University of Kent, Canterbury Campus

Preliminary Transport Appraisal: Disposal Sites BCD



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Preliminary Transport Appraisal: Disposal Sites BCD

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Executive summary

1.1.1. WSP has been commissioned by the University of Kent (UoK) to provide transport and environmental advice for the development of proposals at various sites in and around their Canterbury Campus.

1.1.2. In August 2021 UoK submitted representations to Canterbury City Council's (CCC) Preferred Options Local Plan Consultation (which followed previous responses submitted in response to CCC's 'Call for Sites' consultations). This submission included proposals for development of a residential led new community on land to the north of the University's Campus referred to as Sites BCD. As part of that submission a Transport Strategy (August 2021) was included to consider the potential transport impacts of the Proposed Development (i.e. an illustrative scheme proposing circa 2000 homes alongside a new local centre and other complimentary uses).

1.1.3. A Preliminary Transport Appraisal (PTA) was subsequently prepared to supplement the information presented in the Transport Strategy and was submitted to Kent County Council (KCC) as highway authority. Following feedback from KCC the PTA has been updated to include consideration of the impacts of the Proposed Development using a micro-simulation model and in the context of the emerging Canterbury Transport Strategy.

1.1.4. The Proposed Development site benefits from access by a range of modes of transport and provisional strategies have been developed to ensure that access by sustainable modes is prioritised above that of the private car.

1.1.5. Access onto Whitstable Road was initially focused on a new access in the far south of the University's Campus. However, following initial testing of the access strategy and feedback from KCC further options were explored with the proposed access strategy now incorporating two points of access to A290 Whitstable Road. The initial primary point of access would be delivered onto Whitstable Road in the far south of the University Campus with a second point of access under continued review, of which 'one current illustrative option' being the option to utilise the Blean Primary School, which would be delivered at an appropriate point in the development's build out to provide additional permeability to the

site. In this option, the Blean Primary School would be reconfigured on land within its existing site and surrounding land owned by the University.

1.1.6. The trip generation for the Proposed Development has been developed using person trip rates and split down by land use and journey purpose allowing for consideration of internalisation.

1.1.7. A highway network assessment has been developed using a two-stage approach. Firstly, a trip distribution has been derived using Census Travel to Work data to distribute trips to and from the site on the wider highway network. Within close proximity of the site a micro-simulation model has been developed to distribute trips on the roads immediately surrounding the site. A combination of outputs from the micro-simulation model along with a spreadsheet model that considers the distribution of wider trips has been used to derive turning movements at key junctions on the highway network within a study area agreed with KCC. This agreed study area consists of 13 locations.

1.1.8. The highway network assessment identified a number of locations where the existing highway network is anticipated to operate at/above capacity in the future year of 2045 and the Proposed Development was likely to increase queueing and delay.

1.1.9. Mitigation measures have been developed at four locations which effectively reduce the impacts of the Proposed Development and improved the performance of the highway network when compared to the Do Nothing scenario.

1.1.10. At one location (Junction 6 – Whitstable Road/London Road) a review of the junction layout identified limited opportunities for improvements within the highway boundary. It was noted that the level crossing on St Dunstan's Street is likely to affect the level of queueing and delay that occurs in this location as well as the attractiveness of this junction for journeys within Canterbury. Whilst no specific mitigation has been proposed at this location it is likely that drivers could re-route or re-time their journey should delays in this location increase significantly.

1.1.11. As such, a review of Junction 6 is ongoing and subject to further testing of these junctions and the wider highway network within the strategic model which is likely to identify opportunities for re-routing which will likely reduce impacts to an acceptable level. Furthermore, it has been shown that through the introduction of the Canterbury Transport Strategy, as part of the Local Plan, the impact at this junction reduces considerably and additional mitigation is not required through the delivery of the Proposed Development.

1.1.12. It was therefore concluded that the Proposed Development can be accommodated on the highway network and from a transport perspective following development and consideration of the proposals using the micro-simulation model and a number of mitigation measures together with sustainable travel planning measures, there are no reasons why the site should not be allocated within the forthcoming Local Plan.

Contact name Justin Sherlock

2 Introduction

2.1 Background

2.1.1. WSP has been commissioned by the University of Kent (UoK) to provide transport and environmental advice for the development of proposals at various sites in and around their Canterbury Campus.

2.1.2. In August 2021 UoK submitted representations to Canterbury City Council's (CCC) Preferred Options Local Plan Consultation. As part of this submission a Transport Strategy was included that identified how land to the north of the University's Campus could be unlocked to facilitate a residential led new community.

2.1.3. Kent County Council (KCC), in their capacity as highway authority reviewed the Transport Strategy[1] and requested further information regarding the likely impacts of the Proposed Development on the transport network with a focus on likely highway impacts.

2.1.4. A Preliminary Transport Appraisal (PTA)[2] was prepared and submitted to KCC in February 2022. Following feedback from KCC the PTA was updated to include the outputs from a micro-simulation model developed for the road network immediately surrounding the site. This PTA has been developed to understand the deliverability of the Proposed Development.

2.1.5. At this early stage in the development of proposals a full Transport Assessment (as would be expected to accompany a planning application) has not been prepared. Instead, an initial assessment has been undertaken based upon a scope agreed with KCC, acknowledging that further, more detailed assessment will likely be undertaken in due course as the proposals develop.

2.2 Scope

2.2.1. WSP approached KCC Highways in the Autumn of 2021 to discuss and agree the scope of this PTA prior to its preparation. It was acknowledged in the Autumn of 2021 that two potential approaches could be utilised to understand the impacts of the Proposed Development on the highway network:

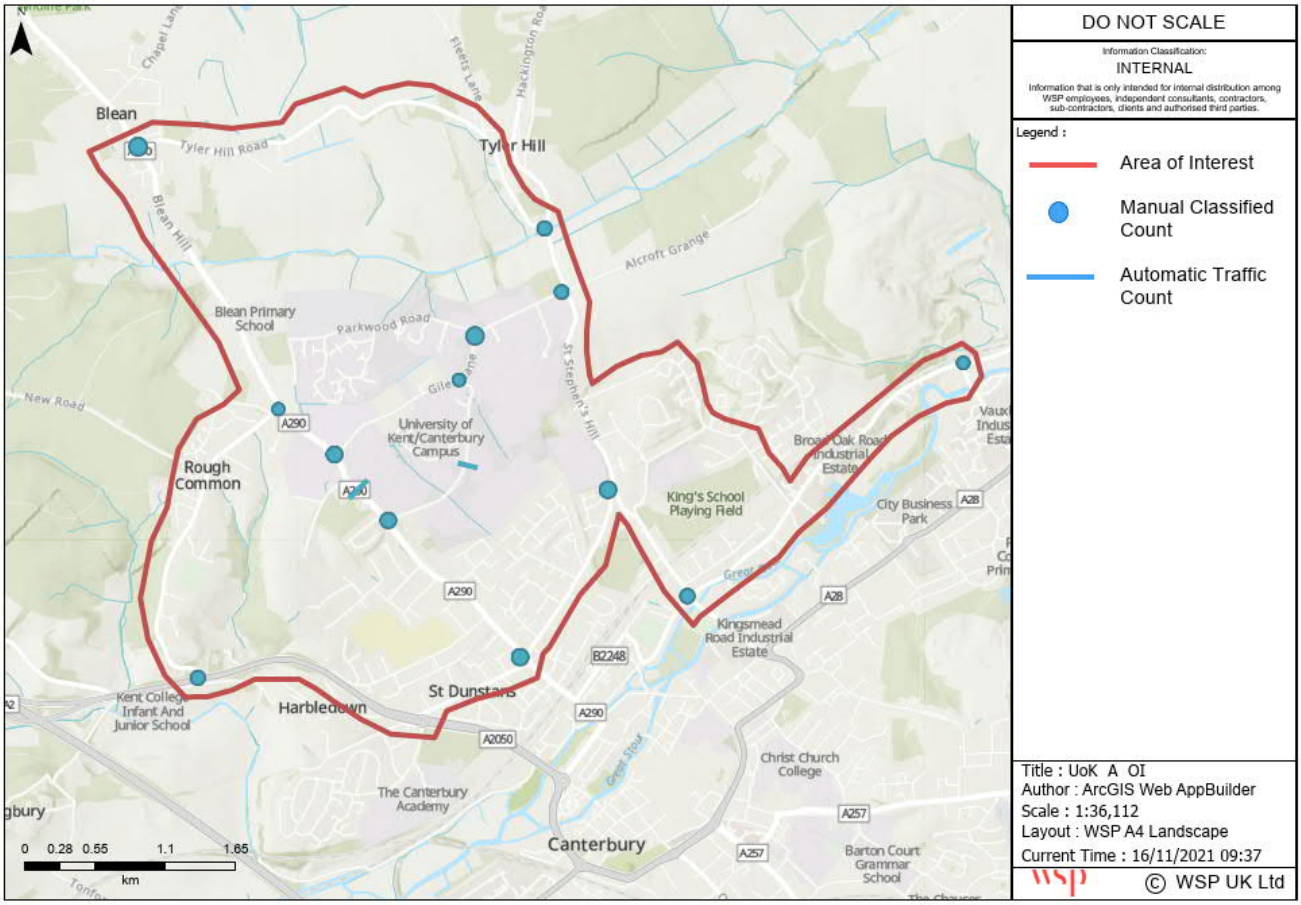
- Utilising the Canterbury strategic transport model developed by Jacobs; or
- A manual spreadsheet-based trip assignment with individual junction capacity assessments

[1] WSP Transport Strategy: Disposal Sites (August 2021)
[2] WSP Preliminary Transport Appraisal, Sites BCD (February 2022)

2.2.2. Both options were explored, and it was agreed that owing to the work required to the Canterbury strategic transport model to make it suitable for use in the PTA that a manual spreadsheet-based trip assignment and individual junction capacity assessments was the most appropriate for this stage of the process and would be utilised to understand the likely impacts arising from the Proposed Development.

2.2.3. A study area consisting of 13 key junctions was agreed with KCC Highways. This study area is shown in **Figure 1**.

Figure 1: PTA Area of Interest

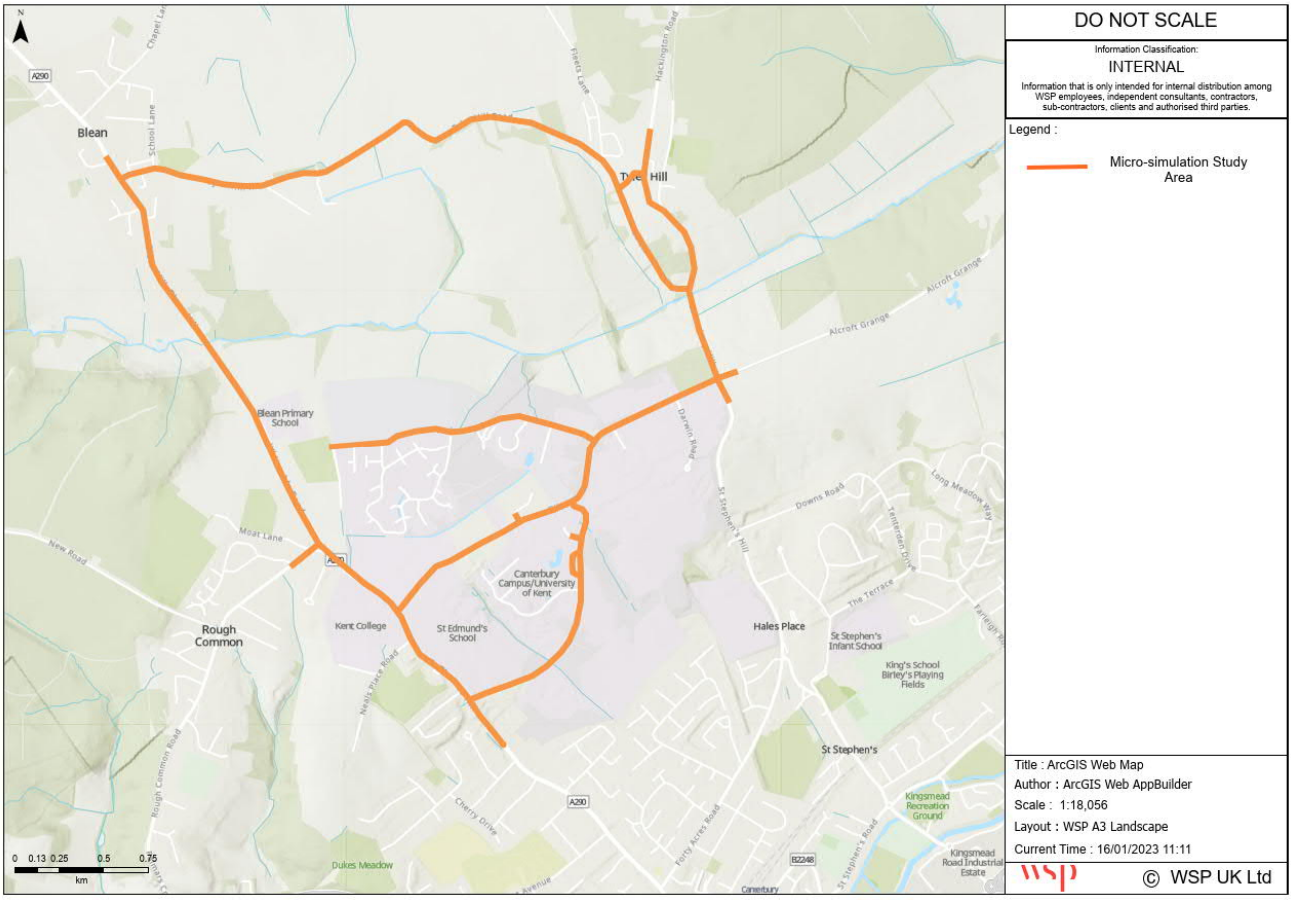


2.2.4. Junction turning counts were undertaken at the key junctions identified and agreed with KCC on Tuesday 7th December 2021. In addition, two week-long surveys were undertaken on Whitstable Road and University Road. These surveys were used to verify the results of the counts undertaken on the 7th December 2021 and for the purposes of producing data suitable for use within the separately prepared air quality assessment.

2.2.5. Following submission of the PTA and consideration by KCC a request was made to further consider the routing and therefore impacts of the Proposed Development in the immediate vicinity of the site and to also consider the impacts in the context of the emerging Canterbury Transport Strategy.

2.2.6. It was agreed that a micro-simulation model would be developed to understand in more detail how traffic would distribute in and around the Proposed Development site. The scope of the micro-simulation model was agreed with KCC and the study area agreed is shown in **Figure 2**.

Figure 2: Micro-simulation Scope



2.2.7. The micro-simulation study area only covered the site and its immediate surroundings. The spreadsheet model previously developed was used to identify the wider distribution across the highway network.

2.2.8. Two highway network assessment scenarios were requested to be considered:

- A core scenario considering the impacts of the Proposed Development on the existing highway network. This approach used a combination of Census Travel to Work data, an online journey planner and the micro-simulation model
- A sensitivity test scenario considering the impacts of the Proposed Development in the context of the emerging Canterbury Transport Strategy. This scenario utilised Census Travel to Work data, assumptions about how traffic could re-distribute as a result of the measures incorporated within the emerging Canterbury Transport Strategy and the micro-simulation model.

2.2.9. A meeting was held with KCC in December 2022 to outline the updated scope being adopted and preliminary outputs from the assessment. This PTA details the findings of the updated assessment.

2.3 Report structure

2.3.1. Following this introduction, the remainder of this PTA is set out as follows:

- Section 3 considers the existing site and transport conditions
- Section 4 provides an overview of the emerging development proposals and transport strategy
- Section 5 provides a trip generation and distribution for the development proposals
- Section 6 considers the impacts of the development proposals on the highway network
- Section 7 considers potential mitigation;
- Section 8 considers access phasing; and
- Section 9 provides a summary, conclusion and considers next steps.

3 Existing Transport Conditions

3.1 Introduction

3.1.1. This section outlines the existing transport conditions in the vicinity of the disposal sites, assessing the walking, cycling, public transport and local highway network facilities and accessibility.

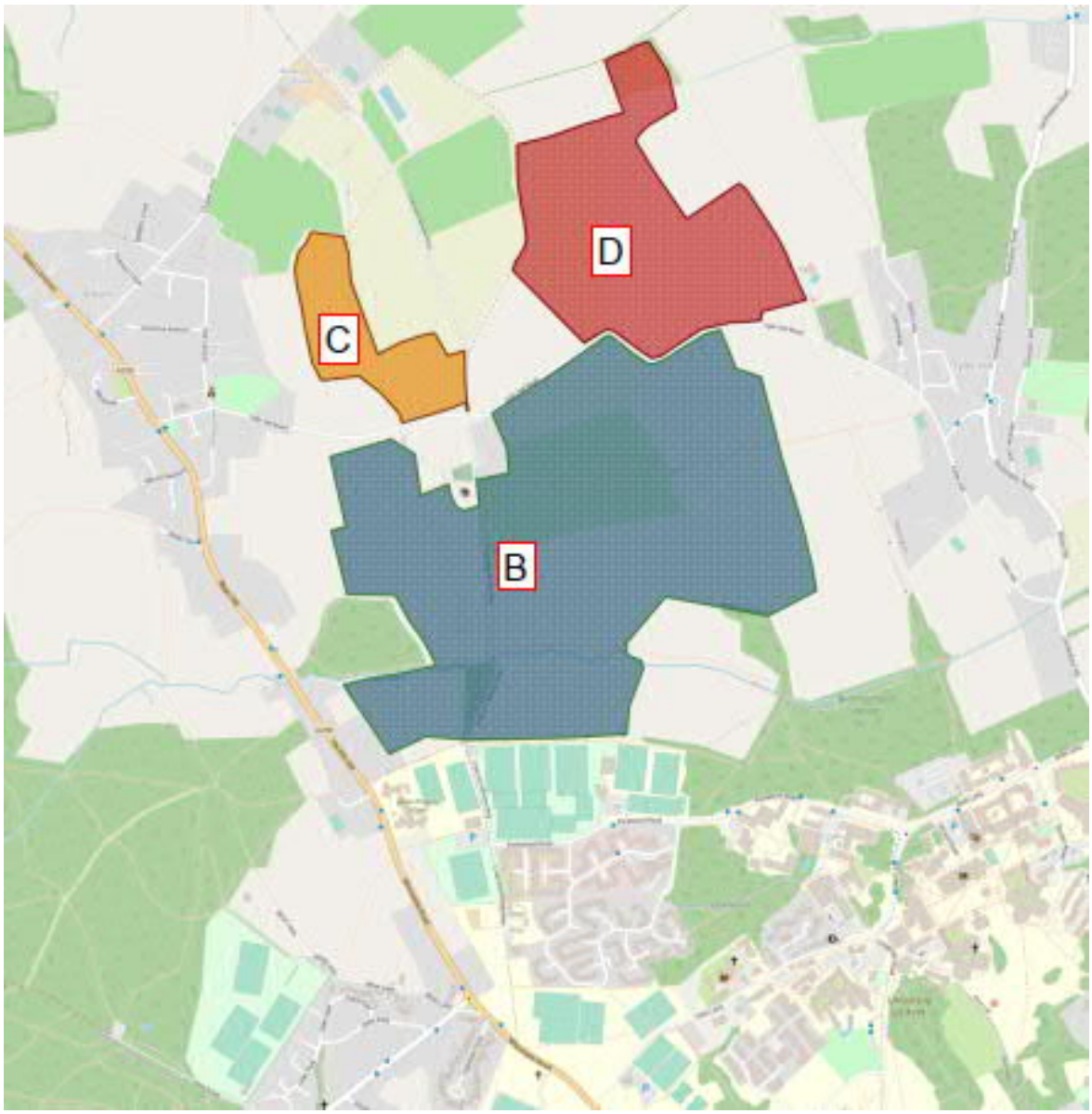
3.2 Site location

3.2.1. The UoK Canterbury Campus is located to the north of the centre of Canterbury on the urban fringe of the City. Covering an area of approximately 105 hectares the University Campus features a mixture of academic and student accommodation buildings alongside associated sports and recreational facilities.

3.2.2. The focus of this PTA is land that the University has identified to the north of the University Campus and referred to as sites BCD. Sites BCD are currently accessed from Tyler Hill Road, an unclassified rural road that runs approximately east west between Blean and the A290 Whitstable Road in the west to the village of Tyler Hill in the east. Frontage to this road from Sites BCD is limited with third party land between the site boundary and adopted highway.

3.2.3. **Figure 3** identifies the location of Sites BCD in the context of the surrounding highway network.

Figure 3: UoK Disposal Sites BCD Site Location



3.3 Pedestrians

3.3.1. The area benefits from a combination of pedestrian footways bounding highway routes in the local area and a series of public rights of way that provide connections across the surrounding rural hinterland.

3.3.2. Several footways, bridleways and byways provide pedestrian access to the University campus and the surrounding surplus land. The main footways are provided along the neighbouring Whitstable Road in the west and St Stephen's Hill in the east. The University Campus is then accessed via either University Road or Giles Lane. Both Giles Lane and University Road feature footways along their length albeit in some locations these are only provided along one side of the carriageway. Continuous pedestrian routes are therefore

provided east west through the University Campus to connect Whitstable Road in the west with St Stephen's Hill in the east.

3.3.3. CB24A (The Crab and Winkle Way) provides a strategic walking connection between Canterbury and Whitstable (a distance of approximately 7.2km). The route commences on Whitstable Road in the west of the University Campus and heads north directly through the Campus on a combination of dedicated off road shared use pedestrian/footway and shared surface (used by both vehicles and active mode users). To the north of the University Campus the route continues across open farmland as a shared footway/cycleway within Site B before reaching Tyler Hill Road. The route from Whitstable Road to Tyler Hill Road is a designated bridleway. The route then crosses Tyler Hill Road at an uncontrolled crossing point before continuing north along the boundary of Site C and is designated as a byway. North of Site C the route continues towards Whitstable on a combination of bridleway and footpaths.

3.3.4. A series of public footpaths run east west across Site B including CB12 which follows the alignment of the watercourse and connects Blean in the west with Tyler Hill in the east. CB12 also connects with footpath CB13 which connects into the University Campus and Giles Lane. Footpath CB14 runs east west between Tyler Hill Road and Tyler Hill.

3.3.5. Site C is bound by byway CB27 in the east along with footpath CB16 both of which form part of the Crab and Winkle Way. Site C is also bound to the north by footpath CB18A which connects with Blean in the west.

3.3.6. Site D is bound in the west by byway CB27 and in the north by bridleway CB24.

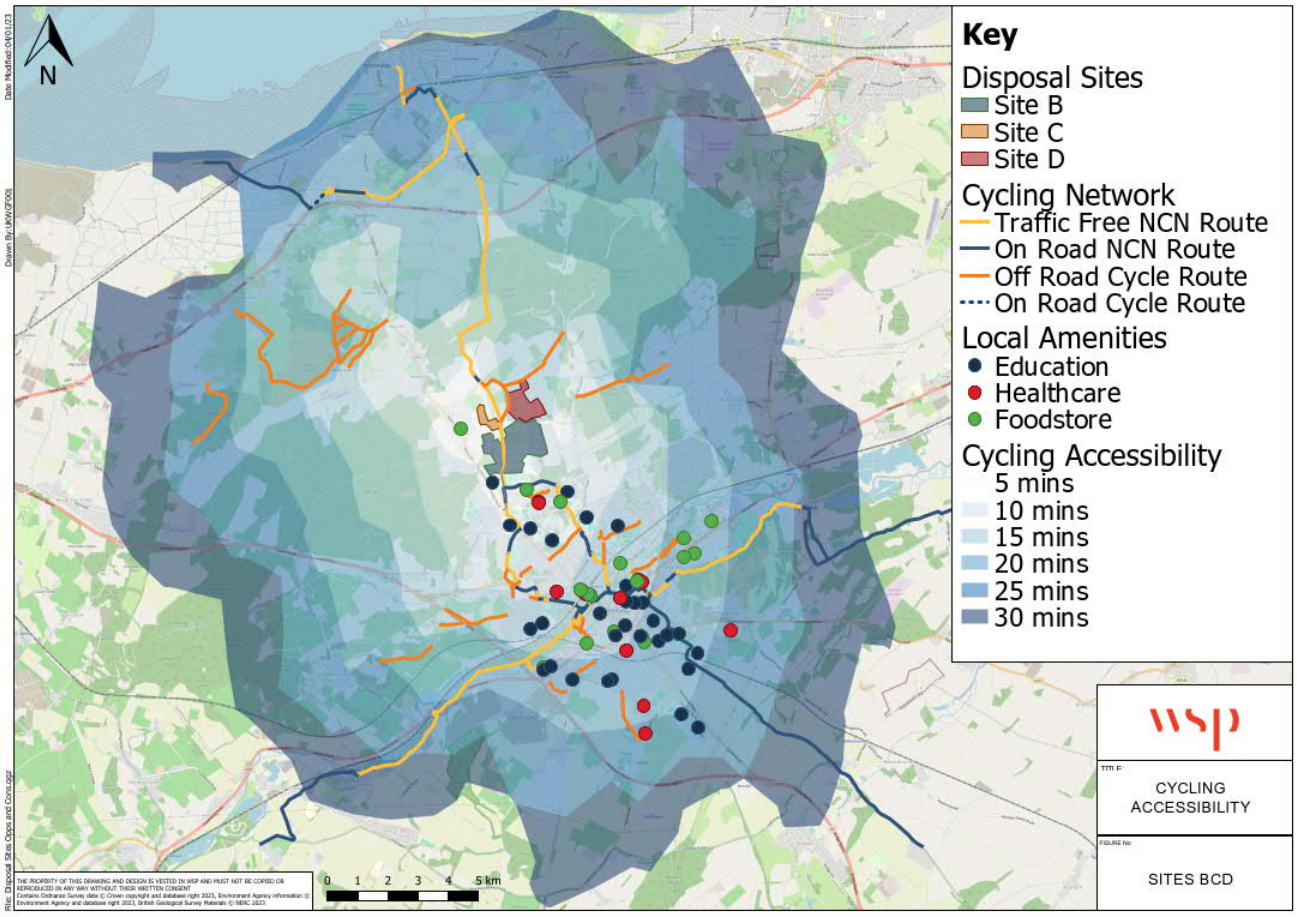
3.4 Cyclists

3.4.1. There are several cycle paths that currently provide access to the University Campus and surplus land. The National Cycle Network (NCN) route 1, also known as the Crab and Winkle Way runs from north to south, part on carriageway and part traffic free through the University Campus and Site B and bounds Site C in the east. Locally the route runs between Canterbury in the south and Whitstable in the north. In addition to the NCN route, there are several off-road cycle routes that run through the University Campus east to west.

3.4.2. As shown in **Figure 4** the whole of Canterbury and areas to the north including Whitstable are all accessible within a five mile (30 minute) cycle of the centre of these sites. Five miles is considered to be the maximum distance that people could realistically swap car-based travel for cycling[3]. A range of amenities and facilities can be accessed within these existing settlements including schools, convenience retail and healthcare.

[3] Department for Transport's Local Transport Note 1/20: Cycle Infrastructure Design (2020) Paragraph 2.2.2

Figure 4 – Sites BCD Cycling Isochrone



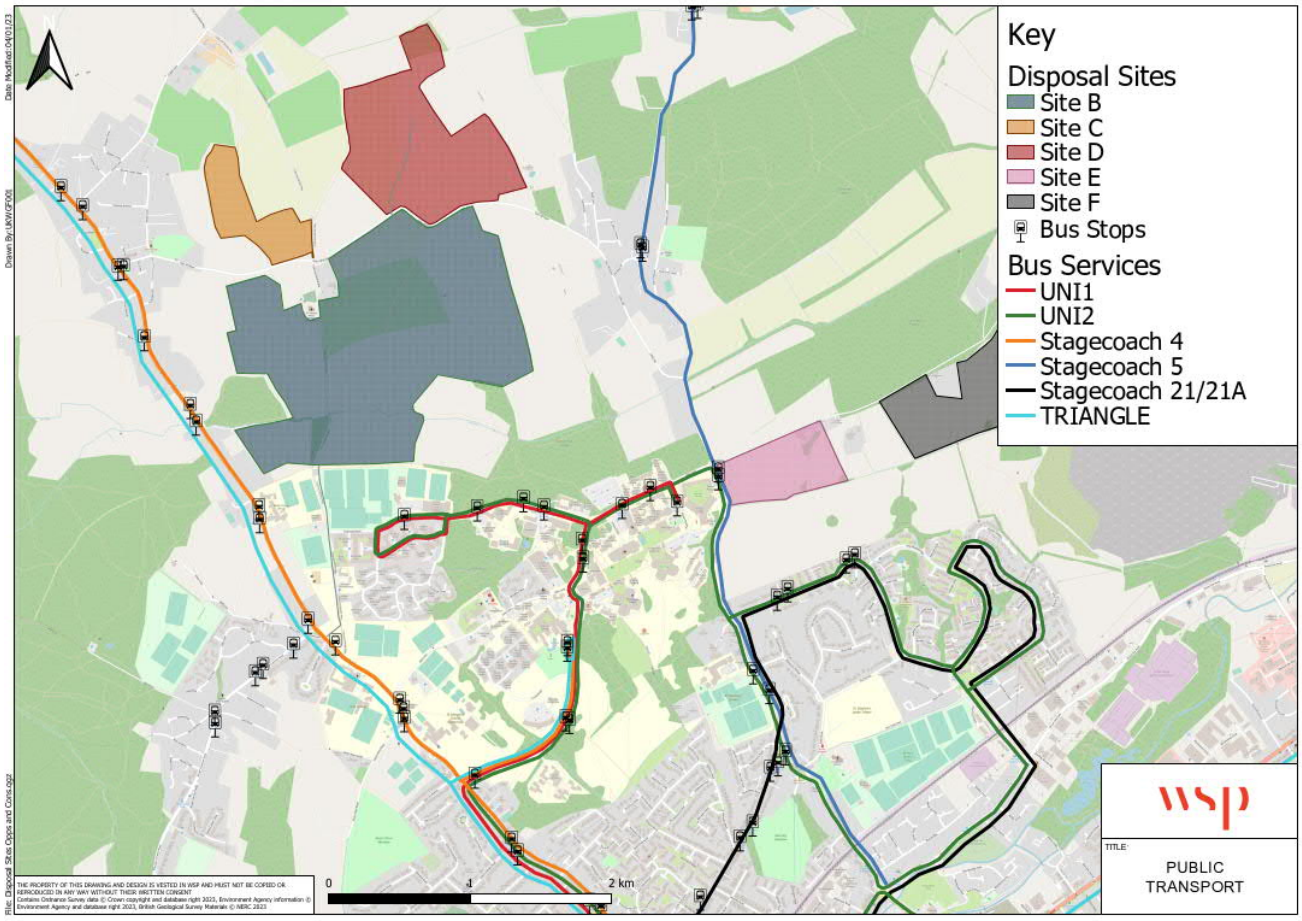
3.5 Public Transport

3.5.1. The University Campus and surrounding land benefits from access to a range of public transport services that primarily connect the University with wider Canterbury and destinations further afield.

Bus Services

3.5.2. **Figure 5** illustrates the bus stops and bus routes that are accessible from the bus stops in the vicinity of the University Campus and surrounding area.

Figure 5 – Local Bus Stops and Routes



3.5.3. **Figure 5** demonstrates that the University is served directly by four bus services whilst further services are accessible from both Whitstable Road in the west and St Stephen's Hill in the east.

3.5.4. **Table 1** provides a summary of the bus services accessible from the University Campus, Whitstable Road and St Stephen's Hill that could be utilised by users of Sites BCD.

Table 1 - Bus Services in the Vicinity of the Sites

Bus Service	Route	First Bus	Last Bus	Frequency			Nearest Bus Bus Stop
				Mon - Fri	Sat	Sun	
4	Canterbury - University of Kent – Whitstable – Tankerton - Greenhill	07:58	17:20	30 minutes	30 minutes	N/A	University of Kent, Keynes College (Stop A)
5	Canterbury – Tyler Hill – Chestfield – Whitstable - Seasalter	07:15	17:03	Hourly	Hourly	N/A	University of Kent Alcroft Grange
21/21A	City Centre - St. Dunstan's - Hales Place - City Centre	07:20	18:06	15 minutes	15 minutes	Hourly	Hales Place, Downs Road
UNI1	University of Kent – Canterbury City Centre	08:24	18:34	10 minutes	15 minutes	N/A	University of Kent, Keynes College (Stop A)
UNI2	Canterbury – Westgate Towers, University of Kent	09:00	18:12	30 minutes	30 minutes	N/A	University of Kent, Park Wood
TRIANGL	Canterbury – Whitstable – Herne Bay	05:57	00:05	20 minutes	30 minutes	30 minutes	University of Kent, Keynes College (Stop A)

3.5.5. **Table 1** demonstrates that a range of services are available in the area surrounding the sites that operate on a range of frequencies up to every 10 minutes. Key destinations served include Canterbury City Centre, Canterbury West Railway Station, Sittingbourne, Whitstable and Herne Bay.

Rail services

3.5.6. Canterbury West Railway Station is located approximately 1.7 km from the closest access point to the University and 2.7 km from the heart of the University Campus. To Sites BCD the station is 3.7 km. Canterbury West Railway Station is located beyond a reasonable walking distance but could reasonable be access by bicycle.

3.5.7. **Tables 2-4** provide details of the rail services from Canterbury West Station from Monday to Friday and Saturday and Sunday Respectively. All timings are from Canterbury West Station.

Table 2 - Rail Services (Monday – Friday)

Direct Service	First Train	Last Train	Frequency	Journey Time
Ramsgate – Canterbury West – London Charing Cross	06:07	21:12	30 minutes	126 minutes
Margate – Canterbury West – London St Pancras	05:19	23:37	Hourly	54 minutes
Canterbury to Ashford International	05:19	23:50	Hourly	15 minutes

Table 3 - Rail Services (Saturday)

Direct Service	First Train	Last Train	Frequency	Journey Time
Ramsgate – Canterbury West – London Charing Cross	06:12	22:59	30 minutes	127 minutes
Margate – Canterbury West – London St Pancras	05:23	23:37	Hourly	55 minutes
Canterbury to Ashford International	05:23	23:50	Hourly	15 minutes

Table 4 - Rail Services (Sunday)

Direct Service	First Train	Last Train	Frequency	Journey Time
Ramsgate – Canterbury West – London Charing Cross	07:05	22:29	30 minutes	120 minutes
Margate – Canterbury West – London St Pancras	05:26	23:37	Hourly	55 minutes
Canterbury to Ashford International	07:26	23:50	Hourly	15 minutes

3.5.8. **Tables 2-4** demonstrate that Canterbury West Station provides train services to a range of locations including Margate, Ramsgate, London Charing Cross, London St Pancras and Ashford International.

3.5.9. The analysis presented above demonstrates that the railway station is accessible by either bus or by cycling from the disposal sites. Space for 134 cycles is provided at Canterbury West Station[4].

3.6 Highway Network

3.6.1. The local highway network in the vicinity of Sites BCD is characterised by a series of north south radial routes that converge on Canterbury City Centre in the south and connect with the settlements of Herne Bay and Whitstable in the north. In the west the A290 Whitstable Road provides a connection between the City Centre Ring Road, the University, Blean and north towards the A299 and Whitstable. This road also connects in the vicinity of the University with Rough Common Road which provides a connection to the A2050 and A2 in the west.

3.6.2. In the east St Stephen's Hill connects the City Centre and areas to the east of Canterbury along the A28 corridor with the University and north towards the A299 and Herne Bay.

3.6.3. The University Campus itself is accessible from either Whitstable Road or St Stephen's Hill. Giles Lane provides a continuous east-west connection through the University Campus between Whitstable Road and St Stephen's Hill. However, its width is constrained within part of the University resulting in an informal priority working system. University Road

[4] Source: National Rail Website

provides a connection between Whitstable Road in the west and Giles Lane in the centre of the University Campus. The road forms a priority junction with Giles Lane. Within the centre of the University Campus both Giles Lane and University Road are subject to a 20mph speed limit.

3.6.4. Park Wood Road is a private internal university road that connects Giles Lane with areas in the north of the University.

3.6.5. Tyler Hill Road provides an east-west connection between the villages of Blean and Tyler Hill and runs between Sites BCD. The road is a rural country lane which whilst subject to national speed limit (60mph speed limit) features constrained geometry which limits the speed of vehicles.

3.7 Summary

3.7.1. This Section has provided a summary of the existing transport conditions in the vicinity of the site. It is evident from this that Sites BCD could benefit from access to a range of modes of transport. The proposed transport strategy responds to these existing conditions and is outlined in Section 4.

4 Development Proposals

4.1 Introduction

4.1.1. This section provides an overview of the Development Proposals that have been considered within this PTA.

4.2 Development Proposals

4.2.1. Potential for a residential led mixed-use development is currently envisaged to the north of the University Campus on Sites BCD. Initial masterplanning optioneering indicated potential for approximately 2000 homes supported by a local centre (incorporating transport hub) and primary school to serve the new population.

4.2.2. Access to the site would focus movement towards a north-south axis with movement to/from Tyler Hill Road managed through incorporation of the road within the site where it bounds the development.

4.2.3. A new access road for all users (pedestrians, cyclists and vehicles) would be delivered through the University Campus and access onto the public highway on Whitstable Road (A290). Previous work undertaken for the University Masterplan identified the potential for a traffic signal junction on Whitstable Road to facilitate access in this location. The form of access proposed is considered in more detail within Section 6.

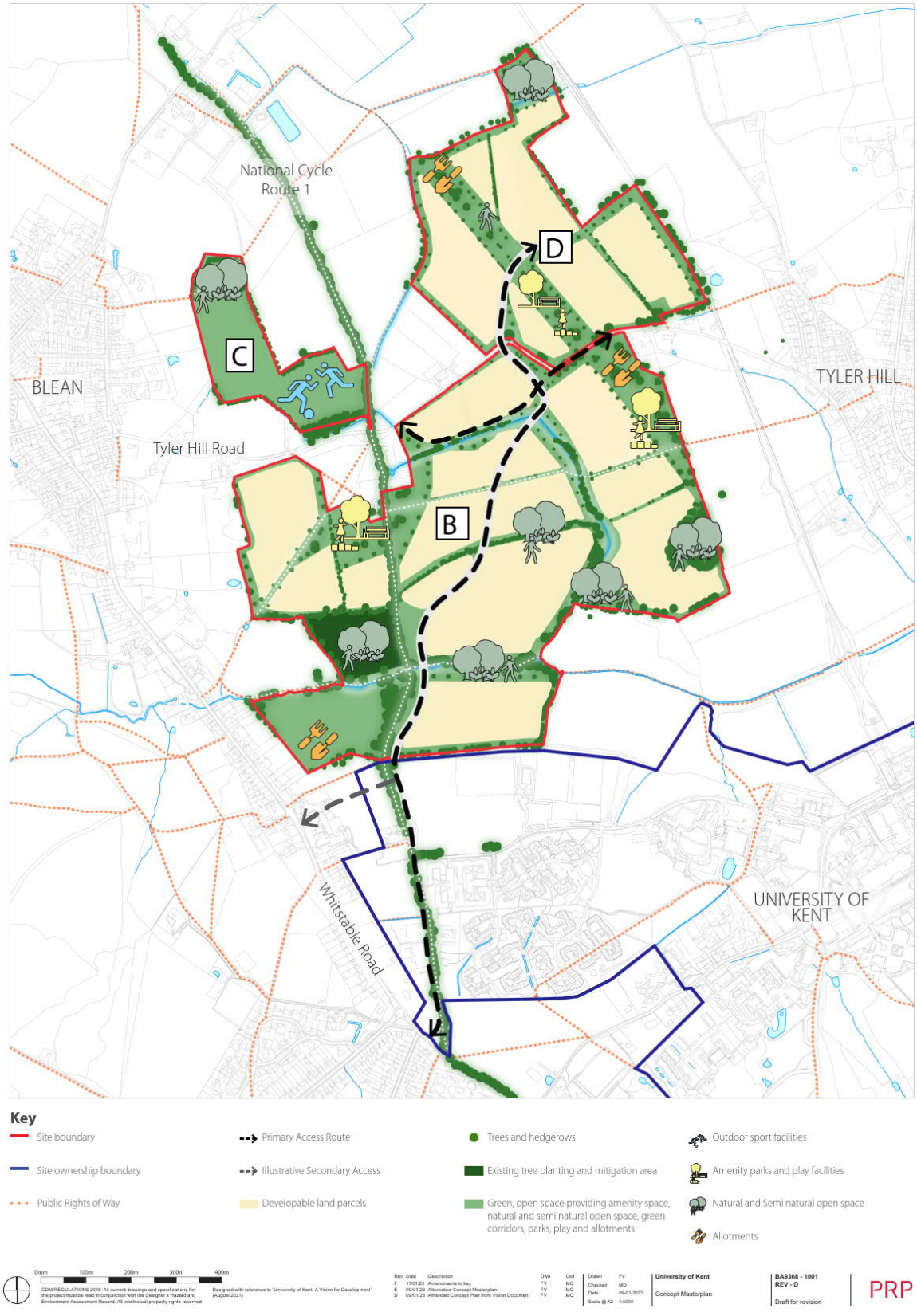
4.2.4. To support the increase in traffic expected as a result of the development proposals, it is also proposed that a secondary access will be required off Whitstable Road. A review is underway on a range of alternative secondary access options into the Site (involving the introduction of a secondary access from Whitstable Road). These options will involve an element of land assembly in due course, however for the purpose of this assessment, a new illustrative secondary access route would be via a second point of access to Whitstable Road (A290) at Blean Primary School.

4.2.5. To date, the Applicant has undertaken early-stage discussions with KCC officers concerning the potential use of the Blean Primary School site as a secondary access. KCC officers have broadly accepted the principle of this approach (subject to more detailed discussions and on the basis that the school would be replaced elsewhere within the BCD masterplan and operational delivered at an appropriate point in the development's phasing to ensure no impacts on the School's operation).

4.2.6. Limited vehicular access to Site C would lend the site to provision of open space to contribute towards the overall provision across Sites BCD albeit acknowledging that should alternative access opportunities arise (for instance in the form of third-party land) then there may be opportunity to deliver further residential development in this location.

4.2.7. **Figure 6** outlines the current emerging masterplan for Sites BCD.

Figure 6: Emerging Masterplan Option (Source: PRP)



4.3 Access Strategy

Vehicular Access

4.3.1. When considering vehicular access to Sites BCD the starting point was to investigate where the current sites connect with the public highway. The only existing point of connection to the public highway is Tyler Hill Road. Tyler Hill Road is a single carriageway road that connects the A290 Whitstable Road in the west with the village of Tyler Hill and Hackington Road in the east. In the vicinity of Sites BCD Tyler Hill Road is subject to national speed limit (60mph), varies in width between approximately 4m and 6m, is subject to a 7.5t weight restriction and in places features limited forward visibility (**Figures 7-10**).

Figure 7 – View west along Tyler Hill Road adjacent to Hothe Lodge



Figure 8 – View east along Tyler Hill Road adjacent to Hothe Lodge



Figure 9 – View east along Tyler Hill Road from Blean Village



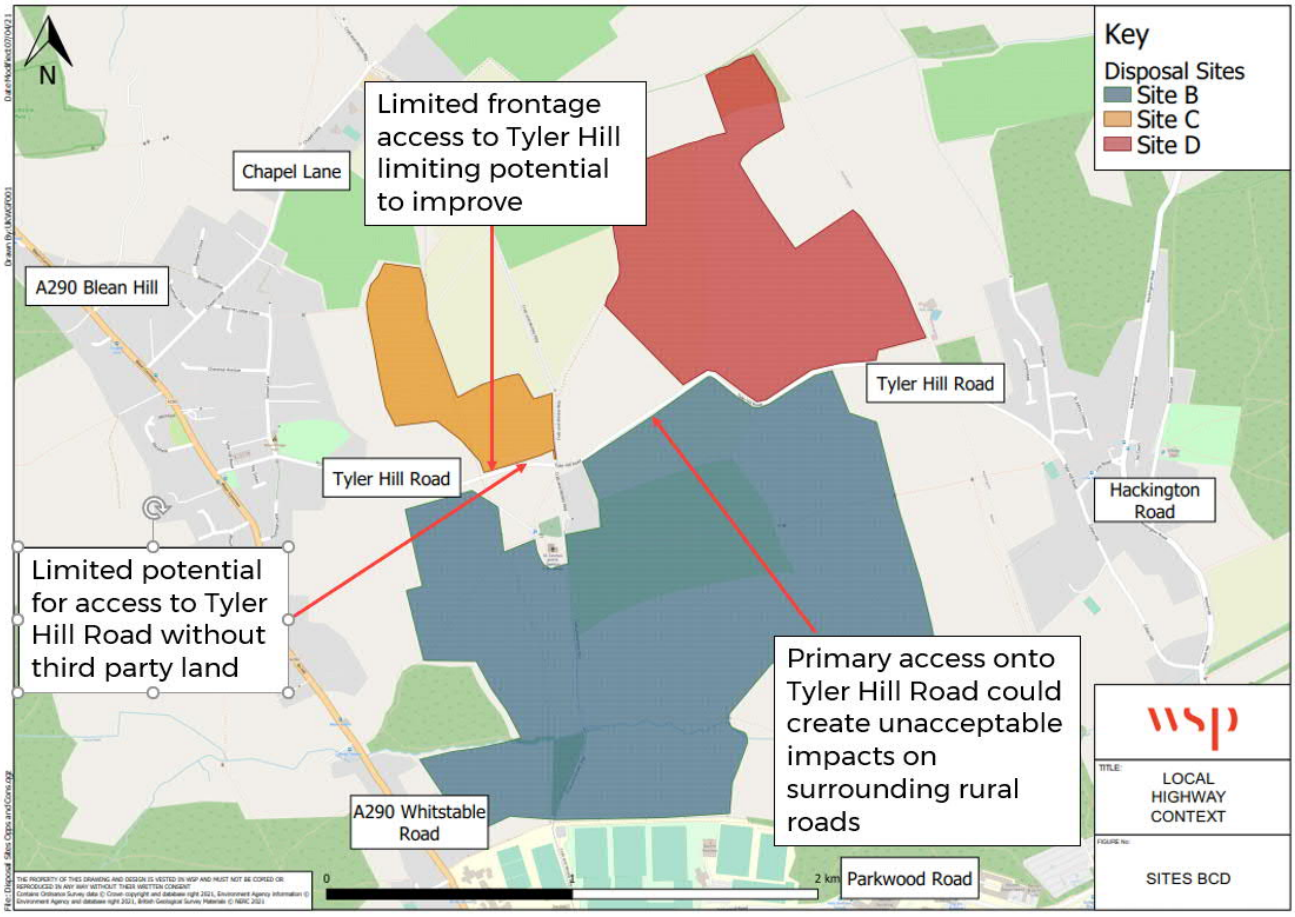
Figure 10 – View east along Tyler Hill Road from Hothe Court Farm



4.3.2. In its current form Tyler Hill Road is not currently considered suitable to accommodate a significant increase in volumes of traffic. Due to the University's limited frontage onto Tyler

Hill Road, constrained highway boundary extents and multiple land ownerships fronting the highway, the University has limited potential within its own land ownership to improve the existing Tyler Hill Road (**Figure 11**).

Figure 11 – Access Constraints



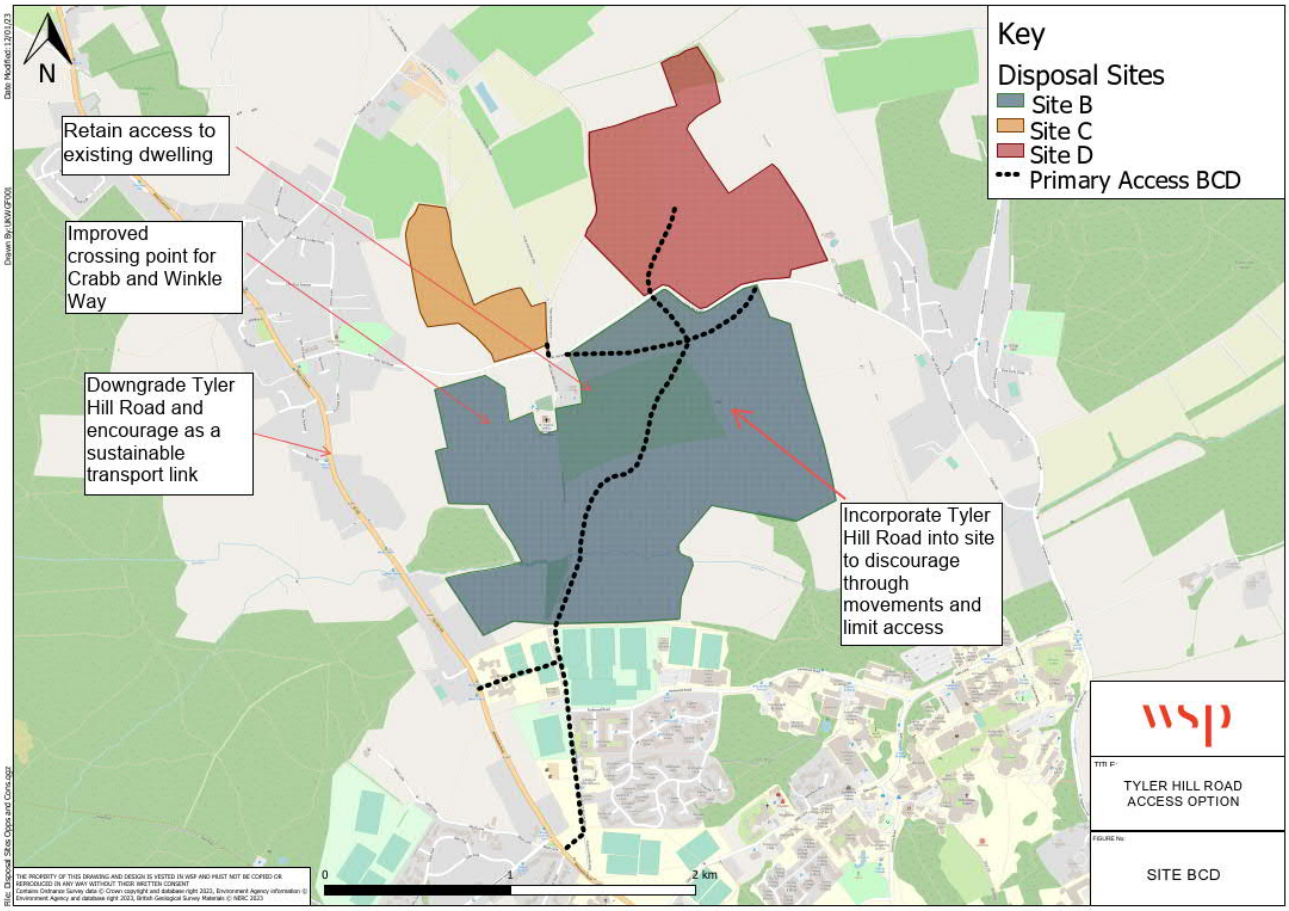
4.3.3. Consideration has been given to whether access could be achieved through third party land acquisition to enable Tyler Hill Road to become a main point of access. However, the multiple land ownerships restrict the ability to achieve this at this early stage (although opportunities may arise in due course).

4.3.4. In addition, significantly increasing traffic volumes on Tyler Hill Road could result in additional impacts on the neighbouring village of Tyler Hill and upon the two junctions at either end (A290 and Hackington Road) which have been highlighted by KCC as a concern and have therefore been assessed as part of this PTA.

4.3.5. On the basis of the above, the access strategy for unlocking Sites BCD recommended developing a new north-south route through the University Campus. To discourage increased usage of Tyler Hill Road it was recommended that the existing road was downgraded where it passed through University owned land and the highway incorporated into the masterplan where design measures could be incorporated to manage through traffic and limit access from the development out onto the retained sections of road. Further

benefits would be the ability to re-prioritise Tyler Hill Road as a sustainable transport link and improve crossing conditions for the Crab and Winkle Way (**Figure 12**).

Figure 12 – Access Strategy



4.3.6. A range of alignments were considered for the southern section of the new access road to minimise impacts on the existing University Campus and other constraints such as the ancient woodland and watercourse.

4.3.7. The road itself would be designed in accordance with the principles established within the Department for Transport's (DfT) 'Manual for Streets' and meet the standards of a Major Access Road in accordance with the Kent Design Standards and likely feature a 30mph design speed. For the purposes of the initial feasibility design work a highway corridor of 15m was assumed to ensure sufficient space to accommodate the carriageway, pedestrian and cycle infrastructure in accordance with DfT Local Transport Note 1/20 'Cycle Infrastructure Design'.

4.3.8. The highway corridor has been designed as a separate movement corridor to the existing internal University infrastructure and the Crab and Winkle Way. Where the alignment either shares the same corridor or crosses the Crab and Winkle Way careful consideration will be

made to preserve the priority of this strategic pedestrian and cycle corridor, integrating with it where appropriate.

4.3.9. The access road would also have the benefit of facilitating the ambitions of the University Masterplan to deliver a new access onto Whitstable Road and allow access to the new parking areas proposed within the masterplan.

4.3.10. Construction of a new highway corridor across the University will have an impact on existing facilities on the Campus and this would need to be fully considered within a Construction Traffic Management Plan.

4.3.11. Access onto Whitstable Road was initially focused on a new access in the far south of the University's Campus. However, following initial testing of the access strategy and feedback from KCC further options were explored with the proposed access strategy now incorporating two points of access to A290 Whitstable Road. The initial primary point of access would be delivered onto Whitstable Road in the far south of the University Campus with a second point of access under continued review, of which one illustrative option is to utilise the Blean Primary School, which would be delivered at an appropriate point in the development's build out to provide additional permeability to the site. In this option, Blean Primary School would be reconfigured on land within its existing site and surrounding land owned by the University. The access proposals for Whitstable Road are considered in more detail in Section 6.

Pedestrians and Cyclists

4.3.12. Pedestrians and cyclists would be afforded a high level of priority within the proposed masterplan to ensure that active travel can be a genuine alternative for shorter distance trips than the private car. To deliver this the following access infrastructure is proposed:

- Provision of footways and cycleways on the key movement corridors into and out of the site
- Integration of the on-site provision with the Crab and Winkle Way and surrounding infrastructure
- Improvements to Public Rights of Way in the local area to enhance connectivity with local destinations.

4.4 Public Transport Strategy

4.4.1. A key principle of the transport strategy is the delivery of a transport hub on the development site to focus and provide access to a range of transport options, with the overarching aim of reducing reliance on the private car (**Figure 13**). A mobility hub can be understood as a 'place' or interchange providing different and connected transport modes supplemented with enhanced facilities to both attract and benefit the traveller. They are usually focussed around mass public transport (e.g. bus stops or rail station) and last mile mobility solutions (e.g. cycles). The transport hub would be located adjacent to the local centre and be complimentary to the uses within the local centre itself. Whilst the principle of

a mobility hub (transport hub) is still evolving the key transport components of the facility would include:

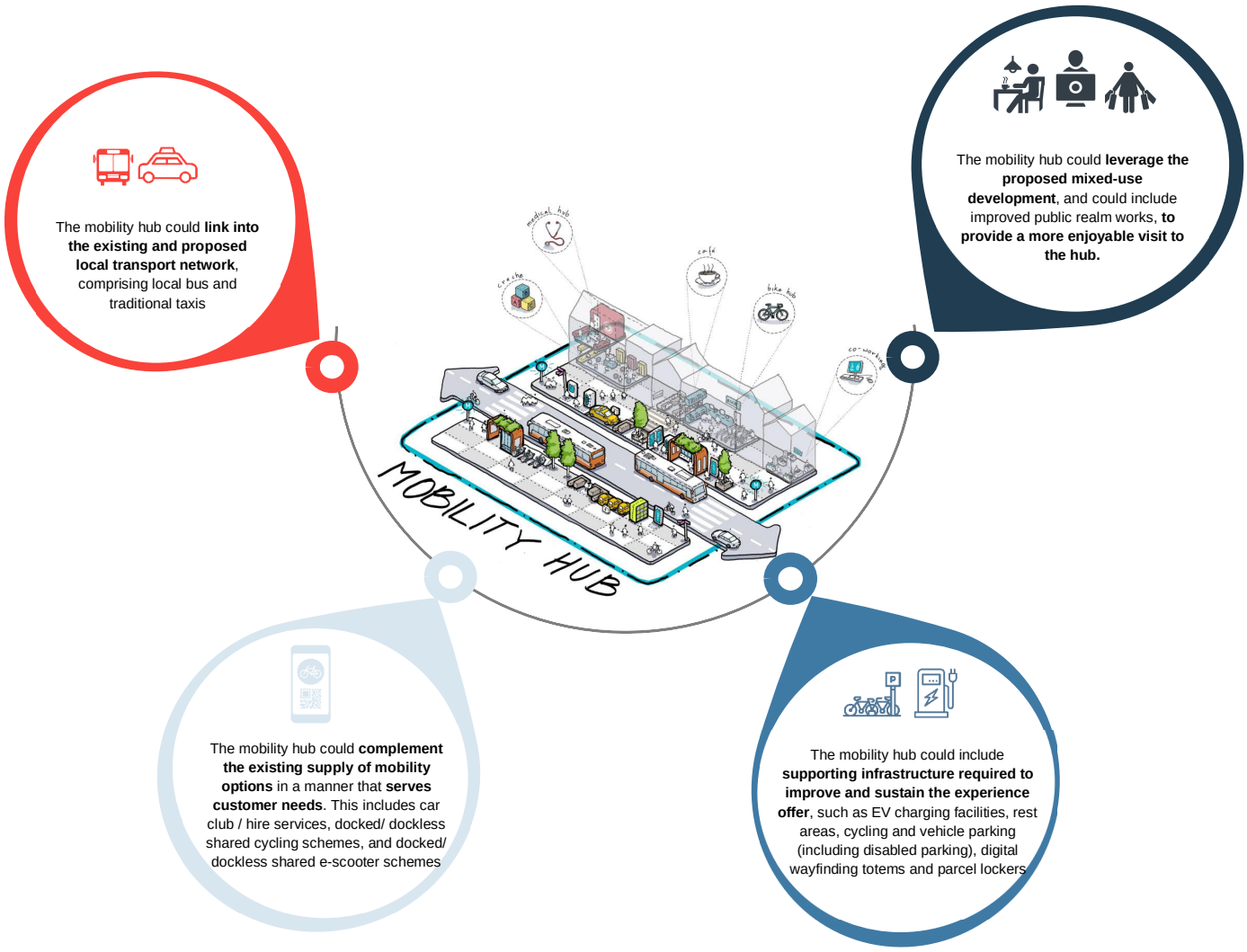
- Bus stop including access to real time passenger information
- Cycle parking to facilitate modal interchange including bike pump and repair facilities
- A focal point for ride sharing and hailing services (such as Uber)
- Car club spaces
- Micro-mobility (bike and scooter hire docking stations)
- Rapid electric vehicle charging

4.4.2. Complimentary facilities may include:

- Micro-consolidation facilities such as parcel lockers (e.g. Amazon lockers)
- Retail
- Digital services (real time public transport information, community news etc)

4.4.3. The deployment of mobility hubs has already started across the UK with proposals emerging in Manchester (Ancoates and New Islington) and incorporation within the new garden settlement at Otterpool near Folkestone in Kent.

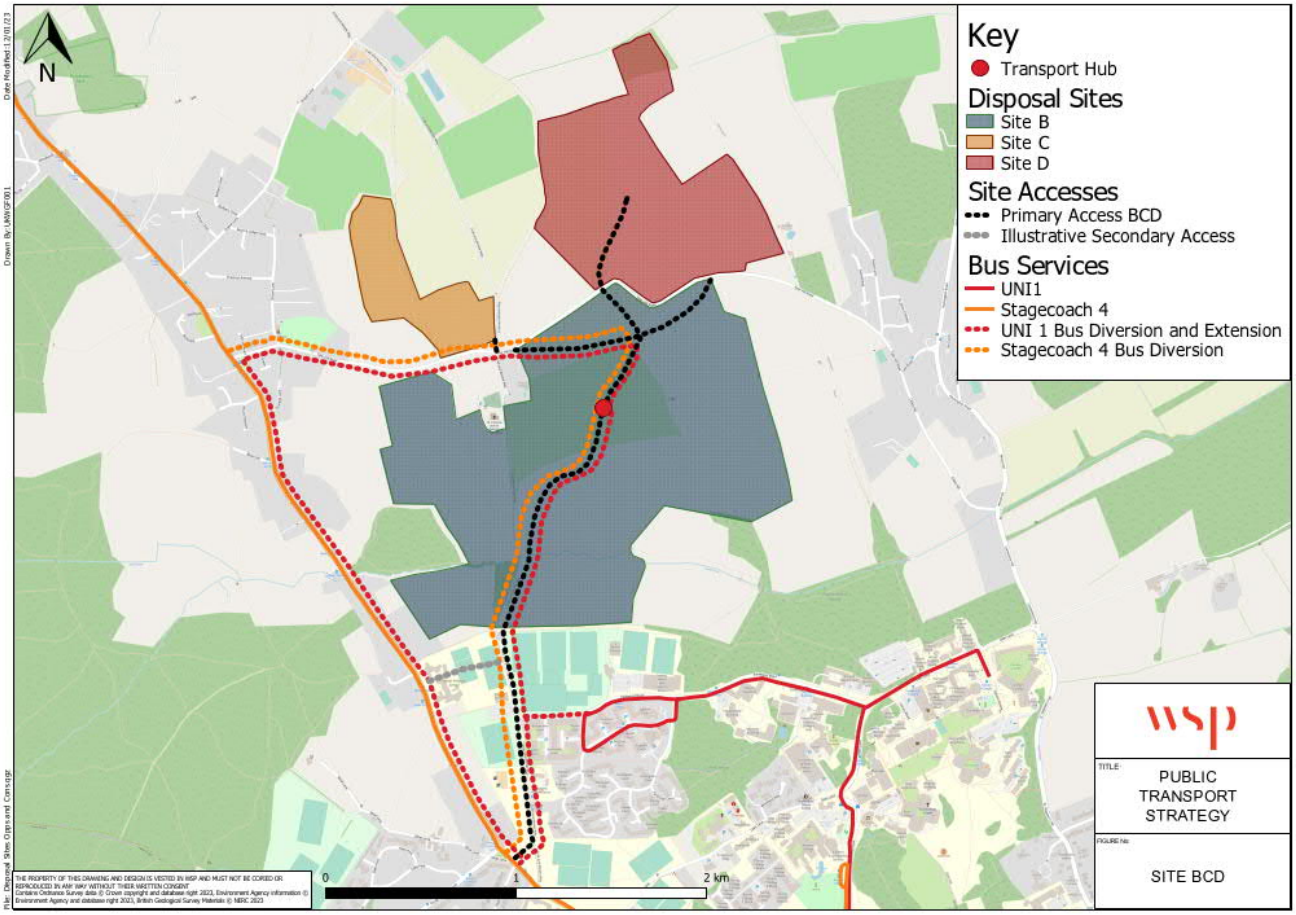
Figure 13 – Illustration of Transport Hub



4.4.4. Alongside the emergence of mobility hubs technology has facilitated the development of personalised journey planning platforms. When combined across modes these are known as Mobility as a Service (MaaS). KCC are currently developing a MaaS platform for deployment across Dartford and Gravesham with a focus on the Ebbsfleet Garden Community. This app-based platform enables access to a wide range of mobility services (traditional bus, rail and taxi services) as well as emerging technologies such as car clubs and e-scooter and cycle hire. By providing access to information about all the services in one place people can make informed decisions about the most appropriate mode or multiple modes for their entire journey. Deployment of this platform could be done on a regional basis (as per the KCC example) or on a development specific basis (Enterprise Car Club for instance have developed their own platform which is being deployed in parts of Scotland). The use of a MaaS is considered a key element of future developments alongside the provision of the Transport Hub to offer a range of services to residents and visitors of the site.

4.4.5. The Sites benefit from the high levels of public transport that access the University Campus. The public transport strategy will seek to build on the existing network of bus routes by extension of existing services to serve the on-site public transport hub located on the site. **Figure 14** indicates how existing bus routes could be extended to serve the development's on-site transport hub.

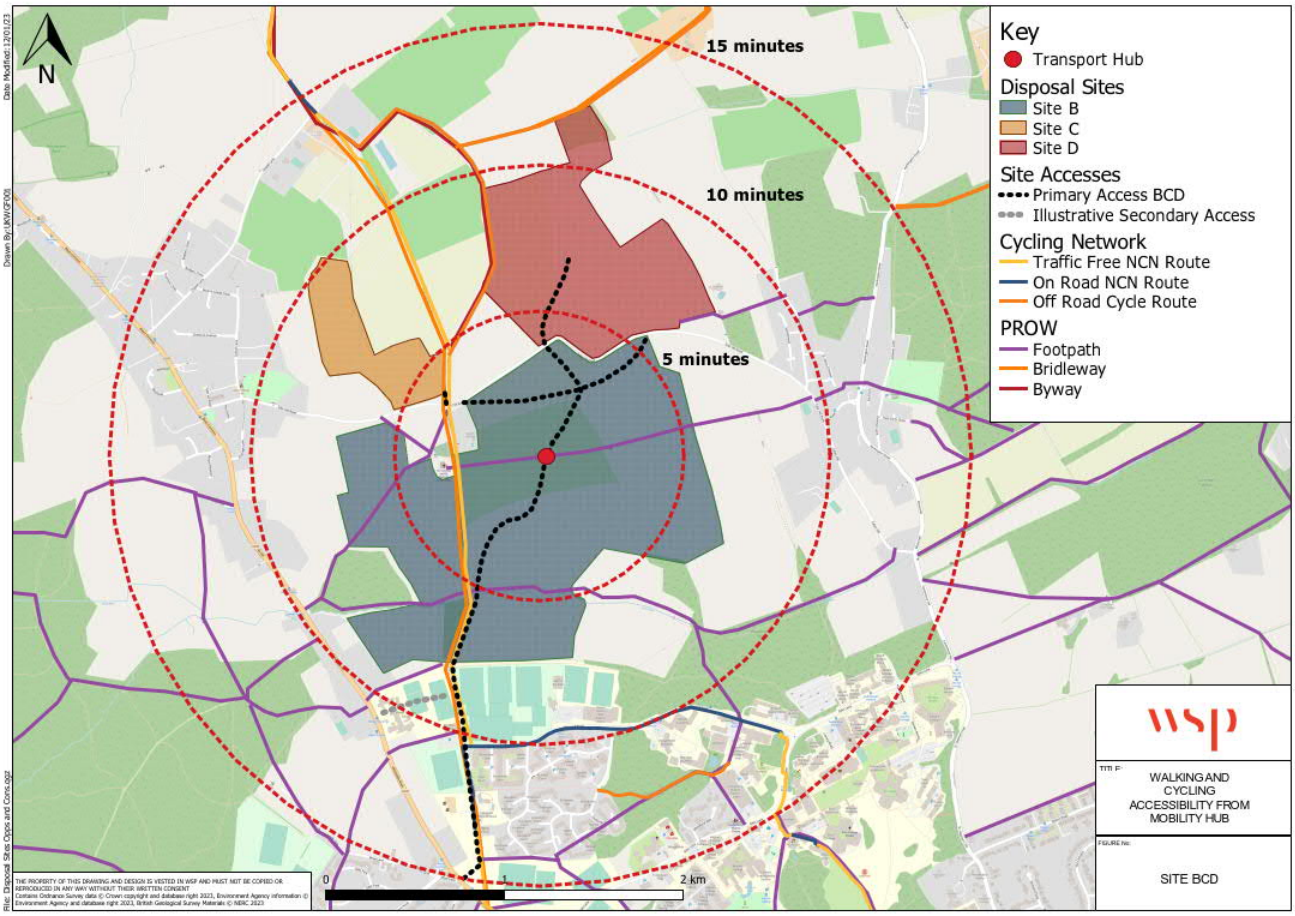
Figure 14: Public Transport Strategy



4.4.6. The strategy currently assumes an extension to Uni1 to serve the on-site transport hub. This would provide a weekday daytime frequency of up to every 10 minutes. This would be further enhanced with the diversion of Route 4 southbound through the site to increase connectivity to the City Centre. However, further discussions would be held with the University and Stagecoach as local bus operator to ensure integration of the site with the public transport network.

4.4.7. **Figure 12** provides indicative walking times from the transport hub to all parts of the development site. These walking times would be further reduced through development of the site infrastructure and final siting of the public transport hub.

Figure 15: Public Transport Hub Walking Distances



4.5 Walking, Cycling and Micro-mobility Strategy

4.5.1. The emergence of new forms of personal mobility (e-scooters, e-bikes, cargo bikes, electric skateboards, shared bicycles and scooters) are collectively referred to as Micro-mobility. Whilst some of these modes may be personal (owned by the user) there is a growing trend towards shared usage (Santander cycle hire in London for instance). Through the MaaS platform mentioned previously residents and visitors of the site would have access to a range of mobility services to facilitate travel to and from the development.

4.5.2. The development site benefits from access to the Crab and Winkle Way and as identified in **Figure 4** the site benefits from access to the whole of Canterbury within a 30 minute cycle distance. The proximity of Canterbury to the site and available infrastructure alongside any enhancements that may be identified make travel by micro-mobility mobility an attractive option for future residents and visitors to the site.

4.6 Parking Strategy

4.6.1. The vision for the Proposed Development is to provide a sustainable new residential community. The site will prioritise pedestrian and cycle movements over that of vehicles, and to achieve this, it is envisaged that the development will be an early adopter of

innovative transport and servicing solutions based around the “Future Mobility” agenda, namely mechanisation and shared and autonomous transport solutions.

4.6.2. Whilst walking, cycling and public transport will be the primary modes of transport adopted for travel to and from the site, there will still be a role for personal vehicle travel. It is anticipated that a proportion of this demand can be catered for through shared mobility services such as car clubs and taxis. However, there will still be, particularly in the early years of the development a demand for private vehicle ownership and use which will drive a demand for parking.

4.6.3. The final level of parking to be provided will be determined at a later stage of design. However, reference will be made to KCCs vehicle parking standards with due regard given to demand for electric vehicle parking. The proposed development is anticipated to fall under the ‘suburban’ location type in terms of residential parking provision.

4.6.4. Parking provision will be designed in such a way that areas could be adapted for other uses should parking demand diminish over time.

4.6.5. A key consideration will also be cycle parking and ensuring this is sufficient for the needs and vision of the development. Sufficient space will be provided to accommodate parking on plot with space for adaptive cycles and trailers. Visitor cycle parking will also be conveniently located to facilitate access to the site by cycle.

4.7 Servicing and Waste Strategy

4.7.1. The Covid Pandemic has resulted in an acceleration of online shopping trends. It is anticipated that this form of shopping will continue to grow as traditional retail responds to this growing demand. However, one detractor of the growth in online shopping has been the increase in delivery vehicles to accommodate demand.

4.7.2. Micro-consolidation offers the ability to reduce the number of deliveries and total mileage driven by couriers. The transport hub would be able to accommodate facilities such as parcel lockers offering a consolidated location for delivery of certain items that could then be picked up by residents at their own convenience and by active mode.

4.7.3. The waste strategy for the site will be developed in conjunction with CCC in due course but will need to have due regard to the Environment Bill which has recently been approved.

4.8 Future Trends Strategy

4.8.1. Technology is playing an increasing role in our day to day lives and this is having a transformative effect. The Covid-19 Pandemic has brought this further into focus and opportunities to accelerate the process of change have emerged.

4.8.2. Research undertaken by WSPs Future Mobility team anticipates the following changes emerging:

- Initially, the continued evolution of new mobility business models will increase the breadth of mobility services available and offer a viable alternative to personal vehicle

ownership. These mobility business models capitalise on the ability to match customers and trips in real-time, to offer customers a more personalised form of mobility. Examples include:

- **Ride Sharing** – Schemes/digital platforms that match drivers and passengers who share similar destinations. These operate at both individual and corporation levels. E.g. Faxi, Liftshare;
- **Ride Sourcing** – Real-time, dynamic allocation of customers to drivers based on origin and destination and payment services using pre-approved accounts. Usually rides are in private hire vehicles however increasing offering of micro-transit vehicles to use operating model. E.g. Uber, ArrivaClick, ViaVan;
- **Car Sharing** – On-demand short-term car rentals with the vehicle owned and managed by a fleet operator or private individual. E.g. Zipcar.
- **Micro mobility** – On demand services are increasingly being introduced initially in the form of bikes but now with e-scooters

- Emergence of MaaS schemes, which unlock the use and adoption of both shared and public transport through seamless and personalised information, reservation, booking and payments integration. e.g. Whim.
- Lastly, the adoption of increasingly automated, connected and autonomous vehicles which enable travellers to migrate to shared assets; they also provide door-to-door transport whilst providing access on a personal or shared basis. These advances are expected to be commercially deployed at scale within private hire and city taxi fleets from 2025.

4.8.3. In addition, the recent Covid-19 Pandemic has seen the emergence of new policies promoting a shift towards walking and cycling as the primary modes of transport. The recent Emergency Active Travel Fund grant has seen urban areas closed to vehicular traffic and the re-prioritisation of walking and cycling which should in the longer term increase the use of these modes.

4.8.4. The continued growth and evolution of these new forms of mobility is very dependent on future external levers, such as the regulatory environment, the affordability and acceptability of technology, and the customers' willingness to share. However, wider automotive sector trends already indicate how transport offerings are influencing customer behaviours:

- Driving licencing amongst young people has been falling since a peak of 48% (17-20 year olds) and 75% (21-29year olds) in 1993, to 29% and 63% respectively in 2014; with

research suggesting that changing behaviours are more than just a postponement of driving[5]

- The uptake of car clubs within urban areas has created an opportunity for car free living without compromising on the ability to have access to a car for leisure and recreational purposes. Canterbury currently has a car club operated by Co-wheels for instance.
- Traditional car manufacturers, concerned about losing customer ownership, are actively planning and investing in integrated mobility services. Volvo has recently launched 'Care' a monthly car subscription service[6] with no long-term commitments
- Rates of urbanisation are increasing and city residents are being pressed to reassess the benefits of personal vehicle ownership as the breadth of mobility services available increases[7]
- Increasing prevalence of home working which has been an area of focus during the recent Covid-19 Pandemic.

4.8.5. The transport strategy outlined in this section has reflected upon the most recent trends and innovations across the transport industry and will be developed and refined as the proposals are developed.

[5] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/673176/young-peoples-travel-whats-changed.pdf

[6] https://www.volvocars.com/uk/care-by-volvo/

[7] https://www.bbc.co.uk/news/uk-44482291

5 Trip Generation and Distribution

5.1 Introduction

5.1.1. This section outlines a trip generation for the Proposed Development along with detailing how the trip distribution has been derived. The impacts of the Proposed Development are considered under two separate scenarios and the trip generation and distribution methodology used for each differs. The two scenarios considered are as follows:

- A Core Development (CD) scenario considering the impacts of the Proposed Development on the existing highway network. This approach uses a combination of Census Travel to Work data, an online journey planner and the micro-simulation model
- A Sensitivity Test (ST) scenario considering the impacts of the Proposed Development in the context of the emerging Canterbury Transport Strategy. This scenario utilises Census Travel to Work data, assumptions about how traffic will re-distribute as a result of the measures incorporated within the emerging Canterbury Transport Strategy and the micro-simulation model.

5.1.2. Whilst the impacts of the Proposed Development are considered in the AM and PM network peak hours the trip generation presented in this Section includes trips across the day as this data has been used in separate assessments undertaken as part of the promotion of the site.

5.2 Development Quantum

5.2.1. For the purposes of this PTA the illustrative development proposals that have been considered are as follows:

- 2,000 dwellings with a mixture of housing and tenure type. Based upon the emerging masterplan the residential development quantum has been split down with 1447 dwellings (approximately 72%) assumed on Site B and 553 dwellings (approximately 28%) assumed on Site D.
- Local Centre located on Site B to serve the needs of the new community including a transport hub
- Primary School located on Site B to accommodate the primary school age pupils living on site
- Public open space to accommodate the needs of the development

5.3 Residential Trip Generation

Core Scenario

5.3.1. The industry standard TRICS trip generation database has been interrogated to identify trip rates for the residential land use. The category ‘Private Houses’ was selected to reflect the likely mix of dwellings proposed on the site. The ‘Private Houses’ trip rate was applied as this allows for up to 25% of the dwellings to be affordable and up to 25% of the dwellings to

be apartments (source: TRICS Land use definitions). Multi-modal trip rates were selected to allow for the person trip generation to be calculated. This is considered to be robust given the emerging local plan proposes 30% affordable housing.

5.3.2. The AM and PM peak person trip rates (per dwelling) extracted from TRICS are shown in **Table 5** along with the resultant person trip generation. The TRICS output is contained in **Appendix A.**

Table 5 - Residential Person Trip Rates and Trip Generation

	AM Peak (08:00 - 09:00)			PM Peak (17:00 - 18:00)			Daily		
	Arrivals	**Departures**	**Total**	**Arrivals**	**Departures**	**Total**	**Arrivals**	**Departures**	**Total**
Residential Person Trip Rate (per dwelling)	0.173	0.754	0.927	0.590	0.300	0.890	3.557	3.621	7.178
Residential Person Trip Generation (2000 dwellings)	346	1508	1854	1180	600	1780	7114	7242	14356

5.3.3. As seen in **Table 5** above, the provisional person trip generation would total 1854 in the AM peak and 1780 in the PM peak.

5.3.4. The person trip rates, and the subsequent person trip generation were then disaggregated by journey purpose and mode. This approach enabled detailed consideration of internalisation as well as providing an opportunity for different mode shares to be applied to each journey purpose.

5.3.5. The methodology utilised the National Travel Survey (NTS0502) data which identified journey purpose by time of day as shown in **Table 6**.

Table 6 – NTS0502 Journey Purpose By Start Time (2019)

Journey Purpose	AM Peak (08:00-09:00)	PM Peak (17:00 – 18:00)	Daily
Commuting	20%	32%	18%
Business	3%	3%	4%
Education	29%	3%	9%
Escort Education	23%	2%	8%
Shopping	4%	12%	17%
Other work, other escort or personal business	14%	20%	19%
Visiting friends / entertainment / sport	3%	20%	18%
Holiday / Day trip / Other	4%	8%	9%

5.3.6. The journey purposes outlined in **Table 6** were then combined to reduce the number of individual trip generations required as follows:

- Commuting and Business
- Education
- Education Escort
- Shopping
- Other work, visiting friends, holiday

5.3.7. **Table 7** presents the person trip generation for Sites B and D split by journey purpose based upon the person trip generation shown in **Table 5.**

Table 7 – Residential Person Trip Generation By Journey Purpose and Site

Journey Purpose/ Peak Period	Private Houses (Total)	Commuting / Business	Retail	Education	Education Escort	Other Work, visiting friends, holiday
Site B						
AM Peak (08:00-09:00)	1341	307	56	383	307	288
PM Peak (17:00 – 18:00)	1288	458	155	38	28	608
Daily	10387	2314	1718	1013	831	4511
Site D						
AM Peak (08:00-09:00)	513	117	22	146	117	110
PM Peak (17:00 – 18:00)	492	175	59	15	11	233
Daily	3969	884	656	387	317	1724

5.3.8. Education trips are separated within NTS 0502 into those that are escorted and those that are not. For the purpose of the trip generation, it was assumed that unescorted trips represent those undertaken by secondary, further and higher education pupils, whilst education escort trips were assumed to be undertaken by primary school pupils.

5.3.9. The following mode share and internalisation assumptions were applied after the trips were split by journey purpose.

- Retail – 10% of the residential trips were internalised reflecting the presence of a local centre on site to serve the needs of the development.
- Escort Education – 100% of the residential trips were internalised to reflect the presence of a primary school on site.

5.3.10. The residential person trip generation by site taking account of the internalisation factors outlined above is detailed in **Table 8**.

Table 8 – Residential Person Trip Generation By Journey Purpose and Site (Including Internalisation)

Journey Purpose/ Peak Period	Private Houses (Total)	Commuting / Business	Retail	Education	Education Escort	Other Work, visiting friends, holiday
Site B						
AM Peak (08:00-09:00)	1029	307	51	383	0	288
PM Peak (17:00 – 18:00)	1244	458	140	38	0	608
Daily	9384	2314	1546	1013	0	4511
Site D						
AM Peak (08:00-09:00)	393	117	19	146	0	110
PM Peak (17:00 – 18:00)	475	175	53	15	0	233
Daily	3586	884	591	387	0	1724

5.3.11. A review of 2011 Census Travel to Work data was undertaken to identify the likely mode share of residential external trip making by all journey purposes. 2011 Census data has been used in the absence of 2021 data at the time of preparation of this PTA. **Table 9** illustrates the mode share derived for the Mid Layer Super Output Area (MSOA) that the site is located within.

Table 9: 2011 Census Travel to Work Mode Share

Mode	Percentage (based upon Canterbury 012 and Census Table WU03EW)
Rail (including underground)	5.41%
Bus	8.04%
Taxi	0.84%
Motorcycle	0.48%
Car Driver	58.33%
Car Passenger	4.90%
Bicycle	4.20%
Foot	17.80%
Other	0.00%
Total	100%

5.3.12. The mode share identified in **Table 9** has been applied to the following trip purposes:

- Commuting and Business
- Shopping; and
- Other work, visiting friends, holiday

5.3.13. For the education trip generation, a review was undertaken to identify a more locally specific mode share relevant to education trips. NTS Table 9908 provides the mode share of education trips split down by region of England. Information is available for each year between 2002 and 2020. Data for 2018/2019 for the south-east of England was extracted and is summarised in **Table 10**.

