

Pembroke Port,
Pembrokeshire



Transport Assessment

Milford Haven
Port Authority

NOVEMBER
2019

Land North of
Boreham Road,
Great Leighs



Transport Appraisal

Bellway Homes Ltd

JANUARY
2016



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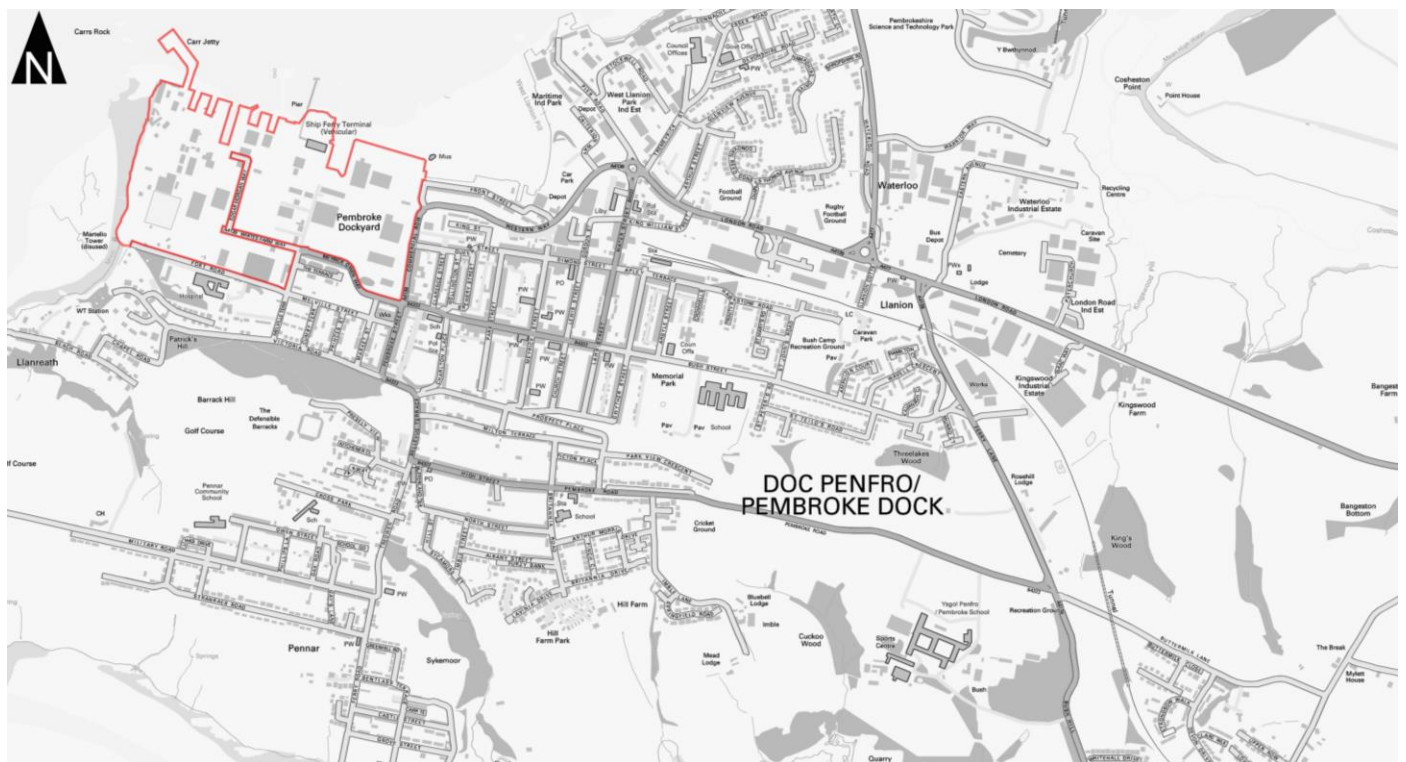
1 Introduction

1.1 Background

1.1.1 Lime Transport has been commissioned by Milford Haven Port Authority (MHPA) to prepare a Transport Assessment for the redevelopment of Pembroke Port, to create a centre for renewable energy.

1.1.2 The proposed development is located within Pembroke Dockyard, Pembroke Dock, approximately 4km northwest of Pembroke Town Centre.

1.1.3 The location of Pembroke Port is identified in **Figure 1.1** below.



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Figure 1.1 Location of Pembroke Port

1.2 Purpose of the report

1.2.1 The purpose of this Transport Assessment is to consider the transport characteristics of the proposed development, the likely impact of the proposals on the surrounding transport network and identify any potential mitigation measures, should any be required.

1.3 Scope of Transport Assessment

1.3.1 The scope of this transport assessment has been based on the guidance within the Department for Transport's 'Transport Evidence Bases in Plan Making and Decision Taking, 2015', as agreed with the Local Highway Authority, and includes:

- Details of public transport, walk and cycle accessibility;
- Estimates of the likely person trip generation (by mode) for the proposed development, based on a review of the TRICS 7.5.4 trip generation database;
- A review of five years' personal injury accident data within the area immediately surrounding the site;
- Estimate the impact of the proposed development for the anticipated years of opening in 10 and 15 years;
- An assessment of the impact of the proposed development at the following junctions:
 - Junction 1: Admiralty Way/Meyrick Owen Way/Whites Farm Way mini-roundabout;
 - Junction 2: Fort Road/ Admiralty Way/ Melville St/ Melville Terrace.
 - Junction 3: Melville Street/Market Street mini-roundabout;
 - Junction 4: Meyrick Owen Way/ Market St; and,
 - Junction 5: Pembroke Street/Melville Street/B4322 mini-roundabout;
 - Junction 6: Gate 1 Access/Front St/Commercial Row/ Western Way;
 - Junction 7: B4322/ Meyrick Owen Way/ A4139/Pier Road roundabout;
 - Junction 8: A4139/ Tesco signalised junction; and,
 - Junction 9: A477/ A4139 / London Road/ Waterloo Road roundabout;
- Identify any mitigation measures where necessary, including a summary of the Travel Plan and Transport Implementation Strategy.

1.4 Structure of the report

1.4.1 Following this introductory section, the report is structured as follows:

- Section 2 sets out the policy context for the development;
- Section 3 describes the existing transport conditions surrounding the site including accessibility by all modes of transport together with a review of personal injury accident data within the study area;
- Section 4 outlines the development proposals;
- Section 5 outlines the proposed on-site car parking provision;
- Section 6 predicts the likely travel demand generated by the proposed development and the existing use on site;
- Section 7 assesses the impact of the proposed development on the surrounding highway network and highlights mitigation measure where required, including the development of a site wide travel plan;

- Section 8 outlines the Transportation Implementation Strategy; and;
- Section 9 summarises the findings of the report.

2 Policy context

2.1 Introduction

2.1.1 This section of the report reviews the relevant national, regional and local planning policies relating to transport, and includes:

- The Wales Spatial Plan – People, Places and Future;
- Planning Policy Wales Edition 10 (December 2018);
- One Wales; Connecting the Nation;
- Technical Advice Note (TAN) 18- Transport; and,
- Pembrokeshire County Council Local Development Plan (2013)

2.2 Wales Spatial Plan – People, Places, Futures

2.2.1 The Wales Spatial Plan – People, Places Future (WSP) was originally adopted by the National Assembly for Wales in November 2004, and updated in 2008 to bring the WSP into line with One Wales [see below 2.4] and to give status to the area work which has developed over the previous two years.

2.2.2 In Wales, spatial planning is the consideration of what can and should happen where. It is a principle of the WSP that development should be sustainable. Sustainable development is about improving wellbeing and quality of life by integrating social, economic and environmental objectives in the context of more efficient use of natural resources.

2.2.3 The purpose of the WSP is to ensure that what is done in the public, private and third sectors in Wales is integrated and sustainable, and that actions within an area support each other and jointly move towards a shared vision for Wales and for the different parts of Wales.

Achieving sustainable development

2.2.4 The WSP states that:

‘Citizens must be able to access job opportunities and public services – health, social services, education, etc – if equality of opportunity is to be successfully promoted in Wales. This is a particular concern for those who face barriers to accessibility, such as people on low incomes, young and old people, disabled people and those living in rural areas.’

2.2.5 The WSP also states that:

‘In the context of responding to and mitigating the effects of climate change, the Wales Spatial Plan supports the development of spatially targeted responses. These include reducing the need to travel by co-

locating jobs, housing and services, for instance, and changing behaviour in favour of 'greener' modes of travel, such as car sharing, public transport, walking and cycling.'

2.3 Planning Policy Wales – edition 10

2.3.1 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Assembly Government. It is supplemented by a series of Technical Advice Notes (TANs). Procedural advice is given in circulars and policy clarification letters.

Movement

2.3.2 At paragraph 3.12 PPW states that *'Good design is about avoiding the creation of car-based developments. It contributes to minimising the need to travel and reliance on the car, whilst maximising opportunities for people to make sustainable and healthy travel choices for their daily journeys. Achieving these objectives requires the selection of sites which can be made easily accessible by sustainable modes as well as incorporating appropriate, safe and sustainable links (including active travel networks) within and between developments using legal agreements where appropriate.'*

2.3.3 At paragraph 3.45 PPW states that *'spatial strategies should support the objectives of minimising the need to travel, reducing reliance on the private car and increasing walking, cycling and use of public transport.'*

2.3.4 At paragraph 4.1.1 PPW states that *'the planning system should enable people to access jobs and services through shorter, more efficient and sustainable journeys, by walking, cycling and public transport. By influencing the location, scale, density, mix of uses and design of new development, the planning system can improve choice in transport and secure accessibility in a way which supports sustainable development, increases physical activity, improves health and helps to tackle the causes of climate change and airborne pollution.'*

2.3.5 At paragraph 4.1.3 PPW states that *'Land use and transport planning must be integrated. The planning system must ensure it enables integration:*

- within and between different types of transport;
- between transport measures and land use planning;
- between transport measures and policies to protect and improve the environment; and,
- between transport measures and policies for education, health, social inclusion and wealth creation.'

Sustainable transport

- 2.3.6 At paragraph 4.1.8 PPW states that *'The Welsh Government is committed to reducing reliance on the private car and supporting a modal shift to walking, cycling and public transport. Delivering this objective will make an important contribution to decarbonisation, improving air quality, increasing physical activity, improving the health of the nation and realising the goals of the well-being of Future Generations Act.'*
- 2.3.7 At paragraph 4.1.11 PPW states that *'it is Welsh Government policy to require the use of a sustainable transport hierarchy in relation to new development, which prioritises walking, cycling and public transport ahead of the private motor vehicles. The transport hierarchy recognises that Ultra Low Emission Vehicles also have an important role to play in the decarbonisation of transport, particularly in rural areas with limited public transport services.'*
- 2.3.8 Finally, at paragraph 4.1.12 PPW states that *'The sustainable transport hierarchy (see Figure 2.1 below) should be used to reduce the need to travel, prevent car-dependent developments in unsustainable locations, and support the delivery of schemes located, designed and supported by infrastructure which prioritises access and movement by active and sustainable transport.'*

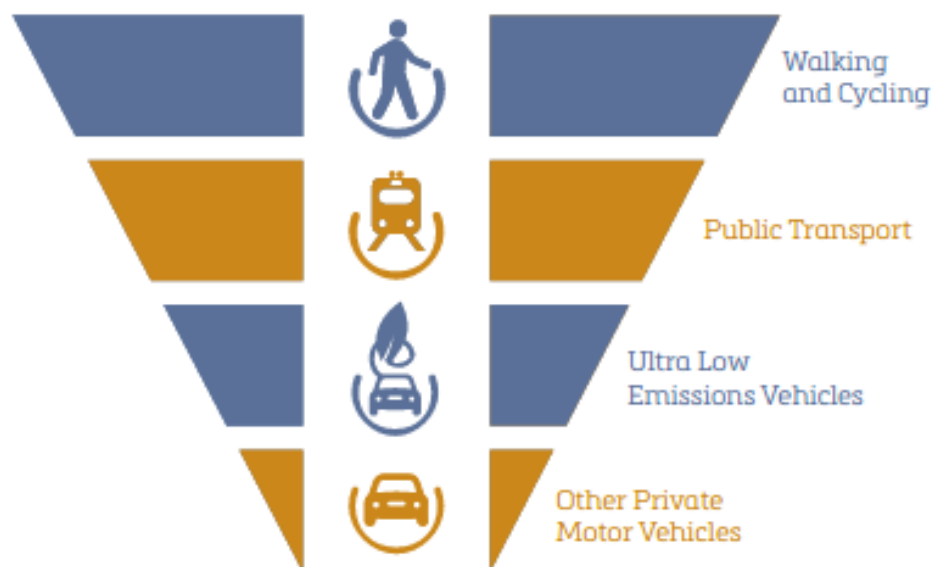


Figure 2.1 The sustainable transport hierarchy for planning (source: PPW10)

Parking

- 2.3.9 As stated in PPW (Edition 10) *'Car parking provision is a major influence on how people choose to travel and the pattern of development. Where and how cars are parked can in turn be a major factor in the quality of a place'*.

- 2.3.10 It is important to recognise that *'a design-led approach to the provision of car parking should be taken, which ensures an appropriate level of car parking is integrated in a way which does not dominate the development'*.
- 2.3.11 PPW highlights that parking provision should take into consideration the site location and access to local facilities, *'Parking provision should be informed by the local context, including public transport accessibility, urban design principles and the objective of reducing reliance on the private car and supporting a modal shift to walking, cycling and public transport'*. PPW encourages that *'Planning authorities must support schemes which keep parking levels down, especially off-street parking, when well designed'*.
- 2.3.12 Local authorities will need to ensure that their parking standards reflect local transport provision *'Parking standards should be applied flexibly and allow for the provision of lower levels of parking and the creation of high quality places'*.

2.4 One Wales: Connecting the Nation

2.4.1 National transport policy for Wales is specified within the Wales Transport Strategy, One Wales: Connecting the Nation, which is supplemented by a series of Technical Advice Notes (TANs).

2.4.2 The goal of One Wales: Connecting the Nation is to:

'Promote sustainable transport networks that safeguard the environment while strengthening our country's economic and social life. The transport strategy identifies a series of high-level outcomes and sets out the steps to their delivery. The One Wales programme is working to achieve a nation with access for all, where travelling between communities and accessing services, jobs and facilities in different parts of Wales is both easy and sustainable, and which support the growth of our economy.'

2.4.3 The policy aims to promote active travel (walking and cycling) for short journeys to promote healthy lifestyle. In addition to active travel, the use of public transport is also promoted

2.5 Technical Advice Note (TAN18)

2.5.1 TAN 18 identifies that Planning Policy Wales and the Wales Transport Strategy both aim to secure the provision of transport infrastructure and services, which improve accessibility, build a stronger economy, improve road safety and foster more sustainable communities.

2.5.2 To achieve this and the core objectives, the following initiatives relevant to the proposed development are:

- Reducing the need to travel;
- Promoting walking and cycling;
- Managing parking provision; and,

- Encouraging the location of development near other related uses to encourage multi-purpose trips.

2.6 Wales Active Travel Act (2013)

2.6.1 The Active Travel Bill (2013), encourages Local Authorities to promote active travel such as walking and cycling, and to improve active travel routes in regard to the needs of walkers and cyclists. The act also encourages Local Authorities to improve the highway to enhance the provision for cyclists and pedestrians.

2.6.2 The active travel act makes provision for:

- ‘Approved maps of existing active travel routes and related facilities in the local authority’s area;
- Approved integrated network maps of the new and improved active travel routes and related facilities needed to create integrated networks of active travel routes and related facilities in a local authority’s area;
- Requiring local authorities to have regard to integrated network maps in preparing transport policies and to ensure that there are new and improved active travel routes and related facilities;
- Requiring the Welsh Ministers to report on active travel in Wales;
- Requiring the Welsh Ministers and local authorities, in the performance of functions under the Highways Act 1980, to take reasonable steps to enhance the provision made for walkers and cyclists and to have regard to the needs of walkers and cyclists in the exercise of certain other functions; and,
- Requiring the Welsh Ministers and local authorities to exercise their functions under the Act so as to promote active travel journeys and secure new and improved active travel routes and related facilities.’

2.7 Pembrokeshire County Council Local Development Plan (2013) Planning Pembrokeshire’s Future (up to 2021)

2.7.1 The Pembrokeshire County Council (PCC) Local Development Plan (LDP) was adopted in February 2013 and sets out a vision of Pembrokeshire up until 2021.

2.7.2 Pembroke Dock is included in the strategic Hub of ‘Haven Towns’ and considered as an important regional role for the area which should be a focus for future investment. The Pembrokeshire County Council LDP complements the Wales Spatial Plan and the Pembrokeshire Community Plan.

LDP Vision

2.7.3 The LDP presents a vision which forms the principles of the LDP, and describes the type of place the Council would like Pembrokeshire to be in 2021:

‘ensure that Pembrokeshire is prosperous and that it remains vibrant and special by creating: a network of strong urban and rural communities in Hub Towns, Service Centres, Service and Local Villages support by a robust, sustainable, diverse high value-adding economy underpinned by the Area’s unique environment, maritime access to the Milford Haven Waterway and Fishguards Harbour and internationally important energy and tourism opportunities’

GN.4 ‘Resource efficiency and Renewable and Low-carbon Energy Proposals’

2.7.4 The PCC LDP states that minerals in Pembrokeshire are a significance resource, essential for economic growth with being an important employment. The key LDP policy on renewable energy is GN.4 which states that development proposals *‘which enable the supply of renewable energy through environmentally acceptable solutions will be supported’*.

Infrastructure, Transport and Accessibility

2.7.5 The key strategic objectives derived from the main issues associated with Infrastructure, transport and accessibility include:

- To improve access to goods and services; and,
- To mitigate and response to climate change.

2.7.6 There are three key Trunk Roads whose routes run into Pembrokeshire, the A40, A477 and A487 which link to two main ferry terminals including Pembroke Dock and Fishguard, together with linking Milford Haven to Haverfordwest.

2.7.7 The LDP states that *‘65.6% of people travel to work by car, however, 21.7% of households are without a car and for them the provision of public transport is critical. Public transport use for travelling to work is low, less than 4% travel by train or bus (Census, 2001)’*.

SP 10: Transport Infrastructure and Accessibility

2.7.8 In accordance with Planning Policy Wales (Edition 5, November 2012) and Technical Advice Note (Wales) 18, this policy identifies, and safeguards proposed improvements to transport infrastructure that will support economic growth.

2.7.9 PCC has identified Infrastructure, Transport and Accessibility (SPG 10) as strategic objectives of the LDP, and a need for significant investment in the current transport infrastructure, for example dualling the A40 and improving the A477.

2.7.10 The overarching aim of the LDP is to ensure that Sustainable Development is achieved. This mean ensuring that the types of development that take place are appropriate for their location and built and designed in such a way as to achieved positive economic, social and environmental impacts, and adverse impacts minimised. Furthermore, the LDP states that improvements to the existing transport infrastructure that will increase accessibility to employment, services and facilities, particularly by sustainable means will be improved.

2.8 Summary

2.8.1 It is considered that the proposed redevelopment of Pembroke Dock complies with the relevant national and local land use and transport policies as it:

- Encourages accessibility by walking, cycling and public transport with having good access to key services and facilities;
- Is located near other related uses to encourage multi-purpose trips and reduce the length of journeys;
- Provides safe access to the highway network and would not cause traffic congestion or exacerbate existing traffic congestion; and,
- Promotes the supply of renewable energy through environmentally acceptable solutions.

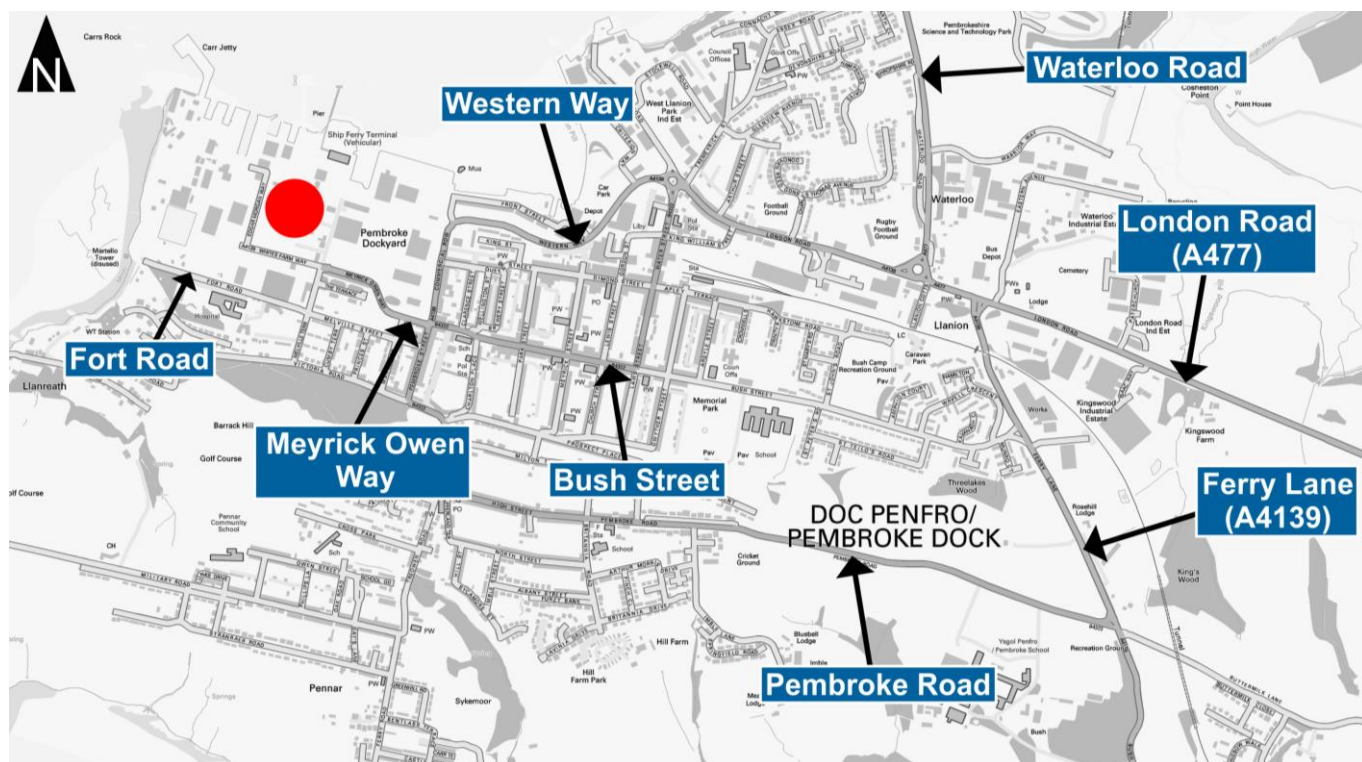
3 Existing situation and accessibility

3.1 Site location

3.1.1 As outlined above, the site is located within the town of Pembroke Dock, Pembrokeshire, and is bounded by:

- Commercial Row to the east;
- Meyrick Owen Way and Fort Road to the south; and,
- Open water to the north and west.

3.1.2 The location of Pembroke Port, together with the local highway network is shown in **Figure 3.1** below.



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Figure 3.1 Local Highway Network

3.1.3 It is considered that the existing Pembroke Dock is accessible by walking, cycling and public transport as described in the following paragraphs.

3.2 Accessibility by walking and cycling

Walking

- 3.2.1 Existing pedestrian footpaths are located to the south of the dockyard providing good access from the site to local amenities and public transport connections.
- 3.2.2 The majority of roads within the vicinity of the site have footways on one or both sides of the carriageway, providing links between the site and surrounding area, including Meyrick Owen Way, Commercial Row and Western Way.
- 3.2.3 The Chartered Institution of Highways and Transportation (CIHT) 'Providing for Journeys on Foot' indicates that the desirable walking distance for commuting and school journeys is 500m, the acceptable walking distance is 1km, and 2km is the preferred maximum.
- 3.2.4 **Figure 3.2** shows the 1.2km isochrones (divided into 200m bands from the centre of the site), with residential areas within walking distance of the site.

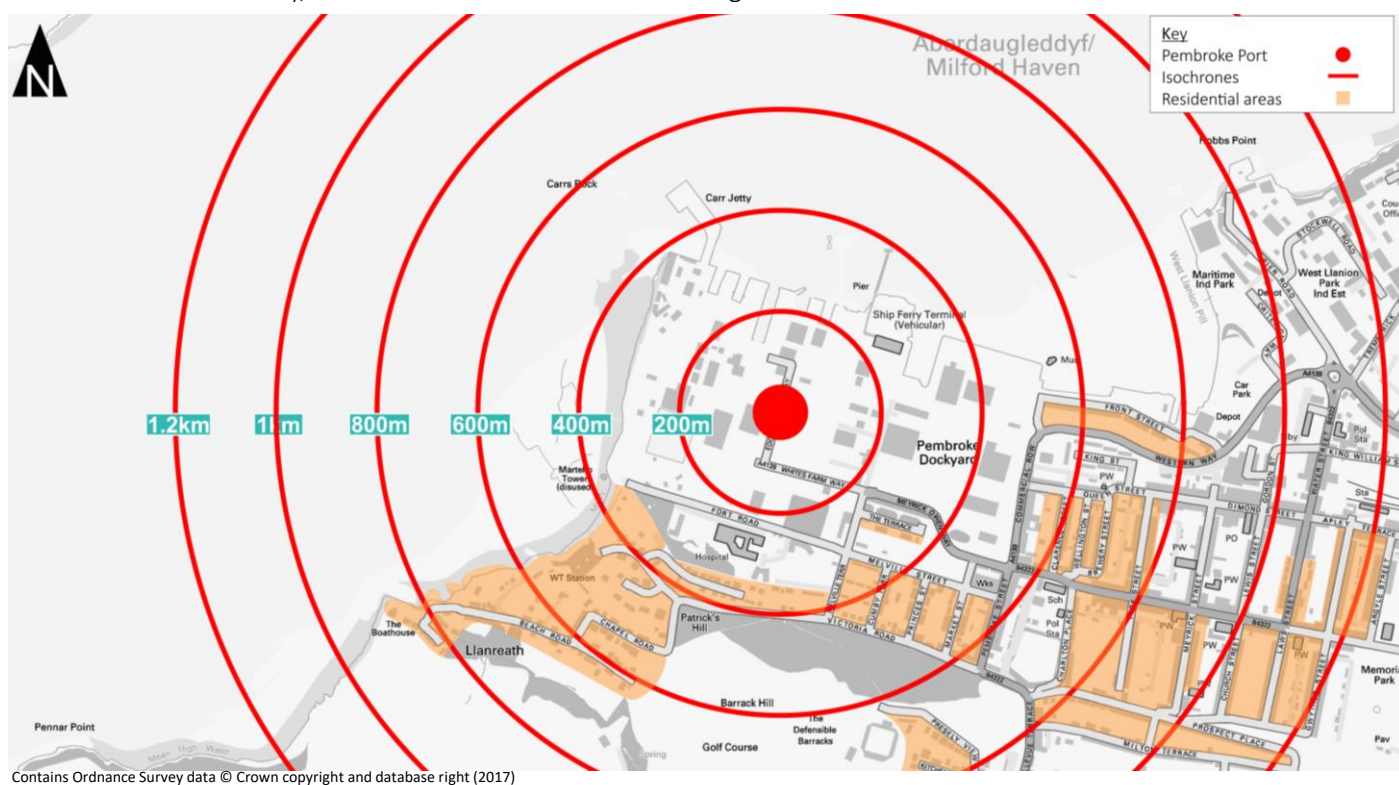


Figure 3.2 Residential areas within 1.2km

- 3.2.5 In addition to the existing footways, there are a number of Public Rights of Way (PRoW) within close proximity of the site, increasing the accessibility of the site and from the surrounding residential areas. These are shown in **Figure 3.3** below.

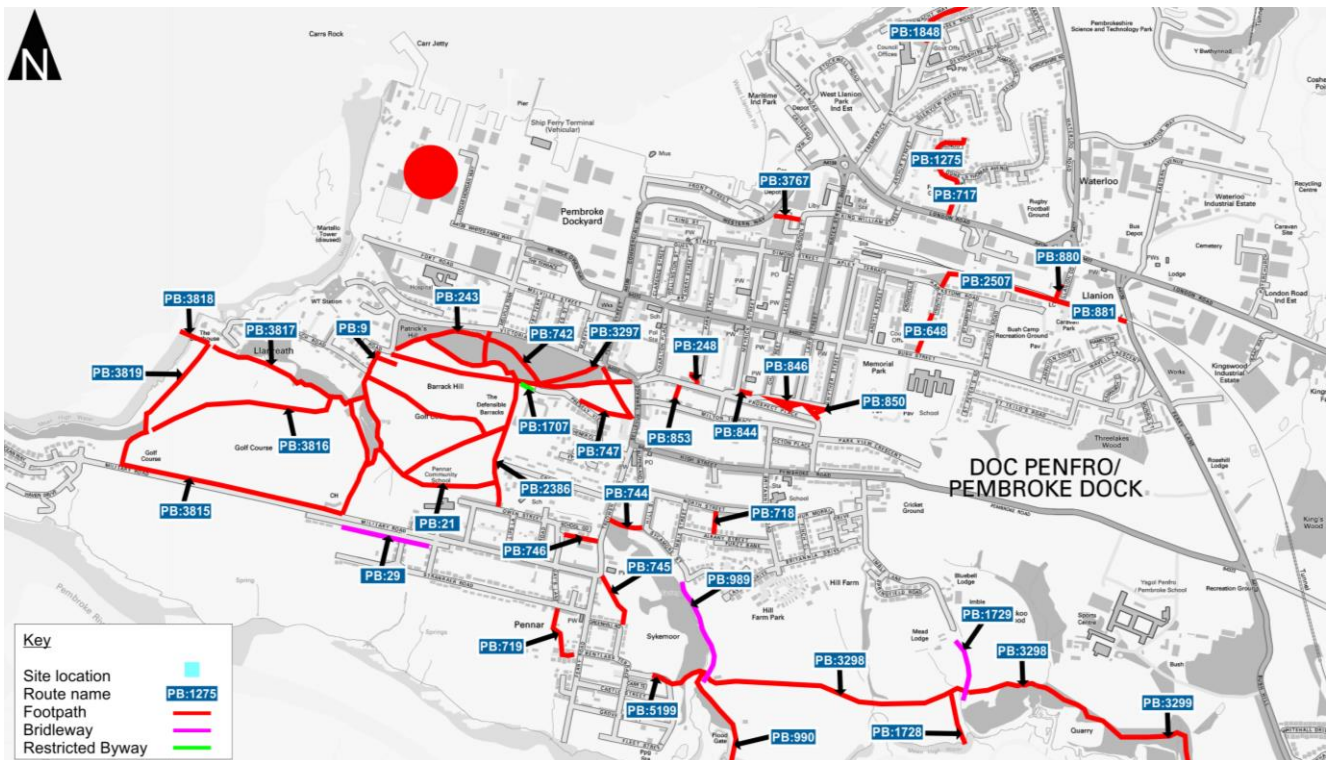
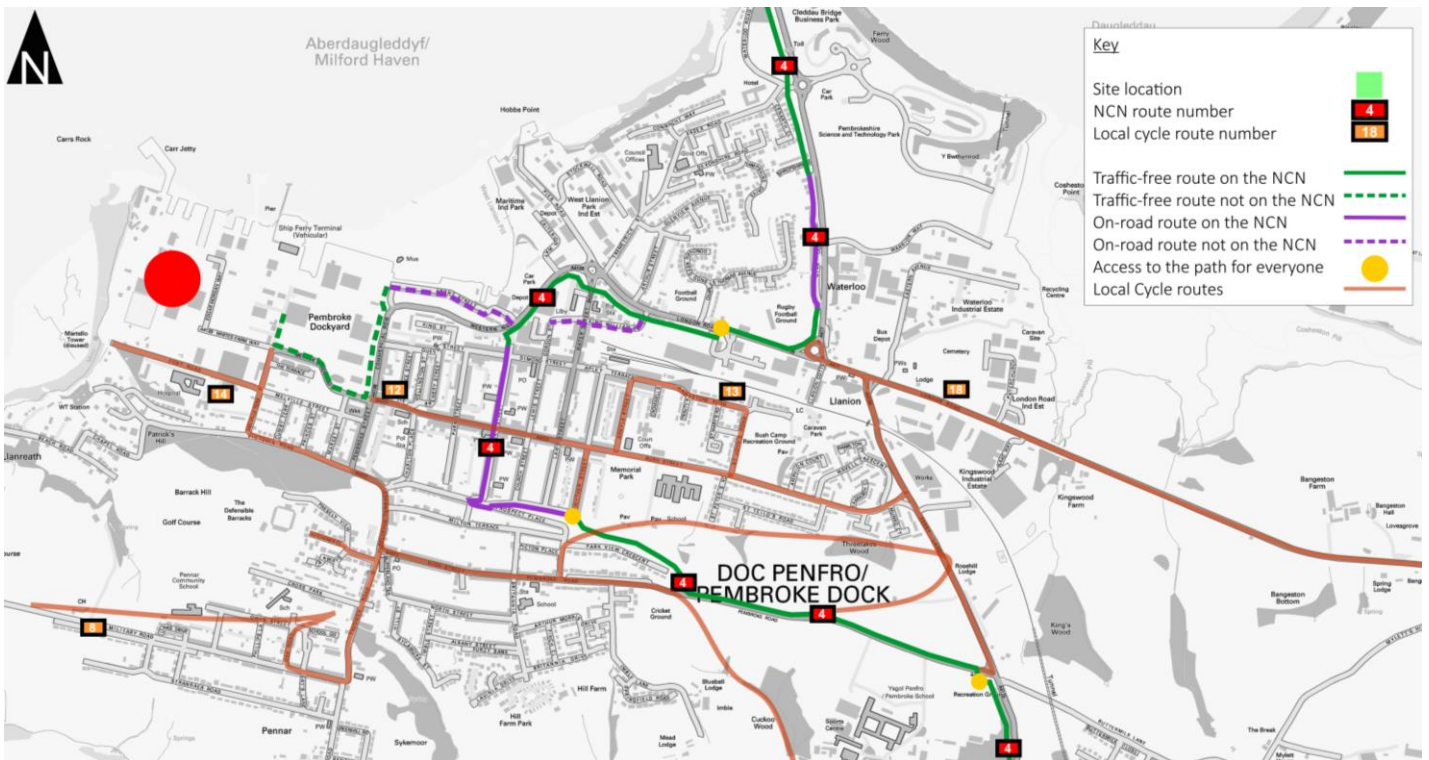


Figure 3.3 Public Rights of Way (PROW)

Cycling

- 3.2.6 Pembroke Dock benefits from being located on Route 4 of the National Cycle Network (NCN), a long distance route between London and Fishguard via Reading, Bath, Bristol, Newport, Swansea, Carmarthen, Tenby, Haverfordwest and St. David’s. The route passes through Pembroke Dock, between Swansea and Fishguard, and is known as the Celtic Trail West, providing good connections to Pembroke, Milford Haven and Tenby.
- 3.2.7 The local cycle infrastructure is shown in **Figure 3.4** below.



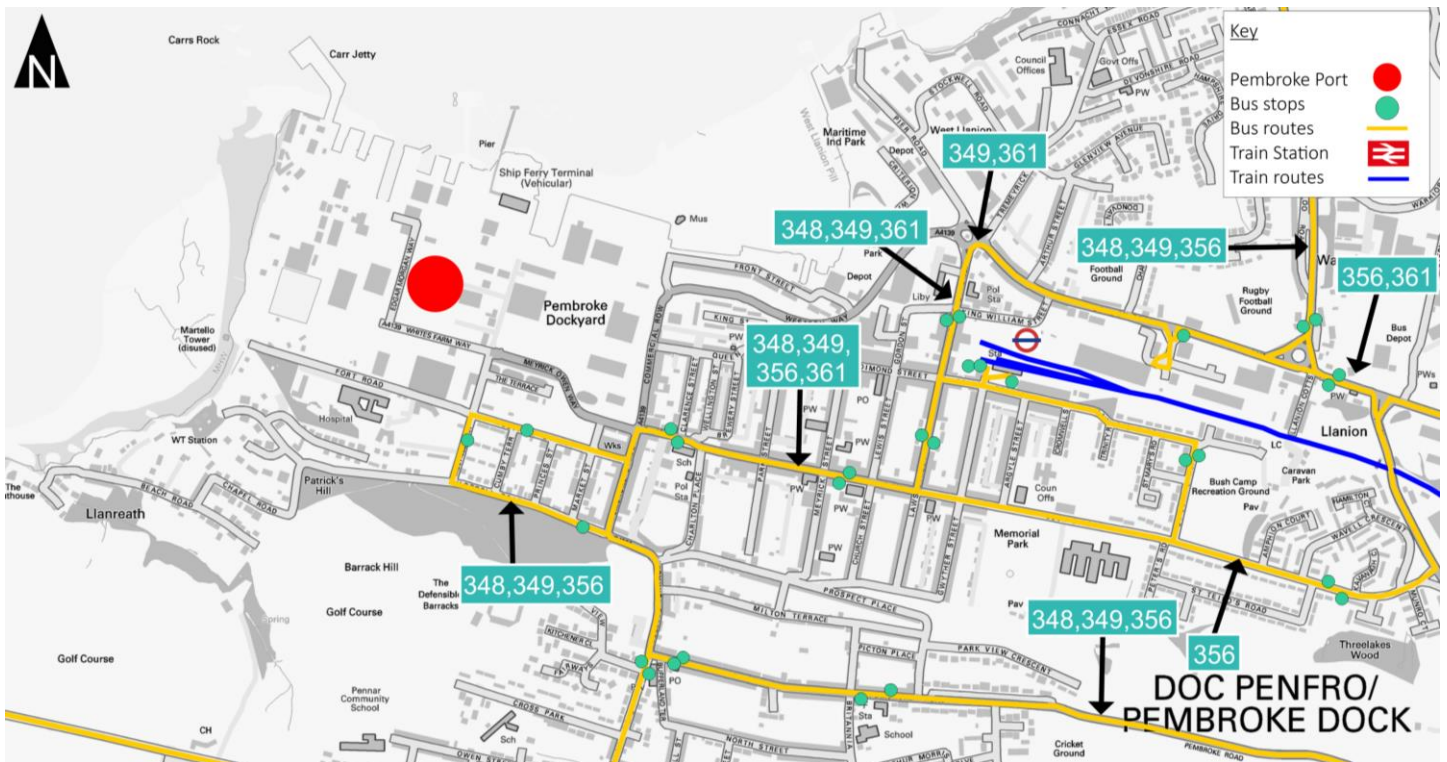
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Figure 3.4 Local cycle infrastructure

3.3 Accessibility by public transport

Bus services

- 3.3.1 The closest bus stop to the site is located on Melville Terrace and Melville Street, approximately 350m walking distance from the the Admiralty Way site access, and provides regular connections to Haverfordwest, Tenby, Milford Haven and Monkton.
- 3.3.2 The location of the closest bus stops, together with bus routes that call at these stops is shown in **Figure 3.5** below.



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Figure 3.5 Local public transport infrastructure

3.3.3 Table 3.1 below provides a summary of the routes serving the closest bus stops to the site.

Table 3.1 Bus Routes and timetable (weekdays)

Route No.	Distance (m)	Route	Frequency	Hours of operation Monday - Saturday
Sunderland Avenue, Melville Terrace, Pembroke Dock				
348	350	Haverfordwest - Tenby	3 per hour	07:00-19:00
348	350	Tenby - Haverfordwest	1 per hour	07:00-19:00
349	350	Haverfordwest - Tenby	3 per hour	07:00-19:00
349	350	Tenby - Haverfordwest	1 per hour	07:00-19:00
356	350	Milford Haven - Monkton	1 per hour	08:00-18:00
356	350	Monkton - Milford Haven	1 per hour	09:20-17:30
Albion Square, B4322, Pembroke Dock				
361	600	Tenby - Pembroke Dock	4 per day	10:00 and 13:44
361	600	Pembroke Dock - Tenby	4 per day	12:30 and 16:30

Rail services

3.3.4 Pembroke Dock train station is located approximately 1.2km east of Pembroke Dock and is accessible on-foot via Commercial Row, Queen Street and Apley Terrace.

- 3.3.5 The train line terminates at Pembroke Dock and provides connections to Tenby, Saundersfoot, Carmarthen and Swansea every two hours. There are onward connections at Swansea to Cardiff, London and the east.
- 3.3.6 Connections to Haverfordwest, Milford Haven and the west can be made at Whitland. However, it is likely that the bus service is more likely to be preferred mode of public transport for this route due to the frequency of the service, and the journey time.
- 3.3.7 The station is operated by Transport for Wales offers a pay and display car park consisting of 20 spaces.

3.4 Local highway network

- 3.4.1 A description of the local highway network is outlined in **Table 3.2** below.

Table 3.2 A description of the local highway network

Description	
Meyrick Owen Way	
Description	Single carriageway road, which acts as the main access route into the development site for both vehicles and pedestrians. A footway is located along the northern edge of the carriageway providing connections from the site to the west to Commercial Row to the east.
Width	9m
Speed limit	30mph
Street lighting	Present throughout the length of the road
Crossing facilities	Dropped kerb and tactile pavement located near access to Melville Street.
Bus route	No
Character	Wide distributor road connecting Pembroke Dockyard with Pembroke Dock town centre. Pembroke Port is located to the north of the road with open space and residential properties to the south and west.
On-street parking	No restrictions present along majority of road. Double yellow lines are present by the entrance to Melville Street and Pembroke Street.
Commercial Row	
Description	A single carriageway local access (or local distributor) road, with 2m wide footways on both sides of the carriageway.
Width	7.6m
Speed limit	30mph
Street lighting	Yes
Crossing facilities	Non-present
Bus route	No
Character	The road is dominated by residential and commercial/retail frontages along the eastern side, with parking bays located to the west.

On-street parking	Double yellow lines present at the Albion Square, Pembroke Street junction. Other than this, no restrictions exist. Parking bays are available on the western side of the road with no restrictions.
Pembroke Street	
Description	A one-way single carriageway road heading southbound, which changes into a two-way single carriageway road after the Melville Street roundabout. The road has footways on both sides of the carriageway.
Width	4.7m along the one-way section increasing to approximately 9m when the road changes to two-way.
Speed limit	30mph
Street lighting	Yes
Crossing facilities	Non-present
Bus route	Yes
Character	Local amenities including shops, bars and restaurants are located on eastern side of the one-way single carriageway, with residential development fronting the street once the road become two-way.
On-street parking	Within the one-way single carriageway parking bays are located on the eastern side with no restrictions. Once the road becomes two-way, parking bays are located on either side of the carriageway allocated to resident permit holders only.
A4139	
Description	Single carriageway district distributor road linking the town centre with residential areas to the south of the town and Pembroke Port to the west.
Width	Generally, 9.7m
Speed limit	30mph
Street lighting	Yes
Crossing facilities	Dropped kerb and tactile pavement located at junctions with minor distributor roads. Pedestrian crossings located at the entrance Tesco store and A4139.
Bus route	Yes
Character	Residential properties fronting the street on both sides of the carriageway. Also the presence of local amenities, including pubs, restaurants and hotels, and major supermarkets and convenience stores.
On-street parking	Double yellow lines present along length of road

3.5 Personal injury accident data

- 3.5.1 Personal injury accident data has been obtained for the period 2014 to 2018 (inclusive) which includes the proposed site and the surrounding area. **Figure 3.6** below shows the location and severity of accidents that occurred during this period.



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Figure 3.6 Location and severity of personal injury accidents

3.5.2 The severity of accidents and number of casualties per year is summarised in Table 3.3 below.

Table 3.3 Summary of personal injury accident data

Year	Personal injury			No. of casualties	Collisions involving vulnerable users			
	Fatal	Serious	Slight		Cyclist	Child	m/cyclist	Pedestrian
2014	0	2	5	9	1	1	0	3
2015	0	0	1	1	1	1	0	0
2016	0	1	1	2	0	0	1	0
2017	0	0	4	6	0	1	1	0
2018	0	1	2	4	1	1	1	0
Total	0	4	13	22	3	4	3	3

3.5.3 It can be seen from Figure 3.6 and Table 3.3 that there has been a total of 17 accidents within the study area over the most recent five-year period, resulting in a total of 22 casualties.

3.5.4 It can also be seen that of the 13 accidents resulted in slight injuries being sustained with four accidents resulting in serious injuries being sustained. No accidents resulted in fatal injuries.

- 3.5.5 Looking at the accidents in more detail a high proportion of the accidents involved vulnerable users, with child casualties reported in four accidents and pedestrian casualties reported in three accidents. Figure 3.6 highlights that a cluster of accidents occurred on Bush Street, however, it is unlikely to be the preferred access route to the proposed development, which would therefore have a limited impact on accidents in the area.
- 3.5.6 Given the relatively large area covered, it can be concluded that there is no particular highway safety problem on the local highway network. It is also unlikely that the proposed development will have any adverse effect on the current injury accident data and is unlikely to increase the potential for any accidents of vehicles or people to occur.

4 Development proposals

4.1 Introduction

4.1.1 This section of the report sets out a brief description of the development proposals and considers the proposed access arrangements, on-site car and cycle parking provision, refuse storage and collection, and servicing provision.

4.1.2 A full description of the proposed development can be found in Chapter Two 'Project description' of the Environmental Statement.

