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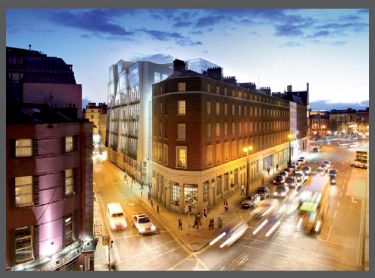




TRAFFIC AND TRANSPORT ASSESSMENT

PROPOSED MIXED-USE DEVELOPMENT AT THE FORMER GALLAHER'S SITE, AIRTON ROAD, TALLAGHT, DUBLIN 24

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PROJECT: **PROPOSED MIXED-USE DEVELOPMENT AT THE FORMER GALLAHER'S SITE, AIRTON ROAD, TALLAGHT, DUBLIN 24**

PROJECT NO. **19.136**

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barrett mahony

TRAFFIC AND TRANSPORT ASSESSMENT FOR PROPOSED MIXED-USE DEVELOPMENT, THE FORMER GALLAHER'S SITE, AIRTON ROAD, TALLAGHT, DUBLIN 24

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1.0 INTRODUCTION

1.1 GENERAL DESCRIPTION

Barrett Mahony Consulting Engineers (BMCE) have been commissioned by Greenleaf Homes Ltd to provide to provide a Traffic and Transport Assessment (TTA) for the proposed residential development at Airton Road, Dublin 24. This TTA is to be read in conjunction with the MMP prepared by BMCE which accompanies this submission.

The proposed development will consist of 502 No. apartments.

It is proposed to provide 202 No. car parking spaces, 117no. accessing onto Airton Road and 85 No. accessing onto Greenhills Road.

It is proposed to provide 584 No. cycle parking spaces, 1no. per unit with an additional amount for visitors to the site.

1.2 INITIAL CONSULTATION WITH SOUTH DUBLIN COUNTY COUNCIL

South Dublin County Council (SDCC) made a request to BMCE that the analysis within the required TTA examine the traffic impact of the change of use of industrial land immediately north and south of Airton Road to residential usage.

Figure 1.1 details the lands considered by BMCE to be relevant to such an evaluation (coloured in green in Figure 1.1) totalling 10.25 ha.

The nearby site, currently within the planning system, SHD3ABP-305763-19, comprising 328 No. apartment units and 184 No. car parking spaces will also be considered within the proposed traffic and transport assessment.

The subject site is shown in red:

Figure 1-1: Lands / proposed developments to be considered within TTA for proposed development

In order to provide consistency with the adjacent development currently under consideration by An Bord Pleanala, the following junctions will be analysed within this TTA:

- Greenhills Road / Airton Road Signalised junction
- Belgard Road / Airton Road signalised junction
- Belgard Road / Belgard Square North , TUDublin roundabout junction
- Airton Road / Proposed Development Priority junction (Development Entrance No. 1)
- Greenhills Road / Proposed Development Priority junction (Development Entrance No. 2)

Traffic surveys at the 3 No. relevant existing junctions were carried out on Thursday 16th May 2019, refer to Figure 1-3.

The traffic assessment within this report will analyse the existing flows on the major adjacent intersections, detail the existing level of operational efficiency at these locations, and will also assess the impact that the flows predicted to be generated by both the proposed and adjacent / planned developments will have on these operational efficiencies.

The information from the survey of the Greenhills Road / Airton Road signalised junction will provide network flows at the 2 No. development entrances to be analysed within the TTA.

This report will assume that the proposed development with open in 2023.

The analysis within this report is undertaken on the basis of 1.4% annual growth in network traffic over the period 2019 to 2030 period, decreasing to 0.4% in the 2030 to 2038 period, consistent with the 'medium growth' assumption for the four planning authorities within the Dublin city area as detailed within the 2016 Transport Infrastructure Ireland document 'Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections', PE-PAG-02017 October 2016.

1.3 PURPOSE OF TRAFFIC AND TRANSPORT ASSESSMENT

The purpose of this Traffic and Transport Assessment is to assess the current operational efficiency of the existing transport environment and provide details of the assessment undertaken to identify the level of transport impact resulting from the proposed residential development. The scope of the assessment covers both transport and related sustainability issues, including means of vehicular access, pedestrian, cyclist and local public transport connections. These related issues are dealt with in more detail in the mobility management plan. The principal objective of the report is to quantify any level of impact across the local road network and subsequently ascertain both the existing and future operational performance of the local road network.

1.4 METHODOLOGY UTILISED WITHIN TRAFFIC AND TRANSPORT ASSESSMENT

This report was developed with guidance from the documents listed below;

- 'Traffic and Transport Assessment Guidelines' (May 2014) National Road Authority;
- 'Traffic Management Guidelines' Dublin Transportation Office & Department of the Environment and Local Government (May 2003);
- 'Guidelines for Traffic Impact Assessments' The Institution of Highways and Transportation;
- Draft Tallaght Centre Draft Local Area Plan 2019; and
- South Dublin County Council Development Plan 2016-2022.

The methodology utilised can be divided into the following 5 No. phases, in compliance with the Traffic and Transport Assessment Guidelines referenced above:

Audit of existing network

The report establishes the existing level of accessibility at present pertaining to the subject site in terms of the level of access available by walking, cycling and public transport.

Completion of Traffic Counts

The report details Junction traffic counts undertaken at the locations agreed with SDCC and analysed in order to assess existing operating efficiencies in the vicinity of the proposed development.

The report details Junction traffic counts undertaken at the locations agreed with SDCC and analysed in order to assess existing operating efficiencies in the vicinity of the proposed development.

Estimation of Trip Generation Volumes
A trip generation exercise has been carried out to establish an estimate for the level of vehicle trips generated by the proposed residential development.

Distribution of Generated Trips
Based upon both the existing observed flow patterns in the local road network at the identified relevant junctions, the trips predicted to be generated by the proposed development are distributed / assigned onto the local road network.

Network Analysis detailing Impact of Generated Volumes
Junction analysis models are utilised to analyse the impact of the estimated trip generation volumes on the operational efficiency of the junctions selected for detailed analysis.
This analysis is undertaken for both the year of opening of the proposed development and the 'design year' fifteen years thereafter.

This methodology is consistent with the following sections required within a basic Traffic and Transport Assessment for compliance with the 2014 TTA Guidelines:

- Introduction / Existing conditions
- Extent of proposed development (including existing and future public transport and walking / cycling facilities)
- Vehicular Trip Generation
- Vehicular Trip Distribution / Assignment to network
- Impact on road network of trips generated by proposed development

1.5 SITE ACCESS TO ROAD NETWORK

The site is located on the corner of Airton Road and Greenhills Road, with entrances off both these links.

The Airton Road entrance is 110 metres west of the Airton Road / Greenhills Road signalised junction.

The Greenhills Road entrance is 170 metres south of the Airton Road / Greenhills Road signalised junction.

A site location map in contained within Figure 1-2 below.

Appendix 1 contains an overall site plan of the proposed development, including details of the vehicular accesses onto Airton Road and Greenhills Road.

Figure 1-2: Site location map

Sightlines at both entrances are good in both directions for exiting drivers, complying with the requirements of DMURS, i.e. a 45-metre sightline is available from a 2 metre set-back within a 50 km/h speed zone.

A site location map, indicating the location of the 3 No. traffic surveys (numbered 1 to 3), is shown within Figure 1-3.

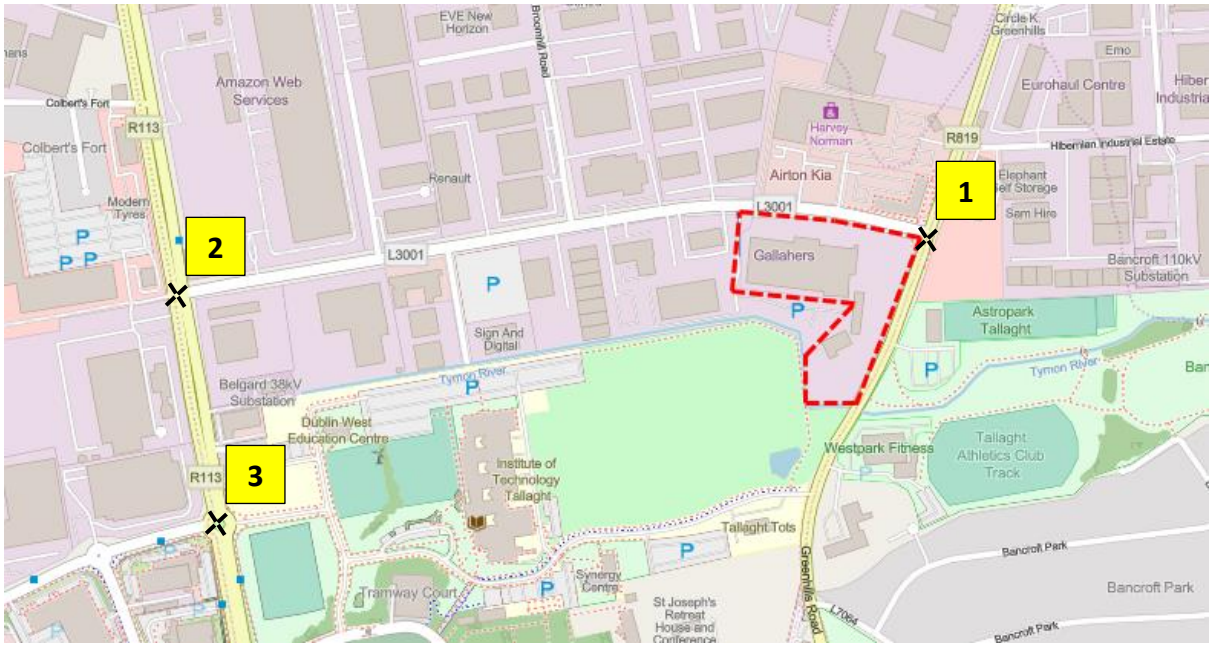

Figure 1-3: Location of 3 No. traffic surveys

1.6 SCOPE OF THE REPORT

This report is structured in order to address in detail the 5 No. stages of stated methodology as detailed within section 1.4 above.

Section 2 provides details of the receiving environment, detailing existing conditions pertaining at the site of the proposed development and the surrounding local road network.

Section 3 details the planning development and control framework associated with the proposed site, including relevant SDCC planning policy and SDCC development control policy regarding parking for cycling and cars.

Section 4 details the trip generation, trip distribution process, assigning the estimated flows to the junctions chosen for analysis

Section 5 details an analysis of the traffic impact of the proposed and adjacent / planned development on the development entrances and nearby critical junctions for the existing situation, the estimated year of opening, and within the design years, five and fifteen years thereafter..

Section 6 makes some concluding comments regarding the sustainability of the proposed project in transport impact terms.

2.0 RECEIVING ENVIRONMENT

2.1 LOCATION OF PROPOSED DEVELOPMENT

The general location of the subject site in relation to the surrounding road network is illustrated in Figure 1-1 & Figure 1-2above which detail the extent of the subject site boundary and neighbouring lands.

2.2 EXISTING TRANSPORT INFRASTRUCTURE

ROAD NETWORK

The site is located on the corner of Airton Road and Greenhills Road.

The Draft Tallaght Town Centre LAP details a robust route hierarchy as follows:
N81 - ARTERIAL ROUTE
Belgard Road and Greenhills Road - PRIMARY ROUTES linking into the N81 Arterial Route
Airton Road - SECONDARY ROUTE providing the main connections between the primary routes

The above street typology is designed in accordance with the requirements of the Design Manual for Urban Roads and Streets (DMURS) (2013).

EXISTING PEDESTRIAN AND CYCLE NETWORK

Figure 2-1 details the excellent pedestrian connectivity from the proposed development to Tallaght Town centre, The LUAS Tallaght Town centre and Belgard Road LUAS stops, TU Dublin (Tallaght campus) and Greenhills Road.

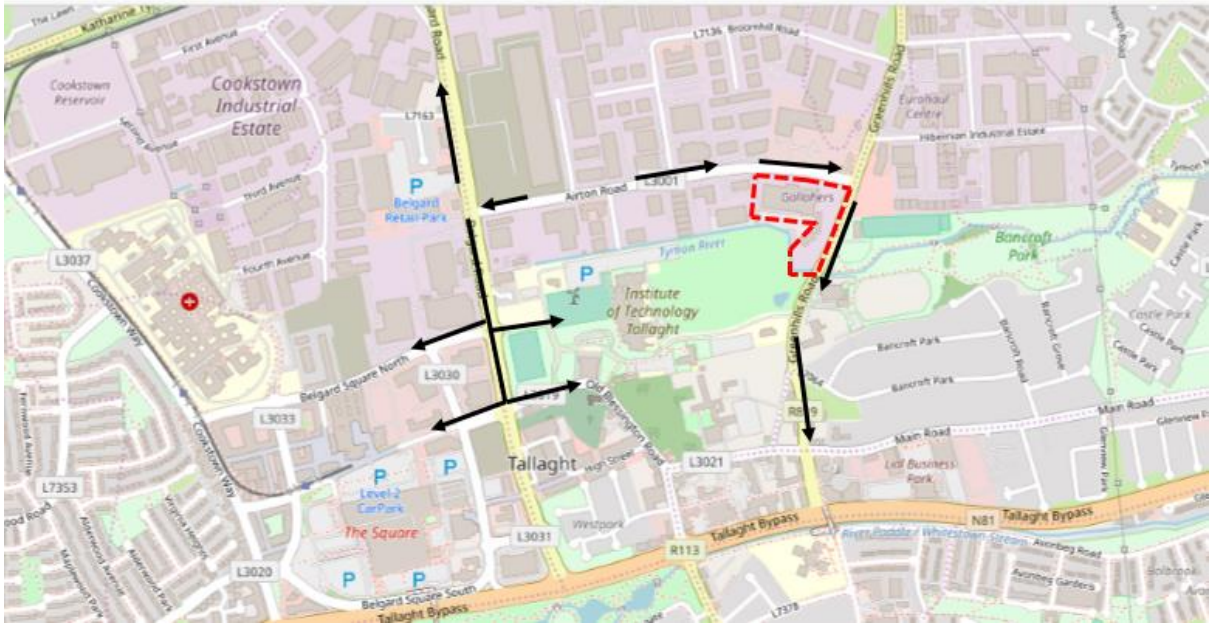

Figure 2-1: Pedestrian network in vicinity of subject site

Figure 2-2 contains the map of existing cycle facilities for the area close to the subject site as detailed within the GDA Cycle Plan.

Figure 2-2: Existing cycle facilities close to Belgard Road / Airton Road

The existing facilities consist mainly of the cycle lanes within the bus lanes along Belgard Road and Greenhills Road in addition to the cycle lane following the LUAS Red Line along Katherine Tynan Road towards the Naas Road.

Figure 2-2 confirms the relatively comprehensive cycle network presently in existence close to the subject site.

PUBLIC TRANSPORT - BUS

The subject site is currently connected to the city centre and nearby suburbs by 3 No. major Dublin Bus routes together with the LUAS Cross City Line.

The Dublin Bus services in the area provide direct linkage to the city, the Route 27 (high-frequency) along Greenhills Road towards the city centre, the 76 Route along Belgard Road towards Chapelizod, and the 54a linking Tallaght to the city centre.

The frequency of each route during the morning peak is detailed within Table 2-1.

Route	**Origin**	**Destination (*via city centre*)**	**Frequency (08:00 – 09:00)**
Route 27	Jobstown	Clare Hall	6 per hour

Route 76	Tallaght (the Square)	Chapelizod	3 per hour
Route 54a	Kiltipper Way	Pearse Street	3 per hour

Table 2-1: Frequency of existing bus routes serving subject site

Figures 2-3 and 2-4 details the line for each of the three above routes.

Figure 2-3– Details of 27 route into south city area

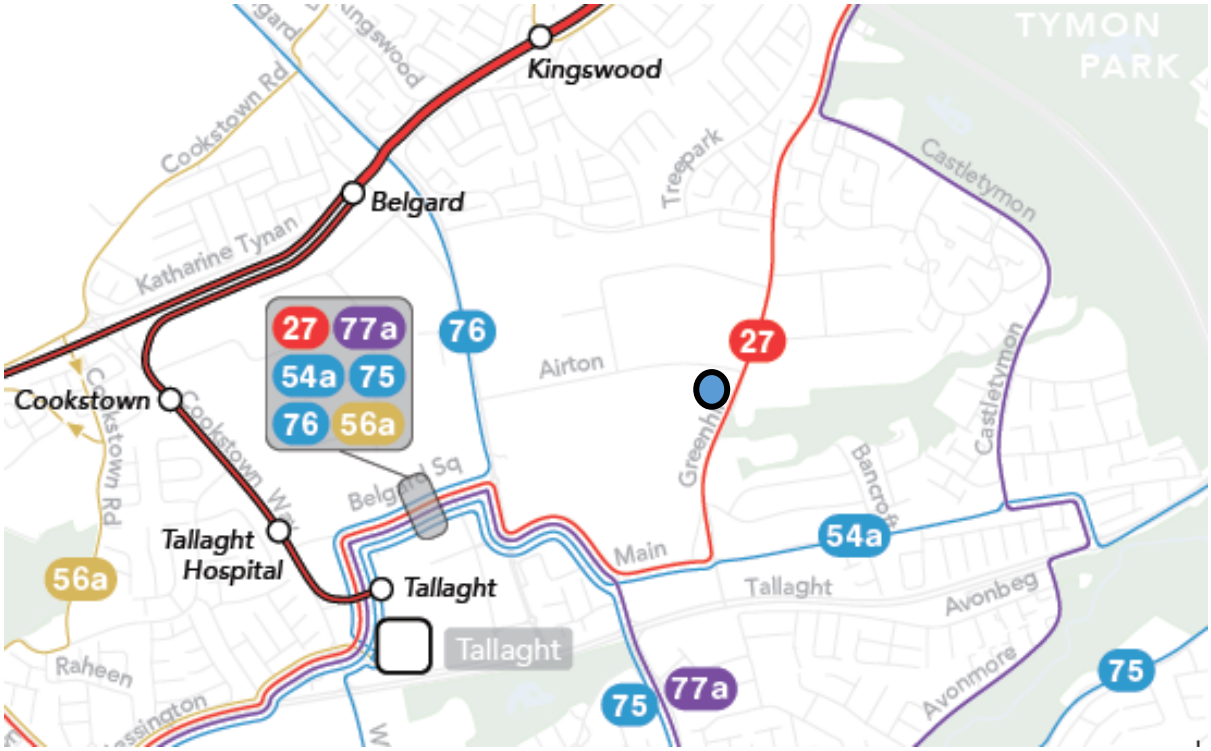

Figure 2-4: Map showing both the 27, 54a and 76 routes within the vicinity of the subject site

PUBLIC TRANSPORT - LUAS SERVICE

The LUAS Red Line is one of the two lines of Dublin's LUAS light rail system. The Red Line allows for passenger transfers at O' Connell Street / Abbey Street to the Cross-City Line services, allowing commuters to access Broombridge as an interchange station to reach outer suburbs such as Castleknock and Ongar.

The LUAS service is a reliable, sustainable transport option. The frequency of service is a train every 5/6 minutes. There are two LUAS stops close to the subject site – Tallaght (The Square) and Belgard.

Currently there is no provision to increase the number of trams for the red line, however the current frequency of one train every 5/6 minutes should be more than adequate for residents of the proposed development.

Figure 2-5 contains a route map for the LUAS Red line, plus details of its intersection points with the Green Line, and the onward linkage to Broombridge.

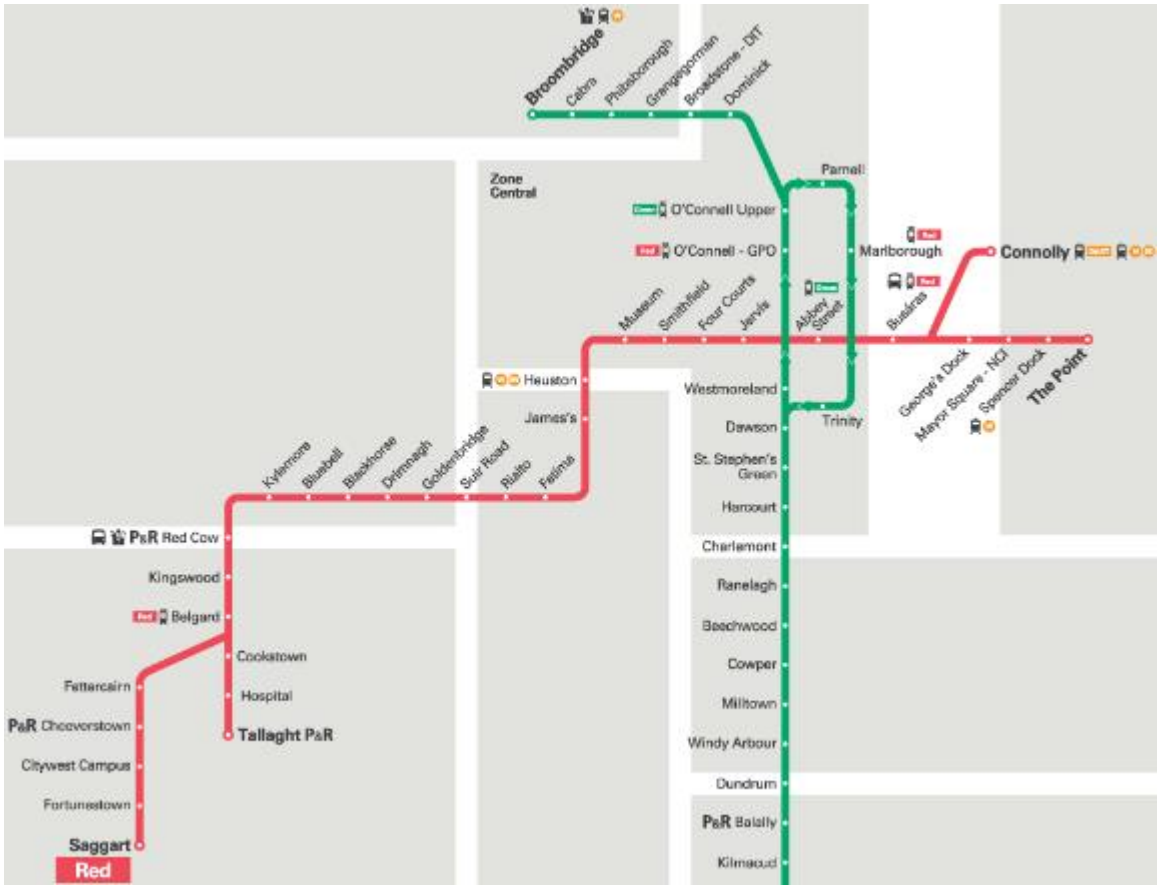

Figure 2-5: LUAS Red Line and linkage to Green Line

2.3 PROPOSED TRANSPORT INFRASTRUCTURE

CYCLE NETWORK PROPOSALS

Figure 2-6 details the network improvements proposed within the GDA cycle plan.

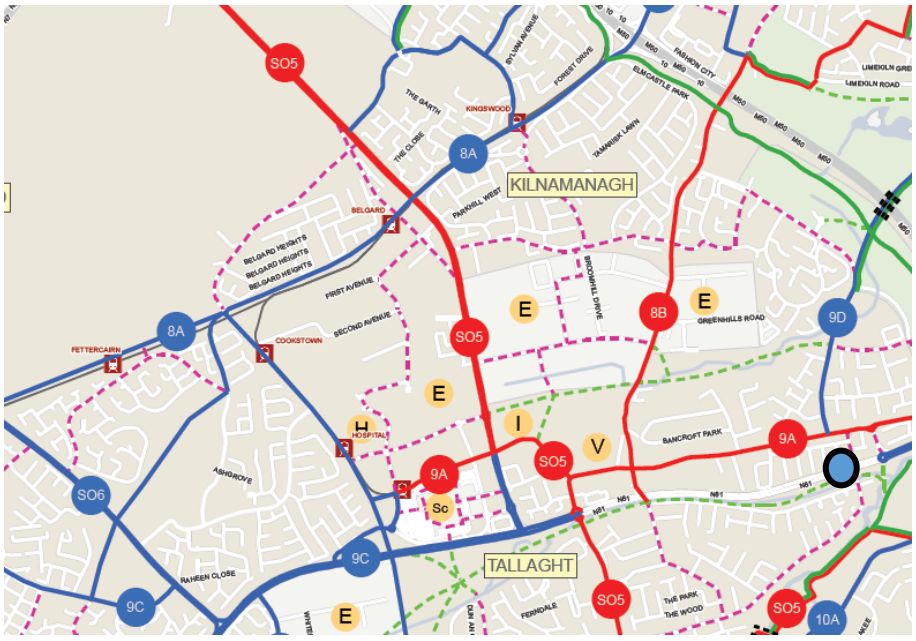

Figure 2-6: Proposed cycle facilities close to close to Belgard Road / Airton Road (GDA cycle plan)

A primary cycle route is planned along both Belgard Road (SO5) and Greenhills Road (8B), with the route along the LUAS Red Line (8A) designated as a secondary route.

Route 8 links South Great Georges Street in the city centre to Sundrive Road via the Coombe, branching onto the 8A route which terminates in Citywest / Fortunestown via Belgard and Ballymount, and the 8B route which proceeds to Tymon Park, Greenhills Road.

Route SO5 is an orbital route linking Dundrum and Tallaght via Ballyboden.

To accommodate this proposed usage of bicycles to travel in and out of both nearby suburbs and the south city area, 502 No. cycle parking spaces have been provided at the site.

BUS PROPOSALS

Future bus plans involve the "Dublin Area Bus Network Redesign" (Bus Connects) which is an attempt to overhaul the current bus system in the Dublin region by developing new bus corridors, new bus routes, increasing services and new buses.

Figure 2-7 provides details the local network improvements proposed by the Bus Connects project.

The D2 Branch of the D Spine is identical to today's Route 27, with frequent service to Crumlin and on into the city centre.

The W2 Orbital resembles the existing Route 76, but with frequency increased to every 15 minutes all day to ensure easy connections. This is the most direct service to Clondalkin, Neilstown and Liffey Valley.

The A2 line, a radial spine, will run frequently to Templeogue and then joins the A Spine going to the city centre, so that it provides direct service from Tallaght to Terenure, Rathgar, and Rathmines. This achieves a much faster access to these major centres in the inner southwest of the city centre.

Route 240 is a frequent circulator in the form of a two-way loop.

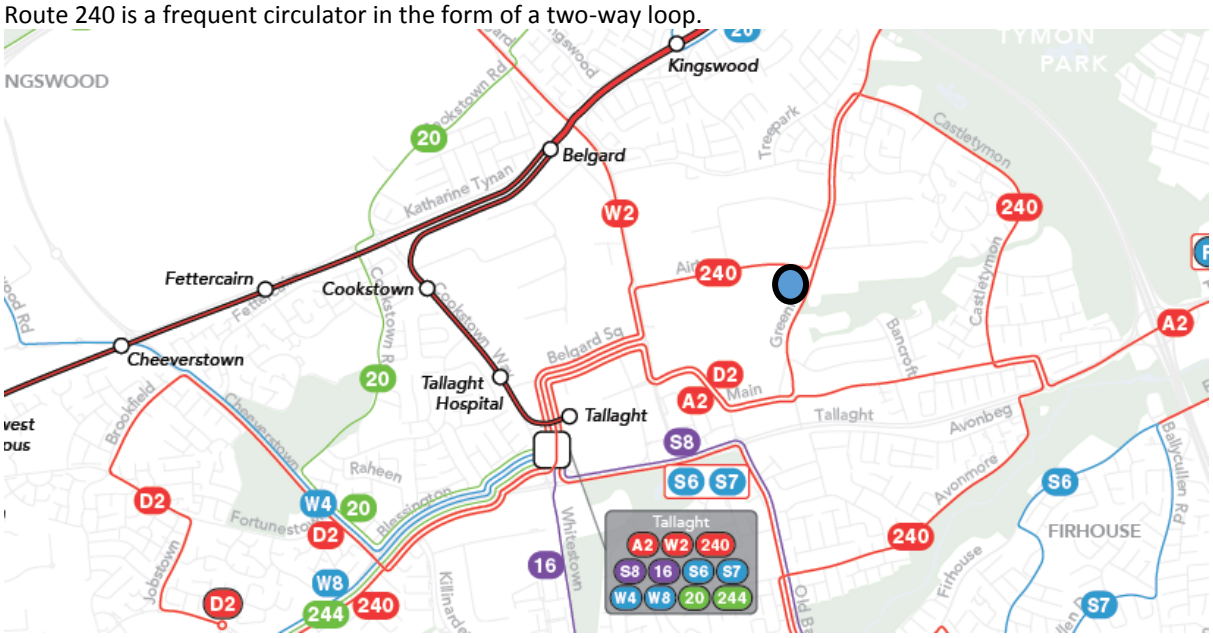

Figure 2-7: New routes proposed by the Bus Connects system

2.4 OVERALL COMMENT ON RECEIVING ENVIRONMENT

In conclusion, it must be stated that the receiving environment fits very positively with the proposed residential development. The existence of significant public transport facilities – the LUAS Red Line within walking distance of the subject site, in addition to the 27, 54a and 76 buses running in close proximity to the proposed development, excellent pedestrian facilities, linking the site to nearby suburbs and the south city centre, plus the prospect of planned upgrades to the cycling and bus network will result in a development which will be served by significant sustainable transport modes both for local trips and trips to nearby urban / suburban centres.

3.0 PLANNING DEVELOPMENT AND CONTROL FRAMEWORK

3.1 COUNTY AND LOCAL DEVELOPMENT PLANS

3.1.1 SOUTH DUBLIN COUNTY DEVELOPMENT PLAN 2016 – 2022

This document provides the broad framework for the SDCC administrative area. In the context of the proposed residential development, the following transport and mobility objectives are relevant:

- To support the delivery of sufficient public transport and road capacity to facilitate sustainable new development in the County. (TM1 Objective 4)
- To generate additional demand for public transport services through integrated land use planning and maximising access to existing and planned public transport services throughout the network. **(**TM2 Objective 3)
- To ensure that connectivity for pedestrians and cyclists is maximised in new communities and improved within existing areas in order to maximise access to local shops, schools, public transport services and other amenities, while seeking to minimise opportunities for anti-social behaviour and respecting the wishes of local communities. (TM3 Objective 2)

The existing and proposed transport infrastructure associated with the proposed development, as detailed above within section 2, is seen as totally consistent with the achievement of the above objectives for sustainable transport provision for future commuters.

3.1.2 TALLAGHT TOWN CENTRE DRAFT LOCAL AREA PLAN (2019)

This document provides local guidance for the Tallaght Town Centre area, and sets out relevant transport-related objectives which include. Figure 3.1 indicates that the proposed development is located within the Broomhill area.

Figure 3-1: Urban Function within Tallaght Town Centre LAP

The Draft LAP states that Broomhill is an attractive consolidated, diversified and intensified place for business and employment that is better connected to surrounding places. Emerging residential uses along primary frontages.

Thus, the proposed development, adjacent to the Airton Road / Greenhills Road primary frontage, is entirely consistent with the urban function of the Broomhill area as stated within the Draft LAP (see proposed residential areas within Broomhill in Figure 3-2).

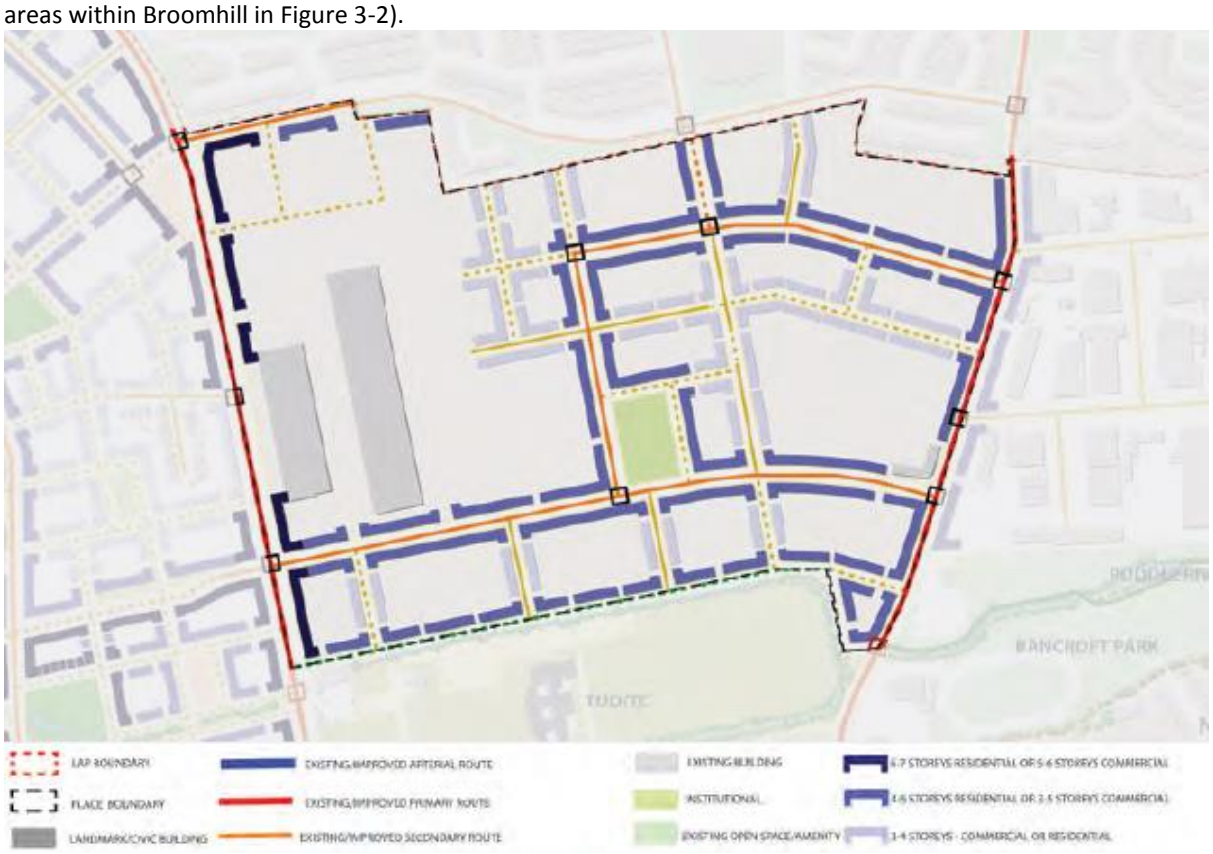

Figure 3-2: Extract from Tallaght Draft LAP: Permitted residential development area within Broomhill

The Draft LAP states that Broomhill will transition to a mixed-use area primarily focussed on higher value commercial uses.

The proposed residential areas indicated within the Draft LAP as detailed within Figure 3-2 is consistent with the lands identified within Figure 1-1 within this report.

The areas coloured green within Figure 1-1 will be assumed to be transferred from industrial use to residential use by 2038, and the traffic impact of this change of use will be assessed for the design year (opening year plus 15 in 2038).

3.2 DEVELOPMENT CONTROL

3.2.1 CAR AND CYCLE PARKING REQUIREMENTS AS PER SOUTH DUBLIN COUNTY DEVELOPMENT PLAN 2016 - 2022

PROVISION VERSUS MAXIMUM REQUIREMENTS

Tables 3-1 and 3-2 below detail the maximum car and bicycle parking standards for South Dublin County Council based on the rates contained within their 2016 - 2022 Development Plan Written Statement for the proposed residential development (note: the high frequency 27 Bus Route runs adjacent to the apartment site - Zone 2 car parking rates apply):

Development type	Area / units	Maximum car parking standards	Maximum parking required
Apartments 1-bed	197	0.75 per unit	150
Apartments 2-bed	257	1.00 per unit	253
Apartments 3-bed	48	1.25 per unit	60
TOTAL			463
		Bike parking standards	Parking required
Apartments	502 No.	1 private secure bicycle space per 5 No. units (long term) + 1 visitor bicycle space per 10 units (short term)	101 + 50 = 151

Table 3-1: Parking required under South Dublin County Development Plan Standards for apartment component of the development based on Zone 2 Car-Parking Standard

It is proposed to provide 202 No. car parking spaces for the residential development, equating to 0.4 car parking spaces per apartment unit. The level of provision for the apartment component is 40% of the quantum required under the South Dublin County Development Plan maximum standards.

However, this provision must also be viewed in relation to the New Apartment Guidelines, the level of compliance with which is detailed within the section immediately below.

In terms of cycle parking provision, it is intended to provide 584 No. cycle parking spaces, 385% of the requirements stated within the South Dublin Development Plan, equating to 1 No. space per unit.

3.2.2 CAR PARKING REQUIREMENTS FOR THE RESIDENTIAL COMPONENT BASED ON NEW APARTMENT GUIDELINES

Sustainable Urban Housing: Design Standards for New Apartments (Guidelines for Planning Authorities) was published by the Department of Housing, Planning and Local Government in March 2018.

Chapter 4 of this report refers specifically to revised car parking requirements for new apartment developments.

Its recommendations can be summarised as follows:
The quantum of car parking is dependent primarily on the location of the subject site. Three categories of location are defined:

- *Central and/or Accessible Urban Locations*:
  Apartments in central locations that are well served by public transport, in which situation car parking provision to be wholly eliminated or substantially reduced. These locations are most likely to be in cities, within 15 minutes walking distance of city centres or centrally located employment locations. These locations include sites within 10 minutes walking distance of DART, commuter rail or Luas stops or within 5 minutes walking distance of high frequency (min 10 minute peak hour frequency) bus services.

- *Intermediate Urban Locations*
  This applies to apartments in suburban/urban locations served by public transport or close to town centres or employment areas and particularly for housing schemes with more than 45 dwellings per hectare. For this category, planning authorities may consider a reduced overall car parking standard.

- *Peripheral and/or Less Accessible Urban Locations*
  Apartments in relatively peripheral or less accessible urban locations will require one car parking space per unit, together with an element of visitor parking, such as one space for every 3-4 apartments.

It is reasonable to assume that the subject site comes within the first category – an accessible urban location, within the Greater Dublin area, located within 400 metres of the high frequency 27 bus route.

The proposed car parking provision for the apartment component of the development, at 202 No. spaces, equates to 0.4 No. car parking spaces per residential unit.

3.3 COMMENT ON PARKING PROVISION

Given the centrality of the location for the proposed development under the guidance within the New Apartment Guidelines, the car parking provision is seen as totally consistent with its designation, is sustainable given the excellent public transport and soft mode links, with the provision of car club spaces further reducing traffic impact on key nearby junctions at peak times.

The cycle parking provision is equal to 1 No. space per unit and very generous relative to the minimum requirements within the SDCC Development Plan 2016 - 2022.

4.0 TRAFFIC SURVEYS ON LOCAL ROAD NETWORK AND TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT FOR PROPOSED DEVELOPMENT

4.1 INTRODUCTION

The traffic impact of the proposed development is derived by detailing the existing flows on the local road network and then estimating the additional trips generated by both the proposal, the recent application located at the junction of Belgard Road and Airton Road, and the re-zoning of adjacent industrial lands as residential.

The following analysis takes the existing, day of opening and design year flows on the network and gauges the extent to which the superimposed flows from the proposed and projected development flows will affect the efficiency of the local road network.

4.2 TRAFFIC SURVEYS

Traffic surveys were carried out on Thursday 16th May 2019 at the following junctions specified by South Dublin County Council

- Greenhills Road / Airton Road Signalised junction
- Belgard Road / Airton Road signalised junction
- Belgard Road / Belgard Square North, TUDublin roundabout junction

The location of the proposed development relative to the 3 No. nearby surveyed junctions is detailed within Figure 1-3.

Given that the proposed development is residential, peak flows will typically occur on weekdays, with peak flows typically occurring between 7am and 9am in the morning and between 4pm and 6pm in the evening.

The surveys were carried out over a 12-hour period between 0700 and 1900 in order to ascertain the peak hour flows for all traffic movements at the 3 No. junctions.

The surveys indicated that the weekday morning peak occurred between 0800 and 1000 with the evening peak occurring between 1600 and 1800 – these were observed to be the timeframes during which the junctions were most heavily loaded. The following analysis is based on these peak periods.

On the basis of the results of both the surveys and assumptions regarding when peak flows from the generated traffic will occur, the morning peak hour has been taken as 0800 to 0900, with the evening peak taken to occur between 1700 and 1800.

The survey data is provided within Appendix 2.

The existing flows at the 3 No. junctions for the morning and evening peak hours are detailed within Diagrams 1 and 2 respectively within Appendix 3.

4.3 TRIPS GENERATED BY CANDIDATE SITE

The proposed development consists of 502 No. apartments

TRICS typically gives the following weekday morning and evening peak trip rates for apartments where parking provision is not generally greater than 1 No. space per dwelling unit:

		Weekday AM		Weekday PM	
		IN	OUT	IN	OUT
Apartments	Trips/Unit	0.044	0.18	0.17	0.066

Table 4-1: Peak hour trip rates for proposed development site

The above TRICS trip rates give rise to the following weekday morning and evening peak trip rates for apartments:

		Weekday AM		Weekday PM	
	Units (No.)	IN	OUT	IN	OUT
Apartments	502	22	90	85	33

Table 4-2: Peak hour flows generated by proposed development site

(See Appendix 4 for more detailed information.)

4.4 TRIPS GENERATED BY NEARBY SUBMITTED DEVELOPMENT (SHD3ABP-305763-19)

The subject site consists of the following development types:

- 328 No. apartments,
- 712 m² GFA retail / commercial / café space, and
- 345 m² GFA crèche.

Table 4-3 below details the total flows predicted to be generated by the total proposed development as per the submitted TTA:

	Weekday AM		Weekday PM	
	IN	OUT	IN	OUT
Residential	14	66	55	21
Retail / commercial	13	12	16	18
Crèche	9	8	4	4
Total generated flows	36	86	75	43

Table 4-3: Total flows generated by the nearby proposed development

Diagrams 3 and 4 within Appendix 3 details the assumed distribution of flows generated by the planned nearby development.

4.5 NET TRIPS GENERATED BY PROPOSED CHANGE OF USE OF LANDS NEARBY TO AIRTON ROAD

4.5.1 INTRODUCTION

This section assesses the net AM and PM peak trips generated by the change of use of industrial land immediately north and south of Airton Road to residential usage as detailed within Figure 1-1.

Based on the information within Figure 1.1, based on information extracted from the Tallaght Town Centre Draft LAP, a total of 10.25 ha. Of industrial land will be considered as relevant.

It is also assumed that, if this land were to change to a residential usage, BMCE have estimated that approximately 650 No. apartment units could be accommodated on the 10.25 Ha of land presently accommodating industrial development.

4.5.2 TRIPS GENERATED BY INDUSTRIAL LANDS

TRICS typically gives the following weekday morning and evening peak trip rates for an industrial estate in a suburban / edge of city area as detailed within Table 4-4:

		Weekday AM		Weekday PM	
		IN	OUT	IN	OUT
Industrial lands	Trips/ha site area	11.3	4.6	2.9	10.5

Table 4-4: Peak hour trip rates for existing industrial lands north and south of Airton Road

The above TRICS trip rates give rise to the following weekday morning and evening peak trip rates for the existing industrial lands immediately north and south of Airton Road as detailed within Table 4-5:

		Weekday AM		Weekday PM	
	Area (ha.)	IN	OUT	IN	OUT
Industrial lands	10.25	115	47	30	108

Table 4-5: Peak hour flows generated by existing industrial lands north and south of Airton Road

(See Appendix 4 for more detailed information.)

4.5.3 PROJECTED TRIPS GENERATED BY RESIDENTIAL UNITS ON EXISTING INDUSTRIAL LANDS

It is projected that the existing industrial lands could house 650 No. apartments.

TRICS typically gives the following weekday morning and evening peak trip rates for apartments where parking provision is not generally greater than 1 No. space per dwelling unit as detailed within Table 4-6 (identical to rates detailed within Table 4-1):

		Weekday AM		Weekday PM	
		IN	OUT	IN	OUT
Apartments	Trips/Unit	0.044	0.18	0.17	0.066

Table 4-6: Peak hour trip rates for proposed development site

The above TRICS trip rates give rise to the following weekday morning and evening peak trip rates for apartments as detailed within Table 4-7:

		Weekday AM		Weekday PM	
	Units (No.)	IN	OUT	IN	OUT
Apartments	1025	45	184	174	67

Table 4-7: Peak hour flows generated by proposed development site

4.5.4 NET INCREASES / DECREASES IN FLOW PROJECTED FROM CHANGE OF LAND USE

Table 4-8 details the projected net increases / decreases resulting from the change of use of the 10.25 ha of existing industrial lands immediately north and south of Airton Road to residential usage:

		Weekday AM		Weekday PM	
	Units / Ha	IN	OUT	IN	OUT
Projected Apartment flows	1025 units	45	184	174	67
Estimated existing industrial lands flows	10.25 Ha	115	47	30	108
Net flows	-	-70	+137	+144	-41

Table 4-8: Net Peak hour flows generated by change of use of industrial lands immediately north and south of Airton Road

4.6 DISTRIBUTION OF GENERATED FLOWS FROM PROPOSED AND SUBMITTED / PLANNED DEVELOPMENTS

4.6.1 PROPOSED DEVELOPMENT

The proposed development has 2 No. entrances, one on Airton Road and one on Greenhills Road. 58% of the parking spaces access the local road network via the Airton Road entrance (117 No. spaces), with 42% of the parking spaces access the local road network via the Greenhills Road entrance (85 No. spaces).

This 58:42 split is thus used for the 2 No entrances as detailed within Table 4-9:

		Weekday AM		Weekday PM	
	Car parking spaces	IN	OUT	IN	OUT
Airton Road access	58%	13	52	49	19
Greenhills Road access	42%	9	38	36	14
TOTAL FLOWS	100%	22	90	85	33

Table 4-9: Peak hour flows generated by proposed development site at Airton Road and Greenhills Road entrances

The distribution of generated flows from both the subject site and the adjacent lands will be based on the pattern of existing traffic movement In the vicinity as observed in the traffic surveys undertaken for this application.

MORNING PEAK

Airton Road Entrance

From the traffic survey results, it is observed that eastbound and westbound flows along Airton Road are split 60:40 in favour of eastbound flows.

40% of traffic exiting the subject site will do so towards the Belgard Road / Airton Road signalised junction, with 60% exiting towards the Greenhills Road / Airton Road signalised junction.

50% of traffic entering the subject site (non-peak direction) will do so from the Belgard Road / Airton Road signalised junction, with 50% entering from the Greenhills Road / Airton Road signalised junction.

Of the 60% exiting the subject site towards the Greenhills Road / Airton Road signalised junction, it can be assumed that 60% will exit left onto Greenhills Road, with 40% exiting right

Of the 50% of traffic entering the subject site (non-peak direction) from the Greenhills Road / Airton Road Road signalised junction, it can be assumed that 50% will enter turning right from Greenhills Road North, while 50% will enter turning left off Greenhills Road South.

