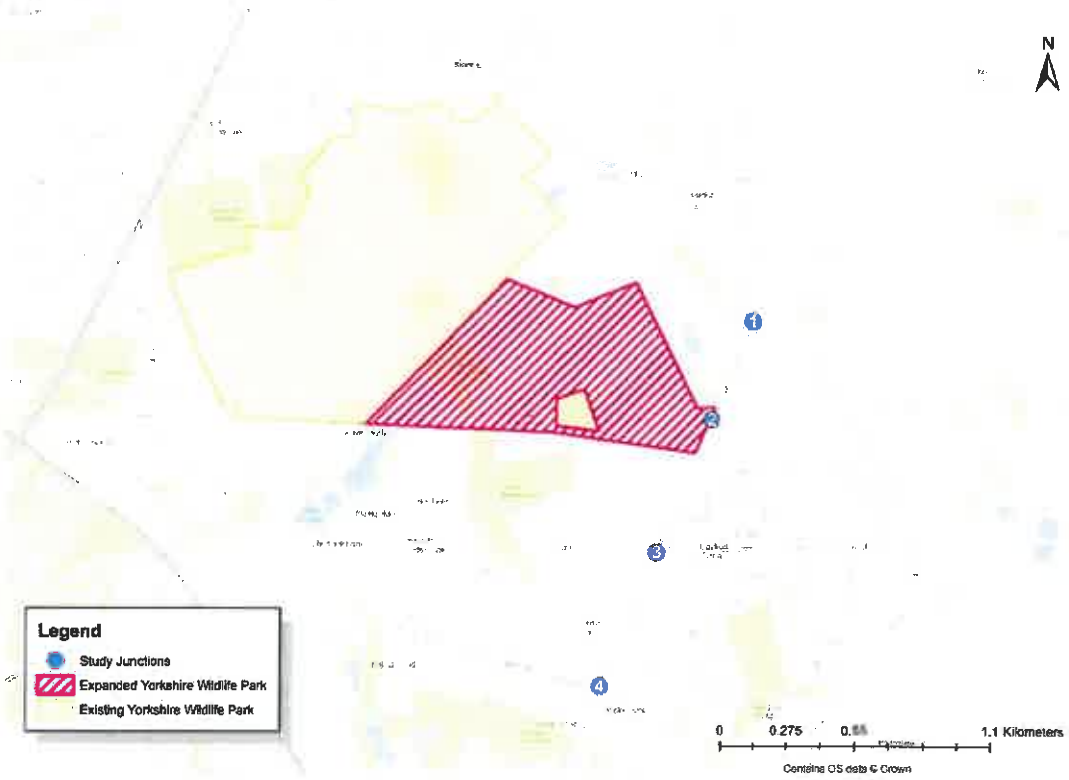
1.5 Study Area

The scope of the study area has been agreed with DMBC and is comprised of four junctions:

1. Hurst Lane / Mosham Road / School Lane signals
2. YWP access roundabout
3. Hurst Lane / Hayfield Lane signals
4. Hurst Lane / Airport Access / FARRRS Phase 2 (Great Yorkshire Way) roundabout

The locations of the study junctions are shown in Figure 1.1

Figure 1.1: Study Junctions



Source: Mott MacDonald

1.6 Supporting Documents

The content of this Traffic Assessment is informed largely by the detailed YWP expansion TA which was submitted as part of the approved planning application, as well as other associated documents. Reference should be made to the following for further information:

- **Transport Assessment (ref. 381569/003/C)**
- **Travel Plan (ref. 381569/004/C)**
- **Framework Function Traffic Management Plan (ref. 381569/047/A)**

2 Impact Assessment

2.1 Introduction

This section summarises the forecast likely transport impacts of the Hexagon function taking place at Yorkshire Wildlife Park.

2.2 Analysis Period

The peak period for function traffic has been derived from the likely profile of a 1,000 attendance Hexagon function. In this scenario, arrivals occur over a one-hour period up to 30 minutes before the start time (19:00) and departures occur over a one-and-a-half-hour period commencing 15 minutes from the end (20:30). It is noted that these timings fall outside the peak periods of Saturday traffic at the wildlife park as the peak Saturday arrival hour is 10:00-11:00 and the peak Saturday departure hour is 16:00-17:00.

It has been agreed with DMBC that this Traffic Assessment will consider the following peak hours for trip generation associated with the Hexagon function:

- Saturday Peak Function Arrival – 17:30-18:30
- Saturday Peak Function Departure – 21:00-22:00

As noted previously, Hexagon functions may be longer in duration, resulting in a later departure period than the scenario assessed in this report. However, later departure periods will coincide with lower background traffic on the local road network and therefore lower overall traffic levels and impacts than identified within this report.

In line with the previous YWP expansion TA the analysis is based on park visitor profiles from an 'average summer' period, which represents average visitor levels across June, July and August. These are busy periods for the park and include school holiday and non-school holiday periods. The average summer visitor profile has been applied to 'neutral', school term-time background traffic levels in order to provide a robust, worst-case assessment of the proposal impact.

2.3 Assessment Scenarios

The function scenario has been assessed for a future forecast year of 2029. This future year aligns with analysis undertaken as part of the YWP expansion TA and provides an established year with an increased number of park visitors.

Assessments have been undertaken to consider the operation of the highway network both with and without the proposed functions taking place. The following scenarios have therefore been considered:

- Do-Minimum 2029 Arrival
- Do-Minimum 2029 Departure
- Do-Something 2029 Arrival
- Do-Something 2029 Departure

The Do-Minimum scenario assumes no function is taking place at YWP and reflects a normal 2029 summer Saturday at the expanded park.

The Do-Something scenario replicates the Do-Minimum scenario, but with the additional visitor trips generated by a Hexagon function taking place.

2.4 Do-Minimum Forecasts

The Do-Minimum forecasts in this assessment follow the methodology of the Do-Something forecasts from the YWP Expansion TA. The scenario reflects a summer Saturday at the expanded site, accounting for the closure of the existing Warning Tongue Lane entrance and the opening of the Hurst Lane entrance inclusive of additional trips that are generated from the new supporting facilities at the site.

The following sections provide a summary of the methodology used and outlines the adjustments made to ensure that the forecasts replicate the time periods being assessed. For further details reference should be made to the Yorkshire Wildlife Park Expansion Transport Assessment document (see planning application reference 17/02189/OUTA).

2.4.1 Traffic Surveys

As for the approved YWP expansion TA, Manual Classified Turning Counts (MCTC) surveys from Saturday 1st April 2017 have been used as baseline traffic data for this assessment. Surveys were undertaken in a neutral month between 0700-1900 hours and have been adjusted to provide 2029 forecast data.

As the function departure peak hour falls outside of the surveyed time period, a night hour conversion factor has been derived from a locally conducted 24-hour traffic survey. This conversion factor has been applied to the average interpeak of the Saturday 1st April 2017 survey data to generate the 2100-2200 base network flows. These have again been adjusted to provide 2029 forecast data.

2.4.2 Committed Developments

A list of local committed developments was agreed with DMBC for the YWP expansion TA and were deemed to appropriately account for the 2029 future year highway forecasts. Some developments, such as schools, have been omitted in this assessment due to the weekend time period being considered. Traffic from the following developments have therefore been included when considering additional trips on the future 2029 network:

- Hurst Lane Housing- Phase 2
- Land East of Poplars Farm- Phase 3 Business Park (Pub Only)
- RHADS Growth (See Section 2.4.3 below)
- FARRRS Phase 2 (Great Yorkshire Way Phase 2) (See Section 2.4.4 below)

Comments received from DMBC indicated that the committed developments outlined in the original TA effectively accounted for all known major developments over the study period and that no further background traffic growth should be applied.

2.4.3 RHADS Airport Growth

Additional airport growth for 2029 has been accounted for by using the outputs from the YWP expansion TA. A 2017-2029 growth rate of 144% has been applied to 77 arrivals and 77 departures at the airport per hour. As the number of airport trips generated at any given time can vary depending on the timing of flight arrivals and departures additional airport trips have been applied to all time periods.

2.4.4 FARRRS Phase 2 (Great Yorkshire Way Phase 2)

At the time of writing the YWP expansion TA, FARRRS Phase 2 was under construction and the final redistribution effects of its construction were not known. The forecast traffic impacts were therefore taken from the FARRRS Phase 2 Transport Assessment (planning application reference 16/01483/FUL). As of June 2018, the final phase of the FARRRS Phase 2 infrastructure scheme was operational.

Following discussion with DMBC, an exercise was carried out prior to this traffic assessment to examine whether the outputs from the FARRRS Phase 2 Transport Assessment forecasts accurately represented data from 2018 traffic surveys conducted post-scheme opening. Results found that the forecasts used in the FARRRS Phase 2 Transport Assessment predicted higher traffic flows than the observed levels shown in the 2018 survey data. It can therefore be concluded that following the methodology used in the Transport Assessment for FARRRS 2029 forecasts provides a robust approach to this assessment.

2.4.5 Summer Adjustment Factor

The base flows from the April 2017 survey data have been adjusted to reflect a summer time period. Additional visitor trips have been added to the network based on the uplift of visitors between April and a summer average.

2.4.6 Wildlife Park Expansion Trip Generations

Wildlife park expansion trip generations have been calculated using the methodology from the YWP expansion TA (see Section 5.6.3 of the TA for the methodology). Trips to and from the expanded site account for visits to both the wildlife park and to the supporting facilities.

The derived arrival and departure profiles for the assessed Saturday time periods are provided below in Table 2.1.

Table 2.1: 2029 Wildlife Park Expansion Forecast Arrivals and Departures- Hurst Lane Entrance

		Saturday		
Time Period	**Land Use**	**Arrivals**	**Departures**	**Two-Way**
17:30-18:30	Wildlife Park	10	370	380
	Supporting Facilities	154	167	321
	Total:	164	537	702
21:00-22:00	Wildlife Park	0	0	0
	Supporting Facilities	40	85	125
	Total:	40	85	125

2.5 Changing Access Distributions

The introduction of the park's expansion will change the pattern of trips made to Yorkshire Wildlife Park and subsequently their distribution across the local network. Following the methodology used in the YWP expansion TA, trips made to the original entrance on Warning Tongue Lane need removing from the highway network and replacing with trips made to the expansion's new Hurst Lane entrance. Details of how these distributions have been calculated are outlined below.

2.5.1 Postcode Data Route Analysis

Postcode analysis was carried out in the original YWP expansion TA using visitor postcode data collated from online bookings for the whole of 2016. This was used to inform the assumed origin and destination of wildlife park visitors and their routes to and from the park whilst acknowledging that online bookings tend to have a long-distance bias.

A summary of the route point entry into the original study area to the existing Warning Tongue Lane access is provided below in Table 2.2.

Table 2.2: Postcode Data Route Analysis

Trip Route	Proportion
Via A638 North	0.4%
Via A638 South	10.2%
Via B1396 Mosham Road	14.8%
Via FARRRS	71.4%
Via Littleworth Lane	0.6%
Via Warning Tongue Lane North	2.6%
Grand Total	100.0%

2.5.2 Warning Tongue Lane Access Trip Distribution

The 2017 traffic counts at the existing Warning Tongue Lane / YWP Access junction reveals the observed proportion of trips travelling to / from the north or south of the junction. Table 2.3 outlines the average north / south split of arrivals and departures at YWP for a Saturday.

Table 2.3: Saturday Arrival and Departure North/ South Split

	Arrival	Departure
North	36%	43%
South	64%	57%

The reason for the higher proportion of trips travelling to / from the north than the postcode data suggests is the anticipated long-distance bias of the online booking postcode data, which does not include many of the trips originating locally.

The postcode data from the online bookings has therefore been adjusted on a pro rata basis to match the observed arrival and departure distributions outlined in Table 2.3. The forecast arrivals and departures have then been distributed across the network using these postcode distributions.

The adjusted postcode distributions are shown in Table 2.4.

Table 2.4: Trip Distribution for Warning Tongue Lane Access

Trip Route	Saturday	
	Arrival	Departure
A638 North	0.3%	0.2%
A638 South	7.9%	7.1%
B1396 Mosham Road	14.8%	14.8%
FARRRS	55.1%	49.4%
Littleworth Lane	0.5%	0.4%

Trip Route	Saturday	
Warning Tongue Lane North	21.4%	28.0%
Total	100.0%	100.0%

2.5.3 Hurst Lane Access Trip Distribution

As per the YWP expansion TA it is noted that the park is forecast to grow to 1.5 million visitors per year in 2029. With increasing visitor numbers to the park, it is likely that some of these extra trips will be a result of an increased catchment area for the park. Although the local trips associated with supporting facilities will to an extent counterbalance an increase in longer distance wildlife park trips, for the purposes of this assessment allowance has been made for an overall increase in longer distance trips. This has been accounted for by increasing trips from the longer distance routes via FARRRS (Great Yorkshire Way), the A638 South and the B1396 Mosham Road by 15% and reducing the proportion of other local routes accordingly.

The Hurst Lane postcode distributions which reflect the arrival and departure periods for 2029 Saturdays are provided below in Table 2.5.

Table 2.5: Trip Distributions for New YWP Entrance

Trip Route	Saturday	
	Arrival	**Departure**
A638 North	0.1%	0.2%
A638 South	9.1%	8.1%
B1396 Mosham Road	17.0%	17.0%
FARRRS	63.4%	56.8%
Littleworth Lane	0.2%	0.3%
Warning Tongue Lane North	10.1%	17.6%
Total	100.0%	100.0%

The total network flows for the Do-Minimum scenario are provided in Appendix A and are comprised of the base 2017 flows, summer forecasts, committed developments, FARRRS Phase 2 redistribution, existing entrance reductions and expanded park visit additions.

2.6 Do-Something Forecasts

This section details the trip generation methodology for the proposed Hexagon function scenario. The total network flows for the Do-Something are contained in Appendix B.

2.6.1 Hexagon Function Arrivals and Departures

Arrivals and departures for a Hexagon function were derived based on information provided by YWP. The assumptions used when assessing function travel behaviour were outlined in Section 1.4 of this report. Once calculated, arrival and departure trips were then distributed across the network using the adjusted post code distributions outlined above.

2.6.1.1 Arrival Trips

For a 1,000-attendance scenario it has been assumed that 500 vehicles will be arriving at the site during the peak arrival hour. This has been calculated using a vehicle occupancy of 2 to take a robust approach and to accommodate for differing types of functions, visitor profiles and

travel behaviours. It has also been assumed that all attendees will travel via private car in order to take a worst-case approach to this assessment.

Staff arrivals in the peak hour have been calculated using the modal split from the staff travel survey undertaken in 2017, as staff travel behaviour is likely to remain unchanged. Additional staff trips made in the peak hour totals 18 vehicles.

Overall, 518 additional vehicles are arriving at the park for a Hexagon function in the peak arrival hour.

2.6.1.2 Departure Trips

Departure trips have been calculated to reflect likely travel patterns whilst still maintaining a robust approach. As previously mentioned, 15% of hotel rooms have been allocated as available for function attendees which therefore reduces departing vehicles by 22. It has been assumed that staff departures will take place once visitors have left the site and are therefore not included in the peak hour.

As departures occur over a one-and-a-half hour period, the peak departure hour demand flows have been calculated using a facility within the modelling software called ODTAB which derives a one hour likely demand profile of vehicles exiting the park using the total number of departures over the full departure time period. Table 2.6 outlines the peak hour departure flow using this method.

Table 2.6: Peak Departure Hour Demand Flows using ODTAB output

15-Minute Interval	Total Vehicles Departing per 15-Minute Interval	Total Peak Hour Flow
20:45-21:00	65	
21:00-21:15	78	
21:15-21:30	96	
21:30-21:45	96	**349**
21:45-22:00	78	
22:00-22:15	65	
Total	**478**	

2.7 Junction Operational Impact

This section examines the capacity of the local highway network under the future 'Do-Minimum' and 'Do-Something' traffic scenarios. The following software packages have been used to assess the operational capacity of the study junctions:

- LinSig version 3: to assess stand-alone signalised junctions; and
- Junctions 8 (ARCADY module): to assess non-signalised roundabout junctions;

Junctions 8 refers to the measurement of junction capacity as the Ratio of Flow to Capacity (RFC), whilst LinSig uses the terminology Degree of Saturation (DoS). Both these measurements relate to the flow of an arm or movement in comparison to its theoretical capacity. A value of 1 or 100% or more indicates a situation where the flow is at or in excess of the capacity, and a queue will build while ever in this state. A value of less than 1 or 100% indicates the flow is less than the capacity, and will generally operate in free flow conditions, or the queue will clear in each signal cycle. It is generally accepted that a value of 0.85 (85%) or 0.9 (90%) is optimal and allows for peaks of flow within the peak hours. Values just under 1 or 100% are considered to be

approaching capacity and may be operating over capacity. Junction performance targets previously agreed with DMBC for developments in this area have aimed for an RFC or DoS of less than 1 or 100%.

Full model output and input files for all junctions assessed are provided in Appendix C.

2.7.1 Junction Assessment Results

Junction operational assessments have been undertaken at each of the four junctions within the study area. Outputs are detailed in the following sections and include information related to operational capacity as RFC or DoS and queue lengths identified as Mean Max Queue (MMQ) in Passenger Car Units (PCU's) or Queue in vehicles.

Signal controller specifications and junction drawings have been provided by DMBC for the signalised junctions assessed.

2.7.1.1 Hurst Lane / B1369 / School Lane

The Hurst Lane / B1369 Junction will be a new signalised 4-arm junction controlled by MOVA (Microprocessor Optimised Vehicle Actuation). The junction has undergone a re-design from a left-staggered priority junction into a signalised junction, including geometry alterations and capacity improvements, and is due to be constructed in 2020.

The operation of this junction has been assessed based on the proposed layout agreed with DMBC and on a signal specification provided by DMBC.

Junction operational assessments have been undertaken using LinSig V3 and a summary of results is presented in Table 2.7

Table 2.7: Hurst Lane / B1369 / School Lane Junction Assessment Results

	Arrival 1730-1830		Departure 2100-2200	
	MMQ (PCU)	DoS (%)	MMQ (PCU)	DoS (%)
Do-Minimum 2029				
School Lane	0.6	5.1	0.2	2.0
Mosham Road	4.5	31.4	1.6	12.5
Hurst Lane	7.7	55.0	2.1	18.6
Main Street	7.6	55.6	2.2	18.6
Do-Something 2029				
School Lane	0.6	5.7	0.2	1.5
Mosham Road	5.9	39.2	2.0	16.4
Hurst Lane	8.3	60.3	3.8	28.2
Main Street	8.8	59.0	2.7	27.9

Table 2.7 shows that the Hurst Lane/ Mosham Road/ School Lane junction is forecast to operate within capacity on all arms in all scenarios.

2.7.1.2 Hurst Lane / Yorkshire Wildlife Park Access

The junction of the site access and Hurst Lane is a newly constructed three-arm roundabout.

Operational assessments have been undertaken in Junctions 8, and a summary of the results is presented in Table 2.8.

Table 2.8: Hurst Lane / Yorkshire Wildlife Park Access

	Arrival 1730-1830		Departure 2100-2200	
	Queue (Veh)	RFC	Queue (Veh)	RFC
Do-Minimum 2029				
Hurst Lane South	0.25	0.20	0.08	0.08
YWP Access	0.53	0.35	0.05	0.05
Hurst Lane North	0.28	0.22	0.06	0.06
Do-Something 2029				
Hurst Lane South	0.91	0.48	0.08	0.08
YWP Access	0.53	0.35	0.37	0.27
Hurst Lane North	0.50	0.33	0.07	0.06

Table 2.8 shows that the Hurst Lane/ Yorkshire Wildlife Park Access junction is forecast to operate within capacity on all arms in all scenarios.

2.7.1.3 Hurst Lane / Hayfield Lane

The Hurst Lane / Hayfield Lane junction is a four-arm signalised junction, with controlled pedestrian crossings provided on the eastern Hayfield Lane and northern Hurst Lane arms.

The signal specification shows that this junction is controlled by MOVA which will adjust the green time at the signals dependent on the traffic demand at each arm. Because of the very low traffic flows at the Hayfield Lane West arm the stage sequences have been optimised in the model to reflect the observed traffic flows at this arm. Throughout the Do-Minimum and Do-Something scenarios the maximum number of vehicles travelling through this arm are nine per hour. Using a cycle time of 90 seconds this would result in one vehicle arriving at this arm every 4.444 cycles. In the model the stage which controls this arm runs every 4th cycle.

Similarly, the pedestrian crossing stage has been altered to run every other cycle. Videos from the 2017 traffic surveys have been observed to calculate the likely demand at the pedestrian crossings at this junction. Observations from the arrival time-period show that the pedestrian crossing ran seven times in the 60-minute period. Using a cycle time of 90 seconds this would result in the pedestrian crossing running once every 5.7 cycles. To account for the summer time period in addition to people who might be walking to the function it has been assumed that the pedestrian crossing will run once every 2 cycles.

Operational assessments have been undertaken using LinSig V3, and a summary of the results are presented in Table 2.9.

Table 2.9: Hurst Lane / Hayfield Lane

	Arrival 1730-1830		Departure 2100-2200	
	MMQ (PCU)	DoS (%)	MMQ (PCU)	DoS (%)
Do-Minimum 2029				
Hurst Lane North	11.8	58.8	2.0	13.6
Hayfield Lane East	2.5	33.9	0.8	11.0
Hurst Lane South	3.5	27.9	1.2	10.2
Hayfield Lane West	1.0	24.1	0.6	12.2
Do-Something 2029				
Hurst Lane North	11.8	58.8	6.1	35.3
Hayfield Lane East	2.5	33.9	0.8	11.0
Hurst Lane South	10.5	58.0	1.2	10.2
Hayfield Lane West	1.0	24.1	0.6	13.7

Table 2.9 shows that the Hurst Lane / Hayfield Lane junction is forecast to operate within capacity on all arms in all scenarios.

2.7.1.4 Hurst Lane / Airport Access / FARRRS Phase 2 (Great Yorkshire Way)

The Hurst Lane / FARRRS Phase 2 (Great Yorkshire Way) roundabout is a four-arm roundabout which provides connections to FARRRS Phase 2 (Great Yorkshire Way) and the airport access road.

Operational assessments have been undertaken in Junctions 8 and a summary of the results are presented in Table 2.10.

Table 2.10: Hurst Lane / Airport Access / FARRRS Phase 2 (Great Yorkshire Way)

	Arrival 1730-1830		Departure 2100-2200	
	Queue (Veh)	RFC	Queue (Veh)	RFC
Do-Minimum 2029				
Hurst Lane North	0.97	0.49	0.13	0.11
Airport Access	0.29	0.22	0.14	0.12
Hurst Lane South	0.22	0.18	0.06	0.05
FARRRS Phase 2	0.54	0.35	0.12	0.11
Do-Something 2029				
Hurst Lane North	0.90	0.47	0.40	0.28
Airport Access	0.28	0.22	0.15	0.13
Hurst Lane South	0.28	0.22	0.06	0.06
FARRRS Phase 2	1.47	0.60	0.12	0.11

Table 2.10 shows that the Hurst Lane / Airport Access / FARRRS Phase 2 (Great Yorkshire Way) roundabout is forecast to operate within capacity on all arms in all scenarios.

2.8 Junction Operation Summary

The junction capacity modelling has aimed to take a worst-case approach to forecasting the additional traffic which will be generated in the peak arrival and departure hours for an evening function taking place at Yorkshire Wildlife Park. The impact assessment results indicate that the surrounding highway network will be able to operate within capacity if a 1,000-attendance

function is to take place at the park on a summer Saturday evening. As park visitor numbers are higher on a summer Saturday than on a non-summer Saturday the findings of this assessment are also applicable to a non-summer Saturday.

3 Summary and Conclusions

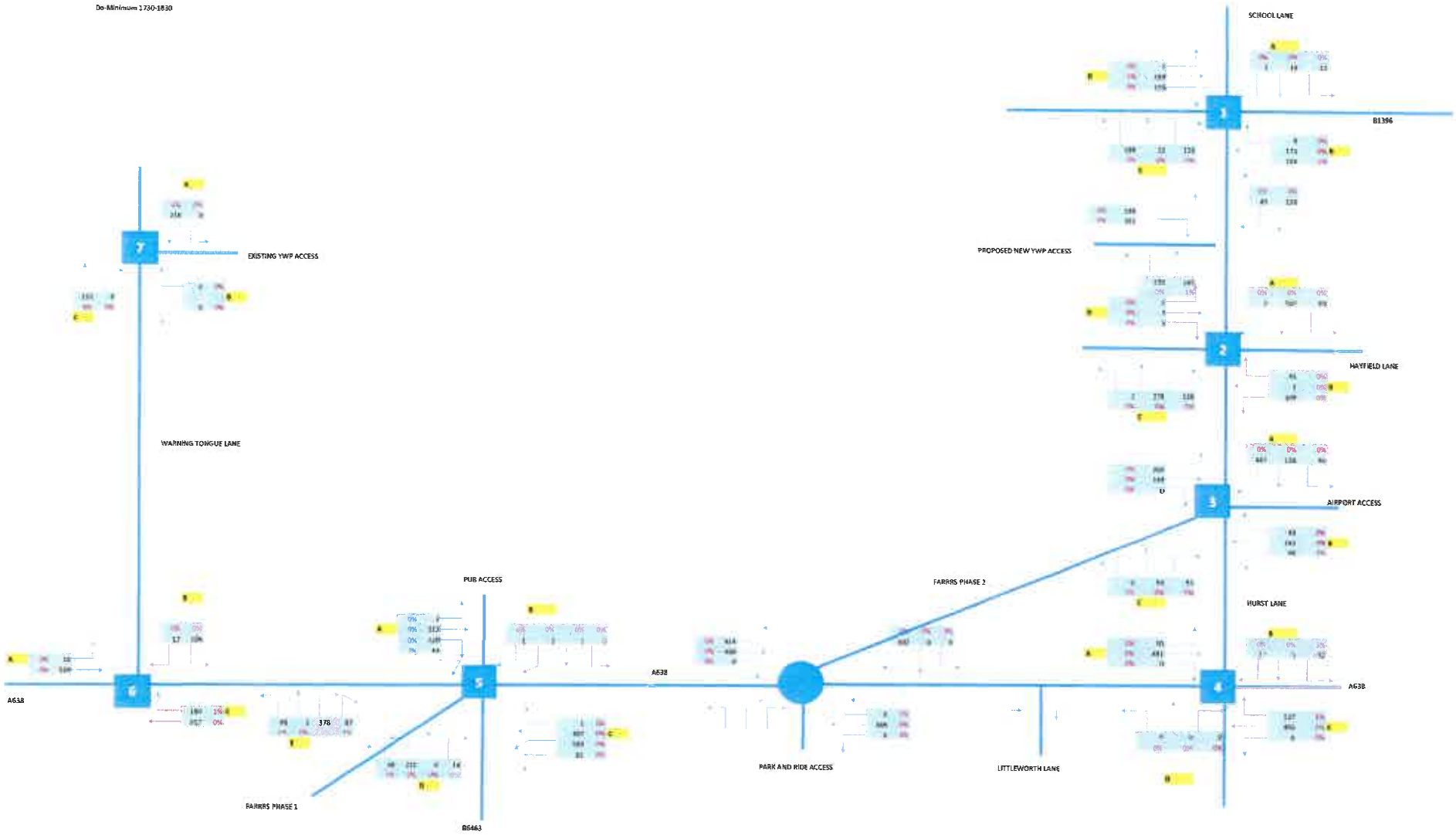
As part of Yorkshire Wildlife Park's expansion, the park plans to host occasional functions at their new site. This traffic assessment has assessed the impact that a 1,000-attendance Hexagon function would have on the surrounding highway network during the peak function arrival and departure hours. It is noted that 1,000 is the seated capacity of the venue and that guest numbers would usually fall below this threshold. Never-the-less the impact assessment outputs have shown that the surrounding highway network is able to function within capacity if a 1,000-attendance function is held.

It is acknowledged that Hexagon functions have the potential to be longer in duration and therefore finish later than the departure period used in this assessment. However, a later departure period would coincide with lower levels of background traffic on the local highway network than those used in this traffic assessment and lower overall traffic levels. This assessment has therefore taken a robust approach to assessing the impact of Hexagon function departures.

It can be concluded that the implementation of mitigation measures would be unnecessary for a function of this size due to the ability for the highway network to work within capacity. However, bespoke traffic management plans should be produced if deemed appropriate depending upon the type of function planned and these should be in addition to the promotion of the park expansion's Travel Plan and other measures that promote public transport and sustainable modes of travel.

Appendices

A. Do Minimum Flows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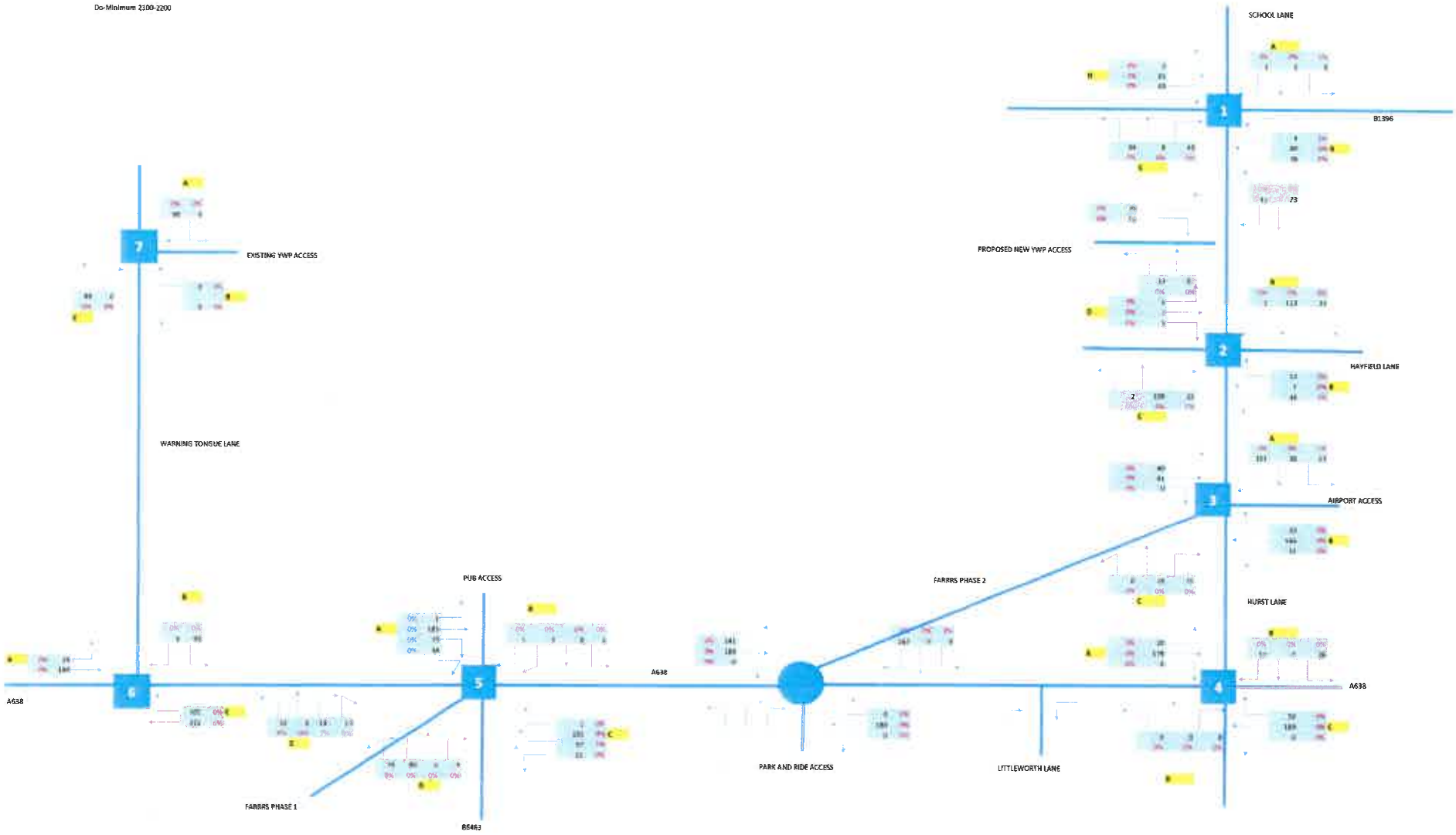
B1396
PROPOSED NEW YWP ACCESS
EXISTING YWP ACCESS
HAYFIELD LANE
WARNING TONGUE LANE
AIRPORT ACCESS
PUB ACCESS
FARRIS PHASE 2
HURST LANE
A638
A638
A638
PARK AND RIDE ACCESS
LITTLEWORTH LANE
FARRIS PHASE 1
B6463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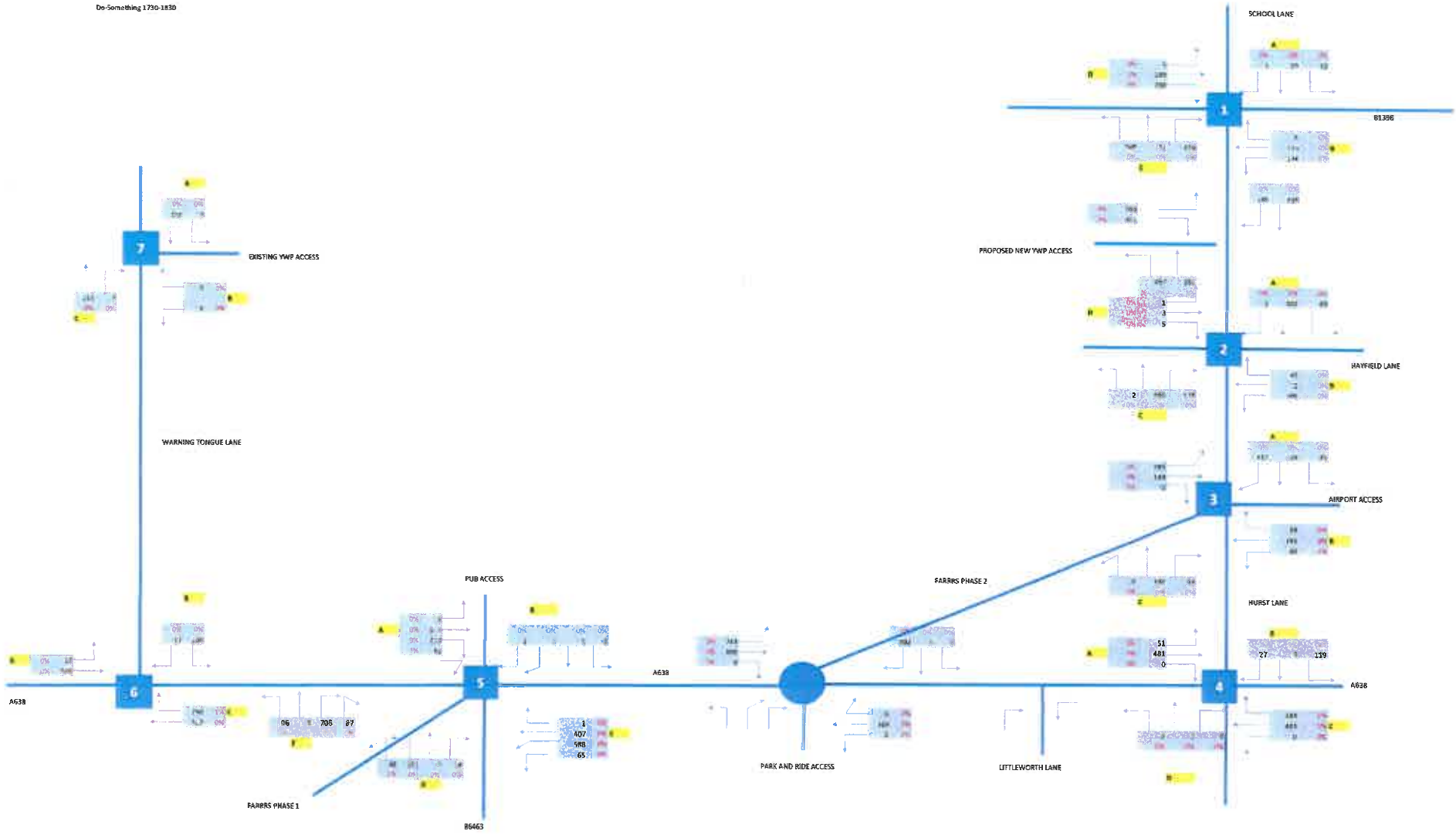
B1396
73
PROPOSED NEW YWP ACCESS
EXISTING YWP ACCESS
HAYFIELD LANE
WARNING TONGUE LANE
AIRPORT ACCESS
PUB ACCESS
FARRRS PHASE 2
HURST LANE
A638
A638
A638
PARK AND RIDE ACCESS
LITTLEWORTH LANE
FARRRS PHASE 1
B5463
1
2
3
4
5
6
7

