# HOPKINS ESTATES LTD 

## CHARLTON HORETHORNE

## TRANSPORT STATEMENT

## JULY 2023

Key Transport Consultants Ltd
26 Berkeley Square, Bristol, BS8 1HP
T: 01179209430
www.key-transport.com

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## 1. INTRODUCTION

1.1 Key Transport Consultants Ltd is retained by Hopkins Estates Ltd to provide professional transport advice in respect of a site located on the northwest of Charlton Horethorne, Somerset. This document is to be submitted with a planning application for development of the site.
1.2 The proposal at Charlton Horethorne for which planning permission is being sought is for up to 31 new homes that will be a mixed of private and affordable homes, as well as two commercial units and allotments for local residents. This report reviews the transport implications and access options for the site in terms of pedestrians, cyclists and vehicular traffic.
1.3 The structure of this TS report is summarised below:

- Section 2 describes the existing conditions of the local transport network within the vicinity of the development site;
- The proposals for the development site including access, servicing and parking arrangements are outlined in Section 3;
- Section 4 sets out the transport policy context;
- The accessibility of the site to local facilities by alternative modes of travel to the private car are examined in Section 5;
- Section 6 provides an assessment of trip generation and likely traffic impacts;
- And finally, a summary and conclusions are provided in Section 7.


## 2. SITE LOCATION AND LOCAL TRANSPORT NETWORK

2.1 This section provides a summary of the characteristics of the development site including location, context, and other relevant transport information relating to the current condition of the transport network including collision data.

## Strategic Transport Setting

2.2 The site, which can be seen in Figure 1, is currently a field located on the northern side of Charlton Horethorne. Figure 2 shows the site in a more local context. The site is a triangular shape that is bordered by fields to the north, to the east residential properties and North Road and Harvest Lane forms the southwest border.
2.3 Harvest Lane is a connecting route between North Road and Violet lane which merges into an unnamed road. Harvest Lane a single carriageway country lane and subject to national speed limits and a 30 mph speed limit at the approach the North Road junction.
2.4 North Road is a two-way single carriageway that is subject to 30 mph speed limits. The road merges into Blackford Road at the north end of the site and meets the B3145 south of the site. Blackford Road runs north for about 230m then splits into Quarry Hill and an unnamed road. The B3145 runs northeast through North Cheriton and Lattiford before connecting to the A357 and south west the B3145 connects to Sherborne.

## Pedestrian and Cycle Routes

2.5 There are limited footways in Charlton Horethorne, as is common in rural settlements, although there are a number of rights of way surrounding the village. There are footways on at least one side of the road along the B3145 within the main centre of the village.
2.6 The closest National Cycle Route (NCR) is NCR 26 which is about 4km west of the site, which is a 16 -minute ride away. The NCR 26 goes north towards Glastonbury and connects to NCR 3 in Glastonbury. South the NCR 26 goes towards Sherbourne and further towards Yeovil and Dorchester.

## Public Transport

2.7 The closest bus stop, called Kings Arms, is located on North Road by the junction to the B3145, south of the site. The stop services one route, the 646 which is a school bus.

## School Travel

2.8 From the site visit, secondary school children were observed to be collected by two different mini-buses from two locations, presumably for different schools. One stopped at the church entrance, close to the primary school, and the other at the Horse Lane junction.
2.9 Given the catchment area, some primary school pupils are driven to school, with parents stopping on the road outside. Residents from the village can walk to the school. It is understood that the local authority is looking to employ a school crossing assistant.

## Personal Injury Accident Data

Personal Injury Road Traffic Collision data for the period between 2017 and 2021 has been reviewed on the local road network. The data has been obtained from Crashmap.co.uk, shown on the insert below.


Insert 1: personal injury record from Crashmap.co.uk
2.11 The results show that there was one collision, causing slight injury in the village. This collision involved two cars and in resulted in one casualty and occurred in December 2021.

## 3. DEVELOPMENT PROPOSALS

3.1 The development site is to the north of the village of Charlton Horethorne off Harvest Lane, which can be seen in Figures 1 and 2.
3.2 The proposals are for 31 houses/flats comprising three one-bed flats, one two-bed flats, four two-bed houses, 15 three-bed houses, eight four-bed houses and three four-bed/custom build plots. Seven of the houses and all of the flats will be affordable, with the layout shown in Appendix A.
3.3 The proposals also include a small commercial unit containing smaller units/offices totalling $655 m^{2}$ and eight allotments.

## Parking

3.4 Most of the houses will have two parking spaces, and most will also have a double-garage.
3.5 Four parking spaces are provided for allotment users and visitor parking. Whilst the allotments would be for local residents, users would still need to drive occasionally when delivering heavier items.
3.6 The commercial units would have 13 separate parking spaces.

## Access Proposals

3.7 A pedestrian and cycle access is proposed onto North Road, providing the most direct route into the village centre for residents, as well as allowing other residents pedestrian access to the allotments, commercial building and public open space.
3.8 The main vehicular access points for the site are onto Harvest Lane. A separate access is proposed for commercial units to the residential area, although the two areas would be linked by a footway.
3.9 Visibility splays of $2.4 \times 43 \mathrm{~m}$ are proposed in each direction at each access. The existing 30 mph speed limit ends just south of the site boundary, but would support it being extended past the site frontage. A speed survey on Harvest Lane in 2019 showed speeds of 33 and 35mph, so already close to the 30 mph speed limit.

The proposed site access is included as Figure 3.
3.11 Swept path plots are provided for a refuse lorry turning at the turning heads within the site at Appendix B.

Passing places are proposed on Harvest Lane and these are discussed in more detail in Section 6 but shown on Figure 4.

## Other improvements

Drawing 0987-006 shows a traffic calming option at the school access. At the moment, there is no footway on the school side. A proposed build-out would allow pedestrians a safe place to wait/land and shortens the crossing distance and therefore time to cross. It would also help to reduce traffic speeds on the approach to the village, as northbound traffic would have to giveway and negotiate the build-out. In traffic capacity terms, it would be no different from what
happens now with parked parents/carers cars reducing the carriageway to a single lane working. Data from https://www.trafficchoices.co.uk/somerset/traffic-schemes/chicanes.shtml states that speeds through the chicane is likely to be 21 mph .

## 4. TRANSPORT POLICY CONTEXT

4.1 This section of the TS summarises the various national, regional and local transport-related policies and guidance in the context of the site which must be considered when developing suitable development proposals for the site.

## National Policy

## National Planning Policy Framework

4.2 The National Planning Policy Framework (NPPF) was published by the Ministry for Housing, Communities and Local Government in July 2021. Section 9 of NPPF is titled Promoting Sustainable Transport and comprises nine paragraphs that specifically address transport issues for plan making and development.
4.3 The first paragraph of Section 9, numbered paragraph 104, sets out the main transport objectives of the NPPF. It states:
'Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:
a) the potential impacts of development on transport networks can be addressed;
b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised - for example in relation to the scale, location or density of development that can be accommodated;
c) opportunities to promote walking, cycling and public transport use are identified and pursued;
d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account - including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and
e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.'

### 4.4 Paragraph 105 states:

'The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in
both plan-making and decision-making.'
4.5 Paragraphs 106 to 109 provide the transport framework for planning policies, so they provide a context to plan making but are not directly relevant to development proposals.
4.6 Paragraph 110 is presented under a sub-heading of 'Considering development proposals'. Paragraph 110 states that:
'In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:
a) appropriate opportunities to promote sustainable transport modes can be - or have been - taken up, given the type of development and its location;
b) safe and suitable access to the site can be achieved for all users;
c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code 46; and
d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.'
4.7 Paragraph 111 states:

Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

### 4.8 Paragraph 112 states:

'Within this context, applications for development should:
a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second - so far as possible - to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
c) create places that are safe, secure and attractive - which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;
d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and
e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.
4.9 Paragraph 113 sets out the requirements for transport documentation to be submitted in support of a planning application and reads:
'All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed".

## Planning Practice Guidance

The following is noted stating Travel Plans, Transport Assessments and Statements should be:

- Proportionate to the size and scope of the proposed development to which they relate and build on existing information wherever possible;
- Established at the earliest practicable possible stage of a development proposal;
- Be tailored to particular local circumstances (other locally-determined factors and information beyond those which are set out in this guidance may need to be considered in these studies provided there is robust evidence for doing so locally);
- Be brought forward through collaborative ongoing working between the local planning authority/transport authority, transport operators, rail network operators, highways agency where there may be implications for the strategic road network and other relevant bodies....


## Local Policy

4.11 Relevant local transport policy is set down in the Somerset Local Transport Plan and, South Somerset Local Plan.

## Somerset's Future Transport Plan

4.12 Somerset's Future Transport Plan 2011-2026 sets out a long term strategy for helping to deliver the County Council's priorities.
4.13 The relevant headline statements of the FTP are that Somerset will:

- 'We will help our communities to help themselves. We will help them to make improvements to transport, allow them to shape our work and deliver improvements in partnership with other organisations.
- We will help people make smarter travel choices. We will provide high quality transport information and encourage organisations to develop 'Travel Plans'.
- We will help people walk and cycle to Somerset's schools and make the school transport services we provide more efficient.
- We will work with partner organisations, for example, by helping drivers and riders to improve their skills.
- We will help people be more active by giving them more opportunities to travel in a healthy way, such as by walking or cycling.
- We will talk to healthcare providers about transport plans, to help make it easier for people to access their services. We will help to develop 'out of hours' transport to healthcare services.
- We will work to maintain our Rights of Way network and improve the information available to help people use them.
- We will consider how electric vehicles, responsibly sourced biofuels and other new technologies could help us meet our goals and challenges.
- We will work with developers to ensure they take into account the way people travel, and how people travel, to access services.
- We will help improve parking facilities to encourage more sustainable means of travel. We will work to improve the management of parking and help plan new developments appropriately.
- We will help hauliers choose the most appropriate routes and work to improve communication between communities and the hauliers that serve them.
- We will do what we can to maintain essential services in the early years of this plan and work to improve the way services work together and provide better bus information during its later years.
- We will encourage people to cycle more by helping them to make smarter travel choices and get better cycling skills. We will support the provision of appropriate and well connected cycling facilities.
- We will help people make more trips on foot and help people see the benefits of walking.
- We will work in partnership with the rail industry and other stakeholders to encourage more people to travel by train. We will support better services, facilities, integration and improvements in the way people see train travel.
- We will work to better manage the traffic on the roads and improve the most congested junctions and routes. We will work with developers to try and make sure new developments don't make conditions worse.
- We will promote safe and responsible motorcycling by working with our partners to deliver our road safety policy and helping to improve parking provision.'


## Somerset County Council Transport Policies Schedule of Policies

The Somerset County Council Transport Policies Schedule of Policies came into force in April 2011. Relevant policies are set out in the Schedules of Policies Document dated March 2011 and include:
‘SUS 4 Cycling
We will encourage people to cycle more by helping them to make smarter travel choices and get better cycling skills. We will support the provision of appropriate and well connected cycling facilities.