Table 10: Census and NTS Mode Shares

Mode	NTS 9908 – 2018/2019 South-East
Rail (including underground)	2%
Bus	9%
Taxi	0%
Motorcycle	0%
Car Driver	39%
Car Passenger	
Bicycle	3%
Foot	42%
Other	1%
Total	100%

5.3.14. It should be noted that there is no distinction made in NTS Table 9908 regarding car driver or passenger. For robustness we have assumed that for every car passenger trip there would be a corresponding car driver trip.

5.3.15. **Tables 11** and **12** show the resultant residential trip generation my mode for Sites B and D.

Table 11 – Site B Core Scenario Residential Development Trip Generation

Mode	AM Peak (08:00-09:00)			PM Peak (17:00 – 18:00)			Daily		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	28	121	148	112	57	168	643	645	1288
Taxi	1	4	5	7	3	10	36	34	70
Motorcycle	1	2	3	4	2	6	20	19	40
Car Driver	98	428	526	476	242	718	2660	2618	5278
Car Passenger	34	147	181	49	25	74	373	432	805
Cycle	7	31	39	34	17	52	192	190	382
Pedestrian	51	224	276	153	78	231	938	978	1915
Total	220	959	1179	835	424	1259	4862	4917	9779
Vehicular Total	121	435	535	487	260	734	2716	2672	5388

Table 12 – Site D Core Scenario Residential Development Trip Generation

Mode	AM Peak (08:00-09:00)			PM Peak (17:00 – 18:00)			Daily		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	11	46	57	43	22	64	246	247	492
Taxi	0	2	2	3	1	4	14	13	27
Motorcycle	0	1	1	1	1	2	8	7	15
Car Driver	38	164	201	182	93	275	1016	1001	2017
Car Passenger	13	56	69	19	10	28	143	165	308
Cycle	3	12	15	13	7	20	74	73	146
Pedestrian	20	86	105	58	30	88	358	374	732
Total	84	366	450	319	162	481	1858	1879	3737
Vehicular Total	38	166	204	186	95	281	1038	1021	2059

5.3.16. The resultant residential trip generation for both Sites B and D combined is shown in **Table 13**.

Table 13 – Total Core Scenario Residential Trip Generation (Sites B and D)

Mode	AM Peak (08:00-09:00)			PM Peak (17:00 – 18:00)			Daily		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	38	167	205	154	78	233	888	892	1780
Taxi	1	6	8	9	5	14	50	48	97
Motorcycle	1	3	4	5	3	8	28	27	55
Car Driver	157	592	749	658	348	1006	3710	3653	7363
Car Passenger	47	204	250	68	34	102	516	597	1113
Cycle	10	43	53	47	24	72	266	262	528
Pedestrian	71	310	381	211	107	319	1296	1351	2648
Total	325	1325	1650	1154	600	1753	6755	6830	13584
Vehicular Total	159	601	760	673	355	1028	3788	3728	7516

Sensitivity Test Scenario

5.3.17. To reflect the changes in infrastructure provision proposed as part of the emerging Canterbury Transport Strategy it has been agreed with KCC that a five-percentage point increase in bus-based mode share can be applied to the trip generation. The change in mode share is shown alongside the 2011 Census Travel to Work mode shares that are used for all journey purposes except education (**Table 14)**.

Table 14: Census and Sensitivity Test Scenario Mode Share Comparison

Mode	Percentage (based upon Canterbury 012 and Census Table WU03EW)	Sensitivity test Revised Mode Share
Rail (including underground)	5.41%	5.12%
Bus	8.04%	13.04%
Taxi	0.84%	0.79%
Motorcycle	0.48%	0.45%
Car Driver	58.33%	55.16%
Car Passenger	4.90%	4.63%
Bicycle	4.20%	3.97%
Foot	17.80%	16.83%
Other	0.00%	0.00%
Total	100%	100%

5.3.18. The residential trip generation methodology for the sensitivity test scenario remains the same as that used for the core scenario with the exception of the change in mode share applied to journey purposes with the exception of education (i.e. Commuting and Business, Shopping and Other work, visiting friends, holiday).

5.3.19. The resultant sensitivity test scenario residential trip generation for Sites B and D is presented in **Tables 15** and **16.**

Table 15 – Site B Sensitivity Test Scenario Residential Development Trip Generation

Mode	AM Peak (08:00-09:00)			PM Peak (17:00 – 18:00)			Daily		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	33	145	179	149	76	225	844	838	1682
Taxi	1	4	5	6	3	10	34	33	67
Motorcycle	1	2	3	4	2	5	19	18	38
Car Driver	94	411	506	451	229	680	2524	2489	5013
Car Passenger	33	146	179	47	24	71	362	421	783
Cycle	7	30	37	33	17	49	183	180	363
Pedestrian	50	219	270	145	74	219	896	938	1834
Total	220	959	1179	835	424	1259	4862	4917	9779
Vehicular Total	117	418	514	461	247	695	2577	2540	5117

Table 15 – Site B Sensitivity Test Scenario Residential Development Trip Generation

Mode	AM Peak (08:00-09:00)			PM Peak (17:00 – 18:00)			Daily		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	13	56	68	57	29	86	323	320	643
Taxi	0	2	2	2	1	4	13	12	25
Motorcycle	0	1	1	1	1	2	7	7	14
Car Driver	36	157	193	172	88	260	965	951	1916
Car Passenger	13	56	69	18	9	27	138	161	299
Cycle	3	12	14	12	6	19	70	69	139
Pedestrian	19	84	103	55	28	84	343	358	701
Total	84	366	450	319	162	481	1858	1879	3737
Vehicular Total	37	160	196	176	90	266	985	971	1955

5.3.20. The resultant residential trip generation for both Sites B and D combined is shown in **Table 16**.

Table 16 – Total Sensitivity Test Residential Trip Generation (Sites B and D)

Mode	AM Peak (08:00-09:00)			PM Peak (17:00 – 18:00)			Daily		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	46	201	247	206	105	311	1167	1158	2325
Taxi	1	6	7	9	4	13	47	45	92
Motorcycle	1	3	4	5	3	7	27	25	52
Car Driver	130	569	699	623	317	940	3489	3440	6928
Car Passenger	46	202	248	65	33	98	500	582	1082
Cycle	10	42	51	45	23	68	252	249	502
Pedestrian	70	303	373	201	102	303	1239	1296	2536
Total	304	1325	1629	1154	587	1740	6721	6796	13516
Vehicular Total	154	578	710	637	337	961	3562	3510	7072

5.4 Other land use trip generation

Local Centre

5.4.1. The local centre is proposed to serve the needs of the Proposed Development and as such will not attract trips external to the development except a limited number of staff and servicing trips. For the purposes of this PTA no trip generation has been assumed associated with this land use.

Primary school

5.4.2. The primary school is proposed to serve the needs of the Proposed Development. The only trips associated with this land use will therefore be staff trips and a limited number of servicing trips. A provisional external to site trip generation has been developed on the basis of provision of a two-form of entry primary school. **Table 17** presents the staff trip generation on the basis of the following assumptions:

- A two-form of entry primary school would have approximately 42 full time equivalent staff of which 69% would be teaching staff and 31% non-teaching staff
- 20% of these staff are likely to live on the development site
- 50% of teaching staff would arrive and depart in the peak hours. 90% of non-teaching would arrive in the AM peak and 10% depart in the PM peak
- External to site staff trips will be 100% via private vehicle

Table 17 – Primary School Staff Vehicular Trip Generation

	AM Peak (08:00-09:00)			PM Peak (17:00 – 18:00)			Daily		
	Arrivals	**Departures**	**Total**	**Arrivals**	**Departures**	**Total**	**Arrivals**	**Departures**	**Total**
Primary School Staff Trips	21	0	21	0	13	13	34	34	68

Public open space

5.4.3. Public open space will be provided to accommodate the needs of the development, and this will not have an external trip generation.

5.5 Development Trip Generation

5.5.1. **Table 18** and **Table 19** illustrates the total trip generation for the Core Scenario and Sensitivity Test Scenario for the Proposed Development.

Table 18 – Total Development Trip Generation (Core Scenario)

Mode	AM Peak (08:00-09:00)			PM Peak (17:00 – 18:00)			Daily		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	38	167	205	154	78	233	888	892	1780
Taxi	1	6	7	9	4	13	43	41	84
Motorcycle	1	3	4	5	2	7	24	23	48
Car Driver	151	568	719	604	320	924	3236	3226	6462
Car Passenger	46	202	248	63	32	95	476	561	1037
Cycle	10	43	53	47	24	72	266	262	528
Pedestrian	71	310	381	211	107	319	1296	1351	2648
Total	319	1298	1618	1094	569	1663	6229	6357	12587
Vehicular Total	154	577	730	617	327	944	3303	3291	6593

Table 19 – Total Development Trip Generation (Sensitivity Test Scenario)

Mode	AM Peak (08:00-09:00)			PM Peak (17:00 – 18:00)			Daily		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Public Transport	46	201	247	206	105	311	1167	1158	2325
Taxi	1	6	7	9	4	13	47	45	92
Motorcycle	1	3	4	5	3	7	27	25	52
Car Driver	152	569	720	623	330	953	3523	3474	6996
Car Passenger	46	202	248	65	33	98	500	582	1082
Cycle	10	42	51	45	23	68	252	249	502
Pedestrian	70	303	373	201	102	303	1239	1296	2536
Total	325	1325	1650	1154	600	1753	6755	6830	13584
Vehicular Total	154	578	731	637	337	974	3596	3544	7140

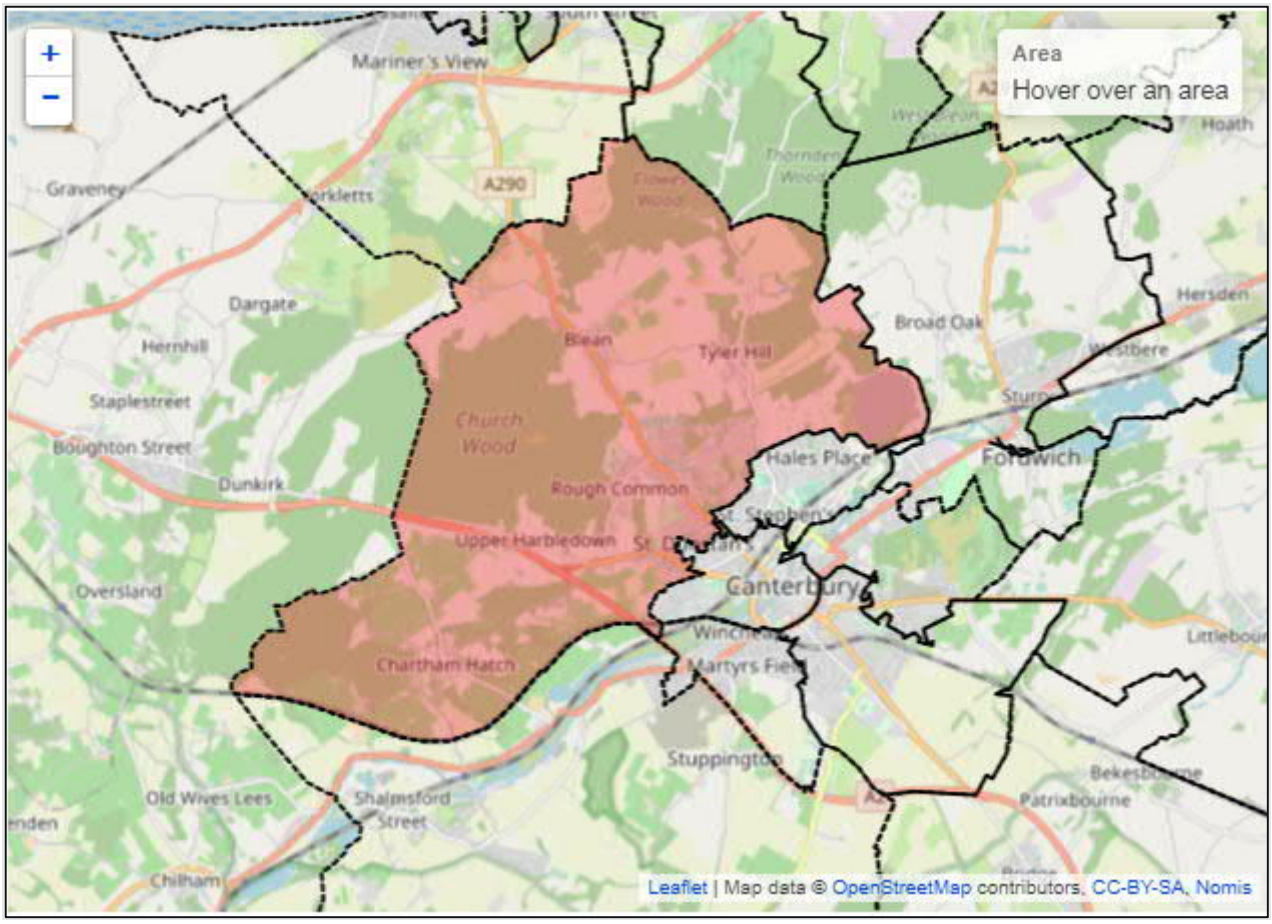
5.6 Trip Distribution

5.6.1. A two-stage trip distribution process has been adopted to calculate the anticipated provisional trip distribution for the trips associated with the Proposed Development. The first stage involved calculating the wider distribution of development trips using Census Origin-destination data. For trips in the immediate vicinity of the proposal site a micro-simulation model was used. Details of this two-stage approach are outlined below.

Stage One – Wider Trip Distribution

5.6.2. Firstly, 2011 Census, 'Location of usual residence and place of work by method of travel to work' data at the MSOA level (Table WU03EW) was extracted from the Nomis database to provide the proportion of trips to each MSOA across the Country from the MSOA used to derive the mode share for the Site (Canterbury 012), as shown in **Figure 15.** 2011 Census data was used because 2021 Census data at this level of analysis was not available at the time of preparation of this PTA.

Figure 15 - MSOA Canterbury 012 (Source: Nomis)



5.6.3. Data for the mode car driver was used to ensure that trip patterns replicated the mode to be used within the highway network assessment. The destination MSOA's were then ranked by the total number of people making the journey per MSOA.

5.6.4. An online journey planner was then used to find the quickest route to the destination MSOA from the Proposed Development in order to assign the trips to the network. The journey planner was set to a weekday 8am start time to ensure that peak period congestion was accounted for.

5.6.5. The initial stage of the trip distribution identified that the majority of car based trips (70%) remained within the Canterbury City Council area, the next most popular destination was identified as Dover (7%) followed by Swale (6%) and Ashford (6%). This was followed by Thanet (4%), Shepway (2%) and Maidstone (2%). Remaining destinations included Medway, Dartford, Tonbridge and Malling and Reigate.

Stage Two – Local Distribution

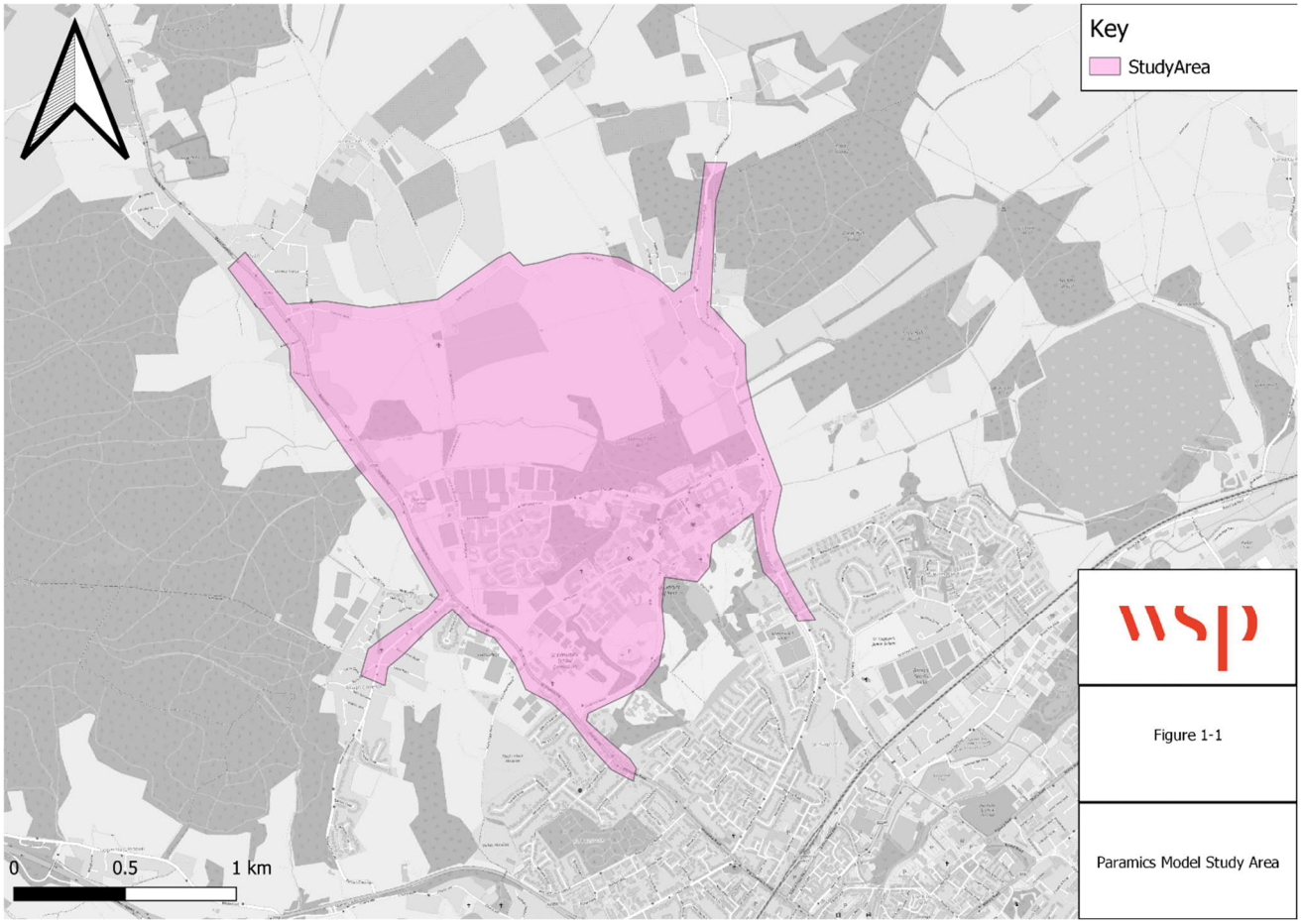
5.6.6. Stage two of the trip distribution considered the distribution of development trips in the immediate vicinity of the site. It was agreed with KCC that a microsimulation model would provide the most appropriate means of achieving this, due to the ability of the software to

dynamically change routing in response to congestion and to consider the potential re-distribution of traffic associated with the introduction of the access road which would connect A290 Whitstable Road with Park Wood Road and Tyler Hill Road.

5.6.7. To assist in building the micro-simulation it was agreed with KCC that traffic flow information including Automatic Number Plate Recognition (ANPR) data that was collected to inform the development of the University's Masterplan in 2018 could be utilised to develop the model's origin-destination matrix.

5.6.8. The study area of the microsimulation model is shown in **Figure 17**.

Figure 17 – Paramics Model Study Area



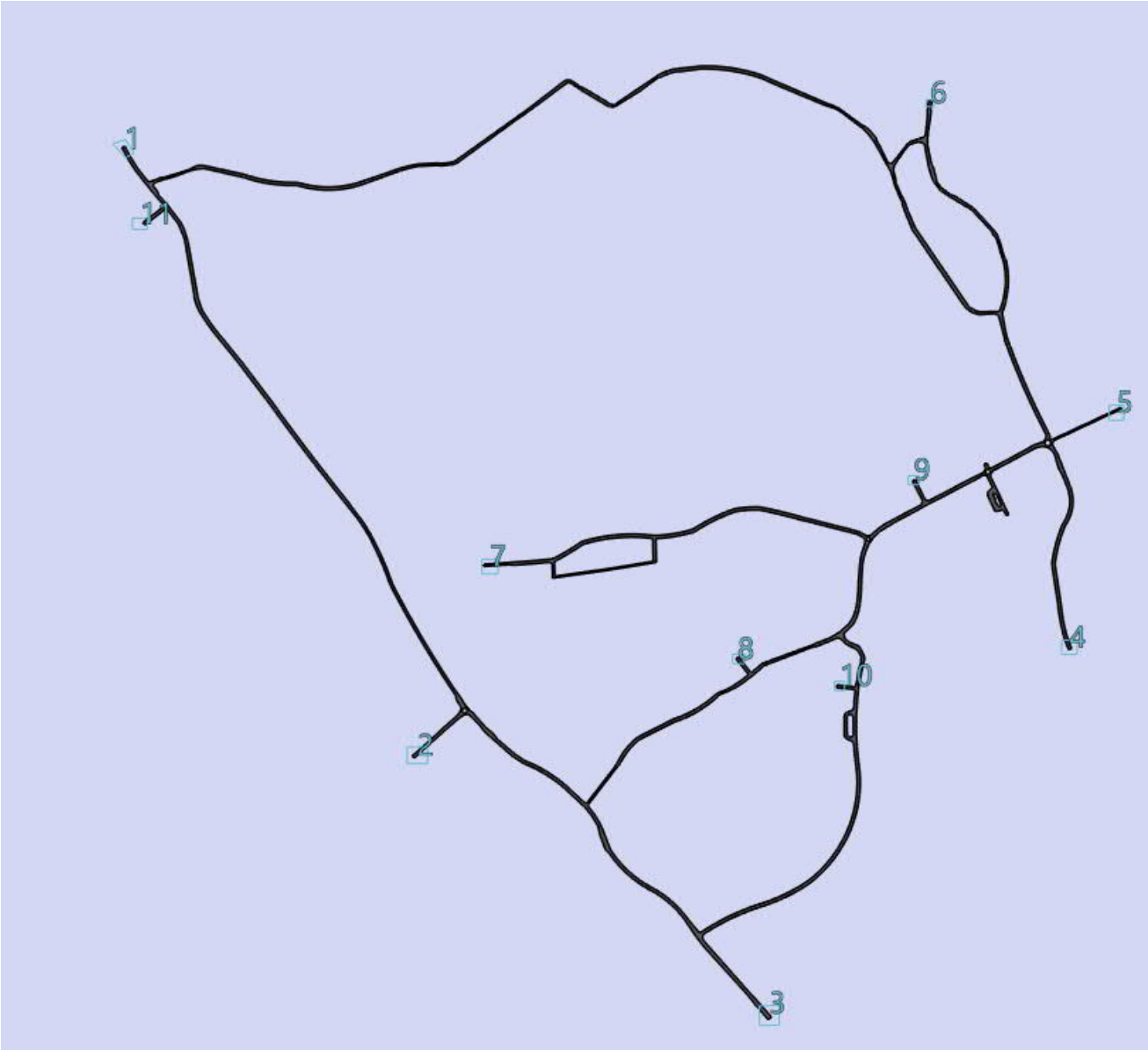
5.6.9. The micro-simulation modelling software Paramics Discovery was used because the software is known to be better for wider area modelling and models containing route choice in comparison to other modelling software packages such as Vissim. In addition, Paramics Discovery has the ability to model priority give way options, and the software has better analysis options when compared to other microsimulation software.

5.6.10. The dynamic feedback interval for the model was set at two minutes. Route choices are therefore determined every two minutes. This is considered to be a short enough interval to prevent waves of fluctuation in queuing.

5.6.11. The base Paramics model was developed using Paramics Discovery (Version 25.0.4) for the peak periods of 0700 – 1000 and 1600 – 1900, with specified network peak hours of 0800 – 0900 and 1630 – 1730 (the network peak hours identified in the traffic surveys), although it should be noted that the development trip generation was applied for 1700 – 1800 to ensure a worst-case assessment.

5.6.12. The base model network developed is shown in **Figure 18**.

Figure 18 – Paramics Base Model Network



5.6.13. Traffic is released onto the network from zones, which are key trip generators / attractors within the survey area. As shown in **Figure 18**, the base model was developed with eleven zones, as follows:

- Zone 1 – A290 Blean Common
- Zone 2 – Rough Common Road
- Zone 3 – A290 St Thomas Hill
- Zone 4 – St Stephen's Hill
- Zone 5 – Unnamed Road (eastern arm of Canterbury Hill / Giles Lane Roundabout)
- Zone 6 – Hackington Road
- Zone 7 – Parkwood Road / University Campus
- Zone 8 – University Campus (Keynes College, Woodland Way, University Medical Centre)
- Zone 9 – University Campus (Giles Lane Car Park)
- Zone 10 – University Campus (Monkwell Car Park, College Car Park)
- Zone 11 – Mount Pleasant

5.6.14. Once the 2018 base year model had been developed a future year micro-simulation model, that would include the new links introduced through the access strategy was developed. To ensure consistency with the draft new local plan (New local Plan 2045) and allow for wider growth on the highway network a future forecast year of 2045 was used.

5.6.15. The Trip End Model Presentation Programme (TEMPro) was used to derive growth factors that would allow the 2018 traffic flows to be growthed through to a future forecast year of 2045. TEMPro is an industry standard tool used to estimate traffic growth.

5.6.16. TEMPro version 8.0 was used to create the 2045 future forecast year. The forecasts are based on increases in households and jobs anticipated for the upcoming years. Whilst no explicit development is included within these growth projections, they do include for the level of growth anticipated at a local authority level.

5.6.17. TEMPro version 8.0 was released in June 2022, superseding the previous version of the software (version 7.2). Version 8.0 reflects the latest economic and fiscal forecasts. In addition, TEMPro version 8.0 has been updated to include multiple scenarios, referred to as Common Analytical Scenarios (CAS), which are as follows: Behavioural, Core, High, Low and Regional. For the purpose of this assessment, the 'Core' scenario was selected.

5.6.18. The growth factors contained within TEMPro were adjusted using the alternative assumption tool to remove the housing associated with the Proposed Development to avoid potential double counting of trips. As such, 2000 dwellings were removed from the growth factor assumptions for 2045.

5.6.19. For the purposes of this assessment, the geographic area of Canterbury was selected and growth factors for car driver trips selected.

5.6.20. TEMPRO was used to derive growth factors for the period 2021 to 2045. Whilst it is acknowledged that the base traffic flows contained within the micro-simulation model are from 2018 the Covid Pandemic has meant that very little growth has occurred between 2018 and 2021. It was therefore not considered appropriate to include any growth between 2018 and 2021. The growth factors used in the assessment are provided in **Table 20**.

Table 20 – Traffic Growth Factors

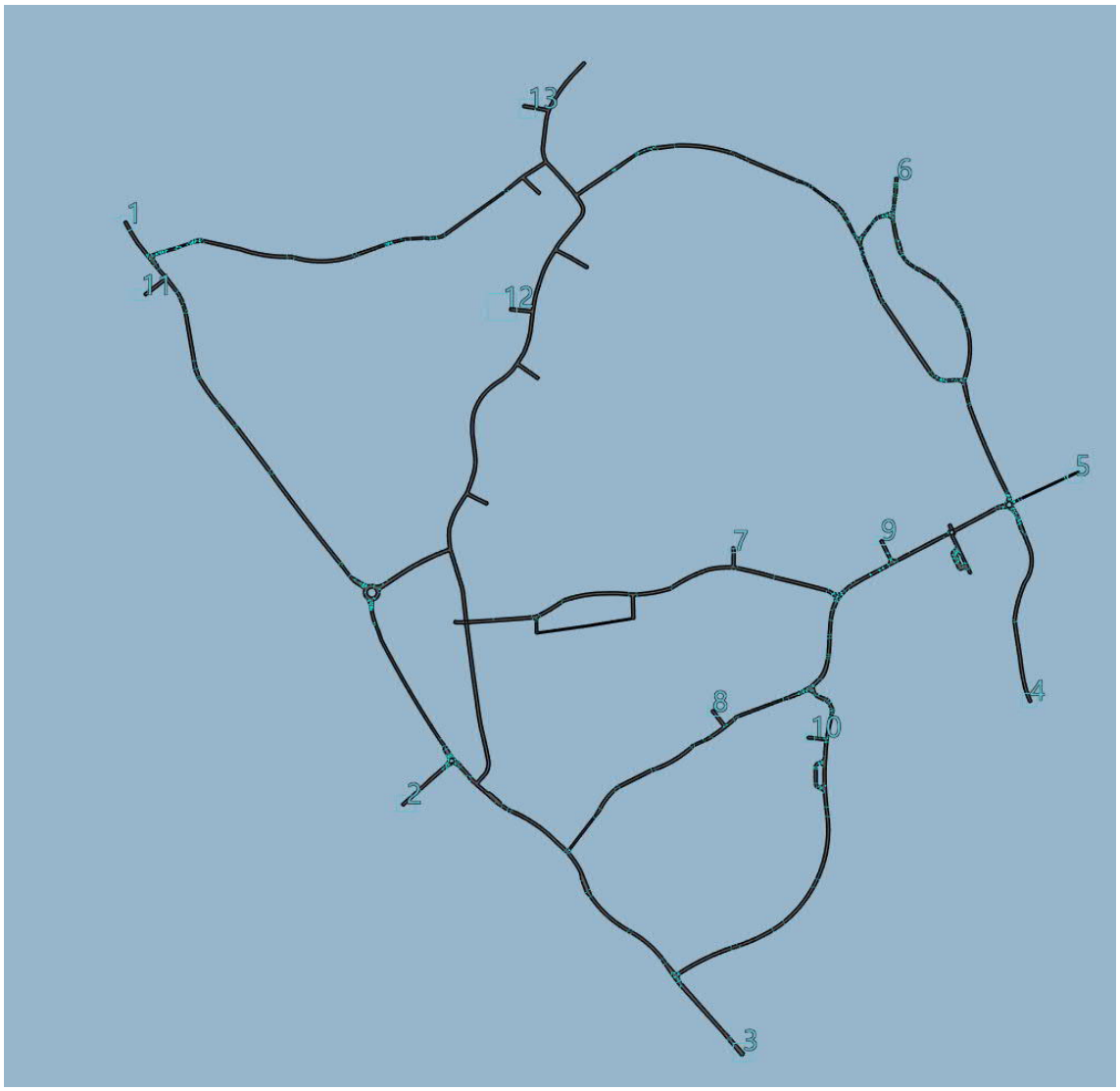
Scenario	AM Peak	PM Peak
2021 – 2045	1.1157	1.1138

5.6.21. The above traffic growth factors were used in the development of the 2045 matrices for the Paramics model.

5.6.22. The Paramics model was then run with 2045 traffic flows, with traffic flows extracted at each junction to be used in the individual junction capacity assessments.

5.6.23. The 2045 forecast year Paramics model network with the access road is shown in **Figure19.**

Figure 19 – Paramics 2045 Forecast Model Network



5.6.24. Some network changes have been made in the 2045 future year development Paramics model to manage traffic flows on Tyler Hill Road and complement the access strategy proposed. The changes included:

- Modelling of speed bumps on Tyler Hill Road and Parkwood Road
- Priority give way working on Tyler Hill Road

5.6.25. The following scenarios were assessed in the above Paramics model:

- 2045 with Core Development Scenario (CD)
- 2045 with Sensitivity Test Scenario (ST) (Canterbury Transport Strategy)

Core Development Scenario

5.6.26. The distribution for the core scenario takes no account of the emerging Canterbury Transport Strategy and therefore represents what would occur if the development proposals were to come forwards as an independent proposal. This core scenario is used as it represents a robust position for the purposes of identifying potential impacts on the transport network. The Core Development Scenario trip distribution for the Proposed Development within the micro-simulation model is illustrated in **Table 21**.

Table 21 – Core Development Scenario, Proposed Development Trip Distribution

Zone / Key Corridor	% of traffic to/from
1 – A290 Blean Common to/from north	17%
2 - Rough Common Road	32%
3 - A290 St Thomas Hill / Whitstable Road to/from south	24%
4 – St Stephens Hill to/from south	16%
5 – Unnamed Road (eastern arm of Canterbury Hill / Giles Lane Roundabout)	0%
6 – Hackington Road to/from north	8%
7 – Parkwood Road / University Campus	1%
8 – University Campus (Keynes College, Woodland Way, University Medical Centre)	1%
9 - University Campus (Giles Lane Car Park)	1%
10 – University Campus (Monkwell Car Park, College Car Park)	1%
11 - Mount Pleasant	0%

Sensitivity Test Scenario

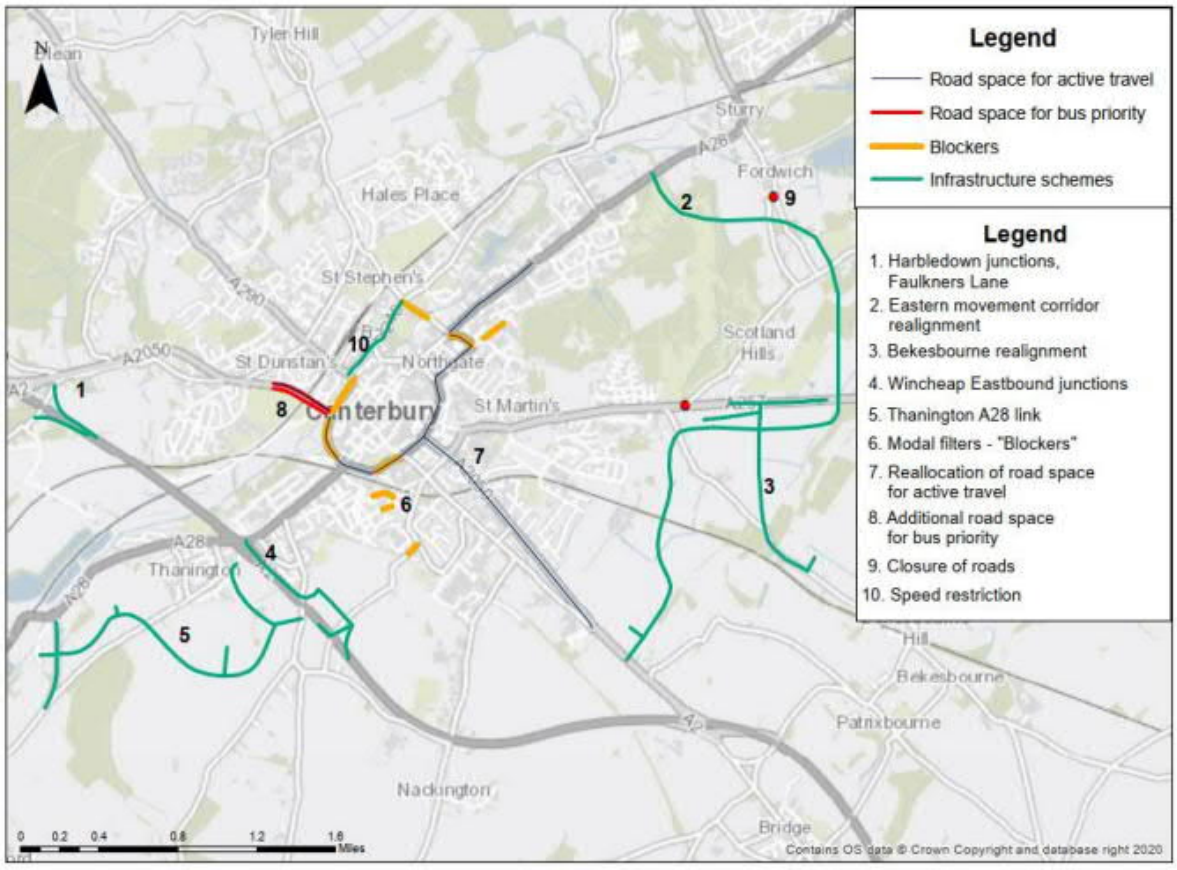
5.6.27. The Sensitivity Test Scenario uses the same methodology as above, however the distribution varies as a result of the measures incorporated within the emerging Canterbury Transport Strategy. The strategic highway modelling undertaken to support the Local Plan indicates that the preferred strategy to accommodate growth would include a number of transport infrastructure measures (identified as ‘City with Ghent and relief roads’ within the

Jacobs forecasting report[8]). Those likely to have the greatest effect on the distribution of trips associated with the Proposed Development are as follows:

- Modal filters on short cuts – 'Blockers' at nine locations within the City Centre preventing access to through traffic (to be monitored by ANPR)
- Harbledown junction - new coast bound on-slip and London bound off-slip
- Wincheap Eastbound Junctions – coastbound on and off-slip
- Thanington A28 link – Link to facilitate through movement between A2 and A28
- Eastern Movement Corridor – a new A class road with 40mph speed limit linking A2050 Roman Road with A28 Mill Road

These infrastructure measures are shown along with the others considered within the strategic modelling in **Figure 20.**

Figure 20 – Canterbury Transport Strategy Measures (Source: Jacobs)



[8] Jacobs Canterbury Local Plan – Preferred Strategic Growth Local Plan Option 13 July 2022

5.6.28. In the absence of utilising the strategic model developed by Jacobs, assumptions have been made about how traffic would likely re-route as a result of these interventions. In order to do this a review of the Census Travel to Work data was undertaken and routing assumptions updated using professional judgement. Whilst it is acknowledged that adopting this approach is quite simplistic (when compared to utilising the strategic model) this is a provisional assessment which does not preclude a run of the strategic model including the Proposed Development in due course.

5.6.29. The resultant distribution as identified from analysis of the micro-simulation model is presented in **Table 22**.

Table 22 – Sensitivity Test Scenario Proposed Development Trip Distribution

Zone / Key Corridor	%
1 – A290 Blean Common to/from north	17%
2 - Rough Common Road	58%
3 - A290 St Thomas Hill / Whitstable Road to/from south	3%
4 – St Stephens Hill to/from south	10%
5 – Unnamed Road (eastern arm of Canterbury Hill / Giles Lane Roundabout)	0%
6 – Hackington Road to/from north	8%
7 – Parkwood Road / University Campus	1%
8 – University Campus (Keynes College, Woodland Way, University Medical Centre)	1%
9 - University Campus (Giles Lane Car Park)	1%
10 – University Campus (Monkwell Car Park, College Car Park)	1%
11 - Mount Pleasant	0%

5.6.30. When comparing **Table 21** and **Table 22** it is evident that the Sensitivity test Scenario routes more traffic to/from Rough Common Road (32% in CD vs 58% in ST). There is then a corresponding decrease in trips to/from the City Centre (approximately a 27% decrease when compared to the CD).

5.6.31. The traffic flows were then extracted from the Paramics model for each peak hour (0800 – 0900, 1630 – 1730) for each vehicle type, to be utilised in the individual junction capacity assessments detailed in **Section 6.**

6 Highway Network Assessment

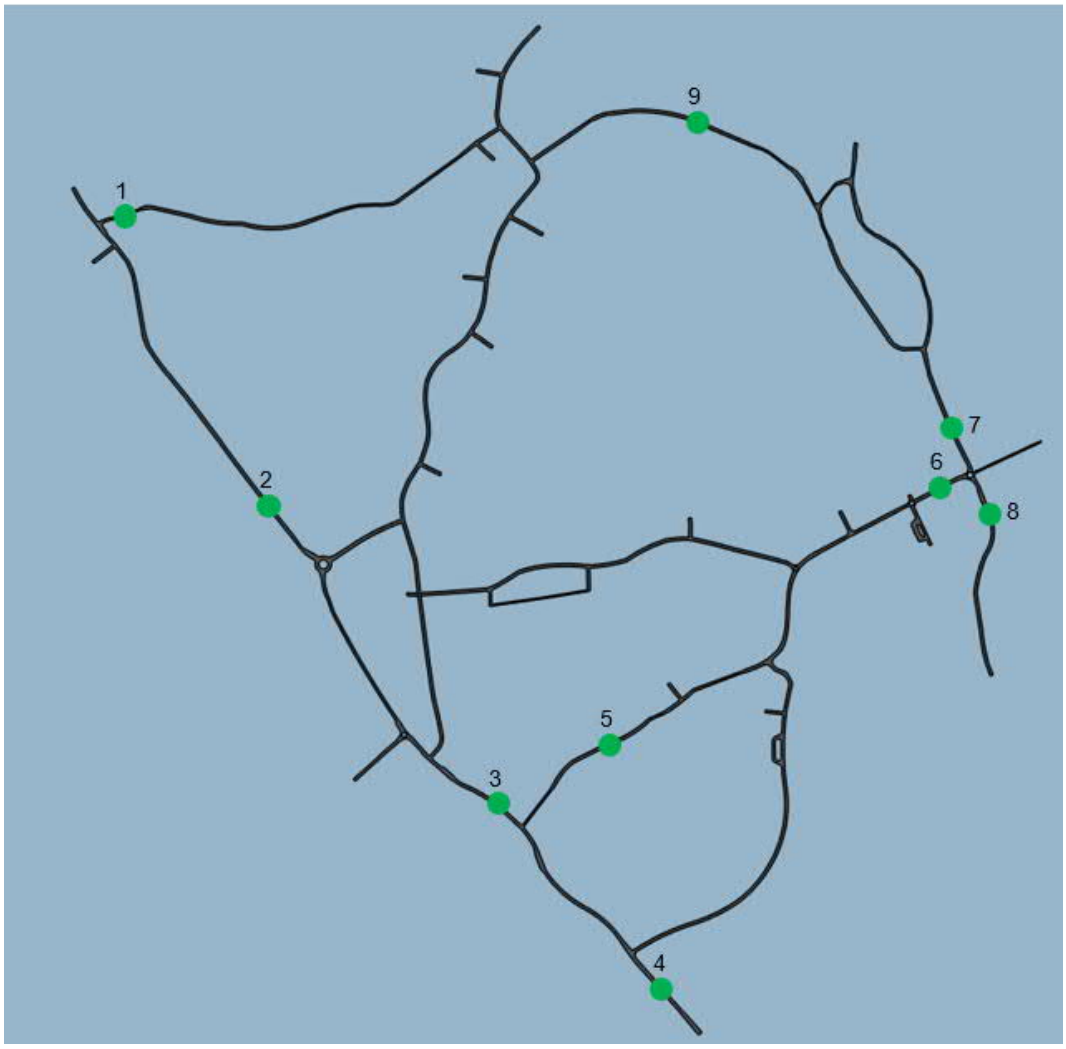
6.1 Introduction

6.1.1. This Section provides an overview of the process followed to develop the highway network assessment along with the results.

6.2 Paramics Discovery

6.2.1. Total vehicle flows have been extracted from the Paramics model for the 2045 base, 2045 + Core Development Scenario (CD) and the 2045 + Sensitivity Test (ST) scenario at nine key points across the model network, as shown in **Figure 21**.

Figure 21 Paramics Discovery - Link Flow Comparison



6.2.2. The link flows have been tabulated for the three scenarios, as shown in **Table 22** and **Table 23**. The % change in traffic flow compared to the 2045 base scenario has been calculated. Green cells indicate where the development scenario results in a reduction in flow compared to the 2045 base. Amber cells indicate where the development scenario results in

an increase in flow compared to the 2045 base scenario of up to 20%, and the red cells indicate increases in flow of greater than 20%.

Table 23– AM Peak Hour Scenario Flow Comparison

Ref	Link	Direction	2045 Base AM	2045 + CD AM		2045 + ST AM	
				Traffic Flow (All Vehicles)	% Change from 2045 Base AM	Traffic Flow (All Vehicles)	% Change from 2045 Base AM
1	Tyler Hill Road (western end)	EB	235	42	-82.04%	48	-79.70%
		WB	97	92	-4.72%	87	-10.21%
		Two-way	332	134	-59.52%	134	-59.46%
2	A290 Whitstable Road (north of Blean Primary School)	NB	396	463	16.83%	472	19.10%
		SB	542	720	32.69%	714	31.72%
		Two-way	938	1182	26.00%	1186	26.39%
3	A290 Whitstable Road (between Rough Common Road and Giles Lane)	NB	434	392	-9.70%	359	-17.17%
		SB	851	550	-35.33%	479	-43.64%
		Two-way	1285	942	-26.68%	839	-34.70%
4	A290 St Thomas Hill (south of University Road)	NB	694	728	4.91%	694	0.01%
		SB	576	703	22.06%	599	4.10%
		Two-way	1270	1431	12.69%	1294	1.87%
5	Giles Lane (western end)	EB	463	148	-68.15%	156	-66.36%
		WB	161	80	-49.92%	38	-76.52%
		Two-way	624	228	-63.46%	194	-68.97%
6	Giles Lane (eastern end)	EB	305	510	66.99%	475	55.46%
		WB	854	704	-17.50%	734	-14.03%
		Two-way	1159	1214	4.75%	1209	4.27%
7	Canterbury Hill	NB	374	450	20.32%	434	16.23%
		SB	1123	923	-17.83%	945	-15.88%
		Two-way	1497	1372	-8.30%	1379	-7.86%
8	St Stephens Hill	NB	636	661	3.97%	651	2.40%
		SB	839	943	12.42%	906	7.99%
		Two-way	1475	1604	8.78%	1557	5.58%
9	Tyler Hill Road (eastern end)	EB	238	76	-67.90%	75	-68.49%
		WB	97	195	100.95%	152	57.19%
		Two-way	335	271	-19.00%	227	-32.09%

6.2.3. **Table 23** indicates that 18 out of 36 directional link flows reduce in the 2045 + CD AM scenario and the 2045 + ST AM scenario (combined) compared to the 2045 base scenario.

6.2.4. The greatest reductions in traffic flow take place on Giles Lane (at the western end) (both directions), and Tyler Hill Road (at the western end), in the eastbound direction. The reduction in flows on Giles Lane occurs primarily as a result of the new access road which gives rise to some local level re-routing to and from the University Campus area. The access road also attracts vehicles travelling from the Blean area to the St Stephen's Hill area, diverting them from Tyler Hill Road. This reduction along Tyler Hill Road is seen as a positive given its limited width to the west of the Proposed Development.

6.2.5. The greatest proportional increases in traffic flow take place on the eastern end of Tyler Hill Road (in the westbound direction). Closer interrogation of the flow information shows that there is however a decrease in the number of vehicles travelling eastbound along the same link, resulting in an overall reduction in two-way traffic flows along the eastern section of Tyler Hill Road, a betterment overall.

6.2.6. Reductions in two-way traffic flows occur on Tyler Hill Road (at the Western end), A290 Whitstable Road (between Rough Common Road and Giles Lane), Giles Lane (at the western end), Canterbury Hill and Tyler Hill Road (at the Eastern end) in both the AM peak development scenarios.

Table 24 – PM Peak Hour Scenario Flow Comparison

Ref	Link	Direction	2045 Base PM	2045 + CD PM		2045 + ST PM	
				Traffic Flow (All Vehicles)	% Change from 2045 Base PM	Traffic Flow (All Vehicles)	% Change from 2045 Base PM
1	Tyler Hill Road (western end)	EB	82	72	-12.17%	75	-8.76%
		WB	119	58	-51.34%	52	-56.38%
		Two-way	201	130	-35.34%	127	-36.92%
2	A290 Whitstable Road (north of Blean Primary School)	NB	754	825	9.49%	825	9.55%
		SB	454	532	17.18%	527	16.07%
		Two-way	1208	1357	12.38%	1353	12.00%
3	A290 Whitstable Road (between Rough Common Road and Giles Lane)	NB	694	556	-19.81%	438	-36.82%
		SB	485	390	-19.56%	369	-23.95%
		Two-way	1178	946	-19.71%	807	-31.53%
4	A290 St Thomas Hill (south of University Road)	NB	456	601	31.76%	476	4.44%
		SB	682	722	5.88%	684	0.24%
		Two-way	1138	1323	16.25%	1160	1.92%
5	Giles Lane (western end)	EB	156	40	-74.44%	37	-76.36%
		WB	229	51	-77.79%	33	-85.56%
		Two-way	385	91	-76.43%	70	-81.83%
6	Giles Lane (eastern end)	EB	534	608	13.76%	580	8.57%
		WB	271	459	69.63%	411	51.93%
		Two-way	805	1067	32.55%	991	23.15%
7	Canterbury Hill	NB	824	814	-1.21%	776	-5.80%
		SB	366	414	13.18%	385	5.15%
		Two-way	1190	1228	3.21%	1161	-2.43%
8	St Stephens Hill	NB	803	903	12.35%	829	3.26%
		SB	607	652	7.41%	607	0.06%
		Two-way	1410	1554	10.23%	1437	1.88%
9	Tyler Hill Road (eastern end)	EB	82	76	-6.50%	66	-19.02%
		WB	121	79	-34.63%	67	-44.40%
		Two-way	203	155	-23.31%	133	-34.19%

6.2.7. **Table 24** indicates that 18 out of 36 directional link flows reduce in the 2045 + CD PM scenario and the 2045 + ST PM scenario (combined) compared to the 2045 base scenario.

6.2.8. In both scenarios, the greatest reductions in traffic flow take place on Giles Lane (at the western end) (both directions), on A290 Whitstable Road (between Rough Common Road and Giles Lane) and on Tyler Hill Road (both ends). As per the AM peak hour, these reductions in flow occur primarily as a result of the new access road.

6.2.9. In the 2045 + CD PM scenario, the greatest proportional increases in traffic flow take place on the A290 St Thomas Hill (south of University Road) in the northbound direction, and on Giles Lane (at the eastern end).

6.2.10. In the 2045 + ST PM scenario, the greatest proportional increases in traffic flow takes place at the eastern end of Giles Lane. At the eastern end of Giles Lane, there is an increase in

two-way traffic of 23%, which equates to an approximate additional 140 vehicles or two vehicles every minute.

6.2.11. In the 2045 + CD PM scenario, reductions in two-way traffic flows occur on Tyler Hill Road (both ends), A290 Whitstable Road (between Rough Common Road and Giles Lane) and Giles Lane (western end). In the 2045 + ST PM scenario, reductions in two-way traffic flows occur on both ends of Tyler Hill Road, A290 Whitstable Road (between Rough Common Road and Giles Lane), the western end of Giles Lane, and Canterbury Hill.

6.2.12. This analysis should be treated as provisional with further analysis expected as the proposals are developed, including through assessment using the strategic model. This approach can be explored through liaison with KCC in due course.

6.3 Traffic data collection

6.3.1. To enable individual junction capacity assessments to be developed and tested traffic surveys were undertaken at 13 key junctions agreed with KCC across Canterbury in December 2021.

6.3.2. The data collected was analysed to identify the AM and PM peak hours at each location and then the network peaks identified across the 13 junctions. This analysis (presented in **Table 25**) identified that the peak hours on the highway network within the study area were 08:00-09:00 in the AM and 16:30-17:30 in the PM.

6.3.3. It should be noted that the trip generation presented in **Section 5** is for the PM network peak hour of 17:00-18:00. For robustness the 17:00-18:00 PM peak trip generation has been applied to the 16:30-17:30 network flows.

Table 25– Peak Hour Analysis

Time Interval			Total Flow at Each Junction													Total
			Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	
07:00	-	08:00	1422	1611	1791	517	501	990	668	213	259	782	681	1759	1133	12328
07:15	-	08:15	1806	2207	2109	733	668	1149	855	356	418	1015	858	2021	1375	15571
07:30	-	08:30	2110	2766	2300	1016	894	1372	1046	534	619	1250	1016	2242	1559	18725
07:45	-	08:45	2082	3041	2400	1191	1060	1456	1156	692	830	1383	1073	2384	1620	20369
08:00	-	09:00	1988	3147	2368	1259	1142	1474	1174	874	1068	1431	1032	2356	1617	20931
08:15	-	09:15	1818	2876	2226	1159	1104	1485	1157	854	1066	1368	969	2321	1537	19941
08:30	-	09:30	1614	2477	1993	969	960	1403	1054	763	965	1221	860	2315	1460	18055
08:45	-	09:45	1556	2117	1836	798	805	1335	960	644	790	1080	765	2225	1369	16281
09:00	-	10:00	1512	1924	1671	708	707	1264	874	469	562	916	673	2175	1288	14744
16:00	-	17:00	1863	2568	1873	971	944	1476	1056	563	660	1097	749	2371	1319	17509
16:15	-	17:15	1929	2626	1936	992	1000	1489	1034	636	749	1152	779	2400	1368	18089
16:30	-	17:30	1967	2659	1942	1006	994	1484	1039	696	825	1162	761	2469	1429	18432
16:45	-	17:45	1799	2529	1925	964	970	1487	1008	682	823	1124	732	2493	1438	17973
17:00	-	18:00	1755	2393	1951	893	938	1463	1014	684	826	1112	719	2503	1403	17653
17:15	-	18:15	1627	2241	1895	827	841	1444	978	614	751	1024	649	2435	1345	16670
17:30	-	18:30	1461	2001	1843	749	797	1448	927	552	676	936	580	2297	1214	15480
17:45	-	18:45	1369	1725	1755	647	717	1387	857	500	617	835	497	2142	1102	14149
18:00	-	19:00	1214	1529	1613	586	633	1327	757	422	531	727	424	1962	989	12714

6.3.4. Traffic flow diagrams showing the 2021 observed network peak traffic flows are contained in **Appendix B**.

6.4 Scenario testing

6.4.1. In order to test the Proposed Development in the future forecast year of 2045 (the end of the Local Plan period) and to consider the impacts of the emerging Canterbury Transport Strategy a range of scenarios are required as follows:

- 2021 – Base Year developed for the individual junction capacity assessments
- 2045 – Future Forecast Year – 2018 or 2021 observed data growthed to 2045
- 2045 –Core Development Scenario – 2045 Future Forecast Year + Core Development Trip Generation and Distribution (CD)
- 2045 Sensitivity Test Scenario - 2045 Future Forecast Year + Sensitivity Test Development Trip Generation and Trip Distribution (ST)

6.4.2. **Table 26** provides a summary of which scenarios are considered at each junction.

Table 26– Modelled Scenarios by Junction

Junction	2021 Base	2045 Future Forecast Year	2045 Core Scenario (CD)	2045 Sensitivity Test Scenario (ST)
Whitstable Road Site Access	×	×	✓	✓
Blean Primary School Access	×	×	✓	✓
Junction 1 – A290 Whitstable Road / Tyler Hill Road	✓	✓	✓	✓
Junction 2 – A290 Whitstable Road / Rough Common Road	✓	✓	✓	✓
Junction 3 – A2050 / Palmars Cross Hill	✓	✓	✓	✓
Junction 4 – A290 Whitstable Road / Giles Lane	✓	✓	✓	✓
Junction 5 – A290 Whitstable Road / University Road	✓	✓	✓	✓
Junction 6 – A290 Whitstable Road / London Road	✓	✓	✓	✓
Junction 7 – St Stephens Hill / Beaconsfield Road	✓	✓	✓	✓
Junction 8 – Giles Lane / University Road	✓	✓	✓	✓
Junction 9 – Giles Lane / Park Wood Road	✓	✓	✓	✓
Junction 10 – St Stephens Hill / Giles Lane	✓	✓	✓	✓
Junction 11 – Calais Hill / Canterbury Hill	✓	✓	✓	✓
Junction 12 – Kingsmead Road / Broad Oak Road	✓	✓	✓	✓
Junction 13 – Broad Oak Road / Vauxhall Road	✓	✓	✓	✓

6.5 Future year assessment flows

6.5.1. The micro-simulation model study area is constrained to the immediate site and surrounding roads. However, the study area for the PTA is much wider than this. A two-stage approach to deriving future traffic flows to inform the PTA is therefore required:

- For junctions located within the study area of the micro-simulation model traffic flows have been extracted directly from the micro-simulation model and inputted into the junction capacity assessments.
- For junctions outside of the study area of the micro-simulation model traffic flows derived from the spreadsheet-based model have been used.

6.5.2. Traffic flow diagrams showing the traffic flows for the future forecast year of 2045 with and without the Proposed Development are shown in **Appendix B**.

6.6 Highway network assessment approach

6.6.1. Junction capacity assessments have been undertaken using the industry standard software PICADY for priority junctions and ARCADY for roundabouts as part of the 'Junctions 10' software package and 'LinSig' (version 3) for traffic signal junctions.

6.6.2. The output from PICADY and ARCADY provides a number of measurements to provide information on junction operation. These relate to the 'Ratio of Flow to Capacity' (RFC), maximum queue length, and delay in seconds per vehicle. The main indication of a junction's performance is provided by the RFC for each arm. The capacity of a junction is realised when the demand flow at the entry is great enough to cause a continuous queue of vehicles to wait on the approach. This is reached when the RFC attains a value of 1 or more. A junction with an RFC of 1 or above is still able to operate but would be more sensitive to changes in queueing and delay.

6.6.3. To account for daily fluctuations in traffic flow which are generally regarded to be as much as +/- 10%, a junction operating with an RFC of 0.85 or below is considered to be performing satisfactorily[9].

6.6.4. LinSig provides a number of measurements to ascertain information of a junction's operation. These relate to the 'Degree of Saturation' (DoS), mean maximum queue length, Practical Reserve Capacity (PRC) and delay in minutes per arriving vehicle. The main indication of a junction's performance is provided by the DoS for each arm.

6.6.5. The peak capacity is realised when the demand flow at the entry is such that not all vehicles queueing at the beginning of the green phase are able to clear the junction by the end of the green phase. This is reached when the DoS attains a value of 100% or more. However, to

[9] Page 109 Section 10.3. Junctions 10 User Guide (Application Guide 74), TRL, 2021

account for daily fluctuations in traffic flow a DoS of 90% is generally used to represent when a junction begins to operate at capacity and the PRC is zero.

6.6.6. RFC and DoS are indicators by which congestion levels at a junction can be considered and are the initial means by which junction capacity is interpreted. However, interpretation of the indicators such as queueing and delay are also required to understand junction performance and to understand the likely impact of changes in traffic flow. Where a junction is congested, interpretation of a range of metrics (RFC, DoS, queueing and delay) is required and professional judgement has to be applied to determine the severity of the impact at a junction.

6.7 Baseline model development

6.7.1. The existing conditions on the highway network were determined and assessed using observed data. A series of traffic surveys were commissioned in December 2021, including Automatic Traffic Counts (ATCs), junction turning counts, and queue length surveys. The ATC data covered a two-week period, and the turning counts and queue length surveys were carried out on a mid-week day. Analysis of the ATC data that was collected over 14 days demonstrated that traffic conditions on the days the turning counts and queue length surveys were carried out were 'typical', i.e. no major incidents on the network were identified.

6.7.2. Junction capacity assessment models were developed for each of the 13 locations within the agreed study area by following the below approach:

- Geometries were measured by overlaying OS mastermap (1:1250 scale) mapping with aerial photography.
- The geometries were then validated through a site visit undertaken in December 2021 to observe any significant difference between the layouts identified from the desktop geometric calculations and the layouts on-site.
- Adjustments were made to the models using the on-site measurements as these were considered to be the most accurate representation of existing conditions.
- Junction capacity assessment models were then run for the AM and PM peak hours using the actual turning movements at each junction.
- Modelled queue lengths were then compared to the average maximum queue length identified from the queue length surveys on each arm of each of the junctions to identify where the modelled junction differed from that identified from the observed data collected.
- Where the observed queue varied considerably, further consideration was given to the calibration of the model.

6.7.3. Following review of the observed and modelled base junction queueing the following adjustments were made:

- *Junction 6 (A290 Whitstable Road / London Road)* - At this location the level of queuing observed was significantly greater than the modelled queue lengths. The likely reason

for this is the presence of the level crossing to the south of the junction on St Dunstan's Street. The junction capacity assessment is unable to replicate these conditions accurately as the pattern of level crossing closures can be subject to change on a daily basis owing to the variability of train operating conditions. The model was therefore not adjusted and the implications on the junction capacity assessment results are considered in more detail later in this section

- *Junction 10 (St Stephen's Hill/Giles Lane)* – an intercept adjustment of +100 was made on Arm A – St Stephen's Hill North to reduce the modelled queue to reflect the observed queue
- *Junction 13 (Broad Oak Road/Vauxhall Road)* – an intercept adjustment of +250 was made on Arm B – Broad Oak Road East to reduce the modelled queue to reflect the observed queue.

6.8 Junction Impact Assessment

6.8.1. This section provides a summary of the results of the modelling undertaken at each of the key junctions identified within the study area.

Whitstable Road Primary Access

6.8.2. The Transport Strategy (August 2021) identified the potential for a traffic signal junction to be provided on Whitstable Road to act as a new access point to the development and University. Initial testing of this option using LinSig indicated that the traffic signal junction layout identified would struggle to accommodate the volume of traffic anticipated. Alternative junction layouts were therefore considered. A staggered priority junction was investigated. An illustrative concept design for this staggered junction is shown on drawing 70080896-XX-XX-TP-016-A contained in **Appendix D**.

6.8.3. The site access right-left staggered priority junction has been assessed using Junctions 10 (PICADY). The capacity assessment results for the AM and PM peaks are provided in **Table 27.** Full results are contained in **Appendix C.**

Table 27 – Access Junction – Right Left Staggered

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 + CD						
B-C – Site Access (left)	0.4	11.90	0.31	0.3	13.40	0.21
B-AD – Site Access (right ahead)	1.0	24.13	0.51	2.2	35.47	0.70
A-BCD – Whitstable Road North (right left ahead)	0	7.02	0.02	0	7.73	0.01
D-ABC – Highfield Close (right left ahead)	0.1	11.25	0.06	0	10.90	0.04
C-ABD - Whitstable Road South (right left ahead)	0.2	9.68	0.19	0.4	9.42	0.28
2045 + ST						
B-C – Site Access (left)	0.4	21.93	0.29	0.1	10.93	0.07
B-AD – Site Access (right ahead)	3.6	49.34	0.80	1.7	25.36	0.63
A-BCD – Whitstable Road North (right left ahead)	0	7.51	0.02	0	7.67	0.01
D-ABC – Highfield Close (right left ahead)	0.1	12.52	0.06	0	10.85	0.04
C-ABD - Whitstable Road South (right left ahead)	0.1	8.90	0.13	0.1	7.51	0.09

6.8.4. As can be seen from the junction capacity results illustrated above in **Table 27**, the junction is anticipated to operate satisfactorily in both development scenarios with all arms operating below capacity (RFC of 1).

Blean Primary School Access

6.8.5. During previous discussions with KCC, and from initial outputs from the Jacobs strategic modelling it had been highlighted that the introduction of the proposed access road linking Whitstable Road with Tyler Hill Road would be attractive to existing traffic on the highway network and likely see additional traffic routing through the site, impacting upon the performance of the Whitstable Road access. As such, to supplement the primary access, a number of options are being considered to provide a secondary access onto Whitstable Road, one of which could be a new secondary access onto Whitstable Road using the existing Blean Primary School. To facilitate this the existing school would be reconfigured on land within the Primary School and other land surrounding owned by the University.

6.8.6. WSP have considered two potential illustrative options for the new access onto Whitstable Road through the Blean Primary School land, one being a new 28m ICD roundabout (**WSP**

Drawing 70080896-XX-XX-TP-024) or a new signal controlled T-Junction (**WSP Drawing 70080896-XX-XX-TP-025**). Both options (shown in **Appendix D**) are considered viable from a highway design perspective and would be considered further through discussions with KCC in due course.

6.8.7. Both options have been tested assuming that the Whitstable Road priority junction is also implemented providing two points of access to the Proposed Development from the south.

Option 1 - Roundabout

6.8.8. The new proposed priority roundabout has been assessed using Junctions 10 (ARCADY). The capacity assessment results for the AM and PM peaks are summarised in **Table 28.** Full results are contained in **Appendix C.**

Table 28 - Blean Primary School Access Option 1 (Roundabout) Junction Capacity Results

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 + CD						
A – Park Wood Road	0.3	3.62	0.23	0.3	3.77	0.24
B – Giles Lane (East)	0.6	4.45	0.37	2.6	10.50	0.73
C – Giles Lane (West)	1.0	5.52	0.51	0.9	5.45	0.48
2045 +ST						
A – Park Wood Road	0.4	3.89	0.26	0.4	4.02	0.28
B – Giles Lane (East)	0.6	4.60	0.39	4.4	15.77	0.82
C – Giles Lane (West)	1.5	6.89	0.60	1.0	6.00	0.50

6.8.9. As illustrated above in **Table 28**, the results show that a roundabout in this location can operate with satisfactory performance (RFC below 0.85) in all scenarios assessed.

Option 2 – Traffic Signals

6.8.10. In order to provide KCC the flexibility in how they see a new junction being delivered via Blean Primary School, a second option of a signalised T-Junction has also been assessed. The signalised junction has been assessed using Linsig3. The capacity assessment results for the AM and PM peaks are summarised in **Table 29.** Full results are contained in **Appendix C.**

Table 29 - Blean Primary School Access Option 2 (Signals) Junction Capacity Results

Arm Description	AM			PM		
	Queue (Veh)	Delay (s/pcu)	Deg Sat (%)	Queue (Veh)	Delay (s/pcu)	Deg Sat (%)
2045 + CD						
Whitstable Road North	17.3	29.1	80.3%	10.6	24.3	66.6%
Whitstable Road South	4.9	13.9	36.8%	12.6	19.9	71.8%
Blean Primary Arm	5.9	60.0	78.5%	5.0	49.5	73.1%
2045 + ST						
Whitstable Road North	17.5	25.1	81.4%	10.1	22.7	63.6%
Whitstable Road South	5.2	11.7	81.4%	14.5	22.3	77.7%
Blean Primary Arm	7.1	58.0	83.0%	5.2	51.8	76.9%

6.8.11. The results of either illustrative option show satisfactory performance and therefore should this option be pursued further, there is flexibility regarding its design and the junction form taken forwards would be agreed with KCC as the masterplan is progressed.

Junction 1 – A290 Whitstable Road / Tyler Hill Road

6.8.12. The A290 Whitstable Road / Tyler Hill Road priority junction has been assessed using Junctions 10 (PICADY). The capacity assessment results for the AM and PM peaks are summarised in **Table 30.** Full results are contained in **Appendix C.**

Table 30 - Junction 1 – A290 Whitstable Road / Tyler Hill Road

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
B-Tyler Hill Road	0.4	12.07	0.26	0.6	17.67	0.39
C-A290 South	0.1	4.87	0.05	0.7	20.69	0.43
2045 + CD						
B-Tyler Hill Road	0.5	17.32	0.33	0.3	16.08	0.22
C-A290 South	0.0	4.41	0.01	0.1	3.45	0.04
2045 + ST						
B-Tyler Hill Road	0.3	11.85	0.24	0.2	15.65	0.2
C-A290 South	0.0	4.13	0.01	0.1	3.49	0.05

6.8.13. The results presented in **Table 30** show that the junction operates with satisfactory performance (RFC below 0.85) in all scenarios assessed.

6.8.14. The impacts of the Proposed Development are not considered to be significant at this junction and mitigation is therefore not necessary as the junction can accommodate traffic associated with the Proposed Development.

Junction 2 – A290 Whitstable Road / Rough Common Road

6.8.15. The A290 Whitstable Road / Rough Common Road priority junction has been assessed using Junctions 10 (ARCADY). The capacity assessment results for the AM and PM peaks are summarised in **Table 31**. Full results are contained in **Appendix C**.

Table 31 - Junction 2 – A290 Whitstable Road / Rough Common Road

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
A – A290 North	2.6	15.89	0.73	0.9	6.92	0.48
B – A290 South	2.2	15.48	0.69	13	64.72	0.96
C – Rough Common Road	79.3	390.08	1.2	41.7	205.42	1.11
2045 + CD						
A – A290 North	2.6	15.77	0.73	1.1	7.54	0.53
B – A290 South	3.9	27.18	0.81	17.6	88.03	0.99
C – Rough Common Road	110.8	558.41	1.27	175.5	894.71	1.41
2045 + ST						
A – A290 North	2.6	15.83	0.73	1.4	8.5	0.59
B – A290 South	19.6	107.39	1.01	22.8	111.91	1.02
C – Rough Common Road	145.1	707.14	1.32	307.6	1512.66	1.61

6.8.16. The results presented in **Table 31** show that in the 2045 Base scenario, Arm C - Rough Common Road operates at/above capacity (RFC of 1) in the AM and PM peak. Arm B – A290 South is approaching capacity (RFC of 1) in the PM.

6.8.17. Arm C - Rough Common Road in the AM peak in the 2045+CD scenario operates at/above capacity (RFC of 1). In the PM Peak Arm C – Rough Common Road operate at/above capacity (RFC of 1)

6.8.18. Maximum queueing and delay are 111 vehicles and 558 seconds in the AM peak on Arm C – Rough Common Road and in the PM peak maximum queuing and delay are 176 vehicles and 895 seconds on Arm C – Rough Common Road.

6.8.19. In the 2045 + ST scenario Arm B – A290 South and Arm C – Rough Common Road operate at/above capacity (RFC of 1) in both the AM and PM peaks.

6.8.20. Maximum queueing and delay are 145 vehicles and 707 seconds in the AM peak on Arm C – Rough Common Road and in the PM peak maximum queuing and delay are 308 vehicles and 1513 seconds on Arm C – Rough Common Road.

6.8.21. Mitigation is therefore considered for this junction and is discussed in **Section 7** of this report.

Junction 3 – A2050 / Palmars Cross Hill

6.8.22. The A2050/Palmars Cross Hill junction is a three-arm traffic signal junction. To develop a suitable base model signal specification information was obtained from KCC. This information was used to develop the staging for the junction. The junction is controlled using Microprocessor Optimised Vehicle Actuation (MOVA) which optimises the signal timings based upon demand. To calculate the cycle time the average cycle time as recorded from the CCTV data collected as part of the traffic surveys was utilised.

6.8.23. The A2050 / Palmars Cross Hill traffic signal junction has been assessed using LinSig3. The capacity assessment results for the AM and PM peaks are summarised in **Table 32**. Full results are contained in **Appendix C**.

Table 32 - Junction 3 – A2050/Palmars Cross Hill

Arm Description	AM			PM		
	Mean Max Queue (PCU)	Delay (s/PCU)	Deg Sat (%)	Mean Max Queue (PCU)	Delay (s/PCU)	Deg Sat (%)
2045 Base						
A2050 (West) Left Turn	3.3	6.0	34.4	0.9	7.2	14.3
A2050 (West) Ahead	7.7	15.3	65.5	4.2	17.6	60.0
Palmars Cross Hill Left and Right Turn	4.7	24.0	62.9	3.8	18.6	62.3
A2050 (East) Ahead Right	4.4	12.0	66.2	6.1	11.6	64.8
2045 + CD						
A2050 (West) Left Turn	3.8	6.6	36.9	1.8	9.2	25.8
A2050 (West) Ahead	9.0	20.7	73.5	5.1	22.7	73.4
Palmars Cross Hill Left and Right Turn	6.2	22.0	71.5	4.9	20.2	72.9
A2050 (East) Ahead Right	5.1	14.0	65.6	6.1	11.8	69.4
2045 + ST						
A2050 (West) Left Turn	4.2	6.4	39.7	3.5	9.3	44.0
A2050 (West) Ahead	11.1	28.3	84.2	5.1	22.7	73.4
Palmars Cross Hill Left and Right Turn	12.1	28.7	87.4	6.8	23.6	80.7
A2050 (East) Ahead Right	6.3	17.2	69.8	7.9	14.5	74.6

6.8.24. The junction capacity results show that the junction operates within capacity (with a DoS of less than 100%) in all scenarios considered.

Junction 4 – A290 Whitstable Road / Giles Lane

6.8.25. The A290 Whitstable Road / Giles Lane priority junction has been assessed using Junctions 10 (PICADY). The capacity assessment results for the AM and PM peaks are summarised in **Table 33**. Full results are contained in **Appendix C**.

Table 33 - Junction 4 – A290 Whitstable Road / Giles Lane

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
B - Giles Lane	1.8	38.19	0.65	3.7	57.06	0.81
C – Whitstable Road South	0.6	6.97	0.26	0.2	4.55	0.09
2045 + CD						
B - Giles Lane	0.3	13.94	0.26	0.2	10.44	0.14
C – Whitstable Road South	0.5	5.58	0.20	0.1	4.1	0.07
2045 + ST						
B - Giles Lane	0.2	13.54	0.13	0.1	10.47	0.1
C – Whitstable Road South	0.4	5.53	0.19	0.1	4.42	0.06

6.8.26. The results presented in **Table 33** show that in the junction performs satisfactory in all scenarios assessed (RFC below 0.85). The introduction of the Proposed Development sees traffic routing away from this junction and therefore capacity improves significantly through its introduction. Mitigation is therefore not considered for this junction.

Junction 5 – A290 Whitstable Road / University Road

6.8.27. The A290 Whitstable Road / University Road priority junction has been assessed using Junctions 10 (PICADY). The capacity assessment results for the AM and PM peaks are summarised in **Table 34**. Full results are contained in **Appendix C**.

Table 34 - Junction 5 – A290 Whitstable Road / University Road

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
B - University Road (left)	1.4	17.82	0.59	12.7	113.48	1
B – University Road (right)	0.7	34.04	0.42	7.3	157.36	0.96
C- – Whitstable Road South	3.3	20.18	0.73	0.2	7.95	0.2
2045 + CD						
B - University Road (left)	1.2	15.06	0.54	3.8	36.04	0.81
B – University Road (right)	0.3	26.67	0.22	1.1	44.43	0.55
C- – Whitstable Road South	1.8	14.68	0.61	0.2	7.95	0.19
2045 + ST						
B - University Road (left)	1.2	14.73	0.55	2.9	28.77	0.76
B – University Road (right)	0.4	24.72	0.27	0.9	32.23	0.48
C- – Whitstable Road South	1.8	14.48	0.61	0.2	7.73	0.18

6.8.28. The results presented in **Table 34** show that in the 2045 Base scenario Stream B-C University Road (Left) is operating at capacity (RFC of 1) in the PM Peak. Stream B-A University Road (Right) is approaching capacity (RFC of 1) in the PM peak.

6.8.29. With the addition of the Proposed Development in the Core Development Scenario and Sensitivity Test Scenario, the junction operates satisfactory in both the AM and PM peaks. The introduction of the Proposed Development sees traffic routing away from this junction and therefore performance improves significantly through its introduction.

Junction 6 – A290 Whitstable Road / London Road

6.8.30. The A290 Whitstable Road / London Road mini roundabout junction has been assessed using Junctions 10 (ARCADY). The capacity assessment results for the AM and PM peaks are summarised in **Table 35.** Full results are contained in **Appendix C.**

Table 35 - Junction 6 – A290 Whitstable Road / University Road

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
A – A290 North	27.6	108.41	1.03	38.3	143.66	1.06
B – A290 South	1.3	11.22	0.57	2.4	17.06	0.71
C – London Road	36.2	170	1.08	9.1	56.93	0.93
2045 + CD						
A – A290 North	122.2	505.2	1.24	84.7	343.1	1.17
B – A290 South	1.8	15.44	0.65	4	26.95	0.81
C – London Road	56.9	261.55	1.14	79.9	411.68	1.22
2045 + ST						
A – A290 North	33	124.99	1.04	41.8	154.43	1.07
B – A290 South	1.3	11.24	0.57	2.7	18.28	0.73
C – London Road	37.1	174.14	1.08	10.1	62.99	0.94

6.8.31. The results presented in **Table 35** show that in the 2045 Base Scenario, Arm A A290 North and Arm C London Road is forecast to operate at/above capacity (RFC of 1) in the AM peak. Arm A A290 North also operates at/above capacity (RFC of 1) in the PM Peak

6.8.32. With the addition of the Proposed Development in the Core Development Scenario, the A290 North and London Road both operate further above capacity (RFC of 1) in the AM and PM Peak showing an impact associated with the development.

6.8.33. However, following the inclusion of the wider local plan mitigation, the Sensitivity Test Scenario shows performance similar to the 2045 Base.

6.8.34. This junction is considered for potential mitigation which is discussed further in **Section 7**.

Junction 7 – St Stephens Hill / Beaconsfield Road

6.8.35. The St Stephens Hill / Beaconsfield Road mini roundabout junction has been assessed using Junctions 10 (ARCADY). Stephenson's Road at this junction is exit only. The mini-roundabout module of ARCADY is not able to include an exit only arm. Therefore, the mini-roundabout has been modelled as three arms instead of four with the traffic flow for Stephen's Road added to the adjacent corresponding movement. The capacity assessment results for the AM and PM peaks are summarised in **Table 36.** Full results are contained in **Appendix C.**

Table 36 - Junction 7 – St Stephens Hill / Beaconsfield Road

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
A – St Stephens Hill North	4.1	18.6	0.81	1.2	7.79	0.55
B – St Stephens Hill South	1.7	13.58	0.64	1.8	11.5	0.65
C – Beaconsfield Road	2.1	18.41	0.68	3.4	27.35	0.78
2045 + CD						
A – St Stephens Hill North	7.2	30.47	0.89	1.5	8.68	0.6
B – St Stephens Hill South	2	14.87	0.67	2.8	15.81	0.74
C – Beaconsfield Road	2.2	19.77	0.7	5.8	47.18	0.88
2045 +ST						
A – St Stephens Hill North	6.3	26.93	0.88	1.5	8.68	0.6
B – St Stephens Hill South	2	14.88	0.67	2.8	15.81	0.74
C – Beaconsfield Road	2.2	19.6	0.7	5.8	47.18	0.88

6.8.36. The results presented in **Table 36** show that in all scenarios the junction operates within capacity (RFC of 1), with only small increases in queuing and delay as a result of the Proposed Development.

Junction 8 – Giles Lane / University Road

6.8.37. The Giles Lane / University Road mini roundabout junction has been assessed using Junctions 10 (ARCADY). The capacity assessment results for the AM and PM peaks are summarised in **Table 37.** Full results are contained in **Appendix C.**

Table 37 - Junction 8 – Giles Lane / University Road

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
B-C University Road (right)	1.3	12.64	0.56	0.4	6.69	0.26
B-A University Road (left)	0.1	15.04	0.13	0	10.57	0.01
C-AB – Giles Lane East	4.7	29.13	0.81	6.1	33.5	0.85
2045 + CD						
B-C University Road (right)	0.4	6.58	0.28	0.3	6.11	0.23
B-A University Road (left)	0.0	9.27	0.05	0.0	8.69	0.02
C-AB – Giles Lane East	2.7	18.49	0.71	1.9	17.17	0.66
2045 +ST						
B-C University Road (right)	0.4	6.60	0.28	0.3	5.95	0.21
B-A University Road (left)	0.0	9.00	0.04	0.0	0.0	0.0
C-AB – Giles Lane East	2.2	17.55	0.68	1.4	14.56	0.59

6.8.38. The results presented in **Table 37** show that in all scenarios the junction operates within capacity (RFC of 1). The introduction of the Proposed Development sees traffic routing away from this junction and therefore capacity improves significantly.

Junction 9 – Giles Lane / Park Wood Road

6.8.39. The Giles Lane / Park Wood Road mini roundabout junction has been assessed using Junctions 10 (ARCADY). The capacity assessment results for the AM and PM peaks are summarised in **Table 38.** Full results are contained in **Appendix C.**

Table 38 - Junction 9 – Giles Lane / Park Wood Road

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
A – Park Wood Road	26.8	134.40	1.04	1	9.58	0.50
B – Giles Lane (East)	0.4	7.06	0.29	0.7	7.73	0.42
C – Giles Lane (West)	3.0	16.57	0.76	1.5	10.75	0.60
2045 + CD						
A – Park Wood Road	89.4	463.86	1.23	1.9	15.44	0.67
B – Giles Lane (East)	1.6	10.88	0.62	3.9	20.61	0.80
C – Giles Lane (West)	0.4	6.05	0.28	0.5	7.41	0.33
2045 +ST						
A – Park Wood Road	32.5	154.76	1.06	1.3	12.15	0.58
B – Giles Lane (East)	1.8	11.48	0.64	2.5	14.34	0.72
C – Giles Lane (West)	0.4	6.30	0.30	0.4	6.91	0.30

6.8.40. The results presented in **Table 38** show that in the 2045 Base scenario, Arm A – Park Wood Road operates above capacity (RFC of 1) in the AM peak.

6.8.41. Arm A – Park Wood Road in the AM peak in the 2045+CD scenario operates at/above capacity (RFC of 1). Maximum queueing and delay are 89 vehicles and 464 seconds respectively.

6.8.42. In the 2045 + ST scenario Arm A – Park Wood Road operates above capacity (RFC of 1) in the AM peak. Maximum queueing and delay are 33 vehicles and 155 seconds respectively. A mitigation solution has been considered for this junction and is discussed in **Section 7** of this report.

Junction 10 – St Stephens Hill / Giles Lane

6.8.43. The St Stephens Hill / Giles Lane mini roundabout junction has been assessed using Junctions 10 (ARCADY). The capacity assessment results for the AM and PM peaks are provided in **Table 39.** Full results are contained in **Appendix C.**

Table 39 - Junction 10 – St Stephens Hill / Giles Lane

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
A – St Stephens Hill North	245.6	926.31	1.41	1	8.66	0.49
B – Giles Lane (Private Road)	0	19.73	0.03	0	0	0
C – St Stephens Hill South	22.4	114.94	1.02	33.7	130.97	1.05
D – Giles Lane	0.6	6.68	0.38	4.2	28.1	0.82
2045 + CD						
A – St Stephens Hill North	118.5	507.8	1.26	1.4	10.86	0.58
B – Giles Lane (Private Road)	0	25.86	0.05	0	10.81	0.02
C – St Stephens Hill South	15.2	78.37	0.98	101.7	437.7	1.22
D – Giles Lane	1.8	11.66	0.65	6.6	38.08	0.89
2045 + ST						
A – St Stephens Hill North	124.4	526.28	1.27	1.1	9.6	0.53
B – Giles Lane (Private Road)	0.1	24.39	0.06	0	9.84	0.02
C – St Stephens Hill South	15.9	82.86	0.98	57.2	213.44	1.11
D – Giles Lane	1.5	10.2	0.6	5.3	31.48	0.85

6.8.44. The results presented in **Table 39** show that in the 2045 Base scenario in the AM Peak Arm A – St Stephens Hill North and Arm C – St Stephens Hill South exceed capacity (RFC of 1). In the PM Peak St Stephens Hill South arm exceeds capacity (RFC of 1)

6.8.45. The junction continues to operate at/above capacity (RFC of 1) in the 2045 CD and ST scenarios, however the junction works better in the AM peak hour following the inclusion of the Proposed Development. Given this junction is experiencing significant delay and on some arms is made worse by the Proposed Development a mitigation solution has been considered for this junction and is discussed in **Section 7**.

