Waterman Moylan
Engineering Consultants

Traffic and Transport Assessment

Barrington Tower SHD, Brennanstown Road, Dublin 18.

April 2022

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This document has been prepared and checked in accordance with
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Comments

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1. Introduction

1.1 Context

This Traffic and Transport Assessment (TTA) has been prepared by Waterman Moylan Consulting Engineers on behalf of Cairn Homes Properties Ltd for a proposed residential development at Brennanstown Road, Dublin 18, to be submitted to An Bord Pleanála via the Strategic Housing Development (SHD) route.

The proposed development consists of 534 no. apartment units over eight blocks together with a Creche with 340 sqm of area and a retail with 318 sqm of area (exclu.Bin storage). A detailed breakdown of the proposed development is shown in Table 1.

Unit Type	Block	Studio	1-bedroom	2-bedroom	3-bedroom	Total (Units/sqm)
Apartments	AB	0	-	40	-	**4**
	CD	0	-	32	-	**32**
	E	0	3	63	2	**68**
	F	0	10	81	5	**89**
	G	14	30	29	16	**96**
	H	0	63	32	4	**99**
	I	6	16	14	12	**48**
	J	10	13	27	12	**62**
Creche	CD	-	-	-	-	**340 sqm**
Retail (exclu.Bin storage)	CD	-	-	-	-	**318 sqm**
Total	-	30	135	318	51	**534 units 652 sqm**

Table 1 | *Proposed Schedule of Accommodation.*

1.2 Scope

This TTA is a comprehensive review of all the potential transport impacts of the overall proposed development, including a detailed assessment of the transportation systems provided and the impact of the proposed development on the surrounding environment and road network.

1.3 Standards

This Traffic and Transport Assessment has been prepared in accordance with the requirements of the Traffic and Transport Assessment Guidelines published by TII/NRA in May 2014.

1.4 Threshold for Transport Assessment

Section 2.1 of the Traffic and Transport Assessment Guidelines (May 2014) requires submission of a Transport Assessment where a proposed development meets one or more of the following criteria:

1- Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road;

2- Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive;

3- Residential development in excess of 200 dwellings;

4- Retail and leisure development in excess of 1,000sqm;

5- Office, education and hospital development in excess of 2,500sqm;

6- Industrial development in excess of 5,000sqm;

7- Distribution and warehousing in excess of 10,000sqm.

In the context of the subject proposed development, thresholds no. 1, 2 and 3 are exceeded.

1.5 Contents of the Transport Assessment

In accordance with Section 3.3 of the Traffic and Transport Assessment Guidelines (May 2014), the contents of this TTA include:

- Description of the existing and proposed traffic/transportation conditions including information on the current traffic, main junctions, pedestrians, cycle and public transport facilities;
- A description of the proposed development;
- The traffic and transportation implications of the development including consideration of trip generation and trip distribution;
- The time periods applicable to the TTA;
- The potential impact of the proposed development on the surrounding road network;
- Description and analysis of committed and potential future developments in the area;
- Review of the historical data related to road safety;
- Description of car and cycle parking requirements and proposals.

1.6 Programme

It is anticipated that construction of the proposed overall development will commence in 2022 for completion in 2026.

1.7 Assessment Years

The years that have been assessed within this TTA are the following:

Base Year	: 2022
Opening Year (With / Without Development)	: 2026

Opening Year +5 Years Forecast (With / Without Development) : 2031

Opening Year +15 Years Forecast (With / Without Development) : 2041

These assessment years are in line with the TII 'Traffic and Transport Assessment Guidelines' (May 2014).

Details of each assessment year is presented later in the report.

1.8 Location of the Proposed Development Site

The proposed development site is bounded to the north by the Brennanstown Road, to the south by Carrickmines Stream and Luas Green Line and to the west by Brennanstown Vale. It is located approximately 4.85km from Dun Laoghaire Harbour and 3.24km away from the coastline. The site location is illustrated in Figure 1.

Figure 1-1 | *Site Location (Source: Google Maps).*

2. Policy Framework

2.1 Dun Laoghaire-Rathdown County Development Plan (2022 – 2028)

The Dun Laoghaire-Rathdown County Development Plan (2022 – 2028) sets out the authority's policies and objectives for the development of the County for the period of 2022 to 2028. The Plan seeks to develop and improve in a sustainable manner the social, economic, cultural and environmental assets of the County. In the context of the subject development site and the proposed residential scheme a number of the most relevant policies are included below.

2.1.1 Development of Sustainable Travel and Transportation polices

*"**Policy T3**: It is a Policy Objective to promote, facilitate and cooperate with other transport agencies in securing the implementation of the transport strategy for the County and the wider Metropolitan Area as set out in Department of Transport's 'Smarter Travel, A Sustainable Transport Future 2009 –2020' including the modal share targets and the NTA's 'Greater Dublin Area Transport Strategy 2016-2035'"*

2.1.2 Public Transport Interchange

***"Policy Objective T6:** It is a Policy Objective to facilitate the provision of quality public transport interchanges at strategic rail, Luas stations and Core Bus Corridors within the County in accordance with national and regional guidelines in order to facilitate focussed access to multiple public transport modes and to maximize the movement of people via sustainable modes."*

2.1.3 Green Line Capacity Enhancement

***"Policy Objective T7:** It is a Policy Objective to promote, facilitate and cooperate with other agencies in supporting the Luas Green Line Capacity Enhancement Project to cater for the demand for Luas trips in the County in the short and medium term."*

2.1.4 Walking and Cycling

*"**Policy T10:** It is a Policy Objective to secure the development of a high quality, fully connected and inclusive walking and cycling network across the County and the integration of walking, cycling and physical activity with placemaking including public realm improvements"*

2.1.5 Footways and Pedestrian routes

*"**Policy T11:** It is a Policy Objective to maintain and expand the footway and pedestrian route network to provide for accessible, safe pedestrian routes within the County in accordance with best accessibility practice."*

2.1.6 County Cycle Network

*"**Policy T12:** It is a Policy Objective to secure improvements to the County Cycle Network in accordance with the Dún Laoghaire-Rathdown Cycle Network Review whilst supporting the NTA on the development and implementation of the Greater Dublin Area Cycle Network Plan, subject to environmental assessment."*

2.1.7 Car Sharing Schemes

*"**Policy T17:** Policy Objective T17: Car Sharing Schemes It is a Policy Objective to support the set up and operation of car sharing schemes to facilitate an overall reduction in car journeys and car parking requirements."*

2.1.8 Carparking Standards

*"**Policy T18:** It is a Policy Objective to manage carparking as part of the overall strategic transport needs of the County in accordance with the parking standards set out in Section 12.4.5"* (of the Development Plan)

3. Receiving Environment

3.1 Existing Road Network

The proposed development site is located to the south of Brennanstown Road. Brennanstown Road is approximately 1.9km (1,940m) long from a signalised junction between Brennanstown Road / Claremont Road / Glenamuck Road North / Brighton Road and continues east/north connecting to Bothar Bhre via a signalised junction. The road provides access to a large number of single residential units along its extent.

Brennanstown Road has an Annual Average Daily Traffic (AADT) of approximately 4,800 vehicles per day. The posted speed limit is 50kph, with the majority of vehicles travelling below this speed.

Existing safety issues of concern for motorists and pedestrians include a narrow carriageway, a sub-standard alignment, and a narrow footpath on one side only.

There are several junctions along Brennanstown Road. Figure 2 shows the location of the main junctions in relation to the proposed development site.

- **Junction 1 (Existing Signalised)**: Brennanstown Road/Claremont Road/Glenamuck Road North/Brighton Road.
- **Junction 2 (Existing Priority)**: Brennanstown Road/Carrickmines Wood.
- **Junction 3 (Existing Priority)**: Brennanstown Road/Brennanstown Vale.
- **Junction 4 (Existing Roundabout)**: Brennanstown Road/Brennanstown Wood.
- **Junction 5 (Proposed Signalised)**: Brennanstown Road / Barrington Tower/Apollo/Appledore.
- **Junction 6 (Existing Signalised):** Brennanstown Road / Bray Road / Johnstown Road.

Figure 3-1 | *Map of Local Road Network and Main Junctions.*

3.2 Existing Public Transport Network

3.2.1 Bus Network

The proposed development site is not directly served by bus routes. The closest bus stops are located along Brighton Road and Glenamuck Road North approximately 650m (c.9-minute walking) to the west of the proposed site entrance – See Figure 3. These bus stops are served by the bus routes 63 and 63A, which connect Kilternan to Dun Laoghaire via two different routes.

Figure 3-2 | *Location of Nearest Bus Stops and Walking Routes from Subject Site.*

In addition to the aforementioned routes, N11 corridor - to the north of development site, is served by a number of bus routes which provide access to Dublin City Centre. The routes servicing N11 corridor are routes 84A, 84X, 145 and 155. The walking distance to the closest bus stops on N11 corridor is approximately 1.6km (c. 19-minute walking). Figure 4 below shows the location of the nearest bus on N11 corridor while Table 2 provides the bus frequencies of each described route.

Details of the bus routes and frequencies are provided to inform the reader of the services that are available in the area. It is however recognised that travel by bus to the city centre, which includes a 19-minute walk would not be an attractive option for residents considering that the Luas is immediately to the south of the proposed development.

For this reason, a capacity analysis of the bus services has not been undertaken as it is envisaged that there will be little demand for the bus service.

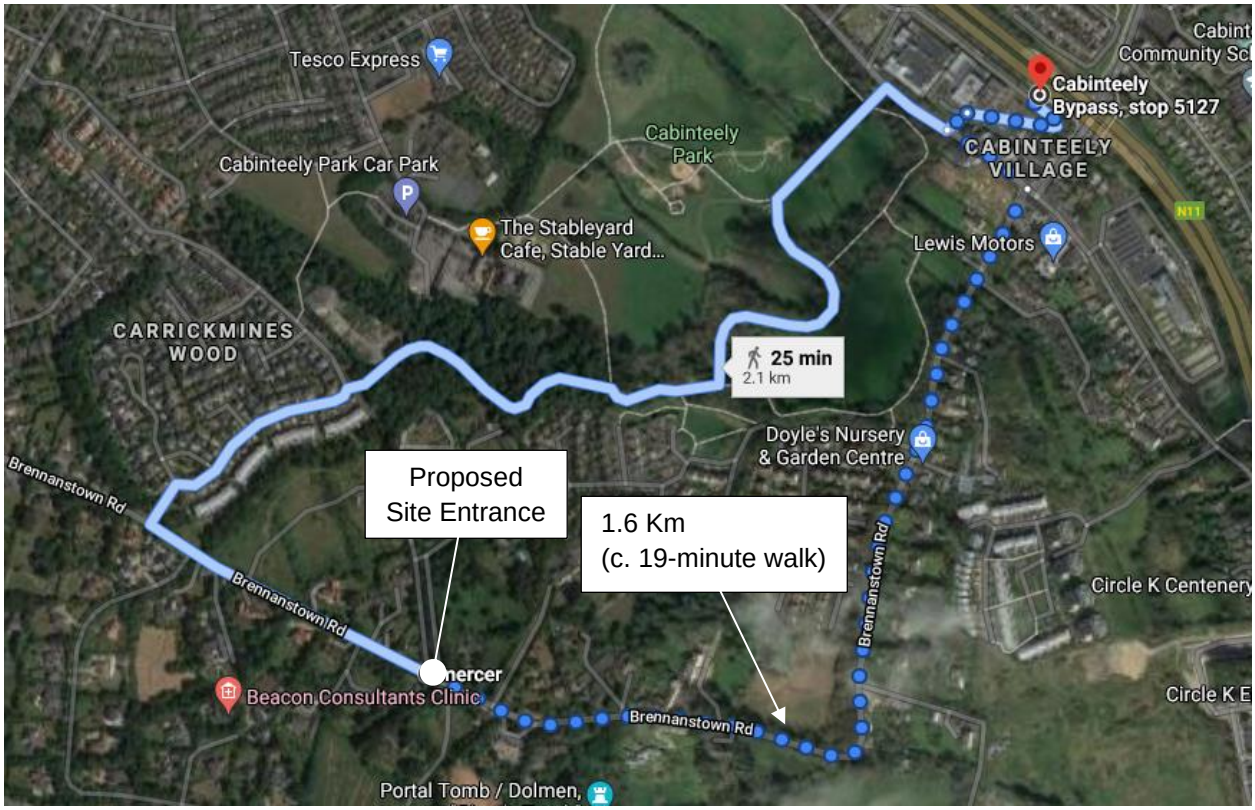


Figure 3-3 *| Location of Bus Stops on N11 Bus Corridor and Walking Routes from the Subject Site.*

Bus Route No.	To	From	Weekday Avg. Frequency	Saturday Avg. Frequency	Sunday Avg. Frequency
63A	Kilternan	Dun Laoghaire	30 mins	45 mins	45 mins
	Dun Laoghaire	Kilternan	30 mins	45 mins	45 mins
84A	Blackrock	Newcastle	30 mins to 1 hour	1 hour	1 hour
	Newcastle	Blackrock	30 mins to 1 hour	1 hour	1 hour
84X	Hawkins Street	Newcastle/ Kilcoole	30 mins – 45 mins	-	-
	Newcastle/ Kilcoole	Hawkins Street	30 mins – 45 mins	-	-
145	Heuston Rail Station	Ballywaltrim	10 mins until 21:00, 1 hour after	15 mins – 20 mins	20 mins – 30 mins
	Ballywaltrim	Heuston Rail Station	10 mins until 21:00, 1 hour after	15 mins – 20 mins	20 mins – 30 mins
155	Ikea	Bray Rail Station	20 mins	20 mins	20 mins
	Bray Rail Station	Ikea	20 mins	20 mins	20mins

Table 2 *| Dublin Bus AM & PM, Weekday & Weekend Frequencies.*

3.2.2 Rail Network

The proposed development site is situated just north of the Luas Line. Carrickmines Luas Station, located off Glenamuck Road North is approximately 1km (c. 13-minute walk) southwest of the proposed development site entrance. The Carrickmines Luas Station is part of the Luas Green line which provides a route from Bride's Glen to Broombridge. This route also provides access to Dundrum Shopping Centre and Dublin City Centre.

There is a fully constructed Luas Stop (Brennanstown Stop) located immediately south of the subject development. This stop is currently not operational as there is no access to the stop. The stop was constructed to serve development on zoned lands to the north and south of the stop. This would include the subject site which will provide direct access to the Luas Stop once it is completed and will facilitate linkage to the stop from Brennanstown Road. It is envisaged that this stop will become operational once the subject site is developed. In any event the site is well located to avail of the Luas service from the Carrickmines stops which is only a c.13 – minute from the site. Further details on the Brennanstown Stop is set out below:

Background

Brennanstown Stop is located on the LUAS Green Line between the Carrickmines Stop and the Laughanstown Stop.

Services on the Luas Green Line between St Stephens Green and Sandyford commenced in 2004. Subsequently, the line was extended south to Cherrywood in 2010 (Line B1) and north to Broombridge in 2017 (Line BX).

The Brennanstown Stop was completed in 2010 but not opened to traffic due to lack of access and the fact that the surrounding area has not been developed.

At the time of writing in March 2022, both the adjoining Carrickmines Stop and the adjoining Laughanstown Stop are fully operational with all trams stopping at these stops.

Requirements for Opening

All of the necessary railway infrastructure for the opening of passenger services is in place at the Brennanstown Stop. In addition, it can be opened for traffic without any further statutory permissions.

Two items are however still outstanding at the time of writing in March 2022. These are:

(a) The provision of safe access for the public to the platforms at the Stop. The required infrastructure for safe access for cars and pedestrian is included in the subject planning application for the Barrington development.

(b) In advance of the Brennanstown LUAS Stop opening, there are a number of technological elements behind the operating system that need to be modified by Transport Infrastructure Ireland (TII). For example, aspects of the tram tracking system that drive the real-time passenger information (RTPI) and on-board next stop announcements for customers need to be updated to reflect the opening of the Stop.

LUAS Services

A capacity assessment of the LUAS has been undertaken and is included in Appendix D.

In summary, the peak passenger loading on the Green Line services through the Brennanstown Stop is 1,618 passengers per hour northbound during the AM Peak hour between 08.00 and 09.00.

The completed Barrington development could add an additional 259 passengers per hour from northbound boardings at the Brennanstown Stop.

The combined total of 1,877 passengers per hour is only some 60% of the northbound Green Line capacity of 3,150 passengers per hour during the same period (10 trams x 315 passengers per tram).

The proposed residential development at Barrington will be the trigger to bring the Brennanstown Stop on the Luas Green Line into service some twelve years after it was completed.

Safe access for residents and public to the Stop is included in the development proposals for Barrington.

All of the railway infrastructure is in place at the Stop and the passenger information system can be commissioned within the construction period of the proposed development.

The spare passenger capacity of 40% on the Green Line services is more than adequate to cater for the additional passenger loading from the Barrington development.

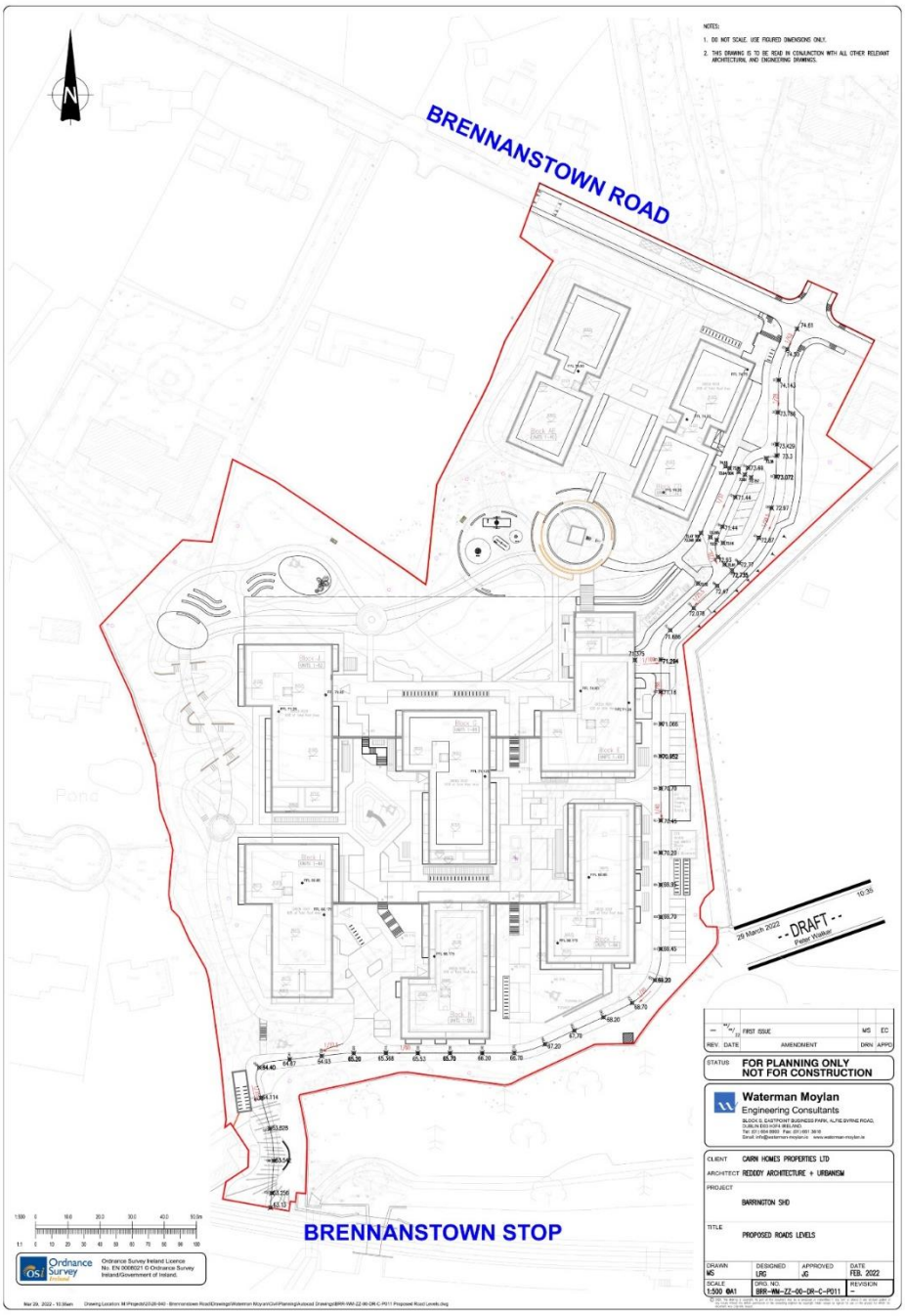


Figure 3-4 Proposed Access to Brennanstown Luas Stop

Figure 5 and Figure 6 below show the location of the station and all stations along the Luas Green Line, respectively. Table 3, Table 4, and Table 5 show the frequency of which the Luas Green Line operates at Carrickmines Station.