B. Do Something Flows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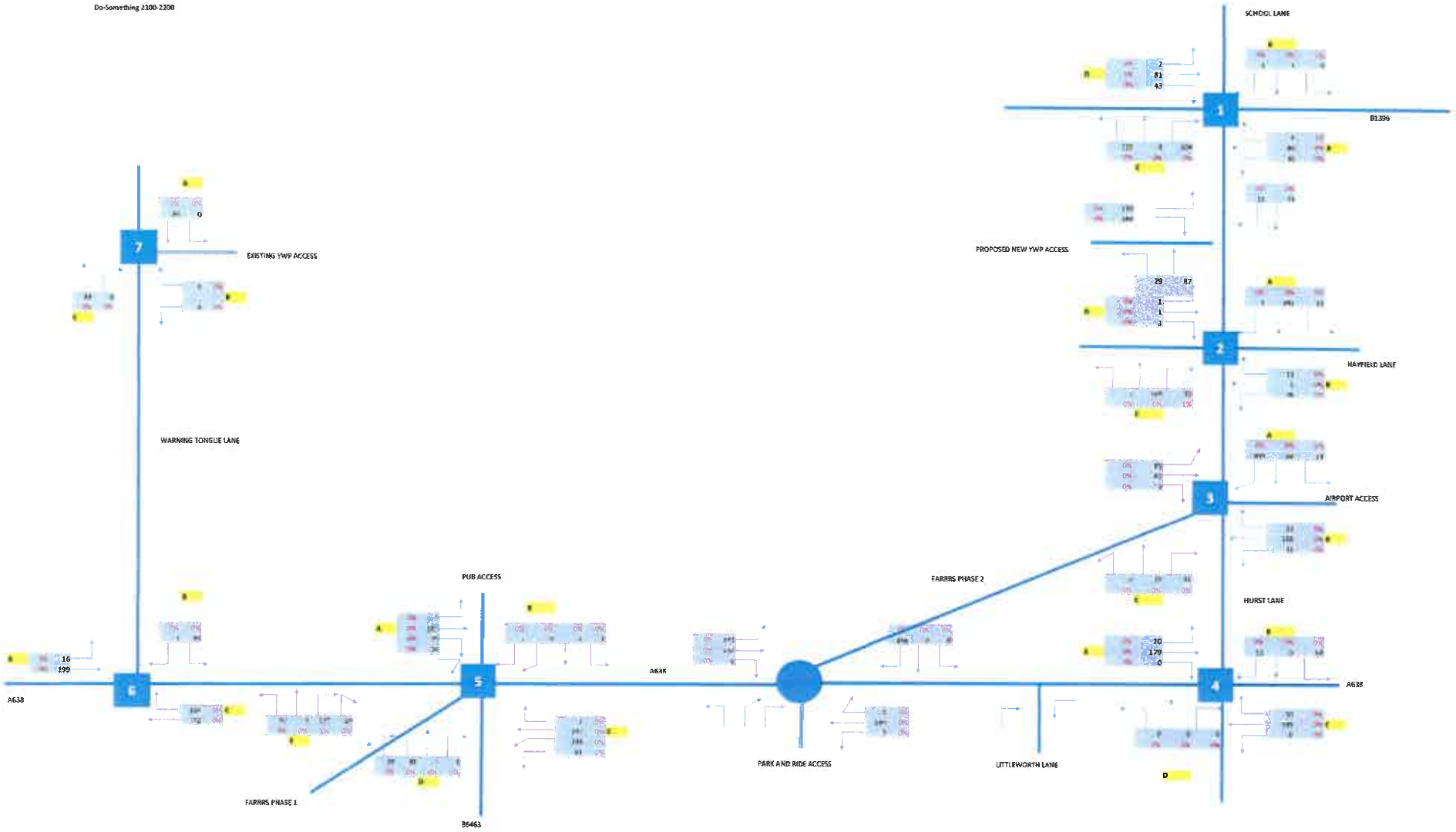
B1386
PROPOSED NEW YWP ACCESS
EXISTING YWP ACCESS
HAYFIELD LANE
AIRPORT ACCESS
WARNING TONGUE LANE
PUB ACCESS
FARRRS PHASE 2
HURST LANE
A638
A638
A638
PARK AND RIDE ACCESS
LITTLEWORTH LANE
FARRRS PHASE 1
B6463
1
2
3
4
5
6
7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B1396
PROPOSED NEW YWP ACCESS
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HAYFIELD LANE
AIRPORT ACCESS
WARNING TONGUE LANE
FARRRS PHASE 2
PUB ACCESS
HURST LANE
A638
A638
A638
PARK AND RIDE ACCESS
LITTLEWORTH LANE
FARRRS PHASE 1
B6463
1
2
3
4
5
6
7

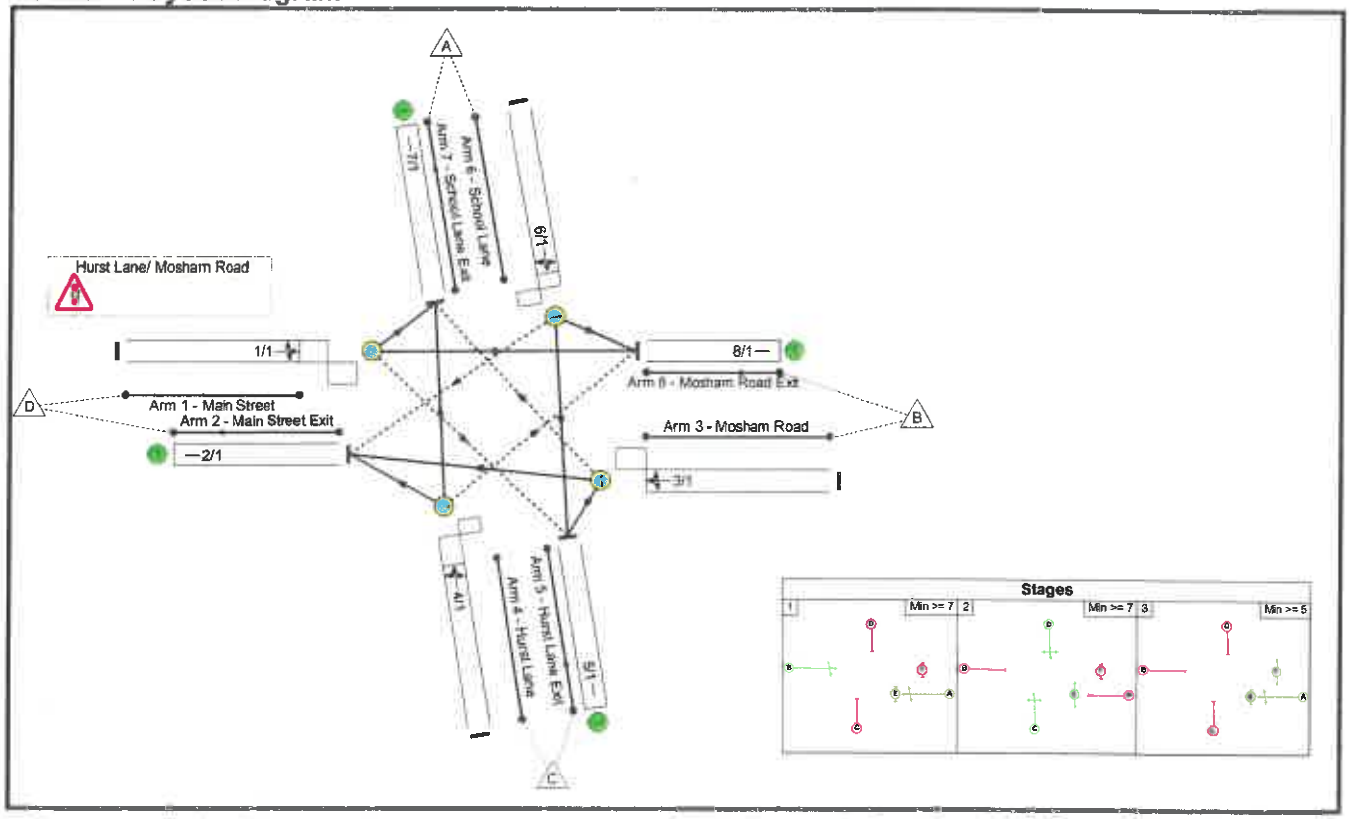
C. Modelling Outputs

Full Input Data And Results

User and Project Details

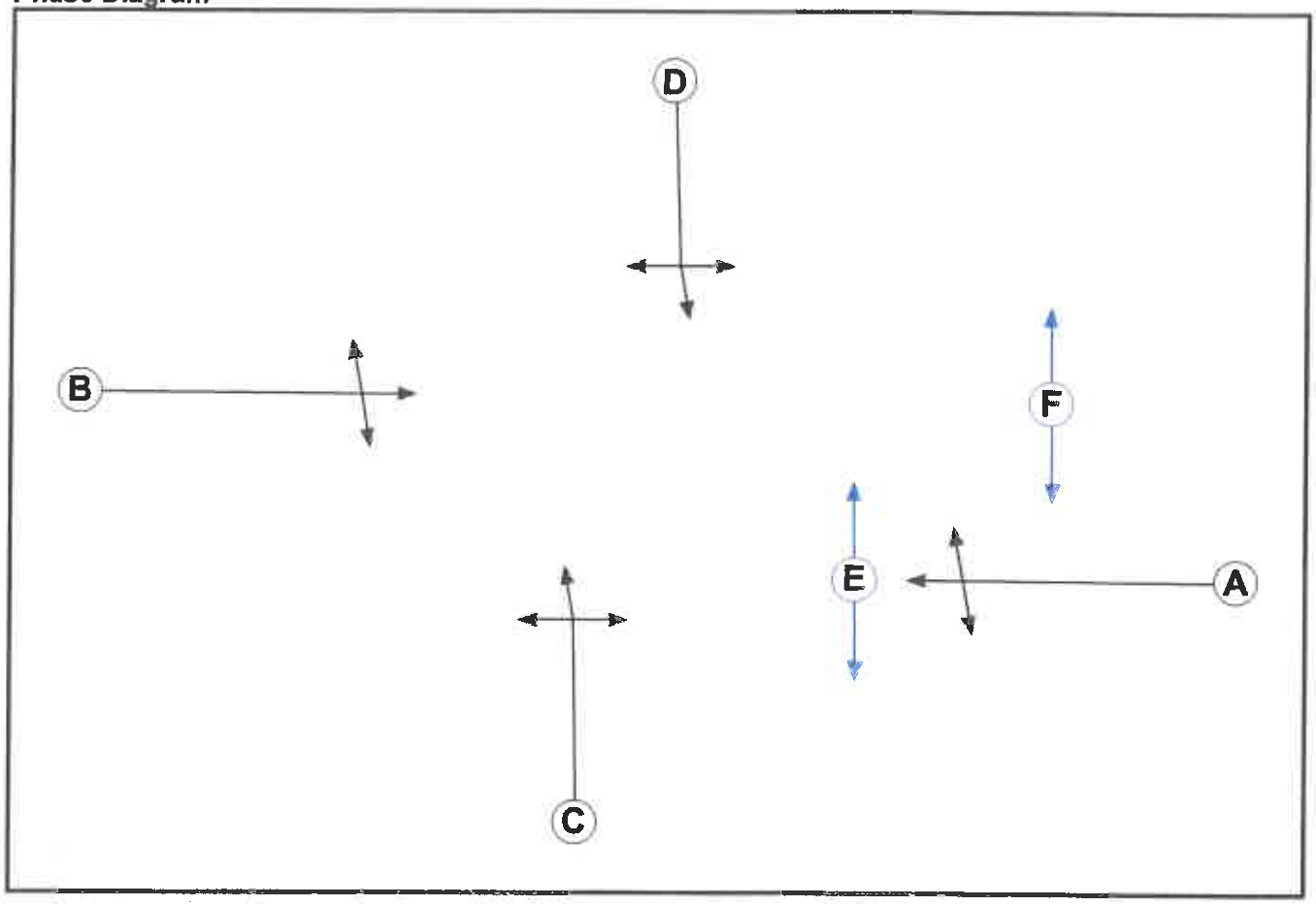
Project:	**YWP Event Traffic Assessment**
Title:	**Hurst Lane/ Mosham Road**
Location:	
File name:	MODE01 - Hurst Lane Mosham Road.lsg3x
Author:	HUG89416
Company:	Mott MacDonald
Address:	Sheffield
Notes:	

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	Traffic		7	7
E	Pedestrian		5	5
F	Pedestrian		5	5

Full Input Data And Results

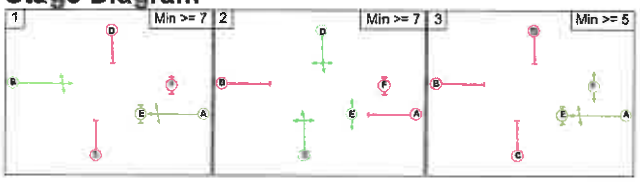
Phase Intergreens Matrix

		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A		-	5	6	5	-
	B	-		5	6	-	10
	C	5	6		-	-	9
	D	5	5	-		-	9
	E	8	8	-	-		-
	F	-	8	8	8	-	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
2	1	C	Losing	2	2
2	1	D	Losing	3	3
2	3	E	Losing	1	1
3	2	A	Losing	2	2

Prohibited Stage Change

		To Stage		
		1	2	3
From Stage	1		6	10
	2	8		9
	3	8	8	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Hurst Lane/ Mosham Road											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
1/1 (Main Street)	5/1 (Right)	1439	0	3/1	1.09	To 2/1 (Ahead) To 5/1 (Left)	4.00	2.00	0.50	4	3.00
3/1 (Mosham Road)	7/1 (Right)	1439	0	1/1	1.09	To 7/1 (Left) To 8/1 (Ahead)	2.00	2.00	0.50	2	2.00
4/1 (Hurst Lane)	8/1 (Right)	1439	0	6/1	1.09	To 5/1 (Ahead) To 8/1 (Left)	3.00	1.00	0.50	3	3.00
6/1 (School Lane)	2/1 (Right)	1439	0	4/1	1.09	To 2/1 (Left) To 7/1 (Ahead)	2.00	1.00	0.50	2	2.00

Full Input Data And Results

Lane Input Data

Junction: Hurst Lane/ Mosham Road

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Main Street)	O	B	2	3	60.0	Geom	-	3.40	0.00	Y	Arm 5 Right	9.50
											Arm 7 Left	9.00
											Arm 8 Ahead	Inf
2/1 (Main Street Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Mosham Road)	O	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 2 Ahead	Inf
											Arm 5 Left	11.00
											Arm 7 Right	10.00
4/1 (Hurst Lane)	O	C	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 2 Left	22.00
											Arm 7 Ahead	Inf
											Arm 8 Right	10.00
5/1 (Hurst Lane Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (School Lane)	O	D	2	3	60.0	Geom	-	2.50	0.00	Y	Arm 2 Right	8.00
											Arm 5 Ahead	Inf
											Arm 8 Left	10.00
7/1 (School Lane Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Mosham Road Exit)	U		2	3	60.0	Geom	-	3.25	0.00	Y		

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2029 DM Arrival'	17:30	18:30	01:00	
2: '2029 DS Arrival'	17:30	18:30	01:00	
3: '2029 DM Departure'	21:00	22:00	01:00	
4: '2029 DS Departure'	21:00	22:00	01:00	

Scenario 1: '2029 DM Arrival' (FG1: '2029 DM Arrival', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	12	19	2	33
	B	8	0	105	173	286
	C	22	156	0	188	366
	D	5	189	155	0	349
	Tot.	35	357	279	363	1034

Traffic Lane Flows

Lane	Scenario 1: 2029 DM Arrival
Junction: Hurst Lane/ Mosham Road	
1/1	349
2/1	363
3/1	286
4/1	366
5/1	279
6/1	33
7/1	35
8/1	357

Full Input Data And Results

Lane Saturation Flows

Junction: Hurst Lane/ Mosham Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Main Street)	3.40	0.00	Y	Arm 5 Right	9.50	44.4 %	1823	1823
				Arm 7 Left	9.00	1.4 %		
				Arm 8 Ahead	Inf	54.2 %		
2/1 (Main Street Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (Mosham Road)	3.50	0.00	Y	Arm 2 Ahead	Inf	60.5 %	1864	1864
				Arm 5 Left	11.00	36.7 %		
				Arm 7 Right	10.00	2.8 %		
4/1 (Hurst Lane)	3.20	0.00	Y	Arm 2 Left	22.00	51.4 %	1761	1761
				Arm 7 Ahead	Inf	6.0 %		
				Arm 8 Right	10.00	42.6 %		
5/1 (Hurst Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (School Lane)	2.50	0.00	Y	Arm 2 Right	8.00	6.1 %	1750	1750
				Arm 5 Ahead	Inf	57.6 %		
				Arm 8 Left	10.00	36.4 %		
7/1 (School Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Mosham Road Exit)	3.25	0.00	Y				1940	1940

Scenario 2: '2029 DM Departure' (FG3: '2029 DM Departure', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	6	5	1	12
	B	4	0	36	80	120
	C	8	45	0	64	117
	D	2	81	43	0	126
	Tot.	14	132	84	145	375

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2029 DM Departure
Junction: Hurst Lane/ Mosham Road	
1/1	126
2/1	145
3/1	120
4/1	117
5/1	84
6/1	12
7/1	14
8/1	132

Lane Saturation Flows

Junction: Hurst Lane/ Mosham Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Main Street)	3.40	0.00	Y	Arm 5 Right	9.50	34.1 %	1850	1850
				Arm 7 Left	9.00	1.6 %		
				Arm 8 Ahead	Inf	64.3 %		
2/1 (Main Street Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (Mosham Road)	3.50	0.00	Y	Arm 2 Ahead	Inf	66.7 %	1879	1879
				Arm 5 Left	11.00	30.0 %		
				Arm 7 Right	10.00	3.3 %		
4/1 (Hurst Lane)	3.20	0.00	Y	Arm 2 Left	22.00	54.7 %	1767	1767
				Arm 7 Ahead	Inf	6.8 %		
				Arm 8 Right	10.00	38.5 %		
5/1 (Hurst Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (School Lane)	2.50	0.00	Y	Arm 2 Right	8.00	8.3 %	1710	1710
				Arm 5 Ahead	Inf	41.7 %		
				Arm 8 Left	10.00	50.0 %		
7/1 (School Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Mosham Road Exit)	3.25	0.00	Y				1940	1940

Full Input Data And Results

Scenario 3: '2029 DS Arrival' (FG2: '2029 DS Arrival', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	12	19	2	33
	B	8	0	194	173	375
	C	22	156	0	188	366
	D	5	189	208	0	402
	Tot.	35	357	421	363	1176

Traffic Lane Flows

Lane	Scenario 3: 2029 DS Arrival
Junction: Hurst Lane/ Mosham Road	
1/1	402
2/1	363
3/1	375
4/1	366
5/1	421
6/1	33
7/1	35
8/1	357

Lane Saturation Flows

Junction: Hurst Lane/ Mosham Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Main Street)	3.40	0.00	Y	Arm 5 Right	9.50	51.7 %	1804	1804
				Arm 7 Left	9.00	1.2 %		
				Arm 8 Ahead	Inf	47.0 %		
2/1 (Main Street Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (Mosham Road)	3.50	0.00	Y	Arm 2 Ahead	Inf	46.1 %	1830	1830
				Arm 5 Left	11.00	51.7 %		
				Arm 7 Right	10.00	2.1 %		
4/1 (Hurst Lane)	3.20	0.00	Y	Arm 2 Left	22.00	51.4 %	1761	1761
				Arm 7 Ahead	Inf	6.0 %		
				Arm 8 Right	10.00	42.6 %		
5/1 (Hurst Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (School Lane)	2.50	0.00	Y	Arm 2 Right	8.00	6.1 %	1750	1750
				Arm 5 Ahead	Inf	57.6 %		
				Arm 8 Left	10.00	36.4 %		
7/1 (School Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Mosham Road Exit)	3.25	0.00	Y				1940	1940

Scenario 4: '2029 DS Departure' (FG4: '2029 DS Departure', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	6	5	1	12
	B	4	0	36	80	120
	C	8	104	0	125	237
	D	2	81	43	0	126
	Tot.	14	191	84	206	495

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2029 DS Departure
Junction: Hurst Lane/ Mosham Road	
1/1	126
2/1	206
3/1	120
4/1	237
5/1	84
6/1	12
7/1	14
8/1	191

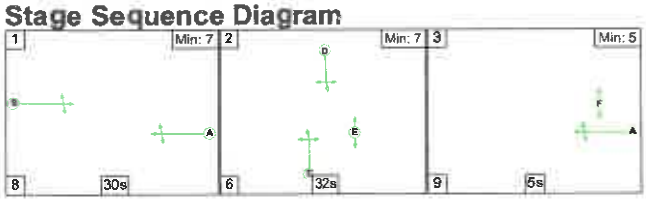
Lane Saturation Flows

Junction: Hurst Lane/ Mosham Road

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Main Street)	3.40	0.00	Y	Arm 5 Right	9.50	34.1 %	1850	1850
				Arm 7 Left	9.00	1.6 %		
				Arm 8 Ahead	Inf	64.3 %		
2/1 (Main Street Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (Mosham Road)	3.50	0.00	Y	Arm 2 Ahead	Inf	66.7 %	1879	1879
				Arm 5 Left	11.00	30.0 %		
				Arm 7 Right	10.00	3.3 %		
4/1 (Hurst Lane)	3.20	0.00	Y	Arm 2 Left	22.00	52.7 %	1756	1756
				Arm 7 Ahead	Inf	3.4 %		
				Arm 8 Right	10.00	43.9 %		
5/1 (Hurst Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (School Lane)	2.50	0.00	Y	Arm 2 Right	8.00	8.3 %	1710	1710
				Arm 5 Ahead	Inf	41.7 %		
				Arm 8 Left	10.00	50.0 %		
7/1 (School Lane Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Mosham Road Exit)	3.25	0.00	Y				1940	1940

Scenario 1: '2029 DM Arrival' (FG1: '2029 DM Arrival', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

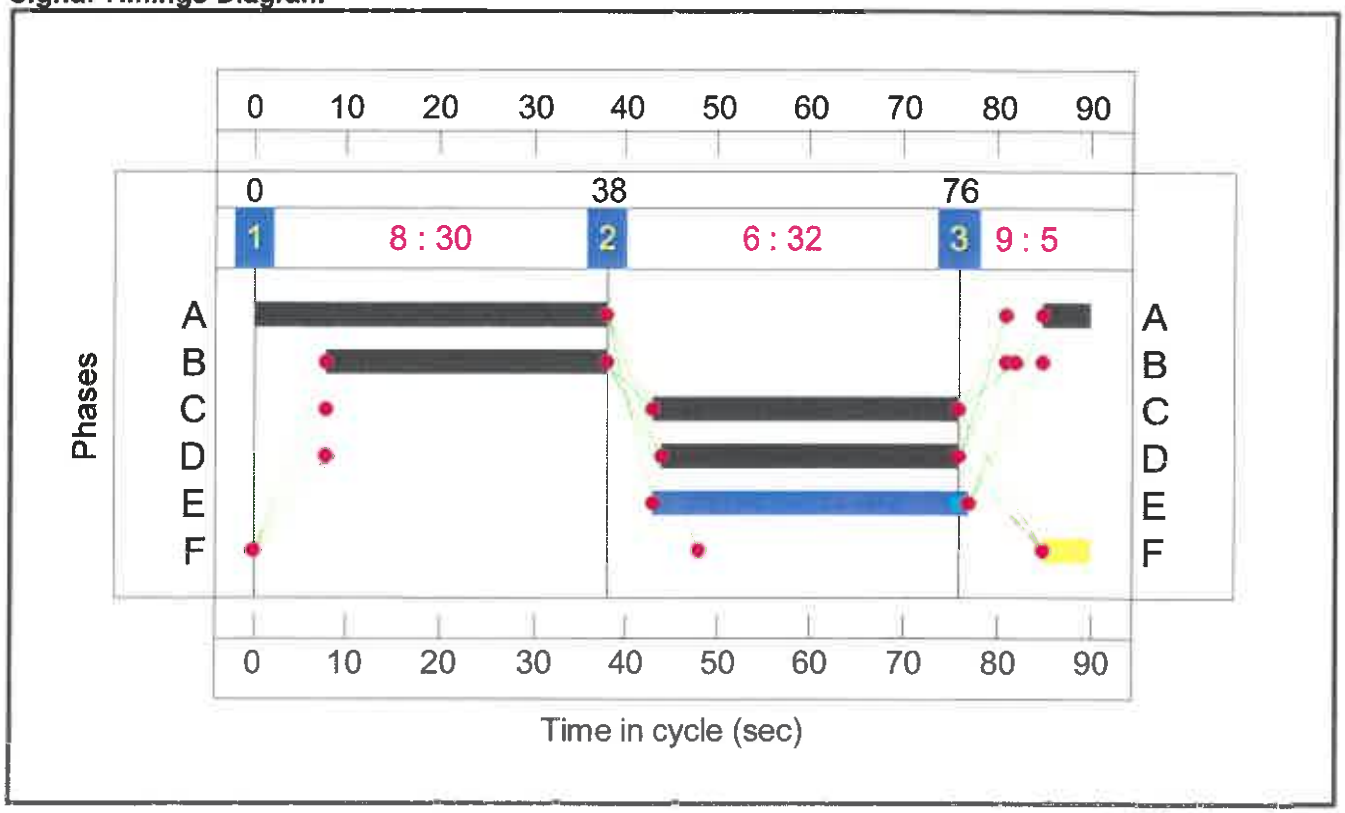


Full Input Data And Results

Stage Timings

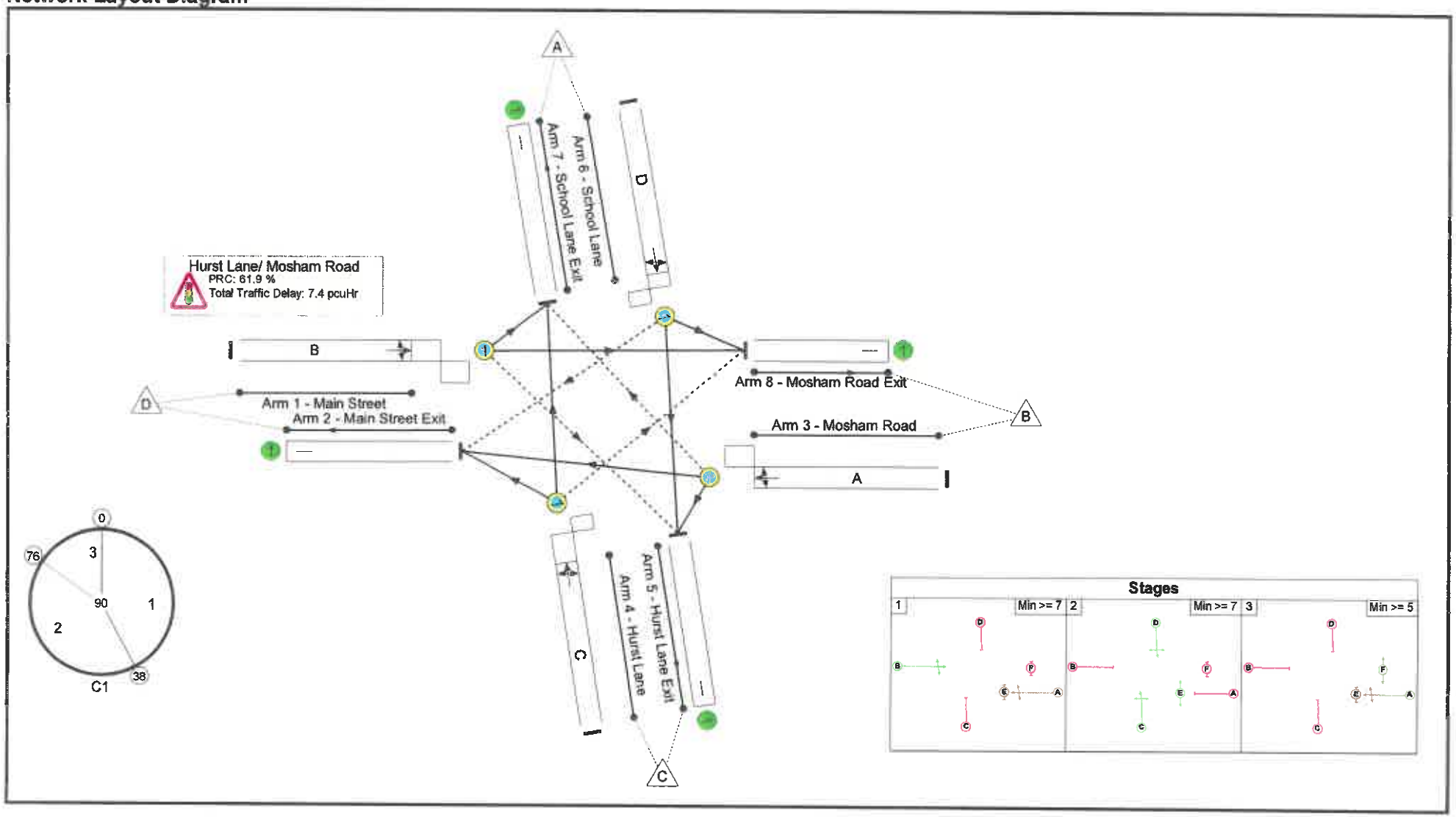
Stage	1	2	3
Duration	30	32	5
Change Point	0	38	76

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Hurst Lane/ Mosham Road	-	-	**N/A**	-	-		-	-	-	-	-	-	**55.6%**
Hurst Lane/ Mosham Road	-	-	**N/A**	-	-		-	-	-	-	-	-	**55.6%**
1/1	Main Street Right Left Ahead	O	N/A	N/A	B		1	30	-	349	1823	628	55.6%
2/1	Main Street Exit	U	N/A	N/A	-		-	-	-	363	Inf	Inf	0.0%
3/1	Mosham Road Ahead Left Right	O	N/A	N/A	A		1	43	-	286	1864	911	31.4%
4/1	Hurst Lane Left Ahead Right	O	N/A	N/A	C		1	33	-	366	1761	665	55.0%
5/1	Hurst Lane Exit	U	N/A	N/A	-		-	-	-	279	Inf	Inf	0.0%
6/1	School Lane Right Ahead Left	O	N/A	N/A	D		1	32	-	33	1750	642	5.1%
7/1	School Lane Exit	U	N/A	N/A	-		-	-	-	35	Inf	Inf	0.0%
8/1	Mosham Road Exit	U	N/A	N/A	-		-	-	-	357	1940	1940	18.4%

Full Input Data And Results

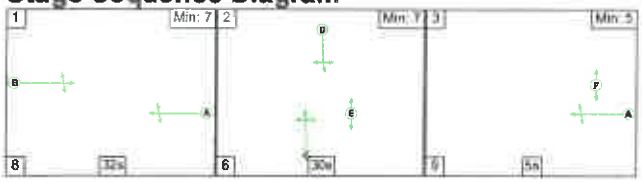
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Hurst Lane/ Mosham Road	-	-	**309**	**5**	**7**	**5.8**	**1.6**	**0.0**	**7.4**	-	-	-	-
Hurst Lane/ Mosham Road	-	-	**309**	**5**	**7**	**5.8**	**1.6**	**0.0**	**7.4**	-	-	-	-
1/1	349	349	152	0	3	2.3	0.6	0.0	3.0	30.4	7.0	0.6	7.6
2/1	363	363	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	286	286	3	5	0	1.1	0.2	0.0	1.3	16.8	4.3	0.2	4.5
4/1	366	366	153	0	3	2.2	0.6	0.0	2.9	28.1	7.1	0.6	7.7
5/1	279	279	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	33	33	2	0	0	0.2	0.0	0.0	0.2	21.4	0.5	0.0	0.6
7/1	35	35	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	357	357	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1

C1 PRC for Signalled Lanes (%): 61.9 Total Delay for Signalled Lanes (pcuHr): 7.33 Cycle Time (s): 90
PRC Over All Lanes (%): 61.9 Total Delay Over All Lanes(pcuHr): 7.45

Full Input Data And Results

Scenario 2: '2029 DM Departure' (FG3: '2029 DM Departure', Plan 1: 'Network Control Plan 1')

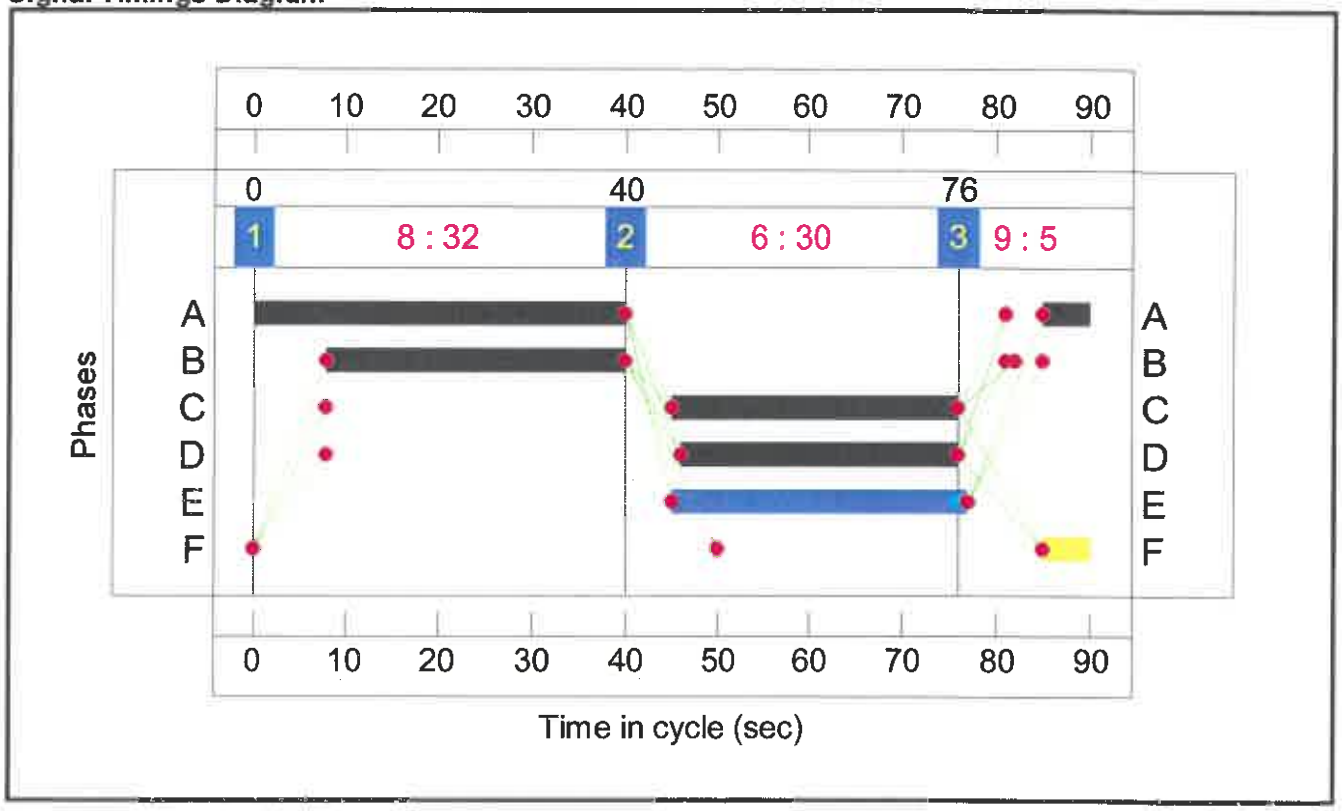
Stage Sequence Diagram



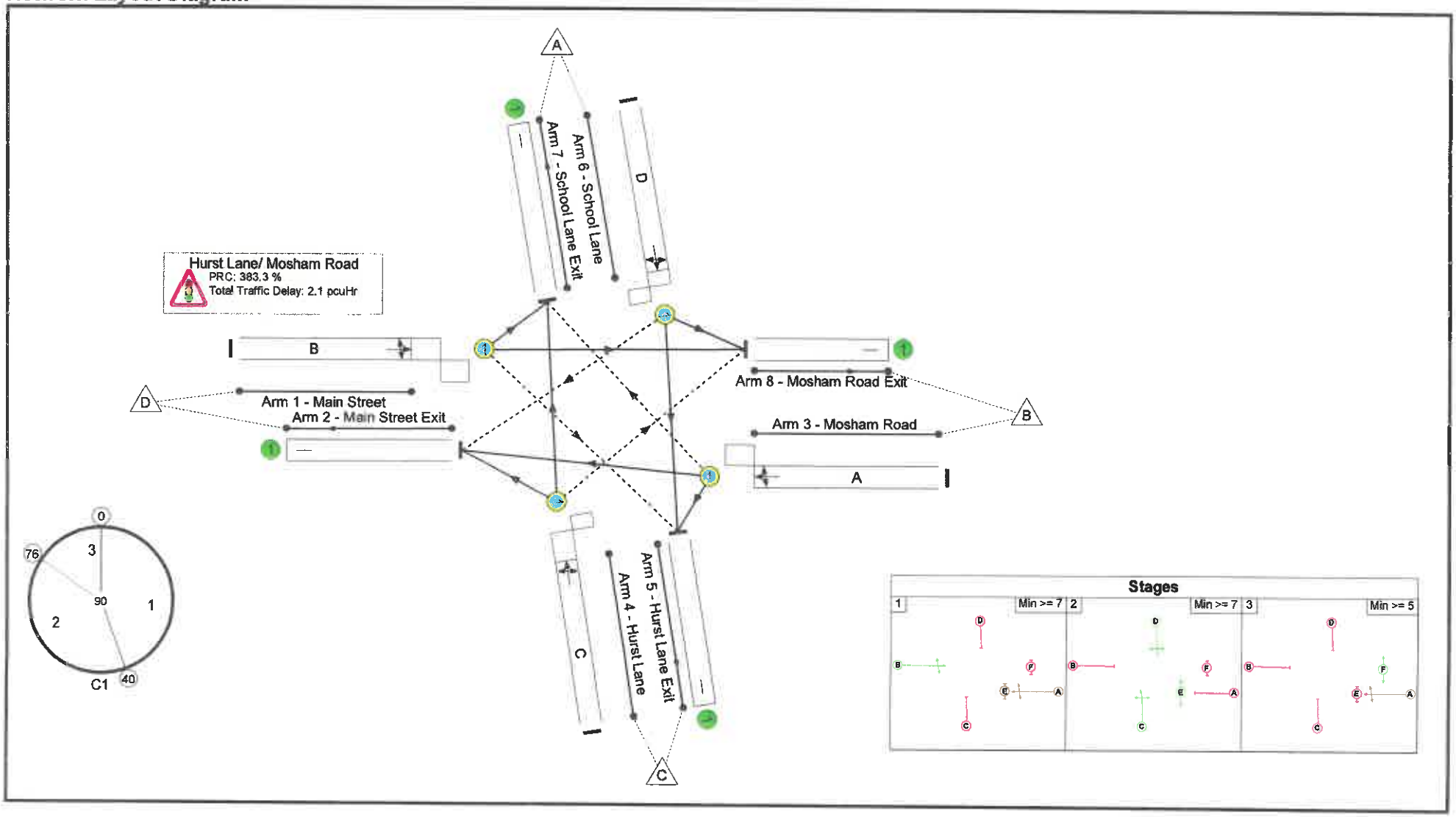
Stage Timings

Stage	1	2	3
Duration	32	30	5
Change Point	0	40	76

Signal Timings Diagram



Network Layout Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Hurst Lane/ Mosham Road	-	-	**N/A**	-	-		-	-	-	-	-	-	**18.6%**
Hurst Lane/ Mosham Road	-	-	**N/A**	-	-		-	-	-	-	-	-	**18.6%**
1/1	Main Street Right Left Ahead	O	N/A	N/A	B		1	32	-	126	1850	678	18.6%
2/1	Main Street Exit	U	N/A	N/A	-		-	-	-	145	Inf	Inf	0.0%
3/1	Mosham Road Ahead Left Right	O	N/A	N/A	A		1	45	-	120	1879	960	12.5%
4/1	Hurst Lane Left Ahead Right	O	N/A	N/A	C		1	31	-	117	1767	628	18.6%
5/1	Hurst Lane Exit	U	N/A	N/A	-		-	-	-	84	Inf	Inf	0.0%
6/1	School Lane Right Ahead Left	O	N/A	N/A	D		1	30	-	12	1710	589	2.0%
7/1	School Lane Exit	U	N/A	N/A	-		-	-	-	14	Inf	Inf	0.0%
8/1	Mosham Road Exit	U	N/A	N/A	-		-	-	-	132	1940	1940	6.8%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Hurst Lane/ Mosham Road	-	-	89	2	2	1.8	0.3	0.0	2.1	-	-	-	-
Hurst Lane/ Mosham Road	-	-	89	2	2	1.8	0.3	0.0	2.1	-	-	-	-
1/1	126	126	42	0	1	0.7	0.1	0.0	0.8	22.6	2.1	0.1	2.2
2/1	145	145	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	120	120	2	2	0	0.4	0.1	0.0	0.5	13.6	1.6	0.1	1.6
4/1	117	117	44	0	1	0.7	0.1	0.0	0.8	23.6	2.0	0.1	2.1
5/1	84	84	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	12	12	1	0	0	0.1	0.0	0.0	0.1	22.8	0.2	0.0	0.2
7/1	14	14	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	132	132	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 383.3 Total Delay for Signalled Lanes (pcuHr): 2.09 Cycle Time (s): 90
PRC Over All Lanes (%): 383.3 Total Delay Over All Lanes(pcuHr): 2.13