Junction 11 – Calais Hill / Canterbury Hill

6.8.46. The Calais Hill / Canterbury Hill priority junction has been assessed using Junctions 10 (PICADY). The capacity assessment results for the AM and PM peaks are summarised in **Table 40.** Full results are contained in **Appendix C.**

Table 40 - Junction 11 – Calais Hill / Canterbury Hill

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
B-C – Calais Hill (left)	0	6.9	0.01	0	0	0
B-A – Calais Hill (right)	0.5	22.9	0.35	0.1	16.07	0.08
C - Wood Hill	0	0	0	0	0	0
2045 + CD						
B-C – Calais Hill (left)	0	0	0	0	0	0
B-A – Calais Hill (right)	0.1	16.3	0.09	0.3	0.0	0.0
C - Wood Hill	0	3.35	0.01	0	0	0
2045 + ST						
B-C – Calais Hill (left)	0	0	0	0	0	0
B-A – Calais Hill (right)	0	15.4	0.03	0.0	0.0	0.0
C - Wood Hill	0	3.25	0.01	0	0	0

6.8.47. The results presented in **Table 40** show that in all scenarios the junction operates within capacity (RFC less than 0.85) in all scenarios. The introduction of the Proposed Development sees traffic routing away from this junction in the AM peak and therefore capacity improves significantly through its introduction. In the PM peak the introduction of the Proposed Development has a negligible impact on the capacity of the junction.

Junction 12 - Kingsmead Road / Broad Oak Road

6.8.49. The Kingsmead Road / Broad Oak Road roundabout junction has been assessed using Junctions 10 (ARCADY). The capacity assessment results for the AM and PM peaks are provided in **Table 41.** Full results are contained in **Appendix C.**

Table 41 - Junction 12 – Kingsmead Road / Broad Oak Road

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
A – St Stephens Hill North	5.5	32.38	0.86	7.3	45.48	0.9
B – Broad Oak Road	22.8	103.56	1.02	6.8	38.26	0.89
C – Kingsmead Road	4	19.19	0.81	9.2	34.21	0.92
D – St Stephens Hill South	2.2	9.4	0.69	3.7	15.15	0.79
2045 + CD						
A – St Stephens Hill North	15.8	78.33	0.98	13	72.91	0.97
B – Broad Oak Road	33.5	143.27	1.06	11.7	61.32	0.95
C – Kingsmead Road	4.3	20.48	0.82	18	61.87	0.98
D – St Stephens Hill South	2.2	9.7	0.7	4.6	19.22	0.83
2045 + ST						
A – St Stephens Hill North	8.9	48.74	0.92	9.8	57.86	0.94
B – Broad Oak Road	26.6	116.54	1.03	11.1	57.93	0.95
C – Kingsmead Road	4.1	19.79	0.81	11.2	41.72	0.94
D – St Stephens Hill South	2.2	9.56	0.69	4.1	17.1	0.81

6.8.50. The results presented in **Table 41** show the junction operates at/above capacity (RFC of 1) in the 2045 Base scenario in the AM Peak, and that there is a small increase in queueing and delay as a result of the Proposed Development in the Core and Sensitivity Test Scenarios. However, the increases in queues and delay are considered to be negligible. In the sensitivity test scenario, the results are similar to the baseline in the 2045 Base

6.8.51. Whilst it not considered necessary for this Site, mitigation is considered for this junction and is discussed in **Section 7**.

Junction 13 - Broad Oak Road / Vauxhall Road

6.8.52. The Broad Oak Road / Vauxhall Road mini roundabout junction has been assessed using Junctions 10 (PICADY). The capacity assessment results for the AM and PM peaks are provided in **Table 42.** Full results are contained in **Appendix C.**

Table 42 - Junction 13 – Broad Oak Road / Vauxhall Road

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base						
A – Broad Oak Road West	2	9.92	0.67	6.1	24.78	0.87
B – Broad Oak Road East	64.4	264.19	1.16	0.5	7.19	0.32
C – Vauxhall Road	3.9	36.9	0.81	6.1	38.6	0.88
2045 + CD						
A – Broad Oak Road West	2.2	10.49	0.69	6.6	26.56	0.88
B – Broad Oak Road East	68.9	283.66	1.18	0.5	7.36	0.33
C – Vauxhall Road	6.2	53.95	0.89	7.5	46.16	0.9
2045 + ST						
A – Broad Oak Road West	0.7	5.54	0.41	7.2	28.73	0.89
B – Broad Oak Road East	9.2	43.38	0.92	0.5	7.49	0.34
C – Vauxhall Road	13.6	111.34	0.99	10	59.17	0.94

6.8.53. The results presented in **Table 42** show that in the 2045 Base scenario in the AM Peak Arm B – Broad Oak Road East operates at/above capacity (RFC of 1). In the PM peak Arm A – Broad Oak Road West and Arm C – Vauxhall Road are approaching capacity (RFC of 1)

6.8.54. The junction operates at/above capacity (RFC of 1) in the 2045 + CD and queueing and delay increase as a result of the Proposed Development. However, the relative impact of the proposed development in the Core Scenario is considered to be negligible. In the Sensitivity Test scenario, the junction performs within capacity (RFC of 1).

6.8.55. Therefore mitigation has not been considered for this junction.

7 Mitigation

7.1 Introduction

7.1.1. This section discusses potential highway mitigation that could be delivered to reduce any impacts associated with the Proposed Development. At this stage the mitigation measures are not fixed proposals but provide a concept for the type of mitigation that could be delivered. In due course, further modelling would be required as part of any planning application and the requirement for mitigation revisited.

7.1.2. The Paramics Discovery model is based on the existing junction layouts, and none of the mitigation options have been tested within the Paramics model.

7.2 Junction Mitigation

Junction 2 – A290 Whitstable Road / Rough Common Road

7.2.1. The junction capacity assessment results outlined in **Section 6** indicated that Junction 2 would operate at/ above capacity (RFC of 1) in the future year of 2045 with queueing and delay increased by the Proposed Development.

7.2.2. A mitigation scheme has been developed to provide widened entries on both Rough Common Road and A290 Whitstable Road.

7.2.3. 70080896-XX-XX-TP-016A in **Appendix D** illustrates the mitigation scheme for Junction 2. **Table 43** provides a summary of the modelling results both pre and post mitigation with full results contained in **Appendix C.**

Table 43 - Junction 2 – A290 Whitstable Road / Rough Common Mitigation Scheme Results

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base (Pre-mitigation)						
A – A290 North	2.6	15.89	0.73	0.9	6.92	0.48
B – A290 South	2.2	15.48	0.69	13	64.72	0.96
C – Rough Common Road	79.3	390.08	1.2	41.7	205.42	1.11
2045 + CD (Post-mitigation)						
A – A290 North	2.5	15.26	0.72	1.1	7.23	0.52
B – A290 South	1.8	12.41	0.65	4	20.51	0.81
C – Rough Common Road	6.4	27.57	0.88	13.1	55.48	0.96
2045 + ST (Post-mitigation)						
A – A290 North	2.7	16.16	0.74	1.3	8.16	0.58
B – A290 South	4	23.05	0.81	4.5	23.32	0.83
C – Rough Common Road	9.0	37.45	0.92	58.2	182.71	1.10

7.2.4. **Table 43** illustrates that the mitigation measures address the majority of the capacity issues identified in **Section 6**. With the addition of the Proposed Development in the Core Development Scenario the junction operates within capacity (RFC of 1).

7.2.5. The Sensitivity Test scenario with the implementation of mitigation operates with a similar level of performance to the 2045 Base pre-mitigation with only Arm C – Rough Common Road operating beyond capacity (RFC of 1), however overall performance is improved when compared to the 2045 Base.

7.2.6. Therefore, the impact of the Proposed Development is considered to be effectively mitigated in both scenarios tested.

Junction 6 – A290 Whitstable Road / London Road

7.2.7. The results presented in **Section 6** indicate that the existing junction is already expected to operate over capacity in the future base without the Proposed Development. The inclusion of the Proposed Development further increases the queuing and delay at this junction. A review of the junction layout identified limited opportunities for improvement within the highway boundary. As such, a review of Junction 6 is ongoing, however further testing of this junction and wider highway network within the strategic model is likely to identify that there will be opportunities for re-routing which may reduce the impacts in this location. The assignment of traffic in this location is fixed within the assessment undertaken. However, further testing using the strategic model is likely to demonstrate re-routing of traffic as a result of this congestion.

7.2.8. Given this junction is expected to be over capacity in the baseline, it is evident that this is a location that should be addressed as part of the local plan and wider transport strategy for the area. The constraint in this location is not considered to be insurmountable and that a strategic solution can be found and agreed with KCC through the use of the strategic model, with the Proposed Development assisting in any delivery as required.

Junction 9 – Giles Lane / Park Wood Road Mitigation

7.2.9. The results presented in Section 6 in and below in **Table 45** indicate that the existing junction is already expected to operate over capacity in the future base without the Proposed Development.

7.2.10. The inclusion of the Proposed Development further increases the queuing and delay at this location.

7.2.11. 70080896-XX-XX-TP-026 in **Appendix D** illustrates a mitigation scheme for Junction 9. **Table 45** provides a summary of the modelling results both pre and post mitigation with full results contained in **Appendix C.**

Table 45 - Junction 9 – Giles Lane / Park Wood Road

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base (Pre-mitigation)						
A – Park Wood Road	26.8	134.40	1.04	1.0	9.58	0.50
B – Giles Lane (East)	0.4	7.06	0.39	0.7	7.73	0.42
C – Giles Lane (West)	3.0	16.57	0.76	1.5	10.75	0.60
2045 + CD (Post mitigation)						
A – Park Wood Road	23.2	100.91	1.01	1.2	9.46	0.55
B – Giles Lane (East)	1.7	11.48	0.63	3.9	20.62	0.80
C – Giles Lane (West)	0.4	6.05	0.28	0.5	7.41	0.33
2045 + ST (Post mitigation)						
A – Park Wood Road	6.1	32.19	0.87	0.9	8.11	0.47
B – Giles Lane (East)	1.8	11.67	0.65	2.5	14.34	0.72
C – Giles Lane (West)	0.4	6.30	0.30	0.4	6.91	0.30

7.2.12. The results for the 2045 + CD show that the level of queuing and delay on Arm A (Park Wood Road) are reduced as a result of the proposed mitigation when compared to the 2045 Base. Whilst the performance on other arms deteriorates, they all operate within capacity (RFC of 1).

7.2.13. In the ST scenario the junction operates within capacity on all arms (RFC of 1). It is therefore considered that with the mitigation in place the impacts of the Proposed Development are reduced to show no impact.

Junction 10 – St Stephens Hill / Giles Lane Mitigation

7.2.14. The junction capacity assessment results outlined in **Section 6** indicated that Junction 10 would operate at capacity in the future year of 2045 although it is expected to work better with the Proposed Development.

7.2.15. Whilst not strictly necessary in planning terms, to provide a suitable transport corridor from the Proposed Development and ensure that traffic travelling to and from the City Centre is not delayed (which may in turn attract more traffic to use Tyler Hill Road) a mitigation scheme is proposed.

7.2.16. 70080896-XX-XX-TP-017A in **Appendix D** illustrates the mitigation scheme for Junction 10. **Table 46** provides a summary of the modelling results both pre and post mitigation with full results contained in **Appendix C.**

Table 46 - Junction 10 – St Stephens Hill / Giles Lane Mitigation Scheme Results

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base (Pre-mitigation)						
A – St Stephens Hill North	245.6	926.31	1.41	1	8.66	0.49
B – Giles Lane (Private Road)	0	19.73	0.03	0	0	0
C – St Stephens Hill South	22.4	114.94	1.02	33.7	130.97	1.05
D – Giles Lane	0.6	6.68	0.38	4.2	28.1	0.82
2045 + CD (Post-mitigation)						
A – St Stephens Hill North	11	41.8	0.94	0.7	5.9	0.43
B – Giles Lane (Private Road)	0	0	0	0	23.12	0.04
C – St Stephens Hill South	4.2	21.92	0.82	20.8	76.55	0.99
D – Giles Lane	1.8	11.86	0.65	11.5	65.14	0.95
2045 + ST (Post-mitigation)						
A – St Stephens Hill North	13.9	49.31	0.96	0.6	5.33	0.37
B – Giles Lane (Private Road)	0	0	0	0	18.31	0.03
C – St Stephens Hill South	4.5	23.56	0.83	9.0	36.69	0.92
D – Giles Lane	0.8	7.68	0.46	4.6	30.97	0.84

7.2.17. The results of the mitigation modelling indicate that the junction performance can be improved overall through the implementation of the mitigation measures.

Junction 12 – Kingsmead Road / Broad Oak Road

7.2.18. The junction capacity assessment results outlined in **Section 6** indicated that Junction 12 would operate at/ above capacity (RFC of 1) in the future year of 2045 with queueing and delay increased by the Proposed Development, although the Proposed Development would only have a negligible impact on the junction.

7.2.19. A mitigation scheme has been developed to provide widened entries on both St Stephen's Road, Kingsmead Road and Broad Oak Road.

7.2.20. 70080896-XX-XX-TP-018A in **Appendix D** illustrates the mitigation scheme for Junction 10. **Table 47** provides a summary of the modelling results both pre and post mitigation with full results contained in **Appendix C.**

Table 47 - Junction 12 – Kingsmead Road / Broad Oak Road Mitigation Scheme Results

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2045 Base (Pre-mitigation)						
A – St Stephens Hill North	5.5	32.38	0.86	7.3	45.48	0.9
B – Broad Oak Road	22.8	103.56	1.02	6.8	38.26	0.89
C – Kingsmead Road	4	19.19	0.81	9.2	34.21	0.92
D – St Stephens Hill South	2.2	9.4	0.69	3.7	15.15	0.79
2045 + CD (Post-mitigation)						
A – St Stephens Hill North	16.2	79.98	0.98	12.7	71.02	0.97
B – Broad Oak Road	8.3	40.78	0.91	4.3	22.16	0.82
C – Kingsmead Road	1.6	7.49	0.62	2.9	9.84	0.75
D – St Stephens Hill South	3.5	15.21	0.78	12.1	51.25	0.95
2045 + ST (Post-mitigation)						
A – St Stephens Hill North	9	49.72	0.92	9.6	56.85	0.94
B – Broad Oak Road	7	34.23	0.89	4.2	21.49	0.82
C – Kingsmead Road	1.6	7.31	0.61	2.5	8.76	0.72
D – St Stephens Hill South	3.4	14.84	0.78	9.3	39.78	0.92

7.2.21. The results of the mitigation modelling indicate that the junction is expected to operate below capacity (RFC of 1). The mitigation is therefore considered to be appropriate.

7.3 Corridor Mitigation

7.3.1. At the request of KCC a study has been undertaken that considers the potential measures necessary to safeguard the free flow of traffic on Rough Common Road. This study is presented in **Appendix E** and demonstrates that through the implementation of a series of parking control measures coupled with additional parking bay capacity the on-street parking that currently occurs can be better managed and alleviate some of the issues identified. If the Proposed Development is included as an allocation site, it is suggested that this mitigation is included within the emerging Canterbury Transport Strategy.

8 Phasing of Access Proposals

8.1.1. The inclusion of an illustrative secondary access option into the Proposed Development via the Blean Primary school, if taken forward, may require consideration of phasing as a new school would need to be in place and operational before the new access is constructed and open to residents.

8.1.2. The Proposed Development is intended to be accessed at the outset via the new primary access onto Whitstable Road (located in the far south of the University Campus) as a single point of access until a time where the secondary Blean Primary school access can be delivered. It is not anticipated that a connection onto Tyler Hill Road will be provided until post 1,200 homes is delivered on site.

8.1.3. KCC[10] sets out the number of dwellings that can generally be served by a single point of access, which is between 50-300 dwellings, however it is understood that a number of developments throughout Kent have delivered in excess of this.

8.1.4. In regard to the primary access, whilst policy identifies 300 dwellings, in the knowledge that a secondary access will be delivered in due course via the illustrative secondary access option (or alternative location), it is anticipated that through further consultation and as the scheme masterplan develops, the final quantum can be agreed with KCC.

8.1.5. To support the potential quantum that could be delivered via a single point of access, WSP have undertaken a sensitivity test of the proposed primary access assuming this is the sole access point. This has utilised the 2018 baseline traffic flows. This has shown that circa 1000 homes could be delivered before an additional access is required. Whilst the below test has not taken account of wider growth within the area, the assessment demonstrates that the access has significant spare capacity that it is not considered to be a constraint on the delivery of this level of development. The results are shown in **Table 48** below with the model outputs contained in **Appendix C.**

[10] Kent County Council – Kent Design Guide

Table 48 – Primary Access Results – Single Point of Access (1000 dwellings)

Arm Description	AM			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
2018 + Dev (Pre-mitigation)						
B-C Site Access (Left)	1.3	21.66	0.57	0.4	9.93	0.27
B-AD Site Access (Ahead Right)	1.2	41.18	0.55	0.6	31.63	0.37
A-BCD Whitstable Road North	0	6.99	0.02	0	7.91	0.01
D-ABC Highfield Close	0.1	11.85	0.06	0	11.98	0.04
C-ABD Whitstable Road South	0.2	10.49	0.19	1	13.11	0.47

8.1.6. Whist it is not envisaged that the primary access junction will provide access for 1000 residential units prior to the Blean Primary School access coming forward, it shows that a significant proportion can be delivered off the primary access and that from a phasing perspective the access in the far south of the University Campus could deliver at least 300 homes plus the re-aligned Blean Primary School prior to the secondary access on Whitstable Road opening to traffic.

9 Summary, Conclusion and Next Steps

9.1 Summary and Conclusion

9.1.1. WSP has been commissioned by the University of Kent (UoK) to provide transport and environmental advice for the development of proposals at various sites in and around their Canterbury Campus.

9.1.2. This Preliminary Transport Appraisal (PTA) has been prepared to supplement the information presented in the Transport Strategy and has been developed in accordance with a scope agreed with Kent County Council (KCC) as highway authority.

9.1.3. The Proposed Development site benefits from access by a range of modes of transport and provisional strategies have been developed to ensure that access by sustainable modes is prioritised.

9.1.4. The trip generation for the Proposed Development has been developed using person trip rates and split down by land use and journey purpose allowing for consideration of internalisation.

9.1.5. A highway network assessment has been developed based around a two-stage approach with manual spreadsheet-based assessment for wider trip assignment and a micro-simulation model for localised distribution. The impact of the Proposed Development on the highway network has then been tested at 13 locations surrounding the site that were agreed with KCC.

9.1.6. The highway network assessment identified a number of locations where the existing highway network is anticipated to operate at/above capacity in the future year of 2045 and the Proposed Development was likely to increase queueing and delay.

9.1.7. Mitigation measures were developed at four locations which effectively reduced the impacts of the Proposed Development and improved the performance of the highway network when compared to the 2045 Base year scenario. Junction 12 showed only small impacts as a result of the Proposed Development, however mitigation has been provided to improve the overall performance of the junction.

9.1.8. At Junction 6 – Whitstable Road/London Road a review of the junction layouts identified limited opportunities for improvements within the highway boundary. As such, whilst no cost-effective solution within the highway boundary has been identified for this location at this time, it is expected that driver journey choices may be impacted as this junction starts to operate close to capacity, with opportunities for re-routing which may reduce the impacts in this location. Given this junction is expected to be over capacity in the baseline, it is evident that this is a location that will need to be addressed as part of the local plan.

9.1.9. Notwithstanding the above, following the introduction of the emerging Canterbury Strategy (as part of the Local Plan), the junction is expected to operate similar to the 2045 Base

performance. Therefore, the impact of the Proposed Development can be seen as having nil detriment at this junction with the inclusion of the Proposed Local Plan Mitigation.

9.1.10. This note has also set out how a significant proportion of the development (in excess of 300 units) can be accessed via the primary access operating as a single access arrangement prior to the delivery of a secondary point of access onto A290 Whitstable Road for which an illustrated access via the Blean Primary school has been considered.

9.1.11. It was therefore concluded that the Proposed Development can be accommodated on the highway network and from a transport perspective following development and consideration of the proposals using the micro-simulation model and a number of mitigation measures together with sustainable travel planning measures, there are no reasons why the site should not be allocated within the forthcoming Local Plan.

9.2 Next steps

9.2.1. It is recommended that moving forwards as the development proposals are refined that further testing within the strategic model (in combination with the micro-simulation model) is undertaken to better account for the potential re-routing of existing traffic on the wider highway network as a result of the access strategy and further consideration is given to the proposed mitigation options, together with impacts at Junction 6.

Appendix A

TRICS Data

Public

Filtering Summary

Land Use	03/A	RESIDENTIAL/HOUSES PRIVATELY OWNED
Selected Trip Rate Calculation Parameter Range	250-2500 DWELLS	
Actual Trip Rate Calculation Parameter Range	266-918 DWELLS	
Date Range	Minimum: 01/01/11	Maximum: 23/09/21
Parking Spaces Range	All Surveys Included	
Parking Spaces Per Dwelling Range:	Selected: 1 to 3	Actual: 0.23 to 8.75
Bedrooms Per Dwelling Range:	All Surveys Included	
Percentage of dwellings privately owned:	All Surveys Included	
Days of the week selected	Monday	1
	Tuesday	1
	Wednesday	2
	Thursday	1
Main Location Types selected	Suburban Area (PPS6 Out of Centre)	1
	Edge of Town	4
Population within 500m	All Surveys Included	
Population <1 Mile ranges selected	5,001 to 10,000	2
	10,001 to 15,000	2
	20,001 to 25,000	1
Population <5 Mile ranges selected	5,001 to 25,000	1
	25,001 to 50,000	1
	50,001 to 75,000	2
	75,001 to 100,000	1
Car Ownership <5 Mile ranges selected	0.6 to 1.0	1
	1.1 to 1.5	4
PTAL Rating	No PTAL Present	5

Calculation Reference: AUDIT-100321-211222-1258

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	KC	KENT	1 days
	WS	WEST SUSSEX	1 days
04	EAST ANGLIA		
	NF	NORFOLK	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	1 days

This section displays the number of survey days per TRICS® 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: 266 to 918 (units:)
Range Selected by User: 250 to 2500 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: Selected: 1 to 3 Actual: 0.23 to 8.75

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: 01/01/11 to 23/09/21

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	2 days
Thursday	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:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	4

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

Selected Location Sub Categories:

Residential Zone	3
Out of Town	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.

Secondary Filtering selection:

Use Class:

C3	5 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000	2 days
10,001 to 15,000	2 days
20,001 to 25,000	1 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 75,000	2 days
75,001 to 100,000	1 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	4 days

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

Travel Plan:

Yes	3 days
No	2 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	5 days

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

LIST OF SITES relevant to selection parameters

Site(1):	KC-03-A-06	Site area:	8.00 hect
Development Name:	MIXED HOUSES & FLATS	No of Dwellings:	363
Location:	HERNE BAY	Housing density:	73
Postcode:	CT6 6DF	Total Bedrooms:	1007
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	27/09/17
Sub-Location Type:	Residential Zone	Survey Day:	Wednesday
PTAL:	n/a	Parking Spaces:	789
Site(2):	NE-03-A-02	Site area:	12.00 hect
Development Name:	SEMI DETACHED & DETACHED	No of Dwellings:	432
Location:	SCUNTHORPE	Housing density:	133
Postcode:	DN15 8GS	Total Bedrooms:	1174
Main Location Type:	Edge of Town	Survey Date:	12/05/14
Sub-Location Type:	No Sub Category	Survey Day:	Monday
PTAL:	n/a	Parking Spaces:	432
Site(3):	NF-03-A-23	Site area:	26.43 hect
Development Name:	MIXED HOUSES & FLATS	No of Dwellings:	514
Location:	WYMONDHAM	Housing density:	27
Postcode:	NR18 9FP	Total Bedrooms:	1606
Main Location Type:	Edge of Town	Survey Date:	22/09/21
Sub-Location Type:	Out of Town	Survey Day:	Wednesday
PTAL:	n/a	Parking Spaces:	1274
Site(4):	NF-03-A-30	Site area:	11.77 hect
Development Name:	MIXED HOUSES	No of Dwellings:	266
Location:	SWAFFHAM	Housing density:	27
Postcode:	PE37 8JE	Total Bedrooms:	709
Main Location Type:	Edge of Town	Survey Date:	23/09/21
Sub-Location Type:	Residential Zone	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	795
Site(5):	WS-03-A-11	Site area:	50.00 hect
Development Name:	MIXED HOUSES	No of Dwellings:	918
Location:	WEST HORSHAM	Housing density:	50
Postcode:	RH12 3LN	Total Bedrooms:	2865
Main Location Type:	Edge of Town	Survey Date:	02/04/19
Sub-Location Type:	Residential Zone	Survey Day:	Tuesday
PTAL:	n/a	Parking Spaces:	1894

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 1.62

	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	5	499	0.068	5	499	0.298	5	499	0.366
08:00 - 09:00	5	499	0.125	5	499	0.387	5	499	0.512
09:00 - 10:00	5	499	0.134	5	499	0.145	5	499	0.279
10:00 - 11:00	5	499	0.106	5	499	0.135	5	499	0.241
11:00 - 12:00	5	499	0.119	5	499	0.133	5	499	0.252
12:00 - 13:00	5	499	0.136	5	499	0.126	5	499	0.262
13:00 - 14:00	5	499	0.141	5	499	0.139	5	499	0.280
14:00 - 15:00	5	499	0.143	5	499	0.177	5	499	0.320
15:00 - 16:00	5	499	0.256	5	499	0.172	5	499	0.428
16:00 - 17:00	5	499	0.294	5	499	0.167	5	499	0.461
17:00 - 18:00	5	499	0.363	5	499	0.172	5	499	0.535
18:00 - 19:00	5	499	0.313	5	499	0.185	5	499	0.498
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.198			2.236			4.434

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:	266 - 918 (units:)
Survey date date range:	01/01/11 - 23/09/21
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TAXIS
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	5	499	0.002	5	499	0.002	5	499	0.004
08:00 - 09:00	5	499	0.004	5	499	0.004	5	499	0.008
09:00 - 10:00	5	499	0.003	5	499	0.001	5	499	0.004
10:00 - 11:00	5	499	0.000	5	499	0.001	5	499	0.001
11:00 - 12:00	5	499	0.001	5	499	0.001	5	499	0.002
12:00 - 13:00	5	499	0.000	5	499	0.000	5	499	0.000
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.002	5	499	0.002	5	499	0.004
15:00 - 16:00	5	499	0.004	5	499	0.002	5	499	0.006
16:00 - 17:00	5	499	0.002	5	499	0.002	5	499	0.004
17:00 - 18:00	5	499	0.000	5	499	0.000	5	499	0.000
18:00 - 19:00	5	499	0.001	5	499	0.001	5	499	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.019			0.016			0.035

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
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	499	0.000	5	499	0.000	5	499	0.000
08:00 - 09:00	5	499	0.000	5	499	0.001	5	499	0.001
09:00 - 10:00	5	499	0.001	5	499	0.001	5	499	0.002
10:00 - 11:00	5	499	0.002	5	499	0.003	5	499	0.005
11:00 - 12:00	5	499	0.002	5	499	0.002	5	499	0.004
12:00 - 13:00	5	499	0.001	5	499	0.002	5	499	0.003
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.001	5	499	0.000	5	499	0.001
15:00 - 16:00	5	499	0.001	5	499	0.000	5	499	0.001
16:00 - 17:00	5	499	0.002	5	499	0.000	5	499	0.002
17:00 - 18:00	5	499	0.000	5	499	0.001	5	499	0.001
18:00 - 19:00	5	499	0.000	5	499	0.000	5	499	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.010			0.010			0.020

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
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	499	0.000	5	499	0.000	5	499	0.000
08:00 - 09:00	5	499	0.001	5	499	0.001	5	499	0.002
09:00 - 10:00	5	499	0.000	5	499	0.000	5	499	0.000
10:00 - 11:00	5	499	0.000	5	499	0.000	5	499	0.000
11:00 - 12:00	5	499	0.000	5	499	0.000	5	499	0.000
12:00 - 13:00	5	499	0.000	5	499	0.000	5	499	0.000
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.000	5	499	0.000	5	499	0.000
15:00 - 16:00	5	499	0.000	5	499	0.000	5	499	0.000
16:00 - 17:00	5	499	0.000	5	499	0.000	5	499	0.000
17:00 - 18:00	5	499	0.000	5	499	0.000	5	499	0.000
18:00 - 19:00	5	499	0.000	5	499	0.000	5	499	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.001			0.001			0.002

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	499	0.002	5	499	0.007	5	499	0.009
08:00 - 09:00	5	499	0.002	5	499	0.014	5	499	0.016
09:00 - 10:00	5	499	0.002	5	499	0.002	5	499	0.004
10:00 - 11:00	5	499	0.002	5	499	0.002	5	499	0.004
11:00 - 12:00	5	499	0.002	5	499	0.002	5	499	0.004
12:00 - 13:00	5	499	0.003	5	499	0.002	5	499	0.005
13:00 - 14:00	5	499	0.002	5	499	0.001	5	499	0.003
14:00 - 15:00	5	499	0.003	5	499	0.002	5	499	0.005
15:00 - 16:00	5	499	0.007	5	499	0.002	5	499	0.009
16:00 - 17:00	5	499	0.006	5	499	0.004	5	499	0.010
17:00 - 18:00	5	499	0.010	5	499	0.006	5	499	0.016
18:00 - 19:00	5	499	0.009	5	499	0.007	5	499	0.016
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.050			0.051			0.101

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.

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	499	0.081	5	499	0.395	5	499	0.476
08:00 - 09:00	5	499	0.141	5	499	0.621	5	499	0.762
09:00 - 10:00	5	499	0.158	5	499	0.188	5	499	0.346
10:00 - 11:00	5	499	0.137	5	499	0.176	5	499	0.313
11:00 - 12:00	5	499	0.153	5	499	0.176	5	499	0.329
12:00 - 13:00	5	499	0.171	5	499	0.160	5	499	0.331
13:00 - 14:00	5	499	0.181	5	499	0.177	5	499	0.358
14:00 - 15:00	5	499	0.185	5	499	0.225	5	499	0.410
15:00 - 16:00	5	499	0.427	5	499	0.222	5	499	0.649
16:00 - 17:00	5	499	0.451	5	499	0.231	5	499	0.682
17:00 - 18:00	5	499	0.521	5	499	0.245	5	499	0.766
18:00 - 19:00	5	499	0.443	5	499	0.275	5	499	0.718
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.049			3.091			6.140

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	499	0.015	5	499	0.041	5	499	0.056
08:00 - 09:00	5	499	0.030	5	499	0.111	5	499	0.141
09:00 - 10:00	5	499	0.021	5	499	0.018	5	499	0.039
10:00 - 11:00	5	499	0.019	5	499	0.021	5	499	0.040
11:00 - 12:00	5	499	0.015	5	499	0.013	5	499	0.028
12:00 - 13:00	5	499	0.018	5	499	0.016	5	499	0.034
13:00 - 14:00	5	499	0.018	5	499	0.022	5	499	0.040
14:00 - 15:00	5	499	0.031	5	499	0.030	5	499	0.061
15:00 - 16:00	5	499	0.101	5	499	0.032	5	499	0.133
16:00 - 17:00	5	499	0.039	5	499	0.019	5	499	0.058
17:00 - 18:00	5	499	0.048	5	499	0.048	5	499	0.096
18:00 - 19:00	5	499	0.048	5	499	0.050	5	499	0.098
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.403			0.421			0.824

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL BUS/TRAM PASSENGERS
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	5	499	0.002	5	499	0.018	5	499	0.020
08:00 - 09:00	5	499	0.000	5	499	0.004	5	499	0.004
09:00 - 10:00	5	499	0.001	5	499	0.006	5	499	0.007
10:00 - 11:00	5	499	0.001	5	499	0.002	5	499	0.003
11:00 - 12:00	5	499	0.002	5	499	0.004	5	499	0.006
12:00 - 13:00	5	499	0.002	5	499	0.002	5	499	0.004
13:00 - 14:00	5	499	0.002	5	499	0.001	5	499	0.003
14:00 - 15:00	5	499	0.003	5	499	0.003	5	499	0.006
15:00 - 16:00	5	499	0.011	5	499	0.002	5	499	0.013
16:00 - 17:00	5	499	0.010	5	499	0.001	5	499	0.011
17:00 - 18:00	5	499	0.006	5	499	0.001	5	499	0.007
18:00 - 19:00	5	499	0.006	5	499	0.000	5	499	0.006
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.046			0.044			0.090

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL RAIL PASSENGERS
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	5	499	0.000	5	499	0.004	5	499	0.004
08:00 - 09:00	5	499	0.000	5	499	0.002	5	499	0.002
09:00 - 10:00	5	499	0.000	5	499	0.002	5	499	0.002
10:00 - 11:00	5	499	0.000	5	499	0.000	5	499	0.000
11:00 - 12:00	5	499	0.000	5	499	0.000	5	499	0.000
12:00 - 13:00	5	499	0.000	5	499	0.000	5	499	0.000
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.000	5	499	0.000	5	499	0.000
15:00 - 16:00	5	499	0.000	5	499	0.000	5	499	0.000
16:00 - 17:00	5	499	0.001	5	499	0.000	5	499	0.001
17:00 - 18:00	5	499	0.004	5	499	0.000	5	499	0.004
18:00 - 19:00	5	499	0.002	5	499	0.000	5	499	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.007			0.008			0.015

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL COACH PASSENGERS
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	5	499	0.000	5	499	0.000	5	499	0.000
08:00 - 09:00	5	499	0.000	5	499	0.001	5	499	0.001
09:00 - 10:00	5	499	0.000	5	499	0.000	5	499	0.000
10:00 - 11:00	5	499	0.000	5	499	0.000	5	499	0.000
11:00 - 12:00	5	499	0.000	5	499	0.000	5	499	0.000
12:00 - 13:00	5	499	0.000	5	499	0.000	5	499	0.000
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.000	5	499	0.000	5	499	0.000
15:00 - 16:00	5	499	0.000	5	499	0.000	5	499	0.000
16:00 - 17:00	5	499	0.000	5	499	0.000	5	499	0.000
17:00 - 18:00	5	499	0.000	5	499	0.000	5	499	0.000
18:00 - 19:00	5	499	0.000	5	499	0.000	5	499	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.001			0.001

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	499	0.002	5	499	0.021	5	499	0.023
08:00 - 09:00	5	499	0.000	5	499	0.008	5	499	0.008
09:00 - 10:00	5	499	0.001	5	499	0.008	5	499	0.009
10:00 - 11:00	5	499	0.001	5	499	0.002	5	499	0.003
11:00 - 12:00	5	499	0.002	5	499	0.004	5	499	0.006
12:00 - 13:00	5	499	0.002	5	499	0.002	5	499	0.004
13:00 - 14:00	5	499	0.003	5	499	0.001	5	499	0.004
14:00 - 15:00	5	499	0.004	5	499	0.003	5	499	0.007
15:00 - 16:00	5	499	0.012	5	499	0.002	5	499	0.014
16:00 - 17:00	5	499	0.011	5	499	0.001	5	499	0.012
17:00 - 18:00	5	499	0.010	5	499	0.002	5	499	0.012
18:00 - 19:00	5	499	0.007	5	499	0.000	5	499	0.007
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.055			0.054			0.109

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 1.62

	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	5	499	0.100	5	499	0.464	5	499	0.564
08:00 - 09:00	5	499	0.173	5	499	0.754	5	499	0.927
09:00 - 10:00	5	499	0.181	5	499	0.216	5	499	0.397
10:00 - 11:00	5	499	0.159	5	499	0.202	5	499	0.361
11:00 - 12:00	5	499	0.172	5	499	0.195	5	499	0.367
12:00 - 13:00	5	499	0.194	5	499	0.181	5	499	0.375
13:00 - 14:00	5	499	0.205	5	499	0.202	5	499	0.407
14:00 - 15:00	5	499	0.223	5	499	0.260	5	499	0.483
15:00 - 16:00	5	499	0.546	5	499	0.259	5	499	0.805
16:00 - 17:00	5	499	0.507	5	499	0.255	5	499	0.762
17:00 - 18:00	5	499	0.590	5	499	0.300	5	499	0.890
18:00 - 19:00	5	499	0.507	5	499	0.333	5	499	0.840
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.557			3.621			7.178

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL CARS
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	5	499	0.058	5	499	0.265	5	499	0.323
08:00 - 09:00	5	499	0.106	5	499	0.360	5	499	0.466
09:00 - 10:00	5	499	0.115	5	499	0.130	5	499	0.245
10:00 - 11:00	5	499	0.087	5	499	0.112	5	499	0.199
11:00 - 12:00	5	499	0.098	5	499	0.111	5	499	0.209
12:00 - 13:00	5	499	0.121	5	499	0.112	5	499	0.233
13:00 - 14:00	5	499	0.126	5	499	0.119	5	499	0.245
14:00 - 15:00	5	499	0.125	5	499	0.160	5	499	0.285
15:00 - 16:00	5	499	0.232	5	499	0.154	5	499	0.386
16:00 - 17:00	5	499	0.263	5	499	0.150	5	499	0.413
17:00 - 18:00	5	499	0.336	5	499	0.157	5	499	0.493
18:00 - 19:00	5	499	0.289	5	499	0.168	5	499	0.457
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.956			1.998			3.954

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL LGVS
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	5	499	0.008	5	499	0.030	5	499	0.038
08:00 - 09:00	5	499	0.012	5	499	0.018	5	499	0.030
09:00 - 10:00	5	499	0.015	5	499	0.012	5	499	0.027
10:00 - 11:00	5	499	0.016	5	499	0.018	5	499	0.034
11:00 - 12:00	5	499	0.018	5	499	0.018	5	499	0.036
12:00 - 13:00	5	499	0.014	5	499	0.012	5	499	0.026
13:00 - 14:00	5	499	0.014	5	499	0.020	5	499	0.034
14:00 - 15:00	5	499	0.015	5	499	0.014	5	499	0.029
15:00 - 16:00	5	499	0.016	5	499	0.014	5	499	0.030
16:00 - 17:00	5	499	0.025	5	499	0.014	5	499	0.039
17:00 - 18:00	5	499	0.025	5	499	0.013	5	499	0.038
18:00 - 19:00	5	499	0.019	5	499	0.013	5	499	0.032
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.197			0.196			0.393

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL MOTOR CYCLES
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	5	499	0.000	5	499	0.001	5	499	0.001
08:00 - 09:00	5	499	0.000	5	499	0.003	5	499	0.003
09:00 - 10:00	5	499	0.000	5	499	0.000	5	499	0.000
10:00 - 11:00	5	499	0.000	5	499	0.001	5	499	0.001
11:00 - 12:00	5	499	0.000	5	499	0.001	5	499	0.001
12:00 - 13:00	5	499	0.000	5	499	0.001	5	499	0.001
13:00 - 14:00	5	499	0.000	5	499	0.000	5	499	0.000
14:00 - 15:00	5	499	0.000	5	499	0.000	5	499	0.000
15:00 - 16:00	5	499	0.002	5	499	0.001	5	499	0.003
16:00 - 17:00	5	499	0.002	5	499	0.001	5	499	0.003
17:00 - 18:00	5	499	0.002	5	499	0.001	5	499	0.003
18:00 - 19:00	5	499	0.004	5	499	0.003	5	499	0.007
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.010			0.013			0.023

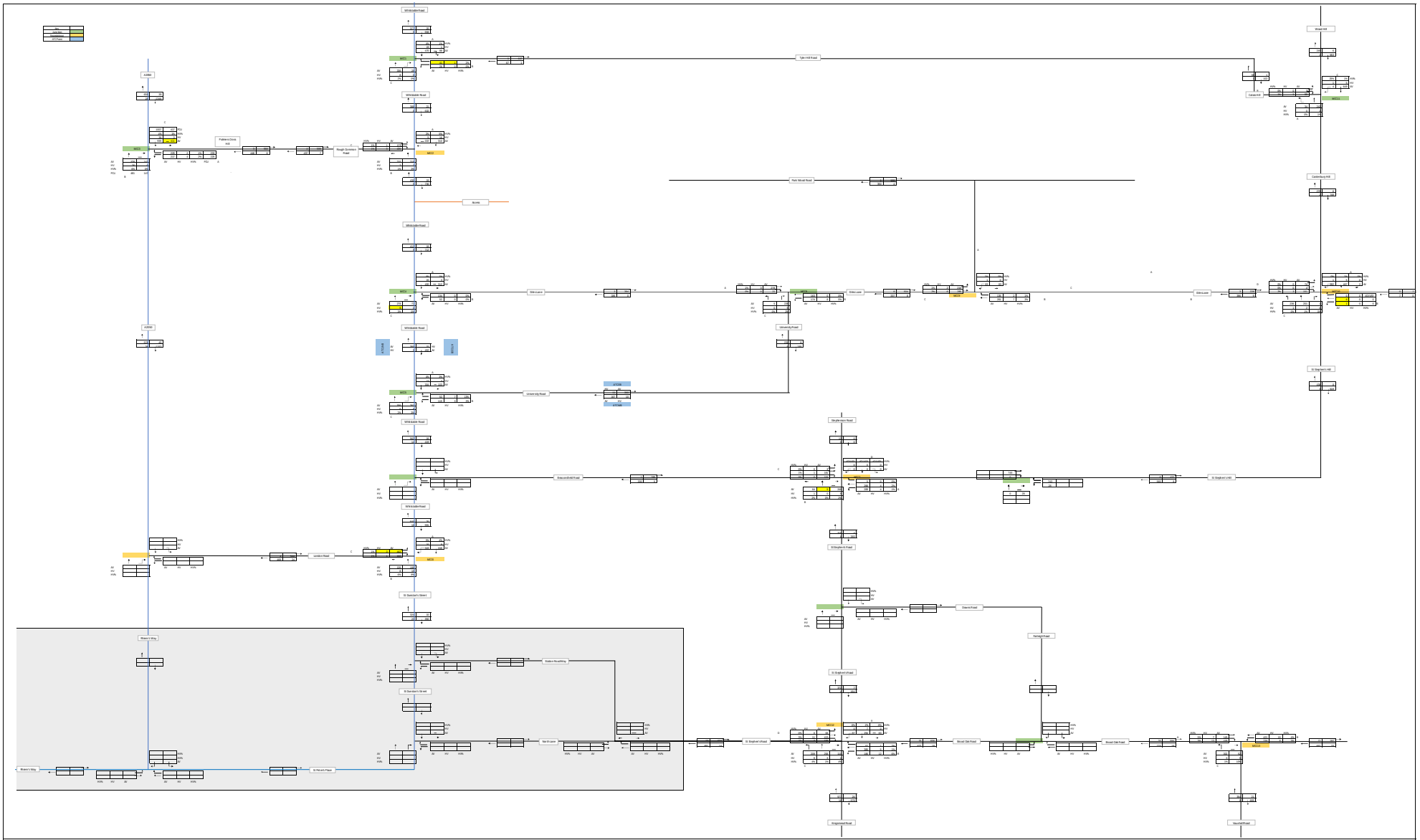
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are 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.*

Appendix B

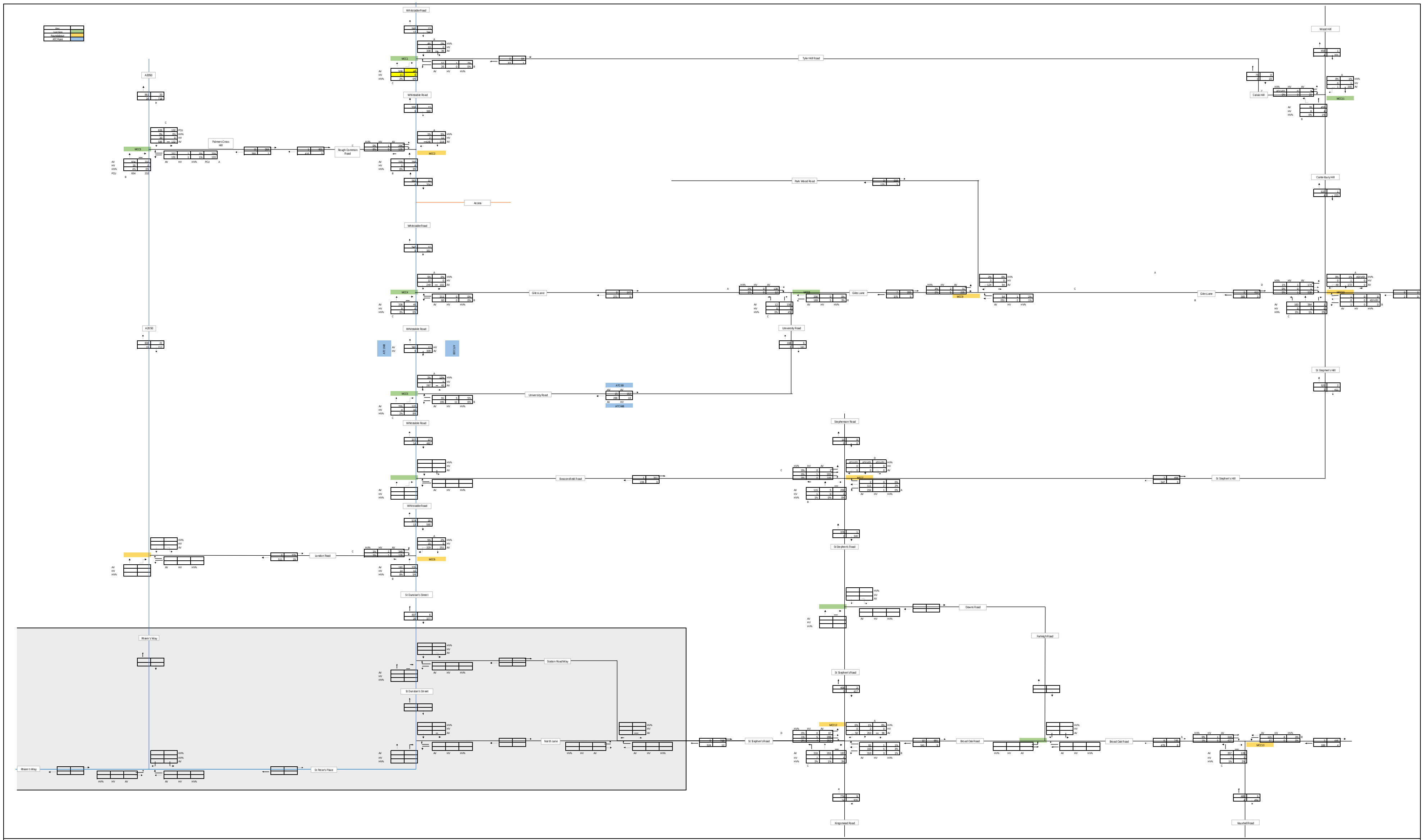
Traffic Flow Diagrams

Public



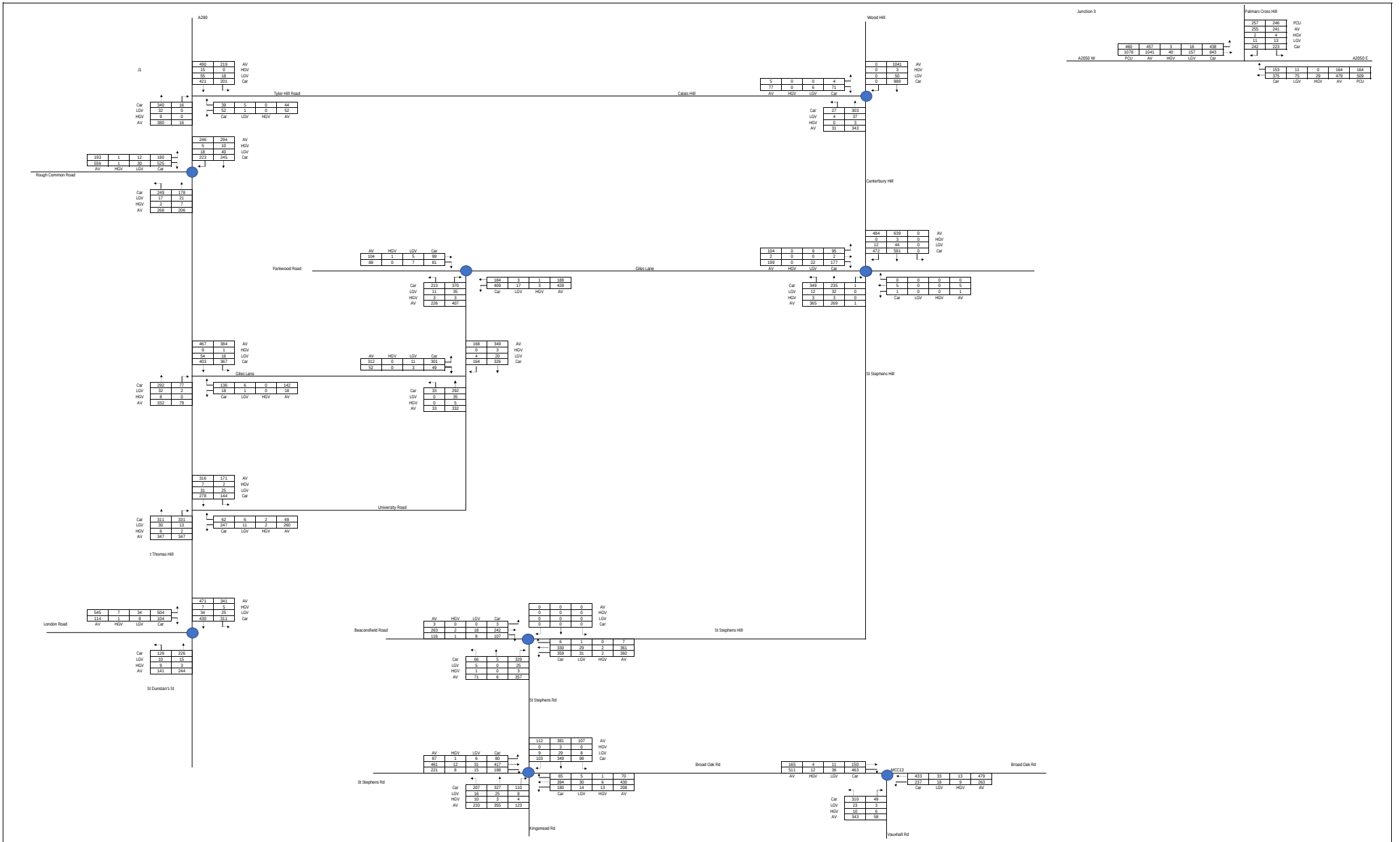
wsp

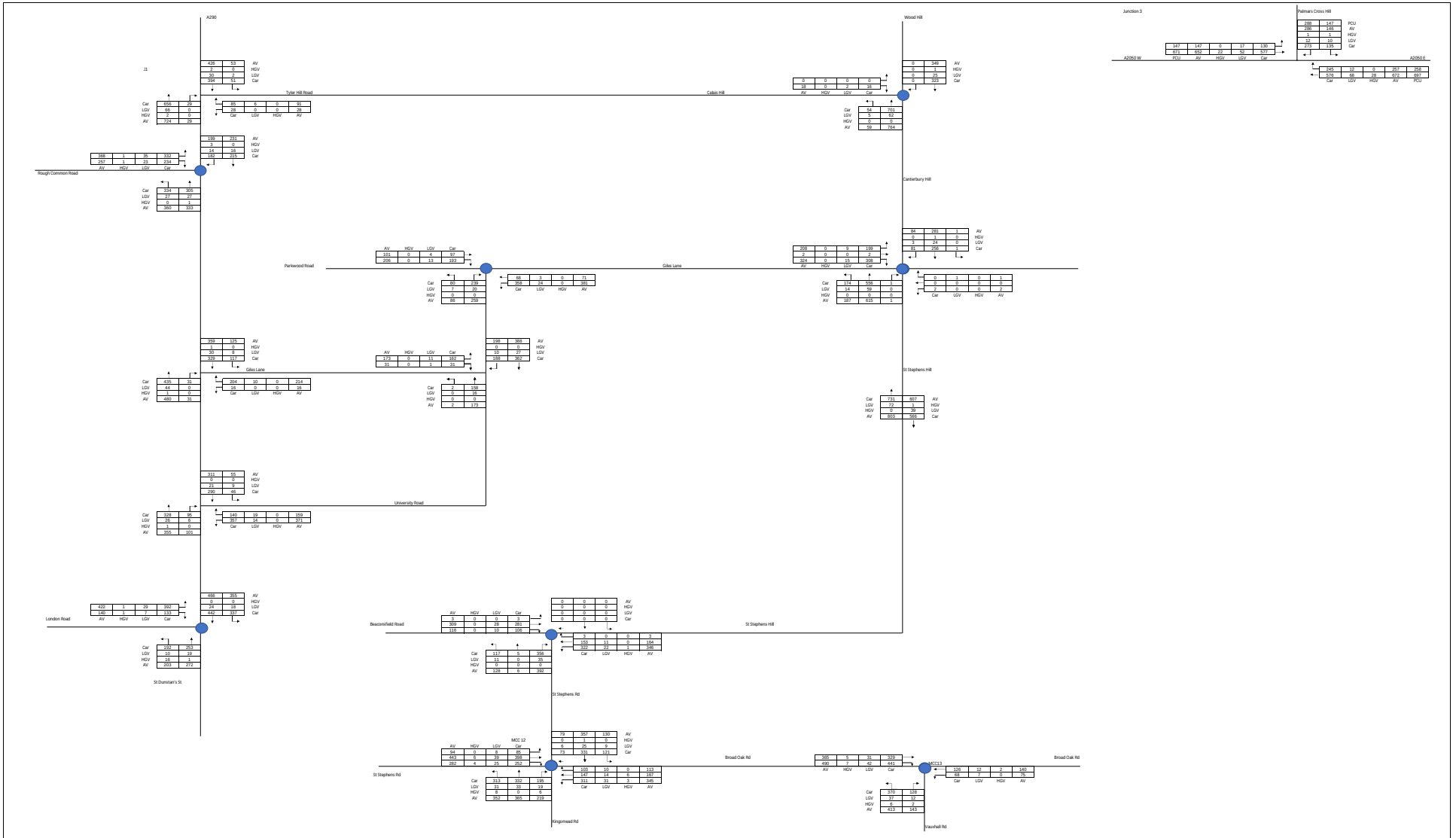
University of Kent, Canterbury
Traffic Flow Diagrams
2023 Base
AM Peak Hour (08:00 - 09:00)



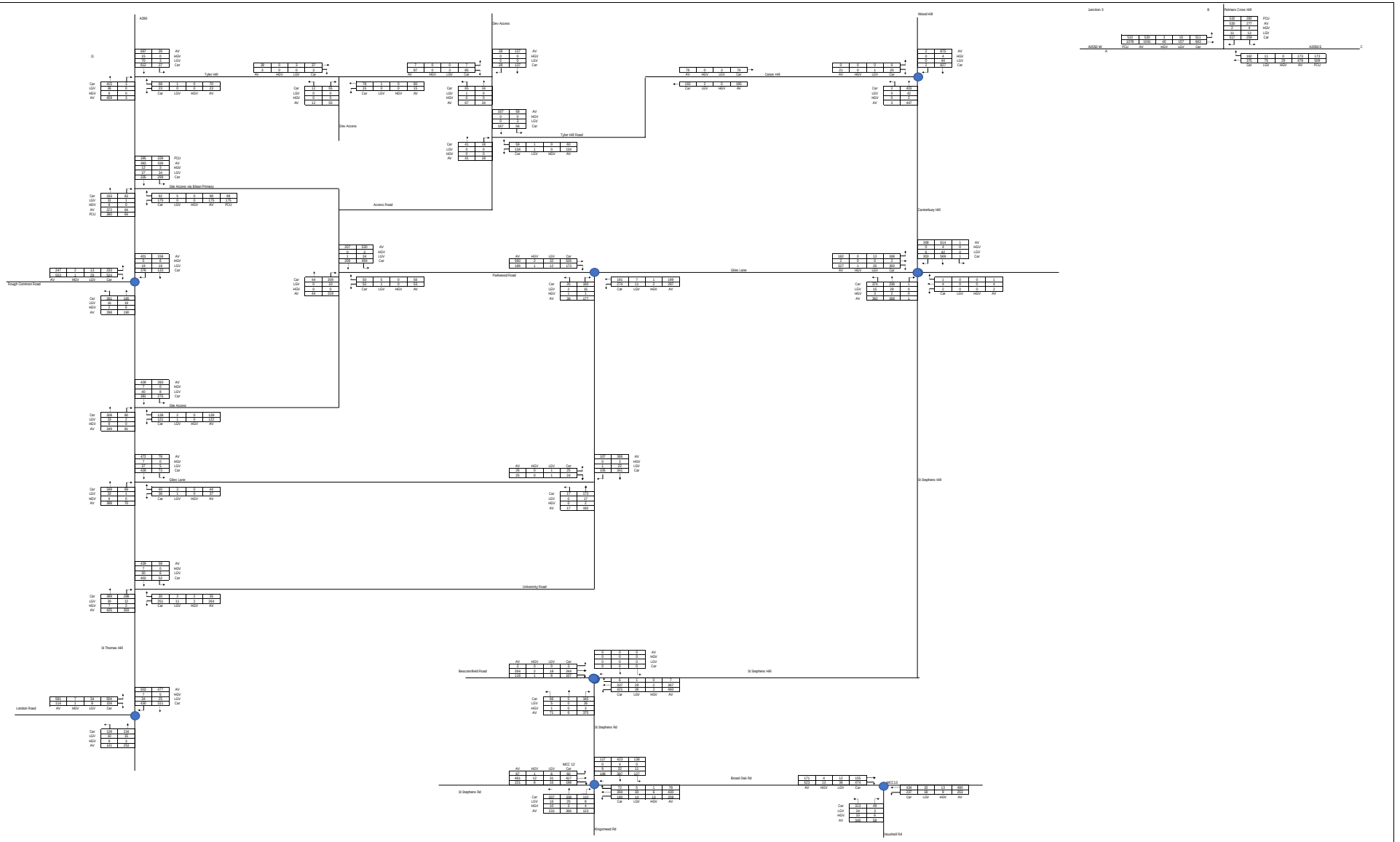
wsp

University of Kent, Canterbury
Traffic Flow Diagrams
2021 Base
PM Peak Hour (17:00 - 18:00)


A290
J1
Tyler Hill Road
Rough Common Road
Parkwood Road
Giles Lane
University Road
t Thomas Hill
London Road
St Dunstan's St
Beaconsfield Road
St Stephens Rd
Kingsmead Rd
Wood Hill
Calais Hill
Canterbury Hill
St Stephens Hill
Broad Oak Rd
MCC13
Vauxhall Rd
Junction 3
A2050 W
Palmars Cross Hill
A2050 E

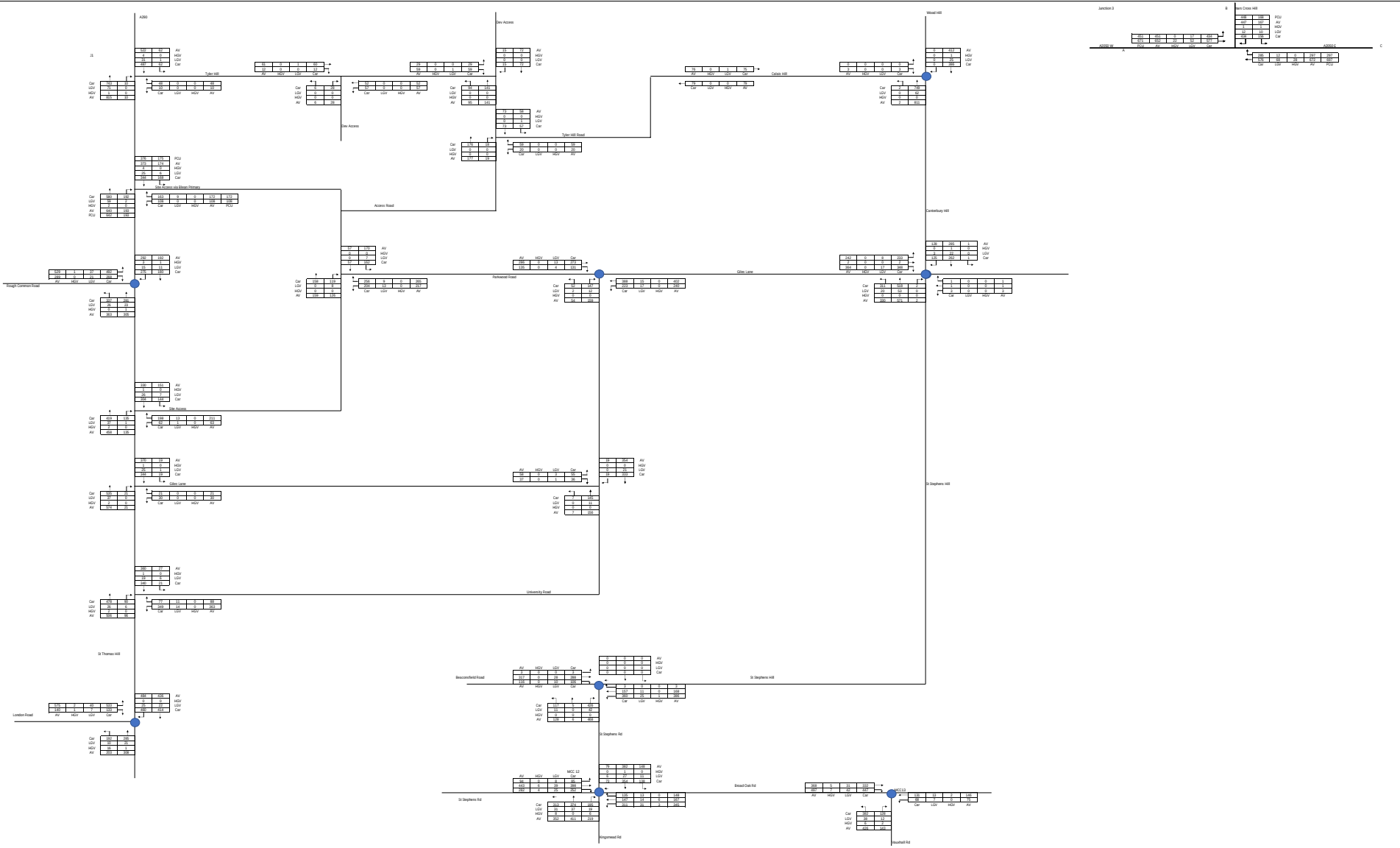


2045 Base
PM Peak Hour
Modelled Traffic Flows
University of Kent, Canterbury
70080896



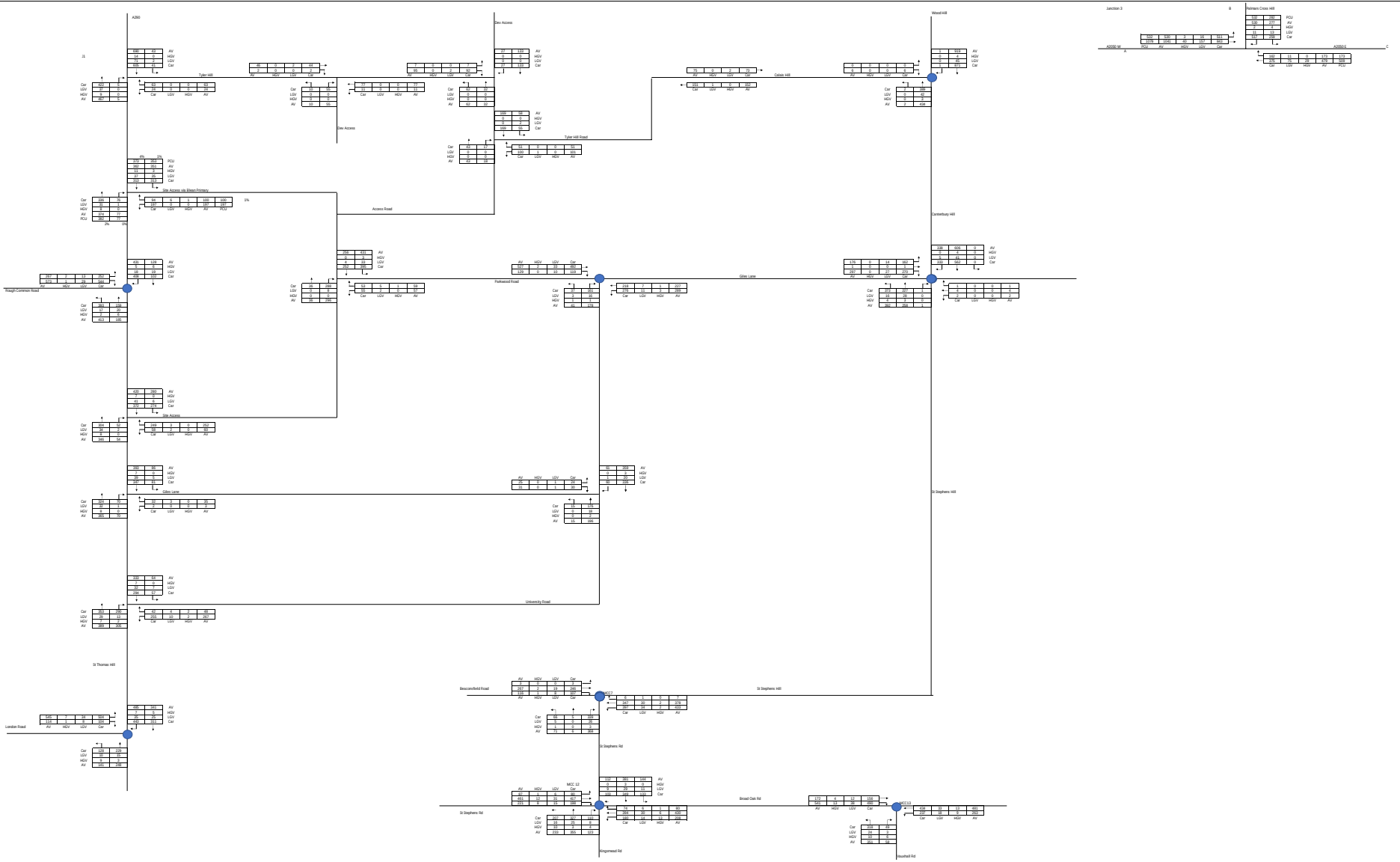
WSP

2045 + Core Development
AM Peak Hour
Modelled Traffic Flows
University of Kent, Canterbury
70080896



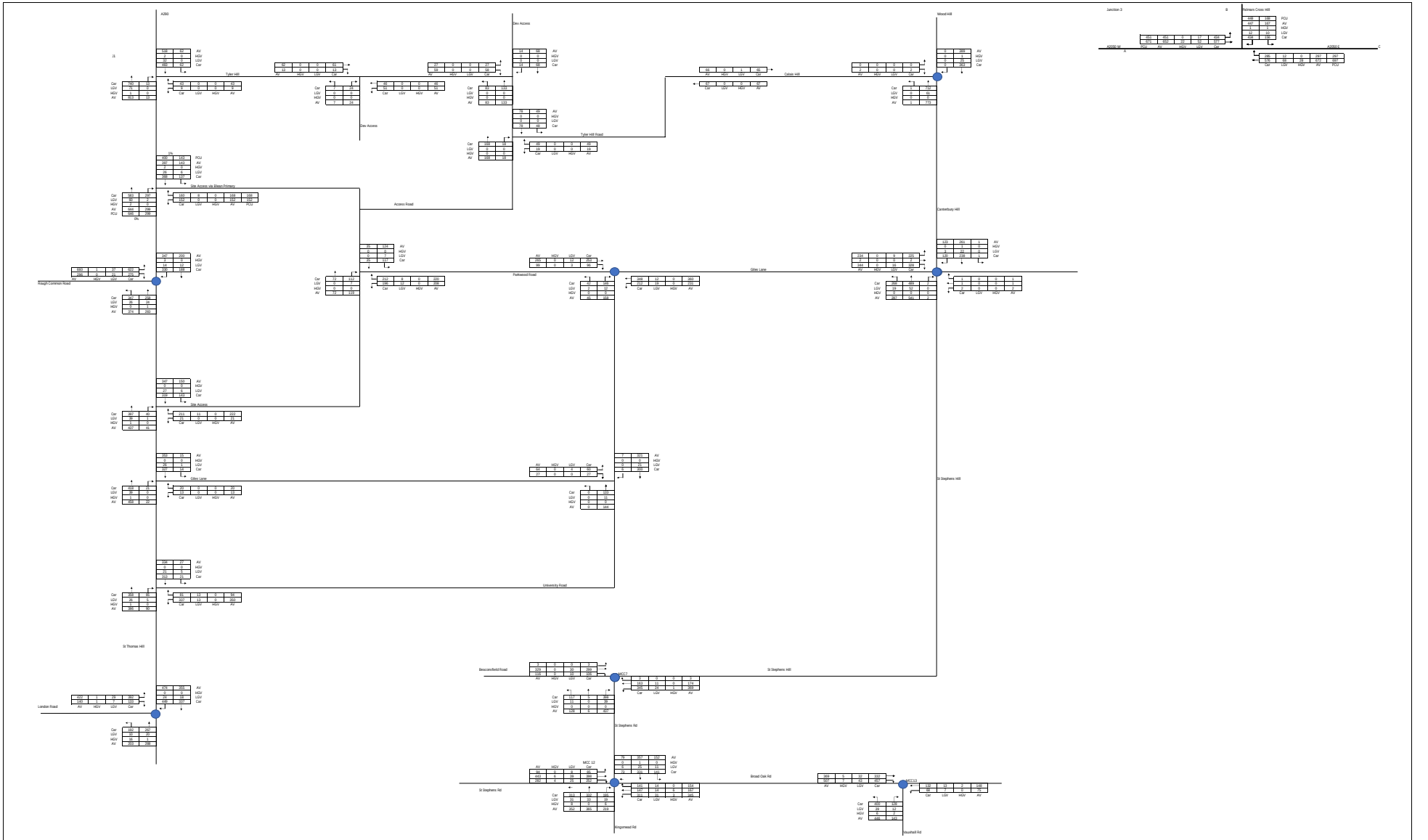
WSP

2045 + Core Development
PM Peak Hour
Modelled Traffic Flows
University of Kent, Canterbury
70080896



WSP

2045 + Sensitivity Test
AM Peak Hour
Modelled Traffic Flows
University of Kent, Canterbury
70080896



wsp

2045 + Sensitivity Test
PM Peak Hour
Modelled Traffic Flows
University of Kent, Canterbury
70080896

Appendix C

Junction Capacity Assessments

Public

Junctions 10

PICADY 10 - Priority Intersection Module

Version: 10.0.2.1574
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For sales and distribution information, program advice and maintenance, contact TRL Software:
+44 (0)1344 379777 software@trl.co.uk trlsoftware.com

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Filename: Site Access - Right-Left Staggered New Access v3.j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2
Report generation date: 16/01/2023 11:47:40

»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 + CD													
Stream B-C	D1	0.4	11.90	0.31	B	4.05	11 % [Stream B-AD]	D2	0.3	13.40	0.21	B	7.12	0 % [Stream B-AD]
Stream B-AD		1.0	24.13	0.51	C				2.2	35.47	0.70	E		
Stream A-BCD		0.0	7.02	0.02	A				0.0	7.73	0.01	A		
Stream D-ABC		0.1	11.25	0.06	B				0.0	10.90	0.04	B		
Stream C-ABD		0.2	9.68	0.19	A				0.4	9.42	0.28	A		
	2045 + ST													
Stream B-C	D3	0.4	21.93	0.29	C	9.98	-6 % [Stream B-AD]	D4	0.1	10.93	0.07	B	5.10	8 % [Stream B-AD]
Stream B-AD		3.6	49.34	0.80	E				1.7	25.36	0.63	D		
Stream A-BCD		0.0	7.51	0.02	A				0.0	7.67	0.01	A		
Stream D-ABC		0.1	12.52	0.06	B				0.0	10.85	0.04	B		
Stream C-ABD		0.1	8.90	0.13	A				0.1	7.51	0.09	A		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	18/01/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\UKWGF001
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 length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D1	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓
D2	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓
D3	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓
D4	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

Analysis Set Details

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

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Demand Sets	D1 - 2045 + CD, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way	Two-way	Two-way	Two-way		4.05	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	11	Stream B-AD	4.05	A

Arms

Arms

Arm	Name	Description	Arm type
A	Whistable Road (North)		Major
B	Site Access		Minor
C	Whitstable Road (South)		Major
D	Highfield Close		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Width for right-turn storage (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A	6.00		✓	2.50	120.4	✓	3.00
C	6.00		✓	3.00	69.2	✓	4.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare		10.00	5.86	4.49	4.14	3.80		2.00	48	78
D	One lane	3.16								58	15

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-B	Slope for D-C
A-D	665	-	-	-	0.258	0.258	0.258	-	0.258	-	-
B-AD	559	0.102	0.257	-	-	-	0.162	0.367	0.162	0.102	0.257
B-C	692	0.106	0.268	-	-	-	-	-	-	0.106	0.268
C-B	668	0.259	0.259	-	-	-	-	-	-	0.259	0.259
D-A	643	-	-	-	0.249	0.099	0.249	-	0.099	-	-

D-BC	512	0.148	0.148	0.337	0.236	0.093	0.236	-	0.093	-	-

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.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D1	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	720	100.000
B		ONE HOUR	✓	261	100.000
C		ONE HOUR	✓	432	100.000
D		ONE HOUR	✓	17	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	283	428	9
	B	139	0	122	0
	C	349	81	0	2
	D	8	0	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	0	0	0	0
	C	2	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.31	11.90	0.4	1.8	B	122	122
B-AD	0.51	24.13	1.0	4.7	C	139	139
A-BCD	0.02	7.02	0.0	0.5	A	9	9
A-B						283	283
A-C						428	428
D-ABC	0.06	11.25	0.1	0.5	B	17	17
C-ABD	0.19	9.68	0.2	1.1	A	81	81
C-D						2	2
C-A						349	349

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	110	27	502	0.219	109	0.2	0.3	9.172	A
B-AD	125	31	350	0.357	124	0.4	0.5	15.872	C
A-BCD	8	2	549	0.015	8	0.0	0.0	6.650	A
A-B	254	64			254				
A-C	385	96			385				
D-ABC	15	4	384	0.040	15	0.0	0.0	9.757	A
C-ABD	73	18	499	0.146	73	0.1	0.2	8.449	A
C-D	2	0.45			2				
C-A	314	78			314				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	134	34	439	0.306	134	0.3	0.4	11.777	B
B-AD	153	38	302	0.507	151	0.5	1.0	23.626	C
A-BCD	10	2	523	0.019	10	0.0	0.0	7.011	A
A-B	312	78			312				
A-C	471	118			471				
D-ABC	19	5	339	0.055	19	0.0	0.1	11.226	B
C-ABD	89	22	461	0.194	89	0.2	0.2	9.669	A
C-D	2	0.55			2				
C-A	384	96			384				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	134	34	437	0.308	134	0.4	0.4	11.899	B
B-AD	153	38	302	0.507	153	1.0	1.0	24.135	C
A-BCD	10	2	523	0.019	10	0.0	0.0	7.017	A
A-B	312	78			312				
A-C	471	118			471				
D-ABC	19	5	339	0.055	19	0.1	0.1	11.247	B
C-ABD	89	22	461	0.194	89	0.2	0.2	9.682	A
C-D	2	0.55			2				
C-A	384	96			384				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	110	27	500	0.220	110	0.4	0.3	9.260	A
B-AD	125	31	350	0.357	127	1.0	0.6	16.210	C
A-BCD	8	2	549	0.015	8	0.0	0.0	6.659	A
A-B	254	64			254				
A-C	385	96			385				
D-ABC	15	4	383	0.040	15	0.1	0.0	9.780	A
C-ABD	73	18	499	0.146	73	0.2	0.2	8.466	A
C-D	2	0.45			2				
C-A	314	78			314				

Queue Variation Results for each time segment

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.28	0.00	0.00	0.28	0.28			N/A	N/A
B-AD	0.54	0.54	1.00	1.40	1.45			N/A	N/A
A-BCD	0.01	0.01	0.25	0.45	0.48			N/A	N/A
D-ABC	0.04	0.03	0.25	0.45	0.48			N/A	N/A
C-ABD	0.17	0.00	0.00	0.17	0.17			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.43	0.03	0.26	0.46	0.49			N/A	N/A
B-AD	0.98	0.03	0.27	0.98	2.43			N/A	N/A
A-BCD	0.02	0.00	0.00	0.02	0.02			N/A	N/A
D-ABC	0.06	0.03	0.26	0.46	0.49			N/A	N/A
C-ABD	0.24	0.03	0.26	0.46	0.49			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.44	0.03	0.31	1.37	1.80			N/A	N/A
B-AD	1.00	0.03	0.30	1.19	4.71			N/A	N/A
A-BCD	0.02	0.00	0.00	0.02	0.02			N/A	N/A
D-ABC	0.06	0.00	0.00	0.06	0.06			N/A	N/A
C-ABD	0.24	0.03	0.29	0.72	1.12			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.28	0.00	0.00	0.28	0.28			N/A	N/A
B-AD	0.57	0.05	0.49	1.34	1.44			N/A	N/A
A-BCD	0.02	0.00	0.00	0.02	0.02			N/A	N/A
D-ABC	0.04	0.00	0.00	0.04	0.04			N/A	N/A
C-ABD	0.17	0.00	0.00	0.17	0.17			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Demand Sets	D2 - 2045 + CD, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way	Two-way	Two-way	Two-way		7.12	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	0	Stream B-AD	7.12	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D2	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	486	100.000
B		ONE HOUR	✓	274	100.000
C		ONE HOUR	✓	598	100.000
D		ONE HOUR	✓	12	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	151	330	5
	B	211	0	63	0
	C	458	135	0	5
	D	7	0	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To				

		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.21	13.40	0.3	1.1	B	63	63
B-AD	0.70	35.47	2.2	11.0	E	211	211
A-BCD	0.01	7.73	0.0	0.5	A	5	5
A-B						151	151
A-C						330	330
D-ABC	0.04	10.90	0.0	0.5	B	12	12
C-ABD	0.28	9.42	0.4	1.5	A	136	136
C-D						5	5
C-A						457	457

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	57	14	455	0.124	56	0.1	0.1	9.022	A
B-AD	190	47	382	0.496	188	0.6	0.9	18.425	C
A-BCD	4	1	508	0.009	4	0.0	0.0	7.150	A
A-B	136	34			136				
A-C	297	74			297				
D-ABC	11	3	391	0.028	11	0.0	0.0	9.476	A
C-ABD	122	30	555	0.219	121	0.2	0.3	8.293	A
C-D	4	1			4				
C-A	412	103			412				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	69	17	347	0.200	69	0.1	0.2	12.941	B
B-AD	232	58	332	0.699	228	0.9	2.1	33.089	D
A-BCD	6	1	472	0.012	5	0.0	0.0	7.710	A
A-B	166	42			166				
A-C	363	91			363				
D-ABC	13	3	345	0.038	13	0.0	0.0	10.857	B
C-ABD	150	37	532	0.281	149	0.3	0.4	9.395	A
C-D	5	1			5				
C-A	503	126			503				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	69	17	338	0.205	69	0.2	0.3	13.399	B
B-AD	232	58	332	0.699	232	2.1	2.2	35.465	E
A-BCD	6	1	471	0.012	6	0.0	0.0	7.729	A
A-B	166	42			166				

A-C	363	91			363				
D-ABC	13	3	344	0.038	13	0.0	0.0	10.898	B
C-ABD	150	37	532	0.281	150	0.4	0.4	9.415	A
C-D	5	1			5				
C-A	503	126			503				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	57	14	449	0.126	57	0.3	0.1	9.190	A
B-AD	190	47	382	0.496	194	2.2	1.0	19.588	C
A-BCD	4	1	506	0.009	5	0.0	0.0	7.174	A
A-B	136	34			136				
A-C	297	74			297				
D-ABC	11	3	389	0.028	11	0.0	0.0	9.519	A
C-ABD	122	30	555	0.219	122	0.4	0.3	8.320	A
C-D	4	1			4				
C-A	412	103			412				

Queue Variation Results for each time segment

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.14	0.00	0.00	0.14	0.14			N/A	N/A
B-AD	0.95	0.12	0.95	1.35	1.73			N/A	N/A
A-BCD	0.01	0.01	0.25	0.45	0.48			N/A	N/A
D-ABC	0.03	0.03	0.25	0.45	0.48			N/A	N/A
C-ABD	0.28	0.00	0.00	0.28	0.28			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.25	0.03	0.26	0.47	0.49			N/A	N/A
B-AD	2.08	0.03	0.34	4.57	11.00			N/A	N/A
A-BCD	0.01	0.00	0.00	0.01	0.01			N/A	N/A
D-ABC	0.04	0.03	0.25	0.45	0.48			N/A	N/A
C-ABD	0.39	0.03	0.26	0.46	0.49			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.25	0.03	0.29	0.72	1.12			N/A	N/A
B-AD	2.19	0.03	0.31	3.25	10.95			N/A	N/A
A-BCD	0.01	0.00	0.00	0.01	0.01			N/A	N/A
D-ABC	0.04	0.00	0.00	0.04	0.04			N/A	N/A
C-ABD	0.39	0.03	0.31	1.28	1.54			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.15	0.00	0.00	0.15	0.15			N/A	N/A
B-AD	1.02	0.05	0.45	2.42	3.72			N/A	N/A
A-BCD	0.01	0.00	0.00	0.01	0.01			N/A	N/A
D-ABC	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C-ABD	0.28	0.00	0.00	0.28	0.28			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Demand Sets	D3 - 2045 + ST, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way	Two-way	Two-way	Two-way		9.98	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-6	Stream B-AD	9.98	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D3	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	709	100.000
B		ONE HOUR	✓	312	100.000
C		ONE HOUR	✓	402	100.000
D		ONE HOUR	✓	17	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	280	420	9
	B	252	0	60	0
	C	346	54	0	2
	D	8	0	9	0