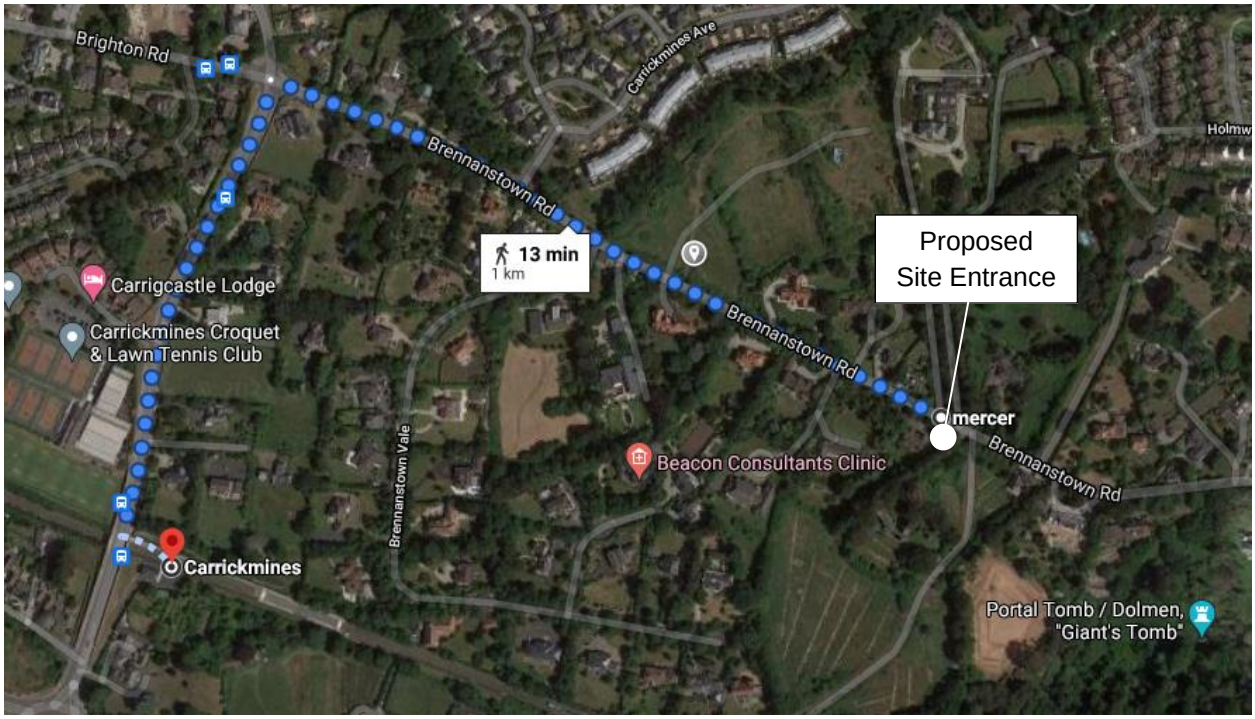


Figure 3-5 | *Location of Carrickmines Luas Station and Walking Route from the Subject Site.*

Figure 3-6 | *Luas Green Line Stations.*

Time	Monday – Friday (Avg. frequency – minutes)	
	Northbound	Southbound
05:39 – 07:00	16	12
07:00 – 10:00	9	9
10:00 – 16:00	13	13
16:00 – 19:00	10	10
19:00 – 00:06	13	13

Table 3 | *Carrickmines Luas Station – Monday to Friday (Avg. Frequency).*

Time	Saturday (Avg. frequency – minutes)	
	Northbound	Southbound
06:36 – 10:00	16	15
10:00 – 16:00	14	14
16:00 – 19:00	14	14
19:00 – 00:06	14	14

Table 4 | *Carrickmines Luas Station – Saturday (Avg. Frequency).*

Time	Sunday & Bank Holiday (Avg. frequency – minutes)	
	Northbound	Southbound
07:06 – 12:00	14	14
12:00 – 19:00	12	12
19:00 – 23:06	13	13

Table 5 | *Carrickmines Luas Station – Sunday & Bank Holiday (Avg. Frequency).*

Waterman Moylan have undertaken a capacity study of the Luas Green Line which demonstrates that the existing Luas services have capacity to cater for the proposed development. Please refer to the Luas Capacity Study in Appendix D.

3.3 Existing Cycle Facilities

The existing cycle facilities around the proposed development site are shown in Figure 7 below. There are currently no cycling facilities along Brennanstown Road however to the north of the development there are cycling facilities along either side of the N11. There are also additional cycling facilities to the south of the development along Glenamuck Road North continuing northwest onto Ballyogan Road passing Carrickmines Shopping Centre.

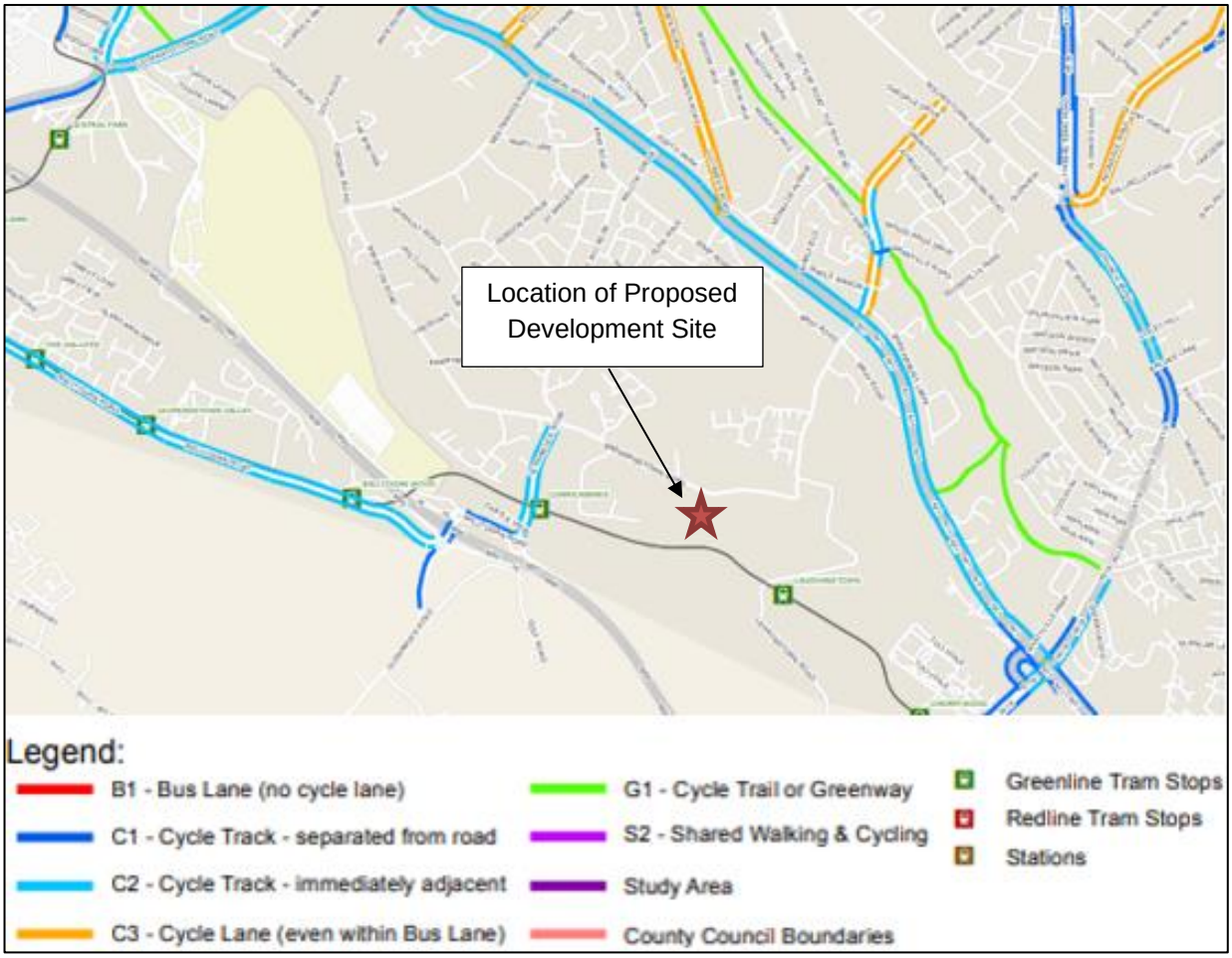


Figure 3-7 | *Existing Facilities Map – Sheet E9, Extracted from GDA Cycle Network Plan*

3.4 Existing Pedestrian Network

In the immediate vicinity of the proposed development site, a poor and narrow standard of footpaths is provided along the northern side of Brennanstown Road.

To the west of the subject development site on Brennanstown Road, the existing pedestrian facilities are new and appropriate in terms of width, which facilitate pedestrian progression towards Glenamuck Road and associated public transport facilities.

4. Transportation Improvements

4.1 BusConnects

The BusConnects project currently being promoted by the National Transport Authority aims to deliver a much-enhanced bus service to the Greater Dublin Area (GDA). The routes proposed to serve the development area are Routes **L26** and **L27**, which are approximately 670 m from the subject site, and are planned to connect Kilternan to Blackrock and Ballyogan to Dun Laoghaire, respectively. The BusConnects Route **E1** will also be available along the N11 corridor, approximately 1 km from the subject site, providing a service from Ballywaltrim through the City Centre to Northwood. The proposed BusConnects network in the vicinity of the proposed development site is illustrated in Figure 8 below. The frequency of which each route is proposed to operate is shown in Table 6.

***Figure 4-1** | BusConnects Route Map*

Bus Route No.	To	From	Weekday Avg. Frequency	Saturday Avg. Frequency	Sunday Avg. Frequency
L26	Kilternan	Blackrock	30 mins	30 mins	30 mins
L27	Ballyogan	Dun Laoghaire	30 mins	30 mins	30 mins
E1	Northwood	Ballywaltrim	8 to 10 mins	10 to 15 mins	15 to 20 mins

***Table 6** | BusConnects Routes L26, L27 and E1 - AM & PM, Weekday & Weekend Frequencies.*

4.2 GDA Cycle Network Plan

The Greater Dublin Area Cycle Network Plan (GDA) proposes to expand the cycle network to provide new connections between zones in the Greater Dublin Area. Figure 9 below provides an overview of the proposals planned in the area of Southeast of Dublin as part of the GDA Cycle Network Plan.

This proposal provides a greenway to the south of Brennanstown connected to Glenamuck Road North which continues on to Sandyford. There will be two feeder cycle routes running to the east and west of the subject development site - one along Glenamuck Road North and one along the eastern portion of the Brennanstown Road, which will link up to the N11 corridor - one of the Primary cycle networks in the area which connects to the City Centre.

These new cycle routes will facilitate cyclist progression from Brennanstown area towards employment, villages and town centres.

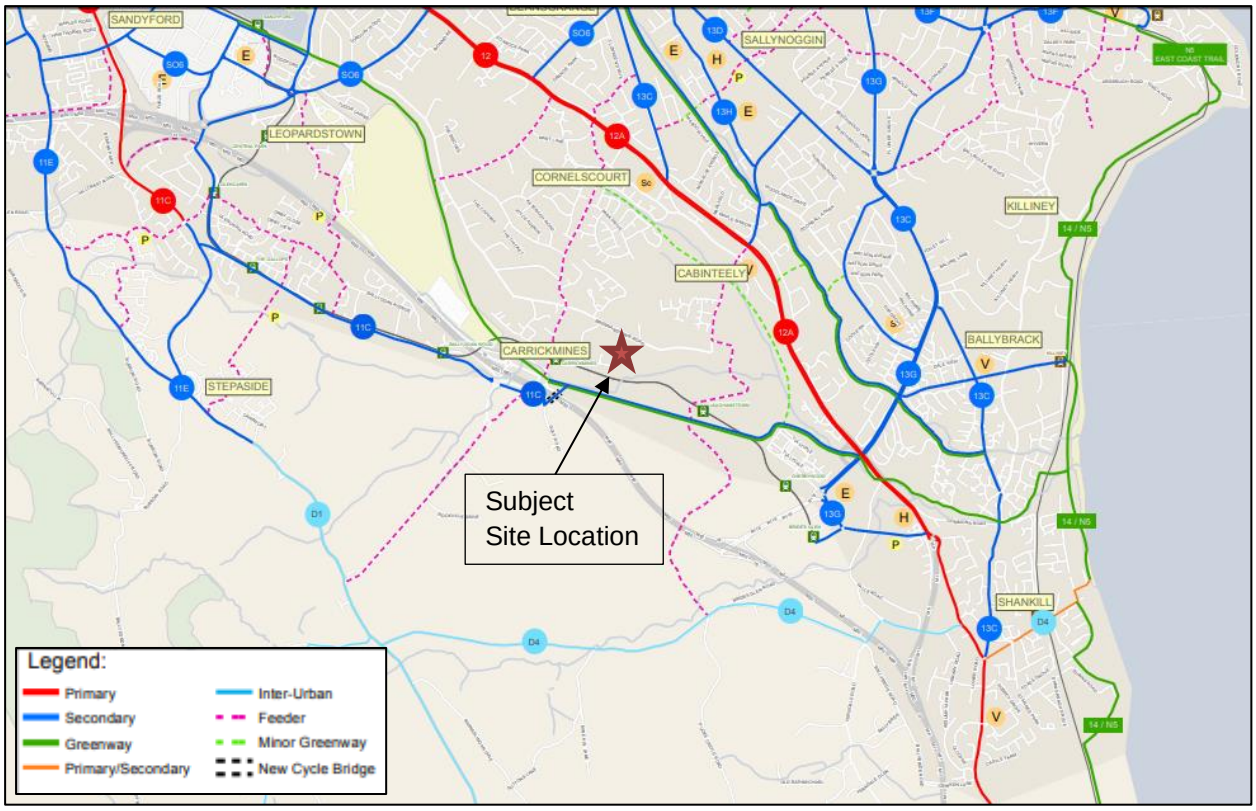


***Figure 4-2** | Proposed Cycle Network Upgrades - Dublin Southeast - Sheet 8.*

4.3 Brennanstown Road

4.3.1 County Development Plan 2022 – 2028

One of the Six-Year Road Objectives of Dun Laoghaire Rathdown County Development Plan is to undertake a Traffic Management Scheme for Brennanstown Road that will '*reduce traffic speeds and improve road safety, provide improved facilities for vulnerable road users, reduce through traffic, and facilitate the development of adjoining zoned lands.*' In 2016 Dun Laoghaire Rathdown prepared a design

for the Brennanstown Road upgrade which was referenced to as the “Brennanstown Road Traffic Management Scheme”. The Scheme was put forward by DLRCC through the part 8 planning process however it was not approved by the elected members. The scheme that was put forward was considered an acceptable design by DLRCC. ,As the scheme was rejected by the elected members is not included in the *Programme of Capital Projects* proposed for the period 2019 – 2021 and an alternative approach is required if the objectives for Brennanstown Road are to be achieved.

4.3.2 Granted Upgrades

Politically, it is highly unlikely that any traffic management scheme for Brennanstown Road will be implemented as a single package in the near future. It is far more likely that the required works will be implemented incrementally through the planning process over a period of years.

Planning permission has already been granted by An Bord Pleanala for the upgrade of two significant sections at either end of Brennanstown Road. The approvals aggregate to a total length of 880 metres (45% of the overall length of 1,940 metres).

To the west of the subject site, the Park Developments Group have completed the reconstruction of some 460 metres of Brennanstown Road including the provision of a roundabout access to Brennanstown Wood, which was recently constructed (ABP-301614-18). Figure 4-3 illustrates the upgrade to this section of Brennanstown Road.

To the East, Marlet Group have recently commenced works on the former Doyle Nurseries site (Ref. Reg. APB-305859-19) which includes 370m of upgrades along Brennanstown Road.

Figure 4-3 Existing upgrade to Brennanstown Road as part of planning application ABP-301614-18

4.3.3 Proposed Upgrades

As part of the subject development works, it is proposed to upgrade a further 250 metres of Brennanstown Road linking up with the eastern end of the Park Developments upgrade and extending eastwards to the entrance to Egypt House as seen in Figure 4.4 below and the accompanying planning documents.

The new access to the subject proposed development will be located on this upgraded section of Brennanstown Road.

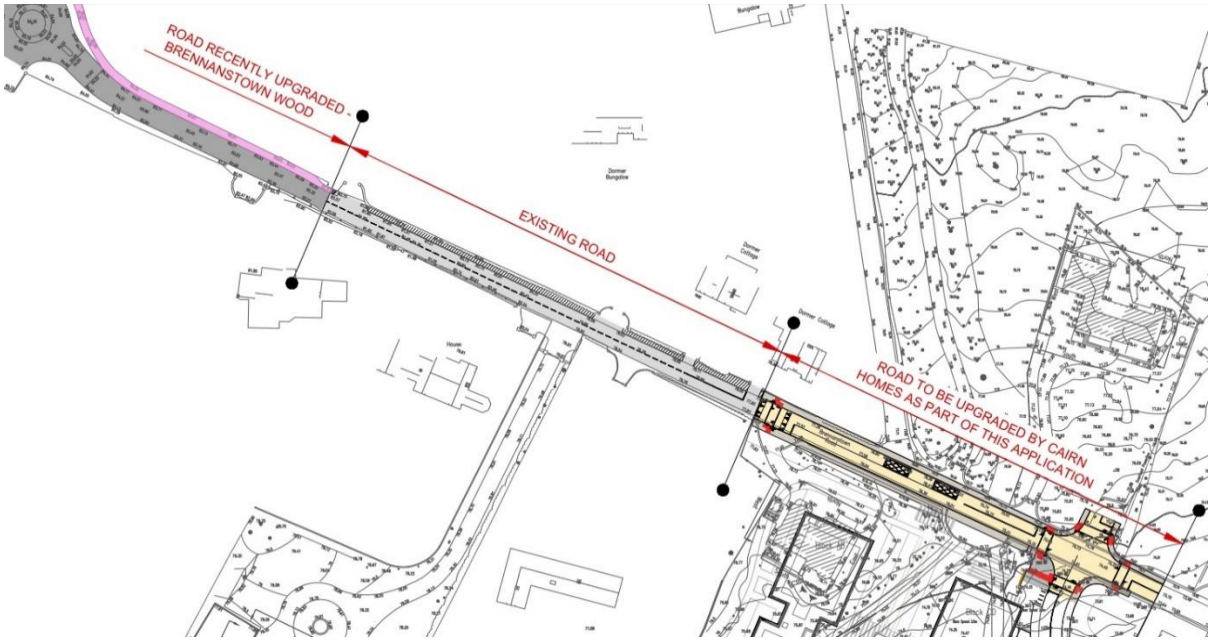


Figure 4-4 Proposed and current upgrades to Brennanstown Road

4.3.4 Proposed Site Access Junction

Vehicular access to the subject site is proposed via a new four-armed signal-controlled junction to be located on Brennanstown Road. Brennanstown Road will form the eastern and western approaches of the junction, the southern approach will provide access to the proposed development site and the northern approach will be reserved for a potential future residential development.

On Brennanstown Road at the location where the new signalised junction is proposed, there are three priority-controlled T-junctions in place, which currently provide access to properties to the north (Appolo / Appledore) and south (Barrington) of the road.

The new subject signal-controlled junction is proposed to replace these existing priority junctions by aggregating all three accesses into one signal-controlled access. The layout for the subject proposed junction is illustrated in Figure 10 below. In summary, it will consist of:

- the installation of a new traffic signal infrastructure with a dedicated pedestrian stage;
- the installation of signalised pedestrian crossing with dropped kerbs and tactile paving on all approaches;
- the provision of one entering and one exiting lane on each approach of the junction.

Detailed traffic modelling of the proposed junction has been carried out and is presented later in this report. For further details and exact location of the proposed junction, please refer to Waterman Moylan Drawing No. 20-040-P014 accompanying the documentation package.

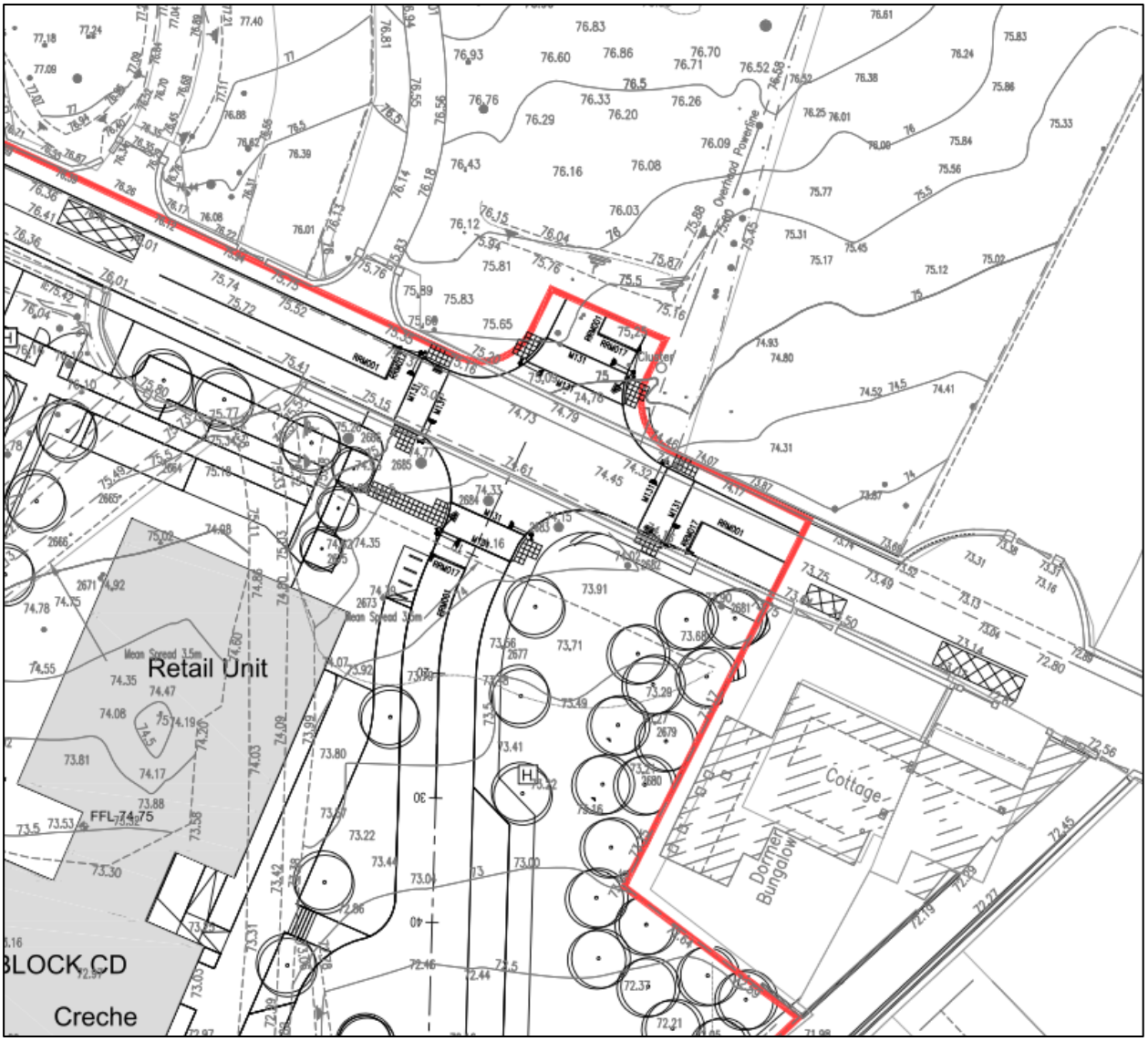


Figure 4-5 | *Proposed Access Junction Layout.*

5. Proposed Development

5.1 Site Location

The proposed development site is bounded to the north by the Brennanstown Road, to the south by Carrickmines Stream and Luas Green Line and to the west by Brennanstown Vale. It is located approximately 4.85km from Dun Laoghaire Harbour and 3.24km away from the coastline. The site location is illustrated in Figure 11.