Of the 40% exiting the subject site towards the Belgard Road / Airton Road junction, it can be assumed that 60% will turn left from Airton Road onto Belgard Road South, with 40% turning right onto Belgard Road North, with all southbound traffic continuing southbound through the Belgard Square roundabout.

Of the 50% entering from the Belgard Road / Airton Road signalised junction (non-peak direction), 60% are assumed to enter from Belgard Road North and 40% from Belgard Road South, with all traffic entering from Belgard Road South assumed to have arrived having driven northwards straight through the Belgard Square roundabout.

Greenhills Road Entrance

40% of traffic exiting the subject site will do southwards towards the N81, with 60% exiting northwards towards the Greenhills Road / Airton Road signalised junction.

50% of traffic entering the subject site (non-peak direction) will do so from the Greenhills Road / Airton Road signalised junction, with 50% entering from the south (N81).

Of the 60% exiting the subject site towards the Greenhills Road / Airton Road signalised junction, it can be assumed that 35% will exit left onto Airton Road, with 65% continuing straight along Greenhills Road northwards

Of the 50% of traffic entering the subject site (non-peak direction) from the Greenhills Road / Airton Road Road signalised junction, it can be assumed that 30% will enter turning right from Airton Road, while 70% will enter southwards along Greenhills Road.

Traffic entering / existing from Airton Road will follow the same distributions through the Belgard Road / Airton Road and Belgard Square junctions as detailed for the Airton Road Entrance.

EVENING PEAK

Airton Road Entrance

From the traffic survey results, it is observed that eastbound and westbound flows along Airton Road are split 60:40 in favour of westbound flows.

40% of traffic entering the subject site will thus do so from the Belgard Road / Airton Road signalised junction, with 60% entering from the Greenhills Road / Airton Road signalised junction.

50% of traffic exiting the subject site (non-peak direction) will do towards the Belgard Road / Airton Road signalised junction, with 50% exiting to the Greenhills Road / Airton Road signalised junction.

Of the 60% of traffic entering the subject site from the Greenhills Road / Airton Road signalised junction, it can be assumed that 60% will enter turning right from Greenhills Road North, with 40% entering turning left from Greenhills Road South.

Of the 50% exiting the subject site towards the Greenhills Road / Airton Road, it can be assumed that 50% will turn onto Greenhills Road South, with 50% turning right onto Greenhills Road North.

Of the 40% entering the subject site from the Belgard Road / Airton Road signalised junction, it can be assumed that 50% will enter from Belgard Road North, with 50% entering from Belgard Road South, with all traffic entering from Belgard Road South assumed to have arrived having driven northwards straight through the Belgard Square roundabout.

Of the 50% exiting towards the Belgard Road / Airton Road signalised junction, 50% are assumed to exit towards Belgard Road North and 50% towards Belgard Road South, with all traffic exiting towards Belgard Road South assumed continuing northwards straight through the Belgard Square roundabout.

Greenhills Road Entrance

60% of traffic entering the subject site will do so from the Greenhills Road / Airton Road signalised junction, with 40% entering from the south (N81).

50% of traffic exiting the subject site (non-peak direction) will do southwards towards the N81, with 50% exiting northwards towards the Greenhills Road / Airton Road signalised junction.

Of the 60% of traffic entering the subject site from the Greenhills Road / Airton Road Road signalised junction, it can be assumed that 25% will enter turning right from Airton Road, while 75% will enter southwards along Greenhills Road.

Of the 50% exiting the subject site (non-peak direction) towards the Greenhills Road / Airton Road signalised junction, it can be assumed that 40% will exit left onto Airton Road, with 60% continuing straight along Greenhills Road northwards

Traffic entering / existing from Airton Road will follow the same distributions through the Belgard Road / Airton Road and Belgard Square junctions as detailed for the Airton Road Entrance.

The above distributions are detailed for the morning and evening peaks within Diagrams 3 and 4 respectively.

4.6.2 PLANNED / SUBMITTED DEVELOPMENT

Diagrams 5 and 6 contain the distribution of flows for the nearby submitted development at the corner of Belgard Road and Airton Road (SHD3ABP-305763-19) for the morning and evening peak hours respectively.

These flows will be assumed to apply by 2023.

4.6.3 DISTRIBUTION OF TRIPS GENERATED BY RESIDENTIAL UNITS ON EXISTING INDUSTRIAL LANDS

Diagrams 7 and 8 contain the distribution of flows for the flows detailed within section 4.5 above for the morning and evening peak hours respectively. The same distribution percentages as detailed within section 4.6.1 above are assumed to apply.

These flows will be assumed to apply in full by 2038, with one-third in place by 2028.

4.7 TRIP ASSIGNMENT

The 2014 Traffic and Transport Assessment Guidelines published by the NRA requires that the relevant junctions be analysed for the existing situation, the year of opening (2023) with the proposed and adjacent developments in place, the design year 1 (year of opening plus 5) with the proposed and adjacent developments in place, and the design year 2 (year of opening plus 15) with the proposed and adjacent developments in place.

An annual growth rate of 1.4% has been assumed for the period 2019 to 2030, decreasing to 0.5% for 2031 to 2038, based on the medium growth estimate for South Dublin County Council published by TII in 2017 (PE-PAG-02017).

The 2023 Do-Nothing ('without development') scenario is derived by factoring the survey results in Diagrams 1 (AM) and 2 (PM) up by 5.7% ($(1.014)^4$ - 1 = 0.057). The 2023 Do-Something ('with development') scenario is derived by adding the development flows detailed within Diagrams 3 (AM), 4 (PM). 5 (AM) and 6 (PM) to these factored network flows.

The 2028 Do-Nothing ('without development') scenario is derived by factoring the survey results in Diagrams 1 and 2 up by 13.3% ($(1.014)^9$ - 1 = 0.133). The 2028 Do-Something ('with development') scenario is derived by adding the development flows detailed within Diagrams 3 (AM), 4 (PM). 5 (AM) and 6 (PM) plus one-third of the flows in Diagrams 7 (AM) and 8 (PM) to these factored network flows.
(The assumption is that one-third of the lands north and south of Airton Road will be converted to residential by 2028.)

The 2038 Do-Nothing ('without development') scenario is derived by factoring the survey results in Diagrams 1 and 2 up by 21.3% ($(1.014)^{11}$ - $1.005)^8$) - 1) = 0.213). The 2038 Do-Something ('with development') scenario is derived by adding Diagrams 3 (AM), 4 (PM). 5 (AM), 6 (PM), 7 (AM) and 8 (PM) to these factored network flows.
(The assumption is that all the lands north and south of Airton Road will be converted to residential by 2038.)

Tables 4-10 and 4-11 below detail the network and development (proposed plus adjacent) incident on the 3 No. junction locations on the projected day of opening in 2023, within 2028, 5 years after opening and within 2038, 15 years after opening for the morning and evening peak respectively:

AM PEAK						
BELGARD ROAD/AIRTON ROAD SIGNALISED JUNCTION	Network Flows	Proposed Development	Adjacent Development (SHD3ABP-305763-19)	Re-zoned lands	% increase (proposed development only)	% increase (all development)
Day of opening (2023)	2364	39	48	-	1.6	3.7
Design Year 1 (2028)	2534	39	48	7	1.5	3.7
Design Year 2 (2038)	2711	39	48	20	1.4	3.9
BELGARD ROAD/BELGARD SQUARE ROUNDABOUT	Network Flows	Proposed Development	Adjacent Development (SHD3ABP-305763-19)	Re-zoned lands	% increase (proposed development only)	% increase (all development)
Day of opening (2023)	1574	22	27	-	1.4	3.1
Design Year 1 (2028)	1687	22	27	5	1.3	3.2
Design Year 2 (2038)	1806	22	27	15	1.2	3.5
GREENHILLS ROAD/AIRTON ROAD SIGNALISED JUNCTION	Network Flows	Proposed Development	Adjacent Development (SHD3ABP-305763-19)	Re-zoned lands	% increase (proposed development only)	% increase (all development)
Day of opening (2023)	1312	67	74	-	5.1	10.7
Design Year 1 (2028)	1407	67	74	15	4.8	11.1
Design Year 2 (2038)	1506	67	74	46	4.4	12.4

Table 4-10: AM peak hour network and development flows at 3 No. nearby junctions on day of opening (2023), Design Year 1 (2028) and Design Year 2 (2038)

PM PEAK						
BELGARD ROAD/AIRTON ROAD SIGNALISED JUNCTION	Network Flows	Proposed Development	Adjacent Development (SHD3ABP-305763-19)	Re-zoned lands	% increase (proposed development only)	% increase (all development)
Day of opening (2023)	3036	39	78	-	1.3	3.9
Design Year 1 (2028)	3254	39	78	12	1.2	3.9
Design Year 2 (2038)	3484	39	78	36	1.1	4.4
				36		
BELGARD ROAD/BELGARD SQUARE ROUNDABOUT	Network Flows	Proposed Development	Adjacent Development (SHD3ABP-305763-19)	Re-zoned lands	% increase (proposed development only)	% increase (all development)
Day of opening (2023)	1859	19	39	-	1.0	3.1
Design Year 1 (2028)	1992	19	39	6	1.0	3.2
Design Year 2 (2038)	2133	19	39	18	0.9	3.6
GREENHILLS ROAD/AIRTON ROAD SIGNALISED JUNCTION	Network Flows	Proposed Development	Adjacent Development (SHD3ABP-305763-19)	Re-zoned lands	% increase (proposed development only)	% increase (all development)
Day of opening (2023)	1157	68	42	-	5.9	9.5
Design Year 1 (2028)	1240	68	42	21	5.5	10.6
Design Year 2 (2038)	1327	68	42	64	5.1	13.1

Table 4-11: PM peak hour network and development flows at 3 No. nearby junctions on day of opening (2023), Design Year 1 (2028) and Design Year 2 (2038)

4.8 GENERAL COMMENT ON TRIP GENERATION FIGURES

One can see that impact of the trips generated by the proposed development and other future developments on the 3 No. critical junctions are light. Purely in terms of flow, the day-of-opening AM peak generated flows constitute an increase equal to no greater than 5% for the Belgard Road / Airton Road signalised junction, with an increase equal to no greater than 4% for the Belgard Road / Belgard Square roundabout junction, and an increase equal to no greater than 13% for the Greenhills Road / Airton Road signalised junction,.

5.0 REQUIREMENT FOR A TRAFFIC ASSESSMENT

The 2014 Traffic and Transport Assessment Guidelines requires the impact of the additional traffic volumes on the critical nearby junctions to be assessed in detail if:

- Development flows exceed 10% of existing turning movements at the two relevant junctions;
- Development flows exceed 5% of turning movements if the location has the potential to become congested.

Based on the 16th May 2019 traffic surveys undertaken at the 3 No. critical junctions for the morning and evening peak hours respectively, and the predicted generated flows incident on the junction as a percentage of total incident flows are as detailed within Table 4-10 and 4-11, and given that the junctions are busy and therefore the threshold of 5% applies, the Greenhills Road / Airton Road junction is the only location where a traffic impact assessment is warranted. In the interests of robustness, the Belgard Road / Airton Road junction will also be assessed given that total incident development flows are just less than the 5% threshold. The Belgard Road / Belgard Square intersection will not be analysed in detail.

The two development entrances will also be analysed within the following assessment.

6.0 TRAFFIC IMPACT ASSESSMENT OF 4 NO. CRITICAL JUNCTIONS IN PROXIMITY TO THE SUBJECT SITE

6.1 INTRODUCTION

The traffic analysis will analyse the performance of the following 2 No. signalised intersections for the following scenarios:

- Existing flows (AM and PM peak) – Scenario No. 1
- Year-of Opening (2023) flows with proposed and adjacent development not in place (AM and PM peak Do-Nothing) – Scenario No. 2
- Year-of Opening (2023) flows with proposed and adjacent development in place (AM and PM peak Do-Something) – Scenario No. 3
- Year-of Opening (2028) flows proposed and adjacent development and one-third of Airton Road re-zoned lands not in place (AM and PM peak Do-Nothing) – Scenario No. 4
- Year-of Opening (2028) flows with proposed and adjacent development and one-third of Airton Road re-zoned lands in place (AM and PM peak Do-Something) – Scenario No. 5
- Year-of Opening (2038) flows proposed and adjacent development and all Airton Road re-zoned lands not in place (AM and PM peak Do-Nothing) – Scenario No. 6
- Year-of Opening (2038) flows with proposed and adjacent development and all Airton Road re-zoned lands in place (AM and PM peak Do-Something) – Scenario No. 7

The following 2 No. junctions will be analysed for the above seven scenarios:

- Belgard Road / Airton Road signalised junction
- Greenhills Road / Airton Road Signalised junction

In addition, the 2 No. development entrances will be analysed as a priority junction for 2 No. scenarios - 2023 AM and PM peak, with adjacent submitted development also in place, and 2037 AM and PM peaks with adjacent submitted development plus 100% of re-zoned residential land in place and operational.

The OSCADY programme within the Junctions 9 suite of programmes will be used to analysis the signalised junction and the PICADY programme within the Junctions 9 suite of programmes will be utilised to analyse the priority junctions for all relevant scenarios.

6.2 ANALYSIS OF BELGARD ROAD / AIRTON ROAD SIGNALISED JUNCTION

6.2.1 GEOMETRIC PARAMETERS

For the junction in question, the following geometric characteristics have been used for the purposes of this assessment:
Airton Road approach (Arm A)
2 No. lanes, inside lane for left-turning traffic only (3 metres wide), outside lane for straight-ahead and right-turning (3.5 metres wide).
Belgard Road South (Arm B)
3 No. lanes, inside lane for left-turning traffic only (3 metres wide), outside lane for right-turning (3 metres wide), and inner lane for straight-ahead only (3.5 metres wide).
Monarch Industrial Estate (Arm C)
2 No. lanes, inside lane for left-turning and straight-ahead traffic (3 metres wide), outside lane for right-turning and straight-ahead traffic (3 metres wide).
Belgard Road North (Arm D)
2 No. lanes, inside lane for left-turning traffic and straight-ahead (3.5 metres wide), outside lane for right-turning only (3 metres wide).

6.2.2 SIGNAL TIMINGS AND PHASING

Vehicle actuated timing has been assumed. A cycle in excess of 2 minutes has been assumed for peak times.

A 4-phase signal cycle is in place at the junction, as observed in February 2019, configured as follows:

Phase 1
All northbound and southbound straight-ahead and left-turn.ing traffic (Arms B and D) along the Belgard Road approaches has priority. All other traffic is stopped
Phase 2
All northbound and southbound right-turning traffic (Arms B and D) along the Belgard Road approaches has priority. Left-turning traffic from Airton Road onto Belgard Road South also has priority. All other traffic is stopped.
Phase 3
All traffic movements exiting Airton Road (Arm A) has priority. All other traffic is stopped.
Phase 4
All traffic movements exiting the Monarch Industrial Estate (Arm C) has priority. All other traffic is stopped.

6.2.3 ANALYSIS OF AM AND PM PEAK HOUR FLOWS FOR THE 7 NO. SCENARIOS

Full details of the analysis of the Belgard Road /Airton Road signalised junction are contained within Appendix 5.

Table 6-1 immediately below summarises the critical flows, capacities, RFC's and queue lengths for the morning and evening peaks for each of the 7 No. scenarios for the Belgard Road / Airton Road signalised junction:

Scenario No.1	EXISTING AM PEAK FLOWS (2019)				EXISTING PM PEAK FLOWS (2019)			
	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)
Belgard Road North	168	296.12	0.57	10	155	195.53	0.79	11
Airton Road	47	65.15	0.72	9	128	143.36	0.89	15
Belgard Road South	174	569.12	0.31	8	249	374.58	0.66	14
Monarch Ind. Estate	10	49.15	0.20	1	41	52.81	0.78	7
Scenario No.2	**2023 AM PEAK FLOWS (Do-Nothing)**				**2023 PM PEAK FLOWS (Do-Nothing)**			
	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)
Belgard Road North	177	294.10	0.60	10	163	198.99	0.82	13
Airton Road	50	61.51	0.81	10	135	187.46	0.91	17
Belgard Road South	184	565.40	0.33	8	263	381.16	0.69	16
Monarch Ind. Estate	10	51.28	0.19	1	43	49.84	0.86	9
Scenario No.3	**2023 AM PEAK FLOWS (Do-Something)**				**2023 PM PEAK FLOWS (Do-Something)**			
	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)
Belgard Road North	95	226.25	0.63	11	163	199.42	0.82	14
Airton Road	57	74.46	0.77	10	145	155.77	0.93	20
Belgard Road South	184	536,78	0.34	9	263	381.98	0.69	17
Monarch Ind. Estate	10	51.28	0.19	1	43	46.56	0.92	10
Scenario No.4	**2028 AM PEAK FLOWS (Do-Nothing)**				**2028 PM PEAK FLOWS (Do-Nothing)**			
	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)
Belgard Road North	190	295.06	0.64	12	175	206.13	0.85	15
Airton Road	75	98.45	0.76	11	145	151.67	0.96	23
Belgard Road South	198	567.01	0.35	9	282	394.86	0.71	19
Monarch Ind. Estate	12	47.82	0.25	2	46	48.83	0.94	12
Scenario No.5	**2028 AM PEAK FLOWS (Do-Something)**				**2028 PM PEAK FLOWS (Do-Something)**			
	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)
Belgard Road North	190	274.71	0.69	13	175	201.41	0.87	17
Airton Road	87	106.97	0.81	12	157	164.99	0.95	24
Belgard Road South	198	527.91	0.38	10	282	385.82	0.73	21
Monarch Ind. Estate	12	54.93	0.22	1	46	44.94	1.02	15
Scenario No.6	**2038 AM PEAK FLOWS (Do-Nothing)**				**2038 PM PEAK FLOWS (Do-Nothing)**			
	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)
Belgard Road North	203	294.05	0.69	13	187	206.04	0.91	20
Airton Road	80	95.86	0.84	13	155	160.05	0.97	27
Belgard Road South	211	565.26	0.37	10	302	394.70	0.77	24
Monarch Ind. Estate	12	52.04	0.23	2	49	49.97	0.98	15
Scenario No.7	**2038 AM PEAK FLOWS (Do-Something)**				**2038 PM PEAK FLOWS (Do-Something)**			
	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)	Flow (PCU/TS)	Cap. (PCU/TS)	RFC (-)	Avg. queue (PCU)
Belgard Road North	203	271.77	0.75	14	187	204.24	0.92	25
Airton Road	72	80.93	0.89	14	172	177.60	0.97	33
Belgard Road South	211	522.42	0.40	10	302	391.26	0.77	31
Monarch Ind. Estate	12	51.28	0.23	1	49	46.07	1.06	20

Table 6-1: Critical flows, capacities, ratios of flow to capacity and queue lengths for each 15-minute interval during the morning and evening peak hours for each scenario

The above analysis indicates that the Belgard Road / Airton Road signalised intersection present operates within capacity on all approaches, with an overall maximum degree of saturation of 89% in the evening peak, the busiest time of operation. Queuing is an average of up to 15 No. vehicles in the evening peak hour.

In 2023, with network flow increases only allowed for, the intersection will operate at or near capacity on some approaches, with maximum degree of saturation increasing to 91% in the evening peak. Average queuing increases up a maximum of 17 No. vehicles. With the proposed and adjacent development in place, the maximum degree of saturation increases marginally to 93% in the evening peak, with average queuing increasing to a maximum of 20 No. vehicles.

By 2028, with network flow increases only allowed for, the intersection will continue to operate at or near capacity on some approaches during the evening peak, with maximum degree of saturation increasing to 96%. Average queuing increases up a maximum of 23 No. vehicles. With the proposed and adjacent development in place and 0ne-third of the re-zoned land north and south of Airton Road assumed to have fully operational apartment units, the maximum degree of saturation increases marginally to 102% in the evening peak, with average queuing increasing marginally to a maximum of 24 No. vehicles.

By 2038, with network flow increases only allowed for, the intersection will continue to operate at capacity on some approaches during the evening peak, with maximum degree of saturation increasing to 98%. Average queuing increases up a maximum of 27 No. vehicles. With the proposed and adjacent development in place and all the re-zoned land north and south of Airton Road assumed to have fully operational apartment units, the maximum degree of saturation increases to 106% in the evening peak, with average queuing increasing marginally to a maximum of 33 No. vehicles.

The junction remains within capacity until 2038, when the junction will be marginally over capacity on one approach, with all other approaches operating within capacity 15 years after the opening of the proposed development.

6.3 ANALYSIS OF GREENHILLS ROAD / AIRTON ROAD SIGNALISED JUNCTION

6.3.1 GEOMETRIC PARAMETERS

For the junction in question, the following geometric characteristics have been used for the purposes of this assessment:

Greenhills Road South approach (Arm A)

1 No. lanes, straight and left-turning traffic (3 metres wide).

Airton Road approach (Arm B)

2 No. lanes, inside lane for left-turning traffic only (3 metres wide), outside lane for right-turning (3 metres wide)

Greenhills Road North approach (Arm C)

2 No. lanes, inside lane for straight-ahead traffic (3 metres wide), outside lane for right-turning traffic only (3 metres wide).

6.3.2 SIGNAL TIMINGS

Vehicle actuated timing has been assumed.

A 3-phase signal cycle is in place at the junction, as observed in February 2019, configured as follows:

Phase 1

All northbound and southbound straight-ahead and left-turning traffic (Arms A and C) along the Greenhills Road approaches has priority. All other traffic is stopped.

Phase 2

Right-turning traffic from Greenhills Road North onto Airton Road (Arm C to Arm B) and left-turning traffic from Airton Road onto Greenhills Road North (Arm B to Arm C) has priority. All other traffic is stopped.

Phase 3

All traffic movements exiting Airton Road (Arm B) has priority. All other traffic is stopped.

6.3.3 ANALYSIS OF AM AND PM PEAK HOUR FLOWS FOR THE 7 NO. SCENARIOS

Full details of the analysis of the Greenhills Road /Airton Road signalised junction are contained within Appendix 5.

Table 6-2 immediately below summarises the critical flows, capacities, RFC's and queue lengths for the morning and evening peaks for each of the 7 No. scenarios for the Greenhills Road / Airton Road signalised junction:

Scenario No.1	**EXISTING AM PEAK FLOWS (2019)**				**EXISTING PM PEAK FLOWS (2019)**			
	Flow (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)	**Flow** (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)
Greenhills Road South	156	200.24	0.78	7	98	141.43	0.69	5
Airton Road	49	69.38	0.71	5	35	72.61	0.48	3
Greenhills Road North	56	77.5	0.72	5	74	111.34	0.66	5
Scenario No.2	**2023 AM PEAK FLOWS (Do-Nothing)**				**2023 PM PEAK FLOWS (Do-Nothing)**			
	Flow (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)	**Flow** (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)
Greenhills Road South	165	201.30	0.82	8	103	138.23	0.75	5
Airton Road	51	66.77	0.76	6	37	80.42	0.46	3
Greenhills Road North	59	82.48	0.72	5	78	108.81	0.72	5
Scenario No.3	**2023 AM PEAK FLOWS (Do-Something)**				**2023 PM PEAK FLOWS (Do-Something)**			
	Flow (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)	**Flow** (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)
Greenhills Road South	173	201.88	0.86	9	110	141.46	0.78	6
Airton Road	65	71.91	0.90	9	41	76.93	0.53	4
Greenhills Road North	62	79.48	0.78	6	84	113.13	0.74	6
Scenario No.4	**2028 AM PEAK FLOWS (Do-Nothing)**				**2028 PM PEAK FLOWS (Do-Nothing)**			
	Flow (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)	**Flow** (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)
Greenhills Road South	177	205.87	0.86	9	110	142.00	0.77	6
Airton Road	55	65.53	0.84	7	40	76.93	0.52	4
Greenhills Road North	63	80.95	0.78	6	83	113.13	0.73	6
Scenario No.5	**2028 AM PEAK FLOWS (Do-Something)**				**2028 PM PEAK FLOWS (Do-Something)**			
	Flow (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)	**Flow** (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)
Greenhills Road South	184	204.49	0.90	11	120	141.70	0.85	7
Airton Road	72	78.48	0.92	11	43	80.71	0.53	4
Greenhills Road North	65	78.48	0.83	7	94	114.70	0.82	7
Scenario No.6	**2038 AM PEAK FLOWS (Do-Nothing)**				**2038 PM PEAK FLOWS (Do-Nothing)**			
	Flow (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)	**Flow** (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)
Greenhills Road South	189	215.21	0.88	10	117	148.55	0.79	6
Airton Road	59	61.01	0.97	10	42	75.29	0.56	4
Greenhills Road North	67	82.54	0.81	7	89	110.72	0.80	7
Scenario No.7	**2038 AM PEAK FLOWS (Do-Something)**				**2038 PM PEAK FLOWS (Do-Something)**			
	Flow (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)	**Flow** (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)
Greenhills Road South	193	207.44	0.93	14	134	147.51	0.91	10
Airton Road	84	87.00	0.97	14	44	66.77	0.66	6
Greenhills Road North	67	75.42	0.89	9	109	129.60	0.84	8

Table 6-2: Critical flows, capacities, ratios of flow to capacity and queue lengths for each 15-minute interval during the morning and evening peak hours for each scenario

The above analysis indicates that the Greenhills Road / Airton Road signalised intersection present operates within capacity on all approaches, with an overall maximum degree of saturation of 78% in the morning peak, the busiest time of operation. Queuing is an average of up to 7 No. vehicles in the morning peak hour.

In 2023, with network flow increases only allowed for, the intersection will operate at or near capacity on some approaches, with maximum degree of saturation increasing to 82% in the morning peak. Average queuing increases up a maximum of 8 No. vehicles. With the proposed and adjacent development in place, the maximum degree of saturation increases marginally to 86% in the morning peak, with average queuing increasing to a maximum of 8 No. vehicles.

By 2028, with network flow increases only allowed for, the intersection will continue to operate at or near capacity on some approaches during the morning peak, with maximum degree of saturation increasing to 86%. Average queuing increases up a maximum of 9 No. vehicles. With the proposed and adjacent development in place and 0ne-third of the re-zoned land north and south of Airton Road assumed to have fully operational apartment units, the maximum degree of saturation increases marginally to 90% in the evening peak, with average queuing increasing marginally to a maximum of 11 No. vehicles.

By 2038, with network flow increases only allowed for, the intersection will continue to operate at capacity on some approaches during the morning peak, with maximum degree of saturation increasing to 97%. Average queuing increases up a maximum of 10 No. vehicles. With the proposed and adjacent development in place and all the re-zoned land north and south of Airton Road assumed to have fully operational apartment units, the maximum degree of saturation remains at 97% in the evening peak, with average queuing increasing marginally to a maximum of 14 No. vehicles.

The junction is thus busy and congested, but is predicted to operate within capacity on all approaches in the future with the proposed development in place.

6.4 ANALYSIS OF AIRTON ROAD / DEVELOPMENT ENTRANCE PRIORITY JUNCTION

6.4.1 FLOW ASSUMPTIONS

The proposed entrance will access the road network via Airton Road.

It is assumed that this entrance will cater for 58% of the traffic generated by the proposed development, with the balance accessing via the development entrance on Greenhills Road.

6.4.2 GEOMETRIC PARAMETERS

For the junction in question, the analysis assumes that the Airton Road major carriageway is 10.0 metres wide in the vicinity of the entrance (2.2 metre wide right-turning lane assumed for eastbound traffic), with the Development Entrance minor approach assumed to consist of 1 No. 3.0 metre wide lane.

The analysis is done for the day of opening in 2023 and the Design Year 2 in 2038 with all adjacent and planned development plus the proposed development in place.

All sight distances are assumed to be a minimum of 50 metres for the purposes of this analysis.

6.4.3 ANALYSIS OF DESIGN YEAR (2037) AM AND PM PEAK HOUR FLOWS WITH COMMITTED AND PROPOSED DEVELOPMENTS AND IN PLACE

Full details of the analysis of the Airton Road /Development Entrance priority junction are contained within Appendix 5.

Table 6-3 immediately below summarises the critical flows, capacities, RFC's and queue lengths for the morning and evening peaks for each of the 2 No. scenarios for the Airton Road / Development Entrance priority junction:

Scenario No.1	2023 AM PEAK FLOWS (Development in place)				2023 PM PEAK FLOWS (Development in place)			
	Flow (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)	**Flow** (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)
Development entrance exiting left/right (B-AC)	13	111.63	0.12	1	6	119.48	0.05	0
Airton Road West entering right (C-B)	2	128.93	0.02	0	5	132.59	0.04	0
Scenario No.2	**2038 AM PEAK FLOWS (Development in place)**				**2038 PM PEAK FLOWS (Development in place)**			
	Flow (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)	**Flow** (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)
Development entrance exiting left/right (B-AC)	13	105.87	0.12	1	6	103.89	0.06	0
Airton Road West entering right (C-B)	2	127.77	0.02	0	5	119.86	0.04	0

Table 6-3: Critical flows, capacities, ratios of flow to capacity and queue lengths for each 15-minute interval during the morning and evening peak hours for each scenario

All approaches will be within capacity at all times during both peaks on the projected day of opening of the proposed development in 2023, and will remain so by 2038 with all planned development in place.

A minimum of 88% spare capacity exists on all opposed movement over all peak times by 2038.

Queuing at present is at very low levels for turning movements at the junctions during the morning and evening peaks, with queuing on any opposed movement never exceeding 1 vehicle.

6.5 ANALYSIS OF GREENHILLS ROAD / DEVELOPMENT ENTRANCE PRIORITY JUNCTION

6.5.1 FLOW ASSUMPTIONS

The proposed entrance will access the road network via Greenhills Road.

It is assumed that this entrance will cater for 42% of the traffic generated by the proposed development, with the balance accessing via the development entrance on Airton Road.

6.5.2 GEOMETRIC PARAMETERS

For the junction in question, the analysis assumes that the Greenhills Road major carriageway is 9.0 metres wide in the vicinity of the entrance (2.2 metre wide right-turning lane assumed for northbound traffic), with the Development Entrance minor approach assumed to consist of 1 No. 3.0 metre wide lane.

The analysis is done for the day of opening in 2023 and the Design Year 2 in 2038 with all adjacent and planned development plus the proposed development in place.

All sight distances are assumed to be a minimum of 50 metres for the purposes of this analysis.

6.5.3 ANALYSIS OF DESIGN YEAR (2037) AM AND PM PEAK HOUR FLOWS WITH COMMITTED AND PROPOSED DEVELOPMENTS AND IN PLACE

Full details of the analysis of the Greenhills Road /Development Entrance priority junction are contained within Appendix 5.

Table 6-4 immediately below summarises the critical flows, capacities, RFC's and queue lengths for the morning and evening peaks for each of the 2 No. scenarios for the Airton Road / Development Entrance priority junction:

Scenario No.1	2023 AM PEAK FLOWS (Development in place)				2023 PM PEAK FLOWS (Development in place)			
	Flow (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)	**Flow** (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)
Development entrance exiting left/right (B-AC)	10	102.91	0.10	1	4	109.99	0.04	0
Greenhills Road North entering right (C-B)	2	116.40	0.02	0	6	128.59	0.05	0
Scenario No.2	**2038 AM PEAK FLOWS (Development in place)**				**2038 PM PEAK FLOWS (Development in place)**			
	Flow (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)	**Flow** (PCU/TS)	**Cap.** (PCU/TS)	**RFC (-)**	**Avg. queue** (PCU)
Development entrance exiting left/right (B-AC)	10	96.61	0.10	1	4	103.28	0.04	0
Greenhills Road North entering right (C-B)	2	112.54	0.02	0	6	123.72	0.05	0

Table 6-4: Critical flows, capacities, ratios of flow to capacity and queue lengths for each 15-minute interval during the morning and evening peak hours for each scenario

All approaches will be within capacity at all times during both peaks on the projected day of opening of the proposed development in 2023, and will remain so by 2038 with all planned development in place.

A minimum of 90% spare capacity exists on all opposed movement over all peak times by 2038.

Queuing at present is at very low levels for turning movements at the junctions during the morning and evening peaks, with queuing on any opposed movement never exceeding 1 vehicle.

7.0 SUMMARY COMMENTS ON TRAFFIC IMPACT OF PROPOSED DEVELOPMENT

7.1 SUMMARY OF ANALYSIS

This document contains a Traffic and Transport Assessment for a proposed development located on Airton Road/ Greenhills Road, adjacent to the Greenhills Road / Airton Road signalised junction. The development consists of 502 No. apartments. It is proposed to provide 202 No. car parking spaces.

The function of this TTA is to quantify the existing transport environment in terms of the vehicular flows incident on it and to identify and assess the level of transport impact generated by the vehicular trips generated by both the proposed residential development and adjacent permitted developments as required by SDCC.

This TTA has carried out a range of assessments for the existing situation, within the year of opening in 2023, and within 2028 and 2038 design years (year of opening plus 5 and 15 respectively).

7.2 CONCLUSIONS FROM ANALYSIS

PUBLIC TRANSPORT - BUS

Based on the data and evaluations within this TTA, the following conclusions can be made:

1. In terms of public transport and soft mode facilities, the subject site is well served. It is highly accessible to pedestrians and cyclists in the vicinity of Airton Road and its environs, with excellent pedestrian connectivity with Tallaght Town centre and the N81. The existing cycle facilities comprise the cycle lanes within the bus lanes along Belgard Road and Greenhills Road in addition to the cycle lane following the LUAS Red Line along Katherine Tynan Road towards the Naas Road. The subject site is currently connected to the city centre and nearby suburbs by 3 No. major Dublin Bus routes together with the LUAS Cross City Line. The Dublin Bus services in the area provide direct linkage to the city, the Route 27 (high-frequency) along Greenhills Road towards the city centre, the 76 Route along Belgard Road towards Chapelizod, and the 54a linking Tallaght to the city centre. There are two LUAS stops close to the subject site – Tallaght (The Square) and Belgard.
2. In terms of future public transport and soft mode proposals, as stated within the GDA Cycle Network Plan, a primary cycle route is planned along both Belgard Road (SO5) and Greenhills Road (8B), with the route along the LUAS Red Line (8A) designated as a secondary route. Also, SO5 is an orbital route linking Dundrum and Tallaght via Ballyboden. Future bus plans involve the "Dublin Area Bus Network Redesign" (Bus Connects) which is an attempt to overhaul the current bus system in the Dublin region by developing new bus corridors, new bus routes, increasing services and new buses. The D2 Branch of the D Spine will provide a frequent service to Crumlin and on into the city centre, with the W2 Orbital providing connectivity to Clondalkin, Neilstown and Liffey Valley. The A2 line will run to Templeogue and join the A Spine going to the city centre.
3. The network analysis within the TTA indicates that the 4 No. existing critical junctions in the vicinity of the proposed development plus the proposed development entrance presently work within capacity.
4. It is demonstrated that, by 2038, fifteen years after the projected year of opening of the proposal, the two signalised junctions analysed will be at or near capacity during certain time intervals during the peak periods, due in the main to the traffic volumes projected to be generated both by network increases and committed development envisaged in the in the vicinity by the re-zoning of lands. It is important to note, as demonstrated in the preceding analyses, that the volumes generated by the proposed development constitute a very low proportion of these committed flows.

7.3 MITIGATION

In the context of the overall volume of flows generated by all proposed development in the area, the importance of implementing a coherent parking and mobility policy for the area becomes of significant importance, as such policies will minimise the impact of private car traffic and will also be in keeping with the sustainable transport policy presently advocated for the Greater Dublin Area – please also refer to BMCE MMP document which accompanies this SHD application.

A significant instrument in mitigating the traffic impacts of the proposed development is centred on the Mobility Management (MMP) which is contained within this submission and compiled with the aim of guiding the delivery

and management of coordinated initiatives by the applicant. The MMP ultimately seeks to encourage sustainable travel practices for all journeys to and from the proposed development.

BARRETT MAHONY
CONSULTING ENGINEERS
CIVIL & STRUCTURAL

APPENDIX

1

SITE LAYOUT PLAN

Proposed Ground Level Site Plan

1 : 500

Application Site

Extent of property owned by Applicant

Existing trees

Proposed trees

NOTES:

* Please refer to Arborist report and drawings for information on trees to be removed.

** Please refer to Landscape Design drawings for landscaping and boundary treatment details.

TECHNOLOGICAL UNIVERSITY DUBLIN, TALLAGHT

GENERAL NOTES:

ALL DIMENSIONS ARE TO BE CONFIRMED ON SITE

DIMENSIONS ARE NOT TO BE SCALED FROM THIS DRAWING

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH CONSULTANTS DRAWINGS

ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT BUILDING REGULATIONS

rev	date	by	Description
A	11.02.2020	CB	For Planning

FOR PLANNING

PROJECT TITLE:	Residential Development at the Former Gallaher site, Airton Road, Tallaght, Dublin 24 for Greenleaf Homes Limited		
DRAWING TITLE:	Proposed Ground Level Site Plan		
PROJECT NO:	1904	DATE:	27/01/20
SCALE:	1 : 500 @ A1	DRAWN BY:	CB/PS
MODEL NAME:	1904-FA-ZZ-00-M3-A-Site	CHECKED BY:	CB
DRAWING NO:	1904 - SITE - 0502	REVISION:	A

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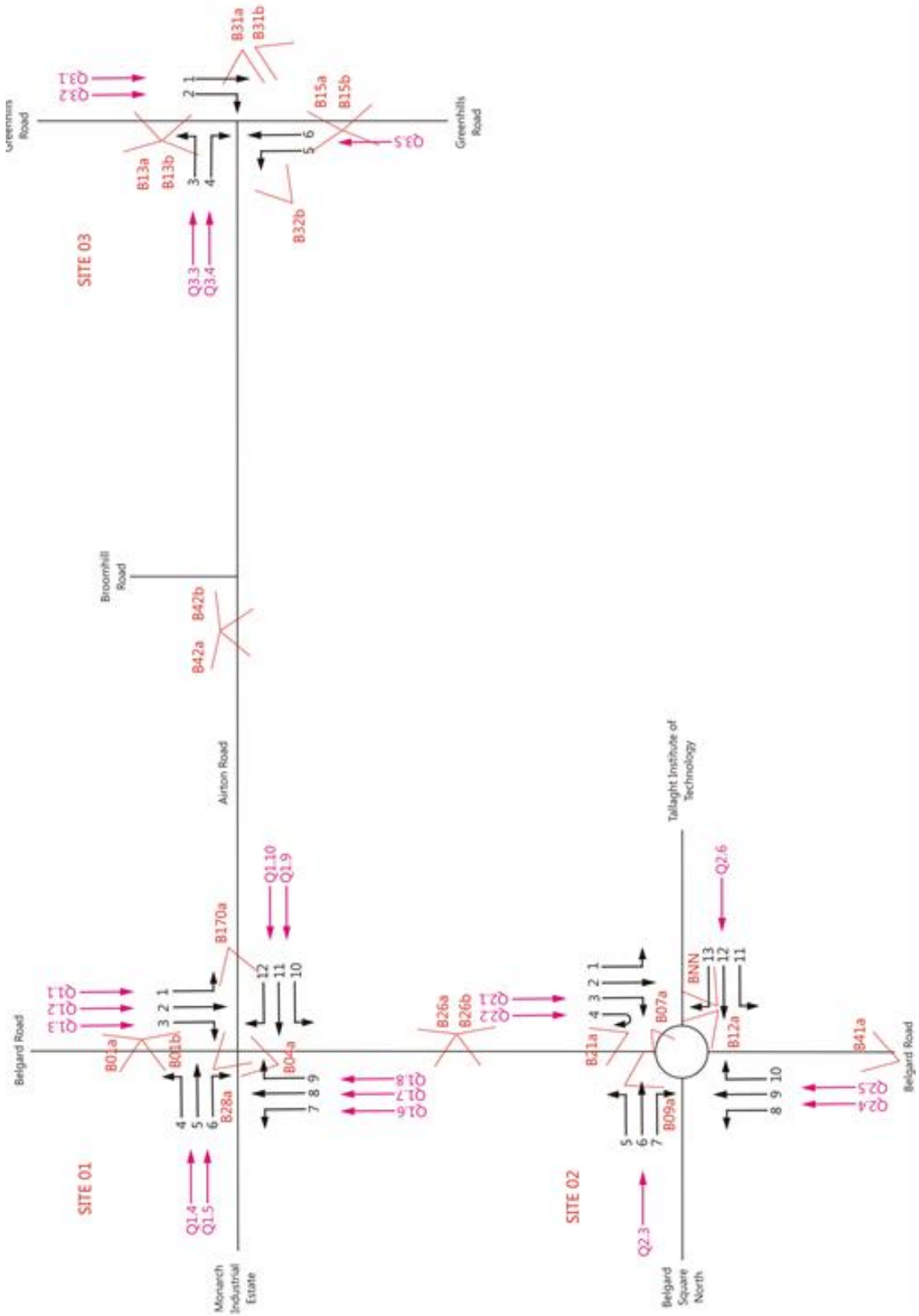
APPENDIX 2

TRAFFIC SURVEYS MAY 2019



TRAFFIC SURVEY FLOW NOTATIONS

SITE 1

	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3							MOVEMENT 4							MOVEMENT 5							MOVEMENT 6							PCU's Through Junction
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	
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07:15	21	3	1	0	4	29	34	24	2	1	0	1	28	30	26	8	1	1	0	36	38	07:15	7	3	0	0	1	11	12	21	2	0	0	0	23	23	79	17	1	2	2	101	106	242
07:30	35	7	0	1	2	45	48	29	5	0	1	0	35	36	30	10	0	0	0	40	40	07:30	4	5	0	0	0	9	9	23	6	1	0	0	30	31	74	13	2	0	0	89	90	254
07:45	34	6	1	0	3	44	48	42	5	1	1	0	49	51	30	4	2	0	0	36	37	07:45	12	2	1	1	0	16	18	25	3	0	0	0	28	28	73	14	2	0	2	91	94	275
H/TOT	101	20	3	1	11	136	150	105	14	3	2	1	125	130	119	28	5	1	0	153	157	**H/TOT**	30	11	1	1	2	45	49	92	12	2	0	0	106	107	275	55	9	2	5	346	358	951
08:00	56	11	3	2	2	74	80	34	5	3	0	0	42	44	24	7	1	0	0	32	33	08:00	12	2	1	0	0	15	16	51	6	0	0	0	57	57	78	15	0	0	3	96	99	328
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H/TOT	181	29	15	2	8	235	253	163	21	8	0	0	192	196	116	25	2	1	0	144	146	**H/TOT**	75	6	2	0	2	85	88	164	15	1	0	1	181	183	298	51	4	2	8	363	376	**1242**
09:00	42	5	3	0	2	52	56	38	5	4	0	0	47	49	26	5	5	1	0	37	41	09:00	21	1	2	0	0	24	25	31	4	0	0	0	35	35	61	12	1	0	2	76	79	284
09:15	51	18	2	0	1	72	74	45	4	2	0	1	52	54	21	9	0	2	0	32	35	09:15	16	3	0	0	0	19	19	28	9	1	0	1	39	41	72	17	2	0	2	93	96	318
09:30	54	11	3	1	3	72	78	38	6	1	0	0	45	46	36	8	1	0	0	45	46	09:30	20	1	2	0	1	24	26	36	5	0	0	1	42	43	69	18	2	0	2	91	94	332
09:45	56	14	3	0	2	75	79	32	8	5	0	0	45	48	26	11	0	0	1	38	39	09:45	20	7	2	0	1	30	32	29	3	0	0	0	32	32	50	7	1	1	2	61	65	294
H/TOT	203	48	11	1	8	271	286	153	23	12	0	1	189	196	109	33	6	3	1	152	160	**H/TOT**	77	12	6	0	2	97	102	124	21	1	0	2	148	151	252	54	6	1	8	321	333	1228
10:00	46	11	3	1	0	61	64	30	9	3	1	1	44	48	26	8	2	0	0	36	37	10:00	11	4	1	0	1	17	19	21	6	1	0	1	29	31	59	13	3	0	3	78	83	280
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H/TOT	187	42	14	3	6	252	269	118	24	5	1	1	149	154	111	31	8	2	0	152	159	**H/TOT**	65	18	8	0	2	93	99	93	24	3	2	3	125	132	268	52	15	0	6	341	355	1167
11:00	63	14	2	0	2	81	84	29	8	1	0	0	38	39	23	6	3	0	0	32	34	11:00	18	2	0	0	0	20	20	22	2	0	0	1	25	26	63	11	1	0	1	76	78	280
11:15	68	18	2	0	1	89	91	35	9	4	1	0	49	52	29	10	2	0	1	42	44	11:15	30	2	0	0	0	32	32	27	1	1	0	0	29	30	58	12	5	1	1	77	82	331
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H/TOT	264	52	10	0	5	331	341	133	32	8	1	0	174	179	116	30	7	2	1	156	163	**H/TOT**	96	12	1	1	0	110	112	100	14	3	1	1	119	123	257	45	11	3	4	320	333	1251
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H/TOT	261	49	10	1	7	328	341	121	32	4	3	0	160	166	146	33	6	2	1	188	195	**H/TOT**	72	17	4	0	0	93	95	89	24	3	0	2	118	122	261	46	16	1	6	330	345	1264