Vehicle Mix

Heavy Vehicle Percentages

	To				

		A	B	C	D
From	A	0	0	2	0
	B	0	0	0	0
	C	2	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.29	21.93	0.4	1.4	C	60	60
B-AD	0.80	49.34	3.6	19.2	E	252	252
A-BCD	0.02	7.51	0.0	0.5	A	9	9
A-B						280	280
A-C						420	420
D-ABC	0.06	12.52	0.1	0.5	B	17	17
C-ABD	0.13	8.90	0.1	0.5	A	54	54
C-D						2	2
C-A						346	346

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	54	13	394	0.137	54	0.1	0.2	10.559	B
B-AD	227	57	395	0.573	224	0.8	1.3	20.823	C
A-BCD	8	2	523	0.015	8	0.0	0.0	6.984	A
A-B	252	63			252				
A-C	378	94			378				
D-ABC	15	4	360	0.042	15	0.0	0.0	10.450	B
C-ABD	49	12	501	0.097	48	0.1	0.1	7.951	A
C-D	2	0.45			2				
C-A	311	78			311				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	66	17	248	0.267	65	0.2	0.4	19.669	C
B-AD	277	69	346	0.801	270	1.3	3.3	42.940	E
A-BCD	10	2	491	0.020	10	0.0	0.0	7.476	A
A-B	308	77			308				
A-C	462	116			462				
D-ABC	19	5	308	0.061	19	0.0	0.1	12.426	B
C-ABD	59	15	464	0.128	59	0.1	0.1	8.893	A
C-D	2	0.55			2				
C-A	381	95			381				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	66	17	230	0.287	66	0.4	0.4	21.927	C
B-AD	277	69	347	0.801	276	3.3	3.6	49.341	E
A-BCD	10	2	489	0.020	10	0.0	0.0	7.508	A
A-B	308	77			308				

A-C	462	116			462				
D-ABC	19	5	306	0.061	19	0.1	0.1	12.522	B
C-ABD	59	15	464	0.128	59	0.1	0.1	8.903	A
C-D	2	0.55			2				
C-A	381	95			381				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	54	13	382	0.141	55	0.4	0.2	11.017	B
B-AD	227	57	396	0.573	235	3.6	1.4	23.497	C
A-BCD	8	2	521	0.016	8	0.0	0.0	7.027	A
A-B	252	63			252				
A-C	378	94			378				
D-ABC	15	4	357	0.043	15	0.1	0.0	10.547	B
C-ABD	49	12	501	0.097	49	0.1	0.1	7.961	A
C-D	2	0.45			2				
C-A	311	78			311				

Queue Variation Results for each time segment

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.16	0.00	0.00	0.16	0.16			N/A	N/A
B-AD	1.28	0.10	1.06	2.32	2.97			N/A	N/A
A-BCD	0.02	0.02	0.25	0.45	0.48			N/A	N/A
D-ABC	0.04	0.03	0.25	0.45	0.48			N/A	N/A
C-ABD	0.11	0.00	0.00	0.11	0.11			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.35	0.03	0.26	0.47	0.50			N/A	N/A
B-AD	3.26	0.04	0.44	9.10	16.26			N/A	N/A
A-BCD	0.02	0.00	0.00	0.02	0.02			N/A	N/A
D-ABC	0.06	0.03	0.26	0.47	0.49			N/A	N/A
C-ABD	0.15	0.03	0.26	0.47	0.49			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.39	0.03	0.34	1.23	1.44			N/A	N/A
B-AD	3.56	0.04	0.35	8.19	19.25			N/A	N/A
A-BCD	0.02	0.00	0.00	0.02	0.02			N/A	N/A
D-ABC	0.06	0.00	0.00	0.06	0.06			N/A	N/A
C-ABD	0.15	0.03	0.25	0.45	0.48			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.17	0.00	0.00	0.17	0.17			N/A	N/A
B-AD	1.41	0.04	0.41	3.70	6.37			N/A	N/A
A-BCD	0.02	0.00	0.00	0.02	0.02			N/A	N/A
D-ABC	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C-ABD	0.11	0.00	0.00	0.11	0.11			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Demand Sets	D4 - 2045 + ST, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way	Two-way	Two-way	Two-way		5.10	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	8	Stream B-AD	5.10	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D4	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	502	100.000
B		ONE HOUR	✓	243	100.000
C		ONE HOUR	✓	483	100.000
D		ONE HOUR	✓	12	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	150	347	5
	B	222	0	21	0
	C	437	41	0	5
	D	7	0	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To				

		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.07	10.93	0.1	0.5	B	21	21
B-AD	0.63	25.36	1.7	7.6	D	222	222
A-BCD	0.01	7.67	0.0	0.5	A	5	5
A-B						150	150
A-C						347	347
D-ABC	0.04	10.85	0.0	0.5	B	12	12
C-ABD	0.09	7.51	0.1	0.5	A	41	41
C-D						5	5
C-A						437	437

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	19	5	441	0.043	19	0.0	0.0	8.524	A
B-AD	200	50	429	0.465	198	0.6	0.8	15.528	C
A-BCD	4	1	510	0.009	4	0.0	0.0	7.117	A
A-B	135	34			135				
A-C	312	78			312				
D-ABC	11	3	392	0.028	11	0.0	0.0	9.454	A
C-ABD	37	9	550	0.067	37	0.1	0.1	7.008	A
C-D	4	1			4				
C-A	393	98			393				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	23	6	357	0.065	23	0.0	0.1	10.790	B
B-AD	244	61	386	0.634	241	0.8	1.6	24.430	C
A-BCD	6	1	475	0.012	5	0.0	0.0	7.660	A
A-B	165	41			165				
A-C	382	96			382				
D-ABC	13	3	346	0.038	13	0.0	0.0	10.824	B
C-ABD	45	11	524	0.086	45	0.1	0.1	7.514	A
C-D	6	1			6				
C-A	481	120			481				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	23	6	352	0.066	23	0.1	0.1	10.935	B
B-AD	244	61	386	0.634	244	1.6	1.7	25.358	D
A-BCD	6	1	475	0.012	6	0.0	0.0	7.673	A
A-B	165	41			165				

A-C	382	96			382				
D-ABC	13	3	345	0.038	13	0.0	0.0	10.852	B
C-ABD	45	11	524	0.086	45	0.1	0.1	7.515	A
C-D	6	1			6				
C-A	481	120			481				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	19	5	438	0.043	19	0.1	0.0	8.598	A
B-AD	200	50	429	0.465	203	1.7	0.9	16.108	C
A-BCD	4	1	509	0.009	5	0.0	0.0	7.133	A
A-B	135	34			135				
A-C	312	78			312				
D-ABC	11	3	390	0.028	11	0.0	0.0	9.487	A
C-ABD	37	9	550	0.067	37	0.1	0.1	7.011	A
C-D	4	1			4				
C-A	393	98			393				

Queue Variation Results for each time segment

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.04	0.03	0.25	0.45	0.48			N/A	N/A
B-AD	0.84	0.15	0.93	1.10	1.10			N/A	N/A
A-BCD	0.01	0.01	0.25	0.45	0.48			N/A	N/A
D-ABC	0.03	0.03	0.25	0.45	0.48			N/A	N/A
C-ABD	0.07	0.03	0.25	0.45	0.48			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.07	0.03	0.26	0.47	0.49			N/A	N/A
B-AD	1.62	0.03	0.30	1.85	7.56			N/A	N/A
A-BCD	0.01	0.00	0.00	0.01	0.01			N/A	N/A
D-ABC	0.04	0.03	0.25	0.45	0.48			N/A	N/A
C-ABD	0.09	0.03	0.26	0.47	0.49			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.07	0.00	0.00	0.07	0.07			N/A	N/A
B-AD	1.67	0.03	0.29	1.67	7.22			N/A	N/A
A-BCD	0.01	0.00	0.00	0.01	0.01			N/A	N/A
D-ABC	0.04	0.00	0.00	0.04	0.04			N/A	N/A
C-ABD	0.09	0.03	0.25	0.45	0.48			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.05	0.00	0.00	0.05	0.05			N/A	N/A
B-AD	0.90	0.05	0.56	1.81	2.61			N/A	N/A
A-BCD	0.01	0.00	0.00	0.01	0.01			N/A	N/A
D-ABC	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C-ABD	0.07	0.00	0.00	0.07	0.07			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.2.1574
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Filename: Access Strategy v0.1 28m ICD_v2.j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2
Report generation date: 16/01/2023 11:44:25

»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2045 + CD									
Arm 1	D1	0.3	3.62	0.23	A	D2	0.3	3.77	0.24	A
Arm 2		0.6	4.45	0.37	A		2.6	10.50	0.73	B
Arm 3		1.0	5.52	0.51	A		0.9	5.45	0.48	A
	2045 + ST									
Arm 1	D3	0.4	3.89	0.26	A	D4	0.4	4.02	0.28	A
Arm 2		0.6	4.60	0.39	A		4.4	15.77	0.82	C
Arm 3		1.5	6.89	0.60	A		1.0	6.00	0.50	A

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

File summary

File Description

Title	
Location	
Site number	
Date	14/12/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\UKCRD001
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

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

		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2045 + CD	AM	ONE HOUR	08:00	09:30	15
D2	2045 + CD	PM	ONE HOUR	17:00	18:30	15
D3	2045 + ST	AM	ONE HOUR	08:00	09:30	15
D4	2045 + ST	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2045 + CD, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	4.78	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.78	A

Arms

Arms

Arm	Name	Description	No give-way line
1	Blean Primary School		
2	Whitstable Road (S)		
3	Whitsable Road (N)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	3.50	6.10	6.6	40.6	28.0	11.2		
2	2.90	5.20	10.7	23.8	28.0	13.1		
3	2.80	6.10	9.2	40.0	28.0	16.5		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.654	1536
2	0.614	1378
3	0.622	1408

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2045 + CD	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	273	100.000

2		✓	437	100.000
3		✓	621	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		1	2	3
From	1	0	175	98
	2	64	0	373
	3	296	325	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	2
	3	1	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
1	0.23	3.62	0.3	A
2	0.37	4.45	0.6	A
3	0.51	5.52	1.0	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	206	244	1372	0.150	205	0.2	3.084	A
2	329	74	1310	0.251	327	0.3	3.658	A
3	468	48	1350	0.346	466	0.5	4.059	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	245	292	1339	0.183	245	0.2	3.290	A
2	392	88	1301	0.302	392	0.4	3.957	A
3	559	57	1345	0.415	558	0.7	4.572	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	301	357	1295	0.232	300	0.3	3.618	A
2	481	108	1289	0.373	480	0.6	4.443	A
3	684	70	1337	0.512	683	1.0	5.493	A

08:45 - 09:00

Arm	Total Demand	Circulating	Capacity	RFC	Throughput	End queue	Delay (s)	Unsignalised

	(Veh/hr)	flow (Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh)		level of service
1	301	358	1295	0.232	301	0.3	3.620	A
2	481	108	1289	0.373	481	0.6	4.451	A
3	684	70	1337	0.512	684	1.0	5.515	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	245	293	1338	0.183	246	0.2	3.294	A
2	392	88	1301	0.302	393	0.4	3.966	A
3	559	58	1344	0.415	560	0.7	4.597	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	206	245	1371	0.150	206	0.2	3.092	A
2	329	74	1310	0.251	329	0.3	3.673	A
3	468	48	1350	0.346	468	0.5	4.087	A

2045 + CD, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	7.70	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.70	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2045 + CD	PM	ONE HOUR	17:00	18:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	280	100.000
2		✓	835	100.000
3		✓	551	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		1	2	3
From	1	0	108	172
	2	193	0	642
	3	175	376	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
1	0.24	3.77	0.3	A
2	0.73	10.50	2.6	B
3	0.48	5.45	0.9	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	211	282	1350	0.156	210	0.2	3.157	A
2	629	129	1298	0.484	625	0.9	5.317	A
3	415	144	1309	0.317	413	0.5	4.009	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	252	338	1313	0.192	252	0.2	3.391	A
2	751	154	1283	0.585	749	1.4	6.720	A
3	495	173	1291	0.384	495	0.6	4.514	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	308	413	1263	0.244	308	0.3	3.770	A
2	919	189	1261	0.729	915	2.6	10.237	B
3	607	211	1268	0.479	606	0.9	5.426	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	308	414	1262	0.244	308	0.3	3.772	A
2	919	189	1261	0.729	919	2.6	10.504	B
3	607	212	1267	0.479	607	0.9	5.450	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	252	339	1312	0.192	252	0.2	3.396	A
2	751	155	1283	0.585	755	1.4	6.889	A
3	495	175	1290	0.384	496	0.6	4.542	A

18:15 - 18:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	211	284	1349	0.156	211	0.2	3.166	A
2	629	130	1298	0.484	631	0.9	5.411	A
3	415	146	1308	0.317	415	0.5	4.034	A

2045 + ST, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	5.59	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.59	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2045 + ST	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	297	100.000
2		✓	459	100.000
3		✓	726	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		1	2	3
From	1	0	197	100
	2	77	0	382
	3	353	373	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	1
	2	0	0	2
	3	1	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
1	0.26	3.89	0.4	A
2	0.39	4.60	0.6	A
3	0.60	6.89	1.5	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	224	279	1341	0.167	223	0.2	3.217	A
2	346	75	1309	0.264	344	0.4	3.725	A
3	547	58	1338	0.409	544	0.7	4.518	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	267	335	1304	0.205	267	0.3	3.471	A
2	413	90	1300	0.317	412	0.5	4.052	A
3	653	69	1331	0.490	652	1.0	5.289	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	327	410	1253	0.261	327	0.4	3.884	A
2	505	110	1288	0.392	505	0.6	4.592	A
3	799	85	1322	0.605	797	1.5	6.835	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	327	411	1252	0.261	327	0.4	3.890	A
2	505	110	1288	0.392	505	0.6	4.600	A
3	799	85	1322	0.605	799	1.5	6.890	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	267	336	1303	0.205	267	0.3	3.480	A
2	413	90	1300	0.317	413	0.5	4.062	A
3	653	69	1331	0.490	655	1.0	5.343	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	224	281	1340	0.167	224	0.2	3.225	A
2	346	75	1309	0.264	346	0.4	3.738	A
3	547	58	1338	0.409	548	0.7	4.564	A

2045 + ST, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	10.75	B

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	10.75	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2045 + ST	PM	ONE HOUR	17:00	18:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	320	100.000
2		✓	943	100.000
3		✓	540	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		1	2	3
From	1	0	152	168
	2	299	0	644
	3	143	397	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
1	0.28	4.02	0.4	A
2	0.82	15.77	4.4	C
3	0.50	6.00	1.0	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	241	297	1339	0.180	240	0.2	3.271	A
2	710	126	1300	0.546	705	1.2	6.005	A
3	407	224	1260	0.323	405	0.5	4.202	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	288	356	1300	0.221	287	0.3	3.553	A
2	848	151	1285	0.660	845	1.9	8.127	A
3	485	268	1232	0.394	485	0.6	4.813	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	352	436	1248	0.282	352	0.4	4.016	A
2	1038	185	1264	0.821	1029	4.2	14.742	B
3	595	326	1196	0.497	593	1.0	5.957	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	352	437	1247	0.283	352	0.4	4.022	A
2	1038	185	1264	0.821	1038	4.4	15.770	C
3	595	329	1194	0.498	595	1.0	6.000	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	288	358	1299	0.221	288	0.3	3.560	A
2	848	151	1285	0.660	857	2.0	8.603	A
3	485	272	1230	0.395	487	0.7	4.855	A

18:15 - 18:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	241	299	1338	0.180	241	0.2	3.281	A
2	710	127	1300	0.546	713	1.2	6.165	A
3	407	226	1258	0.323	407	0.5	4.236	A

LinSig V1 style report

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Site Access - Blean School_v2.lsg3x
Author:	
Company:	
Address:	

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7
F	Ind. Arrow	B	4	4

Phase Intergreens Matrix

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

Phase Delays

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

Prohibited Stage Change

		To Stage			
		1	2	3	4
From Stage	1		6	6	7
	2	6		6	7
	3	6	6		6
	4	7	X	7	

Phases in Stage

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

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
2/2 (Whitstable Road South)	6/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Whitstable Road North)	U	A	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Left	20.00
2/1 (Whitstable Road South)	U	B	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 4 Ahead	Inf
2/2 (Whitstable Road South)	O	B F	2	3	4.7	Geom	-	3.20	0.00	Y	Arm 6 Right	20.00
3/1 (Blean Primary Arm)	U	C	2	3	4.4	Geom	-	3.25	0.00	Y	Arm 5 Left	15.00
3/2 (Blean Primary Arm)	U	C	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 4 Right	20.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Lane Saturation Flows

Scenario 1: '2045 + CD AM' (FG1: '2045 CD AM', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Whitstable Road North)	3.20	0.00	Y	Arm 5 Ahead	Inf	53.8 %	1870	1870
				Arm 6 Left	20.00	46.2 %		
2/1 (Whitstable Road South)	3.20	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1935	1935
2/2 (Whitstable Road South)	3.20	0.00	Y	Arm 6 Right	20.00	100.0 %	1800	1800
3/1 (Blean Primary Arm)	3.25	0.00	Y	Arm 5 Left	15.00	100.0 %	1764	1764
3/2 (Blean Primary Arm)	3.20	0.00	Y	Arm 4 Right	20.00	100.0 %	1800	1800
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2045 +CD PM' (FG2: '2045 CD PM', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Whitstable Road North)	3.20	0.00	Y	Arm 5 Ahead	Inf	68.2 %	1890	1890
				Arm 6 Left	20.00	31.8 %		
2/1 (Whitstable Road South)	3.20	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1935	1935
2/2 (Whitstable Road South)	3.20	0.00	Y	Arm 6 Right	20.00	100.0 %	1800	1800
3/1 (Blean Primary Arm)	3.25	0.00	Y	Arm 5 Left	15.00	100.0 %	1764	1764
3/2 (Blean Primary Arm)	3.20	0.00	Y	Arm 4 Right	20.00	100.0 %	1800	1800
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2045 + ST AM' (FG3: '2045 ST AM', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Whitstable Road North)	3.20	0.00	Y	Arm 5 Ahead	Inf	51.4 %	1867	1867
				Arm 6 Left	20.00	48.6 %		
2/1 (Whitstable Road South)	3.20	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1935	1935
2/2 (Whitstable Road South)	3.20	0.00	Y	Arm 6 Right	20.00	100.0 %	1800	1800
3/1 (Blean Primary Arm)	3.25	0.00	Y	Arm 5 Left	15.00	100.0 %	1764	1764
3/2 (Blean Primary Arm)	3.20	0.00	Y	Arm 4 Right	20.00	100.0 %	1800	1800
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2045 + ST PM' (FG4: '2045 ST PM', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Whitstable Road North)	3.20	0.00	Y	Arm 5 Ahead	Inf	73.7 %	1898	1898
				Arm 6 Left	20.00	26.3 %		
2/1 (Whitstable Road South)	3.20	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1935	1935
2/2 (Whitstable Road South)	3.20	0.00	Y	Arm 6 Right	20.00	100.0 %	1800	1800
3/1 (Blean Primary Arm)	3.25	0.00	Y	Arm 5 Left	15.00	100.0 %	1764	1764
3/2 (Blean Primary Arm)	3.20	0.00	Y	Arm 4 Right	20.00	100.0 %	1800	1800
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2045 CD AM'	08:00	09:00	01:00	
2: '2045 CD PM'	16:30	17:30	01:00	
3: '2045 ST AM'	08:00	09:00	01:00	
4: '2045 ST PM'	16:30	17:30	01:00	

Traffic Flows, Desired

FG1: '2045 CD AM'

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	339	395	734
	B	98	0	175	273
	C	380	64	0	444
	Tot.	478	403	570	1451

FG2: '2045 CD PM'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	175	376	551
	B	172	0	108	280
	C	642	193	0	835
	Tot.	814	368	484	1666

FG3: '2045 ST AM'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	353	373	726
	B	100	0	197	297
	C	382	77	0	459
	Tot.	482	430	570	1482

FG4: '2045 ST PM'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	143	400	543
	B	168	0	152	320
	C	646	299	0	945
	Tot.	814	442	552	1808

Stage Timings

Scenario 1: '2045 + CD AM' (FG1: '2045 CD AM', Plan 1: 'Network Control Plan 1')

Stage	**1**	**2**	**3**	**4**
Duration	43	4	11	7
Change Point	0	50	60	77

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.3%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.3%**
1/1	Whitstable Road North Ahead Left	U	N/A	N/A	A		1	43	-	734	1870	914	80.3%
2/1+2/2	Whitstable Road South Ahead Right	U+O	N/A	N/A	B	F	1	53	4	444	1935:1800	1032+174	36.8 : 36.8%
3/2+3/1	Blean Primary Arm Right Left	U	N/A	N/A	C		1	11	-	273	1800:1764	125+223	78.5 : 78.5%
4/1		U	N/A	N/A	-		-	-	-	478	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	570	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	403	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**57**	**6**	**1**	**7.8**	**4.0**	**0.3**	**12.2**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**57**	**6**	**1**	**7.8**	**4.0**	**0.3**	**12.2**	**-**	**-**	**-**	**-**
1/1	734	734	-	-	-	3.9	2.0	-	5.9	29.1	15.3	2.0	17.3
2/1+2/2	444	444	57	6	1	1.1	0.3	0.3	1.7	13.9	4.6	0.3	4.9
3/2+3/1	273	273	-	-	-	2.8	1.7	-	4.5	60.0	4.2	1.7	5.9
4/1	478	478	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	570	570	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	403	403	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 12.1 PRC Over All Lanes (%): 12.1 Total Delay for Signalled Lanes (pcuHr): 12.20 Total Delay Over All Lanes(pcuHr): 12.20 Cycle Time (s): 90

Stage Timings

Scenario 2: '2045 +CD PM' (FG2: '2045 CD PM', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	34	4	10	7
Change Point	0	41	51	67

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.1%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.1%**
1/1	Whitstable Road North Ahead Left	U	N/A	N/A	A		1	34	-	551	1890	827	66.6%
2/1+2/2	Whitstable Road South Ahead Right	U+O	N/A	N/A	B	F	1	44	4	835	1935:1800	894+269	71.8 : 71.8%
3/2+3/1	Blean Primary Arm Right Left	U	N/A	N/A	C		1	10	-	280	1800:1764	235+148	73.1 : 73.1%
4/1		U	N/A	N/A	-		-	-	-	814	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	484	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	368	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**169**	**19**	**5**	**8.0**	**3.6**	**0.6**	**12.2**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**169**	**19**	**5**	**8.0**	**3.6**	**0.6**	**12.2**	**-**	**-**	**-**	**-**
1/1	551	551	-	-	-	2.7	1.0	-	3.7	24.3	9.6	1.0	10.6
2/1+2/2	835	835	169	19	5	2.7	1.3	0.6	4.6	19.9	11.3	1.3	12.6
3/2+3/1	280	280	-	-	-	2.5	1.3	-	3.9	49.5	3.6	1.3	5.0
4/1	814	814	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	484	484	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	368	368	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 23.1 Total Delay for Signalled Lanes (pcuHr): 12.18 Cycle Time (s): 80
PRC Over All Lanes (%): 23.1 Total Delay Over All Lanes(pcuHr): 12.18

Stage Timings

Scenario 3: '2045 + ST AM' (FG3: '2045 ST AM', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	42	4	12	7
Change Point	0	49	59	77

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.0%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.0%**
1/1	Whitstable Road North Ahead Left	U	N/A	N/A	A		1	42	-	726	1867	892	81.4%
2/1+2/2	Whitstable Road South Ahead Right	U+O	N/A	N/A	B	F	1	52	4	459	1935:1800	989+199	38.6 : 38.6%
3/2+3/1	Blean Primary Arm Right Left	U	N/A	N/A	C		1	12	-	297	1800:1764	121+237	83.0 : 83.0%
4/1		U	N/A	N/A	-		-	-	-	482	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	570	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	430	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**68**	**7**	**2**	**8.2**	**4.7**	**0.4**	**13.4**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**68**	**7**	**2**	**8.2**	**4.7**	**0.4**	**13.4**	**-**	**-**	**-**	**-**
1/1	726	726	-	-	-	4.0	2.1	-	6.2	30.7	15.3	2.1	17.5
2/1+2/2	459	459	68	7	2	1.2	0.3	0.4	1.9	15.1	4.9	0.3	5.2
3/2+3/1	297	297	-	-	-	3.0	2.3	-	5.3	63.9	4.9	2.3	7.1
4/1	482	482	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	570	570	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	430	430	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 8.5 Total Delay for Signalled Lanes (pcuHr): 13.38 Cycle Time (s): 90
PRC Over All Lanes (%): 8.5 Total Delay Over All Lanes(pcuHr): 13.38

Stage Timings

Scenario 4: '2045 + ST PM' (FG4: '2045 ST PM', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	35	4	9	7
Change Point	0	42	52	67

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.7%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**77.7%**
1/1	Whitstable Road North Ahead Left	U	N/A	N/A	A		1	35	-	543	1898	854	63.6%
2/1+2/2	Whitstable Road South Ahead Right	U+O	N/A	N/A	B	F	1	45	4	945	1935:1800	832+385	77.7 : 77.7%
3/2+3/1	Blean Primary Arm Right Left	U	N/A	N/A	C		1	9	-	320	1800:1764	218+198	76.9 : 76.9%
4/1		U	N/A	N/A	-		-	-	-	814	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	552	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	442	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**191**	**101**	**7**	**8.9**	**4.2**	**0.8**	**13.9**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**191**	**101**	**7**	**8.9**	**4.2**	**0.8**	**13.9**	**-**	**-**	**-**	**-**
1/1	543	543	-	-	-	2.6	0.9	-	3.4	22.7	9.2	0.9	10.1
2/1+2/2	945	945	191	101	7	3.4	1.7	0.8	5.9	22.3	12.8	1.7	14.5
3/2+3/1	320	320	-	-	-	3.0	1.6	-	4.6	51.8	3.6	1.6	5.2
4/1	814	814	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	552	552	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	442	442	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 15.9 Total Delay for Signalled Lanes (pcuHr): 13.88 Cycle Time (s): 80
PRC Over All Lanes (%): 15.9 Total Delay Over All Lanes(pcuHr): 13.88

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.2.1574
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Filename: Junction 2 - A290_Rough Common Road.j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 2 - A290_Rough Common Road_Junctions 10 Report
Report generation date: 16/01/2023 08:07:45

»2045 Base Modelled, AM
»2045 Base Modelled, PM
»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 Base Modelled													
Arm B	D7	2.2	15.48	0.69	C	172.86	-25 % [Arm C]	D8	13.0	64.72	0.96	F	100.75	-19 % [Arm C]
Arm C		79.3	390.08	1.20	F				41.7	205.42	1.11	F		
Arm A		2.6	15.89	0.73	C				0.9	6.92	0.48	A		
	2045 + CD													
Arm B	D9	3.9	27.18	0.81	D	252.12	-29 % [Arm C]	D10	17.6	88.03	0.99	F	402.50	-34 % [Arm C]
Arm C		110.8	558.41	1.27	F				175.5	894.71	1.41	F		
Arm A		2.6	15.77	0.73	C				1.1	7.54	0.53	A		
	2045 + ST													
Arm B	D11	19.6	107.39	1.01	F	332.03	-32 % [Arm C]	D12	22.8	111.91	1.02	F	704.13	-41 % [Arm C]
Arm C		145.1	707.14	1.32	F				307.6	1512.66	1.61	F		
Arm A		2.6	15.83	0.73	C				1.4	8.50	0.59	A		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	A290/Rough Common Road
Location	Rough Common
Site number	
Date	23/11/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	70080896
Enumerator	CORP\UKWGF001
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

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base Modelled	AM	ONE HOUR	07:45	09:15	15	✓	✓
D8	2045 Base Modelled	PM	ONE HOUR	16:15	17:45	15	✓	✓
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

Analysis Set Details

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

2045 Base Modelled, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D7 - 2045 Base Modelled, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		B, C, A	172.86	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Daylight	Dry		-25	Arm C	172.86	F

Arms

Arms

Arm	Name	Description
B	A290 Whitstable Road South	
C	Rough Common Road	
A	A290 Whitstable Road North	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
B	3.70	3.35	4.10	3.1	12.00	9.50	0.0	✓
C	3.45	3.20	4.00	1.0	14.00	10.40	0.0	✓
A	3.30	3.25	4.00	9.8	16.35	17.70	0.0	✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
B	0.522	912
C	0.510	809
A	0.620	1159

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base Modelled	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
B		ONE HOUR	✓	474	100.000
C		ONE HOUR	✓	749	100.000
A		ONE HOUR	✓	540	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		B	C	A
From	B	0	268	206
	C	556	0	193
	A	294	246	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		B	C	A
From	B	0	1	3
	C	0	0	1
	A	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B	0.69	15.48	2.2	8.9	C	474	474
C	1.20	390.08	79.3	128.1	F	749	749
A	0.73	15.89	2.6	11.3	C	540	540

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	426	107	220	780	0.546	425	745	0.8	1.2	10.088	B
C	673	168	185	709	0.949	649	460	3.2	9.2	46.897	E
A	485	121	482	837	0.580	483	352	0.8	1.3	10.137	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	522	130	269	754	0.692	518	828	1.2	2.1	14.981	B
C	825	206	225	688	1.198	683	562	9.2	44.7	157.556	F
A	595	149	507	822	0.724	590	401	1.3	2.5	15.246	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	522	130	271	753	0.693	522	833	2.1	2.2	15.485	C
C	825	206	227	687	1.200	686	566	44.7	79.3	333.967	F
A	595	149	509	820	0.725	594	404	2.5	2.6	15.892	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	426	107	223	778	0.547	430	786	2.2	1.2	10.442	B
C	673	168	187	708	0.951	699	466	79.3	72.8	390.079	F
A	485	121	519	814	0.596	490	367	2.6	1.5	11.232	B

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.18	0.09	1.00	2.00	2.75			N/A	N/A
C	9.18	0.28	5.21	21.95	29.55			N/A	N/A
A	1.35	0.08	1.03	2.69	3.63			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	2.13	0.03	0.29	2.13	8.92			N/A	N/A
C	44.72	18.24	41.59	69.58	79.28			N/A	N/A
A	2.47	0.03	0.30	2.53	11.29			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	2.19	0.03	0.28	2.19	5.68			N/A	N/A
C	79.31	40.16	75.77	114.85	127.92			N/A	N/A
A	2.55	0.03	0.28	2.55	6.75			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.24	0.06	0.76	2.73	3.88			N/A	N/A
C	72.79	30.69	68.17	112.70	128.07			N/A	N/A
A	1.52	0.06	0.80	3.62	5.27			N/A	N/A

2045 Base Modelled, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D8 - 2045 Base Modelled, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		B, C, A	100.75	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Daylight	Dry		-19	Arm C	100.75	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D8	2045 Base Modelled	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
B		ONE HOUR	✓	693	100.000
C		ONE HOUR	✓	625	100.000
A		ONE HOUR	✓	430	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		B	C	A
From	B	0	360	333
	C	257	0	368
	A	231	199	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		B	C	A
From	B	0	0	0
	C	0	0	0
	A	0	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)

B	0.96	64.72	13.0	58.1	F	693	693
C	1.11	205.42	41.7	85.1	F	625	625
A	0.48	6.92	0.9	2.2	A	430	430

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	623	156	179	816	0.763	618	434	1.6	3.0	17.647	C
C	562	140	297	655	0.858	551	499	2.1	4.9	31.607	D
A	387	97	226	1011	0.382	386	621	0.5	0.6	5.753	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	763	191	219	795	0.960	734	505	3.0	10.3	45.165	E
C	688	172	353	626	1.099	611	600	4.9	24.2	103.430	F
A	473	118	251	996	0.475	472	712	0.6	0.9	6.862	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	763	191	219	795	0.960	752	508	10.3	13.0	64.723	F
C	688	172	361	622	1.107	618	610	24.2	41.7	205.424	F
A	473	118	254	994	0.476	473	725	0.9	0.9	6.915	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	623	156	179	816	0.764	661	467	13.0	3.5	27.562	D
C	562	140	318	644	0.872	629	523	41.7	24.9	193.719	F
A	387	97	259	991	0.390	388	688	0.9	0.6	5.974	A

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	2.99	0.08	1.35	7.68	11.17			N/A	N/A
C	4.89	0.14	2.26	11.96	16.54			N/A	N/A
A	0.61	0.13	0.88	1.38	1.44			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	10.30	0.14	4.01	27.59	39.61			N/A	N/A
C	24.20	5.15	20.62	44.01	52.77			N/A	N/A
A	0.89	0.03	0.26	0.89	0.89			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	13.00	0.09	2.69	37.48	58.14			N/A	N/A
C	41.74	11.70	37.07	72.29	85.14			N/A	N/A
A	0.90	0.03	0.27	0.90	2.21			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	3.53	0.04	0.42	9.69	18.09			N/A	N/A
C	24.94	5.31	21.27	45.38	54.41			N/A	N/A
A	0.65	0.18	0.92	1.38	1.44			N/A	N/A

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D9 - 2045 + CD, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		B, C, A	252.12	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Daylight	Dry		-29	Arm C	252.12	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
B		ONE HOUR	✓	488	100.000
C		ONE HOUR	✓	800	100.000
A		ONE HOUR	✓	559	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		B	C	A
From	B	0	298	190
	C	553	0	247
	A	158	401	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		B	C	A
From	B	0	1	4
	C	0	0	1
	A	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B	0.81	27.18	3.9	19.4	D	488	488

C	1.27	558.41	110.8	175.1	F	800	800
A	0.73	15.77	2.6	11.8	C	559	559

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	439	110	359	709	0.619	436	610	1.0	1.6	13.069	B
C	719	180	170	714	1.007	678	625	4.1	14.4	64.387	F
A	503	126	469	849	0.592	500	379	0.9	1.4	10.265	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	537	134	438	668	0.804	529	651	1.6	3.6	24.543	C
C	881	220	206	695	1.267	692	761	14.4	61.5	211.084	F
A	615	154	479	843	0.730	611	420	1.4	2.6	15.212	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	537	134	441	666	0.806	536	653	3.6	3.9	27.179	D
C	881	220	209	694	1.270	693	769	61.5	108.4	447.396	F
A	615	154	479	843	0.730	615	423	2.6	2.6	15.771	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	439	110	364	707	0.621	447	634	3.9	1.7	14.298	B
C	719	180	174	712	1.011	710	637	108.4	110.8	558.408	F
A	503	126	491	836	0.601	507	393	2.6	1.6	11.086	B

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.56	0.07	1.03	3.44	4.77			N/A	N/A
C	14.37	0.35	8.16	35.10	47.45			N/A	N/A
A	1.41	0.08	1.05	2.85	3.87			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	3.62	0.04	0.37	8.84	19.44			N/A	N/A
C	61.49	27.55	57.91	92.97	104.93			N/A	N/A
A	2.55	0.03	0.30	2.73	11.78			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	3.86	0.03	0.31	4.95	18.69			N/A	N/A
C	108.42	62.57	105.01	148.97	163.35			N/A	N/A
A	2.63	0.03	0.28	2.63	6.79			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.70	0.04	0.45	4.52	7.44			N/A	N/A
C	110.80	58.61	106.46	158.02	175.11			N/A	N/A
A	1.55	0.06	0.75	3.76	5.57			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D10 - 2045 + CD, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		B, C, A	402.50	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Daylight	Dry		-34	Arm C	402.50	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
B		ONE HOUR	✓	668	100.000
C		ONE HOUR	✓	818	100.000
A		ONE HOUR	✓	484	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		B	C	A
From	B	0	363	305
	C	289	0	529
	A	192	292	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		B	C	A
From	B	0	0	0
	C	0	0	0
	A	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B	0.99	88.03	17.6	64.2	F	668	668

C	1.41	894.71	175.5	200.0	F	818	818
A	0.53	7.54	1.1	1.6	A	484	484

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	601	150	262	773	0.777	594	404	1.7	3.2	19.529	C
C	735	184	271	669	1.099	655	585	5.9	26.1	105.519	F
A	435	109	231	1007	0.432	434	695	0.6	0.8	6.277	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	735	184	321	742	0.992	697	438	3.2	12.8	55.765	F
C	901	225	318	645	1.396	644	699	26.1	90.2	337.836	F
A	533	133	228	1009	0.528	532	735	0.8	1.1	7.512	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	735	184	321	741	0.992	716	438	12.8	17.6	88.028	F
C	901	225	327	641	1.406	640	711	90.2	155.3	692.422	F
A	533	133	226	1010	0.528	533	741	1.1	1.1	7.543	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	601	150	263	772	0.778	655	404	17.6	3.9	39.700	E
C	735	184	299	655	1.123	655	619	155.3	175.5	894.710	F
A	435	109	231	1007	0.432	436	722	1.1	0.8	6.326	A

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	3.19	0.08	1.42	8.21	11.91			N/A	N/A
C	26.10	0.24	11.75	69.62	98.56			N/A	N/A
A	0.75	0.14	0.90	1.39	1.45			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	12.79	0.33	7.24	31.09	41.98			N/A	N/A
C	90.22	34.67	83.69	144.29	165.51			N/A	N/A
A	1.10	0.03	0.26	1.10	1.10			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	17.60	0.23	8.39	45.87	64.18			N/A	N/A
C	155.29	>199	>199	>199	>199			N/A	N/A
A	1.11	0.03	0.27	1.11	1.57			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	3.94	0.04	0.43	10.86	20.23			N/A	N/A
C	175.49	>199	>199	>199	>199			N/A	N/A
A	0.77	0.15	0.91	1.40	1.46			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D11 - 2045 + ST, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		B, C, A	332.03	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Daylight	Dry		-32	Arm C	332.03	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
B		ONE HOUR	✓	598	100.000
C		ONE HOUR	✓	840	100.000
A		ONE HOUR	✓	559	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		B	C	A
From	B	0	413	185
	C	573	0	267
	A	128	431	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		B	C	A
From	B	0	0	4
	C	0	0	1
	A	6	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B	1.01	107.39	19.6	63.3	F	598	598

C	1.32	707.14	145.1	200.0	F	840	840
A	0.73	15.83	2.6	11.9	C	559	559

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	538	134	386	698	0.771	532	588	1.5	3.1	20.914	C
C	755	189	164	717	1.054	694	753	5.1	20.4	82.550	F
A	503	126	474	844	0.595	500	385	0.9	1.4	10.408	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	658	165	471	653	1.008	617	618	3.1	13.5	64.455	F
C	925	231	191	703	1.316	701	897	20.4	76.3	260.784	F
A	615	154	478	841	0.732	611	414	1.4	2.6	15.328	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	658	165	474	652	1.011	634	618	13.5	19.6	107.394	F
C	925	231	196	700	1.321	700	912	76.3	132.5	544.513	F
A	615	154	477	842	0.731	615	419	2.6	2.6	15.833	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	538	134	391	695	0.773	600	597	19.6	3.9	50.803	F
C	755	189	186	705	1.070	705	806	132.5	145.1	707.142	F
A	503	126	481	840	0.599	507	410	2.6	1.5	10.962	B

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	3.06	0.08	1.39	7.84	11.38			N/A	N/A
C	20.38	0.33	10.80	51.60	70.85			N/A	N/A
A	1.43	0.08	1.06	2.89	3.92			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	13.49	0.59	8.62	31.10	40.92			N/A	N/A
C	76.26	32.52	71.53	117.66	133.55			N/A	N/A
A	2.57	0.03	0.30	2.81	11.93			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	19.63	0.53	11.78	47.31	63.34			N/A	N/A
C	132.53	>199	>199	>199	>199			N/A	N/A
A	2.64	0.03	0.28	2.64	6.83			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	3.91	0.04	0.43	10.82	20.05			N/A	N/A
C	145.06	>199	>199	>199	>199			N/A	N/A
A	1.53	0.05	0.69	3.75	5.60			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D12 - 2045 + ST, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		B, C, A	704.13	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Daylight	Dry		-41	Arm C	704.13	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
B		ONE HOUR	✓	657	100.000
C		ONE HOUR	✓	956	100.000
A		ONE HOUR	✓	547	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		B	C	A
From	B	0	374	283
	C	296	0	660
	A	200	347	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		B	C	A
From	B	0	0	0
	C	0	0	0
	A	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B	1.02	111.91	22.8	68.9	F	657	657

C	1.61	1512.66	307.6	200.0	F	956	956
A	0.59	8.50	1.4	1.7	A	547	547

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	591	148	311	746	0.791	584	389	1.7	3.4	21.246	C
C	859	215	251	680	1.264	677	644	15.4	60.9	217.915	F
A	492	123	210	1022	0.481	491	719	0.7	0.9	6.769	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	723	181	381	710	1.019	676	424	3.4	15.4	65.735	F
C	1053	263	291	660	1.595	660	765	60.9	159.1	611.123	F
A	602	151	204	1025	0.588	600	746	0.9	1.4	8.439	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	723	181	382	709	1.020	694	423	15.4	22.8	111.905	F
C	1053	263	299	656	1.605	656	777	159.1	258.3	1141.837	F
A	602	151	203	1026	0.587	602	752	1.4	1.4	8.497	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	591	148	313	746	0.792	664	386	22.8	4.5	58.414	F
C	859	215	286	662	1.298	662	691	258.3	307.6	1512.664	F
A	492	123	205	1024	0.480	494	743	1.4	0.9	6.807	A

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	3.42	0.08	1.02	8.80	12.73			N/A	N/A
C	60.85	>199	>199	>199	>199			N/A	N/A
A	0.92	0.11	0.93	1.26	1.68			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	15.35	0.93	10.44	34.34	44.56			N/A	N/A
C	159.11	>199	>199	>199	>199			N/A	N/A
A	1.39	0.03	0.27	1.39	1.39			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	22.75	1.04	14.97	52.53	68.86			N/A	N/A
C	258.33	>199	>199	>199	>199			N/A	N/A
A	1.41	0.03	0.27	1.41	1.41			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	4.48	0.04	0.45	12.58	22.87			N/A	N/A
C	307.60	>199	>199	>199	>199			N/A	N/A
A	0.94	0.11	0.94	1.35	1.73			N/A	N/A

LinSig V1 style report

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	221215 A2050_Palmars Cross Hill.lsg3x
Author:	
Company:	
Address:	

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Filter	A	4	0
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7

Phase Intergreens Matrix

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

Phase Delays

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

Prohibited Stage Change

		To Stage			
		1	2	3	4
From Stage	1		5	6	6
	2	6		2	8
	3	6	0		8
	4	5	X	X	

Phases in Stage

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

Give-Way Lane Input Data

Junction: Unnamed Junction
There are no Opposed Lanes in this Junction

Lane Input Data

Junction: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1	U		2	3	60.0	Inf	-	-	-	-	-	-
1/2	U		2	3	60.0	Inf	-	-	-	-	-	-
2/1	U	A B	2	3	14.8	Geom	-	5.00	0.00	Y	Arm 5 Left	18.90
2/2	U	A	2	3	60.0	Geom	-	4.20	0.00	N	Arm 1 Ahead	Inf
2/3	U	A	2	3	11.3	Geom	-	3.40	0.00	N	Arm 1 Ahead	Inf
3/1	U	D	2	3	6.3	Geom	-	5.00	0.00	Y	Arm 1 Left	26.60
3/2	U	C	2	3	60.0	Geom	-	3.50	0.00	N	Arm 4 Right	17.90
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U	F	2	3	60.0	Geom	-	3.40	0.00	Y	Arm 4 Ahead	Inf
6/2	U	E	2	3	19.1	Geom	-	3.10	0.00	N	Arm 5 Right	13.50

Lane Saturation Flows

Scenario 1: '2045 AM' (FG1: '2045 AM', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1	Infinite Saturation Flow						Inf	Inf
1/2	Infinite Saturation Flow						Inf	Inf
2/1	5.00	0.00	Y	Arm 5 Left	18.90	100.0 %	1959	1959
2/2	4.20	0.00	N	Arm 1 Ahead	Inf	100.0 %	2175	2175
2/3	3.40	0.00	N	Arm 1 Ahead	Inf	100.0 %	2095	2095
3/1	5.00	0.00	Y	Arm 1 Left	26.60	100.0 %	2002	2002
3/2	3.50	0.00	N	Arm 4 Right	17.90	100.0 %	1942	1942
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.40	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1955	1955
6/2	3.10	0.00	N	Arm 5 Right	13.50	100.0 %	1859	1859

Scenario 2: '2045 PM' (FG2: '2045 PM', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1	Infinite Saturation Flow						Inf	Inf
1/2	Infinite Saturation Flow						Inf	Inf
2/1	5.00	0.00	Y	Arm 5 Left	18.90	100.0 %	1959	1959
2/2	4.20	0.00	N	Arm 1 Ahead	Inf	100.0 %	2175	2175
2/3	3.40	0.00	N	Arm 1 Ahead	Inf	100.0 %	2095	2095
3/1	5.00	0.00	Y	Arm 1 Left	26.60	100.0 %	2002	2002
3/2	3.50	0.00	N	Arm 4 Right	17.90	100.0 %	1942	1942
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.40	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1955	1955
6/2	3.10	0.00	N	Arm 5 Right	13.50	100.0 %	1859	1859

Scenario 3: '2045+CD AM' (FG3: '2045+CD AM', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1	Infinite Saturation Flow						Inf	Inf
1/2	Infinite Saturation Flow						Inf	Inf
2/1	5.00	0.00	Y	Arm 5 Left	18.90	100.0 %	1959	1959
2/2	4.20	0.00	N	Arm 1 Ahead	Inf	100.0 %	2175	2175
2/3	3.40	0.00	N	Arm 1 Ahead	Inf	100.0 %	2095	2095
3/1	5.00	0.00	Y	Arm 1 Left	26.60	100.0 %	2002	2002
3/2	3.50	0.00	N	Arm 4 Right	17.90	100.0 %	1942	1942
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.40	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1955	1955
6/2	3.10	0.00	N	Arm 5 Right	13.50	100.0 %	1859	1859

Scenario 4: '2045+CD PM' (FG4: '2045+CD PM', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1	Infinite Saturation Flow						Inf	Inf
1/2	Infinite Saturation Flow						Inf	Inf
2/1	5.00	0.00	Y	Arm 5 Left	18.90	100.0 %	1959	1959
2/2	4.20	0.00	N	Arm 1 Ahead	Inf	100.0 %	2175	2175
2/3	3.40	0.00	N	Arm 1 Ahead	Inf	100.0 %	2095	2095
3/1	5.00	0.00	Y	Arm 1 Left	26.60	100.0 %	2002	2002
3/2	3.50	0.00	N	Arm 4 Right	17.90	100.0 %	1942	1942
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.40	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1955	1955
6/2	3.10	0.00	N	Arm 5 Right	13.50	100.0 %	1859	1859

Scenario 5: '2045+ST AM' (FG5: '2045+ST AM', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1	Infinite Saturation Flow						Inf	Inf
1/2	Infinite Saturation Flow						Inf	Inf
2/1	5.00	0.00	Y	Arm 5 Left	18.90	100.0 %	1959	1959
2/2	4.20	0.00	N	Arm 1 Ahead	Inf	100.0 %	2175	2175
2/3	3.40	0.00	N	Arm 1 Ahead	Inf	100.0 %	2095	2095
3/1	5.00	0.00	Y	Arm 1 Left	26.60	100.0 %	2002	2002
3/2	3.50	0.00	N	Arm 4 Right	17.90	100.0 %	1942	1942
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.40	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1955	1955
6/2	3.10	0.00	N	Arm 5 Right	13.50	100.0 %	1859	1859

Scenario 6: '2045+ST PM' (FG6: '2045+ST PM', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1	Infinite Saturation Flow						Inf	Inf
1/2	Infinite Saturation Flow						Inf	Inf
2/1	5.00	0.00	Y	Arm 5 Left	18.90	100.0 %	1959	1959
2/2	4.20	0.00	N	Arm 1 Ahead	Inf	100.0 %	2175	2175
2/3	3.40	0.00	N	Arm 1 Ahead	Inf	100.0 %	2095	2095
3/1	5.00	0.00	Y	Arm 1 Left	26.60	100.0 %	2002	2002
3/2	3.50	0.00	N	Arm 4 Right	17.90	100.0 %	1942	1942
4/1	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
6/1	3.40	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1955	1955
6/2	3.10	0.00	N	Arm 5 Right	13.50	100.0 %	1859	1859

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2045 AM'	08:00	09:00	01:00	
2: '2045 PM'	16:30	17:30	01:00	
3: '2045+CD AM'	08:00	09:00	01:00	
4: '2045+CD PM'	16:30	17:30	01:00	
5: '2045+ST AM'	08:00	09:00	01:00	
6: '2045+ST PM'	16:30	17:30	01:00	

Traffic Flows, Desired

FG1: '2045 AM'

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	460	1078	1538
	B	257	0	246	503
	C	509	164	0	673
	Tot.	766	624	1324	2714

FG2: '2045 PM'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	147	671	818
	B	288	0	147	435
	C	697	258	0	955
	Tot.	985	405	818	2208

FG3: '2045+CD AM'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	482	1078	1560
	B	341	0	317	658
	C	509	183	0	692
	Tot.	850	665	1395	2910

FG4: '2045+CD PM'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	241	671	912
	B	337	0	189	526
	C	697	338	0	1035
	Tot.	1034	579	860	2473

FG5: '2045+ST AM'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	532	1078	1610
	B	532	0	282	814
	C	509	173	0	682
	Tot.	1041	705	1360	3106

FG6: '2045+ST PM'
Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	451	671	1122
	B	448	0	168	616
	C	736	297	0	1033
	Tot.	1184	748	839	2771

Stage Timings

Scenario 1: '2045 AM' (FG1: '2045 AM', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	26	2	3	9
Change Point	0	31	38	43

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**66.2%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**66.2%**
1/1		U	N/A	N/A	-		-	-	-	795	Inf	Inf	0.0%
1/2		U	N/A	N/A	-		-	-	-	529	Inf	Inf	0.0%
2/1	Left	U	N/A	N/A	A	B	1	40	14	460	1959	1339	34.4%
2/2+2/3	Ahead	U	N/A	N/A	A		1	26	-	1078	2175:2095	838+807	65.5 : 65.5%
3/2+3/1	Left Right	U	N/A	N/A	C D		1	12:20	-	503	1942:2002	409+391	62.9 : 62.9%
4/1		U	N/A	N/A	-		-	-	-	766	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	624	Inf	Inf	0.0%
6/1+6/2	Ahead Right	U	N/A	N/A	F E		1	38:7	-	673	1955:1859	1241+248	41.0 : 66.2%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**8.5**	**2.5**	**0.0**	**10.9**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**8.5**	**2.5**	**0.0**	**10.9**	**-**	**-**	**-**	**-**
1/1	795	795	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	529	529	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	460	460	-	-	-	0.5	0.3	-	0.8	6.0	3.1	0.3	3.3
2/2+2/3	1078	1078	-	-	-	3.6	0.9	-	4.6	15.3	6.7	0.9	7.7
3/2+3/1	503	503	-	-	-	2.5	0.8	-	3.3	24.0	3.9	0.8	4.7
4/1	766	766	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	624	624	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1+6/2	673	673	-	-	-	1.8	0.4	-	2.2	12.0	4.0	0.4	4.4

C1	PRC for Signalled Lanes (%):	36.0	Total Delay for Signalled Lanes (pcuHr):	10.94	Cycle Time (s):	60
	PRC Over All Lanes (%):	36.0	Total Delay Over All Lanes(pcuHr):	10.94		

Stage Timings

Scenario 2: '2045 PM' (FG2: '2045 PM', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	10	2	4	6
Change Point	0	15	22	28

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**64.8%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**64.8%**
1/1		U	N/A	N/A	-		-	-	-	489	Inf	Inf	0.0%
1/2		U	N/A	N/A	-		-	-	-	329	Inf	Inf	0.0%
2/1	Left	U	N/A	N/A	A	B	1	21	11	147	1959	1026	14.3%
2/2+2/3	Ahead	U	N/A	N/A	A		1	10	-	671	2175:2095	570+549	60.0 : 60.0%
3/2+3/1	Left Right	U	N/A	N/A	C D		1	9:18	-	435	1942:2002	462+236	62.3 : 62.3%
4/1		U	N/A	N/A	-		-	-	-	985	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	405	Inf	Inf	0.0%
6/1+6/2	Ahead Right	U	N/A	N/A	F E		1	23:8	-	955	1955:1859	1117+398	62.4 : 64.8%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**6.4**	**2.5**	**0.0**	**8.9**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**6.4**	**2.5**	**0.0**	**8.9**	**-**	**-**	**-**	**-**
1/1	489	489	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	329	329	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	147	147	-	-	-	0.2	0.1	-	0.3	7.2	0.9	0.1	0.9
2/2+2/3	671	671	-	-	-	2.5	0.7	-	3.3	17.6	3.4	0.7	4.2
3/2+3/1	435	435	-	-	-	1.4	0.8	-	2.2	18.6	3.0	0.8	3.8
4/1	985	985	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	405	405	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1+6/2	955	955	-	-	-	2.2	0.8	-	3.1	11.6	5.2	0.8	6.1

C1	PRC for Signalled Lanes (%):	39.0	Total Delay for Signalled Lanes (pcuHr):	8.91	Cycle Time (s):	42
	PRC Over All Lanes (%):	39.0	Total Delay Over All Lanes(pcuHr):	8.91		

Stage Timings

Scenario 3: '2045+CD AM' (FG3: '2045+CD AM', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	21	2	4	13
Change Point	0	26	33	39

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.5%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.5%**
1/1		U	N/A	N/A	-		-	-	-	866	Inf	Inf	0.0%
1/2		U	N/A	N/A	-		-	-	-	529	Inf	Inf	0.0%
2/1	Left	U	N/A	N/A	A	B	1	39	18	482	1959	1306	36.9%
2/2+2/3	Ahead	U	N/A	N/A	A		1	21	-	1078	2175:2095	747+720	73.5 : 73.5%
3/2+3/1	Left Right	U	N/A	N/A	C D		1	16:25	-	658	1942:2002	477+443	71.5 : 71.5%
4/1		U	N/A	N/A	-		-	-	-	850	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	665	Inf	Inf	0.0%
6/1+6/2	Ahead Right	U	N/A	N/A	F E		1	34:8	-	692	1955:1859	1140+279	44.6 : 65.6%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**10.4**	**3.4**	**0.0**	**13.8**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**10.4**	**3.4**	**0.0**	**13.8**	**-**	**-**	**-**	**-**
1/1	866	866	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	529	529	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	482	482	-	-	-	0.6	0.3	-	0.9	6.6	3.5	0.3	3.8
2/2+2/3	1078	1078	-	-	-	4.8	1.4	-	6.2	20.7	7.6	1.4	9.0
3/2+3/1	658	658	-	-	-	2.8	1.2	-	4.0	22.0	4.9	1.2	6.2
4/1	850	850	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	665	665	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1+6/2	692	692	-	-	-	2.2	0.5	-	2.7	14.0	4.7	0.5	5.1

C1	PRC for Signalled Lanes (%):	22.5	Total Delay for Signalled Lanes (pcuHr):	13.80	Cycle Time (s):	60
	PRC Over All Lanes (%):	22.5	Total Delay Over All Lanes(pcuHr):	13.80		

Stage Timings

Scenario 4: '2045+CD PM' (FG4: '2045+CD PM', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	8	0	8	6
Change Point	0	13	18	28

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.4%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.4%**
1/1		U	N/A	N/A	-		-	-	-	531	Inf	Inf	0.0%
1/2		U	N/A	N/A	-		-	-	-	329	Inf	Inf	0.0%
2/1	Left	U	N/A	N/A	A	B	1	19	11	241	1959	933	25.8%
2/2+2/3	Ahead	U	N/A	N/A	A		1	8	-	671	2175:2095	466+449	73.4 : 73.3%
3/2+3/1	Left Right	U	N/A	N/A	C D		1	9:22	-	526	1942:2002	462+259	72.9 : 72.9%
4/1		U	N/A	N/A	-		-	-	-	1034	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	579	Inf	Inf	0.0%
6/1+6/2	Ahead Right	U	N/A	N/A	F E		1	23:10	-	1035	1955:1859	1117+487	62.4 : 69.4%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**7.4**	**3.8**	**0.0**	**11.2**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**7.4**	**3.8**	**0.0**	**11.2**	**-**	**-**	**-**	**-**
1/1	531	531	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	329	329	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	241	241	-	-	-	0.4	0.2	-	0.6	9.2	1.7	0.2	1.8
2/2+2/3	671	671	-	-	-	2.9	1.4	-	4.2	22.7	3.7	1.4	5.1
3/2+3/1	526	526	-	-	-	1.6	1.3	-	3.0	20.2	3.6	1.3	4.9
4/1	1034	1034	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	579	579	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1+6/2	1035	1035	-	-	-	2.5	0.9	-	3.4	11.8	5.2	0.9	6.1

C1	PRC for Signalled Lanes (%):	22.7	Total Delay for Signalled Lanes (pcuHr):	11.18	Cycle Time (s):	42
	PRC Over All Lanes (%):	22.7	Total Delay Over All Lanes(pcuHr):	11.18		

Stage Timings

Scenario 5: '2045+ST AM' (FG5: '2045+ST AM', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	17	2	3	18
Change Point	0	22	29	34

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.4%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.4%**
1/1		U	N/A	N/A	-		-	-	-	831	Inf	Inf	0.0%
1/2		U	N/A	N/A	-		-	-	-	529	Inf	Inf	0.0%
2/1	Left	U	N/A	N/A	A	B	1	40	23	532	1959	1339	39.7%
2/2+2/3	Ahead	U	N/A	N/A	A		1	17	-	1078	2175:2095	653+628	84.1 : 84.2%
3/2+3/1	Left Right	U	N/A	N/A	C D		1	21:29	-	814	1942:2002	608+323	87.4 : 87.4%
4/1		U	N/A	N/A	-		-	-	-	1041	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	705	Inf	Inf	0.0%
6/1+6/2	Ahead Right	U	N/A	N/A	F E		1	29:7	-	682	1955:1859	978+248	52.1 : 69.8%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**12.3**	**6.8**	**0.0**	**19.2**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**12.3**	**6.8**	**0.0**	**19.2**	**-**	**-**	**-**	**-**
1/1	831	831	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	529	529	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	532	532	-	-	-	0.6	0.3	-	0.9	6.4	3.8	0.3	4.2
2/2+2/3	1078	1078	-	-	-	5.9	2.6	-	8.5	28.3	8.5	2.6	11.1
3/2+3/1	814	814	-	-	-	3.2	3.3	-	6.5	28.7	8.8	3.3	12.1
4/1	1041	1041	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	705	705	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1+6/2	682	682	-	-	-	2.6	0.6	-	3.3	17.2	5.7	0.6	6.3

C1	PRC for Signalled Lanes (%):	2.9	Total Delay for Signalled Lanes (pcuHr):	19.16	Cycle Time (s):	60
	PRC Over All Lanes (%):	2.9	Total Delay Over All Lanes(pcuHr):	19.16		

Stage Timings

Scenario 6: '2045+ST PM' (FG6: '2045+ST PM', Plan 1: 'Network Control Plan 1')

Stage	1	2	3	4
Duration	8	2	4	8
Change Point	0	13	20	26

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.7%**
Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.7%**
1/1		U	N/A	N/A	-		-	-	-	510	Inf	Inf	0.0%
1/2		U	N/A	N/A	-		-	-	-	329	Inf	Inf	0.0%
2/1	Left	U	N/A	N/A	A	B	1	21	13	451	1959	1026	44.0%
2/2+2/3	Ahead	U	N/A	N/A	A		1	8	-	671	2175:2095	466+449	73.4 : 73.3%
3/2+3/1	Left Right	U	N/A	N/A	C D		1	11:20	-	616	1942:2002	555+208	80.7 : 80.7%
4/1		U	N/A	N/A	-		-	-	-	1184	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	748	Inf	Inf	0.0%
6/1+6/2	Ahead Right	U	N/A	N/A	F E		1	21:8	-	1033	1955:1859	1024+398	71.9 : 74.6%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**8.5**	**5.1**	**0.0**	**13.6**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**8.5**	**5.1**	**0.0**	**13.6**	**-**	**-**	**-**	**-**
1/1	510	510	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	329	329	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	451	451	-	-	-	0.8	0.4	-	1.2	9.3	3.1	0.4	3.5
2/2+2/3	671	671	-	-	-	2.9	1.4	-	4.2	22.7	3.7	1.4	5.1
3/2+3/1	616	616	-	-	-	2.0	2.0	-	4.0	23.6	4.7	2.0	6.8
4/1	1184	1184	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	748	748	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1+6/2	1033	1033	-	-	-	2.8	1.3	-	4.2	14.5	6.5	1.3	7.9

C1	PRC for Signalled Lanes (%):	11.5	Total Delay for Signalled Lanes (pcuHr):	13.59	Cycle Time (s):	42
	PRC Over All Lanes (%):	11.5	Total Delay Over All Lanes(pcuHr):	13.59		

Junctions 10

PICADY 10 - Priority Intersection Module

Version: 10.0.2.1574
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Filename: Junction 4 - A290_Giles Lane.j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 4 - A290_Giles Lane_Junctions 10 Report
Report generation date: 16/01/2023 08:19:56

»2045 Base Modelled, AM
»2045 Base Modelled, PM
»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 Base Modelled													
Stream B-AC	D7	1.8	38.19	0.65	E	5.00	-2 % [Stream B-AC]	D8	3.7	57.06	0.81	F	10.96	-10 % [Stream B-AC]
Stream C-AB		0.6	6.97	0.26	A				0.2	4.55	0.09	A		
	2045 + CD													
Stream B-AC	D9	0.3	13.94	0.26	B	1.74	52 % [Stream B-AC]	D10	0.2	10.44	0.14	B	0.73	97 % [Stream B-AC]
Stream C-AB		0.5	5.58	0.20	A				0.1	4.10	0.07	A		
	2045 + ST													
Stream B-AC	D11	0.2	13.54	0.13	B	1.28	73 % [Stream B-AC]	D12	0.1	10.47	0.10	B	0.63	118 % [Stream B-AC]
Stream C-AB		0.4	5.53	0.19	A				0.1	4.42	0.06	A		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	A290/Giles Lane
Location	University of Kent
Site number	
Date	23/11/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	70080896
Enumerator	CORP\UKWGF001
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 length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base Modelled	AM	ONE HOUR	07:45	09:15	15	✓	✓
D8	2045 Base Modelled	PM	ONE HOUR	16:15	17:45	15	✓	✓
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

Analysis Set Details

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

2045 Base Modelled, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D7 - 2045 Base Modelled, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		5.00	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-2	Stream B-AC	5.00	A

Arms

Arms

Arm	Name	Description	Arm type
A	A290 Whitstable Road West		Major
B	Giles Lane		Minor
C	A290 Whitstable Road East		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)
C	6.90			139.2	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.78	18	17

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	481	0.085	0.214	0.134	0.305
B-C	621	0.091	0.230	-	-
C-B	655	0.244	0.244	-	-

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.

Traffic Demand

Demand Set Details

		Time Period	Traffic	Start time	Finish time	Time segment	Results for	Run

ID	Scenario name	name	profile type	(HH:mm)	(HH:mm)	length (min)	central hour only	automatically
D7	2045 Base Modelled	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	851	100.000
B		ONE HOUR	✓	160	100.000
C		ONE HOUR	✓	411	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	384	467
	B	142	0	18
	C	332	79	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	2
	B	0	0	0
	C	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.65	38.19	1.8	9.0	E	160	160
C-AB	0.26	6.97	0.6	1.4	A	155	155
C-A						256	256
A-B						384	384
A-C						467	467

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	144	36	311	0.462	143	0.5	0.8	21.223	C
C-AB	126	32	686	0.184	126	0.3	0.4	6.433	A
C-A	243	61			243				
A-B	345	86			345				
A-C	420	105			420				

08:15 - 08:30

	Total	Junction	Capacity		Throughput	Start queue	End queue		Unsignalised

Stream	Demand (Veh/hr)	Arrivals (Veh)	(Veh/hr)	RFC	(Veh/hr)	(Veh)	(Veh)	Delay (s)	level of service
B-AC	176	44	269	0.654	173	0.8	1.7	35.946	E
C-AB	183	46	701	0.260	182	0.4	0.6	6.935	A
C-A	270	67			270				
A-B	423	106			423				
A-C	514	129			514				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	176	44	269	0.654	176	1.7	1.8	38.191	E
C-AB	183	46	702	0.261	183	0.6	0.6	6.966	A
C-A	269	67			269				
A-B	423	106			423				
A-C	514	129			514				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	144	36	311	0.463	147	1.8	0.9	22.484	C
C-AB	127	32	686	0.185	128	0.6	0.4	6.481	A
C-A	243	61			243				
A-B	345	86			345				
A-C	420	105			420				

Queue Variation Results for each time segment

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.83	0.16	0.93	1.42	1.49			N/A	N/A
C-AB	0.37	0.00	0.00	0.37	0.37			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	1.70	0.03	0.32	3.43	8.92			N/A	N/A
C-AB	0.63	0.03	0.26	0.63	0.82			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	1.79	0.03	0.31	2.76	8.99			N/A	N/A
C-AB	0.64	0.05	0.49	1.43	1.43			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.90	0.05	0.46	1.94	2.93			N/A	N/A
C-AB	0.39	0.00	0.00	0.39	0.39			N/A	N/A

2045 Base Modelled, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D8 - 2045 Base Modelled, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		10.96	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-10	Stream B-AC	10.96	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D8	2045 Base Modelled	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	484	100.000
B		ONE HOUR	✓	230	100.000
C		ONE HOUR	✓	511	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	125	359
	B	214	0	16
	C	480	31	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.81	57.06	3.7	20.1	F	230	230
C-AB	0.09	4.55	0.2	1.2	A	70	70
C-A						441	441
A-B						125	125
A-C						359	359

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	207	52	345	0.600	205	0.9	1.4	25.296	D
C-AB	57	14	848	0.067	57	0.1	0.1	4.549	A
C-A	402	101			402				
A-B	112	28			112				
A-C	323	81			323				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	253	63	312	0.812	245	1.4	3.4	49.057	E
C-AB	83	21	899	0.093	83	0.1	0.2	4.413	A
C-A	479	120			479				
A-B	138	34			138				
A-C	395	99			395				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	253	63	312	0.812	252	3.4	3.7	57.057	F
C-AB	83	21	899	0.093	83	0.2	0.2	4.416	A
C-A	479	120			479				
A-B	138	34			138				
A-C	395	99			395				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	207	52	344	0.600	215	3.7	1.6	29.430	D
C-AB	57	14	848	0.067	57	0.2	0.1	4.554	A
C-A	402	101			402				
A-B	112	28			112				
A-C	323	81			323				

Queue Variation Results for each time segment

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

B-AC	1.41	0.11	1.17	2.57	3.30			N/A	N/A
C-AB	0.11	0.03	0.25	0.46	0.48			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	3.38	0.05	0.48	9.53	16.20			N/A	N/A
C-AB	0.18	0.03	0.27	0.49	1.16			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	3.74	0.04	0.37	9.21	20.09			N/A	N/A
C-AB	0.19	0.00	0.00	0.19	0.19			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	1.60	0.04	0.41	4.25	7.43			N/A	N/A
C-AB	0.12	0.00	0.00	0.12	0.12			N/A	N/A

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D9 - 2045 + CD, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		1.74	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	52	Stream B-AC	1.74	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	550	100.000
B		ONE HOUR	✓	81	100.000
C		ONE HOUR	✓	458	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	78	472
	B	44	0	37
	C	388	70	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	1
	B	0	0	0
	C	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.26	13.94	0.3	1.1	B	81	81
C-AB	0.20	5.58	0.5	1.4	A	139	139
C-A						319	319
A-B						78	78
A-C						472	472

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	73	18	384	0.190	73	0.2	0.2	11.566	B
C-AB	115	29	776	0.148	114	0.2	0.3	5.442	A
C-A	297	74			297				
A-B	70	18			70				
A-C	424	106			424				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	89	22	347	0.257	89	0.2	0.3	13.895	B
C-AB	164	41	810	0.202	163	0.3	0.5	5.568	A
C-A	340	85			340				
A-B	86	21			86				
A-C	520	130			520				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	89	22	347	0.257	89	0.3	0.3	13.945	B
C-AB	164	41	811	0.202	164	0.5	0.5	5.581	A
C-A	340	85			340				
A-B	86	21			86				
A-C	520	130			520				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	73	18	383	0.190	73	0.3	0.2	11.621	B
C-AB	115	29	777	0.148	116	0.5	0.3	5.465	A
C-A	297	74			297				
A-B	70	18			70				
A-C	424	106			424				

Queue Variation Results for each time segment

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

B-AC	0.23	0.00	0.00	0.23	0.23			N/A	N/A
C-AB	0.30	0.00	0.00	0.30	0.30			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.34	0.03	0.26	0.46	0.49			N/A	N/A
C-AB	0.47	0.03	0.26	0.48	0.85			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.34	0.03	0.31	1.07	1.07			N/A	N/A
C-AB	0.47	0.04	0.41	1.24	1.37			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.24	0.00	0.00	0.24	0.24			N/A	N/A
C-AB	0.31	0.00	0.00	0.31	0.31			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D10 - 2045 + CD, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.73	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	97	Stream B-AC	0.73	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	389	100.000
B		ONE HOUR	✓	51	100.000
C		ONE HOUR	✓	595	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	19	370
	B	21	0	30
	C	574	21	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.14	10.44	0.2	0.5	B	51	51
C-AB	0.07	4.10	0.1	0.7	A	54	54
C-A						541	541
A-B						19	19
A-C						370	370

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	46	11	431	0.106	46	0.1	0.1	9.347	A
C-AB	43	11	922	0.047	43	0.0	0.1	4.096	A
C-A	492	123			492				
A-B	17	4			17				
A-C	333	83			333				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	56	14	401	0.140	56	0.1	0.2	10.433	B
C-AB	64	16	989	0.065	64	0.1	0.1	3.894	A
C-A	591	148			591				
A-B	21	5			21				
A-C	407	102			407				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	56	14	401	0.140	56	0.2	0.2	10.444	B
C-AB	64	16	989	0.065	64	0.1	0.1	3.897	A
C-A	591	148			591				
A-B	21	5			21				
A-C	407	102			407				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	46	11	431	0.106	46	0.2	0.1	9.359	A
C-AB	43	11	922	0.047	43	0.1	0.1	4.098	A
C-A	492	123			492				
A-B	17	4			17				
A-C	333	83			333				

Queue Variation Results for each time segment

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

B-AC	0.12	0.00	0.00	0.12	0.12			N/A	N/A
C-AB	0.07	0.03	0.25	0.45	0.48			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.16	0.03	0.26	0.47	0.49			N/A	N/A
C-AB	0.11	0.03	0.27	0.48	0.69			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.16	0.03	0.25	0.45	0.48			N/A	N/A
C-AB	0.11	0.00	0.00	0.11	0.11			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.12	0.00	0.00	0.12	0.12			N/A	N/A
C-AB	0.07	0.00	0.00	0.07	0.07			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D11 - 2045 + ST, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		1.28	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	73	Stream B-AC	1.28	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	479	100.000
B		ONE HOUR	✓	37	100.000
C		ONE HOUR	✓	435	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	86	393
	B	35	0	2
	C	365	70	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	2
	B	0	0	0
	C	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.13	13.54	0.2	0.5	B	37	37
C-AB	0.19	5.53	0.4	1.3	A	132	132
C-A						303	303
A-B						86	86
A-C						393	393

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	33	8	340	0.098	33	0.1	0.1	11.729	B
C-AB	110	27	774	0.142	109	0.2	0.3	5.415	A
C-A	281	70			281				
A-B	77	19			77				
A-C	353	88			353				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	41	10	307	0.133	41	0.1	0.2	13.517	B
C-AB	154	39	807	0.191	154	0.3	0.4	5.514	A
C-A	325	81			325				
A-B	95	24			95				
A-C	433	108			433				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	41	10	307	0.133	41	0.2	0.2	13.538	B
C-AB	154	39	807	0.191	154	0.4	0.4	5.530	A
C-A	324	81			324				
A-B	95	24			95				
A-C	433	108			433				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	33	8	340	0.098	33	0.2	0.1	11.758	B
C-AB	110	27	775	0.142	110	0.4	0.3	5.438	A
C-A	281	70			281				
A-B	77	19			77				
A-C	353	88			353				

Queue Variation Results for each time segment

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

B-AC	0.11	0.00	0.00	0.11	0.11			N/A	N/A
C-AB	0.28	0.00	0.00	0.28	0.28			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.15	0.03	0.26	0.47	0.49			N/A	N/A
C-AB	0.42	0.03	0.26	0.48	0.72			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.15	0.03	0.25	0.45	0.48			N/A	N/A
C-AB	0.42	0.04	0.35	1.16	1.33			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.11	0.00	0.00	0.11	0.11			N/A	N/A
C-AB	0.29	0.00	0.00	0.29	0.29			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D12 - 2045 + ST, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.63	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	118	Stream B-AC	0.63	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	368	100.000
B		ONE HOUR	✓	33	100.000
C		ONE HOUR	✓	480	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	15	353
	B	20	0	13
	C	458	22	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.10	10.47	0.1	0.5	B	33	33
C-AB	0.06	4.42	0.1	0.6	A	47	47
C-A						433	433
A-B						15	15
A-C						353	353

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	30	7	408	0.073	30	0.1	0.1	9.510	A
C-AB	38	10	854	0.045	38	0.0	0.1	4.413	A
C-A	393	98			393				
A-B	13	3			13				
A-C	317	79			317				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	36	9	380	0.096	36	0.1	0.1	10.465	B
C-AB	55	14	904	0.061	55	0.1	0.1	4.238	A
C-A	474	118			474				
A-B	17	4			17				
A-C	389	97			389				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	36	9	380	0.096	36	0.1	0.1	10.472	B
C-AB	55	14	904	0.061	55	0.1	0.1	4.240	A
C-A	473	118			473				
A-B	17	4			17				
A-C	389	97			389				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	30	7	408	0.073	30	0.1	0.1	9.517	A
C-AB	38	10	854	0.045	38	0.1	0.1	4.416	A
C-A	393	98			393				
A-B	13	3			13				
A-C	317	79			317				

Queue Variation Results for each time segment

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

B-AC	0.08	0.03	0.26	0.46	0.49			N/A	N/A
C-AB	0.07	0.03	0.25	0.45	0.48			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.10	0.03	0.26	0.47	0.49			N/A	N/A
C-AB	0.10	0.03	0.26	0.48	0.56			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.11	0.03	0.25	0.45	0.48			N/A	N/A
C-AB	0.10	0.00	0.00	0.10	0.10			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.08	0.00	0.00	0.08	0.08			N/A	N/A
C-AB	0.07	0.00	0.00	0.07	0.07			N/A	N/A

Junctions 10

PICADY 10 - Priority Intersection Module

Version: 10.0.2.1574
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Report generation date: 10/01/2023 16:58:36

»2045 Base Modelled, AM
»2045 Base Modelled, PM
»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 Base Modelled													
Stream B-C	D7	1.4	17.82	0.59	C	10.19	1 % [Stream B-A]	D8	12.7	113.48	1.00	F	50.21	-12 % [Stream B-A]
Stream B-A		0.7	34.04	0.42	D				7.3	157.36	0.96	F		
Stream C-AB		3.3	20.18	0.73	C				0.2	7.95	0.20	A		
	2045 + CD													
Stream B-C	D9	1.2	15.06	0.54	C	6.35	8 % [Stream B-A]	D10	3.8	36.04	0.81	E	12.32	-3 % [Stream B-A]
Stream B-A		0.3	26.67	0.22	D				1.1	44.43	0.55	E		
Stream C-AB		1.8	14.68	0.61	B				0.2	7.95	0.19	A		
	2045 + ST													
Stream B-C	D11	1.2	14.73	0.55	B	7.17	10 % [Stream B-A]	D12	2.9	28.77	0.76	D	10.76	1 % [Stream B-A]
Stream B-A		0.4	24.72	0.27	C				0.9	32.23	0.48	D		
Stream C-AB		1.8	14.48	0.61	B				0.2	7.73	0.18	A		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	23/11/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\UKWGF001
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 length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base Modelled	AM	ONE HOUR	07:45	09:15	15	✓	✓
D8	2045 Base Modelled	PM	ONE HOUR	16:15	17:45	15	✓	✓
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

Analysis Set Details

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

2045 Base Modelled, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Demand Sets	D7 - 2045 Base Modelled, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		10.19	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	Stream B-A	10.19	B

Arms

Arms

Arm	Name	Description	Arm type
A	A290 St Thomas Hill North		Major
B	University Road		Minor
C	A290 St Thomas Hill South		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Width for right-turn storage (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.55		✓	2.33	137.0	✓	3.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	4.80	3.50	3.50	3.50	✓	1.00	54	24

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	507	0.091	0.229	0.144	0.327
B-C	694	0.103	0.261	-	-
C-B	662	0.250	0.250	-	-

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.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base Modelled	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	487	100.000
B		ONE HOUR	✓	329	100.000
C		ONE HOUR	✓	694	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	171	316
	B	69	0	260
	C	347	347	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	1	2
	B	3	0	1
	C	2	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.59	17.82	1.4	5.3	C	260	260
B-A	0.42	34.04	0.7	3.2	D	69	69
C-AB	0.73	20.18	3.3	16.5	C	419	419
C-A						275	275
A-B						171	171
A-C						316	316

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	234	58	551	0.425	233	0.5	0.7	11.299	B

B-A	62	16	251	0.247	62	0.2	0.3	18.955	C
C-AB	345	86	606	0.570	343	0.9	1.4	13.643	B
C-A	279	70			279				
A-B	154	38			154				
A-C	284	71			284				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	286	72	491	0.583	284	0.7	1.3	17.149	C
B-A	76	19	184	0.413	75	0.3	0.7	32.500	D
C-AB	492	123	672	0.732	485	1.4	3.1	18.961	C
C-A	272	68			272				
A-B	188	47			188				
A-C	348	87			348				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	286	72	488	0.587	286	1.3	1.4	17.822	C
B-A	76	19	181	0.419	76	0.7	0.7	34.044	D
C-AB	492	123	673	0.731	491	3.1	3.3	20.183	C
C-A	272	68			272				
A-B	188	47			188				
A-C	348	87			348				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	234	58	548	0.427	236	1.4	0.8	11.645	B
B-A	62	16	248	0.250	63	0.7	0.3	19.672	C
C-AB	345	86	606	0.569	352	3.3	1.5	14.627	B
C-A	279	70			279				
A-B	154	38			154				
A-C	284	71			284				

Queue Variation Results for each time segment

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.72	0.13	0.88	1.38	1.45			N/A	N/A
B-A	0.32	0.00	0.00	0.32	0.32			N/A	N/A
C-AB	1.40	0.11	1.17	2.55	3.26			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.34	0.03	0.28	1.34	3.89			N/A	N/A
B-A	0.66	0.03	0.27	0.66	1.07			N/A	N/A
C-AB	3.07	0.03	0.35	7.01	16.48			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.38	0.03	0.29	1.38	5.28			N/A	N/A
B-A	0.70	0.03	0.32	1.53	3.24			N/A	N/A
C-AB	3.26	0.03	0.31	4.30	15.86			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

B-C	0.76	0.06	0.69	1.11	1.65			N/A	N/A
B-A	0.34	0.03	0.29	0.76	1.13			N/A	N/A
C-AB	1.54	0.06	0.73	3.73	5.53			N/A	N/A

2045 Base Modelled, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Demand Sets	D8 - 2045 Base Modelled, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		50.21	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-12	Stream B-A	50.21	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D8	2045 Base Modelled	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	366	100.000
B		ONE HOUR	✓	530	100.000
C		ONE HOUR	✓	456	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	55	311
	B	159	0	371
	C	355	101	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0

	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	1.00	113.48	12.7	45.2	F	371	371
B-A	0.96	157.36	7.3	26.5	F	159	159
C-AB	0.20	7.95	0.2	1.2	A	101	101
C-A						355	355
A-B						55	55
A-C						311	311

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	334	83	522	0.638	331	0.9	1.7	18.461	C
B-A	143	36	298	0.480	141	0.5	0.9	22.824	C
C-AB	91	23	581	0.157	91	0.1	0.2	7.342	A
C-A	319	80			319				
A-B	49	12			49				
A-C	280	70			280				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	408	102	422	0.969	382	1.7	8.3	66.470	F
B-A	175	44	184	0.951	158	0.9	5.3	101.358	F
C-AB	112	28	564	0.198	112	0.2	0.2	7.947	A
C-A	390	98			390				
A-B	61	15			61				
A-C	342	86			342				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	408	102	410	0.996	391	8.3	12.7	113.484	F
B-A	175	44	182	0.962	167	5.3	7.3	157.363	F
C-AB	112	28	564	0.198	112	0.2	0.2	7.955	A
C-A	390	98			390				
A-B	61	15			61				
A-C	342	86			342				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	334	83	480	0.695	374	12.7	2.5	43.456	E
B-A	143	36	255	0.561	167	7.3	1.4	49.087	E
C-AB	91	23	581	0.157	91	0.2	0.2	7.355	A
C-A	319	80			319				
A-B	49	12			49				
A-C	280	70			280				