Full Input Data And Results

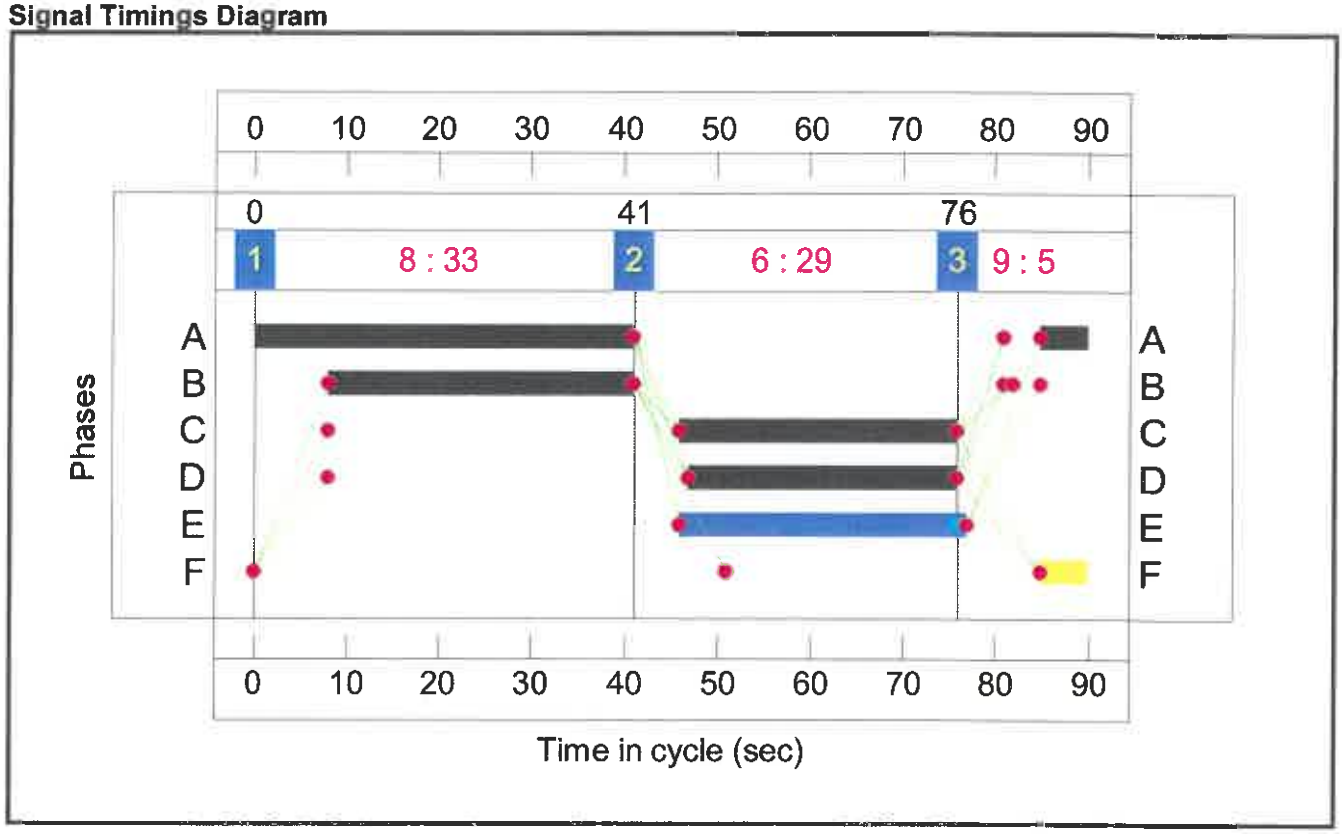
Scenario 3: '2029 DS Arrival' (FG2: '2029 DS Arrival', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

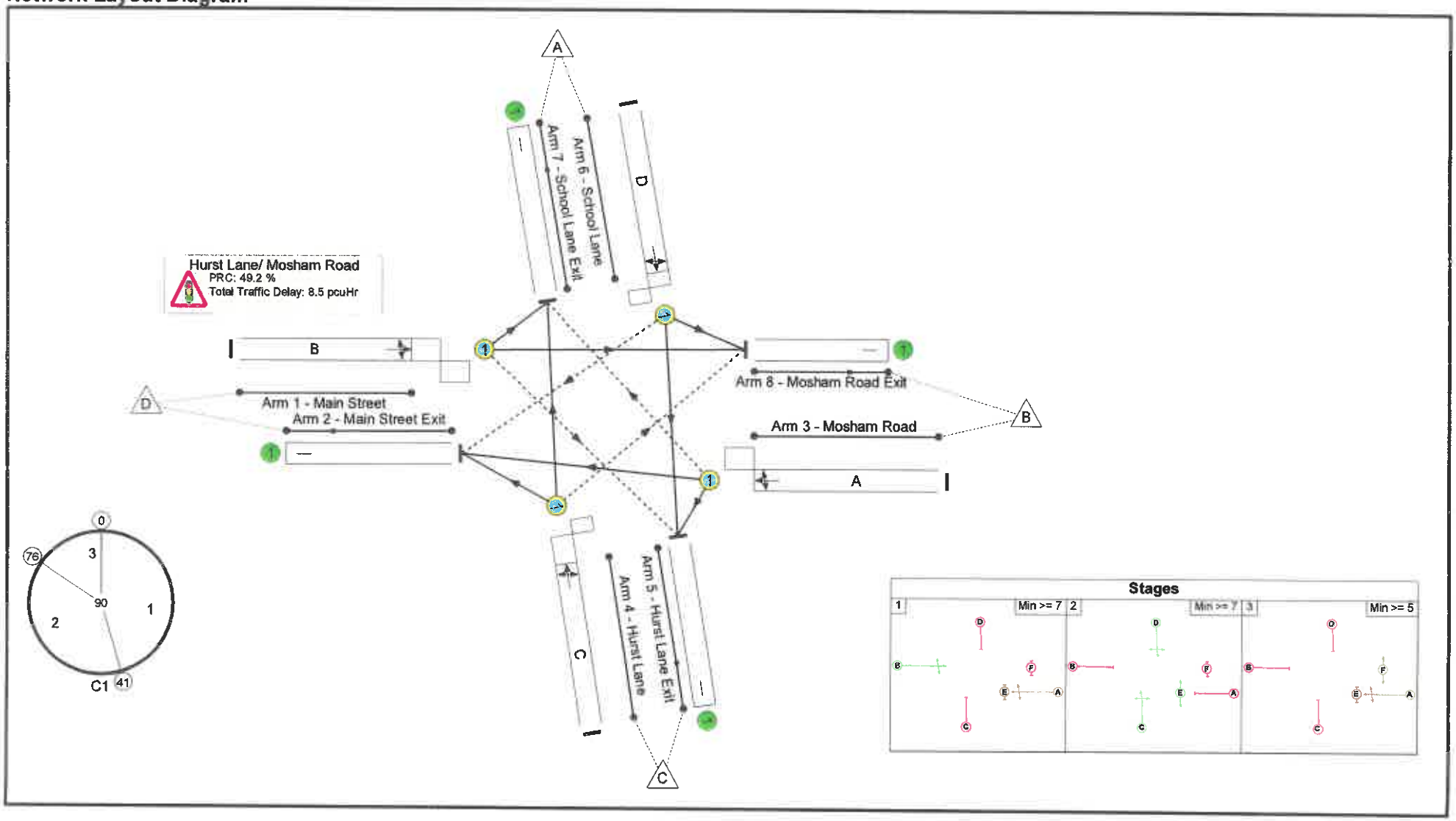
Stage Timings

Stage	1	2	3
Duration	33	29	5
Change Point	0	41	76

Signal Timings Diagram



Network Layout Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Hurst Lane/ Mosham Road	-	-	**N/A**	-	-		-	-	-	-	-	-	**60.3%**
Hurst Lane/ Mosham Road	-	-	**N/A**	-	-		-	-	-	-	-	-	**60.3%**
1/1	Main Street Right Left Ahead	O	N/A	N/A	B		1	33	-	402	1804	682	59.0%
2/1	Main Street Exit	U	N/A	N/A	-		-	-	-	363	Inf	Inf	0.0%
3/1	Mosham Road Ahead Left Right	O	N/A	N/A	A		1	46	-	375	1830	956	39.2%
4/1	Hurst Lane Left Ahead Right	O	N/A	N/A	C		1	30	-	366	1761	607	60.3%
5/1	Hurst Lane Exit	U	N/A	N/A	-		-	-	-	421	Inf	Inf	0.0%
6/1	School Lane Right Ahead Left	O	N/A	N/A	D		1	29	-	33	1750	583	5.7%
7/1	School Lane Exit	U	N/A	N/A	-		-	-	-	35	Inf	Inf	0.0%
8/1	Mosham Road Exit	U	N/A	N/A	-		-	-	-	357	1940	1940	18.4%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Hurst Lane/ Mosham Road	-	-	**361**	**5**	**8**	**6.5**	**1.9**	**0.0**	**8.5**	-	-	-	-
Hurst Lane/ Mosham Road	-	-	**361**	**5**	**8**	**6.5**	**1.9**	**0.0**	**8.5**	-	-	-	-
1/1	402	402	203	0	5	2.5	0.7	0.0	3.2	28.9	8.0	0.7	8.8
2/1	363	363	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	375	375	3	5	0	1.3	0.3	0.0	1.7	16.0	5.6	0.3	5.9
4/1	366	366	153	0	3	2.5	0.8	0.0	3.2	31.9	7.5	0.8	8.3
5/1	421	421	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	33	33	2	0	0	0.2	0.0	0.0	0.2	23.7	0.6	0.0	0.6
7/1	35	35	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	357	357	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1

C1 PRC for Signalled Lanes (%): 49.2 Total Delay for Signalled Lanes (pcuHr): 8.36 Cycle Time (s): 90
PRC Over All Lanes (%): 49.2 Total Delay Over All Lanes(pcuHr): 8.48

Full Input Data And Results

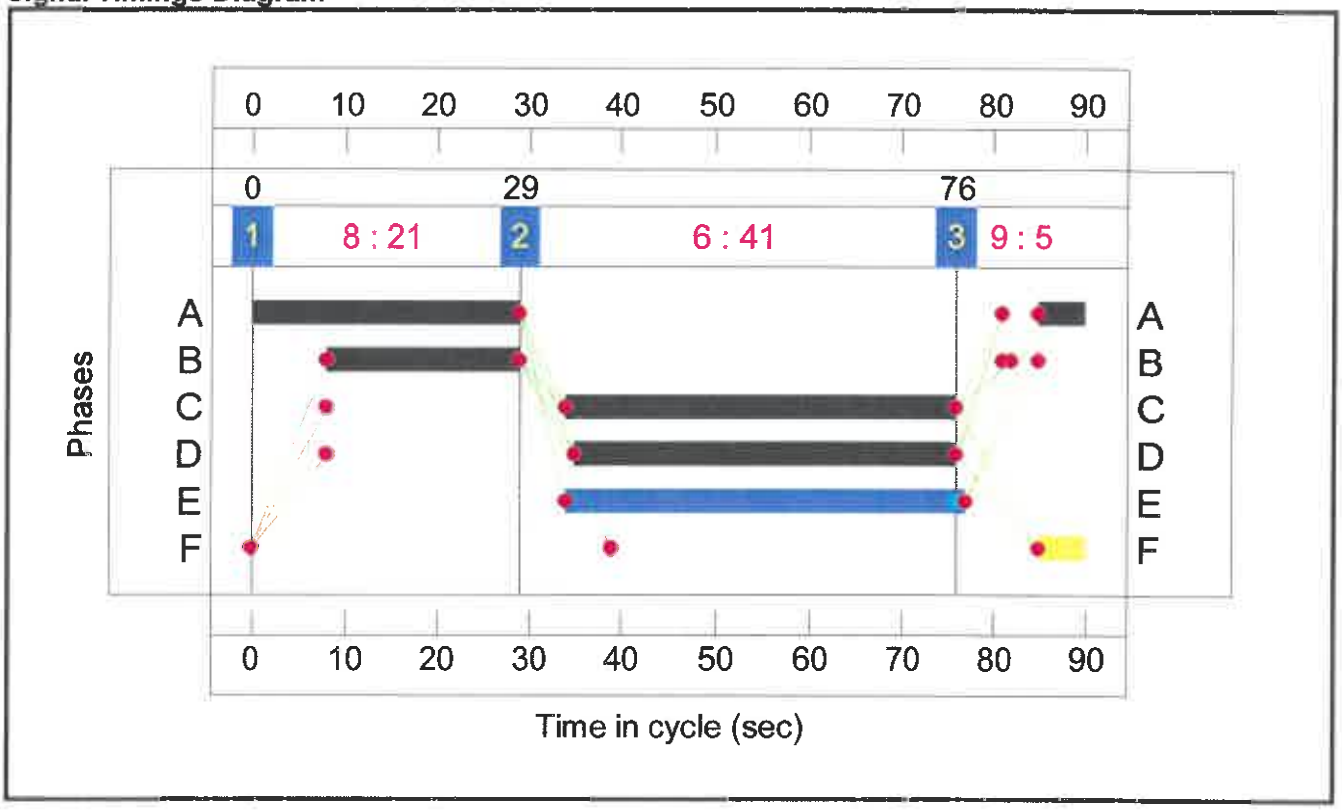
Scenario 4: '2029 DS Departure' (FG4: '2029 DS Departure', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

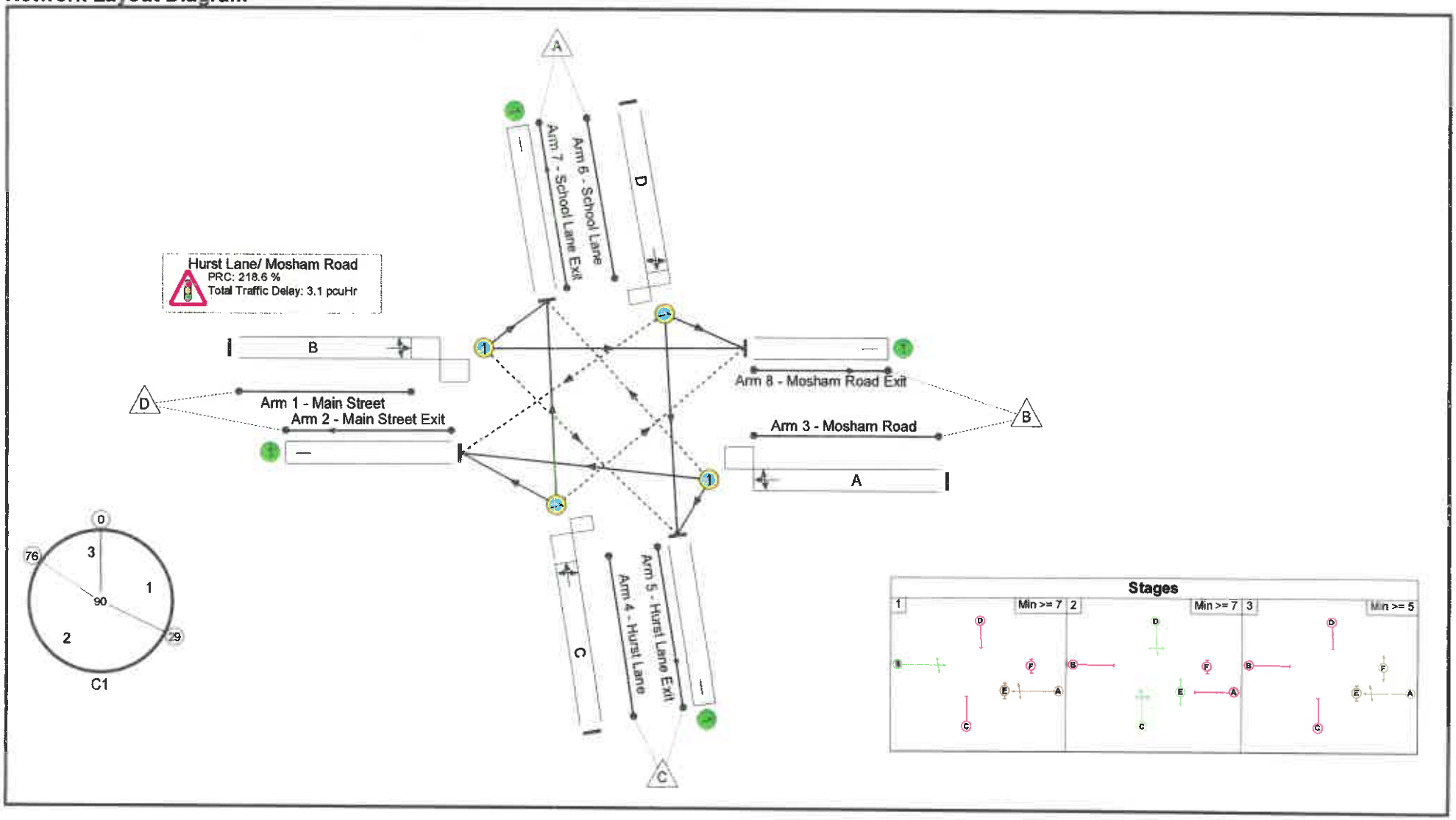
Stage Timings

Stage	1	2	3
Duration	21	41	5
Change Point	0	29	76

Signal Timings Diagram



Network Layout Diagram



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: Hurst Lane/ Mosham Road	-	-	**N/A**	-	-		-	-	-	-	-	-	**28.2%**
Hurst Lane/ Mosham Road	-	-	**N/A**	-	-		-	-	-	-	-	-	**28.2%**
1/1	Main Street Right Left Ahead	O	N/A	N/A	B		1	21	-	126	1850	452	27.9%
2/1	Main Street Exit	U	N/A	N/A	-		-	-	-	206	Inf	Inf	0.0%
3/1	Mosham Road Ahead Left Right	O	N/A	N/A	A		1	34	-	120	1879	731	16.4%
4/1	Hurst Lane Left Ahead Right	O	N/A	N/A	C		1	42	-	237	1756	839	28.2%
5/1	Hurst Lane Exit	U	N/A	N/A	-		-	-	-	84	Inf	Inf	0.0%
6/1	School Lane Right Ahead Left	O	N/A	N/A	D		1	41	-	12	1710	798	1.5%
7/1	School Lane Exit	U	N/A	N/A	-		-	-	-	14	Inf	Inf	0.0%
8/1	Mosham Road Exit	U	N/A	N/A	-		-	-	-	191	1940	1940	9.8%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Hurst Lane/ Mosham Road	-	-	**146**	**3**	**3**	**2.5**	**0.6**	**0.0**	**3.1**	-	-	-	-
Hurst Lane/ Mosham Road	-	-	**146**	**3**	**3**	**2.5**	**0.6**	**0.0**	**3.1**	-	-	-	-
1/1	126	126	42	0	1	1.0	0.2	0.0	1.2	33.1	2.5	0.2	2.7
2/1	206	206	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	120	120	1	3	0	0.6	0.1	0.0	0.7	20.9	1.9	0.1	2.0
4/1	237	237	102	0	2	0.9	0.2	0.0	1.1	17.2	3.6	0.2	3.8
5/1	84	84	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	12	12	1	0	0	0.0	0.0	0.0	0.1	15.4	0.2	0.0	0.2
7/1	14	14	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	191	191	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1

C1 PRC for Signalled Lanes (%): 218.6 Total Delay for Signalled Lanes (pcuHr): 3.04 Cycle Time (s): 90
PRC Over All Lanes (%): 218.6 Total Delay Over All Lanes(pcuHr): 3.09

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.4.487 [15039,24/03/2014]

Filename: MODE02 - Hurst Lane - YWP Access ARCADY.arc8
Path: P:\Sheffield\381569 - Yorkshire Wildlife Park Expans\Calculations\Traffic Models\Event Traffic Assessment Models\MODE02- YWP Access\MODE02- 1000 Hexagon Event
Report generation date: 04/02/2020 12:01:20

Summary of junction performance

	1730-1830				2100-2200			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
A1 - 2029 DM								
Hurst Lane South	0.25	2.69	0.20	A	0.08	2.29	0.08	A
YWP Access	0.53	3.21	0.35	A	0.05	2.13	0.05	A
Hurst Lane North	0.28	3.31	0.22	A	0.06	2.38	0.06	A
A1 - 2029 DS								
Hurst Lane South	0.91	4.41	0.48	A	0.08	2.30	0.08	A
YWP Access	0.53	3.21	0.35	A	0.37	2.78	0.27	A
Hurst Lane North	0.50	3.86	0.33	A	0.07	2.67	0.06	A

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

"D1 - 2029 DM, 1730-1830 " model duration: 17:15 - 18:45
"D2 - 2029 DM, 2100-2200" model duration: 20:45 - 22:15
"D3 - 2029 DS, 1730-1830" model duration: 17:15 - 18:45
"D4 - 2029 DS, 2100-2200" model duration: 20:45 - 22:15

Run using Junctions 8.0.4.487 at 04/02/2020 12:01:19

File summary

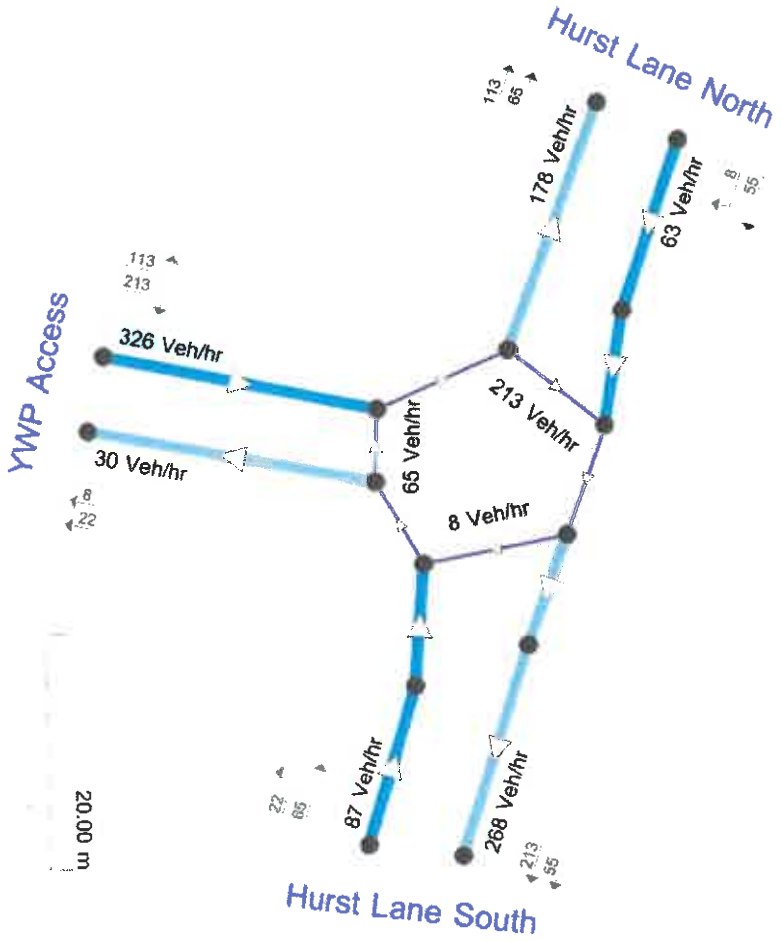
Title	YWP Access
Location	
Site Number	2
Date	03/02/2020
Version	2
Status	(new file)
Identifier	MODE02
Client	YWP
Jobnumber	381569
Enumerator	HUG89416
Description	Modified version of MOD013 to include correct flows for Event Traffic Assessment

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

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	Veh	Veh	perHour	s	-Min	perMin



Time Segment: (17:15-17:30)

The junction diagram reflects the last run of ARCADY.

(Default Analysis Set) - 2029 DM, 1730-1830

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2029 DM, 1730-1830	2029 DM	1730-1830		ONE HOUR	17:15	18:45	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3				3.10	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
Hurst Lane South	1	Hurst Lane South	
YWP Access	2	YWP Access	
Hurst Lane North	3	Hurst Lane North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Hurst Lane South	0.00	99999.00		0.00
YWP Access	0.00	99999.00		0.00
Hurst Lane North	0.00	99999.00		0.00

Roundabout Geometry

Name	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
Hurst Lane South	2.90	7.10	18.87	80.00	45.00	25.00	
YWP Access	6.00	6.00	0.00	60.00	45.00	35.00	
Hurst Lane North	3.05	7.00	13.62	85.00	45.00	23.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Hurst Lane South		(calculated)	(calculated)	0.646	1709.561
YWP Access		(calculated)	(calculated)	0.661	1845.725
Hurst Lane North		(calculated)	(calculated)	0.634	1640.204

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
Hurst Lane South	ONE HOUR	✓	301.00	100.000
YWP Access	ONE HOUR	✓	537.00	100.000
Hurst Lane North	ONE HOUR	✓	281.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.000	120.000	181.000
	YWP Access	351.000	0.000	186.000
	Hurst Lane North	236.000	45.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.00	0.40	0.60
	YWP Access	0.65	0.00	0.35
	Hurst Lane North	0.84	0.16	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	1.000	1.000	1.010
	YWP Access	1.000	1.000	1.000
	Hurst Lane North	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.0	0.0	1.0
	YWP Access	0.0	0.0	0.0
	Hurst Lane North	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Hurst Lane South	0.20	2.69	0.25	A	276.20	414.31	17.84	2.58	0.20	17.84	2.58
YWP Access	0.35	3.21	0.53	A	492.76	739.14	36.14	2.93	0.40	36.14	2.93
Hurst Lane North	0.22	3.31	0.28	A	257.85	386.78	19.86	3.08	0.22	19.86	3.08

Main Results for each time segment

Main results: (17:15-17:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	226.61	56.65	225.99	440.58	33.77	0.00	1677.67	1582.37	0.135	0.00	0.16	2.478	A
YWP Access	404.28	101.07	403.09	123.87	135.89	0.00	1755.03	1210.68	0.230	0.00	0.30	2.660	A
Hurst Lane North	211.55	52.89	210.88	275.51	263.47	0.00	1473.06	1138.19	0.144	0.00	0.17	2.850	A

Main results: (17:30-17:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	270.59	67.65	270.45	527.33	40.43	0.00	1673.40	1582.37	0.162	0.16	0.19	2.565	A
YWP Access	482.75	120.69	482.41	148.24	162.63	0.00	1737.19	1210.68	0.278	0.30	0.38	2.869	A
Hurst Lane North	252.61	63.15	252.43	329.72	315.32	0.00	1440.17	1138.19	0.175	0.17	0.21	3.030	A

Main results: (17:45-18:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	331.41	82.85	331.19	645.69	49.50	0.00	1667.58	1582.37	0.199	0.19	0.25	2.693	A
YWP Access	591.25	147.81	590.68	181.53	199.15	0.00	1712.81	1210.68	0.345	0.38	0.52	3.206	A
Hurst Lane North	309.39	77.35	309.10	403.75	386.09	0.00	1395.27	1138.19	0.222	0.21	0.28	3.314	A

Main results: (18:00-18:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	331.41	82.85	331.41	646.29	49.55	0.00	1667.55	1582.37	0.199	0.25	0.25	2.693	A
YWP Access	591.25	147.81	591.24	181.67	199.28	0.00	1712.72	1210.68	0.345	0.52	0.53	3.209	A
Hurst Lane North	309.39	77.35	309.38	404.07	386.45	0.00	1395.04	1138.19	0.222	0.28	0.28	3.315	A

Main results: (18:15-18:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	270.59	67.65	270.81	528.30	40.50	0.00	1673.36	1582.37	0.162	0.25	0.19	2.568	A
YWP Access	482.75	120.69	483.31	148.46	162.85	0.00	1737.04	1210.68	0.278	0.53	0.39	2.872	A
Hurst Lane North	252.61	63.15	252.90	330.25	315.91	0.00	1439.80	1138.19	0.175	0.28	0.21	3.035	A

Main results: (18:30-18:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	226.61	56.65	226.76	442.30	33.91	0.00	1677.59	1582.37	0.135	0.19	0.16	2.481	A
YWP Access	404.28	101.07	404.63	124.31	136.36	0.00	1754.72	1210.68	0.230	0.39	0.30	2.666	A
Hurst Lane North	211.55	52.89	211.73	276.51	264.48	0.00	1472.42	1138.19	0.144	0.21	0.17	2.855	A

Queueing Delay Results for each time segment

Queueing Delay results: (17:15-17:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	2.30	0.15	2.478	A	A
YWP Access	4.40	0.29	2.660	A	A
Hurst Lane North	2.46	0.16	2.850	A	A

Queueing Delay results: (17:30-17:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	2.85	0.19	2.565	A	A
YWP Access	5.67	0.38	2.869	A	A
Hurst Lane North	3.14	0.21	3.030	A	A

Queueing Delay results: (17:45-18:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	3.66	0.24	2.693	A	A
YWP Access	7.74	0.52	3.206	A	A
Hurst Lane North	4.19	0.28	3.314	A	A

Queueing Delay results: (18:00-18:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	3.71	0.25	2.693	A	A
YWP Access	7.88	0.53	3.209	A	A
Hurst Lane North	4.26	0.28	3.315	A	A

Queueing Delay results: (18:15-18:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	2.94	0.20	2.568	A	A
YWP Access	5.89	0.39	2.872	A	A
Hurst Lane North	3.25	0.22	3.035	A	A

Queueing Delay results: (18:30-18:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	2.37	0.16	2.481	A	A
YWP Access	4.57	0.30	2.666	A	A
Hurst Lane North	2.56	0.17	2.855	A	A

(Default Analysis Set) - 2029 DM, 2100-2200

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2029 DM, 2100-2200	2029 DM	2100-2200		ONE HOUR	20:45	22:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3				2.27	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
Hurst Lane South	1	Hurst Lane South	
YWP Access	2	YWP Access	
Hurst Lane North	3	Hurst Lane North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Hurst Lane South	0.00	99999.00		0.00
YWP Access	0.00	99999.00		0.00
Hurst Lane North	0.00	99999.00		0.00

Roundabout Geometry

Name	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
Hurst Lane South	2.90	7.10	18.87	80.00	45.00	25.00	
YWP Access	6.00	6.00	0.00	60.00	45.00	35.00	
Hurst Lane North	3.05	7.00	13.62	85.00	45.00	23.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Hurst Lane South		(calculated)	(calculated)	0.646	1709.561
YWP Access		(calculated)	(calculated)	0.661	1845.725
Hurst Lane North		(calculated)	(calculated)	0.634	1640.204

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
Hurst Lane South	ONE HOUR	✓	116.00	100.000
YWP Access	ONE HOUR	✓	84.00	100.000
Hurst Lane North	ONE HOUR	✓	84.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.000	29.000	87.000
	YWP Access	55.000	0.000	29.000
	Hurst Lane North	73.000	11.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.00	0.25	0.75
	YWP Access	0.65	0.00	0.35
	Hurst Lane North	0.87	0.13	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	1.000	1.000	1.000
	YWP Access	1.000	1.000	1.000
	Hurst Lane North	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.0	0.0	0.0
	YWP Access	0.0	0.0	0.0
	Hurst Lane North	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Hurst Lane South	0.08	2.29	0.08	A	106.44	159.67	5.99	2.25	0.07	5.99	2.25
YWP Access	0.05	2.13	0.05	A	77.08	115.62	4.04	2.10	0.04	4.04	2.10
Hurst Lane North	0.06	2.38	0.06	A	77.08	115.62	4.52	2.35	0.05	4.52	2.35

Main Results for each time segment

Main results: (20:45-21:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	87.33	21.83	87.12	96.13	8.26	0.00	1704.23	1607.73	0.051	0.00	0.05	2.226	A
YWP Access	63.24	15.81	63.09	30.04	65.34	0.00	1802.55	1048.95	0.035	0.00	0.04	2.069	A
Hurst Lane North	63.24	15.81	63.08	87.12	41.31	0.00	1614.00	1204.50	0.039	0.00	0.04	2.321	A

Main results: (21:00-21:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	104.28	26.07	104.24	115.02	9.88	0.00	1703.18	1607.73	0.061	0.05	0.07	2.251	A
YWP Access	75.51	18.88	75.48	35.94	78.18	0.00	1794.07	1048.95	0.042	0.04	0.04	2.094	A
Hurst Lane North	75.51	18.88	75.48	104.24	49.42	0.00	1608.85	1204.50	0.047	0.04	0.05	2.347	A

Main results: (21:15-21:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	127.72	31.93	127.65	140.86	12.10	0.00	1701.75	1607.73	0.075	0.07	0.08	2.286	A
YWP Access	92.49	23.12	92.44	44.02	95.74	0.00	1782.46	1048.95	0.052	0.04	0.05	2.129	A
Hurst Lane North	92.49	23.12	92.44	127.66	60.53	0.00	1601.81	1204.50	0.058	0.05	0.06	2.384	A

Main results: (21:30-21:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	127.72	31.93	127.72	140.93	12.11	0.00	1701.74	1607.73	0.075	0.08	0.08	2.286	A
YWP Access	92.49	23.12	92.49	44.04	95.79	0.00	1782.43	1048.95	0.052	0.05	0.05	2.129	A
Hurst Lane North	92.49	23.12	92.49	127.72	60.56	0.00	1601.79	1204.50	0.058	0.06	0.06	2.384	A