SUS 5 Walking
We will help people make more trips on foot and help people see the benefits of walking.
SUS 7 Rail
We will work in partnership with the rail industry and other stakeholders to encourage more people to travel by train. We will support better services, facilities, security, integration and improvements in the way people see train travel.

ECN 2 Sustainable Development
We will work with developers to ensure they take into account the way people travel, and how people travel, to access services.

HLT 1 Stay Active
We will help people be more active by giving them more opportunities to travel in a healthy way, such as by walking or cycling.'

## Transport and Development March 2011

4.15 Somerset County Council published the document Transport \& Development in March 2011 which sets out the County Council's policy appraisals which will inform advice to district councils, developers and others.

An evidence-based approach will be taken to determine the effectiveness of the proposed transport interventions for the implementation of the HPC transport/freight strategy. We will require the HPC project promoter to adhere to performance criteria in relation to key parts of the transport network(18). It should be noted that as such, a transport strategy package of measures will be expected to meet this approach, which would include.

- Highway improvements, including junction improvements and more strategic network improvements identified through the transport assessment process and associated evidence base;
- Public transport provision, including waiting facilities, support for existing and additional services, and priority measures that will ensure public transport journey time reliability;
- Intelligent Transport Systems (ITS) to promote and support the use of public transport facilities;
- Road Safety Improvements;
- Infrastructure needs associated with deploying a Traffic Management Plan;
- Pedestrian and cyclist facilities, including those which support the use of public transport and support the provision of a high quality public realm;
- Motorcycle parking;
- Park and Ride facilities if demonstrated as necessary,
- Car parking management for the site, associated development and residential areas, including clearway provision,
- Coach and rail facilities;
- Provision and management of water-borne transport;
- Highways and bridge strengthening measures;
- Transport maintenance packages; and
- Transport monitoring strategy to assess effectiveness of measures and identify further mitigation, where necessary.'


## Somerset County Council Parking Strategy March 2013

The Parking Strategy sets out 'optimum' parking standards for new development.
4.17 For information, the SCC Parking Standards set out the following for optimum parking standards for residential development in locations such as Charlton Horethorne, which is in Zone B. The standards are as follows:

- Cycle Parking - 1 space per bedroom;
- Motorcycle Parking - 1 space per 5 dwellings or 1 space per 20 car spaces, whichever is greater;
- Car Parking - 1.5 car spaces per 1 Bedroom, 2 car spaces per 2 Bedroom, 2.5 car spaces per 3 Bedroom and 3 car spaces per 4 Bedroom;
- Visitor Parking - none where half of parking is unallocated, or 0.2 spaces per dwelling where less than half of parking is unallocated.
- Electric Vehicle Charging Points - In all new residential developments, access to 16 amp electric vehicle charging points will be provided to all dwellings.


## South Somerset Local Plan 2006-2028

4.18 The South Somerset Local Plan was adopted in March 2015. Relevant transport policies are provided below.

Policy SS2 covers Development in Rural Settlements and states:
Development in Rural Settlements (not Market Towns or Rural Centres) will be strictly controlled and limited to that which:

- Provides employment opportunities appropriate to the scale of the settlement; and/or
- Creates or enhances community facilities and services to serve the settlement; and/or
- Meets identified housing need, particularly for affordable housing.

Development will be permitted where it is commensurate with the scale and character of the settlement, provides for one or more of the types of development above, and increases the sustainability of a settlement in general. Proposals should be consistent with relevant community led plans, and should generally have the support of the local community following robust engagement and consultation. Proposals for housing development should only be permitted in Rural Settlements that have access to two or more key services listed at Paragraph 5.41.

The facilities listed under paragraph 5.41 are:

- local convenience shop;
- post office;
- pub;
- children's play area/sports pitch;
- village hall/community centre;
- health centre;
- faith facility; and
- primary school.
4.21 Policy TA1 relates to Low Carbon Travel and states:


## 'POLICY TA1: LOW CARBON TRAVEL

All new residential and employment developments in South Somerset should, subject to general viability:
i. Provide Travel Information Packs;
ii. Provide for the charging of electric vehicles with an external charging point of at least 16 amps adjacent to each parking space and within the curtilage of the site. Such charging points should also be provided for garages within the development;
iii. Provide a Green Travel Voucher for each occupier/employee valid for 1 year for use on sustainable transport;
iv. Provide facilities for cycle parking within the new development commensurate with the levels and standards designated in the SCC cycle parking strategy;
v. Include Travel Plans (commensurate with Policy TA4);
vi. Ensure that sustainable transport measures are in place and operational concurrent with first occupancy.

Additionally, developments of all new residential dwellings should:
vii. Enable ease of working from home by providing a designed in specific work area with broadband connections. Where the scale of new residential development or employment sites would have an impact on existing public transport planning obligations will be sought to:
viii. Deliver improved public transport connections increasing accessibility through enhancements to either existing conventional bus routes or existing Demand Responsive Transport schemes or the provision of new services and new bus stops, bus timetables and bus shelters. These should be commensurate with the scale of the development that enables good on-going connections with the public transport network. The developer will be required to enter into a planning obligation in
accordance with Policy SS6 to ensure provision of such facilities, which shall be provided prior to first occupation of the new development.

## Delivery

The following delivery bodies will be key in implementing Policy TA1:

- South Somerset District Council;
- Somerset County Council;
- Town and Parish Councils;
- Developers and Landowners.'

| Monitoring Indicators | Target |
| :--- | :--- |
| Providing Travel Information Packs | $100 \%$ of applications with a Travel <br> Information Pack |
| The provision of charging for electric <br> vehicles | $100 \%$ of developments to have $1 \times 16$ <br> amp charging point per parking space |
| The provision of Green Travel <br> Vouchers | The number of Green Travel Vouchers <br> issued should equate to the number <br> occupiers/employees. Take up should <br> be in the region of 20\% |
| The provision of Travel Plans <br> (commensurate with Policy TA4) | $100 \%$ delivery of appropriate Travel <br> Plans with relevant planning <br> applications |
| Ensuring that sustainable transport <br> measures are in place and operational <br> concurrent with first occupancy | $100 \%$ sustainable transport measures <br> are in place and operational <br> concurrent with first occupancy |
| Enabling home working in residential <br> dwellings | $100 \%$ of new dwellings providing a <br> designed in specific work area with <br> Broadband connections |
| Improvements to public transport | $100 \%$ delivery of appropriate public <br> transport improvements with relevant <br> planning applications |

All new development shall be required to address its own transport implications and shall be designed to maximise the potential for sustainable transport through:
i. Safeguarding existing and new transport infrastructure, which is important to an efficient and sustainable transport network from development that would prejudice their transport use;
ii. Securing inclusive, safe and convenient access on foot, cycle, and by public and private transport that addresses the needs of all;
iii. Ensuring that the expected nature and volume of traffic and parked vehicles generated by the development would not have a detrimental impact on the character or amenity of the area and would not compromise the safety and/or function of the local or strategic road networks in terms of both volume and type of traffic generated;
iv. Ensuring that proposals, which specifically require a location with direct access to the strategic road network due to the volumes and quality of traffic generated, are well located on these networks. There is a presumption against direct access from the strategic road network. Exemptions will only be made where the type of development is such that it requires a high order (of route hierarchy) route location, such as roadside service stations or freight transfer facilities;
v. Assessing the transport impact of development and ensuring delivery of the necessary transport infrastructure for the proposal and requiring larger schemes to prepare Transport Assessments.
vi. Requiring car parking and vehicle servicing at levels appropriate to the development and its location, in accordance with the approved/adopted standards identified in Policy TA6.

## Delivery

The following delivery bodies will be key in implementing Policy TA4:

- South Somerset District Council;
- Somerset County Council;
- Town and Parish Councils;
- Developers and Landowners.

| Monitoring Indicators | Target |
| :--- | :--- |
| Delivery of appropriate access for | 100\% endorsement of planning |
| new development. | applications by Highways Authority |
|  | (Subject to mitigating |
|  | circumstances). |

## 5. ACCESSIBILITY TO LOCAL SERVICES AND FACILITIES

5.1 This section considers accessibility by alternative modes from the development site to jobs, shops, education and services
5.2 The National Travel Survey (NTS): 2021, published in August 2022, provides details of trips per person per year. Data is summarised in Table 5.1 below.
5.3 It is advised that the 2021 NTS survey fieldwork continued to be impacted by coronavirus restrictions thus impacting on the number of surveys conducted. While response rates increased from 2020, they were still lower than in 2019. Furthermore, 'caution is needed when interpreting these results for 2020 and 2021 as they are likely to be less representative of residents of England compared to previous years'. The data does however continue to show general trends in use of modes.

Table 5.1: Proportion of Total Trips by Mode and Distance
Modal Split by Distance

| Distance | Car Driver | Car <br> Passenger | Bus | Train | Walk | Cycle | Other |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{0 - 1 . 6 k m}$ | $11.21 \%$ | $5.82 \%$ | $0.24 \%$ | $0.00 \%$ | $81.88 \%$ | $0.61 \%$ | $0.25 \%$ |
| $\mathbf{1 . 6 - 3 . 2 k m}$ | $34.43 \%$ | $17.74 \%$ | $2.54 \%$ | $0.03 \%$ | $40.43 \%$ | $3.10 \%$ | $1.73 \%$ |
| $\mathbf{3 . 2 - 8 k m}$ | $52.29 \%$ | $26.70 \%$ | $6.83 \%$ | $0.17 \%$ | $7.65 \%$ | $2.82 \%$ | $3.54 \%$ |
| All Journeys | $39.60 \%$ | $19.54 \%$ | $3.51 \%$ | $1.48 \%$ | $31.02 \%$ | $1.98 \%$ | $2.87 \%$ |

5.4 The data still provides evidence of the relationship between distance and probability of use of different modes of transport. The analysis shows that walking is the dominant mode for trips under 1.6km (81.88\%).
5.5 For distances over 1.6 km but less than 3.2 km , use of a car is the most popular mode of travel ( $52.17 \%$ for car driver and passenger), while walking is the second most popular mode, chosen by over a third (40.43\%).
5.6 For all journeys, use of bus and train is still lower that pre-pandemic levels while active modes (walking and cycling) generally remain higher. Generally, car use is also slightly lower than prepandemic levels but an increase from the 2020 survey.

## Pedestrian and Cycle Facilities

5.7 Pedestrian facilities in Charlton Horethorne are limited, as is common in many rural settlements with low traffic speeds and flows. There is a footway along the east side of the B3145 within the
main area of the village, between opposite the Primary School and Village Hall.
5.8 All the roads are tarmacked and level in the village and suitable for cyclists. The closest National Cycle Route is the NCR 26 that is a 16 minute cycle ride, about 4 km west of the site. The NCR 26 goes north towards Glastonbury and connects to NCR 3 in Glastonbury and south the NCR 26 goes towards Sherbourne and further towards Yeovil and Dorcester.