4.2 Development proposals

4.2.1 It is proposed to redevelop land at Pembroke Port, Pembrokeshire to provide a centre for renewable energy. A brief description of what the proposed development will comprise, is stated below:

- Widening of the existing slipway and extension of the slipway towards deeper water;
- Provision of large areas of hardstanding in proximity to the quayside;
- Areas of flat land for use either as 'lay down' or capable of being developed to create buildings in response to time-sensitive business requirements; and,
- Enhanced interconnectivity between the New Gate 4 facility and the Existing Gate 1 Facility via transport corridors.

4.2.2 As stated in Chapter Two of the Environmental Statement, *'The proposed development will enable the provision of an enlarged single slipway at Gate 4 to facilitate the efficient transfer of vessels and marine renewable devices between land and sea, together with the formation of large 'lay down' open areas to facilitate working on boats and devices without occupying slipways'*.

4.2.3 A masterplan (as shown in **Figure 4.1** below) has been developed to demonstrate how the proposed centre can be accommodated within the port.

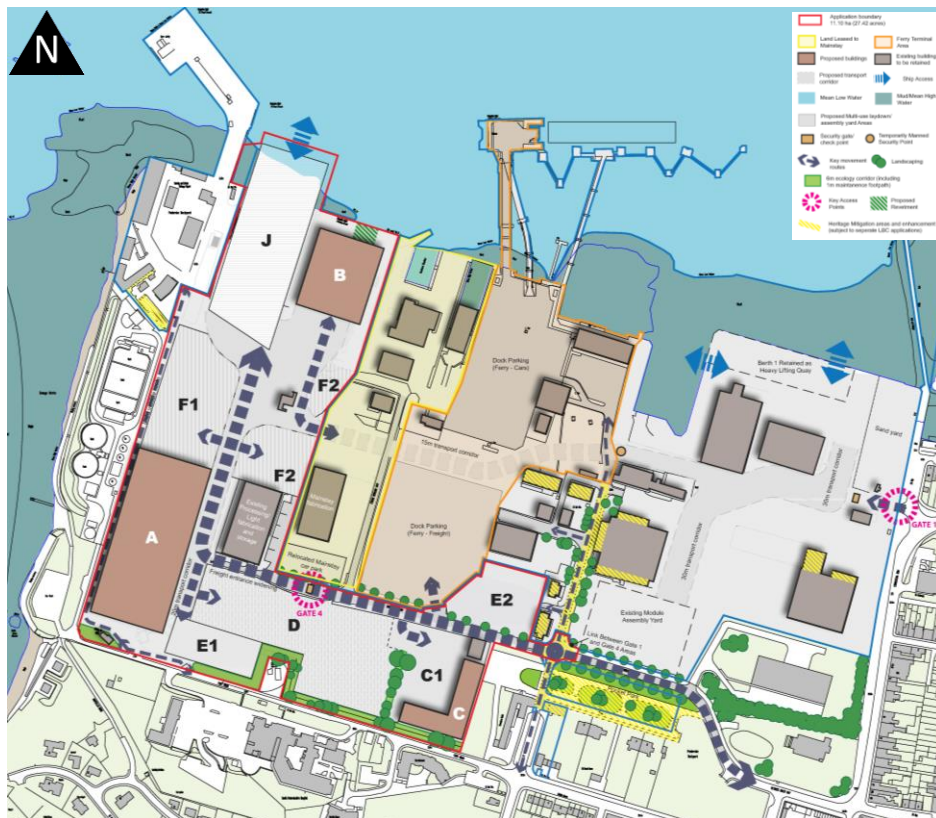


Figure 4.1 Proposed development masterplan

4.2.4 The major internal floor areas proposed on site include:

- A fabrication building for sub-assemblies and marine engineering related activities - 11,900m²;
- A high bay ship repair and fabrication building - 4,900m²;
- Light assembly and maintenance facility - 2,500m²;
- Open batching plant and storage area - 12,937m²;
- Proposed employee car park E1 - 3,040m² and, E2 - 4,853m²; and,
- Light assembly and maintenance external storage and parking area - 5,000m²;

4.2.5 It can be seen from the information presented above that the proposed re-development consists of an internal floor area of 32,237m² with an employee car parking area of 7,893m². This excludes the external light assembly and parking area, which is an additional 5,000m².

4.3 Access to the site

Vehicle access

4.3.1 As part of the development it is proposed to provide two points of access to the re-development:

- Primary access via Admiralty Way and Meyrick Owen Way; and,
- Secondary access via Gate One off Front Street

4.3.2 The primary access via Admiralty Way will be used by staff working at the proposed development, as well as commercial vehicles and passenger cars accessing the commercial ferry.

4.3.3 The secondary access, via Gate 1, will be used for deliveries and bulk material deliveries into the port.

4.3.4 As part of the development a modified widened highway access point will be required to the Gate 4 area from Whites Farm Way.

Pedestrian access

4.3.5 It is likely that staff and visitors will access the site via car or public transport. The existing pedestrian routes to the site via Admiralty Way and Meyrick Owen Way will remain and provide the main access to the site for pedestrians.

5 Car parking provision

5.1 Introduction

5.1.1 In order to determine the level of car parking provision required to support the proposed development, it is necessary to determine the likely parking demand, which is a function of:

- Likely number of staff working on site; and,
- The likely mode split for commuting trips.

5.1.2 The likely staff numbers and mode splits are detailed in the following paragraphs.

5.2 Likely staff numbers

5.2.1 It is anticipated that the proposed development could accommodate up to 645 employees throughout the day¹, with:

- Approximately 515 shift workers, working two 10-hour shifts (335 day shift/ 180 evening shifts)
 - Day shift 8am-6pm
 - Evening shift 6pm-4am
- Approximately 130 staff working a normal working day.

5.2.2 **Table 5.1** below outlines the likely staff movements throughout the day.

Table 5.1 Staff generation throughout the AM and PM peak hours

	8am-9pm		5pm-6pm	
	Arrive	Depart	Arrive	Depart
Shift workers hours	0	0	178	0
Normal working hours	129	0	0	129
Total	129	0	178	0

5.3 Mode split

5.3.1 2011 'Travel to Work' census data has been used determine the existing mode splits for how employees will travel to work, see **Table 5.2** below. It should be noted that this data excludes those working from home or not in employment.

¹ Pembroke Dock Marine on-site employment – Hardisty Jones Associates

Table 5.2 Method of travel to work

Area	Total	Light rail, tram	Train	Bus, minibus or coach	Taxi	Motorcycle, scooter or moped	Driving a car or van	Passenger in a car or van	Bicycle	On foot
Pembrokeshire	483	0	0	24	2	4	275	59	8	109
LSOA 013B		0%	0%	5%	0%	1%	57%	12%	2%	23%
MSOA 013	3,913	1	16	189	11	37	2,558	383	51	629
Pembrokeshire		0%	0%	5%	0%	1%	65%	10%	1%	16%
Pembrokeshire	48,957	43	232	1,606	221	358	35,649	3,434	475	6,427
		0%	0%	3%	0%	1%	73%	7%	1%	13%

5.3.2 It can be seen from the table above that 73% of those that live in Pembrokeshire drive to work, with a further 7% travelling as a passenger in a car.

5.4 Peak parking demand

5.4.1 The peak parking demand can be estimated by applying the car mode share from Table 5.2 above to the estimated staff numbers (outlined in Table 5.1), as shown in Table 5.3 below.

Table 5.3 Peak parking demand

Time period	Arrive	Depart	Accumulation
4am-5am	0	130	0
7am-8am	244	0	244
8am-9am	95	0	339
5pm-6pm	130	95	374
6pm-7pm	0	244	130

5.4.2 It can be seen from the table above that the peak parking demand is likely to be approximately 374 vehicles when staff working the evening shift arrive for the start of their shift before the day shift has finished.

5.5 Adopted parking standards

5.5.1 Table 5.4 below sets out the car parking requirement in accordance with Pembrokeshire County Council Parking Standards (2013), together with the proposed car parking provision.

Table 5.4 Car parking standards

Industry (Zone 2-6)	Operational	Non operational	Total car parking
Car parking standards	10% of GFA	1 space per 120m ²	
Car parking requirement	3,223m ²	268 car parking spaces or 5,346m ² *	8,596 m ²
Proposed parking provision		3,040 m ² + 4,853 m ²	7,893 m ²

* This figure has calculated the floor area for 268 car parking spaces based on a 90° parking arrangement as set out on Page 40 of PCC Parking Standards SPG (2013)

- 5.5.2 It can be seen from the table above that, in accordance with the adopted parking standards, the re-development of Pembroke Port requires a total car parking area of 8,596m², and that the proposed provision equates to a total of 7,893 m². However, whilst this provision is below the required provision, this does not take account of the approximately 5,000 m² proposed as external light assembly and parking area.
- 5.5.3 Overall, is it considered that the on-site parking provision is more than sufficient to accommodate the existing demand. It is also considered that there is sufficient space within the port to accommodate any overspill parking, without the need for vehicles to park within the surrounding highway.

6 Transport characteristics

6.1 Introduction

6.1.1 In order to assess the impact of the proposed development at Pembroke Port on the existing highway network, it is necessary to assess the number of vehicle trips generated by the proposed development. This section therefore outlines the methodology used to predict the person trip generation (by mode).

6.2 Staff trips

6.2.1 As outlined in Chapter 5 above it is anticipated that the proposed development is likely to generate up to 645 staff working on site, with:

- Approximately 335 staff working the day shift (8am-6pm)
- Approximately 180 staff working the evening shift (6pm -4am); and,
- Approximately 130 staff working a normal working day (9am – 5pm)

6.2.2 The day time shift workers are unlikely to have an impact on the peak hour traffic as the morning shifts will start before 8am and depart site after 6pm. The evening shift employees, however, would arrive on site before 6pm and have, therefore, been incorporated into the evening peak distribution.

6.2.3 If we assume that 73% of staff will travel to the site by car, **Table 6.1** below outlines the anticipated vehicle arrivals and departures throughout the day.

Table 6.1 Anticipated mode of transport for employees

	Total no. staff *	Bus, minibus or coach	Motorcycle, scooter or moped	Driving a car or van	Passenger in a car or van	Bicycle	On foot
AM (4am-5am) Departures	130	4 3%	1 1%	95 73%	9 7%	1 1%	17 13%
AM (8am - 9am) Arrivals	129	4 3%	1 1%	94 73%	9 7%	1 1%	17 13%
AM (8am - 9am) Departures	0	0 3%	0 1%	0 73%	0 7%	0 1%	0 13%
PM (5pm – 6pm) Arrivals	178	5 3%	2 1%	130 73%	12 7%	2 1%	23 13%
PM (5pm – 6pm) Departures	129	4 3%	1 1%	94 73%	9 7%	1 1%	17 13%

6.2.4 Table 6.1 shows that the proposed development at Pembroke Port is likely to generate a total of 938 vehicle movements (two-way) throughout the day, with a total of 94 vehicle movements (two way) in the AM and peak, and a total of 224 vehicle movements (two way) in the PM peak.

6.2.5 Walking is anticipated to be the second most popular mode of transport with 13% of employees likely to walk to work.

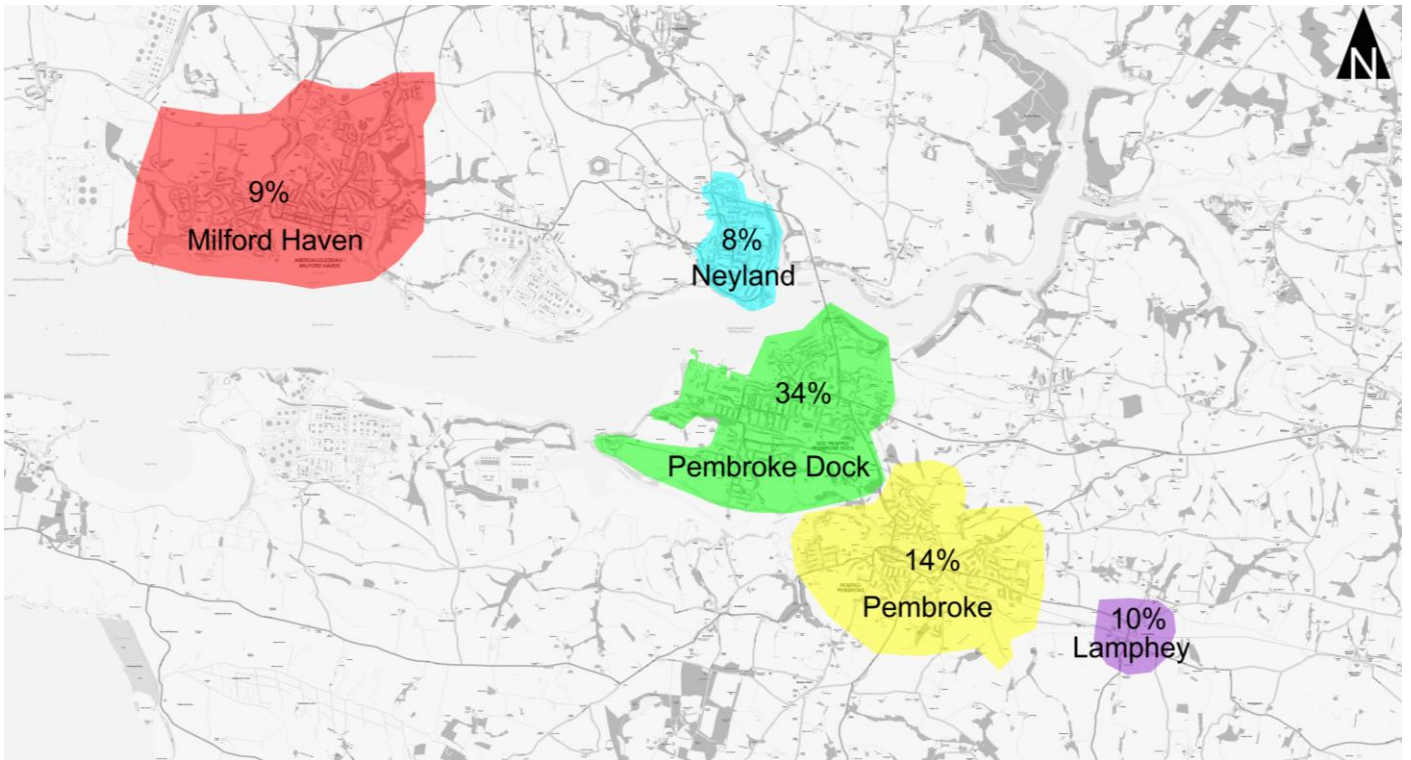
Staff trip distribution

6.2.6 The distribution of staff trips has been based on the ‘Journey to Work’ datasets from the 2011 Census, as outlined in **Table 6.2** below.

Table 6.2 ‘Journey to work’ Census data

Place of Work	Origin	Percentage (%)
Pembroke Dock	Pembroke Dock	34
Pembroke Dock	Pembroke	14
Pembroke Dock	Lamphey	10
Pembroke Dock	Milford Haven	9
Pembroke Dock	Neyland	8
Pembroke Dock	Saundersfoot, Haverfordwest, Fishguard, Carmarthen etc..	25

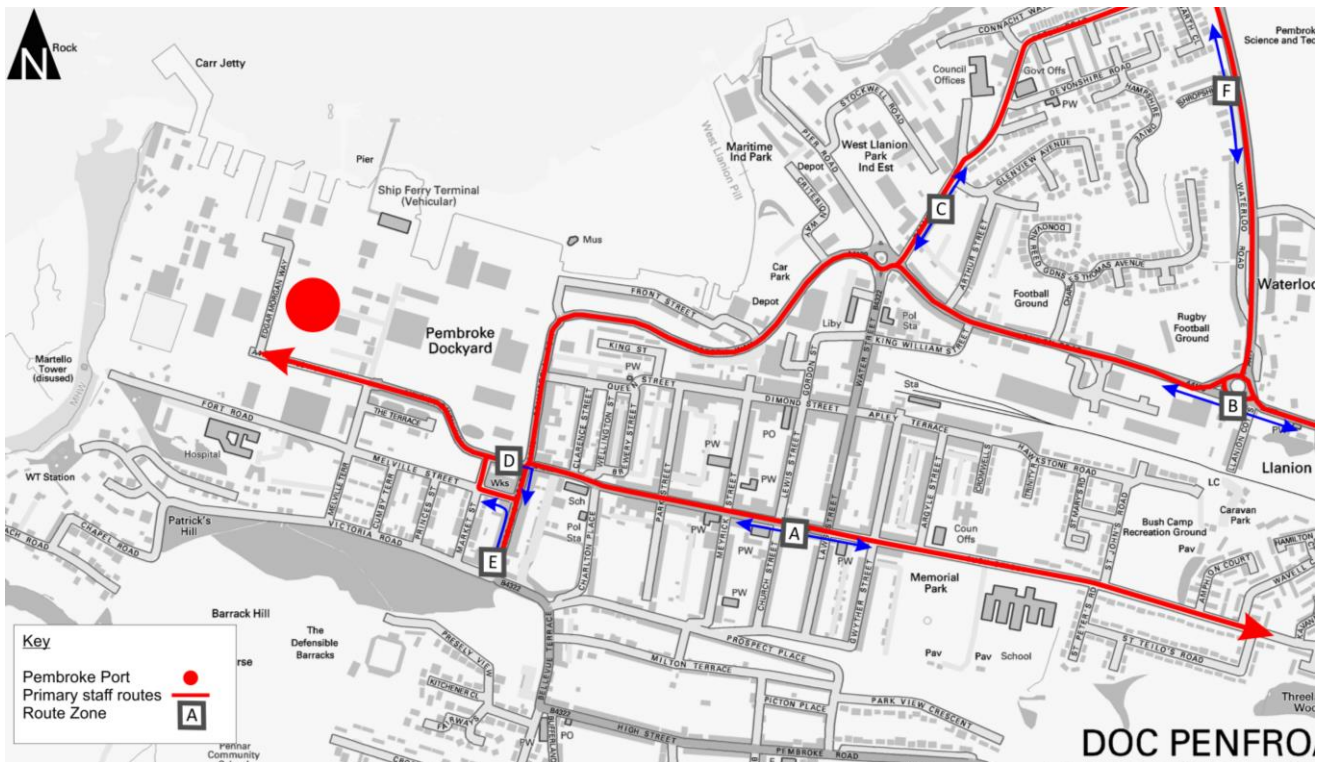
6.2.7 Table 6.2 shows the percentage distribution of staff working at Pembroke Dock, and it can be seen that approximately 35% of staff live and work in Pembrokeshire. The remaining commuters travel from Pembroke, Lamphey, Milford Haven and Neyland. This is summarised in **Figure 6.1** below.



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Figure 6.1 Distribution of development generated traffic

6.2.8 **Figure 6.2** below highlights the expected routes staff will use to travel to and from the site.



Contains Ordnance Survey data © Crown copyright and database right (2017)

Figure 6.2 Proposed staff vehicle routes

6.2.9 Table 6.3 below identifies the number of staff vehicles that will arrive to the site via each route. This information has been based on 'Journey to work' data presented in Table 6.2 and will be used to distribute the proposed staff vehicles throughout the existing network.

Table 6.3 Number of staff via each route

Zone	Arrivals (%)	Departures (%)	AM Peak (8am - 9am)		PM peak (5pm – 6pm)	
			No. Staff Arrivals	No. Staff Departures	No. Staff Arrivals	No. Staff Departures
A	5	5	5	0	6	5
B	26	26	24	0	34	24
C	10	10	9	0	13	9
D	0	33	0	0	0	31
E	33	0	31	0	43	0
F	26	26	24	0	34	24
Total	100	100	94	0	130	94

6.2.10 It can be seen the staff traffic will be evenly distributed throughout the local highway network with the majority of traffic approaching the site via Commercial Row.

6.3 Operational HGV Traffic

6.3.1 As part of the redevelopment of Pembroke Port, it is proposed to develop a centre for renewable energy. Although the proposed operational use is currently undefined one such operational use could be the manufacturing and distributing of Advanced Wind Turbine Controllers (AWC).

6.3.2 It is likely that the raw materials will be transported to site via road, manufactured on site and transported off site via sea. If a large quantity of materials are required, as presented below, it is likely that these will be transported to Pembroke Port by boat, however, as a worst case scenario the impact of transporting this material by road has been assessed.

6.3.3 The AWC Report anticipates that 26 AWC units (including a base and a column) will be produced each year, or one every two weeks. **Table 6.4** highlights the information presented in the AWC Summary Report, Section 8.3, showing the concrete quantities required per column and base.

Table 6.4 Concrete quantities required for a single AWC

Concrete quantities	
Column	2,106m ²
Foundation base	2546m ²
Total	4652m²

6.3.4 The impact of transporting dry raw materials to site via large HGVs has been assessed. Information has been gained to calculate the mass of raw materials that would be required to manufacture a single AWC unit, and the number of HGVs required to transport this quantity. The HGV Arctic capacity has been based on a maximum capacity of 40 tonnes. The results are shown in **Table 6.5** below.

Table 6.5 Manufacturing and distribution quantities per AWC unit

	Mass (kg)	Mass (metric tonnes)	HGV Arctic capacity (metric tonnes)	Deliveries required for each AWC	Annual Deliveries required	Weekly Deliveries required	Daily
Cement	1,488,397	1,488	40	37	967	19	4
Sharp sand	4,135,628	4,136	40	103	2688	52	10
Aggregate	6,657,012	6,657	40	166	4327	83	17
	12,281,037	12,281		307	7983	154	31

6.3.5 This shows that as a worst-case scenario the proposed redevelopment at Pembroke Port is likely to generate 31 HGV movements daily, which is approximately 4 vehicle movements per hour over an eight-hour working day.

Distribution of HGV Traffic

6.3.6 It has been assumed that large goods vehicles will travel along the Strategic Road Network as show in **Figure 6.3** below, which includes the primary and secondary access routes to

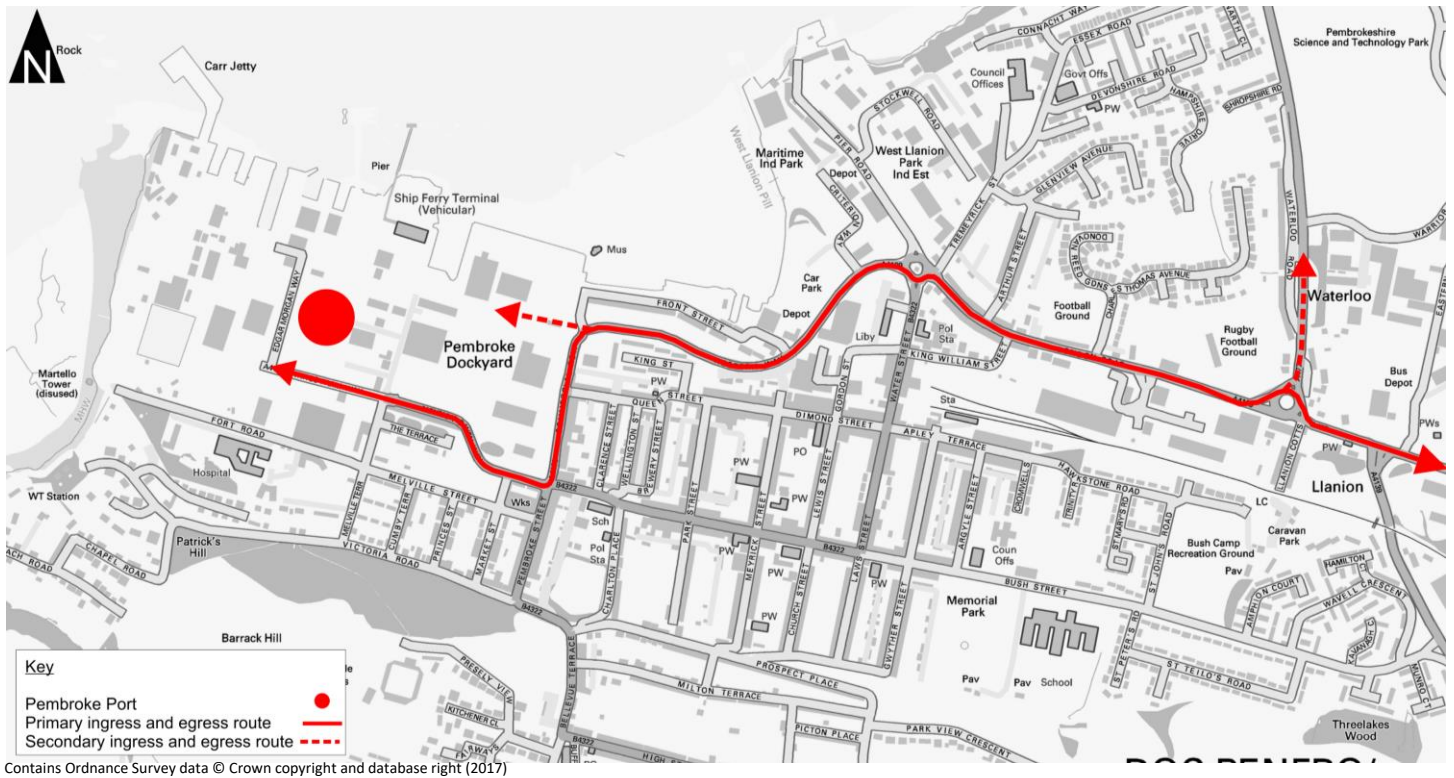


Figure 6.3 Ingress and egress route for large vehicles

6.4 Future traffic flows

6.4.1 As outlined in section 1, the impact of the proposed development has been assessed for 2018, 2020, 2030 and 2035 to coincide with the anticipated completion date, 'completion + 10 years' and 'completion + 15 years'.

6.4.2 In order to obtain the base traffic flows (i.e. with no development traffic) in 2020 and 2030, the surveyed traffic flows (2018) have been factored using locally adjusted NTM growth factors. The factors to be applied to the base (surveyed) flows are identified in **Table 6.6** below.

Table 6.6 NTM Growth Factors

Period	NTM growth factors
2018 to 2020	
Weekday AM	1.02
Weekday PM	1.0208
2020 to 2030	
Weekday AM	1.05151
Weekday PM	1.0533
2030 to 2035	
Weekday AM	1.0726
Weekday PM	1.0752

6.4.3 It should be noted that the above growth factors take account of committed development within the local area, as the factors are based on the most recent planning data contained in the Local Development Plan.

6.4.4 The 2018, 2020, 2030 and 2035 base flows are set out in **Appendix A**.

7 Potential impact

7.1 Introduction

7.1.1 This section of the report considers the impact of the development proposals on the surrounding highway network and the capacity of the following junctions:

- Junction 1: Admiralty Way/Meyrick Owen Way/Whites Farm Way mini-roundabout;
- Junction 2: Fort Road/ Admiralty Way/ Melville St/ Melville Terrace.
- Junction 3: Melville Street/Market Street mini-roundabout;
- Junction 4: Meyrick Owen Way/ Market St; and,
- Junction 5: Pembroke Street/Melville Street/B4322 mini-roundabout;
- Junction 6: Gate 1 Access/Front St/Commercial Row/ Western Way;
- Junction 7: B4322/ Meyrick Owen Way/ A4139/Pier Road roundabout;
- Junction 8: A4139/ Tesco signalised junction; and,
- Junction 9: A477/ A4139 / London Road/ Waterloo Road roundabout;
-

7.2 Junction capacity analysis

Junction 1: Admiralty Way/Meyrick Owen Way/ White Farms Way mini-roundabout

7.2.1 The operation of the Admiralty Way' Meyrick Owen Way roundabout (see **Figure 7.1** below) has been assessed for both the AM and PM peak periods, using the TRL program Junctions 9. The results of the analysis are presented in full in **Appendix B** and a summary of the results are shown in **Table 7.1** below.

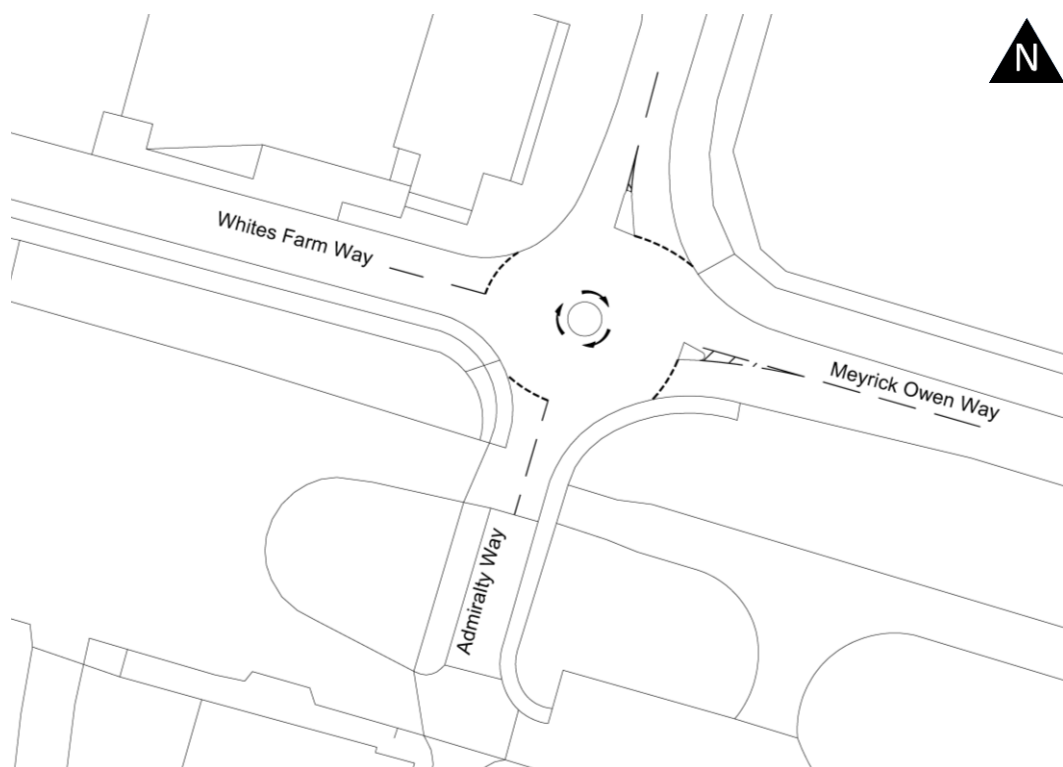


Figure 7.1 Junction 1 Admiralty Way/ Meyrick Owen Way roundabout

Table 7.1 Capacity analysis summary- Junction 1

	Base				Base + development			
	8am-9am		5pm-6pm		8am-9am		5pm-6pm	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
2018								
Meyrick Owen Way	0.10	0.1	0.06	0.1				
Admiralty Way	0.07	0.1	0.06	0.1				
White Farm Way	0.02	0.0	0.06	0.1				
Site Access	0.01	0.0	0.03	0.0				
2020								
Meyrick Owen Way	0.10	0.1	0.06	0.1	0.20	0.3	0.19	0.2
Admiralty Way	0.07	0.1	0.06	0.1	0.08	0.1	0.06	0.1
White Farm Way	0.02	0.0	0.06	0.1	0.02	0.0	0.18	0.2
Site Access	0.01	0.0	0.03	0.0	0.01	0.0	0.03	0.0
2030								
Meyrick Owen Way	0.11	0.1	0.07	0.1	0.21	0.3	0.20	0.2
Admiralty Way	0.08	0.1	0.06	0.1	0.09	0.1	0.07	0.1
White Farm Way	0.02	0.0	0.07	0.1	0.02	0.0	0.19	0.2
Site Access	0.01	0.0	0.03	0.0	0.01	0.0	0.03	0.0
2035								
Meyrick Owen Way	0.11	0.1	0.07	0.1	0.22	0.3	0.20	0.3
Admiralty Way	0.09	0.1	0.06	0.1	0.09	0.1	0.07	0.1
White Farm Way	0.02	0.0	0.07	0.1	0.02	0.0	0.191	0.2
Site Access	0.01	0.0	0.03	0.0	0.01	0.0	0.03	0.0

- 7.2.2 It can be seen from the table above that the existing junction operates within its theoretical capacity in all assessment scenarios, with a maximum RFC of 0.20 and queue of less than one vehicle in the PM peak period for the 2035 with development scenarios.
- 7.2.3 It can also be seen that the proposed development will have a negligible impact on the operation of the junction.

Junction 2: Fort Road/Admiralty Way/Melville Street/Melville Terrace

- 7.2.4 The operation of the Fort Road/ Admiralty Way priority junction (see **Figure 7.2** below) has been assessed for both the AM and PM peak periods, using the TRL program Junctions 9. The results of the analysis are presented in full in **Appendix C** and a summary of the results are shown in **Table 7.2** below.



Figure 7.2 Junction 2 Fort Road/ Admiralty Way/ Melville Street/ Melville Terrace

Table 7.2 Capacity analysis summary- Junction 2

	Base				Base + development			
	8am-9am		5pm-6pm		8am-9am		5pm-6pm	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
2018								
Melville Terrace	0.13	0.1	0.10	0.1				
Melville Street	0.17	0.2	0.05	0.1				
Admiralty Way	0.02	0.0	0.06	0.1				
Fort Road	0.01	0.0	0.02	0.0				
2020								
Melville Terrace	0.12	0.1	0.10	0.1	0.12	0.1	0.12	0.1
Melville Street	0.17	0.2	0.05	0.1	0.17	0.2	0.05	0.1
Admiralty Way	0.02	0.0	0.06	0.1	0.02	0.0	0.07	0.1
Fort Road	0.01	0.0	0.02	0.0	0.01	0.0	0.02	0.0
2030								
Melville Terrace	0.14	0.2	0.14	0.1	0.14	0.2	0.11	0.1
Melville Street	0.18	0.2	0.18	0.1	0.18	0.2	0.05	0.1
Admiralty Way	0.02	0.0	0.02	0.1	0.02	0.0	0.07	0.1
Fort Road	0.01	0.0	0.01	0.0	0.01	0.0	0.02	0.1
2035								
Melville Terrace	0.14	0.2	0.12	0.1	0.14	0.2	0.12	0.1
Melville Street	0.19	0.2	0.05	0.1	0.19	0.2	0.05	0.1
Admiralty Way	0.03	0.0	0.07	0.1	0.03	0.0	0.07	0.1
Fort Road	0.01	0.0	0.02	0.0	0.01	0.0	0.02	0.0

7.2.5 It can be seen from the table above that the existing junction operates within its theoretical capacity in all assessment scenarios, with a maximum RFC of 0.12 and queue of less than one vehicle in the PM peak period for the 2035 with development scenarios.

7.2.6 It can also be seen that the proposed development will have a negligible impact on the operation of the junction.

Junction 3: Melville Street/Market Street mini-roundabout

7.2.7 The operation of the Melville Street/Market Street mini-roundabout (see **Figure 7.3** below) has been assessed for both the AM and PM peak periods, using the TRL program Junctions 9. The results of the analysis are presented in full in **Appendix D** and a summary of the results are shown in **Table 7.3** below.

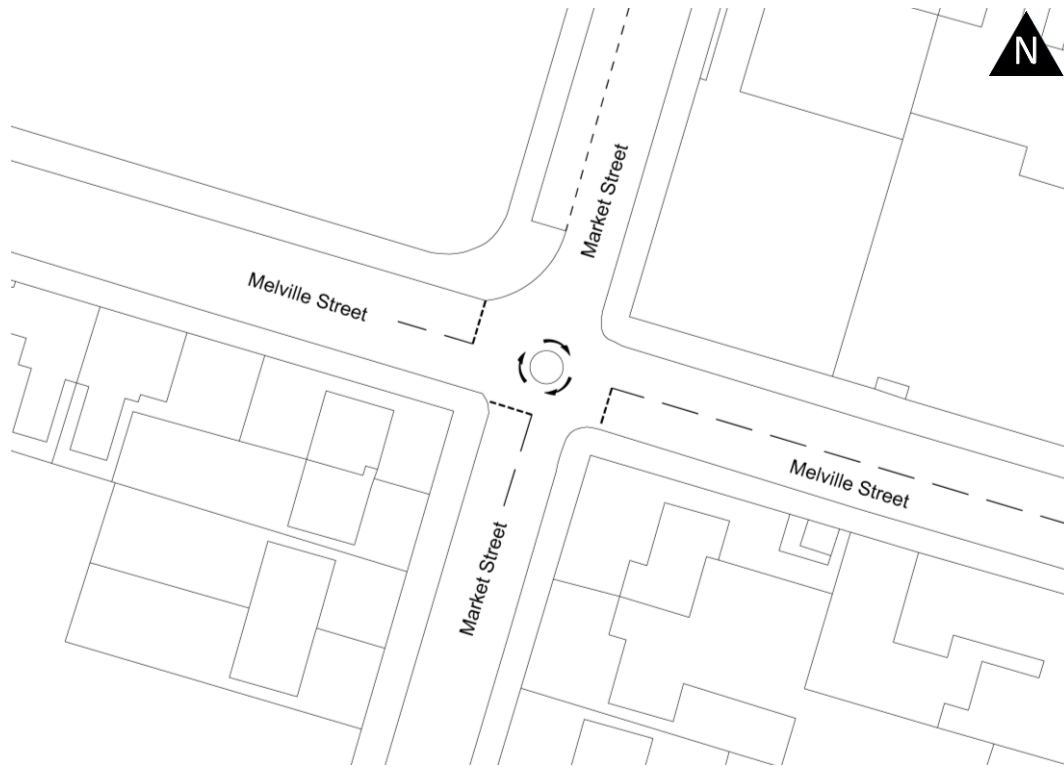


Figure 7.3 Junction 3 Melville Street/Market Street mini roundabout

Table 7.3 Capacity analysis summary- Junction 3

	Base				Base + development			
	8am-9am		5pm-6pm		8am-9am		5pm-6pm	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
2018								
Melville Street (w)	0.22	0.3	0.17	0.2				
Market Street (s)	0.00	0.0	0.00	0.0				
Melville Street (e)	0.05	0.1	0.05	0.1				
2020								
Melville Street (w)	0.22	0.3	0.18	0.2	0.26	0.4	0.22	0.3
Market Street (s)	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Melville Street (e)	0.06	0.1	0.05	0.1	0.06	0.1	0.06	0.1
2030								
Melville Street (w)	0.23	0.3	0.19	0.2	0.27	0.4	0.23	0.3
Market Street (s)	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Melville Street (e)	0.06	0.1	0.06	0.1	0.06	0.1	0.06	0.1
2035								
Melville Street (w)	0.25	0.4	0.20	0.3	0.29	0.4	0.24	0.3
Market Street (s)	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Melville Street (e)	0.06	0.1	0.06	0.1	0.06	0.1	0.06	0.1

7.2.8 It can be seen from the table above that the existing junction operates within its theoretical capacity in all assessment scenarios, with a maximum RFC of 0.24 and queue of less than one vehicle in the PM peak period for the 2035 with development scenarios.

7.2.9 It can also be seen that the proposed development will have a negligible impact on the operation of the junction.

Junction 4: Meyrick Owen Way/ Market Street

7.2.10 The operation of the Meyrick Owen Way/Market Street priority junction (see **Figure 7.4** below) has been assessed for both the AM and PM peak periods, using the TRL program Junctions 9. The results of the analysis are presented in full in **Appendix E** and a summary of the results are shown in **Table 7.4** below.

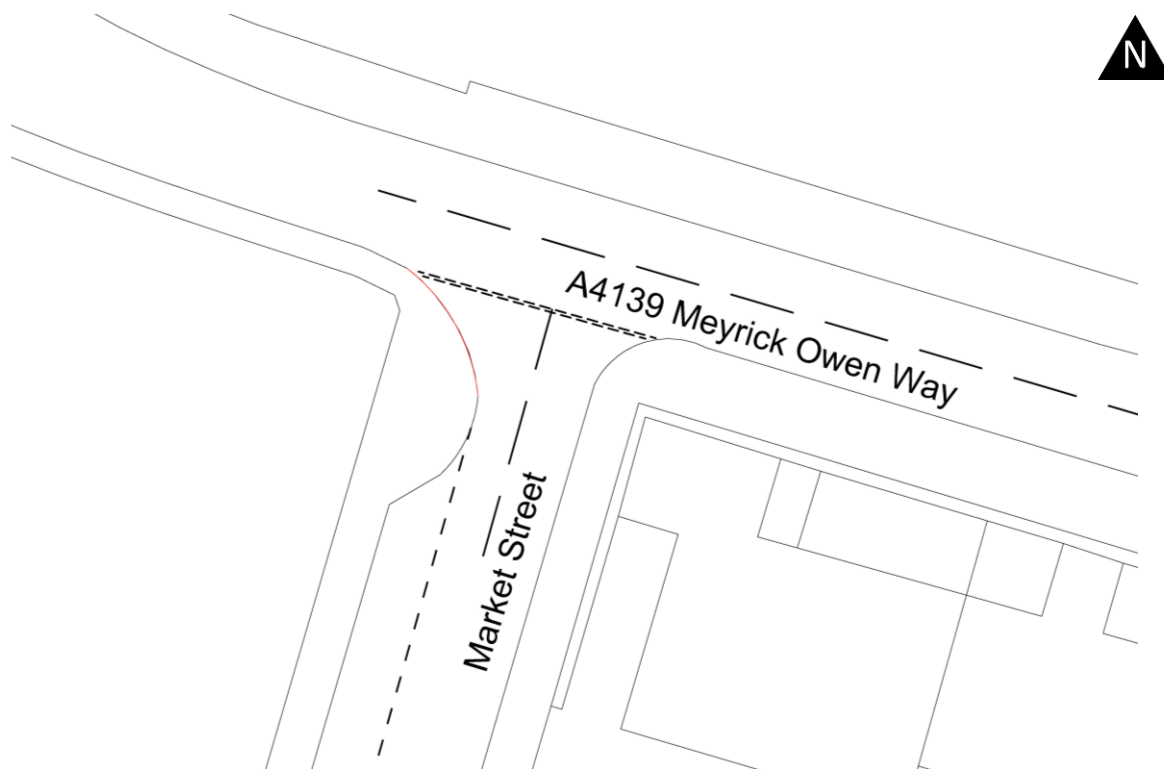


Figure 7.4 Junction 4 Meyrick Owen Way/ Market Street

Table 7.4 Capacity analysis summary- Junction 2

	Base				Base + development			
	8am-9am		5pm-6pm		8am-9am		5pm-6pm	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
2018								
Market Street (left)	0.01	0.0	0.01	0.0				
Market Street (right)	0.47	1.0	0.43	0.8				
2020								
Market Street (left)	0.01	0.0	0.01	0.0	0.08	0.1	0.10	0.1
Market Street (right)	0.48	1.0	0.44	0.8	0.50	1.1	0.48	1.0
2030								
Market Street (left)	0.01	0.0	0.01	0.0	0.08	0.1	0.10	0.1
Market Street (right)	0.51	1.1	0.46	0.9	0.53	1.2	0.50	1.1
2035								
Market Street (left)	0.01	0.0	0.01	0.0	0.08	0.1	0.10	0.1
Market Street (right)	0.55	1.4	0.50	1.1	0.57	1.5	0.55	1.3

7.2.11 It can be seen from the table above that the existing junction operates within its theoretical capacity in all assessment scenarios, with a maximum RFC of 0.55 and queue of one vehicle in the PM peak period for the 2035 with development scenarios.

7.2.12 It can also be seen that the proposed development will have a negligible impact on the operation of the junction.

Junction 5: Pembroke Street/Melville Street/B4322 mini-roundabout

7.2.13 The operation of the Pembroke Street/Melville Street/ B4322 mini-roundabout (see **Figure 7.5** below) has been assessed for both the AM and PM peak periods, using the TRL program Junctions 9. The results of the analysis are presented in full in **Appendix F** and a summary of the results are shown in **Table 7.5** below.



Figure 7.5 Junction 5 Pembroke Street/Melville Street/ B4322 mini roundabout

Table 7.5 Capacity analysis summary- Junction 5

	Base				Base + development				
	8am-9am		5pm-6pm		8am-9am		5pm-6pm		
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue	
2018									
B4322	0.27	0.4	0.24	0.3					
Pembroke Street (s)	0.17	0.2	0.13	0.1					
Melville Street	0.01	0.0	0.01	0.0					
2020									
B4322	0.28	0.4	0.24	0.3	0.28	0.4	0.27	0.4	
Pembroke Street (s)	0.17	0.2	0.13	0.2	0.21	0.3	0.18	0.2	
Melville Street	0.01	0.0	0.01	0.0	0.01	0.0	0.01	0.0	
2030									
B4322	0.29	0.4	0.25	0.3	0.29	0.4	0.29	0.4	
Pembroke Street (s)	0.18	0.2	0.14	0.2	0.22	0.3	0.18	0.2	
Melville Street	0.01	0.0	0.01	0.0	0.01	0.0	0.01	0.0	
2035									

B4322	0.32	0.5	0.27	0.4	0.32	0.5	0.31	0.4
Pembroke Street (s)	0.20	0.3	0.15	0.2	0.23	0.3	0.19	0.2
Melville Street	0.01	0.0	0.01	0.0	0.01	0.0	0.01	0.0

- 7.2.14 It can be seen from the table above that the existing junction operates within its theoretical capacity in all assessment scenarios, with a maximum RFC of 0.31 and queue of less than one vehicle in the PM peak period for the 2035 with development scenarios.
- 7.2.15 It can also be seen that the proposed development will have a negligible impact on the operation of the junction.

Junction 6: Gate 1 Access/ Front Street/ Commercial Row/ Western Way

- 7.2.16 The operation of Gate 1 Access/ Front Street/ Commercial Row priority junction (see **Figure 7.6** below) has been assessed for both the AM and PM peak periods, using the TRL program Junctions 9. The results of the analysis are presented in full in **Appendix G** and a summary of the results are shown in **Table 7.6** below.