	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3							MOVEMENT 4							MOVEMENT 5							MOVEMENT 6							PCU's Through Junction
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	
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13:45	74	15	2	1	1	93	96	43	7	0	0	0	50	50	31	6	1	0	0	38	39	13:45	22	4	0	0	1	27	28	36	6	0	0	0	42	42	64	6	4	0	2	76	80	335
H/TOT	240	36	10	1	6	293	305	169	26	2	2	1	200	205	141	27	3	2	0	173	177	H/TOT	83	16	1	0	1	101	103	101	16	1	0	1	119	121	230	36	12	0	6	284	296	1206
14:00	60	9	2	2	2	75	81	37	5	2	0	1	45	47	23	5	2	1	1	32	35	14:00	24	2	2	0	0	28	29	31	6	0	0	0	37	37	75	14	2	0	1	92	94	323
14:15	62	8	5	0	3	78	84	37	4	1	0	0	42	43	39	10	1	1	0	51	53	14:15	28	2	0	0	0	30	30	17	10	0	0	0	27	27	56	10	2	0	3	71	75	311
14:30	70	13	3	0	3	89	94	38	9	0	0	0	47	47	23	4	0	0	0	27	27	14:30	29	3	1	0	0	33	34	37	8	1	0	1	47	49	60	5	3	0	4	72	78	327
14:45	51	10	3	0	0	64	66	45	8	2	0	0	55	56	34	6	1	0	1	42	44	14:45	19	5	0	0	0	24	24	29	4	1	0	1	35	37	58	14	2	0	1	75	77	303
H/TOT	243	40	13	2	8	306	323	157	26	5	0	1	189	193	119	25	4	2	2	152	159	H/TOT	100	12	3	0	0	115	117	114	28	2	0	2	146	149	249	43	9	0	9	310	324	1263
15:00	59	7	2	0	3	71	75	37	7	2	0	0	46	47	45	6	1	1	0	53	55	15:00	23	4	1	0	0	28	29	22	2	0	1	0	25	26	59	8	4	0	2	73	77	309
15:15	65	11	0	0	2	78	80	38	5	1	0	0	44	45	37	6	2	0	1	46	48	15:15	17	6	2	0	0	25	26	19	4	3	0	0	26	28	65	8	3	1	2	79	84	310
15:30	69	9	3	1	1	83	87	31	5	1	1	1	39	42	31	2	1	0	0	34	35	15:30	23	4	1	1	0	29	31	25	6	4	0	0	35	37	59	14	0	0	3	76	79	310
15:45	55	10	2	0	1	68	70	35	9	4	1	0	49	52	28	4	2	0	0	34	35	15:45	18	0	0	0	0	18	18	23	1	0	0	1	25	26	55	13	2	0	1	71	73	274
H/TOT	248	37	7	1	7	300	312	141	26	8	2	1	178	186	141	18	6	1	1	167	172	H/TOT	81	14	4	1	0	100	103	89	13	7	1	1	111	117	238	43	9	1	8	299	313	1203
16:00	65	10	0	1	1	77	79	52	14	0	1	0	67	68	30	5	5	0	0	40	43	16:00	25	5	1	0	0	31	32	20	4	0	0	0	24	24	47	9	1	0	2	59	62	307
16:15	53	12	1	0	2	68	71	38	5	1	0	0	44	45	25	7	1	0	0	33	34	16:15	24	4	0	0	0	28	28	19	2	0	0	0	21	21	50	8	1	0	1	60	62	259
16:30	72	15	0	0	3	90	93	51	9	3	0	1	64	67	22	2	2	0	0	26	27	16:30	19	1	0	1	0	21	22	22	3	0	0	1	26	27	44	7	0	0	1	52	53	289
16:45	71	10	0	0	0	81	81	41	7	1	0	0	49	50	25	3	0	1	0	29	30	16:45	24	4	0	0	0	28	28	20	3	0	0	0	23	23	47	8	1	0	1	57	59	270
H/TOT	261	47	1	1	6	316	324	182	35	5	1	1	224	229	102	17	8	1	0	128	133	H/TOT	92	14	1	1	0	108	110	81	12	0	0	1	94	95	188	32	3	0	5	228	235	1125
17:00	70	13	1	0	2	86	89	42	10	1	0	0	53	54	31	4	0	0	0	35	35	17:00	25	3	0	0	0	28	28	20	4	0	0	0	24	24	35	9	0	0	1	45	46	275
17:15	44	5	1	1	2	53	57	45	10	1	0	0	56	57	21	4	0	0	0	25	25	17:15	20	3	0	0	0	23	23	19	3	0	0	0	22	22	32	3	1	0	1	37	39	222
17:30	57	8	1	0	1	67	69	63	9	1	0	0	73	74	29	1	1	0	0	31	32	17:30	22	2	0	0	0	24	24	32	5	2	0	0	39	40	45	4	2	0	2	53	56	294
17:45	71	5	0	0	3	79	82	52	9	2	0	0	63	64	33	2	0	0	0	35	35	17:45	24	2	0	0	0	26	26	37	2	1	0	0	40	41	51	4	1	0	0	56	57	304
H/TOT	242	31	3	1	8	285	296	202	38	5	0	0	245	248	114	11	1	0	0	126	127	H/TOT	91	10	0	0	0	101	101	108	14	3	0	0	125	127	163	20	4	0	4	191	197	**1094**
18:00	69	12	1	0	0	82	83	56	7	1	0	0	64	65	35	1	0	0	0	36	36	18:00	24	3	0	0	0	27	27	30	2	1	0	0	33	34	56	5	1	0	1	63	65	308
18:15	67	8	2	0	0	77	78	41	4	0	0	0	45	45	19	1	0	0	0	20	20	18:15	13	2	0	0	0	15	15	35	2	0	0	0	37	37	50	9	0	0	3	62	65	260
18:30	72	1	0	0	2	75	77	44	6	0	0	0	50	50	29	2	0	0	0	31	31	18:30	19	0	0	0	0	19	19	27	0	0	0	0	27	27	66	5	1	0	1	73	75	279
18:45	96	9	1	0	1	107	109	39	1	0	0	0	40	40	30	2	0	0	1	33	34	18:45	18	2	0	0	0	20	20	31	2	0	0	0	33	33	68	6	0	0	2	76	78	314
H/TOT	304	30	4	0	3	341	346	180	18	1	0	0	199	200	113	6	0	0	1	120	121	H/TOT	74	7	0	0	0	81	81	123	6	1	0	0	130	131	240	25	2	0	7	274	282	1160
P/TOT	2735	461	101	14	83	3394	3546	1824	315	66	12	7	2224	2280	1447	284	56	17	7	1811	1868	P/TOT	936	149	31	4	9	1129	1159	1278	199	27	4	14	1522	1555	2919	502	100	10	76	3607	3746	14153

SITE 2

	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3							MOVEMENT 4							MOVEMENT 5							MOVEMENT 6						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
07:00	33	11	3	4	1	52	60	57	12	4	3	1	77	84	1	0	0	0	0	1	1	07:00	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	1	1
07:15	43	10	3	3	0	59	64	55	11	1	4	2	73	81	2	0	0	0	0	2	2	07:15	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	1	1
07:30	59	9	3	3	0	74	79	87	11	5	3	5	111	122	4	0	0	0	0	4	4	07:30	2	0	0	0	0	2	2	0	0	0	0	0	0	0	1	0	0	0	0	1	1
07:45	66	10	3	2	0	81	85	107	11	5	2	4	129	138	6	0	0	2	0	8	11	07:45	1	0	0	0	0	1	1	2	0	0	0	0	2	2	2	0	1	0	0	3	4
H/TOT	201	40	12	12	1	266	289	306	45	15	12	12	390	425	13	0	0	2	0	15	18	H/TOT	4	0	0	0	0	4	4	2	1	0	0	0	3	3	5	0	1	0	0	6	7
08:00	81	12	3	0	1	97	100	136	14	4	3	0	157	163	3	1	1	0	0	5	6	08:00	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0	0	2	3
08:15	76	8	5	3	0	92	98	113	13	3	3	2	134	141	7	1	0	0	0	8	8	08:15	2	0	0	0	0	2	2	3	0	2	0	0	5	6	3	1	0	0	0	4	4
08:30	71	13	0	1	0	85	86	131	9	5	1	1	147	152	4	1	0	0	0	5	5	08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2
08:45	76	4	1	2	0	83	86	148	10	5	1	0	164	168	7	4	0	0	0	11	11	08:45	6	2	0	0	0	8	8	1	0	0	0	0	1	1	0	0	0	0	0	0	0
H/TOT	304	37	9	6	1	357	370	528	46	17	8	3	602	624	21	7	1	0	0	29	30	H/TOT	9	2	0	0	0	11	11	4	0	2	0	0	6	7	5	2	1	0	0	8	9
09:00	82	12	4	2	0	100	105	158	19	6	1	2	186	192	16	2	1	0	0	19	20	09:00	7	3	0	1	0	11	12	0	0	1	0	0	1	2	4	1	0	0	0	5	5
09:15	65	24	3	2	1	95	100	144	13	8	1	0	166	171	12	6	0	2	0	20	23	09:15	8	2	0	0	0	10	10	3	1	0	0	0	4	4	5	3	0	0	0	8	8
09:30	37	7	4	4	0	52	59	111	16	5	2	3	137	145	15	8	2	0	0	25	26	09:30	13	3	1	0	0	17	18	3	2	0	0	0	5	5	10	6	0	1	0	17	18
09:45	44	10	6	0	0	60	63	137	17	1	0	2	157	160	14	4	0	0	0	18	18	09:45	13	1	0	1	1	16	18	5	1	2	0	0	8	9	14	4	0	0	0	18	18
H/TOT	228	53	17	8	1	307	327	550	65	20	4	7	646	668	57	20	3	2	0	82	86	H/TOT	41	9	1	2	1	54	58	11	4	3	0	0	18	20	33	14	0	1	0	48	49
10:00	45	16	2	2	0	65	69	92	16	3	1	6	118	127	17	1	1	1	0	20	22	10:00	13	3	2	0	0	18	19	10	3	1	0	0	14	15	22	2	0	0	0	24	24
10:15	43	8	7	1	0	59	64	105	9	0	3	2	119	125	18	2	0	0	0	20	20	10:15	21	0	0	2	0	23	26	10	0	1	0	0	11	12	20	0	2	0	0	22	23
10:30	24	9	2	2	0	37	41	113	13	2	1	1	130	133	17	4	0	0	0	21	21	10:30	15	3	0	0	0	18	18	9	0	0	0	0	9	9	12	3	0	0	0	15	15
10:45	39	11	6	0	0	56	59	120	3	2	4	1	130	137	16	7	1	0	0	24	25	10:45	25	4	1	0	0	30	31	17	1	0	0	0	18	18	10	2	0	0	0	12	12
H/TOT	151	44	17	5	0	217	232	430	41	7	9	10	497	522	68	14	2	1	0	85	87	H/TOT	74	10	3	2	0	89	93	46	4	2	0	0	52	53	64	7	2	0	0	73	74
11:00	31	11	1	2	0	45	48	82	11	1	0	3	97	101	22	1	1	0	0	24	25	11:00	17	4	0	0	0	21	21	8	2	0	0	0	10	10	24	2	0	0	0	26	26
11:15	26	9	4	1	0	40	43	117	8	0	3	1	129	134	23	5	1	0	1	30	32	11:15	23	4	1	0	0	28	29	10	1	1	0	0	12	13	31	5	0	0	0	36	36
11:30	26	7	5	4	0	42	50	107	8	2	2	2	121	127	17	5	0	0	0	22	22	11:30	30	7	1	0	0	38	39	12	0	0	0	0	12	12	20	3	0	0	0	23	23
11:45	36	9	3	7	0	55	66	132	15	4	0	2	153	157	25	7	0	0	0	32	32	11:45	20	2	1	0	0	23	24	15	2	0	0	0	17	17	26	4	0	0	1	31	32
H/TOT	119	36	13	14	0	182	207	438	42	7	5	8	500	518	87	18	2	0	1	108	110	H/TOT	90	17	3	0	0	110	112	45	5	1	0	0	51	52	101	14	0	0	1	116	117
12:00	30	11	4	1	0	46	49	116	9	3	0	0	128	130	31	2	0	0	0	33	33	12:00	32	4	0	0	0	36	36	12	2	0	0	0	14	14	28	3	0	0	0	31	31
12:15	30	15	5	1	0	51	55	113	22	4	0	2	141	145	22	2	0	0	0	24	24	12:15	25	2	0	0	0	27	27	13	1	0	0	0	14	14	28	3	0	0	0	31	31
12:30	22	13	3	1	0	39	42	103	20	3	2	0	128	132	26	4	0	1	0	31	32	12:30	17	3	0	0	0	20	20	10	0	0	0	0	10	10	31	4	0	0	0	35	35
12:45	27	11	5	3	0	46	52	135	12	3	0	4	154	160	23	4	1	1	0	29	31	12:45	24	6	0	0	0	30	30	17	1	0	0	0	18	18	21	3	0	0	0	24	24
H/TOT	109	50	17	6	0	182	198	467	63	13	2	6	551	566	102	12	1	2	0	117	120	H/TOT	98	15	0	0	0	113	113	52	4	0	0	0	56	56	108	13	0	0	0	121	121

	MOVEMENT 7							MOVEMENT 8							MOVEMENT 9							MOVEMENT 10							MOVEMENT 11							MOVEMENT 12							PCU's Through Junction
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	
07:00	1	0	0	0	0	1	1	52	14	0	3	0	69	73	25	3	1	0	0	29	30	07:00	13	0	1	0	0	14	15	1	1	0	0	0	2	2	10	2	2	1	0	15	17	284
07:15	2	0	0	0	0	2	2	61	18	1	4	1	85	92	33	5	2	0	0	40	41	07:15	20	3	1	0	1	25	27	1	0	0	0	0	1	1	14	7	1	2	0	24	27	338
07:30	1	0	0	0	0	1	1	84	12	3	5	2	106	116	39	8	0	0	0	47	47	07:30	26	2	0	0	0	28	28	0	0	0	0	0	0	0	15	9	3	1	0	28	31	432
07:45	3	0	0	0	0	3	3	92	21	2	1	2	118	122	49	7	0	0	0	56	56	07:45	39	2	0	0	0	41	41	0	0	1	0	0	1	2	12	3	6	0	0	21	24	488
H/TOT	7	0	0	0	0	7	7	289	65	6	13	5	378	403	146	23	3	0	0	172	174	H/TOT	98	7	2	0	1	108	110	2	1	1	0	0	4	5	51	21	12	4	0	88	99	1542
08:00	4	2	0	0	0	6	6	140	15	3	2	2	162	168	41	9	0	0	0	50	50	08:00	37	3	0	0	1	41	42	2	0	1	0	0	3	4	18	8	7	3	0	36	43	584
08:15	2	0	0	0	0	2	2	112	8	6	0	3	129	135	66	13	0	0	0	79	79	08:15	35	3	0	0	0	38	38	1	0	0	0	0	1	1	23	7	3	0	0	33	35	549
08:30	3	0	0	0	0	3	3	111	15	1	0	3	130	134	58	3	0	1	0	62	63	08:30	48	4	2	0	1	55	57	3	0	0	0	0	3	3	24	7	4	0	0	35	37	542
08:45	4	0	0	0	0	4	4	84	6	4	1	0	95	98	64	8	0	1	1	74	76	08:45	56	7	2	0	0	65	66	4	1	0	0	0	5	5	18	15	1	1	0	35	37	560
H/TOT	13	2	0	0	0	15	15	447	44	14	3	8	516	535	229	33	0	2	1	265	269	H/TOT	176	17	4	0	2	199	203	10	1	1	0	0	12	13	83	37	15	4	0	139	152	**2236**
09:00	8	3	0	0	0	11	11	86	9	7	0	4	106	114	46	8	2	0	0	56	57	09:00	40	7	4	0	0	51	53	2	0	0	0	0	2	2	20	6	1	2	0	29	32	604
09:15	17	2	0	1	0	20	21	104	17	3	2	3	129	136	42	5	2	1	0	50	52	09:15	59	6	1	0	1	67	69	2	1	0	0	0	3	3	22	10	2	4	1	39	46	643
09:30	19	1	0	0	1	21	22	106	18	4	0	2	130	134	34	7	3	1	2	47	52	09:30	49	8	1	0	1	59	61	12	3	0	0	0	15	15	15	6	3	3	0	27	32	587
09:45	20	1	5	0	0	26	29	91	12	2	2	2	109	115	36	5	1	0	0	42	43	09:45	38	3	2	0	0	43	44	11	2	0	0	0	13	13	25	12	3	4	0	44	51	579
H/TOT	64	7	5	1	1	78	83	387	56	16	4	11	474	498	158	25	8	2	2	195	204	H/TOT	186	24	8	0	2	220	226	27	6	0	0	0	33	33	82	34	9	13	1	139	161	2413
10:00	27	0	1	0	0	28	29	116	13	4	2	1	136	142	24	6	0	0	0	30	30	10:00	35	7	2	0	0	44	45	12	0	1	0	0	13	14	19	11	6	3	0	39	46	579
10:15	26	2	0	0	0	28	28	70	12	4	2	1	89	95	43	5	2	0	0	50	51	10:15	36	9	3	0	0	48	50	10	1	0	0	0	11	11	24	9	7	1	0	41	46	549
10:30	21	2	0	0	0	23	23	99	13	2	3	2	119	126	29	2	0	0	0	31	31	10:30	35	5	2	0	0	42	43	10	0	0	0	0	10	10	24	8	3	2	0	37	41	511
10:45	23	5	1	0	0	29	30	94	16	4	1	1	116	120	28	5	1	0	0	34	35	10:45	38	6	1	0	2	47	50	14	3	0	0	0	17	17	33	10	1	2	0	46	49	581
H/TOT	97	9	2	0	0	108	109	379	54	14	8	5	460	482	124	18	3	0	0	145	147	H/TOT	144	27	8	0	2	181	187	46	4	1	0	0	51	52	100	38	17	8	0	163	182	2220
11:00	34	4	0	0	0	38	38	90	14	1	1	2	108	112	25	3	4	0	0	32	34	11:00	37	5	0	0	0	42	42	15	3	0	0	0	18	18	36	6	1	0	0	43	44	517
11:15	31	7	0	0	0	38	38	112	15	1	0	0	128	129	35	7	0	0	0	42	42	11:15	41	6	2	0	0	49	50	12	1	0	0	0	13	13	37	8	4	0	0	49	51	608
11:30	28	3	0	0	0	31	31	127	14	3	1	2	147	152	34	6	1	0	0	41	42	11:30	38	5	2	0	0	45	46	7	1	0	0	0	8	8	30	5	8	1	0	44	49	599
11:45	33	2	0	0	0	35	35	112	7	3	0	3	125	130	38	4	1	1	0	44	46	11:45	39	5	0	0	0	44	44	15	2	0	0	0	17	17	30	12	3	3	0	48	53	652
H/TOT	126	16	0	0	0	142	142	441	50	8	2	7	508	522	132	20	6	1	0	159	163	H/TOT	155	21	4	0	0	180	182	49	7	0	0	0	56	56	133	31	16	4	0	184	197	2377
12:00	28	1	0	0	0	29	29	119	15	1	0	4	139	144	29	7	1	1	1	39	42	12:00	37	5	1	0	0	43	44	12	0	0	0	0	12	12	41	11	2	4	0	58	64	627
12:15	20	4	0	0	0	24	24	111	14	2	3	2	132	139	36	5	0	0	0	41	41	12:15	34	6	1	0	0	41	42	7	1	0	0	0	8	8	37	26	0	2	0	65	68	617
12:30	34	3	0	0	0	37	37	139	15	4	0	1	159	162	46	5	1	0	0	52	53	12:30	49	9	2	0	0	60	61	15	1	0	0	0	16	16	28	13	6	5	0	52	62	661
12:45	20	1	0	0	0	21	21	139	12	3	2	1	157	162	30	6	2	0	0	38	39	12:45	44	6	0	0	0	50	50	21	1	1	0	0	23	24	41	16	4	0	0	61	63	673
H/TOT	102	9	0	0	0	111	111	508	56	10	5	8	587	607	141	23	4	1	1	170	174	H/TOT	164	26	4	0	0	194	196	55	3	1	0	0	59	60	147	66	12	11	0	236	256	2578

	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3							MOVEMENT 4							MOVEMENT 5							MOVEMENT 6						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	30	12	4	0	0	46	48	151	10	1	1	1	164	167	26	5	0	0	0	31	31	13:00	31	4	0	0	0	35	35	15	1	0	0	0	16	16	35	3	1	0	0	39	40
13:15	36	8	4	3	0	51	57	125	15	2	0	2	144	147	29	1	0	0	0	30	30	13:15	30	5	0	0	0	35	35	13	1	0	0	0	14	14	24	2	0	0	0	26	26
13:30	33	6	2	4	0	45	51	126	8	2	3	4	143	152	15	1	0	0	0	16	16	13:30	39	6	0	1	0	46	47	12	3	0	0	0	15	15	31	1	0	0	0	32	32
13:45	35	11	2	4	1	53	60	121	14	0	2	5	142	150	25	3	0	1	0	29	30	13:45	33	4	1	1	0	39	41	20	2	0	0	0	22	22	30	0	0	0	0	30	30
H/TOT	134	37	12	11	1	195	216	523	47	5	6	12	593	615	95	10	0	1	0	106	107	H/TOT	133	19	1	2	0	155	158	60	7	0	0	0	67	67	120	6	1	0	0	127	128
14:00	35	6	6	3	0	50	57	127	7	2	2	1	139	144	21	4	0	0	0	25	25	14:00	27	3	0	0	0	30	30	13	4	0	0	0	17	17	16	1	0	0	0	17	17
14:15	40	9	5	1	0	55	59	102	19	1	0	1	123	125	14	6	3	0	0	23	25	14:15	32	4	0	1	0	37	38	18	2	0	0	0	20	20	23	4	0	0	0	27	27
14:30	25	19	4	1	0	49	52	120	14	2	2	2	140	146	31	5	0	0	0	36	36	14:30	17	5	1	0	0	23	24	11	0	0	0	0	11	11	15	4	1	0	0	20	21
14:45	29	6	0	3	0	38	42	97	10	2	0	2	111	114	22	1	1	0	0	24	25	14:45	24	3	1	0	0	28	29	20	1	2	0	0	23	24	32	3	0	0	0	35	35
H/TOT	129	40	15	8	0	192	210	446	50	7	4	6	513	528	88	16	4	0	0	108	110	H/TOT	100	15	2	1	0	118	120	62	7	2	0	0	71	72	86	12	1	0	0	99	100
15:00	27	6	8	1	0	42	47	123	8	3	0	1	135	138	18	8	0	0	0	26	26	15:00	28	4	0	0	0	32	32	11	1	0	0	0	12	12	27	2	1	0	0	30	31
15:15	31	8	6	1	0	46	50	111	15	2	1	2	131	135	29	4	0	0	0	33	33	15:15	28	3	0	0	0	31	31	13	0	0	0	0	13	13	35	4	0	0	0	39	39
15:30	30	5	5	0	0	40	43	94	13	5	0	2	114	119	15	1	1	0	1	18	20	15:30	28	6	1	0	0	35	36	8	1	0	0	0	9	9	25	2	0	0	0	27	27
15:45	25	8	7	3	0	43	50	121	11	0	1	1	134	136	19	1	0	0	0	20	20	15:45	24	2	1	0	0	27	28	7	0	0	0	0	7	7	19	1	0	0	0	20	20
H/TOT	113	27	26	5	0	171	191	449	47	10	2	6	514	528	81	14	1	0	1	97	99	H/TOT	108	15	2	0	0	125	126	39	2	0	0	0	41	41	106	9	1	0	0	116	117
16:00	29	8	10	3	0	50	59	133	14	3	0	2	152	156	16	0	0	0	0	16	16	16:00	41	2	0	0	1	44	45	8	0	0	0	0	8	8	15	1	0	0	0	16	16
16:15	14	6	4	1	0	25	28	131	11	0	1	1	144	146	28	3	0	0	0	31	31	16:15	27	1	1	0	0	29	30	10	0	0	0	0	10	10	22	1	0	0	0	23	23
16:30	23	5	3	1	0	32	35	108	22	0	1	1	132	134	19	2	0	0	0	21	21	16:30	32	4	0	0	0	36	36	5	1	0	0	0	6	6	21	2	0	0	0	23	23
16:45	20	5	1	0	0	26	27	123	16	2	0	2	143	146	17	2	0	0	0	19	19	16:45	22	3	0	0	0	25	25	10	0	0	0	0	10	10	13	0	0	0	0	13	13
H/TOT	86	24	18	5	0	133	149	495	63	5	2	6	571	582	80	7	0	0	0	87	87	H/TOT	122	10	1	0	1	134	136	33	1	0	0	0	34	34	71	4	0	0	0	75	75
17:00	24	2	3	0	0	29	31	112	10	0	0	0	122	122	32	3	0	0	0	35	35	17:00	22	4	0	0	0	26	26	7	1	0	0	0	8	8	22	1	0	0	0	23	23
17:15	23	6	0	0	0	29	29	132	9	3	0	3	147	152	24	1	0	0	0	25	25	17:15	22	0	0	0	0	22	22	6	0	0	0	0	6	6	18	2	0	0	0	20	20
17:30	26	2	2	1	0	31	33	139	14	1	0	0	154	155	12	2	0	0	0	14	14	17:30	24	1	0	0	0	25	25	7	1	0	0	0	8	8	15	3	0	0	0	18	18
17:45	30	2	2	0	0	34	35	135	14	0	0	0	149	149	18	2	0	0	0	20	20	17:45	26	0	1	0	0	27	28	12	1	0	0	0	13	13	30	3	0	0	0	33	33
H/TOT	103	12	7	1	0	123	128	518	47	4	0	3	572	577	86	8	0	0	0	94	94	H/TOT	94	5	1	0	0	100	101	32	3	0	0	0	35	35	85	9	0	0	0	94	94
18:00	26	1	0	0	0	27	27	157	11	0	0	3	171	174	22	2	0	0	0	24	24	18:00	21	5	1	0	0	27	28	6	0	0	0	0	6	6	17	0	0	0	0	17	17
18:15	12	2	1	0	0	15	16	119	15	1	0	3	138	142	15	0	0	0	0	15	15	18:15	21	3	0	0	0	24	24	7	0	0	0	0	7	7	20	0	0	0	0	20	20
18:30	23	0	0	0	0	23	23	151	21	3	0	0	175	177	20	3	0	0	0	23	23	18:30	19	2	0	0	0	21	21	14	0	0	0	0	14	14	17	2	1	0	0	20	21
18:45	21	1	0	0	0	22	22	116	9	2	0	2	129	132	16	2	0	0	0	18	18	18:45	20	5	0	0	0	25	25	6	1	0	0	0	7	7	28	2	0	0	0	30	30
H/TOT	82	4	1	0	0	87	88	543	56	6	0	8	613	624	73	7	0	0	0	80	80	H/TOT	81	15	1	0	0	97	98	33	1	0	0	0	34	34	82	4	1	0	0	87	88
P/TOT	1759	404	164	81	4	2412	2603	5693	612	116	54	87	6562	6777	851	133	14	8	2	1008	1027	P/TOT	954	132	15	7	2	1110	1129	419	39	10	0	0	468	473	866	94	8	1	1	970	976

	MOVEMENT 7							MOVEMENT 8							MOVEMENT 9							MOVEMENT 10							MOVEMENT 11							MOVEMENT 12							PCU's Through Junction
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	
13:00	32	3	0	0	0	35	35	130	18	3	0	3	154	159	29	3	0	0	0	32	32	13:00	63	2	0	0	0	65	65	11	3	0	0	0	14	14	48	4	3	0	0	55	57	697
13:15	44	4	0	0	0	48	48	139	16	5	1	2	163	169	49	8	1	0	0	58	59	13:15	51	4	0	0	0	55	55	30	4	0	0	0	34	34	40	9	2	1	0	52	54	728
13:30	19	2	0	0	0	21	21	129	10	2	3	1	145	151	35	4	0	0	0	39	39	13:30	44	4	2	0	0	50	51	16	0	0	0	0	16	16	38	4	5	3	0	50	56	648
13:45	35	2	1	0	0	38	39	143	12	1	2	1	159	163	40	4	1	0	0	45	46	13:45	52	5	0	0	0	57	57	9	0	0	0	0	9	9	30	10	2	3	0	45	50	696
H/TOT	130	11	1	0	0	142	143	541	56	11	6	7	621	641	153	19	2	0	0	174	175	H/TOT	210	15	2	0	0	227	228	66	7	0	0	0	73	73	156	27	12	7	0	202	217	2768
14:00	33	4	0	0	0	37	37	128	20	2	0	3	153	157	35	5	3	0	0	43	45	14:00	47	4	1	0	0	52	53	11	3	0	0	0	14	14	52	14	1	1	0	68	70	664
14:15	35	3	0	0	0	38	38	139	14	3	1	1	158	162	34	6	2	0	0	42	43	14:15	51	8	0	0	0	59	59	11	1	0	0	0	12	12	37	8	1	3	0	49	53	660
14:30	27	0	0	0	0	27	27	134	11	2	2	0	149	153	25	3	1	0	0	29	30	14:30	50	7	0	0	0	57	57	10	3	0	0	0	13	13	41	17	7	2	0	67	73	641
14:45	30	3	0	0	0	33	33	141	14	2	0	3	160	164	32	2	1	1	0	36	38	14:45	49	5	0	0	1	55	56	9	0	1	0	0	10	11	30	12	3	2	0	47	51	620
H/TOT	125	10	0	0	0	135	135	542	59	9	3	7	620	635	126	16	7	1	0	150	155	H/TOT	197	24	1	0	1	223	225	41	7	1	0	0	49	50	160	51	12	8	0	231	247	2586
15:00	26	3	0	0	0	29	29	127	10	2	1	3	143	148	37	6	0	0	1	44	45	15:00	59	5	0	1	0	65	66	10	0	0	0	0	10	10	44	8	8	3	1	64	73	657
15:15	31	3	1	0	0	35	36	139	18	3	2	3	165	172	39	3	1	0	1	44	46	15:15	48	5	0	0	0	53	53	8	1	0	0	0	9	9	33	10	4	2	0	49	54	670
15:30	34	0	0	0	0	34	34	137	6	1	0	2	146	149	37	7	2	0	0	46	47	15:30	53	4	2	0	1	60	62	11	1	0	0	0	12	12	59	11	5	1	0	76	80	635
15:45	29	1	0	0	0	30	30	133	14	9	1	2	159	167	25	7	2	0	0	34	35	15:45	50	5	1	0	0	56	57	10	1	0	0	0	11	11	58	9	5	2	0	74	79	640
H/TOT	120	7	1	0	0	128	129	536	48	15	4	10	613	636	138	23	5	0	2	168	173	H/TOT	210	19	3	1	1	234	238	39	3	0	0	0	42	42	194	38	22	8	1	263	285	2602
16:00	34	3	1	0	0	38	39	192	15	3	1	4	215	222	32	5	1	0	0	38	39	16:00	63	7	1	1	0	72	74	6	0	0	0	0	6	6	83	12	0	2	0	97	100	778
16:15	22	2	0	0	0	24	24	187	17	2	1	1	208	211	36	5	1	0	0	42	43	16:15	70	7	0	0	0	77	77	12	2	0	0	0	14	14	72	7	2	0	0	81	82	719
16:30	15	2	0	0	0	17	17	171	11	1	1	2	186	190	21	2	1	0	0	24	25	16:30	73	8	1	0	1	83	85	6	0	0	0	0	6	6	85	12	6	1	0	104	108	685
16:45	16	4	0	0	0	20	20	215	11	3	0	1	230	233	23	3	0	0	0	26	26	16:45	66	6	1	0	0	73	74	7	2	0	0	0	9	9	77	12	6	1	1	97	102	703
H/TOT	87	11	1	0	0	99	100	765	54	9	3	8	839	855	112	15	3	0	0	130	132	H/TOT	272	28	3	1	1	305	309	31	4	0	0	0	35	35	317	43	14	4	1	379	392	2885
17:00	13	1	0	0	0	14	14	208	22	2	0	1	233	235	33	1	0	0	0	34	34	17:00	85	15	2	0	0	102	103	10	1	0	0	0	11	11	93	13	2	0	0	108	109	751
17:15	26	0	0	0	0	26	26	163	20	1	1	1	186	189	30	3	0	0	0	33	33	17:15	65	8	0	0	0	73	73	5	1	0	0	0	6	6	91	13	6	1	0	111	115	696
17:30	25	2	1	0	0	28	29	172	13	2	0	1	188	190	31	4	0	0	0	35	35	17:30	90	11	0	0	0	101	101	8	0	1	0	0	9	10	95	13	5	1	0	114	118	735
17:45	23	1	0	0	0	24	24	154	13	2	1	2	172	176	35	1	0	0	0	36	36	17:45	70	9	1	0	0	80	81	8	0	0	0	0	8	8	70	10	4	1	0	85	88	691
H/TOT	87	4	1	0	0	92	93	697	68	7	2	5	779	790	129	9	0	0	0	138	138	H/TOT	310	43	3	0	0	356	358	31	2	1	0	0	34	35	349	49	17	3	0	418	430	**2871**
18:00	18	1	1	0	0	20	21	143	11	0	0	0	154	154	26	1	0	0	0	27	27	18:00	71	7	0	0	0	78	78	8	2	0	0	0	10	10	82	8	5	1	0	96	100	665
18:15	23	5	0	0	0	28	28	173	9	1	0	1	184	186	20	1	0	0	0	21	21	18:15	53	2	0	0	0	55	55	9	1	0	0	0	10	10	54	4	0	0	0	58	58	581
18:30	14	2	0	0	0	16	16	150	10	2	0	3	165	169	26	2	0	0	0	28	28	18:30	51	6	0	0	0	57	57	15	0	0	0	0	15	15	45	2	1	0	0	48	49	612
18:45	20	4	0	0	0	24	24	145	21	2	0	1	169	171	32	4	0	0	1	37	38	18:45	42	3	1	0	0	46	47	18	1	0	0	0	19	19	45	4	0	0	0	49	49	582
H/TOT	75	12	1	0	0	88	89	611	51	5	0	5	672	680	104	8	0	0	1	113	114	H/TOT	217	18	1	0	0	236	237	50	4	0	0	0	54	54	226	18	6	1	0	251	255	2438
P/TOT	1033	98	12	1	1	1145	1153	6143	661	124	53	86	7067	7284	1692	232	41	7	7	1979	2016	P/TOT	2339	269	43	2	10	2663	2697	447	49	6	0	0	502	505	1998	453	164	75	3	2693	2876	29516

SITE 3

	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3							MOVEMENT 4						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
07:00	1	0	0	0	0	1	1	25	5	4	2	1	37	43	45	7	1	0	0	53	54	0	0	0	1	0	1	2
07:15	4	0	0	0	0	4	4	20	6	0	0	3	29	32	52	8	2	1	0	63	65	0	0	0	3	0	3	7
07:30	8	0	1	0	0	9	10	42	5	4	0	2	53	57	64	8	0	1	3	76	80	0	0	0	2	0	2	5
07:45	4	0	0	0	0	4	4	57	5	4	1	3	70	76	87	8	1	0	1	97	99	0	0	1	1	0	2	4
H/TOT	17	0	1	0	0	18	19	144	21	12	3	9	189	208	248	31	4	2	4	289	298	0	0	1	7	0	8	18
08:00	14	0	0	0	0	14	14	50	10	2	3	1	66	72	109	7	3	0	0	119	121	1	0	0	0	0	1	1
08:15	9	1	1	0	0	11	12	50	11	2	3	2	68	75	92	5	0	0	0	97	97	0	0	0	0	0	0	0
08:30	10	0	0	0	0	10	10	37	12	2	0	1	52	54	133	2	5	0	1	141	145	0	0	0	1	0	1	2
08:45	15	2	1	0	0	18	19	66	8	2	0	0	76	77	122	7	4	0	0	133	135	1	0	0	1	0	2	3
H/TOT	48	3	2	0	0	53	54	203	41	8	6	4	262	278	456	21	12	0	1	490	497	2	0	0	2	0	4	7
09:00	15	0	0	0	0	15	15	77	12	7	1	0	97	102	110	14	3	0	2	129	133	0	1	0	0	0	1	1
09:15	9	2	0	0	0	11	11	53	8	7	0	0	68	72	146	11	2	1	1	161	164	0	1	0	0	0	1	1
09:30	15	2	0	0	0	17	17	73	18	3	2	3	99	106	81	10	3	0	1	95	98	1	0	0	1	0	2	3
09:45	6	0	0	0	0	6	6	75	11	2	0	1	89	91	106	12	1	0	1	120	122	2	1	0	0	0	3	3
H/TOT	45	4	0	0	0	49	49	278	49	19	3	4	353	370	443	47	9	1	5	505	516	3	3	0	1	0	7	8
10:00	8	2	0	0	0	10	10	62	11	3	0	1	77	80	76	12	2	0	5	95	101	3	0	0	1	0	4	5
10:15	4	0	0	0	0	4	4	76	7	5	1	1	90	95	80	11	0	0	1	92	93	1	0	0	2	0	3	6
10:30	8	1	0	0	0	9	9	72	10	0	0	0	82	82	79	10	3	0	1	93	96	1	0	1	1	0	3	5
10:45	7	1	0	0	0	8	8	77	9	0	2	0	88	91	84	0	3	1	2	90	95	0	1	0	1	1	3	5
H/TOT	27	4	0	0	0	31	31	287	37	8	3	2	337	347	319	33	8	1	9	370	384	5	1	1	5	1	13	21
11:00	4	2	0	0	0	6	6	78	12	0	0	1	91	92	61	4	1	0	2	68	71	0	0	0	0	0	0	0
11:15	4	0	0	0	0	4	4	101	14	2	2	1	120	125	83	5	0	0	0	88	88	1	0	0	1	0	2	3
11:30	9	0	0	0	0	9	9	87	12	0	1	0	100	101	69	4	4	0	2	79	83	0	0	0	1	0	1	2
11:45	2	0	1	0	0	3	4	101	9	2	0	0	112	113	94	15	1	0	3	113	117	0	0	0	0	0	0	0
H/TOT	19	2	1	0	0	22	23	367	47	4	3	2	423	431	307	28	6	0	7	348	358	1	0	0	2	0	3	6
12:00	6	0	0	0	0	6	6	94	13	2	0	0	109	110	81	3	2	0	0	86	87	0	1	0	0	0	1	1
12:15	3	2	0	0	0	5	5	91	17	2	0	0	110	111	80	11	3	0	2	96	100	1	1	0	0	0	2	2
12:30	5	0	1	0	0	6	7	107	19	1	1	0	128	130	68	13	3	0	0	84	86	3	1	0	1	0	5	6
12:45	3	0	0	0	0	3	3	104	12	2	0	0	118	119	92	8	1	0	4	105	110	1	1	0	0	0	2	2
H/TOT	17	2	1	0	0	20	21	396	61	7	1	0	465	470	321	35	9	0	6	371	382	5	4	0	1	0	10	11

	MOVEMENT 5							MOVEMENT 6							MOVEMENT 7						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
07:00	45	9	1	2	0	57	60	0	0	0	0	0	0	0	13	2	0	0	2	17	19
07:15	67	15	1	3	0	86	90	1	0	0	0	0	1	1	11	1	0	0	8	20	28
07:30	78	11	2	4	1	96	103	6	1	0	0	0	7	7	12	1	1	0	2	16	19
07:45	81	8	1	1	2	93	97	6	0	0	0	0	6	6	12	0	0	1	8	21	30
H/TOT	271	43	5	10	3	332	351	13	1	0	0	0	14	14	48	4	1	1	20	74	96
08:00	110	16	1	0	1	128	130	3	0	0	0	0	3	3	12	1	1	0	3	17	21
08:15	99	14	4	0	1	118	121	4	2	0	0	0	6	6	18	1	0	0	5	24	29
08:30	101	11	0	0	1	113	114	8	1	0	0	0	9	9	15	1	0	0	5	21	26
08:45	85	9	2	2	0	98	102	15	0	0	0	0	15	15	23	0	1	0	6	30	37
H/TOT	395	50	7	2	3	457	466	30	3	0	0	0	33	33	68	3	2	0	19	92	112
09:00	64	14	7	0	2	87	93	15	1	0	0	0	16	16	24	1	0	0	4	29	33
09:15	92	16	1	1	1	111	114	6	1	0	0	0	7	7	22	1	0	0	5	28	33
09:30	85	15	3	0	2	105	109	8	0	0	0	0	8	8	22	1	0	0	3	26	29
09:45	99	9	6	1	1	116	121	6	0	0	0	0	6	6	11	2	1	0	3	17	21
H/TOT	340	54	17	2	6	419	436	35	2	0	0	0	37	37	79	5	1	0	15	100	116
10:00	97	14	2	2	0	115	119	8	1	0	0	0	9	9	17	3	1	0	4	25	30
10:15	72	13	6	2	0	93	99	4	1	0	0	0	5	5	21	2	0	0	3	26	29
10:30	89	11	1	1	1	103	106	2	0	0	0	0	2	2	25	2	1	0	3	31	35
10:45	93	14	2	1	1	111	114	3	0	0	0	0	3	3	30	3	0	0	2	35	37
H/TOT	351	52	11	6	2	422	437	17	2	0	0	0	19	19	93	10	2	0	12	117	130
11:00	77	12	4	1	0	94	97	2	0	0	0	0	2	2	16	0	0	0	3	19	22
11:15	100	13	0	0	0	113	113	2	0	0	0	0	2	2	21	0	0	0	2	23	25
11:30	123	14	1	1	0	139	141	5	0	0	0	0	5	5	23	1	0	0	5	29	34
11:45	116	10	3	1	3	133	139	9	0	0	0	0	9	9	31	2	0	1	3	37	41
H/TOT	416	49	8	3	3	479	490	18	0	0	0	0	18	18	91	3	0	1	13	108	122
12:00	119	16	1	0	3	139	143	10	0	0	0	0	10	10	23	0	0	0	4	27	31
12:15	90	7	0	1	1	99	101	1	0	0	0	0	1	1	24	1	1	0	4	30	35
12:30	144	15	0	0	1	160	161	1	0	0	0	0	1	1	14	2	0	0	3	19	22
12:45	132	9	3	2	0	146	150	3	0	0	0	0	3	3	27	4	0	0	1	32	33
H/TOT	485	47	4	3	5	544	555	15	0	0	0	0	15	15	88	7	1	0	12	108	121

	MOVEMENT 8							MOVEMENT 9							MOVEMENT 10								MOVEMENT 11							MOVEMENT 12							MOVEMENT 13							PCU's Through Junction
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	
07:00	28	0	0	0	4	32	36	33	8	0	1	0	42	43	1	0	0	0	0	1	1	07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	205
07:15	33	0	1	0	3	37	41	29	8	2	1	1	41	44	0	0	0	0	0	0	0	07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	247
07:30	34	0	0	0	3	37	40	46	9	1	1	1	58	61	1	0	0	0	0	1	1	07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	302
07:45	40	0	0	0	1	41	42	63	20	1	0	0	84	85	2	0	0	0	0	2	2	07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	346
H/TOT	135	0	1	0	11	147	159	171	45	4	3	2	225	233	4	0	0	0	0	4	4	H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1100
08:00	45	1	0	0	4	50	54	75	10	2	2	1	90	95	4	0	0	0	0	4	4	08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	393
08:15	30	0	0	0	3	33	36	81	7	2	0	2	92	95	5	1	0	0	0	6	6	08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	379
08:30	37	0	0	0	4	41	45	71	7	1	1	2	82	86	1	0	0	0	0	1	1	08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	347
08:45	35	0	0	0	1	36	37	67	5	2	0	1	75	77	4	0	0	0	0	4	4	08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370
H/TOT	147	1	0	0	12	160	172	294	29	7	3	6	339	352	14	1	0	0	0	15	15	H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1489**
09:00	37	0	1	0	4	42	47	76	6	2	0	2	86	89	3	0	0	0	0	3	3	09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	398
09:15	27	1	1	0	3	32	36	71	7	4	3	2	87	95	1	0	0	0	0	1	1	09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	370
09:30	21	1	0	0	5	27	32	74	11	4	1	3	93	99	2	0	0	0	0	2	2	09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	405
09:45	22	2	0	0	5	29	34	48	9	2	1	1	61	64	2	0	0	0	0	2	2	09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	348
H/TOT	107	4	2	0	17	130	148	269	33	12	5	8	327	348	8	0	0	0	0	8	8	H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1521
10:00	17	0	0	0	2	19	21	70	5	3	0	1	79	82	2	0	0	0	0	2	2	10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	356
10:15	11	1	0	0	3	15	18	67	6	0	0	1	74	75	1	0	0	0	0	1	1	10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	331
10:30	13	1	1	0	4	19	24	60	6	1	2	1	70	74	3	0	0	0	0	3	3	10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	339
10:45	11	3	0	0	3	17	20	52	12	4	0	0	68	70	3	0	0	0	0	3	3	10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	351
H/TOT	52	5	1	0	12	70	83	249	29	8	2	3	291	301	9	0	0	0	0	9	9	H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1377
11:00	11	3	1	0	3	18	22	72	9	1	0	2	84	87	2	0	0	0	0	2	2	11:00	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	330
11:15	8	1	1	0	4	14	19	77	16	1	0	0	94	95	1	0	0	0	0	1	1	11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	387
11:30	19	2	0	0	4	25	29	66	9	3	0	2	80	84	4	0	0	0	0	4	4	11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	409
11:45	12	5	0	0	4	21	25	67	3	1	0	0	71	72	1	0	0	0	0	1	1	11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	403
H/TOT	50	11	2	0	15	78	94	282	37	6	0	4	329	336	8	0	0	0	0	8	8	H/TOT	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	1	1	1529
12:00	17	3	0	0	1	21	22	57	7	1	1	2	68	72	1	0	0	0	0	1	1	12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	395
12:15	14	1	2	0	5	22	28	77	16	2	2	1	98	103	1	0	0	0	0	1	1	12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	386
12:30	7	0	0	0	6	13	19	75	8	5	0	0	88	91	2	0	0	0	0	2	2	12:30	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	439
12:45	11	2	0	0	3	16	19	56	10	2	0	1	69	71	1	0	0	0	0	1	1	12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	402
H/TOT	49	6	2	0	15	72	88	265	41	10	3	4	323	336	5	0	0	0	0	5	5	H/TOT	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	1	1	1623