Queue Variation Results for each time segment

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.67	0.06	0.80	4.08	6.04			N/A	N/A
B-A	0.88	0.05	0.55	1.79	2.57			N/A	N/A
C-AB	0.18	0.00	0.00	0.18	0.18			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	8.34	0.20	4.22	20.71	28.45			N/A	N/A
B-A	5.27	0.16	2.60	12.72	17.41			N/A	N/A
C-AB	0.25	0.03	0.26	0.46	0.49			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	12.69	0.21	6.17	32.53	45.20			N/A	N/A
B-A	7.31	0.14	3.13	18.83	26.54			N/A	N/A
C-AB	0.25	0.03	0.29	0.79	1.16			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	2.52	0.04	0.44	6.94	12.06			N/A	N/A
B-A	1.39	0.04	0.39	3.63	6.47			N/A	N/A
C-AB	0.19	0.00	0.00	0.19	0.19			N/A	N/A

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Demand Sets	D9 - 2045 + CD, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		6.35	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	8	Stream B-A	6.35	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	497	100.000
B		ONE HOUR	✓	292	100.000
C		ONE HOUR	✓	727	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	58	439
	B	35	0	257
	C	440	287	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	2
	B	3	0	1

	C	2	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.54	15.06	1.2	4.0	C	257	257
B-A	0.22	26.67	0.3	1.3	D	35	35
C-AB	0.61	14.68	1.8	7.3	B	331	331
C-A						396	396
A-B						58	58
A-C						439	439

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	231	58	562	0.411	230	0.5	0.7	10.811	B
B-A	31	8	238	0.132	31	0.1	0.1	17.369	C
C-AB	278	70	588	0.474	277	0.6	0.9	11.559	B
C-A	375	94			375				
A-B	52	13			52				
A-C	395	99			395				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	283	71	523	0.541	281	0.7	1.1	14.794	B
B-A	39	10	175	0.221	38	0.1	0.3	26.240	D
C-AB	383	96	629	0.608	380	0.9	1.8	14.324	B
C-A	418	104			418				
A-B	64	16			64				
A-C	483	121			483				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	283	71	522	0.542	283	1.1	1.2	15.056	C
B-A	39	10	173	0.222	39	0.3	0.3	26.674	D
C-AB	383	96	630	0.608	383	1.8	1.8	14.679	B
C-A	418	104			418				
A-B	64	16			64				
A-C	483	121			483				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	231	58	562	0.411	233	1.2	0.7	11.011	B
B-A	31	8	237	0.133	32	0.3	0.2	17.631	C
C-AB	278	70	588	0.473	281	1.8	1.0	11.904	B
C-A	375	94			375				
A-B	52	13			52				
A-C	395	99			395				

Queue Variation Results for each time segment

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.68	0.16	0.91	1.38	1.44			N/A	N/A
B-A	0.15	0.00	0.00	0.15	0.15			N/A	N/A
C-AB	0.94	0.19	0.98	1.02	1.53			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.14	0.03	0.27	1.14	1.78			N/A	N/A
B-A	0.27	0.03	0.26	0.47	0.58			N/A	N/A
C-AB	1.76	0.03	0.29	1.76	7.20			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.16	0.03	0.28	1.16	4.01			N/A	N/A
B-A	0.28	0.03	0.30	0.97	1.28			N/A	N/A
C-AB	1.81	0.03	0.29	1.81	7.30			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.71	0.07	0.73	1.14	1.14			N/A	N/A
B-A	0.16	0.00	0.00	0.16	0.16			N/A	N/A
C-AB	1.00	0.08	0.88	1.74	2.25			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Demand Sets	D10 - 2045 + CD, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		12.32	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-3	Stream B-A	12.32	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	387	100.000
B		ONE HOUR	✓	451	100.000
C		ONE HOUR	✓	602	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	27	360
	B	88	0	363
	C	506	96	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0

	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.81	36.04	3.8	20.0	E	363	363
B-A	0.55	44.43	1.1	5.7	E	88	88
C-AB	0.19	7.95	0.2	1.1	A	96	96
C-A						506	506
A-B						27	27
A-C						360	360

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	326	82	555	0.588	324	0.9	1.4	15.485	C
B-A	79	20	278	0.285	79	0.2	0.4	17.993	C
C-AB	87	22	576	0.150	86	0.1	0.2	7.345	A
C-A	455	114			455				
A-B	24	6			24				
A-C	324	81			324				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	400	100	500	0.800	391	1.4	3.4	31.184	D
B-A	97	24	184	0.525	94	0.4	1.0	38.932	E
C-AB	106	27	559	0.190	106	0.2	0.2	7.945	A
C-A	556	139			556				
A-B	30	7			30				
A-C	396	99			396				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	400	100	495	0.807	398	3.4	3.8	36.037	E
B-A	97	24	177	0.549	96	1.0	1.1	44.427	E
C-AB	106	27	559	0.190	106	0.2	0.2	7.953	A
C-A	556	139			556				
A-B	30	7			30				
A-C	396	99			396				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	326	82	551	0.593	335	3.8	1.5	17.351	C
B-A	79	20	271	0.292	82	1.1	0.4	19.298	C
C-AB	87	22	576	0.150	87	0.2	0.2	7.355	A
C-A	455	114			455				
A-B	24	6			24				
A-C	324	81			324				

Queue Variation Results for each time segment

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.38	0.08	1.03	2.77	3.76			N/A	N/A
B-A	0.39	0.00	0.00	0.39	0.39			N/A	N/A
C-AB	0.18	0.00	0.00	0.18	0.18			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	3.42	0.04	0.39	9.08	18.08			N/A	N/A
B-A	1.02	0.03	0.28	1.11	4.01			N/A	N/A
C-AB	0.23	0.03	0.26	0.46	0.49			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	3.77	0.03	0.33	7.05	20.02			N/A	N/A
B-A	1.14	0.03	0.34	2.69	5.65			N/A	N/A
C-AB	0.24	0.03	0.28	0.66	1.09			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.52	0.04	0.43	3.96	6.66			N/A	N/A
B-A	0.42	0.04	0.37	1.21	1.37			N/A	N/A
C-AB	0.18	0.00	0.00	0.18	0.18			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Demand Sets	D11 - 2045 + ST, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		7.17	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	10	Stream B-A	7.17	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	397	100.000
B		ONE HOUR	✓	315	100.000
C		ONE HOUR	✓	694	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	64	333
	B	48	0	267
	C	389	305	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	2
	B	2	0	1

	C	2	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.55	14.73	1.2	3.9	B	267	267
B-A	0.27	24.72	0.4	1.5	C	48	48
C-AB	0.61	14.48	1.8	7.1	B	345	345
C-A						349	349
A-B						64	64
A-C						333	333

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	240	60	578	0.416	239	0.5	0.7	10.613	B
B-A	43	11	261	0.165	43	0.1	0.2	16.458	C
C-AB	294	73	607	0.483	292	0.7	1.0	11.393	B
C-A	330	83			330				
A-B	58	14			58				
A-C	299	75			299				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	294	73	539	0.545	292	0.7	1.2	14.464	B
B-A	53	13	200	0.265	52	0.2	0.3	24.296	C
C-AB	397	99	647	0.614	394	1.0	1.8	14.155	B
C-A	367	92			367				
A-B	70	18			70				
A-C	367	92			367				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	294	73	538	0.546	294	1.2	1.2	14.732	B
B-A	53	13	198	0.266	53	0.3	0.4	24.720	C
C-AB	397	99	647	0.614	397	1.8	1.8	14.484	B
C-A	367	92			367				
A-B	70	18			70				
A-C	367	92			367				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	240	60	577	0.416	242	1.2	0.7	10.812	B
B-A	43	11	260	0.166	44	0.4	0.2	16.727	C
C-AB	294	73	608	0.483	297	1.8	1.0	11.721	B
C-A	330	83			330				
A-B	58	14			58				
A-C	299	75			299				

Queue Variation Results for each time segment

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.70	0.16	0.91	1.38	1.44			N/A	N/A
B-A	0.19	0.00	0.00	0.19	0.19			N/A	N/A
C-AB	0.97	0.18	0.99	1.24	1.65			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.16	0.03	0.27	1.16	1.80			N/A	N/A
B-A	0.35	0.03	0.26	0.47	0.50			N/A	N/A
C-AB	1.77	0.03	0.29	1.77	7.08			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.18	0.03	0.28	1.18	3.95			N/A	N/A
B-A	0.36	0.03	0.32	1.20	1.50			N/A	N/A
C-AB	1.82	0.03	0.29	1.82	6.83			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.73	0.07	0.74	1.23	1.23			N/A	N/A
B-A	0.20	0.00	0.00	0.20	0.20			N/A	N/A
C-AB	1.03	0.08	0.89	1.82	2.43			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Demand Sets	D12 - 2045 + ST, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		10.76	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	Stream B-A	10.76	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	361	100.000
B		ONE HOUR	✓	444	100.000
C		ONE HOUR	✓	476	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	27	334
	B	94	0	350
	C	386	90	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0

	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.76	28.77	2.9	14.8	D	350	350
B-A	0.48	32.23	0.9	4.4	D	94	94
C-AB	0.18	7.73	0.2	0.8	A	90	90
C-A						386	386
A-B						27	27
A-C						334	334

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	315	79	561	0.561	313	0.8	1.2	14.426	B
B-A	85	21	306	0.276	84	0.2	0.4	16.201	C
C-AB	81	20	582	0.139	81	0.1	0.2	7.184	A
C-A	347	87			347				
A-B	24	6			24				
A-C	300	75			300				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	385	96	511	0.754	379	1.2	2.8	26.217	D
B-A	103	26	220	0.470	102	0.4	0.8	29.927	D
C-AB	100	25	565	0.176	99	0.2	0.2	7.727	A
C-A	425	106			425				
A-B	30	7			30				
A-C	368	92			368				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	385	96	508	0.759	385	2.8	2.9	28.773	D
B-A	103	26	215	0.482	103	0.8	0.9	32.229	D
C-AB	100	25	565	0.176	99	0.2	0.2	7.733	A
C-A	425	106			425				
A-B	30	7			30				
A-C	368	92			368				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	315	79	558	0.564	321	2.9	1.3	15.578	C
B-A	85	21	301	0.281	86	0.9	0.4	16.932	C
C-AB	81	20	582	0.139	81	0.2	0.2	7.193	A
C-A	347	87			347				
A-B	24	6			24				
A-C	300	75			300				

Queue Variation Results for each time segment

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.24	0.09	1.02	2.27	2.95			N/A	N/A
B-A	0.37	0.00	0.00	0.37	0.37			N/A	N/A
C-AB	0.16	0.00	0.00	0.16	0.16			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	2.76	0.03	0.34	6.17	14.78			N/A	N/A
B-A	0.84	0.03	0.27	0.84	1.81			N/A	N/A
C-AB	0.21	0.03	0.26	0.46	0.49			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	2.94	0.03	0.31	3.56	13.98			N/A	N/A
B-A	0.89	0.03	0.32	1.88	4.41			N/A	N/A
C-AB	0.21	0.03	0.27	0.49	0.82			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.34	0.05	0.46	3.40	5.39			N/A	N/A
B-A	0.40	0.03	0.34	1.13	1.32			N/A	N/A
C-AB	0.16	0.00	0.00	0.16	0.16			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.2.1574
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Filename: Junction 6 - Whitsable Road_London Road Mini Roundabout.j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 6 - Whitsable Road_London Road Mini Roundabout
Report generation date: 16/01/2023 08:45:49

»2045 Base, AM
»2045 Base, PM
»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 Base													
Arm A	D7	27.6	108.41	1.03	F	109.10	-17 % [Arm C]	D8	38.3	143.66	1.06	F	84.89	-15 % [Arm A]
Arm B		1.3	11.22	0.57	B				2.4	17.06	0.71	C		
Arm C		36.2	170.00	1.08	F				9.1	56.93	0.93	F		
	2045 + CD													
Arm A	D9	122.2	505.20	1.24	F	329.23	-27 % [Arm A]	D10	84.7	343.10	1.17	F	289.01	-25 % [Arm C]
Arm B		1.8	15.44	0.65	C				4.0	26.95	0.81	D		
Arm C		56.9	261.55	1.14	F				79.9	411.68	1.22	F		
	2045 + ST													
Arm A	D11	33.0	124.99	1.04	F	117.64	-17 % [Arm C]	D12	41.8	154.43	1.07	F	91.42	-16 % [Arm A]
Arm B		1.3	11.24	0.57	B				2.7	18.28	0.73	C		
Arm C		37.1	174.14	1.08	F				10.1	62.99	0.94	F		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	10/01/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\UKWGF001
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

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base	AM	ONE HOUR	07:45	09:15	15	✓	✓
D8	2045 Base	PM	ONE HOUR	16:15	17:45	15	✓	✓
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

Analysis Set Details

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

2045 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D7 - 2045 Base, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	109.10	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-17	Arm C	109.10	F

Arms

Arms

Arm	Name	Description
A	Whitstable Road	
B	St. Dunstans Street	
C	London Road	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	3.20	2.90	4.45	10.5	15.70	15.90	0.0	
B	4.00	3.10	5.15	15.3	15.80	13.60	0.0	
C	3.05	2.98	4.90	2.0	10.80	7.20	0.0	✓

Zebra Crossings

Arm	Space between crossing and junction entry (Zebra) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
C	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.665	977
B	0.661	1108
C	0.497	827

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)

A		ONE HOUR	✓	812	100.000
B		ONE HOUR	✓	385	100.000
C		ONE HOUR	✓	659	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B		
C	[ONEHOUR]	90.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	471	341
	B	244	0	141
	C	545	114	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	5
	B	6	0	6
	C	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.03	108.41	27.6	79.8	F	812	812
B	0.57	11.22	1.3	3.3	B	385	385
C	1.08	170.00	36.2	81.5	F	659	659

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	730	182	101		881	0.829	721	701	2.1	4.3	21.414	C
B	346	87	303		802	0.431	345	519	0.5	0.7	7.856	A
C	592	148	219	80.91	702	0.845	583	429	2.1	4.6	28.094	D

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	894	224	113		873	1.025	838	810	4.3	18.2	62.498	F
B	424	106	352		751	0.564	422	600	0.7	1.3	10.856	B
C	726	181	267	99.09	675	1.074	656	507	4.6	22.0	89.860	F

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	894	224	116		871	1.026	857	822	18.2	27.6	108.408	F
B	424	106	360		744	0.569	424	613	1.3	1.3	11.216	B
C	726	181	269	99.09	675	1.075	669	515	22.0	36.2	170.000	F

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	730	182	118		870	0.839	814	784	27.6	6.6	71.920	F
B	346	87	342		769	0.450	348	590	1.3	0.8	8.588	A
C	592	148	221	80.91	701	0.846	682	469	36.2	13.9	138.308	F

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	4.27	0.10	1.55	10.96	15.69			N/A	N/A
B	0.75	0.12	0.88	1.39	1.46			N/A	N/A
C	4.56	0.12	1.93	11.35	15.85			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	18.22	1.31	12.83	40.00	51.44			N/A	N/A
B	1.26	0.03	0.27	1.26	1.26			N/A	N/A
C	22.02	3.50	18.05	42.15	51.46			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	27.59	1.24	19.28	61.73	79.78			N/A	N/A
B	1.30	0.03	0.28	1.30	3.32			N/A	N/A
C	36.21	7.20	30.70	67.50	81.47			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	6.63	0.06	1.17	19.16	31.24			N/A	N/A
B	0.83	0.11	0.89	1.35	1.35			N/A	N/A
C	13.87	0.53	8.67	32.38	42.82			N/A	N/A

2045 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	Arm B - Capacity	Pedestrian Crossing causes blocking on previous arm due to traffic queing to leave the junction in 2 timesegment(s).
Warning	Demand Sets	D8 - 2045 Base, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	84.89	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-15	Arm A	84.89	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D8	2045 Base	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	821	100.000
B		ONE HOUR	✓	475	100.000
C		ONE HOUR	✓	562	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B		
C	[ONEHOUR]	60.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	466	355
	B	272	0	203
	C	422	140	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	1	5
	B	2	0	8
	C	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.06	143.66	38.3	89.7	F	821	821
B	0.71	17.06	2.4	10.3	C	475	475
C	0.93	56.93	9.1	45.7	F	562	562

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	738	185	125		870	0.849	728	620	2.2	4.8	23.724	C
B	427	107	315		791	0.540	425	538	0.7	1.1	9.791	A
C	505	126	244	53.94	695	0.727	501	496	1.4	2.5	18.139	C

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	904	226	149		854	1.059	830	746	4.8	23.4	75.897	F
B	523	131	359		739	0.708	518	620	1.1	2.3	16.006	C
C	619	155	297	66.06	668	0.927	598	580	2.5	7.6	42.657	E

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	904	226	153		852	1.062	844	759	23.4	38.3	143.659	F
B	523	131	365		733	0.714	523	632	2.3	2.4	17.056	C
C	619	155	299	66.06	667	0.928	613	588	7.6	9.1	56.930	F

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	738	185	132		865	0.853	843	645	38.3	12.1	114.018	F
B	427	107	364		747	0.572	431	611	2.4	1.4	11.556	B
C	505	126	247	53.94	693	0.729	530	549	9.1	2.9	24.796	C

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	4.81	0.11	1.88	12.24	17.33			N/A	N/A
B	1.15	0.08	0.95	2.01	2.79			N/A	N/A
C	2.49	0.08	1.28	6.12	8.78			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	23.36	3.13	18.74	46.03	56.74			N/A	N/A
B	2.29	0.03	0.30	2.29	10.34			N/A	N/A
C	7.62	0.08	1.82	21.38	32.41			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	38.32	6.52	31.81	73.61	89.70			N/A	N/A
B	2.40	0.03	0.28	2.40	7.70			N/A	N/A
C	9.13	0.06	0.95	26.57	45.75			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	12.10	0.23	6.13	30.58	42.18			N/A	N/A
B	1.37	0.07	0.93	2.91	4.06			N/A	N/A
C	2.90	0.04	0.41	7.90	14.67			N/A	N/A

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	Arm B - Capacity	Pedestrian Crossing causes blocking on previous arm due to traffic queing to leave the junction in 2 timesegment(s).
Warning	Demand Sets	D9 - 2045 + CD, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	329.23	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-27	Arm A	329.23	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	980	100.000
B		ONE HOUR	✓	394	100.000
C		ONE HOUR	✓	695	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B		
C	[ONEHOUR]	90.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	477	503
	B	253	0	141
	C	581	114	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	5
	B	6	0	6
	C	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.24	505.20	122.2	194.7	F	980	980
B	0.65	15.44	1.8	6.5	C	394	394
C	1.14	261.55	56.9	102.5	F	695	695

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	881	220	100		879	1.002	837	736	4.3	15.4	55.726	F
B	354	89	429		693	0.511	353	507	0.6	1.0	10.517	B
C	625	156	226	80.91	698	0.896	610	556	2.5	6.3	35.892	E

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1079	270	108		874	1.235	871	829	15.4	67.5	183.321	F
B	434	108	447		668	0.650	431	532	1.0	1.8	15.012	C
C	765	191	277	99.09	671	1.141	660	601	6.3	32.5	122.331	F

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1079	270	109		873	1.236	872	836	67.5	119.1	393.640	F
B	434	108	448		666	0.651	434	534	1.8	1.8	15.437	C
C	765	191	278	99.09	670	1.143	668	603	32.5	56.9	252.079	F

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	881	220	112		871	1.011	869	801	119.1	122.2	505.199	F
B	354	89	446		679	0.522	357	535	1.8	1.1	11.290	B
C	625	156	229	80.91	696	0.898	684	574	56.9	42.1	261.553	F

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	15.35	0.31	8.36	38.20	52.10			N/A	N/A
B	1.02	0.11	0.98	1.60	1.91			N/A	N/A
C	6.27	0.20	3.34	14.94	20.24			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	67.47	29.85	63.50	102.62	115.99			N/A	N/A
B	1.78	0.03	0.29	1.78	6.49			N/A	N/A
C	32.51	10.30	29.25	54.23	63.18			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	119.14	68.05	115.32	164.54	180.64			N/A	N/A
B	1.82	0.03	0.28	1.82	4.75			N/A	N/A
C	56.94	22.62	52.89	89.69	102.52			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	122.15	>199	>199	>199	>199			N/A	N/A
B	1.12	0.07	0.84	2.18	2.97			N/A	N/A
C	42.11	15.71	38.74	67.35	77.39			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	Arm B - Capacity	Pedestrian Crossing causes blocking on previous arm due to traffic queing to leave the junction in 3 timesegment(s).
Warning	Demand Sets	D10 - 2045 + CD, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	289.01	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-25	Arm C	289.01	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	920	100.000
B		ONE HOUR	✓	511	100.000
C		ONE HOUR	✓	715	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B		
C	[ONEHOUR]	60.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	484	436
	B	308	0	203
	C	575	140	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	1	5
	B	2	0	8
	C	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.17	343.10	84.7	140.4	F	920	920
B	0.81	26.95	4.0	20.0	D	511	511
C	1.22	411.68	79.9	127.6	F	715	715

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	827	207	121		871	0.950	801	773	3.3	9.9	40.914	E
B	459	115	380		735	0.625	457	543	0.9	1.6	12.793	B
C	643	161	275	53.94	679	0.946	619	561	3.0	8.9	47.404	E

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1013	253	126		867	1.168	861	852	9.9	48.0	134.523	F
B	563	141	408		696	0.809	554	579	1.6	3.7	24.074	C
C	787	197	334	66.06	649	1.212	644	628	8.9	44.7	165.473	F

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1013	253	127		867	1.168	866	858	48.0	84.7	285.631	F
B	563	141	410		692	0.812	561	582	3.7	4.0	26.951	D
C	787	197	338	66.06	647	1.217	646	633	44.7	79.9	354.438	F

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	827	207	131		864	0.957	854	819	84.7	77.9	343.096	F
B	459	115	405		711	0.646	468	580	4.0	1.9	15.258	C
C	643	161	282	53.94	676	0.951	667	591	79.9	73.7	411.678	F

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	9.88	0.27	5.49	23.92	32.35			N/A	N/A
B	1.61	0.07	1.03	3.60	4.98			N/A	N/A
C	8.86	0.25	4.89	21.36	28.87			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	47.96	18.78	44.43	75.73	86.67			N/A	N/A
B	3.72	0.04	0.37	9.11	19.99			N/A	N/A
C	44.66	18.62	41.63	68.95	78.39			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	84.70	41.25	80.63	124.64	139.48			N/A	N/A
B	4.00	0.03	0.31	5.15	19.38			N/A	N/A
C	79.91	41.50	76.54	114.60	127.30			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	77.87	31.15	72.53	122.83	140.37			N/A	N/A
B	1.90	0.05	0.47	5.07	8.24			N/A	N/A
C	73.75	32.34	69.38	112.68	127.55			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D11 - 2045 + ST, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	117.64	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-17	Arm C	117.64	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	826	100.000
B		ONE HOUR	✓	389	100.000
C		ONE HOUR	✓	659	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B		
C	[ONEHOUR]	90.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	485	341
	B	248	0	141
	C	545	114	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	5
	B	6	0	6
	C	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.04	124.99	33.0	85.2	F	826	826
B	0.57	11.24	1.3	3.3	B	389	389
C	1.08	174.14	37.1	82.2	F	659	659

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	743	186	101		881	0.843	733	704	2.2	4.6	22.836	C
B	350	87	303		803	0.436	349	531	0.5	0.8	7.913	A
C	592	148	222	80.91	700	0.847	582	429	2.1	4.6	28.434	D

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	909	227	113		873	1.042	844	813	4.6	20.9	68.982	F
B	428	107	349		754	0.568	426	609	0.8	1.3	10.902	B
C	726	181	272	99.09	673	1.078	654	503	4.6	22.5	91.496	F

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	909	227	115		872	1.043	861	824	20.9	33.0	124.990	F
B	428	107	356		748	0.573	428	621	1.3	1.3	11.241	B
C	726	181	273	99.09	672	1.079	667	511	22.5	37.1	174.139	F

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	743	186	118		870	0.853	841	787	33.0	8.4	94.409	F
B	350	87	347		764	0.457	352	611	1.3	0.9	8.757	A
C	592	148	224	80.91	699	0.848	680	475	37.1	15.1	144.011	F

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	4.65	0.11	1.80	11.84	16.80			N/A	N/A
B	0.76	0.12	0.88	1.40	1.46			N/A	N/A
C	4.62	0.12	1.97	11.49	16.02			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	20.92	1.85	15.91	43.39	54.51			N/A	N/A
B	1.28	0.03	0.27	1.28	1.28			N/A	N/A
C	22.48	3.77	18.57	42.68	51.96			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	32.99	3.44	25.61	68.11	85.22			N/A	N/A
B	1.32	0.03	0.28	1.32	3.26			N/A	N/A
C	37.14	7.84	31.74	68.43	82.24			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	8.44	0.08	1.89	23.93	36.59			N/A	N/A
B	0.86	0.11	0.90	1.46	1.46			N/A	N/A
C	15.15	0.85	10.16	34.11	44.40			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	Arm B - Capacity	Pedestrian Crossing causes blocking on previous arm due to traffic queing to leave the junction in 1 timesegment(s).
Warning	Demand Sets	D12 - 2045 + ST, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	91.42	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-16	Arm A	91.42	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	829	100.000
B		ONE HOUR	✓	491	100.000
C		ONE HOUR	✓	562	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B		
C	[ONEHOUR]	60.00

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	474	355
	B	288	0	203
	C	422	140	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	1	5
	B	2	0	8
	C	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.07	154.43	41.8	93.3	F	829	829
B	0.73	18.28	2.7	12.2	C	491	491
C	0.94	62.99	10.1	48.5	F	562	562

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	745	186	125		870	0.857	734	634	2.3	5.1	24.658	C
B	441	110	314		792	0.557	440	545	0.8	1.2	10.153	B
C	505	126	258	53.94	688	0.735	501	496	1.4	2.6	18.765	C

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	913	228	148		854	1.068	833	762	5.1	25.1	79.998	F
B	541	135	357		741	0.729	535	625	1.2	2.5	17.051	C
C	619	155	314	66.06	659	0.939	596	578	2.6	8.3	45.696	E

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	913	228	152		852	1.071	846	776	25.1	41.8	154.427	F
B	541	135	362		736	0.735	540	636	2.5	2.7	18.285	C
C	619	155	317	66.06	658	0.941	611	585	8.3	10.1	62.986	F

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	745	186	133		865	0.862	844	662	41.8	17.1	130.603	F
B	441	110	362		750	0.589	446	616	2.7	1.5	12.037	B
C	505	126	262	53.94	686	0.737	534	546	10.1	3.0	27.098	D

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	5.06	0.12	2.06	12.81	18.04			N/A	N/A
B	1.23	0.08	0.96	2.39	3.19			N/A	N/A
C	2.58	0.08	1.30	6.38	9.13			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	25.09	4.07	20.65	48.10	58.71			N/A	N/A
B	2.52	0.03	0.31	3.23	12.15			N/A	N/A
C	8.25	0.10	2.53	22.69	33.51			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	41.85	8.72	35.73	77.50	93.28			N/A	N/A
B	2.66	0.03	0.29	2.66	9.21			N/A	N/A
C	10.14	0.06	1.05	29.65	48.54			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	17.07	1.21	11.97	37.47	48.18			N/A	N/A
B	1.47	0.06	0.88	3.36	4.79			N/A	N/A
C	3.03	0.04	0.41	8.29	15.43			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.2.1574
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Filename: Junction 7- St Stephens Hill_Beaconsfield Road.j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 7 - St Stephens Hill_Beaconsfield Road
Report generation date: 16/01/2023 08:54:45

»2045 Base, AM
»2045 Base, PM
»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 Base													
Arm A	D7	4.1	18.60	0.81	C	17.16	11 % [Arm A]	D8	1.2	7.79	0.55	A	14.81	4 % [Arm C]
Arm B		1.7	13.58	0.64	B				1.8	11.50	0.65	B		
Arm C		2.1	18.41	0.68	C				3.4	27.35	0.78	D		
	2045 + CD													
Arm A	D9	7.2	30.47	0.89	D	23.78	2 % [Arm A]	D10	1.5	8.68	0.60	A	21.86	-4 % [Arm C]
Arm B		2.0	14.87	0.67	B				2.8	15.81	0.74	C		
Arm C		2.2	19.77	0.70	C				5.8	47.18	0.88	E		
	2045 + ST													
Arm A	D11	6.3	26.93	0.88	D	21.95	4 % [Arm A]	D12	1.5	8.68	0.60	A	21.86	-4 % [Arm C]
Arm B		2.0	14.88	0.67	B				2.8	15.81	0.74	C		
Arm C		2.2	19.60	0.70	C				5.8	47.18	0.88	E		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	10/01/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\UKWGF001
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

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base	AM	Trips to Zone D diverted to other zones	ONE HOUR	07:45	09:15	15	✓	✓
D8	2045 Base	PM	Trips to Zone D diverted to other zones	ONE HOUR	16:15	17:45	15	✓	✓
D9	2045 + CD	AM	Trips to Zone D diverted to other zones	ONE HOUR	07:45	09:15	15	✓	✓
D10	2045 + CD	PM	Trips to Zone D diverted to other zones	ONE HOUR	16:15	17:45	15	✓	✓
D11	2045 + ST	AM	Trips to Zone D diverted to other zones	ONE HOUR	07:45	09:15	15	✓	✓
D12	2045 + ST	PM	Trips to Zone D diverted to other zones	ONE HOUR	16:15	17:45	15	✓	✓

Analysis Set Details

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

2045 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D7 - 2045 Base, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	St Stephens Hill, Beaconsfield Road, Stephenson Road Mini Roundabout	Mini-roundabout		A, B, C	17.16	C

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		11	Arm A	17.16	C

Arms

Arms

Arm	Name	Description
A	St Stpehens Hill (North)	
B	St Stephens Hill (South)	
C	Beaconsfield Road	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	3.65	3.65	5.70	8.6	16.70	14.90	0.0	
B	4.40	2.93	5.25	6.1	14.55	11.20	0.0	
C	3.45	3.45	4.00	8.6	8.95	6.80	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.683	1117
B	0.631	1004
C	0.625	867

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base	AM	Trips to Zone D diverted to other zones	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	753	100.000
B		ONE HOUR	✓	428	100.000
C		ONE HOUR	✓	379	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	392	361
	B	357	0	71
	C	263	116	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	1	1
	B	2	0	2
	C	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.81	18.60	4.1	21.2	C	753	753
B	0.64	13.58	1.7	5.0	B	428	428
C	0.68	18.41	2.1	9.0	C	379	379

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	677	169	104	1036	0.653	674	555	1.2	1.8	9.874	A
B	385	96	323	782	0.492	384	455	0.6	1.0	9.036	A
C	341	85	320	658	0.518	339	387	0.7	1.0	11.241	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	829	207	127	1021	0.812	821	677	1.8	3.9	17.286	C
B	471	118	393	738	0.638	468	554	1.0	1.7	13.191	B
C	417	104	391	613	0.680	413	471	1.0	2.0	17.668	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	829	207	128	1020	0.813	828	682	3.9	4.1	18.596	C
B	471	118	397	736	0.640	471	559	1.7	1.7	13.577	B
C	417	104	393	612	0.682	417	475	2.0	2.1	18.412	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	677	169	105	1035	0.654	686	563	4.1	1.9	10.548	B
B	385	96	329	779	0.494	388	462	1.7	1.0	9.280	A
C	341	85	323	656	0.520	345	393	2.1	1.1	11.706	B

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.83	0.06	0.92	4.47	6.52			N/A	N/A
B	0.95	0.10	0.93	1.46	1.81			N/A	N/A
C	1.05	0.10	0.97	1.72	2.04			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	3.94	0.03	0.34	7.92	21.18			N/A	N/A
B	1.70	0.03	0.28	1.70	5.02			N/A	N/A
C	2.01	0.03	0.30	2.01	8.98			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	4.12	0.03	0.29	4.12	16.03			N/A	N/A
B	1.74	0.03	0.28	1.74	4.20			N/A	N/A
C	2.08	0.03	0.28	2.08	6.98			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.95	0.05	0.47	5.23	8.46			N/A	N/A
B	1.00	0.07	0.83	1.80	2.43			N/A	N/A
C	1.11	0.06	0.68	2.40	3.43			N/A	N/A

2045 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D8 - 2045 Base, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	St Stephens Hill, Beaconsfield Road, Stephenson Road Mini Roundabout	Mini-roundabout		A, B, C	14.81	B

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		4	Arm C	14.81	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D8	2045 Base	PM	Trips to Zone D diverted to other zones	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	510	100.000
B		ONE HOUR	✓	520	100.000
C		ONE HOUR	✓	425	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	346	164
	B	392	0	128
	C	309	116	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	2
	B	0	0	1
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.55	7.79	1.2	1.6	A	510	510
B	0.65	11.50	1.8	4.4	B	520	520
C	0.78	27.35	3.4	17.2	D	425	425

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	458	115	104	1040	0.441	458	628	0.6	0.8	6.174	A
B	467	117	147	907	0.516	466	414	0.7	1.0	8.149	A
C	382	96	351	647	0.591	380	262	0.9	1.4	13.373	B

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	562	140	126	1025	0.548	560	764	0.8	1.2	7.714	A
B	573	143	180	885	0.647	570	506	1.0	1.8	11.290	B
C	468	117	429	598	0.782	461	320	1.4	3.2	24.952	C

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	562	140	128	1024	0.549	561	771	1.2	1.2	7.785	A
B	573	143	181	885	0.647	572	508	1.8	1.8	11.498	B
C	468	117	432	597	0.784	467	321	3.2	3.4	27.348	D

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	458	115	106	1038	0.442	460	638	1.2	0.8	6.247	A
B	467	117	148	906	0.516	470	418	1.8	1.1	8.314	A
C	382	96	355	645	0.592	390	264	3.4	1.5	14.487	B

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.78	0.12	0.89	1.41	1.48			N/A	N/A
B	1.05	0.09	0.96	1.73	2.12			N/A	N/A
C	1.39	0.08	1.02	2.84	3.87			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.19	0.03	0.26	1.19	1.19			N/A	N/A
B	1.77	0.03	0.28	1.77	4.43			N/A	N/A
C	3.20	0.04	0.35	7.49	17.18			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.20	0.03	0.27	1.20	1.64			N/A	N/A
B	1.80	0.03	0.27	1.80	2.88			N/A	N/A
C	3.39	0.03	0.31	4.07	16.14			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.80	0.14	0.91	1.42	1.48			N/A	N/A

B	1.09	0.07	0.90	1.94	2.68			N/A	N/A
C	1.51	0.05	0.45	3.90	6.33			N/A	N/A

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D9 - 2045 + CD, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	St Stephens Hill, Beaconsfield Road, Stephenson Road Mini Roundabout	Mini-roundabout		A, B, C	23.78	C

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		2	Arm A	23.78	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D9	2045 + CD	AM	Trips to Zone D diverted to other zones	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	827	100.000
B		ONE HOUR	✓	446	100.000
C		ONE HOUR	✓	380	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	460	367
	B	375	0	71
	C	264	116	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	1	1
	B	2	0	2
	C	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.89	30.47	7.2	39.8	D	827	827
B	0.67	14.87	2.0	7.1	B	446	446
C	0.70	19.77	2.2	10.2	C	380	380

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	743	186	104	1036	0.718	739	572	1.4	2.4	11.969	B
B	401	100	328	779	0.515	400	515	0.7	1.0	9.456	A
C	342	85	336	648	0.527	340	392	0.7	1.1	11.635	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	911	228	126	1021	0.892	894	698	2.4	6.6	25.564	D
B	491	123	397	736	0.667	488	624	1.0	1.9	14.284	B
C	418	105	410	601	0.696	414	474	1.1	2.1	18.833	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	911	228	128	1020	0.893	908	703	6.6	7.2	30.472	D
B	491	123	403	732	0.671	491	633	1.9	2.0	14.874	B
C	418	105	413	599	0.698	418	481	2.1	2.2	19.769	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	743	186	106	1035	0.718	762	580	7.2	2.7	13.973	B
B	401	100	338	773	0.519	404	529	2.0	1.1	9.866	A
C	342	85	340	645	0.529	346	402	2.2	1.2	12.191	B

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.43	0.06	0.99	6.33	9.47			N/A	N/A
B	1.04	0.09	0.95	1.73	2.10			N/A	N/A
C	1.09	0.09	0.98	1.81	2.34			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	6.55	0.05	0.48	18.75	33.60			N/A	N/A
B	1.92	0.03	0.29	1.92	7.10			N/A	N/A
C	2.15	0.03	0.30	2.58	10.17			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	7.24	0.04	0.36	16.12	39.76			N/A	N/A
B	1.98	0.03	0.28	1.98	5.23			N/A	N/A
C	2.23	0.03	0.29	2.23	8.07			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.67	0.04	0.43	7.38	13.15			N/A	N/A

B	1.10	0.06	0.81	2.17	2.98			N/A	N/A
C	1.16	0.05	0.62	2.61	3.78			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D10 - 2045 + CD, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	St Stephens Hill, Beaconsfield Road, Stephenson Road Mini Roundabout	Mini-roundabout		A, B, C	21.86	C

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-4	Arm C	21.86	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D10	2045 + CD	PM	Trips to Zone D diverted to other zones	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	554	100.000
B		ONE HOUR	✓	596	100.000
C		ONE HOUR	✓	433	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	386	168
	B	468	0	128
	C	317	116	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	2
	B	0	0	1
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.60	8.68	1.5	1.7	A	554	554
B	0.74	15.81	2.8	12.8	C	596	596
C	0.88	47.18	5.8	31.5	E	433	433

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	498	125	103	1040	0.479	497	702	0.7	0.9	6.613	A
B	536	134	151	905	0.592	534	450	0.9	1.4	9.656	A
C	389	97	419	605	0.644	386	265	1.0	1.7	16.270	C

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	610	152	124	1026	0.594	608	850	0.9	1.4	8.561	A
B	656	164	184	883	0.743	651	548	1.4	2.7	15.174	C
C	477	119	511	547	0.871	463	324	1.7	5.1	37.989	E

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	610	152	127	1024	0.595	610	862	1.4	1.5	8.679	A
B	656	164	185	883	0.743	656	552	2.7	2.8	15.814	C
C	477	119	515	545	0.875	474	326	5.1	5.8	47.180	E

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	498	125	108	1037	0.480	500	721	1.5	0.9	6.732	A
B	536	134	152	904	0.593	541	457	2.8	1.5	10.056	B
C	389	97	425	601	0.648	405	268	5.8	1.9	19.622	C

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.91	0.10	0.91	1.27	1.69			N/A	N/A
B	1.42	0.07	0.99	2.95	4.09			N/A	N/A
C	1.72	0.07	1.04	3.93	5.61			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.43	0.03	0.27	1.43	1.43			N/A	N/A
B	2.72	0.03	0.30	3.16	12.83			N/A	N/A
C	5.10	0.05	0.76	14.65	24.45			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.45	0.03	0.27	1.45	1.61			N/A	N/A
B	2.80	0.03	0.28	2.80	7.78			N/A	N/A
C	5.82	0.04	0.40	15.22	31.54			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.94	0.11	0.94	1.35	1.74			N/A	N/A

B	1.49	0.05	0.65	3.66	5.48			N/A	N/A
C	1.93	0.04	0.40	5.20	9.37			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D11 - 2045 + ST, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	St Stephens Hill, Beaconsfield Road, Stephenson Road Mini Roundabout	Mini-roundabout		A, B, C	21.95	C

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		4	Arm A	21.95	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D11	2045 + ST	AM	Trips to Zone D diverted to other zones	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	811	100.000
B		ONE HOUR	✓	439	100.000
C		ONE HOUR	✓	383	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	433	378
	B	368	0	71
	C	267	116	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	1	1
	B	2	0	2
	C	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.88	26.93	6.3	33.5	D	811	811
B	0.67	14.88	2.0	6.9	B	439	439
C	0.70	19.60	2.2	10.1	C	383	383

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	729	182	104	1036	0.704	725	569	1.4	2.3	11.449	B
B	395	99	338	773	0.511	393	491	0.7	1.0	9.454	A
C	344	86	330	652	0.528	343	402	0.7	1.1	11.590	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	893	223	126	1021	0.875	879	693	2.3	5.8	23.302	C
B	483	121	410	728	0.664	480	596	1.0	1.9	14.309	B
C	422	105	402	606	0.696	417	487	1.1	2.1	18.686	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	893	223	128	1020	0.875	891	699	5.8	6.3	26.928	D
B	483	121	415	724	0.667	483	603	1.9	2.0	14.879	B
C	422	105	405	604	0.698	421	493	2.1	2.2	19.602	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	729	182	106	1035	0.704	744	577	6.3	2.5	12.984	B
B	395	99	347	767	0.514	398	503	2.0	1.1	9.846	A
C	344	86	334	649	0.530	349	411	2.2	1.2	12.134	B

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.28	0.06	0.96	5.87	8.78			N/A	N/A
B	1.02	0.09	0.95	1.69	1.99			N/A	N/A
C	1.09	0.09	0.98	1.82	2.37			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	5.81	0.04	0.43	16.01	30.73			N/A	N/A
B	1.89	0.03	0.29	1.89	6.92			N/A	N/A
C	2.15	0.03	0.30	2.55	10.14			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	6.31	0.03	0.34	11.55	33.55			N/A	N/A
B	1.95	0.03	0.28	1.95	5.19			N/A	N/A
C	2.23	0.03	0.29	2.23	7.99			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.49	0.04	0.43	6.84	11.96			N/A	N/A

B	1.08	0.06	0.80	2.08	2.91			N/A	N/A
C	1.16	0.05	0.63	2.62	3.79			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D12 - 2045 + ST, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	St Stephens Hill, Beaconsfield Road, Stephenson Road Mini Roundabout	Mini-roundabout		A, B, C	21.86	C

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-4	Arm C	21.86	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D12	2045 + ST	PM	Trips to Zone D diverted to other zones	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	554	100.000
B		ONE HOUR	✓	596	100.000
C		ONE HOUR	✓	433	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	386	168
	B	468	0	128
	C	317	116	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	2
	B	0	0	1
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.60	8.68	1.5	1.7	A	554	554
B	0.74	15.81	2.8	12.8	C	596	596
C	0.88	47.18	5.8	31.5	E	433	433

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	498	125	103	1040	0.479	497	702	0.7	0.9	6.613	A
B	536	134	151	905	0.592	534	450	0.9	1.4	9.656	A
C	389	97	419	605	0.644	386	265	1.0	1.7	16.270	C

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	610	152	124	1026	0.594	608	850	0.9	1.4	8.561	A
B	656	164	184	883	0.743	651	548	1.4	2.7	15.174	C
C	477	119	511	547	0.871	463	324	1.7	5.1	37.989	E

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	610	152	127	1024	0.595	610	862	1.4	1.5	8.679	A
B	656	164	185	883	0.743	656	552	2.7	2.8	15.814	C
C	477	119	515	545	0.875	474	326	5.1	5.8	47.180	E

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	498	125	108	1037	0.480	500	721	1.5	0.9	6.732	A
B	536	134	152	904	0.593	541	457	2.8	1.5	10.056	B
C	389	97	425	601	0.648	405	268	5.8	1.9	19.622	C

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.91	0.10	0.91	1.27	1.69			N/A	N/A
B	1.42	0.07	0.99	2.95	4.09			N/A	N/A
C	1.72	0.07	1.04	3.93	5.61			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.43	0.03	0.27	1.43	1.43			N/A	N/A
B	2.72	0.03	0.30	3.16	12.83			N/A	N/A
C	5.10	0.05	0.76	14.65	24.45			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.45	0.03	0.27	1.45	1.61			N/A	N/A
B	2.80	0.03	0.28	2.80	7.78			N/A	N/A
C	5.82	0.04	0.40	15.22	31.54			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.94	0.11	0.94	1.35	1.74			N/A	N/A

B	1.49	0.05	0.65	3.66	5.48			N/A	N/A
C	1.93	0.04	0.40	5.20	9.37			N/A	N/A

Junctions 10

PICADY 10 - Priority Intersection Module

Version: 10.0.2.1574
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Filename: Junction 8-Giles Lane_University Road.j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 8 - Giles Lane_University Road_Junctions 10 Report
Report generation date: 10/01/2023 17:06:36

»2045 Base Modelled, AM
»2045 Base Modelled, PM
»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 Base Modelled													
Stream B-C	D3	1.3	12.64	0.56	B	14.64	3 % [Stream C-AB]	D4	0.4	6.69	0.26	A	19.67	1 % [Stream C-AB]
Stream B-A		0.1	15.04	0.13	C				0.0	10.57	0.01	B		
Stream C-AB		4.7	29.13	0.81	D				6.1	33.50	0.85	D		
	2045 + CD													
Stream B-C	D5	0.4	6.58	0.28	A	12.83	18 % [Stream C-AB]	D6	0.3	6.11	0.23	A	11.53	26 % [Stream C-AB]
Stream B-A		0.0	9.27	0.05	A				0.0	8.69	0.02	A		
Stream C-AB		2.7	18.49	0.71	C				1.9	17.17	0.66	C		
	2045 + ST													
Stream B-C	D7	0.4	6.60	0.28	A	12.18	23 % [Stream C-AB]	D8	0.3	5.95	0.21	A	9.91	39 % [Stream C-AB]
Stream B-A		0.0	9.00	0.04	A				0.0	0.00	0.00	A		
Stream C-AB		2.2	17.55	0.68	C				1.4	14.56	0.59	B		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Giles Lane / University Road Priority Junction
Location	University of Kent
Site number	
Date	26/11/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	70080896
Enumerator	CORP\UKWGF001
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 length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2045 Base Modelled	AM	ONE HOUR	00:00	01:30	15	✓
D4	2045 Base Modelled	PM	ONE HOUR	00:00	01:30	15	✓
D5	2045 + CD	AM	ONE HOUR	00:00	01:30	15	✓
D6	2045 + CD	PM	ONE HOUR	00:00	01:30	15	✓
D7	2045 + ST	AM	ONE HOUR	00:00	01:30	15	✓
D8	2045 + ST	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

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

2045 Base Modelled, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		14.64	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	3	Stream C-AB	14.64	B

Arms

Arms

Arm	Name	Description	Arm type
A	Giles Lane West		Major
B	University Road		Minor
C	Giles Lane East		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)
C	7.90			83.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	6.30	4.05	3.50	3.50	✓	1.00	119	124

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	589	0.097	0.245	0.154	0.350
B-C	787	0.112	0.284	-	-
C-B	622	0.221	0.221	-	-

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.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2045 Base Modelled	AM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	364	100.000
B		ONE HOUR	✓	365	100.000
C		ONE HOUR	✓	517	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	52	312
	B	33	0	332
	C	168	349	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	2
	C	0	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.56	12.64	1.3	3.3	B	305	457
B-A	0.13	15.04	0.1	0.5	C	30	45
C-AB	0.81	29.13	4.7	25.5	D	426	639
C-A						49	73
A-B						48	72
A-C						286	429

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	250	62	694	0.360	248	0.0	0.6	8.026	A
B-A	25	6	397	0.063	25	0.0	0.1	9.649	A
C-AB	327	82	644	0.508	322	0.0	1.1	11.080	B
C-A	62	16			62				
A-B	39	10			39				

A-C	235	59			235				

00:15 - 00:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	298	75	677	0.441	298	0.6	0.8	9.474	A
B-A	30	7	350	0.085	30	0.1	0.1	11.236	B
C-AB	410	102	651	0.630	407	1.1	1.9	14.687	B
C-A	55	14			55				
A-B	47	12			47				
A-C	280	70			280				

00:30 - 00:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	366	91	650	0.562	364	0.8	1.2	12.468	B
B-A	36	9	279	0.130	36	0.1	0.1	14.809	B
C-AB	536	134	661	0.812	527	1.9	4.4	25.878	D
C-A	33	8			33				
A-B	57	14			57				
A-C	344	86			344				

00:45 - 01:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	366	91	650	0.562	365	1.2	1.3	12.639	B
B-A	36	9	276	0.132	36	0.1	0.1	15.037	C
C-AB	539	135	663	0.814	538	4.4	4.7	29.131	D
C-A	30	7			30				
A-B	57	14			57				
A-C	344	86			344				

01:00 - 01:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	298	75	676	0.441	300	1.3	0.8	9.622	A
B-A	30	7	345	0.086	30	0.1	0.1	11.427	B
C-AB	413	103	654	0.631	424	4.7	2.1	16.413	C
C-A	52	13			52				
A-B	47	12			47				
A-C	280	70			280				

01:15 - 01:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	250	62	694	0.360	251	0.8	0.6	8.144	A
B-A	25	6	394	0.063	25	0.1	0.1	9.750	A
C-AB	329	82	645	0.509	332	2.1	1.2	11.651	B
C-A	61	15			61				
A-B	39	10			39				
A-C	235	59			235				

Queue Variation Results for each time segment

00:00 - 00:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.55	0.55	1.00	1.40	1.45			N/A	N/A
B-A	0.07	0.00	0.00	0.07	0.07			N/A	N/A
C-AB	1.15	0.55	1.00	1.40	1.45			N/A	N/A

00:15 - 00:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.78	0.16	0.91	1.40	1.46			N/A	N/A
B-A	0.09	0.00	0.00	0.09	0.09			N/A	N/A
C-AB	1.88	0.11	1.34	3.87	5.17			N/A	N/A

00:30 - 00:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.25	0.03	0.27	1.25	1.71			N/A	N/A
B-A	0.15	0.03	0.26	0.47	0.50			N/A	N/A
C-AB	4.37	0.04	0.43	12.13	22.50			N/A	N/A

00:45 - 01:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	1.26	0.03	0.28	1.26	3.27			N/A	N/A
B-A	0.15	0.03	0.25	0.45	0.48			N/A	N/A
C-AB	4.71	0.03	0.34	9.66	25.50			N/A	N/A

01:00 - 01:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.80	0.08	0.81	1.50	1.53			N/A	N/A
B-A	0.10	0.00	0.00	0.10	0.10			N/A	N/A
C-AB	2.09	0.05	0.57	5.58	8.76			N/A	N/A

01:15 - 01:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.57	0.05	0.47	1.36	1.48			N/A	N/A
B-A	0.07	0.00	0.00	0.07	0.07			N/A	N/A
C-AB	1.22	0.04	0.36	3.05	5.82			N/A	N/A

2045 Base Modelled, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		19.67	C

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	1	Stream C-AB	19.67	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2045 Base Modelled	PM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	204	100.000
B		ONE HOUR	✓	175	100.000
C		ONE HOUR	✓	586	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	31	173
	B	2	0	173
	C	198	388	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0

	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.26	6.69	0.4	1.2	A	159	238
B-A	0.01	10.57	0.0	0.5	B	2	3
C-AB	0.85	33.50	6.1	33.4	D	488	731
C-A						50	75
A-B						28	43
A-C						159	238

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	130	33	747	0.174	129	0.0	0.2	5.822	A
B-A	2	0.38	427	0.004	1	0.0	0.0	8.460	A
C-AB	373	93	688	0.542	368	0.0	1.3	11.091	B
C-A	68	17			68				
A-B	23	6			23				
A-C	130	33			130				

00:15 - 00:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	156	39	739	0.210	155	0.2	0.3	6.166	A
B-A	2	0.45	393	0.005	2	0.0	0.0	9.202	A
C-AB	469	117	703	0.667	465	1.3	2.2	15.069	C
C-A	58	15			58				
A-B	28	7			28				
A-C	156	39			156				

00:30 - 00:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	190	48	728	0.262	190	0.3	0.4	6.686	A
B-A	2	0.55	347	0.006	2	0.0	0.0	10.453	B
C-AB	615	154	723	0.852	602	2.2	5.6	28.375	D
C-A	30	7			30				
A-B	34	9			34				
A-C	190	48			190				

00:45 - 01:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	190	48	728	0.262	190	0.4	0.4	6.694	A
B-A	2	0.55	343	0.006	2	0.0	0.0	10.568	B
C-AB	620	155	726	0.854	617	5.6	6.1	33.497	D
C-A	25	6			25				
A-B	34	9			34				

A-C	190	48			190				

01:00 - 01:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	156	39	739	0.210	156	0.4	0.3	6.177	A
B-A	2	0.45	388	0.005	2	0.0	0.0	9.334	A
C-AB	474	118	707	0.670	488	6.1	2.5	17.642	C
C-A	53	13			53				
A-B	28	7			28				
A-C	156	39			156				

01:15 - 01:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	130	33	747	0.174	130	0.3	0.2	5.842	A
B-A	2	0.38	424	0.004	2	0.0	0.0	8.521	A
C-AB	375	94	690	0.543	379	2.5	1.4	11.798	B
C-A	66	17			66				
A-B	23	6			23				
A-C	130	33			130				

Queue Variation Results for each time segment

00:00 - 00:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.21	0.00	0.00	0.21	0.21			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	1.32	0.55	1.00	1.40	1.45			N/A	N/A

00:15 - 00:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.26	0.00	0.00	0.26	0.26			N/A	N/A
B-A	0.00	0.00	0.25	0.45	0.48			N/A	N/A
C-AB	2.23	0.10	1.43	4.91	6.72			N/A	N/A

00:30 - 00:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.35	0.03	0.25	0.46	0.48			N/A	N/A
B-A	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C-AB	5.55	0.05	0.67	15.96	27.09			N/A	N/A

00:45 - 01:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.35	0.03	0.31	1.17	1.17			N/A	N/A
B-A	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C-AB	6.15	0.04	0.38	15.15	33.44			N/A	N/A

01:00 - 01:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.27	0.00	0.00	0.27	0.27			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	2.53	0.05	0.51	6.93	11.20			N/A	N/A

01:15 - 01:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.21	0.00	0.00	0.21	0.21			N/A	N/A

B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	1.42	0.04	0.36	3.54	7.09			N/A	N/A

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		12.83	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	18	Stream C-AB	12.83	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2045 + CD	AM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	51	100.000
B		ONE HOUR	✓	209	100.000
C		ONE HOUR	✓	473	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	25	26
	B	17	0	192
	C	107	366	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	1
	C	0	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.28	6.58	0.4	1.5	A	176	264
B-A	0.05	9.27	0.0	0.5	A	16	23
C-AB	0.71	18.49	2.7	13.2	C	396	594
C-A						38	57
A-B						23	34
A-C						24	36

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	145	36	766	0.189	144	0.0	0.2	5.778	A
B-A	13	3	469	0.027	13	0.0	0.0	7.880	A
C-AB	314	78	662	0.474	310	0.0	1.0	10.141	B
C-A	42	11			42				
A-B	19	5			19				
A-C	20	5			20				

00:15 - 00:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	173	43	763	0.226	172	0.2	0.3	6.094	A
B-A	15	4	444	0.034	15	0.0	0.0	8.403	A
C-AB	385	96	671	0.573	383	1.0	1.4	12.450	B
C-A	41	10			41				
A-B	22	6			22				
A-C	23	6			23				

00:30 - 00:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	211	53	758	0.279	211	0.3	0.4	6.572	A
B-A	19	5	408	0.046	19	0.0	0.0	9.236	A
C-AB	488	122	683	0.714	483	1.4	2.6	17.744	C
C-A	33	8			33				
A-B	28	7			28				
A-C	29	7			29				

00:45 - 01:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	211	53	758	0.279	211	0.4	0.4	6.580	A
B-A	19	5	407	0.046	19	0.0	0.0	9.273	A
C-AB	489	122	684	0.715	488	2.6	2.7	18.487	C
C-A	32	8			32				
A-B	28	7			28				
A-C	29	7			29				

01:00 - 01:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	173	43	763	0.226	173	0.4	0.3	6.109	A
B-A	15	4	442	0.035	15	0.0	0.0	8.447	A
C-AB	386	96	672	0.574	390	2.7	1.5	13.020	B
C-A	40	10			40				
A-B	22	6			22				
A-C	23	6			23				

01:15 - 01:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	145	36	766	0.189	145	0.3	0.2	5.800	A
B-A	13	3	467	0.027	13	0.0	0.0	7.919	A
C-AB	314	79	662	0.475	317	1.5	1.0	10.488	B
C-A	42	10			42				
A-B	19	5			19				
A-C	20	5			20				

Queue Variation Results for each time segment

00:00 - 00:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.23	0.00	0.00	0.23	0.23			N/A	N/A
B-A	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C-AB	0.95	0.55	1.00	1.40	1.45			N/A	N/A

00:15 - 00:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.29	0.00	0.00	0.29	0.29			N/A	N/A
B-A	0.04	0.03	0.25	0.45	0.48			N/A	N/A
C-AB	1.42	0.12	1.19	2.54	3.21			N/A	N/A

00:30 - 00:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.38	0.03	0.25	0.46	0.48			N/A	N/A
B-A	0.05	0.03	0.26	0.46	0.49			N/A	N/A
C-AB	2.57	0.03	0.32	4.22	13.22			N/A	N/A

00:45 - 01:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.38	0.03	0.31	1.26	1.50			N/A	N/A
B-A	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C-AB	2.66	0.03	0.29	2.66	10.20			N/A	N/A

01:00 - 01:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.29	0.00	0.00	0.29	0.29			N/A	N/A
B-A	0.04	0.00	0.00	0.04	0.04			N/A	N/A
C-AB	1.52	0.06	0.82	3.60	5.21			N/A	N/A

01:15 - 01:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.23	0.00	0.00	0.23	0.23			N/A	N/A
B-A	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C-AB	1.00	0.04	0.43	2.41	3.80			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		11.53	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	26	Stream C-AB	11.53	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2045 + CD	PM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	95	100.000
B		ONE HOUR	✓	163	100.000
C		ONE HOUR	✓	373	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	37	58
	B	7	0	156
	C	19	354	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0

	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.23	6.11	0.3	1.3	A	143	215
B-A	0.02	8.69	0.0	0.5	A	6	10
C-AB	0.66	17.17	1.9	7.9	C	335	502
C-A						8	11
A-B						34	51
A-C						53	80

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	117	29	770	0.153	117	0.0	0.2	5.508	A
B-A	5	1	478	0.011	5	0.0	0.0	7.611	A
C-AB	273	68	616	0.443	270	0.0	0.8	10.317	B
C-A	8	2			8				
A-B	28	7			28				
A-C	44	11			44				

00:15 - 00:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	140	35	766	0.183	140	0.2	0.2	5.749	A
B-A	6	2	455	0.014	6	0.0	0.0	8.025	A
C-AB	327	82	615	0.533	326	0.8	1.1	12.424	B
C-A	8	2			8				
A-B	33	8			33				
A-C	52	13			52				

00:30 - 00:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	172	43	761	0.226	171	0.2	0.3	6.103	A
B-A	8	2	423	0.018	8	0.0	0.0	8.664	A
C-AB	404	101	613	0.659	401	1.1	1.9	16.741	C
C-A	7	2			7				
A-B	41	10			41				
A-C	64	16			64				

00:45 - 01:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	172	43	761	0.226	172	0.3	0.3	6.108	A
B-A	8	2	422	0.018	8	0.0	0.0	8.686	A
C-AB	404	101	613	0.659	404	1.9	1.9	17.167	C
C-A	7	2			7				
A-B	41	10			41				

A-C	64	16			64				

01:00 - 01:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	140	35	766	0.183	140	0.3	0.2	5.757	A
B-A	6	2	453	0.014	6	0.0	0.0	8.055	A
C-AB	328	82	615	0.533	330	1.9	1.2	12.796	B
C-A	8	2			8				
A-B	33	8			33				
A-C	52	13			52				

01:15 - 01:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	117	29	770	0.153	118	0.2	0.2	5.522	A
B-A	5	1	476	0.011	5	0.0	0.0	7.642	A
C-AB	273	68	616	0.443	274	1.2	0.8	10.596	B
C-A	8	2			8				
A-B	28	7			28				
A-C	44	11			44				

Queue Variation Results for each time segment

00:00 - 00:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.18	0.00	0.00	0.18	0.18			N/A	N/A
B-A	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C-AB	0.79	0.55	1.00	1.40	1.45			N/A	N/A

00:15 - 00:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.22	0.00	0.00	0.22	0.22			N/A	N/A
B-A	0.01	0.01	0.25	0.45	0.48			N/A	N/A
C-AB	1.13	0.13	1.05	1.75	2.03			N/A	N/A

00:30 - 00:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.29	0.03	0.25	0.46	0.48			N/A	N/A
B-A	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C-AB	1.87	0.03	0.29	1.87	7.88			N/A	N/A

00:45 - 01:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.29	0.03	0.31	1.02	1.31			N/A	N/A
B-A	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C-AB	1.91	0.03	0.28	1.91	5.55			N/A	N/A

01:00 - 01:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.23	0.00	0.00	0.23	0.23			N/A	N/A
B-A	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C-AB	1.19	0.06	0.78	2.57	3.62			N/A	N/A

01:15 - 01:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.18	0.00	0.00	0.18	0.18			N/A	N/A

B-A	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C-AB	0.82	0.04	0.44	1.79	2.72			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		12.18	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	23	Stream C-AB	12.18	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2045 + ST	AM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	56	100.000
B		ONE HOUR	✓	211	100.000
C		ONE HOUR	✓	420	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	31	25
	B	15	0	196
	C	61	359	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	1
	C	0	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.28	6.60	0.4	1.6	A	180	270
B-A	0.04	9.00	0.0	0.5	A	14	21
C-AB	0.68	17.55	2.2	10.0	C	362	543
C-A						23	35
A-B						28	43
A-C						23	34

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	148	37	768	0.192	147	0.0	0.2	5.786	A
B-A	11	3	476	0.024	11	0.0	0.0	7.744	A
C-AB	291	73	637	0.458	288	0.0	0.9	10.236	B
C-A	25	6			25				
A-B	23	6			23				
A-C	19	5			19				

00:15 - 00:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	176	44	765	0.230	176	0.2	0.3	6.106	A
B-A	13	3	451	0.030	13	0.0	0.0	8.221	A
C-AB	353	88	641	0.551	352	0.9	1.3	12.400	B
C-A	24	6			24				
A-B	28	7			28				
A-C	22	6			22				

00:30 - 00:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	216	54	761	0.284	215	0.3	0.4	6.592	A
B-A	17	4	418	0.040	16	0.0	0.0	8.973	A
C-AB	442	110	647	0.683	438	1.3	2.2	17.019	C
C-A	21	5			21				
A-B	34	9			34				
A-C	28	7			28				

00:45 - 01:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	216	54	761	0.284	216	0.4	0.4	6.601	A
B-A	17	4	416	0.040	17	0.0	0.0	9.002	A
C-AB	442	111	647	0.683	442	2.2	2.2	17.551	C
C-A	20	5			20				
A-B	34	9			34				
A-C	28	7			28				

01:00 - 01:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	176	44	765	0.230	177	0.4	0.3	6.119	A
B-A	13	3	450	0.030	14	0.0	0.0	8.256	A
C-AB	354	88	641	0.552	357	2.2	1.3	12.842	B
C-A	24	6			24				
A-B	28	7			28				
A-C	22	6			22				

01:15 - 01:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	148	37	768	0.192	148	0.3	0.2	5.809	A
B-A	11	3	474	0.024	11	0.0	0.0	7.780	A
C-AB	292	73	637	0.458	293	1.3	0.9	10.542	B
C-A	25	6			25				
A-B	23	6			23				
A-C	19	5			19				

Queue Variation Results for each time segment

00:00 - 00:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.24	0.00	0.00	0.24	0.24			N/A	N/A
B-A	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C-AB	0.86	0.55	1.00	1.40	1.45			N/A	N/A

00:15 - 00:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.30	0.00	0.00	0.30	0.30			N/A	N/A
B-A	0.03	0.03	0.25	0.45	0.48			N/A	N/A
C-AB	1.25	0.13	1.12	1.97	2.64			N/A	N/A

00:30 - 00:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.39	0.03	0.25	0.46	0.48			N/A	N/A
B-A	0.04	0.03	0.25	0.46	0.48			N/A	N/A
C-AB	2.15	0.03	0.30	2.44	10.05			N/A	N/A

00:45 - 01:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.39	0.03	0.31	1.28	1.59			N/A	N/A
B-A	0.04	0.00	0.00	0.04	0.04			N/A	N/A
C-AB	2.21	0.03	0.28	2.21	7.27			N/A	N/A

01:00 - 01:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.30	0.00	0.00	0.30	0.30			N/A	N/A
B-A	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C-AB	1.33	0.06	0.81	2.95	4.26			N/A	N/A

01:15 - 01:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.24	0.00	0.00	0.24	0.24			N/A	N/A
B-A	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C-AB	0.90	0.04	0.44	2.00	3.15			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		9.91	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	39	Stream C-AB	9.91	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2045 + ST	PM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	91	100.000
B		ONE HOUR	✓	144	100.000
C		ONE HOUR	✓	328	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	27	64
	B	0	0	144
	C	7	321	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0

	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.21	5.95	0.3	1.2	A	132	198
B-A	0.00	0.00	0.0	~1	A	0	0
C-AB	0.59	14.56	1.4	3.7	B	298	447
C-A						3	5
A-B						25	37
A-C						59	88

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	108	27	771	0.141	108	0.0	0.2	5.421	A
B-A	0	0	489	0.000	0	0.0	0.0	0.000	A
C-AB	244	61	610	0.399	241	0.0	0.7	9.685	A
C-A	3	0.79			3				
A-B	20	5			20				
A-C	48	12			48				

00:15 - 00:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	129	32	768	0.169	129	0.2	0.2	5.633	A
B-A	0	0	469	0.000	0	0.0	0.0	0.000	A
C-AB	292	73	608	0.480	291	0.7	0.9	11.301	B
C-A	3	0.81			3				
A-B	24	6			24				
A-C	58	14			58				

00:30 - 00:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	159	40	764	0.208	158	0.2	0.3	5.940	A
B-A	0	0	442	0.000	0	0.0	0.0	0.000	A
C-AB	358	90	605	0.592	356	0.9	1.4	14.340	B
C-A	3	0.78			3				
A-B	30	7			30				
A-C	70	18			70				

00:45 - 01:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	159	40	764	0.208	159	0.3	0.3	5.946	A
B-A	0	0	442	0.000	0	0.0	0.0	0.000	A
C-AB	358	90	605	0.592	358	1.4	1.4	14.556	B
C-A	3	0.77			3				
A-B	30	7			30				
A-C									

A-C	70	18			70				

01:00 - 01:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	129	32	768	0.169	130	0.3	0.2	5.641	A
B-A	0	0	468	0.000	0	0.0	0.0	0.000	A
C-AB	292	73	608	0.480	294	1.4	0.9	11.516	B
C-A	3	0.80			3				
A-B	24	6			24				
A-C	58	14			58				

01:15 - 01:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	108	27	771	0.141	109	0.2	0.2	5.432	A
B-A	0	0	488	0.000	0	0.0	0.0	0.000	A
C-AB	244	61	610	0.399	245	0.9	0.7	9.878	A
C-A	3	0.78			3				
A-B	20	5			20				
A-C	48	12			48				

Queue Variation Results for each time segment

00:00 - 00:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.16	0.00	0.00	0.16	0.16			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.66	0.55	1.00	1.40	1.45			N/A	N/A

00:15 - 00:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.20	0.00	0.00	0.20	0.20			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.91	0.18	0.96	1.40	1.40			N/A	N/A

00:30 - 00:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.26	0.03	0.25	0.46	0.48			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	1.41	0.03	0.28	1.41	3.66			N/A	N/A

00:45 - 01:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.26	0.03	0.30	0.87	1.20			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	1.43	0.03	0.28	1.43	3.62			N/A	N/A

01:00 - 01:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.20	0.00	0.00	0.20	0.20			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.95	0.07	0.83	1.66	2.05			N/A	N/A

01:15 - 01:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.16	0.00	0.00	0.16	0.16			N/A	N/A

B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.68	0.05	0.48	1.10	1.70			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.2.1574
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Filename: Junction 9 - Giles Lane_Parkwood Road.j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 9 - Giles Lane_Parkwood Road_Junctions 10 Report
Report generation date: 12/01/2023 15:35:28

»2045 Base Modelled, AM
»2045 Base Modelled, PM
»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 Base Modelled													
Arm A	D3	26.8	134.40	1.04	F	67.16	-15 % [Arm A]	D4	1.0	9.58	0.50	A	9.55	39 % [Arm C]
Arm B		0.4	7.06	0.29	A				0.7	7.73	0.42	A		
Arm C		3.0	16.57	0.76	C				1.5	10.75	0.60	B		
	2045 + CD													
Arm A	D5	89.4	463.86	1.23	F	246.02	-27 % [Arm A]	D6	1.9	15.44	0.67	C	16.70	10 % [Arm B]
Arm B		1.6	10.88	0.62	B				3.9	20.61	0.80	C		
Arm C		0.4	6.05	0.28	A				0.5	7.41	0.33	A		
	2045 + ST													
Arm A	D7	32.5	154.76	1.06	F	78.07	-17 % [Arm A]	D8	1.3	12.15	0.58	B	12.35	22 % [Arm B]
Arm B		1.8	11.48	0.64	B				2.5	14.34	0.72	B		
Arm C		0.4	6.30	0.30	A				0.4	6.91	0.30	A		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	o Giles Lane / Parkwood Road – Roundabout junction
Location	University of Kent
Site number	
Date	26/11/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	70080896
Enumerator	CORP\UKWGF001
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

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2045 Base Modelled	AM	ONE HOUR	00:00	01:30	15	✓
D4	2045 Base Modelled	PM	ONE HOUR	00:00	01:30	15	✓
D5	2045 + CD	AM	ONE HOUR	00:00	01:30	15	✓
D6	2045 + CD	PM	ONE HOUR	00:00	01:30	15	✓
D7	2045 + ST	AM	ONE HOUR	00:00	01:30	15	✓
D8	2045 + ST	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

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

2045 Base Modelled, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and C have 86% of the total flow for the roundabout for one or more time segments]
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	67.16	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-15	Arm A	67.16	F

Arms

Arms

Arm	Name	Description
A	Park Wood Road	
B	Giles Lane (East)	
C	Giles Lane (West)	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	3.50	3.45	3.55	1.2	13.00	10.20	0.0	
B	3.70	3.55	3.55	0.0	16.30	16.50	0.0	✓
C	3.85	3.63	4.50	2.2	12.80	10.30	0.0	✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.612	803
B	0.553	961
C	0.520	950

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2045 Base Modelled	AM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	633	100.000
B		ONE HOUR	✓	192	100.000
C		ONE HOUR	✓	616	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	226	407
	B	88	0	104
	C	428	188	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	1	1
	B	0	0	1
	C	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.04	134.40	26.8	71.8	F	581	871
B	0.29	7.06	0.4	1.7	A	176	264
C	0.76	16.57	3.0	14.5	C	565	848

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	477	119	140	710	0.671	469	385	0.0	1.9	14.488	B
B	145	36	301	789	0.183	144	308	0.0	0.2	5.571	A
C	464	116	66	910	0.510	460	379	0.0	1.0	7.924	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	569	142	168	693	0.821	561	462	1.9	4.0	25.706	D
B	173	43	361	756	0.228	172	369	0.2	0.3	6.161	A
C	554	138	79	903	0.613	552	454	1.0	1.5	10.178	B

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	697	174	205	671	1.039	644	564	4.0	17.3	76.219	F
B	211	53	414	727	0.291	211	435	0.3	0.4	6.972	A
C	678	170	97	894	0.759	673	528	1.5	2.9	15.857	C

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	697	174	207	670	1.041	659	568	17.3	26.8	134.405	F
B	211	53	424	721	0.293	211	442	0.4	0.4	7.058	A
C	678	170	97	894	0.759	678	538	2.9	3.0	16.575	C

01:00 - 01:15

Arm	Total Demand	Junction Arrivals	Circulating	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay (s)	Unsignalised level of

	(Veh/hr)	(Veh)	flow (Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)		service
A	569	142	171	692	0.823	652	468	26.8	6.1	90.781	F
B	173	43	419	724	0.238	173	403	0.4	0.3	6.539	A
C	554	138	79	903	0.613	559	513	3.0	1.6	10.637	B

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	477	119	142	709	0.672	493	390	6.1	2.2	17.716	C
B	145	36	317	781	0.185	145	318	0.3	0.2	5.664	A
C	464	116	66	910	0.510	466	395	1.6	1.1	8.155	A

Queue Variation Results for each time segment

00:00 - 00:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.94	0.56	1.31	2.89	3.53			N/A	N/A
B	0.22	0.00	0.00	0.22	0.22			N/A	N/A
C	1.02	0.55	1.00	1.40	1.45			N/A	N/A

00:15 - 00:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	3.99	0.10	1.59	9.96	14.03			N/A	N/A
B	0.29	0.00	0.00	0.29	0.29			N/A	N/A
C	1.54	0.07	1.02	3.37	4.69			N/A	N/A

00:30 - 00:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	17.32	1.24	12.86	36.40	46.02			N/A	N/A
B	0.41	0.03	0.25	0.46	0.48			N/A	N/A
C	2.94	0.03	0.31	4.04	14.47			N/A	N/A

00:45 - 01:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	26.80	2.14	20.09	56.77	71.77			N/A	N/A
B	0.41	0.03	0.31	1.32	1.66			N/A	N/A
C	3.03	0.03	0.28	3.03	9.00			N/A	N/A

01:00 - 01:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	6.14	0.06	0.97	17.77	29.42			N/A	N/A
B	0.32	0.00	0.00	0.32	0.32			N/A	N/A
C	1.63	0.05	0.58	4.12	6.34			N/A	N/A

01:15 - 01:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.16	0.03	0.31	2.83	10.47			N/A	N/A
B	0.23	0.00	0.00	0.23	0.23			N/A	N/A
C	1.06	0.04	0.39	2.67	4.62			N/A	N/A

2045 Base Modelled, PM

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 PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	9.55	A

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		39	Arm C	9.55	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2045 Base Modelled	PM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	345	100.000
B		ONE HOUR	✓	307	100.000
C		ONE HOUR	✓	452	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	86	259
	B	206	0	101
	C	381	71	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)

A	0.50	9.58	1.0	2.5	A	317	475
B	0.42	7.73	0.7	2.8	A	282	423
C	0.60	10.75	1.5	2.5	B	415	622

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	260	65	53	771	0.337	258	439	0.0	0.5	6.991	A
B	231	58	193	854	0.271	230	117	0.0	0.4	5.752	A
C	340	85	154	870	0.391	338	269	0.0	0.6	6.721	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	310	78	64	764	0.406	309	526	0.5	0.7	7.903	A
B	276	69	232	833	0.331	275	141	0.4	0.5	6.456	A
C	406	102	185	854	0.476	405	323	0.6	0.9	7.997	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	380	95	78	756	0.503	379	644	0.7	1.0	9.514	A
B	338	85	284	804	0.420	337	172	0.5	0.7	7.699	A
C	498	124	226	833	0.598	495	395	0.9	1.4	10.608	B

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	380	95	78	755	0.503	380	646	1.0	1.0	9.581	A
B	338	85	285	803	0.421	338	173	0.7	0.7	7.734	A
C	498	124	227	832	0.598	498	396	1.4	1.5	10.750	B

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	310	78	64	764	0.406	311	530	1.0	0.7	7.975	A
B	276	69	234	832	0.332	277	142	0.7	0.5	6.498	A
C	406	102	186	854	0.476	409	325	1.5	0.9	8.127	A

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	260	65	54	770	0.337	260	443	0.7	0.5	7.068	A
B	231	58	196	853	0.271	232	119	0.5	0.4	5.797	A
C	340	85	155	869	0.391	341	272	0.9	0.7	6.831	A

Queue Variation Results for each time segment

00:00 - 00:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.50	0.50	1.00	1.40	1.45			N/A	N/A
B	0.37	0.00	0.00	0.37	0.37			N/A	N/A
C	0.63	0.55	1.00	1.40	1.45			N/A	N/A

00:15 - 00:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.67	0.18	0.92	1.38	1.44			N/A	N/A
B	0.49	0.00	0.00	0.49	0.49			N/A	N/A

C	0.89	0.12	0.92	1.11	1.59			N/A	N/A

00:30 - 00:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.99	0.03	0.26	0.99	0.99			N/A	N/A
B	0.72	0.03	0.26	0.72	0.72			N/A	N/A
C	1.45	0.03	0.27	1.45	2.00			N/A	N/A

00:45 - 01:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.00	0.03	0.27	1.00	2.49			N/A	N/A
B	0.72	0.03	0.28	0.90	2.84			N/A	N/A
C	1.47	0.03	0.27	1.47	2.51			N/A	N/A

01:00 - 01:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.69	0.10	0.84	1.38	1.44			N/A	N/A
B	0.50	0.50	1.00	1.40	1.45			N/A	N/A
C	0.92	0.09	0.89	1.47	1.83			N/A	N/A

01:15 - 01:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.51	0.05	0.47	1.29	1.40			N/A	N/A
B	0.37	0.03	0.26	0.47	0.50			N/A	N/A
C	0.65	0.05	0.50	1.45	1.45			N/A	N/A

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 85% of the total flow for the roundabout for one or more time segments]
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	246.02	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-27	Arm A	246.02	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2045 + CD	AM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	746	100.000
B		ONE HOUR	✓	486	100.000
C		ONE HOUR	✓	215	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	560	186
	B	199	0	287
	C	38	177	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	1
	B	1	0	0
	C	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)

A	1.23	463.86	89.4	145.3	F	685	1027
B	0.62	10.88	1.6	2.9	B	446	669
C	0.28	6.05	0.4	1.6	A	197	296

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	562	140	133	704	0.798	548	177	0.0	3.5	21.415	C
B	366	91	137	882	0.415	363	544	0.0	0.7	6.902	A
C	162	40	149	868	0.186	161	351	0.0	0.2	5.085	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	671	168	159	688	0.974	641	213	3.5	11.0	54.905	F
B	437	109	160	869	0.503	436	640	0.7	1.0	8.285	A
C	193	48	178	853	0.227	193	417	0.2	0.3	5.454	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	821	205	195	667	1.231	663	260	11.0	50.6	182.096	F
B	535	134	165	866	0.618	533	692	1.0	1.6	10.730	B
C	237	59	218	832	0.285	236	480	0.3	0.4	6.040	A

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	821	205	195	667	1.232	666	261	50.6	89.4	385.545	F
B	535	134	166	865	0.618	535	695	1.6	1.6	10.884	B
C	237	59	219	831	0.285	237	482	0.4	0.4	6.052	A

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	671	168	159	688	0.975	680	214	89.4	86.9	463.862	F
B	437	109	170	864	0.506	439	670	1.6	1.0	8.525	A
C	193	48	180	852	0.227	194	429	0.4	0.3	5.474	A

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	562	140	133	704	0.798	696	179	86.9	53.4	365.277	F
B	366	91	173	861	0.425	367	656	1.0	0.7	7.298	A
C	162	40	150	867	0.187	162	390	0.3	0.2	5.109	A

Queue Variation Results for each time segment

00:00 - 00:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	3.50	0.06	0.91	9.72	15.34			N/A	N/A
B	0.70	0.55	1.00	1.40	1.45			N/A	N/A
C	0.23	0.00	0.00	0.23	0.23			N/A	N/A

00:15 - 00:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	10.97	0.31	6.25	26.45	35.64			N/A	N/A
B	0.99	0.11	0.96	1.53	1.86			N/A	N/A

C	0.29	0.00	0.00	0.29	0.29			N/A	N/A

00:30 - 00:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	50.56	21.82	47.37	77.33	87.64			N/A	N/A
B	1.57	0.03	0.27	1.57	2.86			N/A	N/A
C	0.39	0.03	0.25	0.46	0.48			N/A	N/A

00:45 - 01:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	89.37	48.43	86.00	126.02	139.26			N/A	N/A
B	1.59	0.03	0.27	1.59	2.28			N/A	N/A
C	0.40	0.03	0.31	1.29	1.55			N/A	N/A

01:00 - 01:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	86.92	41.10	82.50	129.37	145.25			N/A	N/A
B	1.04	0.08	0.93	1.78	2.29			N/A	N/A
C	0.30	0.00	0.00	0.30	0.30			N/A	N/A

01:15 - 01:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	53.41	14.92	47.49	92.95	109.58			N/A	N/A
B	0.75	0.05	0.57	1.30	1.81			N/A	N/A
C	0.23	0.00	0.00	0.23	0.23			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 83% of the total flow for the roundabout for one or more time segments]
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	16.70	C

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		10	Arm B	16.70	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2045 + CD	PM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	421	100.000
B		ONE HOUR	✓	642	100.000
C		ONE HOUR	✓	213	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	286	135
	B	402	0	240
	C	54	159	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.67	15.44	1.9	7.4	C	386	579
B	0.80	20.61	3.9	20.0	C	589	884
C	0.33	7.41	0.5	2.1	A	195	293

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	317	79	119	730	0.434	314	340	0.0	0.8	8.583	A
B	483	121	101	905	0.534	479	332	0.0	1.1	8.355	A
C	160	40	300	794	0.202	159	280	0.0	0.3	5.652	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	378	95	143	716	0.529	377	408	0.8	1.1	10.581	B
B	577	144	121	894	0.645	575	399	1.1	1.8	11.170	B
C	191	48	360	763	0.251	191	336	0.3	0.3	6.292	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	464	116	175	696	0.666	460	497	1.1	1.9	15.043	C
B	707	177	148	879	0.804	699	487	1.8	3.7	19.152	C
C	235	59	438	723	0.325	234	409	0.3	0.5	7.357	A

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	464	116	175	696	0.666	463	502	1.9	1.9	15.436	C
B	707	177	149	879	0.804	706	490	3.7	3.9	20.610	C
C	235	59	442	720	0.326	234	413	0.5	0.5	7.409	A

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	378	95	143	715	0.529	382	415	1.9	1.2	10.883	B
B	577	144	122	893	0.646	585	403	3.9	1.9	11.962	B
C	191	48	366	760	0.252	192	341	0.5	0.3	6.347	A

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	317	79	120	730	0.434	318	345	1.2	0.8	8.783	A
B	483	121	102	905	0.534	486	336	1.9	1.2	8.661	A
C	160	40	304	792	0.203	161	284	0.3	0.3	5.708	A

Queue Variation Results for each time segment

00:00 - 00:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.75	0.55	1.00	1.40	1.45			N/A	N/A
B	1.12	0.55	1.00	1.40	1.45			N/A	N/A
C	0.25	0.00	0.00	0.25	0.25			N/A	N/A