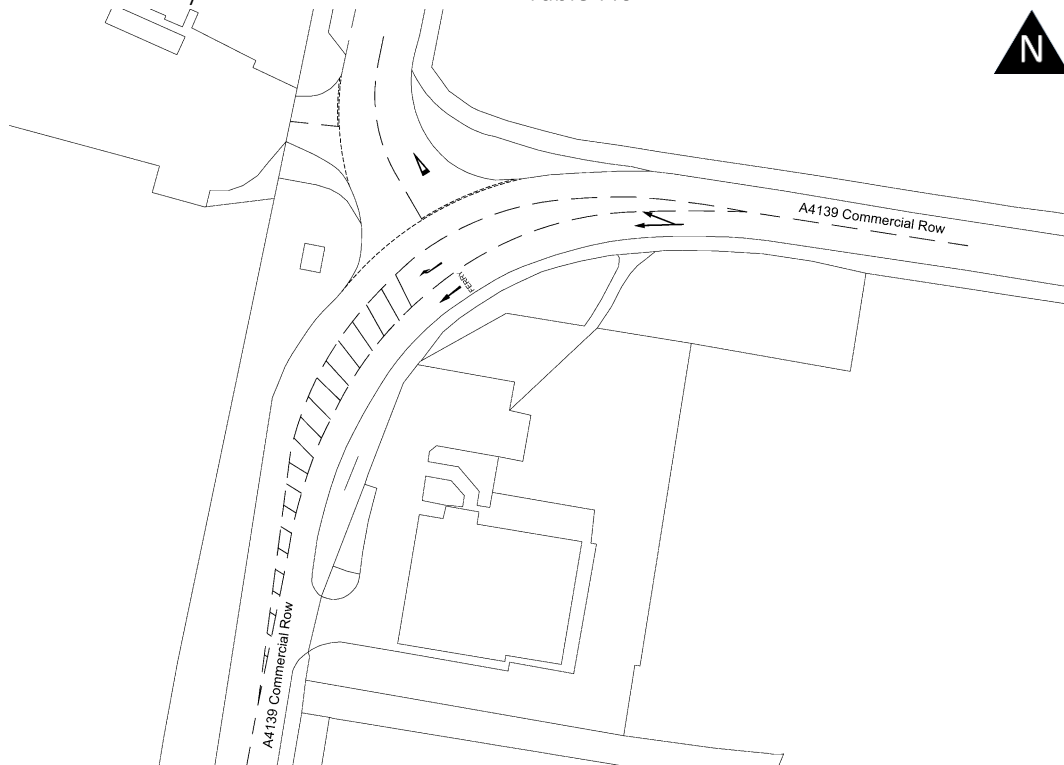


Figure 7.6 Junction 6 Gate 1 Access/Front Street/ Commercial Row/ Western Way

Table 7.6 Capacity analysis summary- Junction 6

	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
2018								
Front Street	0.1	0.1	0.05	0.1				
A4139 (E)	0.09	0.2	0.05	0.1				
2020								
Front Street	0.10	0.1	0.05	0.1	0.10	0.1	0.05	0.1
A4139 (E)	0.09	0.2	0.05	0.1	0.10	0.2	0.06	0.1
2030								
Front Street	0.11	0.1	0.05	0.1	0.11	0.1	0.05	0.1
A4139 (E)	0.10	0.2	0.05	0.1	0.10	0.3	0.06	0.1
2035								
Front Street	0.12	0.1	0.06	0.1	0.12	0.1	0.06	0.1
A4139 (E)	0.11	0.3	0.06	0.1	0.11	0.3	0.07	0.1

7.2.17 It can be seen from the table above that the existing junction operates within its theoretical capacity in all assessment scenarios, with a maximum RFC of 0.07 and queue of less than one vehicle in the PM peak period for the 2035 with development scenarios.

7.2.18 It can also be seen that the proposed development will have a negligible impact on the operation of the junction.

Junction 7: B4322/Meyrick Owen Way/A4139/Pier Road roundabout

7.2.19 The operation of the B4322/ Meyrick Owen Way/ A4139/ Pier Road roundabout (see **Figure 7.7** below) has been assessed for both the AM and PM peak periods, using the TRL program Junctions 9. The results of the analysis are presented in full in **Appendix H** and a summary of the results are shown in **Table 7.7** below.



Figure 7.7 Junction 7 B4322/ Meyrick Owen Way/ A4139/ Pier Road roundabout

Table 7.7 Capacity analysis summary- Junction 7

	Base				Base + development			
	8am-9am		5pm-6pm		8am-9am		5pm-6pm	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
2018								
Meyrick Owen Way	0.17	0.2	0.21	0.3				
Pier Road	0.07	0.1	0.13	0.2				
A4139	0.18	0.2	0.21	0.3				
B4322	0.18	0.2	0.20	0.3				
2020								
Meyrick Owen Way	0.18	0.2	0.22	0.3	0.17	0.2	0.26	0.4
Pier Road	0.07	0.1	0.14	0.2	0.07	0.1	0.15	0.2
A4139	0.18	0.2	0.22	0.3	0.21	0.3	0.25	0.4
B4322	0.18	0.2	0.21	0.3	0.19	0.2	0.22	0.3
2030								
Meyrick Owen Way	0.19	0.3	0.23	0.3	0.18	0.2	0.27	0.4
Pier Road	0.07	0.1	0.15	0.2	0.07	0.1	0.16	0.2

A4139	0.19	0.2	0.23	0.3	0.22	0.3	0.26	0.4
B4322	0.19	0.3	0.22	0.3	0.20	0.3	0.23	0.3
2035								
Meyrick Owen Way	0.20	0.3	0.25	0.4	0.20	0.3	0.29	0.4
Pier Road	0.08	0.1	0.16	0.2	0.08	0.1	0.18	0.2
A4139	0.20	0.3	0.25	0.4	0.23	0.3	0.28	0.4
B4322	0.21	0.3	0.24	0.3	0.21	0.3	0.25	0.3

7.2.20 It can be seen from the table above that the existing junction operates within its theoretical capacity in all assessment scenarios, with a maximum RFC of 0.29 and queue of less than one vehicle in the PM peak period for the 2035 with development scenarios.

7.2.21 It can also be seen that the proposed development will have a negligible impact on the operation of the junction.

Junction 7: Tremeyrick Street/ B4322/ Meyrick Owen Way/ A4139/ Pier Road roundabout

7.2.22 The operation of Tremeyrick Street together with the B4322/ Meyrick Owen Way/ A4139/ Pier Road roundabout has been assessed for both the AM and PM peak periods, using the TRL program Junctions 9. The results of the analysis are presented in full in **Appendix I** and a summary of the results are shown in **Table 7.8** below.

Table 7.8 Tremeyrick Street/ B4322/ Meyrick Owen Way/ A4139/ Pier Road roundabout

	Base				Base + development			
	8am-9am		5pm-6pm		8am-9am		5pm-6pm	
	Delay (s)	Queue	Delay (s)	Queue	Delay (s)	Queue	Delay (s)	Queue
2018								
Meyrick Owen Way	3.06	0.3	3.01	0.4				
Pier Road	2.78	0.1	3.24	0.2				
A4139	2.18	0.4	2.18	0.3				
B4322	2.97	0.2	2.81	0.3				
Tremeyrick Street	13.51	0.7	13.54	0.9				
2020								
Meyrick Owen Way	2.97	0.4	2.92	0.4	3.02	0.2	3.24	0.4
Pier Road	2.85	0.1	2.94	0.2	2.78	0.1	3.15	0.2
A4139	2.17	0.3	2.19	0.4	2.26	0.3	2.21	0.2
B4322	2.83	0.3	2.80	0.3	2.92	0.3	2.81	0.3
Tremeyrick Street	14.53	0.7	14.65	0.9	15.28	0.9	15.08	0.8
2030								
Meyrick Owen Way	3.15	0.3	3.02	0.3	3.13	0.3	3.31	0.5
Pier Road	2.83	0.2	3.02	0.2	2.71	0.1	3.25	0.2
A4139	2.17	0.3	2.19	0.4	2.30	0.4	2.23	0.4
B4322	2.98	0.4	2.81	0.3	3.07	0.2	2.92	0.3
Tremeyrick Street	14.51	0.6	15.88	0.9	18.82	1.0	18.11	0.1

2035								
Meyrick Owen Way	3.25	0.4	3.09	0.4	3.16	0.4	3.51	0.6
Pier Road	3.00	0.1	3.39	0.2	2.99	0.1	3.26	0.2
A4139	2.26	0.4	2.28	0.4	2.35	0.4	2.30	0.4
B4322	3.01	0.4	3.04	0.4	3.15	0.3	3.02	0.4
Tremeyrick Street	16.11	0.9	17.44	1.0	17.61	1.2	18.66	1.5

7.2.23 It can be seen from the table above that the existing junction operates within its theoretical capacity in all assessment scenarios, with a maximum queue two vehicles in the PM peak period for the 2035 with development scenarios.

7.2.24 It can also be seen that the proposed development will have a negligible impact on the operation of the junction.

Junction 8: A4139/ Tesco signalised junction

7.2.25 The operation of the existing A4139/Tesco superstore traffic signal controlled junction (see **Figure 7.8** below) has been assessed for both the AM and PM peak periods, using the JCT program LinSig (V2). The results of the analysis are presented in full in **Appendix J** and a summary of the results are shown in **Table 7.9** below.

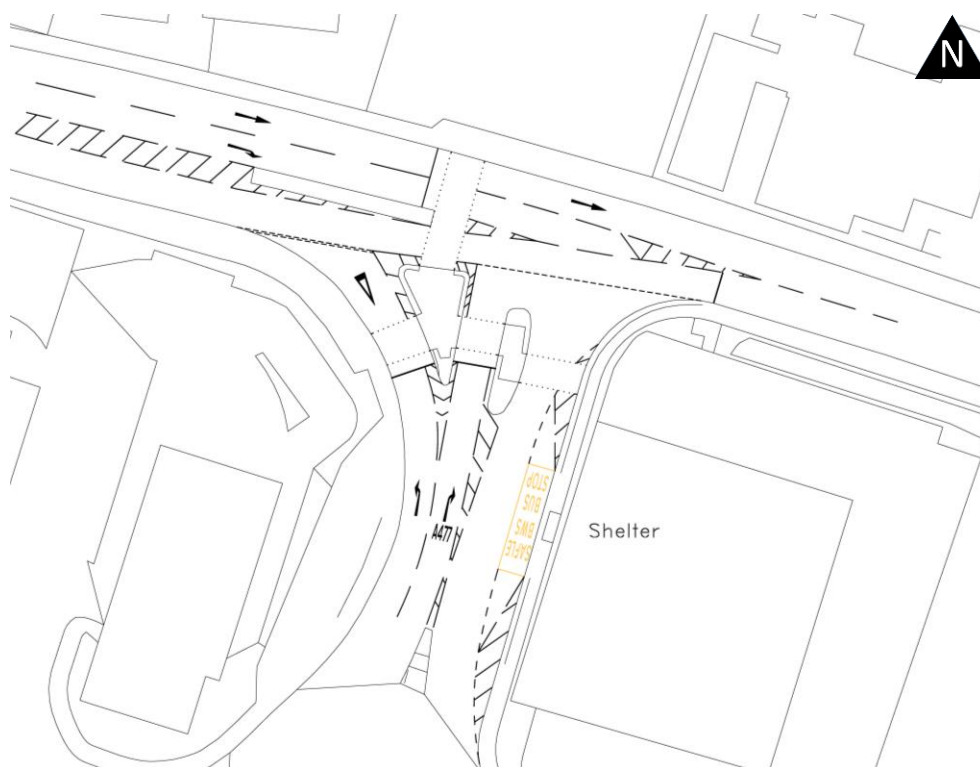


Figure 7.8 Junction 8 A4139/ Tesco signalised junction

Table 7.9 Capacity analysis summary- Junction 8

	Base				Base + development			
	8am-9am		5pm-6pm		8am-9am		5pm-6pm	
	% Deg Sat	Queue	% Deg Sat	Queue	% Deg Sat	Queue	% Deg Sat	Queue
2018								
A4139 (w) westbound	30.6	1.4	45.4	2.6				
A4139 (e) westbound	23.9	0.2	32.6	0.2				
Tesco superstore exit	54.9	1.7	69.5	3.7				
A4139 (w) eastbound	19.2	0.1	21.3	0.1				
A4139 (e) eastbound	37.5	3.8	50.0	6.2				
Tesco superstore access	14.5	0.1	21.5	0.1				
2020								
A4139 (w) westbound	32	1.6	47.7	2.8	29.4	1.9	48.1	4.2
A4139 (e) westbound	24.4	0.2	33.3	0.2	24.4	0.2	36.2	0.3
Tesco superstore exit	51.0	1.7	67.4	3.7	56.1	2.4	69.7	5.4
A4139 (w) eastbound	19.6	0.1	21.8	0.1	22.4	0.1	21.8	0.1
A4139 (e) eastbound	39.2	4.1	52.7	6.5	39.8	5.6	47.7	8.4
Tesco superstore access	14.8	0.1	21.9	0.1	14.8	0.1	21.9	0.1
2030								
A4139 (w) westbound	33.6	1.7	50.3	3.1	30.8	2.0	53.5	4.9
A4139 (e) westbound	25.6	0.2	35.1	0.3	25.6	0.2	38.0	0.3
Tesco superstore exit	53.5	1.8	71.0	4.0	58.8	2.6	66.5	5.4
A4139 (w) eastbound	20.6	0.1	22.9	0.1	23.4	0.2	22.9	0.1
A4139 (e) eastbound	41.2	4.4	55.4	7.0	41.6	6.0	53.2	9.8
Tesco superstore access	15.5	0.1	23.1	0.2	15.5	0.1	23.1	0.2
2035								
A4139 (w) westbound	36.0	1.8	54.1	3.4	33.5	2.2	54.9	5.1
A4139 (e) westbound	27.4	0.2	26.5	0.2	27.4	0.2	40.6	0.3
Tesco superstore exit	57.3	1.9	76.2	4.5	59.1	2.7	76.2	6.4
A4139 (w) eastbound	22.1	0.1	24.6	0.2	24.9	0.2	24.6	0.2
A4139 (e) eastbound	44.2	4.9	59.6	8.0	45.0	6.8	55.0	10.3
Tesco superstore access	16.6	0.1	36.1	7.5	16.6	0.1	24.8	0.2

7.2.26 It can be seen from the table above that the existing junction operates within its theoretical capacity in all assessment scenarios, with a maximum queue of 10 vehicles in the PM peak period for the 2035 with development scenarios.

7.2.27 It can also be seen that the proposed development will have a negligible impact on the operation of the junction.

Junction 9: A477/London Road/ Waterloo Road roundabout

7.2.28 The operation of the A477/ London Road/ Waterloo Road roundabout (see **Figure 7.9** below) has been assessed for both the AM and PM peak periods, using the TRL program Junctions 9. The results of the analysis are presented in full in **Appendix K** and a summary of the results are shown in **Table 7.10** below.



Figure 7.9 Junction 9 A477/ London Road/ Waterloo Road roundabout

Table 7.10 Capacity analysis summary- Junction 9

	Base				Base + development			
	8am-9am		5pm-6pm		8am-9am		5pm-6pm	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
2018								
London Road	0.59	1.8	0.63	2.0				
A4139	0.37	0.7	0.48	1.0				
Waterloo Road A477	0.40	0.9	0.43	0.8				
2020								
London Road	0.60	1.9	0.64	2.1	0.63	2.0	0.67	2.4
A4139	0.38	0.8	0.49	1.1	0.38	0.8	0.54	1.3
Waterloo Road A477	0.41	0.9	0.44	0.9	0.43	1.0	0.48	1.0
2030								
London Road	0.64	2.2	0.68	2.5	0.66	2.4	0.72	2.9
A4139	0.40	0.9	0.53	1.2	0.40	0.9	0.57	1.5
Waterloo Road A477	0.44	1.1	0.48	1.0	0.46	1.2	0.51	1.1

2035								
London Road	0.68	2.7	0.74	3.3	0.71	3.0	0.77	3.8
A4139	0.44	1.0	0.58	1.5	0.44	1.0	0.62	1.9
Waterloo Road A477	0.48	1.3	0.52	1.2	0.50	1.4	0.56	1.4

7.2.29 It can be seen from the table above that the existing junction operates within its theoretical capacity in all assessment scenarios, with a maximum RFC of 0.77 and queue of 4 vehicles in the PM peak period for the 2035 with development scenarios.

7.2.30 It can also be seen that the proposed development will have a negligible impact on the operation of the junction.

Summary

7.2.31 The results show that all the junctions within the study have sufficient capacity to accommodate base traffic flows to 2035 together with the additional traffic generated by the proposed development (full development).

7.3 Mitigation measures

Travel plan

7.3.1 As part of this application a Travel Plan has been developed to encourage sustainable modes of travel associated with the development.

Construction Traffic Management Plan

7.3.2 As part of this application a Construction Traffic Management plan will be developed to ensure vehicle traffic associated with the redevelopment of Pembroke Port will have a minimal impact on the surrounding highway network.

8 Transport implementation strategy

8.1 Introduction

8.1.1 In accordance with TAN 18, a Transport Implementation Strategy needs to be included in the Transport Assessment process, which sets the objectives and targets relating to managing travel demand.

8.1.2 **Table 8.1** over the page outlines the Transport Implementation Strategy for the proposed development, which provides additional details on the measures outlined in Section 4. These measures are organised into four categories ,and includes likely timescale for implementation. The three categories are:

- Pedestrian, cyclists and public transport user measures;
- Travel Plan; and,
- Car based user provision.

Table 8.1 Transportation implementation strategy

	Measure	Commentary	Timescale for implementation
Pedestrian users provision			
A	Provision and enhancement of 'pedestrian' direction signs outside the site, to direct users to the site, and to other town centre facilities and amenities.	This is likely to be a condition of consent, with details submitted to and approved in writing by the local planning authority.	This will need to be completed prior to the beneficial occupation of the site.
C	Provision of 'Active Travel' information within staff Welcome Packs, including walk distances/times to all residential areas within 2km, highlighting the benefits of walking to work.		This will need to be completed prior to the beneficial occupation of the site.
Cycle users			
A	Provision of secure cycle parking spaces in accordance with the adopted parking standards.	This is likely to be a condition of consent, with details submitted to and approved in writing by the local planning authority	This will need to be completed prior to the beneficial occupation of the site.
B	Provision of 'Active Travel' information within the staff Welcome Pack, including cycle distances/times from neighbouring settlements, and public transport facilities.		This will need to be completed prior to the beneficial occupation of the site.
Public transport users			
A	Provision of public transport information within staff Welcome Packs, including the nearest bus stops, routes to/from the town centre and timetables.	This is likely to be a condition of consent, with details submitted to and approved in writing by the local planning authority.	This will be provided beyond first occupation of the site.
Travel Plan			
A	Encouraging the use of more sustainable modes (walking, cycling car sharing and public transport)	This is likely to be a condition of consent, with details submitted to and approved in writing by the local planning authority.	The Travel Plan will need to be completed prior to 50% occupation of the site.
B	Setting mode share targets		
C	On-going monitoring		

9 Summary and conclusions

9.1 Background

9.1.1 Lime Transport has been commissioned by Milford Haven Port Authority (MHPA) to prepare a Transport Assessment for the redevelopment of Pembroke Port, to create a centre for renewable energy.

9.1.2 The proposed development is located within Pembroke Port, Pembroke Dock, approximately 4km northwest of Pembroke Town centre.

9.2 Development proposals

9.2.1 A full description of the proposed development can be found in Chapter Two 'Project description' of the Environmental Statement, with a brief description stated below:

- Widening of the existing slipway and extension of the slipway towards deeper water;
- Provision of large areas of hardstanding in proximity to the quayside;
- Areas of flat land for use either as 'lay down' or capable of being developed to create buildings in response to time-sensitive business requirements; and,
- Enhanced interconnectivity between the New Gate 4 facility and the Existing Gate 1 Facility via transport corridors.

Vehicle Access

9.2.2 As part of the development it is proposed to provide two points of access. These include:

- Primary access via Admiralty Way and Meyrick Owen Way; and,
- Second access via Gate One off Front Street

9.2.3 The primary access via Admiralty Way will be used by staff working at the proposed development, as well as commercial vehicles and passenger cars to access the commercial ferry.

9.2.4 The secondary access, via Gate 1, will be used for deliveries and bulk material deliveries into the port.

9.2.5 As part of the development a modified widened highway access point will be required to the Gate 4 area from Whites Farm Way.

Pedestrian access to the site

9.2.6 It is likely that staff and visitors will access the site via car or public transport. The existing pedestrian routes to the site via Admiralty Way and Meyrick Owen Way will remain and provide the main access to the site for pedestrians.

Parking

- 9.2.7 It is anticipated that the peak parking demand is likely to be 374 vehicles, when the staff working the evening shift arrive for work before the day shift has finished.
- 9.2.8 As part of the re-development of Pembroke Port it is proposed to provide a total car parking area of 7,893 m². In addition to this, it is proposed to provide 5,00 m² as an external light assembly and parking area. It is therefore considered that the proposed development is accordance with Pembrokeshire County Councils parking standards for industrial use.
- 9.2.9 It is anticipated that the level of parking proposed is more than sufficient to accommodate the existing demand. It is also considered that there is sufficient space within the port to accommodate any overspill parking, without the need for vehicles to park within the surrounding highway.

9.3 Travel characteristics

- 9.3.1 It is anticipated that the proposed development is likely to generate up to 645 staff working on site, with:
- Approximately 335 staff working the day shift (8am-6pm)
 - Approximately 180 staff working the evening shift (6pm -4am); and,
 - Approximately 130 staff working a normal working day (9am – 5pm)
- 9.3.2 Based on 2011 census data, is likely that 73% of staff will travel to the site by car, generating a total of 938 vehicle movements (two-way) throughout the day. With a total of 94 vehicle movements (two-way) in the AM and peak, and a total of vehicle movements 224 (two-way) in the PM peak.
- 9.3.3 Walking is anticipated to be the second mode of transport with 13% of employees likely to travel by this mode.

9.4 Potential impact

- 9.4.1 As agreed with the highway authority, the report considers the impact of the development proposals on the surrounding highway network and the capacity of the following junctions:
- Junction 1: Admiralty Way/Meyrick Owen Way/Whites Farm Way mini-roundabout;
 - Junction 2: Fort Road/ Admiralty Way/ Melville St/ Melville Terrace.
 - Junction 3: Melville Street/Market Street mini-roundabout;
 - Junction 4: Meyrick Owen Way/ Market St; and,
 - Junction 5: Pembroke Street/Melville Street/B4322 mini-roundabout;
 - Junction 6: Gate 1 Access/Front St/Commercial Row/ Western Way;
 - Junction 7: B4322/ Meyrick Owen Way/ A4139/Pier Road roundabout;
 - Junction 8: A4139/ Tesco signalised junction; and,

- Junction 9: A477/ A4139 / London Road/ Waterloo Road roundabout;

9.4.2 The results show that all the junctions within the study have sufficient capacity to accommodate base traffic flows to 2035 together with the additional traffic generated by the proposed development (full development).

9.5 Conclusions

9.5.1 Overall, it is considered that the proposed development will have a marginal impact on the operation of the junctions assessed as part of the Transport Assessment, and that no further mitigation measures are required to mitigate the impact of the proposed development.

9.5.2 It is also considered that the introduction of a Construction Traffic Management Plan can reduce the impact of construction vehicles on the surrounding highway network, and that a Staff Travel Plan can reduce the operational impact of the development.

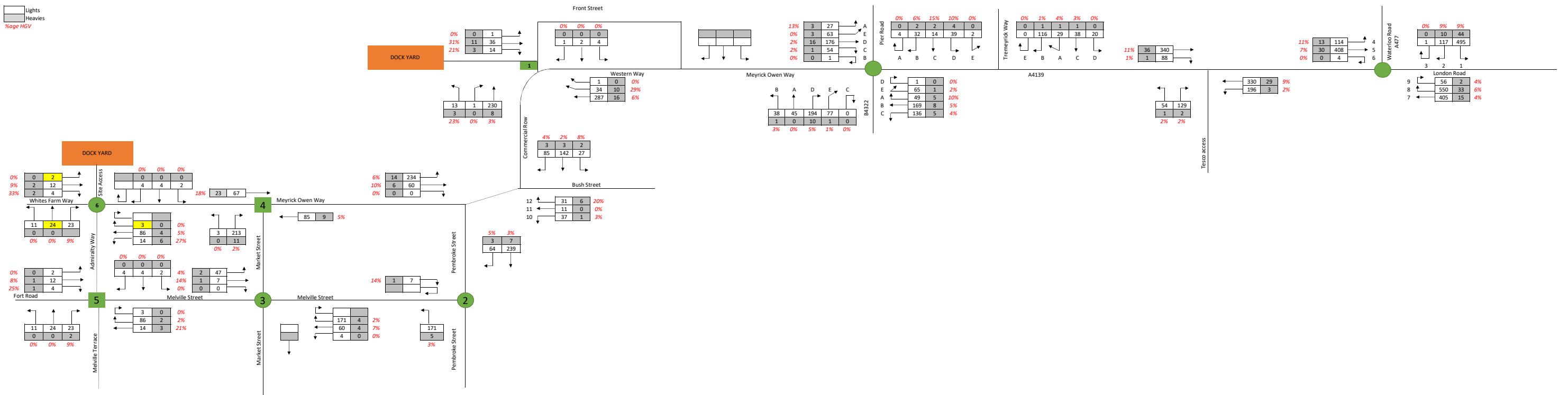
Appendices



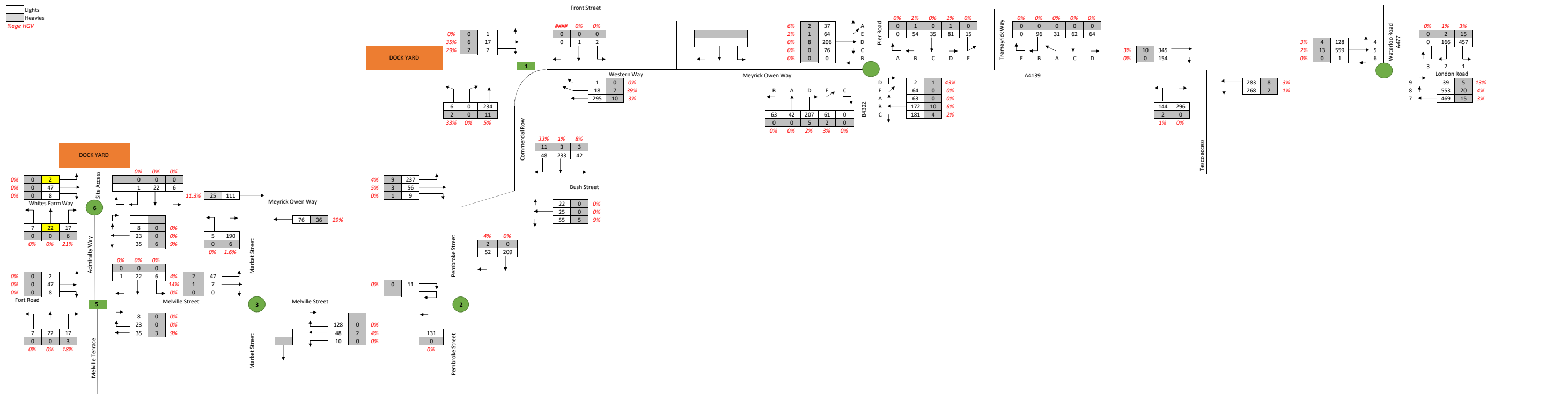
Appendix A



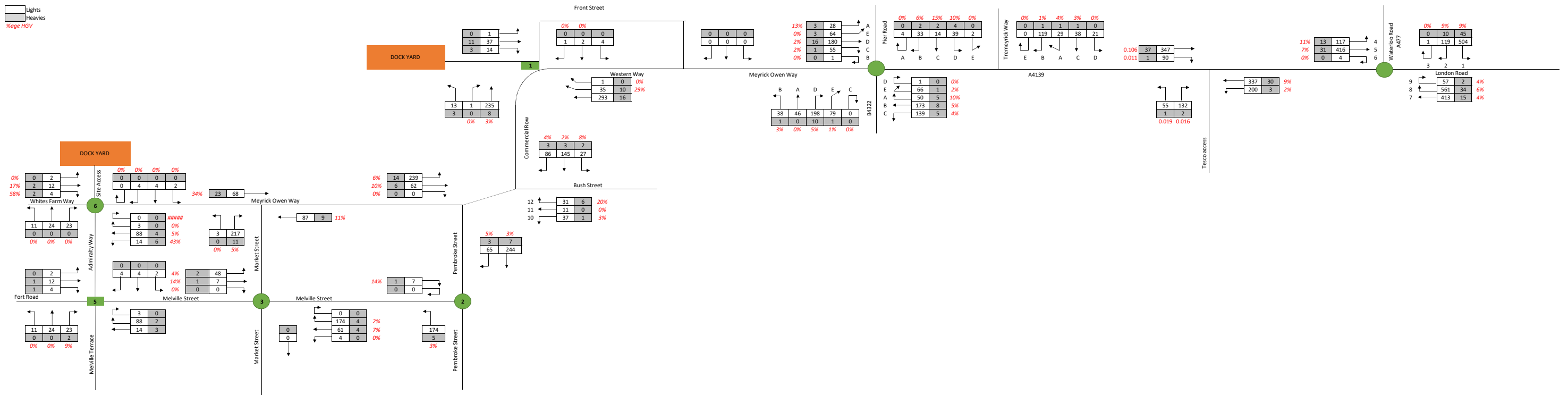
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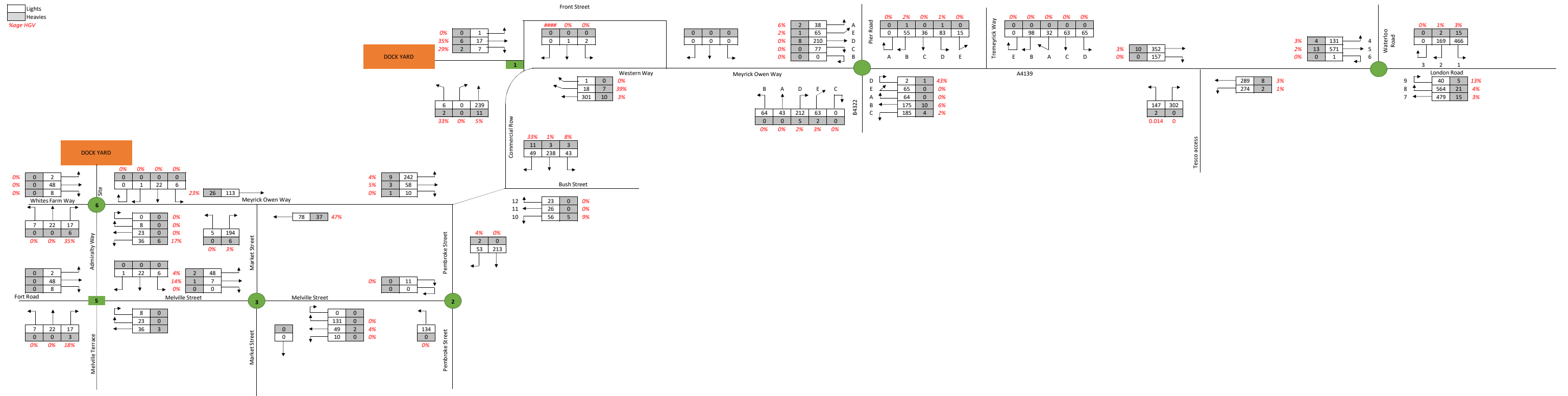
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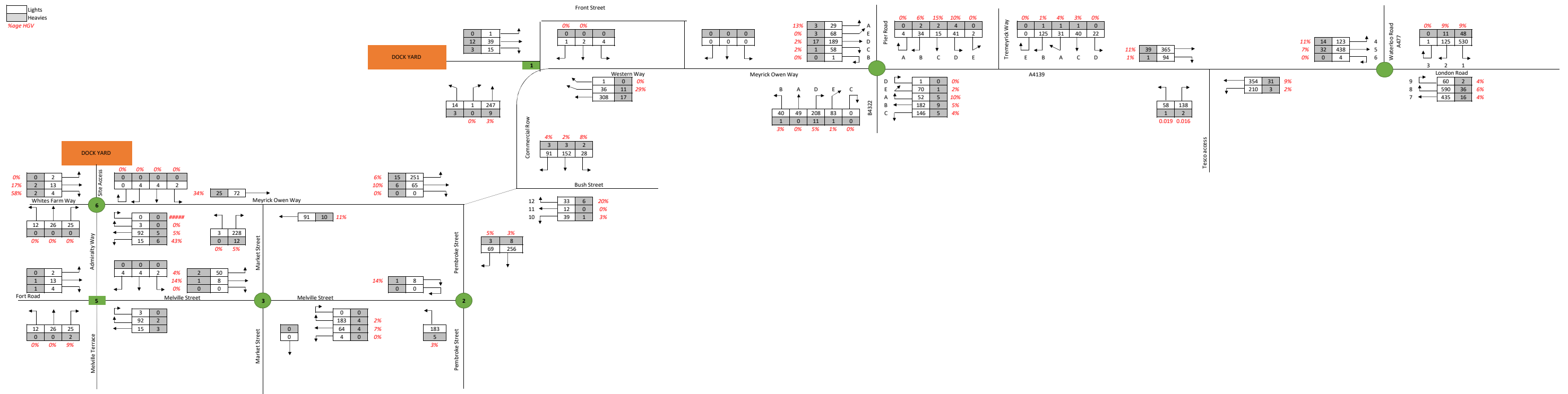
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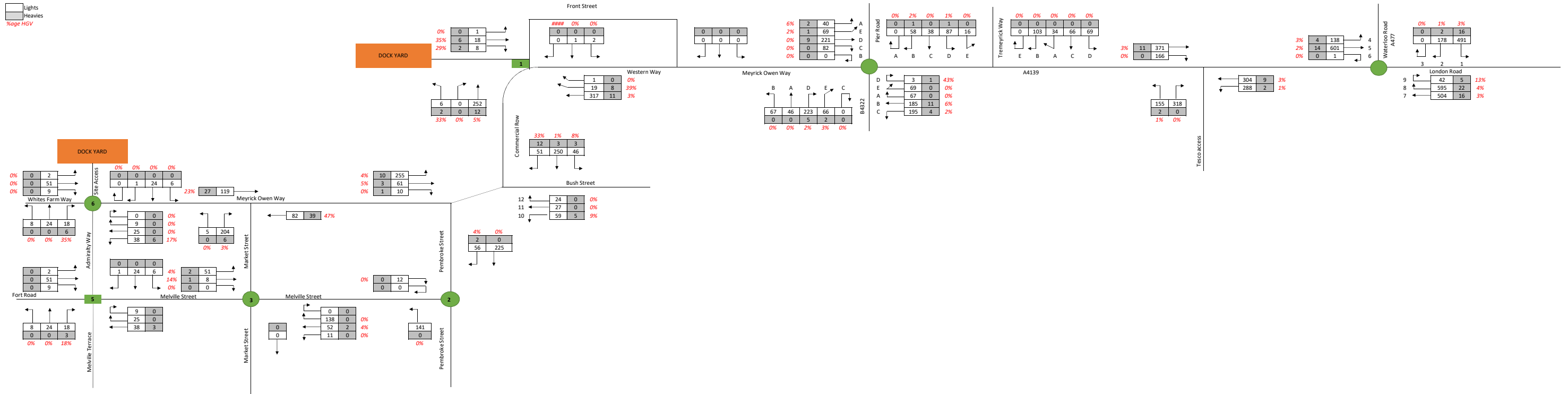
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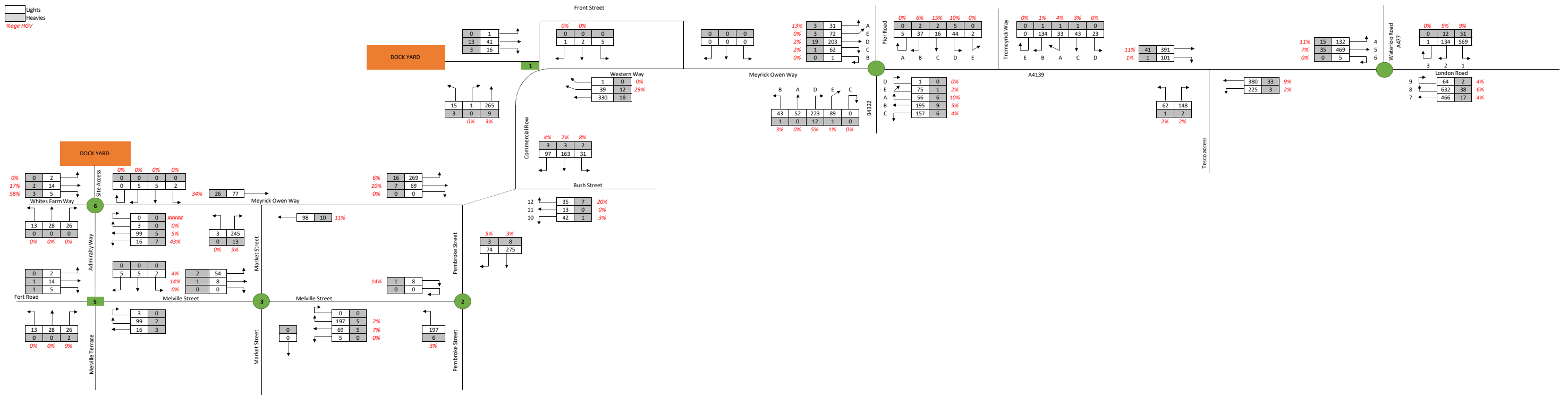
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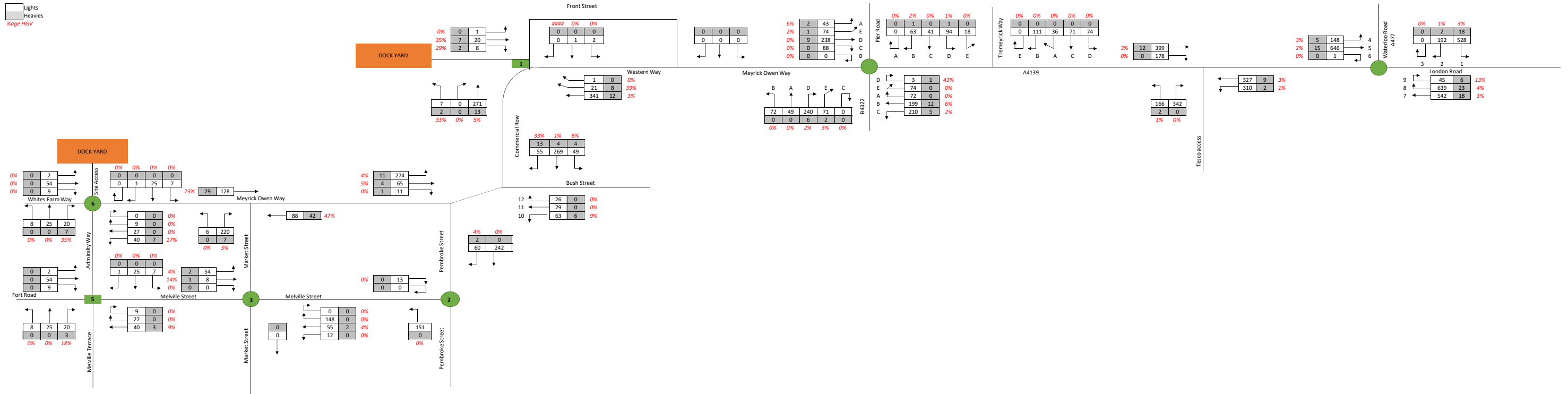
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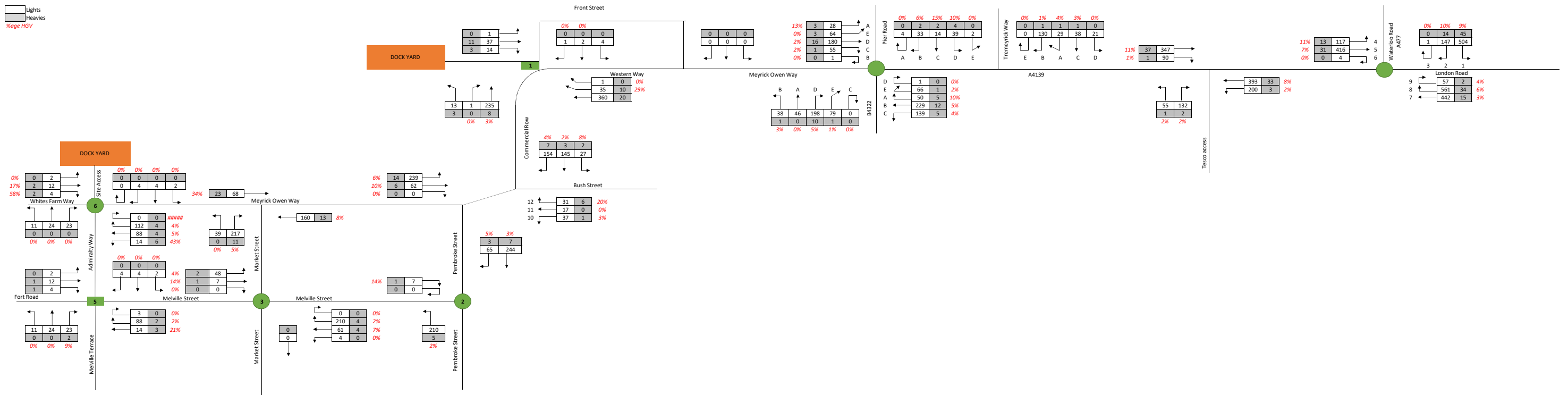
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Nope HGV