Main results: (21:45-22:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	104.28	26.07	104.34	115.14	9.89	0.00	1703.17	1607.73	0.061	0.08	0.07	2.251	A
YWP Access	75.51	18.88	75.56	35.98	78.26	0.00	1794.01	1048.95	0.042	0.05	0.04	2.094	A
Hurst Lane North	75.51	18.88	75.56	104.34	49.47	0.00	1608.82	1204.50	0.047	0.06	0.05	2.349	A

Main results: (22:00-22:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	87.33	21.83	87.38	96.41	8.29	0.00	1704.21	1607.73	0.051	0.07	0.05	2.228	A
YWP Access	63.24	15.81	63.27	30.13	65.53	0.00	1802.42	1048.95	0.035	0.04	0.04	2.069	A
Hurst Lane North	63.24	15.81	63.27	87.38	41.43	0.00	1613.92	1204.50	0.039	0.05	0.04	2.323	A

Queueing Delay Results for each time segment

Queueing Delay results: (20:45-21:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	0.80	0.05	2.226	A	A
YWP Access	0.54	0.04	2.069	A	A
Hurst Lane North	0.60	0.04	2.321	A	A

Queueing Delay results: (21:00-21:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	0.97	0.06	2.251	A	A
YWP Access	0.65	0.04	2.094	A	A
Hurst Lane North	0.73	0.05	2.347	A	A

Queueing Delay results: (21:15-21:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	1.20	0.08	2.286	A	A
YWP Access	0.81	0.05	2.129	A	A
Hurst Lane North	0.91	0.06	2.384	A	A

Queueing Delay results: (21:30-21:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	1.21	0.08	2.286	A	A
YWP Access	0.82	0.05	2.129	A	A
Hurst Lane North	0.92	0.06	2.384	A	A

Queueing Delay results: (21:45-22:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	0.99	0.07	2.251	A	A
YWP Access	0.67	0.04	2.094	A	A
Hurst Lane North	0.75	0.05	2.349	A	A

Queueing Delay results: (22:00-22:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	0.82	0.05	2.228	A	A
YWP Access	0.55	0.04	2.069	A	A
Hurst Lane North	0.62	0.04	2.323	A	A

(Default Analysis Set) - 2029 DS, 1730-1830

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2029 DS, 1730-1830	2029 DS	1730-1830		ONE HOUR	17:15	18:45	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3				3.88	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
Hurst Lane South	1	Hurst Lane South	
YWP Access	2	YWP Access	
Hurst Lane North	3	Hurst Lane North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Hurst Lane South	0.00	99999.00		0.00
YWP Access	0.00	99999.00		0.00
Hurst Lane North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Hurst Lane South	2.90	7.10	18.87	80.00	45.00	25.00	
YWP Access	6.00	6.00	0.00	60.00	45.00	35.00	
Hurst Lane North	3.05	7.00	13.62	85.00	45.00	23.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Hurst Lane South		(calculated)	(calculated)	0.646	1709.561
YWP Access		(calculated)	(calculated)	0.661	1845.725
Hurst Lane North		(calculated)	(calculated)	0.634	1640.204

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
Hurst Lane South	ONE HOUR	✓	678.00	100.000
YWP Access	ONE HOUR	✓	537.00	100.000
Hurst Lane North	ONE HOUR	✓	421.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.000	497.000	181.000
	YWP Access	351.000	0.000	186.000
	Hurst Lane North	236.000	185.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.00	0.73	0.27
	YWP Access	0.65	0.00	0.35
	Hurst Lane North	0.56	0.44	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	1.000	1.010	1.010
	YWP Access	1.000	1.000	1.000
	Hurst Lane North	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.0	1.0	1.0
	YWP Access	0.0	0.0	0.0
	Hurst Lane North	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Hurst Lane South	0.48	4.41	0.91	A	622.14	933.22	59.63	3.83	0.66	59.63	3.83
YWP Access	0.35	3.21	0.53	A	492.76	739.14	36.13	2.93	0.40	36.14	2.93
Hurst Lane North	0.33	3.86	0.50	A	386.32	579.48	33.63	3.48	0.37	33.63	3.48

Main Results for each time segment

Main results: (17:15-17:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	510.43	127.61	508.58	440.53	138.80	0.00	1603.90	1417.46	0.318	0.00	0.46	3.281	A
YWP Access	404.28	101.07	403.09	511.60	135.77	0.00	1755.11	1593.18	0.230	0.00	0.30	2.660	A
Hurst Lane North	316.95	79.24	315.86	275.39	263.47	0.00	1473.06	979.58	0.215	0.00	0.27	3.108	A

Main results: (17:30-17:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	609.51	152.38	608.89	527.30	166.17	0.00	1586.41	1417.46	0.384	0.46	0.62	3.681	A
YWP Access	482.75	120.69	482.41	612.50	162.55	0.00	1737.24	1593.18	0.278	0.30	0.38	2.869	A
Hurst Lane North	378.47	94.62	378.14	329.64	315.32	0.00	1440.17	979.58	0.263	0.27	0.35	3.389	A

Main results: (17:45-18:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	746.49	186.62	745.35	645.62	203.44	0.00	1562.58	1417.46	0.478	0.62	0.91	4.398	A
YWP Access	591.25	147.81	590.68	749.81	198.98	0.00	1712.93	1593.18	0.345	0.38	0.52	3.206	A
Hurst Lane North	463.53	115.88	462.97	403.57	386.09	0.00	1395.27	979.58	0.332	0.35	0.49	3.858	A

Main results: (18:00-18:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	746.49	186.62	746.47	646.29	203.69	0.00	1562.42	1417.46	0.478	0.91	0.91	4.411	A
YWP Access	591.25	147.81	591.24	750.88	199.28	0.00	1712.73	1593.18	0.345	0.52	0.53	3.209	A
Hurst Lane North	463.53	115.88	463.52	404.07	386.45	0.00	1395.04	979.58	0.332	0.49	0.50	3.864	A

Main results: (18:15-18:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	609.51	152.38	610.64	528.37	166.55	0.00	1586.16	1417.46	0.384	0.91	0.63	3.693	A
YWP Access	482.75	120.69	483.31	614.17	163.02	0.00	1736.93	1593.18	0.278	0.53	0.39	2.874	A
Hurst Lane North	378.47	94.62	379.02	330.42	315.91	0.00	1439.80	979.58	0.263	0.50	0.36	3.394	A

Main results: (18:30-18:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	510.43	127.61	511.07	442.34	139.42	0.00	1603.50	1417.46	0.318	0.63	0.47	3.299	A
YWP Access	404.28	101.07	404.63	514.06	136.44	0.00	1754.67	1593.18	0.230	0.39	0.30	2.666	A
Hurst Lane North	316.95	79.24	317.28	276.59	264.48	0.00	1472.42	979.58	0.215	0.36	0.28	3.116	A

Queueing Delay Results for each time segment

Queueing Delay results: (17:15-17:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	6.81	0.45	3.281	A	A
YWP Access	4.40	0.29	2.660	A	A
Hurst Lane North	4.02	0.27	3.108	A	A

Queueing Delay results: (17:30-17:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	9.13	0.61	3.681	A	A
YWP Access	5.67	0.38	2.869	A	A
Hurst Lane North	5.24	0.35	3.389	A	A

Queueing Delay results: (17:45-18:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	13.26	0.88	4.398	A	A
YWP Access	7.74	0.52	3.206	A	A
Hurst Lane North	7.28	0.49	3.858	A	A

Queueing Delay results: (18:00-18:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	13.63	0.91	4.411	A	A
YWP Access	7.88	0.53	3.209	A	A
Hurst Lane North	7.43	0.50	3.864	A	A

Queueing Delay results: (18:15-18:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	9.62	0.64	3.693	A	A
YWP Access	5.89	0.39	2.874	A	A
Hurst Lane North	5.47	0.36	3.394	A	A

Queueing Delay results: (18:30-18:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	7.16	0.48	3.299	A	A
YWP Access	4.57	0.30	2.666	A	A
Hurst Lane North	4.19	0.28	3.116	A	A

(Default Analysis Set) - 2029 DS, 2100-2200

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2029 DS, 2100-2200	2029 DS	2100-2200		ONE HOUR	20:45	22:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3				2.68	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
Hurst Lane South	1	Hurst Lane South	
YWP Access	2	YWP Access	
Hurst Lane North	3	Hurst Lane North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Hurst Lane South	0.00	99999.00		0.00
YWP Access	0.00	99999.00		0.00
Hurst Lane North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Hurst Lane South	2.90	7.10	18.87	80.00	45.00	25.00	
YWP Access	6.00	6.00	0.00	60.00	45.00	35.00	
Hurst Lane North	3.05	7.00	13.62	85.00	45.00	23.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Hurst Lane South		(calculated)	(calculated)	0.646	1709.561
YWP Access		(calculated)	(calculated)	0.661	1845.725
Hurst Lane North		(calculated)	(calculated)	0.634	1640.204

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
Hurst Lane South	ONE HOUR	✓	116.00	100.000
YWP Access	ONE HOUR	✓	434.00	100.000
Hurst Lane North	ONE HOUR	✓	84.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.000	29.000	87.000
	YWP Access	284.000	0.000	150.000
	Hurst Lane North	73.000	11.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.00	0.25	0.75
	YWP Access	0.65	0.00	0.35
	Hurst Lane North	0.87	0.13	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	1.000	1.000	1.010
	YWP Access	1.010	1.000	1.000
	Hurst Lane North	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To		
		Hurst Lane South	YWP Access	Hurst Lane North
From	Hurst Lane South	0.0	0.0	1.0
	YWP Access	1.0	0.0	0.0
	Hurst Lane North	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Hurst Lane South	0.08	2.30	0.08	A	106.44	159.67	6.04	2.27	0.07	6.04	2.27
YWP Access	0.27	2.78	0.37	A	398.25	597.37	26.08	2.62	0.29	26.08	2.62
Hurst Lane North	0.06	2.67	0.07	A	77.08	115.62	4.98	2.58	0.06	4.98	2.58

Main Results for each time segment

Main results: (20:45-21:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	87.33	21.83	87.11	268.03	8.26	0.00	1691.54	1595.79	0.052	0.00	0.05	2.243	A
YWP Access	326.74	81.68	325.85	30.04	65.34	0.00	1790.41	1040.15	0.182	0.00	0.22	2.457	A
Hurst Lane North	63.24	15.81	63.06	177.96	213.23	0.00	1503.58	1204.09	0.042	0.00	0.04	2.498	A

Main results: (21:00-21:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	104.28	26.07	104.24	320.75	9.88	0.00	1690.50	1595.79	0.062	0.05	0.07	2.269	A
YWP Access	390.16	97.54	389.93	35.94	78.18	0.00	1781.90	1040.15	0.219	0.22	0.28	2.586	A
Hurst Lane North	75.51	18.88	75.47	212.95	255.16	0.00	1476.71	1204.09	0.051	0.04	0.05	2.568	A

Main results: (21:15-21:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	127.72	31.93	127.65	392.78	12.10	0.00	1689.08	1595.79	0.076	0.07	0.08	2.305	A
YWP Access	477.84	119.46	477.49	44.02	95.74	0.00	1770.25	1040.15	0.270	0.28	0.37	2.784	A
Hurst Lane North	92.49	23.12	92.43	260.77	312.46	0.00	1440.00	1204.09	0.064	0.05	0.07	2.671	A

Main results: (21:30-21:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	127.72	31.93	127.72	393.06	12.11	0.00	1689.07	1595.79	0.076	0.08	0.08	2.305	A
YWP Access	477.84	119.46	477.84	44.04	95.79	0.00	1770.22	1040.15	0.270	0.37	0.37	2.784	A
Hurst Lane North	92.49	23.12	92.49	260.94	312.69	0.00	1439.85	1204.09	0.064	0.07	0.07	2.671	A

Main results: (21:45-22:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	104.28	26.07	104.34	321.21	9.90	0.00	1690.49	1595.79	0.062	0.08	0.07	2.269	A
YWP Access	390.16	97.54	390.51	35.98	78.26	0.00	1781.84	1040.15	0.219	0.37	0.28	2.589	A
Hurst Lane North	75.51	18.88	75.57	213.23	255.54	0.00	1476.47	1204.09	0.051	0.07	0.05	2.571	A

Main results: (22:00-22:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane South	87.33	21.83	87.38	268.95	8.29	0.00	1691.52	1595.79	0.052	0.07	0.05	2.245	A
YWP Access	326.74	81.68	326.97	30.13	65.53	0.00	1790.28	1040.15	0.183	0.28	0.22	2.460	A
Hurst Lane North	63.24	15.81	63.28	178.54	213.96	0.00	1503.11	1204.09	0.042	0.05	0.04	2.501	A

Queueing Delay Results for each time segment

Queueing Delay results: (20:45-21:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	0.80	0.05	2.243	A	A
YWP Access	3.29	0.22	2.457	A	A
Hurst Lane North	0.65	0.04	2.498	A	A

Queueing Delay results: (21:00-21:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	0.98	0.07	2.269	A	A
YWP Access	4.14	0.28	2.586	A	A
Hurst Lane North	0.80	0.05	2.568	A	A

Queueing Delay results: (21:15-21:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	1.21	0.08	2.305	A	A
YWP Access	5.45	0.36	2.784	A	A
Hurst Lane North	1.02	0.07	2.671	A	A

Queueing Delay results: (21:30-21:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	1.22	0.08	2.305	A	A
YWP Access	5.53	0.37	2.784	A	A
Hurst Lane North	1.03	0.07	2.671	A	A

Queueing Delay results: (21:45-22:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	1.00	0.07	2.269	A	A
YWP Access	4.27	0.28	2.589	A	A
Hurst Lane North	0.82	0.05	2.571	A	A

Queueing Delay results: (22:00-22:15)

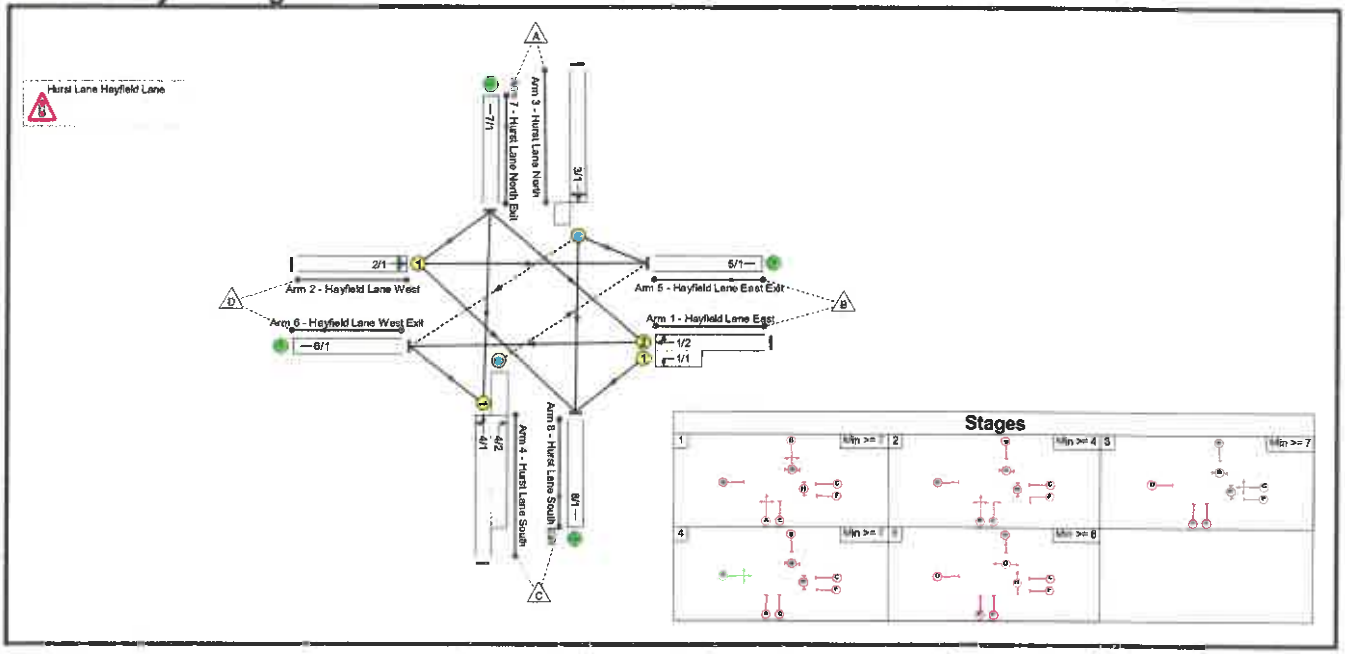
Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane South	0.83	0.06	2.245	A	A
YWP Access	3.40	0.23	2.460	A	A
Hurst Lane North	0.67	0.04	2.501	A	A

Full Input Data And Results

User and Project Details

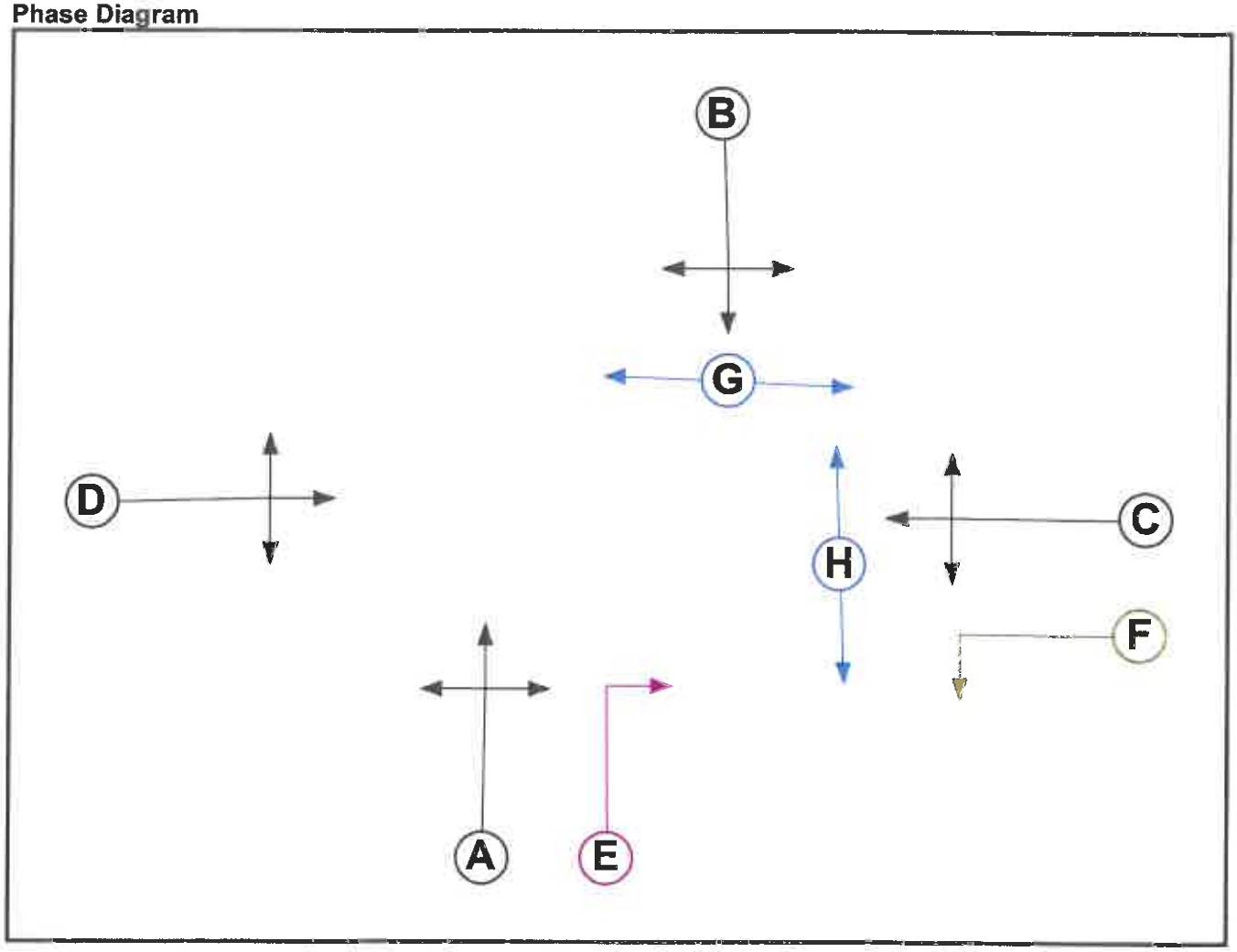
Project:	**YWP Event Assessment**
Title:	**Hurst Lane/ Hayfield Lane**
Location:	
File name:	MODE03 - Hayfield Lane Hurst Lane 1000 Attendance V2.lsg3x
Author:	HUG89416
Company:	Mott MacDonald
Address:	150 Derwent House, Sheffield
Notes:	

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	Traffic		7	7
E	Ind. Arrow	A	4	4
F	Filter	C	4	0
G	Pedestrian		5	5
H	Pedestrian		6	6

Full Input Data And Results

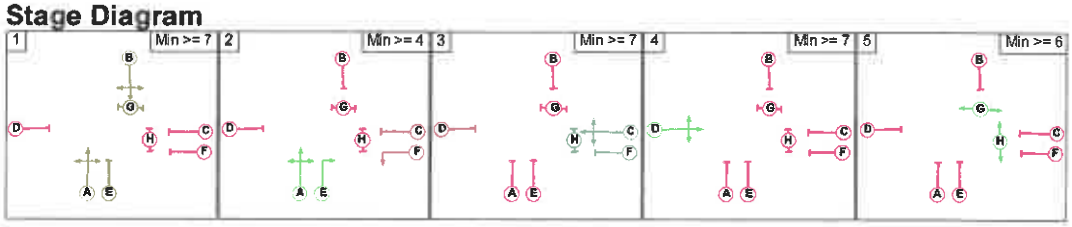
Phase Intergreens Matrix

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

Phases in Stage

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

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	5
From Stage	1		7	7	7	9
	2	X		7	X	X
	3	6	6		6	9
	4	5	5	6		9
	5	8	8	8	8	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Hurst Lane Hayfield Lane											
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)**
3/1 (Hurst Lane North)	6/1 (Right)	1439	0	4/1	1.09	All	2.00	2.00	0.50	2	2.00
4/2 (Hurst Lane South)	5/1 (Right)	1439	0	3/1	1.09	To 5/1 (Left) To 8/1 (Ahead)	4.00	-	0.50	4	2.00

Full Input Data And Results

Lane Input Data

Junction: Hurst Lane Hayfield Lane												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Hayfield Lane East)	U	C F	2	3	4.3	Geom	-	3.00	0.00	Y	Arm 8 Left	16.00
1/2 (Hayfield Lane East)	U	C	2	3	60.0	Geom	-	3.00	0.00	N	Arm 6 Ahead	Inf
											Arm 7 Right	17.50
2/1 (Hayfield Lane West)	U	D	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 7 Left	8.00
											Arm 8 Right	7.00
3/1 (Hurst Lane North)	O	B	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Left	5.00
											Arm 6 Right	7.00
											Arm 8 Ahead	Inf
4/1 (Hurst Lane South)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Left	7.00
											Arm 7 Ahead	Inf
4/2 (Hurst Lane South)	O	A E	2	3	10.6	Geom	-	3.00	0.00	N	Arm 5 Right	16.00
5/1 (Hayfield Lane East Exit)	U		2	3	60.0	Geom	-	3.00	0.00	Y		
6/1 (Hayfield Lane West Exit)	U		2	3	60.0	Geom	-	3.00	0.00	Y		
7/1 (Hurst Lane North Exit)	U		2	3	60.0	Geom	-	3.25	0.00	Y		
8/1 (Hurst Lane South Exit)	U		2	3	60.0	Geom	-	3.00	0.00	Y		

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2029 DM Arrival '	17:30	18:30	01:00	
2: '2029 DS Arrival '	17:30	18:30	01:00	
3: '2029 DM Departure '	21:00	22:00	01:00	
4: '2029 DS Departure'	21:00	22:00	01:00	

Scenario 1: '2029 DM Arrival 1730-1830' (FG1: '2029 DM Arrival ', Plan 2: 'Every 4th')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	85	502	2	589
	B	45	0	109	2	156
	C	278	128	0	2	408
	D	1	3	5	0	9
	Tot.	324	216	616	6	1162

Traffic Lane Flows

Lane	Scenario 1: 2029 DM Arrival 1730-1830
Junction: Hurst Lane Hayfield Lane	
1/1 (short)	109
1/2 (with short)	156(In) 47(Out)
2/1	9
3/1	589
4/1 (with short)	408(In) 280(Out)
4/2 (short)	128
5/1	216
6/1	6
7/1	324
8/1	616

Full Input Data And Results

Lane Saturation Flows

Junction: Hurst Lane Hayfield Lane								
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 (Hayfield Lane East)	3.00	0.00	Y	Arm 8 Left	16.00	100.0 %	1751	1751
1/2 (Hayfield Lane East)	3.00	0.00	N	Arm 6 Ahead	Inf	4.3 %	1899	1899
				Arm 7 Right	17.50	95.7 %		
2/1 (Hayfield Lane West)	3.00	0.00	Y	Arm 5 Ahead	Inf	33.3 %	1680	1680
				Arm 7 Left	8.00	11.1 %		
				Arm 8 Right	7.00	55.6 %		
3/1 (Hurst Lane North)	3.25	0.00	Y	Arm 5 Left	5.00	14.4 %	1858	1858
				Arm 6 Right	7.00	0.3 %		
				Arm 8 Ahead	Inf	85.2 %		
4/1 (Hurst Lane South)	3.00	0.00	Y	Arm 6 Left	7.00	0.7 %	1912	1912
				Arm 7 Ahead	Inf	99.3 %		
4/2 (Hurst Lane South)	3.00	0.00	N	Arm 5 Right	16.00	100.0 %	1879	1879
5/1 (Hayfield Lane East Exit)	3.00	0.00	Y				1915	1915
6/1 (Hayfield Lane West Exit)	3.00	0.00	Y				1915	1915
7/1 (Hurst Lane North Exit)	3.25	0.00	Y				1940	1940
8/1 (Hurst Lane South Exit)	3.00	0.00	Y				1915	1915

Scenario 2: '2029 DM Departure 2100-2200' (FG3: '2029 DM Departure ', Plan 2: 'Every 4th')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	21	113	1	135
	B	13	0	36	1	50
	C	108	32	0	2	142
	D	1	1	3	0	5
	Tot.	122	54	152	4	332

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2029 DM Departure 2100-2200
Junction: Hurst Lane Hayfield Lane	
1/1 (short)	36
1/2 (with short)	50(In) 14(Out)
2/1	5
3/1	135
4/1 (with short)	142(In) 110(Out)
4/2 (short)	32
5/1	54
6/1	4
7/1	122
8/1	152

Lane Saturation Flows

Junction: Hurst Lane Hayfield Lane

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 (Hayfield Lane East)	3.00	0.00	Y	Arm 8 Left	16.00	100.0 %	1751	1751
1/2 (Hayfield Lane East)	3.00	0.00	N	Arm 6 Ahead	Inf	7.1 %	1903	1903
				Arm 7 Right	17.50	92.9 %		
2/1 (Hayfield Lane West)	3.00	0.00	Y	Arm 5 Ahead	Inf	20.0 %	1642	1642
				Arm 7 Left	8.00	20.0 %		
				Arm 8 Right	7.00	60.0 %		
3/1 (Hurst Lane North)	3.25	0.00	Y	Arm 5 Left	5.00	15.6 %	1851	1851
				Arm 6 Right	7.00	0.7 %		
				Arm 8 Ahead	Inf	83.7 %		
4/1 (Hurst Lane South)	3.00	0.00	Y	Arm 6 Left	7.00	1.8 %	1908	1908
				Arm 7 Ahead	Inf	98.2 %		
4/2 (Hurst Lane South)	3.00	0.00	N	Arm 5 Right	16.00	100.0 %	1879	1879
5/1 (Hayfield Lane East Exit)	3.00	0.00	Y				1915	1915
6/1 (Hayfield Lane West Exit)	3.00	0.00	Y				1915	1915
7/1 (Hurst Lane North Exit)	3.25	0.00	Y				1940	1940
8/1 (Hurst Lane South Exit)	3.00	0.00	Y				1915	1915

Full Input Data And Results

Scenario 3: 'Copy of 2029 DS Arrival 1730-1830' (FG2: '2029 DS Arrival ', Plan 2: 'Every 4th')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	85	502	2	589
	B	45	0	109	2	156
	C	655	128	0	2	785
	D	1	3	5	0	9
	Tot.	701	216	616	6	1539

Traffic Lane Flows

Lane	Scenario 3: Copy of 2029 DS Arrival 1730-1830
Junction: Hurst Lane Hayfield Lane	
1/1 (short)	109
1/2 (with short)	156(In) 47(Out)
2/1	9
3/1	589
4/1 (with short)	785(In) 657(Out)
4/2 (short)	128
5/1	216
6/1	6
7/1	701
8/1	616

Full Input Data And Results

Lane Saturation Flows

Junction: Hurst Lane Hayfield Lane

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 (Hayfield Lane East)	3.00	0.00	Y	Arm 8 Left	16.00	100.0 %	1751	1751
1/2 (Hayfield Lane East)	3.00	0.00	N	Arm 6 Ahead	Inf	4.3 %	1899	1899
				Arm 7 Right	17.50	95.7 %		
2/1 (Hayfield Lane West)	3.00	0.00	Y	Arm 5 Ahead	Inf	33.3 %	1680	1680
				Arm 7 Left	8.00	11.1 %		
				Arm 8 Right	7.00	55.6 %		
3/1 (Hurst Lane North)	3.25	0.00	Y	Arm 5 Left	5.00	14.4 %	1858	1858
				Arm 6 Right	7.00	0.3 %		
				Arm 8 Ahead	Inf	85.2 %		
4/1 (Hurst Lane South)	3.00	0.00	Y	Arm 6 Left	7.00	0.3 %	1914	1914
				Arm 7 Ahead	Inf	99.7 %		
4/2 (Hurst Lane South)	3.00	0.00	N	Arm 5 Right	16.00	100.0 %	1879	1879
5/1 (Hayfield Lane East Exit)	3.00	0.00	Y				1915	1915
6/1 (Hayfield Lane West Exit)	3.00	0.00	Y				1915	1915
7/1 (Hurst Lane North Exit)	3.25	0.00	Y				1940	1940
8/1 (Hurst Lane South Exit)	3.00	0.00	Y				1915	1915

Scenario 4: 'Copy of 2029 DS Departure 2100-2200' (FG4: '2029 DS Departure', Plan 2: 'Every 4th')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	21	341	1	363
	B	13	0	36	1	50
	C	108	32	0	2	142
	D	1	1	3	0	5
	Tot.	122	54	380	4	560

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: Copy of 2029 DS Departure 2100-2200
Junction: Hurst Lane Hayfield Lane	
1/1 (short)	36
1/2 (with short)	50(In) 14(Out)
2/1	5
3/1	363
4/1 (with short)	142(In) 110(Out)
4/2 (short)	32
5/1	54
6/1	4
7/1	122
8/1	380

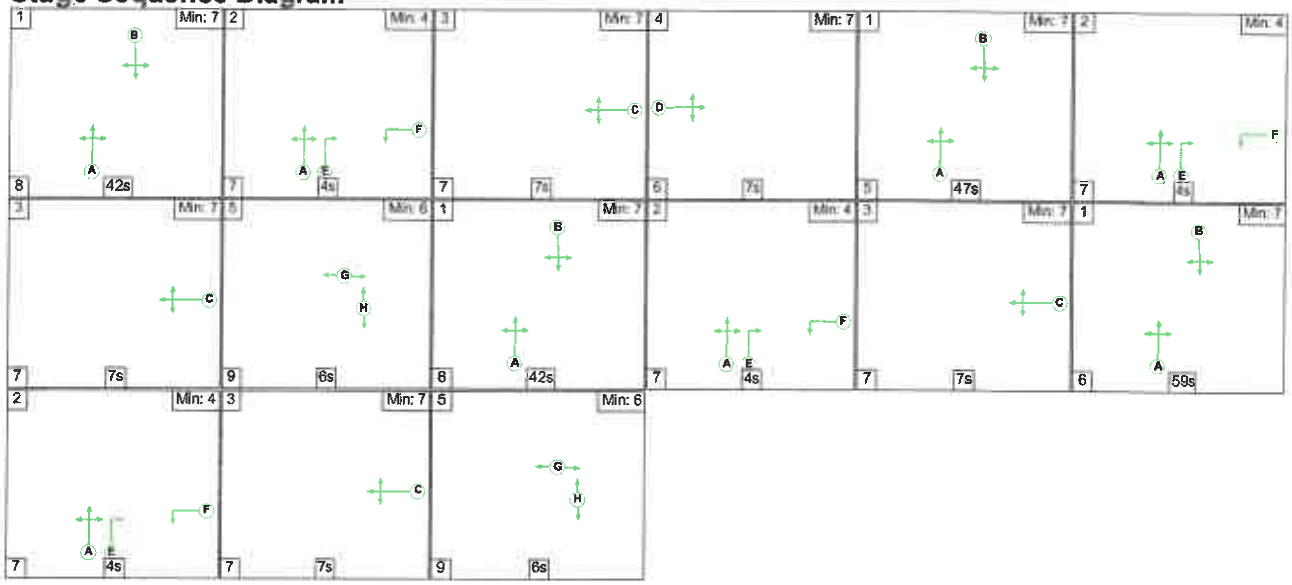
Lane Saturation Flows

Junction: Hurst Lane Hayfield Lane								
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 (Hayfield Lane East)	3.00	0.00	Y	Arm 8 Left	16.00	100.0 %	1751	1751
1/2 (Hayfield Lane East)	3.00	0.00	N	Arm 6 Ahead	Inf	7.1 %	1903	1903
				Arm 7 Right	17.50	92.9 %		
2/1 (Hayfield Lane West)	3.00	0.00	Y	Arm 5 Ahead	Inf	20.0 %	1642	1642
				Arm 7 Left	8.00	20.0 %		
				Arm 8 Right	7.00	60.0 %		
3/1 (Hurst Lane North)	3.25	0.00	Y	Arm 5 Left	5.00	5.8 %	1906	1906
				Arm 6 Right	7.00	0.3 %		
				Arm 8 Ahead	Inf	93.9 %		
4/1 (Hurst Lane South)	3.00	0.00	Y	Arm 6 Left	7.00	1.8 %	1908	1908
				Arm 7 Ahead	Inf	98.2 %		
4/2 (Hurst Lane South)	3.00	0.00	N	Arm 5 Right	16.00	100.0 %	1879	1879
5/1 (Hayfield Lane East Exit)	3.00	0.00	Y				1915	1915
6/1 (Hayfield Lane West Exit)	3.00	0.00	Y				1915	1915
7/1 (Hurst Lane North Exit)	3.25	0.00	Y				1940	1940
8/1 (Hurst Lane South Exit)	3.00	0.00	Y				1915	1915

Full Input Data And Results

Scenario 1: '2029 DM Arrival 1730-1830' (FG1: '2029 DM Arrival ', Plan 2: 'Every 4th')

Stage Sequence Diagram

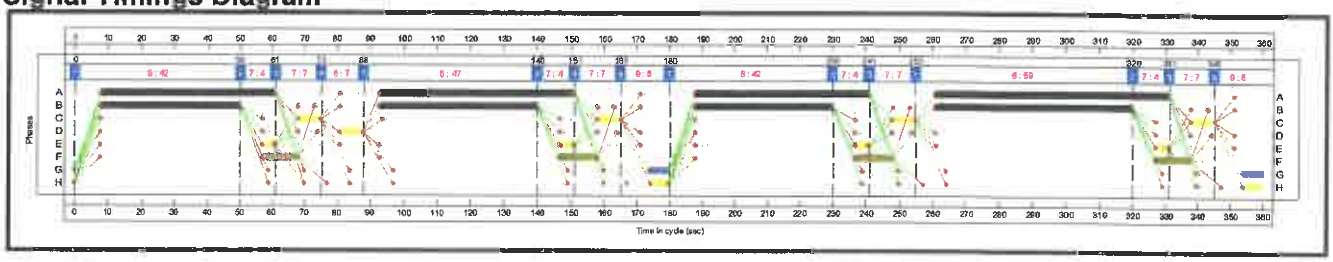


Stage Timings

Stage	1	2	3	4	1	2	3	5	1	2
Duration	42	4	7	7	47	4	7	6	42	4
Change Point	0	50	61	75	88	140	151	165	180	230