00:15 - 00:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

A	1.10	0.10	1.00	1.79	2.23			N/A	N/A
B	1.76	0.07	1.02	4.08	5.84			N/A	N/A
C	0.33	0.00	0.00	0.33	0.33			N/A	N/A

00:30 - 00:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.90	0.03	0.29	1.90	7.37			N/A	N/A
B	3.71	0.03	0.34	7.83	20.03			N/A	N/A
C	0.47	0.03	0.25	0.47	0.48			N/A	N/A

00:45 - 01:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.94	0.03	0.28	1.94	4.92			N/A	N/A
B	3.89	0.03	0.30	3.89	15.99			N/A	N/A
C	0.48	0.03	0.31	1.38	2.11			N/A	N/A

01:00 - 01:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.15	0.06	0.78	2.42	3.38			N/A	N/A
B	1.89	0.05	0.47	5.03	8.20			N/A	N/A
C	0.34	0.00	0.00	0.34	0.34			N/A	N/A

01:15 - 01:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.78	0.04	0.43	1.71	2.59			N/A	N/A
B	1.17	0.04	0.36	2.88	5.63			N/A	N/A
C	0.26	0.00	0.00	0.26	0.26			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 84% of the total flow for the roundabout for one or more time segments]
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	78.07	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-17	Arm A	78.07	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2045 + ST	AM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	656	100.000
B		ONE HOUR	✓	516	100.000
C		ONE HOUR	✓	219	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	527	129
	B	227	0	289
	C	41	178	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	1
	B	1	0	0
	C	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)

A	1.06	154.76	32.5	77.9	F	602	903
B	0.64	11.48	1.8	4.3	B	473	710
C	0.30	6.30	0.4	1.7	A	201	301

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	494	123	133	719	0.687	486	200	0.0	2.1	14.918	B
B	388	97	95	902	0.431	385	523	0.0	0.7	6.933	A
C	165	41	170	854	0.193	164	311	0.0	0.2	5.208	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	590	147	160	703	0.839	580	240	2.1	4.4	27.379	D
B	464	116	114	891	0.520	463	626	0.7	1.1	8.369	A
C	197	49	204	837	0.235	197	373	0.2	0.3	5.621	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	722	181	196	681	1.061	659	294	4.4	20.3	84.223	F
B	568	142	130	883	0.644	565	725	1.1	1.7	11.242	B
C	241	60	249	813	0.297	241	446	0.3	0.4	6.282	A

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	722	181	196	681	1.061	673	295	20.3	32.5	154.762	F
B	568	142	132	881	0.645	568	737	1.7	1.8	11.479	B
C	241	60	250	813	0.297	241	451	0.4	0.4	6.298	A

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	590	147	160	703	0.839	684	242	32.5	8.9	118.801	F
B	464	116	135	880	0.527	466	710	1.8	1.1	8.758	A
C	197	49	205	836	0.236	197	396	0.4	0.3	5.641	A

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	494	123	134	719	0.687	520	202	8.9	2.3	20.203	C
B	388	97	102	898	0.433	390	552	1.1	0.8	7.108	A
C	165	41	172	853	0.193	165	321	0.3	0.2	5.234	A

Queue Variation Results for each time segment

00:00 - 00:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.08	0.53	1.39	3.29	3.94			N/A	N/A
B	0.75	0.55	1.00	1.40	1.45			N/A	N/A
C	0.24	0.00	0.00	0.24	0.24			N/A	N/A

00:15 - 00:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	4.42	0.12	1.86	10.97	15.36			N/A	N/A
B	1.07	0.10	0.98	1.75	2.16			N/A	N/A

C	0.31	0.00	0.00	0.31	0.31			N/A	N/A

00:30 - 00:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	20.28	2.53	16.11	40.15	49.62			N/A	N/A
B	1.75	0.03	0.28	1.75	4.27			N/A	N/A
C	0.42	0.03	0.25	0.46	0.48			N/A	N/A

00:45 - 01:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	32.52	4.91	26.54	63.52	77.90			N/A	N/A
B	1.78	0.03	0.27	1.78	2.73			N/A	N/A
C	0.42	0.03	0.31	1.32	1.74			N/A	N/A

01:00 - 01:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	8.87	0.10	2.64	24.57	36.47			N/A	N/A
B	1.14	0.08	0.95	1.99	2.76			N/A	N/A
C	0.31	0.00	0.00	0.31	0.31			N/A	N/A

01:15 - 01:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.32	0.03	0.31	2.97	11.22			N/A	N/A
B	0.77	0.05	0.49	1.52	2.04			N/A	N/A
C	0.24	0.00	0.00	0.24	0.24			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 82% of the total flow for the roundabout for one or more time segments]
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	12.35	B

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		22	Arm B	12.35	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2045 + ST	PM	ONE HOUR	00:00	01:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	364	100.000
B		ONE HOUR	✓	591	100.000
C		ONE HOUR	✓	203	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	265	99
	B	360	0	231
	C	45	158	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.58	12.15	1.3	3.0	B	334	501
B	0.72	14.34	2.5	10.6	B	542	813
C	0.30	6.91	0.4	1.8	A	186	279

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	274	69	118	731	0.375	272	302	0.0	0.6	7.801	A
B	445	111	74	920	0.484	441	316	0.0	0.9	7.460	A
C	153	38	269	810	0.189	152	246	0.0	0.2	5.458	A

00:15 - 00:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	327	82	142	716	0.457	326	363	0.6	0.8	9.204	A
B	531	133	89	912	0.583	530	379	0.9	1.4	9.366	A
C	182	46	323	782	0.233	182	296	0.2	0.3	5.994	A

00:30 - 00:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	401	100	174	697	0.575	399	443	0.8	1.3	11.994	B
B	651	163	108	901	0.722	646	464	1.4	2.5	13.883	B
C	224	56	394	745	0.300	223	361	0.3	0.4	6.885	A

00:45 - 01:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	401	100	174	697	0.575	401	446	1.3	1.3	12.150	B
B	651	163	109	901	0.722	650	466	2.5	2.5	14.338	B
C	224	56	396	744	0.300	223	363	0.4	0.4	6.913	A

01:00 - 01:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	327	82	142	716	0.457	329	367	1.3	0.9	9.349	A
B	531	133	90	912	0.583	536	382	2.5	1.4	9.687	A
C	182	46	326	781	0.234	183	299	0.4	0.3	6.031	A

01:15 - 01:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	274	69	119	730	0.375	275	306	0.9	0.6	7.926	A
B	445	111	75	920	0.484	447	319	1.4	1.0	7.642	A
C	153	38	272	809	0.189	153	249	0.3	0.2	5.493	A

Queue Variation Results for each time segment

00:00 - 00:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.59	0.55	1.00	1.40	1.45			N/A	N/A
B	0.92	0.55	1.00	1.40	1.45			N/A	N/A
C	0.23	0.00	0.00	0.23	0.23			N/A	N/A

00:15 - 00:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

A	0.83	0.15	0.92	1.43	1.49			N/A	N/A
B	1.36	0.08	1.01	2.77	3.77			N/A	N/A
C	0.30	0.00	0.00	0.30	0.30			N/A	N/A

00:30 - 00:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.31	0.03	0.27	1.31	1.92			N/A	N/A
B	2.47	0.03	0.30	2.47	10.64			N/A	N/A
C	0.42	0.03	0.25	0.46	0.48			N/A	N/A

00:45 - 01:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.33	0.03	0.27	1.33	2.98			N/A	N/A
B	2.53	0.03	0.28	2.53	5.72			N/A	N/A
C	0.43	0.03	0.31	1.34	1.77			N/A	N/A

01:00 - 01:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.86	0.08	0.84	1.26	1.70			N/A	N/A
B	1.43	0.06	0.75	3.37	4.89			N/A	N/A
C	0.31	0.00	0.00	0.31	0.31			N/A	N/A

01:15 - 01:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.61	0.05	0.48	1.19	1.19			N/A	N/A
B	0.95	0.04	0.41	2.29	3.70			N/A	N/A
C	0.23	0.00	0.00	0.23	0.23			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.2.1574
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Filename: Junction 10 - St Stephen's Hill_Giles Lane Mini Roundabout Base Updated Flows.j10
Path: \\?\UNC\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 10 - St Stephen's Hill_Giles Lane Mini Roundabout_Junctions 10 Report
Report generation date: 16/01/2023 09:41:26

»2045 Base Modelled, AM
»2045 Base Modelled, PM
»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 Base Modelled													
Arm A	D7	245.6	926.31	1.41	F	538.43	-34 % [Arm A]	D8	1.0	8.66	0.49	A	72.81	-15 % [Arm C]
Arm B		0.0	19.73	0.03	C				0.0	0.00	0.00	A		
Arm C		22.4	114.94	1.02	F				33.7	130.97	1.05	F		
Arm D		0.6	6.68	0.38	A				4.2	28.10	0.82	D		
	2045 + CD													
Arm A	D9	118.5	507.80	1.26	F	250.43	-26 % [Arm A]	D10	1.4	10.86	0.58	B	218.83	-26 % [Arm C]
Arm B		0.0	25.86	0.05	D				0.0	10.81	0.02	B		
Arm C		15.2	78.37	0.98	F				101.7	437.70	1.22	F		
Arm D		1.8	11.66	0.65	B				6.6	38.08	0.89	E		
	2045 + ST													
Arm A	D11	124.4	526.28	1.27	F	267.40	-26 % [Arm A]	D12	1.1	9.60	0.53	A	110.54	-19 % [Arm C]
Arm B		0.1	24.39	0.06	C				0.0	9.84	0.02	A		
Arm C		15.9	82.86	0.98	F				57.2	213.44	1.11	F		
Arm D		1.5	10.20	0.60	B				5.3	31.48	0.85	D		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	St Stephens Hill/Giles Lane Mini Roundabout
Location	
Site number	
Date	17/01/2022
Version	
Status	
Identifier	
Client	
Jobnumber	
Enumerator	CORP\UKWGF001
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

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base Modelled	AM	ONE HOUR	07:45	09:15	15	✓	✓
D8	2045 Base Modelled	PM	ONE HOUR	16:15	17:45	15	✓	✓
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

Analysis Set Details

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

2045 Base Modelled, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and C have 85% of the total flow for the roundabout for one or more time segments][Arms A and D have 68% of the total flow for the roundabout for one or more time segments]
Warning	Demand Sets	D7 - 2045 Base Modelled, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C, D	538.43	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-34	Arm A	538.43	F

Arms

Arms

Arm	Name	Description
A	St Stephen's Hill (north)	
B	Giles Lane (Private Road)	
C	St Stephen's Hill (south)	
D	Giles Lane	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	3.55	3.03	4.50	3.2	9.60	5.20	0.0	✓
B	3.30	3.30	10.00	1.1	12.90	8.99	0.0	
C	3.65	3.50	4.70	1.5	14.80	12.99	0.0	✓
D	3.45	3.45	5.05	1.8	15.15	10.10	0.0	✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.503	892
B	0.615	865
C	0.520	892
D	0.514	1023

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

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
A	Direct	To macth observed queue	100

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base Modelled	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1123	100.000
B		ONE HOUR	✓	6	100.000
C		ONE HOUR	✓	635	100.000
D		ONE HOUR	✓	305	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	0	639	484
	B	0	0	1	5
	C	269	1	0	365
	D	104	2	199	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	1	0	0	1
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.41	926.31	245.6	245.6	F	1123	1123
B	0.03	19.73	0.0	0.5	C	6	6
C	1.02	114.94	22.4	68.1	F	635	635
D	0.38	6.68	0.6	2.7	A	305	305

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1010	252	181	899	1.123	888	331	8.1	38.5	108.741	F
B	5	1	1066	208	0.026	5	3	0.0	0.0	17.772	C
C	571	143	387	685	0.834	562	685	2.0	4.3	27.434	D
D	274	69	239	899	0.305	274	710	0.3	0.4	5.756	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1236	309	222	878	1.408	878	392	38.5	128.2	350.641	F
B	7	2	1097	189	0.035	7	3	0.0	0.0	19.684	C
C	699	175	384	686	1.019	655	719	4.3	15.4	69.924	F
D	336	84	278	878	0.382	335	760	0.4	0.6	6.620	A

08:30 - 08:45

	Total	Junction	Circulating	Capacity		Throughput	Throughput	Start	End		Unsignalised

Arm	Demand (Veh/hr)	Arrivals (Veh)	flow (Veh/hr)	(Veh/hr)	RFC	(Veh/hr)	(exit side) (Veh/hr)	queue (Veh)	queue (Veh)	Delay (s)	level of service
A	1236	309	222	878	1.408	878	399	128.2	217.7	708.460	F
B	7	2	1097	189	0.035	7	3	0.0	0.0	19.735	C
C	699	175	384	686	1.019	671	720	15.4	22.4	114.937	F
D	336	84	285	875	0.384	336	770	0.6	0.6	6.679	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1010	252	182	898	1.124	898	362	217.7	245.6	926.312	F
B	5	1	1078	201	0.027	5	3	0.0	0.0	18.405	C
C	571	143	392	682	0.837	634	691	22.4	6.6	79.794	F
D	274	69	270	883	0.311	275	756	0.6	0.5	5.929	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	38.52	0.23	15.65	105.49	151.95			N/A	N/A
B	0.03	0.03	0.25	0.45	0.48			N/A	N/A
C	4.28	0.13	1.92	10.40	14.37			N/A	N/A
D	0.44	0.00	0.00	0.44	0.44			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	128.16	>199	>199	>199	>199			N/A	N/A
B	0.04	0.03	0.25	0.45	0.48			N/A	N/A
C	15.36	0.96	10.50	34.21	44.32			N/A	N/A
D	0.61	0.03	0.25	0.61	0.61			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	217.75	>199	>199	>199	>199			N/A	N/A
B	0.04	0.00	0.00	0.04	0.04			N/A	N/A
C	22.40	1.00	14.67	51.85	68.06			N/A	N/A
D	0.62	0.03	0.29	1.15	2.73			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	245.58	>199	>199	>199	>199			N/A	N/A
B	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C	6.61	0.06	1.06	19.15	31.62			N/A	N/A
D	0.45	0.00	0.00	0.45	0.45			N/A	N/A

2045 Base Modelled, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and C have 69% of the total flow for the roundabout for one or more time segments][Arms C and D have 78% of the total flow for the roundabout for one or more time segments]
Warning	Demand Sets	D8 - 2045 Base Modelled, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C, D	72.81	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-15	Arm C	72.81	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D8	2045 Base Modelled	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	366	100.000
B		ONE HOUR	✓	3	100.000
C		ONE HOUR	✓	803	100.000
D		ONE HOUR	✓	518	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	1	281	84
	B	1	0	2	0
	C	615	1	0	187
	D	208	2	308	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.49	8.66	1.0	2.6	A	366	366
B	0.00	0.00	0.0	~1	A	0	0
C	1.05	130.97	33.7	85.0	F	803	803
D	0.82	28.10	4.2	21.1	D	518	518

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	329	82	278	850	0.387	328	731	0.5	0.6	6.890	A
B	0	0	603	494	0.000	0	4	0.0	0.0	0.000	A
C	722	180	75	853	0.846	712	527	2.3	4.7	23.906	C
D	466	116	546	742	0.627	463	241	1.0	1.6	12.771	B

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	403	101	337	821	0.491	402	852	0.6	0.9	8.539	A
B	0	0	734	413	0.000	0	4	0.0	0.0	0.000	A
C	884	221	92	844	1.047	818	642	4.7	21.3	72.154	F
D	570	143	627	701	0.814	561	283	1.6	3.8	24.451	C

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	403	101	341	818	0.492	403	868	0.9	1.0	8.662	A
B	0	0	740	409	0.000	0	4	0.0	0.0	0.000	A
C	884	221	92	844	1.047	835	648	21.3	33.7	130.966	F
D	570	143	640	694	0.822	569	287	3.8	4.2	28.105	D

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	329	82	285	847	0.389	330	822	1.0	0.6	6.988	A
B	0	0	611	489	0.000	0	4	0.0	0.0	0.000	A
C	722	180	76	853	0.846	825	535	33.7	8.0	96.828	F
D	466	116	633	698	0.667	474	268	4.2	2.1	16.651	C

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.62	0.14	0.89	1.38	1.44			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	4.73	0.11	1.89	11.96	16.88			N/A	N/A
D	1.62	0.07	1.02	3.67	5.12			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.95	0.03	0.26	0.95	0.95			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	21.33	2.17	16.51	43.54	54.37			N/A	N/A
D	3.84	0.04	0.37	9.59	20.63			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.96	0.03	0.28	0.96	2.64			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	33.68	4.01	26.61	68.34	84.97			N/A	N/A
D	4.22	0.03	0.32	6.16	21.13			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.64	0.11	0.85	1.37	1.44			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	8.00	0.07	1.35	22.97	36.05			N/A	N/A
D	2.10	0.05	0.72	5.53	8.49			N/A	N/A

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and C have 75% of the total flow for the roundabout for one or more time segments]
Warning	Demand Sets	D9 - 2045 + CD, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C, D	250.43	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-26	Arm A	250.43	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	922	100.000
B		ONE HOUR	✓	6	100.000
C		ONE HOUR	✓	661	100.000
D		ONE HOUR	✓	511	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	0	614	308
	B	0	0	2	4
	C	268	1	0	392
	D	182	2	327	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	0
	B	0	0	0	0
	C	1	0	0	1
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.26	507.80	118.5	184.7	F	922	922
B	0.05	25.86	0.0	0.5	D	6	6
C	0.98	78.37	15.2	61.2	F	661	661
D	0.65	11.66	1.8	4.3	B	511	511

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	829	207	296	840	0.987	791	401	3.7	13.2	51.704	F
B	5	1	1084	196	0.028	5	3	0.0	0.0	18.885	C
C	594	149	268	747	0.795	587	822	1.8	3.5	21.575	C
D	459	115	239	897	0.512	458	616	0.7	1.0	8.176	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1015	254	361	807	1.258	804	481	13.2	66.1	190.133	F
B	7	2	1162	148	0.045	7	3	0.0	0.0	25.443	D
C	728	182	273	745	0.977	696	896	3.5	11.6	52.679	F
D	563	141	283	874	0.643	560	685	1.0	1.7	11.338	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1015	254	363	806	1.260	805	489	66.1	118.5	416.356	F
B	7	2	1165	146	0.045	7	3	0.0	0.0	25.861	D
C	728	182	273	745	0.978	713	898	11.6	15.2	78.367	F
D	563	141	290	871	0.646	562	696	1.7	1.8	11.662	B

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	829	207	299	838	0.989	830	423	118.5	118.2	507.798	F
B	5	1	1126	170	0.032	5	3	0.0	0.0	21.874	C
C	594	149	281	741	0.802	636	850	15.2	4.6	41.964	E
D	459	115	259	887	0.518	462	658	1.8	1.1	8.532	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	13.17	0.32	7.41	32.17	43.54			N/A	N/A
B	0.03	0.03	0.25	0.45	0.48			N/A	N/A
C	3.49	0.09	1.28	8.73	12.37			N/A	N/A
D	1.03	0.09	0.95	1.70	2.00			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	66.06	31.78	62.72	97.43	109.15			N/A	N/A
B	0.05	0.03	0.25	0.46	0.48			N/A	N/A
C	11.55	0.21	5.73	29.36	40.64			N/A	N/A
D	1.75	0.03	0.28	1.75	4.31			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

A	118.51	70.69	115.14	160.46	175.13			N/A	N/A
B	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C	15.21	0.14	5.43	41.92	61.21			N/A	N/A
D	1.79	0.03	0.27	1.79	3.03			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	118.19	64.04	113.86	167.04	184.65			N/A	N/A
B	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C	4.65	0.05	0.46	13.17	23.55			N/A	N/A
D	1.10	0.08	0.93	1.92	2.64			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms C and D have 78% of the total flow for the roundabout for one or more time segments]
Warning	Demand Sets	D10 - 2045 + CD, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C, D	218.83	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-26	Arm C	218.83	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	415	100.000
B		ONE HOUR	✓	6	100.000
C		ONE HOUR	✓	903	100.000
D		ONE HOUR	✓	608	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	2	285	128
	B	2	0	3	1
	C	571	2	0	330
	D	242	2	364	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.58	10.86	1.4	2.8	B	415	415
B	0.02	10.81	0.0	0.5	B	6	6
C	1.22	437.70	101.7	163.6	F	903	903
D	0.89	38.08	6.6	36.2	E	608	608

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	373	93	328	826	0.452	372	710	0.6	0.8	7.922	A
B	5	1	695	437	0.012	5	5	0.0	0.0	8.337	A
C	812	203	117	831	0.977	779	583	3.8	12.1	49.465	E
D	547	137	496	768	0.712	542	400	1.3	2.3	15.654	C

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	457	114	396	791	0.577	455	777	0.8	1.3	10.629	B
B	7	2	845	345	0.019	7	6	0.0	0.0	10.638	B
C	994	249	144	818	1.216	813	708	12.1	57.3	166.639	F
D	669	167	518	756	0.885	655	439	2.3	5.9	31.677	D

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	457	114	403	788	0.580	457	784	1.3	1.4	10.864	B
B	7	2	854	340	0.019	7	6	0.0	0.0	10.813	B
C	994	249	144	817	1.216	817	716	57.3	101.7	357.979	F
D	669	167	520	755	0.886	667	440	5.9	6.6	38.078	E

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	373	93	340	820	0.455	375	746	1.4	0.8	8.137	A
B	5	1	710	428	0.013	5	5	0.0	0.0	8.515	A
C	812	203	118	831	0.977	823	597	101.7	98.9	437.704	F
D	547	137	524	754	0.725	562	417	6.6	2.8	20.039	C

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.81	0.12	0.90	1.43	1.50			N/A	N/A
B	0.01	0.01	0.25	0.45	0.48			N/A	N/A
C	12.08	0.34	6.97	29.10	39.15			N/A	N/A
D	2.33	0.07	1.22	5.71	8.15			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.33	0.03	0.27	1.33	1.41			N/A	N/A
B	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C	57.27	25.40	53.86	86.88	98.19			N/A	N/A
D	5.92	0.05	0.64	17.02	29.18			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

A	1.36	0.03	0.27	1.36	2.83			N/A	N/A
B	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C	101.65	56.11	98.04	142.36	156.96			N/A	N/A
D	6.62	0.04	0.38	16.10	36.22			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.85	0.09	0.87	1.08	1.59			N/A	N/A
B	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C	98.92	47.90	94.18	146.06	163.56			N/A	N/A
D	2.81	0.04	0.44	7.80	13.78			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and C have 76% of the total flow for the roundabout for one or more time segments]
Warning	Demand Sets	D11 - 2045 + ST, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C, D	267.40	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-26	Arm A	267.40	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	945	100.000
B		ONE HOUR	✓	8	100.000
C		ONE HOUR	✓	651	100.000
D		ONE HOUR	✓	475	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	1	606	338
	B	1	0	2	5
	C	258	1	0	392
	D	176	2	297	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	0
	B	0	0	0	0
	C	1	0	0	1
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.27	526.28	124.4	192.7	F	945	945
B	0.06	24.39	0.1	0.5	C	8	8
C	0.98	82.86	15.9	61.8	F	651	651
D	0.60	10.20	1.5	2.3	B	475	475

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	850	212	269	853	0.996	808	388	3.9	14.3	54.000	F
B	7	2	1073	202	0.036	7	4	0.0	0.0	18.430	C
C	585	146	294	733	0.799	578	786	1.8	3.6	22.306	C
D	427	107	231	901	0.474	426	642	0.6	0.9	7.564	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1040	260	329	823	1.264	820	465	14.3	69.3	195.767	F
B	9	2	1145	158	0.056	9	4	0.0	0.1	24.060	C
C	717	179	300	730	0.982	683	854	3.6	11.9	54.918	F
D	523	131	273	879	0.595	521	710	0.9	1.4	9.988	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1040	260	330	822	1.265	822	473	69.3	124.0	427.200	F
B	9	2	1148	156	0.056	9	4	0.1	0.1	24.386	C
C	717	179	301	729	0.983	701	856	11.9	15.9	82.858	F
D	523	131	280	875	0.597	523	721	1.4	1.5	10.204	B

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	850	212	271	852	0.997	848	409	124.0	124.4	526.278	F
B	7	2	1115	177	0.041	7	4	0.1	0.0	21.267	C
C	585	146	309	725	0.807	630	814	15.9	4.8	45.869	E
D	427	107	251	890	0.480	429	687	1.5	0.9	7.844	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	14.26	0.36	8.14	34.72	46.85			N/A	N/A
B	0.04	0.03	0.25	0.45	0.48			N/A	N/A
C	3.56	0.10	1.35	8.86	12.53			N/A	N/A
D	0.89	0.11	0.92	1.10	1.59			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	69.34	33.56	65.89	102.06	114.25			N/A	N/A
B	0.06	0.03	0.26	0.46	0.49			N/A	N/A
C	11.93	0.25	6.25	29.79	40.84			N/A	N/A
D	1.43	0.03	0.27	1.43	1.65			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

A	123.97	74.71	120.59	167.19	182.31			N/A	N/A
B	0.06	0.03	0.25	0.45	0.48			N/A	N/A
C	15.92	0.16	6.40	43.04	61.83			N/A	N/A
D	1.46	0.03	0.27	1.46	2.35			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	124.39	68.41	120.01	174.69	192.72			N/A	N/A
B	0.04	0.00	0.00	0.04	0.04			N/A	N/A
C	4.84	0.05	0.47	13.78	24.40			N/A	N/A
D	0.94	0.10	0.92	1.43	1.79			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms C and D have 78% of the total flow for the roundabout for one or more time segments]
Warning	Demand Sets	D12 - 2045 + ST, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C, D	110.54	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-19	Arm C	110.54	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	385	100.000
B		ONE HOUR	✓	6	100.000
C		ONE HOUR	✓	830	100.000
D		ONE HOUR	✓	580	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	1	261	123
	B	2	0	3	1
	C	541	2	0	287
	D	234	2	344	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.53	9.60	1.1	2.6	A	385	385
B	0.02	9.84	0.0	0.5	A	6	6
C	1.11	213.44	57.2	107.7	F	830	830
D	0.85	31.48	5.3	28.1	D	580	580

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	346	87	311	834	0.415	345	687	0.5	0.7	7.352	A
B	5	1	652	464	0.012	5	4	0.0	0.0	7.852	A
C	746	187	113	834	0.895	731	544	2.7	6.5	31.123	D
D	521	130	480	776	0.672	518	364	1.1	2.0	13.766	B

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	424	106	376	801	0.529	422	782	0.7	1.1	9.457	A
B	7	2	793	377	0.018	7	5	0.0	0.0	9.727	A
C	914	228	138	820	1.114	807	662	6.5	33.1	103.150	F
D	639	160	530	750	0.851	627	415	2.0	4.8	27.040	D

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	424	106	382	799	0.531	424	792	1.1	1.1	9.603	A
B	7	2	800	372	0.018	7	5	0.0	0.0	9.842	A
C	914	228	139	820	1.114	817	668	33.1	57.2	209.870	F
D	639	160	537	747	0.855	637	419	4.8	5.3	31.476	D

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	346	87	320	830	0.417	348	750	1.1	0.7	7.495	A
B	5	1	663	457	0.012	5	5	0.0	0.0	7.971	A
C	746	187	114	833	0.896	819	554	57.2	39.0	213.438	F
D	521	130	538	747	0.698	533	395	5.3	2.4	17.615	C

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.70	0.14	0.89	1.38	1.44			N/A	N/A
B	0.01	0.01	0.25	0.45	0.48			N/A	N/A
C	6.48	0.19	3.36	15.67	21.35			N/A	N/A
D	1.96	0.07	1.09	4.69	6.70			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.10	0.03	0.26	1.10	1.10			N/A	N/A
B	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C	33.10	9.37	29.37	56.90	66.92			N/A	N/A
D	4.78	0.04	0.42	13.13	25.08			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

A	1.12	0.03	0.27	1.12	2.65			N/A	N/A
B	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C	57.22	20.32	52.45	93.30	107.74			N/A	N/A
D	5.26	0.03	0.34	9.96	28.12			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.73	0.10	0.85	1.39	1.46			N/A	N/A
B	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C	39.04	12.73	35.31	64.86	75.43			N/A	N/A
D	2.44	0.05	0.47	6.73	11.13			N/A	N/A

Junctions 10

PICADY 10 - Priority Intersection Module

Version: 10.0.2.1574
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Report generation date: 16/01/2023 09:38:55

»2045 Base Modelled, AM
»2045 Base Modelled, PM
»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 Base Modelled													
Stream B-C	D7	0.0	6.90	0.01	A	1.20	16 % [Stream B-A]	D8	0.0	0.00	0.00	A	0.24	43 % [Stream B-A]
Stream B-A		0.5	22.90	0.35	C				0.1	16.07	0.08	C		
Stream C-AB		0.0	0.00	0.00	A				0.0	0.00	0.00	A		
	2045 + CD													
Stream B-C	D9	0.0	0.00	0.00	A	0.27	41 % [Stream B-A]	D10	0.0	0.00	0.00	A	0.00	900 % []
Stream B-A		0.1	16.30	0.09	C				0.0	0.00	0.00	A		
Stream C-AB		0.0	3.35	0.01	A				0.0	0.00	0.00	A		
	2045 + ST													
Stream B-C	D11	0.0	0.00	0.00	A	0.08	48 % [Stream B-A]	D12	0.0	0.00	0.00	A	0.00	900 % []
Stream B-A		0.0	15.40	0.03	C				0.0	0.00	0.00	A		
Stream C-AB		0.0	3.25	0.01	A				0.0	0.00	0.00	A		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Calais Hill / Wood Hill / Canterbury Hill – Roundabout junction
Location	Tyler Hill
Site number	
Date	26/11/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	70080896
Enumerator	CORP\UKWGF001
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 length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base Modelled	AM	ONE HOUR	07:45	09:15	15	✓	✓
D8	2045 Base Modelled	PM	ONE HOUR	16:15	17:45	15	✓	✓
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

Analysis Set Details

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

2045 Base Modelled, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Arm B - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Demand Sets	D7 - 2045 Base Modelled, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		1.20	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	16	Stream B-A	1.20	A

Arms

Arms

Arm	Name	Description	Arm type
A	Canterbury Hill		Major
B	Calais Hill		Minor
C	Wood Hill		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)
C	5.40			94.3	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	9.30	3.55	2.70	2.60	2.60	✓	1.00	23	21

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	510	0.095	0.240	0.151	0.343
B-C	720	0.114	0.288	-	-
C-B	629	0.250	0.250	-	-

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.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 Base Modelled	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	374	100.000
B		ONE HOUR	✓	82	100.000
C		ONE HOUR	✓	1041	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	31	343
	B	77	0	5
	C	1041	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	1
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.01	6.90	0.0	0.5	A	5	5
B-A	0.35	22.90	0.5	2.4	C	77	77
C-AB	0.00	0.00	0.0	~1	A	0	0
C-A						1041	1041
A-B						31	31
A-C						343	343

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service

B-C	4	1	582	0.008	4	0.0	0.0	6.233	A
B-A	69	17	291	0.238	69	0.2	0.3	16.177	C
C-AB	0	0	543	0.000	0	0.0	0.0	0.000	A
C-A	936	234			936				
A-B	28	7			28				
A-C	308	77			308				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	6	1	529	0.010	5	0.0	0.0	6.879	A
B-A	85	21	242	0.351	84	0.3	0.5	22.674	C
C-AB	0	0	524	0.000	0	0.0	0.0	0.000	A
C-A	1146	287			1146				
A-B	34	9			34				
A-C	378	94			378				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	6	1	527	0.010	6	0.0	0.0	6.896	A
B-A	85	21	242	0.351	85	0.5	0.5	22.905	C
C-AB	0	0	524	0.000	0	0.0	0.0	0.000	A
C-A	1146	287			1146				
A-B	34	9			34				
A-C	378	94			378				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	4	1	581	0.008	5	0.0	0.0	6.246	A
B-A	69	17	291	0.238	70	0.5	0.3	16.356	C
C-AB	0	0	543	0.000	0	0.0	0.0	0.000	A
C-A	936	234			936				
A-B	28	7			28				
A-C	308	77			308				

Queue Variation Results for each time segment

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.01	0.25	0.45	0.48			N/A	N/A
B-A	0.31	0.00	0.00	0.31	0.31			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.52	0.03	0.26	0.52	0.52			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.53	0.03	0.31	1.49	2.39			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:45 - 09:00

	Mean	Q05	Q50	Q90	Q95	Percentile	Marker	Probability of reaching or	Probability of exactly

Stream	(Veh)	(Veh)	(Veh)	(Veh)	(Veh)	message	message	exceeding marker	reaching marker
B-C	0.01	0.00	0.00	0.01	0.01			N/A	N/A
B-A	0.32	0.03	0.25	0.46	0.48			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2045 Base Modelled, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Arm B - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Demand Sets	D8 - 2045 Base Modelled, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.24	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	43	Stream B-A	0.24	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D8	2045 Base Modelled	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	823	100.000
B		ONE HOUR	✓	18	100.000
C		ONE HOUR	✓	349	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	59	764
	B	18	0	0
	C	349	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To

		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	~1	A	0	0
B-A	0.08	16.07	0.1	0.5	C	18	18
C-AB	0.00	0.00	0.0	~1	A	0	0
C-A						349	349
A-B						59	59
A-C						764	764

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	510	0.000	0	0.0	0.0	0.000	A
B-A	16	4	293	0.055	16	0.0	0.1	13.016	B
C-AB	0	0	443	0.000	0	0.0	0.0	0.000	A
C-A	314	78			314				
A-B	53	13			53				
A-C	687	172			687				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	461	0.000	0	0.0	0.0	0.000	A
B-A	20	5	244	0.081	20	0.1	0.1	16.056	C
C-AB	0	0	402	0.000	0	0.0	0.0	0.000	A
C-A	384	96			384				
A-B	65	16			65				
A-C	841	210			841				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	461	0.000	0	0.0	0.0	0.000	A
B-A	20	5	244	0.081	20	0.1	0.1	16.072	C
C-AB	0	0	402	0.000	0	0.0	0.0	0.000	A
C-A	384	96			384				
A-B	65	16			65				
A-C	841	210			841				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	509	0.000	0	0.0	0.0	0.000	A
B-A	16	4	293	0.055	16	0.1	0.1	13.032	B
C-AB	0	0	443	0.000	0	0.0	0.0	0.000	A

C-A	314	78			314				
A-B	53	13			53				
A-C	687	172			687				

Queue Variation Results for each time segment

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.06	0.03	0.25	0.45	0.48			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.09	0.03	0.26	0.47	0.50			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.09	0.03	0.25	0.45	0.48			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.06	0.00	0.00	0.06	0.06			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Arm B - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Demand Sets	D9 - 2045 + CD, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.27	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	41	Stream B-A	0.27	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D9	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	450	100.000
B		ONE HOUR	✓	21	100.000
C		ONE HOUR	✓	877	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	3	447
	B	21	0	0
	C	875	2	0

Vehicle Mix

Heavy Vehicle Percentages

	To

From		A	B	C
	A	0	0	1
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	~1	A	0	0
B-A	0.09	16.30	0.1	0.5	C	21	21
C-AB	0.01	3.35	0.0	0.5	A	9	9
C-A						868	868
A-B						3	3
A-C						447	447

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	594	0.000	0	0.0	0.0	0.000	A
B-A	19	5	293	0.064	19	0.0	0.1	13.136	B
C-AB	7	2	1082	0.006	7	0.0	0.0	3.345	A
C-A	782	195			782				
A-B	3	0.67			3				
A-C	402	100			402				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	564	0.000	0	0.0	0.0	0.000	A
B-A	23	6	244	0.095	23	0.1	0.1	16.275	C
C-AB	11	3	1196	0.009	11	0.0	0.0	3.036	A
C-A	954	239			954				
A-B	3	0.83			3				
A-C	492	123			492				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	564	0.000	0	0.0	0.0	0.000	A
B-A	23	6	244	0.095	23	0.1	0.1	16.296	C
C-AB	11	3	1196	0.009	11	0.0	0.0	3.036	A
C-A	954	239			954				
A-B	3	0.83			3				
A-C	492	123			492				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	594	0.000	0	0.0	0.0	0.000	A
B-A	19	5	293	0.064	19	0.1	0.1	13.157	B
C-AB	7	2	1082	0.006	7	0.0	0.0	3.349	A

C-A	782	195			782				
A-B	3	0.67			3				
A-C	402	100			402				

Queue Variation Results for each time segment

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.07	0.03	0.25	0.46	0.48			N/A	N/A
C-AB	0.01	0.01	0.25	0.45	0.48			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.10	0.03	0.26	0.47	0.50			N/A	N/A
C-AB	0.01	0.01	0.26	0.47	0.49			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.10	0.03	0.25	0.45	0.48			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.07	0.00	0.00	0.07	0.07			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Arm B - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Demand Sets	D10 - 2045 + CD, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.00	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	900		0.00	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D10	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	813	100.000
B		ONE HOUR	✓	3	100.000
C		ONE HOUR	✓	412	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	2	811
	B	3	0	0
	C	412	0	0

Vehicle Mix

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

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	~1	A	0	0
B-A	0.00	0.00	0.0	~1	A	0	0
C-AB	0.00	0.00	0.0	~1	A	0	0
C-A						412	412
A-B						2	2
A-C						811	811

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	526	0.000	0	0.0	0.0	0.000	A
B-A	0	0	277	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	445	0.000	0	0.0	0.0	0.000	A
C-A	370	93			370				
A-B	2	0.45			2				
A-C	729	182			729				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	478	0.000	0	0.0	0.0	0.000	A
B-A	0	0	225	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	404	0.000	0	0.0	0.0	0.000	A
C-A	454	113			454				
A-B	2	0.55			2				
A-C	893	223			893				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	478	0.000	0	0.0	0.0	0.000	A
B-A	0	0	225	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	404	0.000	0	0.0	0.0	0.000	A
C-A	454	113			454				
A-B	2	0.55			2				
A-C	893	223			893				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	526	0.000	0	0.0	0.0	0.000	A
B-A	0	0	277	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	445	0.000	0	0.0	0.0	0.000	A

C-A	370	93			370				
A-B	2	0.45			2				
A-C	729	182			729				

Queue Variation Results for each time segment

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Arm B - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Demand Sets	D11 - 2045 + ST, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.08	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	48	Stream B-A	0.08	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D11	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	436	100.000
B		ONE HOUR	✓	6	100.000
C		ONE HOUR	✓	920	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	2	434
	B	6	0	0
	C	919	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To

From		A	B	C
	A	0	0	1
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	~1	A	0	0
B-A	0.03	15.40	0.0	0.5	C	6	6
C-AB	0.01	3.25	0.0	0.5	A	5	5
C-A						915	915
A-B						2	2
A-C						434	434

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	604	0.000	0	0.0	0.0	0.000	A
B-A	5	1	290	0.019	5	0.0	0.0	12.658	B
C-AB	4	0.88	1112	0.003	4	0.0	0.0	3.247	A
C-A	824	206			824				
A-B	2	0.45			2				
A-C	390	98			390				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	577	0.000	0	0.0	0.0	0.000	A
B-A	7	2	240	0.027	7	0.0	0.0	15.400	C
C-AB	6	2	1233	0.005	6	0.0	0.0	2.933	A
C-A	1007	252			1007				
A-B	2	0.55			2				
A-C	478	119			478				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	577	0.000	0	0.0	0.0	0.000	A
B-A	7	2	240	0.027	7	0.0	0.0	15.404	C
C-AB	6	2	1233	0.005	6	0.0	0.0	2.934	A
C-A	1007	252			1007				
A-B	2	0.55			2				
A-C	478	119			478				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	604	0.000	0	0.0	0.0	0.000	A
B-A	5	1	290	0.019	5	0.0	0.0	12.662	B
C-AB	4	0.88	1112	0.003	4	0.0	0.0	3.250	A

C-A	824	206			824				
A-B	2	0.45			2				
A-C	390	98			390				

Queue Variation Results for each time segment

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.02	0.02	0.25	0.45	0.48			N/A	N/A
C-AB	0.00	0.00	0.25	0.45	0.48			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Arm B - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Demand Sets	D12 - 2045 + ST, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.00	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	900		0.00	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D12	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	774	100.000
B		ONE HOUR	✓	2	100.000
C		ONE HOUR	✓	389	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	1	773
	B	2	0	0
	C	389	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To

		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	~1	A	0	0
B-A	0.00	0.00	0.0	~1	A	0	0
C-AB	0.00	0.00	0.0	~1	A	0	0
C-A						389	389
A-B						1	1
A-C						773	773

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	537	0.000	0	0.0	0.0	0.000	A
B-A	0	0	288	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	454	0.000	0	0.0	0.0	0.000	A
C-A	350	87			350				
A-B	0.90	0.22			0.90				
A-C	695	174			695				

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	490	0.000	0	0.0	0.0	0.000	A
B-A	0	0	239	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	415	0.000	0	0.0	0.0	0.000	A
C-A	428	107			428				
A-B	1	0.28			1				
A-C	851	213			851				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	490	0.000	0	0.0	0.0	0.000	A
B-A	0	0	239	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	415	0.000	0	0.0	0.0	0.000	A
C-A	428	107			428				
A-B	1	0.28			1				
A-C	851	213			851				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	0	0	537	0.000	0	0.0	0.0	0.000	A
B-A	0	0	288	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	454	0.000	0	0.0	0.0	0.000	A

C-A	350	87			350				
A-B	0.90	0.22			0.90				
A-C	695	174			695				

Queue Variation Results for each time segment

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.00	0.00	0.00	0.00	0.00			N/A	N/A
B-A	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.2.1574
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Filename: Junction 12 - Kingsmead Road_Broad Oak Road.j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 12 - Kingsmead Road_Broad Oak Road
Report generation date: 16/01/2023 09:45:36

»2045 Base, AM
»2045 Base, PM
»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 Base													
Arm A	D7	5.5	32.38	0.86	D	40.79	-9 % [Arm B]	D8	7.3	45.48	0.90	E	31.93	-3 % [Arm A]
Arm B		22.8	103.56	1.02	F				6.8	38.26	0.89	E		
Arm C		4.0	19.19	0.81	C				9.2	34.21	0.92	D		
Arm D		2.2	9.40	0.69	A				3.7	15.15	0.79	C		
	2045 + CD													
Arm A	D9	15.8	78.33	0.98	F	61.62	-12 % [Arm B]	D10	13.0	72.91	0.97	F	52.56	-6 % [Arm A]
Arm B		33.5	143.27	1.06	F				11.7	61.32	0.95	F		
Arm C		4.3	20.48	0.82	C				18.0	61.87	0.98	F		
Arm D		2.2	9.70	0.70	A				4.6	19.22	0.83	C		
	2045 + ST													
Arm A	D11	8.9	48.74	0.92	E	48.01	-10 % [Arm B]	D12	9.8	57.86	0.94	F	41.75	-5 % [Arm A]
Arm B		26.6	116.54	1.03	F				11.1	57.93	0.95	F		
Arm C		4.1	19.79	0.81	C				11.2	41.72	0.94	E		
Arm D		2.2	9.56	0.69	A				4.1	17.10	0.81	C		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	B2248 / Kingsmead Road / Broad Oak Road / St Stephens Road – Roundabout junction
Location	Canterbury
Site number	
Date	26/11/2021
Version	
Status	(new file)
Identifier	
Client	

Jobnumber	70080896
Enumerator	CORP\UKWGF001
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 length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓			✓	✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2045 Base	AM	ONE HOUR	08:00	09:30	15	✓
D8	2045 Base	PM	ONE HOUR	17:00	18:30	15	✓
D9	2045 + CD	AM	ONE HOUR	08:00	09:30	15	✓
D10	2045 + CD	PM	ONE HOUR	17:00	18:30	15	✓
D11	2045 + ST	AM	ONE HOUR	08:00	09:30	15	✓
D12	2045 + ST	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2045 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	40.79	E

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-9	Arm B	40.79	E

Arms

Arms

Arm	Name	Description	No give-way line
A	St Stephens Road North		
B	Broad Oak Road		
C	Kingsmead Road		
D	St Stepehns Road South		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A	3.28	6.20	8.6	15.2	32.3	59.0		
B	3.25	6.35	5.5	18.2	32.3	54.0		
C	3.25	6.65	5.7	21.4	32.3	21.5		
D	3.08	6.30	19.1	21.9	32.3	12.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.528	1252
B	0.527	1203
C	0.601	1383
D	0.670	1671

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2045 Base	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	595	100.000
B		ONE HOUR	✓	708	100.000
C		ONE HOUR	✓	711	100.000
D		ONE HOUR	✓	769	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	107	381	107
	B	70	0	208	430
	C	355	123	0	233
	D	87	461	221	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	2	0	6	1
	C	1	4	0	4
	D	0	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.86	32.38	5.5	30.1	D	546	819
B	1.02	103.56	22.8	70.7	F	650	975
C	0.81	19.19	4.0	19.9	C	652	979
D	0.69	9.40	2.2	4.8	A	706	1058

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	448	112	603	912	0.491	444	383	0.0	0.9	7.632	A
B	533	133	530	896	0.595	527	517	0.0	1.4	9.630	A
C	535	134	452	1081	0.495	531	605	0.0	1.0	6.501	A
D	579	145	409	1355	0.427	576	574	0.0	0.7	4.602	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	535	134	722	848	0.631	532	458	0.9	1.7	11.290	B
B	636	159	635	841	0.757	631	619	1.4	2.9	16.667	C
C	639	160	541	1029	0.621	637	724	1.0	1.6	9.118	A
D	691	173	490	1302	0.531	690	687	0.7	1.1	5.871	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	655	164	881	762	0.859	642	554	1.7	5.0	27.244	D
B	780	195	768	771	1.012	731	755	2.9	15.0	59.045	F
C	783	196	632	975	0.803	774	868	1.6	3.7	17.222	C
D	847	212	593	1233	0.686	843	813	1.1	2.1	9.118	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	655	164	886	760	0.862	653	560	5.0	5.5	32.375	D
B	780	195	779	765	1.019	748	760	15.0	22.8	103.559	F
C	783	196	646	967	0.810	782	881	3.7	4.0	19.193	C
D	847	212	600	1229	0.689	846	828	2.1	2.2	9.398	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	535	134	729	844	0.633	550	473	5.5	1.8	12.801	B
B	636	159	651	832	0.765	713	628	22.8	3.6	42.777	E
C	639	160	603	992	0.644	648	762	4.0	1.9	10.688	B
D	691	173	506	1291	0.535	695	744	2.2	1.2	6.081	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	448	112	608	909	0.493	451	388	1.8	1.0	7.913	A
B	533	133	537	892	0.598	541	522	3.6	1.5	10.504	B
C	535	134	464	1075	0.498	539	615	1.9	1.0	6.760	A
D	579	145	416	1351	0.428	581	587	1.2	0.8	4.683	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.95	0.55	1.00	1.40	1.45			N/A	N/A
B	1.43	0.48	1.31	1.94	2.45			N/A	N/A
C	0.97	0.55	1.00	1.40	1.45			N/A	N/A
D	0.74	0.55	1.00	1.40	1.45			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.65	0.06	0.79	4.01	5.96			N/A	N/A
B	2.90	0.06	1.07	7.75	11.71			N/A	N/A
C	1.60	0.06	0.82	3.83	5.62			N/A	N/A
D	1.12	0.06	0.81	2.24	3.06			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	5.02	0.04	0.44	13.98	26.00			N/A	N/A
B	15.03	0.71	9.78	34.46	45.19			N/A	N/A
C	3.72	0.03	0.33	7.21	19.85			N/A	N/A
D	2.12	0.03	0.28	2.12	4.80			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	5.54	0.03	0.35	11.62	30.14			N/A	N/A

B	22.85	0.89	14.63	53.57	70.72			N/A	N/A
C	4.00	0.03	0.30	4.00	16.33			N/A	N/A
D	2.17	0.03	0.27	2.17	2.45			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.79	0.04	0.41	4.79	8.37			N/A	N/A
B	3.63	0.04	0.41	9.90	18.76			N/A	N/A
C	1.86	0.05	0.68	4.80	7.35			N/A	N/A
D	1.17	0.08	0.96	2.10	2.85			N/A	N/A

09:15 - 09:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.99	0.03	0.31	1.84	4.95			N/A	N/A
B	1.52	0.03	0.29	1.52	6.29			N/A	N/A
C	1.01	0.03	0.34	2.42	4.81			N/A	N/A
D	0.76	0.05	0.45	1.56	2.22			N/A	N/A

2045 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	31.93	D

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-3	Arm A	31.93	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2045 Base	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	566	100.000
B		ONE HOUR	✓	625	100.000
C		ONE HOUR	✓	936	100.000
D		ONE HOUR	✓	819	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	130	357	79
	B	113	0	345	167
	C	365	219	0	352
	D	94	443	282	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	0
	B	1	0	1	3
	C	1	3	0	2
	D	0	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.90	45.48	7.3	39.3	E	519	779
B	0.89	38.26	6.8	37.2	E	574	860
C	0.92	34.21	9.2	50.1	D	859	1288
D	0.79	15.15	3.7	17.1	C	752	1127

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	426	107	706	867	0.491	422	427	0.0	0.9	8.026	A
B	471	118	536	903	0.521	466	592	0.0	1.1	8.159	A
C	705	176	268	1197	0.589	699	735	0.0	1.4	7.151	A
D	617	154	520	1300	0.474	613	446	0.0	0.9	5.211	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	509	127	846	793	0.642	506	512	0.9	1.7	12.406	B
B	562	140	642	848	0.663	559	709	1.1	1.9	12.308	B
C	841	210	321	1165	0.722	837	880	1.4	2.5	10.826	B
D	736	184	623	1231	0.598	734	535	0.9	1.5	7.208	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	623	156	1027	696	0.896	605	617	1.7	6.2	34.557	D
B	688	172	774	778	0.884	672	858	1.9	5.9	30.158	D
C	1031	258	386	1126	0.915	1009	1061	2.5	7.9	26.728	D
D	902	225	751	1145	0.787	894	643	1.5	3.5	13.891	B

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	623	156	1037	690	0.903	619	627	6.2	7.3	45.479	E
B	688	172	787	772	0.892	684	869	5.9	6.8	38.259	E
C	1031	258	393	1122	0.919	1026	1078	7.9	9.2	34.215	D
D	902	225	764	1137	0.793	901	655	3.5	3.7	15.153	C

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	509	127	862	784	0.649	530	529	7.3	1.9	15.312	C
B	562	140	665	836	0.672	581	727	6.8	2.1	15.050	C
C	841	210	334	1157	0.727	867	911	9.2	2.8	13.391	B
D	736	184	646	1216	0.606	745	555	3.7	1.6	7.771	A

18:15 - 18:30

Arm	Total Demand	Junction Arrivals	Circulating flow	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay	Unsignalised level of

	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)	(s)	service
A	426	107	714	863	0.494	430	434	1.9	1.0	8.382	A
B	471	118	544	899	0.523	475	600	2.1	1.1	8.558	A
C	705	176	273	1194	0.590	710	746	2.8	1.5	7.516	A
D	617	154	529	1295	0.476	619	454	1.6	0.9	5.351	A

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.95	0.55	1.00	1.40	1.45			N/A	N/A
B	1.07	0.55	1.01	1.42	1.47			N/A	N/A
C	1.40	0.58	1.30	1.76	1.90			N/A	N/A
D	0.89	0.55	1.00	1.40	1.45			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.73	0.06	0.75	4.32	6.47			N/A	N/A
B	1.89	0.06	0.85	4.74	7.01			N/A	N/A
C	2.50	0.06	0.79	6.71	10.38			N/A	N/A
D	1.46	0.05	0.65	3.56	5.30			N/A	N/A

17:30 - 17:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	6.21	0.06	1.08	17.91	29.32			N/A	N/A
B	5.89	0.05	0.57	16.94	29.26			N/A	N/A
C	7.93	0.06	1.05	23.08	38.80			N/A	N/A
D	3.46	0.03	0.31	4.79	17.05			N/A	N/A

17:45 - 18:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	7.34	0.04	0.44	20.21	39.31			N/A	N/A
B	6.83	0.04	0.39	17.16	37.23			N/A	N/A
C	9.16	0.04	0.42	24.05	50.13			N/A	N/A
D	3.67	0.03	0.29	3.67	11.84			N/A	N/A

18:00 - 18:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.93	0.04	0.40	5.15	9.43			N/A	N/A
B	2.14	0.04	0.42	5.82	10.26			N/A	N/A
C	2.79	0.04	0.42	7.70	13.85			N/A	N/A
D	1.57	0.05	0.64	3.88	5.87			N/A	N/A

18:15 - 18:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.99	0.03	0.30	1.39	4.80			N/A	N/A
B	1.12	0.03	0.31	1.91	5.65			N/A	N/A
C	1.47	0.03	0.31	2.59	7.53			N/A	N/A
D	0.92	0.04	0.36	2.23	4.17			N/A	N/A

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	61.62	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-12	Arm B	61.62	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2045 + CD	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	678	100.000
B		ONE HOUR	✓	716	100.000
C		ONE HOUR	✓	722	100.000
D		ONE HOUR	✓	769	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	138	423	117
	B	78	0	208	430
	C	366	123	0	233
	D	87	461	221	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	2	0	6	1
	C	1	4	0	4
	D	0	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.98	78.33	15.8	61.9	F	622	933
B	1.06	143.27	33.5	80.8	F	657	986
C	0.82	20.48	4.3	21.8	C	663	994
D	0.70	9.70	2.2	5.5	A	706	1058

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	510	128	603	912	0.559	505	397	0.0	1.2	8.743	A
B	539	135	568	876	0.616	533	540	0.0	1.6	10.320	B
C	544	136	465	1074	0.506	540	636	0.0	1.0	6.688	A
D	579	145	423	1346	0.430	576	581	0.0	0.7	4.657	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	610	152	722	848	0.718	605	475	1.2	2.4	14.501	B
B	644	161	680	817	0.788	636	647	1.6	3.4	19.160	C
C	649	162	556	1020	0.636	646	760	1.0	1.7	9.553	A
D	691	173	507	1290	0.536	690	695	0.7	1.1	5.977	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	746	187	881	763	0.979	710	572	2.4	11.6	49.484	E
B	788	197	807	750	1.051	723	783	3.4	19.7	73.344	F
C	795	199	635	973	0.817	786	895	1.7	4.0	18.328	C
D	847	212	611	1222	0.693	842	810	1.1	2.2	9.393	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	746	187	886	760	0.982	730	578	11.6	15.8	78.329	F
B	788	197	824	741	1.063	734	791	19.7	33.5	143.269	F
C	795	199	646	967	0.822	794	912	4.0	4.3	20.484	C
D	847	212	617	1217	0.696	846	823	2.2	2.2	9.698	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	610	152	729	845	0.722	662	494	15.8	2.8	24.522	C
B	644	161	727	793	0.812	755	664	33.5	5.7	93.657	F
C	649	162	649	965	0.673	658	832	4.3	2.1	12.037	B
D	691	173	528	1277	0.541	695	780	2.2	1.2	6.236	A

09:15 - 09:30

Arm	Total Demand	Junction Arrivals	Circulating flow	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay	Unsignalised level of

	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)	(s)	service
A	510	128	608	909	0.561	516	404	2.8	1.3	9.287	A
B	539	135	578	871	0.619	555	547	5.7	1.7	11.972	B
C	544	136	483	1063	0.511	548	650	2.1	1.1	7.038	A
D	579	145	432	1341	0.432	581	599	1.2	0.8	4.749	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.24	0.52	1.17	1.67	1.87			N/A	N/A
B	1.55	0.27	1.37	2.47	2.94			N/A	N/A
C	1.01	0.55	1.00	1.40	1.45			N/A	N/A
D	0.75	0.55	1.00	1.40	1.45			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.42	0.06	0.84	6.43	9.83			N/A	N/A
B	3.38	0.07	1.29	8.98	13.42			N/A	N/A
C	1.70	0.06	0.84	4.13	6.08			N/A	N/A
D	1.14	0.06	0.81	2.33	3.22			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	11.60	0.22	5.81	29.39	40.62			N/A	N/A
B	19.74	2.00	15.26	40.21	50.21			N/A	N/A
C	4.02	0.03	0.35	8.67	21.79			N/A	N/A
D	2.19	0.03	0.28	2.19	5.46			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	15.79	0.16	6.14	42.89	61.87			N/A	N/A
B	33.45	4.90	27.19	65.73	80.78			N/A	N/A
C	4.32	0.03	0.30	4.32	18.84			N/A	N/A
D	2.24	0.03	0.27	2.24	2.72			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.77	0.04	0.38	7.30	14.50			N/A	N/A
B	5.74	0.06	1.15	16.47	26.51			N/A	N/A
C	2.13	0.06	0.82	5.54	8.38			N/A	N/A
D	1.20	0.08	0.96	2.26	2.97			N/A	N/A

09:15 - 09:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.31	0.03	0.29	1.45	5.56			N/A	N/A
B	1.68	0.03	0.29	1.68	6.33			N/A	N/A
C	1.06	0.03	0.34	2.51	5.22			N/A	N/A
D	0.77	0.04	0.45	1.62	2.38			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	52.56	F

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-6	Arm A	52.56	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2045 + CD	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	609	100.000
B		ONE HOUR	✓	660	100.000
C		ONE HOUR	✓	982	100.000
D		ONE HOUR	✓	819	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	148	382	79
	B	148	0	345	167
	C	411	219	0	352
	D	94	443	282	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	0
	B	1	0	1	3
	C	1	3	0	2
	D	0	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.97	72.91	13.0	55.3	F	559	838
B	0.95	61.32	11.7	54.5	F	606	908
C	0.98	61.87	18.0	74.7	F	901	1352
D	0.83	19.22	4.6	22.7	C	752	1127

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	458	115	706	867	0.529	454	487	0.0	1.1	8.623	A
B	497	124	555	894	0.556	492	605	0.0	1.2	8.852	A
C	739	185	294	1182	0.625	733	753	0.0	1.6	7.904	A
D	617	154	580	1260	0.489	613	446	0.0	0.9	5.529	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	547	137	845	793	0.690	543	583	1.1	2.1	14.182	B
B	593	148	664	837	0.709	589	724	1.2	2.3	14.282	B
C	883	221	352	1147	0.769	877	901	1.6	3.1	13.013	B
D	736	184	695	1183	0.622	734	534	0.9	1.6	7.955	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	671	168	1021	699	0.959	640	695	2.1	9.7	47.016	E
B	727	182	792	769	0.944	700	870	2.3	9.0	41.393	E
C	1081	270	417	1108	0.976	1041	1074	3.1	13.3	39.562	E
D	902	225	825	1096	0.823	891	633	1.6	4.2	16.791	C

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	671	168	1034	692	0.969	657	708	9.7	13.0	72.909	F
B	727	182	807	761	0.955	716	883	9.0	11.7	61.320	F
C	1081	270	427	1102	0.981	1062	1096	13.3	18.0	61.870	F
D	902	225	842	1084	0.832	900	647	4.2	4.6	19.220	C

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	547	137	871	779	0.703	590	620	13.0	2.5	22.709	C
B	593	148	704	816	0.727	629	757	11.7	2.9	22.353	C
C	883	221	377	1132	0.780	940	956	18.0	3.8	23.145	C
D	736	184	744	1150	0.640	747	572	4.6	1.8	9.167	A

18:15 - 18:30

Arm	Total Demand	Junction Arrivals	Circulating flow	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay	Unsignalised level of

	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)	(s)	service
A	458	115	716	862	0.532	464	497	2.5	1.2	9.158	A
B	497	124	565	889	0.559	503	615	2.9	1.3	9.479	A
C	739	185	300	1178	0.628	748	767	3.8	1.7	8.522	A
D	617	154	593	1252	0.492	620	455	1.8	1.0	5.726	A

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.10	0.53	1.07	1.27	1.64			N/A	N/A
B	1.22	0.55	1.14	1.56	1.79			N/A	N/A
C	1.63	0.55	1.02	2.28	2.74			N/A	N/A
D	0.95	0.55	1.00	1.40	1.45			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.12	0.06	0.78	5.56	8.48			N/A	N/A
B	2.32	0.06	0.93	6.00	9.04			N/A	N/A
C	3.15	0.06	1.00	8.59	13.23			N/A	N/A
D	1.61	0.05	0.61	4.02	6.16			N/A	N/A

17:30 - 17:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	9.66	0.14	3.93	25.57	36.43			N/A	N/A
B	8.99	0.10	2.77	24.78	36.61			N/A	N/A
C	13.32	0.18	5.90	35.05	49.52			N/A	N/A
D	4.20	0.03	0.34	8.73	22.72			N/A	N/A

17:45 - 18:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	13.05	0.10	3.66	36.84	55.33			N/A	N/A
B	11.74	0.07	1.83	34.22	54.48			N/A	N/A
C	18.03	0.13	5.84	50.50	74.75			N/A	N/A
D	4.60	0.03	0.30	4.60	20.06			N/A	N/A

18:00 - 18:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.52	0.04	0.39	6.71	12.80			N/A	N/A
B	2.85	0.04	0.42	7.88	14.21			N/A	N/A
C	3.83	0.04	0.44	10.68	19.46			N/A	N/A
D	1.82	0.05	0.54	4.77	7.44			N/A	N/A

18:15 - 18:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.16	0.03	0.29	1.40	4.96			N/A	N/A
B	1.30	0.03	0.30	1.51	6.04			N/A	N/A
C	1.73	0.03	0.30	2.04	8.16			N/A	N/A
D	0.98	0.03	0.33	2.25	4.82			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	48.01	E

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-10	Arm B	48.01	E

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D11	2045 + ST	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	637	100.000
B		ONE HOUR	✓	718	100.000
C		ONE HOUR	✓	711	100.000
D		ONE HOUR	✓	769	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	144	381	112
	B	80	0	208	430
	C	355	123	0	233
	D	87	461	221	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	2	0	6	1
	C	1	4	0	4
	D	0	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.92	48.74	8.9	46.0	E	585	877
B	1.03	116.54	26.6	74.7	F	659	988
C	0.81	19.79	4.1	20.6	C	652	979
D	0.69	9.56	2.2	5.1	A	706	1058

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	480	120	603	913	0.525	475	390	0.0	1.1	8.147	A
B	541	135	533	894	0.605	535	545	0.0	1.5	9.863	A
C	535	134	463	1075	0.498	531	605	0.0	1.0	6.577	A
D	579	145	417	1350	0.429	576	578	0.0	0.7	4.631	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	573	143	722	849	0.675	569	467	1.1	2.0	12.702	B
B	645	161	639	839	0.770	639	652	1.5	3.1	17.474	C
C	639	160	554	1021	0.626	637	724	1.0	1.6	9.296	A
D	691	173	499	1296	0.534	690	691	0.7	1.1	5.925	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	701	175	881	763	0.919	680	564	2.0	7.5	36.272	E
B	791	198	768	771	1.025	736	793	3.1	16.7	63.610	F
C	783	196	642	969	0.808	774	862	1.6	3.8	17.713	C
D	847	212	602	1227	0.690	843	814	1.1	2.2	9.263	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	701	175	886	760	0.922	696	570	7.5	8.9	48.736	E
B	791	198	782	764	1.035	751	800	16.7	26.6	116.539	F
C	783	196	656	961	0.815	782	877	3.8	4.1	19.793	C
D	847	212	609	1223	0.693	846	828	2.2	2.2	9.559	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	573	143	729	845	0.678	599	484	8.9	2.2	16.089	C
B	645	161	664	826	0.782	735	664	26.6	4.1	56.726	F
C	639	160	628	978	0.654	648	771	4.1	2.0	11.189	B
D	691	173	517	1283	0.539	695	758	2.2	1.2	6.165	A

09:15 - 09:30

Arm	Total Demand	Junction Arrivals	Circulating flow	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay	Unsignalised level of

	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)	(s)	service
A	480	120	608	910	0.527	484	396	2.2	1.1	8.528	A
B	541	135	541	890	0.608	551	551	4.1	1.6	10.920	B
C	535	134	476	1067	0.502	539	616	2.0	1.0	6.862	A
D	579	145	424	1346	0.430	581	592	1.2	0.8	4.716	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.09	0.55	1.04	1.34	1.34			N/A	N/A
B	1.49	0.39	1.35	2.12	2.69			N/A	N/A
C	0.98	0.55	1.00	1.40	1.45			N/A	N/A
D	0.74	0.55	1.00	1.40	1.45			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.99	0.06	0.78	5.11	7.77			N/A	N/A
B	3.09	0.07	1.15	8.25	12.41			N/A	N/A
C	1.63	0.06	0.83	3.91	5.75			N/A	N/A
D	1.13	0.06	0.81	2.29	3.15			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	7.45	0.07	1.28	21.31	33.31			N/A	N/A
B	16.71	1.19	11.72	36.67	47.15			N/A	N/A
C	3.82	0.03	0.34	7.77	20.58			N/A	N/A
D	2.16	0.03	0.28	2.16	5.13			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	8.86	0.05	0.50	25.42	46.00			N/A	N/A
B	26.61	1.51	19.13	58.31	74.73			N/A	N/A
C	4.12	0.03	0.30	4.12	17.35			N/A	N/A
D	2.21	0.03	0.27	2.21	2.59			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.20	0.04	0.39	5.85	11.03			N/A	N/A
B	4.14	0.04	0.44	11.61	21.08			N/A	N/A
C	1.95	0.06	0.73	5.02	7.69			N/A	N/A
D	1.18	0.08	0.96	2.18	2.91			N/A	N/A

09:15 - 09:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.14	0.03	0.30	1.47	5.43			N/A	N/A
B	1.59	0.03	0.29	1.59	6.41			N/A	N/A
C	1.02	0.03	0.34	2.44	4.93			N/A	N/A
D	0.76	0.05	0.45	1.59	2.31			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	41.75	E

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-5	Arm A	41.75	E

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2045 + ST	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	588	100.000
B		ONE HOUR	✓	666	100.000
C		ONE HOUR	✓	936	100.000
D		ONE HOUR	✓	819	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	152	357	79
	B	154	0	345	167
	C	365	219	0	352
	D	94	443	282	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	0
	B	1	0	1	3
	C	1	3	0	2
	D	0	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.94	57.86	9.8	47.8	F	540	809
B	0.95	57.93	11.1	53.2	F	611	917
C	0.94	41.72	11.2	58.3	E	859	1288
D	0.81	17.10	4.1	20.0	C	752	1127

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	443	111	706	867	0.510	439	458	0.0	1.0	8.317	A
B	501	125	536	904	0.555	497	608	0.0	1.2	8.741	A
C	705	176	298	1179	0.598	699	735	0.0	1.5	7.413	A
D	617	154	551	1280	0.482	613	446	0.0	0.9	5.369	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	529	132	845	793	0.667	525	548	1.0	1.9	13.252	B
B	599	150	642	848	0.706	594	728	1.2	2.3	13.955	B
C	841	210	357	1144	0.736	837	879	1.5	2.7	11.543	B
D	736	184	659	1207	0.610	734	534	0.9	1.5	7.570	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	647	162	1025	697	0.929	624	658	1.9	7.8	40.461	E
B	733	183	770	781	0.939	708	879	2.3	8.7	39.840	E
C	1031	258	425	1103	0.934	1004	1053	2.7	9.2	30.535	D
D	902	225	790	1119	0.806	893	639	1.5	3.8	15.313	C

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	647	162	1037	691	0.937	639	669	7.8	9.8	57.856	F
B	733	183	784	773	0.948	724	892	8.7	11.1	57.928	F
C	1031	258	435	1097	0.939	1023	1073	9.2	11.2	41.718	E
D	902	225	805	1109	0.813	901	652	3.8	4.1	17.095	C

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	529	132	865	783	0.675	559	573	9.8	2.2	18.054	C
B	599	150	671	833	0.719	632	752	11.1	2.7	20.554	C
C	841	210	380	1130	0.745	874	924	11.2	3.1	15.640	C
D	736	184	691	1185	0.621	746	562	4.1	1.7	8.366	A

18:15 - 18:30

Arm	Total Demand	Junction Arrivals	Circulating flow	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay	Unsignalised level of

	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)	(s)	service
A	443	111	715	863	0.513	447	466	2.2	1.1	8.749	A
B	501	125	545	899	0.558	507	617	2.7	1.3	9.310	A
C	705	176	305	1175	0.600	711	747	3.1	1.5	7.856	A
D	617	154	561	1273	0.484	619	455	1.7	0.9	5.532	A

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.02	0.54	1.02	1.44	1.50			N/A	N/A
B	1.22	0.55	1.13	1.54	1.78			N/A	N/A
C	1.46	0.57	1.36	1.84	1.97			N/A	N/A
D	0.92	0.55	1.00	1.40	1.45			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.92	0.06	0.75	4.90	7.45			N/A	N/A
B	2.28	0.06	0.91	5.92	8.93			N/A	N/A
C	2.66	0.06	0.85	7.18	11.10			N/A	N/A
D	1.53	0.05	0.62	3.80	5.75			N/A	N/A

17:30 - 17:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	7.77	0.08	1.88	21.78	32.96			N/A	N/A
B	8.68	0.09	2.39	24.24	36.31			N/A	N/A
C	9.24	0.07	1.57	26.70	42.03			N/A	N/A
D	3.82	0.03	0.33	6.73	20.04			N/A	N/A

17:45 - 18:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	9.75	0.06	1.28	28.53	47.76			N/A	N/A
B	11.12	0.07	1.26	32.56	53.17			N/A	N/A
C	11.20	0.05	0.67	32.30	58.32			N/A	N/A
D	4.11	0.03	0.29	4.11	15.79			N/A	N/A

18:00 - 18:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.19	0.04	0.39	5.81	10.96			N/A	N/A
B	2.72	0.04	0.41	7.46	13.65			N/A	N/A
C	3.08	0.04	0.43	8.54	15.42			N/A	N/A
D	1.68	0.05	0.56	4.30	6.63			N/A	N/A

18:15 - 18:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.07	0.03	0.29	1.09	4.88			N/A	N/A
B	1.29	0.03	0.30	1.59	6.08			N/A	N/A
C	1.53	0.03	0.31	2.38	7.68			N/A	N/A
D	0.95	0.03	0.34	2.25	4.50			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.2.1574
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Report generation date: 16/01/2023 09:51:54

»2045 Base, AM
»2045 Base, PM
»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 Base													
Arm A	D7	2.0	9.92	0.67	A	121.39	-18 % [Arm B]	D8	6.1	24.78	0.87	C	27.17	-2 % [Arm C]
Arm B		64.4	264.19	1.16	F				0.5	7.19	0.32	A		
Arm C		3.9	36.90	0.81	E				6.1	38.60	0.88	E		
	2045 + CD													
Arm A	D9	2.2	10.49	0.69	B	130.56	-19 % [Arm B]	D10	6.6	26.56	0.88	D	30.72	-4 % [Arm C]
Arm B		68.9	283.66	1.18	F				0.5	7.36	0.33	A		
Arm C		6.2	53.95	0.89	F				7.5	46.16	0.90	E		
	2045 + ST													
Arm A	D11	0.7	5.54	0.41	A	50.92	-13 % [Arm C]	D12	7.2	28.73	0.89	D	36.54	-7 % [Arm C]
Arm B		9.2	43.38	0.92	E				0.5	7.49	0.34	A		
Arm C		13.6	111.34	0.99	F				10.0	59.17	0.94	F		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	17/01/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\UKWGF001
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

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2045 Base	AM	ONE HOUR	08:00	09:30	15	✓
D8	2045 Base	PM	ONE HOUR	16:30	18:00	15	✓
D9	2045 + CD	AM	ONE HOUR	08:00	09:30	15	✓
D10	2045 + CD	PM	ONE HOUR	16:30	18:00	15	✓
D11	2045 + ST	AM	ONE HOUR	08:00	09:30	15	✓
D12	2045 + ST	PM	ONE HOUR	16:30	18:00	15	✓

Analysis Set Details

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

2045 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Broad Oak/Vauxhall Road Mini Roundabout	Mini-roundabout		A, B, C	121.39	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-18	Arm B	121.39	F

Arms

Arms

Arm	Name	Description
A	Broad Oak Road (West)	
B	Broad Oak Road (East)	
C	Vauxhall Road	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	3.30	3.20	4.50	18.4	17.90	18.20	0.0	✓
B	3.10	2.95	5.00	3.9	15.10	12.10	0.0	
C	3.80	3.70	3.80	1.8	17.60	12.50	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.650	1191
B	0.623	841
C	0.627	806

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

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
B	Direct		250

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2045 Base	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	676	100.000
B		ONE HOUR	✓	742	100.000
C		ONE HOUR	✓	368	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	165	511
	B	479	0	263
	C	310	58	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	3
	B	4	0	3
	C	1	10	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.67	9.92	2.0	4.6	A	620	930
B	1.16	264.19	64.4	111.1	F	681	1021
C	0.81	36.90	3.9	20.6	E	338	507

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	509	127	43	1121	0.454	506	585	0.0	0.8	5.823	A
B	559	140	382	816	0.685	550	166	0.0	2.1	13.186	B
C	277	69	355	561	0.494	273	577	0.0	0.9	12.357	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	608	152	52	1115	0.545	606	698	0.8	1.2	7.059	A
B	667	167	458	769	0.868	654	200	2.1	5.3	28.609	D
C	331	83	422	518	0.638	328	690	0.9	1.7	18.620	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	744	186	63	1107	0.672	741	784	1.2	2.0	9.745	A
B	817	204	560	706	1.158	695	244	5.3	35.8	122.150	F
C	405	101	449	501	0.808	398	807	1.7	3.6	32.429	D

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	744	186	64	1107	0.673	744	794	2.0	2.0	9.924	A
B	817	204	563	704	1.160	702	245	35.8	64.4	264.189	F
C	405	101	453	498	0.813	404	811	3.6	3.9	36.900	E

09:00 - 09:15

Arm	Total Demand	Junction Arrivals	Circulating	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay (s)	Unsignalised level of

	(Veh/hr)	(Veh)	flow (Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)		service
A	608	152	53	1114	0.546	611	771	2.0	1.2	7.202	A
B	667	167	462	766	0.870	755	202	64.4	42.5	255.610	F
C	331	83	487	477	0.694	337	729	3.9	2.4	26.653	D

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	509	127	44	1120	0.454	510	701	1.2	0.8	5.921	A
B	559	140	386	813	0.687	719	169	42.5	2.4	77.270	F
C	277	69	464	492	0.563	281	641	2.4	1.3	17.455	C

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.82	0.55	1.00	1.40	1.45			N/A	N/A
B	2.07	0.14	1.04	4.10	5.42			N/A	N/A
C	0.95	0.55	1.00	1.40	1.45			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.18	0.08	0.94	2.21	2.95			N/A	N/A
B	5.32	0.11	2.12	13.60	19.23			N/A	N/A
C	1.67	0.10	1.22	3.43	4.60			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.99	0.03	0.28	1.99	4.63			N/A	N/A
B	35.77	12.47	32.60	58.22	67.30			N/A	N/A
C	3.58	0.04	0.40	9.65	18.69			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.02	0.03	0.27	2.02	2.02			N/A	N/A
B	64.41	28.28	60.56	98.22	111.14			N/A	N/A
C	3.91	0.03	0.33	7.06	20.65			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.22	0.08	0.97	2.35	3.11			N/A	N/A
B	42.49	18.06	39.68	65.17	73.95			N/A	N/A
C	2.44	0.05	0.71	6.59	10.30			N/A	N/A

09:15 - 09:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.84	0.05	0.49	1.73	2.50			N/A	N/A
B	2.44	0.03	0.29	2.44	9.54			N/A	N/A
C	1.34	0.04	0.38	3.48	6.34			N/A	N/A

2045 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and C have 86% of the total flow for the roundabout for one or more time segments]
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Broad Oak/Vauxhall Road Mini Roundabout	Mini-roundabout		A, B, C	27.17	D

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-2	Arm C	27.17	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2045 Base	PM	ONE HOUR	16:30	18:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	855	100.000
B		ONE HOUR	✓	215	100.000
C		ONE HOUR	✓	556	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	365	490
	B	140	0	75
	C	413	143	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	1
	B	3	0	0
	C	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)

A	0.87	24.78	6.1	31.7	C	785	1177
B	0.32	7.19	0.5	2.0	A	197	296
C	0.88	38.60	6.1	33.6	E	510	765

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	644	161	106	1114	0.578	638	412	0.0	1.3	7.490	A
B	162	40	366	844	0.192	161	379	0.0	0.2	5.262	A
C	419	105	105	729	0.574	413	422	0.0	1.3	11.217	B

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	769	192	128	1100	0.699	765	494	1.3	2.2	10.643	B
B	193	48	438	799	0.242	193	454	0.2	0.3	5.935	A
C	500	125	126	716	0.698	496	506	1.3	2.2	16.115	C

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	941	235	154	1082	0.870	928	599	2.2	5.7	21.572	C
B	237	59	532	742	0.319	236	550	0.3	0.5	7.110	A
C	612	153	154	698	0.877	599	614	2.2	5.5	32.486	D

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	941	235	157	1080	0.871	939	607	5.7	6.1	24.782	C
B	237	59	538	738	0.321	237	558	0.5	0.5	7.187	A
C	612	153	154	698	0.877	610	621	5.5	6.1	38.605	E

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	769	192	132	1097	0.701	783	508	6.1	2.4	11.998	B
B	193	48	449	793	0.244	194	467	0.5	0.3	6.016	A
C	500	125	126	716	0.698	515	517	6.1	2.5	19.050	C

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	644	161	109	1112	0.579	648	420	2.4	1.4	7.821	A
B	162	40	371	841	0.193	162	385	0.3	0.2	5.310	A
C	419	105	106	729	0.574	423	428	2.5	1.4	11.925	B

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.34	0.57	1.19	1.63	1.82			N/A	N/A
B	0.24	0.00	0.00	0.24	0.24			N/A	N/A
C	1.31	0.56	1.13	1.50	1.75			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.24	0.06	0.89	5.80	8.74			N/A	N/A
B	0.32	0.00	0.00	0.32	0.32			N/A	N/A

C	2.19	0.08	1.21	5.23	7.44			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	5.66	0.04	0.41	15.21	30.42			N/A	N/A
B	0.46	0.03	0.25	0.46	0.48			N/A	N/A
C	5.54	0.05	0.53	15.90	27.44			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	6.13	0.03	0.33	9.98	31.71			N/A	N/A
B	0.47	0.03	0.31	1.39	1.99			N/A	N/A
C	6.15	0.04	0.37	14.67	33.63			N/A	N/A

17:30 - 17:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.44	0.04	0.44	6.71	11.58			N/A	N/A
B	0.33	0.00	0.00	0.33	0.33			N/A	N/A
C	2.45	0.04	0.42	6.72	12.05			N/A	N/A

17:45 - 18:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.40	0.03	0.33	3.07	7.18			N/A	N/A
B	0.24	0.00	0.00	0.24	0.24			N/A	N/A
C	1.39	0.03	0.33	2.93	7.16			N/A	N/A

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Broad Oak/Vauxhall Road Mini Roundabout	Mini-roundabout		A, B, C	130.56	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-19	Arm B	130.56	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2045 + CD	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	694	100.000
B		ONE HOUR	✓	743	100.000
C		ONE HOUR	✓	404	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	171	523
	B	480	0	263
	C	346	58	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	3
	B	4	0	3
	C	1	10	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.69	10.49	2.2	6.1	B	637	955
B	1.18	283.66	68.9	115.6	F	682	1023

C	0.89	53.95	6.2	33.2	F	371	556

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	522	131	43	1121	0.466	519	612	0.0	0.9	5.951	A
B	559	140	391	810	0.690	551	171	0.0	2.1	13.480	B
C	304	76	356	561	0.542	300	586	0.0	1.1	13.536	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	624	156	52	1115	0.560	622	730	0.9	1.2	7.286	A
B	668	167	469	762	0.877	654	205	2.1	5.6	30.029	D
C	363	91	423	519	0.700	359	700	1.1	2.2	21.980	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	764	191	62	1108	0.690	761	815	1.2	2.1	10.263	B
B	818	205	573	697	1.173	688	249	5.6	38.0	129.844	F
C	445	111	445	505	0.881	432	817	2.2	5.3	43.324	E

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	764	191	63	1107	0.690	764	827	2.1	2.2	10.490	B
B	818	205	576	696	1.176	694	252	38.0	68.9	283.657	F
C	445	111	449	502	0.886	441	822	5.3	6.2	53.950	F

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	624	156	54	1113	0.560	627	804	2.2	1.3	7.464	A
B	668	167	473	760	0.879	749	208	68.9	48.7	282.600	F
C	363	91	484	480	0.757	374	738	6.2	3.5	36.675	E

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	522	131	45	1120	0.467	524	747	1.3	0.9	6.061	A
B	559	140	395	808	0.692	744	174	48.7	2.6	102.768	F
C	304	76	481	482	0.631	311	658	3.5	1.8	21.792	C

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.86	0.55	1.00	1.40	1.45			N/A	N/A
B	2.12	0.13	1.02	4.36	5.77			N/A	N/A
C	1.14	0.55	1.04	1.28	1.28			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.25	0.07	0.94	2.51	3.40			N/A	N/A
B	5.61	0.12	2.38	14.26	20.04			N/A	N/A
C	2.17	0.09	1.36	4.86	6.70			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.15	0.03	0.28	2.15	6.05			N/A	N/A
B	38.04	14.24	34.97	60.67	69.68			N/A	N/A
C	5.35	0.06	1.11	15.29	24.58			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.19	0.03	0.27	2.19	2.53			N/A	N/A
B	68.93	32.23	65.28	102.83	115.60			N/A	N/A
C	6.19	0.04	0.42	16.89	33.16			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.30	0.07	0.95	2.67	3.66			N/A	N/A
B	48.74	22.78	46.03	72.39	81.33			N/A	N/A
C	3.47	0.05	0.59	9.77	16.05			N/A	N/A