	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3							MOVEMENT 4						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	5	0	0	0	0	5	5	129	10	1	0	0	140	141	115	5	1	1	1	123	126	0	0	0	0	0	0	0
13:15	7	0	0	0	0	7	7	92	8	2	0	0	102	103	100	12	0	0	2	114	116	1	1	0	0	0	2	2
13:30	5	0	0	0	0	5	5	101	8	3	0	2	114	118	92	4	1	0	2	99	102	3	1	0	3	0	7	11
13:45	2	1	0	0	0	3	3	94	10	0	1	4	109	114	107	7	0	1	1	116	118	0	1	0	0	0	1	1
H/TOT	19	1	0	0	0	20	20	416	36	6	1	6	465	475	414	28	2	2	6	452	462	4	3	0	3	0	10	14
14:00	5	0	0	0	0	5	5	84	6	2	1	0	93	95	100	6	1	1	1	109	112	1	0	0	0	0	1	1
14:15	5	0	0	0	0	5	5	82	15	1	0	0	98	99	86	15	0	0	1	102	103	3	1	0	0	0	4	4
14:30	4	1	0	0	0	5	5	86	20	3	2	0	111	115	95	4	0	0	2	101	103	0	0	0	0	0	0	0
14:45	4	0	0	0	0	4	4	99	8	1	0	1	109	111	73	10	1	0	2	86	89	2	0	0	0	0	2	2
H/TOT	18	1	0	0	0	19	19	351	49	7	3	1	411	419	354	35	2	1	6	398	406	6	1	0	0	0	7	7
15:00	1	1	0	0	0	2	2	115	7	1	1	0	124	126	91	7	3	0	1	102	105	2	0	0	0	0	2	2
15:15	3	0	0	0	0	3	3	108	16	2	0	1	127	129	82	8	0	0	1	91	92	1	0	0	1	0	2	3
15:30	2	0	0	0	0	2	2	99	10	1	0	0	110	111	71	9	6	0	3	89	95	0	0	0	0	0	0	0
15:45	5	0	0	0	0	5	5	106	13	0	1	0	120	121	79	4	1	0	1	85	87	0	0	0	0	0	0	0
H/TOT	11	1	0	0	0	12	12	428	46	4	2	1	481	487	323	28	10	0	6	367	378	3	0	0	1	0	4	5
16:00	7	0	0	0	0	7	7	110	15	1	0	0	126	127	93	7	3	0	2	105	109	1	0	0	1	0	2	3
16:15	2	0	0	0	0	2	2	117	15	0	1	0	133	134	103	4	0	0	1	108	109	1	0	0	0	0	1	1
16:30	4	1	0	0	0	5	5	116	20	1	0	0	137	138	79	10	0	0	2	91	93	3	1	0	1	0	5	6
16:45	5	0	0	0	0	5	5	89	11	2	0	0	102	103	104	11	1	0	2	118	121	4	0	0	0	0	4	4
H/TOT	18	1	0	0	0	19	19	432	61	4	1	0	498	501	379	32	4	0	7	422	431	9	1	0	2	0	12	15
17:00	2	0	0	0	0	2	2	106	14	1	0	0	121	122	108	11	1	0	0	120	121	3	1	0	0	0	4	4
17:15	4	0	0	0	0	4	4	98	5	1	0	0	104	105	111	13	2	0	3	129	133	2	1	0	0	0	3	3
17:30	10	0	0	0	0	10	10	112	13	1	0	0	126	127	116	15	0	0	0	131	131	6	0	0	0	0	6	6
17:45	15	0	0	0	0	15	15	122	17	0	0	0	139	139	98	8	1	0	0	107	108	0	1	0	0	0	1	1
H/TOT	31	0	0	0	0	31	31	438	49	3	0	0	490	492	433	47	4	0	3	487	492	11	3	0	0	0	14	14
18:00	5	0	0	0	0	5	5	122	12	0	0	0	134	134	116	6	0	0	3	125	128	2	0	0	0	0	2	2
18:15	3	0	0	0	0	3	3	99	10	0	0	1	110	111	90	7	1	0	2	100	103	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	106	14	4	0	0	124	126	111	15	0	0	0	126	126	2	0	0	0	0	2	2
18:45	0	0	0	0	0	0	0	99	8	3	0	1	111	114	87	6	0	0	1	94	95	0	0	0	0	0	0	0
H/TOT	8	0	0	0	0	8	8	426	44	7	0	2	479	485	404	34	1	0	6	445	452	4	0	0	0	0	4	4
P/TOT	278	19	5	0	0	302	305	###	541	89	26	31	###	###	###	399	71	7	66	###	###	53	16	2	24	1	96	129

	MOVEMENT 5							MOVEMENT 6							MOVEMENT 7						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	116	12	1	0	2	131	134	5	0	0	0	0	5	5	25	1	0	0	3	29	32
13:15	170	18	2	0	1	191	193	5	0	0	0	0	5	5	27	2	0	0	4	33	37
13:30	107	8	2	1	0	118	120	4	1	0	0	0	5	5	26	2	0	0	3	31	34
13:45	131	9	1	1	0	142	144	4	0	0	0	0	4	4	25	4	0	0	5	34	39
H/TOT	524	47	6	2	3	582	591	18	1	0	0	0	19	19	103	9	0	0	15	127	142
14:00	122	18	5	0	2	147	152	6	0	0	0	0	6	6	20	2	0	0	5	27	32
14:15	135	18	1	0	1	155	157	14	0	0	0	0	14	14	26	0	1	0	3	30	34
14:30	106	7	2	1	0	116	118	3	0	0	0	0	3	3	23	1	0	0	5	29	34
14:45	117	13	1	0	1	132	134	5	1	0	0	0	6	6	22	3	0	0	2	27	29
H/TOT	480	56	9	1	4	550	560	28	1	0	0	0	29	29	91	6	1	0	15	113	129
15:00	115	13	1	0	2	131	134	0	0	0	0	0	0	0	22	1	0	0	3	26	29
15:15	131	16	2	2	3	154	161	4	0	0	0	0	4	4	34	2	1	0	2	39	42
15:30	128	9	1	0	1	139	141	0	0	0	0	0	0	0	17	3	1	0	3	24	28
15:45	108	12	6	1	1	128	133	3	0	0	0	0	3	3	17	2	0	0	4	23	27
H/TOT	482	50	10	3	7	552	568	7	0	0	0	0	7	7	90	8	2	0	12	112	125
16:00	163	9	3	1	3	179	185	5	0	0	0	0	5	5	19	2	0	0	3	24	27
16:15	164	11	1	0	0	176	177	2	0	0	0	0	2	2	26	2	0	0	3	31	34
16:30	122	6	1	1	1	131	134	3	0	0	0	0	3	3	26	1	1	0	4	32	37
16:45	167	7	1	0	0	175	176	2	0	0	0	0	2	2	25	1	1	0	1	28	30
H/TOT	616	33	6	2	4	661	671	12	0	0	0	0	12	12	96	6	2	0	11	115	127
17:00	148	9	1	0	0	158	159	2	0	0	0	0	2	2	23	0	0	0	6	29	35
17:15	134	10	1	1	0	146	148	2	0	0	0	0	2	2	23	1	0	0	2	26	28
17:30	144	7	0	0	0	151	151	4	0	0	0	0	4	4	23	0	0	0	3	26	29
17:45	125	10	0	1	0	136	137	2	0	0	0	0	2	2	21	1	1	0	3	26	30
H/TOT	551	36	2	2	0	591	595	10	0	0	0	0	10	10	90	2	1	0	14	107	122
18:00	110	6	1	0	0	117	118	1	0	0	0	0	1	1	23	0	0	0	7	30	37
18:15	105	5	1	0	0	111	112	4	0	0	0	0	4	4	22	1	0	0	2	25	27
18:30	115	7	2	0	2	126	129	5	0	0	0	0	5	5	24	1	0	0	2	27	29
18:45	126	15	1	0	1	143	145	0	0	0	0	0	0	0	29	0	1	0	4	34	39
H/TOT	456	33	5	0	3	497	503	10	0	0	0	0	10	10	98	2	1	0	15	116	132
P/TOT	5367	550	90	36	43	6086	6221	213	10	0	0	0	223	223	1035	65	14	2	173	1289	1472

	MOVEMENT 8							MOVEMENT 9							MOVEMENT 10							MOVEMENT 11							MOVEMENT 12							MOVEMENT 13							PCU's Through Junction
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	
13:00	11	3	0	0	2	16	18	75	12	2	0	1	90	92	1	0	0	0	0	1	1	13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	427
13:15	14	2	1	0	4	21	26	61	10	4	1	1	77	81	0	0	0	0	0	0	0	13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	455
13:30	17	3	0	0	3	23	26	75	8	0	2	1	86	90	0	0	0	0	0	0	0	13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	409
13:45	18	1	0	0	5	24	29	87	9	2	1	1	100	103	4	0	0	0	0	4	4	13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	441
H/TOT	60	9	1	0	14	84	99	298	39	8	4	4	353	366	5	0	0	0	0	5	5	H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	1733
14:00	15	0	0	0	3	18	21	74	11	0	0	1	86	87	2	0	0	0	0	2	2	14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	401
14:15	17	1	0	0	3	21	24	73	5	4	1	0	83	86	2	0	0	0	0	2	2	14:15	1	0	0	0	0	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	426
14:30	20	3	0	0	5	28	33	79	7	1	1	0	88	90	1	0	0	0	0	1	1	14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	400
14:45	13	1	0	0	6	20	26	85	6	2	1	2	96	100	2	0	0	0	0	2	2	14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	414
H/TOT	65	5	0	0	17	87	104	311	29	7	3	3	353	363	7	0	0	0	0	7	7	H/TOT	1	0	0	0	0	1	1	1	0	0	0	0	1	1	2	0	0	0	0	2	2	1641
15:00	15	2	0	0	0	17	17	75	6	1	1	2	85	89	0	0	0	0	0	0	0	15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	398
15:15	10	1	0	0	6	17	23	78	8	3	0	1	90	93	3	0	0	0	0	3	3	15:15	0	0	0	0	0	0	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0	462
15:30	16	2	1	0	2	21	24	77	4	2	0	1	84	86	1	0	0	0	0	1	1	15:30	3	0	0	0	0	3	3	0	0	0	0	0	0	0	3	0	0	0	0	3	3	397
15:45	8	1	0	0	4	13	17	79	10	5	0	1	95	99	0	0	0	0	0	0	0	15:45	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	406
H/TOT	49	6	1	0	12	68	81	309	28	11	1	5	354	366	4	0	0	0	0	4	4	H/TOT	3	0	0	0	0	3	3	3	0	0	0	0	3	3	3	0	0	0	0	3	3	1663
16:00	11	1	0	0	2	14	16	95	14	2	0	1	112	114	2	0	0	0	0	2	2	16:00	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	487
16:15	16	3	0	0	2	21	23	81	13	2	1	1	98	101	1	0	0	0	0	1	1	16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	475
16:30	8	3	0	0	3	14	17	85	9	1	0	1	96	98	0	0	0	0	0	0	0	16:30	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	438
16:45	6	3	0	0	5	14	19	87	11	2	0	1	101	103	1	0	0	0	0	1	1	16:45	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	443
H/TOT	41	10	0	0	12	63	75	348	47	7	1	4	407	416	4	0	0	0	0	4	4	H/TOT	0	0	0	0	0	0	0	3	0	0	0	0	3	3	0	0	0	0	0	0	0	1842
17:00	11	0	0	0	3	14	17	105	15	1	0	1	122	124	0	0	0	0	0	0	0	17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	465
17:15	9	1	0	0	2	12	14	85	13	0	0	1	99	100	1	0	0	0	0	1	1	17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	404
17:30	9	2	0	0	3	14	17	84	12	3	0	1	100	103	2	0	0	0	0	2	2	17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	448
17:45	12	1	0	0	3	16	19	87	5	2	0	2	96	99	0	0	0	0	0	0	0	17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	442
H/TOT	41	4	0	0	11	56	67	361	45	6	0	5	417	425	3	0	0	0	0	3	3	H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	**1759**
18:00	19	3	0	0	7	29	36	77	7	0	0	0	84	84	1	0	0	0	0	1	1	18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	418
18:15	15	1	1	0	4	21	26	109	10	0	0	1	120	121	0	0	0	0	0	0	0	18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2	405
18:30	13	1	0	0	6	20	26	75	7	0	0	1	83	84	3	0	0	0	0	3	3	18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	404
18:45	8	1	0	0	4	13	17	71	14	1	0	1	87	89	0	0	0	0	0	0	0	18:45	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	403
H/TOT	55	6	1	0	21	83	105	332	38	1	0	3	374	378	4	0	0	0	0	4	4	H/TOT	0	0	0	0	0	0	0	1	0	0	0	0	1	1	2	0	0	0	0	2	2	1630
P/TOT	851	67	11	0	169	1098	1273	3489	440	87	25	51	4092	4219	75	1	0	0	0	76	76	P/TOT	4	0	0	0	0	4	4	10	0	0	0	0	10	10	12	1	0	0	0	13	13	18906

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APPENDIX

3

FLOW DIAGRAMS

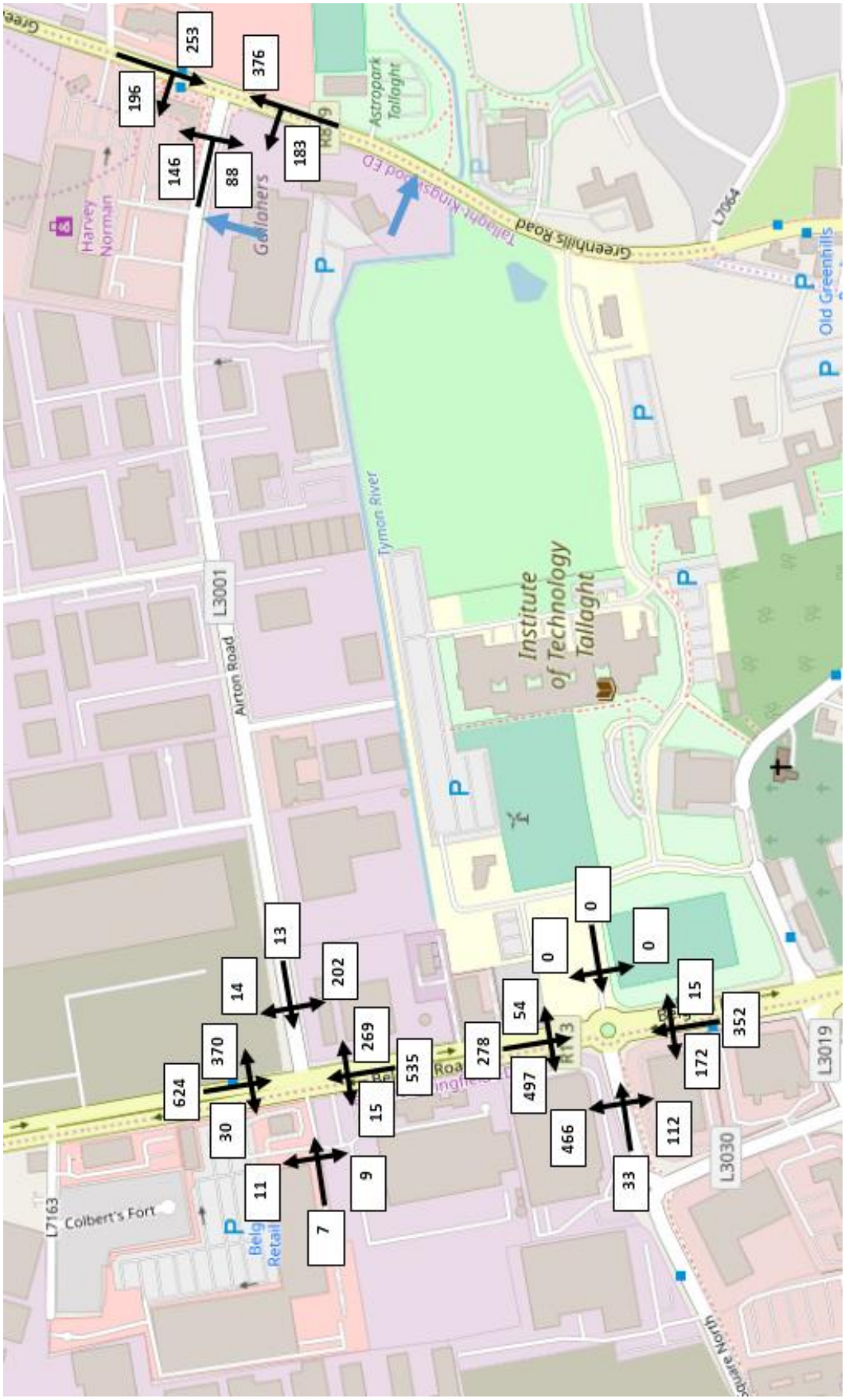

DIAGRAM 1: NETWORK FLOWS AM PEAK (MAY 2019 SURVEY)

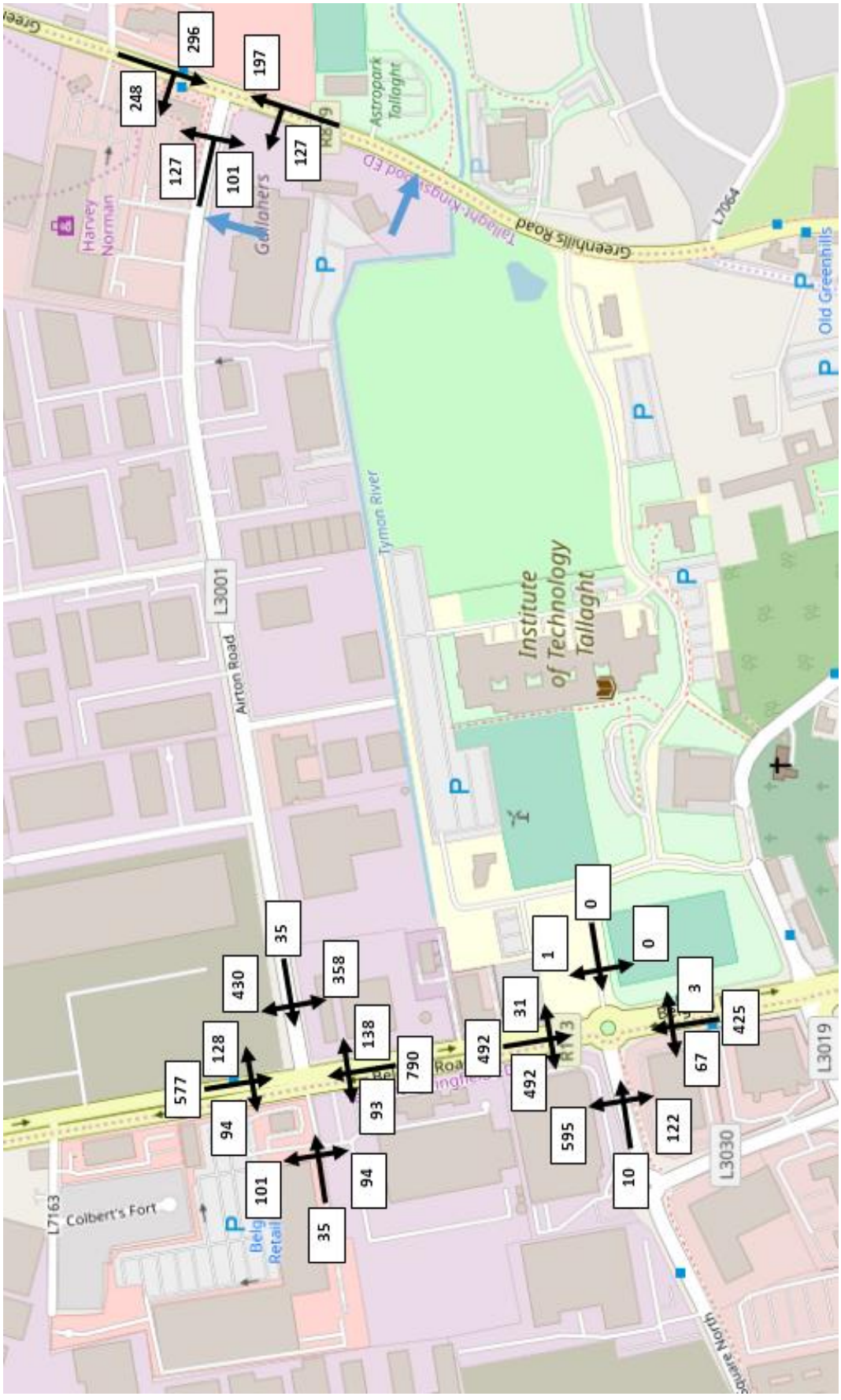

DIAGRAM 2: NETWORK FLOWS PM PEAK (MAY 2019 SURVEY)

DIAGRAM 3: DEVELOPMENT AM PEAK

DIAGRAM 4: DEVELOPMENT PM PEAK

DIAGRAM 5: ADJACENT DEVELOPMENT AM PEAK (SHD3ABP-305763-19)

DIAGRAM 6: ADJACENT DEVELOPMENT PM PEAK (SHD3ABP-305763-19)

DIAGRAM 7: NET AM PEAK FLOWS FROM RE-ZONED LANDS (INDUSTRIAL TO RESIDENTIAL)

DIAGRAM 8: NET PM PEAK FLOWS FROM RE-ZONED LANDS (INDUSTRIAL TO RESIDENTIAL)

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TYPICAL TRICS DATA

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	BD	BEDFORDSHIRE	2 days
	ES	EAST SUSSEX	1 days
	EX	ESSEX	1 days
	HC	HAMPSHIRE	1 days
04	**EAST ANGLIA**		
	NF	NORFOLK	1 days
	SF	SUFFOLK	1 days
05	**EAST MIDLANDS**		
	NT	NOTTINGHAMSHIRE	1 days
06	**WEST MIDLANDS**		
	WM	WEST MIDLANDS	1 days
08	**NORTH WEST**		
	GM	GREATER MANCHESTER	1 days
	MS	MERSEYSIDE	1 days
11	**SCOTLAND**		
	SA	SOUTH AYRSHIRE	1 days
	SR	STIRLING	1 days
13	**MUNSTER**		
	WA	WATERFORD	1 days
14	**LEINSTER**		
	LU	LOUTH	1 days
15	**GREATER DUBLIN**		
	DL	DUBLIN	4 days

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

Secondary Filtering selection:

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

Parameter: Number of dwellings
Actual Range: 51 to 340 (units:)
Range Selected by User: 50 to 372 (units:)

Parking Spaces Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	19	118	0.031	19	118	0.151	19	118	0.182
08:00 - 09:00	19	118	0.044	**19**	**118**	**0.187**	19	118	0.231
09:00 - 10:00	19	118	0.054	19	118	0.076	19	118	0.130
10:00 - 11:00	19	118	0.049	19	118	0.065	19	118	0.114
11:00 - 12:00	19	118	0.055	19	118	0.069	19	118	0.124
12:00 - 13:00	19	118	0.080	19	118	0.080	19	118	0.160
13:00 - 14:00	19	118	0.072	19	118	0.079	19	118	0.151
14:00 - 15:00	19	118	0.064	19	118	0.067	19	118	0.131
15:00 - 16:00	19	118	0.089	19	118	0.057	19	118	0.146
16:00 - 17:00	19	118	0.120	19	118	0.060	19	118	0.180
17:00 - 18:00	**19**	**118**	**0.172**	19	118	0.066	**19**	**118**	**0.238**
18:00 - 19:00	19	118	0.154	19	118	0.072	19	118	0.226
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.984			1.029			2.013

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : D - INDUSTRIAL ESTATE

VEHICLES

Selected regions and areas:

01	**GREATER LONDON**		
	HD	HILLINGDON	2 days
	HV	HAVERING	1 days
02	**SOUTH EAST**		
	ES	EAST SUSSEX	1 days
	EX	ESSEX	1 days
	KC	KENT	1 days
03	**SOUTH WEST**		
	BR	BRISTOL CITY	1 days
	CW	CORNWALL	1 days
	DC	DORSET	1 days
	WL	WILTSHIRE	1 days
05	**EAST MIDLANDS**		
	LN	LINCOLNSHIRE	2 days
	NR	NORTHAMPTONSHIRE	1 days
06	**WEST MIDLANDS**		
	WK	WARWICKSHIRE	2 days
	WM	WEST MIDLANDS	1 days
	WO	WORCESTERSHIRE	2 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	NY	NORTH YORKSHIRE	1 days
	WY	WEST YORKSHIRE	3 days
08	**NORTH WEST**		
	LC	LANCASHIRE	1 days
09	**NORTH**		
	NB	NORTHUMBERLAND	1 days
	TW	TYNE & WEAR	2 days
11	**SCOTLAND**		
	AG	ANGUS	1 days
	FA	FALKIRK	1 days
	FI	FIFE	1 days
13	**MUNSTER**		
	CR	CORK	1 days
	TI	TIPPERARY	1 days
15	**GREATER DUBLIN**		
	DL	DUBLIN	1 days

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

VEHICLES

Calculation factor: 1 hect

Estimated TRIP rate value per 1 HECT shown in shaded columns

BOLD print indicates peak (busiest) period

	ARRIVALS				DEPARTURES				TOTALS			
Time Range	No. Days	Ave. AREA	Trip Rate	Estimated Trip Rate	No. Days	Ave. AREA	Trip Rate	Estimated Trip Rate	No. Days	Ave. AREA	Trip Rate	Estimated Trip Rate
00:00 - 00:30												
00:30 - 01:00												
01:00 - 01:30												
01:30 - 02:00												
02:00 - 02:30												
02:30 - 03:00												
03:00 - 03:30												
03:30 - 04:00												
04:00 - 04:30												
04:30 - 05:00												
05:00 - 05:30	1	2.30	1.739	0.000	1	2.30	0.000	0.000	1	2.30	1.739	0.000
05:30 - 06:00	1	2.30	3.043	0.000	1	2.30	0.435	0.000	1	2.30	3.478	0.000
06:00 - 06:30	2	2.77	1.802	0.000	2	2.77	0.901	0.000	2	2.77	2.703	0.000
06:30 - 07:00	2	2.77	3.243	0.000	2	2.77	0.901	0.000	2	2.77	4.144	0.000
07:00 - 07:30	32	9.72	3.078	0.000	32	9.72	1.132	0.000	32	9.72	4.210	0.000
07:30 - 08:00	32	9.72	5.844	0.000	32	9.72	1.682	0.000	32	9.72	7.526	0.000
08:00 - 08:30	**32**	**9.72**	**5.921**	**0.000**	32	9.72	2.187	0.000	**32**	**9.72**	**8.108**	**0.000**
08:30 - 09:00	32	9.72	5.397	0.000	32	9.72	2.377	0.000	32	9.72	7.774	0.000
09:00 - 09:30	32	9.72	4.541	0.000	32	9.72	2.859	0.000	32	9.72	7.400	0.000
09:30 - 10:00	32	9.72	3.779	0.000	32	9.72	2.862	0.000	32	9.72	6.641	0.000
10:00 - 10:30	32	9.72	3.493	0.000	32	9.72	3.168	0.000	32	9.72	6.661	0.000
10:30 - 11:00	32	9.72	3.255	0.000	32	9.72	2.821	0.000	32	9.72	6.076	0.000
11:00 - 11:30	32	9.72	3.367	0.000	32	9.72	3.126	0.000	32	9.72	6.493	0.000
11:30 - 12:00	32	9.72	3.400	0.000	32	9.72	3.429	0.000	32	9.72	6.829	0.000
12:00 - 12:30	32	9.72	3.210	0.000	32	9.72	3.715	0.000	32	9.72	6.925	0.000
12:30 - 13:00	32	9.72	3.406	0.000	32	9.72	3.667	0.000	32	9.72	7.073	0.000
13:00 - 13:30	32	9.72	3.654	0.000	32	9.72	3.741	0.000	32	9.72	7.395	0.000
13:30 - 14:00	32	9.72	4.297	0.000	32	9.72	3.435	0.000	32	9.72	7.732	0.000
14:00 - 14:30	32	9.72	3.374	0.000	32	9.72	4.088	0.000	32	9.72	7.462	0.000
14:30 - 15:00	32	9.72	2.962	0.000	32	9.72	3.438	0.000	32	9.72	6.400	0.000
15:00 - 15:30	32	9.72	2.953	0.000	32	9.72	4.017	0.000	32	9.72	6.970	0.000
15:30 - 16:00	32	9.72	2.875	0.000	32	9.72	3.863	0.000	32	9.72	6.738	0.000
16:00 - 16:30	32	9.72	2.518	0.000	32	9.72	4.548	0.000	32	9.72	7.066	0.000
16:30 - 17:00	32	9.72	2.608	0.000	32	9.72	4.638	0.000	32	9.72	7.246	0.000
17:00 - 17:30	32	9.72	1.566	0.000	**32**	**9.72**	**6.326**	**0.000**	32	9.72	7.892	0.000
17:30 - 18:00	32	9.72	1.377	0.000	32	9.72	4.171	0.000	32	9.72	5.548	0.000
18:00 - 18:30	32	9.72	1.158	0.000	32	9.72	2.573	0.000	32	9.72	3.731	0.000
18:30 - 19:00	32	9.72	1.251	0.000	32	9.72	1.611	0.000	32	9.72	2.862	0.000
19:00 - 19:30	2	2.77	1.982	0.000	2	2.77	2.703	0.000	2	2.77	4.685	0.000
19:30 - 20:00	2	2.77	0.721	0.000	2	2.77	1.441	0.000	2	2.77	2.162	0.000
20:00 - 20:30	2	2.77	0.180	0.000	2	2.77	0.721	0.000	2	2.77	0.901	0.000
20:30 - 21:00	2	2.77	0.000	0.000	2	2.77	0.721	0.000	2	2.77	0.721	0.000
21:00 - 21:30												
21:30 - 22:00												
22:00 - 22:30												
22:30 - 23:00												
23:00 - 23:30												
23:30 - 24:00												
Total Rates:			91.994	0.000			87.297	0.000			179.291	0.000

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5

DETAILED JUNCTION ANALYSIS

Junctions 9

OSCADY 9 - Signalised Intersection Module

Filename: Belgard Airton AM and PM exist.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE
Report generation date: 31/12/2019 15:31:02

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2019									
A - Belard Rd Nth	9.7	10.91	0.57	B	-32 % [B - Airton Rd - Traffic Stream 2]	11.0	25.08	0.79	C	-40 % [D - Monarch Ind - Traffic Stream 1]
B - Airton Rd	8.5	39.65	0.72	D		15.0	34.59	0.89	C	
C - Belgard Rd Sth	7.4	7.55	0.31	A		13.6	18.87	0.66	B	
D - Monarch Ind	0.9	31.05	0.20	C		6.6	48.90	0.78	D	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	03/06/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2019	AM	DIRECT	08:00	09:00	60	15
D2	2019	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2019, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		14.65	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-32	B - Airton Rd - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Belard Rd Nth	
B	Airton Rd	
C	Belgard Rd Sth	
D	Monarch Ind	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Belard Rd Nth	1	A	0.00	0.00	B	C
	2	A	0.00	0.00	C	C
	3	B	0.00	0.00	D	C
B - Airton Rd	1	D	0.00	0.00	C	
	2	F	0.00	0.00	A, D	
C - Belgard Rd Sth	1	A	0.00	0.00	A, D	A
	2	C	0.00	0.00	B	A
D - Monarch Ind	1	E	0.00	0.00	A, B	
	2	E	0.00	0.00	C	

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Belard Rd Nth	1	B	0	3.00	10.00	✓	
	2	C	0	3.00			
	3	D	0	3.00	10.00		
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A, D	0	3.00	10.00		
C - Belgard Rd Sth	1	A, D	0	3.00	10.00	✓	
		A	0	3.00			
	2	B	0	3.00	10.00		
D - Monarch Ind	1	A, B	0	3.00	10.00	✓	
	2	C	0	3.00	10.00		

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	72	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7
	E		7
	F		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, C, B	1		
	2	B, C, D	1		
	3	D, F	1		
	4	E	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3, 4	40, 46, 60, 0

Intergreen Matrix for Junction 1

		To					
		A	B	C	D	E	F
From	A				5	5	5
	B					5	5
	C					5	5
	D	0				5	
	E	0	0	0	0		
	F	0	0	0			

Interstage Matrix for Junction 1

		To			
		1	2	3	4
From	1	0	5	5	5
	2	0	0	5	5
	3	0	0	0	5
	4	0	0	0	0

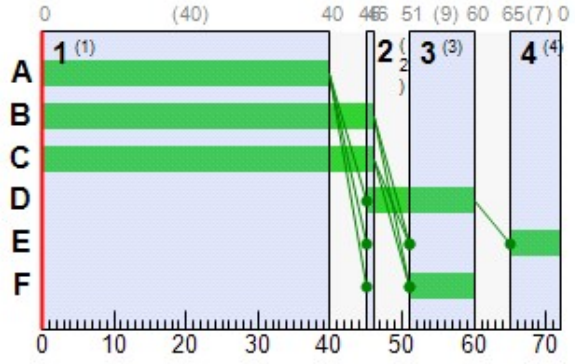
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,C,B	0	40	40	1	7
	2	2	B,C,D	45	46	1	1	1
	3	3	D,F	51	60	9	1	7
	4	4	E	65	0	7	1	7

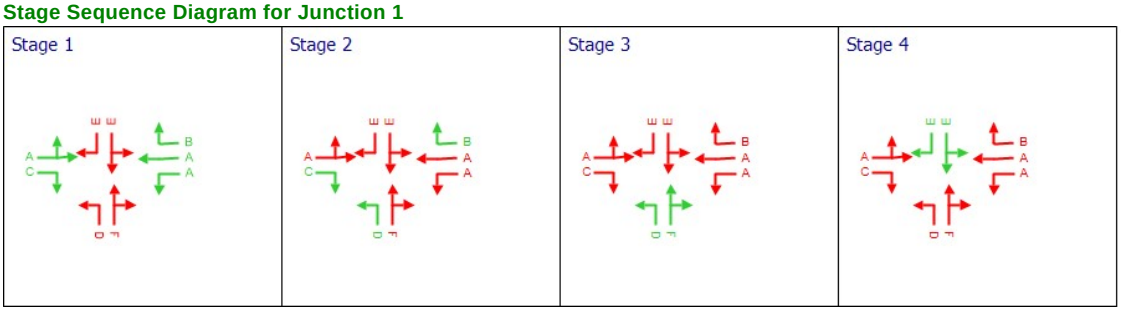
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	0	40	40
	B	1	0	46	46
	C	1	0	46	46
	D	1	45	60	15
	E	1	65	0	7
	F	1	51	60	9

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2019	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	100.00	163.00	6.00
	B - Airton Rd	43.00	0.00	42.00	4.00
	C - Belgard Rd Sth	168.00	50.00	0.00	6.00
	D - Monarch Ind	1.00	0.00	3.00	0.00

08:15 - 08:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	98.00	141.00	8.00
	B - Airton Rd	35.00	0.00	38.00	1.00
	C - Belgard Rd Sth	135.00	79.00	0.00	2.00
	D - Monarch Ind	4.00	6.00	2.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	86.00	152.00	5.00
	B - Airton Rd	37.00	0.00	57.00	3.00
	C - Belgard Rd Sth	134.00	63.00	0.00	3.00
	D - Monarch Ind	2.00	0.00	0.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	86.00	168.00	11.00
	B - Airton Rd	37.00	0.00	66.00	5.00
	C - Belgard Rd Sth	98.00	76.00	0.00	4.00
	D - Monarch Ind	8.00	1.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.57	10.91	9.7	B
B - Airton Rd	0.72	39.65	8.5	D
C - Belgard Rd Sth	0.31	7.55	7.4	A
D - Monarch Ind	0.20	31.05	0.9	C

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	100.00	416.30	41.50	0.00	239.95	0.417	96.43	3.6	10.095	B
	2	163.00	513.75	41.50	0.00	296.12	0.550	157.07	5.9	11.660	B
	3	6.00	446.74	47.50	0.00	294.72	0.020	5.84	0.2	4.263	A
B - Airton Rd	1	42.00	416.30	16.50	0.00	95.40	0.440	39.21	2.8	28.124	C
	2	47.00	446.74	10.50	0.00	65.15	0.721	42.77	4.2	47.290	D
C - Belgard Rd Sth	1	174.00	987.39	41.50	0.00	569.12	0.306	168.02	6.0	8.259	A
	2	50.00	446.74	47.50	0.00	294.72	0.170	48.62	1.4	5.067	A
D - Monarch Ind	1	1.00	416.30	8.50	0.00	49.15	0.020	0.93	0.1	28.297	C
	2	3.00	446.74	8.50	0.00	52.74	0.057	2.79	0.2	28.807	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	98.00	416.30	41.50	0.00	239.95	0.408	98.08	3.5	10.004	B
	2	141.00	513.75	41.50	0.00	296.12	0.476	141.89	5.0	10.575	B
	3	8.00	446.74	47.50	0.00	294.72	0.027	7.95	0.2	4.296	A
B - Airton Rd	1	38.00	416.30	16.50	0.00	95.40	0.398	38.29	2.5	27.329	C
	2	36.00	446.74	10.50	0.00	65.15	0.553	37.34	2.9	39.571	D
C - Belgard Rd Sth	1	137.00	990.33	41.50	0.00	570.82	0.240	138.29	4.7	7.796	A
	2	79.00	446.74	47.50	0.00	294.72	0.268	78.17	2.2	5.733	A
D - Monarch Ind	1	10.00	416.30	8.50	0.00	49.15	0.203	9.33	0.7	31.459	C
	2	2.00	446.74	8.50	0.00	52.74	0.038	2.07	0.1	28.532	C

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	86.00	416.30	41.50	0.00	239.95	0.358	86.46	3.0	9.405	A
	2	152.00	513.75	41.50	0.00	296.12	0.513	151.57	5.5	11.088	B
	3	5.00	446.74	47.50	0.00	294.72	0.017	5.08	0.1	4.247	A
B - Airton Rd	1	57.00	416.30	16.50	0.00	95.40	0.597	55.47	4.0	32.744	C
	2	40.00	446.74	10.50	0.00	65.15	0.614	39.59	3.3	41.450	D
C - Belgard Rd Sth	1	137.00	989.25	41.50	0.00	570.19	0.240	137.00	4.7	7.798	A
	2	63.00	446.74	47.50	0.00	294.72	0.214	63.46	1.7	5.352	A
D - Monarch Ind	1	2.00	416.30	8.50	0.00	49.15	0.041	2.59	0.1	28.608	C
	2	0.00	446.74	8.50	0.00	52.74	0.000	0.14	0.0	0.000	A

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	86.00	416.30	41.50	0.00	239.95	0.358	86.00	3.0	9.399	A
	2	168.00	513.75	41.50	0.00	296.12	0.567	167.34	6.1	11.969	B
	3	11.00	446.74	47.50	0.00	294.72	0.037	10.84	0.3	4.345	A
B - Airton Rd	1	66.00	416.30	16.50	0.00	95.40	0.692	65.08	5.0	37.233	D
	2	42.00	446.74	10.50	0.00	65.15	0.645	41.76	3.5	43.444	D
C - Belgard Rd Sth	1	102.00	986.70	41.50	0.00	568.72	0.179	103.21	3.5	7.413	A
	2	76.00	446.74	47.50	0.00	294.72	0.258	75.63	2.1	5.658	A
D - Monarch Ind	1	9.00	416.30	8.50	0.00	49.15	0.183	8.48	0.7	31.054	C
	2	0.00	446.74	8.50	0.00	52.74	0.000	0.00	0.0	0.000	A

2019, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		27.55	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-40	D - Monarch Ind - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2019	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	31.00	122.00	35.00
	B - Airton Rd	109.00	0.00	103.00	11.00
	C - Belgard Rd Sth	235.00	34.00	0.00	14.00
	D - Monarch Ind	26.00	8.00	23.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	29.00	152.00	25.00
	B - Airton Rd	115.00	0.00	73.00	6.00
	C - Belgard Rd Sth	189.00	33.00	0.00	26.00
	D - Monarch Ind	22.00	6.00	20.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	33.00	155.00	14.00
	B - Airton Rd	118.00	0.00	101.00	10.00
	C - Belgard Rd Sth	190.00	35.00	0.00	29.00
	D - Monarch Ind	25.00	8.00	25.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	35.00	149.00	20.00
	B - Airton Rd	88.00	0.00	81.00	8.00
	C - Belgard Rd Sth	176.00	36.00	0.00	24.00
	D - Monarch Ind	28.00	13.00	33.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.79	25.08	11.0	C
B - Airton Rd	0.89	34.59	15.0	C
C - Belgard Rd Sth	0.66	18.87	13.6	B
D - Monarch Ind	0.78	48.90	6.6	D

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	31.00	416.30	25.50	0.00	158.44	0.196	29.54	1.5	14.712	B
	2	122.00	513.75	25.50	0.00	195.53	0.624	115.76	6.2	21.276	C
	3	35.00	446.74	31.50	0.00	210.03	0.167	33.60	1.4	10.717	B
B - Airton Rd	1	103.00	416.30	27.50	0.00	170.87	0.603	97.94	5.1	20.097	C
	2	120.00	446.74	21.50	0.00	143.36	0.837	111.67	8.3	36.484	D
C - Belgard Rd Sth	1	249.00	984.20	25.50	0.00	374.58	0.665	236.74	12.3	19.994	B
	2	34.00	446.74	31.50	0.00	210.03	0.162	32.64	1.4	10.675	B
D - Monarch Ind	1	34.00	416.30	8.50	0.00	52.81	0.644	31.14	2.9	43.941	D
	2	23.00	446.74	8.50	0.00	56.68	0.406	21.34	1.7	33.193	C

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	29.00	416.30	25.50	0.00	158.44	0.183	29.10	1.4	14.579	B
	2	152.00	513.75	25.50	0.00	195.53	0.777	149.68	8.6	27.081	C
	3	25.00	446.74	31.50	0.00	210.03	0.119	25.40	1.0	10.310	B
B - Airton Rd	1	73.00	416.30	27.50	0.00	170.87	0.427	74.66	3.4	16.515	B
	2	121.00	446.74	21.50	0.00	143.36	0.844	120.71	8.6	40.325	D
C - Belgard Rd Sth	1	215.00	974.82	25.50	0.00	371.01	0.579	216.87	10.4	18.520	B
	2	33.00	446.74	31.50	0.00	210.03	0.157	33.04	1.3	10.634	B
D - Monarch Ind	1	28.00	416.30	8.50	0.00	52.81	0.530	28.67	2.2	39.694	D
	2	20.00	446.74	8.50	0.00	56.68	0.353	20.24	1.4	32.028	C

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	33.00	416.30	25.50	0.00	158.44	0.208	32.81	1.6	14.854	B
	2	155.00	513.75	25.50	0.00	195.53	0.793	154.67	8.9	28.626	C
	3	14.00	446.74	31.50	0.00	210.03	0.067	14.44	0.6	9.893	A
B - Airton Rd	1	101.00	416.30	27.50	0.00	170.87	0.591	99.46	4.9	19.813	B
	2	128.00	446.74	21.50	0.00	143.36	0.893	126.54	10.1	46.241	D
C - Belgard Rd Sth	1	219.00	973.17	25.50	0.00	370.39	0.591	218.79	10.6	18.689	B
	2	35.00	446.74	31.50	0.00	210.03	0.167	34.92	1.4	10.718	B
D - Monarch Ind	1	33.00	416.30	8.50	0.00	52.81	0.625	32.46	2.7	43.523	D
	2	25.00	446.74	8.50	0.00	56.68	0.441	24.59	1.8	34.349	C

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	35.00	416.30	25.50	0.00	158.44	0.221	34.90	1.7	14.997	B
	2	149.00	513.75	25.50	0.00	195.53	0.762	149.49	8.4	27.226	C
	3	20.00	446.74	31.50	0.00	210.03	0.095	19.76	0.8	10.116	B
B - Airton Rd	1	81.00	416.30	27.50	0.00	170.87	0.474	82.12	3.8	17.355	B
	2	96.00	446.74	21.50	0.00	143.36	0.670	100.39	5.7	28.496	C
C - Belgard Rd Sth	1	200.00	974.95	25.50	0.00	371.06	0.539	201.01	9.6	17.883	B
	2	36.00	446.74	31.50	0.00	210.03	0.171	35.96	1.4	10.761	B
D - Monarch Ind	1	41.00	416.30	8.50	0.00	52.81	0.776	39.70	4.0	56.115	E
	2	33.00	446.74	8.50	0.00	56.68	0.582	32.22	2.6	39.927	D

Junctions 9

OSCADY 9 - Signalised Intersection Module

Filename: Belgard Airton AM and PM 2023 WOD.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 31/12/2019 16:07:57

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2023 WOD									
A - Belard Rd Nth	9.9	11.17	0.60	B	-38 % [B - Airton Rd - Traffic Stream 2]	12.3	27.22	0.82	C	-54 % [D - Monarch Ind - Traffic Stream 1]
B - Airton Rd	9.3	43.65	0.81	D		17.0	37.65	0.91	D	
C - Belgard Rd Sth	7.5	7.48	0.33	A		15.1	20.05	0.69	C	
D - Monarch Ind	0.8	29.33	0.19	C		8.4	60.31	0.86	E	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	03/06/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2023 WOD	AM	DIRECT	08:00	09:00	60	15
D2	2023 WOD	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 WOD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		15.35	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-38	B - Airton Rd - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Belard Rd Nth	
B	Airton Rd	
C	Belgard Rd Sth	
D	Monarch Ind	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Belard Rd Nth	1	A	0.00	0.00	B	C
	2	A	0.00	0.00	C	C
	3	B	0.00	0.00	D	C
B - Airton Rd	1	D	0.00	0.00	C	
	2	F	0.00	0.00	A, D	
C - Belgard Rd Sth	1	A	0.00	0.00	A, D	A
	2	C	0.00	0.00	B	A
D - Monarch Ind	1	E	0.00	0.00	A, B	
	2	E	0.00	0.00	C	

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Belard Rd Nth	1	B	0	3.00	10.00	✓	
	2	C	0	3.00			
	3	D	0	3.00	10.00		
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A, D	0	3.00	10.00		
C - Belgard Rd Sth	1	A, D	0	3.00	10.00	✓	
		A	0	3.00			
	2	B	0	3.00	10.00		
D - Monarch Ind	1	A, B	0	3.00	10.00	✓	
	2	C	0	3.00	10.00		

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	69	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7
	E		7
	F		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, C, B	1		
	2	B, C, D	1		
	3	D, F	1		
	4	E	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3, 4	38, 44, 57, 0

Intergreen Matrix for Junction 1

		To					
		A	B	C	D	E	F
From	A				5	5	5
	B					5	5
	C					5	5
	D	0				5	
	E	0	0	0	0		
	F	0	0	0			

Interstage Matrix for Junction 1

		To			
		1	2	3	4
From	1	0	5	5	5
	2	0	0	5	5
	3	0	0	0	5
	4	0	0	0	0

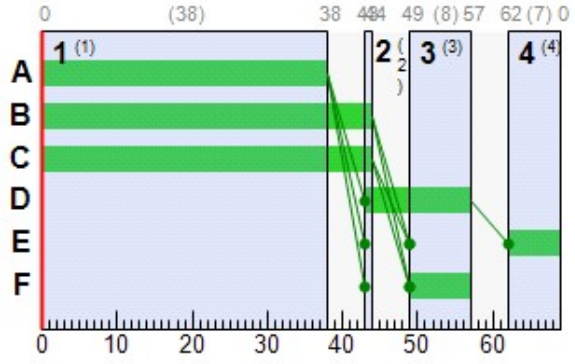
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,C,B	0	38	38	1	7
	2	2	B,C,D	43	44	1	1	1
	3	3	D,F	49	57	8	1	7
	4	4	E	62	0	7	1	7

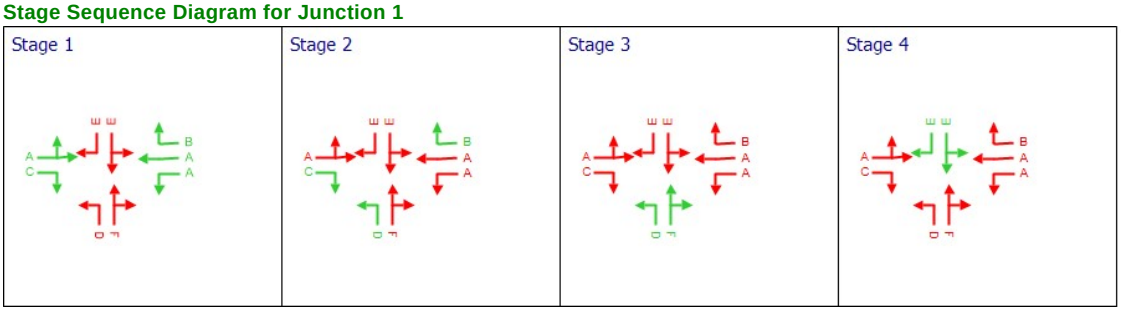
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	0	38	38
	B	1	0	44	44
	C	1	0	44	44
	D	1	43	57	14
	E	1	62	0	7
	F	1	49	57	8