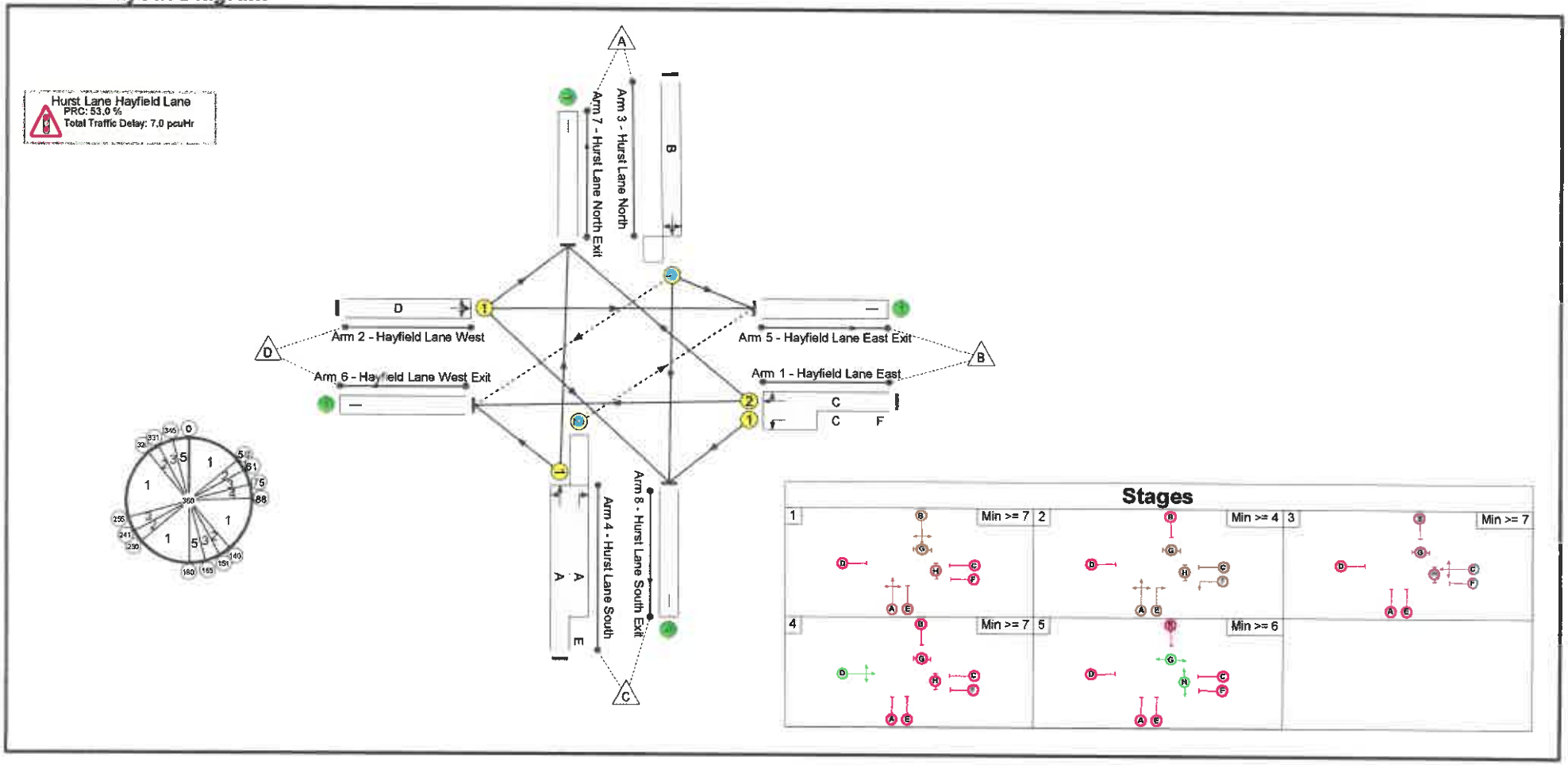
Stage	3	1	2	3	5					
Duration	7	59	4	7	6					
Change Point	241	255	320	331	345					

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



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: Hurst Lane/ Hayfield Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**58.8%**
Hurst Lane Hayfield Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**58.8%**
1/2+1/1	Hayfield Lane East Ahead Right Left	U	N/A	N/A	C	F	4	28:72	44	156	1899:1751	139+322	33.9 : 33.9%
2/1	Hayfield Lane West Ahead Left Right	U	N/A	N/A	D		1	7	-	9	1680	37	24.1%
3/1	Hurst Lane North Left Right Ahead	O	N/A	N/A	B		4	190	-	589	1858	1001	58.8%
4/1+4/2	Hurst Lane South Right Left Ahead	U+O	N/A	N/A	A	E	4	234	16	408	1912:1879	1004+459	27.9 : 27.9%
5/1	Hayfield Lane East Exit	U	N/A	N/A	-		-	-	-	216	1915	1915	11.3%
6/1	Hayfield Lane West Exit	U	N/A	N/A	-		-	-	-	6	1915	1915	0.3%
7/1	Hurst Lane North Exit	U	N/A	N/A	-		-	-	-	324	1940	1940	16.7%
8/1	Hurst Lane South Exit	U	N/A	N/A	-		-	-	-	616	1915	1915	32.2%

Full Input Data And Results

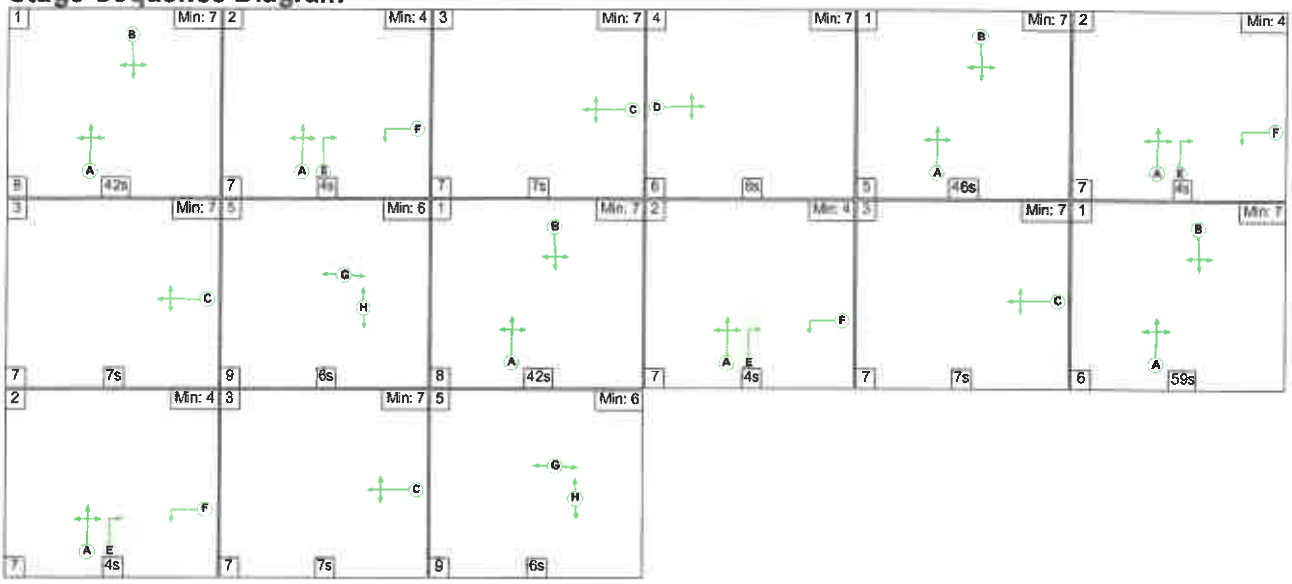
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Hurst Lane/ Hayfield Lane	-	-	**112**	**13**	**6**	**4.9**	**1.7**	**0.4**	**7.0**	-	-	-	-
Hurst Lane Hayfield Lane	-	-	**112**	**13**	**6**	**4.9**	**1.7**	**0.4**	**7.0**	-	-	-	-
1/2+1/1	156	156	-	-	-	1.4	0.3	-	1.7	38.3	2.3	0.3	2.5
2/1	9	9	-	-	-	0.4	0.2	-	0.6	235.9	0.9	0.2	1.0
3/1	589	589	2	0	0	2.4	0.7	0.0	3.1	18.8	11.1	0.7	11.8
4/1+4/2	408	408	110	13	6	0.7	0.2	0.4	1.3	11.1	3.3	0.2	3.5
5/1	216	216	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/1	6	6	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
7/1	324	324	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1	616	616	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2

C1 PRC for Signalled Lanes (%): 53.0 Total Delay for Signalled Lanes (pcuHr): 6.57 Cycle Time (s): 360
PRC Over All Lanes (%): 53.0 Total Delay Over All Lanes(pcuHr): 6.98

Full Input Data And Results

Scenario 2: '2029 DM Departure 2100-2200' (FG3: '2029 DM Departure ', Plan 2: 'Every 4th')

Stage Sequence Diagram

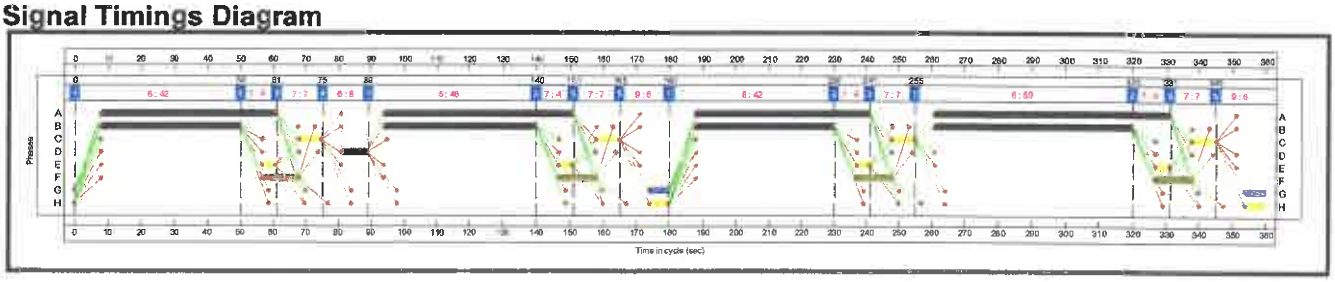


Stage Timings

Stage	1	2	3	4	1	2	3	5	1	2
Duration	42	4	7	8	46	4	7	6	42	4
Change Point	0	50	61	75	89	140	151	165	180	230

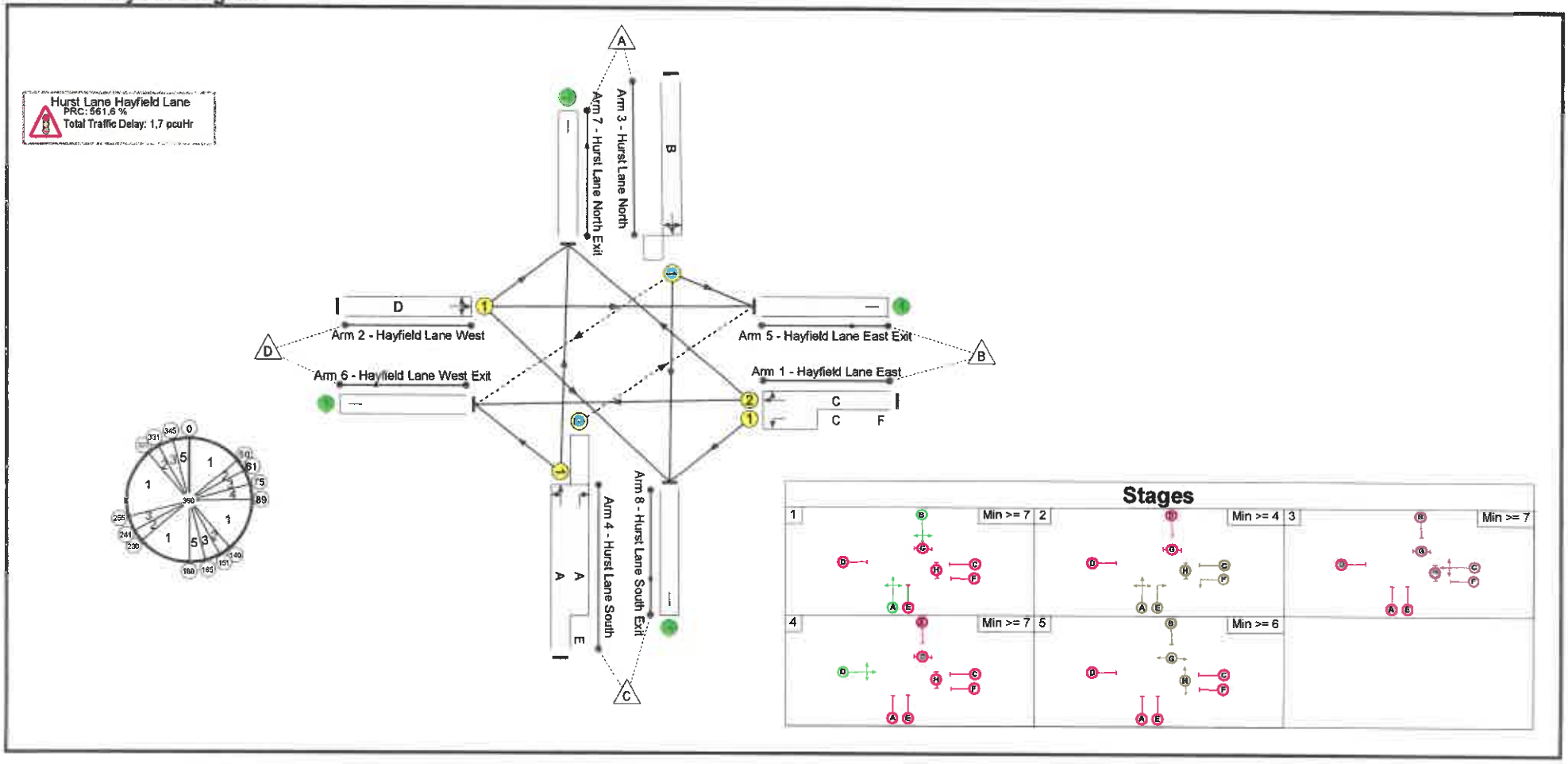
Stage	3	1	2	3	5					
Duration	7	59	4	7	6					
Change Point	241	255	320	331	345					

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



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: Hurst Lane/ Hayfield Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**13.6%**
Hurst Lane Hayfield Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**13.6%**
1/2+1/1	Hayfield Lane East Ahead Right Left	U	N/A	N/A	C	F	4	28:72	44	50	1903:1751	127+326	11.0 : 11.0%
2/1	Hayfield Lane West Ahead Left Right	U	N/A	N/A	D		1	8	-	5	1642	41	12.2%
3/1	Hurst Lane North Left Right Ahead	O	N/A	N/A	B		4	189	-	135	1851	992	13.6%
4/1+4/2	Hurst Lane South Right Left Ahead	U+O	N/A	N/A	A	E	4	233	16	142	1908:1879	1074+312	10.2 : 10.2%
5/1	Hayfield Lane East Exit	U	N/A	N/A	-		-	-	-	54	1915	1915	2.8%
6/1	Hayfield Lane West Exit	U	N/A	N/A	-		-	-	-	4	1915	1915	0.2%
7/1	Hurst Lane North Exit	U	N/A	N/A	-		-	-	-	122	1940	1940	6.3%
8/1	Hurst Lane South Exit	U	N/A	N/A	-		-	-	-	152	1915	1915	7.9%

Full Input Data And Results

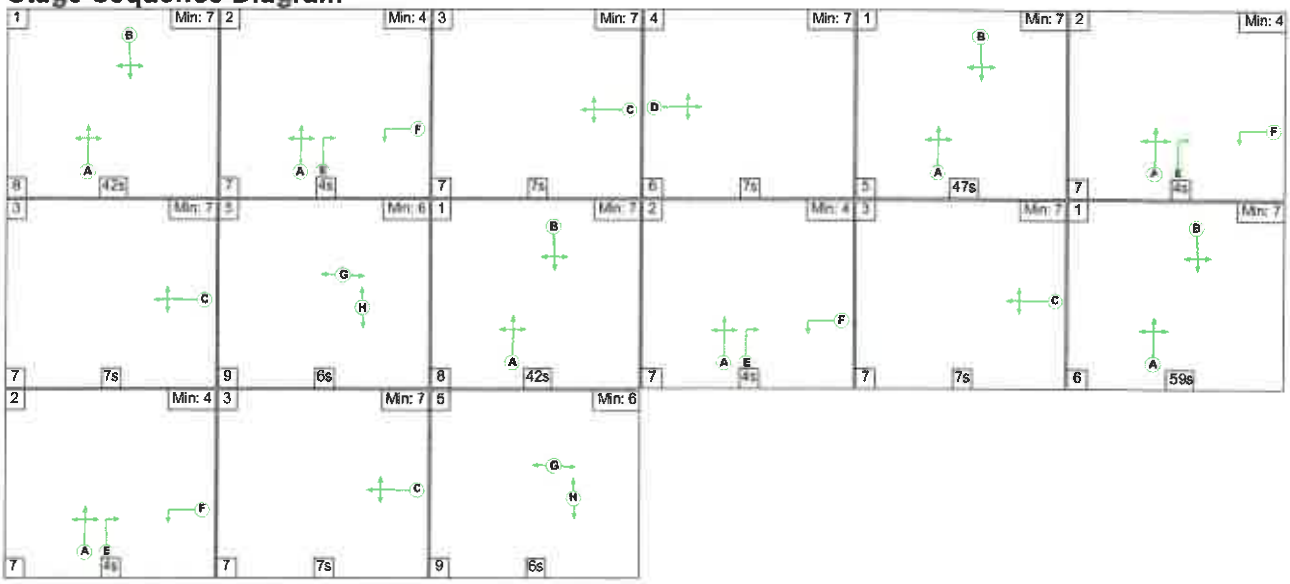
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Hurst Lane/ Hayfield Lane	-	-	**28**	**3**	**1**	**1.3**	**0.4**	**0.0**	**1.7**	-	-	-	-
Hurst Lane Hayfield Lane	-	-	**28**	**3**	**1**	**1.3**	**0.4**	**0.0**	**1.7**	-	-	-	-
1/2+1/1	50	50	-	-	-	0.4	0.1	-	0.5	35.7	0.7	0.1	0.8
2/1	5	5	-	-	-	0.2	0.1	-	0.3	221.4	0.5	0.1	0.6
3/1	135	135	1	0	0	0.4	0.1	0.0	0.5	12.9	1.9	0.1	2.0
4/1+4/2	142	142	27	3	1	0.2	0.1	0.0	0.3	7.4	1.2	0.1	1.2
5/1	54	54	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
6/1	4	4	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
7/1	122	122	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
8/1	152	152	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 561.6 Total Delay for Signalled Lanes (pcuHr): 1.58 Cycle Time (s): 360
PRC Over All Lanes (%): 561.6 Total Delay Over All Lanes(pcuHr): 1.67

Full Input Data And Results

Scenario 3: 'Copy of 2029 DS Arrival 1730-1830' (FG2: '2029 DS Arrival ', Plan 2: 'Every 4th')

Stage Sequence Diagram

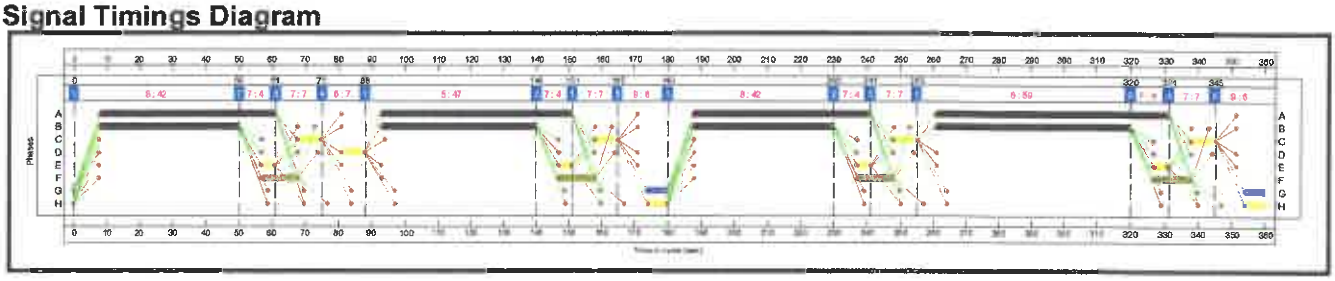


Stage Timings

Stage	1	2	3	4	1	2	3	5	1	2
Duration	42	4	7	7	47	4	7	6	42	4
Change Point	0	50	61	75	88	140	151	165	180	230

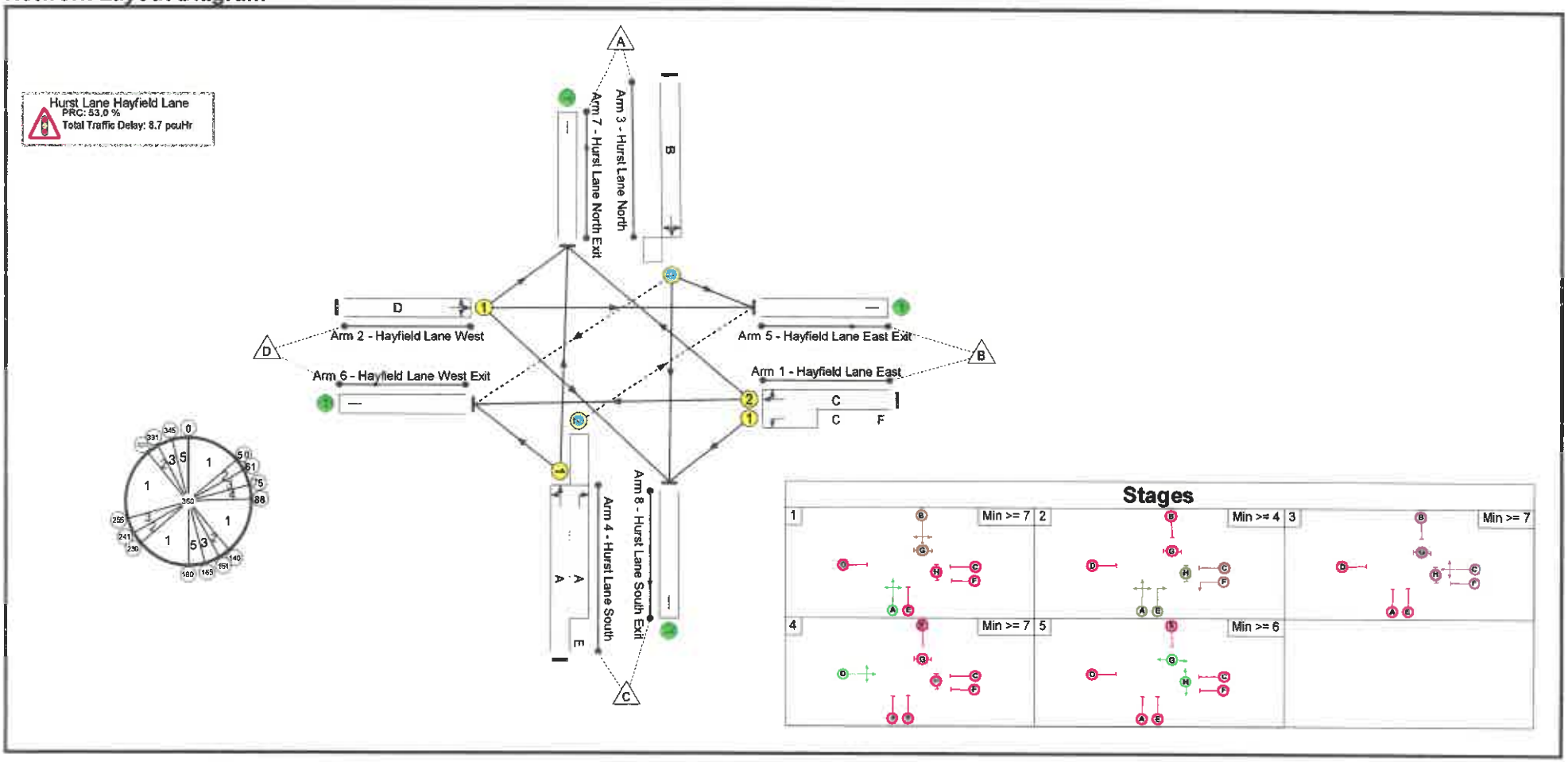
Stage	3	1	2	3	5					
Duration	7	59	4	7	6					
Change Point	241	255	320	331	345					

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



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: Hurst Lane/ Hayfield Lane	-	-	N/A	-	-		-	-	-	-	-	-	**58.8%**
Hurst Lane Hayfield Lane	-	-	N/A	-	-		-	-	-	-	-	-	**58.8%**
1/2+1/1	Hayfield Lane East Ahead Right Left	U	N/A	N/A	C	F	4	28:72	44	156	1899:1751	139+322	33.9 : 33.9%
2/1	Hayfield Lane West Ahead Left Right	U	N/A	N/A	D		1	7	-	9	1680	37	24.1%
3/1	Hurst Lane North Left Right Ahead	O	N/A	N/A	B		4	190	-	589	1858	1001	58.8%
4/1+4/2	Hurst Lane South Right Left Ahead	U+O	N/A	N/A	A	E	4	234	16	785	1914:1879	1133+221	58.0 : 58.0%
5/1	Hayfield Lane East Exit	U	N/A	N/A	-		-	-	-	216	1915	1915	11.3%
6/1	Hayfield Lane West Exit	U	N/A	N/A	-		-	-	-	6	1915	1915	0.3%
7/1	Hurst Lane North Exit	U	N/A	N/A	-		-	-	-	701	1940	1940	36.1%
8/1	Hurst Lane South Exit	U	N/A	N/A	-		-	-	-	616	1915	1915	32.2%

Full Input Data And Results

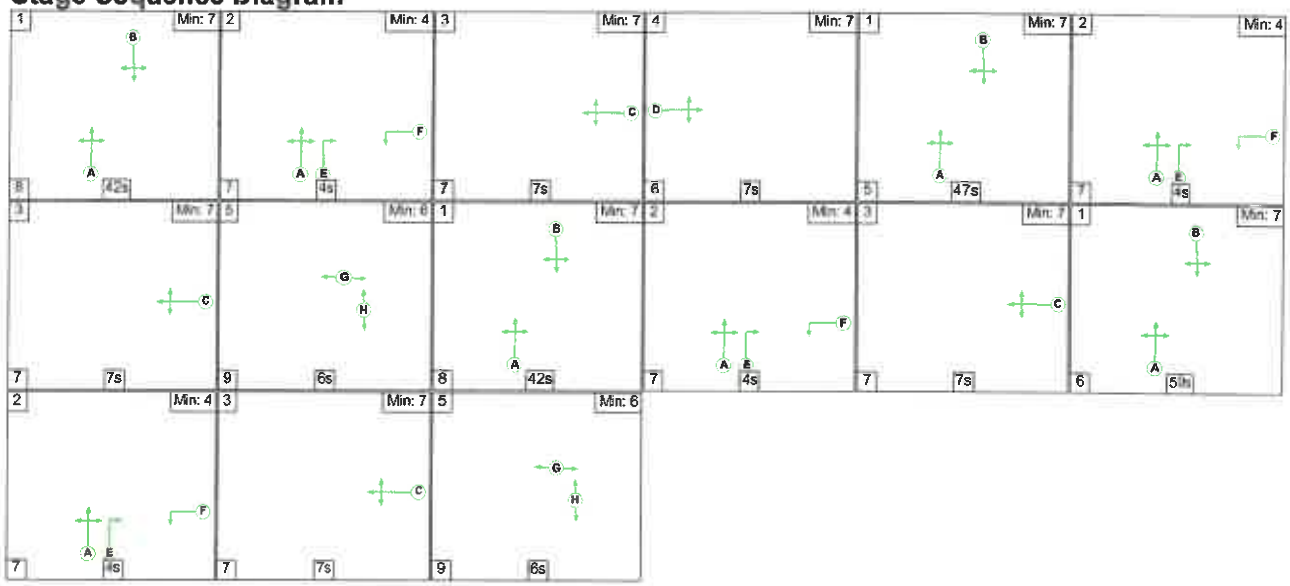
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Hurst Lane/ Hayfield Lane	-	-	112	13	6	5.9	2.4	0.4	8.7	-	-	-	-
Hurst Lane Hayfield Lane	-	-	112	13	6	5.9	2.4	0.4	8.7	-	-	-	-
1/2+1/1	156	156	-	-	-	1.4	0.3	-	1.7	38.3	2.3	0.3	2.5
2/1	9	9	-	-	-	0.4	0.2	-	0.6	235.9	0.9	0.2	1.0
3/1	589	589	2	0	0	2.4	0.7	0.0	3.1	18.8	11.1	0.7	11.8
4/1+4/2	785	785	110	13	6	1.7	0.7	0.4	2.8	12.7	9.9	0.7	10.5
5/1	216	216	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/1	6	6	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
7/1	701	701	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
8/1	616	616	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2

C1 PRC for Signalled Lanes (%): 53.0 Total Delay for Signalled Lanes (pcuHr): 8.09 Cycle Time (s): 360
PRC Over All Lanes (%): 53.0 Total Delay Over All Lanes(pcuHr): 8.67

Full Input Data And Results

Scenario 4: 'Copy of 2029 DS Departure 2100-2200' (FG4: '2029 DS Departure', Plan 2: 'Every 4th')

Stage Sequence Diagram

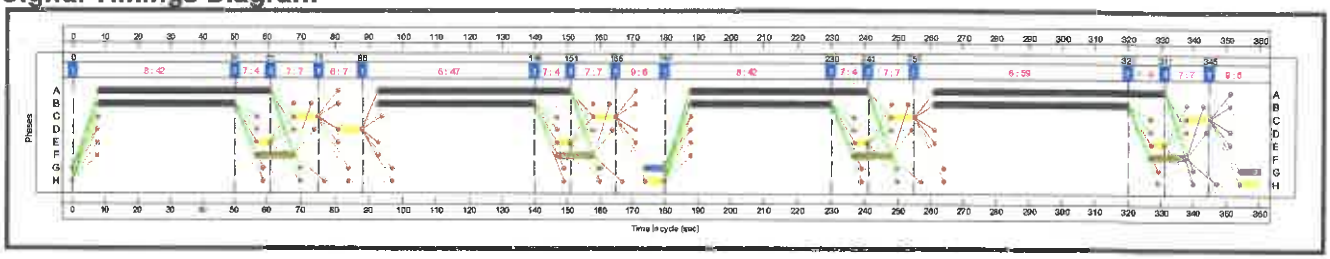


Stage Timings

Stage	1	2	3	4	1	2	3	5	1	2
Duration	42	4	7	7	47	4	7	6	42	4
Change Point	0	50	61	75	88	140	151	165	180	230

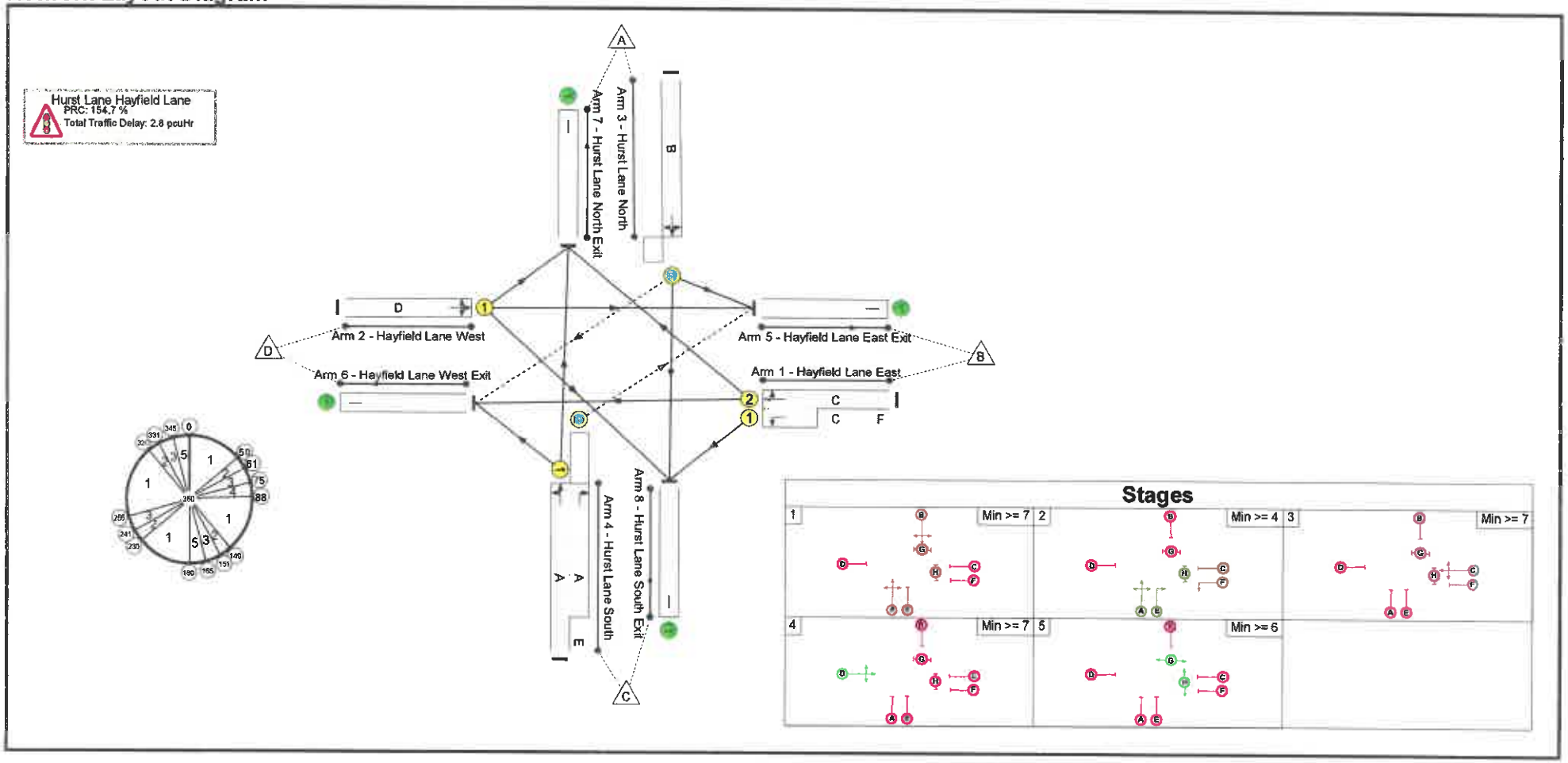
Stage	3	1	2	3	5					
Duration	7	59	4	7	6					
Change Point	241	255	320	331	345					

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



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: Hurst Lane/ Hayfield Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**35.3%**
Hurst Lane Hayfield Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**35.3%**
1/2+1/1	Hayfield Lane East Ahead Right Left	U	N/A	N/A	C	F	4	28:72	44	50	1903:1751	127+326	11.0 : 11.0%
2/1	Hayfield Lane West Ahead Left Right	U	N/A	N/A	D		1	7	-	5	1642	36	13.7%
3/1	Hurst Lane North Left Right Ahead	O	N/A	N/A	B		4	190	-	363	1906	1027	35.3%
4/1+4/2	Hurst Lane South Right Left Ahead	U+O	N/A	N/A	A	E	4	234	16	142	1908:1879	1078+314	10.2 : 10.2%
5/1	Hayfield Lane East Exit	U	N/A	N/A	-		-	-	-	54	1915	1915	2.8%
6/1	Hayfield Lane West Exit	U	N/A	N/A	-		-	-	-	4	1915	1915	0.2%
7/1	Hurst Lane North Exit	U	N/A	N/A	-		-	-	-	122	1940	1940	6.3%
8/1	Hurst Lane South Exit	U	N/A	N/A	-		-	-	-	380	1915	1915	19.8%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Hurst Lane/ Hayfield Lane	-	-	28	3	1	2.1	0.6	0.0	2.8	-	-	-	-
Hurst Lane Hayfield Lane	-	-	28	3	1	2.1	0.6	0.0	2.8	-	-	-	-
1/2+1/1	50	50	-	-	-	0.4	0.1	-	0.5	35.7	0.7	0.1	0.8
2/1	5	5	-	-	-	0.2	0.1	-	0.3	229.5	0.5	0.1	0.6
3/1	363	363	1	0	0	1.2	0.3	0.0	1.5	14.9	5.8	0.3	6.1
4/1+4/2	142	142	27	3	1	0.2	0.1	0.0	0.3	7.9	1.2	0.1	1.2
5/1	54	54	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
6/1	4	4	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
7/1	122	122	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
8/1	380	380	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1

C1 PRC for Signalled Lanes (%): 154.7 Total Delay for Signalled Lanes (pcuHr): 2.63 Cycle Time (s): 360
PRC Over All Lanes (%): 154.7 Total Delay Over All Lanes(pcuHr): 2.80

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.4.487 [15039,24/03/2014]

Filename: MODE04- Hurst Ln_Airport_FARRRS.arc8
Path: P:\Sheffield\381569 - Yorkshire Wildlife Park Expans\Calculations\Traffic Models\Event Traffic Assessment Models\MODE04- Airport_FARRRS\MODE04- Hexagon 1000
Report generation date: 04/02/2020 10:25:06

Summary of junction performance

	1730-1830				2100-2200			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
A1 - 2029 DM Arrival								
Hurst Lane North	0.97	5.21	0.49	A				
Airport Link	0.29	2.66	0.22	A				
Hurst Lane South	0.22	3.88	0.18	A				
FARRRS	0.54	4.25	0.35	A				
A1 - 2029 DM Departure								
Hurst Lane North					0.13	2.71	0.11	A
Airport Link					0.14	2.01	0.12	A
Hurst Lane South					0.06	2.68	0.05	A
FARRRS					0.12	2.73	0.11	A
A1 - 2029 DS Arrival								
Hurst Lane North	0.90	4.81	0.47	A				
Airport Link	0.28	2.54	0.22	A				
Hurst Lane South	0.28	3.98	0.22	A				
FARRRS	1.47	6.52	0.60	A				
A1 - 2029 DS Departure								
Hurst Lane North					0.40	3.43	0.28	A
Airport Link					0.15	2.18	0.13	A
Hurst Lane South					0.06	2.97	0.06	A
FARRRS					0.12	2.77	0.11	A

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

"D1 - 2029 DM Arrival, 1730-1830 " model duration: 17:15 - 18:45
"D2 - 2029 DM Departure, 2100-2200" model duration: 20:45 - 22:15
"D3 - 2029 DS Arrival, 1730-1830" model duration: 17:15 - 18:45
"D4 - 2029 DS Departure, 2100-2200" model duration: 20:45 - 22:15

Run using Junctions 8.0.4.487 at 04/02/2020 10:25:04

File summary

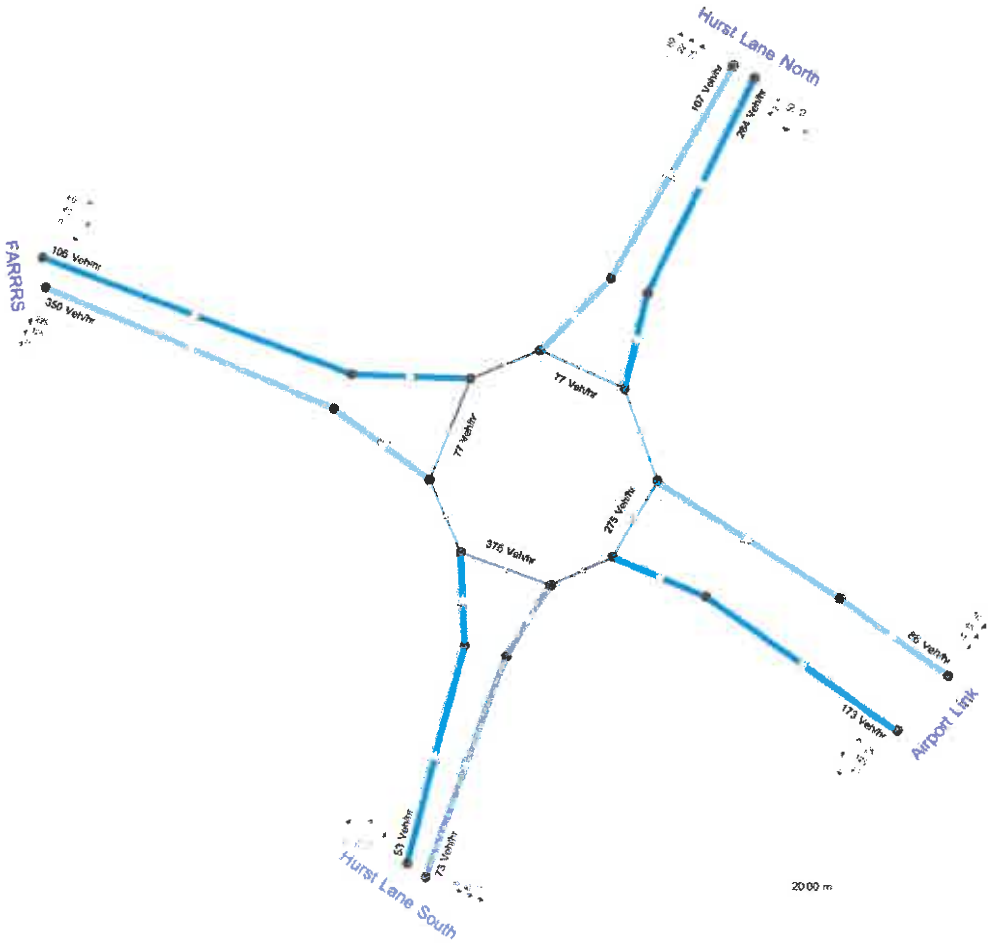
Title	Hurst Lane / FARRRS/ Airport
Location	Junction 4
Site Number	4
Date	16/01/2020
Version	1
Status	
Identifier	MODE04
Client	YWP
Jobnumber	381569
Enumerator	HUG89416
Description	Adapted from MOD004 for Event Assessment flows

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

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	Veh	Veh	perHour	s	-Min	perMin



Viewing modelled flow through junction (vehicle)
Time Segment: (0745-2110)
Showing Analysis Set: "A1" Demand Set: "D1 - 2029 DM Arrival, 1730-1830"

The junction diagram reflects the last run of ARCADY.