Figure 5-1 | *Proposed Development Site Location.*

5.2 Development Description

Construction of a Build to Rent (BTR), Strategic Housing Development (SHD) comprising the following:

- Demolition of existing habitable dwellings ('Winterbrook'), and derelict, former dwelling attached to Barrington Tower (Protected Structure RPS 1729).
- Construction of 534 no. apartments (30 no. studios, 135 no. 1 -beds, 318 no. 2-bed, and 51 no. 3-bed) within 8 no. blocks ranging in height from 3 to 9 storeys (over lower ground floor).
- Provision of creche, retail unit, and Resident Support Facilities/Resident Services and Amenities.
- Provision of car and cycle parking, at basement (2 levels) and ground level.
- Provision of vehicular and pedestrian/cyclist accesses from Brennanstown Road with public access through the development to Brennanstown Luas Stop to the south.
- Provision of public and communal open spaces including an enhanced landscaped setting in the vicinity of Barrington Tower.

- Provision of all landscaping, play areas and boundary treatment works, ESB substations, plant areas, bin storage, and all other site development works, and site services required to facilitate the proposed development.

5.3 Internal Layout

All internal roads in the proposed development are designed for a speed limit of 30kph with 5.0 wide carriageways and footpaths along both sides. Traffic calming measures will be implemented where necessary, which, together with the low design speed, will ensure that all road users are kept safe within the site. This includes pedestrian and cyclists.

The internal pedestrian network of the overall proposed development has been designed in accordance with the guidelines outlined in the Design Manual for Urban Roads and Streets (DMURS), which recommends in Section 4.3.1 that a minimum 1.8 footpath should be provided.

The pedestrian/cyclist infrastructure proposed consists of two north-south and one east-west spines running across the site - one along the eastern side running from the proposed signalised junction on Brennanstown Road to the southern point of the site, one greenway along the western side also running from the Brennanstown Road to the southern point of the site, and one greenway running on the centre of the site connecting both north-south spines. The southern point of the site is directly adjacent to the Luas Green Line where the Brennanstown Stop is located. Brennanstown Stop was completed in 2010, however, at the time of writing, the Luas Green Line services run non-stop through this stop.

The proposed signalised junction on Brennanstown Road will comprise dedicated signalised pedestrian crossings on all arms. It is also proposed to provide a dedicated signalised pedestrian crossing on Brennanstown Road including a raised table, to the west of the subject site. This crossing with raised table will assist in reducing traffic speeds on the Brennanstown Road and will provide pedestrian connectivity to the new footpath along the front of the subject site. In this regard a new footpath is proposed on Brennanstown Road for a section of 250 metres along the site frontage. All proposed pedestrian infrastructures will be connected internally on site and externally with the existing facilities on Brennanstown Road. This connected network will provide a safe and secure environment for pedestrians and will facilitate progression to the local area and surrounding public transport network.

The pedestrian/cyclist infrastructure and layout proposed for the subject site is illustrated in Figure 12 below.

Figure 5-2 | *Proposed Pedestrian/Cyclist Infrastructure*

5.4 Site Accessibility

This section describes the accessibility of the proposed development site for pedestrians and cyclists. It is clear that high quality and extensive provision of walking and cycling facilities are key elements to support in the reduction of the private car usage.

5.4.1 Pedestrian Accessibility

The “Guidelines for Providing for Journeys on Foot” published by the Institution of Highways & Transportation in 2000 indicates that acceptable walking distances will vary between individuals and circumstances, such as an individual’s fitness, physical ability and personal motivation; the size of the city

itself and the quality of the surrounding footpath network. This document also suggests walking distances and times based on an average walking speed of 1.4m/sec (approximately 400m in five minutes). Table 7 below summarises these suggestions.

	Town Centres	Commuting/School Site-seeing	Elsewhere
Desirable	200m (2.5-minutes)	500m (6-minutes)	400m (5-minutes)
Acceptable	400m (5-minutes)	1,000m (12-minutes)	800m (12-minutes)
Preferred Maximum	800m (10-minutes)	2,000m (24-minutes)	1,200 (15-minnutes)

***Table 7** | Suggested Walking Distances (Source: Guidelines for Providing for Journeys on Foot)*

Figure 5-3 shows the several amenities in the area around the proposed development within a 10-minute, 15-minute and 20-minute walk. Within the 20-minute distance Carrickmines Park which is a shopping centre which offers several services and shops. Also, within the 20-minute walking distance is Cabinteely Park. There are two Preschool/Creches in the area, within the 10-minute and 15-minute walking distances. The Carrickmines Luas stop is within the 20-minute catchment.

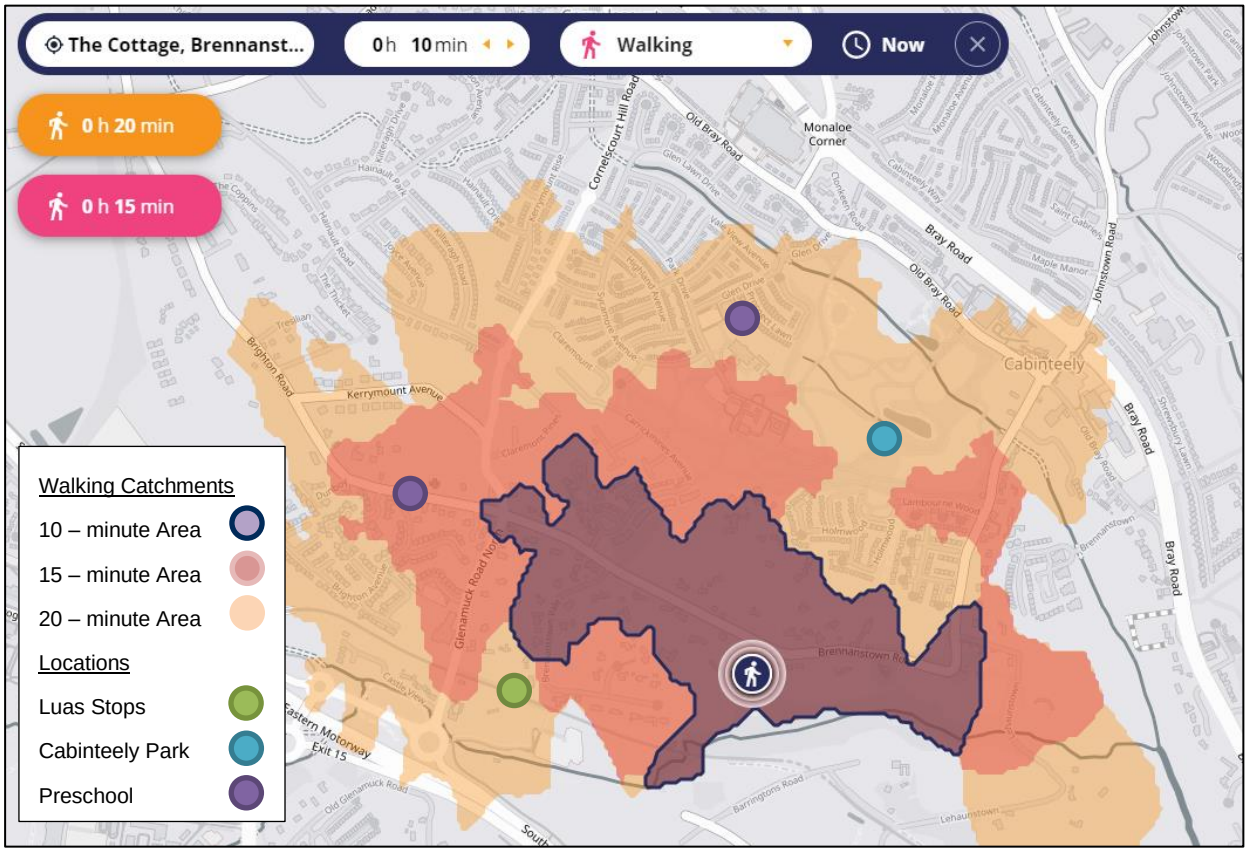


***Figure 5-3** | Site Accessibility - Walking Distance.*

5.4.2 Cycling Accessibility

As presented for walking, a similar catchment exercise has also been undertaken for the cycling mode of transport. Based on an average cycling speed of 3.3m/sec (i.e., 15km/h), Figure 14 below illustrates a 15-

minute cycling isochrone to summarise the accessibility of the site by bicycle. A 15-minute cycling time equates to a distance of approximately 3.0km.

Within the 15-minute cycle distance, to the west of the proposed development, there are two shopping centres, Carrickmines Park and Leopardstown Shopping Centre. There are two business centres within the catchment, the Cherrywood Business Centre to east of the proposed development and Leopardstown/Central Business Park to the west.

There are also several preschools and schools within the cycling band. The main schools are St. Bridges GNS, Loreto College Foxrock, St Brigid's Boys' National School, St. Colmcille Junior National School, Cabinteely Community School and Johnstown Boys National School.

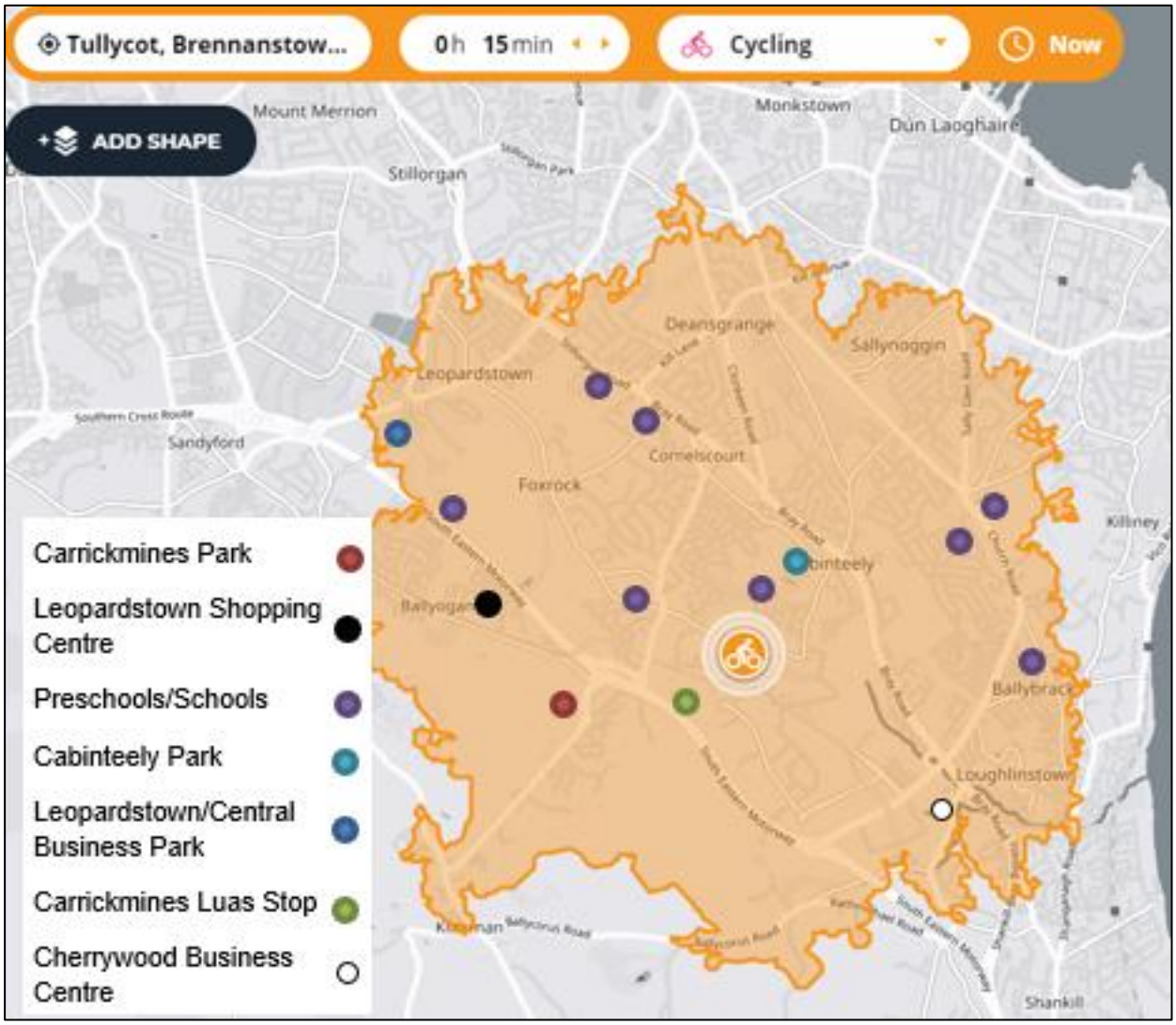


Figure 5-4 | *Site Accessibility - Cycle Distance.*

6. Committed Developments

In order to provide a robust assessment of the transportation network in the local area, the below committed developments have also been assessed with regards to trip generation and distribution. The indicative location of these development sites in relation to the subject development site is illustrated in Figure 15.

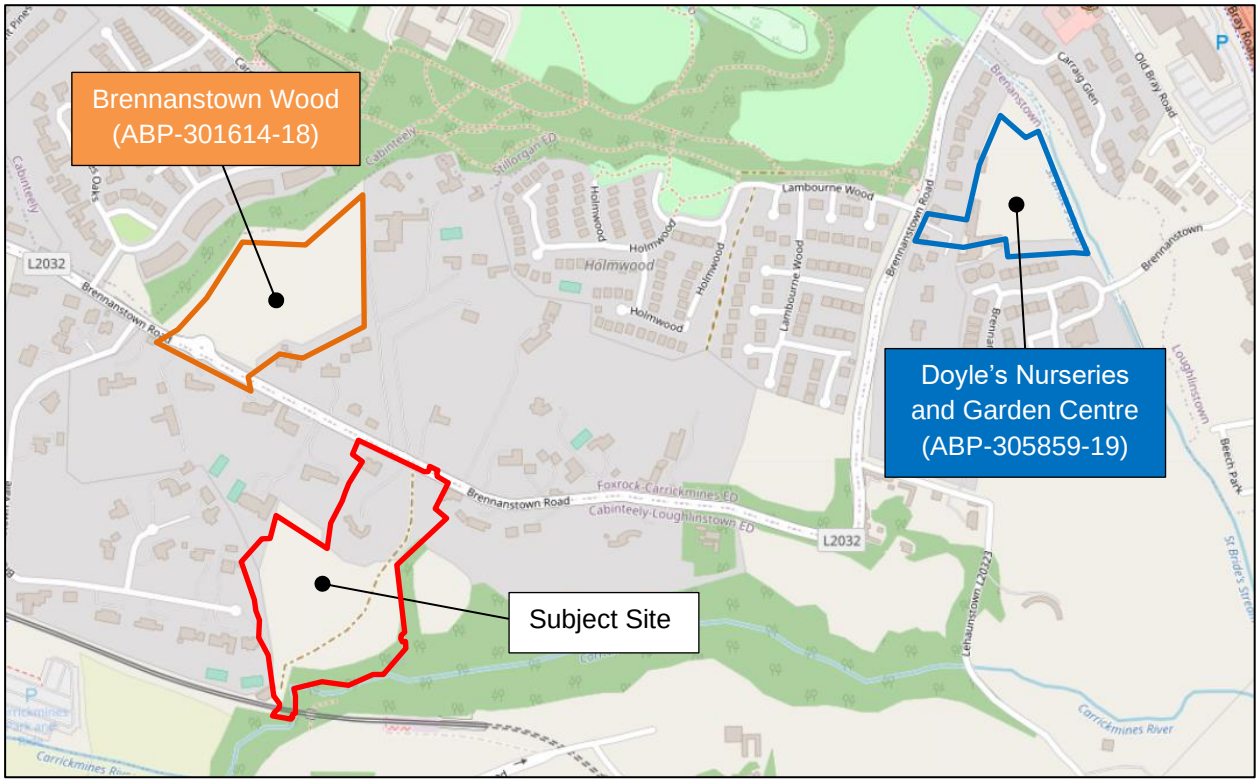


***Figure 6-1** | Location Map for Proposed Development and Committed Development Sites.*

6.1 Brennanstown Wood (ABP-301614-18)

In 2018, Viscount Securities (Park Developments) submitted a planning application for a residential development of 98 apartments and 38 houses at Brennanstown Wood, Brennanstown Road, Carrickmines (Reg. Ref: ABP-301614-18). The development is currently under construction, and, as part of the subject TTA, it was assumed that it will be fully operational by 2026 (Opening Year of Proposed Development). Included in this development is a new roundabout on Brennanstown Road to provide access to the committed development, which is currently constructed and operational. This development is approximately 300m west from the proposed development site.

6.2 Doyle's Nursery and Garden Centre (ABP-305859-19)

In 2019, Atlas GP Limited (Marlet Group) submitted a planning application for a residential development of 234 apartments at the former Doyle's Nurseries and Garden Centre on Brennanstown (Reg. Ref: ABP-305859-19). Approval for this development was given in 2020. For the purposes of this TTA, it was assumed that this development be fully constructed and occupied by 2026 (Opening Year of Proposed Development). This development is located 900m northeast from the proposed development site.

7. Traffic Survey

In order to determine the volume of traffic movements at key junctions on the road network surrounding the subject development site, a classified turning movement traffic count was commissioned.

A Manual Classified Traffic Survey was carried out by 'IDASO' on Thursday 10th June 2021 at 1 signalised junction, 3 priority-controlled junctions and 1 roundabout for the period of 24 hours. The junctions surveyed were:

- Junction 1 (Signalised): Brennanstown Road / Claremont Road / Glenamuck Road North.
- Junction 2 (Priority): Brennanstown Road / Carrickmines Wood.
- Junction 3 (Priority): Brennanstown Road / Brennanstown Vale
- Junction 4 (Roundabout): Brennanstown Road / Brennanstown Wood
- Junction 5 (Priority): Brennanstown Road / Barrington Tower / Apollo/Appledore.

The results of the survey indicated that the peak traffic level through the junctions occurred between the hours of 08h00 to 09h00 in the AM and 17h00 to 18h00 in the PM. These traffic levels are illustrated in Figure 17. Full traffic survey is provided in Appendix A.

In reviewing the TTA from the former Doyle's Nurseries site, it was noted that traffic counts were included for Junction No6, which were carried out pre-Covid.

Junction 6 is a Signalised crossroads junction between Brennanstown and Bray Road. The traffic counts for this junction, which were used in our assessment, were taken from the Traffic Assessment from the approved residential development Doyle's Nurseries and Garden Centre (Reg. Ref: ABP-305859-19). This survey was taken on Thursday 28th February 2019 during 07:00 –19:00. The junction surveyed was:

- Junction 6 (Signalised): Brennanstown Road / Bray Road / Johnstown Road.

The location of the surveyed junctions in relation to the subject development site is illustrated in Figure 16 and Figure 17 shows the location of surveyed junctions with the factored up traffic counts for junction 6.