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2023 WOD	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	105.00	172.00	6.00
	B - Airton Rd	46.00	0.00	44.00	4.00
	C - Belgard Rd Sth	178.00	53.00	0.00	6.00
	D - Monarch Ind	1.00	0.00	3.00	0.00

08:15 - 08:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	104.00	149.00	8.00
	B - Airton Rd	36.00	0.00	40.00	1.00
	C - Belgard Rd Sth	143.00	84.00	0.00	2.00
	D - Monarch Ind	4.00	6.00	2.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	91.00	160.00	5.00
	B - Airton Rd	39.00	0.00	60.00	3.00
	C - Belgard Rd Sth	141.00	67.00	0.00	3.00
	D - Monarch Ind	2.00	0.00	0.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	91.00	177.00	12.00
	B - Airton Rd	39.00	0.00	70.00	5.00
	C - Belgard Rd Sth	104.00	81.00	0.00	4.00
	D - Monarch Ind	8.00	1.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.60	11.17	9.9	B
B - Airton Rd	0.81	43.65	9.3	D
C - Belgard Rd Sth	0.33	7.48	7.5	A
D - Monarch Ind	0.19	29.33	0.8	C

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	105.00	416.30	39.50	0.00	238.32	0.441	101.35	3.6	10.198	B
	2	172.00	513.75	39.50	0.00	294.10	0.585	165.87	6.1	12.017	B
	3	6.00	446.74	45.50	0.00	294.59	0.020	5.84	0.2	4.094	A
B - Airton Rd	1	44.00	416.30	15.50	0.00	93.52	0.470	41.14	2.9	28.162	C
	2	50.00	446.74	9.50	0.00	61.51	0.813	44.98	5.0	55.689	E
C - Belgard Rd Sth	1	184.00	987.67	39.50	0.00	565.40	0.325	177.87	6.1	8.210	A
	2	53.00	446.74	45.50	0.00	294.59	0.180	51.59	1.4	4.942	A
D - Monarch Ind	1	1.00	416.30	8.50	0.00	51.28	0.019	0.93	0.1	26.797	C
	2	3.00	446.74	8.50	0.00	55.03	0.055	2.80	0.2	27.267	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	104.00	416.30	39.50	0.00	238.32	0.436	104.04	3.6	10.161	B
	2	149.00	513.75	39.50	0.00	294.10	0.507	149.93	5.2	10.787	B
	3	8.00	446.74	45.50	0.00	294.59	0.027	7.95	0.2	4.126	A
B - Airton Rd	1	40.00	416.30	15.50	0.00	93.52	0.428	40.29	2.6	27.318	C
	2	37.00	446.74	9.50	0.00	61.51	0.602	39.01	3.0	42.948	D
C - Belgard Rd Sth	1	145.00	990.45	39.50	0.00	567.00	0.256	146.32	4.8	7.715	A
	2	84.00	446.74	45.50	0.00	294.59	0.285	83.15	2.3	5.657	A
D - Monarch Ind	1	10.00	416.30	8.50	0.00	51.28	0.195	9.37	0.7	29.695	C
	2	2.00	446.74	8.50	0.00	55.03	0.036	2.07	0.1	27.013	C

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	91.00	416.30	39.50	0.00	238.32	0.382	91.49	3.1	9.478	A
	2	160.00	513.75	39.50	0.00	294.10	0.544	159.57	5.6	11.336	B
	3	5.00	446.74	45.50	0.00	294.59	0.017	5.08	0.1	4.079	A
B - Airton Rd	1	60.00	416.30	15.50	0.00	93.52	0.642	58.34	4.2	33.856	C
	2	42.00	446.74	9.50	0.00	61.51	0.683	41.42	3.6	45.730	D
C - Belgard Rd Sth	1	144.00	989.41	39.50	0.00	566.40	0.254	144.03	4.8	7.705	A
	2	67.00	446.74	45.50	0.00	294.59	0.227	67.47	1.8	5.249	A
D - Monarch Ind	1	2.00	416.30	8.50	0.00	51.28	0.039	2.56	0.1	27.083	C
	2	0.00	446.74	8.50	0.00	55.03	0.000	0.14	0.0	0.000	A

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	91.00	416.30	39.50	0.00	238.32	0.382	91.00	3.1	9.470	A
	2	177.00	513.75	39.50	0.00	294.10	0.602	176.29	6.3	12.364	B
	3	12.00	446.74	45.50	0.00	294.59	0.041	11.82	0.3	4.190	A
B - Airton Rd	1	70.00	416.30	15.50	0.00	93.52	0.749	68.83	5.4	40.244	D
	2	44.00	446.74	9.50	0.00	61.51	0.715	43.69	3.9	49.056	D
C - Belgard Rd Sth	1	108.00	987.02	39.50	0.00	565.03	0.191	109.20	3.6	7.307	A
	2	81.00	446.74	45.50	0.00	294.59	0.275	80.61	2.2	5.582	A
D - Monarch Ind	1	9.00	416.30	8.50	0.00	51.28	0.175	8.51	0.6	29.327	C
	2	0.00	446.74	8.50	0.00	55.03	0.000	0.00	0.0	0.000	A

2023 WOD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		30.25	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-54	D - Monarch Ind - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2023 WOD	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	32.00	129.00	37.00
	B - Airton Rd	115.00	0.00	109.00	12.00
	C - Belgard Rd Sth	248.00	36.00	0.00	15.00
	D - Monarch Ind	27.00	8.00	24.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	31.00	160.00	26.00
	B - Airton Rd	122.00	0.00	77.00	6.00
	C - Belgard Rd Sth	200.00	35.00	0.00	27.00
	D - Monarch Ind	23.00	6.00	21.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	35.00	163.00	15.00
	B - Airton Rd	125.00	0.00	107.00	10.00
	C - Belgard Rd Sth	210.00	37.00	0.00	30.00
	D - Monarch Ind	26.00	8.00	19.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	37.00	158.00	21.00
	B - Airton Rd	93.00	0.00	85.00	8.00
	C - Belgard Rd Sth	186.00	38.00	0.00	25.00
	D - Monarch Ind	29.00	14.00	35.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.82	27.22	12.3	C
B - Airton Rd	0.91	37.65	17.0	D
C - Belgard Rd Sth	0.69	20.05	15.1	C
D - Monarch Ind	0.86	60.31	8.4	E

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	32.00	416.30	27.50	0.00	161.24	0.198	30.42	1.6	15.261	B
	2	129.00	513.75	27.50	0.00	198.99	0.648	122.06	6.9	22.595	C
	3	37.00	446.74	33.50	0.00	210.79	0.176	35.44	1.6	11.341	B
B - Airton Rd	1	109.00	416.30	29.50	0.00	172.97	0.630	103.34	5.7	21.531	C
	2	127.00	446.74	23.50	0.00	147.86	0.859	117.63	9.4	38.989	D
C - Belgard Rd Sth	1	263.00	984.08	27.50	0.00	381.16	0.690	249.38	13.6	21.250	C
	2	36.00	446.74	33.50	0.00	210.79	0.171	34.48	1.5	11.297	B
D - Monarch Ind	1	35.00	416.30	8.50	0.00	49.84	0.702	31.68	3.3	50.969	D
	2	24.00	446.74	8.50	0.00	53.48	0.449	22.12	1.9	36.895	D

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	31.00	416.30	27.50	0.00	161.24	0.192	31.05	1.5	15.195	B
	2	160.00	513.75	27.50	0.00	198.99	0.804	157.35	9.6	29.318	C
	3	26.00	446.74	33.50	0.00	210.79	0.123	26.47	1.1	10.876	B
B - Airton Rd	1	77.00	416.30	29.50	0.00	172.97	0.445	78.89	3.8	17.432	B
	2	128.00	446.74	23.50	0.00	147.86	0.866	127.62	9.8	43.856	D
C - Belgard Rd Sth	1	227.00	975.10	27.50	0.00	377.68	0.601	229.10	11.5	19.554	B
	2	35.00	446.74	33.50	0.00	210.79	0.166	35.04	1.5	11.255	B
D - Monarch Ind	1	29.00	416.30	8.50	0.00	49.84	0.582	29.80	2.5	46.038	D
	2	21.00	446.74	8.50	0.00	53.48	0.393	21.27	1.6	35.546	D

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	35.00	416.30	27.50	0.00	161.24	0.217	34.80	1.7	15.475	B
	2	163.00	513.75	27.50	0.00	198.99	0.819	162.61	10.0	31.284	C
	3	15.00	446.74	33.50	0.00	210.79	0.071	15.47	0.6	10.444	B
B - Airton Rd	1	107.00	416.30	29.50	0.00	172.97	0.619	105.24	5.5	21.221	C
	2	135.00	446.74	23.50	0.00	147.86	0.913	133.26	11.5	50.679	D
C - Belgard Rd Sth	1	240.00	974.23	27.50	0.00	377.34	0.636	239.26	12.3	20.163	C
	2	37.00	446.74	33.50	0.00	210.79	0.176	36.91	1.6	11.343	B
D - Monarch Ind	1	34.00	416.30	8.50	0.00	49.84	0.682	33.36	3.2	50.798	D
	2	19.00	446.74	8.50	0.00	53.48	0.355	19.17	1.4	34.387	C

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	37.00	416.30	27.50	0.00	161.24	0.229	36.90	1.8	15.622	B
	2	158.00	513.75	27.50	0.00	198.99	0.794	158.42	9.6	30.018	C
	3	21.00	446.74	33.50	0.00	210.79	0.100	20.75	0.9	10.675	B
B - Airton Rd	1	85.00	416.30	29.50	0.00	172.97	0.491	86.32	4.2	18.316	B
	2	101.00	446.74	23.50	0.00	147.86	0.683	106.25	6.2	29.994	C
C - Belgard Rd Sth	1	211.00	975.17	27.50	0.00	377.71	0.559	212.63	10.6	18.833	B
	2	38.00	446.74	33.50	0.00	210.79	0.180	37.96	1.6	11.387	B
D - Monarch Ind	1	43.00	416.30	8.50	0.00	49.84	0.863	40.92	5.2	71.501	E
	2	35.00	446.74	8.50	0.00	53.48	0.654	33.32	3.1	46.553	D

Junctions 9

OSCADY 9 - Signalised Intersection Module

Filename: Belgard Airton AM and PM 2023 WDEV.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 31/12/2019 16:38:18

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2023 WDEV									
A - Belard Rd Nth	10.9	12.92	0.63	B	-24 % [B - Airton Rd - Traffic Stream 2]	13.3	28.13	0.82	C	-68 % [D - Monarch Ind - Traffic Stream 1]
B - Airton Rd	9.7	38.94	0.77	D		19.2	40.61	0.93	D	
C - Belgard Rd Sth	8.2	8.54	0.34	A		16.6	21.01	0.69	C	
D - Monarch Ind	0.8	29.33	0.19	C		9.9	72.47	0.92	E	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	03/06/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2023 WDEV	AM	DIRECT	08:00	09:00	60	15
D2	2023 WDEV	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 WDEV, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		16.28	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-24	B - Airton Rd - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Belard Rd Nth	
B	Airton Rd	
C	Belgard Rd Sth	
D	Monarch Ind	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Belard Rd Nth	1	A	0.00	0.00	B	C
	2	A	0.00	0.00	C	C
	3	B	0.00	0.00	D	C
B - Airton Rd	1	D	0.00	0.00	C	
	2	F	0.00	0.00	A, D	
C - Belgard Rd Sth	1	A	0.00	0.00	A, D	A
	2	C	0.00	0.00	B	A
D - Monarch Ind	1	E	0.00	0.00	A, B	
	2	E	0.00	0.00	C	

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Belard Rd Nth	1	B	0	3.00	10.00	✓	
	2	C	0	3.00			
	3	D	0	3.00	10.00		
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A, D	0	3.00	10.00		
C - Belgard Rd Sth	1	A, D	0	3.00	10.00	✓	
		A	0	3.00			
	2	B	0	3.00	10.00		
D - Monarch Ind	1	A, B	0	3.00	10.00	✓	
	2	C	0	3.00	10.00		

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	69	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7
	E		7
	F		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, C, B	1		
	2	B, C, D	1		
	3	D, F	1		
	4	E	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3, 4	36, 42, 57, 0

Intergreen Matrix for Junction 1

		To					
		A	B	C	D	E	F
From	A				5	5	5
	B					5	5
	C					5	5
	D	0				5	
	E	0	0	0	0		
	F	0	0	0			

Interstage Matrix for Junction 1

		To			
		1	2	3	4
From	1	0	5	5	5
	2	0	0	5	5
	3	0	0	0	5
	4	0	0	0	0

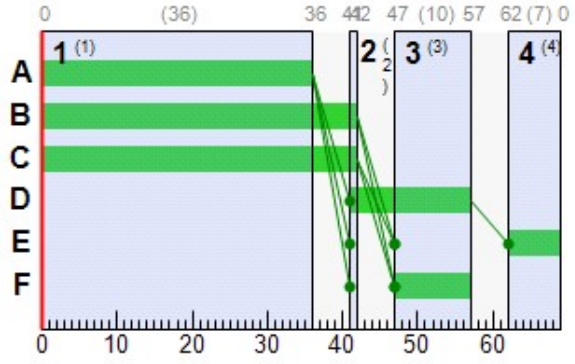
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,C,B	0	36	36	1	7
	2	2	B,C,D	41	42	1	1	1
	3	3	D,F	47	57	10	1	7
	4	4	E	62	0	7	1	7

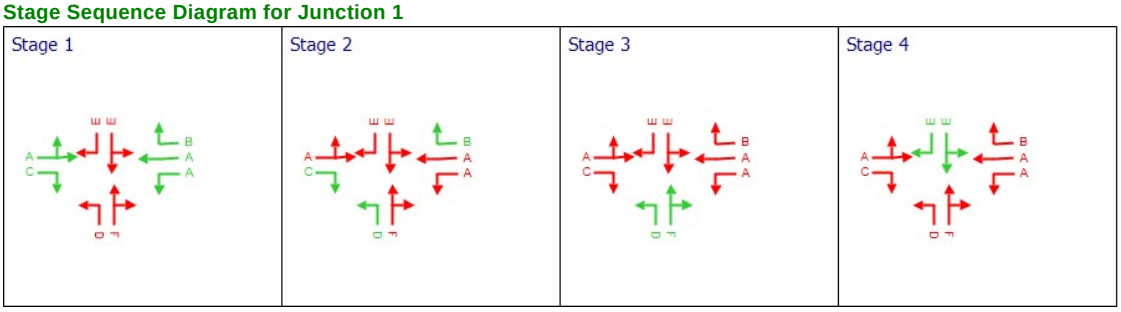
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	0	36	36
	B	1	0	42	42
	C	1	0	42	42
	D	1	41	57	16
	E	1	62	0	7
	F	1	47	57	10

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2023 WDEV	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	109.00	172.00	6.00
	B - Airton Rd	53.00	0.00	52.00	4.00
	C - Belgard Rd Sth	178.00	56.00	0.00	6.00
	D - Monarch Ind	1.00	0.00	3.00	0.00

08:15 - 08:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	108.00	149.00	8.00
	B - Airton Rd	42.00	0.00	49.00	1.00
	C - Belgard Rd Sth	143.00	87.00	0.00	2.00
	D - Monarch Ind	4.00	6.00	2.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	95.00	160.00	5.00
	B - Airton Rd	45.00	0.00	69.00	3.00
	C - Belgard Rd Sth	141.00	70.00	0.00	3.00
	D - Monarch Ind	2.00	0.00	0.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	95.00	177.00	12.00
	B - Airton Rd	45.00	0.00	79.00	5.00
	C - Belgard Rd Sth	104.00	84.00	0.00	4.00
	D - Monarch Ind	8.00	1.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.63	12.92	10.9	B
B - Airton Rd	0.77	38.94	9.7	D
C - Belgard Rd Sth	0.34	8.54	8.2	A
D - Monarch Ind	0.19	29.33	0.8	C

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	109.00	416.30	37.50	0.00	226.25	0.482	104.92	4.1	11.928	B
	2	172.00	513.75	37.50	0.00	279.21	0.616	165.39	6.6	13.837	B
	3	6.00	446.74	43.50	0.00	281.64	0.021	5.83	0.2	4.818	A
B - Airton Rd	1	52.00	416.30	17.50	0.00	105.58	0.492	48.74	3.3	26.770	C
	2	57.00	446.74	11.50	0.00	74.46	0.766	52.03	5.0	46.538	D
C - Belgard Rd Sth	1	184.00	987.67	37.50	0.00	536.78	0.343	177.45	6.5	9.360	A
	2	56.00	446.74	43.50	0.00	281.64	0.199	54.38	1.6	5.862	A
D - Monarch Ind	1	1.00	416.30	8.50	0.00	51.28	0.019	0.93	0.1	26.797	C
	2	3.00	446.74	8.50	0.00	55.03	0.055	2.80	0.2	27.267	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	108.00	416.30	37.50	0.00	226.25	0.477	108.04	4.0	11.890	B
	2	149.00	513.75	37.50	0.00	279.21	0.534	150.02	5.6	12.368	B
	3	8.00	446.74	43.50	0.00	281.64	0.028	7.94	0.2	4.854	A
B - Airton Rd	1	49.00	416.30	17.50	0.00	105.58	0.464	49.21	3.0	26.254	C
	2	43.00	446.74	11.50	0.00	74.46	0.578	44.73	3.2	37.256	D
C - Belgard Rd Sth	1	145.00	990.45	37.50	0.00	538.29	0.269	146.41	5.1	8.794	A
	2	87.00	446.74	43.50	0.00	281.64	0.309	86.07	2.5	6.705	A
D - Monarch Ind	1	10.00	416.30	8.50	0.00	51.28	0.195	9.37	0.7	29.695	C
	2	2.00	446.74	8.50	0.00	55.03	0.036	2.07	0.1	27.013	C

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	95.00	416.30	37.50	0.00	226.25	0.420	95.53	3.5	11.056	B
	2	160.00	513.75	37.50	0.00	279.21	0.573	159.53	6.1	13.018	B
	3	5.00	446.74	43.50	0.00	281.64	0.018	5.09	0.1	4.800	A
B - Airton Rd	1	69.00	416.30	17.50	0.00	105.58	0.654	67.39	4.7	32.062	C
	2	48.00	446.74	11.50	0.00	74.46	0.645	47.50	3.7	39.347	D
C - Belgard Rd Sth	1	144.00	989.41	37.50	0.00	537.72	0.268	144.04	5.1	8.782	A
	2	70.00	446.74	43.50	0.00	281.64	0.249	70.51	2.0	6.223	A
D - Monarch Ind	1	2.00	416.30	8.50	0.00	51.28	0.039	2.56	0.1	27.083	C
	2	0.00	446.74	8.50	0.00	55.03	0.000	0.14	0.0	0.000	A

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	95.00	416.30	37.50	0.00	226.25	0.420	95.00	3.5	11.044	B
	2	177.00	513.75	37.50	0.00	279.21	0.634	176.21	6.8	14.268	B
	3	12.00	446.74	43.50	0.00	281.64	0.043	11.80	0.3	4.927	A
B - Airton Rd	1	79.00	416.30	17.50	0.00	105.58	0.748	77.90	5.8	37.478	D
	2	50.00	446.74	11.50	0.00	74.46	0.672	49.76	4.0	41.246	D
C - Belgard Rd Sth	1	108.00	987.02	37.50	0.00	536.42	0.201	109.29	3.8	8.328	A
	2	84.00	446.74	43.50	0.00	281.64	0.298	83.58	2.5	6.616	A
D - Monarch Ind	1	9.00	416.30	8.50	0.00	51.28	0.175	8.51	0.6	29.327	C
	2	0.00	446.74	8.50	0.00	55.03	0.000	0.00	0.0	0.000	A

2023 WDEV, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		32.62	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-68	D - Monarch Ind - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2023 WDEV	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	37.00	129.00	37.00
	B - Airton Rd	125.00	0.00	113.00	12.00
	C - Belgard Rd Sth	248.00	46.00	0.00	15.00
	D - Monarch Ind	27.00	8.00	24.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	35.00	160.00	26.00
	B - Airton Rd	132.00	0.00	81.00	6.00
	C - Belgard Rd Sth	200.00	45.00	0.00	27.00
	D - Monarch Ind	23.00	6.00	21.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	40.00	163.00	15.00
	B - Airton Rd	135.00	0.00	111.00	10.00
	C - Belgard Rd Sth	210.00	47.00	0.00	30.00
	D - Monarch Ind	26.00	8.00	19.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	42.00	158.00	21.00
	B - Airton Rd	104.00	0.00	89.00	8.00
	C - Belgard Rd Sth	186.00	48.00	0.00	25.00
	D - Monarch Ind	29.00	14.00	35.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.82	28.13	13.3	C
B - Airton Rd	0.93	40.61	19.2	D
C - Belgard Rd Sth	0.69	21.01	16.6	C
D - Monarch Ind	0.92	72.47	9.9	E

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	37.00	416.30	29.50	0.00	161.59	0.229	35.05	2.0	16.600	B
	2	129.00	513.75	29.50	0.00	199.42	0.647	121.64	7.4	23.759	C
	3	37.00	446.74	35.50	0.00	208.67	0.177	35.31	1.7	12.322	B
B - Airton Rd	1	113.00	416.30	32.50	0.00	178.02	0.635	106.89	6.1	22.142	C
	2	137.00	446.74	26.50	0.00	155.77	0.879	126.32	10.7	41.287	D
C - Belgard Rd Sth	1	263.00	984.08	29.50	0.00	381.98	0.689	248.51	14.5	22.451	C
	2	46.00	446.74	35.50	0.00	208.67	0.220	43.89	2.1	12.759	B
D - Monarch Ind	1	35.00	416.30	8.50	0.00	46.56	0.752	31.21	3.8	59.144	E
	2	24.00	446.74	8.50	0.00	49.96	0.480	21.94	2.1	41.073	D

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	35.00	416.30	29.50	0.00	161.59	0.217	35.11	1.8	16.456	B
	2	160.00	513.75	29.50	0.00	199.42	0.802	157.27	10.1	30.515	C
	3	26.00	446.74	35.50	0.00	208.67	0.125	26.51	1.2	11.827	B
B - Airton Rd	1	81.00	416.30	32.50	0.00	178.02	0.455	82.96	4.1	18.035	B
	2	138.00	446.74	26.50	0.00	155.77	0.886	137.50	11.2	47.291	D
C - Belgard Rd Sth	1	227.00	975.10	29.50	0.00	378.49	0.600	229.22	12.3	20.710	C
	2	45.00	446.74	35.50	0.00	208.67	0.216	45.05	2.1	12.712	B
D - Monarch Ind	1	29.00	416.30	8.50	0.00	46.56	0.623	29.95	2.8	53.713	D
	2	21.00	446.74	8.50	0.00	49.96	0.420	21.30	1.8	39.517	D

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	40.00	416.30	29.50	0.00	161.59	0.248	39.73	2.1	16.834	B
	2	163.00	513.75	29.50	0.00	199.42	0.817	162.60	10.5	32.451	C
	3	15.00	446.74	35.50	0.00	208.67	0.072	15.50	0.7	11.367	B
B - Airton Rd	1	111.00	416.30	32.50	0.00	178.02	0.624	109.17	6.0	21.834	C
	2	145.00	446.74	26.50	0.00	155.77	0.931	142.93	13.3	54.979	D
C - Belgard Rd Sth	1	240.00	974.23	29.50	0.00	378.16	0.635	239.22	13.1	21.337	C
	2	47.00	446.74	35.50	0.00	208.67	0.225	46.91	2.2	12.812	B
D - Monarch Ind	1	34.00	416.30	8.50	0.00	46.56	0.730	33.24	3.6	59.518	E
	2	19.00	446.74	8.50	0.00	49.96	0.380	19.19	1.6	38.076	D

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	42.00	416.30	29.50	0.00	161.59	0.260	41.89	2.2	16.993	B
	2	158.00	513.75	29.50	0.00	199.42	0.792	158.43	10.1	31.178	C
	3	21.00	446.74	35.50	0.00	208.67	0.101	20.73	1.0	11.613	B
B - Airton Rd	1	89.00	416.30	32.50	0.00	178.02	0.500	90.37	4.6	18.926	B
	2	112.00	446.74	26.50	0.00	155.77	0.719	117.94	7.3	32.566	C
C - Belgard Rd Sth	1	211.00	975.17	29.50	0.00	378.52	0.557	212.73	11.3	19.968	B
	2	48.00	446.74	35.50	0.00	208.67	0.230	47.95	2.2	12.863	B
D - Monarch Ind	1	43.00	416.30	8.50	0.00	46.56	0.924	40.17	6.4	87.922	F
	2	35.00	446.74	8.50	0.00	49.96	0.701	33.06	3.5	53.480	D

Junctions 9

OSCADY 9 - Signalised Intersection Module

Filename: Belgard Airton AM and PM 2028 WOD.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 31/12/2019 17:38:37

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2028 WOD									
A - Belard Rd Nth	11.5	12.45	0.64	B	-35 % [B - Airton Rd - Traffic Stream 2]	14.9	31.03	0.85	C	-75 % [D - Monarch Ind - Traffic Stream 1]
B - Airton Rd	10.3	43.45	0.76	D		22.2	47.60	0.96	D	
C - Belgard Rd Sth	8.7	8.13	0.35	A		18.1	22.34	0.71	C	
D - Monarch Ind	1.1	32.99	0.25	C		11.2	76.15	0.94	E	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	03/06/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2028 WOD	AM	DIRECT	08:00	09:00	60	15
D2	2028 WOD	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2028 WOD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		16.21	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-35	B - Airton Rd - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Belard Rd Nth	
B	Airton Rd	
C	Belgard Rd Sth	
D	Monarch Ind	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Belard Rd Nth	1	A	0.00	0.00	B	C
	2	A	0.00	0.00	C	C
	3	B	0.00	0.00	D	C
B - Airton Rd	1	D	0.00	0.00	C	
	2	F	0.00	0.00	A, D	
C - Belgard Rd Sth	1	A	0.00	0.00	A, D	A
	2	C	0.00	0.00	B	A
D - Monarch Ind	1	E	0.00	0.00	A, B	
	2	E	0.00	0.00	C	

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Belard Rd Nth	1	B	0	3.00	10.00	✓	
	2	C	0	3.00			
	3	D	0	3.00	10.00		
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A, D	0	3.00	10.00		
C - Belgard Rd Sth	1	A, D	0	3.00	10.00	✓	
		A	0	3.00			
	2	B	0	3.00	10.00		
D - Monarch Ind	1	A, B	0	3.00	10.00	✓	
	2	C	0	3.00	10.00		

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	74	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7
	E		7
	F		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, C, B	1		
	2	B, C, D	1		
	3	D, F	1		
	4	E	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3, 4	41, 47, 62, 0

Intergreen Matrix for Junction 1

		To					
		A	B	C	D	E	F
From	A				5	5	5
	B					5	5
	C					5	5
	D	0				5	
	E	0	0	0	0		
	F	0	0	0			

Interstage Matrix for Junction 1

		To			
		1	2	3	4
From	1	0	5	5	5
	2	0	0	5	5
	3	0	0	0	5
	4	0	0	0	0

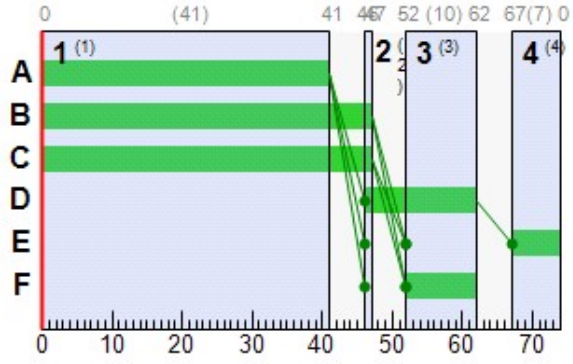
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,C,B	0	41	41	1	7
	2	2	B,C,D	46	47	1	1	1
	3	3	D,F	52	62	10	1	7
	4	4	E	67	0	7	1	7

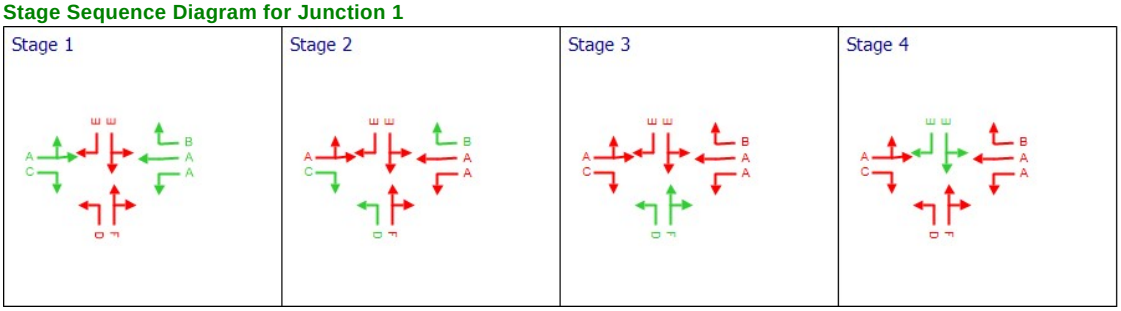
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	0	41	41
	B	1	0	47	47
	C	1	0	47	47
	D	1	46	62	16
	E	1	67	0	7
	F	1	52	62	10

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2028 WOD	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	113.00	185.00	6.00
	B - Airton Rd	49.00	0.00	48.00	4.00
	C - Belgard Rd Sth	191.00	57.00	0.00	7.00
	D - Monarch Ind	1.00	0.00	3.00	0.00

08:15 - 08:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	112.00	160.00	9.00
	B - Airton Rd	39.00	0.00	43.00	1.00
	C - Belgard Rd Sth	153.00	90.00	0.00	2.00
	D - Monarch Ind	5.00	7.00	2.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	98.00	172.00	6.00
	B - Airton Rd	42.00	0.00	65.00	3.00
	C - Belgard Rd Sth	151.00	72.00	0.00	3.00
	D - Monarch Ind	2.00	0.00	0.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	98.00	190.00	12.00
	B - Airton Rd	42.00	0.00	75.00	6.00
	C - Belgard Rd Sth	111.00	86.00	0.00	5.00
	D - Monarch Ind	9.00	1.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
08:00-08:15	A - Belard Rd Nth	304.00	304.00
	B - Airton Rd	101.00	101.00
	C - Belgard Rd Sth	255.00	255.00
	D - Monarch Ind	4.00	4.00
08:15-08:30	A - Belard Rd Nth	281.00	281.00
	B - Airton Rd	83.00	83.00
	C - Belgard Rd Sth	245.00	245.00
	D - Monarch Ind	14.00	14.00
08:30-08:45	A - Belard Rd Nth	276.00	276.00
	B - Airton Rd	110.00	110.00
	C - Belgard Rd Sth	226.00	226.00
	D - Monarch Ind	2.00	2.00
08:45-09:00	A - Belard Rd Nth	300.00	300.00
	B - Airton Rd	123.00	123.00
	C - Belgard Rd Sth	202.00	202.00
	D - Monarch Ind	10.00	10.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.64	12.45	11.5	B
B - Airton Rd	0.76	43.45	10.3	D
C - Belgard Rd Sth	0.35	8.13	8.7	A
D - Monarch Ind	0.25	32.99	1.1	C

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	113.00	416.30	42.50	0.00	239.09	0.473	108.79	4.2	11.200	B
	2	185.00	513.75	42.50	0.00	295.06	0.627	177.90	7.1	13.479	B
	3	6.00	446.74	48.50	0.00	292.80	0.020	5.83	0.2	4.492	A
B - Airton Rd	1	48.00	416.30	17.50	0.00	98.45	0.488	44.71	3.3	29.429	C
	2	53.00	446.74	11.50	0.00	69.43	0.763	48.02	5.0	49.981	D
C - Belgard Rd Sth	1	198.00	987.26	42.50	0.00	567.01	0.349	190.96	7.0	8.896	A
	2	57.00	446.74	48.50	0.00	292.80	0.195	55.36	1.6	5.481	A
D - Monarch Ind	1	1.00	416.30	8.50	0.00	47.82	0.021	0.93	0.1	29.299	C
	2	3.00	446.74	8.50	0.00	51.31	0.058	2.78	0.2	29.836	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	112.00	416.30	42.50	0.00	239.09	0.468	112.04	4.2	11.163	B
	2	160.00	513.75	42.50	0.00	295.06	0.542	161.11	6.0	11.932	B
	3	9.00	446.74	48.50	0.00	292.80	0.031	8.91	0.3	4.542	A
B - Airton Rd	1	43.00	416.30	17.50	0.00	98.45	0.437	43.38	2.9	28.371	C
	2	40.00	446.74	11.50	0.00	69.43	0.576	41.72	3.3	40.491	D
C - Belgard Rd Sth	1	155.00	990.58	42.50	0.00	568.92	0.272	156.56	5.5	8.304	A
	2	90.00	446.74	48.50	0.00	292.80	0.307	89.01	2.6	6.317	A
D - Monarch Ind	1	12.00	416.30	8.50	0.00	47.82	0.251	11.15	0.9	33.560	C
	2	2.00	446.74	8.50	0.00	51.31	0.039	2.07	0.1	29.546	C

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	98.00	416.30	42.50	0.00	239.09	0.410	98.57	3.6	10.348	B
	2	172.00	513.75	42.50	0.00	295.06	0.583	171.48	6.5	12.616	B
	3	6.00	446.74	48.50	0.00	292.80	0.020	6.09	0.2	4.492	A
B - Airton Rd	1	65.00	416.30	17.50	0.00	98.45	0.660	63.09	4.8	35.429	D
	2	45.00	446.74	11.50	0.00	69.43	0.648	44.46	3.8	42.878	D
C - Belgard Rd Sth	1	154.00	989.61	42.50	0.00	568.36	0.271	154.04	5.5	8.293	A
	2	72.00	446.74	48.50	0.00	292.80	0.246	72.54	2.1	5.841	A
D - Monarch Ind	1	2.00	416.30	8.50	0.00	47.82	0.042	2.78	0.1	29.634	C
	2	0.00	446.74	8.50	0.00	51.31	0.000	0.15	0.0	0.000	A

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	98.00	416.30	42.50	0.00	239.09	0.410	98.00	3.6	10.337	B
	2	190.00	513.75	42.50	0.00	295.06	0.644	189.16	7.3	13.898	B
	3	12.00	446.74	48.50	0.00	292.80	0.041	11.83	0.3	4.594	A
B - Airton Rd	1	75.00	416.30	17.50	0.00	98.45	0.762	73.77	6.0	41.865	D
	2	48.00	446.74	11.50	0.00	69.43	0.691	47.60	4.2	45.939	D
C - Belgard Rd Sth	1	116.00	986.12	42.50	0.00	566.36	0.205	117.36	4.1	7.844	A
	2	86.00	446.74	48.50	0.00	292.80	0.294	85.58	2.5	6.206	A
D - Monarch Ind	1	10.00	416.30	8.50	0.00	47.82	0.209	9.39	0.8	32.644	C
	2	0.00	446.74	8.50	0.00	51.31	0.000	0.00	0.0	0.000	A

2028 WOD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		36.29	D

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-75	D - Monarch Ind - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2028 WOD	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	35.00	138.00	35.00
	B - Airton Rd	124.00	0.00	117.00	12.00
	C - Belgard Rd Sth	266.00	39.00	0.00	16.00
	D - Monarch Ind	29.00	9.00	26.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	33.00	172.00	28.00
	B - Airton Rd	131.00	0.00	83.00	7.00
	C - Belgard Rd Sth	214.00	37.00	0.00	29.00
	D - Monarch Ind	25.00	7.00	23.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	38.00	175.00	16.00
	B - Airton Rd	134.00	0.00	114.00	11.00
	C - Belgard Rd Sth	215.00	40.00	0.00	32.00
	D - Monarch Ind	28.00	9.00	20.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	40.00	169.00	23.00
	B - Airton Rd	100.00	0.00	91.00	9.00
	C - Belgard Rd Sth	200.00	41.00	0.00	27.00
	D - Monarch Ind	31.00	15.00	37.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
17:00-17:15	A - Belard Rd Nth	208.00	208.00
	B - Airton Rd	253.00	253.00
	C - Belgard Rd Sth	321.00	321.00
	D - Monarch Ind	64.00	64.00
17:15-17:30	A - Belard Rd Nth	233.00	233.00
	B - Airton Rd	221.00	221.00
	C - Belgard Rd Sth	280.00	280.00
	D - Monarch Ind	55.00	55.00
17:30-17:45	A - Belard Rd Nth	229.00	229.00
	B - Airton Rd	259.00	259.00
	C - Belgard Rd Sth	287.00	287.00
	D - Monarch Ind	57.00	57.00
17:45-18:00	A - Belard Rd Nth	232.00	232.00
	B - Airton Rd	200.00	200.00
	C - Belgard Rd Sth	268.00	268.00
	D - Monarch Ind	83.00	83.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.85	31.03	14.9	C
B - Airton Rd	0.96	47.60	22.2	D
C - Belgard Rd Sth	0.71	22.34	18.1	C
D - Monarch Ind	0.94	76.15	11.2	E

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	35.00	416.30	32.50	0.00	167.04	0.210	33.08	1.9	16.706	B
	2	138.00	513.75	32.50	0.00	206.13	0.669	129.77	8.2	24.924	C
	3	35.00	446.74	38.50	0.00	212.34	0.165	33.33	1.7	12.598	B
B - Airton Rd	1	117.00	416.30	33.50	0.00	172.18	0.680	109.99	7.0	25.652	C
	2	136.00	446.74	27.50	0.00	151.67	0.897	124.32	11.7	45.663	D
C - Belgard Rd Sth	1	282.00	984.12	32.50	0.00	394.86	0.714	265.75	16.2	23.658	C
	2	39.00	446.74	38.50	0.00	212.34	0.184	37.13	1.9	12.787	B
D - Monarch Ind	1	38.00	416.30	9.50	0.00	48.83	0.778	33.63	4.4	62.743	E
	2	26.00	446.74	9.50	0.00	52.40	0.496	23.65	2.3	43.035	D

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	33.00	416.30	32.50	0.00	167.04	0.198	33.11	1.8	16.567	B
	2	172.00	513.75	32.50	0.00	206.13	0.834	168.66	11.6	33.212	C
	3	28.00	446.74	38.50	0.00	212.34	0.132	28.34	1.3	12.282	B
B - Airton Rd	1	83.00	416.30	33.50	0.00	172.18	0.482	85.36	4.7	20.384	C
	2	138.00	446.74	27.50	0.00	151.67	0.910	137.05	12.6	54.494	D
C - Belgard Rd Sth	1	243.00	975.05	32.50	0.00	391.22	0.621	245.54	13.7	21.639	C
	2	37.00	446.74	38.50	0.00	212.34	0.174	37.10	1.8	12.694	B
D - Monarch Ind	1	32.00	416.30	9.50	0.00	48.83	0.655	33.02	3.3	58.051	E
	2	23.00	446.74	9.50	0.00	52.40	0.439	23.31	2.0	41.565	D

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	38.00	416.30	32.50	0.00	167.04	0.227	37.72	2.1	16.928	B
	2	175.00	513.75	32.50	0.00	206.13	0.849	174.50	12.1	35.857	D
	3	16.00	446.74	38.50	0.00	212.34	0.075	16.58	0.8	11.771	B
B - Airton Rd	1	114.00	416.30	33.50	0.00	172.18	0.662	111.88	6.8	25.060	C
	2	145.00	446.74	27.50	0.00	151.67	0.956	142.16	15.5	65.326	E
C - Belgard Rd Sth	1	247.00	973.58	32.50	0.00	390.63	0.632	246.75	14.0	21.827	C
	2	40.00	446.74	38.50	0.00	212.34	0.188	39.85	1.9	12.836	B
D - Monarch Ind	1	37.00	416.30	9.50	0.00	48.83	0.758	36.18	4.2	63.789	E
	2	20.00	446.74	9.50	0.00	52.40	0.382	20.31	1.7	39.562	D

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	40.00	416.30	32.50	0.00	167.04	0.239	39.89	2.2	17.080	B
	2	169.00	513.75	32.50	0.00	206.13	0.820	169.60	11.5	34.102	C
	3	23.00	446.74	38.50	0.00	212.34	0.108	22.67	1.1	12.063	B
B - Airton Rd	1	91.00	416.30	33.50	0.00	172.18	0.529	92.61	5.2	21.424	C
	2	109.00	446.74	27.50	0.00	151.67	0.719	116.83	7.6	36.263	D
C - Belgard Rd Sth	1	227.00	975.10	32.50	0.00	391.24	0.580	228.24	12.7	20.850	C
	2	41.00	446.74	38.50	0.00	212.34	0.193	40.95	2.0	12.885	B
D - Monarch Ind	1	46.00	416.30	9.50	0.00	48.83	0.942	42.84	7.3	93.199	F
	2	37.00	446.74	9.50	0.00	52.40	0.706	34.88	3.9	54.954	D

Junctions 9

OSCADY 9 - Signalised Intersection Module

Filename: Belgard Airton AM and PM 2028 WDEV.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 31/12/2019 18:00:06

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2028 WDEV									
A - Belard Rd Nth	12.5	14.84	0.69	B	-30 % [B - Airton Rd - Traffic Stream 2]	16.9	35.21	0.87	D	-95 % [D - Monarch Ind - Traffic Stream 1]
B - Airton Rd	11.7	43.85	0.81	D		23.6	46.48	0.95	D	
C - Belgard Rd Sth	9.3	9.50	0.38	A		20.7	24.75	0.73	C	
D - Monarch Ind	1.0	30.20	0.22	C		14.2	96.96	1.02	F	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	03/06/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2028 WDEV	AM	DIRECT	08:00	09:00	60	15
D2	2028 WDEV	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2028 WDEV, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		18.58	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-30	B - Airton Rd - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Belard Rd Nth	
B	Airton Rd	
C	Belgard Rd Sth	
D	Monarch Ind	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Belard Rd Nth	1	A	0.00	0.00	B	C
	2	A	0.00	0.00	C	C
	3	B	0.00	0.00	D	C
B - Airton Rd	1	D	0.00	0.00	C	
	2	F	0.00	0.00	A, D	
C - Belgard Rd Sth	1	A	0.00	0.00	A, D	A
	2	C	0.00	0.00	B	A
D - Monarch Ind	1	E	0.00	0.00	A, B	
	2	E	0.00	0.00	C	

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Belard Rd Nth	1	B	0	3.00	10.00	✓	
	2	C	0	3.00			
	3	D	0	3.00	10.00		
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A, D	0	3.00	10.00		
C - Belgard Rd Sth	1	A, D	0	3.00	10.00	✓	
		A	0	3.00			
	2	B	0	3.00	10.00		
D - Monarch Ind	1	A, B	0	3.00	10.00	✓	
	2	C	0	3.00	10.00		

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	72	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7
	E		7
	F		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, C, B	1		
	2	B, C, D	1		
	3	D, F	1		
	4	E	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3, 4	37, 43, 59, 0

Intergreen Matrix for Junction 1

		To					
		A	B	C	D	E	F
From	A				5	5	5
	B					5	5
	C					5	5
	D	0				5	
	E	0	0	0	0		
	F	0	0	0			

Interstage Matrix for Junction 1

		To			
		1	2	3	4
From	1	0	5	5	5
	2	0	0	5	5
	3	0	0	0	5
	4	0	0	0	0

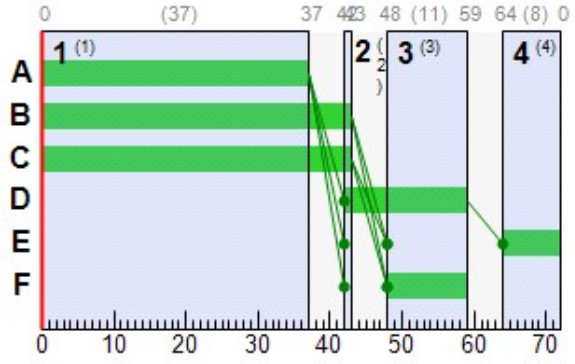
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,C,B	0	37	37	1	7
	2	2	B,C,D	42	43	1	1	1
	3	3	D,F	48	59	11	1	7
	4	4	E	64	0	8	1	7

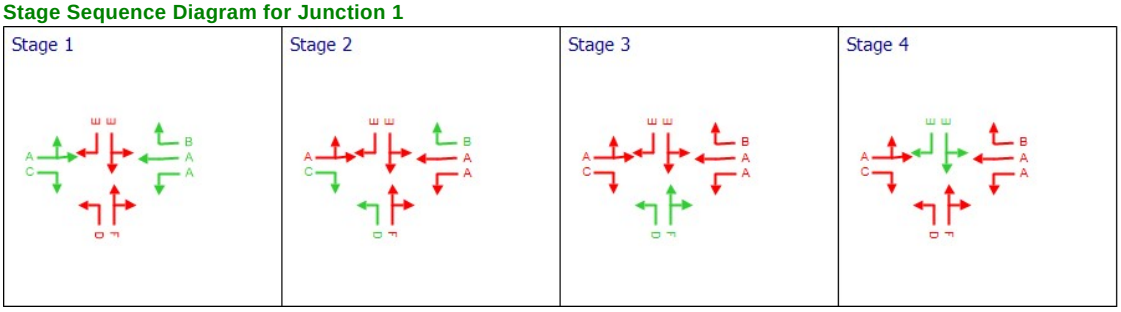
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	0	37	37
	B	1	0	43	43
	C	1	0	43	43
	D	1	42	59	17
	E	1	64	0	8
	F	1	48	59	11

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2028 WDEV	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	115.00	185.00	6.00
	B - Airton Rd	59.00	0.00	57.00	4.00
	C - Belgard Rd Sth	191.00	58.00	0.00	7.00
	D - Monarch Ind	1.00	0.00	3.00	0.00

08:15 - 08:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	114.00	160.00	9.00
	B - Airton Rd	47.00	0.00	55.00	1.00
	C - Belgard Rd Sth	153.00	91.00	0.00	2.00
	D - Monarch Ind	5.00	7.00	2.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	100.00	172.00	6.00
	B - Airton Rd	50.00	0.00	76.00	3.00
	C - Belgard Rd Sth	151.00	73.00	0.00	3.00
	D - Monarch Ind	2.00	0.00	0.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	100.00	190.00	12.00
	B - Airton Rd	49.00	0.00	87.00	6.00
	C - Belgard Rd Sth	111.00	88.00	0.00	5.00
	D - Monarch Ind	9.00	1.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.69	14.84	12.5	B
B - Airton Rd	0.81	43.85	11.7	D
C - Belgard Rd Sth	0.38	9.50	9.3	A
D - Monarch Ind	0.22	30.20	1.0	C