## Public Transport Facilities

5.9 In the village centre there is a bus stop that serves the school route 646 for Strode College and Pitcombe Bruton School.

## Access to Facilities

5.10 Local facilities are shown on Figure 2. Facilities in the village include Charlton Horethrone Church of England Primary School, Charlton Horethrone Village Hall, The Kings Arms Hotel and Pub and Charlton Horethrone Village Shop. The shop is open from 08:00 to 17:00 Monday to Friday, 08:00 to 13:00 on Saturdays and 09:00 to 12:00 on Sundays, and serves fresh produce as well as serving coffee and hot drinks. ${ }^{1}$ There is also the St Peter \& St Paul's Church to the south, just over 650m walk from the site, and Charlton Croquet Club, just south of the primary school.
5.11 The development will also include a children's play area, and as noted previously allotments for local residents.
5.12 These are all well within a reasonable walk from the site, with the play area and allotments within the site.
5.13 The pedestrian route from the site to local facilities for some residents could be via the pedestrian access onto North Road. North Road is wider than Harvest Lane and has more residential properties facing onto it, offering passive surveillance. The route from the site via Harvest Lane benefits from a footway along part of the site frontage and passing places further along.
5.14 Roads in rural settlements often don't have footways or lighting and are typical with many other settlements in the area. Residents are generally prepared and carry a torch when necessary.

## Summary

5.15 The site lies within easy reach of a range of services and facilities by a range of means of transport including walking and cycling. The primary school is within walking distance, and there

[^0]is a bus service to secondary schools.
5.16 As set out earlier Policy SS2 of the Local Plan defines that in rural communities development will only be allowed if access to at least 2 services/facilities is available. In the case of Charlton Horethorne, and this application site specifically, there is access to 6 out of the 8 facilities listed which means the proposals meet favorably with this accessibility element of policy SS2.

## 6. TRAFFIC IMPACT

6.1 This section considers the likely impact of traffic associated with the proposed development on the local road network. The proposed development is for 31 residential dwellings of mixed private and affordable housing and two small commercial units.

## Existing Flows

6.2 An automatic traffic count was installed for the week commencing $4^{\text {th }}$ June 2019, and the output is included as Appendix D.
6.3 As expected, traffic flows on Harvest Lane were low, with a two-way 5-day average peak hour flows of just 3 in the morning peak and 4 in the evening peak hour. This highest two-way peakhour flow over the entire week was 9 vehicles on a Tuesday evening, or roughly one every seven minutes.

## Trip Generation

6.4 The TRICS database was used to estimate average trip rates for proposed use of the site. To avoid sites with different characteristics some sites were omitted from the assessment, such as sites in London and the Republic of Ireland. Surveys have been selected from the TRICS 7.9.4 category 03/M Mixed Private/Affordable Housing for the proposed use, using weekday surveys of development in neighbourhood centre sites under the subcategory of villages. To retain a sufficient number of sites, the range was set to between 0 and 100 units.
6.5 For 03/M Mixed Private/Affordable Housing, eight comparison sites were identified which is considered adequate to provide a robust average trip rate. Table 6.1 below sets out the morning and evening peak hour trip rates for the proposed residential use. The TRICS output is provided as Appendix E.

| Table 6.1: TRICS Weekday Residential Vehicle Trip Rates - per Dwelling |  |  |  |
| :---: | :---: | :---: | :---: |
| Time Period | Arrivals | Departures | Two Way |
| $08: 00-09: 00$ | 0.150 | 0.362 | 0.512 |
| $17: 00-18: 00$ | 0.333 | 0.162 | 0.495 |

6.6 On the basis of these trip rates the proposed development of 31 dwellings would generate the morning and evening peak hour trips shown in Table 6.2.

Table 6.2: TRICS Weekday Residential Vehicle Trips - 31 dwellings

| Time Period | Arrivals | Departures | Two Way |
| :---: | :---: | :---: | :---: |
| $08: 00-09: 00$ | 5 | 11 | 16 |
| $17: 00-18: 00$ | 10 | 5 | 15 |

6.7 A similar exercise was undertaken for the commercial unit, and as a worst case, office use was
chosen as it represents a worst case for traffic generation within $\mathrm{E}(\mathrm{g})$ use classes
Table 6.3: TRICS Weekday Commercial Vehicle Trip Rates - per 100m²

| Time Period | Arrivals | Departures | Two Way |
| :---: | :---: | :---: | :---: |
| $08: 00-09: 00$ | 1.338 | 0.091 | 1.429 |
| $17: 00-18: 00$ | 0.060 | 1.357 | 1.417 |

Table 6.4: TRICS Weekday Commercial Vehicle Trips -

| Time Period | Arrivals | Departures | Two Way |
| :---: | :---: | :---: | :---: |
| $08: 00-09: 00$ | 9 | 1 | 10 |
| $17: 00-18: 00$ | 0 | 9 | 9 |


| Table 6.5: Total vehicle trips |  |  |  |
| :---: | :---: | :---: | :---: |
| Time Period | Arrivals | Departures | Two Way |
| $08: 00-09: 00$ | 14 | 12 | 25 |
| $17: 00-18: 00$ | 11 | 14 | 25 |

6.8 It can be seen from Table 6.5 above that the proposed development would generate an increase of 25 two-way movements in both the morning peak and evening peak hours. Such flows average out at less than one vehicle evert two minutes, so would have very little impact on the road network.

## Shuttle Working

6.9 To the south of the site, Harvest Lane is narrow allowing only single-way traffic. Along the site frontage, Harvest Lane is widened to 5 m , enough room to allow a lorry to pass a car on a straight alignment.
6.10 The proposals are to widen the road within public highway to provide passing places for two cars to pass. These are shown on Figure 4. The first passing place is some 30 m from the junction of Harvest Lane and North Road and requires only minor widening into the verge.
6.11 The next passing point is some 120m further along Harvest Lane.
6.12 Then just over 60 m to the site frontage where the road will be widened to allow two cars to pass.
6.13 It should be noted that sections of the private drives with access onto Harvest Lane are within adopted highway and can also be used for passing places.
6.14 In order to model the impact on vehicles, a simple Junctions 10 model was constructed in order to assess any potential delay on vehicles. The distance between the two furthest passing points is some 120 m . At a speed of 15 mph (to allow for accelerating from stopped), would take some

18 seconds to traverse.
6.15 The morning peak was modelled, as the evening peak hour is broadly.
6.16 Four vehicles have been added to the proposed flows, which is double the existing flows.
6.17 The modelling shows no queues formed on Harvest Lane (queue is 0.1 cars long), and the maximum delay of around 8 seconds. The model is included as Appendix F.
6.18 The passing places would also be of use pedestrians, cyclists and horse riders passing other vehicles, although as shown above, two-way flows are in the region of less than one car every 2 minutes, so there would be few conflicts.

## Construction Traffic

6.19 Construction traffic flows will depend on build-rates and construction methods. Once a contractor, build method and programme has been decided, a Construction Traffic Management Plan will be produced and agreed with the local authority.
6.20 This will set out construction traffic routes, delivery times and dates, and any procedure required for larger deliveries if required. Suppliers would be advised of the time restrictions for deliveries and asked to use the smallest vehicle if possible.
6.21 It is assumed that HGV flows would be around 5-7 lorries a day, of varying sizes, but would depend on build-out rates.
6.22 The initial plans are to direct all HGV traffic via Sigwells Road, as shown on Figure 6. The route form Harvest Lane to Sigwells Road is narrow, but has passing places, and is used for farm machinery such as combine harvesters, and as well as being the construction traffic route for the recent Gunville development on the corner of Violet Lane and Green Lane. The route is shown on Figure 6.
6.23 Deliveries to the site would be timed to avoid 08:30-09:15 and 15:00 to 15:45 to avoid primary school children walking/cycling to school.
6.24 Local farmers and the parish council will be contracted to determine if there are days to avoid deliveries, such as harvest times, village events etc.

## 7. CONCLUSIONS

7.1 The proposed development at Charlton Horethorne 31 dwellings and two small commercial units.
7.2 Access to the site would be via Harvest Lane. Improvements along Harvest Lane would see passing points constructed. Pedestrian and cycle access will also be available via North Road.
7.3 The traffic generated by the development would be in the order of one vehicle every two minutes in the peak hours and would have no effect on the road network.
7.4 To improve pedestrian accessibility for both new and existing residents, an improved crossing of the B3145 is proposed.
7.5 Analysis of accident data does not indicate any particular safety issues in the area.
7.6 The site lies within easy reach of the village shop, pub, village hall, play area, church and primary school.
7.7 It is considered that development would comply with national and local transport policy and that there is no transport reason why the planning application should not be granted permission.

FIGURES








APPENDIX A Masterplan


## APPENDIX B Swept Path Plots






## APPENDIX C

Traffic Calming Proposals for the B3145



## APPENDIX D <br> Traffic Count

Harvest Lane, Charlton Horethorne, ATC 2

Site No. 490902
Harvest Lane
Vehicle Count Report

Site Ref. 490902

Week Begin: 04 June 2019

Channel: Westbound

|  | $\begin{array}{r} \text { O } \\ \stackrel{y}{\beth} \\ \hline \end{array}$ | $\begin{aligned} & \text { 능 } \\ & 3 \\ & 3 \\ & \hline 1 \end{aligned}$ | $\begin{array}{r} 8 \\ \text { 를 } \\ \hline \end{array}$ | $\begin{array}{r} \text { N } \\ \text { 픈 } \\ \hline \end{array}$ | $\begin{array}{r} \infty \\ + \\ +\stackrel{5}{3} \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ 5 \\ \\ \hline \end{array}$ |  | $\begin{aligned} & \text { io } \\ & \stackrel{1}{0} \\ & \text { in } \\ & \hline \end{aligned}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 00:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 06:00 | 3 | 3 | 1 | 2 | 2 | 1 | 2 | 2 | 2 |
| 07:00 | 4 | 3 | 3 | 4 | 3 | 2 | 2 | 3 | 3 |
| 08:00 | 5 | 0 | 1 | 2 | 3 | 2 | 3 | 2 | 2 |
| 09:00 | 1 | 4 | 4 | 0 | 3 | 3 | 2 | 2 | 2 |
| 10:00 | 2 | 2 | 1 | 0 | 3 | 3 | 3 | 2 | 2 |
| 11:00 | 2 | 1 | 1 | 3 | 1 | 0 | 4 | 2 | 2 |
| 12:00 | 1 | 2 | 2 | 2 | 2 | 0 | 1 | 2 | 1 |
| 13:00 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 1 | 1 |
| 14:00 | 1 | 0 | 1 | 3 | 2 | 1 | 0 | 1 | 1 |
| 15:00 | 1 | 3 | 0 | 1 | 1 | 2 | 0 | 1 | 1 |
| 16:00 | 2 | 1 | 2 | 4 | 0 | 1 | 5 | 3 | 2 |
| 17:00 | 2 | 1 | 1 | 1 | 1 | 3 | 0 | 1 | 1 |
| 18:00 | 1 | 2 | 2 | 0 | 3 | 1 | 2 | 1 | 2 |
| 19:00 | 4 | 1 | 2 | 2 | 1 | 2 | 0 | 2 | 2 |
| 20:00 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 |
| 21:00 | 0 | 1 | 1 | 2 | 1 | 1 | 0 | 1 | 1 |
| 22:00 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 23:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total |  |  |  |  |  |  |  |  |  |
| 12H(7-19) | 22 | 19 | 19 | 21 | 23 | 20 | 24 | 21 | 21 |
| 16H(6-22) | 31 | 25 | 24 | 29 | 29 | 25 | 27 | 27 | 27 |
| 18H(6-24) | 31 | 25 | 24 | 29 | 29 | 26 | 28 | 27 | 27 |
| 24H(0-24) | 31 | 25 | 25 | 30 | 29 | 27 | 28 | 28 | 28 |
| AM Peak | 08:00 | 09:00 | 09:00 | 07:00 | 10:00 | 10:00 | 11:00 | 07:00 | 07:00 |
|  | 5 | 4 | 4 | 4 | 3 | 3 | 4 | 3 | 3 |
| PM Peak | 19:00 | 15:00 | 19:00 | 16:00 | 18:00 | 17:00 | 16:00 | 16:00 | 16:00 |
|  | 4 | 3 | 2 | 4 | 3 | 3 | 5 | 3 | 2 |

PCC Traffic Information Consultancy Ltd.