Figure 7-1 | *Location of Surveyed Junctions*

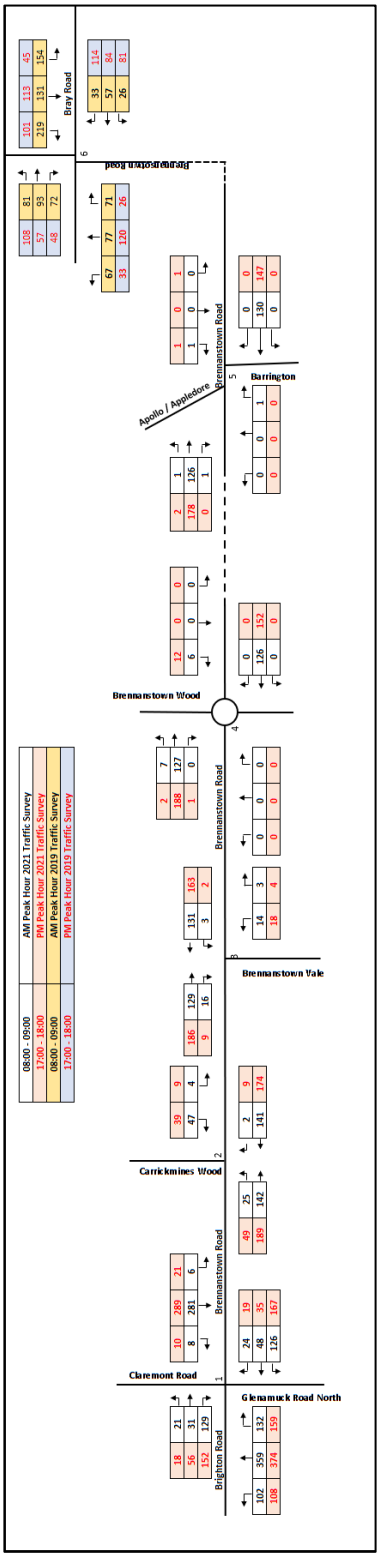


Figure 7-2 | *Traffic Surveys 2019 and 2021 – AM and PM Peak Hour Flow.*

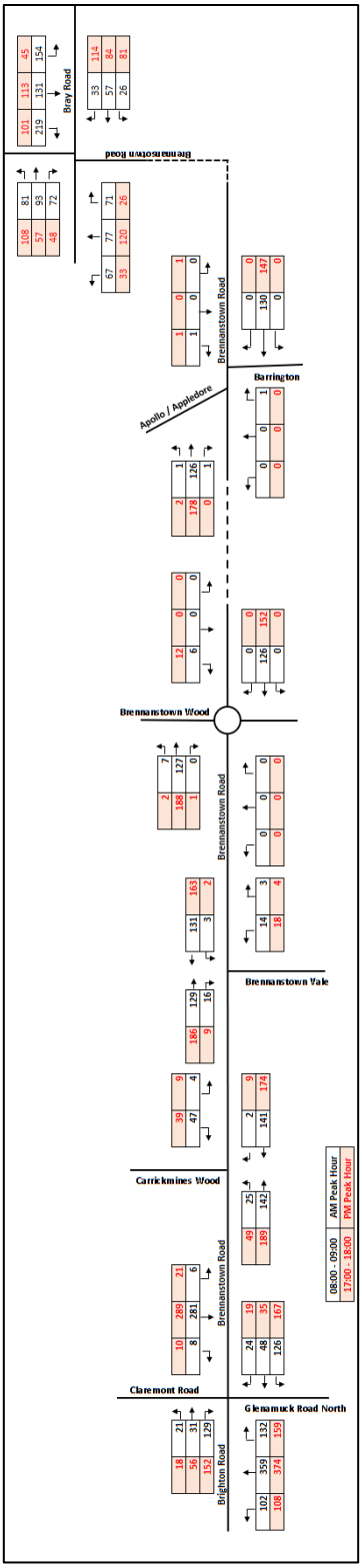


Figure 7-3 | *Traffic Surveys 2021 Baseline – AM and PM Peak Hour Flow.*

8. Car Trip Generation

8.1 TRICS Car Trip Rates

In order to assess the likely impact of the traffic generation arising from the subject proposed development, TRICS software has been consulted. TRICS is the national standard of trip generation and analysis ain Ireland. It is a database system which allows users to identify representative trip rates and establish potential levels of trip generation for a wide variety of developments.

Full trip rates, which were sourced from TRICS, have been provided in Appendix B and are summarised in Table 8 below.

Use	Units / Sqm	AM Peak Hour		PM Peak Hour	
		IN	OUT	IN	OUT
Apartments	Per Unit	0.076	0.299	0.193	0.089
Retail	Per 100sqm	5.017	4.599	6.856	7.191

Table 8 | *TRICS Car Trip Rates.*

The TRIC rates from Table 8 above were compared to the Apartment TRIC rates used and approved for Doyle's Nursery Development (Reg. Ref. ABP-305859-19). When compared, the TRIC rates used for the proposed development apartments was higher than rates used for the Doyle's Nursery Development, meaning the TRIC rates shown in Table 8 offer a more robust assessment of the trips generated. Table 9 below shows the TRIC Rates used for Doyle's Nursey Development.

Use	Units / Sqm	AM Peak Hour		PM Peak Hour	
		IN	OUT	IN	OUT
Apartments	Per Unit	0.056	0.214	0.206	0.074

Table 8 | *Apartment TRICS Car Trip Rate for Doyle's Nursey Development*

8.2 Proposed Development – Car Trips

The development proposed as part of the subject application will comprise of 534 no. apartment units, a retail unit with 318sqm of area (exclu. Bin storage) and a Creche with 340 sqm of area.

Given the size of the proposed residential development, it was established that the proposed Creche will likely only cater for pupils from the proposed scheme and therefore, no additional pupil trips have been assumed for this land use category once all trips will be generated internally within the site.

However, in addition to the internal pupil trips, the proposed Creche will also generate staff trips – people traveling to their place of work at the subject site each morning and departing home each evening.

On the basis of a proposed creche floor space of 340 sqm and an average staff assumption of 1 person per 45 sqm, it was estimated that some 7 persons will work at the proposed Creche.

The AM and PM peak hour car trip generation to/from the proposed development, estimated after the TRICS car trip rates in Table 8 and the staff assumption above, is shown in Table 10.

Use	Units / Sqm	AM Peak Hour		PM Peak Hour	
		IN	OUT	IN	OUT
Apartments	534 units	41	160	103	48
Creche (Staff)	340 sqm	7	-	-	7
Retail	318 sqm (exclu.Bin storage)	17	15	23	24
Total	534 units / 658 sqm	65	175	126	79

Table 10 | *Car Trip Generation – Proposed Development.*

As can be seen from the above, it is estimated that the proposed development will generate a total of 240 car trips in the AM peak hour (65 inbound and 175 outbound) and a total of 205 car trips in the PM peak hour (126 inbound and 79 outbound).

8.3 Brennanstown Wood 2018 – Car Trips (APB-301614-18)

Trip generation calculation for the approved (and under construction) residential development of Brennanstown Wood is reproduced in Table 11 below. It has been extracted from the approved Traffic and Transport Assessment prepared by DBFL in 2018 as part of the planning application for the approved site. The approved development consists of 136 no. residential units (38 no. houses and 98 no. apartments).

Use	Units	AM Peak Hour		PM Peak Hour	
		IN	OUT	IN	OUT
Houses & Apartments	136	15	69	51	40

Table 11 | *Car Trip Generation – Brennanstown Wood 2018.* (APB-301614-18)

As can be seen from the above, as part of the approved TTA for the Brennanstown Wood development, it was estimated that the approved development will generate a total of 84 car trips in the AM peak hour (15 inbound and 69 outbound) and a total of 91 car trips in the PM peak hour (51 arrivals and 40 departures).

8.4 Doyle's Nurseries and Garden Centre 2019 (ABP-305859-19)

Trip generation calculation for the approved residential development at the Doyle's Nursery and Garden Centre is reproduced in Table 11 below. It has been extracted from the approved Traffic and Transport Assessment prepared by AECOM in 2019 as part of the planning application for the approved site. The approved development consists of 234 no. apartments and a creche with 317sqm of area.

Use	Units / sqm	AM Peak Hour		PM Peak Hour	
		IN	OUT	IN	OUT
Apartments	234 units	16	63	55	19
Creche	317 sqm	11	8	7	9
Total	-	27	72	62	27

Table 12 | *Car Trip Generation* - Doyle's Nurseries 2019 (ABP-305859-19)

As can be seen from the above, as part of the approved TTA for the Doyle's Nurseries and Garden Centre, it was assumed that the approved development will generate a total of 99 vehicle movements in the AM peak hour (27 arrivals and 72 departures) and a total of 109 vehicle movements in the PM peak hour (70 arrivals and 39 departures).

8.5 Car Trip Generation Summary

Table 13 below shows a summary of all car trips for the proposed development and committed developments in the surrounding area.

Development	AM Peak Hour		PM Peak Hour	
	IN	OUT	IN	OUT
Proposed Development	65	175	126	79
Brennanstown Wood (APB-301614-18)	15	69	51	40
Doyle's Nurseries (ABP-305859-19)	27	72	62	27

Table 13 | *Car Trip Generation – Summary.*

9. Car Trip Distribution and Assignment

In order to determine the amount of new car trips expected to travel through each surveyed junction in the vicinity of the proposed development site, the calculated car trips for the proposed and committed developments, shown in Table 13, have been distributed. These are presented below.

9.1 Proposed Development

The trip distribution for the AM and PM peak hour generated traffic for the proposed development is detailed in Figure 9-1 as well as the corresponding AM and PM peak hour flows, based on the assumed distribution. For the purpose of this assessment, it was assumed that 85% of the car trips generated by the proposed development will travel west on Brennanstown Road towards the signalised junction between Brennanstown Road / Claremont Road / Glenamuck Road North. From this junction 45% is assumed to travel south towards the M50, 15% north onto Claremont Road and 25% straight on to Brighton Road. The remaining 15% were assumed to travel west on Brennanstown Road towards Cabinteely. The trip distribution used was compared to the trip distribution used in the nearby approved Brennanstown Wood (Reg. Ref. ABP-301614-18). The overall trip distribution was found to be similar.

9.2 Brennanstown Wood (ABP-301614-18)

The trip distribution for the AM and PM peak hour generated traffic for the committed (under construction) development at Brennanstown Wood is detailed in Figure 9-2 as well as the corresponding AM and PM peak hour flows, based on the distribution. Trip distribution for this committed development has been extracted from the Traffic and Transport Assessment prepared by DBFL in 2018 as part of the planning application for the approved site (ABP-301614-18).

9.3 Doyle's Nurseries and Garden Centre (ABP-305859-19)

The trip distribution for the AM and PM peak hour generated traffic for the committed development at Doyle's Nurseries is detailed in Figure 9-3 as well as the corresponding AM and PM peak hour flows, based on the distribution. Trip distribution for this committed development has been extracted from the Traffic and Transport Assessment prepared by AECOM in 2019 as part of the planning application for the approved site (ABP-305859-19).

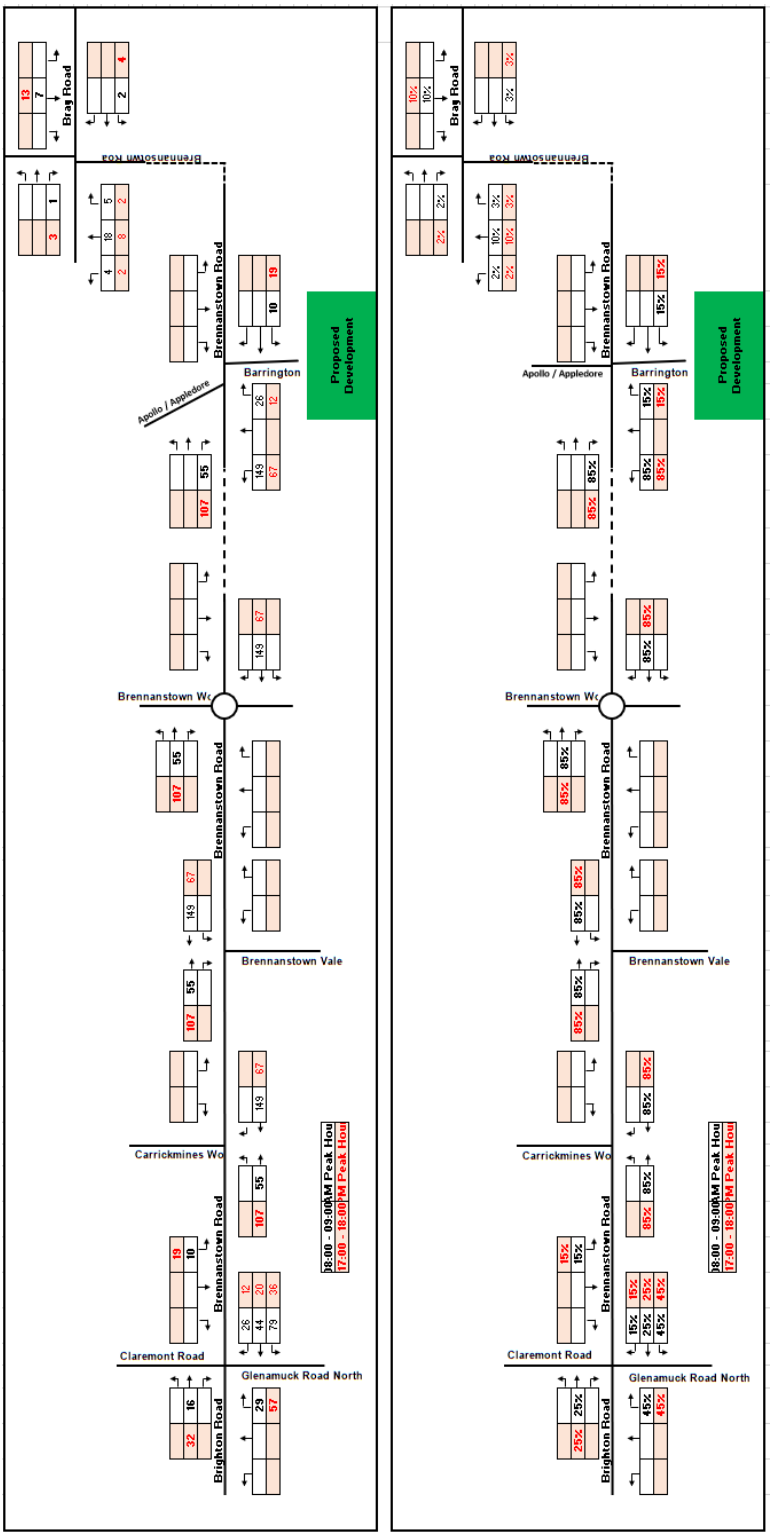


Figure 9-1 | *Trip Assignment – Proposed Development.*

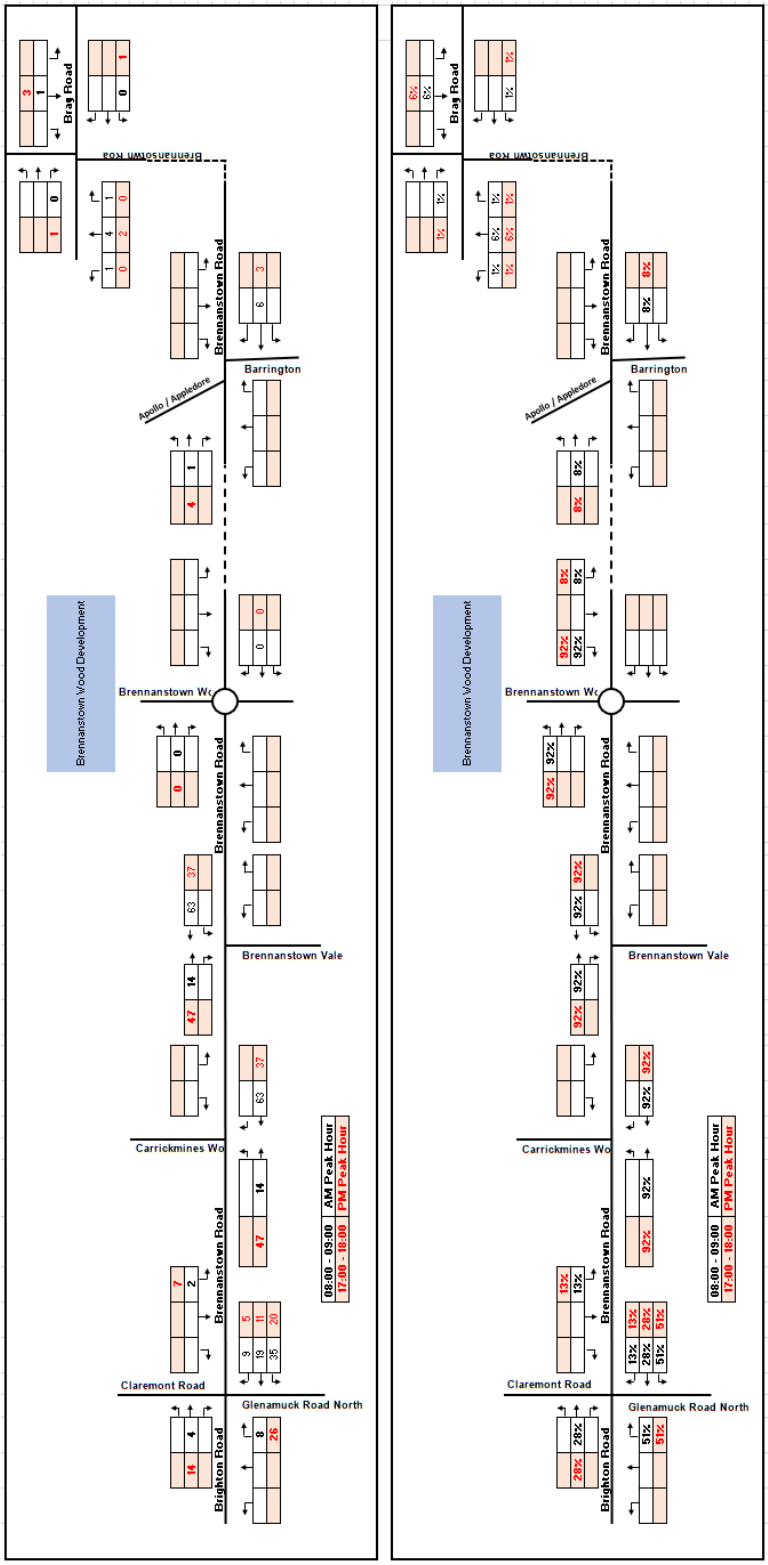


Figure 9-2 | *Trip Distribution and Assignment – Brennanstown Wood*

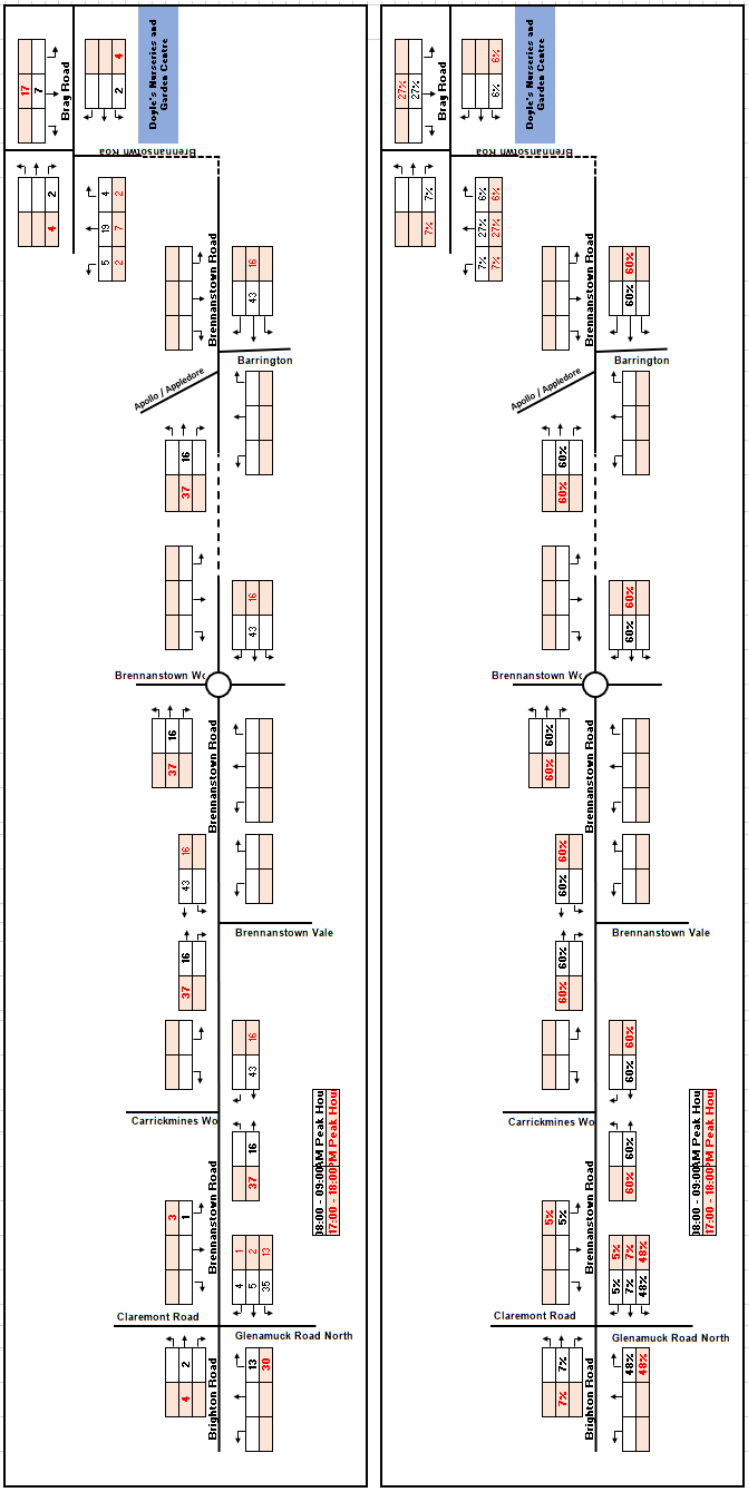


***Figure 9-3** | Trip Distribution and Assignment – Doyle's Nurseries Development.*

10. Traffic Growth

It has been assumed within this Traffic and Transport Assessment for the subject site that the proposed development will be fully constructed and occupied over a period of approximately 3 years. Therefore, the assumed year of opening is 2026.

As per methodology adopted in the TII/NRA 'Traffic and Transport Assessment Guidelines' (May 2014), which this TTA is based on, the analysed junctions were also assessed for the future years of 2031 (Opening Year +5 Years) and 2041 (Opening Year +15 Years).

The background traffic growth rates used to factor up the 2021 base year traffic movements are in accordance with the 'Table 6.1: Link-Based Growth Rates: Metropolitan Area Annual Growth Rates' within the TII Publications – Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (May 2019). These are:

- 1.084 (Central Growth) growth factor from 2021 to 2026.
- 1.162 (Central Growth) growth factor from 2021 to 2031.
- 1.221 (Central Growth) growth factor from 2021 to 2041.

Figure 10-1 below illustrates the AM and PM forecast traffic flows for the future assessment year of 2041 which includes the 2021 baseline flows factored up to 2041, the trips generated by the proposed development and the trips generated by the committed developments.