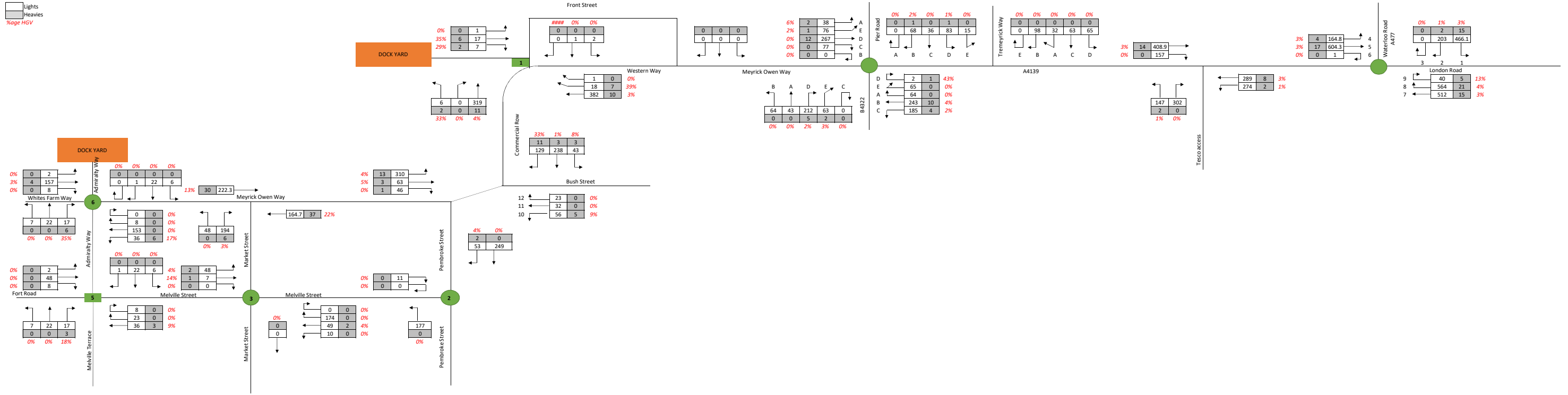
Lights
Heavies
%age HGV



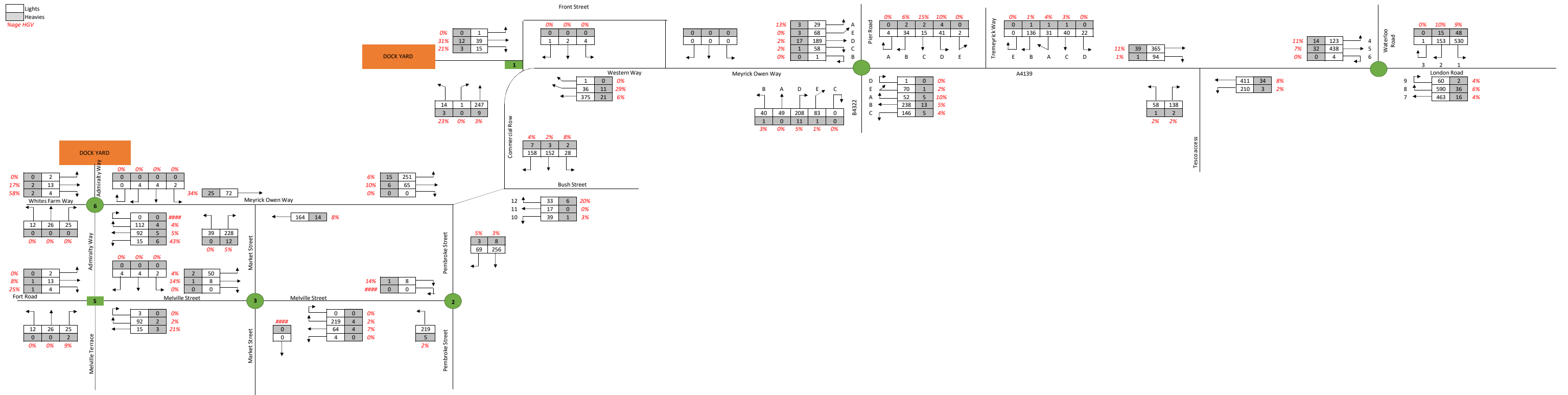
Lights
Heavies
Nope HGV



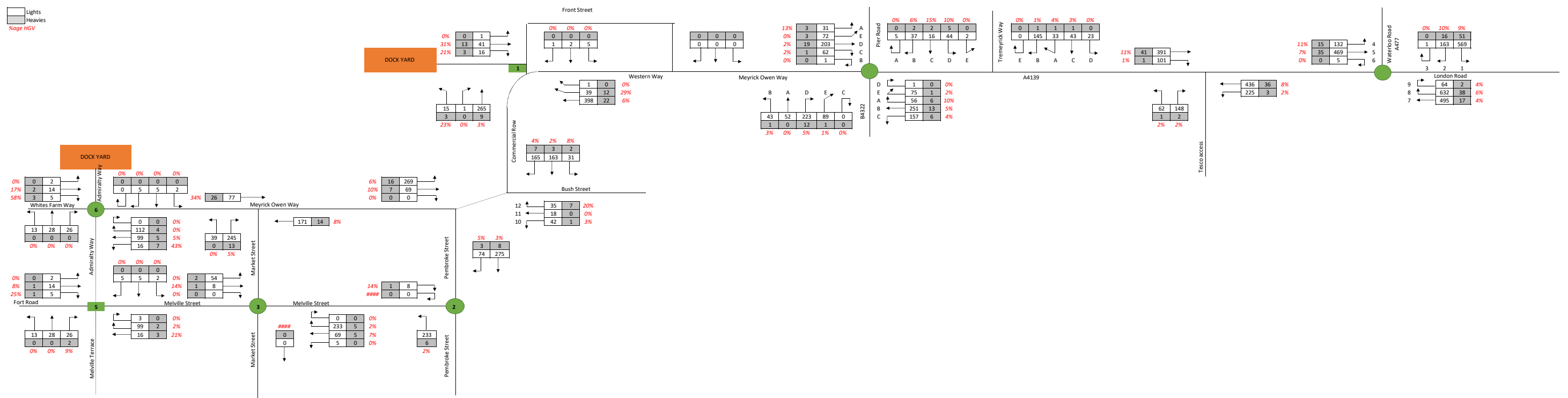
Lights
Heavies
%age HGV



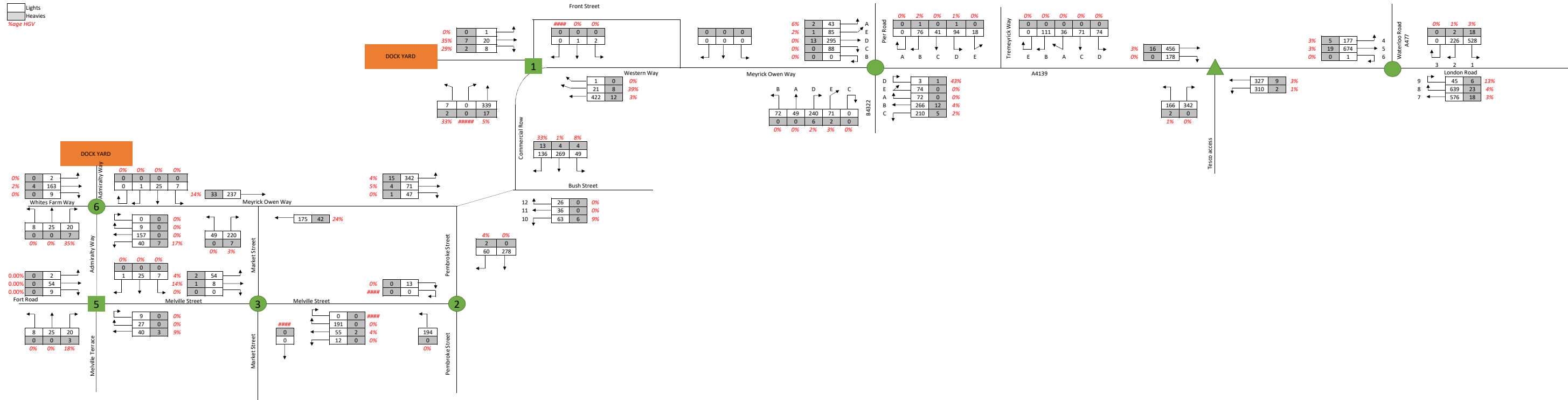
Lights
 Heavies
 %age HGV



Lights
Heavies
%age HGV



Lights
 Heavies
 %Age HGV



Appendix B



<h1>Junctions 9</h1>
<h2>ARCADY 9 - Roundabout Module</h2>
Version: 9.5.0.6896 © Copyright TRL Limited, 2018
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Filename: Site Access roundabout junction.j9

Path: Z:\Lime\Projects\2017\17204 Pembroke Port, Pembroke\Analysis\JUNCTIONS 9

Report generation date: 22/01/2019 11:39:16

«2035 + Dev, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
2018 Base										
Arm 1	0.1	3.61	0.10	A	611 % [Arm 2]	0.1	3.47	0.06	A	900 % []
Arm 2	0.1	4.45	0.07	A		0.1	4.29	0.06	A	
Arm 3	0.0	3.68	0.02	A		0.1	3.77	0.06	A	
Arm 4	0.0	3.14	0.01	A		0.0	3.26	0.03	A	
2020 Base										
Arm 1	0.1	3.61	0.10	A	604 % [Arm 2]	0.1	3.48	0.06	A	900 % []
Arm 2	0.1	4.46	0.07	A		0.1	4.29	0.06	A	
Arm 3	0.0	3.68	0.02	A		0.1	3.77	0.06	A	
Arm 4	0.0	3.14	0.01	A		0.0	3.26	0.03	A	
2030 Base										
Arm 1	0.1	3.66	0.11	A	561 % [Arm 2]	0.1	3.50	0.07	A	876 % [Arm 3]
Arm 2	0.1	4.50	0.08	A		0.1	4.32	0.06	A	
Arm 3	0.0	3.69	0.02	A		0.1	3.80	0.07	A	
Arm 4	0.0	3.15	0.01	A		0.0	3.28	0.03	A	
2035 Base										
Arm 1	0.1	3.70	0.11	A	517 % [Arm 2]	0.1	3.53	0.07	A	828 % [Arm 3]
Arm 2	0.1	4.55	0.09	A		0.1	4.37	0.06	A	
Arm 3	0.0	3.71	0.02	A		0.1	3.82	0.07	A	
Arm 4	0.0	3.16	0.01	A		0.0	3.29	0.03	A	
2020 + Dev										
Arm 1	0.3	4.09	0.20	A	340 % [Arm 1]	0.2	3.93	0.19	A	351 % [Arm 3]
Arm 2	0.1	4.83	0.08	A		0.1	4.70	0.06	A	
Arm 3	0.0	3.92	0.02	A		0.2	4.48	0.18	A	
Arm 4	0.0	3.14	0.01	A		0.0	3.48	0.03	A	
2030 + Dev										
Arm 1	0.3	4.13	0.21	A	330 % [Arm 1]	0.2	3.97	0.20	A	337 % [Arm 3]
Arm 2	0.1	4.88	0.09	A		0.1	4.73	0.07	A	
Arm 3	0.0	3.94	0.02	A		0.2	4.51	0.19	A	
Arm 4	0.0	3.15	0.01	A		0.0	3.49	0.03	A	
2035 + Dev										
Arm 1	0.3	4.18	0.22	A	312 % [Arm 1]	0.3	4.00	0.20	A	327 % [Arm 3]
Arm 2	0.1	4.94	0.09	A		0.1	4.78	0.07	A	
Arm 3	0.0	3.96	0.02	A		0.2	4.54	0.19	A	
Arm 4	0.0	3.16	0.01	A		0.0	3.51	0.03	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	21/01/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-U7G8RPA\Connor Davies-Beare
Description	

Units

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

Analysis Options

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

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D14	2035 + Dev	PM	ONE HOUR	17:00	18:30	15

2035 + Dev, 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, 4	4.26	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	327	Arm 3

Arms

Arms

Arm	Name	Description
1	Meyrick Owen Way	
2	Admiralty Way	
3	White Farm Way	
4	Site Access	Site Access

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.37	4.13	2.0	11.9	20.9	11.6	
2	2.55	4.07	1.8	11.8	19.2	10.8	
3	3.30	3.91	1.1	13.7	20.9	29.4	
4	2.96	5.15	4.7	10.7	19.2	13.9	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.562	1160
2	0.515	925
3	0.522	1045
4	0.561	1180

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

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	206	100.000
2		✓	53	100.000
3		✓	174	100.000
4		✓	33	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	1	2	3	4	
From	1	0	40	157	9
	2	20	0	8	25
	3	163	9	0	2
	4	7	25	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	1	2	3	4	
From	1	0	7	0	0
	2	7	0	0	0
	3	4	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.20	4.00	0.3	A
2	0.07	4.78	0.1	A
3	0.19	4.54	0.2	A
4	0.03	3.51	0.0	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	155	26	1146	0.135	154	0.2	3.677	A
2	40	125	860	0.046	40	0.0	4.496	A
3	131	40	1024	0.128	130	0.2	4.177	A
4	25	144	1099	0.023	25	0.0	3.350	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	185	31	1143	0.162	185	0.2	3.806	A
2	48	150	848	0.056	48	0.1	4.614	A
3	156	49	1020	0.153	156	0.2	4.326	A
4	30	172	1083	0.027	30	0.0	3.416	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	227	39	1139	0.199	227	0.3	3.996	A
2	58	184	830	0.070	58	0.1	4.781	A
3	192	59	1014	0.189	191	0.2	4.539	A
4	36	211	1061	0.034	36	0.0	3.511	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	227	39	1139	0.199	227	0.3	3.998	A
2	58	184	830	0.070	58	0.1	4.782	A
3	192	59	1014	0.189	192	0.2	4.541	A
4	36	211	1061	0.034	36	0.0	3.512	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	185	31	1143	0.162	185	0.2	3.808	A
2	48	150	847	0.056	48	0.1	4.617	A
3	156	49	1020	0.153	157	0.2	4.328	A
4	30	173	1083	0.027	30	0.0	3.417	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	155	26	1146	0.135	155	0.2	3.684	A
2	40	126	860	0.046	40	0.1	4.501	A
3	131	41	1024	0.128	131	0.2	4.186	A
4	25	145	1099	0.023	25	0.0	3.354	A

Appendix C



<h1>Junctions 9</h1>
<h2>PICADY 9 - Priority Intersection Module</h2>
Version: 9.5.0.6896 © Copyright TRL Limited, 2018
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Filename: Fort Road-Admiralty Way junction.j9

Path: Z:\Lime\Projects\2017\17204 Pembroke Port, Pembroke\Analysis\JUNCTIONS 9

Report generation date: 25/01/2019 11:57:43

«2035, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	AM					PM				
	Q (PCU)	Delay (s)	RFC	LOS	Res Cap	Q (PCU)	Delay (s)	RFC	LOS	Res Cap
2018										
Stream B-ACD	0.1	8.09	0.13	A	369 % [Stream A-BCD]	0.1	7.94	0.10	A	475 % [Stream B-ACD]
Stream A-BCD	0.2	7.61	0.17	A		0.1	6.44	0.05	A	
Stream D-ABC	0.0	7.32	0.02	A		0.1	7.45	0.06	A	
Stream C-ABD	0.0	6.60	0.01	A		0.0	6.17	0.02	A	
2020										
Stream B-ACD	0.1	8.07	0.12	A	358 % [Stream A-BCD]	0.1	7.95	0.10	A	472 % [Stream B-ACD]
Stream A-BCD	0.2	7.71	0.17	A		0.1	6.43	0.05	A	
Stream D-ABC	0.0	7.33	0.02	A		0.1	7.46	0.06	A	
Stream C-ABD	0.0	6.61	0.01	A		0.0	6.17	0.02	A	
2030										
Stream B-ACD	0.2	8.19	0.14	A	339 % [Stream A-BCD]	0.1	7.95	0.11	A	432 % [Stream B-ACD]
Stream A-BCD	0.2	7.71	0.18	A		0.1	6.44	0.05	A	
Stream D-ABC	0.0	7.36	0.02	A		0.1	7.55	0.07	A	
Stream C-ABD	0.0	6.55	0.01	A		0.0	6.17	0.02	A	
2035										
Stream B-ACD	0.2	8.24	0.14	A	307 % [Stream A-BCD]	0.1	8.12	0.12	A	399 % [Stream B-ACD]
Stream A-BCD	0.2	7.83	0.19	A		0.1	6.47	0.05	A	
Stream D-ABC	0.0	7.52	0.03	A		0.1	7.57	0.07	A	
Stream C-ABD	0.0	6.59	0.01	A		0.0	6.16	0.02	A	
2020 + Dev										
Stream B-ACD	0.1	8.01	0.12	A	361 % [Stream A-BCD]	0.1	7.95	0.10	A	472 % [Stream B-ACD]
Stream A-BCD	0.2	7.49	0.17	A		0.1	6.43	0.05	A	
Stream D-ABC	0.0	7.33	0.02	A		0.1	7.46	0.06	A	
Stream C-ABD	0.0	6.54	0.01	A		0.0	6.17	0.02	A	
2030 + Dev										
Stream B-ACD	0.2	8.13	0.14	A	339 % [Stream A-BCD]	0.1	7.95	0.11	A	432 % [Stream B-ACD]
Stream A-BCD	0.2	7.71	0.18	A		0.1	6.44	0.05	A	
Stream D-ABC	0.0	7.36	0.02	A		0.1	7.55	0.07	A	
Stream C-ABD	0.0	6.55	0.01	A		0.0	6.17	0.02	A	
2035 + Dev										
Stream B-ACD	0.2	8.24	0.14	A	309 % [Stream A-BCD]					
Stream A-BCD	0.2	7.68	0.19	A						
Stream D-ABC	0.0	7.52	0.03	A						
Stream C-ABD	0.0	6.58	0.01	A						
2035+ Dev										
Stream B-ACD						0.1	8.06	0.12	A	400 % [Stream B-ACD]
Stream A-BCD						0.1	6.46	0.05	A	
Stream D-ABC						0.1	7.57	0.07	A	
Stream C-ABD						0.0	6.16	0.02	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 Av. delay per arriving vehicle. Res Cap 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	25/01/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-U7G8RPA\Andy
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
5.75			✓	Delay	0.85	36.00	20.00

Analysis Set Details

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

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2035	PM	ONE HOUR	17:00	18:30	15	✓

2035, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		4.25	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	399	Stream B-ACD

Arms

Arms

Arm	Name	Description	Arm type
A	Melville Street		Major
B	Melville Terrace		Minor
C	Fort Road		Major
D	Admiralty Way		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A	8.97			0.0	✓	0.00
C	8.97			0.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.76	0	0
D	One lane	3.73	0	0

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
1	A-D	574	-	-	-	-	-	-	0.194	0.277	0.194	-	-	-
1	B-A	514	0.082	0.206	0.206	-	-	-	0.130	0.294	-	0.206	0.206	0.103
1	B-C	671	0.090	0.227	-	-	-	-	-	-	-	-	-	-
1	B-D, nearside lane	514	0.082	0.206	0.206	-	-	-	0.130	0.294	0.130	-	-	-
1	B-D, offside lane	514	0.082	0.206	0.206	-	-	-	0.130	0.294	0.130	-	-	-
1	C-B	574	0.194	0.194	0.277	-	-	-	-	-	-	-	-	-
1	D-A	670	-	-	-	-	-	-	0.226	-	0.089	-	-	-
1	D-B, nearside lane	513	0.129	0.129	0.294	-	-	-	0.206	0.206	0.081	-	-	-
1	D-B, offside lane	513	0.129	0.129	0.294	-	-	-	0.206	0.206	0.081	-	-	-
1	D-C	513	-	0.129	0.294	0.103	0.206	0.206	0.206	0.206	0.081	-	-	-

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

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

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

Traffic Demand

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	Av. Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	67	100.000
B		ONE HOUR	✓	53	100.000
C		ONE HOUR	✓	65	100.000
D		ONE HOUR	✓	33	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	A	B	C	D	
From	A	0	0	40	27
	B	20	0	8	25
	C	54	9	0	2
	D	7	25	1	0

Vehicle Mix

HV %s

	To				
	A	B	C	D	
From	A	0	0	3	0
	B	2	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 Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.12	8.12	0.1	A	49	73
A-BCD	0.05	6.47	0.1	A	26	40
A-B					0	0
A-C					35	52
D-ABC	0.07	7.57	0.1	A	30	45
C-ABD	0.02	6.16	0.0	A	9	14
C-D					2	3
C-A					49	73

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	40	10	514	0.078	40	0.0	0.1	7.638	A
A-BCD	21	5	585	0.037	21	0.0	0.0	6.398	A
A-B	0	0			0				
A-C	29	7			29				
D-ABC	25	6	521	0.048	25	0.0	0.0	7.250	A
C-ABD	7	2	591	0.012	7	0.0	0.0	6.161	A
C-D	1	0.37			1				
C-A	40	10			40				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	48	12	510	0.093	48	0.1	0.1	7.837	A
A-BCD	26	6	587	0.044	26	0.0	0.1	6.428	A
A-B	0	0			0				
A-C	34	9			34				
D-ABC	30	7	517	0.057	30	0.0	0.1	7.384	A
C-ABD	9	2	595	0.015	9	0.0	0.0	6.141	A
C-D	2	0.44			2				
C-A	48	12			48				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	58	15	505	0.116	58	0.1	0.1	8.113	A
A-BCD	32	8	590	0.055	32	0.1	0.1	6.469	A
A-B	0	0			0				
A-C	42	10			42				
D-ABC	36	9	512	0.071	36	0.1	0.1	7.567	A
C-ABD	11	3	600	0.018	11	0.0	0.0	6.114	A
C-D	2	0.54			2				
C-A	58	15			58				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	58	15	505	0.116	58	0.1	0.1	8.116	A
A-BCD	32	8	590	0.055	32	0.1	0.1	6.471	A
A-B	0	0			0				
A-C	42	10			42				
D-ABC	36	9	512	0.071	36	0.1	0.1	7.567	A
C-ABD	11	3	600	0.018	11	0.0	0.0	6.117	A
C-D	2	0.54			2				
C-A	58	15			58				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	48	12	510	0.093	48	0.1	0.1	7.842	A
A-BCD	26	6	587	0.044	26	0.1	0.1	6.435	A
A-B	0	0			0				
A-C	34	9			34				
D-ABC	30	7	517	0.057	30	0.1	0.1	7.387	A
C-ABD	9	2	595	0.015	9	0.0	0.0	6.142	A
C-D	2	0.44			2				
C-A	48	12			48				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	40	10	514	0.078	40	0.1	0.1	7.651	A
A-BCD	21	5	585	0.037	21	0.1	0.0	6.403	A
A-B	0	0			0				
A-C	29	7			29				
D-ABC	25	6	521	0.048	25	0.1	0.1	7.262	A
C-ABD	7	2	591	0.012	7	0.0	0.0	6.162	A
C-D	1	0.37			1				
C-A	40	10			40				

Appendix D



<h1>Junctions 9</h1>
<h2>ARCADY 9 - Roundabout Module</h2>
Version: 9.5.0.6896 © Copyright TRL Limited, 2018
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Filename: Market Street - Melville Street Roundabout.j9

Path: Z:\Lime\Projects\2017\17204 Pembroke Port, Pembroke\Analysis\JUNCTIONS 9

Report generation date: 22/01/2019 13:06:04

«2035 + Dev, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
2018 Base										
Arm 1	0.3	3.92	0.22	A	321 % [Arm 1]	0.2	3.72	0.17	A	432 % [Arm 1]
Arm 2	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
Arm 3	0.1	3.47	0.05	A		0.1	3.43	0.05	A	
Arm 4	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2020 Base										
Arm 1	0.3	4.09	0.22	A	313 % [Arm 1]	0.2	3.74	0.18	A	421 % [Arm 1]
Arm 2	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
Arm 3	0.1	3.55	0.06	A		0.1	3.44	0.05	A	
Arm 4	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2030 Base										
Arm 1	0.3	4.15	0.23	A	293 % [Arm 1]	0.2	3.79	0.19	A	393 % [Arm 1]
Arm 2	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
Arm 3	0.1	3.58	0.06	A		0.1	3.48	0.06	A	
Arm 4	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2035 Base										
Arm 1	0.4	4.25	0.25	A	264 % [Arm 1]	0.3	3.85	0.20	A	360 % [Arm 1]
Arm 2	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
Arm 3	0.1	3.63	0.06	A		0.1	3.51	0.06	A	
Arm 4	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2020 + Dev										
Arm 1	0.4	4.28	0.26	A	259 % [Arm 1]	0.3	3.93	0.22	A	325 % [Arm 1]
Arm 2	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
Arm 3	0.1	3.64	0.06	A		0.1	3.55	0.06	A	
Arm 4	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2030 + Dev										
Arm 1	0.4	4.35	0.27	A	244 % [Arm 1]	0.3	3.98	0.23	A	306 % [Arm 1]
Arm 2	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
Arm 3	0.1	3.68	0.06	A		0.1	3.58	0.06	A	
Arm 4	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2035 + Dev										
Arm 1	0.4	4.50	0.29	A	221 % [Arm 1]	0.3	4.05	0.24	A	284 % [Arm 1]
Arm 2	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
Arm 3	0.1	3.73	0.06	A		0.1	3.62	0.06	A	
Arm 4	0.0	0.00	0.00	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. 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	22/01/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-U7G8RPA\Connor Davies-Beare
Description	

Units

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

Analysis Options

Mini-roundabout model	Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9		✓	Delay	0.85	36.00	20.00

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D14	2035 + Dev	PM	ONE HOUR	17:00	18:30	15

2035 + Dev, 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 1 and 2 have 80% of the total flow for the roundabout for one or more time segments][Arms 1 and 3 have 100% of the total flow for the roundabout for one or more time segments][Arms 1 and 4 have 80% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	3.97	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		284	Arm 1

Arms

Arms

Arm	Name	Description
1	Melville Street (w)	
2	Market Street (s)	
3	Melville Street (w)	
4	Market Street (n)	

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
1	4.60	4.60	4.60	0.0	6.58	2.60	0.0	
2	5.05	5.05	5.05	0.0	5.79	2.00	-0.2	
3	4.79	4.79	4.79	0.0	9.31	5.43	0.0	
4	6.37	6.37	6.37	0.0	5.00	2.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.651	1177
2	0.671	1160
3	0.658	1220
4	0.718	1391

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

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	258	100.000
2		✓	0	100.000
3		✓	62	100.000
4		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	12	55	191
	2	0	0	0	0
	3	8	0	0	54
	4	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.24	4.05	0.3	A
2	0.00	0.00	0.0	A
3	0.06	3.62	0.1	A
4	0.00	0.00	0.0	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	194	0	1177	0.165	193	0.2	3.672	A
2	0	184	1036	0.000	0	0.0	0.000	A
3	47	143	1126	0.041	47	0.0	3.398	A
4	0	6	1386	0.000	0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	232	0	1177	0.197	232	0.2	3.825	A
2	0	221	1011	0.000	0	0.0	0.000	A
3	56	172	1107	0.050	56	0.1	3.487	A
4	0	7	1386	0.000	0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	284	0	1177	0.241	284	0.3	4.047	A
2	0	271	978	0.000	0	0.0	0.000	A
3	68	210	1082	0.063	68	0.1	3.618	A
4	0	9	1384	0.000	0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	284	0	1177	0.241	284	0.3	4.049	A
2	0	271	978	0.000	0	0.0	0.000	A
3	68	210	1081	0.063	68	0.1	3.618	A
4	0	9	1384	0.000	0	0.0	0.000	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	232	0	1177	0.197	232	0.2	3.830	A
2	0	221	1011	0.000	0	0.0	0.000	A
3	56	172	1107	0.050	56	0.1	3.491	A
4	0	7	1386	0.000	0	0.0	0.000	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	194	0	1177	0.165	194	0.2	3.682	A
2	0	185	1035	0.000	0	0.0	0.000	A
3	47	144	1125	0.041	47	0.0	3.402	A
4	0	6	1386	0.000	0	0.0	0.000	A

Appendix E



<h1>Junctions 9</h1>
<h2>PICADY 9 - Priority Intersection Module</h2>
Version: 9.5.0.6896 © Copyright TRL Limited, 2018
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Filename: Meyrick Owen Way- Market Street.j9

Path: Z:\Lime\Projects\2017\17204 Pembroke Port, Pembroke\Analysis\JUNCTIONS 9

Report generation date: 24/01/2019 15:06:23

-
- «2035 + Dev, PM
 - »Junction Network
 - »Arms
 - »Traffic Demand
 - »Origin-Destination Data
 - »Vehicle Mix
 - »Results

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
2018 Base										
Stream B-C	0.0	6.33	0.01	A	56 % [Stream B-A]	0.0	6.24	0.01	A	71 % [Stream B-A]
Stream B-A	1.0	15.34	0.47	C		0.8	13.59	0.43	B	
Stream C-AB	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2020 Base										
Stream B-C	0.0	6.35	0.01	A	53 % [Stream B-A]	0.0	6.26	0.01	A	67 % [Stream B-A]
Stream B-A	1.0	15.65	0.48	C		0.8	13.85	0.44	B	
Stream C-AB	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2030 Base										
Stream B-C	0.0	6.41	0.01	A	45 % [Stream B-A]	0.0	6.32	0.01	A	59 % [Stream B-A]
Stream B-A	1.1	16.69	0.51	C		0.9	14.54	0.46	B	
Stream C-AB	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2035 Base										
Stream B-C	0.0	6.51	0.01	A	35 % [Stream B-A]	0.0	6.44	0.01	A	47 % [Stream B-A]
Stream B-A	1.4	18.47	0.55	C		1.1	15.93	0.50	C	
Stream C-AB	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2020 + Dev										
Stream B-C	0.1	7.12	0.08	A	43 % [Stream B-A]	0.1	7.22	0.10	A	44 % [Stream B-A]
Stream B-A	1.1	16.94	0.50	C		1.0	16.32	0.48	C	
Stream C-AB	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2030 + Dev										
Stream B-C	0.1	7.20	0.08	A	36 % [Stream B-A]	0.1	7.30	0.10	A	37 % [Stream B-A]
Stream B-A	1.2	18.15	0.53	C		1.1	17.28	0.50	C	
Stream C-AB	0.0	0.00	0.00	A		0.0	0.00	0.00	A	
2035 + Dev										
Stream B-C	0.1	7.33	0.08	A	27 % [Stream B-A]	0.1	7.45	0.10	A	28 % [Stream B-A]
Stream B-A	1.5	20.26	0.57	C		1.3	19.24	0.55	C	
Stream C-AB	0.0	0.00	0.00	A		0.0	0.00	0.00	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	24/01/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-U7G8RPA\Connor Davies-Bearé
Description	

Units

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

Analysis Options

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

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D14	2035 + Dev	PM	ONE HOUR	17:00	18:30	15

2035 + Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		6.75	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	28	Stream B-A

Arms

Arms

Arm	Name	Description	Arm type
A	Meyrick Owen Way (e)		Major
B	Market Street		Minor
C	Meyrick Owen Way (w)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			0.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B	Two lanes	3.30	3.20	50	50

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	529	0.096	0.243	0.153	0.348
1	B-C	675	0.103	0.262	-	-
1	C-B	574	0.222	0.222	-	-

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

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

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

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	175	100.000
B		✓	269	100.000
C		✓	237	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	0	175
	B	220	0	49
	C	237	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	42
	B	7	0	0
	C	33	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.10	7.45	0.1	A
B-A	0.55	19.24	1.3	C
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	37	584	0.063	37	0.1	6.572	A
B-A	166	469	0.353	163	0.6	12.493	B
C-AB	0	545	0.000	0	0.0	0.000	A
C-A	178			178			
A-B	0			0			
A-C	132			132			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	44	565	0.078	44	0.1	6.913	A
B-A	198	458	0.432	197	0.8	14.703	B
C-AB	0	539	0.000	0	0.0	0.000	A
C-A	213			213			
A-B	0			0			
A-C	157			157			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	54	538	0.100	54	0.1	7.433	A
B-A	242	442	0.548	240	1.2	18.930	C
C-AB	0	531	0.000	0	0.0	0.000	A
C-A	261			261			
A-B	0			0			
A-C	193			193			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	54	537	0.100	54	0.1	7.446	A
B-A	242	442	0.548	242	1.3	19.243	C
C-AB	0	531	0.000	0	0.0	0.000	A
C-A	261			261			
A-B	0			0			
A-C	193			193			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	44	564	0.078	44	0.1	6.931	A
B-A	198	458	0.432	200	0.8	15.002	C
C-AB	0	539	0.000	0	0.0	0.000	A
C-A	213			213			
A-B	0			0			
A-C	157			157			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	37	583	0.063	37	0.1	6.595	A
B-A	166	469	0.353	167	0.6	12.760	B
C-AB	0	545	0.000	0	0.0	0.000	A
C-A	178			178			
A-B	0			0			
A-C	132			132			

Appendix F



<h1>Junctions 9</h1>
<h2>ARCADY 9 - Roundabout Module</h2>
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Filename: Pembroke Steet - Melville St Roundabout.j9

Path: Z:\Lime\Projects\2017\17204 Pembroke Port, Pembroke\Analysis\JUNCTIONS 9

Report generation date: 22/01/2019 13:06:55

-
- «2035 + Dev, PM
 - »Junction Network
 - »Arms
 - »Traffic Demand
 - »Origin-Destination Data
 - »Vehicle Mix
 - »Results

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
2018 Base										
Arm 1	0.4	4.31	0.27	A	234 % [Arm 1]	0.3	3.88	0.24	A	285 % [Arm 1]
Arm 2	0.2	4.12	0.17	A		0.1	3.71	0.13	A	
Arm 3	0.0	3.44	0.01	A		0.0	3.42	0.01	A	
2020 Base										
Arm 1	0.4	4.34	0.28	A	228 % [Arm 1]	0.3	3.91	0.24	A	278 % [Arm 1]
Arm 2	0.2	4.14	0.17	A		0.2	3.73	0.13	A	
Arm 3	0.0	3.44	0.01	A		0.0	3.42	0.01	A	
2030 Base										
Arm 1	0.4	4.46	0.29	A	211 % [Arm 1]	0.3	3.98	0.25	A	257 % [Arm 1]
Arm 2	0.2	4.20	0.18	A		0.2	3.77	0.14	A	
Arm 3	0.0	3.45	0.01	A		0.0	3.43	0.01	A	
2035 Base										
Arm 1	0.5	4.60	0.32	A	190 % [Arm 1]	0.4	4.09	0.27	A	232 % [Arm 1]
Arm 2	0.3	4.33	0.20	A		0.2	3.82	0.15	A	
Arm 3	0.0	3.45	0.01	A		0.0	3.43	0.01	A	
2020 + Dev										
Arm 1	0.4	4.34	0.28	A	228 % [Arm 1]	0.4	4.08	0.27	A	234 % [Arm 1]
Arm 2	0.3	4.33	0.21	A		0.2	3.92	0.18	A	
Arm 3	0.0	3.44	0.01	A		0.0	3.42	0.01	A	
2030 + Dev										
Arm 1	0.4	4.46	0.29	A	211 % [Arm 1]	0.4	4.16	0.29	A	218 % [Arm 1]
Arm 2	0.3	4.39	0.22	A		0.2	3.96	0.18	A	
Arm 3	0.0	3.45	0.01	A		0.0	3.43	0.01	A	
2035 + Dev										
Arm 1	0.5	4.60	0.32	A	190 % [Arm 1]	0.4	4.28	0.31	A	198 % [Arm 1]
Arm 2	0.3	4.53	0.23	A		0.2	4.02	0.19	A	
Arm 3	0.0	3.45	0.01	A		0.0	3.43	0.01	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. 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	22/01/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-U7G8RPA\Connor Davies-Bearé
Description	

Units

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

Analysis Options

Mini-roundabout model	Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9		✓	Delay	0.85	36.00	20.00

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D14	2035 + Dev	PM	ONE HOUR	17:00	18:30	15

2035 + Dev, 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 1 and 2 have 97% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	4.17	A

Junction Network Options

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		198	Arm 1

Arms

Arms

Arm	Name	Description
1	Pembroke Street (n)	
2	Pembroke Street (s)	
3	Melville Street	

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
1	5.90	5.90	5.90	0.0	10.74	2.73	-2.3	
2	4.63	4.63	4.63	0.0	12.77	2.73	3.1	
3	4.59	4.59	4.59	0.0	5.00	8.65	0.1	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.728	1226
2	0.615	1149
3	0.650	1063

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

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	338	100.000
2		✓	194	100.000
3		✓	13	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	278	60
	2	0	0	194
	3	0	13	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.31	4.28	0.4	A
2	0.19	4.02	0.2	A
3	0.01	3.43	0.0	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	254	10	1219	0.209	253	0.3	3.737	A
2	146	45	1121	0.130	145	0.1	3.688	A
3	10	0	1063	0.009	10	0.0	3.416	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	304	12	1218	0.250	304	0.3	3.950	A
2	174	54	1116	0.156	174	0.2	3.823	A
3	12	0	1063	0.011	12	0.0	3.423	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	372	14	1216	0.306	372	0.4	4.278	A
2	214	66	1108	0.193	213	0.2	4.022	A
3	14	0	1063	0.013	14	0.0	3.431	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	372	14	1216	0.306	372	0.4	4.281	A
2	214	66	1108	0.193	214	0.2	4.023	A
3	14	0	1063	0.013	14	0.0	3.431	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	304	12	1218	0.250	304	0.3	3.956	A
2	174	54	1116	0.156	175	0.2	3.825	A
3	12	0	1063	0.011	12	0.0	3.425	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	254	10	1219	0.209	255	0.3	3.746	A
2	146	45	1121	0.130	146	0.2	3.692	A
3	10	0	1063	0.009	10	0.0	3.416	A

Appendix G



Junctions 9
PICADY 9 - Priority Intersection Module
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Filename: Gate One- Commercial Row.j9
 Path: Z:\Lime\Projects\2017\17204 Pembroke Port, Pembroke\Analysis\JUNCTIONS 9
 Report generation date: 25/01/2019 10:06:32

- «2030 + Dev, PM
 - »Junction Network
 - »Arms
 - »Traffic Demand
 - »Origin-Destination Data
 - »Vehicle Mix
 - »Results

Summary of junction performance

	AM					PM				
	Q (PCU)	Delay (s)	RFC	LOS	Res Cap	Q (PCU)	Delay (s)	RFC	LOS	Res Cap
2018 Base										
Stream B-AC	0.1	6.85	0.10	A	238 %	0.1	6.30	0.05	A	292 %
Stream C-AB	0.2	6.22	0.09	A	[Stream C-AB]	0.1	5.79	0.05	A	[Stream B-AC]
2020 Base										
Stream B-AC	0.1	6.62	0.10	A	227 %	0.1	6.33	0.05	A	285 %
Stream C-AB	0.2	6.21	0.09	A	[Stream B-AC]	0.1	5.78	0.05	A	[Stream B-AC]
2030 Base										
Stream B-AC	0.1	7.13	0.11	A	210 %	0.1	6.45	0.05	A	263 %
Stream C-AB	0.2	6.23	0.10	A	[Stream B-AC]	0.1	5.79	0.05	A	[Stream B-AC]
2035 Base										
Stream B-AC	0.1	7.34	0.12	A	189 %	0.1	6.56	0.06	A	239 %
Stream C-AB	0.3	6.25	0.11	A	[Stream B-AC]	0.1	5.76	0.06	A	[Stream B-AC]
2020 + Dev										
Stream B-AC	0.1	7.05	0.10	A	195 %	0.1	6.80	0.05	A	195 %
Stream C-AB	0.2	6.01	0.10	A	[Stream C-AB]	0.1	5.62	0.06	A	[Stream B-AC]
2030 + Dev										
Stream B-AC	0.1	7.22	0.11	A	184 %	0.1	6.63	0.05	A	209 %
Stream C-AB	0.3	6.04	0.10	A	[Stream C-AB]	0.1	5.54	0.06	A	[Stream C-AB]
2035 + Dev										
Stream B-AC	0.1	7.43	0.12	A	166 %	0.1	6.75	0.06	A	189 %
Stream C-AB	0.3	6.06	0.11	A	[Stream C-AB]	0.1	5.52	0.07	A	[Stream C-AB]

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle. Res Cap 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	24/01/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-U7G8RPA\Connor Davies-Beare
Description	

Units

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

Analysis Options

Calculate Q Percentiles	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
	✓	Delay	0.85	36.00	20.00

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D12	2030 + Dev	PM	ONE HOUR	17:00	18:30	15

2030 + Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.53	A

Junction Network Options

Driving side	Lighting	Res Cap (%)	First arm reaching threshold
Left	Normal/unknown	209	Stream C-AB

Arms

Arms

Arm	Name	Description	Arm type
A	Commercial Row		Major
B	Front Street		Minor
C	A4139		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.52			0.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	5.00	50	50

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	622	0.106	0.268	0.168	0.382
1	B-C	787	0.113	0.285	-	-
1	C-B	574	0.208	0.208	-	-

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

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

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

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	326	100.000
B		✓	29	100.000
C		✓	418	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	74	252
	B	9	0	20
	C	398	20	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	6	12
	B	2	0	6
	C	11	8	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Q (PCU)	Max LOS
B-AC	0.05	6.63	0.1	A
C-AB	0.06	5.54	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	642	0.034	22	0.0	6.079	A
C-AB	25	736	0.035	25	0.1	5.533	A
C-A	289			289			
A-B	56			56			
A-C	190			190			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	624	0.042	26	0.0	6.300	A
C-AB	34	769	0.044	34	0.1	5.353	A
C-A	342			342			
A-B	67			67			
A-C	227			227			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	600	0.053	32	0.1	6.633	A
C-AB	48	816	0.058	48	0.1	5.129	A
C-A	412			412			
A-B	81			81			
A-C	277			277			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	600	0.053	32	0.1	6.633	A
C-AB	48	816	0.059	48	0.1	5.137	A
C-A	412			412			
A-B	81			81			
A-C	277			277			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	624	0.042	26	0.0	6.301	A
C-AB	34	769	0.044	34	0.1	5.364	A
C-A	342			342			
A-B	67			67			
A-C	227			227			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	642	0.034	22	0.0	6.083	A
C-AB	26	736	0.035	26	0.1	5.542	A
C-A	289			289			
A-B	56			56			
A-C	190			190			

Appendix H



<h1>Junctions 9</h1>
<h2>ARCADY 9 - Roundabout Module</h2>
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Filename: Meyrick Owen Way- Pier Road Roundabout.j9

Path: Z:\Lime\Projects\2017\17204 Pembroke Port, Pembroke\Analysis\JUNCTIONS 9

Report generation date: 22/01/2019 11:07:50

-
- »2018 Base, AM
 - »2018 Base, PM
 - »2020 Base, AM
 - »2020 Base, PM
 - »2030 Base, AM
 - »2030 Base, PM
 - »2035 Base, AM
 - »2035 Base, PM
 - »2020 + Dev, AM
 - »2020 + Dev, PM
 - »2030 + Dev, AM
 - »2030 + Dev, PM
 - »2035 + Dev, AM
 - »2035 + Dev, PM

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
2018 Base										
Arm 1	0.2	2.90	0.17	A	262 % [Arm 1]	0.3	2.92	0.21	A	210 % [Arm 1]
Arm 2	0.1	2.72	0.07	A		0.2	2.96	0.13	A	
Arm 4	0.2	2.09	0.18	A		0.3	2.22	0.21	A	
Arm 5	0.2	2.75	0.18	A		0.3	2.78	0.20	A	
2020 Base										
Arm 1	0.2	2.92	0.18	A	253 % [Arm 1]	0.3	2.95	0.22	A	204 % [Arm 1]
Arm 2	0.1	2.74	0.07	A		0.2	2.99	0.14	A	
Arm 4	0.2	2.10	0.18	A		0.3	2.23	0.22	A	
Arm 5	0.2	2.77	0.18	A		0.3	2.81	0.21	A	
2030 Base										
Arm 1	0.3	2.99	0.19	A	237 % [Arm 1]	0.3	3.04	0.23	A	188 % [Arm 1]
Arm 2	0.1	2.78	0.07	A		0.2	3.06	0.15	A	
Arm 4	0.2	2.14	0.19	A		0.3	2.28	0.23	A	
Arm 5	0.3	2.84	0.19	A		0.3	2.87	0.22	A	
2035 Base										
Arm 1	0.3	3.12	0.20	A	214 % [Arm 1]	0.4	3.16	0.25	A	168 % [Arm 1]
Arm 2	0.1	2.86	0.08	A		0.2	3.18	0.16	A	
Arm 4	0.3	2.19	0.20	A		0.4	2.37	0.25	A	
Arm 5	0.3	2.94	0.21	A		0.3	3.00	0.24	A	
2020 + Dev										
Arm 1	0.2	2.92	0.17	A	227 % [Arm 5]	0.4	3.19	0.26	A	174 % [Arm 1]
Arm 2	0.1	2.74	0.07	A		0.2	3.13	0.15	A	
Arm 4	0.3	2.18	0.21	A		0.4	2.36	0.25	A	
Arm 5	0.2	2.85	0.19	A		0.3	2.94	0.22	A	
2030 + Dev										
Arm 1	0.2	2.98	0.18	A	212 % [Arm 5]	0.4	3.30	0.27	A	161 % [Arm 1]
Arm 2	0.1	2.77	0.07	A		0.2	3.21	0.16	A	
Arm 4	0.3	2.26	0.22	A		0.4	2.42	0.26	A	
Arm 5	0.3	2.93	0.20	A		0.3	3.02	0.23	A	
2035 + Dev										
Arm 1	0.3	3.12	0.20	A	192 % [Arm 5]	0.4	3.43	0.29	A	144 % [Arm 1]
Arm 2	0.1	2.86	0.08	A		0.2	3.34	0.18	A	
Arm 4	0.3	2.32	0.23	A		0.4	2.51	0.28	A	
Arm 5	0.3	3.04	0.21	A		0.3	3.15	0.25	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	18/01/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-U7G8RPA\Andy
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2018 Base	AM	ONE HOUR	08:00	09:30	15	✓
D2	2018 Base	PM	ONE HOUR	17:00	18:30	15	✓
D3	2020 Base	AM	ONE HOUR	08:00	09:30	15	✓
D4	2020 Base	PM	ONE HOUR	17:00	18:30	15	✓
D5	2030 Base	AM	ONE HOUR	08:00	09:30	15	✓
D6	2030 Base	PM	ONE HOUR	17:00	18:30	15	✓
D7	2035 Base	AM	ONE HOUR	08:00	09:30	15	✓
D8	2035 Base	PM	ONE HOUR	17:00	18:30	15	✓
D9	2020 + Dev	AM	ONE HOUR	08:00	09:30	15	✓
D10	2020 + Dev	PM	ONE HOUR	17:00	18:30	15	✓
D11	2030 + Dev	AM	ONE HOUR	08:00	09:30	15	✓
D12	2030 + Dev	PM	ONE HOUR	17:00	18:30	15	✓
D13	2035 + Dev	AM	ONE HOUR	08:00	09:30	15	✓
D14	2035 + Dev	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

2018 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 4, 5	2.55	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	262	Arm 1

Arms

Arms

Arm	Name	Description
1	Meyrick Owen Way	
2	Pier Road	
4	A4139	
5	B4322	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	4.08	9.19	9.2	29.7	52.0	22.3	
2	4.78	7.73	3.5	121.2	51.5	32.0	
4	5.18	10.18	14.5	14.5	52.0	22.3	
5	4.72	7.72	15.4	52.3	22.7	51.5	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.643	1870
2	0.620	1746
4	0.715	2307
5	0.691	1901

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
D1	2018 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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	258	100.000
2		ONE HOUR	✓	89	100.000
4		ONE HOUR	✓	354	100.000
5		ONE HOUR	✓	277	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To				
	1	2	4	5	
1	1	27	176	54	
2	32	4	39	14	
4	169	49	0	136	
5	38	45	194	0	

Vehicle Mix

Heavy Vehicle Percentages

From	To				
	1	2	4	5	
1	0	3	16	1	
2	2	0	4	2	
4	8	5	0	5	
5	1	0	10	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.17	2.90	0.2	A	237	355
2	0.07	2.72	0.1	A	82	123
4	0.18	2.09	0.2	A	325	487
5	0.18	2.75	0.2	A	254	381