Site No. 490902
Harvest Lane
Vehicle Count Report

Site Ref. 490902

Week Begin: 04 June 2019

Channel: Eastbound

|  |  | $\begin{aligned} & \text { 능 } \\ & \underbrace{0}_{3} \\ & \hline \end{aligned}$ |  | $\begin{array}{r} \text { 人 } \\ \text { 픈 } \\ \hline \end{array}$ |  | $\begin{array}{r} 8 \\ \stackrel{\circ}{5} \\ \stackrel{y}{3} \\ \hline \end{array}$ |  | $\stackrel{\rightharpoonup}{\pi}$ | $\stackrel{\text { N}}{\substack{1}}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 00:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | 3 | 3 | 1 | 1 | 2 | 0 | 2 | 2 | 2 |
| 08:00 | 1 | 1 | 1 | 1 | 3 | 2 | 1 | 1 | 1 |
| 09:00 | 2 | 1 | 0 | 0 | 2 | 2 | 1 | 1 | 1 |
| 10:00 | 2 | 2 | 1 | 3 | 1 | 4 | 2 | 2 | 2 |
| 11:00 | 5 | 3 | 4 | 6 | 3 | 2 | 2 | 4 | 4 |
| 12:00 | 3 | 1 | 1 | 2 | 3 | 1 | 2 | 2 | 2 |
| 13:00 | 2 | 1 | 2 | 2 | 1 | 0 | 2 | 2 | 1 |
| 14:00 | 1 | 1 | 1 | 2 | 0 | 1 | 2 | 1 | 1 |
| 15:00 | 1 | 2 | 1 | 3 | 2 | 2 | 2 | 2 | 2 |
| 16:00 | 0 | 2 | 3 | 1 | 1 | 3 | 1 | 1 | 2 |
| 17:00 | 3 | 3 | 3 | 2 | 1 | 4 | 6 | 3 | 3 |
| 18:00 | 1 | 0 | 0 | 2 | 1 | 3 | 1 | 1 | 1 |
| 19:00 | 5 | 2 | 4 | 6 | 0 | 0 | 0 | 3 | 2 |
| 20:00 | 1 | 4 | 1 | 3 | 1 | 1 | 1 | 2 | 2 |
| 21:00 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 22:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23:00 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| Total |  |  |  |  |  |  |  |  |  |
| 12H(7-19) | 24 | 20 | 18 | 25 | 20 | 24 | 24 | 22 | 22 |
| 16H(6-22) | 30 | 27 | 23 | 34 | 22 | 25 | 25 | 28 | 27 |
| 18H(6-24) | 30 | 27 | 23 | 34 | 25 | 25 | 25 | 28 | 27 |
| 24H(0-24) | 30 | 28 | 23 | 34 | 25 | 25 | 25 | 28 | 27 |
| AM Peak | 11:00 | 11:00 | 11:00 | 11:00 | 11:00 | 10:00 | 11:00 | 11:00 | 11:00 |
|  | 5 | 3 | 4 | 6 | 3 | 4 | 2 | 4 | 4 |
| PM Peak | 19:00 | 20:00 | 19:00 | 19:00 | 23:00 | 17:00 | 17:00 | 19:00 | 17:00 |
|  | 5 | 4 | 4 | 6 | 3 | 4 | 6 | 3 | 3 |

PCC Traffic Information Consultancy Ltd.

Site No. 490902
Harvest Lane
Vehicle Count Report

Site Ref. 490902

Week Begin: 04 June 2019

Channel: Total Flow

|  |  |  |  |  |  | $\begin{array}{r} 8 \\ \cline { 1 - 1 } \\ \\ \hline \end{array}$ |  |  | $\begin{aligned} & \stackrel{\rightharpoonup}{0} \\ & \stackrel{1}{1} \stackrel{1}{\gtrless} \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 00:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 03:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 06:00 | 3 | 3 | 1 | 2 | 2 | 1 | 2 | 2 | 2 |
| 07:00 | 7 | 6 | 4 | 5 | 5 | 2 | 4 | 5 | 5 |
| 08:00 | 6 | 1 | 2 | 3 | 6 | 4 | 4 | 3 | 4 |
| 09:00 | 3 | 5 | 4 | 0 | 5 | 5 | 3 | 3 | 4 |
| 10:00 | 4 | 4 | 2 | 3 | 4 | 7 | 5 | 4 | 4 |
| 11:00 | 7 | 4 | 5 | 9 | 4 | 2 | 6 | 6 | 5 |
| 12:00 | 4 | 3 | 3 | 4 | 5 | 1 | 3 | 3 | 3 |
| 13:00 | 2 | 1 | 3 | 3 | 2 | 2 | 4 | 3 | 2 |
| 14:00 | 2 | 1 | 2 | 5 | 2 | 2 | 2 | 2 | 2 |
| 15:00 | 2 | 5 | 1 | 4 | 3 | 4 | 2 | 3 | 3 |
| 16:00 | 2 | 3 | 5 | 5 | 1 | 4 | 6 | 4 | 4 |
| 17:00 | 5 | 4 | 4 | 3 | 2 | 7 | 6 | 4 | 4 |
| 18:00 | 2 | 2 | 2 | 2 | 4 | 4 | 3 | 2 | 3 |
| 19:00 | 9 | 3 | 6 | 8 | 1 | 2 | 0 | 5 | 4 |
| 20:00 | 3 | 5 | 2 | 5 | 3 | 2 | 2 | 3 | 3 |
| 21:00 | 0 | 2 | 1 | 2 | 2 | 1 | 0 | 1 | 1 |
| 22:00 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 23:00 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| Total |  |  |  |  |  |  |  |  |  |
| 12H(7-19) | 46 | 39 | 37 | 46 | 43 | 44 | 48 | 43 | 43 |
| 16H(6-22) | 61 | 52 | 47 | 63 | 51 | 50 | 52 | 55 | 54 |
| 18H(6-24) | 61 | 52 | 47 | 63 | 54 | 51 | 53 | 55 | 54 |
| 24H(0-24) | 61 | 53 | 48 | 64 | 54 | 52 | 53 | 56 | 55 |
| AM Peak | 11:00 | 07:00 | 11:00 | 11:00 | 08:00 | 10:00 | 11:00 | 11:00 | 11:00 |
|  | 7 | 6 | 5 | 9 | 6 | 7 | 6 | 6 | 5 |
| PM Peak | 19:00 | 20:00 | 19:00 | 19:00 | 12:00 | 17:00 | 17:00 | 19:00 | 17:00 |
|  | 9 | 5 | 6 | 8 | 5 | 7 | 6 | 5 | 4 |

PCC Traffic Information Consultancy Ltd.

Harvest Lane, Charlton Horethorne, ATC 2
Site No. 490902 Site Ref. 490902

## Harvest Lane

Speed Report (Speed Limit 30 Mph)

|  |  |  |  |  |  |  |  | $\begin{aligned} & \stackrel{n}{N} \\ & \dot{v} \\ & \dot{\sim} \\ & \hline \end{aligned}$ | $\begin{gathered} \text { n on } \\ \stackrel{y}{v} \\ \underset{\sim}{n} \\ \hline \end{gathered}$ |  |  | $\begin{array}{ll} \infty \\ \infty \\ \stackrel{n}{V} \\ \stackrel{y}{\circ} \\ \hline \end{array}$ |  |  |  |  | $\begin{aligned} & \text { m in } \\ & \underset{\sim}{c} \text { in } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Tue 4 Jun | 31 | 35 | 28 | 6 | 0 | 0 | 3 | 8 | 6 | 9 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| Wed 5 Jun | 25 | 34 | 29 | 5 | 0 | 0 | 2 | 4 | 9 | 6 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| Thu 6 Jun | 25 | 37 | 31 | 6 | 0 | 0 | 0 | 5 | 7 | 7 | 3 | 2 | 1 | 0 | 0 | 0 | 0 |
| Fri 7 Jun | 30 | 34 | 28 | 6 | 0 | 1 | 2 | 8 | 6 | 10 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| Sat 8 Jun | 29 | 35 | 28 | 7 | 0 | 3 | 1 | 5 | 10 | 5 | 4 | 0 | 1 | 0 | 0 | 0 | 0 |
| Sun 9 Jun | 27 | 34 | 29 | 5 | 1 | 0 | 1 | 3 | 11 | 8 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| Mon 10 Jun | 28 | 36 | 29 | 7 | 0 | 1 | 0 | 7 | 10 | 4 | 4 | 2 | 0 | 0 | 0 | 0 | 0 |
| 5 Day Ave. | 28 | 35 | 29 | 6 | 0 | 0 | 1 | 6 | 8 | 7 | 3 | 2 | 0 | 0 | 0 | 0 | 0 |
| 7 Day Ave. | 28 | 35 | 29 | 6 | 0 | 1 | 1 | 6 | 8 | 7 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |

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| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Tue 4 Jun | 30 | 31 | 25 | 6 | 0 | 1 | 5 | 10 | 7 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wed 5 Jun | 28 | 35 | 29 | 6 | 1 | 0 | 1 | 6 | 8 | 7 | 4 | 1 | 0 | 0 | 0 | 0 | 0 |
| Thu 6 Jun | 23 | 33 | 29 | 5 | 0 | 0 | 1 | 5 | 7 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fri 7 Jun | 34 | 34 | 28 | 6 | 0 | 1 | 1 | 10 | 8 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sat 8 Jun | 25 | 32 | 27 | 5 | 0 | 0 | 2 | 7 | 8 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sun 9 Jun | 25 | 33 | 28 | 5 | 0 | 0 | 1 | 7 | 9 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mon 10 Jun | 25 | 32 | 27 | 5 | 0 | 1 | 2 | 5 | 10 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 Day Ave. | 28 | 33 | 28 | 6 | 0 | 1 | 2 | 7 | 8 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 Day Ave. | 27 | 33 | 27 | 5 | 0 | 0 | 2 | 7 | 8 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