It is important to note that applying growth factors provides for traffic generated by other developments in the surrounding area. In this regard we have already included the nearby committed developments at Doyle's Nurseries and Brennanstown Wood so the growth applied will include provision for other developments that may be planned or permitted in the wider area.

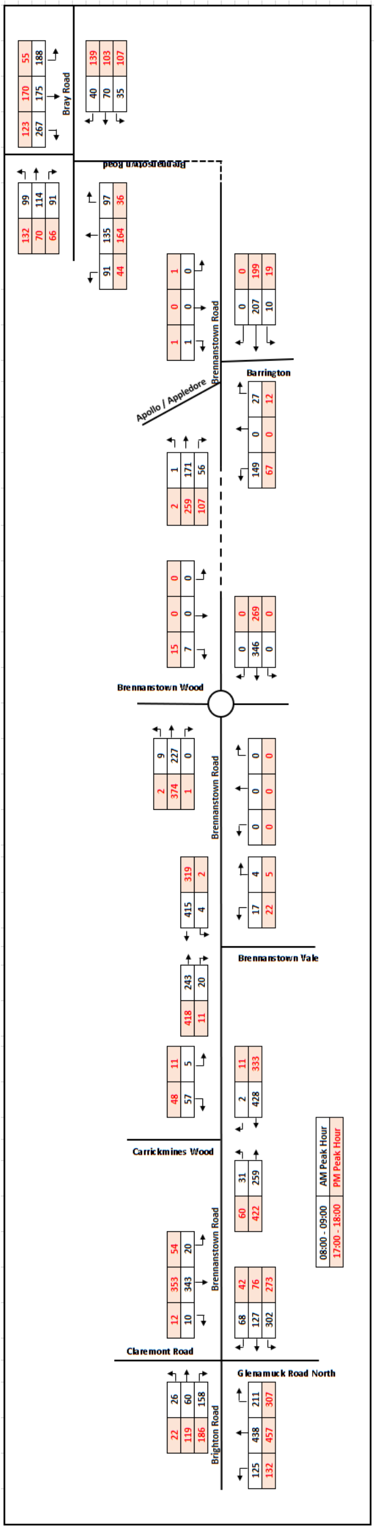


Figure 10-1 | *Future Traffic – 2041*

11. Junction Assessment

11.1 Junctions Assessed

The junctions that have been assessed within this Traffic and Transport Assessment are the following:

- **Junction 1 (Existing Signalised):** Brennanstown Road / Claremont Road / Glenamuck Road North.
- **Junction 2 (Existing Priority):** Brennanstown Road / Carrickmines Wood.
- **Junction 3 (Existing Priority):** Brennanstown Road / Brennanstown Vale
- **Junction 4 (Existing Roundabout):** Brennanstown Road / Brennanstown Wood
- **Junction 5 (Proposed Signalised):** Brennanstown Road / Barrington Tower / Apollo/Appledore.
- **Junction 6 (Existing Signalised): Brennanstown Road / Bray Road / Johnstown Road.**

11.2 Methodology

11.2.1 Cumulative Impact

The extent of traffic impact from the proposed and committed developments has been determined by initially checking where generated traffic would exceed 10% of the traffic flow on the adjoining road or 5% on the road where congestion exists, or the location is sensitive. This is in line with the TII/NTA 'Traffic and Transport Assessment Guidelines' (May 2014). A summary of the existing two-way traffic and the expected traffic increase at each studied junction is presented below.

Junction	Junction Existing Flow - AM Peak Hour	Junction Existing Flow - PM Peak Hour	Additional Traffic Two-way Flow (AM)	Additional Traffic Two-way Flow (PM)	% Expected Increase (AM)	% Expected Increase (PM)
Junction 1	1267	1408	187	143	14.76%	10.16%
Junction 2	361	469	187	143	51.80%	30.49%
Junction 3	296	382	187	143	63.18%	37.43%
Junction 4	266	355	187	143	70.30%	40.28%
Junction 5	260	329	220	168	84.62%	51.06%
Junction 6	1081	1002	36	31	3.3%	3%

Table 14 | *Existing and Expected Two-way Flows.*

As can be seen from Table 14 above, all junction except for Junction 6 is expected to receive a two-way traffic increase higher than 10%. Therefore, as per the TII/NTA 'Traffic and Transport Assessment Guidelines' (May 2014), further assessment is warranted for junction 1, junction 2, junction 3, junction 4 and junction 5. Junction 6 requires no further assessment.

11.2.2 Modelling Background

There are various modelling software packages available to assess every type of junction. Waterman Moylan uses TRANSYT, ARCADY and PICADY to analyse signalised junctions, roundabouts and priority junctions, respectively.

TRANSYT (Traffic Network Study Tool) software is a widely accepted software for modelling signalled controlled junctions. This programme utilises the phases input by the user and optimises their timings over a cycle time. The outputs of a TRANSYT assessment include a Degree of Saturation percentage (DOS%) figure and queue length for each link on the road network.

ARCADY is a software for modelling priority-controlled roundabouts. This programme utilises junction's geometry and traffic flows input by the user to determine Ratio of Flow to Capacity (RFC) and queue length for each link on the roundabout.

PICADY is a software for modelling priority-controlled junctions. This programme utilises junction's geometry and traffic flows input by the user to determine Ratio of Flow to Capacity (RFC) and queue length for each link on the junction.

Typically, a junction is said to be working satisfactorily when the DOS% or RFC of each link does not exceed 85%/0.85. Acceptable DOS% or RFC values are considered to be in the range of 85%/0.85 to 100%/1.0 with higher values indicating restrained movements.

11.3 Assessment Scenarios

The performance of the junctions has been analysed for the critical AM Peak Hour and PM Peak Hour (08:00 – 09:00 and 17:00 – 18:00) for the following scenarios:

- **Baseline - 2021 (Base Year)**: Existing Road network with 2021 Base Year flows
- **Baseline - 2026**: Existing Road network with 2021 baseline traffic flows factored up + traffic to/from Brennanstown Wood Development + traffic to/from Doyle's Nurseries Development
- **Baseline - 2031**: Existing Road network with 2021 baseline traffic flows factored up + traffic to/from Brennanstown Wood Development + traffic to/from Doyle's Nurseries Development
- **Baseline - 2041**: Existing Road network with 2021 baseline traffic flows factored up + traffic to/from Brennanstown Wood Development + traffic to/from Doyle's Nurseries Development
- **Baseline + Development - 2026 (Opening Year)**: Proposed junction upgrades with 2021 baseline traffic flows factored up + traffic to/from proposed development + traffic to/from Brennanstown Wood Development + traffic to/from Doyle's Nurseries Development
- **Baseline + Development - 2031 (Opening Year + 5 Years)**: Proposed junction upgrades with 2021 baseline traffic flows factored up + traffic to/from proposed development + traffic to/from Brennanstown Wood Development + traffic to/from Doyle's Nurseries Development
- **Baseline + Development - 2041 (Opening Year + 15 Years)**: Proposed junction upgrades with 2021 baseline traffic flows factored up + traffic to/from proposed development + traffic to/from Brennanstown Wood Development + traffic to/from Doyle's Nurseries Development.

11.4 Junction Analysis Results

11.4.1 Junction 1 (Signalised)

Junction 1 is an existing signalised four-way junction between Brennanstown Road / Claremont Road / Glenamuck Road North. This junction has been modelled based on its current configuration and the TRANSYT analysis results are summarised in Table 15 below. The arms of the junction were labelled as follows within the TRANSYT model:

- Arm A: Brennanstown Road
- Arm B: Glenamuck Road North
- Arm C: Brighton Road
- Arm D: Claremont Road

Arm	Mov.	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
		Queue (veh.)	DOS%	Queue (veh.)	DOS%
2021 - Baseline					
A	S/L/R	6.11	38%	7.48	53%
B	L/S	16.59	77%	17.75	80%
	R	3.78	26%	4.66	31%
C	L	1.45	9%	1.45	6%
	S/R	6.13	66%	7.59	65%
D	S/L/R	11.21	76%	11.97	76%
2026 - Baseline					
A	S/L/R	10.84	62%	10.63	70%
B	L/S	18.89	83%	20.60	87%
	R	4.81	32%	7.02	45%
C	L	1.45	9%	1.45	6%
	S/R	7.25	74%	9.35	75%
D	S/L/R	13.14	83%	14.20	83%
2026 – Baseline + Proposed Development					
A	S/L/R	19.07	87%	15.12	87%
B	L/S	19.45	86%	20.60	87%
	R	5.86	39%	9.21	56%
C	L	1.45	9%	1.45	6%
	S/R	8.38	81%	12.00	86%
D	S/L/R	14.00	86%	16.16	89%
2041 – Baseline					
A	S/L/R	12.12	67%	12.35	78%
B	L/S	25.05	94%	30.03	98%
	R	5.41	36%	7.87	49%

C	L	1.46	11%	1.45	7%
	S/R	8.88	83%	11.42	84%
D	S/L/R	17.54	93%	19.02	94%
2041 – Baseline + Proposed Development					
A	S/L/R	23.98	96%	19.01	94%
B	L/S	25.05	94%	30.03	98%
	R	6.42	41%	10.08	60%
C	L	1.46	11%	1.45	7%
	S/R	10.70	90%	16.09	95%
D	S/L/R	19.14	96%	23.98	99%

Table 15 | *Junction 1 - TRANSYT Analysis Results.*

From the analysis results as summarised above, Junction 1 is currently operating within capacity during both peak hours during opening year. For the future assessment year of 2041 + Proposed Development, the results indicate that this junction will operate at the upper limit of the acceptable level of capacity during both peak hours with the highest DOS at 96% and a corresponding queue of 24 vehicles recorded in the AM and with the highest DOS at 99% and a corresponding queue of 24 recorded in the PM. It is acknowledged that a junction operating with a DOS between 90% and 100% or slightly above is likely to present some level of congestion, however, this is only slightly higher than the "do nothing" scenario for 2041.

Full assessment of Junction 1, including the assessment year of 2031 (with and without the proposed development) has been provided in Appendix C.

11.4.2 Junction 2 (Priority)

Junction 2 is an existing priority T-junction between Brennanstown Road and Carrickmines Wood. This junction has been modelled based on its current configuration and the PICADY analysis results are summarise in Table 16 below. The arms of the junction were labelled as follows within the PICADY model:

- Arm A: Brennanstown Road (E)
- Arm B: Carrickmines Wood
- Arm C: Brennanstown Road (W)

Stream	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
	Queue (veh.)	RFC	Queue (veh.)	RFC
2021 – Baseline year				
Stream B-C	0.1	0.10	0.1	0.09
Stream C-AB	0.0	0.00	0.0	0.02
2026 – Baseline year				
Stream B-C	0.1	0.11	0.1	0.10
Stream B-A	0.0	0.00	0.0	0.02

2026 – Baseline Year + Proposed Development				
Stream B-C	0.1	0.12	0.1	0.12
Stream C-AB	0.0	0.01	0.0	0.03
2041 – Baseline Year				
Stream B-C	0.1	0.13	0.1	0.12
Stream C-AB	0.0	0.01	0.0	0.03
2041 Baseline Year + Proposed Development				
Stream B-C	0.2	0.14	0.2	0.14
Stream C-AB	0.0	0.01	0.0	0.03

Table 16 | *Junction 2 - PICADY Analysis Results.*

From the analysis results as summarised above, Junction 2 is currently operating well within capacity during the AM and PM peak hours and will continue to do so for the future assessment year of 2041 + Proposed Development with the highest RFC at 0.14 and a corresponding queue of 0.4 vehicle in the AM and with the highest RFC at 0.13 and a corresponding queue of 0.2 vehicle recorded for the PM.

Full assessment of Junction 2, including the assessment year of 2031 (with and without the proposed development) has been provided in Appendix C.

11.4.3 Junction 3 (Priority)

Junction 3 is a priority T-junction between Brennanstown Road and Carrickmines Wood. This junction has been modelled based on its current configuration and the PICADY analysis results are summarise in Table 17 below. The arms of the junction were labelled as follows within the PICADY model:

- Arm A: Brennanstown Road (W)
- Arm B: Brennanstown Vale
- Arm C: Brennanstown Road (E)

Stream	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
	Queue (veh.)	RFC	Queue (veh.)	RFC
2021 – Baseline year				
Stream B-C	0.0	0.02	0.0	0.03
Stream C-AB	0.0	0.03	0.0	0.02
2026 – Baseline year				
Stream B-C	0.0	0.03	0.0	0.03
Stream B-A	0.0	0.03	0.0	0.02
2026 – Baseline year + Proposed Development				
Stream B-C	0.0	0.03	0.0	0.03
Stream C-AB	0.1	0.04	0.0	0.02

2041 – Baseline Year				
Stream B-C	0.0	0.03	0.0	0.04
Stream C-AB	0.1	0.04	0.0	0.02
2041 - Baseline year + Proposed Development				
Stream B-C	0.0	0.03	0.0	0.04
Stream C-AB	0.1	0.04	0.0	0.03

Table 17 | *Junction 3 - PICADY Analysis Results.*

From the analysis results as summarised above, Junction 3 is currently operating well within capacity during the AM and PM peak hours and will continue to do so for the future assessment year of 2041 + Proposed Development with the highest RFC at 0.04 and a corresponding queue of 0.1 vehicle in the AM and with the highest RFC at 0.04 with not vehicle queue recorded for the PM.

Full assessment of Junction 3, including the assessment year of 2031 (with and without the proposed development) has been provided in Appendix C.

11.4.4 Junction 4 (Roundabout)

Junction 4 is a new four-armed priority-controlled roundabout located east of the proposed development site. This roundabout was constructed as part of the Brennanstown Wood development. This roundabout has been modelled based on its current configuration and the ARCADY analysis results are summarise in Table 18 below. The arms of the roundabout were labelled as follows within the ARCADY model:

- Arm 1: Brennanstown (W);
- Arm 2: Private Road;
- Arm 3: Brennanstown (E);
- Arm 4: Brennanstown Wood.

Arm	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
	Queue (veh.)	RFC	Queue (veh.)	RFC
2021 – Baseline Year				
Arm 1	0.2	0.13	0.2	0.16
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.2	0.14	0.3	0.19
Arm 4	0.0	0.01	0.0	0.01
2026 -Baseline Year				
Arm 1	0.2	0.15	0.2	0.18
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.2	0.16	0.4	0.26
Arm 4	0.1	0.08	0.1	0.06

2026 - Baseline Year + Proposed Development				
Arm 1	0.5	0.30	0.3	0.25
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.3	0.22	0.6	0.37
Arm 4	0.1	0.09	0.1	0.07
2041 – Baseline Year				
Arm 1	0.2	0.16	0.2	0.20
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.2	0.18	0.4	0.28
Arm 4	0.1	0.09	0.1	0.06
2041 - Baseline Year + Proposed Development				
Arm 1	0.5	0.35	0.4	0.28
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.3	0.24	0.7	0.41
Arm 4	0.1	0.09	0.1	0.07

Table 18 | *Junction 4 - ARCADY Analysis Results.*

From the analysis results as summarised above, Junction 4 is currently operating well within capacity during the AM and PM peak hours and will continue to do so for the future assessment year of 2041 + Proposed Development with the highest RFC at 0.35 and a corresponding queue of 0.5 vehicle in the AM and with the highest RFC at 041 and a corresponding queue of 0.7 vehicle recorded for the PM.

Full assessment of Junction 4, including the assessment year of 2031 (with and without the proposed development) has been provided in Appendix C.

11.4.5 Junction 5 (Signalised) – Proposed Site Access

Junction 5 is a signalised junction proposed on Brennanstown Road to provide access to the subject development site. This junction is designed as a signalised four-armed junction with the eastern and western arms being the Brennanstown Road, the southern arm forming the access to the site and the northern arm forming the road access to the northern lands. The lands to the north of the Brennanstown Road are owned by the Applicant. It is envisaged that the proposed junction, although designed as a four-armed signalised junction, will initially operate as a signalised T-junction, with the northern approach being closed to traffic and not operational. Therefore, the initial model carried out for this proposed junction was based on a signalised T-junction layout. Further model of this junction as a signalised crossroads is presented later in Section 12.5.

The model was carried out using TRANSYT software and the analysis results are shown in Table 19 below. The arms of the junction were labelled as follows within the TRANSYT model:

- Arm A: Brennanstown (W);
- Arm B: Site Access;
- Arm C: Brennanstown (E);

Arm	Mov.	AM Peak (08:00 to 09:00)		PM Peak (17:00 to 18:00)	
		Queue (veh.)	DOS%	Queue (veh.)	DOS%
2026 – Baseline Year + Proposed Development					
A	S/L	4.17	42%	5.26	45%
B	L/R	4.25	41%	2.23	44%
C	S/R	5.00	37%	5.98	39%
2031 – Baseline Year + Proposed Development					
A	S/L	4.36	43%	5.54	48%
B	L/R	4.31	43%	2.23	44%
C	S/R	5.28	39%	6.34	41%
2041 – Baseline Year + Proposed Development					
A	S/L	4.37	40%	4.33	30%
B	L/R	4.45	47%	2.43	55%
C	S/R	5.54	41%	8.77	64%

Table 19 | *Junction 5 - TRANSYT Analysis Results.*

From the analysis results as summarised above, the proposed Junction 5 is expected to operate well within capacity during the AM and PM peak hours in the 2026 + Proposed Development (Opening Year) scenario and would continue to do so for the future assessment year of 2041 + Proposed Development with the highest DOS at 47% and a corresponding queue of 4.45 vehicles in the AM and with the highest DOS at 64% and a corresponding queue of 8.77 vehicles recorded for the PM.

Full assessment of Junction 5 has been provided in Appendix C.

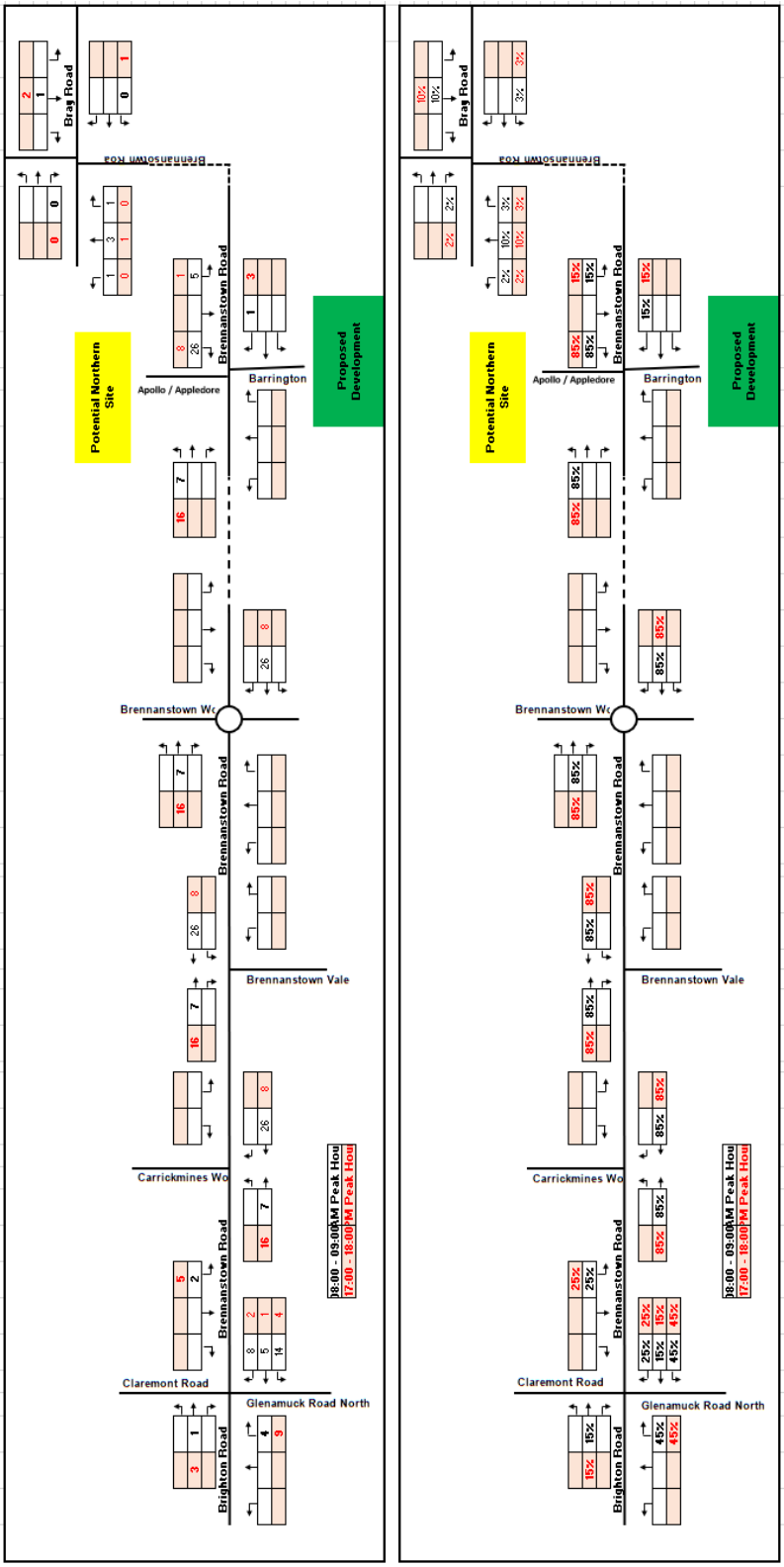


Figure 11-1 | *Trip Distribution and Assignment – Potential Future Residential Development.*

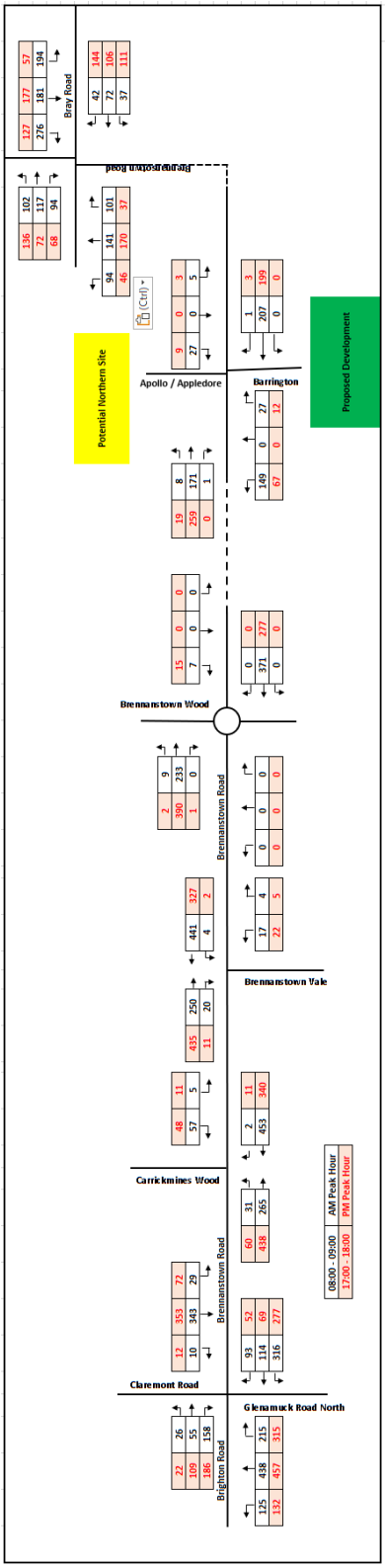


Figure 11-2 | Future Traffic – Potential Future Development

12. Car Parking

12.1 Dun Laoghaire-Rathdown Development Plan 2022 – 2028 Standards

Standards for car parking in new developments are set out in Table 12.6 of the Dun Laoighre-Rathdown County Council Development plan 2022 – 2028 (DLRCDP). The maximum car parking standards and requirements for the proposed development are listed in Table 20 below.