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	115.00	416.30	38.50	0.00	222.61	0.517	110.39	4.6	13.316	B
	2	185.00	513.75	38.50	0.00	274.71	0.673	177.30	7.7	16.092	B
	3	6.00	446.74	44.50	0.00	276.11	0.022	5.82	0.2	5.367	A
B - Airton Rd	1	57.00	416.30	18.50	0.00	106.97	0.533	53.25	3.7	28.570	C
	2	63.00	446.74	12.50	0.00	77.56	0.812	57.06	5.9	51.008	D
C - Belgard Rd Sth	1	198.00	987.26	38.50	0.00	527.91	0.375	190.50	7.5	10.360	B
	2	58.00	446.74	44.50	0.00	276.11	0.210	56.19	1.8	6.554	A
D - Monarch Ind	1	1.00	416.30	9.50	0.00	54.93	0.018	0.93	0.1	27.374	C
	2	3.00	446.74	9.50	0.00	58.94	0.051	2.79	0.2	27.800	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	114.00	416.30	38.50	0.00	222.61	0.512	114.04	4.6	13.280	B
	2	160.00	513.75	38.50	0.00	274.71	0.582	161.26	6.4	14.108	B
	3	9.00	446.74	44.50	0.00	276.11	0.033	8.91	0.3	5.426	A
B - Airton Rd	1	55.00	416.30	18.50	0.00	106.97	0.514	55.15	3.6	28.282	C
	2	48.00	446.74	12.50	0.00	77.56	0.619	50.14	3.8	40.076	D
C - Belgard Rd Sth	1	155.00	990.58	38.50	0.00	529.69	0.293	156.66	5.8	9.662	A
	2	91.00	446.74	44.50	0.00	276.11	0.330	89.93	2.9	7.552	A
D - Monarch Ind	1	12.00	416.30	9.50	0.00	54.93	0.218	11.20	0.9	30.642	C
	2	2.00	446.74	9.50	0.00	58.94	0.034	2.07	0.1	27.570	C

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	100.00	416.30	38.50	0.00	222.61	0.449	100.62	3.9	12.253	B
	2	172.00	513.75	38.50	0.00	274.71	0.626	171.42	7.0	14.970	B
	3	6.00	446.74	44.50	0.00	276.11	0.022	6.09	0.2	5.367	A
B - Airton Rd	1	76.00	416.30	18.50	0.00	106.97	0.710	74.09	5.5	35.581	D
	2	53.00	446.74	12.50	0.00	77.56	0.683	52.46	4.3	42.062	D
C - Belgard Rd Sth	1	154.00	989.61	38.50	0.00	529.17	0.291	154.04	5.8	9.649	A
	2	73.00	446.74	44.50	0.00	276.11	0.264	73.59	2.3	6.983	A
D - Monarch Ind	1	2.00	416.30	9.50	0.00	54.93	0.036	2.73	0.1	27.635	C
	2	0.00	446.74	9.50	0.00	58.94	0.000	0.14	0.0	0.000	A

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	100.00	416.30	38.50	0.00	222.61	0.449	100.00	3.9	12.236	B
	2	190.00	513.75	38.50	0.00	274.71	0.692	189.04	8.0	16.673	B
	3	12.00	446.74	44.50	0.00	276.11	0.043	11.82	0.4	5.486	A
B - Airton Rd	1	87.00	416.30	18.50	0.00	106.97	0.813	85.46	7.1	43.614	D
	2	55.00	446.74	12.50	0.00	77.56	0.709	54.73	4.6	44.236	D
C - Belgard Rd Sth	1	116.00	986.12	38.50	0.00	527.30	0.220	117.45	4.4	9.122	A
	2	88.00	446.74	44.50	0.00	276.11	0.319	87.51	2.8	7.452	A
D - Monarch Ind	1	10.00	416.30	9.50	0.00	54.93	0.182	9.42	0.7	29.959	C
	2	0.00	446.74	9.50	0.00	58.94	0.000	0.00	0.0	0.000	A

2028 WDEV, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		39.53	D

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-95	D - Monarch Ind - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2028 WDEV	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	38.00	138.00	40.00
	B - Airton Rd	136.00	0.00	120.00	12.00
	C - Belgard Rd Sth	266.00	51.00	0.00	16.00
	D - Monarch Ind	29.00	9.00	26.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	36.00	172.00	28.00
	B - Airton Rd	143.00	0.00	86.00	7.00
	C - Belgard Rd Sth	214.00	50.00	0.00	29.00
	D - Monarch Ind	25.00	7.00	23.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	41.00	175.00	16.00
	B - Airton Rd	146.00	0.00	118.00	11.00
	C - Belgard Rd Sth	215.00	52.00	0.00	32.00
	D - Monarch Ind	28.00	9.00	20.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	43.00	169.00	23.00
	B - Airton Rd	113.00	0.00	95.00	9.00
	C - Belgard Rd Sth	200.00	53.00	0.00	27.00
	D - Monarch Ind	31.00	15.00	37.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.87	35.21	16.9	D
B - Airton Rd	0.95	46.48	23.6	D
C - Belgard Rd Sth	0.73	24.75	20.7	C
D - Monarch Ind	1.02	96.96	14.2	F

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	38.00	416.30	34.50	0.00	163.21	0.233	35.70	2.3	18.895	B
	2	138.00	513.75	34.50	0.00	201.41	0.685	128.93	9.1	27.779	C
	3	40.00	446.74	40.50	0.00	205.60	0.195	37.86	2.1	14.713	B
B - Airton Rd	1	120.00	416.30	38.50	0.00	182.13	0.659	112.65	7.3	25.020	C
	2	148.00	446.74	32.50	0.00	164.99	0.897	135.21	12.8	45.262	D
C - Belgard Rd Sth	1	282.00	984.12	34.50	0.00	385.82	0.731	264.07	17.9	26.454	C
	2	51.00	446.74	40.50	0.00	205.60	0.248	48.26	2.7	15.334	B
D - Monarch Ind	1	38.00	416.30	9.50	0.00	44.94	0.846	32.73	5.3	76.332	E
	2	26.00	446.74	9.50	0.00	48.23	0.539	23.37	2.6	49.207	D

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	36.00	416.30	34.50	0.00	163.21	0.221	36.12	2.2	18.740	B
	2	172.00	513.75	34.50	0.00	201.41	0.854	168.18	12.9	37.447	D
	3	28.00	446.74	40.50	0.00	205.60	0.136	28.65	1.5	14.092	B
B - Airton Rd	1	86.00	416.30	38.50	0.00	182.13	0.472	88.36	5.0	20.253	C
	2	150.00	446.74	32.50	0.00	164.99	0.909	149.09	13.7	53.252	D
C - Belgard Rd Sth	1	243.00	975.05	34.50	0.00	382.26	0.636	245.81	15.1	24.171	C
	2	50.00	446.74	40.50	0.00	205.60	0.243	50.05	2.7	15.280	B
D - Monarch Ind	1	32.00	416.30	9.50	0.00	44.94	0.712	33.29	4.0	73.444	E
	2	23.00	446.74	9.50	0.00	48.23	0.477	23.35	2.3	47.506	D

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	41.00	416.30	34.50	0.00	163.21	0.251	40.69	2.5	19.146	B
	2	175.00	513.75	34.50	0.00	201.41	0.869	174.37	13.5	40.950	D
	3	16.00	446.74	40.50	0.00	205.60	0.078	16.64	0.8	13.518	B
B - Airton Rd	1	118.00	416.30	38.50	0.00	182.13	0.648	115.80	7.2	24.680	C
	2	157.00	446.74	32.50	0.00	164.99	0.952	154.32	16.4	62.863	E
C - Belgard Rd Sth	1	247.00	973.58	34.50	0.00	381.69	0.647	246.73	15.4	24.379	C
	2	52.00	446.74	40.50	0.00	205.60	0.253	51.89	2.8	15.397	B
D - Monarch Ind	1	37.00	416.30	9.50	0.00	44.94	0.823	35.94	5.0	80.473	F
	2	20.00	446.74	9.50	0.00	48.23	0.415	20.35	1.9	44.855	D

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	43.00	416.30	34.50	0.00	163.21	0.263	42.88	2.6	19.318	B
	2	169.00	513.75	34.50	0.00	201.41	0.839	169.67	12.9	38.983	D
	3	23.00	446.74	40.50	0.00	205.60	0.112	22.63	1.2	13.846	B
B - Airton Rd	1	95.00	416.30	38.50	0.00	182.13	0.522	96.62	5.6	21.341	C
	2	122.00	446.74	32.50	0.00	164.99	0.739	129.54	8.8	36.569	D
C - Belgard Rd Sth	1	227.00	975.10	34.50	0.00	382.28	0.594	228.37	14.0	23.282	C
	2	53.00	446.74	40.50	0.00	205.60	0.258	52.94	2.9	15.457	B
D - Monarch Ind	1	46.00	416.30	9.50	0.00	44.94	1.024	41.32	9.7	122.120	F
	2	37.00	446.74	9.50	0.00	48.23	0.767	34.42	4.5	65.675	E

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.0.6896

For sales and distribution information, program advice and maintenance, contact TRL:
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Filename: Belgard Airton AM and PM 2038 WOD.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 31/12/2019 18:55:31

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2038 WOD									
A - Belard Rd Nth	12.9	13.68	0.69	B	-46 % [B - Airton Rd - Traffic Stream 2]	20.0	41.76	0.91	D	-100 % [D - Monarch Ind - Traffic Stream 1]
B - Airton Rd	12.3	51.55	0.84	D		26.7	52.34	0.97	D	
C - Belgard Rd Sth	9.6	8.61	0.37	A		23.1	27.50	0.77	C	
D - Monarch Ind	1.1	32.63	0.23	C		14.3	89.70	0.98	F	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	03/06/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2038 WOD	AM	DIRECT	08:00	09:00	60	15
D2	2038 WOD	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 WOD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		18.27	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-46	B - Airton Rd - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Belard Rd Nth	
B	Airton Rd	
C	Belgard Rd Sth	
D	Monarch Ind	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Belard Rd Nth	1	A	0.00	0.00	B	C
	2	A	0.00	0.00	C	C
	3	B	0.00	0.00	D	C
B - Airton Rd	1	D	0.00	0.00	C	
	2	F	0.00	0.00	A, D	
C - Belgard Rd Sth	1	A	0.00	0.00	A, D	A
	2	C	0.00	0.00	B	A
D - Monarch Ind	1	E	0.00	0.00	A, B	
	2	E	0.00	0.00	C	

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Belard Rd Nth	1	B	0	3.00	10.00	✓	
	2	C	0	3.00			
	3	D	0	3.00	10.00		
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A, D	0	3.00	10.00		
C - Belgard Rd Sth	1	A, D	0	3.00	10.00	✓	
		A	0	3.00			
	2	B	0	3.00	10.00		
D - Monarch Ind	1	A, B	0	3.00	10.00	✓	
	2	C	0	3.00	10.00		

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	76	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7
	E		7
	F		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, C, B	1		
	2	B, C, D	1		
	3	D, F	1		
	4	E	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3, 4	42, 48, 63, 0

Intergreen Matrix for Junction 1

		To					
		A	B	C	D	E	F
From	A				5	5	5
	B					5	5
	C					5	5
	D	0				5	
	E	0	0	0	0		
	F	0	0	0			

Interstage Matrix for Junction 1

		To			
		1	2	3	4
From	1	0	5	5	5
	2	0	0	5	5
	3	0	0	0	5
	4	0	0	0	0

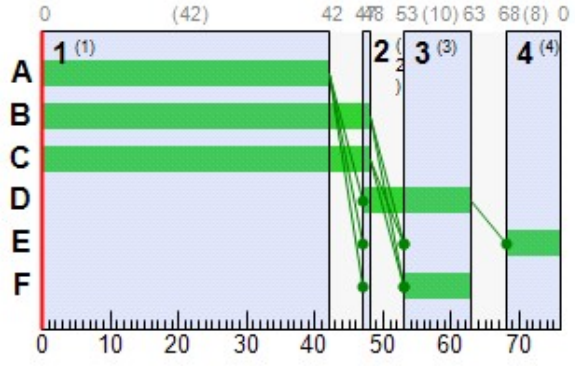
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,C,B	0	42	42	1	7
	2	2	B,C,D	47	48	1	1	1
	3	3	D,F	53	63	10	1	7
	4	4	E	68	0	8	1	7

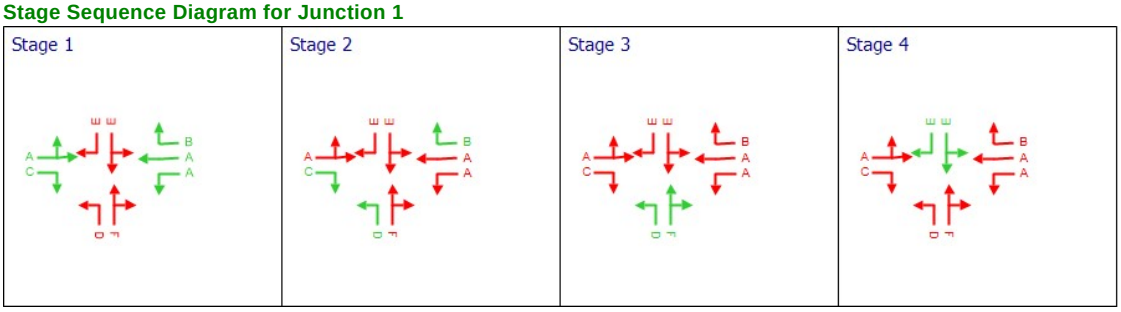
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	0	42	42
	B	1	0	48	48
	C	1	0	48	48
	D	1	47	63	16
	E	1	68	0	8
	F	1	53	63	10

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2038 WOD	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	121.00	198.00	7.00
	B - Airton Rd	53.00	0.00	51.00	4.00
	C - Belgard Rd Sth	204.00	61.00	0.00	7.00
	D - Monarch Ind	1.00	0.00	3.00	0.00

08:15 - 08:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	119.00	171.00	10.00
	B - Airton Rd	42.00	0.00	46.00	1.00
	C - Belgard Rd Sth	164.00	96.00	0.00	2.00
	D - Monarch Ind	5.00	7.00	2.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	105.00	184.00	6.00
	B - Airton Rd	45.00	0.00	69.00	4.00
	C - Belgard Rd Sth	162.00	77.00	0.00	4.00
	D - Monarch Ind	2.00	0.00	0.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	104.00	203.00	13.00
	B - Airton Rd	45.00	0.00	80.00	6.00
	C - Belgard Rd Sth	119.00	93.00	0.00	5.00
	D - Monarch Ind	10.00	1.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
08:00-08:15	A - Belard Rd Nth	326.00	326.00
	B - Airton Rd	108.00	108.00
	C - Belgard Rd Sth	272.00	272.00
	D - Monarch Ind	4.00	4.00
08:15-08:30	A - Belard Rd Nth	300.00	300.00
	B - Airton Rd	89.00	89.00
	C - Belgard Rd Sth	262.00	262.00
	D - Monarch Ind	14.00	14.00
08:30-08:45	A - Belard Rd Nth	295.00	295.00
	B - Airton Rd	118.00	118.00
	C - Belgard Rd Sth	243.00	243.00
	D - Monarch Ind	2.00	2.00
08:45-09:00	A - Belard Rd Nth	320.00	320.00
	B - Airton Rd	131.00	131.00
	C - Belgard Rd Sth	217.00	217.00
	D - Monarch Ind	11.00	11.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.69	13.68	12.9	B
B - Airton Rd	0.84	51.55	12.3	D
C - Belgard Rd Sth	0.37	8.61	9.6	A
D - Monarch Ind	0.23	32.63	1.1	C

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	121.00	416.30	43.50	0.00	238.28	0.508	116.32	4.7	12.098	B
	2	198.00	513.75	43.50	0.00	294.05	0.673	190.03	8.0	14.969	B
	3	7.00	446.74	49.50	0.00	290.97	0.024	6.79	0.2	4.739	A
B - Airton Rd	1	51.00	416.30	17.50	0.00	95.86	0.532	47.33	3.7	31.794	C
	2	57.00	446.74	11.50	0.00	67.60	0.843	50.81	6.2	59.595	E
C - Belgard Rd Sth	1	211.00	987.59	43.50	0.00	565.26	0.373	203.25	7.8	9.404	A
	2	61.00	446.74	49.50	0.00	290.97	0.210	59.17	1.8	5.842	A
D - Monarch Ind	1	1.00	416.30	9.50	0.00	52.04	0.019	0.93	0.1	29.367	C
	2	3.00	446.74	9.50	0.00	55.84	0.054	2.78	0.2	29.838	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	119.00	416.30	43.50	0.00	238.28	0.499	119.08	4.6	11.995	B
	2	171.00	513.75	43.50	0.00	294.05	0.582	172.30	6.7	13.010	B
	3	10.00	446.74	49.50	0.00	290.97	0.034	9.91	0.3	4.792	A
B - Airton Rd	1	46.00	416.30	17.50	0.00	95.86	0.480	46.41	3.3	30.606	C
	2	43.00	446.74	11.50	0.00	67.60	0.636	45.40	3.8	46.318	D
C - Belgard Rd Sth	1	166.00	990.71	43.50	0.00	567.05	0.293	167.69	6.1	8.743	A
	2	96.00	446.74	49.50	0.00	290.97	0.330	94.91	2.9	6.795	A
D - Monarch Ind	1	12.00	416.30	9.50	0.00	52.04	0.231	11.15	0.9	33.019	C
	2	2.00	446.74	9.50	0.00	55.84	0.036	2.07	0.1	29.584	C

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	105.00	416.30	43.50	0.00	238.28	0.441	105.60	4.0	11.092	B
	2	184.00	513.75	43.50	0.00	294.05	0.626	183.40	7.3	13.864	B
	3	6.00	446.74	49.50	0.00	290.97	0.021	6.12	0.2	4.722	A
B - Airton Rd	1	69.00	416.30	17.50	0.00	95.86	0.720	66.74	5.5	39.866	D
	2	49.00	446.74	11.50	0.00	67.60	0.725	48.22	4.6	49.706	D
C - Belgard Rd Sth	1	166.00	988.93	43.50	0.00	566.03	0.293	166.00	6.1	8.747	A
	2	77.00	446.74	49.50	0.00	290.97	0.265	77.60	2.3	6.252	A
D - Monarch Ind	1	2.00	416.30	9.50	0.00	52.04	0.038	2.78	0.1	29.657	C
	2	0.00	446.74	9.50	0.00	55.84	0.000	0.15	0.0	0.000	A

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	104.00	416.30	43.50	0.00	238.28	0.436	104.04	4.0	11.020	B
	2	203.00	513.75	43.50	0.00	294.05	0.690	202.03	8.2	15.494	B
	3	13.00	446.74	49.50	0.00	290.97	0.045	12.79	0.4	4.845	A
B - Airton Rd	1	80.00	416.30	17.50	0.00	95.86	0.835	78.18	7.3	50.294	D
	2	51.00	446.74	11.50	0.00	67.60	0.754	50.64	4.9	53.526	D
C - Belgard Rd Sth	1	124.00	986.53	43.50	0.00	564.66	0.220	125.55	4.5	8.217	A
	2	93.00	446.74	49.50	0.00	290.97	0.320	92.50	2.8	6.704	A
D - Monarch Ind	1	11.00	416.30	9.50	0.00	52.04	0.211	10.30	0.8	32.627	C
	2	0.00	446.74	9.50	0.00	55.84	0.000	0.00	0.0	0.000	A

2038 WOD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		43.57	D

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-100	D - Monarch Ind - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2038 WOD	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	42.00	148.00	37.00
	B - Airton Rd	132.00	0.00	125.00	13.00
	C - Belgard Rd Sth	285.00	41.00	0.00	17.00
	D - Monarch Ind	32.00	10.00	28.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	35.00	184.00	30.00
	B - Airton Rd	140.00	0.00	89.00	7.00
	C - Belgard Rd Sth	229.00	40.00	0.00	32.00
	D - Monarch Ind	27.00	7.00	24.00	0.00

Demand (PCU/TS)

17:30 - 17:45

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	40.00	187.00	17.00
	B - Airton Rd	143.00	0.00	122.00	12.00
	C - Belgard Rd Sth	230.00	42.00	0.00	35.00
	D - Monarch Ind	30.00	10.00	22.00	0.00

Demand (PCU/TS)

17:45 - 18:00

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	42.00	181.00	24.00
	B - Airton Rd	107.00	0.00	98.00	10.00
	C - Belgard Rd Sth	214.00	44.00	0.00	29.00
	D - Monarch Ind	33.00	16.00	40.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
17:00-17:15	A - Belard Rd Nth	227.00	227.00
	B - Airton Rd	270.00	270.00
	C - Belgard Rd Sth	343.00	343.00
	D - Monarch Ind	70.00	70.00
17:15-17:30	A - Belard Rd Nth	249.00	249.00
	B - Airton Rd	236.00	236.00
	C - Belgard Rd Sth	301.00	301.00
	D - Monarch Ind	58.00	58.00
17:30-17:45	A - Belard Rd Nth	244.00	244.00
	B - Airton Rd	277.00	277.00
	C - Belgard Rd Sth	307.00	307.00
	D - Monarch Ind	62.00	62.00
17:45-18:00	A - Belard Rd Nth	247.00	247.00
	B - Airton Rd	215.00	215.00
	C - Belgard Rd Sth	287.00	287.00
	D - Monarch Ind	89.00	89.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.91	41.76	20.0	D
B - Airton Rd	0.97	52.34	26.7	D
C - Belgard Rd Sth	0.77	27.50	23.1	C
D - Monarch Ind	0.98	89.70	14.3	F

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	42.00	416.30	38.50	0.00	166.96	0.252	39.27	2.7	20.233	C
	2	148.00	513.75	38.50	0.00	206.04	0.718	137.48	10.5	30.464	C
	3	37.00	446.74	44.50	0.00	207.08	0.179	34.86	2.1	15.627	B
B - Airton Rd	1	125.00	416.30	40.50	0.00	175.63	0.712	116.27	8.7	30.006	C
	2	145.00	446.74	34.50	0.00	160.55	0.903	131.25	13.7	49.345	D
C - Belgard Rd Sth	1	302.00	984.19	38.50	0.00	394.70	0.765	281.25	20.8	29.086	C
	2	41.00	446.74	44.50	0.00	207.08	0.198	38.62	2.4	15.851	B
D - Monarch Ind	1	42.00	416.30	11.50	0.00	49.87	0.842	36.09	5.9	76.178	E
	2	28.00	446.74	11.50	0.00	53.52	0.523	25.04	3.0	49.988	D

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	35.00	416.30	38.50	0.00	166.96	0.210	35.46	2.3	19.661	B
	2	184.00	513.75	38.50	0.00	206.04	0.893	179.07	15.5	43.052	D
	3	30.00	446.74	44.50	0.00	207.08	0.145	30.41	1.7	15.251	B
B - Airton Rd	1	89.00	416.30	40.50	0.00	175.63	0.507	91.92	5.8	23.653	C
	2	147.00	446.74	34.50	0.00	160.55	0.916	145.97	14.8	58.375	E
C - Belgard Rd Sth	1	261.00	974.58	38.50	0.00	390.85	0.668	264.26	17.5	26.358	C
	2	40.00	446.74	44.50	0.00	207.08	0.193	40.06	2.3	15.797	B
D - Monarch Ind	1	34.00	416.30	11.50	0.00	49.87	0.682	35.75	4.2	67.785	E
	2	24.00	446.74	11.50	0.00	53.52	0.448	24.48	2.5	47.799	D

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	40.00	416.30	38.50	0.00	166.96	0.240	39.67	2.6	20.067	C
	2	187.00	513.75	38.50	0.00	206.04	0.908	186.00	16.5	48.868	D
	3	17.00	446.74	44.50	0.00	207.08	0.082	17.75	1.0	14.594	B
B - Airton Rd	1	122.00	416.30	40.50	0.00	175.63	0.695	119.36	8.4	29.319	C
	2	155.00	446.74	34.50	0.00	160.55	0.965	151.51	18.3	70.464	E
C - Belgard Rd Sth	1	265.00	973.22	38.50	0.00	390.30	0.679	264.71	17.8	26.580	C
	2	42.00	446.74	44.50	0.00	207.08	0.203	41.88	2.4	15.910	B
D - Monarch Ind	1	40.00	416.30	11.50	0.00	49.87	0.802	38.80	5.4	75.321	E
	2	22.00	446.74	11.50	0.00	53.52	0.411	22.24	2.2	46.307	D

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	42.00	416.30	38.50	0.00	166.96	0.252	41.87	2.7	20.238	C
	2	181.00	513.75	38.50	0.00	206.04	0.878	181.72	15.7	46.852	D
	3	24.00	446.74	44.50	0.00	207.08	0.116	23.59	1.4	14.939	B
B - Airton Rd	1	98.00	416.30	40.50	0.00	175.63	0.558	99.97	6.5	24.973	C
	2	117.00	446.74	34.50	0.00	160.55	0.729	126.04	9.2	40.072	D
C - Belgard Rd Sth	1	243.00	975.05	38.50	0.00	391.03	0.621	244.64	16.1	25.230	C
	2	44.00	446.74	44.50	0.00	207.08	0.212	43.88	2.6	16.026	B
D - Monarch Ind	1	49.00	416.30	11.50	0.00	49.87	0.983	44.95	9.4	110.363	F
	2	40.00	446.74	11.50	0.00	53.52	0.747	37.33	4.9	64.383	E

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.0.6896

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Filename: Belgard Airton AM and PM 2038 WDEV.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 31/12/2019 19:07:48

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2038 WDEV									
A - Belard Rd Nth	13.2	15.86	0.75	B	-31 % [B - Airton Rd - Traffic Stream 2]	24.9	50.12	0.92	D	-100 % [D - Monarch Ind - Traffic Stream 1]
B - Airton Rd	13.5	47.79	0.89	D		32.5	57.48	0.97	E	
C - Belgard Rd Sth	9.6	9.55	0.40	A		30.7	34.13	0.77	C	
D - Monarch Ind	1.0	30.08	0.23	C		19.5	120.50	1.06	F	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	03/06/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2038 WDEV	AM	DIRECT	08:00	09:00	60	15
D2	2038 WDEV	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 WDEV, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		20.13	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-31	B - Airton Rd - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Belard Rd Nth	
B	Airton Rd	
C	Belgard Rd Sth	
D	Monarch Ind	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Belard Rd Nth	1	A	0.00	0.00	B	C
	2	A	0.00	0.00	C	C
	3	B	0.00	0.00	D	C
B - Airton Rd	1	D	0.00	0.00	C	
	2	F	0.00	0.00	A, D	
C - Belgard Rd Sth	1	A	0.00	0.00	A, D	A
	2	C	0.00	0.00	B	A
D - Monarch Ind	1	E	0.00	0.00	A, B	
	2	E	0.00	0.00	C	

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Belard Rd Nth	1	B	0	3.00	10.00	✓	
	2	C	0	3.00			
	3	D	0	3.00	10.00		
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A, D	0	3.00	10.00		
C - Belgard Rd Sth	1	A, D	0	3.00	10.00	✓	
		A	0	3.00			
	2	B	0	3.00	10.00		
D - Monarch Ind	1	A, B	0	3.00	10.00	✓	
	2	C	0	3.00	10.00		

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	69	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7
	E		7
	F		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, C, B	1		
	2	B, C, D	1		
	3	D, F	1		
	4	E	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 2, 3, 4	35, 41, 57, 0

Intergreen Matrix for Junction 1

		To					
		A	B	C	D	E	F
From	A				5	5	5
	B					5	5
	C					5	5
	D	0				5	
	E	0	0	0	0		
	F	0	0	0			

Interstage Matrix for Junction 1

		To			
		1	2	3	4
From	1	0	5	5	5
	2	0	0	5	5
	3	0	0	0	5
	4	0	0	0	0

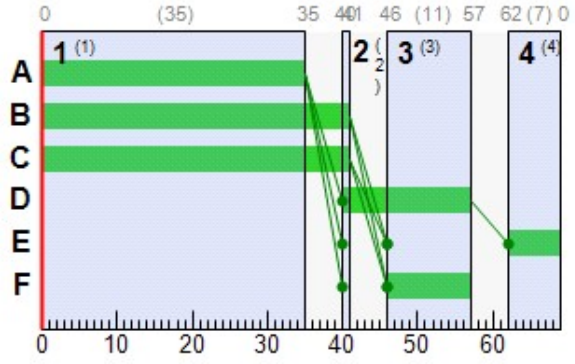
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,C,B	0	35	35	1	7
	2	2	B,C,D	40	41	1	1	1
	3	3	D,F	46	57	11	1	7
	4	4	E	62	0	7	1	7

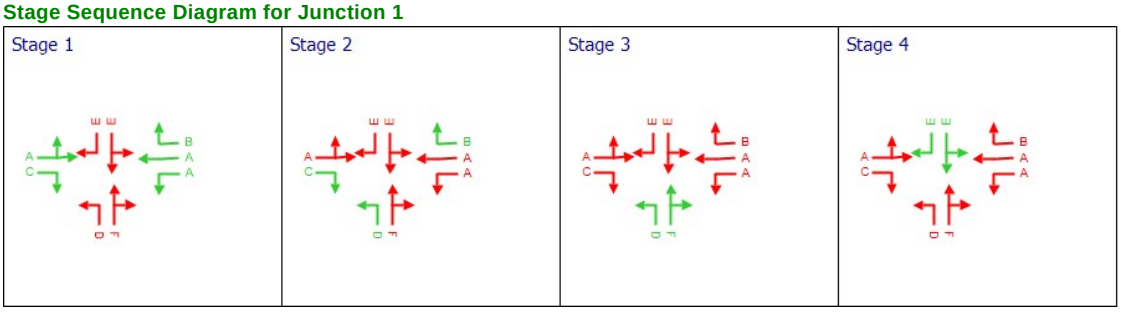
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	0	35	35
	B	1	0	41	41
	C	1	0	41	41
	D	1	40	57	17
	E	1	62	0	7
	F	1	46	57	11

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2038 WDEV	AM	DIRECT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	120.00	198.00	7.00
	B - Airton Rd	68.00	0.00	64.00	4.00
	C - Belgard Rd Sth	204.00	59.00	0.00	7.00
	D - Monarch Ind	1.00	0.00	3.00	0.00

08:15 - 08:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	119.00	171.00	10.00
	B - Airton Rd	53.00	0.00	63.00	1.00
	C - Belgard Rd Sth	164.00	95.00	0.00	2.00
	D - Monarch Ind	5.00	7.00	2.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	104.00	184.00	6.00
	B - Airton Rd	56.00	0.00	86.00	4.00
	C - Belgard Rd Sth	162.00	76.00	0.00	4.00
	D - Monarch Ind	2.00	0.00	0.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	104.00	203.00	13.00
	B - Airton Rd	56.00	0.00	97.00	6.00
	C - Belgard Rd Sth	119.00	91.00	0.00	5.00
	D - Monarch Ind	10.00	1.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.75	15.86	13.2	B
B - Airton Rd	0.89	47.79	13.5	D
C - Belgard Rd Sth	0.40	9.55	9.6	A
D - Monarch Ind	0.23	30.08	1.0	C

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	120.00	416.30	36.50	0.00	220.22	0.545	115.28	4.7	13.630	B
	2	198.00	513.75	36.50	0.00	271.77	0.729	189.71	8.3	17.515	B
	3	7.00	446.74	42.50	0.00	275.17	0.025	6.79	0.2	5.221	A
B - Airton Rd	1	64.00	416.30	18.50	0.00	111.62	0.573	59.96	4.0	28.046	C
	2	72.00	446.74	12.50	0.00	80.93	0.890	64.51	7.5	57.896	E
C - Belgard Rd Sth	1	211.00	987.59	36.50	0.00	522.42	0.404	203.22	7.8	10.431	B
	2	59.00	446.74	42.50	0.00	275.17	0.214	57.23	1.8	6.397	A
D - Monarch Ind	1	1.00	416.30	8.50	0.00	51.28	0.019	0.93	0.1	26.797	C
	2	3.00	446.74	8.50	0.00	55.03	0.055	2.80	0.2	27.267	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	119.00	416.30	36.50	0.00	220.22	0.540	119.04	4.7	13.602	B
	2	171.00	513.75	36.50	0.00	271.77	0.629	172.47	6.8	14.928	B
	3	10.00	446.74	42.50	0.00	275.17	0.036	9.91	0.3	5.279	A
B - Airton Rd	1	63.00	416.30	18.50	0.00	111.62	0.564	63.06	4.0	28.057	C
	2	54.00	446.74	12.50	0.00	80.93	0.667	57.25	4.2	42.284	D
C - Belgard Rd Sth	1	166.00	990.71	36.50	0.00	524.07	0.317	167.70	6.1	9.673	A
	2	95.00	446.74	42.50	0.00	275.17	0.345	93.87	2.9	7.493	A
D - Monarch Ind	1	12.00	416.30	8.50	0.00	51.28	0.234	11.22	0.8	30.475	C
	2	2.00	446.74	8.50	0.00	55.03	0.036	2.07	0.1	27.013	C

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	104.00	416.30	36.50	0.00	220.22	0.472	104.67	4.0	12.420	B
	2	184.00	513.75	36.50	0.00	271.77	0.677	183.34	7.5	16.020	B
	3	6.00	446.74	42.50	0.00	275.17	0.022	6.12	0.2	5.202	A
B - Airton Rd	1	86.00	416.30	18.50	0.00	111.62	0.770	83.73	6.2	37.369	D
	2	60.00	446.74	12.50	0.00	80.93	0.741	59.30	4.9	44.206	D
C - Belgard Rd Sth	1	166.00	988.93	36.50	0.00	523.13	0.317	166.00	6.1	9.678	A
	2	76.00	446.74	42.50	0.00	275.17	0.276	76.61	2.3	6.883	A
D - Monarch Ind	1	2.00	416.30	8.50	0.00	51.28	0.039	2.71	0.1	27.088	C
	2	0.00	446.74	8.50	0.00	55.03	0.000	0.14	0.0	0.000	A

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	104.00	416.30	36.50	0.00	220.22	0.472	104.00	4.0	12.397	B
	2	203.00	513.75	36.50	0.00	271.77	0.747	201.87	8.6	18.300	B
	3	13.00	446.74	42.50	0.00	275.17	0.047	12.79	0.4	5.339	A
B - Airton Rd	1	97.00	416.30	18.50	0.00	111.62	0.869	95.01	8.2	48.140	D
	2	62.00	446.74	12.50	0.00	80.93	0.766	61.67	5.3	47.244	D
C - Belgard Rd Sth	1	124.00	986.53	36.50	0.00	521.86	0.238	125.56	4.5	9.077	A
	2	91.00	446.74	42.50	0.00	275.17	0.331	90.52	2.8	7.357	A
D - Monarch Ind	1	11.00	416.30	8.50	0.00	51.28	0.214	10.36	0.8	30.078	C
	2	0.00	446.74	8.50	0.00	55.03	0.000	0.00	0.0	0.000	A

2038 WDEV, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Belgard Aiirton sig	Signalised		51.94	D

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-100	D - Monarch Ind - Traffic Stream 1

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2038 WDEV	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Belard Rd Nth		✓	100.000
B - Airton Rd		✓	100.000
C - Belgard Rd Sth		✓	100.000
D - Monarch Ind		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	39.00	148.00	42.00
	B - Airton Rd	150.00	0.00	126.00	13.00
	C - Belgard Rd Sth	285.00	59.00	0.00	17.00
	D - Monarch Ind	32.00	10.00	28.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	37.00	184.00	30.00
	B - Airton Rd	157.00	0.00	90.00	7.00
	C - Belgard Rd Sth	229.00	58.00	0.00	32.00
	D - Monarch Ind	27.00	7.00	24.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	42.00	187.00	17.00
	B - Airton Rd	160.00	0.00	124.00	12.00
	C - Belgard Rd Sth	230.00	60.00	0.00	35.00
	D - Monarch Ind	30.00	10.00	22.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0.00	44.00	181.00	24.00
	B - Airton Rd	125.00	0.00	99.00	10.00
	C - Belgard Rd Sth	214.00	61.00	0.00	29.00
	D - Monarch Ind	33.00	16.00	40.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Belard Rd Nth	B - Airton Rd	C - Belgard Rd Sth	D - Monarch Ind
From	A - Belard Rd Nth	0	0	0	0
	B - Airton Rd	0	0	0	0
	C - Belgard Rd Sth	0	0	0	0
	D - Monarch Ind	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Belard Rd Nth	0.92	50.12	24.9	D
B - Airton Rd	0.97	57.48	32.5	E
C - Belgard Rd Sth	0.77	34.13	30.7	C
D - Monarch Ind	1.06	120.50	19.5	F

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	39.00	416.30	48.50	0.00	165.50	0.236	35.77	3.2	25.430	C
	2	148.00	513.75	48.50	0.00	204.24	0.725	134.81	13.2	37.610	D
	3	42.00	446.74	54.50	0.00	199.57	0.210	38.82	3.2	21.330	C
B - Airton Rd	1	126.00	416.30	54.50	0.00	185.97	0.678	115.72	10.3	32.566	C
	2	163.00	446.74	48.50	0.00	177.60	0.918	145.23	17.8	55.360	E
C - Belgard Rd Sth	1	302.00	984.19	48.50	0.00	391.26	0.772	275.81	26.2	36.372	D
	2	59.00	446.74	54.50	0.00	199.57	0.296	54.50	4.5	22.643	C
D - Monarch Ind	1	42.00	416.30	13.50	0.00	46.07	0.912	34.06	7.9	100.496	F
	2	28.00	446.74	13.50	0.00	49.43	0.566	24.20	3.8	64.444	E

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	37.00	416.30	48.50	0.00	165.50	0.224	37.17	3.1	25.241	C
	2	184.00	513.75	48.50	0.00	204.24	0.901	178.21	19.0	51.681	D
	3	30.00	446.74	54.50	0.00	199.57	0.150	30.92	2.3	20.497	C
B - Airton Rd	1	90.00	416.30	54.50	0.00	185.97	0.484	93.26	7.0	26.606	C
	2	164.00	446.74	48.50	0.00	177.60	0.923	163.07	18.7	64.419	E
C - Belgard Rd Sth	1	261.00	974.58	48.50	0.00	387.43	0.674	265.03	22.2	33.184	C
	2	58.00	446.74	54.50	0.00	199.57	0.291	58.08	4.4	22.568	C
D - Monarch Ind	1	34.00	416.30	13.50	0.00	46.07	0.738	36.41	5.5	94.332	F
	2	24.00	446.74	13.50	0.00	49.43	0.485	24.62	3.2	61.779	E

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	42.00	416.30	48.50	0.00	165.50	0.254	41.58	3.5	25.731	C
	2	187.00	513.75	48.50	0.00	204.24	0.916	185.83	20.2	58.361	E
	3	17.00	446.74	54.50	0.00	199.57	0.085	17.99	1.3	19.664	B
B - Airton Rd	1	124.00	416.30	54.50	0.00	185.97	0.667	120.94	10.1	32.163	C
	2	172.00	446.74	48.50	0.00	177.60	0.968	168.31	22.4	75.739	E
C - Belgard Rd Sth	1	265.00	973.22	48.50	0.00	386.89	0.685	264.63	22.5	33.449	C
	2	60.00	446.74	54.50	0.00	199.57	0.301	59.84	4.6	22.732	C
D - Monarch Ind	1	40.00	416.30	13.50	0.00	46.07	0.868	38.32	7.2	103.153	F
	2	22.00	446.74	13.50	0.00	49.43	0.445	22.31	2.9	59.751	E

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Belard Rd Nth	1	44.00	416.30	48.50	0.00	165.50	0.266	43.83	3.7	25.937	C
	2	181.00	513.75	48.50	0.00	204.24	0.886	181.82	19.3	56.276	E
	3	24.00	446.74	54.50	0.00	199.57	0.120	23.47	1.8	20.103	C
B - Airton Rd	1	99.00	416.30	54.50	0.00	185.97	0.532	101.29	7.8	27.880	C
	2	135.00	446.74	48.50	0.00	177.60	0.760	144.83	12.6	45.812	D
C - Belgard Rd Sth	1	243.00	975.05	48.50	0.00	387.62	0.627	245.04	20.5	31.860	C
	2	61.00	446.74	54.50	0.00	199.57	0.306	60.92	4.7	22.817	C
D - Monarch Ind	1	49.00	416.30	13.50	0.00	46.07	1.064	43.18	13.0	149.893	F
	2	40.00	446.74	13.50	0.00	49.43	0.809	36.43	6.4	84.498	F

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.0.6896

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

Filename: Greenhills Airton AM and PM exist.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 01/01/2020 12:16:34

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2019									
A - Greenhills Sth	6.5	20.71	0.78	C	-1 %	4.1	21.41	0.69	C	25 %
B - Airton Rd	4.6	31.80	0.71	C	[B - Airton Rd - Traffic Stream 2]	2.9	21.57	0.48	C	[A - Greenhills Sth - Traffic Stream 2]
C - Greenhills Nth	4.5	16.53	0.72	B		4.1	12.68	0.66	B	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	Airton / Greenhills
Location	
Site number	
Date	31/05/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2019	AM	DIRECT	08:00	09:00	60	15
D2	2019	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2019, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		21.29	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-1	B - Airton Rd - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Greenhills Sth	Greenhills Sth
B	Airton Rd	
C	Greenhills Nth	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Greenhills Sth	2	A	0.00	0.00	B, C	C
B - Airton Rd	1	B	0.00	0.00	C	
	2	B	0.00	0.00	A	
C - Greenhills Nth	1	D	0.00	5.00	A	A
	2	C	0.00	0.00	B	A

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Greenhills Sth	2	C, B	0	3.00	10.00	✓	
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A	0	3.00	10.00	✓	
C - Greenhills Nth	1	A	0	3.00		✓	
	2	B	0	3.00	10.00	✓	

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	51	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, D	1		
	2	B	1		
	3	C, D	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 3, 2	26, 39, 0

Intergreen Matrix for Junction 1

		To			
		A	B	C	D
From	A		5	5	
	B	5		5	
	C	5	5		
	D				

Interstage Matrix for Junction 1

		To		
		1	2	3
From	1	0	5	5
	2	5	0	5
	3	5	5	0

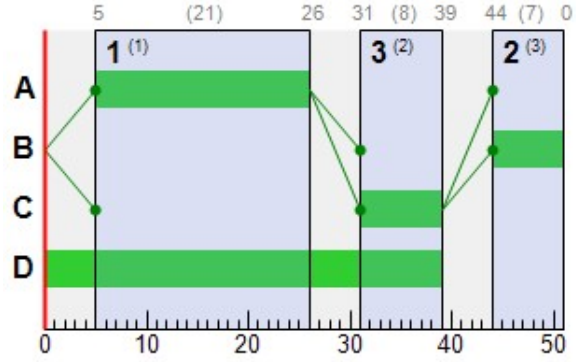
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,D	5	26	21	1	7
	2	3	C,D	31	39	8	1	7
	3	2	B	44	0	7	1	7

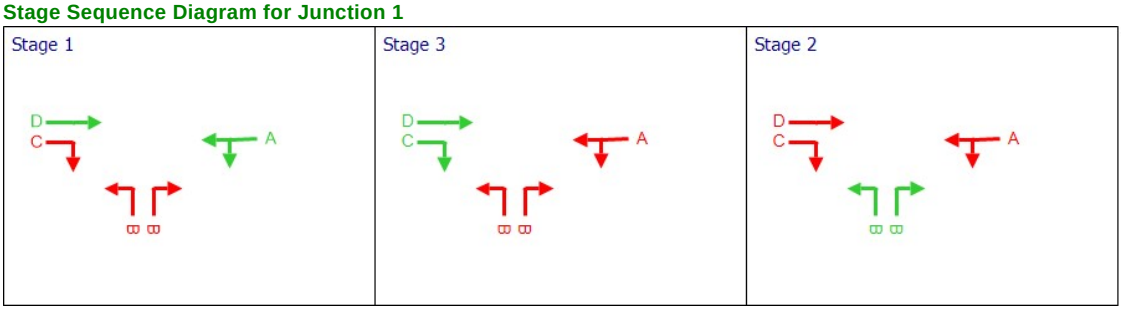
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	26	21
	B	1	44	0	7
	C	1	31	39	8
	D	1	0	39	39

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2019	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	57.00	99.00
	B - Airton Rd	16.00	0.00	33.00
	C - Greenhills Nth	80.00	44.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	57.00	94.00
	B - Airton Rd	49.00	0.00	25.00
	C - Greenhills Nth	43.00	48.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	30.00	84.00
	B - Airton Rd	25.00	0.00	26.00
	C - Greenhills Nth	72.00	56.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	49.00	99.00
	B - Airton Rd	40.00	0.00	22.00
	C - Greenhills Nth	59.00	49.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
08:00-08:15	A - Greenhills Sth	156.00	156.00
	B - Airton Rd	49.00	49.00
	C - Greenhills Nth	124.00	124.00
08:15-08:30	A - Greenhills Sth	151.00	151.00
	B - Airton Rd	74.00	74.00
	C - Greenhills Nth	91.00	91.00
08:30-08:45	A - Greenhills Sth	114.00	114.00
	B - Airton Rd	51.00	51.00
	C - Greenhills Nth	128.00	128.00
08:45-09:00	A - Greenhills Sth	148.00	148.00
	B - Airton Rd	62.00	62.00
	C - Greenhills Nth	108.00	108.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.78	20.71	6.5	C
B - Airton Rd	0.71	31.80	4.6	C
C - Greenhills Nth	0.72	16.53	4.5	B

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	156.00	453.87	22.50	0.00	200.24	0.779	149.50	6.5	20.708	C
B - Airton Rd	1	33.00	416.30	8.50	0.00	69.38	0.476	31.19	1.8	25.989	C
	2	16.00	416.30	8.50	0.00	69.38	0.231	15.20	0.8	20.721	C
C - Greenhills Nth	1	80.00	478.75	40.50	0.00	380.18	0.210	79.03	1.0	1.676	A
	2	44.00	416.30	9.50	0.00	77.55	0.567	41.54	2.5	27.455	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	151.00	453.09	22.50	0.00	199.89	0.755	151.27	6.2	20.442	C
B - Airton Rd	1	25.00	416.30	8.50	0.00	69.38	0.360	25.51	1.3	23.330	C
	2	49.00	416.30	8.50	0.00	69.38	0.706	46.55	3.3	36.120	D
C - Greenhills Nth	1	43.00	478.75	40.50	0.00	380.18	0.113	43.46	0.5	1.369	A
	2	48.00	416.30	9.50	0.00	77.55	0.619	47.67	2.8	29.942	C

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	114.00	460.57	22.50	0.00	203.19	0.561	116.18	4.0	14.098	B
B - Airton Rd	1	26.00	416.30	8.50	0.00	69.38	0.375	25.94	1.4	23.531	C
	2	25.00	416.30	8.50	0.00	69.38	0.360	26.95	1.3	23.593	C
C - Greenhills Nth	1	72.00	478.75	40.50	0.00	380.18	0.189	71.64	0.9	1.604	A
	2	56.00	416.30	9.50	0.00	77.55	0.722	55.17	3.6	35.725	D