09:15 - 09:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.89	0.05	0.47	1.89	2.83			N/A	N/A
B	2.62	0.03	0.29	2.62	10.71			N/A	N/A
C	1.81	0.04	0.37	4.68	9.05			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and C have 86% of the total flow for the roundabout for one or more time segments]
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Broad Oak/Vauxhall Road Mini Roundabout	Mini-roundabout		A, B, C	30.72	D

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-4	Arm C	30.72	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2045 + CD	PM	ONE HOUR	16:30	18:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	865	100.000
B		ONE HOUR	✓	221	100.000
C		ONE HOUR	✓	569	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	368	497
	B	146	0	75
	C	426	143	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	1
	B	3	0	0
	C	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)

A	0.88	26.56	6.6	35.4	D	794	1191
B	0.33	7.36	0.5	2.2	A	203	304
C	0.90	46.16	7.5	40.2	E	522	783

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	651	163	106	1114	0.585	646	426	0.0	1.4	7.605	A
B	166	42	371	841	0.198	165	381	0.0	0.2	5.324	A
C	428	107	109	727	0.590	423	427	0.0	1.4	11.651	B

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	778	194	128	1100	0.707	774	511	1.4	2.3	10.918	B
B	199	50	445	795	0.250	198	457	0.2	0.3	6.029	A
C	512	128	131	713	0.718	508	512	1.4	2.4	17.206	C

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	952	238	153	1083	0.880	937	617	2.3	6.1	22.721	C
B	243	61	539	737	0.330	243	552	0.3	0.5	7.271	A
C	626	157	160	694	0.903	610	621	2.4	6.5	36.974	E

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	952	238	157	1081	0.881	950	627	6.1	6.6	26.556	D
B	243	61	546	733	0.332	243	561	0.5	0.5	7.355	A
C	626	157	161	694	0.903	623	628	6.5	7.5	46.156	E

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	778	194	133	1096	0.710	794	529	6.6	2.5	12.514	B
B	199	50	456	788	0.252	199	471	0.5	0.3	6.122	A
C	512	128	132	712	0.718	531	524	7.5	2.7	21.560	C

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	651	163	109	1112	0.586	656	435	2.5	1.4	7.964	A
B	166	42	377	837	0.199	167	388	0.3	0.2	5.374	A
C	428	107	110	726	0.590	433	433	2.7	1.5	12.502	B

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.38	0.57	1.24	1.70	1.85			N/A	N/A
B	0.24	0.00	0.00	0.24	0.24			N/A	N/A
C	1.39	0.58	1.26	1.71	1.86			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.32	0.06	0.91	6.04	9.14			N/A	N/A
B	0.33	0.00	0.00	0.33	0.33			N/A	N/A

C	2.39	0.08	1.27	5.82	8.31			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	6.05	0.04	0.43	16.75	32.03			N/A	N/A
B	0.49	0.03	0.25	0.49	0.49			N/A	N/A
C	6.55	0.06	1.27	18.85	30.33			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	6.63	0.03	0.34	12.43	35.44			N/A	N/A
B	0.49	0.03	0.31	1.40	2.20			N/A	N/A
C	7.49	0.04	0.43	20.53	40.25			N/A	N/A

17:30 - 17:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.55	0.04	0.44	7.00	12.23			N/A	N/A
B	0.34	0.00	0.00	0.34	0.34			N/A	N/A
C	2.72	0.04	0.41	7.46	13.66			N/A	N/A

17:45 - 18:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.44	0.03	0.33	3.08	7.46			N/A	N/A
B	0.25	0.00	0.00	0.25	0.25			N/A	N/A
C	1.48	0.03	0.32	2.92	7.71			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Broad Oak/Vauxhall Road Mini Roundabout	Mini-roundabout		A, B, C	50.92	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-13	Arm C	50.92	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D11	2045 + ST	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	413	100.000
B		ONE HOUR	✓	744	100.000
C		ONE HOUR	✓	409	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	172	241
	B	481	0	263
	C	351	58	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	3
	B	4	0	3
	C	1	10	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.41	5.54	0.7	2.6	A	379	568
B	0.92	43.38	9.2	48.8	E	683	1024

C	0.99	111.34	13.6	48.5	F	375	563

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	311	78	43	1117	0.278	309	619	0.0	0.4	4.449	A
B	560	140	181	941	0.595	554	172	0.0	1.4	9.191	A
C	308	77	358	560	0.550	303	377	0.0	1.2	13.795	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	371	93	52	1111	0.334	371	741	0.4	0.5	4.859	A
B	669	167	216	918	0.728	664	206	1.4	2.5	13.925	B
C	368	92	430	514	0.715	363	451	1.2	2.3	23.125	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	455	114	60	1105	0.411	454	878	0.5	0.7	5.518	A
B	819	205	265	888	0.922	798	249	2.5	7.9	33.586	D
C	450	113	516	460	0.980	422	547	2.3	9.4	68.488	F

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	455	114	61	1104	0.412	455	898	0.7	0.7	5.541	A
B	819	205	265	888	0.922	814	251	7.9	9.2	43.381	E
C	450	113	526	453	0.995	433	553	9.4	13.6	111.342	F

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	371	93	58	1107	0.336	372	801	0.7	0.5	4.905	A
B	669	167	217	918	0.729	694	213	9.2	2.8	17.691	C
C	368	92	449	502	0.732	410	463	13.6	3.1	49.597	E

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	311	78	45	1116	0.279	311	636	0.5	0.4	4.478	A
B	560	140	182	940	0.596	565	174	2.8	1.5	9.747	A
C	308	77	366	555	0.555	315	382	3.1	1.3	15.416	C

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.38	0.00	0.00	0.38	0.38			N/A	N/A
B	1.44	0.58	1.34	1.78	1.91			N/A	N/A
C	1.18	0.55	1.11	1.49	1.75			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.50	0.00	0.00	0.50	0.50			N/A	N/A
B	2.54	0.06	1.07	6.60	9.80			N/A	N/A
C	2.31	0.08	1.23	5.61	7.97			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.69	0.03	0.25	0.69	0.69			N/A	N/A
B	7.95	0.07	1.17	22.93	36.36			N/A	N/A
C	9.39	0.25	5.11	22.85	31.01			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.70	0.03	0.28	0.73	2.60			N/A	N/A
B	9.21	0.05	0.47	25.93	48.80			N/A	N/A
C	13.64	0.22	6.71	34.93	48.48			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.51	0.51	1.00	1.40	1.45			N/A	N/A
B	2.84	0.04	0.41	7.76	14.38			N/A	N/A
C	3.09	0.04	0.43	8.58	15.48			N/A	N/A

09:15 - 09:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.39	0.00	0.00	0.39	0.39			N/A	N/A
B	1.51	0.03	0.31	2.64	7.75			N/A	N/A
C	1.29	0.03	0.29	1.29	5.78			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and C have 86% of the total flow for the roundabout for one or more time segments]
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Broad Oak/Vauxhall Road Mini Roundabout	Mini-roundabout		A, B, C	36.54	E

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-7	Arm C	36.54	E

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2045 + ST	PM	ONE HOUR	16:30	18:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	876	100.000
B		ONE HOUR	✓	223	100.000
C		ONE HOUR	✓	589	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	369	507
	B	148	0	75
	C	446	143	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	1
	B	3	0	0
	C	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)

A	0.89	28.73	7.2	39.6	D	804	1206
B	0.34	7.49	0.5	2.3	A	205	307
C	0.94	59.17	10.0	48.8	F	540	811

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	659	165	106	1114	0.592	654	442	0.0	1.4	7.735	A
B	168	42	378	836	0.201	167	382	0.0	0.2	5.373	A
C	443	111	111	726	0.611	437	435	0.0	1.5	12.247	B

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	788	197	127	1100	0.716	784	530	1.4	2.4	11.238	B
B	200	50	453	790	0.254	200	457	0.2	0.3	6.102	A
C	529	132	133	712	0.744	525	521	1.5	2.7	18.785	C

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	964	241	152	1083	0.890	948	637	2.4	6.5	24.067	C
B	246	61	549	731	0.336	245	551	0.3	0.5	7.398	A
C	648	162	163	693	0.936	626	631	2.7	8.3	43.878	E

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	964	241	156	1081	0.892	962	649	6.5	7.2	28.728	D
B	246	61	557	726	0.338	245	561	0.5	0.5	7.491	A
C	648	162	163	692	0.937	642	639	8.3	10.0	59.170	F

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	788	197	135	1095	0.719	806	555	7.2	2.7	13.174	B
B	200	50	466	782	0.256	201	475	0.5	0.3	6.206	A
C	529	132	133	711	0.745	557	534	10.0	3.2	26.508	D

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	659	165	109	1112	0.593	664	452	2.7	1.5	8.127	A
B	168	42	384	832	0.202	168	389	0.3	0.3	5.424	A
C	443	111	112	725	0.612	450	441	3.2	1.6	13.342	B

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.42	0.58	1.31	1.75	1.88			N/A	N/A
B	0.25	0.00	0.00	0.25	0.25			N/A	N/A
C	1.52	0.59	1.46	1.83	1.94			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.42	0.06	0.93	6.36	9.62			N/A	N/A
B	0.34	0.00	0.00	0.34	0.34			N/A	N/A

C	2.70	0.08	1.36	6.69	9.57			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	6.53	0.05	0.47	18.50	33.85			N/A	N/A
B	0.50	0.03	0.25	0.50	0.50			N/A	N/A
C	8.26	0.09	2.34	22.93	34.21			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	7.24	0.04	0.36	15.43	39.58			N/A	N/A
B	0.51	0.03	0.31	1.41	2.30			N/A	N/A
C	9.97	0.06	1.30	29.17	48.80			N/A	N/A

17:30 - 17:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.68	0.04	0.43	7.42	13.03			N/A	N/A
B	0.35	0.00	0.00	0.35	0.35			N/A	N/A
C	3.17	0.04	0.41	8.67	16.11			N/A	N/A

17:45 - 18:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.49	0.03	0.33	3.08	7.74			N/A	N/A
B	0.25	0.00	0.00	0.25	0.25			N/A	N/A
C	1.63	0.03	0.32	2.90	8.41			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

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Filename: Junction 2 - A290_Rough Common Road MITGATION V5.j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 2 - A290_Rough Common Road_Junctions 10 Report
Report generation date: 16/01/2023 09:54:03

»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 + CD													
Arm B	D7	1.8	12.41	0.65	B	19.79	3 % [Arm C]	D8	4.0	20.51	0.81	C	31.72	-5 % [Arm C]
Arm C		6.4	27.57	0.88	D				13.1	55.48	0.96	F		
Arm A		2.5	15.26	0.72	C				1.1	7.23	0.52	A		
	2045 + ST													
Arm B	D9	4.0	23.05	0.81	C	27.11	-1 % [Arm C]	D10	4.5	23.32	0.83	C	89.84	-15 % [Arm C]
Arm C		9.0	37.45	0.92	E				58.2	182.71	1.10	F		
Arm A		2.7	16.16	0.74	C				1.4	8.16	0.58	A		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	A290/Rough Common Road
Location	Rough Common
Site number	
Date	23/11/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	70080896
Enumerator	CORP\UKWGF001
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

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓
D8	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓
D9	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓
D10	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

Analysis Set Details

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

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D7 - 2045 + CD, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		B, C, A	19.79	C

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Daylight	Dry		3	Arm C	19.79	C

Arms

Arms

Arm	Name	Description
B	A290 Whitstable Road South	
C	Rough Common Road	
A	A290 Whitstable Road North	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
B	3.50	3.50	5.70	7.5	13.80	10.10	0.0	✓
C	3.20	3.20	7.10	13.1	14.00	10.30	0.0	✓
A	2.92	2.92	6.00	21.7	17.55	13.20	0.0	✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
B	0.555	1090
C	0.577	1137
A	0.579	1221

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
B		ONE HOUR	✓	488	100.000
C		ONE HOUR	✓	800	100.000
A		ONE HOUR	✓	559	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		B	C	A
From	B	0	298	190
	C	553	0	247
	A	158	401	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		B	C	A
From	B	0	1	4
	C	0	0	1
	A	4	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B	0.65	12.41	1.8	4.9	B	488	488
C	0.88	27.57	6.4	34.1	D	800	800
A	0.72	15.26	2.5	10.7	C	559	559

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	439	110	359	872	0.503	437	636	0.7	1.0	8.254	A
C	719	180	170	1028	0.700	716	626	1.3	2.2	11.397	B
A	503	126	495	914	0.550	501	391	0.8	1.2	8.672	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	537	134	438	829	0.648	534	771	1.0	1.8	12.092	B
C	881	220	208	1005	0.876	866	764	2.2	5.8	23.743	C
A	615	154	599	855	0.720	611	475	1.2	2.4	14.438	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	537	134	441	827	0.650	537	781	1.8	1.8	12.406	B
C	881	220	209	1005	0.877	879	769	5.8	6.4	27.569	D
A	615	154	607	850	0.724	615	480	2.4	2.5	15.256	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	439	110	364	870	0.505	442	651	1.8	1.0	8.477	A
C	719	180	172	1027	0.701	735	634	6.4	2.4	12.946	B
A	503	126	508	907	0.554	508	399	2.5	1.3	9.132	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	0.99	0.09	0.93	1.63	1.95			N/A	N/A
C	2.24	0.06	0.94	5.78	8.64			N/A	N/A
A	1.20	0.07	0.91	2.37	3.19			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.78	0.03	0.28	1.78	4.95			N/A	N/A
C	5.85	0.04	0.44	16.22	30.77			N/A	N/A
A	2.43	0.03	0.30	2.43	10.69			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.82	0.03	0.27	1.82	3.71			N/A	N/A
C	6.36	0.03	0.34	12.05	34.10			N/A	N/A
A	2.54	0.03	0.28	2.54	7.17			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.04	0.07	0.86	1.87	2.57			N/A	N/A
C	2.44	0.04	0.43	6.70	11.76			N/A	N/A
A	1.27	0.06	0.74	2.84	4.06			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D8 - 2045 + CD, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		B, C, A	31.72	D

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Daylight	Dry		-5	Arm C	31.72	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D8	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
B		ONE HOUR	✓	668	100.000
C		ONE HOUR	✓	818	100.000
A		ONE HOUR	✓	484	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		B	C	A
From	B	0	363	305
	C	289	0	529
	A	192	292	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		B	C	A
From	B	0	0	0
	C	0	0	0
	A	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B	0.81	20.51	4.0	20.8	C	668	668

C	0.96	55.48	13.1	61.5	F	818	818
A	0.52	7.23	1.1	2.0	A	484	484

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	601	150	262	942	0.638	598	430	1.1	1.7	10.394	B
C	735	184	273	977	0.753	730	587	1.5	2.9	14.261	B
A	435	109	258	1063	0.409	434	745	0.5	0.7	5.719	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	735	184	321	909	0.809	727	518	1.7	3.8	18.955	C
C	901	225	332	943	0.955	870	716	2.9	10.5	38.764	E
A	533	133	307	1035	0.515	531	895	0.7	1.0	7.135	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	735	184	321	908	0.810	735	526	3.8	4.0	20.505	C
C	901	225	335	941	0.957	890	721	10.5	13.1	55.476	F
A	533	133	314	1031	0.517	533	911	1.0	1.1	7.230	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	601	150	263	941	0.638	609	447	4.0	1.8	11.131	B
C	735	184	278	974	0.755	775	594	13.1	3.3	21.011	C
A	435	109	274	1054	0.413	437	779	1.1	0.7	5.845	A

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.71	0.06	0.93	4.02	5.84			N/A	N/A
C	2.86	0.06	1.09	7.61	11.43			N/A	N/A
A	0.69	0.12	0.87	1.38	1.44			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	3.83	0.03	0.34	8.22	20.75			N/A	N/A
C	10.48	0.11	3.47	28.83	42.33			N/A	N/A
A	1.05	0.03	0.26	1.05	1.05			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	4.02	0.03	0.30	4.02	16.91			N/A	N/A
C	13.12	0.07	1.91	38.38	61.54			N/A	N/A
A	1.06	0.03	0.27	1.06	1.95			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.82	0.05	0.46	4.85	7.88			N/A	N/A
C	3.30	0.04	0.41	9.00	16.87			N/A	N/A
A	0.71	0.17	0.91	1.38	1.44			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D9 - 2045 + ST, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		B, C, A	27.11	D

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Daylight	Dry		-1	Arm C	27.11	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D9	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
B		ONE HOUR	✓	598	100.000
C		ONE HOUR	✓	840	100.000
A		ONE HOUR	✓	559	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		B	C	A
From	B	0	413	185
	C	573	0	267
	A	128	431	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		B	C	A
From	B	0	0	4
	C	0	0	1
	A	6	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B	0.81	23.05	4.0	20.6	C	598	598

C	0.92	37.45	9.0	48.9	E	840	840
A	0.74	16.16	2.7	11.7	C	559	559

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	538	134	386	860	0.625	535	627	1.0	1.6	10.983	B
C	755	189	166	1030	0.733	751	756	1.5	2.6	12.664	B
A	503	126	512	902	0.557	501	404	0.8	1.2	8.927	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	658	165	470	813	0.809	650	756	1.6	3.8	20.935	C
C	925	231	201	1009	0.916	904	919	2.6	7.8	29.557	D
A	615	154	617	843	0.730	610	488	1.2	2.6	15.127	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	658	165	474	811	0.811	657	769	3.8	4.0	23.048	C
C	925	231	203	1008	0.918	920	928	7.8	9.0	37.446	E
A	615	154	628	837	0.736	615	496	2.6	2.7	16.158	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	538	134	392	857	0.627	547	648	4.0	1.7	11.917	B
C	755	189	169	1028	0.734	779	769	9.0	2.9	15.717	C
A	503	126	532	891	0.564	508	417	2.7	1.3	9.524	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.62	0.07	0.94	3.75	5.36			N/A	N/A
C	2.61	0.06	1.02	6.87	10.34			N/A	N/A
A	1.23	0.07	0.91	2.50	3.41			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	3.80	0.04	0.35	8.69	20.56			N/A	N/A
C	7.84	0.06	1.25	22.80	37.48			N/A	N/A
A	2.55	0.03	0.30	2.69	11.73			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	4.03	0.03	0.30	4.08	18.37			N/A	N/A
C	8.99	0.04	0.43	24.24	48.94			N/A	N/A
A	2.68	0.03	0.28	2.68	8.25			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.74	0.05	0.46	4.63	7.54			N/A	N/A
C	2.92	0.04	0.42	8.02	14.65			N/A	N/A
A	1.32	0.06	0.72	2.99	4.43			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D10 - 2045 + ST, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		B, C, A	89.84	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Daylight	Dry		-15	Arm C	89.84	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D10	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
B		ONE HOUR	✓	657	100.000
C		ONE HOUR	✓	956	100.000
A		ONE HOUR	✓	547	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		B	C	A
From	B	0	374	283
	C	296	0	660
	A	200	347	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		B	C	A
From	B	0	0	0
	C	0	0	0
	A	0	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B	0.83	23.32	4.5	22.8	C	657	657

C	1.10	182.71	58.2	112.8	F	956	956
A	0.58	8.16	1.4	1.5	A	547	547

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	591	148	311	914	0.646	588	442	1.1	1.8	10.950	B
C	859	215	253	990	0.868	847	646	2.3	5.5	23.236	C
A	492	123	262	1062	0.463	491	838	0.6	0.9	6.292	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	723	181	381	875	0.827	714	511	1.8	4.2	21.123	C
C	1053	263	307	959	1.098	942	787	5.5	33.3	87.905	F
A	602	151	292	1045	0.576	600	957	0.9	1.3	8.059	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	723	181	382	874	0.827	722	515	4.2	4.5	23.315	C
C	1053	263	311	956	1.101	953	793	33.3	58.2	182.708	F
A	602	151	295	1043	0.577	602	969	1.3	1.4	8.162	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B	591	148	313	913	0.647	601	481	4.5	1.9	11.896	B
C	859	215	259	987	0.871	970	655	58.2	30.6	167.572	F
A	492	123	300	1040	0.473	494	929	1.4	0.9	6.610	A

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.77	0.06	0.93	4.26	6.18			N/A	N/A
C	5.54	0.11	2.13	14.33	20.40			N/A	N/A
A	0.85	0.11	0.90	1.47	1.47			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	4.22	0.04	0.37	10.15	22.79			N/A	N/A
C	33.29	8.50	29.15	58.70	69.59			N/A	N/A
A	1.33	0.03	0.26	1.33	1.33			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	4.47	0.03	0.31	5.03	20.95			N/A	N/A
C	58.21	19.18	52.88	97.05	112.84			N/A	N/A
A	1.35	0.03	0.27	1.35	1.54			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B	1.90	0.04	0.45	5.09	8.50			N/A	N/A
C	30.56	8.09	26.86	53.35	63.06			N/A	N/A
A	0.91	0.14	0.95	1.02	1.53			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.1.1519
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Filename: Junction 9 - Giles Lane_Parkwood Road_MITI.j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 9 - Giles Lane_Parkwood Road_Junctions 10 Report
Report generation date: 11/01/2023 10:45:22

»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 + CD													
Arm A	D5	23.2	100.91	1.01	F	57.24	-11 % [Arm A]	D6	1.2	9.46	0.55	A	14.73	10 % [Arm B]
Arm B		1.7	11.48	0.63	B				3.9	20.62	0.80	C		
Arm C		0.4	6.05	0.28	A				0.5	7.41	0.33	A		
	2045 + ST													
Arm A	D7	6.1	32.19	0.87	D	20.48	1 % [Arm A]	D8	0.9	8.11	0.47	A	11.08	22 % [Arm B]
Arm B		1.8	11.67	0.65	B				2.5	14.34	0.72	B		
Arm C		0.4	6.30	0.30	A				0.4	6.91	0.30	A		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	o Giles Lane / Parkwood Road – Roundabout junction
Location	University of Kent
Site number	
Date	26/11/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	70080896
Enumerator	CORP\UKWGF001
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

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓
D6	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓
D7	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓
D8	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

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

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 85% of the total flow for the roundabout for one or more time segments]
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	57.24	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-11	Arm A	57.24	F

Arms

Arms

Arm	Name	Description
A	Park Wood Road	
B	Giles Lane (East)	
C	Giles Lane (West)	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	3.50	3.50	4.70	8.6	13.00	9.70	0.0	
B	3.70	3.55	3.55	0.0	16.30	16.50	0.0	✓
C	3.85	3.63	4.50	2.2	12.80	10.30	0.0	✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.642	956
B	0.553	961
C	0.520	950

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2045 + CD	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	746	100.000
B		ONE HOUR	✓	486	100.000
C		ONE HOUR	✓	215	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	560	186
	B	199	0	287
	C	38	177	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	1
	B	1	0	0
	C	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	1.01	100.91	23.2	72.9	F	685	1027
B	0.63	11.48	1.7	3.6	B	446	669
C	0.28	6.05	0.4	1.6	A	197	296

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	562	140	133	849	0.661	554	177	0.0	1.9	11.906	B
B	366	91	138	881	0.415	363	548	0.0	0.7	6.914	A
C	162	40	149	868	0.186	161	353	0.0	0.2	5.085	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	671	168	159	833	0.805	663	213	1.9	3.7	20.351	C
B	437	109	165	866	0.505	436	657	0.7	1.0	8.343	A
C	193	48	178	853	0.227	193	423	0.2	0.3	5.454	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	821	205	195	810	1.013	773	260	3.7	15.9	60.235	F
B	535	134	193	851	0.629	533	775	1.0	1.6	11.217	B
C	237	59	218	832	0.285	236	507	0.3	0.4	6.040	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	821	205	195	810	1.014	792	261	15.9	23.2	100.906	F
B	535	134	198	848	0.631	535	790	1.6	1.7	11.483	B
C	237	59	219	831	0.285	237	513	0.4	0.4	6.052	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	671	168	159	833	0.806	744	214	23.2	4.8	53.467	F
B	437	109	185	855	0.511	439	718	1.7	1.1	8.716	A
C	193	48	180	852	0.227	194	445	0.4	0.3	5.475	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	562	140	133	849	0.662	573	179	4.8	2.0	13.533	B
B	366	91	143	878	0.417	367	564	1.1	0.7	7.064	A
C	162	40	150	867	0.187	162	360	0.3	0.2	5.109	A

Queue Variation Results for each time segment

07:45 - 08:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.88	0.57	1.27	2.76	3.23			N/A	N/A
B	0.70	0.55	1.00	1.40	1.45			N/A	N/A
C	0.23	0.00	0.00	0.23	0.23			N/A	N/A

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	3.72	0.09	1.18	9.63	13.90			N/A	N/A
B	1.00	0.10	0.96	1.58	1.90			N/A	N/A
C	0.29	0.00	0.00	0.29	0.29			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	15.91	0.81	10.51	36.23	47.34			N/A	N/A
B	1.64	0.03	0.27	1.64	3.59			N/A	N/A
C	0.39	0.03	0.25	0.46	0.48			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	23.19	0.80	14.54	54.97	72.94			N/A	N/A
B	1.68	0.03	0.27	1.68	2.78			N/A	N/A
C	0.40	0.03	0.31	1.29	1.55			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	4.85	0.05	0.46	13.73	24.72			N/A	N/A
B	1.07	0.08	0.93	1.84	2.44			N/A	N/A
C	0.30	0.00	0.00	0.30	0.30			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.03	0.03	0.30	2.64	9.82			N/A	N/A
B	0.72	0.05	0.49	1.32	1.85			N/A	N/A
C	0.23	0.00	0.00	0.23	0.23			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 83% of the total flow for the roundabout for one or more time segments]
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	14.73	B

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		10	Arm B	14.73	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2045 + CD	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	421	100.000
B		ONE HOUR	✓	642	100.000
C		ONE HOUR	✓	213	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	286	135
	B	402	0	240
	C	54	159	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.55	9.46	1.2	2.2	A	386	579
B	0.80	20.62	3.9	20.1	C	589	884
C	0.33	7.41	0.5	2.1	A	195	293

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	317	79	119	880	0.360	315	340	0.0	0.6	8.348	A
B	483	121	101	905	0.534	479	333	0.0	1.1	8.358	A
C	160	40	300	794	0.202	159	280	0.0	0.3	5.652	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	378	95	143	864	0.438	378	408	0.6	0.8	7.380	A
B	577	144	121	894	0.645	575	399	1.1	1.8	11.174	B
C	191	48	360	763	0.251	191	336	0.3	0.3	6.292	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	464	116	175	844	0.549	462	497	0.8	1.2	9.379	A
B	707	177	148	879	0.804	699	488	1.8	3.7	19.176	C
C	235	59	438	723	0.325	234	409	0.3	0.5	7.357	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	464	116	175	844	0.549	463	502	1.2	1.2	9.465	A
B	707	177	149	879	0.804	706	490	3.7	3.9	20.616	C
C	235	59	442	720	0.326	234	413	0.5	0.5	7.410	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	378	95	143	864	0.438	380	415	1.2	0.8	7.466	A
B	577	144	122	894	0.646	585	402	3.9	1.9	11.952	B
C	191	48	366	760	0.252	192	341	0.5	0.3	6.350	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	317	79	120	879	0.361	318	345	0.8	0.6	6.426	A
B	483	121	102	905	0.534	486	336	1.9	1.2	8.658	A
C	160	40	304	792	0.203	161	284	0.3	0.3	5.708	A

Queue Variation Results for each time segment

16:15 - 16:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.56	0.55	1.00	1.40	1.45			N/A	N/A
B	1.12	0.55	1.00	1.40	1.45			N/A	N/A
C	0.25	0.00	0.00	0.25	0.25			N/A	N/A

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.77	0.14	0.90	1.40	1.46			N/A	N/A
B	1.76	0.07	1.02	4.08	5.84			N/A	N/A
C	0.33	0.00	0.00	0.33	0.33			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.19	0.03	0.26	1.19	1.19			N/A	N/A
B	3.71	0.03	0.34	7.86	20.06			N/A	N/A
C	0.47	0.03	0.25	0.47	0.48			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.21	0.03	0.27	1.21	2.24			N/A	N/A
B	3.89	0.03	0.30	3.89	16.00			N/A	N/A
C	0.48	0.03	0.31	1.38	2.11			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.79	0.10	0.87	1.03	1.03			N/A	N/A
B	1.89	0.05	0.47	5.03	8.20			N/A	N/A
C	0.34	0.00	0.00	0.34	0.34			N/A	N/A

17:30 - 17:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.57	0.05	0.51	1.33	1.43			N/A	N/A
B	1.17	0.04	0.36	2.88	5.63			N/A	N/A
C	0.26	0.00	0.00	0.26	0.26			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 84% of the total flow for the roundabout for one or more time segments]
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	20.48	C

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		1	Arm A	20.48	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2045 + ST	AM	ONE HOUR	07:45	09:15	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	656	100.000
B		ONE HOUR	✓	516	100.000
C		ONE HOUR	✓	219	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	527	129
	B	227	0	289
	C	41	178	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	1
	B	1	0	0
	C	1	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.87	32.19	6.1	33.1	D	602	903
B	0.65	11.67	1.8	4.6	B	473	710
C	0.30	6.30	0.4	1.7	A	201	301

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	494	123	133	868	0.569	489	200	0.0	1.3	9.373	A
B	388	97	96	901	0.431	385	526	0.0	0.7	6.938	A
C	165	41	170	854	0.193	164	312	0.0	0.2	5.208	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	590	147	160	851	0.693	586	240	1.3	2.2	13.430	B
B	464	116	115	891	0.521	463	631	0.7	1.1	8.382	A
C	197	49	204	837	0.235	197	374	0.2	0.3	5.621	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	722	181	196	828	0.873	709	294	2.2	5.6	27.551	D
B	568	142	139	877	0.648	565	765	1.1	1.8	11.429	B
C	241	60	249	813	0.297	241	456	0.3	0.4	6.282	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	722	181	196	827	0.873	720	295	5.6	6.1	32.193	D
B	568	142	142	876	0.648	568	775	1.8	1.8	11.670	B
C	241	60	250	813	0.297	241	460	0.4	0.4	6.298	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	590	147	160	850	0.694	605	242	6.1	2.4	15.440	C
B	464	116	119	889	0.522	467	646	1.8	1.1	8.586	A
C	197	49	205	836	0.236	197	380	0.4	0.3	5.643	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	494	123	134	867	0.570	498	202	2.4	1.4	9.855	A
B	388	97	98	900	0.431	390	534	1.1	0.8	7.072	A
C	165	41	172	853	0.193	165	316	0.3	0.2	5.232	A

Queue Variation Results for each time segment

07:45 - 08:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.29	0.56	1.11	1.46	1.73			N/A	N/A
B	0.75	0.55	1.00	1.40	1.45			N/A	N/A
C	0.24	0.00	0.00	0.24	0.24			N/A	N/A

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.16	0.07	1.07	5.35	7.77			N/A	N/A
B	1.07	0.10	0.97	1.77	2.21			N/A	N/A
C	0.31	0.00	0.00	0.31	0.31			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	5.55	0.05	0.46	15.70	28.59			N/A	N/A
B	1.78	0.03	0.28	1.78	4.58			N/A	N/A
C	0.42	0.03	0.25	0.46	0.48			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	6.08	0.04	0.35	12.83	33.12			N/A	N/A
B	1.81	0.03	0.27	1.81	2.88			N/A	N/A
C	0.42	0.03	0.31	1.32	1.74			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.37	0.04	0.42	6.51	11.53			N/A	N/A
B	1.11	0.07	0.91	1.99	2.78			N/A	N/A
C	0.31	0.00	0.00	0.31	0.31			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.35	0.03	0.33	2.87	6.96			N/A	N/A
B	0.77	0.05	0.48	1.54	2.10			N/A	N/A
C	0.24	0.00	0.00	0.24	0.24			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 82% of the total flow for the roundabout for one or more time segments]
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	11.08	B

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		22	Arm B	11.08	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2045 + ST	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	364	100.000
B		ONE HOUR	✓	591	100.000
C		ONE HOUR	✓	203	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	265	99
	B	360	0	231
	C	45	158	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.47	8.11	0.9	2.5	A	334	501
B	0.72	14.34	2.5	10.7	B	542	813
C	0.30	6.91	0.4	1.8	A	186	279

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	274	69	118	880	0.311	272	302	0.0	0.4	5.905	A
B	445	111	74	920	0.484	441	316	0.0	0.9	7.462	A
C	153	38	269	810	0.189	152	247	0.0	0.2	5.458	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	327	82	142	865	0.378	327	383	0.4	0.6	6.679	A
B	531	133	89	912	0.583	530	380	0.9	1.4	9.367	A
C	182	46	323	782	0.233	182	296	0.2	0.3	5.994	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	401	100	174	845	0.474	400	443	0.6	0.9	8.068	A
B	651	163	109	901	0.722	646	465	1.4	2.5	13.890	B
C	224	56	394	745	0.300	223	361	0.3	0.4	6.885	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	401	100	174	844	0.475	401	446	0.9	0.9	8.112	A
B	651	163	109	901	0.722	650	466	2.5	2.5	14.338	B
C	224	56	396	744	0.300	223	363	0.4	0.4	6.913	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	327	82	142	865	0.378	328	367	0.9	0.6	6.725	A
B	531	133	89	912	0.583	536	381	2.5	1.4	9.684	A
C	182	46	326	781	0.234	183	299	0.4	0.3	6.028	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	274	69	119	880	0.312	275	306	0.6	0.5	5.956	A
B	445	111	75	920	0.484	447	319	1.4	1.0	7.644	A
C	153	38	272	809	0.189	153	249	0.3	0.2	5.493	A

Queue Variation Results for each time segment

16:15 - 16:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.45	0.00	0.00	0.45	0.45			N/A	N/A
B	0.92	0.55	1.00	1.40	1.45			N/A	N/A
C	0.23	0.00	0.00	0.23	0.23			N/A	N/A

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.60	0.13	0.89	1.38	1.44			N/A	N/A
B	1.36	0.08	1.01	2.77	3.77			N/A	N/A
C	0.30	0.00	0.00	0.30	0.30			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.89	0.03	0.26	0.89	0.89			N/A	N/A
B	2.47	0.03	0.30	2.47	10.65			N/A	N/A
C	0.42	0.03	0.25	0.46	0.48			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.90	0.03	0.28	0.90	2.54			N/A	N/A
B	2.53	0.03	0.28	2.53	5.72			N/A	N/A
C	0.43	0.03	0.31	1.34	1.77			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.62	0.10	0.84	1.37	1.43			N/A	N/A
B	1.43	0.06	0.75	3.37	4.90			N/A	N/A
C	0.31	0.00	0.00	0.31	0.31			N/A	N/A

17:30 - 17:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.46	0.04	0.38	1.21	1.35			N/A	N/A
B	0.95	0.04	0.41	2.29	3.70			N/A	N/A
C	0.23	0.00	0.00	0.23	0.23			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.2.1574
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Filename: Junction 10 - St Stephen's Hill_Giles Lane Mini Roundabout MITIGATION v5.j10
Path: \\?\UNC\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 10 - St Stephen's Hill_Giles Lane Mini Roundabout_Junctions 10 Report
Report generation date: 13/01/2023 16:19:37

»2045+CD, AM
»2045+CD, PM
»2045+ST, AM
»2045+ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045+CD													
Arm A	D7	11.0	41.80	0.94	E	28.22	-2 % [Arm A]	D8	0.7	5.90	0.43	A	57.59	-8 % [Arm C]
Arm B		0.0	0.00	0.00	A				0.0	23.12	0.04	C		
Arm C		4.2	21.92	0.82	C				20.8	76.55	0.99	F		
Arm D		1.8	11.86	0.65	B				11.5	65.14	0.95	F		
	2045+ST													
Arm A	D9	13.9	49.31	0.96	E	33.34	-4 % [Arm A]	D10	0.6	5.33	0.37	A	28.36	-1 % [Arm C]
Arm B		0.0	0.00	0.00	A				0.0	18.31	0.03	C		
Arm C		4.5	23.56	0.83	C				9.0	36.69	0.92	E		
Arm D		0.8	7.68	0.46	A				4.6	30.97	0.84	D		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	St Stephens Hill/Giles Lane Mini Roundabout
Location	
Site number	
Date	17/01/2022
Version	
Status	
Identifier	
Client	
Jobnumber	
Enumerator	CORP\UKWGF001
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

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS												

9	5.75	✓				✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045+CD	AM	ONE HOUR	07:45	09:15	15	✓	✓
D8	2045+CD	PM	ONE HOUR	16:15	17:45	15	✓	✓
D9	2045+ST	AM	ONE HOUR	07:45	09:15	15	✓	✓
D10	2045+ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

Analysis Set Details

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

2045+CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and C have 75% of the total flow for the roundabout for one or more time segments]
Warning	Demand Sets	D7 - 2045+CD, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C, D	28.22	D

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-2	Arm A	28.22	D

Arms

Arms

Arm	Name	Description
A	St Stephen's Hill (north)	
B	Giles Lane (Private Road)	
C	St Stephen's Hill (south)	
D	Giles Lane	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	3.00	3.00	6.20	20.9	10.80	6.20	0.0	✓
B	2.00	2.00	3.00	1.1	14.00	8.99	0.0	
C	2.50	2.50	6.70	11.6	16.60	13.00	0.0	✓
D	3.45	3.40	5.05	3.1	15.15	10.10	0.0	✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.561	1193
B	0.563	641
C	0.543	1078
D	0.519	1022

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

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
A	Direct	To macth observed queue	100

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D7	2045+CD	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	923	100.000
B		ONE HOUR	✓	5	100.000
C		ONE HOUR	✓	661	100.000
D		ONE HOUR	✓	511	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	1	614	308
	B	1	0	2	2
	C	268	1	0	392
	D	182	2	327	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	0
	B	0	0	0	0
	C	1	0	0	1
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.94	41.80	11.0	57.6	E	923	923
B	0.00	0.00	0.0	~1	A	0	0
C	0.82	21.92	4.2	21.6	C	661	661
D	0.65	11.86	1.8	4.7	B	511	511

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	830	207	296	1122	0.739	825	403	1.5	2.7	11.911	B
B	0	0	1117	9	0.000	0	4	0.0	0.0	0.000	A
C	594	149	275	922	0.645	592	842	1.1	1.8	10.815	B
D	459	115	241	894	0.514	458	626	0.7	1.0	8.226	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1016	254	361	1085	0.936	990	491	2.7	9.3	31.291	D
B	0	0	1347	0	0.000	0	4	0.0	0.0	0.000	A
C	728	182	330	892	0.816	719	1016	1.8	4.0	19.835	C
D	563	141	293	867	0.649	560	757	1.0	1.8	11.584	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service

A	1016	254	363	1084	0.937	1009	495	9.3	11.0	41.799	E
B	0	0	1368	0	0.000	0	4	0.0	0.0	0.000	A
C	728	182	337	888	0.819	727	1031	4.0	4.2	21.924	C
D	563	141	296	866	0.650	562	768	1.8	1.8	11.856	B

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	830	207	299	1121	0.740	862	409	11.0	3.0	15.448	C
B	0	0	1157	0	0.000	0	4	0.0	0.0	0.000	A
C	594	149	288	915	0.649	604	869	4.2	1.9	11.878	B
D	459	115	246	892	0.515	462	646	1.8	1.1	8.439	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.71	0.06	0.89	7.28	11.20			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	1.76	0.06	0.96	4.18	6.01			N/A	N/A
D	1.04	0.09	0.95	1.72	2.08			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	9.35	0.08	1.72	26.89	42.00			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	3.97	0.04	0.35	8.95	21.55			N/A	N/A
D	1.78	0.03	0.28	1.78	4.71			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	11.04	0.05	0.62	31.79	57.64			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	4.24	0.03	0.30	4.24	18.88			N/A	N/A
D	1.82	0.03	0.27	1.82	3.19			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	3.01	0.04	0.41	8.20	15.27			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	1.92	0.05	0.47	5.13	8.37			N/A	N/A
D	1.08	0.07	0.89	1.94	2.69			N/A	N/A

2045+CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms C and D have 78% of the total flow for the roundabout for one or more time segments]
Warning	Demand Sets	D8 - 2045+CD, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C, D	57.59	F

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-8	Arm C	57.59	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D8	2045+CD	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	415	100.000
B		ONE HOUR	✓	6	100.000
C		ONE HOUR	✓	903	100.000
D		ONE HOUR	✓	608	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	2	285	128
	B	2	0	3	1
	C	571	2	0	330
	D	242	2	364	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.43	5.90	0.7	2.7	A	415	415
B	0.04	23.12	0.0	0.5	C	6	6
C	0.99	76.55	20.8	76.2	F	903	903
D	0.95	65.14	11.5	52.7	F	608	608

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	373	93	328	1107	0.337	373	726	0.4	0.5	4.899	A
B	5	1	695	249	0.022	5	5	0.0	0.0	14.780	B
C	812	203	118	1014	0.800	805	583	1.9	3.7	16.614	C
D	547	137	512	756	0.723	542	410	1.3	2.5	16.439	C

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	457	114	390	1072	0.426	456	858	0.5	0.7	5.833	A
B	7	2	839	168	0.039	7	6	0.0	0.0	22.332	C
C	994	249	144	1000	0.994	949	702	3.7	15.1	48.022	E
D	669	167	604	709	0.945	644	488	2.5	8.8	44.246	E

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	457	114	399	1067	0.428	457	879	0.7	0.7	5.896	A
B	7	2	849	162	0.041	7	7	0.0	0.0	23.124	C
C	994	249	144	1000	0.994	971	711	15.1	20.8	76.552	F
D	669	167	619	701	0.955	659	497	8.8	11.5	65.143	F

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	373	93	351	1094	0.341	374	787	0.7	0.5	5.004	A
B	5	1	719	235	0.023	5	6	0.0	0.0	15.662	C
C	812	203	118	1014	0.801	877	607	20.8	4.5	34.295	D
D	547	137	558	732	0.746	580	437	11.5	3.2	27.516	D

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.50	0.50	1.00	1.40	1.45			N/A	N/A
B	0.02	0.02	0.25	0.45	0.48			N/A	N/A
C	3.69	0.07	1.43	9.79	14.48			N/A	N/A
D	2.45	0.07	1.12	6.24	9.15			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.73	0.03	0.25	0.73	0.73			N/A	N/A
B	0.04	0.03	0.25	0.45	0.48			N/A	N/A
C	15.10	0.35	8.53	37.04	50.15			N/A	N/A
D	8.78	0.11	2.84	24.06	35.35			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

A	0.74	0.03	0.28	0.74	2.74			N/A	N/A
B	0.04	0.00	0.00	0.04	0.04			N/A	N/A
C	20.82	0.25	9.93	54.44	76.22			N/A	N/A
D	11.48	0.08	1.94	33.35	52.66			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.52	0.52	1.00	1.40	1.45			N/A	N/A
B	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C	4.49	0.04	0.44	12.53	23.08			N/A	N/A
D	3.20	0.05	0.45	8.94	15.61			N/A	N/A

2045+ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and C have 81% of the total flow for the roundabout for one or more time segments]
Warning	Demand Sets	D9 - 2045+ST, AM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C, D	33.34	D

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-4	Arm A	33.34	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D9	2045+ST	AM	ONE HOUR	07:45	09:15	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	977	100.000
B		ONE HOUR	✓	5	100.000
C		ONE HOUR	✓	653	100.000
D		ONE HOUR	✓	358	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	1	634	342
	B	1	0	2	2
	C	271	1	0	381
	D	93	2	263	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	0
	B	0	0	0	0
	C	1	0	0	1
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.96	49.31	13.9	66.9	E	977	977
B	0.00	0.00	0.0	~1	A	0	0
C	0.83	23.56	4.5	22.5	C	653	653
D	0.46	7.68	0.8	2.7	A	358	358

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	878	220	239	1154	0.761	873	326	1.6	3.0	12.545	B
B	0	0	1108	15	0.000	0	4	0.0	0.0	0.000	A
C	587	147	306	904	0.649	584	802	1.1	1.8	11.163	B
D	322	80	243	892	0.361	321	646	0.4	0.6	6.298	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1076	269	292	1124	0.957	1043	397	3.0	11.3	34.820	D
B	0	0	1330	0	0.000	0	4	0.0	0.0	0.000	A
C	719	180	365	872	0.825	709	965	1.8	4.2	21.015	C
D	394	99	296	865	0.456	393	779	0.6	0.8	7.614	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1076	269	293	1124	0.957	1065	400	11.3	13.9	49.309	E
B	0	0	1354	0	0.000	0	4	0.0	0.0	0.000	A
C	719	180	373	868	0.829	718	981	4.2	4.5	23.561	C
D	394	99	299	863	0.457	394	792	0.8	0.8	7.676	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	878	220	240	1153	0.761	920	332	13.9	3.4	17.856	C
B	0	0	1157	0	0.000	0	4	0.0	0.0	0.000	A
C	587	147	322	895	0.656	597	834	4.5	2.0	12.466	B
D	322	80	249	889	0.362	323	671	0.8	0.6	6.368	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	3.02	0.06	0.98	8.17	12.58			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	1.79	0.06	0.96	4.30	6.21			N/A	N/A
D	0.56	0.55	1.00	1.40	1.45			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	11.29	0.11	3.51	31.40	46.51			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	4.16	0.04	0.36	9.93	22.53			N/A	N/A
D	0.82	0.03	0.26	0.82	0.82			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

A	13.92	0.07	1.67	40.92	66.89			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	4.48	0.03	0.31	5.12	21.08			N/A	N/A
D	0.83	0.03	0.28	0.83	2.70			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	3.40	0.04	0.41	9.26	17.41			N/A	N/A
B	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C	1.98	0.05	0.46	5.33	8.74			N/A	N/A
D	0.57	0.09	0.81	1.36	1.43			N/A	N/A

2045+ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and C have 70% of the total flow for the roundabout for one or more time segments][Arms C and D have 78% of the total flow for the roundabout for one or more time segments]
Warning	Demand Sets	D10 - 2045+ST, PM	Time results are shown for central hour only. (Model is run for a 90 minute period.)
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C, D	28.36	D

Junction Network

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		-1	Arm C	28.36	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Results for central hour only	Run automatically
D10	2045+ST	PM	ONE HOUR	16:15	17:45	15	✓	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	366	100.000
B		ONE HOUR	✓	6	100.000
C		ONE HOUR	✓	862	100.000
D		ONE HOUR	✓	510	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	1	295	70
	B	2	0	3	1
	C	611	2	0	249
	D	167	2	341	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.37	5.33	0.6	2.7	A	366	366
B	0.03	18.31	0.0	0.5	C	6	6
C	0.92	36.69	9.0	49.3	E	862	862
D	0.84	30.97	4.6	24.0	D	510	510

Main Results for each time segment

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	329	82	308	1117	0.295	329	697	0.3	0.4	4.563	A
B	5	1	633	284	0.019	5	4	0.0	0.0	12.914	B
C	775	194	66	1043	0.743	770	572	1.6	2.7	12.994	B
D	458	115	550	737	0.622	456	286	0.9	1.6	12.685	B

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	403	101	373	1081	0.373	402	841	0.4	0.6	5.297	A
B	7	2	770	207	0.032	7	5	0.0	0.0	17.979	C
C	949	237	80	1035	0.917	928	696	2.7	8.0	29.303	D
D	562	140	662	678	0.828	551	346	1.6	4.1	26.446	D

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	403	101	379	1078	0.374	403	855	0.6	0.6	5.333	A
B	7	2	776	203	0.033	7	5	0.0	0.0	18.309	C
C	949	237	80	1034	0.917	945	702	8.0	9.0	36.693	E
D	562	140	674	672	0.835	560	351	4.1	4.6	30.969	D

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	329	82	318	1112	0.296	330	722	0.6	0.4	4.607	A
B	5	1	643	278	0.019	5	5	0.0	0.0	13.192	B
C	775	194	66	1042	0.743	799	582	9.0	3.1	16.051	C
D	458	115	570	726	0.631	470	295	4.6	1.8	14.570	B

Queue Variation Results for each time segment

16:30 - 16:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.41	0.00	0.00	0.41	0.41			N/A	N/A
B	0.02	0.02	0.25	0.45	0.48			N/A	N/A
C	2.75	0.06	1.09	7.22	10.80			N/A	N/A
D	1.59	0.07	0.96	3.64	5.13			N/A	N/A

16:45 - 17:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.59	0.03	0.25	0.59	0.59			N/A	N/A
B	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C	7.95	0.06	1.25	23.15	38.09			N/A	N/A
D	4.11	0.04	0.39	10.89	21.94			N/A	N/A

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.59	0.03	0.29	1.24	2.72			N/A	N/A
B	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C	9.04	0.04	0.42	24.20	49.32			N/A	N/A
D	4.56	0.03	0.33	8.09	24.00			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	0.42	0.00	0.00	0.42	0.42			N/A	N/A
B	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C	3.06	0.04	0.42	8.46	15.44			N/A	N/A
D	1.78	0.04	0.44	4.76	7.90			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.2.1574
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Filename: Junction 12 - Kingsmead Road_Broad Oak Road MITIGATION (Correct Geometry).j10
Path: \\uk.wspgroup.com\central data\Projects\70080xxx\70080896 - University of Kent\03 WIP\TP Transport Planning\Junctions 10\PTAv2\Junction 12 - Kingsmead Road_Broad Oak Road
Report generation date: 13/01/2023 11:56:42

»2045 + CD, AM
»2045 + CD, PM
»2045 + ST, AM
»2045 + ST, PM

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2045 + CD													
Arm A	D7	16.2	79.98	0.98	F	34.71	-7 % [Arm A]	D8	12.7	71.02	0.97	F	35.58	-6 % [Arm A]
Arm B		8.3	40.78	0.91	E				4.3	22.16	0.82	C		
Arm C		1.6	7.49	0.62	A				2.9	9.84	0.75	A		
Arm D		3.5	15.21	0.78	C				12.1	51.25	0.95	F		
	2045 + ST													
Arm A	D9	9.0	49.72	0.92	E	25.63	-3 % [Arm A]	D10	9.6	56.85	0.94	F	29.34	-5 % [Arm A]
Arm B		7.0	34.23	0.89	D				4.2	21.49	0.82	C		
Arm C		1.6	7.31	0.61	A				2.5	8.76	0.72	A		
Arm D		3.4	14.84	0.78	B				9.3	39.78	0.92	E		

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	B2248 / Kingsmead Road / Broad Oak Road / St Stephens Road – Roundabout junction
Location	Canterbury
Site number	
Date	26/11/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	70080896
Enumerator	CORP\UKWGF001
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 length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓			✓	✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2045 + CD	AM	ONE HOUR	08:00	09:30	15	✓
D8	2045 + CD	PM	ONE HOUR	17:00	18:30	15	✓
D9	2045 + ST	AM	ONE HOUR	08:00	09:30	15	✓
D10	2045 + ST	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2045 + CD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	34.71	D

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-7	Arm A	34.71	D

Arms

Arms

Arm	Name	Description	No give-way line
A	St Stephens Road North		
B	Broad Oak Road		
C	Kingsmead Road		
D	St Stepehns Road South		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A	3.28	6.60	9.0	14.8	33.0	68.0		
B	3.10	7.20	10.8	18.0	33.0	58.0		
C	3.25	7.12	25.9	22.8	33.0	34.0		
D	3.08	6.30	10.8	37.6	33.0	20.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.514	1237
B	0.551	1347
C	0.665	1764
D	0.634	1513

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2045 + CD	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	678	100.000
B		ONE HOUR	✓	716	100.000
C		ONE HOUR	✓	722	100.000
D		ONE HOUR	✓	769	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	138	423	117
	B	78	0	208	430
	C	366	123	0	233
	D	87	461	221	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	2	0	6	1
	C	1	4	0	4
	D	0	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.98	79.98	16.2	62.4	F	622	933
B	0.91	40.78	8.3	45.1	E	657	986
C	0.62	7.49	1.6	1.9	A	663	994
D	0.78	15.21	3.5	16.5	C	706	1058

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	510	128	602	906	0.563	505	398	0.0	1.3	8.870	A
B	539	135	568	1002	0.538	534	540	0.0	1.1	7.626	A
C	544	136	466	1416	0.384	541	636	0.0	0.6	4.105	A
D	579	145	425	1206	0.480	575	583	0.0	0.9	5.671	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	610	152	722	844	0.722	605	476	1.3	2.5	14.751	B
B	644	161	680	941	0.684	640	647	1.1	2.1	11.815	B
C	649	162	558	1355	0.479	648	761	0.6	0.9	5.081	A
D	691	173	509	1154	0.599	689	698	0.9	1.5	7.710	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	746	187	879	761	0.980	709	580	2.5	11.7	50.063	F
B	788	197	806	872	0.905	769	782	2.1	6.9	30.574	D
C	795	199	668	1283	0.619	792	907	0.9	1.6	7.287	A
D	847	212	620	1083	0.781	839	840	1.5	3.3	14.311	B

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	746	187	886	758	0.985	729	584	11.7	16.2	79.979	F
B	788	197	824	862	0.915	783	791	6.9	8.3	40.784	E
C	795	199	681	1275	0.624	795	925	1.6	1.6	7.493	A
D	847	212	624	1081	0.783	846	852	3.3	3.5	15.214	C

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	610	152	731	839	0.726	663	482	16.2	2.9	25.704	D
B	644	161	729	914	0.704	667	665	8.3	2.5	15.810	C
C	649	162	588	1336	0.486	652	808	1.6	1.0	5.280	A
D	691	173	514	1150	0.601	699	725	3.5	1.5	8.109	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	510	128	608	903	0.565	517	401	2.9	1.3	9.450	A
B	539	135	578	996	0.541	544	546	2.5	1.2	8.051	A
C	544	136	475	1410	0.386	545	647	1.0	0.6	4.170	A
D	579	145	428	1204	0.481	581	592	1.5	0.9	5.801	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.26	0.52	1.18	1.70	1.89			N/A	N/A
B	1.14	0.55	1.06	1.14	1.55			N/A	N/A
C	0.62	0.55	1.00	1.40	1.45			N/A	N/A
D	0.91	0.55	1.00	1.40	1.45			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.46	0.06	0.87	6.54	9.96			N/A	N/A
B	2.08	0.06	0.80	5.41	8.19			N/A	N/A
C	0.91	0.07	0.83	1.52	1.90			N/A	N/A
D	1.46	0.06	0.73	3.50	5.10			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	11.75	0.23	5.98	29.60	40.77			N/A	N/A
B	6.94	0.06	1.05	20.13	33.42			N/A	N/A
C	1.59	0.03	0.27	1.59	1.59			N/A	N/A
D	3.34	0.03	0.31	4.64	16.48			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	16.18	0.17	6.62	43.59	62.45			N/A	N/A

B	8.34	0.04	0.44	22.84	45.06			N/A	N/A
C	1.63	0.03	0.27	1.63	1.63			N/A	N/A
D	3.47	0.03	0.28	3.47	10.73			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.85	0.04	0.39	7.55	14.86			N/A	N/A
B	2.50	0.04	0.44	6.88	11.91			N/A	N/A
C	0.96	0.13	0.97	1.32	1.71			N/A	N/A
D	1.54	0.05	0.57	3.84	5.85			N/A	N/A

09:15 - 09:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.33	0.03	0.29	1.47	5.66			N/A	N/A
B	1.20	0.03	0.31	1.85	5.97			N/A	N/A
C	0.63	0.05	0.54	1.13	1.13			N/A	N/A
D	0.94	0.04	0.36	2.29	4.21			N/A	N/A

2045 + CD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	35.58	E

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-6	Arm A	35.58	E

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2045 + CD	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	609	100.000
B		ONE HOUR	✓	660	100.000
C		ONE HOUR	✓	982	100.000
D		ONE HOUR	✓	819	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	148	382	79
	B	148	0	345	167
	C	411	219	0	352
	D	94	443	282	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	0
	B	1	0	1	3
	C	1	3	0	2
	D	0	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.97	71.02	12.7	54.7	F	559	838
B	0.82	22.16	4.3	21.1	C	606	908
C	0.75	9.84	2.9	9.5	A	901	1352
D	0.95	51.25	12.1	58.9	F	752	1127

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	458	115	706	863	0.532	454	489	0.0	1.1	8.720	A
B	497	124	554	1022	0.486	493	605	0.0	0.9	6.759	A
C	739	185	294	1537	0.481	736	753	0.0	0.9	4.471	A
D	617	154	583	1124	0.549	612	447	0.0	1.2	6.970	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	547	137	844	790	0.693	543	585	1.1	2.1	14.332	B
B	593	148	663	962	0.617	591	724	0.9	1.6	9.625	A
C	883	221	352	1498	0.589	881	902	0.9	1.4	5.810	A
D	736	184	698	1051	0.701	732	536	1.2	2.3	11.155	B

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	671	168	1012	703	0.953	642	711	2.1	9.3	45.584	E
B	727	182	786	895	0.812	717	867	1.6	3.9	19.355	C
C	1081	270	426	1450	0.746	1076	1078	1.4	2.8	9.479	A
D	902	225	851	953	0.946	872	650	2.3	9.7	35.704	E

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	671	168	1031	693	0.967	657	717	9.3	12.7	71.024	F
B	727	182	804	885	0.821	725	883	3.9	4.3	22.161	C
C	1081	270	431	1446	0.748	1081	1098	2.8	2.9	9.840	A
D	902	225	856	950	0.950	892	656	9.7	12.1	51.250	F

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	547	137	884	770	0.711	588	596	12.7	2.6	23.519	C
B	593	148	712	936	0.634	603	760	4.3	1.8	11.132	B
C	883	221	364	1491	0.592	888	951	2.9	1.5	6.035	A
D	736	184	705	1046	0.704	775	547	12.1	2.5	15.025	C

18:15 - 18:30

Arm	Total Demand	Junction Arrivals	Circulating flow	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay	Unsignalised level of

	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)	(s)	service
A	458	115	716	857	0.535	464	494	2.6	1.2	9.287	A
B	497	124	565	1016	0.489	500	614	1.8	1.0	7.020	A
C	739	185	299	1534	0.482	741	767	1.5	0.9	4.554	A
D	617	154	588	1120	0.550	622	453	2.5	1.2	7.286	A

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.11	0.54	1.07	1.29	1.65			N/A	N/A
B	0.93	0.55	1.00	1.40	1.45			N/A	N/A
C	0.92	0.55	1.00	1.40	1.45			N/A	N/A
D	1.20	0.54	1.13	1.55	1.79			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.15	0.06	0.83	5.59	8.47			N/A	N/A
B	1.57	0.06	0.82	3.74	5.47			N/A	N/A
C	1.41	0.05	0.65	3.41	5.03			N/A	N/A
D	2.25	0.05	0.58	6.04	9.58			N/A	N/A

17:30 - 17:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	9.28	0.12	3.48	24.93	35.97			N/A	N/A
B	3.89	0.03	0.35	8.59	21.08			N/A	N/A
C	2.82	0.03	0.29	2.82	9.51			N/A	N/A
D	9.73	0.10	2.70	27.28	40.89			N/A	N/A

17:45 - 18:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	12.71	0.10	3.29	36.11	54.72			N/A	N/A
B	4.26	0.03	0.31	4.49	19.60			N/A	N/A
C	2.90	0.03	0.27	2.90	3.46			N/A	N/A
D	12.08	0.06	1.13	35.51	58.90			N/A	N/A

18:00 - 18:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.63	0.04	0.41	7.15	13.21			N/A	N/A
B	1.79	0.05	0.50	4.69	7.35			N/A	N/A
C	1.48	0.07	0.94	3.28	4.64			N/A	N/A
D	2.49	0.04	0.39	6.61	12.75			N/A	N/A

18:15 - 18:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.17	0.03	0.29	1.48	5.13			N/A	N/A
B	0.97	0.03	0.33	2.23	4.75			N/A	N/A
C	0.94	0.04	0.42	2.22	3.57			N/A	N/A
D	1.25	0.03	0.29	1.28	5.66			N/A	N/A

2045 + ST, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	25.63	D

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-3	Arm A	25.63	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2045 + ST	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	637	100.000
B		ONE HOUR	✓	718	100.000
C		ONE HOUR	✓	711	100.000
D		ONE HOUR	✓	769	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	144	381	112
	B	80	0	208	430
	C	355	123	0	233
	D	87	461	221	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	2	0	6	1
	C	1	4	0	4
	D	0	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.92	49.72	9.0	46.7	E	585	877
B	0.89	34.23	7.0	38.6	D	659	988
C	0.61	7.31	1.6	1.8	A	652	979
D	0.78	14.84	3.4	15.8	B	706	1058

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	480	120	602	907	0.529	475	391	0.0	1.1	8.258	A
B	541	135	533	1021	0.529	536	544	0.0	1.1	7.358	A
C	535	134	464	1417	0.378	533	605	0.0	0.6	4.064	A
D	579	145	418	1211	0.478	575	579	0.0	0.9	5.636	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	573	143	722	844	0.678	569	468	1.1	2.0	12.896	B
B	645	161	638	963	0.670	642	652	1.1	2.0	11.082	B
C	639	160	556	1356	0.471	638	724	0.6	0.9	5.003	A
D	691	173	500	1159	0.597	689	694	0.9	1.4	7.630	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	701	175	879	762	0.921	679	571	2.0	7.5	36.663	E
B	791	198	767	893	0.885	774	792	2.0	6.1	27.145	D
C	783	196	669	1282	0.610	780	872	0.9	1.5	7.132	A
D	847	212	611	1089	0.777	839	839	1.4	3.3	14.004	B

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	701	175	886	758	0.925	695	574	7.5	9.0	49.716	E
B	791	198	781	885	0.893	787	800	6.1	7.0	34.232	D
C	783	196	681	1275	0.614	783	887	1.5	1.6	7.314	A
D	847	212	614	1087	0.779	846	850	3.3	3.4	14.844	B

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	573	143	731	840	0.682	600	474	9.0	2.2	16.551	C
B	645	161	665	949	0.680	665	666	7.0	2.2	13.457	B
C	639	160	578	1342	0.476	642	752	1.6	0.9	5.157	A
D	691	173	506	1156	0.598	699	714	3.4	1.5	8.006	A

09:15 - 09:30

Arm	Total Demand	Junction Arrivals	Circulating flow	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay	Unsignalised level of

	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)	(s)	service
A	480	120	608	904	0.531	484	394	2.2	1.2	8.663	A
B	541	135	542	1016	0.532	545	551	2.2	1.2	7.700	A
C	535	134	472	1411	0.379	536	614	0.9	0.6	4.119	A
D	579	145	421	1208	0.479	581	587	1.5	0.9	5.760	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.10	0.55	1.05	1.43	1.43			N/A	N/A
B	1.11	0.55	1.03	1.11	1.11			N/A	N/A
C	0.60	0.55	1.00	1.40	1.45			N/A	N/A
D	0.91	0.55	1.00	1.40	1.45			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.02	0.06	0.80	5.20	7.86			N/A	N/A
B	1.96	0.06	0.77	5.01	7.62			N/A	N/A
C	0.88	0.08	0.83	1.41	1.81			N/A	N/A
D	1.45	0.06	0.74	3.45	5.00			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	7.54	0.07	1.37	21.50	33.45			N/A	N/A
B	6.09	0.05	0.49	17.47	30.98			N/A	N/A
C	1.54	0.03	0.27	1.54	1.54			N/A	N/A
D	3.27	0.03	0.31	4.26	15.83			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	9.04	0.05	0.59	26.08	46.68			N/A	N/A
B	7.04	0.04	0.38	16.90	38.58			N/A	N/A
C	1.57	0.03	0.27	1.57	1.57			N/A	N/A
D	3.39	0.03	0.28	3.39	10.03			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.25	0.04	0.39	5.98	11.29			N/A	N/A
B	2.21	0.04	0.43	6.02	10.54			N/A	N/A
C	0.92	0.14	0.95	1.13	1.59			N/A	N/A
D	1.52	0.05	0.60	3.78	5.72			N/A	N/A

09:15 - 09:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.15	0.03	0.30	1.50	5.52			N/A	N/A
B	1.16	0.03	0.31	2.00	5.86			N/A	N/A
C	0.62	0.05	0.54	1.38	1.49			N/A	N/A
D	0.93	0.04	0.36	2.27	4.11			N/A	N/A

2045 + ST, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D	29.34	D

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-5	Arm A	29.34	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2045 + ST	PM	ONE HOUR	17:00	18:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	588	100.000
B		ONE HOUR	✓	666	100.000
C		ONE HOUR	✓	936	100.000
D		ONE HOUR	✓	819	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	152	357	79
	B	154	0	345	167
	C	365	219	0	352
	D	94	443	282	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	1	0
	B	1	0	1	3
	C	1	3	0	2
	D	0	1	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
A	0.94	56.85	9.6	47.2	F	540	809
B	0.82	21.49	4.2	20.8	C	611	917
C	0.72	8.76	2.5	5.8	A	859	1288
D	0.92	39.78	9.3	49.9	E	752	1127

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	443	111	706	863	0.513	439	459	0.0	1.0	8.408	A
B	501	125	536	1032	0.486	498	608	0.0	0.9	6.690	A
C	705	176	299	1533	0.460	701	735	0.0	0.8	4.309	A
D	617	154	553	1143	0.540	612	447	0.0	1.2	6.727	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	529	132	845	790	0.669	525	549	1.0	1.9	13.385	B
B	599	150	641	974	0.615	596	728	0.9	1.6	9.460	A
C	841	210	358	1494	0.563	840	880	0.8	1.3	5.486	A
D	736	184	662	1073	0.686	732	536	1.2	2.1	10.447	B

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	647	162	1018	700	0.924	625	668	1.9	7.5	39.519	E
B	733	183	766	906	0.809	724	877	1.6	3.8	18.922	C
C	1031	258	433	1444	0.714	1026	1057	1.3	2.4	8.512	A
D	902	225	808	980	0.920	878	651	2.1	8.0	30.144	D

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	647	162	1035	692	0.936	639	674	7.5	9.6	56.851	F
B	733	183	783	897	0.818	732	891	3.8	4.2	21.488	C
C	1031	258	439	1441	0.715	1030	1076	2.4	2.5	8.763	A
D	902	225	812	978	0.922	896	657	8.0	9.3	39.783	E

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	529	132	875	775	0.682	558	558	9.6	2.3	18.591	C
B	599	150	677	955	0.627	608	756	4.2	1.7	10.673	B
C	841	210	368	1487	0.566	846	917	2.5	1.3	5.654	A
D	736	184	669	1069	0.689	764	546	9.3	2.3	12.830	B

18:15 - 18:30

Arm	Total Demand	Junction Arrivals	Circulating flow	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay	Unsignalised level of

	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)	(s)	service
A	443	111	715	858	0.516	447	463	2.3	1.1	8.865	A
B	501	125	546	1027	0.488	504	617	1.7	1.0	6.930	A
C	705	176	303	1530	0.460	707	747	1.3	0.9	4.378	A
D	617	154	557	1140	0.541	621	452	2.3	1.2	6.999	A

Queue Variation Results for each time segment

17:00 - 17:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.03	0.55	1.02	1.45	1.50			N/A	N/A
B	0.93	0.55	1.00	1.40	1.45			N/A	N/A
C	0.84	0.55	1.00	1.40	1.45			N/A	N/A
D	1.15	0.55	1.08	1.33	1.67			N/A	N/A

17:15 - 17:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.94	0.06	0.79	4.92	7.45			N/A	N/A
B	1.55	0.06	0.81	3.71	5.42			N/A	N/A
C	1.27	0.06	0.72	2.86	4.14			N/A	N/A
D	2.11	0.05	0.58	5.64	8.84			N/A	N/A

17:30 - 17:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	7.54	0.08	1.66	21.33	32.65			N/A	N/A
B	3.83	0.03	0.34	8.26	20.76			N/A	N/A
C	2.41	0.03	0.28	2.41	5.84			N/A	N/A
D	7.96	0.06	1.42	23.05	37.20			N/A	N/A

17:45 - 18:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	9.59	0.06	1.18	28.00	47.25			N/A	N/A
B	4.18	0.03	0.30	4.18	18.79			N/A	N/A
C	2.47	0.03	0.27	2.47	2.47			N/A	N/A
D	9.31	0.05	0.45	25.90	49.94			N/A	N/A

18:00 - 18:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.26	0.04	0.40	6.09	11.24			N/A	N/A
B	1.73	0.05	0.49	4.54	7.13			N/A	N/A
C	1.32	0.08	1.00	2.65	3.59			N/A	N/A
D	2.30	0.04	0.40	6.18	11.53			N/A	N/A

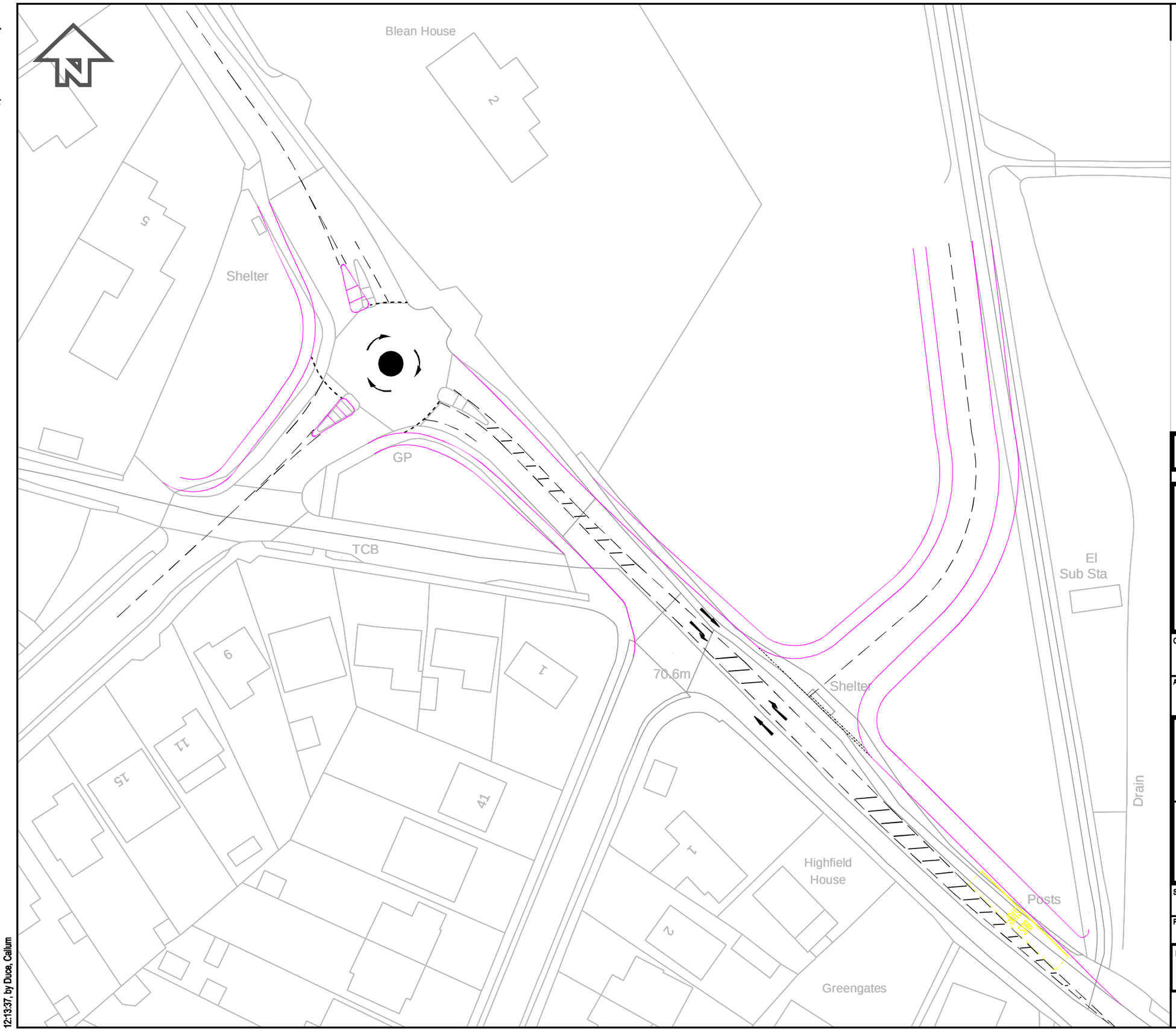
18:15 - 18:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.09	0.03	0.30	1.21	5.01			N/A	N/A
B	0.97	0.03	0.34	2.25	4.71			N/A	N/A
C	0.86	0.05	0.46	1.86	2.81			N/A	N/A
D	1.20	0.03	0.30	1.64	5.80			N/A	N/A

Appendix D

Site Access and Mitigation Drawings

Public



DO NOT SCALE

KEY

Proposed Kerb Line

Proposed Road Marking

DRAWING STATUS:

wsp

Mountbatten House, Basing View, Basingstoke, RG21 4HJ, UK
T+ 44 (0) 1256 318 800, F+ 44 (0) 1256 318 700
wsp.com

CLIENT: University of Kent

ARCHITECT: PRP

PROJECT: University of Kent, Canterbury

TITLE: Preliminary Transport Appraisal
Staggered Priority Junction Mitigation
Junction Geometry Measurements

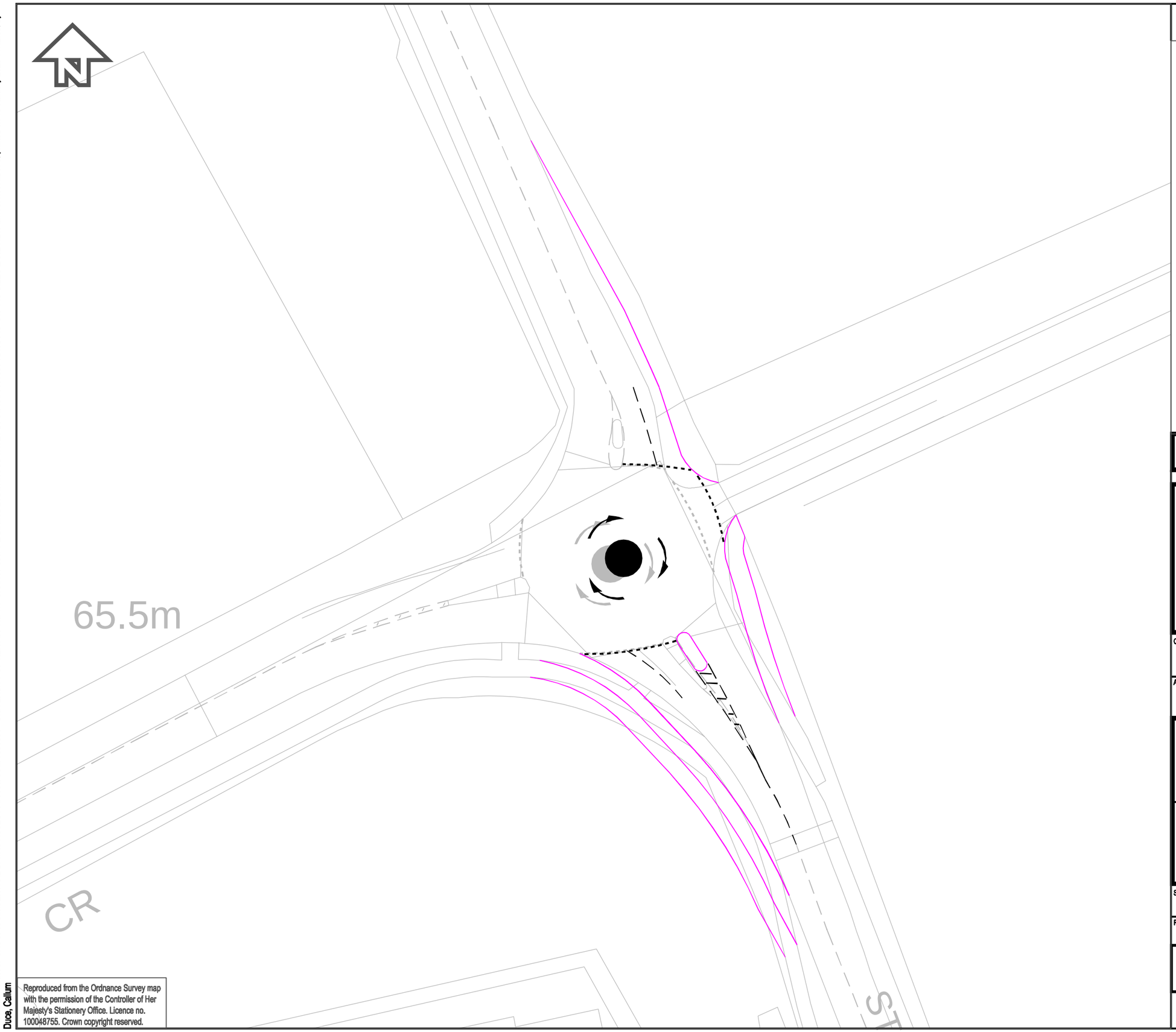
SCALE @ A3:	CHECKED:		APPROVED:
NTS	JS		AA
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70080896	JS	JS	January 2023

DRAWING No: 70080896-XX-XX-TP-016 REV: P01

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File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70080XXX\70080896 - UNIVERSITY OF KENT\03 WIP\TP TRANSPORT PLANNING\DRAWINGS\PTAV2.PDFSU10\70080896-XX-XX-TP-017 J10 GILES LANE NEW MITIGATION.DWG, printed on 16 January 2023 11:12:08, by Duce, Callum



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DRAWING STATUS:

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T+ 44 (0) 1256 318 800, F+ 44 (0) 1256 318 700
wsp.com

CLIENT: University of Kent

ARCHITECT: PRP

PROJECT: University of Kent, Canterbury

TITLE: Preliminary Transport Appraisal
J10 Giles Lane Mitigation Proposals

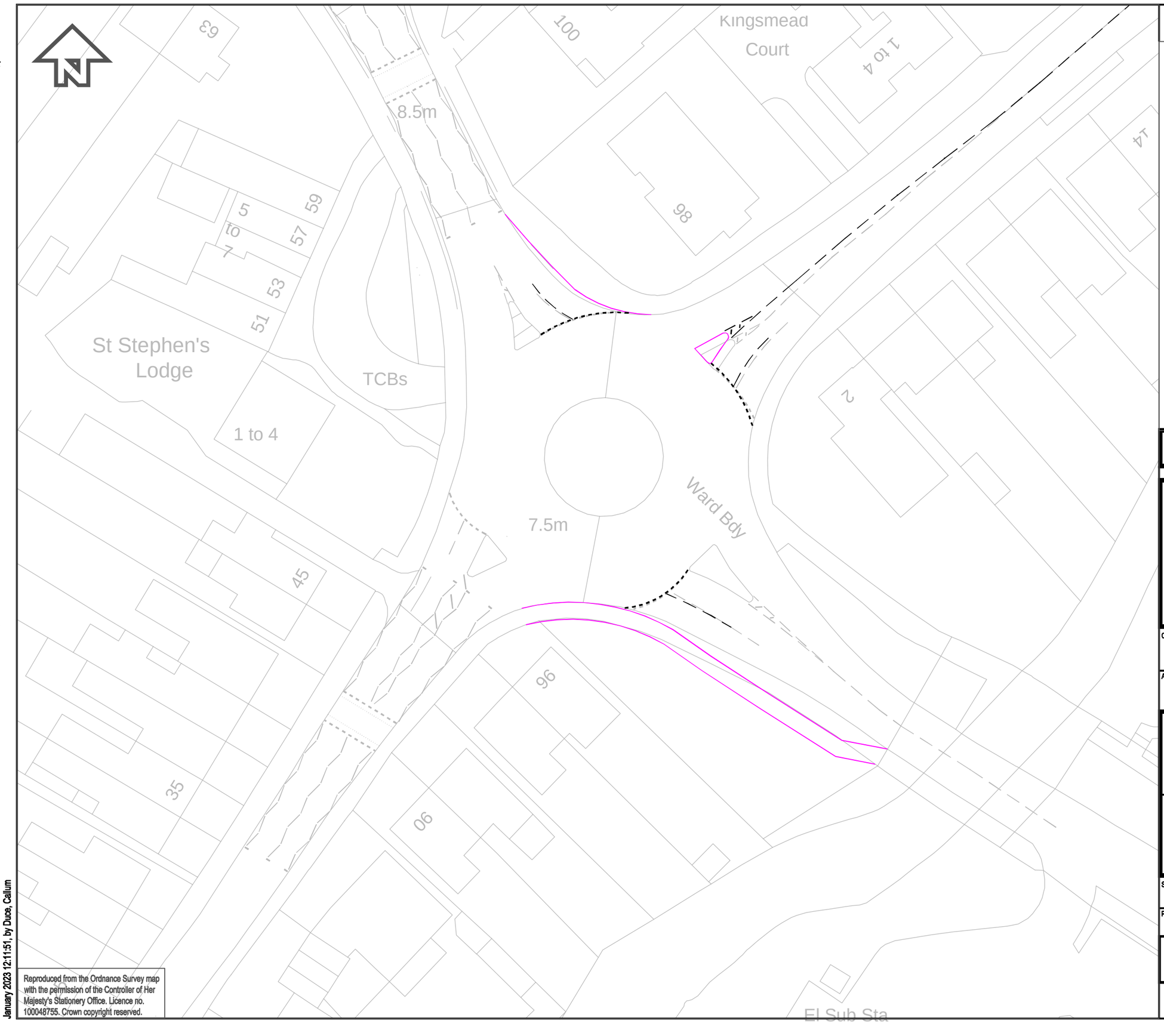
SCALE @ A3:	CHECKED:		APPROVED:
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PROJECT No:	DESIGNED:	DRAWN:	DATE:
70080896	JS	JS	January 2023