For both residential and non-residential car parking, 4% of car parking spaces provided shall be suitable for use by disabled persons.

To encourage the use of Electric Vehicles, in line with Council and National Policy, developments shall provide Electric Vehicle Charging spaces as follows:

- Residential multi-unit developments both new buildings and buildings undergoing major renovations (with private car spaces including visitor car parking spaces) - a minimum of one car parking space per five car parking spaces should be equipped with one fully functional EV Charging Point. Ducting for every parking space shall also be provided.
- Developments with publicly accessible spaces (e.g. supermarket car park, cinema etc.) - provide at least 1 recharging point and a minimum of one car parking space per five car parking spaces should be equipped with one fully functional EV Charging Point.

Land Use	Units	Parking Standards	Car Parking Required
Apartments – 1 Bed	165	1 per unit	165
Apartments – 2 Bed	318	1 per unit	318
Apartments – 3 Bed+	51	2 per unit	102
Total	534	-	585

Table 20 | *DLRCDP – Car Parking Standards and Requirements.*

12.2 Sustainable Urban Housing: Design Standards for New Apartments 2020

As per the Design Standards for New Apartments – Guidelines for Planning authorities – December 2020, the subject proposed development meets criteria for reasonable grounds to minimise car parking provisions. It is located close proximity of the Luas Green Line which provide high quality public transport direct to the City Centre.

"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 net (18 per acre), as per guidelines mentioned above, planning authorities must consider a reduced overall car parking standard and apply an appropriate maximum car parking standard."

12.3 Car Parking Proposed

The number of car parking spaces to be provided is 419 spaces. The proposed development has 0.78 spaces per unit. This is broken down further in Table 21 below.

Parking Area	No. of Car Parking
Basement Parking	400
Surface Parking	19

Table 21 | *Proposed Car Parking.*

The development will provide 419 No. car parking spaces for the proposed 534 residential apartments. This equates to 0.78 car parking spaces for every apartment. There are 6 No. dedicated spaces provided for the Creche and retail facility in addition to two set down areas. There will be 17no. motorcycle spaces provided.

Included in the Proposed Parking shown in Table 26 there will be 8 No. disabled parking spaces at lower basement level 7 No. at upper basement level and 2 No. at surface level and 84 No. electric car spaces to meet the current Development Plan requirements. In addition, ducting will be provided to all carparking spaces to allow for future EV Charging point.

One of the carparking spaces at surface level will be a dedicated spaces for car sharing (GoCar). Provision of car sharing spaces will provide access to a car for residents and avoid the need to own a car. A letter of support has been provided by GoCar and is included in Appendix E of this document. Based on the Dun Laoghaire Rathdown Development Plan and the Design Standards for new Apartments the number of parking spaces required is considered appropriate due to the location of the development to high quality public transport, the fact that it is a build to rent development, and the provision of car sharing on site

13. Bicycle Parking

13.1 Dun Laoghaire-Rathdown Development Plan 2022-2028 Standards

Standards for cycle parking in a new development are set out in Table 4.1 of the Standards for Cycle Parking and associated Cycling Facilities for New Developments published by Dun Laoghaire Rathdown County Council Municipal Services Department in January 2018. The cycle parking standards are shown in Table 27 below.

Land Use	No. of Units	Standards	Long Stay parking required	Short Stay Parking Required	Total Parking Required
Apartments	534	1 space per unit- Long Stay 1 space per every 5 units – Short Stay	534	107	641
Creche	20 staff 100 children	1 space per every 5 staff – Long Stay 1 space per every 10 children – Short Stay	4	10	14
Retail Unit	10 staff 318 sqm (exclu.Bin storage)	1 space per every 5 staff – Long Stay 1 space per every 100 sqm GFA	2	3	5
Total	534	-	540	130	660

Table 22 | DLRCC Development Plan (2022-2028) Standards

13.2 Sustainable Urban Housing: Design Standards for New Apartments 2020

As per the Design Standards for New Apartments – Guidelines for Planning authorities – December 2020, a general minimum standard of 1 cycle storage space per bedroom shall be applied. For studio units, at least 1 cycle storage space shall be provided. Visitor cycle parking shall also be provided at a standard of 1 space per 2 residential units. Any deviation from these standards shall be at the discretion of the planning authority and shall be justified with respect to factors such as location, quality of facilities proposed, flexibility for future enhancement/enlargement, etc.

Land Use	No. of Units	Standards	Long Stay Parking Required	Short Stay Parking Required	Total Parking Required
Residential – 1 Bed	165	1 space per 1-bed unit – Long Stay 1 space per 2 units – Short Stay	165	82	248
Residential – 2 Bed	318	2 spaces per 2-bed unit - Long Stay 1 space per 2 units – Short Stay	636	159	795
Residential – 3 Bed	51	3 spaces per 3-bed unit - Long Stay 1 space per 2 units – Short Stay	153	26	179
Total	534 units		954	267	1,221

Table 23 | Design Standards for New Apartments 2020

13.3 Bicycle Parking Proposed

A total of 1266 spaces will be provided. The cycle parking spaces are broken down in Table 24 below. This number proposed is in excess of both the DLRCC cycle standards and the New Apartment Guidelines. In total, 208 cycle spaces are being provided at surface level of which 26 spaces will be provided for the Luas commuters to the south of the site and 19 of these spaces will be allocated for the Creche users.

Parking Area	No. of Cycle Parking
Residential Parking at Basement Level	1,058
Visitor Parking at Surface Level	208
Total	1,266

Table 24 | Cycle Parking Proposed

14. Road Safety

14.1 Accidents

Traffic collision data has been reviewed for the period 2005-2016 from the Road Safety Authority (RSA) traffic collision database. This review will assist to identify any potential concerns in relation to the existing road network. These incidents are categorised into class of severity, which includes minor, serious (S), or fatal (F) collisions. The analysis is shown in Figure 14-1.

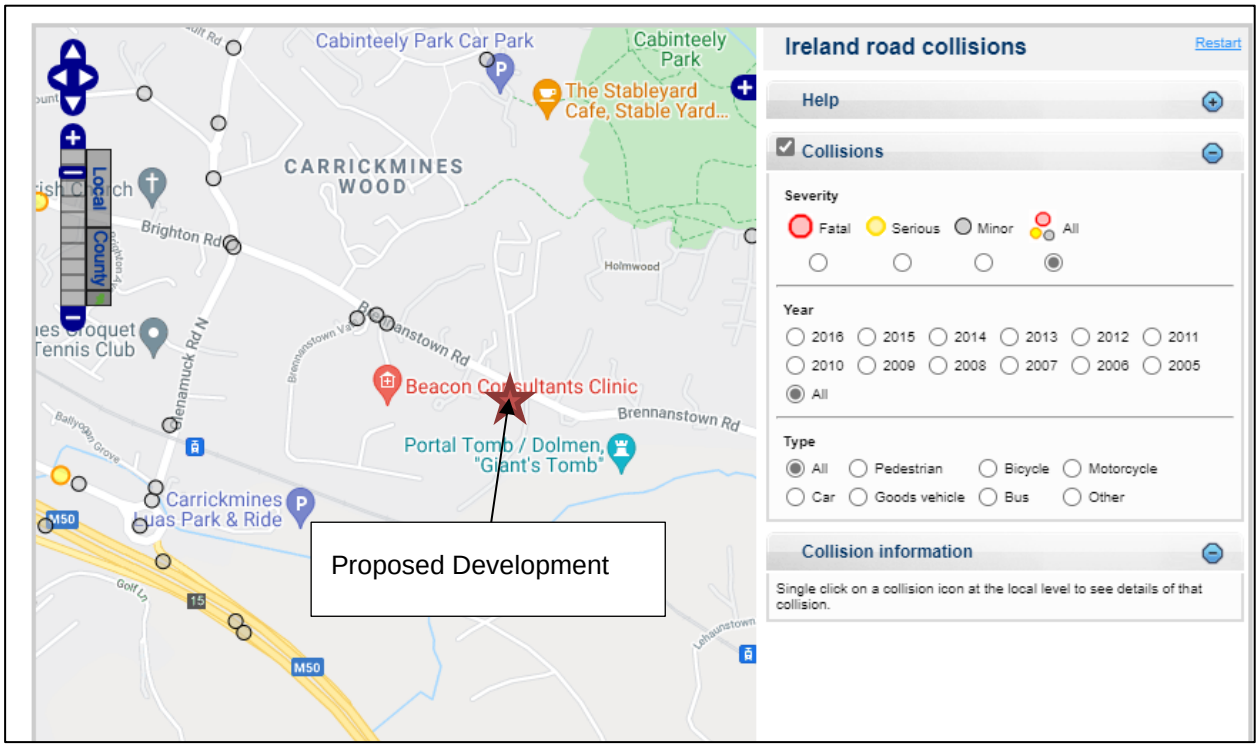


***Figure 14-1** | RSA Traffic Collision Data.*

From the data obtained, there have been several minor collisions at the junction between Brennanstown Road and Brennanstown Vale.

15. Conclusion

Waterman Moylan Consulting Engineers have been appointed by Cairn Homes Properties Ltd. to prepare this Traffic and Transport Assessment (TTA) in support of a planning application for a Strategic Housing Development at Brennanstown Road, Dublin 18.

There are two additional future developments in the area approved and under construction. These are Doyle's Nursey and Garden Centre Development to the East and Brennanstown Wood Development to the West. The trips generated by these developments are included in the analysis.

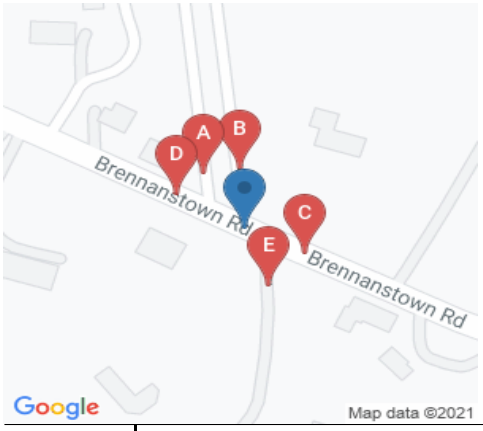
Access to the proposed development will be provided from Brennanstown Road via a new signalised T-junction turning onto proposed development.

The volume of traffic expected to be generated by the proposed development has been derived using the trip rates from TRICS database. The trips generated by the proposed development are 65 arrivals and 175 departures for the AM Peak Hour, and 126 arrivals and 79 departures for the PM Peak Hour.

The analysis results indicate that Junction No.1 will operate slightly above capacity during the future assessment year (2041) all other analysed junctions will operate within capacity for the future assessment year.

Appendices

A. Appendix A – Traffic Survey Results



IDASO

Survey Name: 078 21192 Brennanstown
Site: Site 5
Location: Brennanstown Rd / Barrington Tower
Date: Thu 10-Jun-2021

	A => A												
TIME	**P/C**	**M/C**	**CAR**	**TAXI**	**LGV**	**OGV1**	**OGV2**	**PSV**	**TOT**	**PCU**	**P/C**	**M/C**	**CAR**
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
00:15	0	0	0	0	0	0	0	0	0	0	0	0	0
00:30	0	0	0	0	0	0	0	0	0	0	0	0	0
00:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30	0	0	0	0	0	0	0	0	0	0	0	0	0

06:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0

16:00	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0
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18:30	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15	0	0	0	0	0	0	0	0	0	0	0	0	0
19:30	0	0	0	0	0	0	0	0	0	0	0	0	0
19:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0
20:15	0	0	0	0	0	0	0	0	0	0	0	0	0
20:30	0	0	0	0	0	0	0	0	0	0	0	0	0
20:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0
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21:30	0	0	0	0	0	0	0	0	0	0	0	0	0
21:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
22:15	0	0	0	0	0	0	0	0	0	0	0	0	0
22:30	0	0	0	0	0	0	0	0	0	0	0	0	0
22:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:15	0	0	0	0	0	0	0	0	0	0	0	0	0
23:30	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0
24 TOT	0	0	0	0	0	0	0	0	0	0	0	0	0

/ Apollo/Appledore

A => B										A => C				
TAXI	LGV	OGV1	OGV2	PSV	TOT	PCU	P/C	M/C	CAR	TAXI	LGV	OGV1	OGV2	PSV
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	1	0	1	0	0	0

		A => D												
TOT	**PCU**	**P/C**	**M/C**	**CAR**	**TAXI**	**LGV**	**OGV1**	**OGV2**	**PSV**	**TOT**	**PCU**	**P/C**	**M/C**	**CAR**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

B. Appendix B – TRICS Rates

Calculation Reference: AUDIT-561501-210630-0608

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:
15 GREATER DUBLIN
DL DUBLIN 2 days

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

Primary Filtering selection:

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

Parameter: No of Dwellings
Actual Range: 140 to 332 (units:)
Range Selected by User: 100 to 372 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 23/10/20

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:
Tuesday 1 days
Friday 1 days

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

Selected survey types:
Manual count 2 days
Directional ATC Count 0 days

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

Selected Locations:
Suburban Area (PPS6 Out of Centre) 2

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

Selected Location Sub Categories:
Residential Zone 2

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

Secondary Filtering selection:

Use Class:
C3 2 days

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

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

25,001 to 50,000	2 days

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

Population within 5 miles:

500,001 or More	2 days

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

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	1 days

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

Travel Plan:

No	2 days

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

PTAL Rating:

No PTAL Present	2 days

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

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions

LIST OF SITES relevant to selection parameters

1	DL-03-C-14	BLOCKS OF FLATS		DUBLIN
	BALLINTEER ROAD			
	DUBLIN			
	DUNDRUM			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:		140	
	Survey date: TUESDAY		*10/09/13*	*Survey Type: MANUAL*
2	DL-03-C-17	BLOCKS OF FLATS		DUBLIN
	FINGLAS ROAD			
	DUBLIN			
	FINGLAS			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:		332	
	Survey date: FRIDAY		*23/10/20*	*Survey Type: MANUAL*

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

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
TOTAL 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	2	236	0.040	2	236	0.172	2	236	0.212
08:00 - 09:00	2	236	0.076	2	236	0.299	2	236	0.375
09:00 - 10:00	2	236	0.102	2	236	0.074	2	236	0.176
10:00 - 11:00	2	236	0.042	2	236	0.044	2	236	0.086
11:00 - 12:00	2	236	0.051	2	236	0.076	2	236	0.127
12:00 - 13:00	2	236	0.057	2	236	0.074	2	236	0.131
13:00 - 14:00	2	236	0.095	2	236	0.108	2	236	0.203
14:00 - 15:00	2	236	0.136	2	236	0.093	2	236	0.229
15:00 - 16:00	2	236	0.108	2	236	0.078	2	236	0.186
16:00 - 17:00	2	236	0.140	2	236	0.051	2	236	0.191
17:00 - 18:00	2	236	0.193	2	236	0.089	2	236	0.282
18:00 - 19:00	2	236	0.178	2	236	0.110	2	236	0.288
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.218			1.268			2.486

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

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

Parameter summary

Trip rate parameter range selected:	140 - 332 (units:)
Survey date date range:	01/01/13 - 23/10/20
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Calculation Reference: AUDIT-561501-210819-0829

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
Category : O - CONVENIENCE STORE
TOTAL VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	WL	WILTSHIRE	1 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
10	WALES		
	CF	CARDIFF	1 days
11	SCOTLAND		
	EB	CITY OF EDINBURGH	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
Actual Range: 204 to 350 (units: sqm)
Range Selected by User: 70 to 400 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 25/09/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Wednesday	1 days
Thursday	1 days
Friday	2 days

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

Selected survey types:

Manual count	4 days
Directional ATC Count	0 days

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

Selected Locations:

Town Centre	1
Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	1
Neighbourhood Centre (PPS6 Local Centre)	1

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

Selected Location Sub Categories:

Residential Zone	2
Built-Up Zone	2

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

Secondary Filtering selection:

Use Class:

Not Known	1 days
E(a)	3 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

25,001 to 50,000	3 days
50,001 to 100,000	1 days

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

Population within 5 miles:

125,001 to 250,000	1 days
250,001 to 500,000	3 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	2 days

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

Petrol filling station:

Included in the survey count	0 days
Excluded from count or no filling station	4 days

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

Travel Plan:

No	4 days

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

PTAL Rating:

No PTAL Present	4 days

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

LIST OF SITES relevant to selection parameters

1	CF-01-O-02	CO-OPERATIVE		CARDIFF
	HEOL-Y-DERI			
	CARDIFF			
	RHIWBINA			
	Neighbourhood Centre (PPS6 Local Centre)			
	Residential Zone			
	Total Gross floor area:		350 sqm	
	Survey date: FRIDAY		*07/10/16*	*Survey Type: MANUAL*
2	DS-01-O-01	SAINSBURY'S LOCAL		DERBYSHIRE
	NUNS STREET			
	DERBY			
	Edge of Town Centre			
	Built-Up Zone			
	Total Gross floor area:		204 sqm	
	Survey date: WEDNESDAY		*25/09/19*	*Survey Type: MANUAL*
3	EB-01-O-01	SAINSBURY'S LOCAL		CITY OF EDINBURGH
	EARL GREY STREET			
	EDINBURGH			
	Town Centre			
	Built-Up Zone			
	Total Gross floor area:		350 sqm	
	Survey date: THURSDAY		*28/05/15*	*Survey Type: MANUAL*
4	WL-01-O-01	ONE STOP		WILTSHIRE
	THE CIRCLE			
	SWINDON			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Gross floor area:		292 sqm	
	Survey date: FRIDAY		*23/09/16*	*Survey Type: MANUAL*

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

TRIP RATE for Land Use 01 - RETAIL/O - CONVENIENCE STORE
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	204	0.490	1	204	0.000	1	204	0.490
06:00 - 07:00	2	277	3.069	2	277	3.069	2	277	6.138
07:00 - 08:00	4	299	6.689	4	299	6.522	4	299	13.211
08:00 - 09:00	4	299	6.271	4	299	6.187	4	299	12.458
09:00 - 10:00	4	299	5.936	4	299	5.686	4	299	11.622
10:00 - 11:00	4	299	5.268	4	299	5.184	4	299	10.452
11:00 - 12:00	4	299	7.023	4	299	7.191	4	299	14.214
12:00 - 13:00	4	299	7.191	4	299	6.689	4	299	13.880
13:00 - 14:00	4	299	5.686	4	299	6.187	4	299	11.873
14:00 - 15:00	4	299	7.776	4	299	7.274	4	299	15.050
15:00 - 16:00	4	299	7.776	4	299	7.358	4	299	15.134
16:00 - 17:00	4	299	8.779	4	299	8.946	4	299	17.725
17:00 - 18:00	4	299	7.860	4	299	8.361	4	299	16.221
18:00 - 19:00	4	299	10.033	4	299	9.866	4	299	19.899
19:00 - 20:00	4	299	9.030	4	299	8.612	4	299	17.642
20:00 - 21:00	3	301	3.761	3	301	3.872	3	301	7.633
21:00 - 22:00	3	301	2.434	3	301	2.876	3	301	5.310
22:00 - 23:00	1	204	3.922	1	204	3.431	1	204	7.353
23:00 - 24:00	1	204	1.961	1	204	2.451	1	204	4.412
Total Rates:			110.955			109.762			220.717