(Default Analysis Set) - 2029 DM Arrival, 1730-1830

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationshi
2029 DM Arrival, 1730-1830	2029 DM Arrival	1730-1830		ONE HOUR	17:15	18:45	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4				4.23	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
Hurst Lane North	1	Hurst Lane North	
Airport Link	2	Airport Link	
Hurst Lane South	3	Hurst Lane South	
FARRRS	4	FARRRS	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Hurst Lane North	0.00	99999.00		0.00
Airport Link	0.00	99999.00		0.00
Hurst Lane South	0.00	99999.00		0.00
FARRRS	0.00	99999.00		0.00

Roundabout Geometry

Name	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
Hurst Lane North	3.65	6.89	9.46	30.00	56.00	34.58	
Airport Link	7.30	7.55	3.03	20.00	56.00	35.42	
Hurst Lane South	3.65	6.97	10.91	34.00	56.00	32.57	
FARRRS	3.65	7.26	9.08	25.00	56.00	36.69	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered Intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Hurst Lane North		(calculated)	(calculated)	0.557	1574.989
Airport Link		(calculated)	(calculated)	0.669	2229.100
Hurst Lane South		(calculated)	(calculated)	0.570	1633.733
FARRRS		(calculated)	(calculated)	0.551	1565.996

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
Hurst Lane North	ONE HOUR	✓	613.00	100.000
Airport Link	ONE HOUR	✓	354.00	100.000
Hurst Lane South	ONE HOUR	✓	186.00	100.000
FARRRS	ONE HOUR	✓	414.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.000	40.000	126.000	447.000
	Airport Link	49.000	0.000	60.000	245.000
	Hurst Lane South	93.000	93.000	0.000	0.000
	FARRRS	265.000	149.000	0.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.00	0.07	0.21	0.73
	Airport Link	0.14	0.00	0.17	0.69
	Hurst Lane South	0.50	0.50	0.00	0.00
	FARRRS	0.64	0.36	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	1.000	1.050	1.030	1.030
	Airport Link	1.020	1.000	1.030	1.030
	Hurst Lane South	1.030	1.010	1.000	1.000
	FARRRS	1.030	1.200	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.0	5.0	3.0	3.0
	Airport Link	2.0	0.0	3.0	3.0
	Hurst Lane South	3.0	1.0	0.0	0.0
	FARRRS	3.0	20.0	0.0	0.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Hurst Lane North	0.49	5.21	0.97	A	562.50	843.75	62.74	4.46	0.70	62.75	4.46
Airport Link	0.22	2.66	0.29	A	324.84	487.25	19.85	2.44	0.22	19.85	2.44
Hurst Lane South	0.18	3.88	0.22	A	170.68	256.02	14.99	3.51	0.17	14.99	3.51
FARRRS	0.35	4.25	0.54	A	379.89	569.84	36.66	3.86	0.41	36.66	3.86

Main Results for each time segment

Main results: (17:15-17:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	461.50	115.37	459.58	305.31	181.51	0.00	1416.76	1151.42	0.326	0.00	0.48	3.752	A
Airport Link	266.51	66.63	265.85	211.50	429.59	0.00	1879.21	1445.85	0.142	0.00	0.16	2.230	A
Hurst Lane South	140.03	35.01	139.54	139.52	555.91	0.00	1281.83	428.03	0.109	0.00	0.12	3.149	A
FARRRS	311.68	77.92	310.48	519.12	176.34	0.00	1344.27	1111.46	0.232	0.00	0.30	3.480	A

Main results: (17:30-17:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	551.07	137.77	550.40	365.56	217.35	0.00	1394.96	1151.42	0.395	0.48	0.65	4.258	A
Airport Link	318.24	79.56	318.05	253.27	514.49	0.00	1822.32	1445.85	0.175	0.16	0.21	2.393	A
Hurst Lane South	167.21	41.80	167.07	167.04	665.50	0.00	1218.78	428.03	0.137	0.12	0.16	3.422	A
FARRRS	372.18	93.04	371.83	621.48	211.09	0.00	1326.37	1111.46	0.281	0.30	0.39	3.771	A

Main results: (17:45-18:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	674.92	168.73	673.65	447.57	266.11	0.00	1365.30	1151.42	0.494	0.65	0.97	5.195	A
Airport Link	389.76	97.44	389.46	310.07	629.69	0.00	1745.12	1445.85	0.223	0.21	0.29	2.655	A
Hurst Lane South	204.79	51.20	204.55	204.48	814.67	0.00	1132.94	428.03	0.181	0.16	0.22	3.876	A
FARRRS	455.82	113.96	455.24	760.77	258.45	0.00	1301.96	1111.46	0.350	0.39	0.53	4.249	A

Main results: (18:00-18:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	674.92	168.73	674.90	448.11	266.44	0.00	1365.10	1151.42	0.494	0.97	0.97	5.215	A
Airport Link	389.76	97.44	389.76	310.48	630.86	0.00	1744.33	1445.85	0.223	0.29	0.29	2.657	A
Hurst Lane South	204.79	51.20	204.79	204.78	815.84	0.00	1132.27	428.03	0.181	0.22	0.22	3.881	A
FARRRS	455.82	113.96	455.82	761.89	258.74	0.00	1301.82	1111.46	0.350	0.53	0.54	4.255	A

Main results: (18:15-18:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	551.07	137.77	552.33	366.42	217.88	0.00	1394.64	1151.42	0.395	0.97	0.66	4.281	A
Airport Link	318.24	79.56	318.54	253.92	516.29	0.00	1821.11	1445.85	0.175	0.29	0.21	2.395	A
Hurst Lane South	167.21	41.80	167.45	167.52	667.31	0.00	1217.74	428.03	0.137	0.22	0.16	3.427	A
FARRRS	372.18	93.04	372.76	623.22	211.54	0.00	1326.14	1111.46	0.281	0.54	0.39	3.777	A

Main results: (18:30-18:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	461.50	115.37	462.18	306.74	182.39	0.00	1416.23	1151.42	0.326	0.66	0.49	3.778	A
Airport Link	266.51	66.63	266.69	212.55	432.03	0.00	1877.57	1445.85	0.142	0.21	0.17	2.234	A
Hurst Lane South	140.03	35.01	140.18	140.20	558.52	0.00	1280.33	428.03	0.109	0.16	0.12	3.159	A
FARRRS	311.68	77.92	312.04	521.60	177.09	0.00	1343.89	1111.46	0.232	0.39	0.30	3.489	A

Queueing Delay Results for each time segment

Queueing Delay results: (17:15-17:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	7.02	0.47	3.752	A	A
Airport Link	2.44	0.16	2.230	A	A
Hurst Lane South	1.80	0.12	3.149	A	A
FARRRS	4.41	0.29	3.480	A	A

Queueing Delay results: (17:30-17:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	9.52	0.63	4.258	A	A
Airport Link	3.13	0.21	2.393	A	A
Hurst Lane South	2.34	0.16	3.422	A	A
FARRRS	5.72	0.38	3.771	A	A

Queueing Delay results: (17:45-18:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	14.09	0.94	5.195	A	A
Airport Link	4.24	0.28	2.655	A	A
Hurst Lane South	3.24	0.22	3.876	A	A
FARRRS	7.87	0.52	4.249	A	A

Queueing Delay results: (18:00-18:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	14.55	0.97	5.215	A	A
Airport Link	4.30	0.29	2.657	A	A
Hurst Lane South	3.30	0.22	3.881	A	A
FARRRS	8.04	0.54	4.255	A	A

Queueing Delay results: (18:15-18:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	10.11	0.67	4.281	A	A
Airport Link	3.22	0.21	2.395	A	A
Hurst Lane South	2.43	0.16	3.427	A	A
FARRRS	5.99	0.40	3.777	A	A

Queueing Delay results: (18:30-18:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	7.43	0.50	3.778	A	A
Airport Link	2.51	0.17	2.234	A	A
Hurst Lane South	1.87	0.12	3.159	A	A
FARRRS	4.62	0.31	3.489	A	A

(Default Analysis Set) - 2029 DM Departure, 2100-2200

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relatic
2029 DM Departure, 2100-2200	2029 DM Departure	2100-2200		ONE HOUR	20:45	22:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4				2.43	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
Hurst Lane North	1	Hurst Lane North	
Airport Link	2	Airport Link	
Hurst Lane South	3	Hurst Lane South	
FARRRS	4	FARRRS	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Hurst Lane North	0.00	99999.00		0.00
Airport Link	0.00	99999.00		0.00
Hurst Lane South	0.00	99999.00		0.00
FARRRS	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Hurst Lane North	3.65	6.89	9.46	30.00	56.00	34.58	
Airport Link	7.30	7.55	3.03	20.00	56.00	35.42	
Hurst Lane South	3.65	6.97	10.91	34.00	56.00	32.57	
FARRRS	3.65	7.26	9.08	25.00	56.00	36.69	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Hurst Lane North		(calculated)	(calculated)	0.557	1574.989
Airport Link		(calculated)	(calculated)	0.669	2229.100
Hurst Lane South		(calculated)	(calculated)	0.570	1633.733
FARRRS		(calculated)	(calculated)	0.551	1565.996

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
Hurst Lane North	ONE HOUR	✓	152.00	100.000
Airport Link	ONE HOUR	✓	230.00	100.000
Hurst Lane South	ONE HOUR	✓	70.00	100.000
FARRRS	ONE HOUR	✓	141.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.000	13.000	38.000	101.000
	Airport Link	33.000	0.000	31.000	166.000
	Hurst Lane South	29.000	41.000	0.000	0.000
	FARRRS	80.000	61.000	0.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.00	0.09	0.25	0.66
	Airport Link	0.14	0.00	0.13	0.72
	Hurst Lane South	0.41	0.59	0.00	0.00
	FARRRS	0.57	0.43	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	1.000	1.000	1.010	1.010
	Airport Link	1.000	1.000	1.020	1.050
	Hurst Lane South	1.020	1.010	1.000	1.000
	FARRRS	1.010	1.030	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.0	0.0	1.0	1.0
	Airport Link	0.0	0.0	2.0	5.0
	Hurst Lane South	2.0	1.0	0.0	0.0
	FARRRS	1.0	3.0	0.0	0.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Hurst Lane North	0.11	2.71	0.13	A	139.48	209.22	9.17	2.63	0.10	9.17	2.63
Airport Link	0.12	2.01	0.14	A	211.05	316.58	10.27	1.95	0.11	10.27	1.95
Hurst Lane South	0.05	2.68	0.06	A	64.23	96.35	4.17	2.60	0.05	4.17	2.60
FARRRS	0.11	2.73	0.12	A	129.38	194.08	8.58	2.65	0.10	8.58	2.65

Main Results for each time segment

Main results: (20:45-21:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	114.43	28.61	114.11	106.62	76.57	0.00	1517.56	1127.16	0.075	0.00	0.08	2.565	A
Airport Link	173.16	43.29	172.79	86.33	104.35	0.00	2077.99	1475.21	0.083	0.00	0.09	1.888	A
Hurst Lane South	52.70	13.17	52.55	51.82	225.33	0.00	1480.34	438.13	0.036	0.00	0.04	2.521	A
FARRRS	106.15	26.54	105.85	200.53	77.34	0.00	1495.07	1182.34	0.071	0.00	0.08	2.591	A

Main results: (21:00-21:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	136.65	34.16	136.57	127.59	91.65	0.00	1509.06	1127.16	0.091	0.08	0.10	2.622	A
Airport Link	206.77	51.69	206.68	103.33	124.89	0.00	2064.62	1475.21	0.100	0.09	0.11	1.937	A
Hurst Lane South	62.93	15.73	62.90	62.00	269.58	0.00	1454.69	438.13	0.043	0.04	0.05	2.586	A
FARRRS	126.76	31.69	126.69	239.92	92.55	0.00	1486.76	1182.34	0.085	0.08	0.09	2.646	A

Main results: (21:15-21:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	167.36	41.84	167.25	156.25	112.23	0.00	1497.46	1127.14	0.112	0.10	0.13	2.706	A
Airport Link	253.24	63.31	253.12	126.54	152.95	0.00	2046.37	1475.21	0.124	0.11	0.14	2.007	A
Hurst Lane South	77.07	19.27	77.02	75.93	330.13	0.00	1419.59	438.13	0.054	0.05	0.06	2.680	A
FARRRS	155.24	38.81	155.15	293.82	113.34	0.00	1475.40	1182.34	0.105	0.09	0.12	2.726	A

Main results: (21:30-21:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	167.36	41.84	167.36	156.34	112.30	0.00	1497.42	1127.14	0.112	0.13	0.13	2.706	A
Airport Link	253.24	63.31	253.23	126.62	153.04	0.00	2046.30	1475.21	0.124	0.14	0.14	2.007	A
Hurst Lane South	77.07	19.27	77.07	75.97	330.31	0.00	1419.49	438.13	0.054	0.06	0.06	2.681	A
FARRRS	155.24	38.81	155.24	293.97	113.40	0.00	1475.37	1182.34	0.105	0.12	0.12	2.726	A

Main results: (21:45-22:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	136.65	34.16	136.75	127.75	91.77	0.00	1509.00	1127.16	0.091	0.13	0.10	2.625	A
Airport Link	206.77	51.69	206.88	103.46	125.05	0.00	2064.52	1475.21	0.100	0.14	0.11	1.937	A
Hurst Lane South	62.93	15.73	62.98	62.07	269.86	0.00	1454.52	438.13	0.043	0.06	0.05	2.586	A
FARRRS	126.76	31.69	126.85	240.18	92.66	0.00	1486.70	1182.34	0.085	0.12	0.09	2.647	A

Main results: (22:00-22:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	114.43	28.61	114.51	106.97	76.84	0.00	1517.41	1127.16	0.075	0.10	0.08	2.567	A
Airport Link	173.16	43.29	173.24	86.63	104.71	0.00	2077.75	1475.21	0.083	0.11	0.09	1.892	A
Hurst Lane South	52.70	13.17	52.73	51.98	225.97	0.00	1479.96	438.13	0.036	0.05	0.04	2.523	A
FARRRS	106.15	26.54	106.22	201.12	77.59	0.00	1494.93	1182.34	0.071	0.09	0.08	2.591	A

Queueing Delay Results for each time segment

Queueing Delay results: (20:45-21:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	1.20	0.08	2.565	A	A
Airport Link	1.34	0.09	1.888	A	A
Hurst Lane South	0.54	0.04	2.521	A	A
FARRRS	1.13	0.08	2.591	A	A

Queueing Delay results: (21:00-21:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	1.47	0.10	2.622	A	A
Airport Link	1.65	0.11	1.937	A	A
Hurst Lane South	0.67	0.04	2.586	A	A
FARRRS	1.38	0.09	2.646	A	A

Queueing Delay results: (21:15-21:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	1.86	0.12	2.706	A	A
Airport Link	2.09	0.14	2.007	A	A
Hurst Lane South	0.85	0.06	2.680	A	A
FARRRS	1.74	0.12	2.726	A	A

Queueing Delay results: (21:30-21:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	1.88	0.13	2.706	A	A
Airport Link	2.11	0.14	2.007	A	A
Hurst Lane South	0.86	0.06	2.681	A	A
FARRRS	1.76	0.12	2.726	A	A

Queueing Delay results: (21:45-22:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	1.51	0.10	2.625	A	A
Airport Link	1.69	0.11	1.937	A	A
Hurst Lane South	0.69	0.05	2.586	A	A
FARRRS	1.42	0.09	2.647	A	A

Queueing Delay results: (22:00-22:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	1.24	0.08	2.567	A	A
Airport Link	1.38	0.09	1.892	A	A
Hurst Lane South	0.56	0.04	2.523	A	A
FARRRS	1.16	0.08	2.591	A	A

(Default Analysis Set) - 2029 DS Arrival, 1730-1830

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationshi
2029 DS Arrival, 1730-1830	2029 DS Arrival	1730-1830		ONE HOUR	17:15	18:45	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4				4.96	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
Hurst Lane North	1	Hurst Lane North	
Airport Link	2	Airport Link	
Hurst Lane South	3	Hurst Lane South	
FARRRS	4	FARRRS	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Hurst Lane North	0.00	99999.00		0.00
Airport Link	0.00	99999.00		0.00
Hurst Lane South	0.00	99999.00		0.00
FARRRS	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
Hurst Lane North	3.65	6.89	9.46	30.00	56.00	34.58	
Airport Link	7.30	7.55	3.03	20.00	56.00	35.42	
Hurst Lane South	3.65	6.97	10.91	34.00	56.00	32.57	
FARRRS	3.65	7.26	9.08	25.00	56.00	36.69	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Hurst Lane North		(calculated)	(calculated)	0.557	1574.989
Airport Link		(calculated)	(calculated)	0.669	2229.100
Hurst Lane South		(calculated)	(calculated)	0.570	1633.733
FARRRS		(calculated)	(calculated)	0.551	1565.996

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
Hurst Lane North	ONE HOUR	✓	613.00	100.000
Airport Link	ONE HOUR	✓	354.00	100.000
Hurst Lane South	ONE HOUR	✓	234.00	100.000
FARRRS	ONE HOUR	✓	744.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.000	40.000	126.000	447.000
	Airport Link	49.000	0.000	60.000	245.000
	Hurst Lane South	141.000	93.000	0.000	0.000
	FARRRS	595.000	149.000	0.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.00	0.07	0.21	0.73
	Airport Link	0.14	0.00	0.17	0.69
	Hurst Lane South	0.60	0.40	0.00	0.00
	FARRRS	0.80	0.20	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	1.000	1.000	1.000	1.000
	Airport Link	1.000	1.000	1.010	1.000
	Hurst Lane South	1.010	1.000	1.000	1.000
	FARRRS	1.010	1.040	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.0	0.0	0.0	0.0
	Airport Link	0.0	0.0	1.0	0.0
	Hurst Lane South	1.0	0.0	0.0	0.0
	FARRRS	1.0	4.0	0.0	0.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Hurst Lane North	0.47	4.81	0.90	A	562.50	843.75	58.57	4.17	0.65	58.58	4.17
Airport Link	0.22	2.54	0.28	A	324.84	487.26	19.08	2.35	0.21	19.08	2.35
Hurst Lane South	0.22	3.98	0.28	A	214.72	322.08	19.19	3.58	0.21	19.19	3.58
FARRRS	0.60	6.52	1.47	A	682.71	1024.06	89.80	5.26	1.00	89.81	5.26

Main Results for each time segment

Main results: (17:15-17:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	461.50	115.37	459.68	588.48	181.43	0.00	1471.51	1342.63	0.314	0.00	0.45	3.552	A
Airport Link	266.51	66.63	265.88	211.42	429.69	0.00	1938.27	1386.88	0.138	0.00	0.16	2.153	A
Hurst Lane South	176.17	44.04	175.55	139.55	556.01	0.00	1308.82	416.27	0.135	0.00	0.15	3.175	A
FARRRS	560.12	140.03	557.55	519.21	212.35	0.00	1425.53	1209.96	0.393	0.00	0.64	4.136	A

Main results: (17:30-17:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	551.07	137.77	550.46	704.73	217.27	0.00	1451.07	1342.63	0.380	0.45	0.61	3.995	A
Airport Link	318.24	79.56	318.06	253.19	514.54	0.00	1881.58	1386.88	0.169	0.16	0.20	2.302	A
Hurst Lane South	210.36	52.59	210.17	167.05	665.55	0.00	1246.74	416.27	0.169	0.15	0.20	3.472	A
FARRRS	668.84	167.21	667.80	621.52	254.20	0.00	1402.72	1209.96	0.477	0.64	0.90	4.891	A

Main results: (17:45-18:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	674.93	168.73	673.79	862.29	265.87	0.00	1423.35	1342.63	0.474	0.61	0.89	4.796	A
Airport Link	389.76	97.44	389.48	309.84	629.82	0.00	1804.57	1386.88	0.216	0.20	0.27	2.544	A
Hurst Lane South	257.64	64.41	257.31	204.51	814.79	0.00	1162.16	416.27	0.222	0.20	0.28	3.978	A
FARRRS	819.16	204.79	816.94	760.88	311.22	0.00	1371.62	1209.96	0.597	0.90	1.46	6.464	A

Main results: (18:00-18:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	674.93	168.73	674.91	864.25	266.43	0.00	1423.03	1342.63	0.474	0.89	0.90	4.811	A
Airport Link	389.76	97.44	389.76	310.48	630.87	0.00	1803.87	1386.88	0.216	0.27	0.28	2.545	A
Hurst Lane South	257.64	64.41	257.63	204.78	815.84	0.00	1161.56	416.27	0.222	0.28	0.28	3.982	A
FARRRS	819.16	204.79	819.11	761.89	311.59	0.00	1371.43	1209.96	0.597	1.46	1.47	6.517	A

Main results: (18:15-18:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	551.07	137.77	552.20	707.69	218.12	0.00	1450.58	1342.63	0.380	0.90	0.62	4.013	A
Airport Link	318.24	79.56	318.52	254.15	516.16	0.00	1880.50	1386.88	0.169	0.28	0.20	2.304	A
Hurst Lane South	210.36	52.59	210.68	167.49	667.20	0.00	1245.81	416.27	0.169	0.28	0.20	3.478	A
FARRRS	668.84	167.21	671.04	623.11	254.77	0.00	1402.40	1209.96	0.477	1.47	0.92	4.936	A

Main results: (18:30-18:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	461.50	115.37	462.13	591.99	182.48	0.00	1470.91	1342.63	0.314	0.62	0.46	3.570	A
Airport Link	266.51	66.63	266.69	212.64	431.97	0.00	1936.75	1386.88	0.138	0.20	0.16	2.155	A
Hurst Lane South	176.17	44.04	176.36	140.19	558.47	0.00	1307.43	416.27	0.135	0.20	0.16	3.182	A
FARRRS	560.12	140.03	561.20	521.56	213.27	0.00	1425.03	1209.96	0.393	0.92	0.65	4.173	A

Queueing Delay Results for each time segment

Queueing Delay results: (17:15-17:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	6.66	0.44	3.552	A	A
Airport Link	2.35	0.16	2.153	A	A
Hurst Lane South	2.28	0.15	3.175	A	A
FARRRS	9.36	0.62	4.136	A	A

Queueing Delay results: (17:30-17:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	8.95	0.60	3.995	A	A
Airport Link	3.01	0.20	2.302	A	A
Hurst Lane South	2.99	0.20	3.472	A	A
FARRRS	13.19	0.88	4.891	A	A

Queueing Delay results: (17:45-18:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	13.05	0.87	4.796	A	A
Airport Link	4.07	0.27	2.544	A	A
Hurst Lane South	4.18	0.28	3.978	A	A
FARRRS	21.01	1.40	6.464	A	A

Queueing Delay results: (18:00-18:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	13.44	0.90	4.811	A	A
Airport Link	4.12	0.27	2.545	A	A
Hurst Lane South	4.26	0.28	3.982	A	A
FARRRS	21.98	1.47	6.517	A	A

Queueing Delay results: (18:15-18:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	9.46	0.63	4.013	A	A
Airport Link	3.10	0.21	2.304	A	A
Hurst Lane South	3.11	0.21	3.478	A	A
FARRRS	14.25	0.95	4.936	A	A

Queueing Delay results: (18:30-18:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	7.02	0.47	3.570	A	A
Airport Link	2.42	0.16	2.155	A	A
Hurst Lane South	2.38	0.16	3.182	A	A
FARRRS	10.01	0.67	4.173	A	A

(Default Analysis Set) - 2029 DS Departure, 2100-2200

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relatic
2029 DS Departure, 2100-2200	2029 DS Departure	2100-2200		ONE HOUR	20:45	22:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4				2.93	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
Hurst Lane North	1	Hurst Lane North	
Airport Link	2	Airport Link	
Hurst Lane South	3	Hurst Lane South	
FARRRS	4	FARRRS	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
Hurst Lane North	0.00	99999.00		0.00
Airport Link	0.00	99999.00		0.00
Hurst Lane South	0.00	99999.00		0.00
FARRRS	0.00	99999.00		0.00

Roundabout Geometry

Name	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
Hurst Lane North	3.65	6.89	9.46	30.00	56.00	34.58	
Airport Link	7.30	7.55	3.03	20.00	56.00	35.42	
Hurst Lane South	3.65	6.97	10.91	34.00	56.00	32.57	
FARRRS	3.65	7.26	9.08	25.00	56.00	36.69	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
Hurst Lane North		(calculated)	(calculated)	0.557	1574.989
Airport Link		(calculated)	(calculated)	0.669	2229.100
Hurst Lane South		(calculated)	(calculated)	0.570	1633.733
FARRRS		(calculated)	(calculated)	0.551	1565.996

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
Hurst Lane North	ONE HOUR	✓	379.00	100.000
Airport Link	ONE HOUR	✓	230.00	100.000
Hurst Lane South	ONE HOUR	✓	70.00	100.000
FARRRS	ONE HOUR	✓	141.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.000	13.000	66.000	300.000
	Airport Link	33.000	0.000	31.000	166.000
	Hurst Lane South	29.000	41.000	0.000	0.000
	FARRRS	80.000	61.000	0.000	0.000

Turning Proportions (Veh) - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.00	0.03	0.17	0.79
	Airport Link	0.14	0.00	0.13	0.72
	Hurst Lane South	0.41	0.59	0.00	0.00
	FARRRS	0.57	0.43	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	1.000	1.020	1.030	1.030
	Airport Link	1.010	1.000	1.020	1.030
	Hurst Lane South	1.030	1.010	1.000	1.000
	FARRRS	1.030	1.040	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To			
		Hurst Lane North	Airport Link	Hurst Lane South	FARRRS
From	Hurst Lane North	0.0	2.0	3.0	3.0
	Airport Link	1.0	0.0	2.0	3.0
	Hurst Lane South	3.0	1.0	0.0	0.0
	FARRRS	3.0	4.0	0.0	0.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
Hurst Lane North	0.28	3.43	0.40	A	347.78	521.66	27.87	3.21	0.31	27.88	3.21
Airport Link	0.13	2.18	0.15	A	211.05	316.58	10.99	2.08	0.12	10.99	2.08
Hurst Lane South	0.06	2.97	0.06	A	64.23	96.35	4.55	2.83	0.05	4.55	2.83
FARRRS	0.11	2.77	0.12	A	129.38	194.08	8.73	2.70	0.10	8.73	2.70

Main Results for each time segment

Main results: (20:45-21:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	285.33	71.33	284.38	106.61	76.56	0.00	1487.07	1118.33	0.192	0.00	0.24	2.989	A
Airport Link	173.16	43.29	172.78	86.32	274.63	0.00	1988.54	1447.38	0.087	0.00	0.10	1.982	A
Hurst Lane South	52.70	13.17	52.54	72.81	374.59	0.00	1388.63	373.95	0.038	0.00	0.04	2.694	A
FARRRS	106.15	26.54	105.84	349.81	77.33	0.00	1472.16	1199.30	0.072	0.00	0.08	2.634	A

Main results: (21:00-21:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	340.71	85.18	340.47	127.59	91.64	0.00	1478.69	1118.33	0.230	0.24	0.30	3.162	A
Airport Link	206.77	51.69	206.67	103.32	328.79	0.00	1952.14	1447.38	0.106	0.10	0.12	2.062	A
Hurst Lane South	62.93	15.73	62.89	87.15	448.31	0.00	1346.17	373.95	0.047	0.04	0.05	2.804	A
FARRRS	126.76	31.69	126.69	418.66	92.54	0.00	1463.93	1199.30	0.087	0.08	0.09	2.691	A

Main results: (21:15-21:30)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	417.29	104.32	416.90	156.24	112.23	0.00	1467.25	1118.31	0.284	0.30	0.40	3.427	A
Airport Link	253.24	63.31	253.10	126.53	402.60	0.00	1902.55	1447.39	0.133	0.12	0.15	2.182	A
Hurst Lane South	77.07	19.27	77.01	106.71	548.98	0.00	1288.18	373.95	0.060	0.05	0.06	2.971	A
FARRRS	155.24	38.81	155.14	512.67	113.33	0.00	1452.68	1199.30	0.107	0.09	0.12	2.774	A

Main results: (21:30-21:45)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	417.29	104.32	417.28	156.34	112.30	0.00	1467.21	1118.31	0.284	0.40	0.40	3.427	A
Airport Link	253.24	63.31	253.23	126.62	402.97	0.00	1902.30	1447.39	0.133	0.15	0.15	2.182	A
Hurst Lane South	77.07	19.27	77.07	106.80	549.40	0.00	1287.94	373.95	0.060	0.06	0.06	2.972	A
FARRRS	155.24	38.81	155.24	513.07	113.40	0.00	1452.64	1199.30	0.107	0.12	0.12	2.774	A

Main results: (21:45-22:00)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	340.71	85.18	341.09	127.75	91.77	0.00	1478.62	1118.33	0.230	0.40	0.30	3.165	A
Airport Link	206.77	51.69	206.90	103.47	329.40	0.00	1951.74	1447.38	0.106	0.15	0.12	2.064	A
Hurst Lane South	62.93	15.73	62.99	87.29	449.01	0.00	1345.76	373.95	0.047	0.06	0.05	2.805	A
FARRRS	126.76	31.69	126.85	419.33	92.67	0.00	1463.86	1199.30	0.087	0.12	0.10	2.694	A

Main results: (22:00-22:15)

Name	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Entry Flow (Veh/hr)	Exit Flow (Veh/hr)	Circulating Flow (Veh/hr)	Pedestrian Demand (Ped/hr)	Capacity (Veh/hr)	Saturation Capacity (Veh/hr)	RFC	Start Queue (Veh)	End Queue (Veh)	Delay (s)	LOS
Hurst Lane North	285.33	71.33	285.58	106.97	76.84	0.00	1486.92	1118.33	0.192	0.30	0.24	2.998	A
Airport Link	173.16	43.29	173.25	86.64	275.78	0.00	1987.76	1447.38	0.087	0.12	0.10	1.985	A
Hurst Lane South	52.70	13.17	52.74	73.08	375.95	0.00	1387.85	373.95	0.038	0.05	0.04	2.695	A
FARRRS	106.15	26.54	106.22	351.09	77.60	0.00	1472.02	1199.30	0.072	0.10	0.08	2.637	A

Queueing Delay Results for each time segment

Queueing Delay results: (20:45-21:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	3.48	0.23	2.989	A	A
Airport Link	1.41	0.09	1.982	A	A
Hurst Lane South	0.58	0.04	2.694	A	A
FARRRS	1.14	0.08	2.634	A	A

Queueing Delay results: (21:00-21:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	4.41	0.29	3.162	A	A
Airport Link	1.76	0.12	2.062	A	A
Hurst Lane South	0.73	0.05	2.804	A	A
FARRRS	1.40	0.09	2.691	A	A

Queueing Delay results: (21:15-21:30)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	5.84	0.39	3.427	A	A
Airport Link	2.27	0.15	2.182	A	A
Hurst Lane South	0.94	0.06	2.971	A	A
FARRRS	1.77	0.12	2.774	A	A

Queueing Delay results: (21:30-21:45)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	5.94	0.40	3.427	A	A
Airport Link	2.30	0.15	2.182	A	A
Hurst Lane South	0.95	0.06	2.972	A	A
FARRRS	1.79	0.12	2.774	A	A

Queueing Delay results: (21:45-22:00)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	4.58	0.31	3.165	A	A
Airport Link	1.80	0.12	2.064	A	A
Hurst Lane South	0.75	0.05	2.805	A	A
FARRRS	1.44	0.10	2.694	A	A

Queueing Delay results: (22:00-22:15)

Name	Queueing Total Delay (Veh-min)	Queueing Rate Of Delay (Veh-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
Hurst Lane North	3.62	0.24	2.998	A	A
Airport Link	1.45	0.10	1.985	A	A
Hurst Lane South	0.60	0.04	2.695	A	A
FARRRS	1.18	0.08	2.637	A	A

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Framework Function Traffic Management Plan

13 February 2020

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Framework Function Traffic Management Plan

13 February 2020

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Contents

1 Introduction

1.1 Background

The expansion of Yorkshire Wildlife Park (YWP) was granted planning permission in July 2018. To accompany this expansion, the park plans to host occasional functions on their new site.

This Framework Function Traffic Management Plan outlines proposals for the management of additional traffic generated by these functions. It indicates measures that YWP will use to control traffic moving within the site and to minimise disruption to the surrounding highway network and residential areas, so far as is reasonably possible. This document is intended to be used as a framework plan and details a site-specific package of high-level potential measures to manage additional function traffic at the park. These can then be implemented, as necessary, alongside the park expansion's Travel Plan that aims to promote public transport and sustainable modes of travel to the site. Bespoke Traffic Management Plans may be required depending on the type of function and should be tailored to a specific function scenario.