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	194	49	219	1729	0.112	194	180	0.0	0.1	2.603	A
2	67	17	319	1549	0.043	67	94	0.0	0.0	2.496	A
4	267	67	79	2250	0.118	266	307	0.0	0.1	1.930	A
5	209	52	192	1769	0.118	208	153	0.0	0.1	2.467	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	232	58	262	1701	0.136	232	216	0.1	0.2	2.719	A
2	80	20	382	1510	0.053	80	112	0.0	0.1	2.587	A
4	318	80	94	2239	0.142	318	367	0.1	0.2	1.993	A
5	249	62	229	1743	0.143	249	183	0.1	0.2	2.577	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	284	71	321	1663	0.171	284	264	0.2	0.2	2.897	A
2	98	24	468	1456	0.067	98	138	0.1	0.1	2.722	A
4	390	97	116	2224	0.175	390	450	0.2	0.2	2.088	A
5	305	76	281	1707	0.179	305	224	0.2	0.2	2.745	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	284	71	321	1663	0.171	284	264	0.2	0.2	2.897	A
2	98	24	468	1456	0.067	98	138	0.1	0.1	2.723	A
4	390	97	116	2224	0.175	390	450	0.2	0.2	2.088	A
5	305	76	281	1707	0.179	305	225	0.2	0.2	2.745	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	232	58	263	1701	0.136	232	216	0.2	0.2	2.720	A
2	80	20	382	1509	0.053	80	112	0.1	0.1	2.590	A
4	318	80	94	2239	0.142	318	368	0.2	0.2	1.994	A
5	249	62	229	1742	0.143	249	184	0.2	0.2	2.578	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	194	49	220	1728	0.112	194	181	0.2	0.1	2.605	A
2	67	17	320	1548	0.043	67	94	0.1	0.0	2.498	A
4	267	67	79	2250	0.118	267	308	0.2	0.1	1.931	A
5	209	52	192	1768	0.118	209	154	0.2	0.1	2.470	A

2018 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 4, 5	2.65	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	210	Arm 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2018 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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	319	100.000
2		ONE HOUR	✓	170	100.000
4		ONE HOUR	✓	418	100.000
5		ONE HOUR	✓	312	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	0	37	206	76	
	2	54	0	81	35	
	4	172	63	2	181	
	5	63	42	207	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	2	8	0	
	2	1	0	1	0	
	4	10	0	1	4	
	5	0	0	5	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.21	2.92	0.3	A	293	439
2	0.13	2.96	0.2	A	156	234
4	0.21	2.22	0.3	A	384	575
5	0.20	2.78	0.3	A	286	429

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	240	60	236	1718	0.140	239	217	0.0	0.2	2.561	A
2	128	32	369	1518	0.084	128	107	0.0	0.1	2.610	A
4	315	79	124	2218	0.142	314	372	0.0	0.2	1.999	A
5	235	59	219	1750	0.134	234	219	0.0	0.2	2.451	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	287	72	282	1688	0.170	287	260	0.2	0.2	2.703	A
2	153	38	441	1473	0.104	153	128	0.1	0.1	2.748	A
4	376	94	148	2201	0.171	376	446	0.2	0.2	2.085	A
5	280	70	261	1720	0.163	280	262	0.2	0.2	2.581	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	351	88	345	1648	0.213	351	318	0.2	0.3	2.922	A
2	187	47	540	1411	0.133	187	156	0.1	0.2	2.963	A
4	460	115	182	2177	0.211	460	546	0.2	0.3	2.216	A
5	344	86	320	1680	0.205	343	321	0.2	0.3	2.781	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	351	88	346	1647	0.213	351	318	0.3	0.3	2.923	A
2	187	47	541	1411	0.133	187	156	0.2	0.2	2.963	A
4	460	115	182	2177	0.211	460	546	0.3	0.3	2.216	A
5	344	86	320	1680	0.205	344	321	0.3	0.3	2.781	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	287	72	283	1688	0.170	287	260	0.3	0.2	2.707	A
2	153	38	442	1472	0.104	153	128	0.2	0.1	2.749	A
4	376	94	148	2201	0.171	376	446	0.3	0.2	2.086	A
5	280	70	262	1720	0.163	281	263	0.3	0.2	2.582	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	240	60	237	1718	0.140	240	218	0.2	0.2	2.565	A
2	128	32	370	1517	0.084	128	107	0.1	0.1	2.612	A
4	315	79	124	2218	0.142	315	374	0.2	0.2	1.999	A
5	235	59	219	1749	0.134	235	220	0.2	0.2	2.454	A

2020 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 4, 5	2.56	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	253	Arm 1

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	2020 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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	264	100.000
2		ONE HOUR	✓	90	100.000
4		ONE HOUR	✓	363	100.000
5		ONE HOUR	✓	282	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	1	28	180	55	
	2	33	4	39	14	
	4	173	50	1	139	
	5	38	46	198	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	3	16	1	
	2	2	0	4	2	
	4	8	5	0	5	
	5	1	0	10	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.18	2.92	0.2	A	242	363
2	0.07	2.74	0.1	A	83	124
4	0.18	2.10	0.2	A	333	500
5	0.18	2.77	0.2	A	259	388

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	199	50	225	1725	0.115	198	184	0.0	0.1	2.617	A
2	68	17	327	1544	0.044	68	96	0.0	0.0	2.505	A
4	273	68	80	2249	0.122	273	314	0.0	0.1	1.938	A
5	212	53	197	1765	0.120	212	156	0.0	0.1	2.479	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	237	59	269	1697	0.140	237	220	0.1	0.2	2.737	A
2	81	20	391	1504	0.054	81	115	0.0	0.1	2.598	A
4	326	82	96	2238	0.146	326	376	0.1	0.2	2.003	A
5	254	63	235	1738	0.146	253	187	0.1	0.2	2.593	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	291	73	329	1658	0.175	290	270	0.2	0.2	2.921	A
2	99	25	479	1450	0.068	99	141	0.1	0.1	2.738	A
4	400	100	118	2222	0.180	399	460	0.2	0.2	2.100	A
5	310	78	288	1702	0.182	310	229	0.2	0.2	2.767	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	291	73	329	1658	0.175	291	270	0.2	0.2	2.921	A
2	99	25	479	1449	0.068	99	141	0.1	0.1	2.739	A
4	400	100	118	2222	0.180	400	460	0.2	0.2	2.100	A
5	310	78	288	1702	0.182	310	229	0.2	0.2	2.767	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	237	59	269	1697	0.140	238	220	0.2	0.2	2.740	A
2	81	20	391	1504	0.054	81	115	0.1	0.1	2.599	A
4	326	82	96	2238	0.146	327	376	0.2	0.2	2.003	A
5	254	63	236	1738	0.146	254	187	0.2	0.2	2.594	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	199	50	225	1725	0.115	199	185	0.2	0.1	2.618	A
2	68	17	328	1543	0.044	68	96	0.1	0.0	2.507	A
4	273	68	81	2249	0.122	273	315	0.2	0.1	1.940	A
5	212	53	197	1765	0.120	212	157	0.2	0.1	2.480	A

2020 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 4, 5	2.67	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	204	Arm 1

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	2020 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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	325	100.000
2		ONE HOUR	✓	174	100.000
4		ONE HOUR	✓	426	100.000
5		ONE HOUR	✓	319	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	0	38	210	77	
	2	55	0	83	36	
	4	175	64	2	185	
	5	64	43	212	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	2	8	0	
	2	1	0	1	0	
	4	10	0	1	4	
	5	0	0	5	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.22	2.95	0.3	A	298	447
2	0.14	2.99	0.2	A	160	239
4	0.22	2.23	0.3	A	391	586
5	0.21	2.81	0.3	A	293	439

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	245	61	241	1715	0.143	244	221	0.0	0.2	2.575	A
2	131	33	376	1513	0.087	131	109	0.0	0.1	2.624	A
4	321	80	126	2217	0.145	320	381	0.0	0.2	2.007	A
5	240	60	222	1747	0.137	240	224	0.0	0.2	2.464	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	292	73	288	1684	0.173	292	264	0.2	0.2	2.721	A
2	156	39	450	1467	0.107	156	130	0.1	0.1	2.767	A
4	383	96	151	2199	0.174	383	456	0.2	0.2	2.095	A
5	287	72	266	1717	0.167	287	268	0.2	0.2	2.598	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	358	89	353	1643	0.218	358	323	0.2	0.3	2.949	A
2	192	48	551	1405	0.136	191	160	0.1	0.2	2.990	A
4	469	117	185	2175	0.216	469	558	0.2	0.3	2.231	A
5	351	88	326	1676	0.210	351	328	0.2	0.3	2.805	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	358	89	353	1643	0.218	358	324	0.3	0.3	2.949	A
2	192	48	552	1404	0.136	192	160	0.2	0.2	2.991	A
4	469	117	185	2174	0.216	469	558	0.3	0.3	2.231	A
5	351	88	326	1676	0.210	351	328	0.3	0.3	2.806	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	292	73	289	1684	0.173	292	265	0.3	0.2	2.723	A
2	156	39	451	1467	0.107	157	130	0.2	0.1	2.768	A
4	383	96	151	2199	0.174	383	456	0.3	0.2	2.098	A
5	287	72	266	1717	0.167	287	268	0.3	0.2	2.599	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	245	61	242	1714	0.143	245	221	0.2	0.2	2.579	A
2	131	33	377	1512	0.087	131	109	0.1	0.1	2.626	A
4	321	80	127	2216	0.145	321	382	0.2	0.2	2.007	A
5	240	60	223	1747	0.137	240	224	0.2	0.2	2.469	A

2030 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 4, 5	2.62	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	237	Arm 1

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	2030 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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	277	100.000
2		ONE HOUR	✓	94	100.000
4		ONE HOUR	✓	381	100.000
5		ONE HOUR	✓	297	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	1	29	189	58	
	2	34	4	41	15	
	4	182	52	1	146	
	5	40	49	208	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	3	17	1	
	2	2	0	4	2	
	4	9	5	0	5	
	5	1	0	11	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.19	2.99	0.3	A	254	381
2	0.07	2.78	0.1	A	86	129
4	0.19	2.14	0.2	A	350	524
5	0.19	2.84	0.3	A	273	409

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	209	52	236	1718	0.121	208	193	0.0	0.2	2.659	A
2	71	18	343	1534	0.046	71	101	0.0	0.0	2.528	A
4	287	72	84	2247	0.128	286	330	0.0	0.2	1.962	A
5	224	56	206	1759	0.127	223	164	0.0	0.2	2.521	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	249	62	282	1688	0.147	249	231	0.2	0.2	2.791	A
2	85	21	411	1492	0.057	84	120	0.0	0.1	2.628	A
4	343	86	101	2235	0.153	342	394	0.2	0.2	2.032	A
5	267	67	246	1731	0.154	267	197	0.2	0.2	2.646	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	305	76	345	1648	0.185	305	283	0.2	0.3	2.992	A
2	103	26	503	1435	0.072	103	147	0.1	0.1	2.778	A
4	419	105	123	2219	0.189	419	483	0.2	0.2	2.137	A
5	327	82	302	1693	0.193	327	241	0.2	0.3	2.836	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	305	76	346	1647	0.185	305	283	0.3	0.3	2.992	A
2	103	26	503	1434	0.072	103	148	0.1	0.1	2.779	A
4	419	105	123	2219	0.189	419	483	0.2	0.2	2.138	A
5	327	82	302	1692	0.193	327	241	0.3	0.3	2.836	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	249	62	283	1688	0.148	249	231	0.3	0.2	2.795	A
2	85	21	411	1491	0.057	85	121	0.1	0.1	2.631	A
4	343	86	101	2235	0.153	343	395	0.2	0.2	2.033	A
5	267	67	246	1731	0.154	267	197	0.3	0.2	2.647	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	209	52	237	1718	0.121	209	194	0.2	0.2	2.663	A
2	71	18	344	1533	0.046	71	101	0.1	0.0	2.532	A
4	287	72	84	2246	0.128	287	331	0.2	0.2	1.963	A
5	224	56	206	1758	0.127	224	165	0.2	0.2	2.524	A

2030 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 4, 5	2.74	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	188	Arm 1

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	2030 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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	343	100.000
2		ONE HOUR	✓	183	100.000
4		ONE HOUR	✓	450	100.000
5		ONE HOUR	✓	336	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	0	40	221	82	
	2	58	0	87	38	
	4	185	67	3	195	
	5	67	46	223	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	2	9	0	
	2	1	0	1	0	
	4	11	0	1	4	
	5	0	0	5	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.23	3.04	0.3	A	315	472
2	0.15	3.06	0.2	A	168	252
4	0.23	2.28	0.3	A	413	619
5	0.22	2.87	0.3	A	308	462

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	258	65	255	1706	0.151	257	233	0.0	0.2	2.629	A
2	138	34	397	1500	0.092	137	115	0.0	0.1	2.662	A
4	339	85	134	2211	0.153	338	401	0.0	0.2	2.038	A
5	253	63	235	1738	0.146	252	237	0.0	0.2	2.500	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	308	77	305	1674	0.184	308	279	0.2	0.2	2.790	A
2	165	41	475	1452	0.113	164	137	0.1	0.1	2.818	A
4	405	101	160	2192	0.185	404	480	0.2	0.2	2.136	A
5	302	76	281	1707	0.177	302	283	0.2	0.2	2.646	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	378	94	373	1630	0.232	377	341	0.2	0.3	3.042	A
2	201	50	582	1386	0.145	201	168	0.1	0.2	3.063	A
4	495	124	196	2167	0.229	495	587	0.2	0.3	2.285	A
5	370	92	344	1663	0.222	370	347	0.2	0.3	2.874	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	378	94	373	1630	0.232	378	341	0.3	0.3	3.043	A
2	201	50	582	1385	0.145	201	168	0.2	0.2	3.064	A
4	495	124	196	2167	0.229	495	588	0.3	0.3	2.285	A
5	370	92	345	1663	0.222	370	347	0.3	0.3	2.874	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	308	77	305	1674	0.184	309	279	0.3	0.2	2.794	A
2	165	41	476	1451	0.113	165	138	0.2	0.1	2.822	A
4	405	101	160	2192	0.185	405	481	0.3	0.2	2.137	A
5	302	76	282	1706	0.177	302	283	0.3	0.2	2.647	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	258	65	255	1706	0.151	258	234	0.2	0.2	2.635	A
2	138	34	399	1499	0.092	138	115	0.1	0.1	2.667	A
4	339	85	134	2211	0.153	339	402	0.2	0.2	2.042	A
5	253	63	236	1738	0.146	253	237	0.2	0.2	2.503	A

2035 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 4, 5	2.71	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	214	Arm 1

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	2035 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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	297	100.000
2		ONE HOUR	✓	102	100.000
4		ONE HOUR	✓	409	100.000
5		ONE HOUR	✓	318	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	1	31	203	62	
	2	37	5	44	16	
	4	195	56	1	157	
	5	43	52	223	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	3	19	1	
	2	2	0	5	2	
	4	9	6	0	6	
	5	1	0	12	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.20	3.12	0.3	A	273	409
2	0.08	2.86	0.1	A	94	140
4	0.20	2.19	0.3	A	375	563
5	0.21	2.94	0.3	A	292	438

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	224	56	253	1707	0.131	223	207	0.0	0.2	2.736	A
2	77	19	368	1518	0.051	77	108	0.0	0.1	2.575	A
4	308	77	91	2242	0.137	307	354	0.0	0.2	1.998	A
5	239	60	222	1748	0.137	239	176	0.0	0.2	2.581	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	267	67	303	1675	0.159	267	248	0.2	0.2	2.885	A
2	92	23	440	1473	0.062	92	129	0.1	0.1	2.687	A
4	368	92	109	2229	0.165	368	423	0.2	0.2	2.076	A
5	286	71	265	1718	0.166	286	211	0.2	0.2	2.721	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	371	1631	0.200	327	304	0.2	0.3	3.115	A
2	112	28	539	1412	0.080	112	158	0.1	0.1	2.856	A
4	450	113	133	2211	0.204	450	518	0.2	0.3	2.194	A
5	350	88	325	1677	0.209	350	259	0.2	0.3	2.937	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	371	1631	0.200	327	304	0.3	0.3	3.115	A
2	112	28	539	1412	0.080	112	159	0.1	0.1	2.857	A
4	450	113	133	2211	0.204	450	519	0.3	0.3	2.194	A
5	350	88	325	1676	0.209	350	259	0.3	0.3	2.938	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	267	67	303	1675	0.159	267	248	0.3	0.2	2.889	A
2	92	23	441	1473	0.062	92	130	0.1	0.1	2.690	A
4	368	92	109	2229	0.165	368	424	0.3	0.2	2.079	A
5	286	71	265	1718	0.166	286	211	0.3	0.2	2.725	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	224	56	254	1707	0.131	224	208	0.2	0.2	2.740	A
2	77	19	369	1517	0.051	77	108	0.1	0.1	2.579	A
4	308	77	91	2241	0.137	308	355	0.2	0.2	2.001	A
5	239	60	222	1747	0.137	240	177	0.2	0.2	2.587	A

2035 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 4, 5	2.85	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	168	Arm 1

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	2035 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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	369	100.000
2		ONE HOUR	✓	198	100.000
4		ONE HOUR	✓	484	100.000
5		ONE HOUR	✓	361	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	0	43	238	88	
	2	63	0	94	41	
	4	199	72	3	210	
	5	72	49	240	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	2	9	0	
	2	1	0	1	0	
	4	12	0	1	5	
	5	0	0	6	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.25	3.16	0.4	A	339	508
2	0.16	3.18	0.2	A	182	273
4	0.25	2.37	0.4	A	444	666
5	0.24	3.00	0.3	A	331	497

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	278	69	273	1694	0.164	277	251	0.0	0.2	2.688	A
2	149	37	427	1482	0.101	149	123	0.0	0.1	2.722	A
4	364	91	144	2204	0.165	364	432	0.0	0.2	2.090	A
5	272	68	253	1726	0.157	271	255	0.0	0.2	2.569	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	332	83	327	1660	0.200	331	300	0.2	0.3	2.870	A
2	178	44	511	1429	0.125	178	147	0.1	0.1	2.898	A
4	435	109	172	2183	0.199	435	517	0.2	0.3	2.201	A
5	325	81	303	1692	0.192	324	305	0.2	0.2	2.735	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	406	102	400	1612	0.252	406	367	0.3	0.4	3.159	A
2	218	55	626	1358	0.160	218	180	0.1	0.2	3.181	A
4	533	133	211	2156	0.247	533	633	0.3	0.3	2.371	A
5	397	99	371	1645	0.242	397	373	0.2	0.3	2.998	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	406	102	401	1612	0.252	406	368	0.4	0.4	3.160	A
2	218	55	626	1358	0.161	218	181	0.2	0.2	3.182	A
4	533	133	211	2156	0.247	533	633	0.3	0.4	2.371	A
5	397	99	371	1645	0.242	397	373	0.3	0.3	2.998	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	332	83	328	1659	0.200	332	301	0.4	0.3	2.872	A
2	178	44	512	1429	0.125	178	148	0.2	0.1	2.903	A
4	435	109	173	2183	0.199	435	517	0.4	0.3	2.202	A
5	325	81	303	1691	0.192	325	305	0.3	0.2	2.739	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	278	69	274	1693	0.164	278	252	0.3	0.2	2.692	A
2	149	37	429	1481	0.101	149	124	0.1	0.1	2.725	A
4	364	91	145	2203	0.165	365	433	0.3	0.2	2.093	A
5	272	68	254	1725	0.158	272	255	0.2	0.2	2.575	A

2020 + Dev, 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, 4, 5	2.59	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	227	Arm 5

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	2020 + Dev	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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	263	100.000
2		ONE HOUR	✓	90	100.000
4		ONE HOUR	✓	419	100.000
5		ONE HOUR	✓	282	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	0	28	180	55	
	2	33	4	39	14	
	4	229	50	1	139	
	5	38	46	198	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	3	16	1	
	2	2	0	4	2	
	4	8	5	0	5	
	5	1	0	10	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.17	2.92	0.2	A	241	362
2	0.07	2.74	0.1	A	83	124
4	0.21	2.18	0.3	A	384	577
5	0.19	2.85	0.2	A	259	388

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	198	50	224	1725	0.115	197	225	0.0	0.1	2.616	A
2	68	17	326	1544	0.044	68	96	0.0	0.0	2.504	A
4	315	79	80	2250	0.140	315	314	0.0	0.2	1.983	A
5	212	53	238	1736	0.122	212	156	0.0	0.1	2.526	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	236	59	269	1697	0.139	236	270	0.1	0.2	2.736	A
2	81	20	390	1505	0.054	81	115	0.0	0.1	2.597	A
4	377	94	95	2239	0.168	377	376	0.2	0.2	2.060	A
5	254	63	285	1704	0.149	253	187	0.1	0.2	2.654	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	290	72	329	1658	0.175	289	330	0.2	0.2	2.920	A
2	99	25	477	1450	0.068	99	141	0.1	0.1	2.737	A
4	461	115	117	2223	0.208	461	460	0.2	0.3	2.177	A
5	310	78	349	1660	0.187	310	229	0.2	0.2	2.853	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	290	72	329	1658	0.175	290	330	0.2	0.2	2.920	A
2	99	25	478	1450	0.068	99	141	0.1	0.1	2.737	A
4	461	115	117	2223	0.208	461	460	0.3	0.3	2.177	A
5	310	78	349	1660	0.187	310	229	0.2	0.2	2.853	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	236	59	269	1697	0.139	237	270	0.2	0.2	2.737	A
2	81	20	391	1504	0.054	81	115	0.1	0.1	2.598	A
4	377	94	95	2238	0.168	377	376	0.3	0.2	2.061	A
5	254	63	285	1704	0.149	254	187	0.2	0.2	2.655	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	198	50	225	1725	0.115	198	226	0.2	0.1	2.618	A
2	68	17	327	1544	0.044	68	96	0.1	0.0	2.506	A
4	315	79	80	2250	0.140	316	315	0.2	0.2	1.985	A
5	212	53	239	1736	0.122	212	157	0.2	0.1	2.527	A

2020 + Dev, 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, 4, 5	2.83	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	174	Arm 1

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	2020 + Dev	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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	382	100.000
2		ONE HOUR	✓	187	100.000
4		ONE HOUR	✓	494	100.000
5		ONE HOUR	✓	319	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	0	38	267	77	
	2	68	0	83	36	
	4	243	64	2	185	
	5	64	43	212	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	2	12	0	
	2	1	0	1	0	
	4	10	0	1	4	
	5	0	0	5	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.26	3.19	0.4	A	351	526
2	0.15	3.13	0.2	A	172	257
4	0.25	2.36	0.4	A	453	680
5	0.22	2.94	0.3	A	293	439

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	288	72	241	1715	0.168	287	282	0.0	0.2	2.729	A
2	141	35	419	1487	0.095	140	109	0.0	0.1	2.695	A
4	372	93	136	2210	0.168	371	423	0.0	0.2	2.080	A
5	240	60	283	1705	0.141	239	224	0.0	0.2	2.534	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	343	86	288	1684	0.204	343	337	0.2	0.3	2.907	A
2	168	42	501	1436	0.117	168	130	0.1	0.1	2.862	A
4	444	111	163	2190	0.203	444	507	0.2	0.3	2.190	A
5	287	72	339	1667	0.172	287	268	0.2	0.2	2.693	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	421	105	353	1643	0.256	420	413	0.3	0.4	3.190	A
2	206	51	614	1366	0.151	206	160	0.1	0.2	3.127	A
4	544	136	199	2164	0.251	544	620	0.3	0.4	2.360	A
5	351	88	415	1614	0.218	351	328	0.2	0.3	2.942	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	421	105	353	1643	0.256	421	413	0.4	0.4	3.190	A
2	206	51	614	1366	0.151	206	160	0.2	0.2	3.128	A
4	544	136	199	2164	0.251	544	621	0.4	0.4	2.361	A
5	351	88	415	1614	0.218	351	328	0.3	0.3	2.943	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	343	86	289	1684	0.204	344	337	0.4	0.3	2.912	A
2	168	42	502	1435	0.117	168	130	0.2	0.1	2.866	A
4	444	111	163	2190	0.203	444	508	0.4	0.3	2.191	A
5	287	72	339	1667	0.172	287	268	0.3	0.2	2.694	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	288	72	242	1714	0.168	288	283	0.3	0.2	2.735	A
2	141	35	420	1486	0.095	141	109	0.1	0.1	2.698	A
4	372	93	136	2209	0.168	372	425	0.3	0.2	2.082	A
5	240	60	284	1705	0.141	240	225	0.2	0.2	2.540	A

2030 + Dev , 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, 4, 5	2.66	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	212	Arm 5

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	2030 + Dev	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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	274	100.000
2		ONE HOUR	✓	94	100.000
4		ONE HOUR	✓	437	100.000
5		ONE HOUR	✓	297	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	1	29	186	58	
	2	34	4	41	15	
	4	238	52	1	146	
	5	40	49	208	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	3	17	1	
	2	2	0	4	2	
	4	13	5	0	5	
	5	1	0	11	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.18	2.98	0.2	A	251	377
2	0.07	2.77	0.1	A	86	129
4	0.22	2.26	0.3	A	401	601
5	0.20	2.93	0.3	A	273	409

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	206	52	236	1718	0.120	206	235	0.0	0.2	2.654	A
2	71	18	341	1535	0.046	71	101	0.0	0.0	2.526	A
4	329	82	84	2247	0.146	328	327	0.0	0.2	2.049	A
5	224	56	248	1730	0.129	223	164	0.0	0.2	2.569	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	246	62	282	1688	0.146	246	281	0.2	0.2	2.784	A
2	85	21	408	1494	0.057	84	120	0.0	0.1	2.625	A
4	393	98	101	2235	0.176	393	392	0.2	0.2	2.133	A
5	267	67	297	1696	0.157	267	197	0.2	0.2	2.710	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	302	75	345	1648	0.183	301	344	0.2	0.2	2.983	A
2	103	26	499	1437	0.072	103	147	0.1	0.1	2.774	A
4	481	120	123	2219	0.217	481	480	0.2	0.3	2.262	A
5	327	82	363	1650	0.198	327	241	0.2	0.3	2.927	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	302	75	346	1647	0.183	302	345	0.2	0.2	2.984	A
2	103	26	500	1436	0.072	103	148	0.1	0.1	2.775	A
4	481	120	123	2219	0.217	481	480	0.3	0.3	2.262	A
5	327	82	363	1650	0.198	327	241	0.3	0.3	2.927	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	246	62	283	1688	0.146	247	282	0.2	0.2	2.786	A
2	85	21	409	1493	0.057	85	121	0.1	0.1	2.628	A
4	393	98	101	2235	0.176	393	392	0.3	0.2	2.134	A
5	267	67	297	1696	0.157	267	197	0.3	0.2	2.711	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	206	52	237	1718	0.120	206	236	0.2	0.2	2.657	A
2	71	18	342	1534	0.046	71	101	0.1	0.0	2.527	A
4	329	82	84	2246	0.146	329	328	0.2	0.2	2.052	A
5	224	56	249	1729	0.129	224	165	0.2	0.2	2.575	A

2030 + Dev, 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, 4, 5	2.91	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	161	Arm 1

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	2030 + Dev	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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	400	100.000
2		ONE HOUR	✓	196	100.000
4		ONE HOUR	✓	516	100.000
5		ONE HOUR	✓	336	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	0	40	278	82	
	2	71	0	87	38	
	4	252	67	3	194	
	5	67	46	223	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	2	13	0	
	2	1	0	1	0	
	4	11	0	1	4	
	5	0	0	5	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.27	3.30	0.4	A	367	551
2	0.16	3.21	0.2	A	180	270
4	0.26	2.42	0.4	A	473	710
5	0.23	3.02	0.3	A	308	462

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	301	75	255	1706	0.177	300	293	0.0	0.2	2.788	A
2	148	37	440	1474	0.100	147	115	0.0	0.1	2.735	A
4	388	97	143	2204	0.176	388	444	0.0	0.2	2.113	A
5	253	63	295	1697	0.149	252	236	0.0	0.2	2.571	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	360	90	305	1674	0.215	359	350	0.2	0.3	2.982	A
2	176	44	526	1420	0.124	176	137	0.1	0.1	2.916	A
4	464	116	172	2184	0.212	464	531	0.2	0.3	2.233	A
5	302	76	353	1657	0.182	302	282	0.2	0.2	2.743	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	373	1630	0.270	440	429	0.3	0.4	3.295	A
2	216	54	645	1347	0.160	216	168	0.1	0.2	3.207	A
4	568	142	210	2156	0.263	568	650	0.3	0.4	2.418	A
5	370	92	432	1602	0.231	370	345	0.2	0.3	3.016	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	373	1630	0.270	440	429	0.4	0.4	3.296	A
2	216	54	645	1346	0.160	216	168	0.2	0.2	3.209	A
4	568	142	210	2156	0.263	568	651	0.4	0.4	2.418	A
5	370	92	433	1602	0.231	370	346	0.3	0.3	3.016	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	360	90	305	1674	0.215	360	351	0.4	0.3	2.987	A
2	176	44	527	1419	0.124	176	138	0.2	0.1	2.919	A
4	464	116	172	2184	0.212	464	532	0.4	0.3	2.234	A
5	302	76	354	1657	0.182	302	283	0.3	0.2	2.745	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	301	75	255	1706	0.177	301	294	0.3	0.2	2.794	A
2	148	37	442	1473	0.100	148	115	0.1	0.1	2.738	A
4	388	97	144	2204	0.176	389	445	0.3	0.2	2.118	A
5	253	63	296	1696	0.149	253	237	0.2	0.2	2.577	A

2035 + Dev, 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, 4, 5	2.76	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	192	Arm 5

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
D13	2035 + Dev	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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	297	100.000
2		ONE HOUR	✓	102	100.000
4		ONE HOUR	✓	465	100.000
5		ONE HOUR	✓	318	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	1	31	203	62	
	2	37	5	44	16	
	4	251	56	1	157	
	5	43	52	223	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	3	19	1	
	2	2	0	5	2	
	4	13	6	0	6	
	5	1	0	12	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.20	3.12	0.3	A	273	409
2	0.08	2.86	0.1	A	94	140
4	0.23	2.32	0.3	A	427	640
5	0.21	3.04	0.3	A	292	438

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	224	56	253	1707	0.131	223	249	0.0	0.2	2.736	A
2	77	19	368	1518	0.051	77	108	0.0	0.1	2.575	A
4	350	88	91	2242	0.156	349	354	0.0	0.2	2.084	A
5	239	60	264	1719	0.139	239	176	0.0	0.2	2.632	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	267	67	303	1675	0.159	267	298	0.2	0.2	2.885	A
2	92	23	440	1473	0.062	92	129	0.1	0.1	2.687	A
4	418	105	109	2229	0.188	418	423	0.2	0.3	2.179	A
5	286	71	315	1683	0.170	286	211	0.2	0.2	2.789	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	371	1631	0.200	327	365	0.2	0.3	3.115	A
2	112	28	539	1412	0.080	112	158	0.1	0.1	2.856	A
4	512	128	133	2211	0.232	512	518	0.3	0.3	2.322	A
5	350	88	386	1634	0.214	350	259	0.2	0.3	3.035	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	327	82	371	1631	0.200	327	366	0.3	0.3	3.115	A
2	112	28	539	1412	0.080	112	159	0.1	0.1	2.857	A
4	512	128	133	2211	0.232	512	519	0.3	0.3	2.322	A
5	350	88	386	1634	0.214	350	259	0.3	0.3	3.035	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	267	67	303	1675	0.159	267	299	0.3	0.2	2.889	A
2	92	23	441	1473	0.062	92	130	0.1	0.1	2.688	A
4	418	105	109	2229	0.188	418	424	0.3	0.3	2.180	A
5	286	71	316	1683	0.170	286	211	0.3	0.2	2.793	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	224	56	254	1707	0.131	224	250	0.2	0.2	2.740	A
2	77	19	369	1517	0.051	77	108	0.1	0.1	2.579	A
4	350	88	91	2241	0.156	350	355	0.3	0.2	2.088	A
5	239	60	264	1718	0.139	240	177	0.2	0.2	2.638	A

2035 + Dev, 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, 4, 5	3.03	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	144	Arm 1

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
D14	2035 + Dev	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 (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	426	100.000
2		ONE HOUR	✓	211	100.000
4		ONE HOUR	✓	551	100.000
5		ONE HOUR	✓	361	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
From	1	0	43	295	88	
	2	76	0	94	41	
	4	266	72	3	210	
	5	72	49	240	0	

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	4	5	
From	1	0	2	13	0	
	2	1	0	1	0	
	4	12	0	1	5	
	5	0	0	6	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.29	3.43	0.4	A	391	586
2	0.18	3.34	0.2	A	194	290
4	0.28	2.51	0.4	A	506	758
5	0.25	3.15	0.3	A	331	497

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	321	80	273	1694	0.189	320	311	0.0	0.3	2.851	A
2	159	40	470	1455	0.109	158	123	0.0	0.1	2.798	A
4	415	104	154	2197	0.189	414	474	0.0	0.2	2.170	A
5	272	68	313	1685	0.161	271	255	0.0	0.2	2.645	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	383	96	327	1660	0.231	383	372	0.3	0.3	3.070	A
2	190	47	562	1398	0.136	190	147	0.1	0.2	3.003	A
4	495	124	184	2175	0.228	495	568	0.2	0.3	2.304	A
5	325	81	375	1642	0.198	324	305	0.2	0.3	2.838	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	469	117	400	1612	0.291	469	455	0.3	0.4	3.425	A
2	232	58	689	1320	0.176	232	180	0.2	0.2	3.337	A
4	607	152	225	2145	0.283	606	695	0.3	0.4	2.514	A
5	397	99	459	1584	0.251	397	373	0.3	0.3	3.152	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	469	117	401	1612	0.291	469	456	0.4	0.4	3.428	A
2	232	58	689	1319	0.176	232	181	0.2	0.2	3.338	A
4	607	152	226	2145	0.283	607	696	0.4	0.4	2.515	A
5	397	99	459	1584	0.251	397	373	0.3	0.3	3.152	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	383	96	328	1659	0.231	383	373	0.4	0.3	3.073	A
2	190	47	563	1397	0.136	190	148	0.2	0.2	3.006	A
4	495	124	185	2175	0.228	496	569	0.4	0.3	2.305	A
5	325	81	375	1642	0.198	325	305	0.3	0.3	2.841	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	321	80	274	1693	0.189	321	312	0.3	0.3	2.856	A
2	159	40	472	1454	0.109	159	124	0.2	0.1	2.804	A
4	415	104	154	2196	0.189	415	476	0.3	0.3	2.173	A
5	272	68	314	1684	0.161	272	255	0.3	0.2	2.651	A

Appendix I



Junctions 9

ARCADY 9 - Roundabout Module PICADY 9 - Priority Intersection Module

Version: 9.5.0.6896
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Filename: Roundabout including Tremeyrick Street.j9

Path: Z:\Lime\Projects\2017\17204 Pembroke Port, Pembroke\Analysis\JUNCTIONS 9

Report generation date: 25/01/2019 13:01:53

- »2018 Base, AM
- »2018 Base, PM
- »2020 Base, AM
- »2020 Base, PM
- »2030 Base, AM
- »2030 Base, PM
- »2035 Base, AM
- »2035 Base, PM
- »2020 + Dev, AM
- »2020 + Dev, PM
- »2030 + Dev, AM
- »2030 + Dev, PM
- »2035 + Dev, AM
- »2035 + Dev, PM

Summary of junction performance

	AM					PM				
	Q (PCU)	Delay (s)	RFC	LOS	Res Cap	Q (PCU)	Delay (s)	RFC	LOS	Res Cap
[Lane Simulation] - 2018 Base										
Junction 1 - Arm 1	0.3	3.06		A	%	0.4	3.01		A	%
Junction 1 - Arm 2	0.1	2.78		A		0.2	3.24		A	
Junction 1 - Arm 4	0.4	2.18		A		0.3	2.18		A	
Junction 1 - Arm 5	0.2	2.91		A		0.3	2.81		A	
Junction 2 - Arm A	0.0	0.00		A		0.0	0.00		A	
Junction 2 - Arm B	0.7	13.51		B		0.9	13.54		B	
Junction 2 - Arm C	0.0	0.01		A		0.0	0.00		A	
[Lane Simulation] - 2020 Base										
Junction 1 - Arm 1	0.4	2.97		A	%	0.4	2.92		A	%
Junction 1 - Arm 2	0.1	2.85		A		0.2	2.94		A	
Junction 1 - Arm 4	0.3	2.17		A		0.4	2.19		A	
Junction 1 - Arm 5	0.3	2.83		A		0.3	2.80		A	
Junction 2 - Arm A	0.0	0.00		A		0.0	0.00		A	
Junction 2 - Arm B	0.7	14.53		B		0.9	14.65		B	
Junction 2 - Arm C	0.0	0.00		A		0.0	0.00		A	
[Lane Simulation] - 2030 Base										
Junction 1 - Arm 1	0.3	3.15		A	%	0.3	3.02		A	%
Junction 1 - Arm 2	0.2	2.83		A		0.2	3.02		A	
Junction 1 - Arm 4	0.3	2.17		A		0.4	2.19		A	
Junction 1 - Arm 5	0.4	2.98		A		0.3	2.81		A	
Junction 2 - Arm A	0.0	0.00		A		0.0	0.00		A	
Junction 2 - Arm B	0.6	14.51		B		0.9	15.88		C	
Junction 2 - Arm C	0.0	0.00		A		0.0	0.00		A	
[Lane Simulation] - 2035 Base										
Junction 1 - Arm 1	0.4	3.25		A		0.4	3.09		A	
Junction 1 - Arm 2	0.1	3.00		A		0.2	3.39		A	

Delay	1.00	100000	100000	-1	3	1	60	✓			236218993	101	4.63
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Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2018 Base	AM	ONE HOUR	08:00	09:30	15	✓
D2	2018 Base	PM	ONE HOUR	17:00	18:30	15	✓
D3	2020 Base	AM	ONE HOUR	08:00	09:30	15	✓
D4	2020 Base	PM	ONE HOUR	17:00	18:30	15	✓
D5	2030 Base	AM	ONE HOUR	08:00	09:30	15	✓
D6	2030 Base	PM	ONE HOUR	17:00	18:30	15	✓
D7	2035 Base	AM	ONE HOUR	08:00	09:30	15	✓
D8	2035 Base	PM	ONE HOUR	17:00	18:30	15	✓
D9	2020 + Dev	AM	ONE HOUR	08:00	09:30	15	✓
D10	2020 + Dev	PM	ONE HOUR	17:00	18:30	15	✓
D11	2030 + Dev	AM	ONE HOUR	08:00	09:30	15	✓
D12	2030 + Dev	PM	ONE HOUR	17:00	18:30	15	✓
D13	2035 + Dev	AM	ONE HOUR	08:00	09:30	15	✓
D14	2035 + Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

2018 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.62	A
2	untitled	T-Junction	Two-way			2.09	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Junction	Arm	Name	Description	Arm type
1	1	Meyrick Owen Way		
	2	Pier Road		
	4	A4139		
	5	B4322		
2	A	A4139 (W)		Major
	B	Tremeyrick Street		Minor
	C	A4139 (E)		Major

Roundabout Geometry

Junction	Arm	V (m)	E (m)	I' (m)	R (m)	D (m)	PHI (deg)	Exit only
1	1	4.08	9.19	9.2	29.7	52.0	22.3	
	2	4.78	7.73	3.5	121.2	51.5	32.0	
	4	5.18	10.18	14.5	14.5	52.0	22.3	
	5	4.72	7.72	15.4	52.3	22.7	51.5	

Major Arm Geometry

Junction	Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
2	C	5.18			0.0	✓	0.00

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

Minor Arm Geometry

Junction	Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
2	B	One lane	3.50	70	65

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1	1	0.643	1870
	2	0.620	1746
	4	0.715	2307
	5	0.691	1901

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

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
2	B-A	559	0.106	0.267	0.168	0.381
2	B-C	698	0.111	0.280	-	-
2	C-B	574	0.230	0.230	-	-

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

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

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

Lane Simulation: Arm options

Junction	Arm	Lane capacity source	Traffic considering secondary lanes (%)
1	1	Evenly split	10.00
	2	Evenly split	10.00
	4	Evenly split	10.00
	5	Evenly split	10.00
2	A		
	B		
	C		

Lanes

Junction	Arm	Side	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Has bottleneck	Min Cap (PCU/hr)	Max Cap (PCU/hr)	Signalised
1	1	Entry	1	1	1, 2, 4, 5		Infinity		0	99999	
		Exit	1	1			Infinity				
	2	Entry	1	1	1, 2, 4, 5		Infinity		0	99999	
		Exit	1	1			Infinity				
	4	Entry	1	1	1, 2, 4, 5	✓	3.00		0	99999	
		Exit	1	1		✓	3.00				
	5	Entry	1	1	1, 2, 4, 5		Infinity		0	99999	
		Exit	1	1			Infinity				
2	A	Entry	1	1	B, C	✓	3.00		0	99999	
		Exit	1	1		✓	3.00				
	B	Entry	1	1	A, C		Infinity		0	99999	
		Exit	1	1			Infinity				
	C	Entry	1	1	A, B		Infinity		0	99999	
		Exit	1	1			Infinity				

Entry Lane slope and intercept

Junction	Arm	Side	Lane level	Lane	Final slope	Final intercept (PCU/hr)
1	1	Entry	1	1	0.643	1870
	2	Entry	1	1	0.620	1746
	4	Entry	1	1	0.715	2307
	5	Entry	1	1	0.691	1901

Summary of Entry Lane allowed movements

Junction	Arm	Lane Level	Lane	Destination arm			
				1	2	4	5
1	1	1	1	✓	✓	✓	✓
	2	1	1	✓	✓	✓	✓
	4	1	1	✓	✓	✓	✓
	5	1	1	✓	✓	✓	✓

Summary of Entry Lane allowed movements

Junction	Arm	Lane Level	Lane	Destination arm		
				A	B	C
2	A	1	1		✓	✓
	B	1	1	✓		✓
	C	1	1	✓	✓	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2018 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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	258	100.000
	2		ONE HOUR	✓	89	100.000
	4	✓				
	5		ONE HOUR	✓	277	100.000
2	A	✓				
	B		ONE HOUR	✓	136	100.000
	C		ONE HOUR	✓	330	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	1	27	176	54
		2	32	4	39	14
		4	169	49	0	136
		5	38	45	194	0

Demand (PCU/hr)

		To			
		A	B	C	
Junction 2	From	A	0	207	410
		B	116	0	20
		C	330	0	0

Vehicle Mix

HV %s

		To				
		1	2	4	5	
Junction 1	From	1	0	3	16	1
		2	2	0	4	2
		4	8	5	0	5
		5	1	0	10	0

HV %s

		To		
		A	B	C

Junction 2

From	A	0	5	17
	B	1	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.06	0.3	A	233	349
	2	2.78	0.1	A	78	117
	4	2.18	0.4	A	438	657
	5	2.91	0.2	A	257	385
2	A	0.00	0.0	A	379	568
	B	13.51	0.7	B	125	187
	C	0.01	0.0	A	306	458

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	197	49	251	198	198	232	0.0	0.2	2.685	A
	2	63	16	339	63	67	110	0.0	0.1	2.478	A
	4	375	94	75	374	367	327	0.0	0.2	2.042	A
	5	226	57	258	226	216	191	0.0	0.2	2.612	A
2	A	332	83		332	322	351	0.0	0.0	0.000	A
	B	103	26		104	105	108	0.0	0.3	10.580	B
	C	261	65		261	255	237	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	229	57	274	229	229	262	0.2	0.3	2.840	A
	2	74	18	377	75	80	127	0.1	0.0	2.435	A
	4	427	107	91	426	429	361	0.2	0.2	2.100	A
	5	244	61	291	244	246	225	0.2	0.2	2.728	A
2	A	359	90		359	365	400	0.0	0.0	0.000	A
	B	122	30		122	124	120	0.3	0.4	11.398	B
	C	296	74		296	297	257	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	275	69	344	274	277	328	0.3	0.3	2.942	A
	2	88	22	458	88	93	160	0.0	0.1	2.617	A
	4	529	132	107	530	514	439	0.2	0.3	2.185	A
	5	303	76	367	305	303	270	0.2	0.2	2.914	A
2	A	444	111		444	445	497	0.0	0.0	0.000	A
	B	147	37		145	146	151	0.4	0.7	13.459	B
	C	374	93		374	360	315	0.0	0.0	0.007	A

08:45 - 09:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	284	71	339	284	284	334	0.3	0.2	3.061	A
	2	97	24	467	97	99	155	0.1	0.1	2.777	A
	4	531	133	117	531	520	447	0.3	0.4	2.181	A

	5	299	75	372	301	302	276	0.2	0.2	2.856	A
2	A	453	113		453	451	500	0.0	0.0	0.000	A
	B	157	39		156	152	153	0.7	0.7	13.506	B
	C	370	92		370	362	325	0.0	0.0	0.000	A

09:00 - 09:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	231	58	283	230	232	256	0.2	0.2	2.650	A
	2	81	20	385	80	82	129	0.1	0.1	2.594	A
	4	422	105	91	421	429	374	0.4	0.3	2.017	A
	5	253	63	286	254	255	226	0.2	0.1	2.780	A
2	A	380	95		380	376	397	0.0	0.0	0.000	A
	B	123	31		121	121	133	0.7	0.5	11.142	B
	C	293	73		293	301	264	0.0	0.0	0.001	A

09:15 - 09:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	180	45	235	179	191	224	0.2	0.2	2.636	A
	2	66	16	312	66	69	102	0.1	0.0	2.473	A
	4	345	86	77	345	357	301	0.3	0.3	1.999	A
	5	215	54	243	216	210	179	0.1	0.1	2.533	A
2	A	307	77		307	311	324	0.0	0.0	0.000	A
	B	97	24		97	102	103	0.5	0.3	10.287	B
	C	240	60		240	248	217	0.0	0.0	0.001	A