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

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

Parameter summary

Trip rate parameter range selected:	204 - 350 (units: sqm)
Survey date date range:	01/01/13 - 25/09/19
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 01 - RETAIL/O - CONVENIENCE STORE
CARS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	204	0.000	1	204	0.000	1	204	0.000
06:00 - 07:00	2	277	1.264	2	277	1.264	2	277	2.528
07:00 - 08:00	4	299	4.264	4	299	4.097	4	299	8.361
08:00 - 09:00	4	299	5.017	4	299	4.599	4	299	9.616
09:00 - 10:00	4	299	5.518	4	299	5.435	4	299	10.953
10:00 - 11:00	4	299	4.599	4	299	4.431	4	299	9.030
11:00 - 12:00	4	299	6.355	4	299	6.522	4	299	12.877
12:00 - 13:00	4	299	6.605	4	299	6.104	4	299	12.709
13:00 - 14:00	4	299	4.682	4	299	5.268	4	299	9.950
14:00 - 15:00	4	299	7.274	4	299	6.689	4	299	13.963
15:00 - 16:00	4	299	7.107	4	299	6.773	4	299	13.880
16:00 - 17:00	4	299	7.776	4	299	8.027	4	299	15.803
17:00 - 18:00	4	299	6.856	4	299	7.191	4	299	14.047
18:00 - 19:00	4	299	9.197	4	299	9.114	4	299	18.311
19:00 - 20:00	4	299	8.361	4	299	7.943	4	299	16.304
20:00 - 21:00	3	301	3.208	3	301	3.319	3	301	6.527
21:00 - 22:00	3	301	1.549	3	301	1.991	3	301	3.540
22:00 - 23:00	1	204	3.922	1	204	3.431	1	204	7.353
23:00 - 24:00	1	204	1.961	1	204	2.451	1	204	4.412
Total Rates:			95.515			94.649			190.164

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

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

C. Appendix C – Junction Analysis Results

TRANSYT 15

Version: 15.5.2.7994

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

Filename: Junction 1 - AM.t16
Path: M:\Projects\20\20-040 - Brennanstown Road\Design\Civil\Traffic\2021\Junction Analysis\Junction 1
Report generation date: 01/04/2022 18:28:21

»A1 - Baseline 2021 : D1 - Baseline 2021, * :
»A2 - Baseline 2026 : D2 - Baseline 2026, * :
»A3 - Baseline 2031 : D3 - Baseline 2031, * :
»A4 - Baseline 2041 : D4 - Baseline 2041, * :
»A5 - Baseline 2026 with Dev. : D5 - Baseline 2026 with Dev.* :
»A6 - Baseline 2031 with Dev. : D6 - Baseline 2031 with Dev. * :
»A7 - Baseline 2041 with Dev. : D7 - Baseline 2041 with Dev. * :

File summary

File description

File title	(untitled)
Location	
Site number	
UTCRegion	
Driving side	Left
Date	06/12/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAIN\l.byrne
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓		✓	✓					

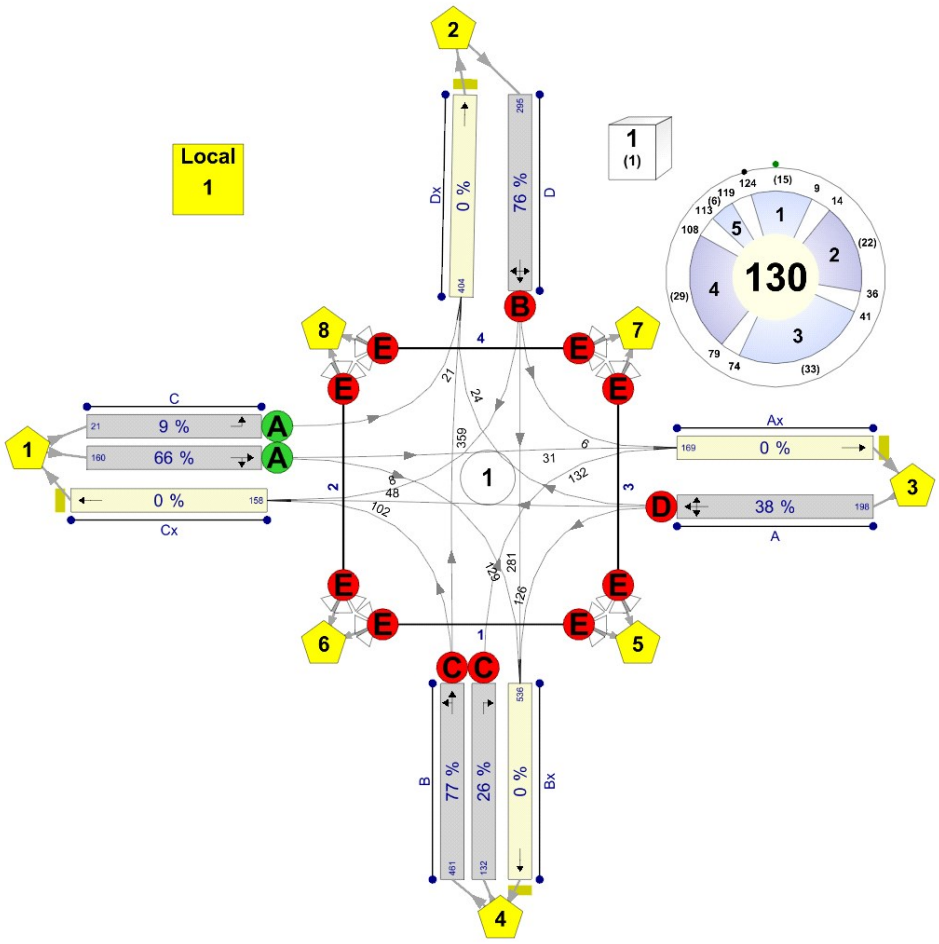
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	Veh	Veh	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



(untitled)
Diagram produced using TRANSYT 15.5.2.7994

A1 - Baseline 2021
D1 - Baseline 2021, *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	01/04/2022 18:27:59	01/04/2022 18:28:00	08:00	130	722.65	49.82	76.64	B/1	0	0	B/1	Dx/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2021		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2021,				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2252			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1973			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2205			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	76	40.00		2252
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	81	57.46	✓	1973
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	5	40.00		2205
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	198	198
Ax	1	169	169
B	1	461	461
	2	132	132
Bx	1	536	536
C	1	21	21
	2	160	160
Cx	1	158	158
D	1	295	295
Dx	1	404	404

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
1	1	50000
	2	50000
2	1	11000
	2	11000
3	1	11000
	2	11000
4	1	11000
	2	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
1	1	0	100	✓	0.00		
	2	0	100	✓	0.00		
2	1	100	100		0.00		
	2	100	100		0.00		
3	1	100	100		0.00		
	2	100	100		0.00		
4	1	100	100		0.00		
	2	100	100		0.00		

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	15	300	0	0	Unknown	
	B	(untitled)	5	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	29	300	0	0	Unknown	
	E	(untitled)	6	6	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	9, 36, 74, 108, 119
	2	(untitled)	Single	1, 2, 3, 5, 4	21, 47, 75, 100, 125
	3	(untitled)	Single	1, 2, 4, 3, 5	21, 47, 73, 101, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	21, 47, 73, 98, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	21, 47, 72, 100, 125
	6	(untitled)	Single	1, 2, 5, 4, 3	21, 47, 72, 98, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	21, 49, 75, 101, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	21, 49, 75, 100, 125
	9	(untitled)	Single	1, 3, 4, 2, 5	21, 49, 75, 101, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	21, 49, 75, 100, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	124	9	15	1	15
	2	✓	2	B	14	36	22	1	5
	3	✓	3	C	41	74	33	1	7
	4	✓	4	D	79	108	29	1	29
	5	✓	5	E	113	119	6	1	6

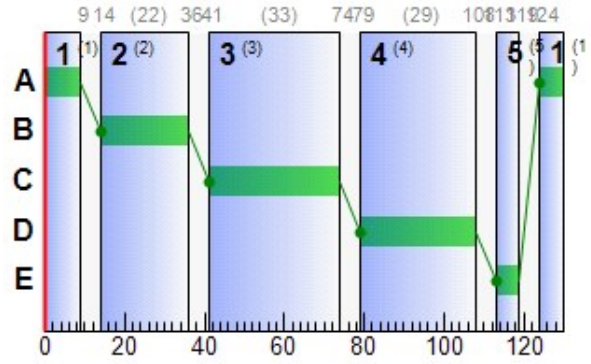
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	124	9	15
	B	1	✓	14	36	22
	C	1	✓	41	74	33
	D	1	✓	79	108	29
	E	1	✓	113	119	6

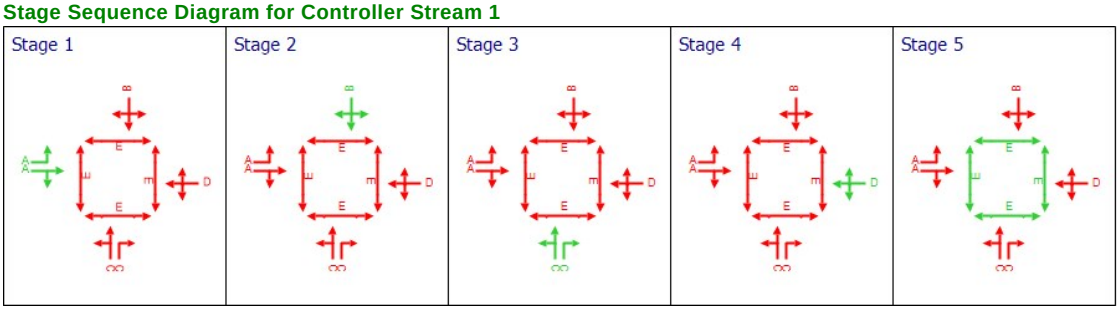
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	79	108	29
B	1	1	1	C	41	74	33
B	2	1	1	C	41	74	33
C	1	1	1	A	124	9	15
C	2	1	1	A	124	9	15
D	1	1	1	B	14	36	22

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	38	136	198	2252	29	44.30	6.11	70.29	34.60	2.10	36.70
	Ax	1	0	Unrestricted	169	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	77	17	461	2300	33	53.88	16.59	190.77	97.97	5.66	103.63
		2	26	249	132	1955	33	39.24	3.78	43.53	20.43	1.30	21.73
	Bx	1	0	Unrestricted	536	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	9	938	21	1968	15	51.29	1.45	18.78	4.25	0.23	4.48
		2	66	37	160	1973	15	68.29	6.13	79.19	43.10	2.09	45.19
	Cx	1	0	Unrestricted	158	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	76	19	295	2205	22	64.61	11.21	128.88	75.18	3.84	79.02
	Dx	1	0	Unrestricted	404	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	198	198	0		2252	520	38		136	0.00	29
	Ax	1	169	169	0		Unrestricted	Unrestricted	0		Unrestricted	1.09	130
	B	1	461	461	0		2300	602	77		17	0.00	33
		2	132	132	0		1955	511	26		249	0.00	33
	Bx	1	536	536	0		Unrestricted	Unrestricted	0		Unrestricted	0.92	130
	C	1	21	21	0		1968	242	9		938	0.00	15
		2	160	160	0		1973	243	66		37	0.00	15
	Cx	1	158	158	0		Unrestricted	Unrestricted	0		Unrestricted	0.95	130
	D	1	295	295	0		2205	390	76		19	0.00	22
	Dx	1	404	404	0		Unrestricted	Unrestricted	0		Unrestricted	1.16	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	44.30	2.32	0.12	34.60	84.54	164.17	3.22	2.10
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	53.88	5.68	1.22	97.97	97.86	417.91	33.24	5.66
		2	6.00	39.24	1.39	0.04	20.43	78.49	102.37	1.24	1.30
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	51.29	0.30	0.00	4.25	88.23	18.42	0.11	0.23
		2	5.34	68.29	2.42	0.62	43.10	104.40	150.39	16.65	2.09
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	64.61	4.17	1.13	75.18	103.90	276.07	30.43	3.84
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	6.11	8.70	70.29	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	73.00	0.00	73.00	
	B	1	0.00	16.59	8.70	190.77	1.90	0.00	0.00	0.00	0.00	0.00	
		2	0.00	3.78	8.70	43.53	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	40.00	0.00	40.00	
	C	1	0.00	1.45	7.74	18.78	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	6.13	7.74	79.19	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	64.00	0.00	64.00	
	D	1	0.00	11.21	8.70	128.88	0.31	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	60.00	0.00	60.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	9.90	2.77	3.58	50.30
	Ax	1	23.24	0.77	30.00	16.50
	B	1	23.05	7.67	3.01	59.88
		2	6.60	1.66	3.98	45.24
	Bx	1	75.55	2.52	30.00	16.91
	C	1	0.93	0.33	2.83	56.63
		2	7.12	3.27	2.18	73.63
	Cx	1	22.66	0.76	30.00	17.21
	D	1	14.75	5.79	2.55	70.61
	Dx	1	55.76	1.86	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	6.11	0.12	5.62	1.00	0.00	36.70
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	16.61	1.24	13.53	1.00	0.00	103.63
		2	0.00	0.00	✓	3.78	0.04	3.56	1.00	0.00	21.73
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.00	0.67	1.00	0.00	4.48
		2	0.00	0.00	✓	6.14	0.63	5.69	1.00	0.00	45.19
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	11.23	1.15	9.92	1.00	0.00	79.02
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	13	300	50000	6	59.62	10.33	0.00	0.00
		2	13	300	50000	6	59.62	10.33	0.00	0.00
	2	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	3	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	4	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	1	1	300	300	0		50000	2308	13		592	0.00	6
		2	300	300	0		50000	2308	13		592	0.00	6
	2	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	3	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	4	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	59.62	4.97	0.00	0.00
		2	5.67	59.62	4.97	0.00	0.00
	2	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	3	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	4	1	5.67	60.83	5.07	0.00	71.98
		2	5.67	60.83	5.07	0.00	71.98

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.33	10.00	103.33	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.44	0.44	65.28
		2	2.40	5.44	0.44	65.28
	2	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	3	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	4	1	2.40	5.54	0.43	66.50
		2	2.40	5.54	0.43	66.50

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	0.00	0.00	10.33	1.00	0.00	0.00
		2	0.00	0.00	10.33	1.00	0.00	0.00
	2	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	3	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	4	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	01/04/2022 18:27:59	01/04/2022 18:28:00	08:00	130	722.65	49.82	76.64	B/1	0	0	B/1	Dx/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	77	0	2534	667	27.57	275.53	15.22	290.75

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	59	1800	36	60.83	431.90	431.90

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	4334	4334	0		77		17	703

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.17	41.38	46.69	3.13	707.43	28.02	1129.33	84.89	15.22

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	190.77	0.00	237.00	0.00	237.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	255.17	60.86	4.19

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	722.65

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	73.2	90.1	90.5	0.0	0.0	0.0	0.0
	2	87.8	0.0	87.1	87.5	0.0	0.0	0.0	0.0
	3	67.5	66.9	0.0	67.2	0.0	0.0	0.0	0.0
	4	77.1	76.4	61.7	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	65.3	67.2	0.0
	6	0.0	0.0	0.0	0.0	65.3	0.0	0.0	67.2
	7	0.0	0.0	0.0	0.0	67.2	0.0	0.0	66.5
	8	0.0	0.0	0.0	0.0	0.0	67.2	66.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	21		73.19		21	73.19
5	2	3	6		87.11		6	87.11
6	2	4	281		87.52		281	87.52
7	2	1	8		87.82		8	87.82
8	3	2	24		66.86		24	66.86
9	3	4	126		67.22		126	67.22
10	3	1	48		67.52		48	67.52
11	4	2	359		76.44		359	76.44
13	4	1	102		77.09		102	77.09
17	8	7		300		66.50	300	66.50
18	8	6		300		67.16	300	67.16
19	1	3	31		90.13		31	90.13
20	4	3	132		61.74		132	61.74
22	5	7		300		67.16	300	67.16
23	5	6		300		65.28	300	65.28
34	6	8		300		67.16	300	67.16
35	6	5		300		65.28	300	65.28
41	7	8		300		66.50	300	66.50
42	7	5		300		67.16	300	67.16
43	1	4	129		90.54		129	90.54

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)	
A	1	(untitled)	1	1	D	198	2252	29	0.00	38	136	50.30	44.30	84.54	6.11	
Ax	1	(untitled)				169	Unrestricted	130	73.00	0	Unrestricted	16.50	0.00	0.00	0.00	
B	1	(untitled)	1	1	C	461 <	2300	33	0.00	77	17	59.88	53.88	97.86	16.59 +	
	2	(untitled)	1	1	C	132	1955	33	0.00	26	249	45.24	39.24	78.49	3.78	
Bx	1	(untitled)				536	Unrestricted	130	40.00	0	Unrestricted	16.91	0.00	0.00	0.00	
C	1	(untitled)	1	1	A	21	1968	15	0.00	9	938	56.63	51.29	88.23	1.45	
	2	(untitled)	1	1	A	160	1973	15	0.00	66	37	73.63	68.29	104.40	6.13	
Cx	1	(untitled)				158	Unrestricted	130	64.00	0	Unrestricted	17.21	0.00	0.00	0.00	
D	1	(untitled)	1	1	B	295 <	2205	22	0.00	76	19	70.61	64.61	103.90	11.21 +	
Dx	1	(untitled)				404	Unrestricted	130	60.00	0	Unrestricted	16.56	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
	2	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
2	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	239.57	27.39	8.75	16.27	3.13	275.53	15.22	0.00	290.75
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	15.60	33.47	0.47	30.42	0.00	431.90	0.00	0.00	431.90
TOTAL	255.17	60.86	4.19	46.69	3.13	707.43	15.22	0.00	722.65

< = adjusted flow warning (upstream links/traffic streams are over-saturated)

** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*

^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%

+ = average link/traffic stream excess queue is greater than 0

P.I. = PERFORMANCE INDEX

A2 - Baseline 2026
D2 - Baseline 2026, *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	01/04/2022 18:28:00	01/04/2022 18:28:01	08:00	130	808.48	55.59	83.12	B/1	0	0	B/1	Dx/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2026		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2026,				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2252			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1975			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2204			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	76	40.00		2252
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	78	57.46	✓	1975
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	6	40.00		2204
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	321	321
Ax	1	214	214
B	1	500	500
	2	164	164
Bx	1	651	651
C	1	23	23
	2	180	180
Cx	1	196	196
D	1	324	324
Dx	1	451	451

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
1	1	50000
	2	50000
2	1	11000
	2	11000
3	1	11000
	2	11000
4	1	11000
	2	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
1	1	0	100	✓	0.00		
	2	0	100	✓	0.00		
2	1	100	100		0.00		
	2	100	100		0.00		
3	1	100	100		0.00		
	2	100	100		0.00		
4	1	100	100		0.00		
	2	100	100		0.00		

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	15	300	0	0	Unknown	
	B	(untitled)	5	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	29	300	0	0	Unknown	
	E	(untitled)	6	6	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	9, 36, 74, 108, 119
	2	(untitled)	Single	1, 2, 3, 5, 4	21, 47, 75, 100, 125
	3	(untitled)	Single	1, 2, 4, 3, 5	21, 47, 73, 101, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	21, 47, 73, 98, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	21, 47, 72, 100, 125
	6	(untitled)	Single	1, 2, 5, 4, 3	21, 47, 72, 98, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	21, 49, 75, 101, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	21, 49, 75, 100, 125
	9	(untitled)	Single	1, 3, 4, 2, 5	21, 49, 75, 101, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	21, 49, 75, 100, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	124	9	15	1	15
	2	✓	2	B	14	36	22	1	5
	3	✓	3	C	41	74	33	1	7
	4	✓	4	D	79	108	29	1	29
	5	✓	5	E	113	119	6	1	6

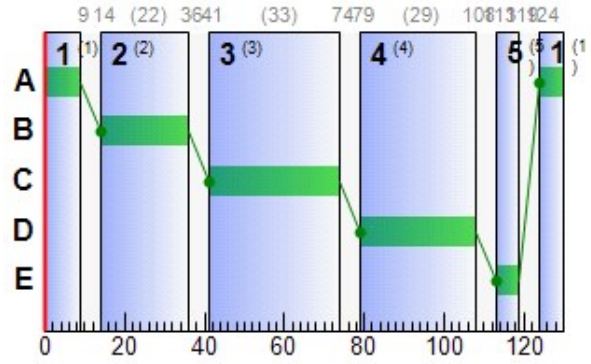
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	124	9	15
	B	1	✓	14	36	22
	C	1	✓	41	74	33
	D	1	✓	79	108	29
	E	1	✓	113	119	6

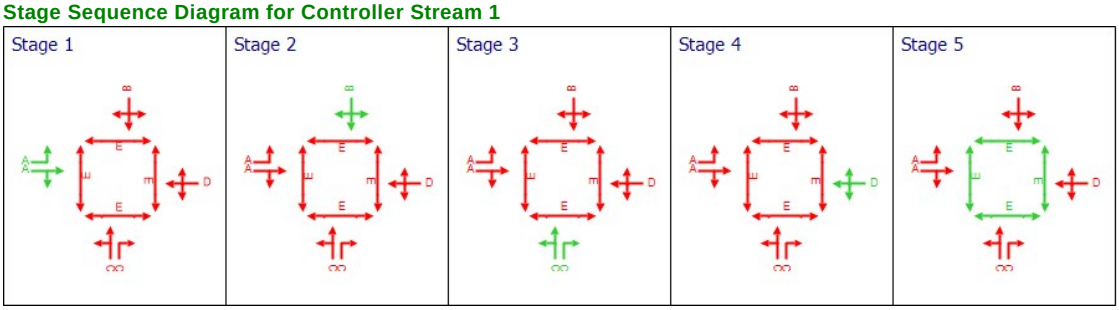
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	79	108	29
B	1	1	1	C	41	74	33
B	2	1	1	C	41	74	33
C	1	1	1	A	124	9	15
C	2	1	1	A	124	9	15
D	1	1	1	B	14	36	22