1.2 Traffic Management Objectives

The objectives of this Traffic Management Plan are to:

- Provide a safe environment for all road users including attendees, the general public, pedestrians, cyclists and motorists
- Prevent any traffic hazards which may arise as a result of a function taking place
- Minimise disruption, delays and congestion for all road users
- Ensure access to surrounding residential and commercial properties is maintained at all times
- Minimise the impact of traffic associated with functions

To achieve these objectives the function organiser will:

- Ensure that delays and congestion within and on the road directly next to the site are dealt with immediately through the use of stewards
- Use appropriate and sufficient road signage if required
- Ensure that travel guidance is provided to attendees and staff prior to the function
- Ensure that the needs of all attendees are accommodated at and within the site, including motorists / motorcyclists, taxi arrivals and people with disabilities
- Have an adequate number of stewards / car park attendants to ensure vehicles are parked as quickly and safely as possible, keeping the external highway as clear as possible
- Liaise with the appropriate authorities, including Doncaster Metropolitan Borough Council (DMBC), prior to functions taking place

1.3 Responsibilities

Traffic management responsibilities lie with the function organiser, Yorkshire Wildlife Park, who provide all the staff and stewarding for their functions.

Any management requirements regarding the external highway will be discussed with DMBC prior to the function taking place. YWP understand their duty under the Traffic Management Act

2004, to consult with the Local Highway Authority, on an event that may cause congestion on the local traffic network.

1.4 Supporting Documents

This Framework Function Traffic Management Plan includes a summary of more detailed Transport Assessment and Travel Plan documents which were part of the approved YWP Expansion planning application (reference 17/02189/OUTA). If further information is required reference should be made to the following:

- **Transport Assessment (ref. 381569/003/C)**
- **Travel Plan (ref. 381569/004/C)**
- **Framework Travel Plan - Supporting Facilities (ref. 381569/005/B)**

1.5 Report Structure

Following the introduction contained in this section, this report is composed of the following sections:

Section 2: Function Details

Section 3: Traffic Management

Section 4: Communications

Section 5: Conclusion

2 Function Details

2.1 Introduction

At the time of writing, definitive details of the proposed functions taking place at the park are unknown. The following section therefore provides an overview of likely function characteristics as well as transport considerations.

2.2 Function Assumptions

YWP have the capability to host a wide range of activities at the new site, within the park itself, within the supporting facilities and within a specific function area known as the Hexagon. Therefore, specific details of functions are currently unknown and will vary over time and as the 'offer' at the park develops. The following bullet points outline typical functions that could take place and the current assumptions around them:

- Hexagon-based functions that would typically take place on a weekend in the evening. These could include weddings, conferences, team events or trade shows
- Family-orientated functions such as the Christmas Fair, Halloween Spectacular and charity runs that already take place on-site, generally between Spring and Autumn (other than the Christmas Fair)
- Summer Safari Nights such as those that already take place on-site during the summer school holiday period
- Different functions will have different visitor profiles and there is no 'one-size fits all' approach
- Most functions will be targeted at a family audience, but some will be adult-only, or will be likely to attract a greater proportion of adults
- With the supporting facilities including a hotel it is anticipated that a proportion of guests will combine attendance at a function with an overnight stay
- Functions will attract an element of organised transport to and from them
- YWP will continue to promote public transport and sustainable transport modes

2.3 Transport Considerations

Key considerations for functions from a transport perspective are as follows:

- Due to the out-of-town location and visitor profile of YWP, it is acknowledged that a large proportion of visitors travel via private car
- Family oriented functions result in a relatively high vehicle occupancy, whilst those that are more adult orientated will have a lower occupancy
- Different functions are likely to experience different mode share and vehicle occupancies and should be planned for accordingly
- Arrivals to functions could occur over a long time period as attendees may combine function attendance with a visit to the rest of the park
- Departures from evening functions will be joining the local traffic network at one of the quietest parts of the day and not during peak hours

2.4 Visitor Behaviours

Learning from previous functions hosted by YWP there are a number of key observations which influence visitor behaviours. The following bullet points outline key factors to consider when planning for a function at the park:

- Outdoor function attendance is often significantly influenced by the weather forecast for the day in question
- Arrivals for large, park-organised activities are often spread throughout the day as guests make use of the park's other facilities
- On busy function dates it's expected that the 148-bedroom hotel on-site will be at full occupancy
- Some evening functions lead to a higher proportion of guests staying overnight in the local area. This often results in guests using organised transport to access the park.

3 Traffic Management

3.1 Introduction

This section of the Framework Function Traffic Management Plan aims to serve as a guide for managing function traffic at the park. Traffic management proposals will, however, need to be tailored to each individual function and should take into account time of day, the type of occasion and the number of visitors expected to attend.

3.2 Stewarding

Stewards will be used at YWP functions to manage the car park, direct traffic, assist with the efficient parking of cars and ensure the safe use of the parking area. All stewards will be employees of YWP and will be dressed in high visibility jackets and use foam fingers to direct traffic. On a regular park day, staff will manage the car park from 8.30am until visitor dispersal. On busy function days staff will also assist with cars exiting the park and supervise pedestrian crossing points to ensure guest safety.

All staff will have a company radio for communicating with each other and keeping management informed of traffic flows, as well as any problems or emergencies. Each day all staff will attend a briefing meeting prior to overseeing the car parks assigned to be used for that day / night. In summer periods the welfare of the parking stewards will be ensured by a 'staff drive around' to ensure that car park staff have sufficient water and sun protection and to cover breaks where required.

It is noted that traffic control on the public highway can only be done by a police officer in uniform and stewards do not have the authority to control traffic on the public highway. If traffic management is likely to be required outside of the park's boundary, then DMBC will be consulted on this prior to the function.

3.3 Public Transport

Travel by public transport to functions will be promoted by the park where possible and made as easy as possible. Liaising with public transport operators at an early stage may make it possible to increase the frequency of bus services and free, or reduced price, buses may also be an option where large numbers of people are expected to attend.

Visitors are able to access information on public transport options to the park via the YWP website. For online ticket purchases, a communications strategy will be considered as an appropriate means of informing attendees on the available public transport options.

On a Saturday, the 57a and 57c buses, which run along a circular route from Doncaster Centre to Auckley, arrive at the current bus stop on Hurst Lane / Poplar Way roughly every 15 minutes with the last bus arriving at 23:44. This provides a sufficient time to enable visitors exiting evening functions to use the bus to travel to Doncaster, to access hotels or for onward journeys.

Additionally, the newly constructed YWP site access on Hurst Lane, which will be used as the main entrance for the expanded park, includes the provision of two new bus stops with shelters on Hurst Lane. These bus stops are located just north of the proposed site access and are served by a new footway along the western side of Hurst Lane. The bus services 57a, 57c and 57f are scheduled to call at these new stops. The location of these new bus stops is away from

residential housing and therefore any noise associated with public transport users waiting for a bus should not impact the local community.

3.4 Coach

Coach is the second most popular mode of transport to the wildlife park. Coaches will have access to two drop-off areas within the expanded site close to the new main entrance and well away from the public highway network, in addition to designated coach parking located at the southern corner of the site. After dropping off passengers, coaches will follow a one-way loop of the car park area before either exiting onto the external highway network or parking in their designated area. The coach parking area has capacity for up to 30 coaches.

Coach travel has the potential to reduce impacts of functions on the external highway network. New facilities to promote this mode of transport are provided at the expanded site such as the drop-off and designated parking areas detailed above however, take-up will be influenced by the commercial decisions made by coach and organised transport companies.

3.5 Taxi

Some visitors may wish to travel to functions by taxi, particularly from Doncaster town centre or nearby hotels. Taxi drop off areas are included within the layout of the expanded site, in close proximity to the park's entrance and well away from the public highway network. All function dates will be well-publicised in advance and informing local taxi companies of function dates may prove beneficial.

3.6 Car Parking

As noted earlier, stewards will be used at YWP functions to manage the car park, direct traffic, assist with the efficient parking of cars and ensure the safe use of the parking area.

The design and layout of the expanded site's internal access road allows for quicker parking, a series of new parking controls and an increased amount of internal vehicular stacking within the site during busy periods.

The first section of ring road and access to the car park areas will allow for 750m of two-lane vehicular stacking within the site (equivalent to 1.5km of single lane traffic). If a need for additional capacity is identified during peak periods to avoid queuing onto the external highway network, an additional loop will be introduced within the south end of the car park which will increase the queuing length for vehicles to approximately 1.3km of two lane stacking within the site (equivalent to 2.6km of single lane traffic). This arrangement, and the parking layout, allows individual lanes to feed different parking areas simultaneously, to speed up the parking process, reduce vehicular queuing and ensure that queueing related to car parking will not extend onto the external highway network.

The expanded site's main car park area has also been designed with one-way routing and in a way that means visitors will park forwards at an angle of 60 degrees. This is a more efficient method of parking, reduces the time spent manoeuvring and prevents blocking back of car park aisles. Nonetheless, parking attendants will be at hand to guide visitors to available spaces and to ensure the fast and efficient parking of high volumes of vehicles.

A breakdown of the available parking spaces at the expanded site are provided below:

- Main car park- 1255 spaces
- Priority parking- 208 spaces

- Electric cars- 20 spaces
- Disabled and inclusive parking- 148 spaces
- Seasonal overflow parking in the main car park- 1370 spaces
- Coach parking- 30 spaces
- Motorcycle- 50 spaces
- Overflow reinforced grass parking- 870 spaces
- Staff parking- 300 spaces

Figure 3.1: Carpark Layout and 60-Degree Parking Detail

A Main carpark
B Seasonal additional parking
C Inclusive, priority & electric car park
D Overflow car parks
E Motorbike parking
F Coach parking
G Staff car park

Source: YWP Expansion Design and Access Statement

Dedicated staff parking is located at the northern periphery of the expanded site whilst VIP and disabled parking are located in close proximity to the park's new main entrance. Those guests able to make use of these facilities will be provided with parking information in advance and to speed up their arrival process. A drop off / pick up area for coaches, cars and taxis is also provided adjacent to the visitor entrance and well away from the public highway network. For

busy function days there is the additional opportunity to utilise parking at the original YWP site, albeit this would not be a preferred option unless an incident occurred that necessitated its use.

As outlined above, YWP has sufficient car parking space, and an effective plan of how to manage vehicles and distribute them efficiently between car parks, keeping them away from the local road network.

To manage outbound flows as functions finish, stewards will once again manage and monitor traffic flows and, where necessary, could potentially 'meter' traffic flows out of the park to avoid undue congestion on the external highway network. Any such traffic management measures, and anticipated requirements will be discussed with DMBC prior to functions taking place.

3.7 Hotel Stays

For busy functions it is expected that the new 148-bedroom hotel located at the expanded park, will be at full occupancy. This will therefore relieve some of the traffic departing the site after the conclusion of a function.

In addition, experience of previous functions has indicated that for some evening functions visitors often stay overnight in the local area, and that travel to the functions usually takes place via organised transport. This can therefore be accommodated via the provisions for drop-off and pick up noted earlier.

3.8 Walking and Cycling

Walking and cycling mode share is acknowledged as low for visitor trips made to the park. However, some functions are likely to attract attendees from the local community who may make the journey to the expanded park via active modes. These will therefore be catered for by the pedestrian and cycle facilities being constructed as part of the park's expansion.

3.9 Emergency Vehicles

At the expanded site emergency vehicles will be able to use the new internal service road, or a new emergency access point via the staff car park to gain access to the hub buildings.

4 Communications

Communications will be an effective way of managing traffic and influencing travel behaviours prior to a function taking place. Communications to different groups are outlined below.

4.1.1 Visitors

Communications made to visitors prior to a function will usually take place through social media. Additionally, the visitor website will be an important source of information for visitors and will be an opportunity to raise awareness of the travel options to YWP. If bookings have taken place online, the confirmation process can be used as an opportunity to communicate with visitors, for example by providing links to a location map and promoting public / sustainable transport.

4.1.2 Local Residents

Local residents will be kept informed of planned functions via social media, the YWP website and communication banners outside of the entrance to the park.

4.1.3 Road Users

Road users will need notifying if a function is going to generate large volumes of traffic or have a significant impact on the local highway network. For previous functions, YWP have used three ways of notifying road users that there may be higher volumes of traffic in the area on function dates.

- Hiring a contractor to supply temporary signage on roads likely to be affected that reads: EVENT TRAFFIC (DATE /TIME) EXPECT DELAYS.
- Requesting the Roadworks.org website to include details of the functions and timings to provide warnings to road users.
- Requesting that the Doncaster VMS Signs carry warnings about the risk of increased traffic due to the functions at YWP.

For larger functions it may be necessary to provide temporary warning signage south of the Hurst Lane railway bridge. Permanent 'active' queue warning signage is proposed for this location that will be triggered should queuing occur at the YWP access roundabout due to unforeseen circumstances but additional signage notifying road users of function traffic may be appropriate as further mitigation. Any signage requirements on the public highway network will be submitted to DMBC for approval prior to installation.

4.1.4 Relevant Authorities

Liaising with the relevant authorities, prior to a function, will take place. This will include liaison with South Yorkshire Police, DMBC, bus and taxi companies etc. and will be undertaken by YWP's Head of Guest Experiences. In addition to this, YWP will continue to liaise with the consultative committee set up to communicate information about the expansion to local stakeholders.

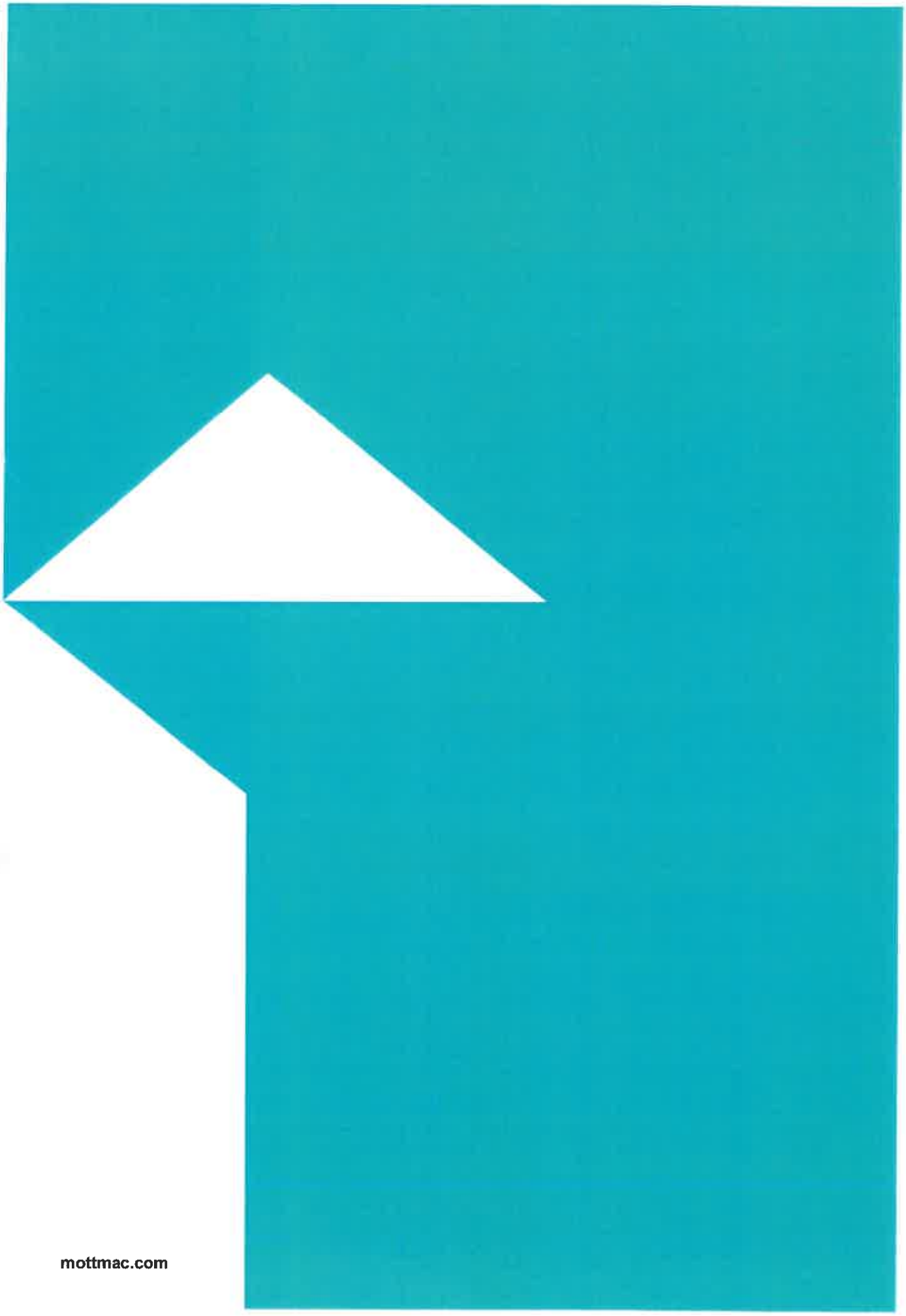
5 Summary

This Framework Function Traffic Management Plan has been developed to support functions hosted by YWP. It is intended to indicate measures that YWP will use to control traffic moving within the site and to minimise disruption to the surrounding highway network and residential area, so far as is reasonably possible. It is intended to be used as a framework plan and details site-specific potential measures and communications strategies that can be implemented as necessary. However, bespoke traffic management plans should also be produced where they are deemed necessary, depending upon the type of function and its likely impact.

YWP have hosted successful functions at their current site and will utilise these experiences to inform the implementation of appropriate traffic management techniques. There are existing procedures and co-ordination measures in place to manage traffic at the current site which will be transferred across to the expansion, for example, the use of stewards and carpark attendants.

It is also evident that traffic management measures have been considered throughout the development and design stages of the park's expansion, especially in relation to car parking capacity, layout and operation. These will support, and mitigate the impact of, functions hosted at the park.

Notwithstanding the above, YWP should endeavour to promote sustainable modes of travel and public transport to functions where possible, in addition to the promotion of the expansion's Travel Plan.



mottmac.com

Sue Deacon

From:	Staniland, Mark A <Mark.Staniland@mottmac.com>
Sent:	04 June 2020 17:51
To:	Louise Millington
Cc:	Natasha Beck; Webster, Lee
Subject:	Premises Licence - Objections
Attachments:	We sent you safe versions of your files; 381569 YWP Licence Application Objections.xlsx; 381569 YWP Licence Application Responses.pdf
DOCID:	2147563011

Hi Louise,

I realise this was probably discussed some time ago but I was reminded of it following our discussions earlier this week.

Some time ago you sent us copies of the objections to the Premises Licence Application and we said we'd review them and prepare some draft responses to the traffic and transport points that were raised. Attached are therefore two files that contain the output from this.

The first file is an excel spreadsheet that contains a copy of each representation on a separate tab plus an overall summary tab. The latter details the traffic and transport issues from each representation and then condenses them into key comments. In total there are 19 comments that tend to be variations of each other covering five key themes:

- Drink Driving
- Increased Traffic
- Site Access / Unsuitable Roads
- Hurst Lane Footpath
- 2017 Transport Assessment

The second file is a pdf file that contains the 'generic' responses we've prepared to each of the five key themes, which I trust will help in some way as and when you need to respond.

If you have any queries on these, or what we've done just let me know.

Regards

Mark Staniland
MA (Cantab) CEng MICE
Project Principal
D 0114 2283940
mark.staniland@mottmac.com

MOTT MACDONALD

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Yorkshire Wildlife Park - Premises Licence Representations

MOTT MACDONALD

Ref.	Extract of Traffic Related Comments	Traffic Comment Summary	Traffic Response Category
Rep 1	Access to the site is through villages which are home to families with children, families who work shifts	Site access is through villages	Increased Traffic
Rep 2	Over recent years there has been drink fuelled anti-social behaviour in Auckley and to allow alcohol to be taken off site may exacerbate this issue. There is also the issue of this being a visitor attraction and visitors drive to the site, the entrance being off Hurst Lane in close proximity to 4 local schools, selling alcohol on site will encourage people to drink and drive which may lead to an increase in road traffic accidents. The staff will not be able to monitor the amount the guests drink and therefore many may leave the hotel and park in an intoxicated condition , this could lead to Road traffic accidents caused by drink and this is a major danger to the public and children given that the cars will be exiting adjacent to 2 schools on a road that has already seen accidents outside the school . 17. Reference page 5, section 3.2 proposed activities. This application is for 5,000 visitors plus the additional visitors to the safari night and any other ad hoc events they may decide to run. This amount of visitors will create noise on leaving the park, and as the application is also to sell alcohol for prolonged periods in to the early of the next day, these visitors could be leaving the park with an excess of alcohol in their systems and be over the drink drive limit. This could cause accidents and injury to the general public and property, as well as noise nuisance, as drunks are inevitably noisy and rowdy. It is unacceptable to subject Auckley residents to this. 20. Reference page 14, section 7.1 to prevent crime and disorder. "Not serve intoxicated customers any intoxicated person shall not be served and shall be asked to leave the park" This statement is very concerning, the vast majority of visitors to the park arrive and depart by car, YWP are prepared to sell alcohol to people who are going to drive and only refuse when they are intoxicated and then ask them to leave the park. This is causing crime not preventing it they are effectively condoning drink driving and it is unacceptable, these people will be driving from the park from which they have been evicted, onto Hurst Lane and going past 2 schools, on a road that has already suffered from RTC's involving school children, if this is allowed it will lead to more drink drivers on the roads and is a major concern to public safety. 21. Reference page 14 & 15, section 7.3 To prevent public nuisance. "Constrain all licensable activities within the running times laid out in this document" The hours stated in this document differ greatly from the application published on the licensing site, therefore this will allow YWP to extend the hours from those in the booklet to the longer hours on the application, this is not acceptable as the longer hours are likely to be a major nuisance regarding noise and traffic movement during the early hours. Villagers have to sleep , they have to work rested as do the children go to school fresh and not tired, it will be detrimental to health within the community. "In conjunction with DMBC and the Highways Agency, we developed an entrance, and traffic signage to cope with the high volume of visitors" Unfortunately they may have worked together to make a plan, but the new entrance and volume of anticipated traffic is onto a lane that is unsuitable and already has issues with RTC's outside the school, which visitors will pass, it is likely to see an increase in these incidents as a new roundabout, a reduced speed limit are in adequate . The public is in danger from people leaving this site under the influence of excess alcohol; they appear to be actively encouraging driving under the influence as the statement above shows. I have seen no measures in place to stop intoxicated people driving and putting our villagers in danger. What measures are in place to check visitors are fit to drive? Before this license is considered there needs to further checks on how it is intended to check and stop drivers under the influence getting onto our village roads, there are too many holes and inconsistencies to ensure public safety.	Drinks licence will encourage drink driving, resulting in collisions Proposed operating hours will cause traffic nuisance in early hours Hurst Lane is unsuitable for park traffic, will increase collisions	Drink Driving Increased Traffic Site Access / Unsuitable Roads
Rep 3	Over recent years there has been in drink fuelled anti-social behaviour in Auckley and to allow alcohol to be taken off site may exacerbate this issue. There is also the issue of this being a visitor attraction and visitors drive to the site, the entrance being off Hurst Lane in close proximity to 4 local schools, selling alcohol on site will encourage people to drink and drive which may lead to an increase in road traffic accidents. The sale of alcohol cannot be effectively monitored and this may lead to people leaving the park and hotel with an excess of alcohol in their systems, this alcohol excess particularly in the case of hotel guests who also have access to a mini bar means that they may have been drinking for the period of 10.00 to 05.00 and will then check out whilst still intoxicated and drive . This will lead to an increase in road accidents on a road that has already seen may occur outside the schools and the guests will be leaving and passing these schools around lunchtime if check out is 12.00, This application proposes an increased and severe risk to the public and children. q) Reference page 5, section 3.2 proposed activities. This application is for 5,000 visitors plus the additional visitors to the safari night and any other ad hoc events they may decide to run. This amount of visitors will create noise on leaving the park, and as the application is also to sell alcohol for prolonged periods in to the early of the next day, these visitors could be leaving the park with an excess of alcohol in their systems and be over the drink drive limit. This could cause accidents and injury to the general public and property, as well as noise nuisance, as drunks are inevitably noisy and rowdy. It is unacceptable to subject Auckley residents to this. t) Reference page 14, section 7.1 to prevent crime and disorder. "Not serve intoxicated customers any intoxicated person shall not be served and shall be asked to leave the park" This statement is very concerning, the vast majority of visitors to the park arrive and depart by car, YWP are prepared to sell alcohol to people who are going to drive and only refuse when they are intoxicated and then ask them to leave the park. This is causing crime not preventing it they are effectively condoning drink driving and it is unacceptable, these people will be driving from the park from which they have been evicted, onto Hurst Lane and going past 2 schools, on a road that has already suffered from RTC's involving school children, if this is allowed it will lead to more drink drivers on the roads and is a major concern to public safety. u) Reference page 14 & 15, section 7.3 To prevent public nuisance. "Constrain all licensable activities within the running times laid out in this document" The hours stated in this document differ greatly from the application published on the licensing site, therefore this will allow YWP to extend the hours from those in the booklet to the longer hours on the application, this is not acceptable as the longer hours are likely to be a major nuisance regarding noise and traffic movement during the early hours. Villagers have to sleep , they have to work rested as do the children go to school fresh and not tired, it will be detrimental to health within the community. "In conjunction with DMBC and the Highways Agency, we developed an entrance, and traffic signage to cope with the high volume of visitors" Unfortunately they may have worked together to make a plan, but the new entrance and volume of anticipated traffic is onto a lane that is unsuitable and already has issues with RTC's outside the school, which visitors will pass, it is likely to see an increase in these incidents as a new roundabout, a reduced speed limit are in adequate . The public is in danger from people leaving this site under the influence of excess alcohol; they appear to be actively encouraging driving under the influence as the statement above shows. I have seen no measures in place to stop intoxicated people driving and putting our villagers in danger. What measures are in place to check visitors are fit to drive? Before this license is considered there needs to further checks on how it is intended to check and stop drivers under the influence getting onto our village roads, there are too many holes and inconsistencies to ensure public safety.	Drinks licence will encourage drink driving, resulting in collisions Proposed operating hours will cause traffic nuisance in early hours Hurst Lane is unsuitable for park traffic, will increase collisions	Drink Driving Increased Traffic Site Access / Unsuitable Roads
Rep 4	Notwithstanding the nuisance from noise, traffic issues will also be prevalent as not everyone would necessarily be staying at the hotel. Thus vehicles/taxis will be travelling along Hurst Lane and some users may also walk to and from the site along the road which has a footpath at only one side.	Traffic issues will be prevalent. Some park users will walk, footpath only on one side of road	Increased Traffic Hurst Lane Footpath
Rep 5	This expansion has brough the wildlife park nearer to a larger residential area, meaning that far more residents will be subjected to noise and traffic over a greater period of time.	Park expansion will resultin in more residents subjected to traffic over a greater period of time	Increased Traffic
Rep 6	None	-	-
Rep 7	As I stated previously I live very close to the main road and do not want to think about thousands of people leaving the venue late in the evening/early hours of the morning. I am already concerned and objected to the moving of the entrance from Warnington Lane due to the increase in vehicles using the narrow roads through the village.	New park entrance will increase vehicles using narrow village roads	Increased Traffic Site Access / Unsuitable Roads
Rep 8	None	-	-
Rep 9	None	-	-
Rep 10	None	-	-
Rep 11	None	-	-
Rep 12	None	-	-
Rep 13	Socially,the Wildlife Park is very close to residential areas. This already has a significant impact on the residents in terms of traffic and noise. If these proposals were to be allowed, the increase in noise, traffic, loud music and fear of antisocial behaviour creates uncertainty and mental issues for the well-being of residents.	Park expansion will result in increase in traffic	Increased Traffic
Rep 14	None	-	-
Rep 15	2. The current application has no direct connection with any 'success' of a wild life park, and has more relevance to an amusement park, which I assume was not the original view of the planning committee. It was a way of securing non indigenous animals for the pleasure and education of residents and visitors in and beyond Yorkshire, mostly arriving by car or coach.	Visitors will arrive mostly be car or coach	Increased Traffic
Rep 16	Risk of drink driving will increase putting party goers and local residents at risk.	Drinks licence will increase risk of drink driving	Drink Driving
Rep 17	Late night refreshment and alcohold until 5am is totally unncessary, this should only be allowed for hotel guests, an 'off licence' until 5am would only encourage those with cars with all the attenant issues which that would create, noise, drink driving etc!	Drinks licence will encourage drink driving	Drink Driving
Rep 18	None	-	-
Rep 19	I appreciate they are running a commercial enterprise but why should I suffer loud music late into the night 7 days a week. This combined with the traffic congestion and pollution caused by the new park entrance will make life intolerable in Auckley.	New park entrance wil increase traffic congestion in Auckley	Increased Traffic
Rep 20	None	-	-
Rep 21	Although it is recognised that traffic movements are not a licensing matter, there are concerns regarding how the applicant will deal with the dispersal of large volumes of traffic onto Hurst Lane, in the event of the Licence being granted until 2.00 a.m.	Concern of dispersal of large volumes of traffic onto Hurst Lane	Increased Traffic
Rep 22	None	-	-
Rep 23	We will have to put up with traffic delays, detours and thus travel time issues and extra fuel required as I have to fill up the car more often.	Park expansion will result in traffic delays, detours and travel time issues	Increased Traffic
Rep 24	Auckley Village will as a result of the wider YWP planning application and ongoing development already suffer through increased traffic flows and associated disruption. This premises licence application will result in YWP further negatively impacting on the village of Auckley and its established residences which lie within a rural setting.	Park expansion will increase traffic in Auckley. Premisis licence will further negatively impact village	Increased Traffic
Rep 25	None	-	-
Rep 26	None	-	-
Rep 27	None	-	-
Rep 28	None	-	-
Rep 29	None	-	-
Rep 30	None	-	-
Rep 31	Additionally, with the changes already being made to the entrance to the YWP the proposed increase in operation level, will only be detrimental to the traffic levels and the associated air and noise pollution in the area.	Park expansion, new entrance and increased visitors will increase traffic levels in Auckley	Increased Traffic
Rep 32	We wish to lodge our resistance to the application from the Yorkshire Wildlife Park for a premises licence. We acknowledge that the Wildlife Park is an asset to our local community however the goodwill of our community has been sorely tested already with the new entrance to the park, given it's proximity to Hayfield School and New College and the narrowness of the railway bridge . So to find out that a licence has been applied for to allow live music both indoors and out has just compounded our anger and disappointment !	Object to premisis licence due to new park entrance proximity to school, college and narrow railway bridge	Site Access / Unsuitable Roads Hurst Lane Footpath
Rep 33	We wish to object on the grounds of noise nuisance and safety issues. Having read the traffic assessment put forward in this application, we have concerns regarding the consistency of the original assessment that would have appeared to miss out Fridays. Also the need to have another assessment done knowing that YWP would have had to put an application in to licensing for various activity's. YWP surly had worked out the levels of occupancy in the hotel and the amount of Covers in the restaurants. This lead us to think that there was an error in the first assessment? We also have concerns regarding the number of vehicles that could be leaving YWP late in the evening causing noise nuisance. We feel that our concerns could be addressed by having a new traffic assessment done by one of the top six traffic consultation companies. This would give YWP the opportunity to justify the original assessments done by Mott-McDonald and put the issues to bed once and for all.	Original assessment missed out Fridays Question why another assessment has been submitted - queries whether original assessment contained error not accounting for hotel and restaurant usage. Request a further transport assessment undertaken	2017 Transport Assessment
Rep 34	None	-	-
Rep 35	None	-	-
Rep 36	None	-	-
Rep 37	6. The proposed audience sizes for plays, film, live music and dance need to be notified and stipulated and regulated. This again is better handled by a requirement for TEN's. As worded in the notice there could literally be a 50,000 person music festival every day That is how loosely it is written. This I would hope is clearly unacceptable for the location and licensing would recognize this. It also has significant traffic and other nuisance impli-cations.	Licence application has signficant traffic implications	Increased Traffic
Rep 38	None	-	-
Rep 39	None	-	-
Rep 40	* the development of a hotel and activities does little to enhance the conservation of the environment as quoted in YWP's mission statement with the increase in carbon emissions (more vehicles etc etc) and noise pollution especially after 23:00	Hotel and activities will increase vehicles	Increased Traffic
Rep 41	None	-	-

MOTT MACDONALD

Yorkshire Wildlife Park – Premises Licence Application

Yorkshire Wildlife Park (YWP) was formally granted planning permission in July 2018 for a new entrance, visitor hub and facilities and expanded animal reserves.

Work is now progressing on the expansion site and the Park have applied for a Premises Licence. A number of representations have been received from third parties in relation to this licence application that pass comment on it. The comments have therefore been reviewed and grouped into those of a similar nature and the following provides traffic and transport related responses to them.

Drink Driving

It is a criminal offence to be drunk in charge of a motor vehicle, which can lead to prosecution resulting in a fine or custodial sentence, 10 penalty points or disqualification from driving. YWP does not encourage people to drink and drive and expects all park visitors to abide by the law at all times.

Notwithstanding the above it should be noted that it is commonplace for alcohol to be sold at hotels, restaurants and events both indoors and outdoors throughout the year across the country and there is no onus on owners of such premises, or organisers of such events, to actively monitor clientele, or attendees to ensure they abide by the law.

Increased Traffic

The transport impacts of the park expansion were assessed and presented in the Transport Assessment, submitted as part of the planning application made in 2017 that received conditional approval in 2018. The Transport Assessment considered the typical operation of the expanded park, and included activities associated with this licence application, such as the general operation of the hotel and restaurant.

The Transport Assessment included an appraisal of the forecast impact on the local highway network and concluded that junction operation would generally not materially worsen, primarily due to the off-peak nature of traffic flows associated with the park. Doncaster Council, as the local planning and highway authority, agreed with the findings of the Transport Assessment and a number of mitigation proposals were agreed and conditioned as part of the planning approval.

Within the Transport Assessment, one instance of inadequate junction operation with the park expansion in place was identified, at the Hurst Lane / B1396 / School Lane junction, which was forecast to operate over capacity during peak hours. As a result, planned improvements have been designed for this junction that include signalisation of the junction and provision of a new controlled pedestrian crossing. The design has been developed in conjunction with Doncaster Council, and construction is due to start in Summer 2020. With these improvement works completed the local highway network will have capacity to handle the forecast traffic flows associated with the park expansion.

In addition to the Transport Assessment, and as part of the licence application, Doncaster Council requested an additional assessment be undertaken which considers the impact of a function, such as a wedding, conference or other private hire of the park facilities. This assessment was discussed and scoped with Doncaster Council prior to undertaking the assessment and assessed the impacts of an evening function held at a weekend. It makes a number of assumptions with regard to travel to and from the function in relation to aspects such as time of travel, modal split, vehicle occupancy and staffing levels, all based on current understanding and knowledge of attendance at previous functions. The function trip generations have then been added to the forecast trips associated with operation of

the expanded park during an average summer period and school term-time background traffic levels to provide a robust assessment. Junction operational assessments have then been carried out for the peak evening arrival and departure hours associated with the function. These operational assessments conclude that the local highway network will operate within capacity for the forecast traffic flows associated with a function and the typical operation of the expanded park.

It should also be noted that a Framework Function Traffic Management Plan has been prepared that outlines proposals for the management of additional traffic generation by functions at the expanded park. YWP will use the measures within the Plan to control traffic moving within their site and to minimise disruption to the surrounding highway network so far as is reasonably possible.

Site Access / Unsuitable Roads

The new park access roundabout on Hurst Lane and the signalised junction improvements for the Hurst Lane / B1396 / School Lane junction have been designed and developed in line with national highway standards (the Design Manual for Roads and Bridges). The designs have undergone various stages of independent Road Safety Audits and have also been developed in conjunction with, and approved by, Doncaster Council. Construction of the Hurst Lane roundabout is now complete and the construction of the junction improvement is due to start in summer 2020.

As part of the Yorkshire Wildlife Park expansion a range of additional highway safety improvements are also being provided along Hurst Lane, including new crossing facilities at the roundabout, an extended section of 30mph speed limit and an advanced queue warning sign on the approach to the railway bridge from the south. A new signal-controlled pedestrian crossing is also being installed near Hayfield School, funded by the New College Doncaster, which supplements the controlled pedestrian crossing of Mosham Road being provided at the Hurst Lane / B1396 / School Lane junction. All highway works and safety improvements have been designed in close consultation with Doncaster Council and South Yorkshire Police and carriageway widths and standards of highway routes and junctions leading to the new park entrance are appropriate for the forecast level of traffic associated with the expanded park.

Hurst Lane Footpath

Although the park expansion includes a number of measures to encourage people to walk to the park, the number of people who can and will is limited by the number of homes within walking distance. Notwithstanding this, as part of the park expansion, additional pedestrian facilities are being provided that will benefit not only park visitors but also the wider community.