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|  |  |  |  |  |  |  |  |  |  |  |  |  | $\begin{array}{ll} \text { o } \\ \text { o } \\ \stackrel{c}{\mathrm{c}} \\ \text { in } \\ \hline \end{array}$ |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Tue 4 Jun | 61 | 34 | 27 | 7 | 0 | 1 | 8 | 18 | 13 | 15 | 5 | 1 | 0 | 0 | 0 | 0 | 0 |
| Wed 5 Jun | 53 | 35 | 29 | 6 | 1 | 0 | 3 | 10 | 17 | 13 | 6 | 3 | 0 | 0 | 0 | 0 | 0 |
| Thu 6 Jun | 48 | 35 | 30 | 5 | 0 | 0 | 1 | 10 | 14 | 15 | 5 | 2 | 1 | 0 | 0 | 0 | 0 |
| Fri 7 Jun | 64 | 34 | 28 | 6 | 0 | 2 | 3 | 18 | 14 | 21 | 5 | 1 | 0 | 0 | 0 | 0 | 0 |
| Sat 8 Jun | 54 | 34 | 27 | 6 | 0 | 3 | 3 | 12 | 18 | 12 | 5 | 0 | 1 | 0 | 0 | 0 | 0 |
| Sun 9 Jun | 52 | 34 | 28 | 5 | 1 | 0 | 2 | 10 | 20 | 14 | 3 | 2 | 0 | 0 | 0 | 0 | 0 |
| Mon 10 Jun | 53 | 34 | 28 | 6 | 0 | 2 | 2 | 12 | 20 | 10 | 5 | 2 | 0 | 0 | 0 | 0 | 0 |
| 5 Day Ave. | 56 | 34 | 28 | 6 | 0 | 1 | 3 | 14 | 16 | 15 | 5 | 2 | 0 | 0 | 0 | 0 | 0 |
| 7 Day Ave. | 55 | 34 | 28 | 6 | 0 | 1 | 3 | 13 | 17 | 14 | 5 | 2 | 0 | 0 | 0 | 0 | 0 |

PCC Traffic Information Consultancy Ltd.

## APPENDIX E

TRICS Data

## TRIP RATE CALCULATI ON SELECTI ON PARAMETERS:

Land Use : 02-EMPLOYMENT
Category : A - OFFICE
TOTAL VEHI CLES
Selected regions and areas:
03 SOUTH WEST
WL WILTSHIRE 1 days
04 EAST ANGLIA
NF NORFOLK 1 days
07 YORKSHIRE \& NORTH LI NCOLNSHIRE
WY WEST YORKSHIRE
1 days
17 ULSTER (NORTHERN I RELAND)
AN ANTRIM
2 days
This section displays the number of survey days per TRICS ${ }^{\circledR}$ sub-region in the selected set

## Primary Filtering selection:

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

| Parameter: | Gross floor area |  |
| :--- | :--- | :--- |
| Actual Range: | 270 to 2800 (units: sqm) |  |
| Range Selected by User: | 118 to 3000 (units: sqm) |  |
|  |  |  |
| Parking Spaces Range: | All Surveys Included |  |
| Public Transport Provision:  |  |  |
| Selection by: | Include all surveys |  |

Date Range: $\quad 01 / 01 / 14$ to $17 / 05 / 22$
This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

| Tuesday | 4 days |
| :--- | :--- |
| Wednesday | 1 days |

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

| Selected survey types: |  |
| :--- | :--- |
| Manual count | 5 days |
| Directional ATC Count | 0 days |

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

Selected Locations:
Edge of Town 4
Neighbourhood Centre (PPS6 Local Centre) 1
This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:
Commercial Zone 1
Development Zone 1
Residential Zone 1
High Street 1
No Sub Category 1
This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:
Servicing vehicles Included 2 days - Selected
Servicing vehicles Excluded
5 days - Selected

## Secondary Filtering selection:

Use Class:
Not Known 5 days
This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS $®$.

Filter by Site Operations Breakdown:
All Surveys Included
Population within 500 m Range:
All Surveys Included
Population within 1 mile:

| 1,001 to 5,000 | 1 days |
| :--- | :--- |
| 5,001 to 10,000 | 1 days |
| 10,001 to 15,000 | 2 days |
| 15,001 to 20,000 | 1 days |

This data displays the number of selected surveys within stated 1-mile radii of population.
Population within 5 miles:

| 25,001 to 50,000 | 2 days |
| :--- | :--- |
| 125,001 to 250,000 | 2 days |
| 250,001 to 500,000 | 1 days |

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

| 0.5 or Less | 1 days |
| :--- | :--- |
| 0.6 to 1.0 | 2 days |
| 1.1 to 1.5 | 1 days |
| 1.6 to 2.0 | 1 days |

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5 -miles of selected survey sites.
$\frac{\text { Travel Plan: }}{\text { No }}$
This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:
No PTAL Present 5 days
This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

| 1 | AN-02-A-05 OFFICES | OFFICES | ANTRIM |
| :---: | :---: | :---: | :---: |
|  | LISBURN ROAD |  |  |
|  | BELFAST |  |  |
|  | BALMORAL |  |  |
|  | Neighbourhood Centre (PPS6 Local | re (PPS6 Local Centre) |  |
|  | High Street |  |  |
|  | Total Gross floor area: | a: 270 sqm |  |
|  | Survey date: TUESDAY | TUESDAY 11/10/16 | Survey Type: MANUAL |
| 2 | AN-02-A-06 SPORTS AD | SPORTS ADMI NI STRATI ON | ANTRIM |
|  | UPPER MALONE ROAD |  |  |
|  | BELFAST |  |  |
|  | Edge of Town |  |  |
|  | Residential Zone |  |  |
|  | Total Gross floor area: | a: 2217 sqm |  |
|  | Survey date: TUESDAY | TUESDAY 20/11/18 | NORFOLK |
| 3 | NF-02-A-04 BUILDING | BUILDING CONSULTANT |  |
|  | WHITING ROAD |  |  |
|  | NORWICH |  |  |
|  | Edge of Town |  |  |
|  | Commercial Zone |  |  |
|  | Total Gross floor area: | a: 500 sqm |  |
|  | Survey date: WEDNESDAY | WEDNESDAY 13/11/19 | Survey Type: MANUAL |
| 4 | WL-02-A-01 PET INSUR | PET I NSURANCE COMPANY | WILTSHIRE |
|  | THE CRESCENT |  |  |
|  | AMESBURY |  |  |
|  | SUNRISE WAY |  |  |
|  | Edge of Town |  |  |
|  | Development Zone |  |  |
|  | Total Gross floor area: | a: 2500 sqm |  |
|  | Survey date: TUESDAY | TUESDAY 18/09/18 | Survey Type: MANUAL |
| 5 | WY-02-A-05 OFFICES | OFFICES | WEST YORKSHI RE |
|  | PIONEER WAY OFFICES |  |  |
|  | CASTLEFORD |  |  |
|  | WHITWOOD |  |  |
|  | Edge of Town |  |  |
|  | No Sub Category |  |  |
|  | Total Gross floor area: | a: 1230 sqm |  |
|  | Survey date: TUESDAY | TUESDAY 23/05/17 | Survey Type: MANUAL |

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

## MANUALLY DESELECTED SURVEYS

| Site Ref | Survey Date |  |
| :---: | :--- | :--- |
| EC-02-A-04 | $04 / 05 / 21$ | Covid |
| SF-02-A-03 | $24 / 09 / 20$ | Covid |

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
TOTAL VEHI CLES

## Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

|  | ARRIVALS |  |  | DEPARTURES |  |  | TOTALS |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Time Range | No. Days | Ave. GFA | Trip Rate | No. Days | Ave. GFA | Trip Rate | No. Days | Ave. GFA | Trip Rate |
| 00:00-01:00 |  |  |  |  |  |  |  |  |  |
| 01:00-02:00 |  |  |  |  |  |  |  |  |  |
| 02:00-03:00 |  |  |  |  |  |  |  |  |  |
| 03:00-04:00 |  |  |  |  |  |  |  |  |  |
| 04:00-05:00 |  |  |  |  |  |  |  |  |  |
| 05:00-06:00 |  |  |  |  |  |  |  |  |  |
| 06:00-07:00 |  |  |  |  |  |  |  |  |  |
| 07:00-08:00 | 5 | 1343 | 0.521 | 5 | 1343 | 0.104 | 5 | 1343 | 0.625 |
| 08:00-09:00 | 5 | 1343 | 1.950 | 5 | 1343 | 0.179 | 5 | 1343 | 2.129 |
| 09:00-10:00 | 5 | 1343 | 1.935 | 5 | 1343 | 0.074 | 5 | 1343 | 2.009 |
| 10:00-11:00 | 5 | 1343 | 0.536 | 5 | 1343 | 0.104 | 5 | 1343 | 0.640 |
| 11:00-12:00 | 5 | 1343 | 0.119 | 5 | 1343 | 0.223 | 5 | 1343 | 0.342 |
| 12:00-13:00 | 5 | 1343 | 0.283 | 5 | 1343 | 0.774 | 5 | 1343 | 1.057 |
| 13:00-14:00 | 5 | 1343 | 0.774 | 5 | 1343 | 0.417 | 5 | 1343 | 1.191 |
| 14:00-15:00 | 5 | 1343 | 0.387 | 5 | 1343 | 0.328 | 5 | 1343 | 0.715 |
| 15:00-16:00 | 5 | 1343 | 0.238 | 5 | 1343 | 0.625 | 5 | 1343 | 0.863 |
| 16:00-17:00 | 5 | 1343 | 0.149 | 5 | 1343 | 1.504 | 5 | 1343 | 1.653 |
| 17:00-18:00 | 5 | 1343 | 0.104 | 5 | 1343 | 2.025 | 5 | 1343 | 2.129 |
| 18:00-19:00 | 4 | 1372 | 0.091 | 4 | 1372 | 0.802 | 4 | 1372 | 0.893 |
| 19:00-20:00 |  |  |  |  |  |  |  |  |  |
| 20:00-21:00 |  |  |  |  |  |  |  |  |  |
| 21:00-22:00 |  |  |  |  |  |  |  |  |  |
| 22:00-23:00 |  |  |  |  |  |  |  |  |  |
| 23:00-24:00 |  |  |  |  |  |  |  |  |  |
| Total Rates: |  |  | 7.087 |  |  | 7.159 |  |  | 14.246 |

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

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

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The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

## Parameter summary

Trip rate parameter range selected:
Survey date date range:
Number of weekdays (Monday-Friday):
Number of Saturdays:
Number of Sundays:
Surveys automatically removed from selection:
Surveys manually removed from selection:

270-2800 (units: sqm)
01/01/14-17/05/22
7
0
0
2
0

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

## TRIP RATE CALCULATI ON SELECTI ON PARAMETERS:

```
Land Use : 03-RESIDENTIAL
Category : M - MIXED PRIVATE/AFFORDABLE HOUSING
```

TOTAL VEHICLES
Selected regions and areas:
02 SOUTH EAST
ES EAST SUSSEX 2 days
WS WEST SUSSEX 2 days
04 EAST ANGLI A
4 days

This section displays the number of survey days per TRICS $\circledR^{\circledR}$ sub-region in the selected set

## Primary Filtering selection:

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

| Parameter: | No of Dwellings |
| :--- | :--- |
| Actual Range: | 16 to 100 (units: ) |
| Range Selected by User: | 9 to 100 (units:) |
| Parking Spaces Range: | All Surveys Included |

Parking Spaces per Dwelling Range: All Surveys Included
Bedrooms per Dwelling Range: All Surveys Included
Percentage of dwellings privately owned: All Surveys Included
Public Transport Provision:
Selection by: Include all surveys
Date Range: $\quad 01 / 01 / 14$ to $21 / 09 / 22$
This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

| Monday | 1 days |
| :--- | :--- |
| Tuesday | 1 days |
| Wednesday | 3 days |
| Thursday | 1 days |
| Friday | 2 days |

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

## Selected survey types:

$\begin{array}{ll}\text { Manual count } & 4 \text { days } \\ \text { Directional ATC Count } & 4 \text { days }\end{array}$
This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:
Neighbourhood Centre (PPS6 Local Centre)
8
This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:
Village
8
This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:
Servicing vehicles Excluded
26 days - Selected

## Secondary Filtering selection:

Use Class:
C3 8 days
This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS $®$.

Population within 500m Range:
All Surveys Included
Population within 1 mile:

| 1,001 to 5,000 | 7 days |
| :--- | :--- |
| 10,001 to 15,000 | 1 days |

This data displays the number of selected surveys within stated 1-mile radii of population.
Population within 5 miles:

| 25,001 to 50,000 | 3 days |
| :--- | :--- |
| 50,001 to 75,000 | 1 days |
| 75,001 to 100,000 | 1 days |
| 125,001 to 250,000 | 3 days |

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

| 0.6 to 1.0 | 1 days |
| :--- | :--- |
| 1.1 to 1.5 | 6 days |
| 1.6 to 2.0 | 1 days |

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5 -miles of selected survey sites.
$\frac{\text { Travel Plan: }}{\text { Yes }}$

7 days
1 days

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

PTAL Rating:
No PTAL Present 8 days
This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

## 1 ES-03-M-09 <br> STATION ROAD <br> NORTHIAM

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 16
Survey date: WEDNESDAY 17/05/17
2 ES-03-M-20 MIXED HOUSES \& FLATS
HOREBEECH LANE
HORAM
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 47
Survey date: TUESDAY 05/10/2
3 NF-03-M-13 MI XED HOUSES
MACMILLAN WAY
NEAR NORWICH
LITTLE PLUMSTEAD
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 75
Survey date: FRIDAY 20/09/19
4 NF-03-M-31 MI XED HOUSES \& FLATS
LONG LANE
NEAR NORWICH
MULBARTON
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 48
5 NF-03-M-38 MI XED HOUSES
CAISTOR LANE
PORINGLAND
FRAMINGHAM EARL
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings:
91
Survey date: MONDAY
11/12/17
6 NF-03-M-58
MI XED HOUSES
PIGOT LANE
NEAR NORWICH
FRAMINGHAM EARL
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 100
Survey date: WEDNESDAY 21/09/22
7 WS-03-M-23 MIXED HOUSES \& FLATS
STANE STREET
CHICHESTER
WESTHAMPNETT
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 99
Survey date: WEDNESDAY 13/10/21

EAST SUSSEX

Survey Type: MANUAL

## EAST SUSSEX

Survey Type: MANUAL NORFOLK

Survey Type: DIRECTIONAL ATC COUNT

## NORFOLK

Survey Type: DIRECTIONAL ATC COUNT NORFOLK

Survey Type: DIRECTIONAL ATC COUNT NORFOLK

Survey Type: DIRECTIONAL ATC COUNT WEST SUSSEX

Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)
8 WS-03-M-24
MI XED HOUSES
WEST SUSSEX
COPTHORNE WAY
NEAR CRAWLEY
COPTHORNE
Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 80
Survey date: FRIDAY 08/10/21 Survey Type: MANUAL

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

## MANUALLY DESELECTED SITES

| Site Ref | Reason for Deselection |
| :--- | :--- |
| ES-03-M-18 | covid |
| SF-03-M-01 | covid |
| WO-03-M-03 | covid |

## TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING

TOTAL VEHI CLES

## Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

|  | ARRIVALS |  |  | DEPARTURES |  |  | TOTALS |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Time Range | No. Days | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00-01:00 |  |  |  |  |  |  |  |  |  |
| 01:00-02:00 |  |  |  |  |  |  |  |  |  |
| 02:00-03:00 |  |  |  |  |  |  |  |  |  |
| 03:00-04:00 |  |  |  |  |  |  |  |  |  |
| 04:00-05:00 |  |  |  |  |  |  |  |  |  |
| 05:00-06:00 |  |  |  |  |  |  |  |  |  |
| 06:00-07:00 |  |  |  |  |  |  |  |  |  |
| 07:00-08:00 | 8 | 70 | 0.085 | 8 | 70 | 0.273 | 8 | 70 | 0.358 |
| 08:00-09:00 | 8 | 70 | 0.135 | 8 | 70 | 0.363 | 8 | 70 | 0.498 |
| 09:00-10:00 | 8 | 70 | 0.137 | 8 | 70 | 0.137 | 8 | 70 | 0.274 |
| 10:00-11:00 | 8 | 70 | 0.137 | 8 | 70 | 0.191 | 8 | 70 | 0.328 |
| 11:00-12:00 | 8 | 70 | 0.142 | 8 | 70 | 0.169 | 8 | 70 | 0.311 |
| 12:00-13:00 | 8 | 70 | 0.142 | 8 | 70 | 0.135 | 8 | 70 | 0.277 |
| 13:00-14:00 | 8 | 70 | 0.174 | 8 | 70 | 0.167 | 8 | 70 | 0.341 |
| 14:00-15:00 | 8 | 70 | 0.180 | 8 | 70 | 0.198 | 8 | 70 | 0.378 |
| 15:00-16:00 | 8 | 70 | 0.284 | 8 | 70 | 0.218 | 8 | 70 | 0.502 |
| 16:00-17:00 | 8 | 70 | 0.291 | 8 | 70 | 0.178 | 8 | 70 | 0.469 |
| 17:00-18:00 | 8 | 70 | 0.304 | 8 | 70 | 0.169 | 8 | 70 | 0.473 |
| 18:00-19:00 | 8 | 70 | 0.248 | 8 | 70 | 0.156 | 8 | 70 | 0.404 |
| 19:00-20:00 |  |  |  |  |  |  |  |  |  |
| 20:00-21:00 |  |  |  |  |  |  |  |  |  |
| 21:00-22:00 |  |  |  |  |  |  |  |  |  |
| 22:00-23:00 |  |  |  |  |  |  |  |  |  |
| 23:00-24:00 |  |  |  |  |  |  |  |  |  |
| Total Rates: |  |  | 2.259 |  |  | 2.354 |  |  | 4.613 |

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

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

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## Parameter summary

Trip rate parameter range selected:
16-100 (units: )
Survey date date range:
Number of weekdays (Monday-Friday): 01/01/14-21/09/22 12
Number of Saturdays:
1
Number of Sundays:
1
Surveys automatically removed from selection: 11
Surveys manually removed from selection:
This section displays a quick summary of some of the data filtering selections made by the TRICS ${ }^{\circledR}$ user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

## APPENDIX F <br> Shuttle Working Model

| JUnctions 10 |
| :---: |
| PICADY 10 - Priority Intersection Module |
| Version: 10.0.4.1693 <br> © Copyright TRL Software Limited, 2021 |
| For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com |
| The users of this computer program for the solution of angineering problem are in no way relieved of their responsibility for the correctness of the solution |

Filename: Shuttle Working Model.j10
Path: F:IDATA\Jobs\0987 Charlton Horethorne\Technical
Report generation date: 21/07/2023 10:54:20

```
«2023, AM
    »Junction Network
    „Arms
    »Traffic Demand
    "Origin-Destination Data
    »Vehicle Mix
    „Results
    »Lane Results
```


## Summary of junction performance

|  | AM |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Queue (Veh) | Delay (s) | RFC | LOS | Network Residual Capacity |
|  | [Lane Simulation] - 2023 |  |  |  |  |
| Arm A | 0.0 | 0.00 |  | A | $\%$ |
| Arm B | 0.0 | 7.21 |  | A | $\%$ |
| Arm C | 0.1 | 7.94 |  | A | [ ] |

There are warnings associated with this model run - see the 'Data Errors and Warnings' tables.
Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Arm and junction delays are averages for all movements, including movements with zero delay. Network Residual Capacity indicates the amount by which network flow could be increased before a userdefinable threshold (see Analysis Options) is met.

File summary
File Description

| Title |  |
| :--- | :--- |
| Location |  |
| Site number |  |
| Date | $01 / 03 / 2023$ |
| Version |  |
| Status | (new file) |
| Identifier |  |
| Client |  |
| Jobnumber |  |
| Enumerator | KEYTRANSPORT\david.tingay |
| Description |  |

## Units

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

## Analysis Options

| Vehicle <br> length <br> $(\mathbf{m})$ | Calculate <br> Queue <br> Percentiles | Calculate <br> detailed <br> queueing <br> delay | Show <br> lane <br> queues <br> in feet / <br> metres | Show alI <br> PICADY <br> stream <br> intercepts | Calculate <br> residual <br> capacity | Residual <br> capacity <br> criteria <br> type | RFC <br> Threshold | Average <br> Delay <br> threshold <br> (s) | Queue <br> threshold <br> (PCU) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5.75 |  |  |  | Use iterations <br> with HCM <br> roundabouts | Max number of <br> iterations for <br> roundabouts |  |  |  |  |

## Lane Simulation options

| Criteria type | Stop criteria (\%) | Stop criteria time (s) | Stop criteria number of trials | Random seed | Results refresh speed (s) | Individual vehicle animation number of trials | Average animation capture interval (s) | Use quick response | Do flow sampling | Suppress automatic lane creation | Last run random seed | Last run number of trials | Last <br> run time taken <br> (s) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Delay | 1.00 | 100000 | 100000 | -1 | 3 | 1 | 60 | $\checkmark$ |  | $\checkmark$ | 905317950 | 101 | 0.24 |