Lane Results

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

Lanes: Main Results for each time segment

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	197	1708	0.115	198	198	0.0	0.2	2.685	A
		Exit	1	1		232			232	226	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	63	1537	0.041	63	67	0.0	0.1	2.478	A
		Exit	1	1		110			110	109	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	375	2253	0.166	374	367	0.0	0.2	2.042	A
		Exit	1	1		327			327	318	0.0	0.0	0.000	A
	5	Entry	1	1	1, 2, 4, 5	226	1723	0.131	226	216	0.0	0.2	2.612	A
		Exit	1	1		191			191	194	0.0	0.0	0.000	A
2	A	Entry	1	1	B, C	332			332	322	0.0	0.0	0.000	A
		Exit	1	1		351			351	345	0.0	0.0	0.033	A
	B	Entry	1	1	A, C	103			104	105	0.0	0.3	10.580	B
		Exit	1	1		108			108	107	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	261			261	255	0.0	0.0	0.000	A
		Exit	1	1		237			237	230	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	229	1694	0.135	229	229	0.2	0.3	2.840	A
		Exit	1	1		262			262	264	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	74	1513	0.049	75	80	0.1	0.0	2.435	A
		Exit	1	1		127			127	128	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	427	2242	0.191	426	429	0.2	0.2	2.100	A
		Exit	1	1		361			361	364	0.0	0.0	0.000	A
	5	Entry	1	1	1, 2, 4, 5	244	1700	0.143	244	246	0.2	0.2	2.728	A
		Exit	1	1		225			225	228	0.0	0.0	0.000	A
A	Entry	1	1	B, C	359			359	365	0.0	0.0	0.000	A	
	Exit	1	1		400			400	404	0.0	0.0	0.045	A	

2	B	Entry	1	1	A, C	122			122	124	0.3	0.4	11.398	B
		Exit	1	1		120			120	123	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	296			296	297	0.0	0.0	0.000	A
		Exit	1	1		257			257	260	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	275	1649	0.167	274	277	0.3	0.3	2.942	A
		Exit	1	1		328			328	321	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	88	1462	0.060	88	93	0.0	0.1	2.617	A
		Exit	1	1		160			160	156	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	529	2230	0.237	530	514	0.2	0.3	2.185	A
		Exit	1	1		439			439	443	0.0	0.0	0.000	A
	5	Entry	1	1	1, 2, 4, 5	303	1647	0.184	305	303	0.2	0.2	2.914	A
		Exit	1	1		270			270	267	0.0	0.0	0.000	A
2	A	Entry	1	1	B, C	444			444	445	0.0	0.0	0.000	A
		Exit	1	1		497			497	484	0.0	0.0	0.074	A
	B	Entry	1	1	A, C	147			145	146	0.4	0.7	13.459	B
		Exit	1	1		151			151	149	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	374			374	360	0.0	0.0	0.007	A
		Exit	1	1		315			315	319	0.0	0.0	0.000	A

08:45 - 09:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	284	1652	0.172	284	284	0.3	0.2	3.061	A
		Exit	1	1		334			334	327	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	97	1457	0.067	97	99	0.1	0.1	2.777	A
		Exit	1	1		155			155	156	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	531	2223	0.239	531	520	0.3	0.4	2.181	A
		Exit	1	1		447			447	448	0.0	0.0	0.000	A
	5	Entry	1	1	1, 2, 4, 5	299	1644	0.182	301	302	0.2	0.2	2.856	A
		Exit	1	1		276			276	274	0.0	0.0	0.000	A
2	A	Entry	1	1	B, C	453			453	451	0.0	0.0	0.000	A
		Exit	1	1		500			500	491	0.0	0.0	0.053	A
	B	Entry	1	1	A, C	157			156	152	0.7	0.7	13.506	B
		Exit	1	1		153			153	152	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	370			370	362	0.0	0.0	0.000	A
		Exit	1	1		325			325	323	0.0	0.0	0.000	A

09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	231	1688	0.137	230	232	0.2	0.2	2.650	A
		Exit	1	1		256			256	267	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	81	1508	0.054	80	82	0.1	0.1	2.594	A
		Exit	1	1		129			129	130	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	422	2242	0.188	421	429	0.4	0.3	2.017	A
		Exit	1	1		374			374	374	0.0	0.0	0.000	A
	5	Entry	1	1	1, 2, 4, 5	253	1703	0.149	254	255	0.2	0.1	2.780	A
		Exit	1	1		226			226	227	0.0	0.0	0.000	A
2	A	Entry	1	1	B, C	380			380	376	0.0	0.0	0.000	A
		Exit	1	1		397			397	404	0.0	0.0	0.025	A
	B	Entry	1	1	A, C	123			121	121	0.7	0.5	11.142	B
		Exit	1	1		133			133	128	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	293			293	301	0.0	0.0	0.001	A
		Exit	1	1		264			264	266	0.0	0.0	0.000	A

09:15 - 09:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
	1	Entry	1	1	1, 2, 4, 5	180	1719	0.105	179	191	0.2	0.2	2.636	A
		Exit	1	1		224			224	224	0.0	0.0	0.000	A

1	2	Entry	1	1	1, 2, 4, 5	66	1553	0.042	66	69	0.1	0.0	2.473	A
		Exit	1	1		102			102	107	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	345	2252	0.153	345	357	0.3	0.3	1.999	A
		Exit	1	1		301			301	308	0.0	0.0	0.000	A
	5	Entry	1	1	1, 2, 4, 5	215	1733	0.124	216	210	0.1	0.1	2.533	A
		Exit	1	1		179			179	189	0.0	0.0	0.000	A
2	A	Entry	1	1	B, C	307			307	311	0.0	0.0	0.000	A
		Exit	1	1		324			324	336	0.0	0.0	0.027	A
	B	Entry	1	1	A, C	97			97	102	0.5	0.3	10.287	B
		Exit	1	1		103			103	105	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	240			240	248	0.0	0.0	0.001	A
		Exit	1	1		217			217	220	0.0	0.0	0.000	A

2018 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.72	A
2	untitled	T-Junction	Two-way			2.28	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2018 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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	319	100.000
	2		ONE HOUR	✓	170	100.000
	4	✓				
	5		ONE HOUR	✓	312	100.000
2	A	✓				
	B		ONE HOUR	✓	160	100.000
	C		ONE HOUR	✓	283	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	0	37	206	76
		2	54	0	81	35
		4	172	63	2	181
		5				

	5	63	42	207	0
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Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	204	497
	B	96	0	64
	C	283	0	0

Vehicle Mix

HV %s

Junction 1

		To			
		1	2	4	5
From	1	0	2	8	0
	2	1	0	1	0
	4	10	0	1	4
	5	0	0	5	0

HV %s

Junction 2

		To		
		A	B	C
From	A	0	3	8
	B	0	0	0
	C	8	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.01	0.4	A	301	452
	2	3.24	0.2	A	153	229
	4	2.18	0.3	A	351	527
	5	2.81	0.3	A	286	429
2	A	0.00	0.0	A	465	697
	B	13.54	0.9	B	147	221
	C	0.00	0.0	A	262	392

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	255	64	226	254	245	203	0.0	0.2	2.603	A
	2	122	30	371	122	124	111	0.0	0.0	2.636	A
	4	289	72	120	290	294	373	0.0	0.1	1.964	A
	5	224	56	206	225	233	204	0.0	0.1	2.479	A
2	A	373	93		373	378	289	0.0	0.0	0.000	A
	B	126	31		126	123	110	0.0	0.3	9.852	A
	C	214	53		214	221	314	0.0	0.0	0.000	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	313	78	296	313	291	240	0.2	0.3	2.708	A
	2	148	37	479	148	153	130	0.0	0.1	2.843	A
	4	339	85	150	339	337	477	0.1	0.2	2.046	A
	5	294	73	241	295	289	248	0.1	0.1	2.503	A
2	A	481	120		481	451	337	0.0	0.0	0.000	A
	B	137	34		142	139	149	0.3	0.4	10.501	B
	C	252	63		252	255	388	0.0	0.0	0.000	A

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	359	90	344	359	358	294	0.3	0.4	2.894	A
	2	181	45	550	181	185	153	0.1	0.2	3.236	A
	4	423	106	181	421	417	550	0.2	0.3	2.097	A
	5	341	85	296	341	345	306	0.1	0.3	2.709	A
2	A	553	138		553	553	425	0.0	0.0	0.000	A
	B	185	46		183	174	164	0.4	0.9	13.539	B
	C	314	78		314	312	460	0.0	0.0	0.000	A

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	355	89	340	354	360	313	0.4	0.3	3.007	A
	2	190	47	538	189	188	156	0.2	0.2	3.078	A
	4	423	106	184	424	430	543	0.3	0.2	2.179	A
	5	338	85	313	340	354	294	0.3	0.2	2.806	A
2	A	551	138		551	561	423	0.0	0.0	0.000	A
	B	173	43		176	176	160	0.9	0.7	12.824	B
	C	320	80		320	321	464	0.0	0.0	0.000	A

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	269	67	268	271	276	247	0.3	0.2	2.781	A
	2	151	38	416	151	153	122	0.2	0.1	2.812	A
	4	334	83	142	334	350	426	0.2	0.1	2.026	A
	5	272	68	242	272	277	234	0.2	0.1	2.674	A
2	A	431	108		431	443	336	0.0	0.0	0.000	A
	B	144	36		146	145	127	0.7	0.3	10.881	B
	C	248	62		248	262	363	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	256	64	245	259	245	218	0.2	0.1	2.501	A
	2	127	32	400	126	132	105	0.1	0.2	2.720	A
	4	302	75	127	302	293	399	0.1	0.0	2.057	A
	5	248	62	214	250	244	215	0.1	0.1	2.557	A
2	A	402	101		402	388	303	0.0	0.0	0.000	A
	B	121	30		125	121	124	0.3	0.2	9.394	A
	C	222	56		222	218	322	0.0	0.0	0.000	A

Lane Results

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

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	255	1724	0.148	254	245	0.0	0.2	2.603	A
		Exit	1	1		203			203	210	0.0	0.0	0.000	A

	C	Exit	1	1		464			464	472	0.0	0.0	0.000	A
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18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	269	1698	0.159	271	276	0.3	0.2	2.781	A
		Exit	1	1		247			247	249	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	151	1488	0.101	151	153	0.2	0.1	2.812	A
		Exit	1	1		122			122	123	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	334	2205	0.151	334	350	0.2	0.1	2.026	A
		Exit	1	1		426			426	438	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	272	1734	0.157	272	277	0.2	0.1	2.674	A	
	Exit	1	1		234			234	246	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	431			431	443	0.0	0.0	0.000	A
		Exit	1	1		336			336	351	0.0	0.0	0.021	A
	B	Entry	1	1	A, C	144			146	145	0.7	0.3	10.881	B
		Exit	1	1		127			127	133	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	248			248	262	0.0	0.0	0.000	A
		Exit	1	1		363			363	366	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	256	1712	0.150	259	245	0.2	0.1	2.501	A
		Exit	1	1		218			218	211	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	127	1498	0.085	126	132	0.1	0.2	2.720	A
		Exit	1	1		105			105	103	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	302	2216	0.136	302	293	0.1	0.0	2.057	A
		Exit	1	1		399			399	387	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	248	1753	0.141	250	244	0.1	0.1	2.557	A	
	Exit	1	1		215			215	214	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	402			402	388	0.0	0.0	0.000	A
		Exit	1	1		303			303	294	0.0	0.0	0.020	A
	B	Entry	1	1	A, C	121			125	121	0.3	0.2	9.394	A
		Exit	1	1		124			124	113	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	222			222	218	0.0	0.0	0.000	A
		Exit	1	1		322			322	320	0.0	0.0	0.000	A

2020 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.61	A
2	untitled	T-Junction	Two-way			2.25	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2020 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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	264	100.000
	2		ONE HOUR	✓	90	100.000
	4	✓				
	5		ONE HOUR	✓	282	100.000
2	A	✓				
	B		ONE HOUR	✓	140	100.000
	C		ONE HOUR	✓	337	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	1	28	180	55
		2	33	4	39	14
		4	173	50	1	139
		5				

	5	38	46	198	0
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Demand (PCU/hr)

		To			
		A	B	C	
Junction 2	From	A	0	211	419
		B	119	0	21
		C	337	0	0

Vehicle Mix

HV %s

		To				
		1	2	4	5	
Junction 1	From	1	0	3	16	1
		2	2	0	4	2
		4	8	5	0	5
		5	1	0	10	0

HV %s

		To			
		A	B	C	
Junction 2	From	A	0	5	17
		B	1	0	0
		C	30	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	2.97	0.4	A	240	360
	2	2.85	0.1	A	82	123
	4	2.17	0.3	A	373	560
	5	2.83	0.3	A	259	388
2	A	0.00	0.0	A	386	579
	B	14.53	0.7	B	129	193
	C	0.00	0.0	A	315	473

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	201	50	230	200	198	195	0.0	0.2	2.640	A
	2	67	17	328	66	70	103	0.0	0.1	2.606	A
	4	299	75	77	298	304	316	0.0	0.3	2.013	A
	5	213	53	213	212	213	163	0.0	0.2	2.560	A
2	A	318	79		318	318	342	0.0	0.0	0.000	A
	B	101	25		102	106	110	0.0	0.2	10.464	B
	C	256	64		256	257	223	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	236	59	278	236	240	237	0.2	0.1	2.699	A
	2	82	20	396	82	79	118	0.1	0.1	2.606	A
	4	364	91	96	364	361	382	0.3	0.2	2.038	A
	5	257	64	259	256	255	202	0.2	0.2	2.575	A
2	A	390	98		390	383	412	0.0	0.0	0.000	A
	B	127	32		128	128	131	0.2	0.2	11.383	B
	C	303	76		303	303	279	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	281	70	332	281	287	304	0.1	0.3	2.928	A
	2	105	26	462	105	101	151	0.1	0.1	2.852	A
	4	460	115	112	460	445	455	0.2	0.2	2.169	A
	5	305	76	331	305	304	241	0.2	0.2	2.803	A
2	A	458	115		458	462	525	0.0	0.0	0.000	A
	B	158	39		156	151	150	0.2	0.7	13.869	B
	C	392	98		392	379	331	0.0	0.0	0.001	A

08:45 - 09:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	288	72	331	285	291	290	0.3	0.4	2.974	A
	2	98	25	467	98	100	150	0.1	0.1	2.785	A
	4	456	114	117	457	446	448	0.2	0.2	2.142	A
	5	303	76	317	304	307	257	0.2	0.2	2.834	A
2	A	447	112		447	458	524	0.0	0.0	0.000	A
	B	154	38		157	155	153	0.7	0.5	14.526	B
	C	390	97		390	375	317	0.0	0.0	0.000	A

09:00 - 09:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	236	59	277	235	236	232	0.4	0.2	2.787	A
	2	77	19	395	78	77	116	0.1	0.1	2.692	A
	4	357	89	94	357	358	379	0.2	0.2	2.042	A
	5	259	65	250	259	258	201	0.2	0.3	2.677	A
2	A	387	97		387	383	405	0.0	0.0	0.000	A
	B	122	31		124	126	123	0.5	0.4	11.189	B
	C	299	75		299	301	282	0.0	0.0	0.000	A

09:15 - 09:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	198	49	231	198	203	202	0.2	0.1	2.595	A
	2	65	16	330	65	67	99	0.1	0.0	2.489	A
	4	304	76	81	304	304	313	0.2	0.2	1.951	A
	5	217	54	218	216	213	168	0.3	0.2	2.583	A
2	A	315	79		315	316	345	0.0	0.0	0.000	A
	B	111	28		110	105	104	0.4	0.4	9.949	A
	C	253	63		253	257	230	0.0	0.0	0.000	A

Lane Results

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

Lanes: Main Results for each time segment

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	201	1722	0.117	200	198	0.0	0.2	2.640	A
		Exit	1	1		195			195	198	0.0	0.0	0.000	A

	C	Exit	1	1		317			317	325	0.0	0.0	0.000	A
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09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	236	1692	0.139	235	236	0.4	0.2	2.787	A
		Exit	1	1		232			232	231	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	77	1501	0.051	78	77	0.1	0.1	2.692	A
		Exit	1	1		116			116	117	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	357	2239	0.159	357	358	0.2	0.2	2.042	A
		Exit	1	1		379			379	381	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	259	1728	0.150	259	258	0.2	0.3	2.677	A	
	Exit	1	1		201			201	201	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	387			387	383	0.0	0.0	0.000	A
		Exit	1	1		405			405	408	0.0	0.0	0.021	A
	B	Entry	1	1	A, C	122			124	126	0.5	0.4	11.189	B
		Exit	1	1		123			123	128	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	299			299	301	0.0	0.0	0.000	A
		Exit	1	1		282			282	274	0.0	0.0	0.000	A

09:15 - 09:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	198	1721	0.115	198	203	0.2	0.1	2.595	A
		Exit	1	1		202			202	203	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	65	1542	0.042	65	67	0.1	0.0	2.489	A
		Exit	1	1		99			99	100	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	304	2249	0.135	304	304	0.2	0.2	1.951	A
		Exit	1	1		313			313	315	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	217	1750	0.124	216	213	0.3	0.2	2.583	A	
	Exit	1	1		168			168	169	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	315			315	316	0.0	0.0	0.000	A
		Exit	1	1		345			345	346	0.0	0.0	0.017	A
	B	Entry	1	1	A, C	111			110	105	0.4	0.4	9.949	A
		Exit	1	1		104			104	105	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	253			253	257	0.0	0.0	0.000	A
		Exit	1	1		230			230	228	0.0	0.0	0.000	A

2020 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.66	A
2	untitled	T-Junction	Two-way			2.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2020 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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	325	100.000
	2		ONE HOUR	✓	174	100.000
	4	✓				
	5		ONE HOUR	✓	319	100.000
2	A	✓				
	B		ONE HOUR	✓	163	100.000
	C		ONE HOUR	✓	289	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	0	38	210	77
		2	55	0	83	36
		4	175	64	2	185

	5	64	43	212	0
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Demand (PCU/hr)

Junction 2	From	To			
		A	B	C	
		A	0	208	507
		B	98	0	65
	C	289	0	0	

Vehicle Mix

HV %s

Junction 1	From	To				
		1	2	4	5	
		1	0	2	8	0
		2	1	0	1	0
		4	10	0	1	4
	5	0	0	5	0	

HV %s

Junction 2	From	To			
		A	B	C	
		A	0	3	8
		B	0	0	0
	C	8	0	0	

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	2.92	0.4	A	299	448
	2	2.94	0.2	A	158	237
	4	2.19	0.4	A	359	538
	5	2.80	0.3	A	296	444
2	A	0.00	0.0	A	471	707
	B	14.65	0.9	B	149	224
	C	0.00	0.0	A	269	403

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	240	60	224	239	253	213	0.0	0.2	2.708	A
	2	133	33	361	133	132	102	0.0	0.1	2.697	A
	4	294	73	118	295	293	375	0.0	0.1	1.936	A
	5	229	57	209	228	239	204	0.0	0.2	2.476	A
2	A	380	95		380	393	295	0.0	0.0	0.000	A
	B	123	31		122	122	101	0.0	0.3	9.520	A
	C	221	55		221	220	326	0.0	0.0	0.000	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	298	74	294	297	292	260	0.2	0.3	2.762	A
	2	160	40	464	160	156	126	0.1	0.1	2.765	A
	4	343	86	159	344	351	465	0.1	0.2	2.031	A
	5	302	75	252	301	287	250	0.2	0.3	2.602	A
2	A	464	116		464	454	348	0.0	0.0	0.000	A
	B	147	37		146	144	138	0.3	0.5	11.755	B
	C	260	65		260	264	384	0.0	0.0	0.000	A

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	345	86	347	348	357	310	0.3	0.1	2.852	A
	2	189	47	537	188	185	158	0.1	0.2	2.939	A
	4	430	108	180	432	421	545	0.2	0.2	2.125	A
	5	352	88	305	352	340	307	0.3	0.2	2.684	A
2	A	553	138		553	548	425	0.0	0.0	0.000	A
	B	180	45		184	179	164	0.5	0.9	14.505	B
	C	318	80		318	312	465	0.0	0.0	0.003	A

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	358	89	347	356	361	315	0.1	0.4	2.915	A
	2	192	48	552	191	191	151	0.2	0.2	2.922	A
	4	444	111	187	444	436	555	0.2	0.4	2.192	A
	5	352	88	310	351	359	321	0.2	0.3	2.803	A
2	A	564	141		564	569	448	0.0	0.0	0.000	A
	B	181	45		181	182	166	0.9	0.6	14.653	B
	C	336	84		336	328	470	0.0	0.0	0.001	A

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	307	77	295	305	299	247	0.4	0.3	2.751	A
	2	151	38	476	152	155	124	0.2	0.1	2.790	A
	4	345	86	150	344	344	479	0.4	0.2	2.085	A
	5	300	75	243	299	291	251	0.3	0.3	2.543	A
2	A	483	121		483	467	342	0.0	0.0	0.000	A
	B	139	35		141	144	141	0.6	0.4	11.743	B
	C	257	64		257	255	398	0.0	0.0	0.001	A

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	245	61	244	246	255	203	0.3	0.1	2.632	A
	2	125	31	380	125	125	109	0.1	0.1	2.704	A
	4	298	74	125	297	295	380	0.2	0.1	2.002	A
	5	241	60	207	240	239	216	0.3	0.2	2.460	A
2	A	385	96		385	388	296	0.0	0.0	0.000	A
	B	125	31		124	124	114	0.4	0.3	9.234	A
	C	221	55		221	220	319	0.0	0.0	0.000	A

Lane Results

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

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
	1	Entry	1	1	1, 2, 4, 5	240	1726	0.139	239	253	0.0	0.2	2.708	A
		Exit	1	1		213			213	211	0.0	0.0	0.000	A

	C	Exit	1	1		470			470	473	0.0	0.0	0.000	A
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18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	307	1680	0.182	305	299	0.4	0.3	2.751	A
		Exit	1	1		247			247	247	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	151	1451	0.104	152	155	0.2	0.1	2.790	A
		Exit	1	1		124			124	124	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	345	2200	0.157	344	344	0.4	0.2	2.085	A
		Exit	1	1		479			479	465	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	300	1733	0.173	299	291	0.3	0.3	2.543	A	
	Exit	1	1		251			251	253	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	483			483	467	0.0	0.0	0.000	A
		Exit	1	1		342			342	342	0.0	0.0	0.032	A
	B	Entry	1	1	A, C	139			141	144	0.6	0.4	11.743	B
		Exit	1	1		141			141	137	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	257			257	255	0.0	0.0	0.001	A
		Exit	1	1		398			398	387	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	245	1713	0.143	246	255	0.3	0.1	2.632	A
		Exit	1	1		203			203	209	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	125	1511	0.082	125	125	0.1	0.1	2.704	A
		Exit	1	1		109			109	106	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	298	2217	0.134	297	295	0.2	0.1	2.002	A
		Exit	1	1		380			380	384	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	241	1758	0.137	240	239	0.3	0.2	2.460	A	
	Exit	1	1		216			216	216	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	385			385	388	0.0	0.0	0.000	A
		Exit	1	1		296			296	294	0.0	0.0	0.017	A
	B	Entry	1	1	A, C	125			124	124	0.4	0.3	9.234	A
		Exit	1	1		114			114	118	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	221			221	220	0.0	0.0	0.000	A
		Exit	1	1		319			319	320	0.0	0.0	0.000	A

2030 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.70	A
2	untitled	T-Junction	Two-way			2.27	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2030 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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	277	100.000
	2		ONE HOUR	✓	94	100.000
	4	✓				
	5		ONE HOUR	✓	297	100.000
2	A	✓				
	B		ONE HOUR	✓	147	100.000
	C		ONE HOUR	✓	354	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	1	29	189	58
		2	34	4	41	15
		4	182	52	1	146
		5				

	5	40	49	208	0
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Demand (PCU/hr)

		To			
		A	B	C	
Junction 2	From	A	0	222	440
		B	125	0	22
		C	354	0	0

Vehicle Mix

HV %s

		To				
		1	2	4	5	
Junction 1	From	1	0	3	17	1
		2	2	0	4	2
		4	9	5	0	5
		5	1	0	11	0

HV %s

		To			
		A	B	C	
Junction 2	From	A	0	5	18
		B	1	0	0
		C	31	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.15	0.3	A	253	380
	2	2.83	0.2	A	87	130
	4	2.17	0.3	A	387	580
	5	2.98	0.4	A	273	410
2	A	0.00	0.0	A	407	611
	B	14.51	0.6	B	135	203
	C	0.00	0.0	A	323	485

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	222	55	243	221	214	221	0.0	0.1	2.689	A
	2	75	19	358	75	71	106	0.0	0.1	2.601	A
	4	319	80	89	320	314	344	0.0	0.1	1.997	A
	5	226	56	236	228	224	174	0.0	0.1	2.550	A
2	A	346	87		346	333	361	0.0	0.0	0.000	A
	B	114	28		115	115	121	0.0	0.3	11.863	B
	C	262	66		262	261	243	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	242	60	286	242	243	253	0.1	0.1	2.677	A
	2	86	22	408	86	83	120	0.1	0.1	2.489	A
	4	385	96	105	385	378	389	0.1	0.1	2.051	A
	5	261	65	277	262	264	212	0.1	0.1	2.604	A
2	A	392	98		392	391	436	0.0	0.0	0.000	A
	B	136	34		133	131	142	0.3	0.6	12.113	B
	C	323	81		323	320	270	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	296	74	347	295	299	297	0.1	0.3	3.100	A
	2	103	26	493	102	98	149	0.1	0.1	2.714	A
	4	461	115	119	460	456	475	0.1	0.2	2.166	A
	5	322	80	322	322	327	257	0.1	0.2	2.981	A
2	A	482	120		482	485	527	0.0	0.0	0.000	A
	B	162	40		163	158	160	0.6	0.6	13.781	B
	C	386	97		386	385	345	0.0	0.0	0.002	A

08:45 - 09:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	301	75	348	303	306	301	0.3	0.2	3.151	A
	2	100	25	503	99	100	148	0.1	0.2	2.833	A
	4	460	115	127	460	469	476	0.2	0.3	2.117	A
	5	328	82	322	326	333	265	0.2	0.4	2.974	A
2	A	475	119		475	487	527	0.0	0.0	0.000	A
	B	161	40		164	165	163	0.6	0.6	14.511	B
	C	389	97		389	393	338	0.0	0.0	0.005	A

09:00 - 09:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	254	64	292	256	248	257	0.2	0.2	2.913	A
	2	89	22	423	90	90	124	0.2	0.1	2.652	A
	4	384	96	105	384	382	407	0.3	0.2	2.115	A
	5	274	69	274	275	270	216	0.4	0.1	2.695	A
2	A	416	104		416	404	429	0.0	0.0	0.000	A
	B	129	32		128	131	139	0.6	0.4	11.768	B
	C	318	80		318	319	294	0.0	0.0	0.001	A

09:15 - 09:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	205	51	242	204	209	207	0.2	0.1	2.724	A
	2	67	17	342	67	70	104	0.1	0.0	2.500	A
	4	310	78	79	310	315	330	0.2	0.3	2.024	A
	5	229	57	223	226	222	166	0.1	0.3	2.400	A
2	A	334	83		334	332	355	0.0	0.0	0.000	A
	B	111	28		109	110	110	0.4	0.4	9.953	A
	C	261	65		261	266	238	0.0	0.0	0.000	A

Lane Results

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

Lanes: Main Results for each time segment

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	222	1714	0.129	221	214	0.0	0.1	2.689	A
		Exit	1	1		221			221	212	0.0	0.0	0.000	A

1	2	Entry	1	1	1, 2, 4, 5	75	1524	0.050	75	71	0.0	0.1	2.601	A
		Exit	1	1		106			106	103	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	319	2243	0.142	320	314	0.0	0.1	1.997	A
		Exit	1	1		344			344	332	0.0	0.0	0.000	A
	5	Entry	1	1	1, 2, 4, 5	226	1738	0.130	228	224	0.0	0.1	2.550	A
		Exit	1	1		174			174	177	0.0	0.0	0.000	A
2	A	Entry	1	1	B, C	346			346	333	0.0	0.0	0.000	A
		Exit	1	1		361			361	357	0.0	0.0	0.012	A
	B	Entry	1	1	A, C	114			115	115	0.0	0.3	11.863	B
		Exit	1	1		121			121	114	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	262			262	261	0.0	0.0	0.000	A
		Exit	1	1		243			243	238	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	242	1686	0.144	242	243	0.1	0.1	2.677	A
		Exit	1	1		253			253	250	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	86	1493	0.058	86	83	0.1	0.1	2.489	A
		Exit	1	1		120			120	122	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	385	2232	0.172	385	378	0.1	0.1	2.051	A
		Exit	1	1		389			389	390	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	261	1709	0.153	262	264	0.1	0.1	2.604	A	
	Exit	1	1		212			212	207	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	392			392	391	0.0	0.0	0.000	A
		Exit	1	1		436			436	432	0.0	0.0	0.020	A
	B	Entry	1	1	A, C	136			133	131	0.3	0.6	12.113	B
		Exit	1	1		142			142	134	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	323			323	320	0.0	0.0	0.000	A
		Exit	1	1		270			270	276	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	296	1647	0.180	295	299	0.1	0.3	3.100	A
		Exit	1	1		297			297	300	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	103	1441	0.071	102	98	0.1	0.1	2.714	A
		Exit	1	1		149			149	151	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	461	2221	0.208	460	456	0.1	0.2	2.166	A
		Exit	1	1		475			475	480	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	322	1678	0.192	322	327	0.1	0.2	2.981	A	
	Exit	1	1		257			257	250	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	482			482	485	0.0	0.0	0.000	A
		Exit	1	1		527			527	519	0.0	0.0	0.050	A
	B	Entry	1	1	A, C	162			163	158	0.6	0.6	13.781	B
		Exit	1	1		160			160	160	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	386			386	385	0.0	0.0	0.002	A
		Exit	1	1		345			345	349	0.0	0.0	0.000	A

08:45 - 09:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	301	1646	0.183	303	306	0.3	0.2	3.151	A
		Exit	1	1		301			301	303	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	100	1435	0.070	99	100	0.1	0.2	2.833	A
		Exit	1	1		148			148	158	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	460	2216	0.208	460	469	0.2	0.3	2.117	A
		Exit	1	1		476			476	485	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	328	1678	0.196	326	333	0.2	0.4	2.974	A	
	Exit	1	1		265			265	261	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	475			475	487	0.0	0.0	0.000	A
		Exit	1	1		527			527	532	0.0	0.0	0.054	A
	B	Entry	1	1	A, C	161			164	165	0.6	0.6	14.511	B
		Exit	1	1		163			163	163	0.0	0.0	0.000	A
	Entry	1	1	A, B	389			389	393	0.0	0.0	0.005	A	

	C	Exit	1	1		338			338	349	0.0	0.0	0.000	A
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09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	254	1682	0.151	256	248	0.2	0.2	2.913	A
		Exit	1	1		257			257	254	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	89	1484	0.060	90	90	0.2	0.1	2.652	A
		Exit	1	1		124			124	123	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	384	2232	0.172	384	382	0.3	0.2	2.115	A
		Exit	1	1		407			407	403	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	274	1712	0.160	275	270	0.4	0.1	2.695	A	
	Exit	1	1		216			216	210	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	416			416	404	0.0	0.0	0.000	A
		Exit	1	1		429			429	431	0.0	0.0	0.035	A
	B	Entry	1	1	A, C	129			128	131	0.6	0.4	11.768	B
		Exit	1	1		139			139	136	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	318			318	319	0.0	0.0	0.001	A
		Exit	1	1		294			294	287	0.0	0.0	0.000	A

09:15 - 09:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	205	1714	0.119	204	209	0.2	0.1	2.724	A
		Exit	1	1		207			207	210	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	67	1535	0.044	67	70	0.1	0.0	2.500	A
		Exit	1	1		104			104	105	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	310	2250	0.138	310	315	0.2	0.3	2.024	A
		Exit	1	1		330			330	329	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	229	1747	0.131	226	222	0.1	0.3	2.400	A	
	Exit	1	1		166			166	172	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	334			334	332	0.0	0.0	0.000	A
		Exit	1	1		355			355	361	0.0	0.0	0.034	A
	B	Entry	1	1	A, C	111			109	110	0.4	0.4	9.953	A
		Exit	1	1		110			110	111	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	261			261	266	0.0	0.0	0.000	A
		Exit	1	1		238			238	236	0.0	0.0	0.000	A

2030 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.70	A
2	untitled	T-Junction	Two-way			2.74	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2030 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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	343	100.000
	2		ONE HOUR	✓	183	100.000
	4	✓				
	5		ONE HOUR	✓	336	100.000
2	A	✓				
	B		ONE HOUR	✓	172	100.000
	C		ONE HOUR	✓	304	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	0	40	221	82
		2	58	0	87	38
		4	185	67	3	195
		5				

	5	67	46	223	0
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Demand (PCU/hr)

		To			
		A	B	C	
Junction 2	From	A	0	220	534
		B	103	0	69
		C	304	0	0

Vehicle Mix

HV %s

		To				
		1	2	4	5	
Junction 1	From	1	0	2	9	0
		2	1	0	1	0
		4	11	0	1	4
		5	0	0	5	0

HV %s

		To			
		A	B	C	
Junction 2	From	A	0	3	9
		B	0	0	0
		C	9	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.02	0.3	A	315	473
	2	3.02	0.2	A	168	252
	4	2.19	0.4	A	372	558
	5	2.81	0.3	A	310	465
2	A	0.00	0.0	A	497	745
	B	15.88	0.9	C	161	241
	C	0.00	0.0	A	277	415

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	245	61	253	246	250	222	0.0	0.2	2.623	A
	2	132	33	393	132	136	107	0.0	0.1	2.629	A
	4	305	76	131	305	309	393	0.0	0.2	1.989	A
	5	257	64	217	258	257	219	0.0	0.2	2.531	A
2	A	399	100		399	403	307	0.0	0.0	0.000	A
	B	127	32		128	131	120	0.0	0.3	10.402	B
	C	233	58		233	233	334	0.0	0.0	0.000	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	325	81	295	325	306	270	0.2	0.3	2.850	A
	2	166	41	483	165	163	137	0.1	0.2	2.763	A
	4	373	93	166	372	358	482	0.2	0.3	2.098	A
	5	301	75	265	301	301	274	0.2	0.2	2.605	A
2	A	487	122		487	482	371	0.0	0.0	0.000	A
	B	164	41		164	156	142	0.3	0.6	12.516	B
	C	272	68		272	268	410	0.0	0.0	0.002	A

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	379	95	366	380	380	315	0.3	0.3	3.016	A
	2	205	51	585	205	202	161	0.2	0.2	2.950	A
	4	452	113	196	451	448	595	0.3	0.4	2.189	A
	5	365	91	316	365	366	331	0.2	0.2	2.810	A
2	A	601	150		601	595	453	0.0	0.0	0.000	A
	B	198	49		198	193	174	0.6	0.8	15.883	C
	C	331	83		331	333	502	0.0	0.0	0.000	A

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	380	95	365	379	373	326	0.3	0.3	2.962	A
	2	199	50	590	199	198	155	0.2	0.2	3.021	A
	4	439	110	192	438	442	596	0.4	0.3	2.153	A
	5	379	95	312	379	373	318	0.2	0.3	2.782	A
2	A	607	152		607	594	443	0.0	0.0	0.000	A
	B	193	48		192	188	178	0.8	0.9	15.140	C
	C	327	82		327	333	505	0.0	0.0	0.000	A

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	304	76	301	305	308	260	0.3	0.2	2.798	A
	2	167	42	470	168	167	136	0.2	0.2	2.836	A
	4	360	90	165	360	370	473	0.3	0.2	2.072	A
	5	305	76	258	304	305	267	0.3	0.2	2.609	A
2	A	480	120		480	490	366	0.0	0.0	0.000	A
	B	155	39		154	158	135	0.9	0.6	11.889	B
	C	274	68		274	277	407	0.0	0.0	0.005	A

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	258	64	251	258	260	217	0.2	0.2	2.655	A
	2	140	35	398	140	142	112	0.2	0.1	2.623	A
	4	302	76	136	302	307	402	0.2	0.2	1.996	A
	5	253	63	214	255	257	223	0.2	0.1	2.553	A
2	A	406	102		406	408	302	0.0	0.0	0.000	A
	B	129	32		129	129	114	0.6	0.5	10.651	B
	C	223	56		223	229	343	0.0	0.0	0.000	A

Lane Results

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

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	245	1707	0.143	246	250	0.0	0.2	2.623	A
		Exit	1	1		222			222	218	0.0	0.0	0.000	A

1	2	Entry	1	1	1, 2, 4, 5	132	1503	0.088	132	136	0.0	0.1	2.629	A
		Exit	1	1		107			107	109	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	305	2213	0.138	305	309	0.0	0.2	1.989	A
		Exit	1	1		393			393	400	0.0	0.0	0.000	A
	5	Entry	1	1	1, 2, 4, 5	257	1751	0.147	258	257	0.0	0.2	2.531	A
		Exit	1	1		219			219	226	0.0	0.0	0.000	A
2	A	Entry	1	1	B, C	399			399	403	0.0	0.0	0.000	A
		Exit	1	1		307			307	312	0.0	0.0	0.022	A
	B	Entry	1	1	A, C	127			128	131	0.0	0.3	10.402	B
		Exit	1	1		120			120	120	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	233			233	233	0.0	0.0	0.000	A
		Exit	1	1		334			334	336	0.0	0.0	0.000	A

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	325	1680	0.194	325	306	0.2	0.3	2.850	A
		Exit	1	1		270			270	262	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	166	1447	0.114	165	163	0.1	0.2	2.763	A
		Exit	1	1		137			137	131	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	373	2188	0.171	372	358	0.2	0.3	2.098	A
		Exit	1	1		482			482	474	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	301	1718	0.175	301	301	0.2	0.2	2.605	A	
	Exit	1	1		274			274	260	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	487			487	482	0.0	0.0	0.000	A
		Exit	1	1		371			371	360	0.0	0.0	0.032	A
	B	Entry	1	1	A, C	164			164	156	0.3	0.6	12.516	B
		Exit	1	1		142			142	141	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	272			272	268	0.0	0.0	0.002	A
		Exit	1	1		410			410	406	0.0	0.0	0.000	A

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	379	1634	0.232	380	380	0.3	0.3	3.016	A
		Exit	1	1		315			315	323	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	205	1383	0.148	205	202	0.2	0.2	2.950	A
		Exit	1	1		161			161	159	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	452	2167	0.209	451	448	0.3	0.4	2.189	A
		Exit	1	1		595			595	590	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	365	1683	0.217	365	366	0.2	0.2	2.810	A	
	Exit	1	1		331			331	325	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	601			601	595	0.0	0.0	0.000	A
		Exit	1	1		453			453	449	0.0	0.0	0.042	A
	B	Entry	1	1	A, C	198			198	193	0.6	0.8	15.883	C
		Exit	1	1		174			174	173	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	331			331	333	0.0	0.0	0.000	A
		Exit	1	1		502			502	499	0.0	0.0	0.000	A

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	380	1635	0.232	379	373	0.3	0.3	2.962	A
		Exit	1	1		326			326	325	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	199	1381	0.144	199	198	0.2	0.2	3.021	A
		Exit	1	1		155			155	158	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	439	2169	0.203	438	442	0.4	0.3	2.153	A
		Exit	1	1		596			596	585	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	379	1685	0.225	379	373	0.2	0.3	2.782	A	
	Exit	1	1		318			318	318	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	607			607	594	0.0	0.0	0.000	A
		Exit	1	1		443			443	445	0.0	0.0	0.032	A
	B	Entry	1	1	A, C	193			192	188	0.8	0.9	15.140	C
		Exit	1	1		178			178	176	0.0	0.0	0.000	A
		Entry	1	1	A, B	327			327	333	0.0	0.0	0.000	A

	C	Exit	1	1		505			505	494	0.0	0.0	0.000	A
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18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	304	1676	0.181	305	308	0.3	0.2	2.798	A
		Exit	1	1		260			260	263	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	167	1455	0.115	168	167	0.2	0.2	2.836	A
		Exit	1	1		136			136	129	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	360	2189	0.164	360	370	0.3	0.2	2.072	A
		Exit	1	1		473			473	485	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	305	1723	0.177	304	305	0.3	0.2	2.609	A	
	Exit	1	1		267			267	273	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	480			480	490	0.0	0.0	0.000	A
		Exit	1	1		366			366	371	0.0	0.0	0.030	A
	B	Entry	1	1	A, C	155			154	158	0.9	0.6	11.889	B
		Exit	1	1		135			135	145	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	274			274	277	0.0	0.0	0.005	A
		Exit	1	1		407			407	409	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	258	1708	0.151	258	260	0.2	0.2	2.655	A
		Exit	1	1		217			217	223	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	140	1500	0.093	140	142	0.2	0.1	2.623	A
		Exit	1	1		112			112	110	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	302	2210	0.137	302	307	0.2	0.2	1.996	A
		Exit	1	1		402			402	405	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	253	1753	0.144	255	257	0.2	0.1	2.553	A	
	Exit	1	1		223			223	227	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	406			406	408	0.0	0.0	0.000	A
		Exit	1	1		302			302	308	0.0	0.0	0.014	A
	B	Entry	1	1	A, C	129			129	129	0.6	0.5	10.651	B
		Exit	1	1		114			114	121	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	223			223	229	0.0	0.0	0.000	A
		Exit	1	1		343			343	337	0.0	0.0	0.000	A

2035 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.78	A
2	untitled	T-Junction	Two-way			2.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2035 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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	297	100.000
	2		ONE HOUR	✓	102	100.000
	4	✓				
	5		ONE HOUR	✓	318	100.000
2	A	✓				
	B		ONE HOUR	✓	157	100.000
	C		ONE HOUR	✓	380	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	1	31	203	62
		2	37	5	44	16
		4	195	56	1	157
		5				

	5	43	52	223	0
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Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	238	472
	B	134	0	23
	C	380	0	0

Vehicle Mix

HV %s

Junction 1

		To				
		1	2	4	5	
From	1	0	3	19	1	
	2	2	0	5	2	
	4	9	6	0	6	
	5	1	0	12	0	

HV %s

Junction 2

		To		
		A	B	C
From	A	0	6	20
	B	1	0	0
	C	33	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.25	0.4	A	268	401
	2	3.00	0.1	A	92	138
	4	2.26	0.4	A	414	621
	5	3.01	0.4	A	294	441
2	A	0.00	0.0	A	436	653
	B	16.11	0.9	C	141	211
	C	0.01	0.0	A	351	526

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	218	55	256	218	228	221	0.0	0.2	2.833	A
	2	75	19	360	76	77	114	0.0	0.0	2.667	A
	4	347	87	91	348	350	345	0.0	0.1	2.045	A
	5	232	58	243	234	236	196	0.0	0.2	2.613	A
2	A	347	87		347	357	396	0.0	0.0	0.000	A
	B	117	29		120	122	117	0.0	0.2	10.932	B
	C	292	73		292	295	246	0.0	0.0	0.002	A

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	271	68	311	270	269	265	0.2	0.3	3.011	A
	2	92	23	447	92	90	134	0.0	0.1	2.491	A
	4	395	99	111	396	408	428	0.1	0.3	2.080	A
	5	295	74	282	295	293	225	0.2	0.3	2.928	A
2	A	430	108		430	432	451	0.0	0.0	0.000	A
	B	134	34		135	140	142	0.2	0.5	12.294	B
	C	333	83		333	343	306	0.0	0.0	0.004	A

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	318	80	394	319	330	322	0.3	0.2	3.254	A
	2	114	29	551	114	114	163	0.1	0.1	2.997	A
	4	499	125	133	500	500	532	0.3	0.3	2.255	A
	5	365	91	348	368	354	285	0.3	0.1	2.937	A
2	A	542	135		542	535	568	0.0	0.0	0.000	A
	B	173	43		172	170	187	0.5	0.9	16.052	C
	C	421	105		421	427	380	0.0	0.0	0.006	A

08:45 - 09:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	325	81	376	326	332	339	0.2	0.4	3.216	A
	2	109	27	536	110	109	166	0.1	0.0	2.842	A
	4	500	125	135	499	500	511	0.3	0.4	2.204	A
	5	358	89	359	356	355	275	0.1	0.4	3.010	A
2	A	520	130		520	521	573	0.0	0.0	0.000	A
	B	163	41		168	176	175	0.9	0.6	16.107	C
	C	429	107		429	423	367	0.0	0.0	0.001	A

09:00 - 09:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	263	66	300	263	277	262	0.4	0.2	3.054	A
	2	92	23	435	93	95	128	0.0	0.1	2.832	A
	4	395	99	109	395	410	419	0.4	0.2	2.133	A
	5	276	69	286	277	295	218	0.4	0.2	2.896	A
2	A	426	106		426	444	453	0.0	0.0	0.000	A
	B	134	34		135	144	145	0.6	0.5	13.198	B
	C	337	84		337	342	299	0.0	0.0	0.005	A

09:15 - 09:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	210	53	254	210	217	227	0.2	0.2	2.621	A
	2	72	18	355	72	76	109	0.1	0.0	2.557	A
	4	348	87	85	349	340	341	0.2	0.2	1.978	A
	5	237	59	244	237	231	190	0.2	0.3	2.657	A
2	A	350	87		350	350	397	0.0	0.0	0.000	A
	B	122	31		122	120	115	0.5	0.4	11.084	B
	C	294	73		294	289	253	0.0	0.0	0.000	A

Lane Results

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

Lanes: Main Results for each time segment

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	218	1705	0.128	218	228	0.0	0.2	2.833	A
		Exit	1	1		221			221	226	0.0	0.0	0.000	A