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	148.00	456.10	22.50	0.00	201.22	0.736	146.18	5.9	18.796	B
B - Airton Rd	1	22.00	416.30	8.50	0.00	69.38	0.317	22.23	1.1	22.361	C
	2	40.00	416.30	8.50	0.00	69.38	0.577	38.96	2.3	29.506	C
C - Greenhills Nth	1	59.00	478.75	40.50	0.00	380.18	0.155	59.16	0.7	1.494	A
	2	49.00	416.30	9.50	0.00	77.55	0.632	49.68	2.9	31.933	C

2019, PM

Data Errors and Warnings

Severity	Area	Item	Description
Signals Warning	Signal Timings	Signals	Junction 1: Stage 2 minimum green of 7s violated. (This will be repaired automatically if doing an optimised run.)
Signals Warning	Signal Timings	Signals	Junction 1: Phase B minimum green of 7s violated (This will be repaired automatically if doing an optimised run.)
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		17.10	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	25	A - Greenhills Sth - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2019	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

17:00 - 17:15

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	24.00	46.00
	B - Airton Rd	35.00	0.00	28.00
	C - Greenhills Nth	89.00	54.00	0.00

Demand (PCU/TS)

17:15 - 17:30

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	22.00	39.00
	B - Airton Rd	25.00	0.00	23.00
	C - Greenhills Nth	57.00	57.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	40.00	56.00
	B - Airton Rd	32.00	0.00	24.00
	C - Greenhills Nth	69.00	74.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	41.00	57.00
	B - Airton Rd	35.00	0.00	26.00
	C - Greenhills Nth	82.00	64.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
17:00-17:15	A - Greenhills Sth	70.00	70.00
	B - Airton Rd	63.00	63.00
	C - Greenhills Nth	143.00	143.00
17:15-17:30	A - Greenhills Sth	61.00	61.00
	B - Airton Rd	48.00	48.00
	C - Greenhills Nth	114.00	114.00
17:30-17:45	A - Greenhills Sth	96.00	96.00
	B - Airton Rd	56.00	56.00
	C - Greenhills Nth	143.00	143.00
17:45-18:00	A - Greenhills Sth	98.00	98.00
	B - Airton Rd	61.00	61.00
	C - Greenhills Nth	146.00	146.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.69	21.41	4.1	C
B - Airton Rd	0.48	21.57	2.9	C
C - Greenhills Nth	0.66	12.68	4.1	B

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	70.00	455.33	13.50	0.00	142.95	0.490	67.43	2.6	15.498	B
B - Airton Rd	1	28.00	416.30	7.50	0.00	72.61	0.386	26.75	1.2	20.256	C
	2	35.00	416.30	7.50	0.00	72.61	0.482	33.36	1.6	22.627	C
C - Greenhills Nth	1	89.00	478.75	33.50	0.00	372.98	0.239	88.02	1.0	1.742	A
	2	54.00	416.30	11.50	0.00	111.34	0.485	51.84	2.2	17.694	B

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	61.00	454.18	13.50	0.00	142.59	0.428	61.38	2.2	14.554	B
B - Airton Rd	1	23.00	416.30	7.50	0.00	72.61	0.317	23.25	1.0	19.011	B
	2	25.00	416.30	7.50	0.00	72.61	0.344	25.55	1.1	19.583	B
C - Greenhills Nth	1	57.00	478.75	33.50	0.00	372.98	0.153	57.37	0.6	1.453	A
	2	57.00	416.30	11.50	0.00	111.34	0.512	56.85	2.3	18.401	B

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	96.00	450.59	13.50	0.00	141.46	0.679	94.22	4.0	20.424	C
B - Airton Rd	1	24.00	416.30	7.50	0.00	72.61	0.331	23.95	1.0	19.208	B
	2	32.00	416.30	7.50	0.00	72.61	0.441	31.63	1.5	21.589	C
C - Greenhills Nth	1	69.00	478.75	33.50	0.00	372.98	0.185	68.86	0.8	1.554	A
	2	74.00	416.30	11.50	0.00	111.34	0.665	72.96	3.3	23.047	C

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	98.00	450.48	13.50	0.00	141.43	0.693	97.85	4.1	21.406	C
B - Airton Rd	1	26.00	416.30	7.50	0.00	72.61	0.358	25.90	1.1	19.743	B
	2	35.00	416.30	7.50	0.00	72.61	0.482	34.82	1.6	22.789	C
C - Greenhills Nth	1	82.00	478.75	33.50	0.00	372.98	0.220	81.85	0.9	1.674	A
	2	64.00	416.30	11.50	0.00	111.34	0.575	64.63	2.7	20.443	C

Junctions 9

OSCADY 9 - Signalised Intersection Module

Filename: Greenhills Airton AM and PM 2023 WOD.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 01/01/2020 12:30:14

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2023 WOD									
A - Greenhills Sth	7.5	23.41	0.82	C	-11 %	4.7	24.82	0.75	C	15 %
B - Airton Rd	5.3	36.37	0.76	D	[B - Airton Rd - Traffic Stream 2]	3.0	20.39	0.46	C	[A - Greenhills Sth - Traffic Stream 2]
C - Greenhills Nth	4.7	16.34	0.72	B		4.7	14.51	0.72	B	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	Airton / Greenhills
Location	
Site number	
Date	31/05/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2023 WOD	AM	DIRECT	08:00	09:00	60	15
D2	2023 WOD	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 WOD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		23.28	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-11	B - Airton Rd - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Greenhills Sth	Greenhills Sth
B	Airton Rd	
C	Greenhills Nth	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Greenhills Sth	2	A	0.00	0.00	B, C	C
B - Airton Rd	1	B	0.00	0.00	C	
	2	B	0.00	0.00	A	
C - Greenhills Nth	1	D	0.00	5.00	A	A
	2	C	0.00	0.00	B	A

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Greenhills Sth	2	C, B	0	3.00	10.00	✓	
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A	0	3.00	10.00	✓	
C - Greenhills Nth	1	A	0	3.00		✓	
	2	B	0	3.00	10.00	✓	

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	53	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, D	1		
	2	B	1		
	3	C, D	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 3, 2	27, 41, 0

Intergreen Matrix for Junction 1

		To			
		A	B	C	D
From	A		5	5	
	B	5		5	
	C	5	5		
	D				

Interstage Matrix for Junction 1

		To		
		1	2	3
From	1	0	5	5
	2	5	0	5
	3	5	5	0

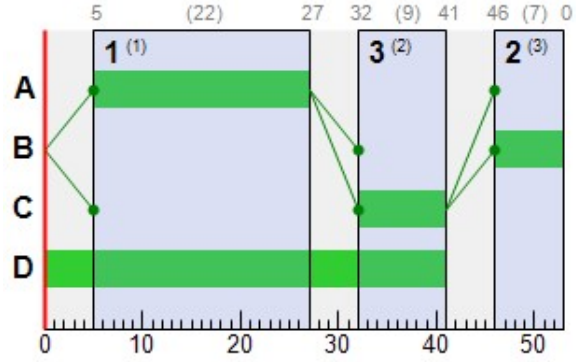
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,D	5	27	22	1	7
	2	3	C,D	32	41	9	1	7
	3	2	B	46	0	7	1	7

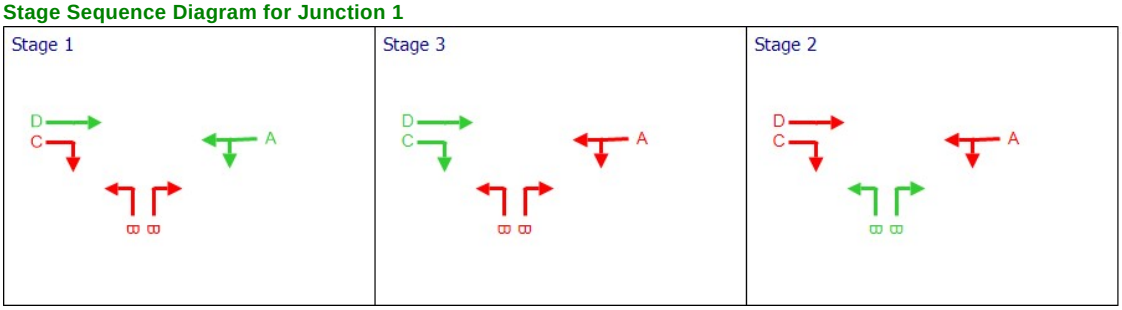
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	27	22
	B	1	46	0	7
	C	1	32	41	9
	D	1	0	41	41

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2023 WOD	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	60.00	105.00
	B - Airton Rd	16.00	0.00	34.00
	C - Greenhills Nth	85.00	46.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	50.00	99.00
	B - Airton Rd	51.00	0.00	26.00
	C - Greenhills Nth	45.00	51.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	32.00	89.00
	B - Airton Rd	26.00	0.00	27.00
	C - Greenhills Nth	76.00	59.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	51.00	105.00
	B - Airton Rd	43.00	0.00	23.00
	C - Greenhills Nth	62.00	52.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
08:00-08:15	A - Greenhills Sth	165.00	165.00
	B - Airton Rd	50.00	50.00
	C - Greenhills Nth	131.00	131.00
08:15-08:30	A - Greenhills Sth	149.00	149.00
	B - Airton Rd	77.00	77.00
	C - Greenhills Nth	96.00	96.00
08:30-08:45	A - Greenhills Sth	121.00	121.00
	B - Airton Rd	53.00	53.00
	C - Greenhills Nth	135.00	135.00
08:45-09:00	A - Greenhills Sth	156.00	156.00
	B - Airton Rd	66.00	66.00
	C - Greenhills Nth	114.00	114.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.82	23.41	7.5	C
B - Airton Rd	0.76	36.37	5.3	D
C - Greenhills Nth	0.72	16.34	4.7	B

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	165.00	453.99	23.50	0.00	201.30	0.820	157.53	7.5	23.412	C
B - Airton Rd	1	34.00	416.30	8.50	0.00	66.77	0.509	32.01	2.0	28.296	C
	2	16.00	416.30	8.50	0.00	66.77	0.240	15.16	0.8	21.945	C
C - Greenhills Nth	1	85.00	478.75	42.50	0.00	383.90	0.221	83.97	1.0	1.664	A
	2	46.00	416.30	10.50	0.00	82.48	0.558	43.42	2.6	26.959	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	149.00	455.81	23.50	0.00	202.10	0.737	150.30	6.2	20.161	C
B - Airton Rd	1	26.00	416.30	8.50	0.00	66.77	0.389	26.55	1.4	25.236	C
	2	51.00	416.30	8.50	0.00	66.77	0.764	48.01	3.8	42.043	D
C - Greenhills Nth	1	45.00	478.75	42.50	0.00	383.90	0.117	45.50	0.5	1.335	A
	2	51.00	416.30	10.50	0.00	82.48	0.618	50.60	3.0	29.586	C

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	121.00	460.48	23.50	0.00	204.18	0.593	122.68	4.5	15.107	B
B - Airton Rd	1	27.00	416.30	8.50	0.00	66.77	0.404	26.94	1.5	25.440	C
	2	26.00	416.30	8.50	0.00	66.77	0.389	28.39	1.4	25.788	C
C - Greenhills Nth	1	76.00	478.75	42.50	0.00	383.90	0.198	75.62	0.9	1.583	A
	2	59.00	416.30	10.50	0.00	82.48	0.715	58.20	3.8	34.784	C

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	156.00	456.37	23.50	0.00	202.35	0.771	153.90	6.6	20.734	C
B - Airton Rd	1	23.00	416.30	8.50	0.00	66.77	0.344	23.25	1.2	24.096	C
	2	43.00	416.30	8.50	0.00	66.77	0.644	41.65	2.8	34.049	C
C - Greenhills Nth	1	62.00	478.75	42.50	0.00	383.90	0.161	62.17	0.7	1.466	A
	2	52.00	416.30	10.50	0.00	82.48	0.630	52.66	3.1	31.357	C

2023 WOD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		18.77	B

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	15	A - Greenhills Sth - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2023 WOD	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	25.00	49.00
	B - Airton Rd	37.00	0.00	30.00
	C - Greenhills Nth	94.00	57.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	23.00	41.00
	B - Airton Rd	26.00	0.00	24.00
	C - Greenhills Nth	60.00	60.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	42.00	59.00
	B - Airton Rd	33.00	0.00	25.00
	C - Greenhills Nth	72.00	78.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	43.00	60.00
	B - Airton Rd	37.00	0.00	27.00
	C - Greenhills Nth	87.00	69.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
17:00-17:15	A - Greenhills Sth	74.00	74.00
	B - Airton Rd	67.00	67.00
	C - Greenhills Nth	151.00	151.00
17:15-17:30	A - Greenhills Sth	64.00	64.00
	B - Airton Rd	50.00	50.00
	C - Greenhills Nth	120.00	120.00
17:30-17:45	A - Greenhills Sth	101.00	101.00
	B - Airton Rd	58.00	58.00
	C - Greenhills Nth	150.00	150.00
17:45-18:00	A - Greenhills Sth	103.00	103.00
	B - Airton Rd	64.00	64.00
	C - Greenhills Nth	156.00	156.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.75	24.82	4.7	C
B - Airton Rd	0.46	20.39	3.0	C
C - Greenhills Nth	0.72	14.51	4.7	B

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	74.00	455.66	13.50	0.00	139.80	0.529	71.14	2.9	16.839	B
B - Airton Rd	1	30.00	416.30	8.50	0.00	80.42	0.373	28.69	1.3	19.339	B
	2	37.00	416.30	8.50	0.00	80.42	0.460	35.31	1.7	21.242	C
C - Greenhills Nth	1	94.00	478.75	33.50	0.00	364.50	0.258	92.85	1.2	2.072	A
	2	57.00	416.30	11.50	0.00	108.81	0.524	54.60	2.4	19.173	B

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	64.00	454.26	13.50	0.00	139.38	0.459	64.45	2.4	15.644	B
B - Airton Rd	1	24.00	416.30	8.50	0.00	80.42	0.298	24.29	1.0	18.092	B
	2	26.00	416.30	8.50	0.00	80.42	0.323	26.57	1.1	18.542	B
C - Greenhills Nth	1	60.00	478.75	33.50	0.00	364.50	0.165	60.43	0.7	1.725	A
	2	60.00	416.30	11.50	0.00	108.81	0.551	59.83	2.6	20.041	C

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	101.00	450.64	13.50	0.00	138.26	0.730	98.85	4.6	23.268	C
B - Airton Rd	1	25.00	416.30	8.50	0.00	80.42	0.311	24.95	1.1	18.256	B
	2	33.00	416.30	8.50	0.00	80.42	0.410	32.65	1.5	20.139	C
C - Greenhills Nth	1	72.00	478.75	33.50	0.00	364.50	0.198	71.85	0.9	1.839	A
	2	78.00	416.30	11.50	0.00	108.81	0.717	76.72	3.8	26.206	C

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	103.00	450.54	13.50	0.00	138.23	0.745	102.81	4.7	24.817	C
B - Airton Rd	1	27.00	416.30	8.50	0.00	80.42	0.336	26.90	1.2	18.685	B
	2	37.00	416.30	8.50	0.00	80.42	0.460	36.78	1.7	21.339	C
C - Greenhills Nth	1	87.00	478.75	33.50	0.00	364.50	0.239	86.81	1.1	1.995	A
	2	69.00	416.30	11.50	0.00	108.81	0.634	69.67	3.2	23.431	C

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.0.6896

For sales and distribution information, program advice and maintenance, contact TRL:
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Filename: Greenhills Airton AM and PM 2023 WDEV.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 01/01/2020 12:41:52

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2023 WDEV									
A - Greenhills Sth	8.6	26.58	0.86	C	-25 %	5.4	27.30	0.78	C	10 %
B - Airton Rd	8.5	47.86	0.90	D	[B - Airton Rd - Traffic Stream 2]	3.7	23.53	0.53	C	[A - Greenhills Sth - Traffic Stream 2]
C - Greenhills Nth	5.5	19.70	0.78	B		5.2	15.38	0.74	B	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	Airton / Greenhills
Location	
Site number	
Date	31/05/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2023 WDEV	AM	DIRECT	08:00	09:00	60	15
D2	2023 WDEV	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 WDEV, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		29.23	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-25	B - Airton Rd - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Greenhills Sth	Greenhills Sth
B	Airton Rd	
C	Greenhills Nth	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Greenhills Sth	2	A	0.00	0.00	B, C	C
B - Airton Rd	1	B	0.00	0.00	C	
	2	B	0.00	0.00	A	
C - Greenhills Nth	1	D	0.00	5.00	A	A
	2	C	0.00	0.00	B	A

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Greenhills Sth	2	C, B	0	3.00	10.00	✓	
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A	0	3.00	10.00	✓	
C - Greenhills Nth	1	A	0	3.00		✓	
	2	B	0	3.00	10.00	✓	

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	55	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, D	1		
	2	B	1		
	3	C, D	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 3, 2	28, 42, 0

Intergreen Matrix for Junction 1

		To			
		A	B	C	D
From	A		5	5	
	B	5		5	
	C	5	5		
	D				

Interstage Matrix for Junction 1

		To		
		1	2	3
From	1	0	5	5
	2	5	0	5
	3	5	5	0

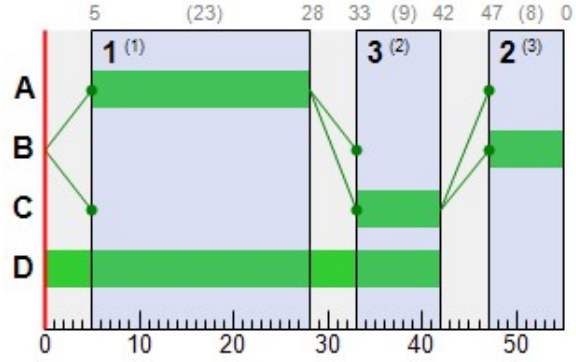
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,D	5	28	23	1	7
	2	3	C,D	33	42	9	1	7
	3	2	B	47	0	8	1	7

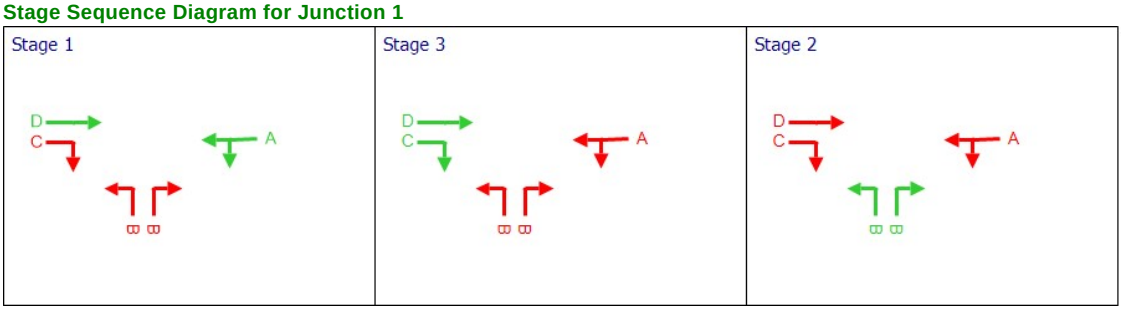
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	28	23
	B	1	47	0	8
	C	1	33	42	9
	D	1	0	42	42

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2023 WDEV	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	65.00	108.00
	B - Airton Rd	48.00	0.00	26.00
	C - Greenhills Nth	85.00	50.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	54.00	103.00
	B - Airton Rd	65.00	0.00	35.00
	C - Greenhills Nth	46.00	54.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	36.00	93.00
	B - Airton Rd	40.00	0.00	37.00
	C - Greenhills Nth	76.00	62.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	56.00	108.00
	B - Airton Rd	56.00	0.00	33.00
	C - Greenhills Nth	62.00	56.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

08:00 - 08:15

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Heavy Vehicle Percentages

08:15 - 08:30

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Heavy Vehicle Percentages

08:30 - 08:45

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Heavy Vehicle Percentages

08:45 - 09:00

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
08:00-08:15	A - Greenhills Sth	173.00	173.00
	B - Airton Rd	74.00	74.00
	C - Greenhills Nth	135.00	135.00
08:15-08:30	A - Greenhills Sth	157.00	157.00
	B - Airton Rd	100.00	100.00
	C - Greenhills Nth	100.00	100.00
08:30-08:45	A - Greenhills Sth	129.00	129.00
	B - Airton Rd	77.00	77.00
	C - Greenhills Nth	138.00	138.00
08:45-09:00	A - Greenhills Sth	164.00	164.00
	B - Airton Rd	89.00	89.00
	C - Greenhills Nth	118.00	118.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.86	26.58	8.6	C
B - Airton Rd	0.90	47.86	8.5	D
C - Greenhills Nth	0.78	19.70	5.5	B

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	173.00	453.21	24.50	0.00	201.88	0.857	164.41	8.6	26.579	C
B - Airton Rd	1	26.00	416.30	9.50	0.00	71.91	0.362	24.56	1.4	24.228	C
	2	48.00	416.30	9.50	0.00	71.91	0.668	44.82	3.2	34.667	C
C - Greenhills Nth	1	85.00	478.75	43.50	0.00	378.65	0.224	83.87	1.1	1.874	A
	2	50.00	416.30	10.50	0.00	79.48	0.629	46.92	3.1	31.029	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	157.00	455.26	24.50	0.00	202.80	0.774	158.60	7.0	22.809	C
B - Airton Rd	1	35.00	416.30	9.50	0.00	71.91	0.487	34.40	2.0	27.424	C
	2	65.00	416.30	9.50	0.00	71.91	0.904	61.69	6.5	58.870	E
C - Greenhills Nth	1	46.00	478.75	43.50	0.00	378.65	0.121	46.53	0.6	1.527	A
	2	54.00	416.30	10.50	0.00	79.48	0.679	53.60	3.5	34.288	C

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	129.00	459.51	24.50	0.00	204.69	0.630	130.96	5.0	16.441	B
B - Airton Rd	1	37.00	416.30	9.50	0.00	71.91	0.515	36.85	2.2	28.482	C
	2	40.00	416.30	9.50	0.00	71.91	0.556	44.04	2.5	33.492	C
C - Greenhills Nth	1	76.00	478.75	43.50	0.00	378.65	0.201	75.60	1.0	1.787	A
	2	62.00	416.30	10.50	0.00	79.48	0.780	60.95	4.5	41.655	D

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	164.00	455.42	24.50	0.00	202.87	0.808	161.56	7.5	23.210	C
B - Airton Rd	1	33.00	416.30	9.50	0.00	71.91	0.459	33.28	1.9	26.959	C
	2	56.00	416.30	9.50	0.00	71.91	0.779	54.19	4.3	43.011	D
C - Greenhills Nth	1	62.00	478.75	43.50	0.00	378.65	0.164	62.19	0.8	1.661	A
	2	56.00	416.30	10.50	0.00	79.48	0.705	56.70	3.8	38.458	D

2023 WDEV, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		20.63	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	10	A - Greenhills Sth - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2023 WDEV	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	32.00	50.00
	B - Airton Rd	41.00	0.00	35.00
	C - Greenhills Nth	98.00	74.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	30.00	42.00
	B - Airton Rd	30.00	0.00	30.00
	C - Greenhills Nth	64.00	66.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	49.00	60.00
	B - Airton Rd	37.00	0.00	31.00
	C - Greenhills Nth	76.00	84.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	49.00	61.00
	B - Airton Rd	41.00	0.00	33.00
	C - Greenhills Nth	91.00	74.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
17:00-17:15	A - Greenhills Sth	82.00	82.00
	B - Airton Rd	76.00	76.00
	C - Greenhills Nth	172.00	172.00
17:15-17:30	A - Greenhills Sth	72.00	72.00
	B - Airton Rd	60.00	60.00
	C - Greenhills Nth	130.00	130.00
17:30-17:45	A - Greenhills Sth	109.00	109.00
	B - Airton Rd	68.00	68.00
	C - Greenhills Nth	160.00	160.00
17:45-18:00	A - Greenhills Sth	110.00	110.00
	B - Airton Rd	74.00	74.00
	C - Greenhills Nth	165.00	165.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.78	27.30	5.4	C
B - Airton Rd	0.53	23.53	3.7	C
C - Greenhills Nth	0.74	15.38	5.2	B

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	82.00	452.28	14.50	0.00	142.57	0.575	78.67	3.3	18.117	B
B - Airton Rd	1	35.00	416.30	8.50	0.00	76.93	0.455	33.32	1.7	22.343	C
	2	41.00	416.30	8.50	0.00	76.93	0.533	38.94	2.1	24.552	C
C - Greenhills Nth	1	98.00	478.75	35.50	0.00	369.47	0.265	96.80	1.2	2.033	A
	2	74.00	416.30	12.50	0.00	113.13	0.654	70.53	3.5	23.233	C

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	72.00	450.59	14.50	0.00	142.03	0.507	72.49	2.8	16.816	B
B - Airton Rd	1	30.00	416.30	8.50	0.00	76.93	0.390	30.28	1.4	21.044	C
	2	30.00	416.30	8.50	0.00	76.93	0.390	30.66	1.4	21.080	C
C - Greenhills Nth	1	64.00	478.75	35.50	0.00	369.47	0.173	64.43	0.8	1.690	A
	2	66.00	416.30	12.50	0.00	113.13	0.583	66.51	3.0	21.406	C

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	109.00	448.51	14.50	0.00	141.38	0.771	106.57	5.3	25.613	C
B - Airton Rd	1	31.00	416.30	8.50	0.00	76.93	0.403	30.95	1.5	21.234	C
	2	37.00	416.30	8.50	0.00	76.93	0.481	36.60	1.8	23.105	C
C - Greenhills Nth	1	76.00	478.75	35.50	0.00	369.47	0.206	75.85	0.9	1.803	A
	2	84.00	416.30	12.50	0.00	113.13	0.743	82.63	4.3	27.658	C

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	110.00	448.76	14.50	0.00	141.46	0.778	109.86	5.4	27.305	C
B - Airton Rd	1	33.00	416.30	8.50	0.00	76.93	0.429	32.89	1.6	21.821	C
	2	41.00	416.30	8.50	0.00	76.93	0.533	40.74	2.1	24.757	C
C - Greenhills Nth	1	91.00	478.75	35.50	0.00	369.47	0.246	90.81	1.1	1.957	A
	2	74.00	416.30	12.50	0.00	113.13	0.654	74.80	3.5	24.393	C

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.0.6896

Filename: Greenhills Airton AM and PM 2028 WOD.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 01/01/2020 13:09:03

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2028 WOD									
A - Greenhills Sth	8.6	26.12	0.86	C	-21 %	5.4	26.89	0.77	C	11 %
B - Airton Rd	6.4	42.89	0.84	D	[B - Airton Rd - Traffic Stream 1]	3.5	22.93	0.52	C	[A - Greenhills Sth - Traffic Stream 2]
C - Greenhills Nth	5.5	18.63	0.78	B		5.2	14.85	0.73	B	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	Airton / Greenhills
Location	
Site number	
Date	31/05/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2028 WOD	AM	DIRECT	08:00	09:00	60	15
D2	2028 WOD	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2028 WOD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		26.58	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-21	B - Airton Rd - Traffic Stream 1

Arms

Arms

Arm	Name	Description
A	Greenhills Sth	Greenhills Sth
B	Airton Rd	
C	Greenhills Nth	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Greenhills Sth	2	A	0.00	0.00	B, C	C
B - Airton Rd	1	B	0.00	0.00	C	
	2	B	0.00	0.00	A	
C - Greenhills Nth	1	D	0.00	5.00	A	A
	2	C	0.00	0.00	B	A

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Greenhills Sth	2	C, B	0	3.00	10.00	✓	
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A	0	3.00	10.00	✓	
C - Greenhills Nth	1	A	0	3.00		✓	
	2	B	0	3.00	10.00	✓	

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	54	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, D	1		
	2	B	1		
	3	C, D	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 3, 2	28, 42, 0

Intergreen Matrix for Junction 1

		To			
		A	B	C	D
From	A		5	5	
	B	5		5	
	C	5	5		
	D				

Interstage Matrix for Junction 1

		To		
		1	2	3
From	1	0	5	5
	2	5	0	5
	3	5	5	0

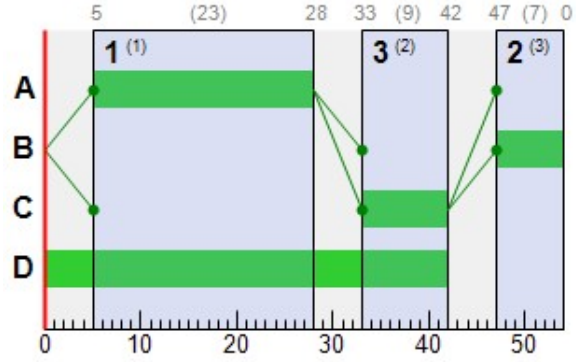
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,D	5	28	23	1	7
	2	3	C,D	33	42	9	1	7
	3	2	B	47	0	7	1	7

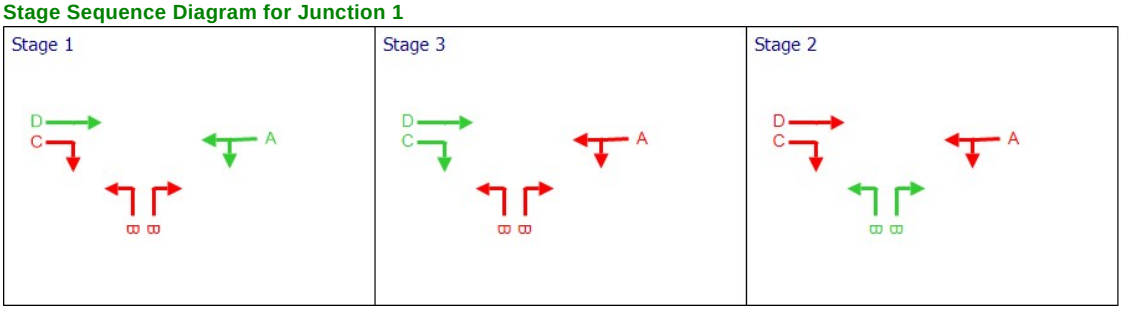
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	28	23
	B	1	47	0	7
	C	1	33	42	9
	D	1	0	42	42

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2028 WOD	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	65.00	112.00
	B - Airton Rd	18.00	0.00	37.00
	C - Greenhills Nth	91.00	49.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	53.00	106.00
	B - Airton Rd	28.00	0.00	55.00
	C - Greenhills Nth	49.00	54.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	34.00	95.00
	B - Airton Rd	29.00	0.00	28.00
	C - Greenhills Nth	81.00	63.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	55.00	112.00
	B - Airton Rd	25.00	0.00	46.00
	C - Greenhills Nth	66.00	56.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
08:00-08:15	A - Greenhills Sth	177.00	177.00
	B - Airton Rd	55.00	55.00
	C - Greenhills Nth	140.00	140.00
08:15-08:30	A - Greenhills Sth	159.00	159.00
	B - Airton Rd	83.00	83.00
	C - Greenhills Nth	103.00	103.00
08:30-08:45	A - Greenhills Sth	129.00	129.00
	B - Airton Rd	57.00	57.00
	C - Greenhills Nth	144.00	144.00
08:45-09:00	A - Greenhills Sth	167.00	167.00
	B - Airton Rd	71.00	71.00
	C - Greenhills Nth	122.00	122.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.86	26.12	8.6	C
B - Airton Rd	0.84	42.89	6.4	D
C - Greenhills Nth	0.78	18.63	5.5	B

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	177.00	453.76	24.50	0.00	205.87	0.860	168.40	8.6	26.115	C
B - Airton Rd	1	37.00	416.30	8.50	0.00	65.53	0.565	34.71	2.3	30.975	C
	2	18.00	416.30	8.50	0.00	65.53	0.275	17.03	1.0	23.106	C
C - Greenhills Nth	1	91.00	478.75	43.50	0.00	385.66	0.236	89.89	1.1	1.692	A
	2	49.00	416.30	10.50	0.00	80.95	0.605	46.10	2.9	29.355	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	159.00	455.95	24.50	0.00	206.87	0.769	160.78	6.8	21.772	C
B - Airton Rd	1	55.00	416.30	8.50	0.00	65.53	0.839	52.46	4.8	51.232	D
	2	28.00	416.30	8.50	0.00	65.53	0.427	27.37	1.6	26.510	C
C - Greenhills Nth	1	49.00	478.75	43.50	0.00	385.66	0.127	49.52	0.6	1.341	A
	2	54.00	416.30	10.50	0.00	80.95	0.667	53.53	3.4	32.743	C

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	129.00	460.54	24.50	0.00	208.95	0.617	130.98	4.8	15.524	B
B - Airton Rd	1	28.00	416.30	8.50	0.00	65.53	0.427	31.22	1.6	28.384	C
	2	29.00	416.30	8.50	0.00	65.53	0.443	28.93	1.7	27.091	C
C - Greenhills Nth	1	81.00	478.75	43.50	0.00	385.66	0.210	80.60	1.0	1.600	A
	2	63.00	416.30	10.50	0.00	80.95	0.778	61.87	4.5	40.523	D

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	167.00	456.21	24.50	0.00	206.99	0.807	164.47	7.4	22.428	C
B - Airton Rd	1	46.00	416.30	8.50	0.00	65.53	0.702	44.37	3.2	38.300	D
	2	25.00	416.30	8.50	0.00	65.53	0.382	25.27	1.4	25.579	C
C - Greenhills Nth	1	66.00	478.75	43.50	0.00	385.66	0.171	66.19	0.8	1.473	A
	2	56.00	416.30	10.50	0.00	80.95	0.692	56.81	3.7	36.603	D

2028 WOD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		20.09	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	11	A - Greenhills Sth - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2028 WOD	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	27.00	52.00
	B - Airton Rd	32.00	0.00	40.00
	C - Greenhills Nth	100.00	61.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	25.00	44.00
	B - Airton Rd	26.00	0.00	28.00
	C - Greenhills Nth	64.00	64.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	45.00	63.00
	B - Airton Rd	27.00	0.00	36.00
	C - Greenhills Nth	78.00	83.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	46.00	64.00
	B - Airton Rd	29.00	0.00	40.00
	C - Greenhills Nth	93.00	73.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
17:00-17:15	A - Greenhills Sth	79.00	79.00
	B - Airton Rd	72.00	72.00
	C - Greenhills Nth	161.00	161.00
17:15-17:30	A - Greenhills Sth	69.00	69.00
	B - Airton Rd	54.00	54.00
	C - Greenhills Nth	128.00	128.00
17:30-17:45	A - Greenhills Sth	108.00	108.00
	B - Airton Rd	63.00	63.00
	C - Greenhills Nth	161.00	161.00
17:45-18:00	A - Greenhills Sth	110.00	110.00
	B - Airton Rd	69.00	69.00
	C - Greenhills Nth	166.00	166.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.77	26.89	5.4	C
B - Airton Rd	0.52	22.93	3.5	C
C - Greenhills Nth	0.73	14.85	5.2	B

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	79.00	455.40	14.50	0.00	143.55	0.550	75.84	3.2	17.508	B
B - Airton Rd	1	40.00	416.30	8.50	0.00	76.93	0.520	38.00	2.0	24.146	C
	2	32.00	416.30	8.50	0.00	76.93	0.416	30.49	1.5	21.414	C
C - Greenhills Nth	1	100.00	478.75	35.50	0.00	369.47	0.271	98.77	1.2	2.056	A
	2	61.00	416.30	12.50	0.00	113.13	0.539	58.36	2.6	19.671	B

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	69.00	454.07	14.50	0.00	143.13	0.482	69.48	2.7	16.286	B
B - Airton Rd	1	28.00	416.30	8.50	0.00	76.93	0.364	28.70	1.3	20.503	C
	2	26.00	416.30	8.50	0.00	76.93	0.338	26.32	1.2	19.948	B
C - Greenhills Nth	1	64.00	478.75	35.50	0.00	369.47	0.173	64.46	0.8	1.690	A
	2	64.00	416.30	12.50	0.00	113.13	0.566	63.83	2.8	20.547	C

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	108.00	450.59	14.50	0.00	142.03	0.760	105.55	5.1	24.950	C
B - Airton Rd	1	36.00	416.30	8.50	0.00	76.93	0.468	35.55	1.7	22.738	C
	2	27.00	416.30	8.50	0.00	76.93	0.351	26.95	1.2	20.128	C
C - Greenhills Nth	1	78.00	478.75	35.50	0.00	369.47	0.211	77.82	0.9	1.822	A
	2	83.00	416.30	12.50	0.00	113.13	0.734	81.59	4.2	27.101	C

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	110.00	450.49	14.50	0.00	142.00	0.775	109.77	5.4	26.890	C
B - Airton Rd	1	40.00	416.30	8.50	0.00	76.93	0.520	39.75	2.0	24.327	C
	2	29.00	416.30	8.50	0.00	76.93	0.377	28.89	1.3	20.642	C
C - Greenhills Nth	1	93.00	478.75	35.50	0.00	369.47	0.252	92.81	1.1	1.978	A
	2	73.00	416.30	12.50	0.00	113.13	0.645	73.78	3.4	23.959	C

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.0.6896

For sales and distribution information, program advice and maintenance, contact TRL:
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Filename: Greenhills Airton AM and PM 2028 WDEV.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 01/01/2020 13:19:14

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2028 WDEV									
A - Greenhills Sth	10.8	32.02	0.90	C	-27 %	7.0	35.01	0.85	D	0 %
B - Airton Rd	10.1	49.67	0.92	D	[B - Airton Rd - Traffic Stream 1]	4.0	23.93	0.53	C	[A - Greenhills Sth - Traffic Stream 2]
C - Greenhills Nth	6.8	23.38	0.83	C		6.8	19.16	0.82	B	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	Airton / Greenhills
Location	
Site number	
Date	31/05/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2028 WDEV	AM	DIRECT	08:00	09:00	60	15
D2	2028 WDEV	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2028 WDEV, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		33.47	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-27	B - Airton Rd - Traffic Stream 1

Arms

Arms

Arm	Name	Description
A	Greenhills Sth	Greenhills Sth
B	Airton Rd	
C	Greenhills Nth	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Greenhills Sth	2	A	0.00	0.00	B, C	C
B - Airton Rd	1	B	0.00	0.00	C	
	2	B	0.00	0.00	A	
C - Greenhills Nth	1	D	0.00	5.00	A	A
	2	C	0.00	0.00	B	A

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Greenhills Sth	2	C, B	0	3.00	10.00	✓	
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A	0	3.00	10.00	✓	
C - Greenhills Nth	1	A	0	3.00		✓	
	2	B	0	3.00	10.00	✓	

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	61	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, D	1		
	2	B	1		
	3	C, D	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 3, 2	31, 46, 0

Intergreen Matrix for Junction 1

		To			
		A	B	C	D
From	A		5	5	
	B	5		5	
	C	5	5		
	D				

Interstage Matrix for Junction 1

		To		
		1	2	3
From	1	0	5	5
	2	5	0	5
	3	5	5	0

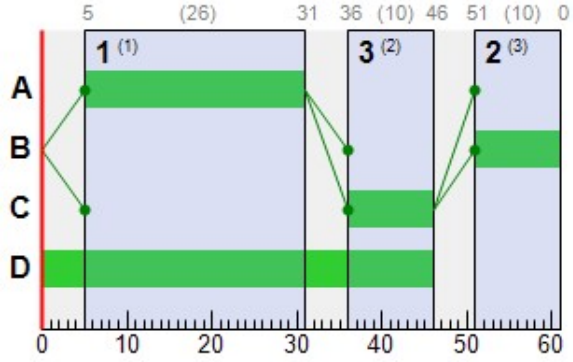
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,D	5	31	26	1	7
	2	3	C,D	36	46	10	1	7
	3	2	B	51	0	10	1	7

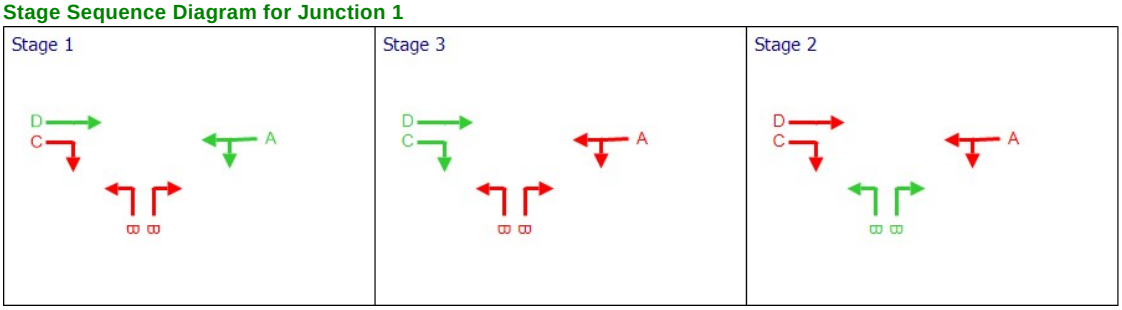
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	31	26
	B	1	51	0	10
	C	1	36	46	10
	D	1	0	46	46

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2028 WDEV	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	68.00	116.00
	B - Airton Rd	30.00	0.00	54.00
	C - Greenhills Nth	91.00	52.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	57.00	111.00
	B - Airton Rd	40.00	0.00	72.00
	C - Greenhills Nth	49.00	57.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	37.00	95.00
	B - Airton Rd	41.00	0.00	46.00
	C - Greenhills Nth	81.00	65.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	58.00	116.00
	B - Airton Rd	37.00	0.00	63.00
	C - Greenhills Nth	67.00	58.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

08:00 - 08:15

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Heavy Vehicle Percentages

08:15 - 08:30

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Heavy Vehicle Percentages

08:30 - 08:45

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Heavy Vehicle Percentages

08:45 - 09:00

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
08:00-08:15	A - Greenhills Sth	184.00	184.00
	B - Airton Rd	84.00	84.00
	C - Greenhills Nth	143.00	143.00
08:15-08:30	A - Greenhills Sth	168.00	168.00
	B - Airton Rd	112.00	112.00
	C - Greenhills Nth	106.00	106.00
08:30-08:45	A - Greenhills Sth	132.00	132.00
	B - Airton Rd	87.00	87.00
	C - Greenhills Nth	146.00	146.00
08:45-09:00	A - Greenhills Sth	174.00	174.00
	B - Airton Rd	100.00	100.00
	C - Greenhills Nth	125.00	125.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.90	32.02	10.8	C
B - Airton Rd	0.92	49.67	10.1	D
C - Greenhills Nth	0.83	23.38	6.8	C

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	184.00	453.60	27.50	0.00	204.49	0.900	173.25	10.8	32.017	C
B - Airton Rd	1	54.00	416.30	11.50	0.00	78.48	0.688	50.18	3.8	36.481	D
	2	30.00	416.30	11.50	0.00	78.48	0.382	28.21	1.8	25.799	C
C - Greenhills Nth	1	91.00	478.75	47.50	0.00	372.80	0.244	89.59	1.4	2.311	A
	2	52.00	416.30	11.50	0.00	78.48	0.663	48.40	3.6	35.097	D

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	168.00	455.57	27.50	0.00	205.38	0.818	170.13	8.6	27.863	C
B - Airton Rd	1	72.00	416.30	11.50	0.00	78.48	0.917	68.25	7.6	61.094	E
	2	40.00	416.30	11.50	0.00	78.48	0.510	39.28	2.5	29.116	C
C - Greenhills Nth	1	49.00	478.75	47.50	0.00	372.80	0.131	49.67	0.7	1.884	A
	2	57.00	416.30	11.50	0.00	78.48	0.726	56.39	4.2	39.958	D

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	132.00	459.43	27.50	0.00	207.12	0.637	135.02	5.6	17.764	B
B - Airton Rd	1	46.00	416.30	11.50	0.00	78.48	0.586	50.53	3.0	35.815	D
	2	41.00	416.30	11.50	0.00	78.48	0.522	40.92	2.6	29.736	C
C - Greenhills Nth	1	81.00	478.75	47.50	0.00	372.80	0.217	80.50	1.3	2.199	A
	2	65.00	416.30	11.50	0.00	78.48	0.828	63.63	5.6	49.785	D

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	174.00	455.95	27.50	0.00	205.55	0.846	170.60	9.0	27.032	C
B - Airton Rd	1	63.00	416.30	11.50	0.00	78.48	0.803	60.90	5.1	45.623	D
	2	37.00	416.30	11.50	0.00	78.48	0.471	37.30	2.3	28.311	C
C - Greenhills Nth	1	67.00	478.75	47.50	0.00	372.80	0.180	67.22	1.0	2.055	A
	2	58.00	416.30	11.50	0.00	78.48	0.739	59.02	4.6	45.324	D

2028 WDEV, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		24.86	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	0	A - Greenhills Sth - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2028 WDEV	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	36.00	53.00
	B - Airton Rd	36.00	0.00	43.00
	C - Greenhills Nth	104.00	72.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	34.00	45.00
	B - Airton Rd	31.00	0.00	31.00
	C - Greenhills Nth	68.00	75.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	54.00	64.00
	B - Airton Rd	32.00	0.00	39.00
	C - Greenhills Nth	82.00	94.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	55.00	65.00
	B - Airton Rd	34.00	0.00	43.00
	C - Greenhills Nth	97.00	84.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
17:00-17:15	A - Greenhills Sth	89.00	89.00
	B - Airton Rd	79.00	79.00
	C - Greenhills Nth	176.00	176.00
17:15-17:30	A - Greenhills Sth	79.00	79.00
	B - Airton Rd	62.00	62.00
	C - Greenhills Nth	143.00	143.00
17:30-17:45	A - Greenhills Sth	118.00	118.00
	B - Airton Rd	71.00	71.00
	C - Greenhills Nth	176.00	176.00
17:45-18:00	A - Greenhills Sth	120.00	120.00
	B - Airton Rd	77.00	77.00
	C - Greenhills Nth	181.00	181.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.85	35.01	7.0	D
B - Airton Rd	0.53	23.93	4.0	C
C - Greenhills Nth	0.82	19.16	6.8	B

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	89.00	451.36	15.50	0.00	142.78	0.623	85.08	3.9	20.228	C
B - Airton Rd	1	43.00	416.30	9.50	0.00	80.71	0.533	40.76	2.2	25.006	C
	2	36.00	416.30	9.50	0.00	80.71	0.446	34.21	1.8	22.642	C
C - Greenhills Nth	1	104.00	478.75	37.50	0.00	366.39	0.284	102.60	1.4	2.306	A
	2	72.00	416.30	13.50	0.00	114.70	0.628	68.54	3.5	23.018	C