DRAWING No: 70080896-XX-XX-TP-017

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CLIENT: University of Kent

ARCHITECT: PRP

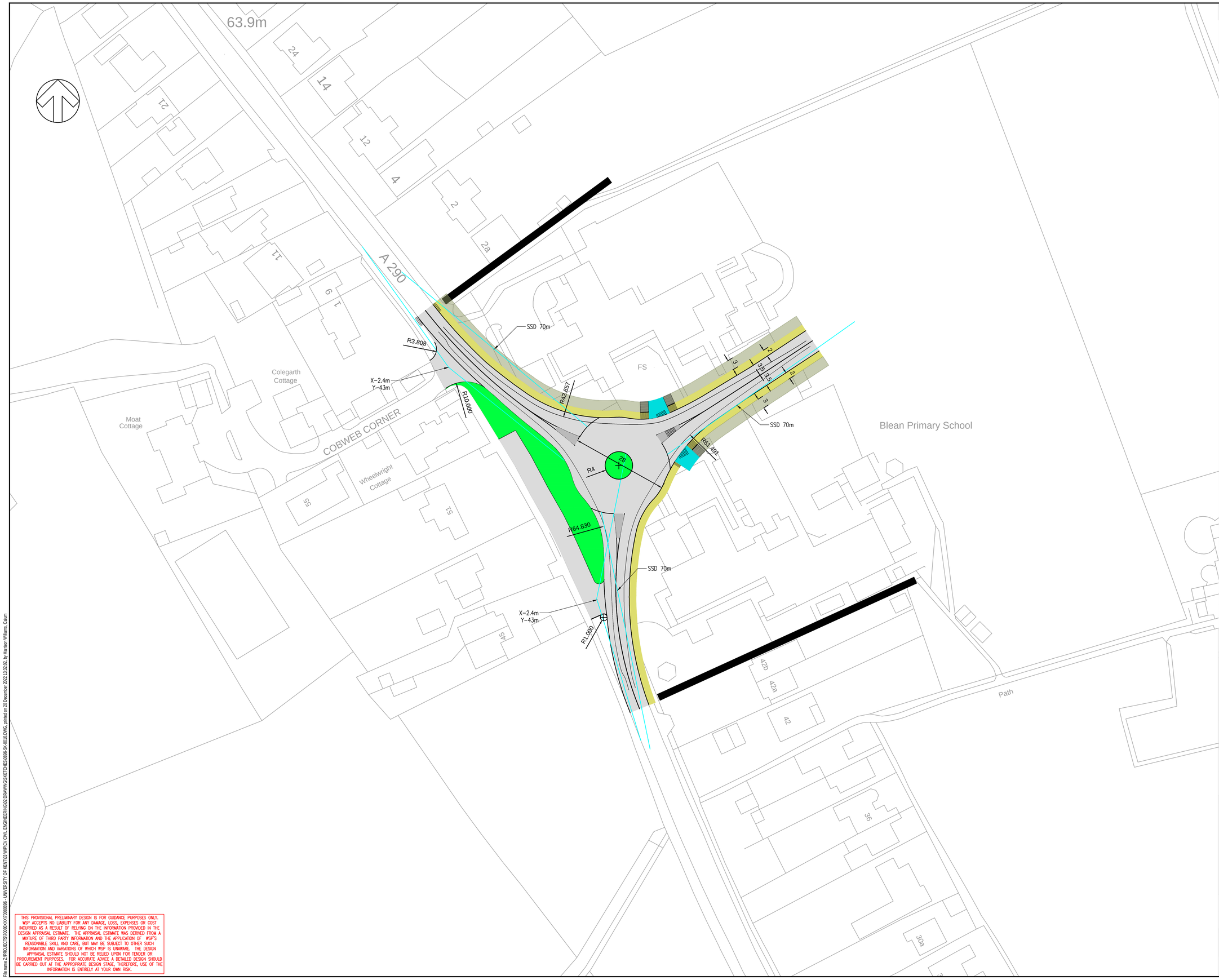
PROJECT: University of Kent, Canterbury

TITLE: Preliminary Transport Appraisal
J12 Broad Oak Road Mitigation

SCALE @ A3:	CHECKED:		APPROVED:
NTS	JS		AA
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70080896	JS	JS	January 2023

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KEY

- CARRIAGEWAY
- FOOTWAY
- CYCLEWAY
- VERGE
- SHARED SURFACE
- VISIBILITY LINES

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	20/12/2022	CHW	FIRST ISSUE	DB	DB

DRAWING STATUS:
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ARCHITECT:

SITE/PROJECT:
UNIVERSITY OF KENT
CANTERBURY CAMPUS

TITLE:
BLEAN PRIMARY SCHOOL
28m ICD ROUNDABOUT

SCALE @ A1:	CHECKED:	APPROVED:
1:500	DB	DB

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70080896	CHW	CHW	December 22

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KEY

- CARRIAGEWAY
- SHARED SURFACE
- FOOTWAY
- CYCLEWAY
- CENTRAL ISLAND
- TRAFFIC SIGNAL

63.9m

A 290

COBWEB CORNER

Colegarth Cottage

Moat Cottage

Wheelwright Cottage

Blean Primary School

Path

TIE INTO EXISTING CARRIAGEWAY

TIE INTO EXISTING FOOTWAY

ACCESS TO DEVELOPMENT

TIE INTO EXISTING CARRIAGEWAY

TIE INTO EXISTING FOOTWAY

R20

R15

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	20/12/2022	CHW	FIRST ISSUE	DB	DB

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CLIENT: UNIVERISTY OF KENT

ARCHITECT:

SITE/PROJECT: UNIVERSITY OF KENT
CANTERBURY CAMPUS

TITLE: BLEAN PRIMARY SCHOOL
JUNCTION DESIGN

SCALE @ A1:	CHECKED:	APPROVED:
1:500	DB	DB

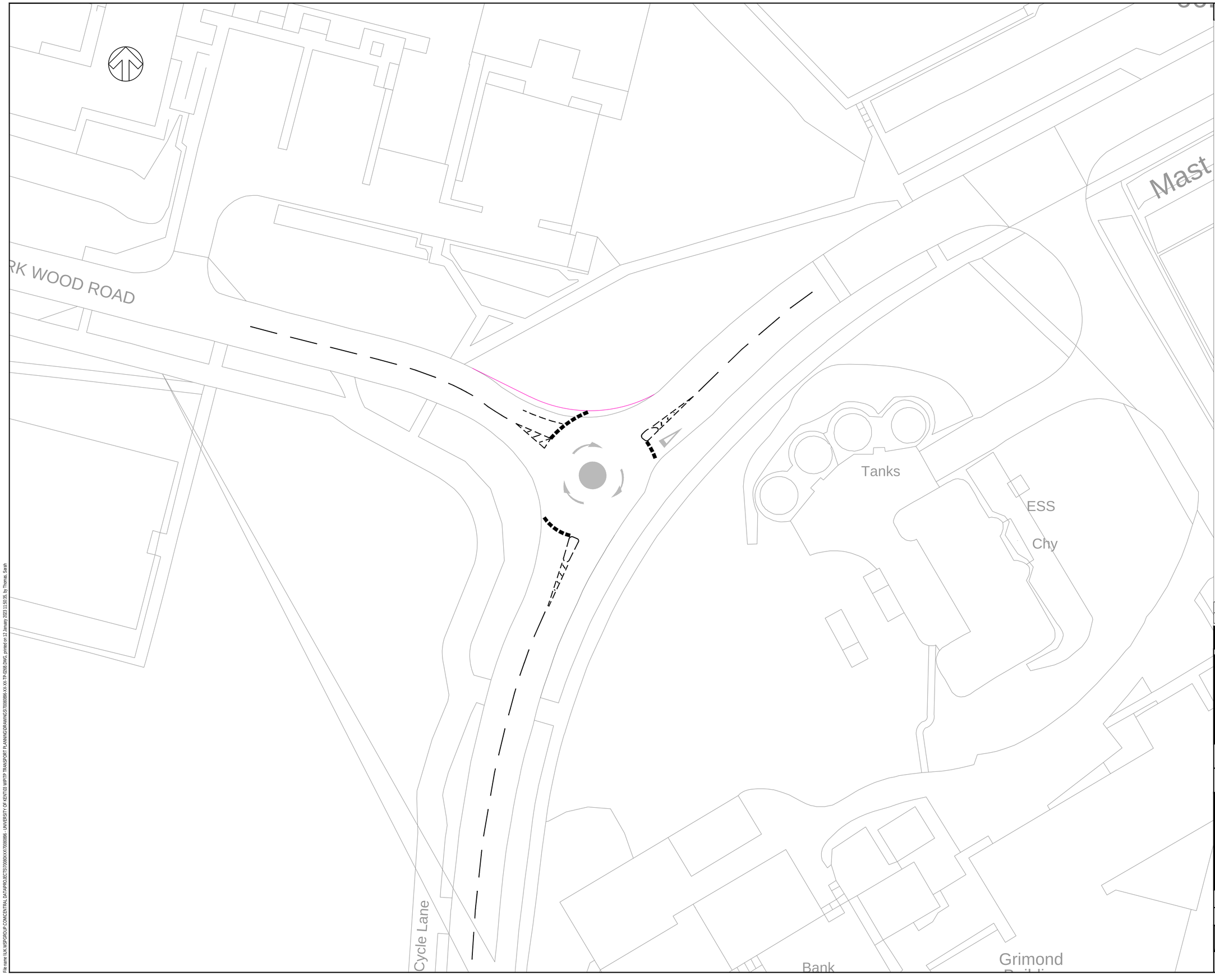
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70080896	CHW	CHW	December 22

DRAWING No: 70080896-XX-XX-TP-025 REV: P01

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KEY

Proposed Kerb Line

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P01	11/01/2023	ST	FIRST ISSUE	DD	JS

DRAWING STATUS: S0 - WORK IN PROGRESS

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CLIENT: UNIVERSITY OF KENT

ARCHITECT: PRP

SITE/PROJECT: UNIVERSITY OF KENT, CANTERBURY

TITLE: PRELIMINARY TRANSPORT APPRAISAL
J9 GILES LANE / PARK WOOD ROAD MITIGATION

SCALE @ A1:	CHECKED:		APPROVED:
1:250	DD		JS
PROJECT NO:	DESIGNED: ST	DRAWN: ST	DATE: January 23

DRAWING No: 70080896-XX-XX-TP-026 REV: P01

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Appendix E

Rough Common Road Study

Public

TECHNICAL NOTE 1

DATE:	30 December 2022	**CONFIDENTIALITY:**	Public
SUBJECT:	University of Kent - Rough Common Road		
PROJECT:	70080896	**AUTHOR:**	Callum Duce
CHECKED:	David Dixon	**APPROVED:**	Justin Sherlock

INTRODUCTION

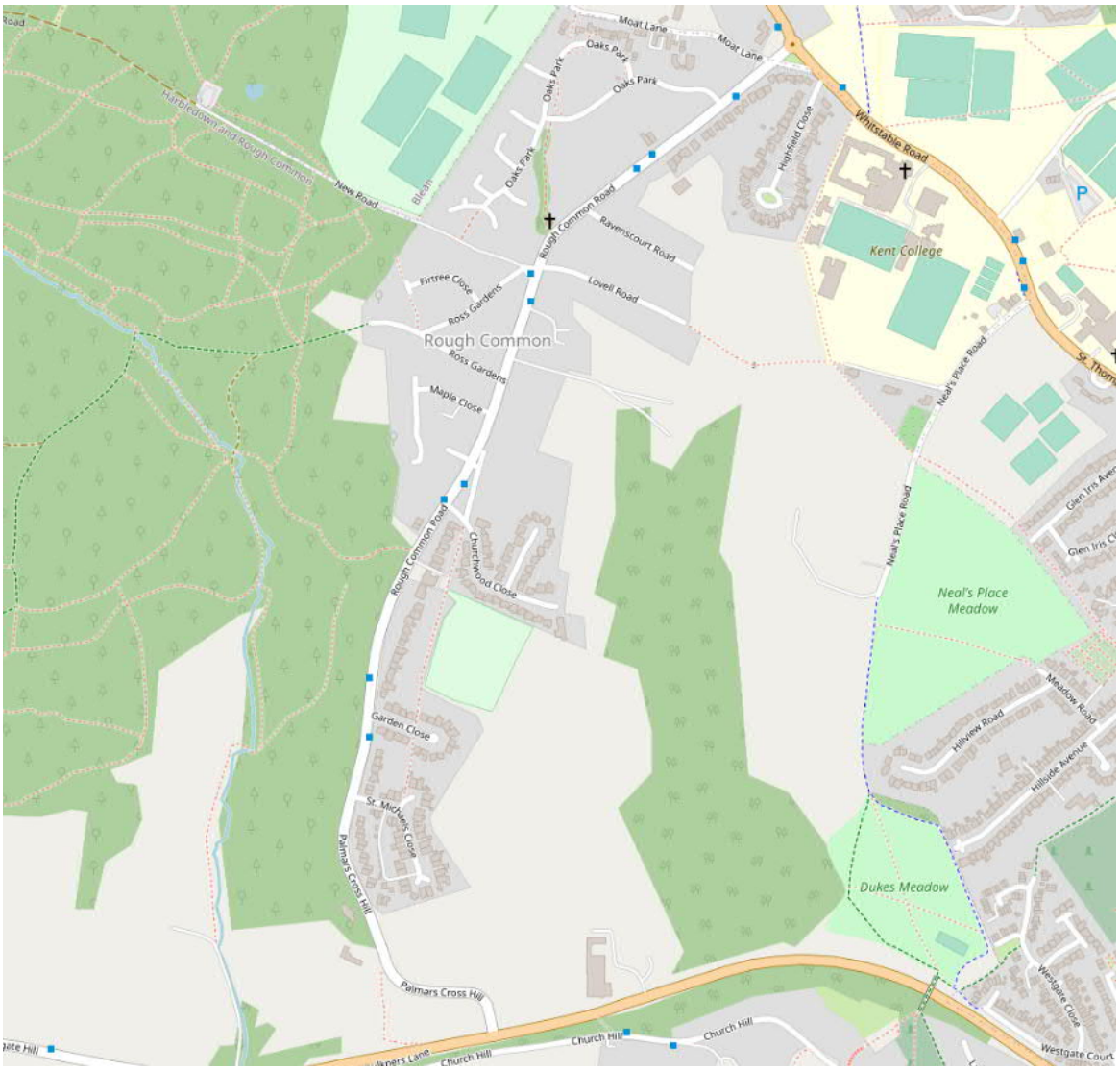
WSP have been commissioned by the University of Kent (UoK) to provide transport and environmental advice for the development of proposals at various sites in and around their Canterbury Campus. As part of discussions regarding Sites BCD Kent County Council (KCC) as highway authority requested that a study be undertaken to review the ability of Rough Common Road to accommodate additional traffic in the future associated with Canterbury City Council's Local Plan and more specifically the Proposed Development known as Sites BCD on land owned by the UoK.

More specifically the purpose of the study was to:

- Understand existing conditions on Rough Common Road in relation to traffic flow, public transport provision, accidents, and parking
- Identify through use of a parking survey the current on-street parking arrangements and their usage during the weekday peak periods to determine if parking would constrain future traffic growth
- Identify through a site visit any geometric constraints that would affect the ability of Rough Common Road to accommodate additional traffic; and
- Make recommendations for improvements to Rough Common Road that could be considered to accommodate future traffic growth along this link.

Study Area

Figure 1: Study Area

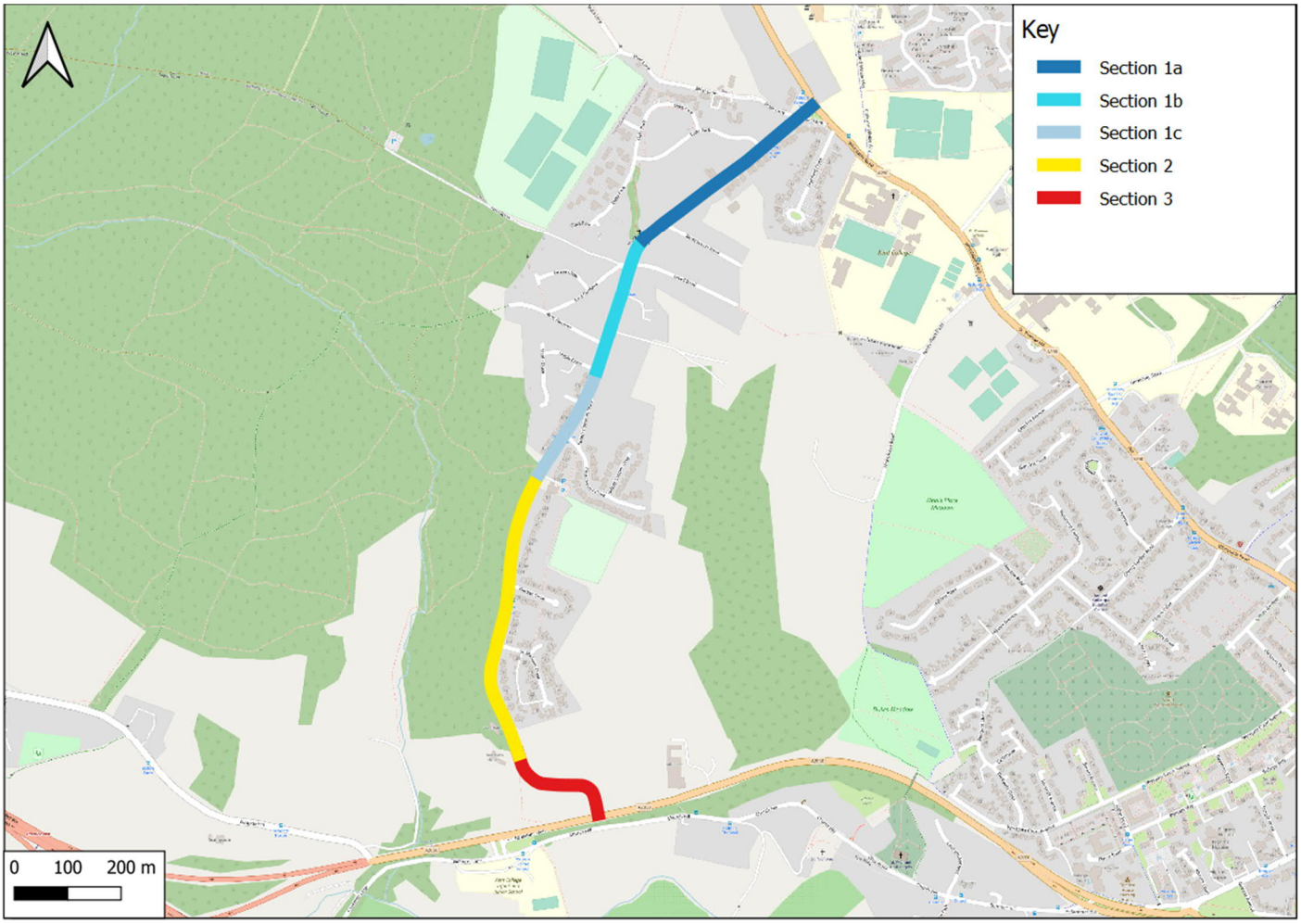


Rough Common Road (Figure 1) is a two-way single carriageway road with one lane running in each direction that spans 1.65km, connecting the A2050 in the south and the A290 Whitstable Road to the north. The road is street lit and for the majority of its length is subject to a 30mph speed limit. The road can be split broadly into three main character areas:

- Section 1 – between Whitstable Road and Rough Common Village Hall where the road passes through the built-up area of Rough Common
- Section 2 – between the Village Hall and the speed limit change where the road only features frontage access on the eastern side
- Section 3 – the southern end of the road on the approach to the traffic signal junction with A2050.

These sections are shown spatially on Figure 2.

Figure 2: Rough Common Road Subsections



Section 1

Section 1 can be broadly sub-divided into three sub-sections. Section 1a runs between the mini-roundabout junction with Whitstable Road and St Gabriel's Church. In Section 1a Rough Common Road features a carriageway which varies in width between approximately 6m and 6.5m. Footways of approximately 1.8m width line both sides of the carriageway with verges separating the carriageway and footways (Figure 3).

This Section of road is characterised by properties which feature their own driveways. As such, limited evidence of on-street parking is present. Two inset parking bays have been provided along this Section with capacity for approximately two vehicles each (Figure 4). Signage instructs motorists not to park on the verge (Figure 5).

Figure 3: Section 1a of Rough Common Road



Figure 4: Inset Parking Bays



Figure 5: Parking Restriction



Section 1b runs between St Gabriel's Church and Maple Close. This section features a carriageway width of approximately 6.2m. Footways (which vary in width) line both sides of the carriageway but there is no verge separating the two making it feel noticeably narrower than Section 1a. An inset parking bay (Figure 6) is provided with capacity for approximately four vehicles near the access to Maple House, an assisted living unit. Around Rough Common Stores some properties do not feature off-street parking and as such some parking, which cannot be accomodated within the inset parking bay provided, is located on carriageway (Figure 7). This parking reduces the carriageway to a single lane and acts as an informal priority working system.

Figure 6: Inset Parking Bay



Figure 7: Parking on-street



Section 1c runs betweeen Maple Close and the Rough Common Village Hall. This sub-section features a carriageway width of approximately 6.3m. An inset parking bay is provided outside of properties 95-101 (Figure 8). A separate unpaved service road then feeds properties behind a small green area adjacent to the junction with Church Wood Close.

Figure 8: Inset parking bay



Section 2

In this Section Rough Common Road features a carriageway width of between 7.8-6.8m. A footway of approximately 1.6m width is provided on the eastern side of the carriageway only which is located adjacent to the carriageway (i.e. there is no verge) (Figure 9). To the west is the Blean Woods SPA. A bus stop is located on the western side of the carriageway.

Figure 9: Properties on one side on the carriageway



Section 3

Unlike the remaining sections of Rough Common Road this section features a 50mph speed limit. The road is noticably wider than the other sections at approximately 7.8m width. However, the steep gradient and tight geometry as the road descends towards the A2050 means that veicle speeds are constrained (Figure 10).

This section features a verge and footway on the eastern side of the carriageway only and is characterised by a more rural feel.

Figure 10: Section C



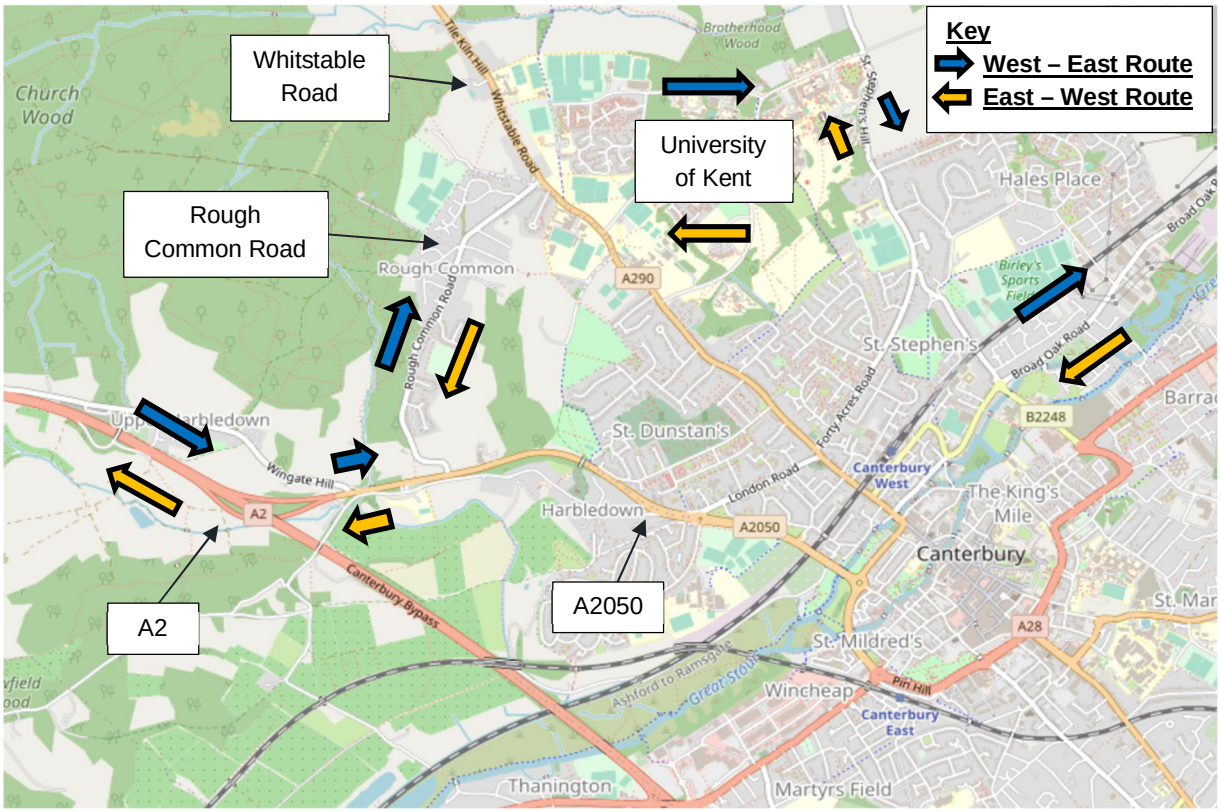
Current Usage of Rough Common Road

Function

The road is mostly located within the residential area of Rough Common, however it serves as a vital transport link for Canterbury, facilitating traffic movements between the A2 to the west of Canterbury, the University and northern Canterbury to the north. Due to the historic nature of Canterbury City Centre and limited routes available to motorists, traffic travelling to the east of Canterbury also uses Rough Common Road to avoid congestion in the City Centre.

A study undertaken by the University in 2018 identified that on the University Campus (which lies immediately to the east of the study area) 17% of traffic in the AM peak period (07:30-09:30) and 43% of traffic in the PM peak period (16:30-19:30) was through traffic. Whilst this does not confirm what proportion of traffic is then using Rough Common Road, because of the limited number of routes for traffic travelling between the A2 and A28 to the east of Canterbury it seems likely that Rough Common Road acts as part of an alternative east-west cross-city route (Figure 11).

Figure 11: Rough Common Road Local Context



Traffic Volumes

Table 1 shows traffic flows for Rough Common Road as identified from the traffic surveys undertaken in 2021. It then provides an estimate of the traffic flows for the peak hours for the 2045 future forecast year including the traffic associated with Sites BCD as identified in the Preliminary Transport Appraisal.

Table 1: 2021 and 2045 Base + Development Flows along Rough Common RoadYear	Time Period	Northbound		Southbound		Two-way	
		All traffic	% HGV	All traffic	% HGV	All traffic	% HGV
2021	AM Peak	599	1	437	2	1036	1
	PM Peak	401	0	416	1	817	0
	Daily	4864	1	4149	1	9013	1
2045 + Development	AM Peak	840	1	821	1	1661	1
	PM Peak	818	0	612	1	1430	0
	Daily	-	-	-	-	-	-

To identify the capacity of this link road, TA79/99 – Capacity of Urban Roads has been considered. It should be noted that TA79/99 has now been withdrawn, however it has been used in this study as a means to identify at a high level the capacity of the Rough Common Road.

Table 2: TA79/99 Capacities of Urban Road

		Two-way Single Carriageway- Busiest direction flow (Assumes a 60/40 directional split)									Dual Carriageway			
		Total number of Lanes									Number of Lanes in each direction			
		2				2-3	3	3-4	4	4+	2		3	4
Carriageway width		6.1m	6.75m	7.3m	9.0m	10.0m	12.3m	13.5m	14.6m	18.0m	6.75m	7.3m	11.0m	14.6m
Road type	UM	Not applicable										4000	5600	7200
	UAP1	1020	1320	1590	1860	2010	2550	2800	3050	3300	3350	3600	5200	*
	UAP2	1020	1260	1470	1550	1650	1700	1900	2100	2700	2950	3200	4800	*
	UAP3	900	1110	1300	1530	1620	*	*	*	*	2300	2600	3300	*
	UAP4	750	900	1140	1320	1410	*	*	*	*	*	*	*	*

Table 2 shows the capacities of urban roads based on carriageway width. The carriageway width along the Rough Common Road Study Area is between 6.1m – 6.75m and is considered to be classed as "UAP3" being a "variable standard road carrying mixed traffic with frontage access and more than two side roads per km". These factors give the road a capacity of between 900-1110 vehicles in the busiest direction during a peak period which is greater than that predicted for 2045. Based upon TA79/99 Rough Common Road is identified as operating within capacity in both the existing and future forecast years including Sites BCD.

Public Transport

Rough Common Road is served by a number of bus routes that provide connections to a variety of destinations. All of the routes that operate along the whole road's length are school bus services, notably the 903, 904, 905 and 906 services between Herne Bay and a number of Canterbury schools including St Anselm's School, Simon Langton Boys' School, Barton Court School and Simon Langton Girl's School respectfully. The 913 service to and from Yorkletts serves a number of schools within Canterbury including St Anselm's School, Simon Langton Boys' School and Simon Langton Girl's School.

Further afield buses serving the general public can be accessed at the Rough Common Turn bus stop located on Whitstable Road to the north of the study area.

Table 3 shows the services that are available.

Table 3: Bus Services

Service	Route	Weekday Frequency (buses/hr)	
		AM Peak (08-00-0900)	PM Peak (1700-1800)
4	Canterbury - Greenhill	2	2
4	Greenhill - Canterbury	1	1
903, 904, 905, 906	Herne Bay – Canterbury Schools	One service in the morning	
903, 904, 905, 906	Canterbury Schools – Herne Bay	One service in the afternoon	
913	Yorkletts – Canterbury Schools	One service in the morning	
913	Canterbury Schools - Yorkletts	One service in the morning	
Triangle	Canterbury – Whitstable – Herne Bay	3	3
Triangle	Herne Bay – Whitstable - Canterbury	3	3

Accident Record

A review of the Crashmap database was undertaken to understand whether there was an existing pattern of collisions that could be exacerbated by future increases in traffic volume along Rough Common Road.

Data provided by CrashMap reveals that only 6 collisions occurred within the study area across a 3-year period between 2019 and 2021, with 5 being slight and 1 incident being serious. The serious incident occurred at the A290 Whitstable Road/Rough Common Road roundabout in October 2019. There does not seem to be any noticeable trend that is impacted by the parked vehicles along this corridor. The accident locations are set out in Figures 12-14 below.

Figure 12: Whitstable Road/Rough Common Road Roundabout CrashMap data

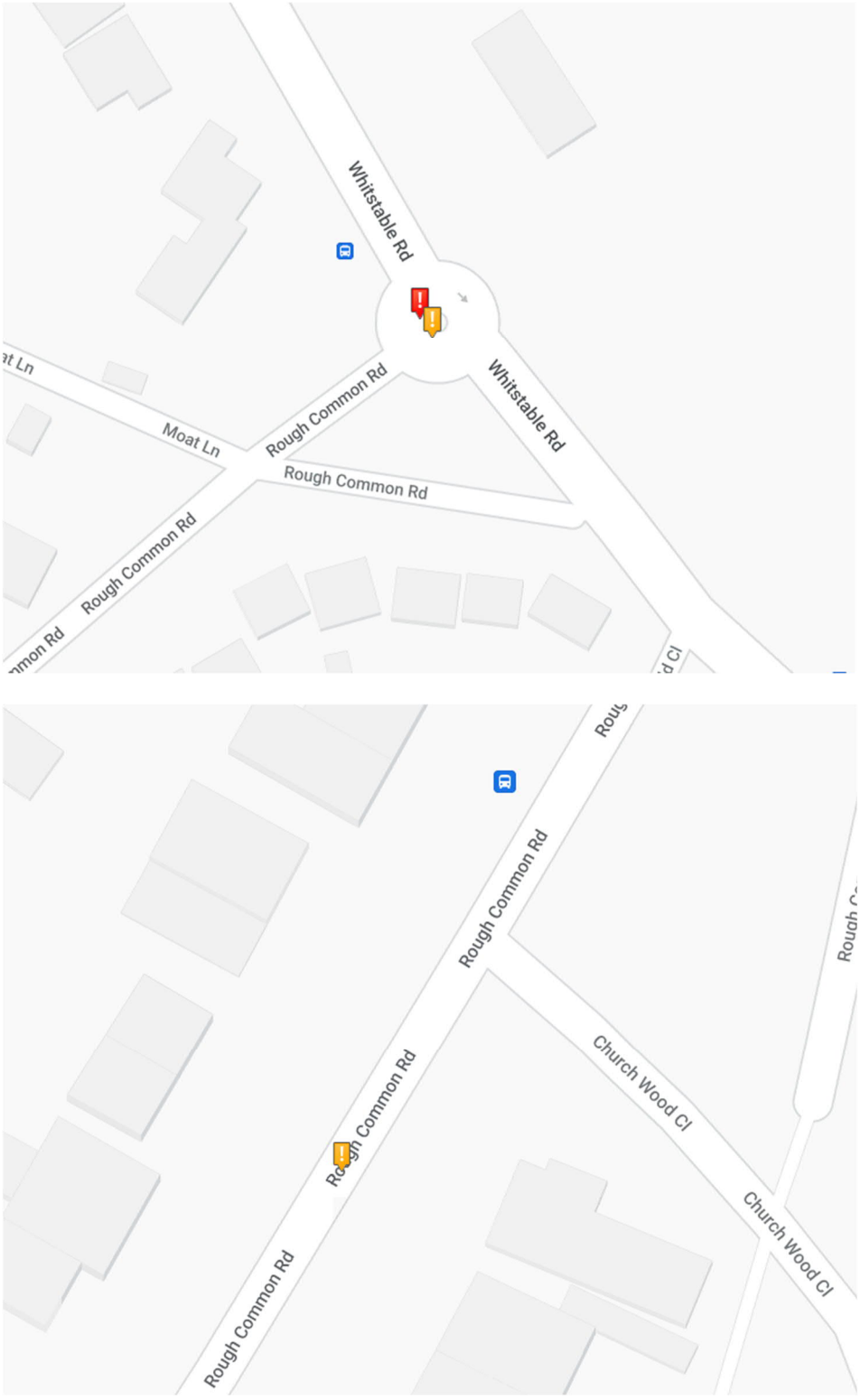


Figure 13: Rough Common Road CrashMap Data

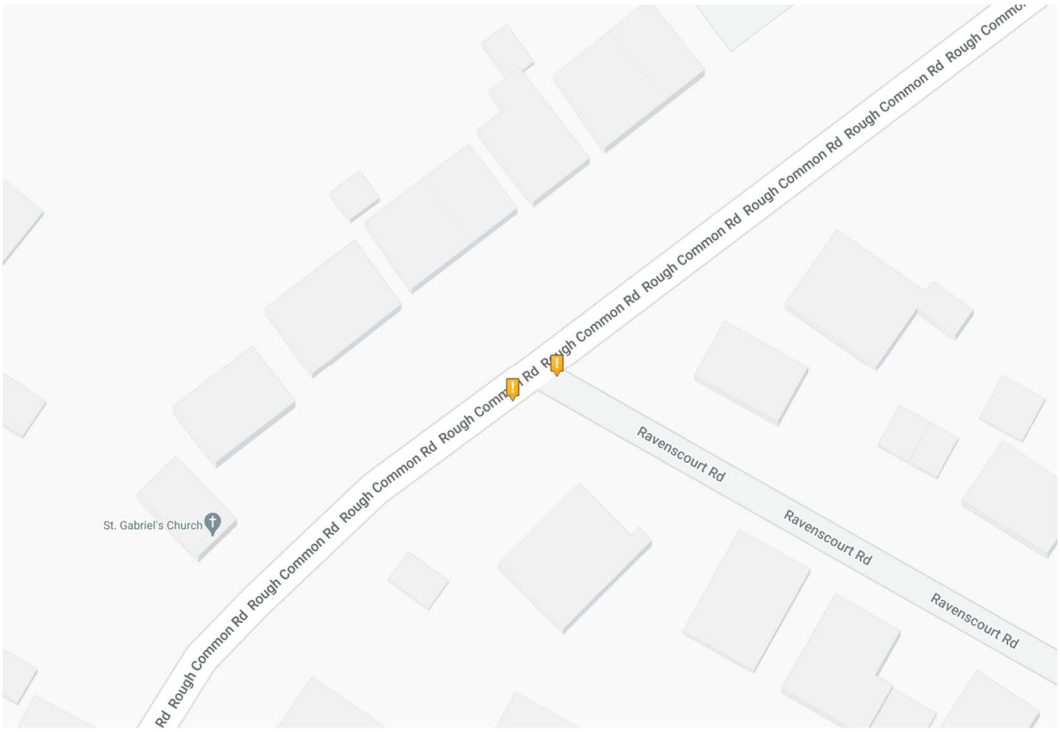
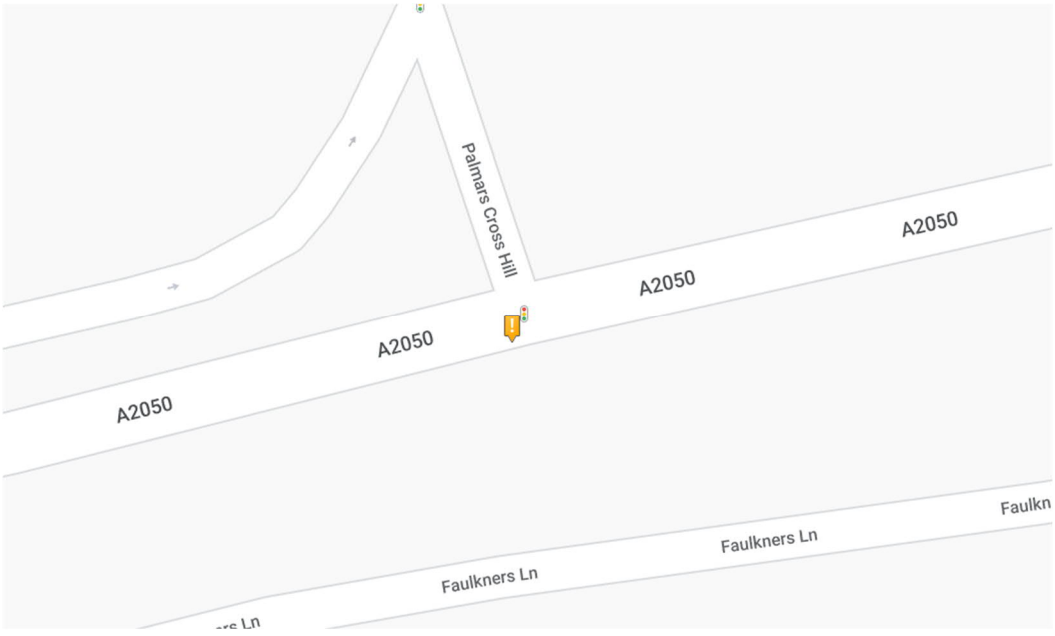


Figure 14: A2050/Palmars Cross Hill Junction CrashMap data



Parking Survey

A parking survey was undertaken on Wednesday 6th July and Thursday 7th July 2022. The following time periods were surveyed:

- 07:00-10:00 on Wednesday 6th July 2022
- 07:00-10:00 on Thursday 7th July 2022
- 16:00-19:00 on Thursday 7th July 2022

During these time periods the quantum, type and length of stay of parked vehicles was noted using a 30-minute parking beat survey.

Full parking survey results are shown in **Appendix A** split down by 30 minute time period. A summary of the results are provided by survey period below.

Wednesday 6th July 2022 – 07:00-10:00

- Section 1a – vehicles were noted parking within the designated inset parking bays. One vehicle was parked on the carriageway for one of the parking best surveys (08:00) only
- Section 1b – five vehicles were parked in the lay-by adjacent to the access to Maple House throughout the parking survey. Two vehicles were also noted parked on carriageway outside of property 81 at the start of the survey. This increased to three vehicles at 08:00 and decreased to one by 09:00.
- Section 1c – three vehicles were noted parked in the layby outside property 97. One vehicle was noted parked outside of property 100 on carriageway between 07:00-09:00.
- Section 2 – a vehicle was noted parked on carriageway outside of property 159b between 07:00-09:00.
- Section 3 – no vehicles were noted parked in this section

Thursday 7th July 2022 – 07:00-10:00

- Section 1a – vehicles were noted parking within the designated inset parking bays only.
- Section 1b – between three and four vehicles were noted to be parked in the layby adjacent to the access to Maple House throughout the parking survey. A vehicle was noted to be parked on carriageway outside of property 81 at the start of the survey. This steadily increased to up to five vehicles parked between property 81 and Maple Close by 10:00.
- Section 1c – between one and three vehicles were parked in the lay-by outside of property 97.
- Section 2 – a vehicle was noted parked on carriageway outside of property 159b throughout the survey. A vehicle was noted parking on carriageway outside of property 169 between 08:00-10:00
- Section 3 – between one and two vehicles were noted parked in the layby near the speed limit threshold throughout the duration of the survey

Thursday 7th July 2022 – 16:00-19:00

- Section 1a – vehicles were noted parking within the designated inset parking bays only.

- Section 1b – between three and four vehicles were noted to be parked in the layby adjacent to the access to Maple House throughout the parking survey. A vehicle was noted to be parked on carriageway outside of property 89 (near Maple Close) throughout the parking survey.
- Section 1c – between zero and two vehicles were parked in the lay-by outside of property 97. A vehicle was also noted parking on carriageway outside of property 102 at 16:30
- Section 2 – a vehicle was noted parked on carriageway outside of property 159b throughout the survey. A vehicle was noted parking on carriageway outside of property 153 between 16:00-17:00
- Section 3 – between one and two vehicles were noted parked in the layby near the speed limit threshold throughout the duration of the survey

Recommendations

The main issues identified as affecting the free flow of traffic on Rough Common Road from the parking survey conducted were;

- Vehicles parked on the eastern side of the carriageway between Ross Gardens and Maple Close where properties generally have no off-street parking facilities
- Vehicles parked in Section 2 of the study area despite appearing to have off-street parking available

It is evident that the parking constraints on Rough Common Road are an existing issue that would need to be considered further by KCC as highway authority, noting the likely increase in traffic even without the University of Kent land promotion site. As such, the most appropriate way forward would be for parking restrictions to be included as part of the wider Canterbury Transport Strategy, and where necessary additional parking for residents and/or parking controls (restricted to peak hours) are introduced. The development at the University of Kent could contribute to this wider strategy.

However, to show how improvements could be delivered to help improve the existing situation, WSP have suggested increases in the existing layby provision that can be undertaken within the existing adopted highway.

Figure 15 and Figure 16 show where laybys could be increased in length to accommodate further spaces.

Figure 15: Maple Close/Rough Common Road parking recommendations



Figure 15 shows the potential for an additional off street parking space being provided north of the existing layby and outside property 93. It is anticipated that a new Keep Clear sign is located between properties 95 and 93 to enable access to the existing driveways.

Figure 16: Section 1b Rough Common Road parking recommendations

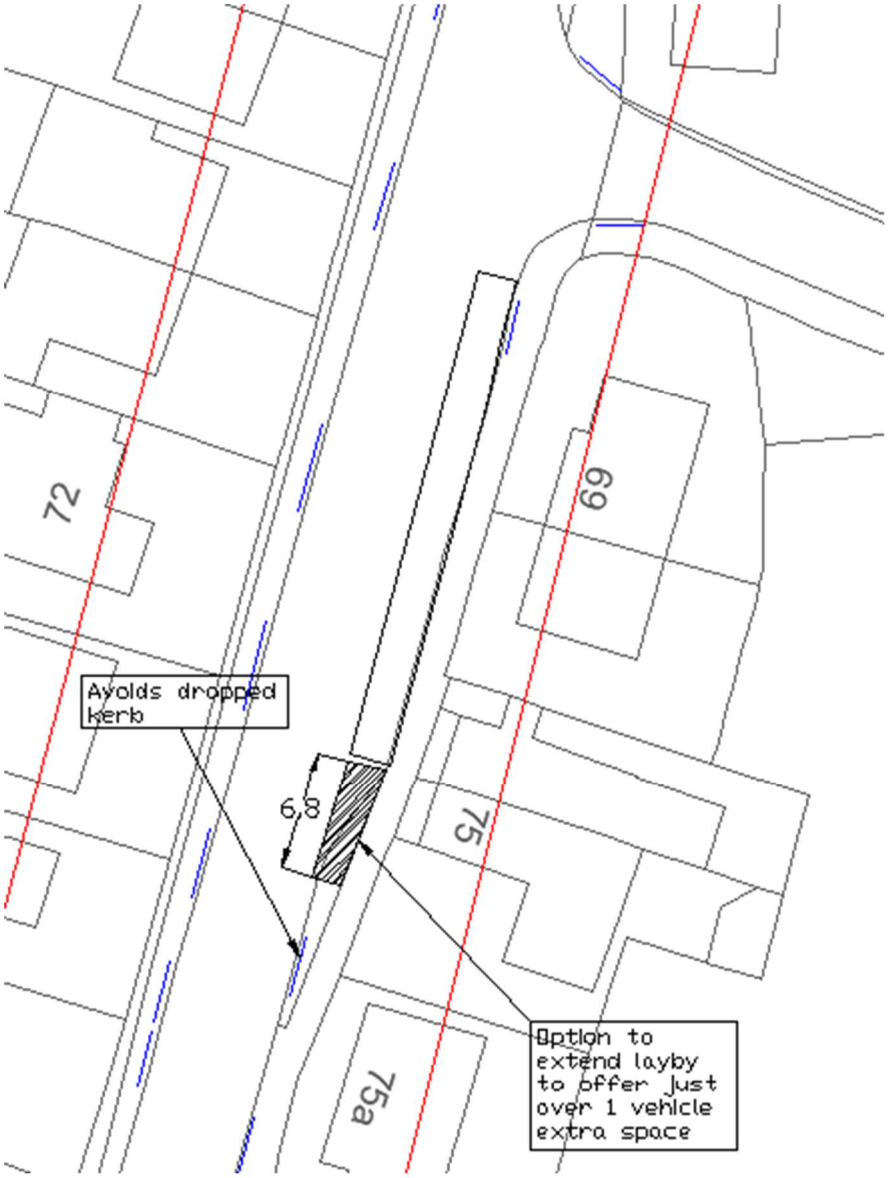


Figure 16 shows the potential for an additional space to be located outside properties 69-75a. The additional space could be delivered by extending the parking bay by circa 6-7m south of the existing boundary. This could accommodate an additional vehicle off street.

The two above schemes would enable 2 additional vehicles to park off street which would significantly improve the situation on this section of Rough Common Road and significantly improve movements along this corridor.

SUMMARY

WSP was commissioned to undertake a study of Rough Common Road to identify potential for improving the free flow of traffic and ensuring it would be suitable for increased traffic volumes associated with local plan growth and more specifically Sites BCD.

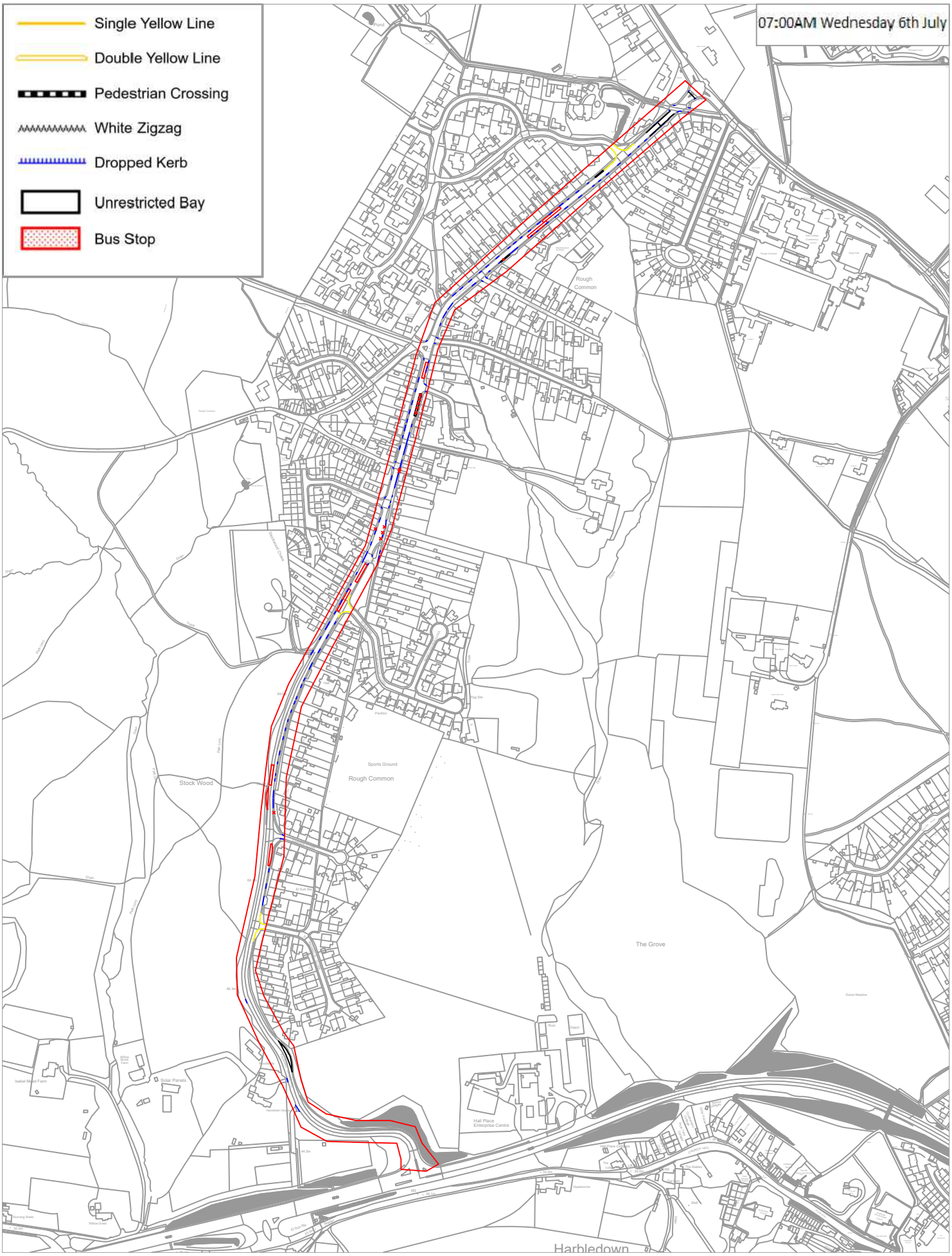
A review of the existing condition of Rough Common Road identified that it is currently suitable for the volume and type of traffic that it carries with no specific accident record identified. Having reviewed the future year flows within Table 1, the 2045 + increase in traffic is still well below link capacity of Rough Common Road therefore there are no constraints associated with the development.

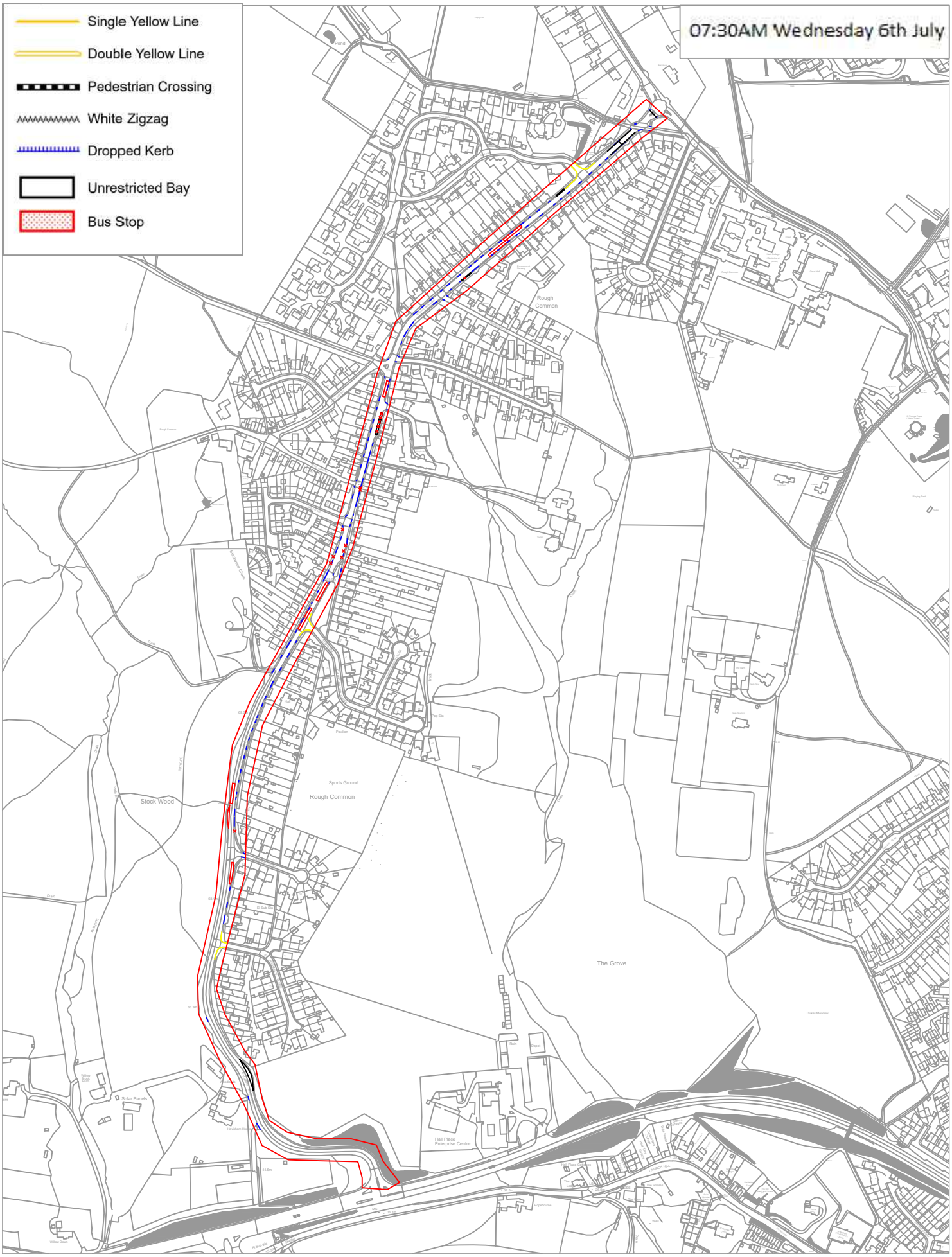
The parking survey indicates that the free flow of traffic is restricted during peak periods by on-street parking that occurs in section 1b and 2. To address this, proposals have been put forward that could increase the off street provision by 2 parking spaces which would improve throughput in this location (subject to KCC consideration). This could be coupled with the introduction of peak period parking restrictions to safeguard the free flow of traffic, reducing the current constraints during the peak periods.

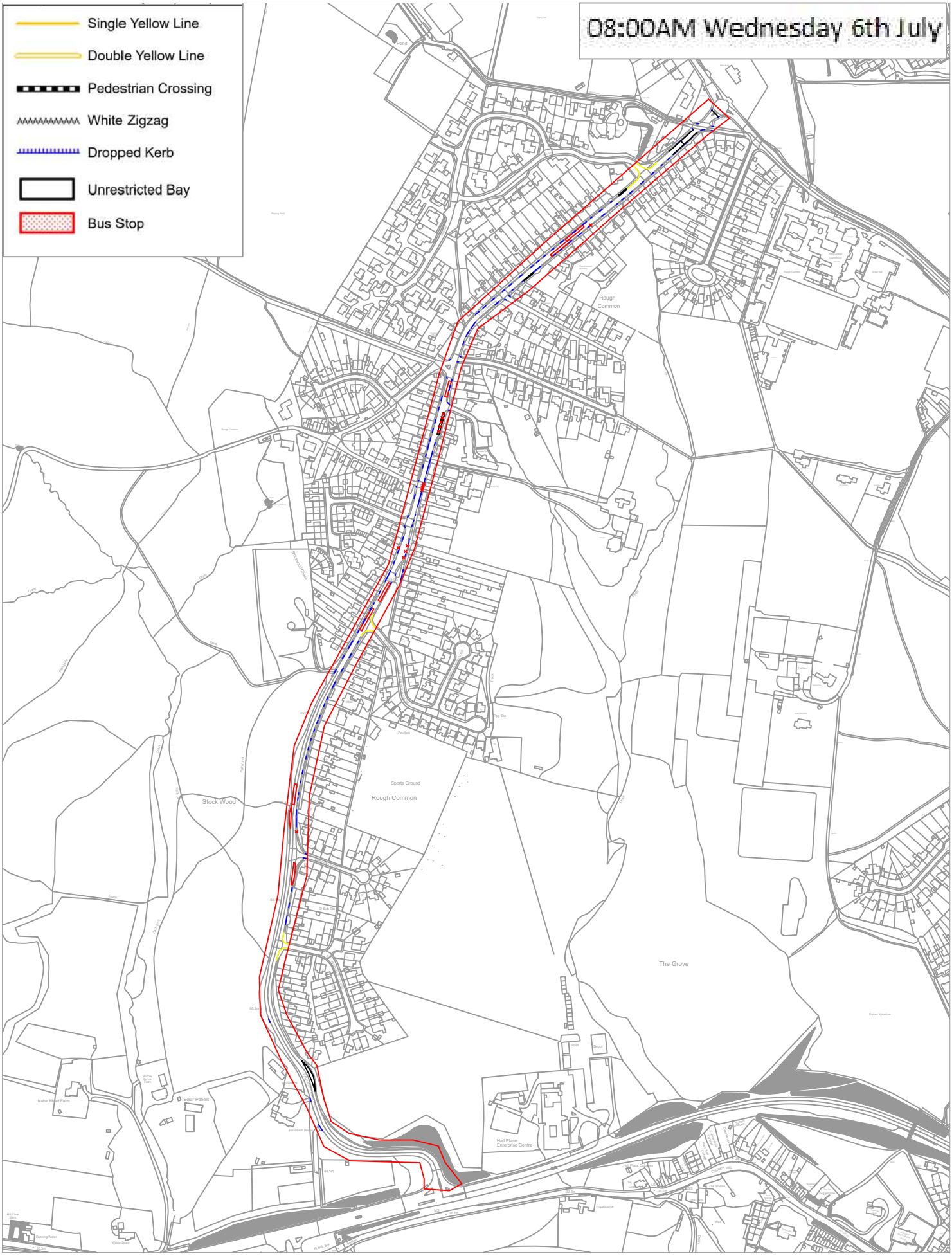
Notwithstanding the above, the parking on Rough Common Road is an existing constraint and an issue that would need to be considered further by KCC without the UoK allocation with increases in vehicle movements expected in the future due to the wider growth in the town. As such, it is suggested that improvements along this corridor are considered as part of the wider Canterbury Transport Strategy, whereby more significant improvements could be considered by KCC (including the provision of more off street parking using land outside of the adopted highway) and where appropriate the Proposed UoK allocation could contribute too.

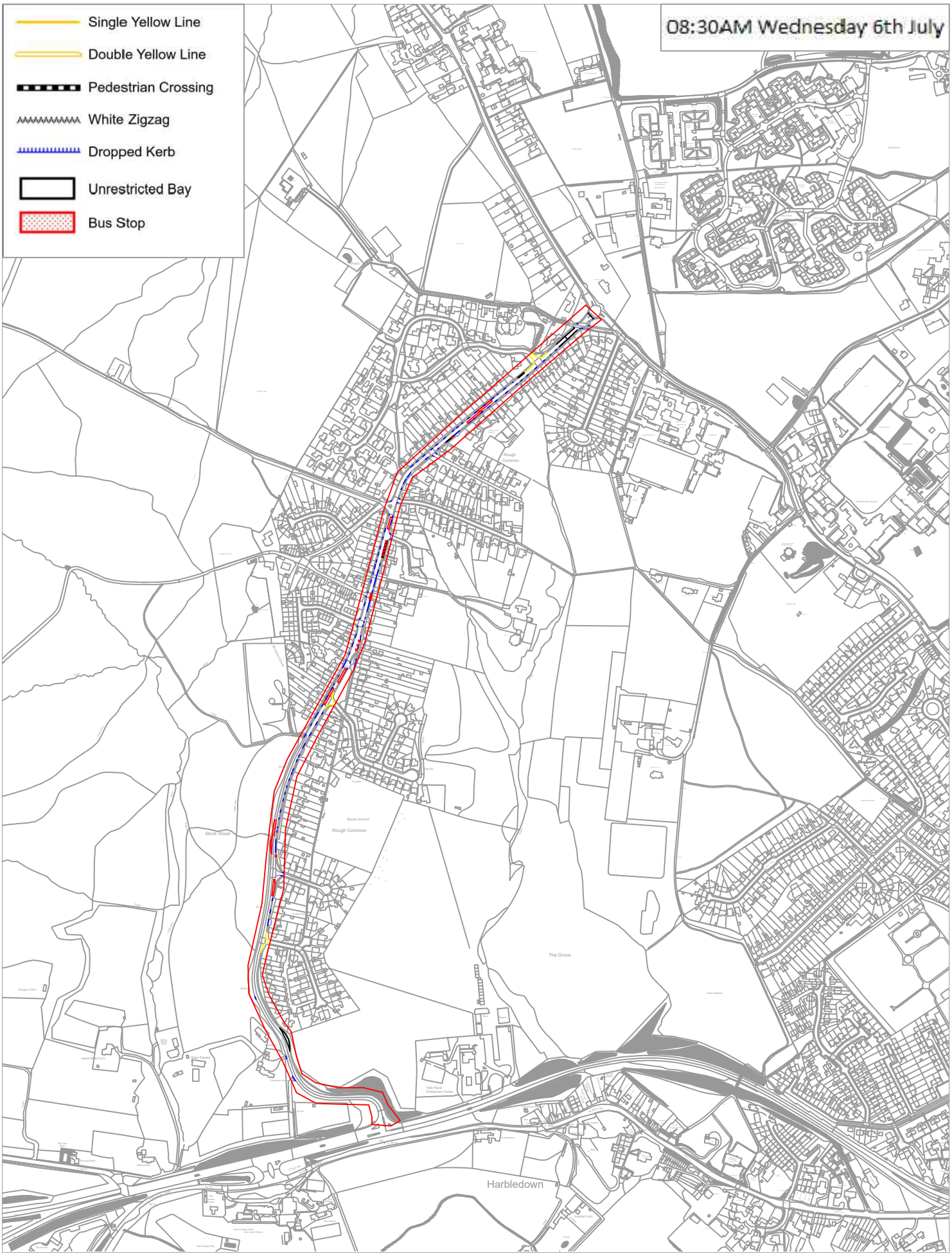
The review has shown that the existing road can accommodate the future forecast traffic flows and improvements to the existing parking constraints can be forthcoming, and that subject to continued review with KCC, a wider mitigation package for this corridor should be pursued.

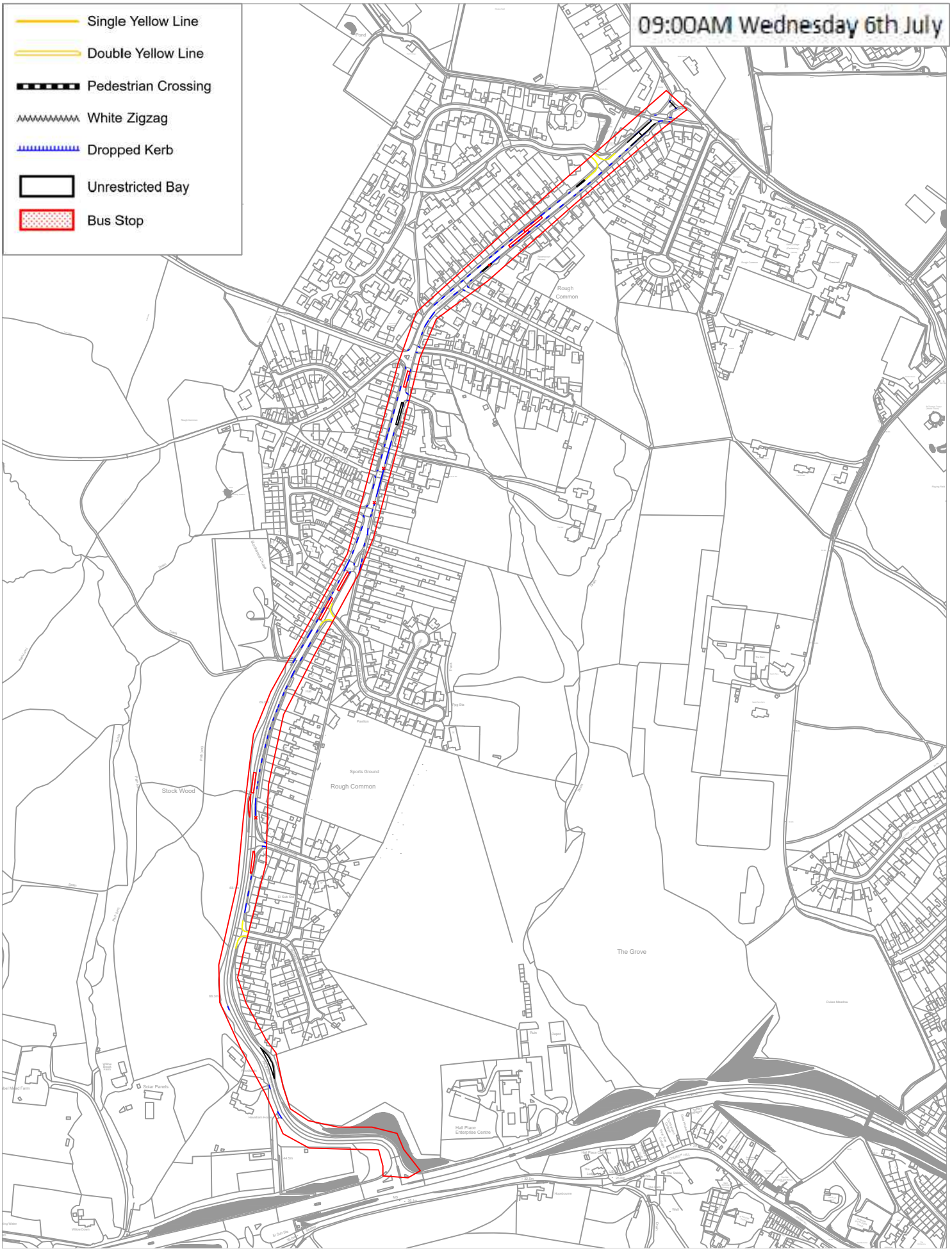
Appendix A

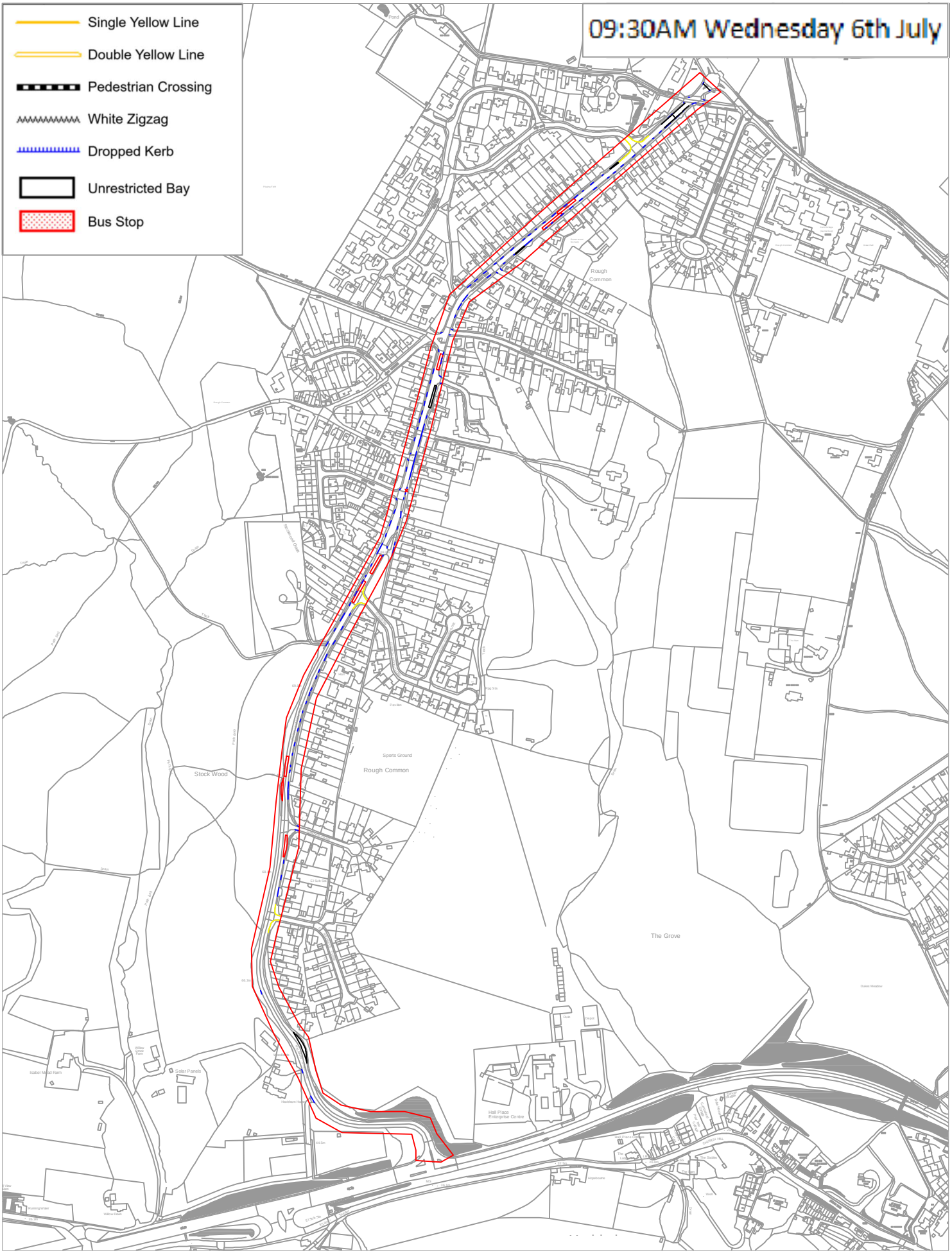

Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop
07:00AM Wednesday 6th July
Rough Common
Sports Ground
Stock Wood
The Grove
Hall Place Enterprise Centre
Harbledown

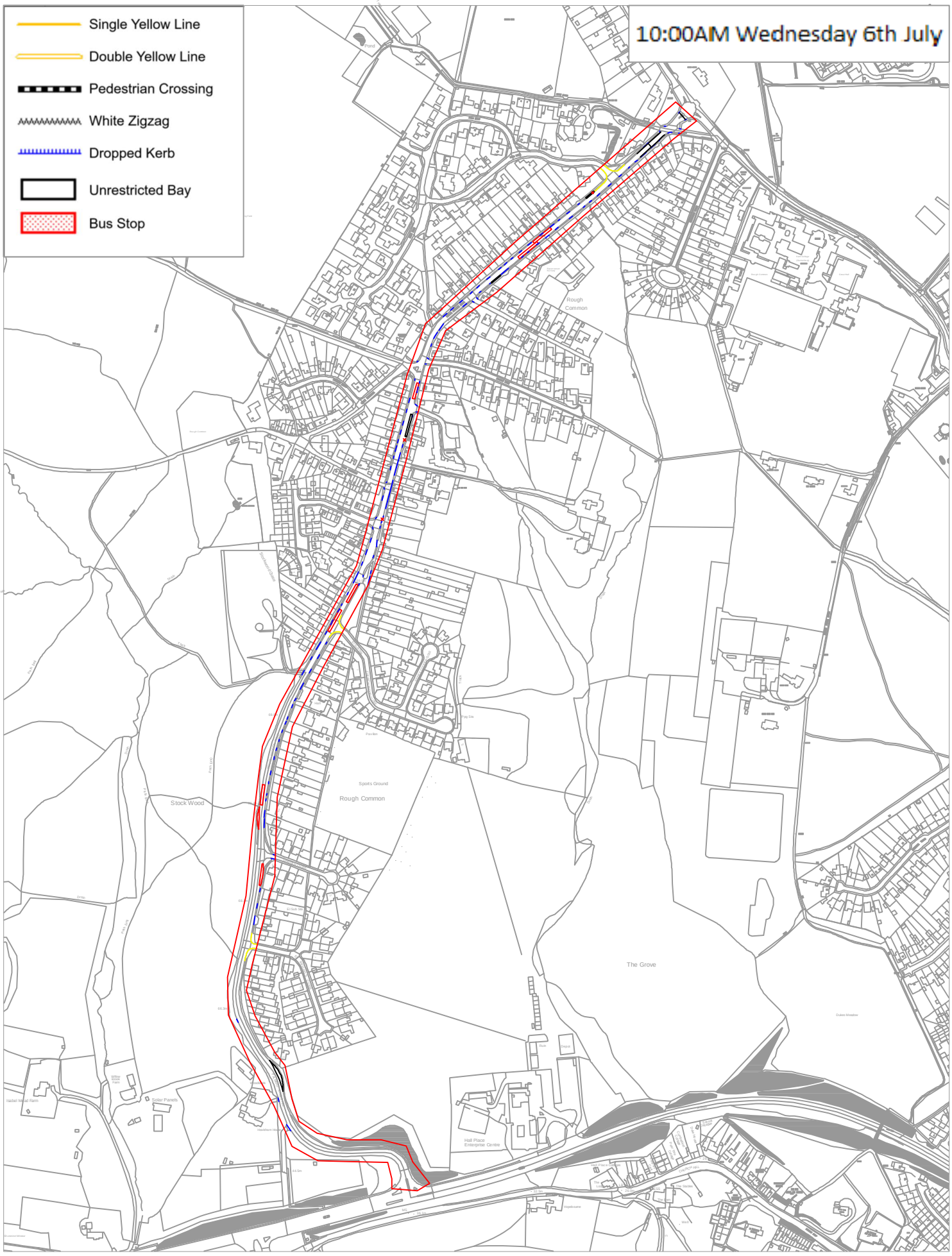

Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop
07:30AM Wednesday 6th July
Rough Common
Sports Ground
Rough Common
Stock Wood
The Grove
Hall Place Enterprise Centre
Solar Panels


Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop
08:00AM Wednesday 6th July
Rough Common
Sports Ground
Rough Common
Stock Wood
The Grove
Hall Place Enterprise Centre
Solar Panels


Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop
08:30AM Wednesday 6th July
Rough Common
Stock Wood
The Grove
Harbledown


Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop
09:00AM Wednesday 6th July
Rough Common
Sports Ground
Rough Common
Stock Wood
The Grove
Hall Place Enterprise Centre
Solar Panels


Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop
09:30AM Wednesday 6th July
Rough Common
Sports Ground
Rough Common
Stock Wood
The Grove
Hall Place Enterprise Centre
Solar Panels


Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop
10:00AM Wednesday 6th July
Rough Common
Stock Wood
Sports Ground
The Grove
Hall Place Enterprise Centre
Solar Panels

32197 Rough Common Road, Canterbury, CT2 9BS
Parking Beat
0700
Thursday 7th July 2022

Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop

N

Stock Wood
Hall
Pavilion
El Sub Sta
The Grove
Isabel Mead Farm
Ruin
Depot
Hall Place
Enterprise Centre
Hall Place Cottage
MS

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32197 Rough Common Road, Canterbury, CT2 9BS
Parking Beat
0730
Thursday 7th July 2022

- Single Yellow Line
- Double Yellow Line
- Pedestrian Crossing
- White Zigzag
- Dropped Kerb
- Unrestricted Bay
- Bus Stop

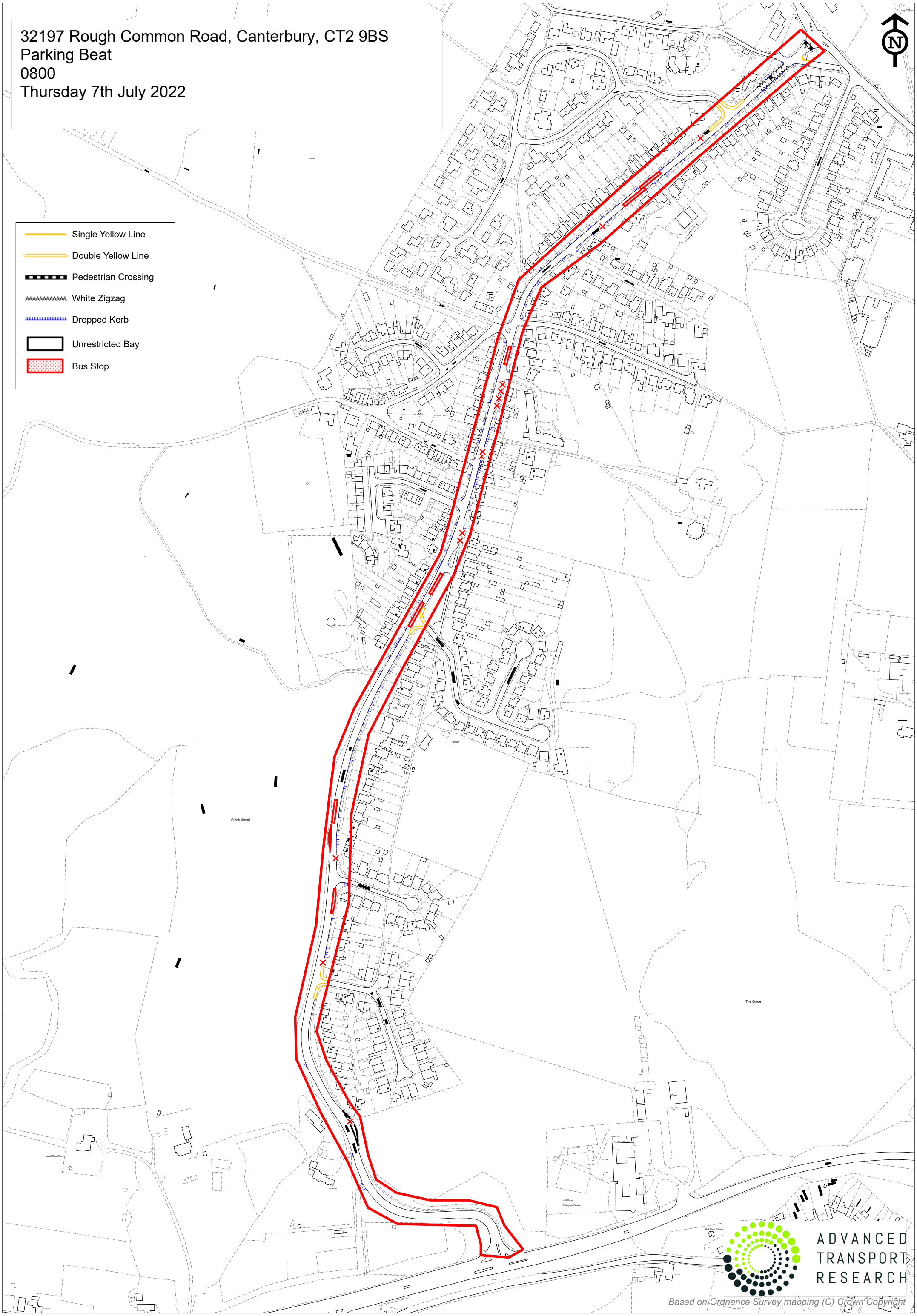
N

Stock Wood
Hall
Pavilion
El Sub Sta
The Grove
Ruin
Depot
Isabel Mead Farm
Hall Place Enterprise Centre
Hall Place Cottage
MS

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32197 Rough Common Road, Canterbury, CT2 9BS
Parking Beat
0800
Thursday 7th July 2022



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32197 Rough Common Road, Canterbury, CT2 9BS
Parking Beat
0830
Thursday 7th July 2022

- Single Yellow Line
- Double Yellow Line
- Pedestrian Crossing
- White Zigzag
- Dropped Kerb
- Unrestricted Bay
- Bus Stop

N

Stock Wood
Hall
Pavilion
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MS

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32197 Rough Common Road, Canterbury, CT2 9BS
Parking Beat
0900
Thursday 7th July 2022

Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop

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MS

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32197 Rough Common Road, Canterbury, CT2 9BS
Parking Beat
0930
Thursday 7th July 2022

- Single Yellow Line
- Double Yellow Line
- Pedestrian Crossing
- White Zigzag
- Dropped Kerb
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- Bus Stop

N

Stock Wood
Hall
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32197 Rough Common Road, Canterbury, CT2 9BS
Parking Beat
1000
Thursday 7th July 2022

- Single Yellow Line
- Double Yellow Line
- Pedestrian Crossing
- White Zigzag
- Dropped Kerb
- Unrestricted Bay
- Bus Stop

N

Stock Wood
Hall
Pavilion
El Sub Sta
The Grove
Ruin
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Isabel Mead Farm
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Parking Beat
1600
Thursday 7th July 2022

Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop

N

Stock Wood
Hall
Pavilion
El Sub Sta
The Grove
Isabel Mead Farm
Ruin
Depot
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32197 Rough Common Road, Canterbury, CT2 9BS
Parking Beat
1630
Thursday 7th July 2022

Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop

N

Stock Wood
Hall
Pavilion
El Sub Sta
The Grove
Ruin
Depot
Isabel Mead Farm
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Enterprise Centre
Hall Place Cottage
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32197 Rough Common Road, Canterbury, CT2 9BS
Parking Beat
1700
Thursday 7th July 2022

Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop

N

Stock Wood
Hall
Pavilion
El Sub Sta
The Grove
Ruin
Depot
Isabel Mead Farm
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Enterprise Centre
Hall Place Cottage
MS

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32197 Rough Common Road, Canterbury, CT2 9BS
Parking Beat
1730
Thursday 7th July 2022

Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop

N

Stock Wood
Hall
Pavilion
El Sub Sta
The Grove
Ruin
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Parking Beat
1800
Thursday 7th July 2022

Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop

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Stock Wood
Hall
Pavilion
El Sub Sta
The Grove
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Parking Beat
1830
Thursday 7th July 2022

Single Yellow Line
Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop

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Hall
Pavilion
El Sub Sta
The Grove
Isabel Mead Farm
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Depot
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Parking Beat
1900
Thursday 7th July 2022

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Double Yellow Line
Pedestrian Crossing
White Zigzag
Dropped Kerb
Unrestricted Bay
Bus Stop

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Hall
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