## Analysis Set Details

| ID | Use Lane Simulation | Include in report | Network flow scaling factor (\%) | Network capacity scaling factor (\%) |
| :---: | :---: | :---: | :---: | :---: |
| A1 | $\checkmark$ | $\checkmark$ | 100.000 | 100.000 |

## Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| D1 | 2023 | AM | ONE HOUR | $08: 00$ | $09: 30$ | 15 | $\checkmark$ |

## 2023, AM

Data Errors and Warnings

| Severity | Area | Item | Description |
| :---: | :---: | :---: | :--- |
| Warning | Vehicle Mix | HV\% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in <br> PCUs or Vehs. If HV\% at the junction is genuinely zero, please ignore this warning. |  |
| Info | Lane Simulation | A1 - [Lane Simulation] | This analysis set uses Lane Simulation mode. For detailed information on this mode, please see the User <br> Guide. |

## Junction Network

## Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{1}$ | untitled | T-Junction | Two-way | Two-way | Two-way |  | 6.55 | $A$ |

## Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
| :---: | :---: | :---: | :---: |
| Left | Normal/unknown | 6.55 | A |

## Arms

## Arms

| Arm | Name | Description | Arm type |
| :---: | :--- | :--- | :--- |
| A | Harvest Road N |  | Major |
| B | Site |  | Minor |
| C | Harvest Road S |  | Major |

Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right-turn storage | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) | Vehicles causing blocking (\%) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| C | 6.00 |  |  | 50.0 | $\checkmark$ | 0.00 | 100 |

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

## Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
| :---: | :---: | :---: | :---: | :---: |
| B | One lane | 2.20 | 0 | 0 |

## Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

| Stream | Intercept <br> (Veh/hr) | Slope <br> for <br> AB | Slope <br> for <br> AC | Slope <br> for <br> C-A | Slope <br> for <br> C-B |
| :---: | :---: | :---: | :---: | :---: | :---: |
| B-A | 440 | 0.080 | 0.202 | 0.127 | 0.289 |
| B-C | 574 | 0.088 | 0.222 | - | - |
| C-B | 603 | 0.234 | 0.234 | - | - |

[^1]Lane Simulation: Arm options

| Arm | Traffic considering secondary lanes (\%) |
| :---: | :---: |
| A | 10.00 |
| B | 10.00 |
| C | 10.00 |

## Lanes

| Arm | Side | Lane level | Lane | Destination arms | Has limited storage | Storage (PCU) | Has bottleneck | Has obstruction | Obstruction traversal time (s) | Obstruction other lane | Obstruction has priority | Obstruction saturation flow (PCU/hr) | Minimum capacity (PCU/hr) | Maximum capacity (PCU/hr) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | B, C |  | Infinity |  |  |  |  |  |  | 0 | 99999 |
|  | Exit | 1 | 1 |  |  | Infinity |  |  |  |  |  |  | 0 | 99999 |
| B | Entry | 1 | 1 | A, C |  | Infinity |  |  |  |  |  |  | 0 | 99999 |
|  | Exit | 1 | 1 |  |  | Infinity |  |  |  |  |  |  | 0 | 99999 |
| c | Entry | 1 | 1 | A, B | $\checkmark$ | 3.00 |  |  |  |  |  |  | 0 | 99999 |
|  |  | 2 | 1 | (A, B) |  | Infinity |  | $\checkmark$ | 18.00 | C/Exit/1/1 |  | 1800 | 0 | 99999 |
|  | Exit | 1 | 1 |  | $\checkmark$ | 3.00 |  | $\checkmark$ | 18.00 | C/Entry/2/1 |  | 1800 | 0 | 99999 |
|  |  | 2 | 1 |  |  | Infinity |  |  |  |  |  |  | 0 | 99999 |

Summary of Entry Lane allowed
movements

| Arm | Lane Level | Lane | Destination arm |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | A | B | C |  |
| A | $\mathbf{1}$ | $\mathbf{1}$ |  | $\checkmark$ | $\checkmark$ |  |
| B | $\mathbf{1}$ | $\mathbf{1}$ | $\checkmark$ |  | $\checkmark$ |  |
| C | $\mathbf{1}$ | $\mathbf{1}$ | $\checkmark$ | $\checkmark$ |  |  |
|  | $\mathbf{2}$ | $\mathbf{1}$ | $\checkmark$ | $\checkmark$ |  |  |

## Traffic Demand

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
| :---: | :---: | :---: | :---: |
| $\checkmark$ | $\checkmark$ | HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Profile type | Use O-D data | Average Demand (Veh/hr) | Scaling Factor (\%) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| A |  | ONE HOUR | $\checkmark$ | 5 | 100.000 |
| B |  | ONE HOUR | $\checkmark$ | 11 | 100.000 |
| C |  | ONE HOUR | $\checkmark$ | 18 | 100.000 |

## Origin-Destination Data

Demand (Veh/hr)

|  | To |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| From |  | A | B | C |
|  | A | 0 | 0 | 5 |
|  | B | 0 | 0 | 11 |
|  | C | 5 | 13 | 0 |

## Vehicle Mix

THE FUTURE

Heavy Vehicle Percentages

|  | To |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| From |  | A | B | C |
|  | A | 0 | 0 | 0 |
|  | B | 0 | 0 | 0 |
|  | C | 0 | 0 | 0 |

## Results

Results Summary for whole modelled period

| Arm | Max Delay (s) | Max Queue (Veh) | Max Los | Average Demand <br> (Veh/hr) | Total Junction <br> Arrivals (Veh) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| A | 0.00 | 0.0 | A | 4 | 7 |
| B | 7.21 | 0.0 | A | 10 | 15 |
| C | 7.94 | 0.1 | A | 16 | 24 |

## Main Results for each time segment

08:00-08:15

| Arm | Total Demand (Veh/hr) | Junction Arrivals (Veh) | Throughput (Veh/hr) | Average throughput (PCU/hr) | Throughput (exit side) (Veh/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | 5 | 1 | 5 | 6 | 4 | 0.0 | 0.0 | 0.000 | A |
| B | 7 | 2 | 7 | 10 | 9 | 0.0 | 0.0 | 6.502 | A |
| C | 14 | 3 | 13 | 16 | 12 | 0.0 | 0.0 | 7.277 | A |

08:15-08:30

| Arm | Total Demand (Veh/hr) | Junction Arrivals (Veh) | Throughput (Veh/hr) | Average throughput (PCU/hr) | Throughput (exit side) (Veh/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | 3 | 0.80 | 3 | 3 | 4 | 0.0 | 0.0 | 0.000 | A |
| B | 10 | 2 | 10 | 9 | 12 | 0.0 | 0.0 | 6.837 | A |
| C | 16 | 4 | 16 | 14 | 13 | 0.0 | 0.1 | 7.643 | A |

08:30-08:45

| Arm | Total Demand (Veh/hr) | Junction Arrivals (Veh) | Throughput (Veh/hr) | Average throughput (PCU/hr) | Throughput (exit side) (Veh/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | 4 | 1 | 4 | 5 | 5 | 0.0 | 0.0 | 0.000 | A |
| B | 11 | 3 | 11 | 10 | 15 | 0.0 | 0.0 | 7.213 | A |
| C | 20 | 5 | 20 | 20 | 15 | 0.1 | 0.0 | 7.682 | A |

08:45-09:00

| Arm | Total Demand (Veh/hr) | Junction Arrivals (Veh) | Throughput (Veh/hr) | Average throughput (PCU/hr) | Throughput (exit side) (Veh/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | 5 | 1 | 5 | 5 | 5 | 0.0 | 0.0 | 0.000 | A |
| B | 13 | 3 | 14 | 13 | 12 | 0.0 | 0.0 | 6.089 | A |
| C | 17 | 4 | 17 | 19 | 19 | 0.0 | 0.0 | 7.782 | A |

09:00-09:15

| Arm | Total Demand (Veh/hr) | Junction Arrivals (Veh) | Throughput (Veh/hr) | Average throughput (PCU/hr) | Throughput (exit side) (Veh/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | 5 | 1 | 5 | 5 | 4 | 0.0 | 0.0 | 0.000 | A |
| B | 11 | 3 | 10 | 12 | 11 | 0.0 | 0.0 | 6.323 | A |
| C | 16 | 4 | 15 | 16 | 16 | 0.0 | 0.1 | 7.941 | A |

09:15-09:30

| Arm | Total Demand <br> (Veh/hr) | Junction <br> Arrivals (Veh) | Throughput <br> (Veh/hr) | Average <br> throughput <br> $(\mathbf{P C U} / \mathbf{h r})$ | Throughput <br> (exit side) <br> $(V e h / h r)$ | Start queue <br> (Veh) | End queue <br> (Veh) | Delay (s) | Unsignalised <br> level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | 4 | 1 | 4 | 5 | 3 | 0.0 | 0.0 | 0.000 | A |
| B | 9 | 2 | 9 | 9 | 11 | 0.0 | 0.0 | 6.768 | A |
| C | 14 | 4 | 14 | 16 | 13 | 0.1 | 0.0 | 7.198 |  |

## Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

## Lanes: Main Results for each time segment

08:00-08:15

| Arm | Side | Lane level | Lane | Destination arms | Total Demand (Veh/hr) | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | B, C | 5 | 5 | 6 | 0.0 | 0.0 | 0.000 | A |
|  | Exit | 1 | 1 |  | 4 | 4 | 4 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A, C | 7 | 7 | 10 | 0.0 | 0.0 | 6.502 | A |
|  | Exit | 1 | 1 |  | 9 | 9 | 11 | 0.0 | 0.0 | 0.000 | A |
| C | Entry | 1 | 1 | A, B | 13 | 13 | 16 | 0.0 | 0.0 | 4.527 | A |
|  |  | 2 | 1 | (A, B) | 14 | 13 | 16 | 0.0 | 0.0 | 2.733 | A |
|  | Exit | 1 | 1 |  | 12 | 12 | 16 | 0.0 | 0.0 | 2.642 | A |
|  |  | 2 | 1 |  | 12 | 12 | 16 | 0.0 | 0.0 | 0.000 | A |

08:15-08:30

| Arm | Side | Lane level | Lane | Destination arms | Total Demand (Veh/hr) | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | B, C | 3 | 3 | 3 | 0.0 | 0.0 | 0.000 | A |
|  | Exit | 1 | 1 |  | 4 | 4 | 3 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A, C | 10 | 10 | 9 | 0.0 | 0.0 | 6.837 | A |
|  | Exit | 1 | 1 |  | 12 | 12 | 11 | 0.0 | 0.0 | 0.000 | A |
| C | Entry | 1 | 1 | A, B | 16 | 16 | 14 | 0.0 | 0.0 | 4.884 | A |
|  |  | 2 | 1 | (A, B) | 16 | 16 | 14 | 0.0 | 0.0 | 2.786 | A |
|  | Exit | 1 | 1 |  | 13 | 13 | 13 | 0.0 | 0.0 | 2.730 | A |
|  |  | 2 | 1 |  | 13 | 13 | 13 | 0.0 | 0.0 | 0.000 | A |