	C	Exit	1	1		367			367	372	0.0	0.0	0.000	A
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09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	263	1677	0.157	263	277	0.4	0.2	3.054	A
		Exit	1	1		262			262	271	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	92	1477	0.062	93	95	0.0	0.1	2.832	A
		Exit	1	1		128			128	137	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	395	2229	0.177	395	410	0.4	0.2	2.133	A
		Exit	1	1		419			419	441	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	276	1703	0.162	277	295	0.4	0.2	2.896	A	
	Exit	1	1		218			218	227	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	426			426	444	0.0	0.0	0.000	A
		Exit	1	1		453			453	466	0.1	0.0	0.046	A
	B	Entry	1	1	A, C	134			135	144	0.6	0.5	13.198	B
		Exit	1	1		145			145	147	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	337			337	342	0.0	0.0	0.005	A
		Exit	1	1		299			299	317	0.0	0.0	0.000	A

09:15 - 09:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	210	1706	0.123	210	217	0.2	0.2	2.621	A
		Exit	1	1		227			227	221	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	72	1526	0.047	72	76	0.1	0.0	2.557	A
		Exit	1	1		109			109	111	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	348	2246	0.155	349	340	0.2	0.2	1.978	A
		Exit	1	1		341			341	345	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	237	1732	0.137	237	231	0.2	0.3	2.657	A	
	Exit	1	1		190			190	189	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	350			350	350	0.0	0.0	0.000	A
		Exit	1	1		397			397	390	0.0	0.0	0.022	A
	B	Entry	1	1	A, C	122			122	120	0.5	0.4	11.084	B
		Exit	1	1		115			115	112	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	294			294	289	0.0	0.0	0.000	A
		Exit	1	1		253			253	257	0.0	0.0	0.000	A

2035 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.86	A
2	untitled	T-Junction	Two-way			2.82	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2035 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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	369	100.000
	2		ONE HOUR	✓	198	100.000
	4	✓				
	5		ONE HOUR	✓	361	100.000
2	A	✓				
	B		ONE HOUR	✓	185	100.000
	C		ONE HOUR	✓	327	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	0	43	238	88
		2	63	0	94	41
		4	199	72	3	210
		5				

	5	72	49	240	0
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Demand (PCU/hr)

		To			
		A	B	C	
Junction 2	From	A	0	236	574
		B	111	0	74
		C	327	0	0

Vehicle Mix

HV %s

		To				
		1	2	4	5	
Junction 1	From	1	0	2	9	0
		2	1	0	1	0
		4	12	0	1	5
		5	0	0	6	0

HV %s

		To			
		A	B	C	
Junction 2	From	A	0	4	13
		B	0	0	0
		C	9	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.09	0.4	A	341	511
	2	3.39	0.2	A	180	271
	4	2.28	0.4	A	407	611
	5	3.04	0.4	A	332	498
2	A	0.00	0.0	A	552	828
	B	17.44	1.0	C	166	249
	C	0.00	0.0	A	308	462

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	273	68	268	273	282	238	0.0	0.2	2.729	A
	2	154	38	423	153	154	118	0.0	0.1	2.883	A
	4	345	86	143	345	339	433	0.0	0.2	2.054	A
	5	258	65	247	259	269	241	0.0	0.1	2.583	A
2	A	448	112		448	456	340	0.0	0.0	0.000	A
	B	148	37		149	146	127	0.0	0.5	10.781	B
	C	250	63		250	250	379	0.0	0.0	0.000	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	344	86	324	345	333	282	0.2	0.3	2.856	A
	2	174	44	526	174	178	143	0.1	0.1	2.852	A
	4	397	99	168	396	385	532	0.2	0.2	2.141	A
	5	327	82	278	328	323	287	0.1	0.3	2.653	A
2	A	548	137		548	537	400	0.0	0.0	0.000	A
	B	163	41		161	165	165	0.5	0.7	12.733	B
	C	301	75		301	286	445	0.0	0.0	0.000	A

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	415	104	397	416	407	334	0.3	0.2	3.070	A
	2	224	56	642	224	219	171	0.1	0.2	3.388	A
	4	471	118	214	471	476	652	0.2	0.3	2.279	A
	5	400	100	329	402	402	357	0.3	0.3	2.925	A
2	A	675	169		675	664	469	0.0	0.0	0.000	A
	B	193	48		190	197	200	0.7	1.0	15.705	C
	C	359	90		359	358	554	0.0	0.0	0.004	A

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	408	102	408	409	405	334	0.2	0.3	3.094	A
	2	207	52	628	206	216	189	0.2	0.2	3.162	A
	4	484	121	202	484	478	632	0.3	0.4	2.206	A
	5	404	101	339	403	407	346	0.3	0.4	3.040	A
2	A	656	164		656	662	483	0.0	0.0	0.000	A
	B	193	48		193	199	199	1.0	1.0	17.439	C
	C	372	93		372	364	538	0.0	0.0	0.000	A

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	334	83	336	333	341	278	0.3	0.3	2.997	A
	2	174	44	518	173	177	151	0.2	0.2	2.992	A
	4	406	101	165	406	401	525	0.4	0.3	2.113	A
	5	333	83	279	335	330	292	0.4	0.2	2.708	A
2	A	541	135		541	549	408	0.0	0.0	0.000	A
	B	159	40		159	166	154	1.0	0.4	13.575	B
	C	310	77		310	301	449	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	271	68	271	269	276	237	0.3	0.4	2.691	A
	2	150	37	422	150	154	118	0.2	0.1	2.780	A
	4	340	85	146	339	344	426	0.3	0.2	2.079	A
	5	271	68	239	269	266	246	0.2	0.2	2.480	A
2	A	444	111		444	445	342	0.0	0.0	0.000	A
	B	138	34		140	144	129	0.4	0.4	11.116	B
	C	257	64		257	255	369	0.0	0.0	0.000	A

Lane Results

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

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	273	1698	0.161	273	282	0.0	0.2	2.729	A
		Exit	1	1		238			238	240	0.0	0.0	0.000	A

1	2	Entry	1	1	1, 2, 4, 5	154	1484	0.104	153	154	0.0	0.1	2.883	A
		Exit	1	1		118			118	118	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	345	2205	0.157	345	339	0.0	0.2	2.054	A
		Exit	1	1		433			433	439	0.0	0.0	0.000	A
	5	Entry	1	1	1, 2, 4, 5	258	1730	0.149	259	269	0.0	0.1	2.583	A
		Exit	1	1		241			241	248	0.0	0.0	0.000	A
2	A	Entry	1	1	B, C	448			448	456	0.0	0.0	0.000	A
		Exit	1	1		340			340	335	0.0	0.0	0.019	A
	B	Entry	1	1	A, C	148			149	146	0.0	0.5	10.781	B
		Exit	1	1		127			127	133	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	250			250	250	0.0	0.0	0.000	A
		Exit	1	1		379			379	383	0.0	0.0	0.000	A

17:15 - 17:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	344	1662	0.207	345	333	0.2	0.3	2.856	A
		Exit	1	1		282			282	280	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	174	1420	0.123	174	178	0.1	0.1	2.852	A
		Exit	1	1		143			143	141	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	397	2186	0.181	396	385	0.2	0.2	2.141	A
		Exit	1	1		532			532	520	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	327	1709	0.191	328	323	0.1	0.3	2.653	A	
	Exit	1	1		287			287	277	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	548			548	537	0.0	0.0	0.000	A
		Exit	1	1		400			400	385	0.0	0.0	0.026	A
	B	Entry	1	1	A, C	163			161	165	0.5	0.7	12.733	B
		Exit	1	1		165			165	161	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	301			301	286	0.0	0.0	0.000	A
		Exit	1	1		445			445	442	0.0	0.0	0.000	A

17:30 - 17:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	415	1615	0.257	416	407	0.3	0.2	3.070	A
		Exit	1	1		334			334	343	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	224	1348	0.166	224	219	0.1	0.2	3.388	A
		Exit	1	1		171			171	171	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	471	2154	0.219	471	476	0.2	0.3	2.279	A
		Exit	1	1		652			652	639	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	400	1674	0.239	402	402	0.3	0.3	2.925	A	
	Exit	1	1		357			357	351	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	675			675	664	0.0	0.0	0.000	A
		Exit	1	1		470			469	475	0.0	0.0	0.072	A
	B	Entry	1	1	A, C	193			190	197	0.7	1.0	15.705	C
		Exit	1	1		200			200	197	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	359			359	358	0.0	0.0	0.004	A
		Exit	1	1		554			554	546	0.0	0.0	0.000	A

17:45 - 18:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	408	1607	0.254	409	405	0.2	0.3	3.094	A
		Exit	1	1		334			334	337	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	207	1357	0.152	206	216	0.2	0.2	3.162	A
		Exit	1	1		189			189	177	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	484	2162	0.224	484	478	0.3	0.4	2.206	A
		Exit	1	1		632			632	641	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	404	1666	0.243	403	407	0.3	0.4	3.040	A	
	Exit	1	1		346			346	350	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	656			656	662	0.0	0.0	0.000	A
		Exit	1	1		483			483	482	0.0	0.0	0.042	A
	B	Entry	1	1	A, C	193			193	199	1.0	1.0	17.439	C
		Exit	1	1		199			199	196	0.0	0.0	0.000	A
		Entry	1	1	A, B	372			372	364	0.0	0.0	0.000	A

	C	Exit	1	1		538			538	547	0.0	0.0	0.000	A
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18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	334	1654	0.202	333	341	0.3	0.3	2.997	A
		Exit	1	1		278			278	281	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	174	1425	0.122	173	177	0.2	0.2	2.992	A
		Exit	1	1		151			151	150	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	406	2188	0.185	406	401	0.4	0.3	2.113	A
		Exit	1	1		525			525	530	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	333	1708	0.195	335	330	0.4	0.2	2.708	A	
	Exit	1	1		292			292	288	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	541			541	549	0.0	0.0	0.000	A
		Exit	1	1		408			408	400	0.0	0.0	0.033	A
	B	Entry	1	1	A, C	159			159	166	1.0	0.4	13.575	B
		Exit	1	1		154			154	156	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	310			310	301	0.0	0.0	0.000	A
		Exit	1	1		449			449	461	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	271	1695	0.160	269	276	0.3	0.4	2.691	A
		Exit	1	1		237			237	244	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	150	1485	0.101	150	154	0.2	0.1	2.780	A
		Exit	1	1		118			118	117	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	340	2202	0.154	339	344	0.3	0.2	2.079	A
		Exit	1	1		426			426	429	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	271	1735	0.156	269	266	0.2	0.2	2.480	A	
	Exit	1	1		246			246	250	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	444			444	445	0.0	0.0	0.000	A
		Exit	1	1		342			342	342	0.0	0.0	0.015	A
	B	Entry	1	1	A, C	138			140	144	0.4	0.4	11.116	B
		Exit	1	1		129			129	131	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	257			257	255	0.0	0.0	0.000	A
		Exit	1	1		369			369	372	0.0	0.0	0.000	A

2020 + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.66	A
2	untitled	T-Junction	Two-way			2.38	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2020 + Dev	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	263	100.000
	2		ONE HOUR	✓	90	100.000
	4	✓				
	5		ONE HOUR	✓	282	100.000
2	A	✓				
	B		ONE HOUR	✓	151	100.000
	C		ONE HOUR	✓	393	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	0	28	180	55
		2	33	4	39	14
		4	229	50	1	139
		5				

	5	38	46	198	0
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Demand (PCU/hr)

		To			
		A	B	C	
Junction 2	From	A	0	211	419
		B	130	0	21
		C	393	0	0

Vehicle Mix

HV %s

		To				
		1	2	4	5	
Junction 1	From	1	0	3	16	1
		2	2	0	4	2
		4	8	5	0	5
		5	1	0	10	0

HV %s

		To			
		A	B	C	
Junction 2	From	A	0	5	17
		B	1	0	0
		C	33	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.02	0.2	A	248	372
	2	2.78	0.1	A	82	123
	4	2.26	0.3	A	412	618
	5	2.92	0.3	A	262	394
2	A	0.00	0.0	A	390	585
	B	15.28	0.9	C	138	207
	C	0.01	0.0	A	359	539

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	201	50	223	199	202	242	0.0	0.2	2.580	A
	2	70	17	316	69	70	106	0.0	0.1	2.608	A
	4	337	84	81	337	341	305	0.0	0.2	1.983	A
	5	211	53	253	211	211	165	0.0	0.2	2.590	A
2	A	304	76		304	314	391	0.0	0.0	0.000	A
	B	111	28		112	115	98	0.0	0.3	11.432	B
	C	295	74		295	296	222	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	248	62	272	248	238	277	0.2	0.2	2.696	A
	2	81	20	402	81	79	118	0.1	0.0	2.566	A
	4	394	98	99	393	403	383	0.2	0.3	2.066	A
	5	256	64	293	256	253	200	0.2	0.2	2.635	A
2	A	387	97		387	376	455	0.0	0.0	0.000	A
	B	135	34		133	133	138	0.3	0.5	11.780	B
	C	340	85		340	351	267	0.0	0.0	0.001	A

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	292	73	340	293	289	353	0.2	0.2	2.915	A
	2	102	26	483	102	101	150	0.0	0.1	2.780	A
	4	497	124	123	497	500	462	0.3	0.3	2.219	A
	5	314	78	381	313	309	240	0.2	0.2	2.910	A
2	A	469	117		469	464	571	0.0	0.0	0.000	A
	B	166	42		163	162	149	0.5	0.8	14.875	B
	C	429	107		429	440	342	0.0	0.0	0.002	A

08:45 - 09:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	298	75	335	299	291	350	0.2	0.2	3.018	A
	2	96	24	488	97	96	146	0.1	0.0	2.616	A
	4	498	125	117	500	496	467	0.3	0.3	2.257	A
	5	312	78	373	312	308	244	0.2	0.3	2.916	A
2	A	466	116		466	461	580	0.0	0.0	0.000	A
	B	170	42		168	168	149	0.8	0.9	15.285	C
	C	436	109		435	435	340	0.0	0.0	0.006	A

09:00 - 09:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	249	62	285	249	235	284	0.2	0.1	2.718	A
	2	81	20	410	81	79	125	0.0	0.0	2.593	A
	4	407	102	100	407	409	391	0.3	0.3	2.140	A
	5	261	65	308	262	256	199	0.3	0.2	2.745	A
2	A	396	99		396	380	477	0.0	0.0	0.000	A
	B	131	33		130	131	136	0.9	0.4	11.970	B
	C	365	91		365	361	277	0.0	0.0	0.000	A

09:15 - 09:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	199	50	236	198	200	229	0.1	0.2	2.683	A
	2	63	16	337	62	66	97	0.0	0.1	2.430	A
	4	339	85	76	339	345	322	0.3	0.3	2.054	A
	5	222	55	245	219	222	170	0.2	0.3	2.670	A
2	A	320	80		320	325	393	0.0	0.0	0.000	A
	B	116	29		117	119	107	0.4	0.4	10.858	B
	C	293	73		293	295	230	0.0	0.0	0.000	A

Lane Results

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

Lanes: Main Results for each time segment

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	201	1727	0.116	199	202	0.0	0.2	2.580	A
		Exit	1	1		242			242	242	0.0	0.0	0.000	A

1	2	Entry	1	1	1, 2, 4, 5	70	1550	0.045	69	70	0.0	0.1	2.608	A
		Exit	1	1		106			106	102	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	337	2249	0.150	337	341	0.0	0.2	1.983	A
		Exit	1	1		305			305	312	0.0	0.0	0.000	A
	5	Entry	1	1	1, 2, 4, 5	211	1726	0.122	211	211	0.0	0.2	2.590	A
		Exit	1	1		165			165	168	0.0	0.0	0.000	A
2	A	Entry	1	1	B, C	304			304	314	0.0	0.0	0.000	A
		Exit	1	1		391			391	394	0.0	0.0	0.018	A
	B	Entry	1	1	A, C	111			112	115	0.0	0.3	11.432	B
		Exit	1	1		98			98	105	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	295			295	296	0.0	0.0	0.000	A
		Exit	1	1		222			222	226	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	248	1695	0.146	248	238	0.2	0.2	2.696	A
		Exit	1	1		277			277	285	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	81	1497	0.054	81	79	0.1	0.0	2.566	A
		Exit	1	1		118			118	119	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	394	2236	0.176	393	403	0.2	0.3	2.066	A
		Exit	1	1		383			383	372	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	256	1699	0.150	256	253	0.2	0.2	2.635	A	
	Exit	1	1		200			200	197	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	387			387	376	0.0	0.0	0.000	A
		Exit	1	1		456			455	467	0.0	0.0	0.036	A
	B	Entry	1	1	A, C	135			133	133	0.3	0.5	11.780	B
		Exit	1	1		138			138	125	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	340			340	351	0.0	0.0	0.001	A
		Exit	1	1		267			267	269	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	292	1651	0.177	293	289	0.2	0.2	2.915	A
		Exit	1	1		353			353	351	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	102	1447	0.071	102	101	0.0	0.1	2.780	A
		Exit	1	1		150			150	149	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	497	2219	0.224	497	500	0.3	0.3	2.219	A
		Exit	1	1		462			462	458	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	314	1638	0.191	313	309	0.2	0.2	2.910	A	
	Exit	1	1		240			240	242	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	469			469	464	0.0	0.0	0.000	A
		Exit	1	1		571			571	581	0.0	0.0	0.051	A
	B	Entry	1	1	A, C	166			163	162	0.5	0.8	14.875	B
		Exit	1	1		149			149	153	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	429			429	440	0.0	0.0	0.002	A
		Exit	1	1		342			342	333	0.0	0.0	0.000	A

08:45 - 09:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	298	1655	0.180	299	291	0.2	0.2	3.018	A
		Exit	1	1		350			350	346	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	96	1444	0.067	97	96	0.1	0.0	2.616	A
		Exit	1	1		146			146	149	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	498	2223	0.224	500	496	0.3	0.3	2.257	A
		Exit	1	1		467			467	456	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	312	1643	0.190	312	308	0.2	0.3	2.916	A	
	Exit	1	1		244			244	240	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	466			466	461	0.0	0.0	0.000	A
		Exit	1	1		580			580	578	0.0	0.0	0.084	A
	B	Entry	1	1	A, C	170			168	168	0.8	0.9	15.285	C
		Exit	1	1		149			149	151	0.0	0.0	0.000	A
		Entry	1	1	A, B	436			435	435	0.0	0.0	0.006	A

	C	Exit	1	1		340			340	335	0.0	0.0	0.000	A
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09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	249	1686	0.148	249	235	0.2	0.1	2.718	A
		Exit	1	1		284			284	289	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	81	1492	0.054	81	79	0.0	0.0	2.593	A
		Exit	1	1		125			125	120	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	407	2235	0.182	407	409	0.3	0.3	2.140	A
		Exit	1	1		391			391	376	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	261	1688	0.155	262	256	0.3	0.2	2.745	A	
	Exit	1	1		199			199	194	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	396			396	380	0.0	0.0	0.000	A
		Exit	1	1		477			477	474	0.0	0.0	0.036	A
	B	Entry	1	1	A, C	131			130	131	0.9	0.4	11.970	B
		Exit	1	1		136			136	128	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	365			365	361	0.0	0.0	0.000	A
		Exit	1	1		277			277	269	0.0	0.0	0.000	A

09:15 - 09:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	199	1718	0.116	198	200	0.1	0.2	2.683	A
		Exit	1	1		229			229	241	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	63	1537	0.041	62	66	0.0	0.1	2.430	A
		Exit	1	1		97			97	99	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	339	2252	0.151	339	345	0.3	0.3	2.054	A
		Exit	1	1		322			322	326	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	222	1731	0.128	219	222	0.2	0.3	2.670	A	
	Exit	1	1		170			170	167	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	320			320	325	0.0	0.0	0.000	A
		Exit	1	1		393			393	396	0.0	0.0	0.026	A
	B	Entry	1	1	A, C	116			117	119	0.4	0.4	10.858	B
		Exit	1	1		107			107	111	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	293			293	295	0.0	0.0	0.000	A
		Exit	1	1		230			230	231	0.0	0.0	0.000	A

2020 + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.80	A
2	untitled	T-Junction	Two-way			2.44	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2020 + Dev	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	382	100.000
	2		ONE HOUR	✓	187	100.000
	4	✓				
	5		ONE HOUR	✓	319	100.000
2	A	✓				
	B		ONE HOUR	✓	163	100.000
	C		ONE HOUR	✓	289	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	0	38	267	77
		2	68	0	83	36
		4	243	64	2	185
		5				

	5	64	43	212	0
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Demand (PCU/hr)

		To			
		A	B	C	
Junction 2	From	A	0	219	564
		B	98	0	65
		C	289	0	0

Vehicle Mix

HV %s

		To				
		1	2	4	5	
Junction 1	From	1	0	2	12	0
		2	1	0	1	0
		4	10	0	1	4
		5	0	0	5	0

HV %s

		To			
		A	B	C	
Junction 2	From	A	0	3	8
		B	0	0	0
		C	8	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.24	0.4	A	345	518
	2	3.15	0.2	A	171	257
	4	2.21	0.2	A	356	534
	5	2.81	0.3	A	290	434
2	A	0.00	0.0	A	508	762
	B	15.08	0.8	C	149	224
	C	0.00	0.0	A	267	400

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	275	69	226	276	284	240	0.0	0.1	2.813	A
	2	141	35	406	141	142	97	0.0	0.1	2.730	A
	4	301	75	130	300	295	417	0.0	0.2	1.981	A
	5	233	58	234	232	241	196	0.0	0.2	2.485	A
2	A	416	104		416	417	299	0.0	0.0	0.000	A
	B	120	30		121	126	115	0.0	0.3	10.133	B
	C	223	56		223	222	347	0.0	0.0	0.000	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	339	85	279	339	338	289	0.1	0.2	2.999	A
	2	168	42	502	167	165	117	0.1	0.2	2.861	A
	4	346	86	164	345	347	505	0.2	0.2	2.063	A
	5	291	73	276	292	288	232	0.2	0.3	2.615	A
2	A	499	125		499	491	345	0.0	0.0	0.000	A
	B	149	37		146	143	136	0.3	0.6	10.997	B
	C	258	65		258	263	423	0.0	0.0	0.000	A

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	422	105	325	422	418	346	0.2	0.4	3.240	A
	2	207	52	611	206	202	136	0.2	0.2	3.148	A
	4	422	106	197	424	424	620	0.2	0.2	2.207	A
	5	339	85	332	340	347	289	0.3	0.2	2.798	A
2	A	611	153		611	608	422	0.0	0.0	0.000	A
	B	172	43		175	175	176	0.6	0.7	14.883	B
	C	324	81		324	318	512	0.0	0.0	0.001	A

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	406	101	326	406	415	350	0.4	0.4	3.198	A
	2	206	51	594	207	207	139	0.2	0.1	3.153	A
	4	424	106	197	425	422	603	0.2	0.2	2.179	A
	5	339	85	338	339	341	285	0.2	0.2	2.811	A
2	A	597	149		597	607	426	0.0	0.0	0.000	A
	B	182	45		181	182	172	0.7	0.8	15.080	C
	C	316	79		316	311	496	0.0	0.0	0.000	A

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	348	87	279	346	346	279	0.4	0.4	2.945	A
	2	167	42	510	168	167	116	0.1	0.1	2.782	A
	4	339	85	166	339	350	512	0.2	0.2	2.093	A
	5	291	73	269	289	291	235	0.2	0.3	2.647	A
2	A	506	127		506	505	340	0.0	0.0	0.000	A
	B	146	36		145	147	144	0.8	0.6	11.345	B
	C	253	63		253	262	419	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	282	70	238	282	286	250	0.4	0.2	2.764	A
	2	139	35	415	138	141	104	0.1	0.1	2.676	A
	4	302	76	131	302	297	422	0.2	0.2	1.967	A
	5	245	61	242	246	244	191	0.3	0.1	2.442	A
2	A	418	105		418	421	303	0.0	0.0	0.000	A
	B	126	31		125	124	120	0.6	0.3	10.062	B
	C	227	57		227	223	349	0.0	0.0	0.000	A

Lane Results

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

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	275	1725	0.159	276	284	0.0	0.1	2.813	A
		Exit	1	1		240			240	246	0.0	0.0	0.000	A

	C	Exit	1	1		496			496	504	0.0	0.0	0.000	A
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18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	348	1690	0.206	346	346	0.4	0.4	2.945	A
		Exit	1	1		279			279	296	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	167	1430	0.117	168	167	0.1	0.1	2.782	A
		Exit	1	1		116			116	117	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	339	2188	0.155	339	350	0.2	0.2	2.093	A
		Exit	1	1		512			512	507	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	291	1715	0.170	289	291	0.2	0.3	2.647	A	
	Exit	1	1		235			235	235	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	506			506	505	0.0	0.0	0.000	A
		Exit	1	1		340			340	350	0.0	0.0	0.023	A
	B	Entry	1	1	A, C	146			145	147	0.8	0.6	11.345	B
		Exit	1	1		144			144	141	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	253			253	262	0.0	0.0	0.000	A
		Exit	1	1		419			419	422	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	282	1717	0.164	282	286	0.4	0.2	2.764	A
		Exit	1	1		250			250	248	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	139	1489	0.093	138	141	0.1	0.1	2.676	A
		Exit	1	1		104			104	101	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	302	2213	0.137	302	297	0.2	0.2	1.967	A
		Exit	1	1		422			422	425	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	245	1734	0.141	246	244	0.3	0.1	2.442	A	
	Exit	1	1		191			191	194	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	418			418	421	0.0	0.0	0.000	A
		Exit	1	1		303			303	298	0.0	0.0	0.020	A
	B	Entry	1	1	A, C	126			125	124	0.6	0.3	10.062	B
		Exit	1	1		120			120	117	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	227			227	223	0.0	0.0	0.000	A
		Exit	1	1		349			349	353	0.0	0.0	0.000	A

2030 + Dev , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.73	A
2	untitled	T-Junction	Two-way			2.91	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D11	2030 + Dev	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	274	100.000
	2		ONE HOUR	✓	94	100.000
	4	✓				
	5		ONE HOUR	✓	297	100.000
2	A	✓				
	B		ONE HOUR	✓	158	100.000
	C		ONE HOUR	✓	411	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	1	29	186	58
		2	34	4	41	15
		4	238	52	1	146
		5				

	5	40	49	208	0
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Demand (PCU/hr)

		To			
		A	B	C	
Junction 2	From	A	0	222	440
		B	136	0	22
		C	411	0	0

Vehicle Mix

HV %s

		To				
		1	2	4	5	
Junction 1	From	1	0	3	17	1
		2	2	0	4	2
		4	13	5	0	5
		5	1	0	11	0

HV %s

		To			
		A	B	C	
Junction 2	From	A	0	5	18
		B	1	0	0
		C	34	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.13	0.3	A	251	377
	2	2.71	0.1	A	84	126
	4	2.30	0.4	A	434	652
	5	3.07	0.2	A	271	407
2	A	0.00	0.0	A	403	604
	B	18.82	1.0	C	141	212
	C	0.00	0.0	A	370	554

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	207	52	238	207	211	254	0.0	0.1	2.714	A
	2	68	17	338	69	72	108	0.0	0.0	2.635	A
	4	364	91	86	363	368	321	0.0	0.3	2.097	A
	5	223	56	270	222	227	179	0.0	0.2	2.628	A
2	A	325	81		325	335	413	0.0	0.0	0.000	A
	B	115	29		116	118	108	0.0	0.3	11.234	B
	C	312	78		312	313	232	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	246	61	292	245	244	290	0.1	0.3	2.802	A
	2	78	20	410	77	81	126	0.0	0.1	2.545	A
	4	412	103	96	412	426	392	0.3	0.2	2.132	A
	5	272	68	308	273	268	200	0.2	0.2	2.793	A
2	A	388	97		388	389	468	0.0	0.0	0.000	A
	B	133	33		132	138	130	0.3	0.6	12.755	B
	C	352	88		352	361	274	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	294	74	347	294	304	370	0.3	0.3	3.044	A
	2	100	25	496	100	104	145	0.1	0.1	2.686	A
	4	519	130	116	518	525	480	0.2	0.4	2.247	A
	5	321	80	395	322	321	238	0.2	0.2	2.916	A
2	A	481	120		481	488	592	0.0	0.0	0.000	A
	B	167	42		169	170	163	0.6	0.7	15.424	C
	C	445	111		445	446	340	0.0	0.0	0.003	A

08:45 - 09:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	307	77	345	309	305	370	0.3	0.2	3.130	A
	2	98	25	506	98	101	148	0.1	0.0	2.708	A
	4	530	132	123	529	533	481	0.4	0.3	2.299	A
	5	322	80	392	323	330	261	0.2	0.2	3.068	A
2	A	485	121		485	485	595	0.0	0.0	0.000	A
	B	175	44		171	174	157	0.7	1.0	18.820	C
	C	446	111		446	454	350	0.0	0.0	0.002	A

09:00 - 09:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	250	62	279	250	249	295	0.2	0.2	2.764	A
	2	88	22	406	88	88	123	0.0	0.1	2.663	A
	4	420	105	101	420	432	393	0.3	0.3	2.199	A
	5	261	65	314	260	263	207	0.2	0.2	2.757	A
2	A	397	99		397	398	474	0.0	0.0	0.000	A
	B	141	35		142	145	136	1.0	0.5	12.947	B
	C	353	88		353	365	281	0.0	0.0	0.001	A

09:15 - 09:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	203	51	248	205	205	251	0.2	0.1	2.718	A
	2	70	17	352	69	69	101	0.1	0.1	2.500	A
	4	361	90	84	361	363	337	0.3	0.2	2.068	A
	5	229	57	270	229	224	175	0.2	0.2	2.662	A
2	A	340	85		340	331	411	0.0	0.0	0.000	A
	B	115	29		114	118	114	0.5	0.4	11.382	B
	C	311	78		311	310	239	0.0	0.0	0.002	A

Lane Results

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

Lanes: Main Results for each time segment

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
	1	Entry	1	1	1, 2, 4, 5	207	1717	0.121	207	211	0.0	0.1	2.714	A
		Exit	1	1		254			254	257	0.0	0.0	0.000	A

1	2	Entry	1	1	1, 2, 4, 5	68	1537	0.044	69	72	0.0	0.0	2.635	A
		Exit	1	1		108			108	107	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	364	2245	0.162	363	368	0.0	0.3	2.097	A
		Exit	1	1		321			321	334	0.0	0.0	0.000	A
	5	Entry	1	1	1, 2, 4, 5	223	1714	0.130	222	227	0.0	0.2	2.628	A
		Exit	1	1		179			179	179	0.0	0.0	0.000	A
2	A	Entry	1	1	B, C	325			325	335	0.0	0.0	0.000	A
		Exit	1	1		413			413	416	0.0	0.0	0.034	A
	B	Entry	1	1	A, C	115			116	118	0.0	0.3	11.234	B
		Exit	1	1		108			108	112	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	312			312	313	0.0	0.0	0.000	A
		Exit	1	1		232			232	239	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	246	1682	0.146	245	244	0.1	0.3	2.802	A
		Exit	1	1		290			290	297	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	78	1492	0.052	77	81	0.0	0.1	2.545	A
		Exit	1	1		126			126	125	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	412	2238	0.184	412	426	0.3	0.2	2.132	A
		Exit	1	1		392			392	391	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	272	1688	0.161	273	268	0.2	0.2	2.793	A	
	Exit	1	1		200			200	206	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	388			388	389	0.0	0.0	0.000	A
		Exit	1	1		467			468	481	0.0	0.0	0.033	A
	B	Entry	1	1	A, C	133			132	138	0.3	0.6	12.755	B
		Exit	1	1		130			130	131	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	352			352	361	0.0	0.0	0.000	A
		Exit	1	1		274			274	276	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	294	1647	0.179	294	304	0.3	0.3	3.044	A
		Exit	1	1		370			370	368	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	100	1439	0.070	100	104	0.1	0.1	2.686	A
		Exit	1	1		145			145	150	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	519	2224	0.234	518	525	0.2	0.4	2.247	A
		Exit	1	1		480			480	484	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	321	1628	0.197	322	321	0.2	0.2	2.916	A	
	Exit	1	1		238			238	253	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	481			481	488	0.0	0.0	0.000	A
		Exit	1	1		592			592	594	0.0	0.0	0.073	A
	B	Entry	1	1	A, C	167			169	170	0.6	0.7	15.424	C
		Exit	1	1		163			163	163	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	445			445	446	0.0	0.0	0.003	A
		Exit	1	1		340			340	347	0.0	0.0	0.000	A

08:45 - 09:00

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	307	1648	0.186	309	305	0.3	0.2	3.130	A
		Exit	1	1		370			370	370	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	98	1433	0.069	98	101	0.1	0.0	2.708	A
		Exit	1	1		148			148	153	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	530	2219	0.239	529	533	0.4	0.3	2.299	A
		Exit	1	1		481			481	483	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	322	1630	0.197	323	330	0.2	0.2	3.068	A	
	Exit	1	1		261			261	264	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	485			485	485	0.0	0.0	0.000	A
		Exit	1	1		595			595	605	0.0	0.0	0.069	A
	B	Entry	1	1	A, C	175			171	174	0.7	1.0	18.820	C
		Exit	1	1		157			157	160	0.0	0.0	0.000	A
		Entry	1	1	A, B	446			446	454	0.0	0.0	0.002	A

	C	Exit	1	1		350			350	348	0.0	0.0	0.000	A
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09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	250	1691	0.148	250	249	0.2	0.2	2.764	A
		Exit	1	1		295			295	301	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	88	1495	0.059	88	88	0.0	0.1	2.663	A
		Exit	1	1		123			123	124	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	420	2234	0.188	420	432	0.3	0.3	2.199	A
		Exit	1	1		393			393	392	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	261	1684	0.155	260	263	0.2	0.2	2.757	A	
	Exit	1	1		207			207	215	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	397			397	398	0.0	0.0	0.000	A
		Exit	1	1		474			474	489	0.0	0.0	0.053	A
	B	Entry	1	1	A, C	141			142	145	1.0	0.5	12.947	B
		Exit	1	1		136			136	132	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	353			353	365	0.0	0.0	0.001	A
		Exit	1	1		281			281	287	0.0	0.0	0.000	A

09:15 - 09:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	203	1711	0.119	205	205	0.2	0.1	2.718	A
		Exit	1	1		251			251	249	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	70	1528	0.046	69	69	0.1	0.1	2.500	A
		Exit	1	1		101			101	105	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	361	2247	0.161	361	363	0.3	0.2	2.068	A
		Exit	1	1		337			337	330	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	229	1714	0.134	229	224	0.2	0.2	2.662	A	
	Exit	1	1		175			175	177	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	340			340	331	0.0	0.0	0.000	A
		Exit	1	1		411			411	412	0.0	0.0	0.038	A
	B	Entry	1	1	A, C	115			114	118	0.5	0.4	11.382	B
		Exit	1	1		114			114	110	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	311			311	310	0.0	0.0	0.002	A
		Exit	1	1		239			239	237	0.0	0.0	0.000	A

2030 + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.88	A
2	untitled	T-Junction	Two-way			2.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2030 + Dev	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	400	100.000
	2		ONE HOUR	✓	196	100.000
	4	✓				
	5		ONE HOUR	✓	336	100.000
2	A	✓				
	B		ONE HOUR	✓	172	100.000
	C		ONE HOUR	✓	304	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	0	40	278	82
		2	71	0	87	38
		4	252	67	3	194
		5				

	5	67	46	223	0
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Demand (PCU/hr)

		To			
		A	B	C	
Junction 2	From	A	0	230	591
		B	103	0	69
		C	304	0	0

Vehicle Mix

HV %s

		To				
		1	2	4	5	
Junction 1	From	1	0	2	13	0
		2	1	0	1	0
		4	11	0	1	4
		5	0	0	5	0

HV %s

		To			
		A	B	C	
Junction 2	From	A	0	3	9
		B	0	0	0
		C	9	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.31	0.5	A	367	551
	2	3.25	0.2	A	182	274
	4	2.23	0.4	A	371	557
	5	2.92	0.3	A	305	458
2	A	0.00	0.0	A	543	814
	B	18.11	1.1	C	159	239
	C	0.00	0.0	A	274	412

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	306	76	238	306	304	254	0.0	0.2	2.832	A
	2	153	38	442	152	152	101	0.0	0.2	2.761	A
	4	304	76	149	305	309	446	0.0	0.1	2.048	A
	5	245	61	247	245	255	207	0.0	0.2	2.545	A
2	A	444	111		444	447	302	0.0	0.0	0.000	A
	B	129	32		128	130	121	0.0	0.5	11.098	B
	C	225	56		225	231	374	0.0	0.0	0.000	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	354	89	291	355	354	295	0.2	0.4	3.021	A
	2	180	45	524	179	178	122	0.2	0.2	2.951	A
	4	360	90	170	360	359	533	0.1	0.2	2.137	A
	5	298	74	289	297	299	240	0.2	0.3	2.765	A
2	A	529	132		529	525	359	0.0	0.0	0.000	A
	B	148	37		148	150	150	0.5	0.6	11.988	B
	C	273	68		273	270	441	0.0	0.0	0.000	A

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	449	112	361	448	440	367	0.4	0.5	3.280	A
	2	216	54	658	216	214	150	0.2	0.2	3.176	A
	4	444	111	214	445	451	660	0.2	0.2	2.215	A
	5	374	93	355	373	372	304	0.3	0.3	2.908	A
2	A	656	164		656	647	443	0.0	0.0	0.000	A
	B	198	50		197	195	176	0.6	0.8	16.188	C
	C	325	81		325	335	560	0.0	0.0	0.001	A

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	446	112	351	446	442	375	0.5	0.5	3.314	A
	2	225	56	645	226	219	152	0.2	0.2	3.248	A
	4	451	113	215	452	452	656	0.2	0.4	2.233	A
	5	362	90	363	362	369	303	0.3	0.2	2.915	A
2	A	656	164		656	652	445	0.0	0.0	0.000	A
	B	191	48		189	190	180	0.8	1.1	18.106	C
	C	328	82		328	334	547	0.0	0.0	0.001	A

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	351	88	297	353	354	297	0.5	0.2	3.078	A
	2	174	44	523	175	178	127	0.2	0.1	3.032	A
	4	366	92	165	369	367	532	0.4	0.2	2.114	A
	5	307	77	287	307	306	247	0.2	0.2	2.637	A
2	A	534	133		534	526	369	0.0	0.0	0.000	A
	B	158	39		156	157	152	1.1	0.7	13.177	B
	C	271	68		271	269	441	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	297	74	240	296	297	249	0.2	0.3	2.884	A
	2	147	37	435	147	148	100	0.1	0.2	2.789	A
	4	301	75	141	300	313	442	0.2	0.2	2.051	A
	5	248	62	241	248	253	200	0.2	0.2	2.583	A
2	A	436	109		436	439	304	0.0	0.0	0.000	A
	B	132	33		132	130	124	0.7	0.5	10.892	B
	C	225	56		225	235	365	0.0	0.0	0.000	A

Lane Results

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

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
	1	Entry	1	1	1, 2, 4, 5	306	1717	0.178	306	304	0.0	0.2	2.832	A
		Exit	1	1		254			254	260	0.0	0.0	0.000	A

	C	Exit	1	1		547			547	545	0.0	0.0	0.000	A
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18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	351	1679	0.209	353	354	0.5	0.2	3.078	A
		Exit	1	1		297			297	302	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	174	1422	0.122	175	178	0.2	0.1	3.032	A
		Exit	1	1		127			127	127	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	366	2189	0.167	369	367	0.4	0.2	2.114	A
		Exit	1	1		532			532	528	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	307	1703	0.180	307	306	0.2	0.2	2.637	A	
	Exit	1	1		247			247	248	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	534			534	526	0.0	0.0	0.000	A
		Exit	1	1		369			369	364	0.0	0.0	0.025	A
	B	Entry	1	1	A, C	158			156	157	1.1	0.7	13.177	B
		Exit	1	1		152			152	146	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	271			271	269	0.0	0.0	0.000	A
		Exit	1	1		441			441	441	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	297	1715	0.173	296	297	0.2	0.3	2.884	A
		Exit	1	1		249			249	257	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	147	1476	0.100	147	148	0.1	0.2	2.789	A
		Exit	1	1		100			100	106	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	301	2206	0.136	300	313	0.2	0.2	2.051	A
		Exit	1	1		442			442	441	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	248	1734	0.143	248	253	0.2	0.2	2.583	A	
	Exit	1	1		200			200	208	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	436			436	439	0.0	0.0	0.000	A
		Exit	1	1		304			304	313	0.0	0.0	0.014	A
	B	Entry	1	1	A, C	132			132	130	0.7	0.5	10.892	B
		Exit	1	1		124			124	124	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	225			225	235	0.0	0.0	0.000	A
		Exit	1	1		365			365	368	0.0	0.0	0.000	A

2035 + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.81	A
2	untitled	T-Junction	Two-way			2.77	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D13	2035 + Dev	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	297	100.000
	2		ONE HOUR	✓	102	100.000
	4	✓				
	5		ONE HOUR	✓	318	100.000
2	A	✓				
	B		ONE HOUR	✓	168	100.000
	C		ONE HOUR	✓	436	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	1	31	203	62
		2	37	5	44	16
		4	251	56	1	157
		5				

	5	43	52	223	0
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Demand (PCU/hr)

Junction 2	From	To			
		A	B	C	
		A	0	238	472
		B	145	0	23
	C	436	0	0	

Vehicle Mix

HV %s

Junction 1	From	To				
		1	2	4	5	
		1	0	3	19	1
		2	2	0	5	2
		4	13	6	0	6
	5	1	0	12	0	

HV %s

Junction 2	From	To			
		A	B	C	
		A	0	6	20
		B	1	0	0
	C	36	0	0	

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.16	0.4	A	273	410
	2	2.99	0.1	A	95	143
	4	2.35	0.4	A	468	701
	5	3.15	0.3	A	292	438
2	A	0.00	0.0	A	438	657
	B	17.61	1.2	C	156	234
	C	0.01	0.0	A	402	603

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	221	55	254	222	224	274	0.0	0.1	2.800	A
	2	83	21	366	82	83	110	0.0	0.1	2.616	A
	4	382	96	92	382	381	356	0.0	0.2	2.053	A
	5	235	59	292	236	237	183	0.0	0.1	2.656	A
2	A	362	91		362	360	439	0.0	0.0	0.000	A
	B	127	32		128	128	124	0.0	0.3	12.006	B
	C	329	82		329	328	257	0.0	0.0	0.000	A

08:15 - 08:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	265	66	307	265	263	319	0.1	0.2	2.927	A
	2	95	24	441	95	93	131	0.1	0.1	2.716	A
	4	447	112	111	450	445	425	0.2	0.2	2.219	A
	5	288	72	340	287	285	221	0.1	0.3	2.843	A
2	A	429	107		429	427	518	0.0	0.0	0.000	A
	B	143	36		142	147	137	0.3	0.5	12.824	B
	C	398	100		398	385	314	0.0	0.0	0.000	A

08:30 - 08:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	332	83	381	331	325	389	0.2	0.4	3.155	A
	2	113	28	540	113	112	172	0.1	0.1	2.783	A
	4	571	143	134	571	559	519	0.2	0.4	2.352	A
	5	354	88	414	356	345	292	0.3	0.3	3.150	A
2	A	526	131		526	512	653	0.0	0.0	0.000	A
	B	195	49		190	183	177	0.5	1.2	17.614	C
	C	490	122		490	476	374	0.0	0.0	0.004	A

08:45 - 09:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	332	83	376	334	322	396	0.4	0.3	3.123	A
	2	111	28	544	111	113	165	0.1	0.1	2.993	A
	4	570	143	136	572	568	519	0.4	0.3	2.297	A
	5	347	87	425	347	342	283	0.3	0.3	3.120	A
2	A	530	133		530	511	644	0.0	0.0	0.000	A
	B	191	48		191	190	185	1.2	0.9	15.988	C
	C	476	119		476	476	368	0.0	0.0	0.007	A

09:00 - 09:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	270	68	305	271	268	316	0.3	0.2	2.947	A
	2	97	24	444	96	91	132	0.1	0.1	2.744	A
	4	453	113	114	453	450	426	0.3	0.2	2.154	A
	5	283	71	338	283	288	229	0.3	0.2	2.959	A
2	A	424	106		424	422	521	0.0	0.0	0.000	A
	B	153	38		150	150	144	0.9	0.6	14.204	B
	C	395	99		395	390	302	0.0	0.0	0.003	A

09:15 - 09:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	218	55	266	218	223	267	0.2	0.2	2.915	A
	2	74	18	370	74	75	114	0.1	0.1	2.621	A
	4	382	95	85	383	387	358	0.2	0.2	2.113	A
	5	245	61	287	246	244	181	0.2	0.1	2.691	A
2	A	357	89		357	360	433	0.0	0.0	0.000	A
	B	128	32		127	128	122	0.6	0.5	11.906	B
	C	322	81		322	328	252	0.0	0.0	0.002	A

Lane Results

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

Lanes: Main Results for each time segment

08:00 - 08:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	221	1707	0.130	222	224	0.0	0.1	2.800	A
		Exit	1	1		274			274	271	0.0	0.0	0.000	A