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	79.00	449.72	15.50	0.00	142.26	0.555	79.55	3.4	18.742	B
B - Airton Rd	1	31.00	416.30	9.50	0.00	80.71	0.384	31.74	1.5	21.479	C
	2	31.00	416.30	9.50	0.00	80.71	0.384	31.29	1.5	21.444	C
C - Greenhills Nth	1	68.00	478.75	37.50	0.00	366.39	0.186	68.50	0.9	1.909	A
	2	75.00	416.30	13.50	0.00	114.70	0.654	74.78	3.7	24.377	C

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	118.00	448.00	15.50	0.00	141.71	0.833	114.78	6.6	30.881	C
B - Airton Rd	1	39.00	416.30	9.50	0.00	80.71	0.483	38.53	2.0	23.651	C
	2	32.00	416.30	9.50	0.00	80.71	0.396	31.95	1.6	21.626	C
C - Greenhills Nth	1	82.00	478.75	37.50	0.00	366.39	0.224	81.81	1.1	2.053	A
	2	94.00	416.30	13.50	0.00	114.70	0.820	92.00	5.7	34.089	C

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	120.00	447.95	15.50	0.00	141.70	0.847	119.58	7.0	35.012	D
B - Airton Rd	1	43.00	416.30	9.50	0.00	80.71	0.533	42.73	2.2	25.198	C
	2	34.00	416.30	9.50	0.00	80.71	0.421	33.89	1.7	22.162	C
C - Greenhills Nth	1	97.00	478.75	37.50	0.00	366.39	0.265	96.79	1.3	2.222	A
	2	84.00	416.30	13.50	0.00	114.70	0.732	85.08	4.6	30.221	C

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.0.6896

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

Filename: Greenhills Airton AM and PM 2038 WOD.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 01/01/2020 18:47:06

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2038 WOD									
A - Greenhills Sth	9.7	27.64	0.88	C	-37 %	5.9	27.90	0.79	C	4 %
B - Airton Rd	9.7	60.68	0.97	E	[B - Airton Rd - Traffic Stream 1]	3.9	24.62	0.56	C	[C - Greenhills Nth - Traffic Stream 2]
C - Greenhills Nth	6.3	20.49	0.81	C		6.2	17.82	0.80	B	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	Airton / Greenhills
Location	
Site number	
Date	31/05/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2038 WOD	AM	DIRECT	08:00	09:00	60	15
D2	2038 WOD	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 WOD, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		31.31	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-37	B - Airton Rd - Traffic Stream 1

Arms

Arms

Arm	Name	Description
A	Greenhills Sth	Greenhills Sth
B	Airton Rd	
C	Greenhills Nth	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Greenhills Sth	2	A	0.00	0.00	B, C	C
B - Airton Rd	1	B	0.00	0.00	C	
	2	B	0.00	0.00	A	
C - Greenhills Nth	1	D	0.00	5.00	A	A
	2	C	0.00	0.00	B	A

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Greenhills Sth	2	C, B	0	3.00	10.00	✓	
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A	0	3.00	10.00	✓	
C - Greenhills Nth	1	A	0	3.00		✓	
	2	B	0	3.00	10.00	✓	

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	58	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, D	1		
	2	B	1		
	3	C, D	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 3, 2	31, 46, 0

Intergreen Matrix for Junction 1

		To			
		A	B	C	D
From	A		5	5	
	B	5		5	
	C	5	5		
	D				

Interstage Matrix for Junction 1

		To		
		1	2	3
From	1	0	5	5
	2	5	0	5
	3	5	5	0

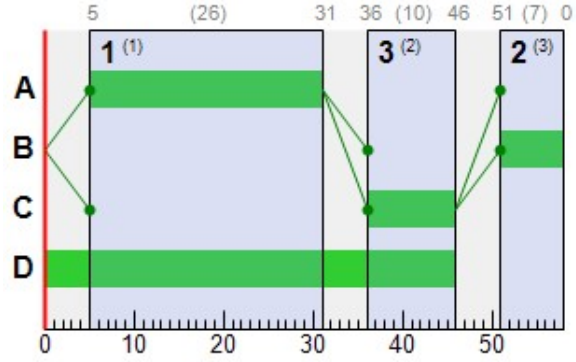
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,D	5	31	26	1	7
	2	3	C,D	36	46	10	1	7
	3	2	B	51	0	7	1	7

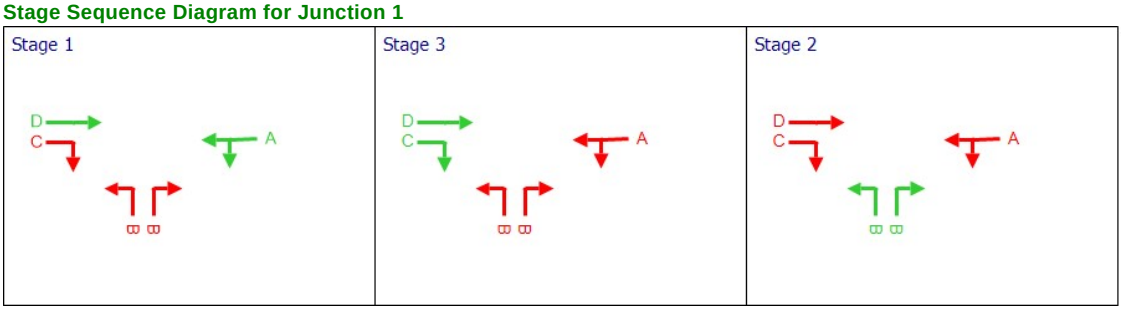
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	31	26
	B	1	51	0	7
	C	1	36	46	10
	D	1	0	46	46

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2038 WOD	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	69.00	120.00
	B - Airton Rd	19.00	0.00	39.00
	C - Greenhills Nth	97.00	53.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	57.00	114.00
	B - Airton Rd	30.00	0.00	59.00
	C - Greenhills Nth	52.00	58.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	36.00	102.00
	B - Airton Rd	32.00	0.00	30.00
	C - Greenhills Nth	87.00	67.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	59.00	120.00
	B - Airton Rd	27.00	0.00	49.00
	C - Greenhills Nth	71.00	59.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
08:00-08:15	A - Greenhills Sth	189.00	189.00
	B - Airton Rd	58.00	58.00
	C - Greenhills Nth	150.00	150.00
08:15-08:30	A - Greenhills Sth	171.00	171.00
	B - Airton Rd	89.00	89.00
	C - Greenhills Nth	110.00	110.00
08:30-08:45	A - Greenhills Sth	138.00	138.00
	B - Airton Rd	62.00	62.00
	C - Greenhills Nth	154.00	154.00
08:45-09:00	A - Greenhills Sth	179.00	179.00
	B - Airton Rd	76.00	76.00
	C - Greenhills Nth	130.00	130.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.88	27.64	9.7	C
B - Airton Rd	0.97	60.68	9.7	E
C - Greenhills Nth	0.81	20.49	6.3	C

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	189.00	453.89	27.50	0.00	215.21	0.878	179.33	9.7	27.640	C
B - Airton Rd	1	39.00	416.30	8.50	0.00	61.01	0.639	36.22	2.8	37.264	D
	2	19.00	416.30	8.50	0.00	61.01	0.311	17.87	1.1	26.051	C
C - Greenhills Nth	1	97.00	478.75	47.50	0.00	392.08	0.247	95.82	1.2	1.644	A
	2	53.00	416.30	11.50	0.00	82.54	0.642	49.60	3.4	32.084	C

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	171.00	455.95	27.50	0.00	216.18	0.791	172.98	7.7	23.200	C
B - Airton Rd	1	59.00	416.30	8.50	0.00	61.01	0.967	53.98	7.8	75.803	E
	2	30.00	416.30	8.50	0.00	61.01	0.492	29.20	1.9	30.930	C
C - Greenhills Nth	1	52.00	478.75	47.50	0.00	392.08	0.133	52.56	0.6	1.277	A
	2	58.00	416.30	11.50	0.00	82.54	0.703	57.47	3.9	36.053	D

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	138.00	460.72	27.50	0.00	218.45	0.632	140.35	5.3	15.876	B
B - Airton Rd	1	30.00	416.30	8.50	0.00	61.01	0.492	35.86	1.9	40.553	D
	2	32.00	416.30	8.50	0.00	61.01	0.525	31.83	2.1	32.419	C
C - Greenhills Nth	1	87.00	478.75	47.50	0.00	392.08	0.222	86.57	1.1	1.554	A
	2	67.00	416.30	11.50	0.00	82.54	0.812	65.67	5.3	45.078	D

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	179.00	456.20	27.50	0.00	216.30	0.828	176.07	8.3	23.652	C
B - Airton Rd	1	49.00	416.30	8.50	0.00	61.01	0.803	46.63	4.3	50.352	D
	2	27.00	416.30	8.50	0.00	61.01	0.443	27.40	1.7	29.850	C
C - Greenhills Nth	1	71.00	478.75	47.50	0.00	392.08	0.181	71.20	0.9	1.421	A
	2	59.00	416.30	11.50	0.00	82.54	0.715	60.07	4.2	39.993	D

2038 WOD, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		22.22	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	4	C - Greenhills Nth - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2038 WOD	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	29.00	56.00
	B - Airton Rd	34.00	0.00	42.00
	C - Greenhills Nth	107.00	65.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	27.00	47.00
	B - Airton Rd	28.00	0.00	28.00
	C - Greenhills Nth	69.00	69.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	49.00	68.00
	B - Airton Rd	29.00	0.00	38.00
	C - Greenhills Nth	83.00	89.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	49.00	69.00
	B - Airton Rd	32.00	0.00	42.00
	C - Greenhills Nth	99.00	78.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
17:00-17:15	A - Greenhills Sth	85.00	85.00
	B - Airton Rd	76.00	76.00
	C - Greenhills Nth	172.00	172.00
17:15-17:30	A - Greenhills Sth	74.00	74.00
	B - Airton Rd	56.00	56.00
	C - Greenhills Nth	138.00	138.00
17:30-17:45	A - Greenhills Sth	117.00	117.00
	B - Airton Rd	67.00	67.00
	C - Greenhills Nth	172.00	172.00
17:45-18:00	A - Greenhills Sth	118.00	118.00
	B - Airton Rd	74.00	74.00
	C - Greenhills Nth	177.00	177.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.79	27.90	5.9	C
B - Airton Rd	0.56	24.62	3.9	C
C - Greenhills Nth	0.80	17.82	6.2	B

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	85.00	455.44	15.50	0.00	150.20	0.566	81.59	3.4	17.512	B
B - Airton Rd	1	42.00	416.30	8.50	0.00	75.29	0.558	39.79	2.2	26.045	C
	2	34.00	416.30	8.50	0.00	75.29	0.452	32.33	1.7	22.869	C
C - Greenhills Nth	1	107.00	478.75	36.50	0.00	371.80	0.288	105.68	1.3	2.096	A
	2	65.00	416.30	12.50	0.00	110.72	0.587	62.02	3.0	21.600	C

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	74.00	453.91	15.50	0.00	149.69	0.494	74.53	2.9	16.198	B
B - Airton Rd	1	28.00	416.30	8.50	0.00	75.29	0.372	28.87	1.3	21.273	C
	2	28.00	416.30	8.50	0.00	75.29	0.372	28.34	1.3	21.238	C
C - Greenhills Nth	1	69.00	478.75	36.50	0.00	371.80	0.186	69.49	0.8	1.702	A
	2	69.00	416.30	12.50	0.00	110.72	0.623	68.73	3.2	23.049	C

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	117.00	450.45	15.50	0.00	148.55	0.788	114.17	5.7	26.006	C
B - Airton Rd	1	38.00	416.30	8.50	0.00	75.29	0.505	37.40	1.9	24.396	C
	2	29.00	416.30	8.50	0.00	75.29	0.385	28.95	1.4	21.424	C
C - Greenhills Nth	1	83.00	478.75	36.50	0.00	371.80	0.223	82.82	1.0	1.836	A
	2	89.00	416.30	12.50	0.00	110.72	0.804	87.07	5.2	32.726	C

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	118.00	450.68	15.50	0.00	148.63	0.794	117.84	5.9	27.902	C
B - Airton Rd	1	42.00	416.30	8.50	0.00	75.29	0.558	41.72	2.2	26.311	C
	2	32.00	416.30	8.50	0.00	75.29	0.425	31.83	1.6	22.310	C
C - Greenhills Nth	1	99.00	478.75	36.50	0.00	371.80	0.266	98.79	1.2	2.005	A
	2	78.00	416.30	12.50	0.00	110.72	0.704	79.12	4.0	28.236	C

Junctions 9

OSCADY 9 - Signalised Intersection Module

Version: 9.5.0.6896

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

Filename: Greenhills Airton AM and PM 2038 WDEV.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 01/01/2020 13:46:52

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	DOS	LOS	Network Residual Capacity
	2038 WDEV									
A - Greenhills Sth	13.2	37.67	0.93	D	-33 % [C - Greenhills Nth - Traffic Stream 2]	9.4	41.98	0.91	D	-5 % [A - Greenhills Sth - Traffic Stream 2]
B - Airton Rd	13.4	55.78	0.96	E		5.1	32.53	0.66	C	
C - Greenhills Nth	8.8	28.91	0.89	C		7.8	20.01	0.84	C	

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

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. 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	Airton / Greenhills
Location	
Site number	
Date	31/05/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	DOS Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	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 period length (min)	Time segment length (min)
D1	2038 WDEV	AM	DIRECT	08:00	09:00	60	15
D2	2038 WDEV	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 WDEV, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		39.72	D

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-33	C - Greenhills Nth - Traffic Stream 2

Arms

Arms

Arm	Name	Description
A	Greenhills Sth	Greenhills Sth
B	Airton Rd	
C	Greenhills Nth	

OSCADY Traffic Streams

Arm	Traffic Stream	Phase	Notional EEG (s)	Signals EEG (s)	Destination arms	Straight move
A - Greenhills Sth	2	A	0.00	0.00	B, C	C
B - Airton Rd	1	B	0.00	0.00	C	
	2	B	0.00	0.00	A	
C - Greenhills Nth	1	D	0.00	5.00	A	A
	2	C	0.00	0.00	B	A

OSCADY Lanes

Arm	Traffic Stream	Destination arms	Gradient (%)	Width (m)	Turning radius (m)	Nearside lane	Has bay
A - Greenhills Sth	2	C, B	0	3.00	10.00	✓	
B - Airton Rd	1	C	0	3.00	10.00	✓	
	2	A	0	3.00	10.00	✓	
C - Greenhills Nth	1	A	0	3.00		✓	
	2	B	0	3.00	10.00	✓	

Signal Timings

Junction 1

Junction	Sequence to use	Cycle time (s)	Maximum cycle time (s)	Start displacement (s)	End displacement (s)
1	1	69	300	1.40	2.90

Optimisation options

Junction	Optimise stage lengths	Optimise cycle time	Optimiser demand source	Optimiser message
1	✓	✓	Average	Timings provide delay minimisation.

Phases

Junction	Phase	Name	Minimum green (s)
1	A		7
	B		7
	C		7
	D		7

Library Stages

Junction	Library Stage	Phases in stage	User stage minimum (s)	Run every N cycles	Probability of running (%)
1	1	A, D	1		
	2	B	1		
	3	C, D	1		

Stage Sequences

Junction	Sequence	Name	Stage IDs	Stage ends
1	1		1, 3, 2	35, 51, 0

Intergreen Matrix for Junction 1

		To			
		A	B	C	D
From	A		5	5	
	B	5		5	
	C	5	5		
	D				

Interstage Matrix for Junction 1

		To		
		1	2	3
From	1	0	5	5
	2	5	0	5
	3	5	5	0

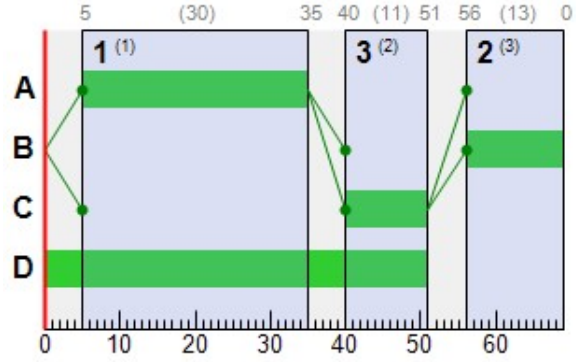
Resultant Stages

Junction	Resultant Stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	1	A,D	5	35	30	1	7
	2	3	C,D	40	51	11	1	7
	3	2	B	56	0	13	1	7

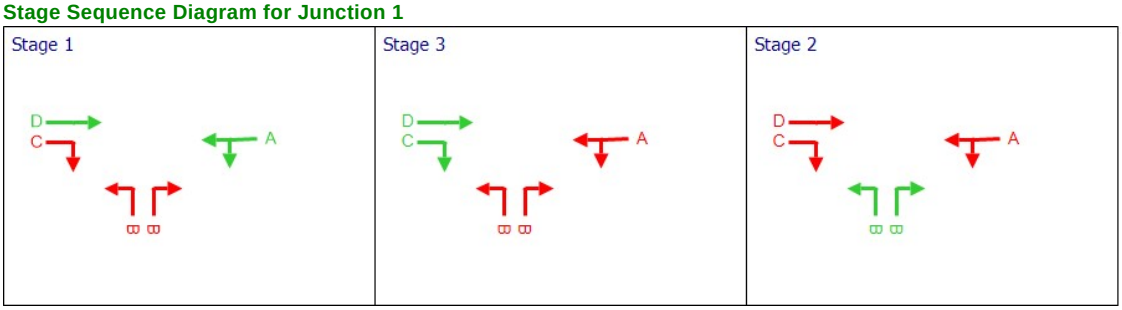
Resultant Phase Green Periods

Junction	Phase	Green period	Start time (s)	End time (s)	Duration (s)
1	A	1	5	35	30
	B	1	56	0	13
	C	1	40	51	11
	D	1	0	51	51

Phase Timings Diagram for Junction 1



Stage Sequence Diagram for Junction 1



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2038 WDEV	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	69.00	124.00
	B - Airton Rd	36.00	0.00	65.00
	C - Greenhills Nth	98.00	52.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	57.00	117.00
	B - Airton Rd	47.00	0.00	84.00
	C - Greenhills Nth	53.00	57.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	37.00	106.00
	B - Airton Rd	49.00	0.00	56.00
	C - Greenhills Nth	87.00	67.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	59.00	124.00
	B - Airton Rd	44.00	0.00	74.00
	C - Greenhills Nth	71.00	59.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
08:00-08:15	A - Greenhills Sth	193.00	193.00
	B - Airton Rd	101.00	101.00
	C - Greenhills Nth	150.00	150.00
08:15-08:30	A - Greenhills Sth	174.00	174.00
	B - Airton Rd	131.00	131.00
	C - Greenhills Nth	110.00	110.00
08:30-08:45	A - Greenhills Sth	143.00	143.00
	B - Airton Rd	105.00	105.00
	C - Greenhills Nth	154.00	154.00
08:45-09:00	A - Greenhills Sth	183.00	183.00
	B - Airton Rd	118.00	118.00
	C - Greenhills Nth	130.00	130.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.93	37.67	13.2	D
B - Airton Rd	0.96	55.78	13.4	E
C - Greenhills Nth	0.89	28.91	8.8	C

Main Results for each time segment

08:00 - 08:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	193.00	454.38	31.50	0.00	207.44	0.930	179.76	13.2	37.670	D
B - Airton Rd	1	65.00	416.30	14.50	0.00	87.48	0.743	59.88	5.1	40.686	D
	2	36.00	416.30	14.50	0.00	87.48	0.412	33.65	2.4	27.769	C
C - Greenhills Nth	1	98.00	478.75	52.50	0.00	364.27	0.269	96.14	1.9	3.025	A
	2	52.00	416.30	12.50	0.00	75.42	0.689	47.88	4.1	40.400	D

08:15 - 08:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	174.00	456.33	31.50	0.00	208.32	0.835	177.22	10.0	31.686	C
B - Airton Rd	1	84.00	416.30	14.50	0.00	87.48	0.960	78.88	10.2	69.550	E
	2	47.00	416.30	14.50	0.00	87.48	0.537	46.14	3.2	31.167	C
C - Greenhills Nth	1	53.00	478.75	52.50	0.00	364.27	0.145	53.87	1.0	2.471	A
	2	57.00	416.30	12.50	0.00	75.42	0.756	56.27	4.9	46.514	D

08:30 - 08:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	143.00	460.86	31.50	0.00	210.39	0.680	146.17	6.8	20.606	C
B - Airton Rd	1	56.00	416.30	14.50	0.00	87.48	0.640	62.12	4.1	41.688	D
	2	49.00	416.30	14.50	0.00	87.48	0.560	48.83	3.4	32.133	C
C - Greenhills Nth	1	87.00	478.75	52.50	0.00	364.27	0.239	86.35	1.6	2.875	A
	2	67.00	416.30	12.50	0.00	75.42	0.888	64.67	7.2	62.719	E

08:45 - 09:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	183.00	456.67	31.50	0.00	208.48	0.878	178.97	10.9	31.535	C
B - Airton Rd	1	74.00	416.30	14.50	0.00	87.48	0.846	71.37	6.7	50.777	D
	2	44.00	416.30	14.50	0.00	87.48	0.503	44.41	3.0	30.464	C
C - Greenhills Nth	1	71.00	478.75	52.50	0.00	364.27	0.195	71.31	1.3	2.676	A
	2	59.00	416.30	12.50	0.00	75.42	0.782	60.58	5.6	57.745	E

2038 WDEV, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Signalised		29.05	C

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-5	A - Greenhills Sth - Traffic Stream 2

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2038 WDEV	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A - Greenhills Sth		✓	100.000
B - Airton Rd		✓	100.000
C - Greenhills Nth		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	44.00	57.00
	B - Airton Rd	37.00	0.00	44.00
	C - Greenhills Nth	111.00	85.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	41.00	48.00
	B - Airton Rd	31.00	0.00	32.00
	C - Greenhills Nth	73.00	88.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	54.00	69.00
	B - Airton Rd	32.00	0.00	39.00
	C - Greenhills Nth	87.00	109.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0.00	64.00	70.00
	B - Airton Rd	34.00	0.00	44.00
	C - Greenhills Nth	103.00	97.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Greenhills Sth	B - Airton Rd	C - Greenhills Nth
From	A - Greenhills Sth	0	0	0
	B - Airton Rd	0	0	0
	C - Greenhills Nth	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/TS)	Demand in PCU (PCU/TS)
17:00-17:15	A - Greenhills Sth	101.00	101.00
	B - Airton Rd	81.00	81.00
	C - Greenhills Nth	196.00	196.00
17:15-17:30	A - Greenhills Sth	89.00	89.00
	B - Airton Rd	63.00	63.00
	C - Greenhills Nth	161.00	161.00
17:30-17:45	A - Greenhills Sth	123.00	123.00
	B - Airton Rd	71.00	71.00
	C - Greenhills Nth	196.00	196.00
17:45-18:00	A - Greenhills Sth	134.00	134.00
	B - Airton Rd	78.00	78.00
	C - Greenhills Nth	200.00	200.00

Results

Results Summary for whole modelled period

Arm	Max DOS	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Greenhills Sth	0.91	41.98	9.4	D
B - Airton Rd	0.66	32.53	5.1	C
C - Greenhills Nth	0.84	20.01	7.8	C

Main Results for each time segment

17:00 - 17:15

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	101.00	449.38	17.50	0.00	148.38	0.681	96.17	4.8	22.596	C
B - Airton Rd	1	44.00	416.30	8.50	0.00	66.77	0.659	41.11	2.9	34.748	C
	2	37.00	416.30	8.50	0.00	66.77	0.554	34.77	2.2	29.898	C
C - Greenhills Nth	1	111.00	478.75	42.50	0.00	383.90	0.289	109.63	1.4	1.924	A
	2	85.00	416.30	16.50	0.00	129.60	0.656	80.83	4.2	23.238	C

17:15 - 17:30

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	89.00	447.81	17.50	0.00	147.86	0.602	89.76	4.1	20.536	C
B - Airton Rd	1	32.00	416.30	8.50	0.00	66.77	0.479	33.04	1.9	28.073	C
	2	31.00	416.30	8.50	0.00	66.77	0.464	31.45	1.8	27.446	C
C - Greenhills Nth	1	73.00	478.75	42.50	0.00	383.90	0.190	73.49	0.9	1.558	A
	2	88.00	416.30	16.50	0.00	129.60	0.679	87.77	4.4	24.553	C

17:30 - 17:45

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	123.00	449.17	17.50	0.00	148.31	0.829	120.06	7.0	30.966	C
B - Airton Rd	1	39.00	416.30	8.50	0.00	66.77	0.584	38.45	2.4	31.373	C
	2	32.00	416.30	8.50	0.00	66.77	0.479	31.94	1.8	27.637	C
C - Greenhills Nth	1	87.00	478.75	42.50	0.00	383.90	0.227	86.82	1.1	1.683	A
	2	109.00	416.30	16.50	0.00	129.60	0.841	106.67	6.7	34.635	C

17:45 - 18:00

Arm	Traffic Stream	Total Demand (PCU/TS)	Calculated saturation flow (PCU/TS)	Effective green time (s)	NEEG (s)	Capacity (PCU/TS)	DOS	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Signalised level of service
A - Greenhills Sth	2	134.00	446.74	17.50	0.00	147.51	0.908	131.65	9.4	41.982	D
B - Airton Rd	1	44.00	416.30	8.50	0.00	66.77	0.659	43.51	2.9	35.433	D
	2	34.00	416.30	8.50	0.00	66.77	0.509	33.85	2.0	28.583	C
C - Greenhills Nth	1	103.00	478.75	42.50	0.00	383.90	0.268	102.79	1.3	1.840	A
	2	97.00	416.30	16.50	0.00	129.60	0.748	98.38	5.4	30.053	C

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Airton development entrance 2023.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 01/01/2020 22:06:35

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2023 WDEV									
Stream B-AC	0.1	9.25	0.12	A	158 %	0.1	8.47	0.05	A	194 %
Stream C-B	0.0	7.09	0.02	A	[Stream B-AC]	0.0	7.48	0.04	A	[Stream B-AC]

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	Airton Road SHD
Location	
Site number	
Date	01/01/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Hour	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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2023 WDEV	AM	DIRECT	08:00	09:00	60	15
D2	2023 WDEV	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 WDEV, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Airton Road Development Ent	T-Junction	Two-way		0.68	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	158	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Airton Road East		Major
B	Development Entrance		Minor
C	Airton Road West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	10.00		✓	2.20	50.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.00	50	50

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	129.627	0.078	0.197	0.124	0.282
1	B-C	163.853	0.083	0.210	-	-
1	C-B	150.730	0.193	0.193	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2023 WDEV	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A		✓	100.000
B		✓	100.000
C		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To		
		A	B	C
From	A	0.00	2.00	111.00
	B	8.00	0.00	5.00
	C	65.00	2.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To		
		A	B	C
From	A	0.00	2.00	105.00
	B	8.00	0.00	5.00
	C	91.00	2.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To		
		A	B	C
From	A	0.00	2.00	95.00
	B	8.00	0.00	5.00
	C	68.00	2.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To		
		A	B	C
From	A	0.00	2.00	108.00
	B	8.00	0.00	5.00
	C	80.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

08:00 - 08:15

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

Heavy Vehicle Percentages

08:15 - 08:30

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

Heavy Vehicle Percentages

08:30 - 08:45

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

Heavy Vehicle Percentages

08:45 - 09:00

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.12	9.25	0.1	A
C-A				
C-B	0.02	7.09	0.0	A
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13.00	111.63	0.116	12.87	0.1	9.101	A
C-A	65.00			65.00			
C-B	2.00	128.93	0.016	1.98	0.0	7.089	A
A-B	2.00			2.00			
A-C	111.00			111.00			

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13.00	110.32	0.118	13.00	0.1	9.247	A
C-A	91.00			91.00			
C-B	2.00	130.08	0.015	2.00	0.0	7.025	A
A-B	2.00			2.00			
A-C	105.00			105.00			

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13.00	114.62	0.113	13.00	0.1	8.856	A
C-A	68.00			68.00			
C-B	2.00	132.01	0.015	2.00	0.0	6.924	A
A-B	2.00			2.00			
A-C	95.00			95.00			

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13.00	110.78	0.117	13.00	0.1	9.203	A
C-A	80.00			80.00			
C-B	2.00	129.51	0.015	2.00	0.0	7.057	A
A-B	2.00			2.00			
A-C	108.00			108.00			

2023 WDEV, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Airton Road Development Ent	T-Junction	Two-way		0.47	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	194	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2023 WDEV	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A		✓	100.000
B		✓	100.000
C		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	7.00	87.00
	B	3.00	0.00	3.00
	C	72.00	5.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	7.00	88.00
	B	3.00	0.00	3.00
	C	56.00	5.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	7.00	125.00
	B	3.00	0.00	3.00
	C	64.00	5.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	7.00	115.00
	B	3.00	0.00	3.00
	C	70.00	5.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.05	8.47	0.1	A
C-A				
C-B	0.04	7.48	0.0	A
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6.00	119.48	0.050	5.95	0.1	7.924	A
C-A	72.00			72.00			
C-B	5.00	132.59	0.038	4.96	0.0	7.050	A
A-B	7.00			7.00			
A-C	87.00			87.00			

17:15 - 17:30

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6.00	120.63	0.050	6.00	0.1	7.852	A
C-A	56.00			56.00			
C-B	5.00	132.40	0.038	5.00	0.0	7.063	A
A-B	7.00			7.00			
A-C	88.00			88.00			

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6.00	112.27	0.053	6.00	0.1	8.468	A
C-A	64.00			64.00			
C-B	5.00	125.26	0.040	5.00	0.0	7.482	A
A-B	7.00			7.00			
A-C	125.00			125.00			

17:45 - 18:00

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6.00	113.83	0.053	6.00	0.1	8.347	A
C-A	70.00			70.00			
C-B	5.00	127.19	0.039	5.00	0.0	7.364	A
A-B	7.00			7.00			
A-C	115.00			115.00			

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Airton development entrance 2038.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 01/01/2020 22:00:42

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2038 WDEV									
Stream B-AC	0.1	9.69	0.12	A	132 %	0.1	9.19	0.06	A	143 %
Stream C-B	0.0	7.15	0.02	A	[Stream B-AC]	0.0	7.98	0.04	A	[Stream B-AC]

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	Airton Road SHD
Location	
Site number	
Date	01/01/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Hour	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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2038 WDEV	AM	DIRECT	08:00	09:00	60	15
D2	2038 WDEV	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 WDEV, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Airton Road Development Ent	T-Junction	Two-way		0.60	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	132	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Airton Road East		Major
B	Development Entrance		Minor
C	Airton Road West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	10.00		✓	2.20	50.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.00	50	50

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	129.627	0.078	0.197	0.124	0.282
1	B-C	163.853	0.083	0.210	-	-
1	C-B	150.730	0.193	0.193	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2038 WDEV	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A		✓	100.000
B		✓	100.000
C		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To		
		A	B	C
From	A	0.00	2.00	117.00
	B	8.00	0.00	5.00
	C	93.00	2.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To		
		A	B	C
From	A	0.00	2.00	111.00
	B	8.00	0.00	5.00
	C	123.00	2.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To		
		A	B	C
From	A	0.00	2.00	99.00
	B	8.00	0.00	5.00
	C	96.00	2.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To		
		A	B	C
From	A	0.00	2.00	114.00
	B	8.00	0.00	5.00
	C	110.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

08:00 - 08:15

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

08:15 - 08:30

Heavy Vehicle Percentages

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

08:30 - 08:45

Heavy Vehicle Percentages

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

08:45 - 09:00

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.12	9.69	0.1	A
C-A				
C-B	0.02	7.15	0.0	A
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13.00	107.65	0.121	12.86	0.1	9.482	A
C-A	93.00			93.00			
C-B	2.00	127.77	0.016	1.98	0.0	7.155	A
A-B	2.00			2.00			
A-C	117.00			117.00			

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13.00	105.87	0.123	13.00	0.1	9.690	A
C-A	123.00			123.00			
C-B	2.00	128.93	0.016	2.00	0.0	7.092	A
A-B	2.00			2.00			
A-C	111.00			111.00			

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13.00	111.06	0.117	13.00	0.1	9.178	A
C-A	96.00			96.00			
C-B	2.00	131.24	0.015	2.00	0.0	6.962	A
A-B	2.00			2.00			
A-C	99.00			99.00			

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13.00	106.56	0.122	13.00	0.1	9.618	A
C-A	110.00			110.00			
C-B	2.00	128.35	0.016	2.00	0.0	7.122	A
A-B	2.00			2.00			
A-C	114.00			114.00			

2038 WDEV, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Airton Road Development Ent	T-Junction	Two-way		0.42	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	143	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2038 WDEV	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A		✓	100.000
B		✓	100.000
C		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	7.00	120.00
	B	3.00	0.00	3.00
	C	76.00	5.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	7.00	122.00
	B	3.00	0.00	3.00
	C	58.00	5.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	7.00	164.00
	B	3.00	0.00	3.00
	C	67.00	5.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	7.00	153.00
	B	3.00	0.00	3.00
	C	74.00	5.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.06	9.19	0.1	A
C-A				
C-B	0.04	7.98	0.0	A
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6.00	112.27	0.053	5.94	0.1	8.460	A
C-A	76.00			76.00			
C-B	5.00	126.23	0.040	4.96	0.0	7.420	A
A-B	7.00			7.00			
A-C	120.00			120.00			

17:15 - 17:30

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6.00	113.41	0.053	6.00	0.1	8.380	A
C-A	58.00			58.00			
C-B	5.00	125.84	0.040	5.00	0.0	7.446	A
A-B	7.00			7.00			
A-C	122.00			122.00			

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6.00	103.89	0.058	6.00	0.1	9.193	A
C-A	67.00			67.00			
C-B	5.00	117.74	0.042	5.00	0.0	7.983	A
A-B	7.00			7.00			
A-C	164.00			164.00			

17:45 - 18:00

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6.00	105.56	0.057	6.00	0.1	9.039	A
C-A	74.00			74.00			
C-B	5.00	119.86	0.042	5.00	0.0	7.837	A
A-B	7.00			7.00			
A-C	153.00			153.00			

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Greenhills development entrance 2023.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 01/01/2020 22:49:30

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2023 WDEV									
Stream B-AC	0.1	9.66	0.10	A	110 %	0.0	8.49	0.04	A	174 %
Stream C-B	0.0	7.86	0.02	A	[Stream B-AC]	0.0	7.34	0.05	A	[Stream B-AC]

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	Airton Road SHD
Location	
Site number	
Date	01/01/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Hour	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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2023 WDEV	AM	DIRECT	08:00	09:00	60	15
D2	2023 WDEV	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2023 WDEV, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Greenhills Road Development Ent	T-Junction	Two-way		0.46	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	110	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Greenhills Road South		Major
B	Development Entrance		Minor
C	Greenhills Road North		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.20	50.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.00	50	50

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	129.627	0.082	0.208	0.131	0.297
1	B-C	163.853	0.087	0.221	-	-
1	C-B	150.730	0.203	0.203	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2023 WDEV	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A		✓	100.000
B		✓	100.000
C		✓	100.000

Origin-Destination Data

Demand (PCU/TS)

08:00 - 08:15

		To		
		A	B	C
From	A	0.00	2.00	167.00
	B	4.00	0.00	6.00
	C	107.00	2.00	0.00

Demand (PCU/TS)

08:15 - 08:30

		To		
		A	B	C
From	A	0.00	2.00	150.00
	B	4.00	0.00	6.00
	C	77.00	2.00	0.00

Demand (PCU/TS)

08:30 - 08:45

		To		
		A	B	C
From	A	0.00	2.00	122.00
	B	4.00	0.00	6.00
	C	109.00	2.00	0.00

Demand (PCU/TS)

08:45 - 09:00

		To		
		A	B	C
From	A	0.00	2.00	91.00
	B	4.00	0.00	6.00
	C	91.00	2.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

08:00 - 08:15

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

08:15 - 08:30

Heavy Vehicle Percentages

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

08:30 - 08:45

Heavy Vehicle Percentages

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

08:45 - 09:00

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.10	9.66	0.1	A
C-A				
C-B	0.02	7.86	0.0	A
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10.00	102.91	0.097	9.89	0.1	9.665	A
C-A	107.00			107.00			
C-B	2.00	116.40	0.017	1.98	0.0	7.865	A
A-B	2.00			2.00			
A-C	167.00			167.00			

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10.00	109.20	0.092	10.00	0.1	9.075	A
C-A	77.00			77.00			
C-B	2.00	119.86	0.017	2.00	0.0	7.635	A
A-B	2.00			2.00			
A-C	150.00			150.00			

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10.00	112.78	0.089	10.00	0.1	8.756	A
C-A	109.00			109.00			
C-B	2.00	125.54	0.016	2.00	0.0	7.286	A
A-B	2.00			2.00			
A-C	122.00			122.00			

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10.00	121.12	0.083	10.01	0.1	8.101	A
C-A	91.00			91.00			
C-B	2.00	131.84	0.015	2.00	0.0	6.930	A
A-B	2.00			2.00			
A-C	91.00			91.00			

2023 WDEV, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Greenhills Road Development Ent	T-Junction	Two-way		0.37	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	174	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2023 WDEV	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A		✓	100.000
B		✓	100.000
C		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	4.00	77.00
	B	2.00	0.00	2.00
	C	126.00	6.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	4.00	66.00
	B	2.00	0.00	2.00
	C	87.00	6.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	4.00	104.00
	B	2.00	0.00	2.00
	C	101.00	6.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	4.00	105.00
	B	2.00	0.00	2.00
	C	117.00	6.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	8.49	0.0	A
C-A				
C-B	0.05	7.34	0.0	A
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4.00	115.32	0.035	3.96	0.0	8.079	A
C-A	126.00			126.00			
C-B	6.00	134.28	0.045	5.95	0.0	7.012	A
A-B	4.00			4.00			
A-C	77.00			77.00			

17:15 - 17:30

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4.00	121.39	0.033	4.00	0.0	7.668	A
C-A	87.00			87.00			
C-B	6.00	136.51	0.044	6.00	0.0	6.895	A
A-B	4.00			4.00			
A-C	66.00			66.00			

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4.00	111.74	0.036	4.00	0.0	8.353	A
C-A	101.00			101.00			
C-B	6.00	128.79	0.047	6.00	0.0	7.328	A
A-B	4.00			4.00			
A-C	104.00			104.00			

17:45 - 18:00

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4.00	109.99	0.036	4.00	0.0	8.491	A
C-A	117.00			117.00			
C-B	6.00	128.59	0.047	6.00	0.0	7.340	A
A-B	4.00			4.00			
A-C	105.00			105.00			

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Greenhills development entrance 2038.j9
Path: C:\Users\martin.rogers\Documents\airton road 2019 BMCE\january 2020 files
Report generation date: 01/01/2020 22:55:01

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2038 WDEV									
Stream B-AC	0.1	10.36	0.10	B	87 %	0.0	9.06	0.04	A	136 %
Stream C-B	0.0	8.14	0.02	A	[Stream B-AC]	0.1	7.64	0.05	A	[Stream B-AC]

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	Airton Road SHD
Location	
Site number	
Date	01/01/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ICTDOMAIN\martin.rogers
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	perTimeSegment	s	-Hour	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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2038 WDEV	AM	DIRECT	08:00	09:00	60	15
D2	2038 WDEV	PM	DIRECT	17:00	18:00	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 WDEV, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Greenhills Road Development Ent	T-Junction	Two-way		0.40	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	87	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Greenhills Road South		Major
B	Development Entrance		Minor
C	Greenhills Road North		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.20	50.0		-

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.00	50	50

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	129.627	0.082	0.208	0.131	0.297
1	B-C	163.853	0.087	0.221	-	-
1	C-B	150.730	0.203	0.203	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	2038 WDEV	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A		✓	100.000
B		✓	100.000
C		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	2.00	186.00
	B	4.00	0.00	6.00
	C	130.00	2.00	0.00

08:15 - 08:30

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	2.00	168.00
	B	4.00	0.00	6.00
	C	96.00	2.00	0.00

08:30 - 08:45

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	2.00	135.00
	B	4.00	0.00	6.00
	C	132.00	2.00	0.00

08:45 - 09:00

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	2.00	176.00
	B	4.00	0.00	6.00
	C	111.00	2.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

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

08:15 - 08:30

Heavy Vehicle Percentages

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

08:30 - 08:45

Heavy Vehicle Percentages

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

08:45 - 09:00

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.10	10.36	0.1	B
C-A				
C-B	0.02	8.14	0.0	A
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10.00	96.61	0.104	9.89	0.1	10.364	B
C-A	130.00			130.00			
C-B	2.00	112.54	0.018	1.98	0.0	8.139	A
A-B	2.00			2.00			
A-C	186.00			186.00			

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10.00	103.62	0.097	10.01	0.1	9.613	A
C-A	96.00			96.00			
C-B	2.00	116.20	0.017	2.00	0.0	7.882	A
A-B	2.00			2.00			
A-C	168.00			168.00			

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10.00	107.92	0.093	10.00	0.1	9.193	A
C-A	132.00			132.00			
C-B	2.00	122.90	0.016	2.00	0.0	7.443	A
A-B	2.00			2.00			
A-C	135.00			135.00			

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	10.00	100.55	0.099	9.99	0.1	9.939	A
C-A	111.00			111.00			
C-B	2.00	114.58	0.017	2.00	0.0	7.994	A
A-B	2.00			2.00			
A-C	176.00			176.00			

2038 WDEV, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Greenhills Road Development Ent	T-Junction	Two-way		0.34	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	136	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2038 WDEV	PM	DIRECT	17:00	18:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A		✓	100.000
B		✓	100.000
C		✓	100.000

Origin-Destination Data

17:00 - 17:15

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	4.00	96.00
	B	2.00	0.00	2.00
	C	141.00	6.00	0.00

17:15 - 17:30

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	4.00	84.00
	B	2.00	0.00	2.00
	C	97.00	6.00	0.00

17:30 - 17:45

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	4.00	127.00
	B	2.00	0.00	2.00
	C	112.00	6.00	0.00

17:45 - 18:00

Demand (PCU/TS)

		To		
		A	B	C
From	A	0.00	4.00	129.00
	B	2.00	0.00	2.00
	C	131.00	6.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	9.06	0.0	A
C-A				
C-B	0.05	7.64	0.1	A
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4.00	109.65	0.036	3.96	0.0	8.513	A
C-A	141.00			141.00			
C-B	6.00	130.42	0.046	5.95	0.0	7.231	A
A-B	4.00			4.00			
A-C	96.00			96.00			

17:15 - 17:30

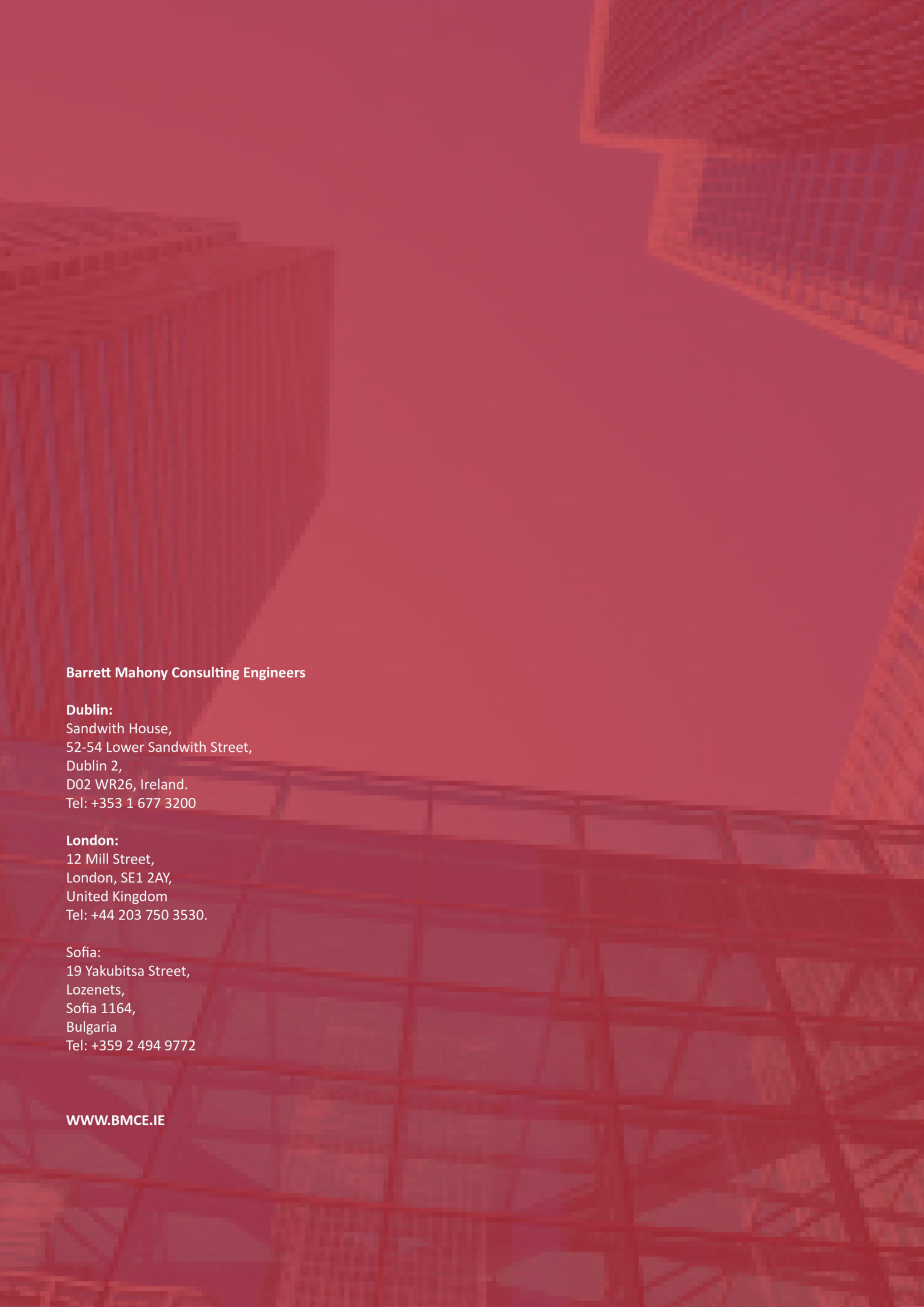
Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4.00	116.52	0.034	4.00	0.0	7.998	A
C-A	97.00			97.00			
C-B	6.00	132.86	0.045	6.00	0.0	7.093	A
A-B	4.00			4.00			
A-C	84.00			84.00			

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4.00	105.60	0.038	4.00	0.0	8.858	A
C-A	112.00			112.00			
C-B	6.00	124.12	0.048	6.00	0.1	7.618	A
A-B	4.00			4.00			
A-C	127.00			127.00			

17:45 - 18:00

Stream	Total Demand (PCU/TS)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4.00	103.28	0.039	4.00	0.0	9.064	A
C-A	131.00			131.00			
C-B	6.00	123.72	0.049	6.00	0.1	7.644	A
A-B	4.00			4.00			
A-C	129.00			129.00			



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