## 08:30-08:45

| Arm | Side | Lane level | Lane | Destination arms | Total Demand (Veh/hr) | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | B, C | 4 | 4 | 5 | 0.0 | 0.0 | 0.000 | A |
|  | Exit | 1 | 1 |  | 5 | 5 | 6 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A, C | 11 | 11 | 10 | 0.0 | 0.0 | 7.213 | A |
|  | Exit | 1 | 1 |  | 15 | 15 | 14 | 0.0 | 0.0 | 0.000 | A |
| C | Entry | 1 | 1 | A, B | 20 | 20 | 20 | 0.0 | 0.0 | 4.660 | A |
|  |  | 2 | 1 | (A, B) | 20 | 20 | 20 | 0.0 | 0.0 | 3.026 | A |
|  | Exit | 1 | 1 |  | 15 | 15 | 15 | 0.0 | 0.0 | 2.885 | A |
|  |  | 2 | 1 |  | 15 | 15 | 15 | 0.0 | 0.0 | 0.000 | A |

08:45-09:00

| Arm | Side | Lane level | Lane | Destination arms | Total Demand (Veh/hr) | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay <br> (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | B, C | 5 | 5 | 5 | 0.0 | 0.0 | 0.000 | A |
|  | Exit | 1 | 1 |  | 5 | 5 | 5 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A, C | 13 | 14 | 13 | 0.0 | 0.0 | 6.089 | A |
|  | Exit | 1 | 1 |  | 12 | 12 | 14 | 0.0 | 0.0 | 0.000 | A |
| C | Entry | 1 | 1 | A, B | 17 | 17 | 19 | 0.0 | 0.0 | 4.771 | A |
|  |  | 2 | 1 | (A, B) | 17 | 17 | 19 | 0.0 | 0.0 | 3.003 | A |
|  | Exit | 1 | 1 |  | 19 | 19 | 18 | 0.0 | 0.0 | 3.006 | A |
|  |  | 2 | 1 |  | 19 | 19 | 18 | 0.0 | 0.0 | 0.000 | A |

09:00-09:15

| Arm | Side | Lane level | Lane | Destination arms | Total Demand (Veh/hr) | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay <br> (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | B, C | 5 | 5 | 5 | 0.0 | 0.0 | 0.000 | A |
|  | Exit | 1 | 1 |  | 4 | 4 | 4 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A, C | 11 | 10 | 12 | 0.0 | 0.0 | 6.323 | A |
|  | Exit | 1 | 1 |  | 11 | 11 | 12 | 0.0 | 0.0 | 0.000 | A |
| C | Entry | 1 | 1 | A, B | 16 | 15 | 16 | 0.0 | 0.1 | 4.966 | A |
|  |  | 2 | 1 | (A, B) | 16 | 16 | 16 | 0.0 | 0.0 | 2.970 | A |
|  | Exit | 1 | 1 |  | 16 | 16 | 17 | 0.0 | 0.0 | 3.021 | A |
|  |  | 2 | 1 |  | 16 | 16 | 17 | 0.0 | 0.0 | 0.000 | A |

09:15-09:30

| Arm | Side | Lane level | Lane | Destination arms | Total Demand (Veh/hr) | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | B, C | 4 | 4 | 5 | 0.0 | 0.0 | 0.000 | A |
|  | Exit | 1 | 1 |  | 3 | 3 | 4 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A, C | 9 | 9 | 9 | 0.0 | 0.0 | 6.768 | A |
|  | Exit | 1 | 1 |  | 11 | 11 | 12 | 0.0 | 0.0 | 0.000 | A |
| C | Entry | 1 | 1 | A, B | 14 | 14 | 16 | 0.1 | 0.0 | 4.494 | A |
|  |  | 2 | 1 | (A, B) | 14 | 14 | 16 | 0.0 | 0.0 | 2.701 | A |
|  | Exit | 1 | 1 |  | 13 | 13 | 14 | 0.0 | 0.0 | 2.689 | A |
|  |  | 2 | 1 |  | 13 | 13 | 14 | 0.0 | 0.0 | 0.000 | A |

## Lane movements: Main Results for each time segment

08:00-08:15

| Arm | Side | Lane level | Lane | To Arm | Total Demand (Veh/hr) | Junction Arrivals (Veh) | Simulation max flow (PCU/hr) | Capacity (Veh/hr) | RFC | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | C | 5 | 1 | - | - | - | 5 | 6 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | C | 7 | 2 | 551 | 550 | 0.013 | 7 | 10 | 0.0 | 0.0 | 6.502 | A |
| C | Entry | 1 | 1 | A | 4 | 0.95 | - | - | - | 4 | 4 | 0.0 | 0.0 | 0.060 | A |
|  |  |  |  | B | 10 | 2 | 555 | 554 | 0.017 | 9 | 11 | 0.0 | 0.0 | 6.255 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  | 2 | 1 | A | 4 | 0.95 | 1248 | 1248 | 0.003 | 4 | 4 | 0.0 | 0.0 | 2.672 | A |
|  |  |  |  | B | 10 | 2 | 1675 | 1675 | 0.006 | 10 | 11 | 0.0 | 0.0 | 2.757 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |

08:15-08:30

| Arm | Side | Lane level | Lane | To Arm | Total Demand (Veh/hr) | Junction Arrivals (Veh) | Simulation max flow (PCU/hr) | Capacity (Veh/hr) | RFC | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay <br> (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | C | 3 | 0.80 | - | - | - | 3 | 3 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | C | 10 | 2 | 494 | 494 | 0.019 | 10 | 9 | 0.0 | 0.0 | 6.837 | A |
| C | Entry | 1 | 1 | A | 4 | 0.95 | - | - | - | 4 | 3 | 0.0 | 0.0 | 0.468 | A |
|  |  |  |  | B | 12 | 3 | 555 | 554 | 0.022 | 12 | 11 | 0.0 | 0.0 | 6.228 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  | 2 | 1 | A | 4 | 0.98 | 1034 | 1034 | 0.004 | 4 | 3 | 0.0 | 0.0 | 2.678 | A |
|  |  |  |  | B | 12 | 3 | 1657 | 1657 | 0.007 | 12 | 11 | 0.0 | 0.0 | 2.819 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |

08:30-08:45

| Arm | Side | Lane level | Lane | To Arm | Total Demand (Veh/hr) | Junction Arrivals (Veh) | Simulation max flow (PCU/hr) | Capacity (Veh/hr) | RFC | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | C | 4 | 1 | - | - | - | 4 | 5 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | C | 11 | 3 | 511 | 510 | 0.021 | 11 | 10 | 0.0 | 0.0 | 7.213 | A |
| C | Entry | 1 | 1 | A | 5 | 1 | - | - | - | 5 | 6 | 0.0 | 0.0 | 0.610 | A |
|  |  |  |  | B | 15 | 4 | 591 | 590 | 0.025 | 15 | 14 | 0.0 | 0.0 | 6.301 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  | 2 | 1 | A | 5 | 1 | 1265 | 1265 | 0.004 | 5 | 6 | 0.0 | 0.0 | 2.686 | A |
|  |  |  |  | B | 15 | 4 | 1764 | 1764 | 0.008 | 15 | 14 | 0.0 | 0.0 | 3.164 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |

08:45-09:00

| Arm | Side | Lane level | Lane | To Arm | Total Demand (Veh/hr) | Junction Arrivals (Veh) | Simulation max flow (PCU/hr) | Capacity (Veh/hr) | RFC | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | C | 5 | 1 | - | - | - | 5 | 5 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | C | 13 | 3 | 540 | 539 | 0.025 | 14 | 13 | 0.0 | 0.0 | 6.089 | A |
| C | Entry | 1 | 1 | A | 5 | 1 | - | - | - | 5 | 5 | 0.0 | 0.0 | 0.454 | A |
|  |  |  |  | B | 12 | 3 | 591 | 590 | 0.020 | 12 | 14 | 0.0 | 0.0 | 6.344 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  | 2 | 1 | A | 5 | 1 | 1248 | 1248 | 0.004 | 5 | 5 | 0.0 | 0.0 | 2.876 | A |
|  |  |  |  | B | 12 | 3 | 1764 | 1764 | 0.007 | 12 | 14 | 0.0 | 0.0 | 3.049 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |

09:00-09:15

| Arm | Side | Lane level | Lane | To Arm | Total Demand (Veh/hr) | Junction Arrivals (Veh) | Simulation max flow (PCU/hr) | Capacity (Veh/hr) | RFC | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | C | 5 | 1 | - | - | - | 5 | 5 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | C | 11 | 3 | 563 | 562 | 0.019 | 10 | 12 | 0.0 | 0.0 | 6.323 | A |
| C | Entry | 1 | 1 | A | 4 | 0.95 | - | - | - | 4 | 4 | 0.0 | 0.0 | 0.481 | A |
|  |  |  |  | B | 12 | 3 | 579 | 578 | 0.021 | 11 | 12 | 0.0 | 0.1 | 6.345 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  | 2 | 1 | A | 4 | 0.95 | 1087 | 1087 | 0.003 | 4 | 4 | 0.0 | 0.0 | 2.580 | A |
|  |  |  |  | B | 12 | 3 | 1729 | 1729 | 0.007 | 12 | 12 | 0.0 | 0.0 | 3.091 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |

09:15-09:30

| Arm | Side | Lane level | Lane | To Arm | Total Demand (Veh/hr) | Junction Arrivals (Veh) | Simulation max flow (PCU/hr) | Capacity (Veh/hr) | RFC | Throughput (Veh/hr) | Average throughput (PCU/hr) | Start queue (Veh) | End queue (Veh) | Delay <br> (s) | Unsignalised level of service |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | C | 4 | 1 | - | - | - | 4 | 5 | 0.0 | 0.0 | 0.000 | A |
| B | Entry | 1 | 1 | A | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 | A |
|  |  |  |  | B | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  |  |  | C | 9 | 2 | 529 | 527 | 0.016 | 9 | 9 | 0.0 | 0.0 | 6.768 | A |
| C | Entry | 1 | 1 | A | 3 | 0.83 | - | - | - | 3 | 4 | 0.0 | 0.0 | 0.324 | A |
|  |  |  |  | B | 11 | 3 | 579 | 578 | 0.019 | 11 | 12 | 0.1 | 0.0 | 5.791 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |
|  |  | 2 | 1 | A | 3 | 0.83 | 1034 | 1034 | 0.003 | 3 | 4 | 0.0 | 0.0 | 2.504 | A |
|  |  |  |  | B | 11 | 3 | 1729 | 1729 | 0.006 | 11 | 12 | 0.0 | 0.0 | 2.762 | A |
|  |  |  |  | C | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 | 0.0 | 0.0 | 0.000 |  |


[^0]:    ${ }^{1}$ https://www.instagram.com/chvillageshop/

[^1]:    The slopes and intercepts shown above include custom intercept adjustments only.
    Streams may be combined, in which case capacity will be adjusted.
    Values are shown for the first time segment only; they may differ for subsequent time segments.