	C	Exit	1	1		368			368	358	0.0	0.0	0.000	A
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09:00 - 09:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	270	1674	0.161	271	268	0.3	0.2	2.947	A
		Exit	1	1		316			316	317	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	97	1471	0.066	96	91	0.1	0.1	2.744	A
		Exit	1	1		132			132	136	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	453	2225	0.204	453	450	0.3	0.2	2.154	A
		Exit	1	1		426			426	422	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	283	1667	0.170	283	288	0.3	0.2	2.959	A	
	Exit	1	1		229			229	222	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	424			424	422	0.0	0.0	0.000	A
		Exit	1	1		521			521	518	0.0	0.0	0.047	A
	B	Entry	1	1	A, C	153			150	150	0.9	0.6	14.204	B
		Exit	1	1		144			144	144	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	395			395	390	0.0	0.0	0.003	A
		Exit	1	1		302			302	300	0.0	0.0	0.000	A

09:15 - 09:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	218	1699	0.129	218	223	0.2	0.2	2.915	A
		Exit	1	1		267			267	269	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	74	1517	0.049	74	75	0.1	0.1	2.621	A
		Exit	1	1		114			114	116	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	382	2246	0.170	383	387	0.2	0.2	2.113	A
		Exit	1	1		358			358	360	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	245	1703	0.144	246	244	0.2	0.1	2.691	A	
	Exit	1	1		181			181	185	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	357			357	360	0.0	0.0	0.000	A
		Exit	1	1		433			433	439	0.0	0.0	0.044	A
	B	Entry	1	1	A, C	128			127	128	0.6	0.5	11.906	B
		Exit	1	1		122			122	122	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	322			322	328	0.0	0.0	0.002	A
		Exit	1	1		252			252	255	0.0	0.0	0.000	A

2035 + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Major arm width	Junction 2 - 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	Linked roundabouts	Junction 1	U-turns on linked arms may cause sporadic locking up of junctions and/or unreliable results.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout			1, 2, 4, 5	2.98	A
2	untitled	T-Junction	Two-way			3.05	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D14	2035 + Dev	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

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1	4	2	A	Simple (vertical queueing)	Normal	0	100.00	
2	A	1	4	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
1	1		ONE HOUR	✓	426	100.000
	2		ONE HOUR	✓	211	100.000
	4	✓				
	5		ONE HOUR	✓	361	100.000
2	A	✓				
	B		ONE HOUR	✓	185	100.000
	C		ONE HOUR	✓	327	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	4	5	
Junction 1	From	1	0	43	295	88
		2	76	0	94	41
		4	266	72	3	210
		5				

	5	72	49	240	0
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Demand (PCU/hr)

Junction 2

		To		
		A	B	C
From	A	0	247	631
	B	111	0	74
	C	327	0	0

Vehicle Mix

HV %s

Junction 1

		To			
		1	2	4	5
From	1	0	2	13	0
	2	1	0	1	0
	4	12	0	1	5
	5	0	0	6	0

HV %s

Junction 2

		To		
		A	B	C
From	A	0	4	9
	B	0	0	0
	C	9	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Q (PCU)	Max LOS	Av. Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	1	3.51	0.6	A	391	586
	2	3.26	0.2	A	189	283
	4	2.30	0.4	A	411	617
	5	3.02	0.4	A	331	496
2	A	0.00	0.0	A	574	860
	B	18.66	1.5	C	172	258
	C	0.00	0.0	A	304	456

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	319	80	271	319	315	270	0.0	0.2	2.944	A
	2	157	39	473	158	159	116	0.0	0.1	2.860	A
	4	333	83	153	332	333	478	0.0	0.2	2.099	A
	5	275	69	264	276	276	221	0.0	0.2	2.584	A
2	A	478	119		478	475	328	0.0	0.0	0.000	A
	B	139	35		139	142	135	0.0	0.4	11.550	B
	C	245	61		245	247	400	0.0	0.0	0.000	A

17:15 - 17:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
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1	1	390	97	311	390	383	329	0.2	0.3	3.053	A
	2	186	46	572	186	189	130	0.1	0.1	2.972	A
	4	404	101	178	403	401	579	0.2	0.4	2.193	A
	5	328	82	314	327	324	268	0.2	0.3	2.693	A
2	A	572	143		572	562	397	0.0	0.0	0.000	A
	B	168	42		169	166	162	0.4	0.6	13.538	B
	C	295	74		295	296	477	0.0	0.0	0.002	A

17:30 - 17:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	448	112	392	448	460	388	0.3	0.4	3.512	A
	2	226	56	676	226	227	164	0.1	0.2	3.178	A
	4	488	122	218	488	486	684	0.4	0.4	2.243	A
	5	400	100	378	402	403	327	0.3	0.3	3.022	A
2	A	677	169		677	691	483	0.0	0.0	0.000	A
	B	201	50		197	198	193	0.6	1.5	18.662	C
	C	368	92		368	365	566	0.0	0.0	0.001	A

17:45 - 18:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	470	118	382	470	466	394	0.4	0.6	3.485	A
	2	222	55	684	221	228	168	0.2	0.2	3.261	A
	4	498	125	222	498	496	683	0.4	0.3	2.299	A
	5	387	97	391	385	391	329	0.3	0.4	3.017	A
2	A	684	171		684	684	492	0.0	0.0	0.000	A
	B	210	52		211	211	183	1.5	1.0	18.159	C
	C	366	92		366	363	585	0.0	0.0	0.001	A

18:00 - 18:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	389	97	310	389	387	335	0.6	0.4	3.097	A
	2	184	46	565	185	188	134	0.2	0.1	3.099	A
	4	404	101	188	403	402	562	0.3	0.3	2.163	A
	5	328	82	317	328	331	274	0.4	0.2	2.744	A
2	A	559	140		559	565	400	0.0	0.0	0.000	A
	B	169	42		171	169	160	1.0	0.5	13.938	B
	C	301	75		301	297	471	0.0	0.0	0.001	A

18:15 - 18:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Throughput (exit) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	330	82	255	329	326	283	0.4	0.3	2.911	A
	2	157	39	473	157	153	111	0.1	0.1	2.840	A
	4	340	85	155	342	338	475	0.3	0.1	2.071	A
	5	267	67	271	267	271	227	0.2	0.2	2.602	A
2	A	471	118		471	475	334	0.0	0.0	0.000	A
	B	143	36		142	140	130	0.5	0.5	11.377	B
	C	250	63		250	251	400	0.0	0.0	0.000	A

Lane Results

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

Lanes: Main Results for each time segment

17:00 - 17:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	319	1696	0.188	319	315	0.0	0.2	2.944	A
		Exit	1	1		270			270	269	0.0	0.0	0.000	A

	C	Exit	1	1		585			585	578	0.0	0.0	0.000	A
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18:00 - 18:15

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	389	1670	0.233	389	387	0.6	0.4	3.097	A
		Exit	1	1		335			335	328	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	184	1396	0.132	185	188	0.2	0.1	3.099	A
		Exit	1	1		134			134	138	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	404	2172	0.186	403	402	0.3	0.3	2.163	A
		Exit	1	1		562			562	568	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	328	1682	0.195	328	331	0.4	0.2	2.744	A	
	Exit	1	1		274			274	275	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	559			559	565	0.0	0.0	0.000	A
		Exit	1	1		400			400	399	0.0	0.0	0.040	A
	B	Entry	1	1	A, C	169			171	169	1.0	0.5	13.938	B
		Exit	1	1		160			160	160	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	301			301	297	0.0	0.0	0.001	A
		Exit	1	1		471			471	472	0.0	0.0	0.000	A

18:15 - 18:30

Junction	Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Av. throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1	Entry	1	1	1, 2, 4, 5	330	1706	0.193	329	326	0.4	0.3	2.911	A
		Exit	1	1		283			283	274	0.0	0.0	0.000	A
	2	Entry	1	1	1, 2, 4, 5	157	1453	0.108	157	153	0.1	0.1	2.840	A
		Exit	1	1		111			111	114	0.0	0.0	0.000	A
	4	Entry	1	1	1, 2, 4, 5	340	2196	0.155	342	338	0.3	0.1	2.071	A
		Exit	1	1		475			475	477	0.0	0.0	0.000	A
5	Entry	1	1	1, 2, 4, 5	267	1714	0.156	267	271	0.2	0.2	2.602	A	
	Exit	1	1		227			227	223	0.0	0.0	0.000	A	
2	A	Entry	1	1	B, C	471			471	475	0.0	0.0	0.000	A
		Exit	1	1		333			334	333	0.0	0.0	0.020	A
	B	Entry	1	1	A, C	143			142	140	0.5	0.5	11.377	B
		Exit	1	1		130			130	133	0.0	0.0	0.000	A
	C	Entry	1	1	A, B	250			250	251	0.0	0.0	0.000	A
		Exit	1	1		400			400	399	0.0	0.0	0.000	A

Appendix J



LinSig V1 style report

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	Tesco Signalised junction.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

Phase Intergreens Matrix

Terminating Phase	Starting Phase		
	A	B	C
A	-	5	-
B	5	-	5
C	-	5	-

Phase Delays

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

Prohibited Stage Change

From Stage	To Stage		
	1	2	3
1	-	0	5
2	2	-	5
3	5	5	-

Phases in Stage

Stage No.	Phases in Stage
1	A C
2	C
3	B

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	Nearsid e Lane	Turns	Turning Radius (m)
1/1 (A4139 (w) Westbound)	O	C	2	3	1.7	User	2000	-	-	-	-	-
2/1 (A4139 (e) Westbound)	U		2	3	1.7	Geom	-	3.50	0.00	Y		
3/1 (Tesco access road Northbound)	U	B	2	3	2.6	User + Flared	2000	-	-	-	-	-
4/1 (A4139 (w) Eastbound)	U		2	3	15.0	Geom	-	3.88	0.00	Y		
5/1 (A4139 (e) Eastbound)	U	A	2	3	15.0	Geom	-	3.88	0.00	Y	Arm 4 Ahead	Inf
											Arm 6 Left	Inf
6/1 (Tesco Acces Road Southbound)	U		2	3	10.0	Geom	-	3.50	0.00	Y		

Lane Saturation Flows

Scenario 1: '2018 AM Peak' (FG1: '2018 AM Peak', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965
3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	62.7 %	2003	2003
				Arm 6 Left	Inf	37.3 %		
6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965

Scenario 2: '2018 PM Peak' (FG2: '2018 PM Peak', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965
3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	51.4 %	2003	2003
				Arm 6 Left	Inf	48.6 %		

6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965
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Scenario 3: '2020 AM Peak' (FG3: '2020 AM Peak', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965
3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	62.8 %	2003	2003
				Arm 6 Left	Inf	37.2 %		
6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965

Scenario 4: '2020 PM Peak' (FG4: '2020 PM Peak', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965

3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	51.3 %	2003	2003
				Arm 6 Left	Inf	48.7 %		
6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965

Scenario 5: '2030 AM Peak' (FG5: '2030 AM Peak', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965
3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	62.8 %	2003	2003
				Arm 6 Left	Inf	37.2 %		
6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965

Scenario 6: '2030 PM Peak' (FG6: '2030 PM Peak', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction								
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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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965
3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	51.4 %	2003	2003
				Arm 6 Left	Inf	48.6 %		
6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965

Scenario 7: '2035 AM Peak' (FG7: '2035 AM Peak', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965
3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	62.8 %	2003	2003
				Arm 6 Left	Inf	37.2 %		

6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965
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Scenario 8: '2035 PM Peak' (FG8: '2035 PM Peak', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965
3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	51.3 %	2003	2003
				Arm 6 Left	Inf	48.7 %		
6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965

Scenario 9: '2020 AM + DEV' (FG9: '2020 AM Peak (with development)', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965

3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	66.3 %	2003	2003
				Arm 6 Left	Inf	33.7 %		
6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965

Scenario 10: '2020 PM+ DEV' (FG10: '2020 PM Peak (with development)', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965
3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	51.3 %	2003	2003
				Arm 6 Left	Inf	48.7 %		
6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965

Scenario 11: '2030 AM + DEV' (FG11: '2030 AM Peak (with development)', Plan 1: 'Network Control Plan 1')

Junction: Unnamed Junction								
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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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965
3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	66.2 %	2003	2003
				Arm 6 Left	Inf	33.8 %		
6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965

Scenario 12: '2030 PM + DEV' (FG12: '2030 PM Peak (with development)', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965
3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	51.4 %	2003	2003
				Arm 6 Left	Inf	48.6 %		

6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965
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Scenario 13: '2035 AM + DEV' (FG13: '2035 AM Peak (with development)', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965
3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	66.0 %	2003	2003
				Arm 6 Left	Inf	34.0 %		
6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965

Scenario 14: '2035 PM + DEV' (FG14: '2035 PM Peak (with development)', 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 (A4139 (w) Westbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	2000
2/1 (A4139 (e) Westbound)	3.50	0.00	Y				1965	1965

3/1 (Tesco access road Northbound Lane 1)	This lane uses a directly entered Saturation Flow						2000	1800, 0.0 PCU
4/1 (A4139 (w) Eastbound)	3.88	0.00	Y				2003	2003
5/1 (A4139 (e) Eastbound)	3.88	0.00	Y	Arm 4 Ahead	Inf	51.3 %	2003	2003
				Arm 6 Left	Inf	48.7 %		
6/1 (Tesco Acces Road Southbound)	3.50	0.00	Y				1965	1965

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2018 AM Peak'	08:00	09:00	01:00	
2: '2018 PM Peak'	17:00	18:00	01:00	
3: '2020 AM Peak'	08:00	09:00	01:00	
4: '2020 PM Peak'	17:00	18:00	01:00	
5: '2030 AM Peak'	08:00	09:00	01:00	
6: '2030 PM Peak'	17:00	18:00	01:00	
7: '2035 AM Peak'	08:00	09:00	01:00	
8: '2035 PM Peak'	17:00	18:00	01:00	
9: '2020 AM Peak (with development)'	08:00	09:00	01:00	
10: '2020 PM Peak (with development)'	17:00	18:00	01:00	
11: '2030 AM Peak (with development)'	08:00	09:00	01:00	
12: '2030 PM Peak (with development)'	17:00	18:00	01:00	
13: '2035 AM Peak (with development)'	08:00	09:00	01:00	
14: '2035 PM Peak (with development)'	17:00	18:00	01:00	

Traffic Flows, Desired

FG1: '2018 AM Peak'

Desired Flow :

Origin	Destination				Tot.
	A	B	C	Tot.	
A	0	196	330	526	
B	129	0	54	183	
C	340	88	0	428	
Tot.	469	284	384	1137	

FG2: '2018 PM Peak'

Desired Flow :

Origin	Destination				Tot.
	A	B	C	Tot.	
A	0	268	283	551	
B	296	0	144	440	
C	345	154	0	499	
Tot.	641	422	427	1490	

FG3: '2020 AM Peak'

Desired Flow :

Origin	Destination				Tot.
	A	B	C	Tot.	
A	0	200	337	537	
B	132	0	55	187	
C	347	90	0	437	
Tot.	479	290	392	1161	

FG4: '2020 PM Peak'

Desired Flow :

Origin	Destination				Tot.
	A	B	C	Tot.	
A	0	274	289	563	
B	302	0	147	449	
C	352	157	0	509	
Tot.	654	431	436	1521	

FG5: '2030 AM Peak'

Desired Flow :

Origin	Destination				Tot.
	A	B	C	Tot.	
A	0	210	354	564	
B	138	0	58	196	
C	365	94	0	459	
Tot.	503	304	412	1219	

FG6: '2030 PM Peak'

Desired Flow :

Origin	Destination				
	A	B	C	Tot.	
A	0	288	304	592	
B	318	0	155	473	
C	371	166	0	537	
Tot.	689	454	459	1602	

FG7: '2035 AM Peak'

Desired Flow :

Origin	Destination				
	A	B	C	Tot.	
A	0	225	380	605	
B	148	0	62	210	
C	391	101	0	492	
Tot.	539	326	442	1307	

FG8: '2035 PM Peak'

Desired Flow :

Origin	Destination				
	A	B	C	Tot.	
A	0	310	327	637	
B	342	0	166	508	
C	178	399	0	577	
Tot.	520	709	493	1722	

FG9: '2020 AM Peak (with development)'

Desired Flow :

Origin	Destination				
	A	B	C	Tot.	
A	0	200	393	593	
B	132	0	55	187	
C	347	90	0	437	
Tot.	479	290	448	1217	

FG10: '2020 PM Peak (with development)'

Desired Flow :

Origin	Destination				
	A	B	C	Tot.	
A	0	274	289	563	
B	302	0	147	449	
C	409	157	0	566	
Tot.	711	431	436	1578	

FG11: '2030 AM Peak (with development)'

Desired Flow :

Origin	Destination				
	A	B	C	Tot.	
A	0	274	289	563	
B	302	0	147	449	
C	409	157	0	566	
Tot.	711	431	436	1578	

Origin		A	B	C	Tot.
	A	0	210	411	621
	B	138	0	58	196
	C	365	94	0	459
	Tot.	503	304	469	1276

FG12: '2030 PM Peak (with development)'

Desired Flow :

Origin	Destination				Tot.
	A	B	C	Tot.	
	A	0	288	304	592
	B	318	0	155	473
	C	428	166	0	594
	Tot.	746	454	459	1659

FG13: '2035 AM Peak (with development)'

Desired Flow :

Origin	Destination				Tot.
	A	B	C	Tot.	
	A	0	225	436	661
	B	148	0	62	210
	C	391	101	0	492
	Tot.	539	326	498	1363

FG14: '2035 PM Peak (with development)'

Desired Flow :

Origin	Destination				Tot.
	A	B	C	Tot.	
	A	0	310	327	637
	B	342	0	166	508
	C	456	178	0	634
	Tot.	798	488	493	1779

Stage Timings

Scenario 1: '2018 AM Peak' (FG1: '2018 AM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	41	0	9
Change Point	0	46	46

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	-	-		-	-	-	-	-	-	54.9%
Unnamed Junction	-	-	N/A	-	-		-	-	-	-	-	-	54.9%

1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C	1	41	-	428	2000	1400	30.6%	
2/1	A4139 (e) Westbound	U	N/A	N/A	-	-	-	-	469	1965	1965	23.9%	
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B	1	9	-	183	2000	333	54.9%	
4/1	A4139 (w) Eastbound	U	N/A	N/A	-	-	-	-	384	2003	2003	19.2%	
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A	1	41	-	526	2003	1402	37.5%	
6/1	Tesco Acces Road Southbound	U	N/A	N/A	-	-	-	-	284	1965	1965	14.5%	
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	0	87	1	2.1	1.5	0.0	3.6	-	-	-	-
Unnamed Junction	-	-	0	87	1	2.1	1.5	0.0	3.6	-	-	-	-
1/1	428	428	0	87	1	0.4	0.2	0.0	0.6	5.3	1.3	0.1	1.4
2/1	469	469	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
3/1	183	183	-	-	-	1.2	0.6	-	1.8	34.8	1.4	0.3	1.7
4/1	384	384	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
5/1	526	526	-	-	-	0.5	0.3	-	0.8	5.7	3.5	0.3	3.8
6/1	284	284	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
C1			PRC for Signalled Lanes (%):		63.9	Total Delay for Signalled Lanes (pcuHr):		3.23	Cycle Time (s):		60		
			PRC Over All Lanes (%):		63.9	Total Delay Over All Lanes(pcuHr):		3.59					

Stage Timings

Scenario 2: '2018 PM Peak' (FG2: '2018 PM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	32	0	18
Change Point	0	37	37

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	-	-	-	-	-	-	-	-	-	69.5%
Unnamed Junction	-	-	N/A	-	-	-	-	-	-	-	-	-	69.5%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C	-	1	32	-	499	2000	1100	45.4%
2/1	A4139 (e) Westbound	U	N/A	N/A	-	-	-	-	-	641	1965	1965	32.6%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B	-	1	18	-	440	2000	633	69.5%

4/1	A4139 (w) Eastbound	U	N/A	N/A	-	-	-	-	427	2003	2003	21.3%	
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A	1	32	-	551	2003	1102	50.0%	
6/1	Tesco Access Road Southbound	U	N/A	N/A	-	-	-	-	422	1965	1965	21.5%	
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	0	151	3	4.6	2.6	0.0	7.2	-	-	-	-
Unnamed Junction	-	-	0	151	3	4.6	2.6	0.0	7.2	-	-	-	-
1/1	499	499	0	151	3	1.1	0.4	0.0	1.5	11.1	2.4	0.2	2.6
2/1	641	641	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
3/1	440	440	-	-	-	2.2	1.1	-	3.3	27.2	3.2	0.6	3.7
4/1	427	427	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
5/1	551	551	-	-	-	1.3	0.5	-	1.8	11.6	5.7	0.5	6.2
6/1	422	422	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
C1			PRC for Signalled Lanes (%):		29.5	Total Delay for Signalled Lanes (pcuHr):		6.64	Cycle Time (s):		60		
			PRC Over All Lanes (%):		29.5	Total Delay Over All Lanes (pcuHr):		7.15					

Stage Timings

Scenario 3: '2020 AM Peak' (FG3: '2020 AM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	40	0	10
Change Point	0	45	45

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	-	-	-	-	-	-	-	-	-	51.0%
Unnamed Junction	-	-	N/A	-	-	-	-	-	-	-	-	-	51.0%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C	-	1	40	-	437	2000	1367	32.0%
2/1	A4139 (e) Westbound	U	N/A	N/A	-	-	-	-	-	479	1965	1965	24.4%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B	-	1	10	-	187	2000	367	51.0%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-	-	-	-	-	392	2003	2003	19.6%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A	-	1	40	-	537	2003	1369	39.2%
6/1	Tesco Access Road Southbound	U	N/A	N/A	-	-	-	-	-	290	1965	1965	14.8%

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	89	2	2.2	1.4	0.0	3.7	-	-	-	-
Unnamed Junction	-	-	0	89	2	2.2	1.4	0.0	3.7	-	-	-	-
1/1	437	437	0	89	2	0.5	0.2	0.0	0.7	5.8	1.5	0.1	1.6
2/1	479	479	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
3/1	187	187	-	-	-	1.1	0.5	-	1.7	32.0	1.4	0.3	1.7
4/1	392	392	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
5/1	537	537	-	-	-	0.6	0.3	-	0.9	6.3	3.7	0.3	4.1
6/1	290	290	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
C1			PRC for Signalled Lanes (%):		76.5	Total Delay for Signalled Lanes (pcuHr):			3.30	Cycle Time (s): 60			
			PRC Over All Lanes (%):		76.5	Total Delay Over All Lanes (pcuHr):			3.67				

Stage Timings

Scenario 4: '2020 PM Peak' (FG4: '2020 PM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	31	0	19
Change Point	0	36	36

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	-	-	-	-	-	-	-	-	-	67.4%
Unnamed Junction	-	-	N/A	-	-	-	-	-	-	-	-	-	67.4%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C	-	1	31	-	509	2000	1067	47.7%
2/1	A4139 (e) Westbound	U	N/A	N/A	-	-	-	-	-	654	1965	1965	33.3%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B	-	1	19	-	449	2000	667	67.4%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-	-	-	-	-	436	2003	2003	21.8%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A	-	1	31	-	563	2003	1068	52.7%
6/1	Tesco Acces Road Southbound	U	N/A	N/A	-	-	-	-	-	431	1965	1965	21.9%
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	154	3	4.8	2.6	0.0	7.4	-	-	-	-
Unnamed Junction	-	-	0	154	3	4.8	2.6	0.0	7.4	-	-	-	-

1/1	509	509	0	154	3	1.2	0.5	0.0	1.7	12.0	2.6	0.2	2.8
2/1	654	654	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
3/1	449	449	-	-	-	2.1	1.0	-	3.2	25.4	3.2	0.5	3.7
4/1	436	436	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
5/1	563	563	-	-	-	1.4	0.6	-	2.0	12.6	5.9	0.6	6.5
6/1	431	431	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
C1		PRC for Signalled Lanes (%):		33.6	Total Delay for Signalled Lanes (pcuHr):		6.84	Cycle Time (s):		60			
		PRC Over All Lanes (%):		33.6	Total Delay Over All Lanes(pcuHr):		7.37						

Stage Timings

Scenario 5: '2030 AM Peak' (FG5: '2030 AM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	40	0	10
Change Point	0	45	45

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	-	-	-	-	-	-	-	-	-	53.5%
Unnamed Junction	-	-	N/A	-	-	-	-	-	-	-	-	-	53.5%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C	-	1	40	-	459	2000	1367	33.6%
2/1	A4139 (e) Westbound	U	N/A	N/A	-	-	-	-	-	503	1965	1965	25.6%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B	-	1	10	-	196	2000	367	53.5%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-	-	-	-	-	412	2003	2003	20.6%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A	-	1	40	-	564	2003	1369	41.2%
6/1	Tesco Acces Road Southbound	U	N/A	N/A	-	-	-	-	-	304	1965	1965	15.5%
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	0	92	2	2.4	1.6	0.0	3.9	-	-	-	-
Unnamed Junction	-	-	0	92	2	2.4	1.6	0.0	3.9	-	-	-	-
1/1	459	459	0	92	2	0.5	0.3	0.0	0.8	5.9	1.5	0.1	1.7
2/1	503	503	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
3/1	196	196	-	-	-	1.2	0.6	-	1.8	32.7	1.5	0.3	1.8
4/1	412	412	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
5/1	564	564	-	-	-	0.7	0.4	-	1.0	6.4	4.1	0.4	4.4
6/1	304	304	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
C1		PRC for Signalled Lanes (%):		68.4	Total Delay for Signalled Lanes (pcuHr):		3.54	Cycle Time (s):		60			
		PRC Over All Lanes (%):		68.4	Total Delay Over All Lanes(pcuHr):		3.93						

Stage Timings

Scenario 6: '2030 PM Peak' (FG6: '2030 PM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	31	0	19
Change Point	0	36	36

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	-	-	-	-	-	-	-	-	-	71.0%
Unnamed Junction	-	-	N/A	-	-	-	-	-	-	-	-	-	71.0%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C	-	1	31	-	537	2000	1067	50.3%
2/1	A4139 (e) Westbound	U	N/A	N/A	-	-	-	-	-	689	1965	1965	35.1%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B	-	1	19	-	473	2000	667	71.0%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-	-	-	-	-	459	2003	2003	22.9%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A	-	1	31	-	592	2003	1068	55.4%
6/1	Tesco Access Road Southbound	U	N/A	N/A	-	-	-	-	-	454	1965	1965	23.1%

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	163	3	5.2	2.9	0.0	8.1	-	-	-	-
Unnamed Junction	-	-	0	163	3	5.2	2.9	0.0	8.1	-	-	-	-
1/1	537	537	0	163	3	1.3	0.5	0.0	1.8	12.3	2.8	0.3	3.1
2/1	689	689	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
3/1	473	473	-	-	-	2.3	1.2	-	3.5	26.6	3.4	0.6	4.0
4/1	459	459	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
5/1	592	592	-	-	-	1.5	0.6	-	2.1	13.0	6.4	0.6	7.0
6/1	454	454	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2

C1	PRC for Signalled Lanes (%):	26.8	Total Delay for Signalled Lanes (pcuHr):	7.49	Cycle Time (s):	60
	PRC Over All Lanes (%):	26.8	Total Delay Over All Lanes(pcuHr):	8.05		

Stage Timings

Scenario 7: '2035 AM Peak' (FG7: '2035 AM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	40	0	10
Change Point	0	45	45

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	-	-		-	-	-	-	-	-	57.3%
Unnamed Junction	-	-	N/A	-	-		-	-	-	-	-	-	57.3%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C		1	40	-	492	2000	1367	36.0%
2/1	A4139 (e) Westbound	U	N/A	N/A	-		-	-	-	539	1965	1965	27.4%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B		1	10	-	210	2000	367	57.3%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-		-	-	-	442	2003	2003	22.1%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A		1	40	-	605	2003	1369	44.2%
6/1	Tesco Acces Road Southbound	U	N/A	N/A	-		-	-	-	326	1965	1965	16.6%
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	99	2	2.6	1.8	0.0	4.3	-	-	-	-
Unnamed Junction	-	-	0	99	2	2.6	1.8	0.0	4.3	-	-	-	-
1/1	492	492	0	99	2	0.5	0.3	0.0	0.8	6.1	1.7	0.1	1.8
2/1	539	539	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
3/1	210	210	-	-	-	1.3	0.7	-	2.0	33.8	1.6	0.3	1.9
4/1	442	442	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
5/1	605	605	-	-	-	0.7	0.4	-	1.1	6.7	4.5	0.4	4.9
6/1	326	326	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
C1			PRC for Signalled Lanes (%):	57.1	Total Delay for Signalled Lanes (pcuHr):			3.92	Cycle Time (s):		60		
			PRC Over All Lanes (%):	57.1	Total Delay Over All Lanes(pcuHr):			4.35					

Stage Timings

Scenario 8: '2035 PM Peak' (FG8: '2035 PM Peak', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	31	0	19
Change Point	0	36	36

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	-	-		-	-	-	-	-	-	76.2%

Unnamed Junction	-	-	N/A	-	-	-	-	-	-	-	-	-	76.2%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C		1	31	-	577	2000	1067	54.1%
2/1	A4139 (e) Westbound	U	N/A	N/A	-		-	-	-	520	1965	1965	26.5%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B		1	19	-	508	2000	667	76.2%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-		-	-	-	493	2003	2003	24.6%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A		1	31	-	637	2003	1068	59.6%
6/1	Tesco Acces Road Southbound	U	N/A	N/A	-		-	-	-	709	1965	1965	36.1%

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	392	7	5.8	3.5	0.0	9.3	-	-	-	-
Unnamed Junction	-	-	0	392	7	5.8	3.5	0.0	9.3	-	-	-	-
1/1	577	577	0	392	7	1.5	0.6	0.0	2.1	12.9	3.1	0.3	3.4
2/1	520	520	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
3/1	508	508	-	-	-	2.5	1.6	-	4.1	29.0	3.7	0.8	4.5
4/1	493	493	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
5/1	637	637	-	-	-	1.7	0.7	-	2.4	13.7	7.3	0.7	8.0
6/1	709	709	-	-	-	0.1	0.3	-	0.4	1.8	7.2	0.3	7.5
C1			PRC for Signalled Lanes (%):	18.1	Total Delay for Signalled Lanes (pcuHr):	8.58	Cycle Time (s):	60					
			PRC Over All Lanes (%):	18.1	Total Delay Over All Lanes (pcuHr):	9.29							

Stage Timings

Scenario 9: '2020 AM + DEV' (FG9: '2020 AM Peak (with development)', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	66	0	14
Change Point	0	71	71

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	-	-	-	-	-	-	-	-	-	56.1%
Unnamed Junction	-	-	N/A	-	-	-	-	-	-	-	-	-	56.1%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C		1	66	-	437	2000	1489	29.4%
2/1	A4139 (e) Westbound	U	N/A	N/A	-		-	-	-	479	1965	1965	24.4%

3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B		1	14	-	187	2000	333	56.1%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-		-	-	-	448	2003	2003	22.4%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A		1	66	-	593	2003	1491	39.8%
6/1	Tesco Access Road Southbound	U	N/A	N/A	-		-	-	-	290	1965	1965	14.8%
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	89	1	2.9	1.6	0.0	4.5	-	-	-	-
Unnamed Junction	-	-	0	89	1	2.9	1.6	0.0	4.5	-	-	-	-
1/1	437	437	0	89	1	0.5	0.2	0.0	0.7	5.5	1.8	0.1	1.9
2/1	479	479	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
3/1	187	187	-	-	-	1.8	0.6	-	2.4	46.7	2.1	0.3	2.4
4/1	448	448	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
5/1	593	593	-	-	-	0.7	0.3	-	1.0	6.2	5.3	0.3	5.6
6/1	290	290	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
C1			PRC for Signalled Lanes (%):		60.4	Total Delay for Signalled Lanes (pcuHr):			4.11	Cycle Time (s): 90			
			PRC Over All Lanes (%):		60.4	Total Delay Over All Lanes (pcuHr):			4.50				

Stage Timings

Scenario 10: '2020 PM+ DEV' (FG10: '2020 PM Peak (with development)', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	52	0	28
Change Point	0	57	57

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	-	-	-	-	-	-	-	-	-	69.7%
Unnamed Junction	-	-	N/A	-	-	-	-	-	-	-	-	-	69.7%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C		1	52	-	566	2000	1178	48.1%
2/1	A4139 (e) Westbound	U	N/A	N/A	-		-	-	-	711	1965	1965	36.2%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B		1	28	-	449	2000	644	69.7%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-		-	-	-	436	2003	2003	21.8%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A		1	52	-	563	2003	1180	47.7%

6/1	Tesco Acces Road Southbound	U	N/A	N/A	-	-	-	-	431	1965	1965	21.9%	
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	155	2	6.6	2.6	0.0	9.3	-	-	-	-
Unnamed Junction	-	-	0	155	2	6.6	2.6	0.0	9.3	-	-	-	-
1/1	566	566	0	155	2	1.7	0.5	0.0	2.1	13.5	4.0	0.2	4.2
2/1	711	711	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
3/1	449	449	-	-	-	3.3	1.1	-	4.5	35.8	4.9	0.6	5.4
4/1	436	436	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
5/1	563	563	-	-	-	1.7	0.5	-	2.1	13.5	8.0	0.5	8.4
6/1	431	431	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
C1			PRC for Signalled Lanes (%):		29.2	Total Delay for Signalled Lanes (pcuHr):		8.70	Cycle Time (s):		90		
			PRC Over All Lanes (%):		29.2	Total Delay Over All Lanes(pcuHr):		9.26					

Stage Timings

Scenario 11: '2030 AM + DEV' (FG11: '2030 AM Peak (with development)', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	66	0	14
Change Point	0	71	71

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	-	-	-	-	-	-	-	-	-	58.8%
Unnamed Junction	-	-	N/A	-	-	-	-	-	-	-	-	-	58.8%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C	-	1	66	-	459	2000	1489	30.8%
2/1	A4139 (e) Westbound	U	N/A	N/A	-	-	-	-	-	503	1965	1965	25.6%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B	-	1	14	-	196	2000	333	58.8%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-	-	-	-	-	469	2003	2003	23.4%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A	-	1	66	-	621	2003	1491	41.6%
6/1	Tesco Acces Road Southbound	U	N/A	N/A	-	-	-	-	-	304	1965	1965	15.5%
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)

Network	-	-	0	93	1	3.1	1.7	0.0	4.8	-	-	-	-
Unnamed Junction	-	-	0	93	1	3.1	1.7	0.0	4.8	-	-	-	-
1/1	459	459	0	93	1	0.5	0.2	0.0	0.7	5.6	1.8	0.1	2.0
2/1	503	503	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
3/1	196	196	-	-	-	1.9	0.7	-	2.6	47.6	2.3	0.4	2.6
4/1	469	469	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
5/1	621	621	-	-	-	0.7	0.4	-	1.1	6.3	5.7	0.4	6.0
6/1	304	304	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
C1			PRC for Signalled Lanes (%):		53.1	Total Delay for Signalled Lanes (pcuHr):		4.39	Cycle Time (s): 90				
			PRC Over All Lanes (%):		53.1	Total Delay Over All Lanes(pcuHr):		4.81					

Stage Timings

Scenario 12: '2030 PM + DEV' (FG12: '2030 PM Peak (with development)', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	49	0	31
Change Point	0	54	54

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	-	-	-	-	-	-	-	-	-	66.5%
Unnamed Junction	-	-	N/A	-	-	-	-	-	-	-	-	-	66.5%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C	-	1	49	-	594	2000	1111	53.5%
2/1	A4139 (e) Westbound	U	N/A	N/A	-	-	-	-	-	746	1965	1965	38.0%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B	-	1	31	-	473	2000	711	66.5%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-	-	-	-	-	459	2003	2003	22.9%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A	-	1	49	-	592	2003	1113	53.2%
6/1	Tesco Acces Road Southbound	U	N/A	N/A	-	-	-	-	-	454	1965	1965	23.1%
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	0	164	2	7.4	2.7	0.0	10.1	-	-	-	-
Unnamed Junction	-	-	0	164	2	7.4	2.7	0.0	10.1	-	-	-	-
1/1	594	594	0	164	2	2.1	0.6	0.0	2.7	16.1	4.6	0.3	4.9
2/1	746	746	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
3/1	473	473	-	-	-	3.2	1.0	-	4.2	32.0	4.9	0.5	5.4
4/1	459	459	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
5/1	592	592	-	-	-	2.1	0.6	-	2.6	16.1	9.2	0.6	9.8
6/1	454	454	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2

C1	PRC for Signalled Lanes (%): 35.3	Total Delay for Signalled Lanes (pcuHr): 9.50	Cycle Time (s): 90
	PRC Over All Lanes (%): 35.3	Total Delay Over All Lanes(pcuHr): 10.11	

Stage Timings

Scenario 13: '2035 AM + DEV' (FG13: '2035 AM Peak (with development)', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
Duration	65	0	15
Change Point	0	70	70

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	-	-		-	-	-	-	-	-	59.1%
Unnamed Junction	-	-	N/A	-	-		-	-	-	-	-	-	59.1%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C		1	65	-	492	2000	1467	33.5%
2/1	A4139 (e) Westbound	U	N/A	N/A	-		-	-	-	539	1965	1965	27.4%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B		1	15	-	210	2000	356	59.1%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-		-	-	-	498	2003	2003	24.9%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A		1	65	-	661	2003	1469	45.0%
6/1	Tesco Acces Road Southbound	U	N/A	N/A	-		-	-	-	326	1965	1965	16.6%

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	100	1	3.4	1.8	0.0	5.3	-	-	-	-
Unnamed Junction	-	-	0	100	1	3.4	1.8	0.0	5.3	-	-	-	-
1/1	492	492	0	100	1	0.6	0.3	0.0	0.8	6.1	2.1	0.1	2.2
2/1	539	539	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
3/1	210	210	-	-	-	2.0	0.7	-	2.7	46.2	2.4	0.4	2.7
4/1	498	498	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
5/1	661	661	-	-	-	0.9	0.4	-	1.3	7.0	6.4	0.4	6.8
6/1	326	326	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1

C1	PRC for Signalled Lanes (%): 52.4	Total Delay for Signalled Lanes (pcuHr): 4.82	Cycle Time (s): 90
	PRC Over All Lanes (%): 52.4	Total Delay Over All Lanes(pcuHr): 5.27	

Stage Timings

Scenario 14: '2035 PM + DEV' (FG14: '2035 PM Peak (with development)', Plan 1: 'Network Control Plan 1')

Stage	1	2	3
-------	---	---	---

Duration	51	0	29
Change Point	0	56	56

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	-	-		-	-	-	-	-	-	76.2%
Unnamed Junction	-	-	N/A	-	-		-	-	-	-	-	-	76.2%
1/1	A4139 (w) Westbound Ahead Right	O	N/A	N/A	C		1	51	-	634	2000	1156	54.9%
2/1	A4139 (e) Westbound	U	N/A	N/A	-		-	-	-	798	1965	1965	40.6%
3/1	Tesco access road Northbound Right Left	U	N/A	N/A	B		1	29	-	508	2000	667	76.2%
4/1	A4139 (w) Eastbound	U	N/A	N/A	-		-	-	-	493	2003	2003	24.6%
5/1	A4139 (e) Eastbound Ahead Left	U	N/A	N/A	A		1	51	-	637	2003	1157	55.0%
6/1	Tesco Acces Road Southbound	U	N/A	N/A	-		-	-	-	488	1965	1965	24.8%
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	176	2	7.9	3.5	0.0	11.4	-	-	-	-
Unnamed Junction	-	-	0	176	2	7.9	3.5	0.0	11.4	-	-	-	-
1/1	634	634	0	176	2	2.1	0.6	0.0	2.7	15.2	4.8	0.3	5.1
2/1	798	798	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
3/1	508	508	-	-	-	3.8	1.6	-	5.4	37.9	5.6	0.8	6.4
4/1	493	493	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
5/1	637	637	-	-	-	2.1	0.6	-	2.7	15.2	9.7	0.6	10.3
6/1	488	488	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
C1			PRC for Signalled Lanes (%):	18.1	Total Delay for Signalled Lanes (pcuHr):			10.72	Cycle Time (s):			90	
			PRC Over All Lanes (%):	18.1	Total Delay Over All Lanes (pcuHr):			11.39					

Appendix K



<h1>Junctions 9</h1>
<h2>ARCADY 9 - Roundabout Module</h2>
Version: 9.5.0.6896 © Copyright TRL Limited, 2018
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk
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Filename: London Road - Waterloo Road junction.j9

Path: Z:\Lime\Projects\2017\17204 Pembroke Port, Pembroke\Analysis\JUNCTIONS 9

Report generation date: 22/01/2019 10:25:58

-
- «2035 + Dev, PM
 - »Junction Network
 - »Arms
 - »Traffic Demand
 - »Origin-Destination Data
 - »Vehicle Mix
 - »Results

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
2018 Base										
Arm 1	1.8	5.75	0.59	A	56 % [Arm 1]	2.0	6.14	0.63	A	46 % [Arm 1]
Arm 2	0.7	4.55	0.37	A		1.0	4.85	0.48	A	
Arm 3	0.9	4.87	0.40	A		0.8	4.46	0.43	A	
2020 Base										
Arm 1	1.9	5.95	0.60	A	53 % [Arm 1]	2.1	6.42	0.64	A	43 % [Arm 1]
Arm 2	0.8	4.68	0.38	A		1.1	5.00	0.49	A	
Arm 3	0.9	4.99	0.41	A		0.9	4.58	0.44	A	
2030 Base										
Arm 1	2.2	6.57	0.64	A	45 % [Arm 1]	2.5	7.23	0.68	A	36 % [Arm 1]
Arm 2	0.9	5.00	0.40	A		1.2	5.48	0.53	A	
Arm 3	1.1	5.37	0.44	A		1.0	4.95	0.48	A	
2035 Base										
Arm 1	2.7	7.67	0.68	A	35 % [Arm 1]	3.3	8.87	0.74	A	26 % [Arm 1]
Arm 2	1.0	5.57	0.44	A		1.5	6.35	0.58	A	
Arm 3	1.3	5.97	0.48	A		1.2	5.64	0.52	A	
2020 + Dev										
Arm 1	2.0	6.37	0.63	A	47 % [Arm 1]	2.4	7.05	0.67	A	37 % [Arm 1]
Arm 2	0.8	4.68	0.38	A		1.3	5.64	0.54	A	
Arm 3	1.0	5.15	0.43	A		1.0	4.90	0.48	A	
2030 + Dev										
Arm 1	2.4	7.07	0.66	A	40 % [Arm 1]	2.9	8.06	0.71	A	30 % [Arm 1]
Arm 2	0.9	5.00	0.40	A		1.5	6.13	0.57	A	
Arm 3	1.2	5.55	0.46	A		1.1	5.32	0.51	A	
2035 + Dev										
Arm 1	3.0	8.38	0.71	A	30 % [Arm 1]	3.8	10.12	0.77	B	21 % [Arm 1]
Arm 2	1.0	5.57	0.44	A		1.9	7.22	0.62	A	
Arm 3	1.4	6.20	0.50	A		1.4	6.10	0.56	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	18/01/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-U7G8RPA\Andy
Description	

Units

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

Analysis Options

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

Analysis Set Details

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

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D14	2035 + Dev	PM	ONE HOUR	17:00	18:30	15	✓

2035 + Dev, 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	8.20	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	21	Arm 1

Arms

Arms

Arm	Name	Description
1	London Road	
2	A4139	
3	Waterloo Road A477	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	4.00	8.59	20.0	9.1	56.0	19.7	
2	4.00	6.88	21.8	44.3	55.4	7.2	
3	4.99	8.03	6.6	38.3	55.2	16.1	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.621	1968
2	0.669	2019
3	0.661	2019

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

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	1260	100.000
2		ONE HOUR	✓	852	100.000
3		ONE HOUR	✓	754	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To		
	1	2	3
1	45	576	639
2	674	1	177
3	528	226	0

Vehicle Mix

Heavy Vehicle Percentages

From	To		
	1	2	3
1	6	18	23
2	19	0	5
3	18	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.77	10.12	3.8	B	1156	1734
2	0.62	7.22	1.9	A	782	1173
3	0.56	6.10	1.4	A	692	1038

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	949	237	170	1863	0.509	944	935	0.0	1.2	4.676	A
2	641	160	512	1676	0.383	639	602	0.0	0.7	4.006	A
3	568	142	540	1663	0.341	565	611	0.0	0.6	3.690	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1133	283	204	1842	0.615	1130	1119	1.2	1.9	6.049	A
2	766	191	613	1609	0.476	765	720	0.7	1.0	4.930	A
3	678	169	646	1592	0.426	677	732	0.6	0.8	4.428	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1387	347	249	1813	0.765	1380	1369	1.9	3.7	9.798	A
2	938	235	749	1518	0.618	935	880	1.0	1.8	7.111	A
3	830	208	790	1497	0.555	828	894	0.8	1.4	6.042	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1387	347	250	1813	0.765	1387	1373	3.7	3.8	10.116	B
2	938	235	753	1515	0.619	938	884	1.8	1.9	7.216	A
3	830	208	793	1495	0.555	830	898	1.4	1.4	6.098	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1133	283	205	1841	0.615	1140	1125	3.8	2.0	6.226	A
2	766	191	619	1605	0.477	769	726	1.9	1.1	5.006	A
3	678	169	650	1590	0.426	680	738	1.4	0.8	4.470	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	949	237	171	1862	0.509	951	941	2.0	1.3	4.759	A
2	641	160	516	1673	0.383	643	606	1.1	0.7	4.050	A
3	568	142	543	1660	0.342	569	616	0.8	0.6	3.719	A