The new YWP entrance roundabout on Hurst Lane includes a pedestrian refuge with dropped kerbs and tactile paving to facilitate crossing the road at the new site entrance, the 30mph speed limit along Hurst Lane is being extended towards Auckley, a new pedestrian-controlled crossing is being provided as part of improvement works at the Hurst Lane / B1396 / School Lane junction (Lidgett Crossroads) and a new signal-controlled pedestrian crossing is also being installed near Hayfield School, the latter funded by the New College Doncaster. Existing pedestrian-controlled crossings at the Hurst Lane / Hayfield Lane junction to the south of the new park entrance will also remain in place.

As a result, with the planned improvements in place, pedestrian provision along Hurst Lane and at the Hurst Lane / B1396 / School Lane junction will be improved.

2017 Transport Assessment

The scope and method of the Transport Assessment submitted in 2017 as part of the planning application that received conditional approval in 2018 was discussed and agreed with Doncaster Council prior to undertaking the assessment. The assessment complied with all requests made by Doncaster Council in relation to assessment days and time periods, and included detailed analysis of two weekday and one weekend time periods. The assessment was also undertaken in accordance

with all relevant local and national guidance regarding the days on which baseline traffic surveys are undertaken and the derivation of representative traffic flows . It should therefore be noted that guidance published by the Department for Transport indicates that only Monday to Thursday can be considered neutral and representative of weekday traffic levels and that Fridays are not considered to be reflective of typical weekday traffic volumes and patterns.

The Transport Assessment considered the typical operation of the expanded park, including typical levels of hotel occupancy and the general operation of the hotel and restaurant. In addition, and as part of the licence application, Doncaster Council requested an additional assessment be undertaken which considers the impact of a function, such as a wedding, conference or other private hire of the park facilities. This assessment was again discussed and scoped with Doncaster Council prior to undertaking the assessment and assessed the impacts of an evening function held at a weekend. It makes a number of assumptions with regard to travel to and from the function in relation to aspects such as time of travel, modal split, vehicle occupancy and staffing levels, all based on current understanding and knowledge of attendance at previous functions. The function trip generations have then been added to the forecast trips associated with operation of the expanded park during an average summer period and school term-time background traffic levels to provide a robust assessment. Junction operational assessments have then been carried out for the peak evening arrival and departure hours associated with the function. These operational assessments conclude that the local highway network will operate within capacity for the forecast traffic flows associated with a function and the typical operation of the expanded park.

From: Stacey Austin <stacey.austin@boxesandpackaging.co.uk>
Date: 10 June 2020 at 16:59:39 BST
To: Louise Millington <l.millington@yorkshirewildlifepark.com>
Subject: Overview of Consultative Committee

Reference: Licence Application

To whom it may concern

Over the last 2 years the Yorkshire Wildlife Park has run a Consultative Committee, to proactively engage with local parish councils and community groups with regards to all aspects of the new development and the existing Park. The committee started on the 6th November 2018 and has sat on 6 occasions. The committee brings together the following local groups:

- Doncaster MBC
- Auckley Parish Council
- Blaxton Parish Council
- Cantley with Branton Parish Council
- Finningley Parish Council
- Doncaster Chamber of Commerce
- Doncaster Sheffiled Airport
- Doncaster College and University Centre
- New College Doncaster
- Finningley Scott Group

The agenda items for the committee are based around the following key headings:

- Updates on standard operations at YWP
- Updates on Expansion plans and build schedules
- Educational updates
- Community Initiatives
- AOB

In addition to the scheduled Committee meetings I have also chaired Extraordinary Committee Meetings to discussion particular focus areas. These have included the development of Hurst Lane, and the Licence application.

Each meeting has been well attended, and included active participation for a cross section of the members. It is worth noting that YWP had no legal obligation to form a consultative committee, but felt it important to create a formal channel of communication with the local community groups.

Regards

Stacey Austin
Chair of the Consultative Committee.

Stacey Austin
Regional Managing Director -
Merseyside, Manchester, Doncaster

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Consultative Committee

c/o Joint Authorities
Governance Unit
Town Hall
Church Street
Barnsley
S70 2TA

Our ref: YWPCC/AIS

Your ref:

Date: 21 January 2020

This matter is being dealt with by: Andrew Shirt Direct Line: 01226 772207
e-mail: ashirt@syjs.gov.uk

Dear Member

YORKSHIRE WILDLIFE PARK CONSULTATIVE COMMITTEE
TUESDAY 28 JANUARY 2020

I write to inform you that the next meeting of the Yorkshire Wildlife Park Consultative Committee will be held on **Tuesday 28 January 2020 at 2.00 pm in the Outlook Suite, Yorkshire Wildlife Park, Warning Tongue Lane, Bessacarr, Doncaster, DN4 6TB**

The agenda and supporting papers are attached for information.

Car parking is available onsite in the main car park. On arrival please go to the ticket kiosks and you will be directed to the Outlook Suite.

Yours sincerely

AShirt

Andrew Shirt
Committee Secretary

Enc

Membership:

Stacey Austin (Chair)

Nick Allen (Office of Nick Fletcher MP), Jade Bancroft (Yorkshire Wildlife Park), Gil Blacklock (4th Doncaster (Finningley) Scout Group), Parish Councillor Robert Castle (Finningley Parish Council), Parish Councillor David Chorlton (Cantley with Branton Parish Council), Zoe Clayton (4th Doncaster (Finningley) Scout Group), Councillor Mick Cooper (Doncaster MBC), Councillor Steve Cox (Doncaster MBC), Erika Dodds (Doncaster Chamber and Doncaster Ambassador Programme), Parish Councillor Stephen Featherstone (Auckley Parish Council), Amy Gethin (Doncaster College and University Centre), Councillor Neil Gethin (Doncaster MBC), Malcolm Lucas (Doncaster MBC Highways), Jim McGuinness (Yorkshire Wildlife Park), Councillor Sue McGuinness (Doncaster MBC), Louise Millington (Yorkshire Wildlife Park), John Minion (Yorkshire Wildlife Park), Kate Minion (Yorkshire Wildlife Park), Keith Moran (Doncaster Sheffield Airport), Councillor Bill Mordue (Doncaster MBC), Stephen Racjan (Doncaster MBC - Finningley Ward, South Area Team), Parish Councillor Patricia Schofield (Blaxton Parish Council), Andrew Shirt (Committee Secretary, Barnsley MBC), Councillor Derek Smith (Doncaster MBC), Michael Stanley (Doncaster MBC - Leisure and Visitor Economic Development), Ian Straw (Vulcan to the Sky Trust), Peter Wass (Turner and Townsend), Cheryl Williams (Yorkshire Wildlife Park), Neville Williams (Yorkshire Wildlife Park) and Daniel Wood (New College Doncaster)

Purpose of the Committee

The purpose of the Committee is to provide a forum for ongoing communication between the local community and Yorkshire Wildlife Park, especially during the development of its expansion.

There is to be a two way communication process, with all parties providing feedback with the aim of fostering communication and building understanding between YWP, its visitors, the local community and the business community.

It also aims to stimulate interest in the development of YWP and the benefits to the local community and wider region.

The Committee will also consider the impacts of its operations on the environment, access, employment, the local and regional economy and the local communities and its residents.

The Committee will consider and comment upon reports and facilitate constructive discussion to resolve differences, when required. If there is a particular area of activity that requires more discussion or action, a separate sub-committee may be considered.

YORKSHIRE WILDLIFE PARK CONSULTATIVE COMMITTEE

28 JANUARY 2020

IN THE OUTLOOK SUITE, YORKSHIRE WILDLIFE PARK, WARNING TONGUE LANE, BESSACARR, DONCASTER, DN4 6TB

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YORKSHIRE WILDLIFE PARK CONSULTATIVE COMMITTEE

MINUTES OF MEETING HELD ON 15 OCTOBER 2019

PRESENT: Stacey Austin (Chair)
Jade Bancroft (Yorkshire Wildlife Park), Gil Blacklock (4th Doncaster (Finningley) Scout Group), Parish Councillor Robert Castle (Finningley Parish Council), Parish Councillor David Chorlton (Cantley with Branton Parish Council), Councillor Steve Cox (Doncaster MBC), Erika Dodds (Doncaster Chamber and Doncaster Ambassador Programme), Parish Councillor Stephen Featherstone (Auckley Parish Council), Jim McGuinness (Yorkshire Wildlife Park), Louise Millington (Yorkshire Wildlife Park), John Minion (Yorkshire Wildlife Park), Kate Minion (Yorkshire Wildlife Park), Juliet Owens (Office of Caroline Flint MP), Andrew Shirt (Committee Secretary, Barnsley MBC), Councillor Derek Smith (Doncaster MBC), Michael Stanley (Doncaster MBC - Leisure and Visitor Economic Development), Andrew Waddington (4th Doncaster (Finningley) Scouts Group) and Peter Wass (Turner and Townsend)

Apologies were received from: Councillor Mick Cooper (Doncaster MBC), Amy Gethin (Doncaster College and University Centre), Councillor Neil Gethin (Doncaster MBC), Councillor Sue McGuinness (Doncaster MBC), Stephen Racjan (Doncaster MBC - Finningley Ward, South Area Team), Parish Councillor Patricia Schofield (Blaxton Parish Council), Cheryl Williams (Yorkshire Wildlife Park), Neville Williams (Yorkshire Wildlife Park) and Daniel Wood (New College Doncaster)

1 WELCOME AND APOLOGIES FOR ABSENCE

The Chair welcomed everyone to the October meeting of the Yorkshire Wildlife Park Consultative Committee.

Apologies for absence were noted as above.

2 MINUTES OF THE MEETING HELD ON 11TH JULY 2019

The minutes of the meeting held on 11th July 2019 were agreed as a correct record of the meeting.

The Chair confirmed that all actions arising from the July meeting had been addressed. An update would be provided at today's meeting on the road improvements works proposed at the Mosham Road junction.

3 UPDATES ON OPERATIONS AT YORKSHIRE WILDLIFE PARK

Development Progress

Jim McGuinness provided the Committee with an update on current progress with regards to YWP's expansion build programme.

Following the update provided at the July meeting, work continued onsite at the Hurst Lane car park area, animal areas and main Hub.

Two new animal reserve areas were now complete. The bridge link works were currently underway. Roads, drainage and earth works were now complete. Pre-works on the main Hub were complete. Works on phase 1 of the Hub (foundations and steel works) was also complete. The Public Rights of Way Diversion remained "live".

Councillor Cox asked who had been responsible for authorising the bridge link works.

John Minion explained that due to an administrative error and following the departure and appointment of a new Project Manager, a piece of work had not been completed. This had led to confusion regarding authorisation of the works. John apologised for the oversight and provided Members' with reassurances that this would not happen again. If Members' had any issues to raise regarding any areas of YWP's development, they were asked to pass these onto John at their earliest opportunity.

Members were presented with a series of photos showing the work taking place onsite to phase 1 of the Hub. The foundations and steel work for the Hub was now in place. Work on the roof of the Hub had commenced. The Hub building was now ready for cladding to make the building water tight.

Several conversations had taken place regarding the external cladding of the Hub building. Working alongside Doncaster MBC's Planning department, agreement had been reached to use premium parklex timber laminated cladding for the ground floor of the Hub. The upper floor of the Hub would be cladded using corten cladding.

Highways

Peter Wass provided the Committee with an update on current progress with regards to work taking place on the highways.

Members noted that work to install a new roundabout on Hurst Lane was currently underway. Due to a number of unexpected issues, the project had been delayed by 6 weeks. The target for completion was now scheduled for 3rd November 2019. A series of road closures were planned for the October school half term holiday period (28th October to 1st November 2019).

In response to a question from Councillor Cox regarding road closures being communicated, Peter Wass confirmed that the road closures had been fully agreed with Doncaster MBC as part of the traffic management plan for the project.

Louise Millington added that, YWP did liaise with Doncaster MBC regarding the information posted on social media in respect of road closures. This was to ensure that the details posted by Doncaster MBC and YWP was identical.

Parish Councillor Castle commented that there had been no communications issued by YWP in respect of Hurst Lane being closed for a further period of six weeks.

Following discussion, it was agreed that information regarding future road closures would be circulated to Members by YWP via Andrew Shirt, when it had been agreed and was available.

Members were provided with the indicative programme for road improvement works at the Mosham Road junction as set out below:

Action	**Timescale**
Consultation with local residents	October / November 2019
Tender Works	November 2019
Appointment of preferred contractor	December 2019
Commence works	1st quarter 2020
Planned completion	End of May 2020

Meetings with Doncaster MBC's Highways Department were scheduled to take place to discuss the construction and traffic management plans. It was anticipated that a detailed construction programme would be available at the next meeting.

Following a question from Parish Councillor Featherstone, it was confirmed that there would be 4-way traffic lights installed on the junction. He also asked if feeder lanes had been considered for the junction.

Jim McGuinness stated that discussions would take place with Doncaster MBC's Highway's Department and the appointed contractor in due course.

Peter Wass informed Members that correspondence had been received from Auckley Parish Council in relation to traffic lights for the junction. A detailed response had been provided by Mott MacDonald. It was agreed that the response be circulated to Members with the draft minutes, for Members' information. **ACTION: L Millington via A Shirt**

Councillor Cox commented that he welcomed the proposal for a pedestrian crossing for school children.

4 EXPANSION BUILD PROGRAMME TO THE END OF JANUARY 2020

Members were provided with a summary of the build programme to the end of January 2020.

The schedule of upcoming works included:

- Bridge link completion
- Animal attractions area work
- The Hub roof
- Hurst Lane roundabout and Mosham Road junction

5 EDUCATION UPDATE

Jade Bancroft, YWP's Education Manager provided the Committee with an update on recent and upcoming outreach education visits to local schools and events held at YWP.

Following receipt of a grant from the World Association of Zoos and Aquariums (WAZA) for a Nature Connect project, YWP had held four very successful events to

date. An interim report had been produced and submitted to WAZA providing an evaluation of the project to date.

6 UPDATE ON COMMUNITY INITIATIVES AND DEVELOPMENTS

On behalf of Laura-Anne Innes (Project Manager at YWP), Louise Millington informed the Committee that, in partnership with the Yorkshire Wildlife Trust, YWP had hosted a number of volunteer days during August 2019 to assist with a project to improve and protect the River Torne. Members noted that the project had been funded by the Department for Environment, Food and Rural Affairs (Defra) Water Environment Grant scheme.

Louise informed Members that a feasibility study had been commissioned to design an option to reconnect the adjacent floodplain of the River Torne maximising how this area delivers for wildlife in the landscape and water quality. Furthermore, the project would also carry out a 10 hectare flood plain restoration to reconnect the river with marginal vegetation affording more opportunities for nutrient retention, plant uptake and sedimentation and improving water quality downstream.

Further volunteer days would be held in the near future. Parish Councillor Chorlton asked if Members could be informed of future volunteer days. Louise acknowledge the request.

In response to a question from Parish Councillor Featherstone, John Minion advised Members that the mitigation and control of all of YWP's land drainage and surface water in connection with the expansion was contained within YWP's planning application, which was available on Doncaster MBC's online Planning Portal.

7 ANY OTHER BUSINESS

No further items of business were noted.

8 DATE AND TIME OF NEXT MEETING

The date and time of the next meeting would be confirmed when the draft minutes were circulated to Members.

CHAIR

YORKSHIRE WILDLIFE PARK CONSULTATIVE COMMITTEE

MINUTES OF EXTRA ORDINARY MEETING HELD ON 8 JANUARY 2020

PRESENT: Stacey Austin (Chair)
Parish Councillor Robert Castle (Finningley Parish Council), Parish Councillor David Chorlton (Cantley with Branton Parish Council), Councillor Steve Cox (Doncaster MBC), Erika Dodds (Doncaster Chamber and Doncaster Ambassador Programme), Laura Anne Innes (Yorkshire Wildlife Park), Louise Millington (Yorkshire Wildlife Park), John Minion (Yorkshire Wildlife Park), Stephen Racjan (Doncaster MBC - Finningley Ward, South Area Team), Parish Councillor John Scutt (Substitute Member for Blaxton Parish Council), Andrew Shirt (Committee Secretary, Barnsley MBC), Councillor Derek Smith (Doncaster MBC), Michael Stanley (Doncaster MBC - Leisure and Visitor Economic Development), Chris White (Yorkshire Wildlife Park) and Cheryl Williams (Yorkshire Wildlife Park)

Guests: Natasha Beck (Poppleston Allen Solicitors), Peter Nash (Joynes Nash Ltd) and Mark Staniland (Mott MacDonald)

Apologies were received from: Councillor Neil Gethin (Doncaster MBC), Keith Moran (Doncaster Sheffield Airport), Parish Councillor Patricia Schofield (Blaxton Parish Council) and Daniel Wood (New College Doncaster)

1 WELCOME AND APOLOGIES FOR ABSENCE

The Chair welcomed everyone to the Extra Ordinary meeting of the Yorkshire Wildlife Park Consultative Committee.

Apologies for absence were noted as above.

2 OVERVIEW OF YWP'S FORTHCOMING PREMISES LICENCE APPLICATION

Chris White, Head of Guest Experience, YWP provided the Committee with a presentation outlining YWP's forthcoming application for a Premises Licence under the Licensing Act 2003, for the sale of alcohol, provision of public entertainment and for the provision of late night refreshment at YWP.

Members' were informed that the forthcoming Premises Licence application was in relation to activity which would take place in the new Hub area, as part of the Park's expansion programme. It was noted that the Park already had two existing Premises Licences granted by Doncaster MBC covering the sale of alcohol in the Safari Café and for the provision of outdoor public entertainment (Safari nights) which would continue in the current located area within the Park.

The forthcoming Premises Licence application would cover the sale of alcohol in three new restaurants, to hotel guests, at functions, events, weddings, conferences, parties and at attractions/entertainment as part of events taking place at the Park. The Premises Licence application would also cover the sale of alcohol in the onsite gift shops and at specialist sales for off-site consumption.

Additionally, the Premises Licence application would cover entertainment, occasional live music, music and dancing.

In relation to opening times, Members were advised that the latest time restaurants would close onsite would be midnight. The hotel would operate 24 hours for residents. The latest time that the Park's function venue would close would be 2:00 am. It was highlighted that the Park would operate closing earlier than 2:00 am.

Gift shops would operate on the same day time opening hours as the Park. Entertainment activities in the function venue and in the restaurants would operate on the same hours set out above.

Members were also provided with details of licensable activities under the Licencing Act 2003.

3 OVERVIEW OF PROPOSED CONSULTATION PLAN FOR THE PREMISES LICENCE APPLICATION

Louise Millington, Head of Legal, YWP, provided the Committee with an overview of the proposed consultation plan for the Premises Licence application.

Members' noted the proposed timetable of activity:-

- 8th January 2020 – Consultative Committee – feedback and concerns from Members.

- Week commencing 13th January 2020 – letter to residents to explain the forthcoming Premises Licence Application.

  A dedicated email address for responses from residents to be sent to consultation@yorkshirewildlifepark.com (two week deadline).

- 28th January 2020 - Consultative Committee – to obtain any further feedback from Members.

- 3rd February 2020 – Licence Application submitted to Doncaster MBC and commence advertisement of application and consultation period of 28 days.

In response to Members' questions, it was confirmed that the letter to residents would be circulated to residents residing in Branton and Auckley. It was also confirmed that, YWP would not be publicising the Licence Application on its social media platforms.

Councillor Cox commented that the Park's operations affected villages more widely than in Branton and Auckley. He felt that the letter should be circulated further than proposed by the Park.

Cheryl Williams informed Members that it was not a statutory requirement to inform residents of the Licence Application. A decision had been taken by YWP to publicise its forthcoming Application in the interests of being a good neighbour.

In response to the concerns raised by Members, it was noted that discussions would now take place with Doncaster MBC around the wider circulation of the letter.

It was agreed that a copy of the letter and information sheet being issued to residents would be circulated to Members, together with the presentation slides presented at today's meeting. This would allow Members to share the information on their social media and community pages. **ACTION: Louise Millington via Andrew Shirt**

Parish Councillor Castle raised concerns that events taking place at the Park could impact on local residents' journeys into Doncaster Town Centre, especially when hundreds of visitors were entering/leaving the Park at once.

John Minion replied that Mark Staniland (Mott MacDonald) was currently in the process of looking at different traffic scenarios with Doncaster MBC's Transportation Team. John highlighted that, not all visitors would enter/leave the Park at the same time.

In response to a question from Councillor Cox regarding traffic modelling, Mark Staniland confirmed that traffic modelling scenarios had been conducted for the whole Park use, however, they did not include one-off events, i.e. Safari Nights.

Mark added that he was currently in the process of carrying out further analysis to include one-off events, which would be submitted with the Licence Application.

John asked if clarification around the word "events" could be sought. Louise agreed to obtain clarification. **ACTION: Louise Millington**

In relation to live entertainment Councillor Cox asked if the sound levels would be monitored.

John Minion replied that systems would be in place to monitor the sound levels at live entertainment events. It was noted that events held in The Hub area would be held in-doors.

4 ANY OTHER BUSINESS

A discussion took place regarding the recent vandalism of a bus shelter located close to YWP and the possible action which could be taken to mitigate further vandalism.

5 DATE AND TIME OF NEXT MEETING

The next meeting of the Yorkshire Wildlife Park Consultative Committee is scheduled for Tuesday 28th January 2020, 2:00 pm in the Outlook Suite, Yorkshire Wildlife Park.

CHAIR

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Sue Deacon

From: Louise Millington <l.millington@yorkshirewildlifepark.com>
Sent: 12 June 2020 11:47
To: Graeme Cushion
Subject: FW: Cost of works to highways

Hi Graeme

Please see breakdown below.

Kind regards

Louise

From: Peter Wass <p.wass@yorkshirewildlifepark.com>
Sent: 12 June 2020 11:40
To: Louise Millington <l.millington@yorkshirewildlifepark.com>
Cc: Jim McGuinness <j.mcguinness@yorkshirewildlifepark.com>
Subject: RE: Cost of works to highways

Hi Louise

Good to talk with you just now, broken it down so that you can see where monies spent, NPG, SYPTE, BT Openreach, street lighting, signage etc.

	HURST LANE	MOSHAM	
Main works:	726,698.18	500,000.00	(SAY)
NPG diversion works:	129,450.00	48,008.95	
NPG balance:	10,911.12		
NPG power to signals:	600.00		
BT Openreach works:		28,535.10	
SYPTE, relocation existing bus stop:		1,052.00	
SYPTE bus shelters:	20,077.74		
Drainage survey:		10,000.00 inc Hurst Lane	
DMBC street lighting works:	90,981.36		
Signage:	37,599.30	120,585.70	
Contribution to Gate House Lane:	8,317.55		
Totals:	1,024,635.25	708,181.75	

Hope this helps?

Kind Regards

Peter

DATED 2019

WILD LIFE GROUP LIMITED

and

DONCASTER BOROUGH COUNCIL

AGREEMENT

Under Section 38 of the Highways Act 1980 and Section 33 of the Local Government (Miscellaneous Provisions) Act 1982 relating to development at Hurst Lane Auckley Doncaster South Yorkshire

SCOTT FAWCUS

ASSISTANT DIRECTOR LEGAL AND DEMOCRATIC SERVICES

DONCASTER

A N A G R E E M E N T made the day of 2019

B E T W E E N **WILD LIFE GROUP LIMITED** whose address is at Brockholes Farm Brockholes Lane Branton Doncaster DN3 3NH (Company No. 06531168) (hereinafter called "the Developer") of the first part and **DONCASTER BOROUGH COUNCIL** of Civic Office Waterdale Doncaster South Yorkshire (hereinafter called "the Council") of the second part

W H E R E A S:

(1) THE Council is the Local Highway Authority

(2) THE Developer is the estate owner in fee simple absolute in possession free from any incumbrances inhibiting or precluding dedication as a public highway of land situate at Hurst Lane Auckley Doncaster South Yorkshire shown for the purpose of identification only by red edging on drawing number MMD-381569-D-DR-00-XX-0114 Revision B annexed hereto which includes the site of the proposed road or roads shown coloured Brown, footway coloured Yellow, open spaces coloured Green and attenuation pond coloured blue and all other land required for the works hereinafter referred to and the Developer is desirous of making up the road or roads so that the same shall become a highway or highways maintainable at the public expense and has obtained the written consent of any mortgagee or chargee to the dedication of such road or roads as a public highway or highways

(3) THE Developer has requested that when the works hereinafter referred to for the making up of the road or roads have been executed and maintained as hereinafter appearing the Council shall undertake the maintenance of the road or roads as a highway or highways maintainable at the public expense which the Council has agreed to do upon the terms and conditions hereinafter appearing

NOW in pursuance of Section 38 of the Highways Act 1980 and Section 33 of the Local Government (Miscellaneous Provisions) Act 1982 IT IS HEREBY AGREED AND DECLARED by and between the parties hereto as follows :

1. INTERPRETATION

IN this Agreement where the context so admits:

The "Drawings" means the drawing numbered MMD-381569-D-DR-00-XX-0114 Revision B annexed hereto and signed by or on behalf of the parties hereto and any amended drawing signed by or on behalf of the Proper Officer and the Developer in accordance with Clause 20 hereof

The "Estimated Cost" is the sum of £425,000.00 being the amount which is in the opinion of the Proper Officer the cost of carrying out the Works within the period specified in Clause 2(1) hereof

The "Final Certificate" means the Certificate to be issued on satisfactory completion of the Works in accordance with Clause 9 hereof

The "Maintenance Period" means the period specified in Clause 8 hereof

The "Completion Certificate" means the Certificate to be issued on satisfactory completion of the Works in accordance with Clause 7 hereof

The "Proper Officer" means the officer of the Council for the time being appointed for the purposes of this Agreement or of any provision contained herein

The "road or roads" means the carriageways and footways of the road or roads hereinbefore referred to including any off-site highway drainage shown on the Drawings and includes the footpaths footways cycle ways street furniture street lighting all verges service strips service margins vehicular crossings road surface water drainage system (if any) and all other things ancillary thereto

The "Specification" means the edition of the publication entitled South Yorkshire Residential Design Guide, 2011 incorporating Technical Appendix and Specification and/or the Design Manual for Road and Bridge Works (DMRB)

The "Statutory Undertaker" means a "Statutory Undertaker" as defined in Section 329(1) of the Highways Act 1980

The "Works" means the works specified in the Schedule hereto for the making up of the road or roads

A reference in this Agreement to any statute shall be deemed to include a reference to any statute from time to time modifying consolidating or replacing the same in this Agreement

(i) the neuter gender includes the masculine and feminine gender

(ii) the singular includes the plural

(iii) covenants by two or more persons are made jointly and severally

2. DEVELOPERS LIABILITY

(1) THE Developer shall carry out and complete the Works at the Developer's expense in a good and workmanlike manner and with proper materials in accordance in all respects with the Specification and the Drawings to the satisfaction of the Proper Officer within forty-eight calendar months from the date hereof or in accordance with a programme approved by the Proper Officer or such longer period as the Proper Officer may agree in writing in accordance with Clause 20 hereof

(2) THE Works shall be completed in accordance with the provisions of Clause 7 and the approved programme or if none in accordance with the provisions of Clause 2(1)

3. DECLARATION

THE Developer hereby declares and warrants to the Council that he has and will throughout the duration of this Agreement maintain full right liberty and consent to carry out such works as may be necessary to connect the road or roads to a vehicular highway or highways

4. STATUTORY UNDERTAKERS - CONNECTIONS TO EXISTING SERVICES

THE Developer shall before connecting the road or roads with any highway or highways maintainable at the public expense give notice to each person Board or Authority being the Statutory Undertaker for the time being of any service or services laid in upon or under such highway or highways of the proposal to make such connection as if the connection were a work to be executed for road purposes and were mentioned in Section 86(3) of the New Roads and Street Works Act 1991 and any statutory modification or re-enactment thereof and shall indemnify the Council in respect of the cost of any works or measures considered necessary by any Statutory Undertaker in consequence of the proposal to make such connection

5. INDEMNITY

THE Developer hereby indemnifies the Council in respect of all actions claims demands expenses and proceedings arising out of or in connection with or incidental to the carrying out of the Works other than those arising out of or in consequence of any act neglect default or liability of the Council

6. ACCESS TO THE SITE

THE Developer shall during the carrying out of the Works give to the Proper Officer and any other officer of the Council access to every part of the works and sites thereof for the purpose of inspecting the works and all materials used or intended to be used therein

7. COMPLETION CERTIFICATE

ON completion of the Works to the reasonable satisfaction of the Proper Officer in all respects, the Proper Officer shall issue his Completion Certificate to the Developer provided that any sewer constructed under the road or roads under an agreement under Section 104 of the Water Industry Act 1991 has been certified as being or having been on maintenance. From and including the date of the Completion Certificate :

(a) the Maintenance Period of twelve calendar months shall commence to run

(b) the road or roads shall become a highway or highways and remain forever open for use by the public at large

(c) the Developer shall remain the Street Manager for the purposes of Section 49(4) of the New Roads and Street Works Act 1991 and any statutory modification or re-enactment thereof until such time as the road or roads shall become a highway or highways maintainable at the public expense.

8. OBLIGATIONS DURING THE MAINTENANCE PERIOD

DURING the Maintenance Period:

(a) the Developer at his own expense shall maintain to the reasonable satisfaction of the Proper Officer the works including all grassed and planted areas and carry out such routine

maintenance as may be necessary to facilitate use by vehicles and pedestrians

(b) the Developer at his own expense shall arrange for a Stage 3 Safety Audit to be carried out, such safety audit to be carried out within 1 month of the issue of the Completion Certificate by a contractor approved by the Council (such approval not to be unreasonably withheld or delayed) and following the audit the Developer shall carry out any measures highlighted by that audit prior to the expiration of the Maintenance Period

(c) the Developer at its own expense shall undertake routine maintenance of and be responsible for payment for energy for all street lights and illuminated traffic signs until the issue of the Final Certificate at which point the Council shall assume responsibility of the same and if the Council have carried out the installation of the street lights and illuminated traffic signs the Council at its own expense shall undertake routine maintenance of and be responsible for payment for energy for said street lights and illuminated traffic signs

9. FINAL CERTIFICATE

PRIOR to the expiration of the Maintenance Period the Developer shall forthwith at his own expense reinstate and make good any defect or damage which may have arisen from any cause whatsoever or be discovered during the Maintenance Period (including any defect in or damage to the road surface water system) of which he has been notified in writing by the Proper Officer so that the works comply with the Specification

AND THEN PROVIDED THAT

(a) the Developer has paid to the Council all amounts due to the Council under this Agreement and

(b) any necessary reinstatement or other works have been completed to the reasonable satisfaction in all respects of the Proper Officer and

(c) the Developer has delivered to the Proper Officer drawings showing the works as constructed coloured and to a scale as required by the Proper Officer then the Proper Officer shall issue his Final Certificate to the Developer reunder

10. GRANT OF RIGHTS OF DRAINAGE

BEFORE the issue of his Final Certificate by the Proper Officer the Developer shall without cost to the Council execute or procure the execution by all necessary parties of such deeds as are in the opinion of the Council necessary to secure to the Council full drainage rights in respect of such parts of the surface water drainage system of the road or roads as are situate outside the limits of the road or roads and the Council shall not be liable for the payment of compensation or legal or any other costs or fees arising on account of the execution of any such deeds

11. PROCEDURE FOR INSPECTION AND ISSUE OF CERTIFICATES

WITHIN twenty-eight days of receipt of written application from the Developer for the issue of a Completion Certificate or Final Certificate pursuant to this Agreement the Proper Officer shall inspect the works and where necessary provide the Developer with a definitive list in writing of any remedial works required to be carried out before the issue of that Certificate and any such remedial works shall be subject to the same inspection procedure detailed herein until such time as they shall be completed to the

reasonable satisfaction of the Proper Officer who within twenty-eight days thereafter shall issue the relevant Certificate

12. ADOPTION

UPON issue of the Completion Certificate the Developer hereby dedicates the Road to the public and it is hereby agreed between the parties that upon the issue of the Final Certificate the road or roads shall become a highway or highways maintainable at the public expense

13. FEES PAYABLE BY THE DEVELOPER

(1) UPON completion of this Agreement or prior to commencement of the Development if earlier the Developer shall pay to the Council the sum of £29,375.00 in respect of the costs incurred by the Council in administering the Agreement approval of the designs and inspecting the works

(2) The Developer shall pay to the Council a Commuted Sum of £20,799.00 to be used by the Council towards the future, maintenance of attenuation ponds. The Commuted Sum shall be paid in two instalments. The Developer shall pay the Council the first instalment of £10,399.50 upon the issue of the Completion Certificate. The Developer shall pay the Council the second instalment of £10,399.50 to the Council at the end of the Maintenance Period.

(3) RECEIPT by the Council of the payment of such sum shall not create any contractual relationship between the Council and the

Developer nor absolve the Developer from any liability or obligation imposed upon him by the terms of this Agreement or by statute or at common law and the Council will not be liable for any loss damage or injury which the Developer may sustain by reason of insufficient or faulty inspection of the works by the Council

(4) THE Developer shall on completion of this Agreement pay to the Council its reasonable legal costs of £1,250.00 incurred by the Council in connection with the preparation of this Agreement and duplicate(s).

14. DETERMINATION BY THE COUNCIL

IF the Developer fails to perform or observe any of the conditions stipulations or obligations on his part contained herein or if a receiving order in bankruptcy is made against him or if the Developer is being wound up or if the Developer enters into a composition or scheme of arrangement (otherwise than for the purpose of amalgamation or reconstruction) the Council may without prejudice to any of its rights claims or remedies against the Developer in respect of such non-performance or non observance determine this Agreement (except for Clause 15 hereof) by notice in writing signed by the Proper Officer and delivered to the Developer or sent by post to the address stated in this Agreement.

15. POWER TO EXECUTE WORKS IN DEFAULT

WITHOUT prejudice to Clauses 2 and 14 hereof if the Developer fails to execute or complete the works in accordance with the Developer's obligations hereunder the Council shall after not less than twenty-eight days notice in writing to the Developer be entitled to execute or complete the works

in default by its own employees or by contract or otherwise and to recover the cost as certified by the Proper Officer from the Developer.

16. PART OR PARTS

NOTWITHSTANDING anything hereinbefore contained the Developer may from time to time during the currency of this Agreement apply to the Proper Officer for his Completion Certificate in respect of any part of the road or roads (being the whole width of the road or roads between points to be defined in the application) and if the Proper Officer shall be satisfied that the part so defined is in all respects suitable to be treated as a separate road for the purposes of construction and adoption in accordance with the several provisions contained in this Agreement then he shall issue a separate Completion Certificate as the case may be in respect of that part and thereafter the same proceedings may be taken in respect of the said part of the road or roads as if the said part were the subject of a separate Agreement under which the terms of this Agreement applied to the said part separately from the remainder of the road or roads but without prejudice to the application of this Agreement to the remainder of the road or roads .

17. CONTRACTS (RIGHTS OF THIRD PARTIES) ACT 1999

No person not a party to this Agreement shall pursuant to the Contracts (Rights of Third Parties) Act 1999 be entitled to enforce any of the provisions hereof.

18. ASSIGNMENT

THIS Agreement may not be assigned by the Developer without the consent in writing of the Council which consent shall not be unreasonably

withheld. A draft Deed of Assignment must be submitted to the Council for approval.

19. ARBITRATION

IN the event of any dispute arising out of this Agreement the same shall be referred to a sole arbitrator to be agreed between the parties or failing agreement to be appointed by the President for the time being of the Institution of Civil Engineers and in this respect this Agreement shall be construed as a submission to arbitration within the meaning of the Arbitration Acts 1950 and 1996 or any statutory re-enactment or modification thereof.

20. VARIATIONS

WHERE in Clause 1 of this Agreement in respect of Drawings and/or in Clause 2(1) of this Agreement in respect of time periods the Parties hereto may subject to mutual joint agreement vary or replace any Drawings or extend the time period respectively by an exchange of correspondence signed by the Proper Officer on the part of the Council and the duly authorised representative on the part of the Developer such correspondence or copies thereof to be annexed to this Agreement by way of memorandum noting the variation or time period extension.

THE SCHEDULE

1. All highway drainage
2. All other drainage contained within the highway
3. All kerb foundations and where appropriate kerbs including lowering at vehicle crossings and pram ramps
4. Carriageway sub-base base course and any supporting structures thereto
5. Carriageway binder course surfacing where appropriate

6. Demarcation of sight lines and clearance of vision splays

7. Street lighting

8. Pedestrian ways and cycle ways (if any)

9. Carriageway surface course

10. Vision splays and verges

11. Street furniture

12. Street name plates

13. Road markings and road signs

14. All other works described in the Specification and shown in the Drawings

15. Sewers under the road are on maintenance

IN WITNESS whereof such of the parties as are bodies corporate have caused their Common Seal to be hereunto affixed in the presence of the persons who have signed as witnesses thereto and such of the parties hereto as are individuals have signed and sealed this Agreement in the presence of the persons who have added their signatures as witnesses.

THE COMMON SEAL of)

WILD LIFE GROUP LIMITED)

was hereunto affixed to this Deed in)

the presence of:-)

THE COMMON SEAL of)

DONCASTER BOROUGH COUNCIL)

was hereunto affixed to this Deed in)

the presence of:-)

Authorised by the Assistant Director Legal and Democratic Services

No. in Seal Register