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	62	46	321	2252	29	50.39	10.84	124.62	63.81	3.72	67.53
	Ax	1	0	Unrestricted	214	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	83	8	500	2300	33	59.27	18.89	217.18	116.89	6.47	123.36
		2	32	181	164	1955	33	40.36	4.81	55.35	26.11	1.65	27.76
	Bx	1	0	Unrestricted	651	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	9	848	23	1968	15	51.43	1.45	18.79	4.67	0.25	4.92
		2	74	22	180	1975	15	75.03	7.25	93.70	53.27	2.48	55.76
	Cx	1	0	Unrestricted	196	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	83	8	324	2204	22	72.59	13.14	151.07	92.77	4.49	97.26
	Dx	1	0	Unrestricted	451	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	321	321	0		2252	520	62		46	0.00	29
	Ax	1	214	214	0		Unrestricted	Unrestricted	0		Unrestricted	1.06	130
	B	1	500	500	0		2300	602	83		8	0.00	33
		2	164	164	0		1955	511	32		181	0.00	33
	Bx	1	651	651	0		Unrestricted	Unrestricted	0		Unrestricted	0.83	130
	C	1	23	23	0		1968	242	9		848	0.00	15
		2	180	180	0		1975	243	74		22	0.00	15
	Cx	1	196	196	0		Unrestricted	Unrestricted	0		Unrestricted	0.89	130
	D	1	324	324	0		2204	390	83		8	0.00	22
	Dx	1	451	451	0		Unrestricted	Unrestricted	0		Unrestricted	1.10	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	50.39	4.00	0.49	63.81	92.43	283.17	13.52	3.72
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	59.27	6.29	1.94	116.89	103.18	463.58	52.32	6.47
		2	6.00	40.36	1.76	0.08	26.11	80.36	129.71	2.09	1.65
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	51.43	0.32	0.00	4.67	88.29	20.17	0.14	0.25
		2	5.34	75.03	2.75	1.00	53.27	109.99	171.29	26.69	2.48
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	72.59	4.65	1.89	92.77	110.55	308.00	50.18	4.49
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	10.84	8.70	124.62	0.21	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	52.00	0.00	52.00	
	B	1	0.00	18.89	8.70	217.18	2.91	0.00	0.00	0.00	0.00	0.00	
		2	0.00	4.81	8.70	55.35	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	35.00	0.00	35.00	
	C	1	0.00	1.45	7.74	18.79	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	7.25	7.74	93.70	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	59.00	0.00	59.00	
	D	1	0.00	13.14	8.70	151.07	0.86	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	49.00	0.00	49.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	16.05	5.03	3.19	56.39
	Ax	1	29.43	0.98	30.00	16.50
	B	1	25.00	9.07	2.76	65.27
		2	8.20	2.11	3.88	46.36
	Bx	1	91.76	3.06	30.00	16.91
	C	1	1.02	0.36	2.82	56.77
		2	8.01	4.02	1.99	80.37
	Cx	1	28.11	0.94	30.00	17.21
	D	1	16.20	7.07	2.29	78.59
	Dx	1	62.24	2.07	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	10.84	0.50	9.41	1.00	0.00	67.53
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	18.94	1.99	15.32	1.00	0.00	123.36
		2	0.00	0.00	✓	4.81	0.08	4.45	1.00	0.00	27.76
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.00	0.73	1.00	0.00	4.92
		2	0.00	0.00	✓	7.28	1.03	6.73	1.00	0.00	55.76
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	13.21	1.96	11.59	1.00	0.00	97.26
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	13	300	50000	6	59.62	10.33	0.00	0.00
		2	13	300	50000	6	59.62	10.33	0.00	0.00
	2	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	3	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	4	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	1	1	300	300	0		50000	2308	13		592	0.00	6
		2	300	300	0		50000	2308	13		592	0.00	6
	2	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	3	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	4	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	59.62	4.97	0.00	0.00
		2	5.67	59.62	4.97	0.00	0.00
	2	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	3	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	4	1	5.67	60.83	5.07	0.00	71.98
		2	5.67	60.83	5.07	0.00	71.98

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.33	10.00	103.33	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.44	0.44	65.28
		2	2.40	5.44	0.44	65.28
	2	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	3	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	4	1	2.40	5.54	0.43	66.50
		2	2.40	5.54	0.43	66.50

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	0.00	0.00	10.33	1.00	0.00	0.00
		2	0.00	0.00	10.33	1.00	0.00	0.00
	2	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	3	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	4	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	01/04/2022 18:28:00	01/04/2022 18:28:01	08:00	130	808.48	55.59	83.12	B/1	0	0	B/1	Dx/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	83	0	3024	667	29.97	357.51	19.07	376.58

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	59	1800	36	60.83	431.90	431.90

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	4824	4824	0		83		8	703

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.40	41.49	50.19	5.40	789.41	31.53	1375.92	144.94	19.07

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	217.18	0.00	195.00	0.00	195.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	301.63	68.18	4.42

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	808.48

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	73.3	96.9	97.3	0.0	0.0	0.0	0.0
	2	95.8	0.0	95.1	95.5	0.0	0.0	0.0	0.0
	3	73.6	73.0	0.0	73.3	0.0	0.0	0.0	0.0
	4	82.5	81.8	62.9	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	65.3	67.2	0.0
	6	0.0	0.0	0.0	0.0	65.3	0.0	0.0	67.2
	7	0.0	0.0	0.0	0.0	67.2	0.0	0.0	66.5
	8	0.0	0.0	0.0	0.0	0.0	67.2	66.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	23		73.33		23	73.33
5	2	3	10		95.09		10	95.09
6	2	4	305		95.50		305	95.50
7	2	1	9		95.80		9	95.80
8	3	2	39		72.96		39	72.96
9	3	4	206		73.31		206	73.31
10	3	1	76		73.61		76	73.61
11	4	2	389		81.83		389	81.83
13	4	1	111		82.48		111	82.48
17	8	7		300		66.50	300	66.50
18	8	6		300		67.16	300	67.16
19	1	3	40		96.88		40	96.88
20	4	3	164		62.86		164	62.86
22	5	7		300		67.16	300	67.16
23	5	6		300		65.28	300	65.28
34	6	8		300		67.16	300	67.16
35	6	5		300		65.28	300	65.28
41	7	8		300		66.50	300	66.50
42	7	5		300		67.16	300	67.16
43	1	4	140		97.29		140	97.29

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)	
A	1	(untitled)	1	1	D	321 <	2252	29	0.00	62	46	56.39	50.39	92.43	10.84 +	
Ax	1	(untitled)				214	Unrestricted	130	52.00	0	Unrestricted	16.50	0.00	0.00	0.00	
B	1	(untitled)	1	1	C	500 <	2300	33	0.00	83	8	65.27	59.27	103.18	18.89 +	
	2	(untitled)	1	1	C	164	1955	33	0.00	32	181	46.36	40.36	80.36	4.81	
Bx	1	(untitled)				651	Unrestricted	130	35.00	0	Unrestricted	16.91	0.00	0.00	0.00	
C	1	(untitled)	1	1	A	23	1968	15	0.00	9	848	56.77	51.43	88.29	1.45	
	2	(untitled)	1	1	A	180	1975	15	0.00	74	22	80.37	75.03	109.99	7.25	
Cx	1	(untitled)				196	Unrestricted	130	59.00	0	Unrestricted	17.21	0.00	0.00	0.00	
D	1	(untitled)	1	1	B	324 <	2204	22	0.00	83	8	78.59	72.59	110.55	13.14 +	
Dx	1	(untitled)				451	Unrestricted	130	49.00	0	Unrestricted	16.56	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
	2	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
2	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	286.03	34.71	8.24	19.77	5.40	357.51	19.07	0.00	376.58
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	15.60	33.47	0.47	30.42	0.00	431.90	0.00	0.00	431.90
TOTAL	301.63	68.18	4.42	50.19	5.40	789.41	19.07	0.00	808.48

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A3 - Baseline 2031
D3 - Baseline 2031, *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	01/04/2022 18:28:01	01/04/2022 18:28:02	08:00	130	870.60	59.81	88.94	B/1	0	0	B/1	Dx/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2031		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2031,				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2252			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1975			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2204			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	76	40.00		2252
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	78	57.46	✓	1975
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	6	40.00		2204
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	336	336
Ax	1	226	226
B	1	535	535
	2	174	174
Bx	1	692	692
C	1	24	24
	2	192	192
Cx	1	207	207
D	1	345	345
Dx	1	481	481

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
1	1	50000
	2	50000
2	1	11000
	2	11000
3	1	11000
	2	11000
4	1	11000
	2	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
1	1	0	100	✓	0.00		
	2	0	100	✓	0.00		
2	1	100	100		0.00		
	2	100	100		0.00		
3	1	100	100		0.00		
	2	100	100		0.00		
4	1	100	100		0.00		
	2	100	100		0.00		

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	15	300	0	0	Unknown	
	B	(untitled)	5	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	29	300	0	0	Unknown	
	E	(untitled)	6	6	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	9, 36, 74, 108, 119
	2	(untitled)	Single	1, 2, 3, 5, 4	21, 47, 75, 100, 125
	3	(untitled)	Single	1, 2, 4, 3, 5	21, 47, 73, 101, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	21, 47, 73, 98, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	21, 47, 72, 100, 125
	6	(untitled)	Single	1, 2, 5, 4, 3	21, 47, 72, 98, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	21, 49, 75, 101, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	21, 49, 75, 100, 125
	9	(untitled)	Single	1, 3, 4, 2, 5	21, 49, 75, 101, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	21, 49, 75, 100, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	124	9	15	1	15
	2	✓	2	B	14	36	22	1	5
	3	✓	3	C	41	74	33	1	7
	4	✓	4	D	79	108	29	1	29
	5	✓	5	E	113	119	6	1	6

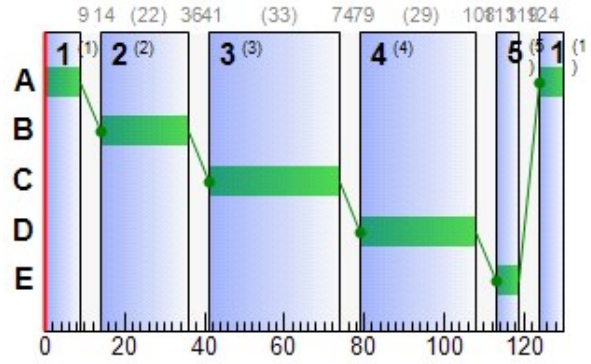
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	124	9	15
	B	1	✓	14	36	22
	C	1	✓	41	74	33
	D	1	✓	79	108	29
	E	1	✓	113	119	6

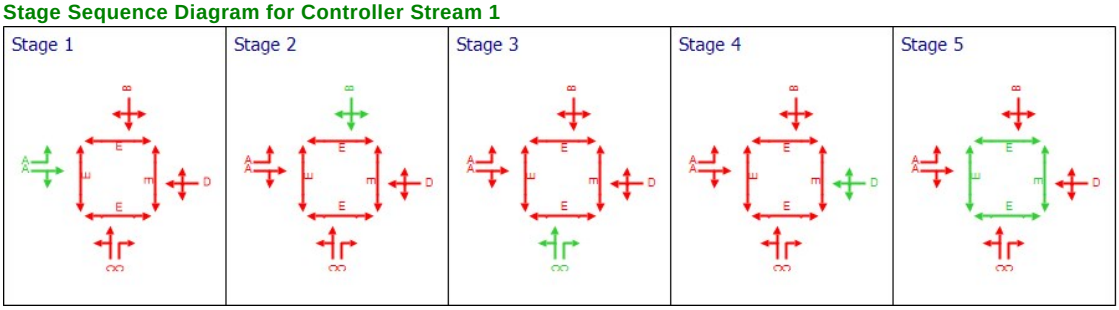
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	79	108	29
B	1	1	1	C	41	74	33
B	2	1	1	C	41	74	33
C	1	1	1	A	124	9	15
C	2	1	1	A	124	9	15
D	1	1	1	B	14	36	22

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	65	39	336	2252	29	51.46	11.50	132.29	68.21	3.95	72.15
	Ax	1	0	Unrestricted	226	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	89	1	535	2300	33	67.63	21.76	250.27	142.72	7.40	150.12
		2	34	164	174	1955	33	40.73	5.16	59.37	27.95	1.77	29.72
	Bx	1	0	Unrestricted	692	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	10	808	24	1968	15	51.49	1.45	18.80	4.87	0.27	5.14
		2	79	14	192	1975	15	81.05	8.09	104.53	61.38	2.76	64.14
	Cx	1	0	Unrestricted	207	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	88	2	345	2204	22	82.54	14.98	172.29	112.32	5.10	117.43
	Dx	1	0	Unrestricted	481	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	336	336	0		2252	520	65		39	0.00	29
	Ax	1	226	226	0		Unrestricted	Unrestricted	0		Unrestricted	1.06	130
	B	1	535	535	0		2300	602	89		1	0.00	33
		2	174	174	0		1955	511	34		164	0.00	33
	Bx	1	692	692	0		Unrestricted	Unrestricted	0		Unrestricted	0.82	130
	C	1	24	24	0		1968	242	10		808	0.00	15
		2	192	192	0		1975	243	79		14	0.00	15
	Cx	1	207	207	0		Unrestricted	Unrestricted	0		Unrestricted	0.88	130
	D	1	345	345	0		2204	390	88		2	0.00	22
	Dx	1	481	481	0		Unrestricted	Unrestricted	0		Unrestricted	1.09	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	51.46	4.22	0.58	68.21	93.70	298.86	15.97	3.95
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	67.63	6.86	3.19	142.72	110.31	505.50	84.68	7.40
		2	6.00	40.73	1.88	0.09	27.95	81.15	138.78	2.42	1.77
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	51.49	0.34	0.01	4.87	88.32	21.05	0.15	0.27
		2	5.34	81.05	2.95	1.37	61.38	114.64	184.00	36.10	2.76
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	82.54	5.00	2.91	112.32	117.97	331.01	75.98	5.10
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	11.50	8.70	132.29	0.34	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	51.00	0.00	51.00	
	B	1	0.00	21.76	8.70	250.27	4.47	0.00	0.00	0.00	0.00	0.00	
		2	0.00	5.16	8.70	59.37	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	34.00	0.00	34.00	
	C	1	0.00	1.45	7.74	18.80	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	8.09	7.74	104.53	0.01	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	59.00	0.00	59.00	
	D	1	0.00	14.98	8.70	172.29	1.61	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	48.00	0.00	48.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	16.80	5.36	3.13	57.46
	Ax	1	31.08	1.04	30.00	16.50
	B	1	26.75	10.94	2.44	73.63
		2	8.70	2.26	3.85	46.73
	Bx	1	97.54	3.25	30.00	16.91
	C	1	1.07	0.38	2.82	56.83
		2	8.54	4.61	1.85	86.39
	Cx	1	29.69	0.99	30.00	17.21
	D	1	17.25	8.49	2.03	88.54
	Dx	1	66.38	2.21	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	11.51	0.59	9.92	1.00	0.00	72.15
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	21.94	3.36	17.63	1.00	0.00	150.12
		2	0.00	0.00	✓	5.16	0.09	4.73	1.00	0.00	29.72
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.01	0.77	1.00	0.00	5.14
		2	0.00	0.00	✓	8.14	1.42	7.50	1.00	0.00	64.14
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	15.19	3.12	13.37	1.00	0.00	117.43
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	13	300	50000	6	59.62	10.33	0.00	0.00
		2	13	300	50000	6	59.62	10.33	0.00	0.00
	2	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	3	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	4	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	1	1	300	300	0		50000	2308	13		592	0.00	6
		2	300	300	0		50000	2308	13		592	0.00	6
	2	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	3	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	4	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	59.62	4.97	0.00	0.00
		2	5.67	59.62	4.97	0.00	0.00
	2	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	3	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	4	1	5.67	60.83	5.07	0.00	71.98
		2	5.67	60.83	5.07	0.00	71.98

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.33	10.00	103.33	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.44	0.44	65.28
		2	2.40	5.44	0.44	65.28
	2	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	3	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	4	1	2.40	5.54	0.43	66.50
		2	2.40	5.54	0.43	66.50

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	0.00	0.00	10.33	1.00	0.00	0.00
		2	0.00	0.00	10.33	1.00	0.00	0.00
	2	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	3	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	4	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	01/04/2022 18:28:01	01/04/2022 18:28:02	08:00	130	870.60	59.81	88.94	B/1	0	0	B/1	Dx/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	89	0	3212	667	32.95	417.45	21.25	438.70

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	59	1800	36	60.83	431.90	431.90

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	5012	5012	0		89		1	703

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.47	42.96	51.68	8.14	849.35	33.81	1479.21	215.29	21.25

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	250.27	0.00	192.00	0.00	192.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	319.41	73.00	4.38

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	870.60

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	73.4	102.9	103.3	0.0	0.0	0.0	0.0
	2	105.8	0.0	105.0	105.5	0.0	0.0	0.0	0.0
	3	74.7	74.0	0.0	74.4	0.0	0.0	0.0	0.0
	4	90.8	90.2	63.2	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	65.3	67.2	0.0
	6	0.0	0.0	0.0	0.0	65.3	0.0	0.0	67.2
	7	0.0	0.0	0.0	0.0	67.2	0.0	0.0	66.5
	8	0.0	0.0	0.0	0.0	0.0	67.2	66.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	24		73.39		24	73.39
5	2	3	10		105.04		10	105.04
6	2	4	326		105.45		326	105.45
7	2	1	9		105.75		9	105.75
8	3	2	40		74.02		40	74.02
9	3	4	216		74.38		216	74.38
10	3	1	80		74.68		80	74.68
11	4	2	417		90.19		417	90.19
13	4	1	118		90.84		118	90.84
17	8	7		300		66.50	300	66.50
18	8	6		300		67.16	300	67.16
19	1	3	42		102.89		42	102.89
20	4	3	174		63.23		174	63.23
22	5	7		300		67.16	300	67.16
34	6	8		300		67.16	300	67.16
35	6	5		300		65.28	300	65.28
41	7	8		300		66.50	300	66.50
42	7	5		300		67.16	300	67.16
43	1	4	150		103.30		150	103.30

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)	
A	1	(untitled)	1	1	D	336 <	2252	29	0.00	65	39	57.46	51.46	93.70	11.50 +	
Ax	1	(untitled)				226	Unrestricted	130	51.00	0	Unrestricted	16.50	0.00	0.00	0.00	
B	1	(untitled)	1	1	C	535 <	2300	33	0.00	89	1	73.63	67.63	110.31	21.76 +	
	2	(untitled)	1	1	C	174	1955	33	0.00	34	164	46.73	40.73	81.15	5.16	
Bx	1	(untitled)				692	Unrestricted	130	34.00	0	Unrestricted	16.91	0.00	0.00	0.00	
C	1	(untitled)	1	1	A	24	1968	15	0.00	10	808	56.83	51.49	88.32	1.45	
	2	(untitled)	1	1	A	192 <	1975	15	0.00	79	14	86.39	81.05	114.64	8.09 +	
Cx	1	(untitled)				207	Unrestricted	130	59.00	0	Unrestricted	17.21	0.00	0.00	0.00	
D	1	(untitled)	1	1	B	345 <	2204	22	0.00	88	2	88.54	82.54	117.97	14.98 +	
Dx	1	(untitled)				481	Unrestricted	130	48.00	0	Unrestricted	16.56	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
	2	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
2	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	303.81	39.52	7.69	21.26	8.14	417.45	21.25	0.00	438.70
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	15.60	33.47	0.47	30.42	0.00	431.90	0.00	0.00	431.90
TOTAL	319.41	73.00	4.38	51.68	8.14	849.35	21.25	0.00	870.60

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A4 - Baseline 2041
D4 - Baseline 2041, *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
4	01/04/2022 18:28:03	01/04/2022 18:28:04	08:00	130	951.58	65.34	93.59	B/1	2	11	B/1	Dx/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2041		D4	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2041,				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2252			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1975			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2204			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	76	40.00		2252
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	78	57.46	✓	1975
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	6	40.00		2204
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	349	349
Ax	1	237	237
B	1	563	563
	2	182	182
Bx	1	725	725
C	1	26	26
	2	202	202
Cx	1	218	218
D	1	364	364
Dx	1	506	506

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
1	1	50000
	2	50000
2	1	11000
	2	11000
3	1	11000
	2	11000
4	1	11000
	2	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
1	1	0	100	✓	0.00		
	2	0	100	✓	0.00		
2	1	100	100		0.00		
	2	100	100		0.00		
3	1	100	100		0.00		
	2	100	100		0.00		
4	1	100	100		0.00		
	2	100	100		0.00		

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	15	300	0	0	Unknown	
	B	(untitled)	5	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	29	300	0	0	Unknown	
	E	(untitled)	6	6	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	9, 36, 74, 108, 119
	2	(untitled)	Single	1, 2, 3, 5, 4	23, 51, 79, 107, 0
	3	(untitled)	Single	1, 2, 4, 3, 5	23, 51, 74, 97, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	23, 51, 74, 97, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	23, 51, 79, 107, 0
	6	(untitled)	Single	1, 2, 5, 4, 3	23, 51, 79, 102, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	23, 51, 79, 102, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	23, 51, 79, 107, 0
	9	(untitled)	Single	1, 3, 4, 2, 5	23, 51, 74, 97, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	23, 51, 74, 97, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	124	9	15	1	15
	2	✓	2	B	14	36	22	1	5
	3	✓	3	C	41	74	33	1	7
	4	✓	4	D	79	108	29	1	29
	5	✓	5	E	113	119	6	1	6

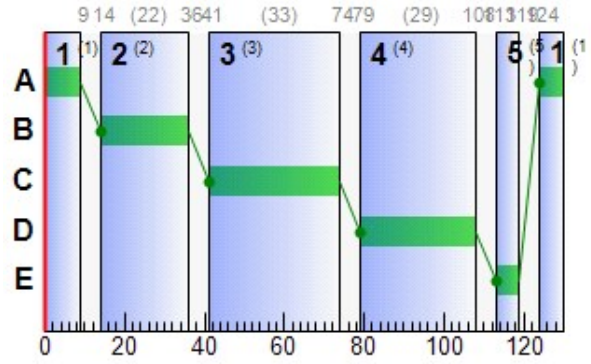
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	124	9	15
	B	1	✓	14	36	22
	C	1	✓	41	74	33
	D	1	✓	79	108	29
	E	1	✓	113	119	6

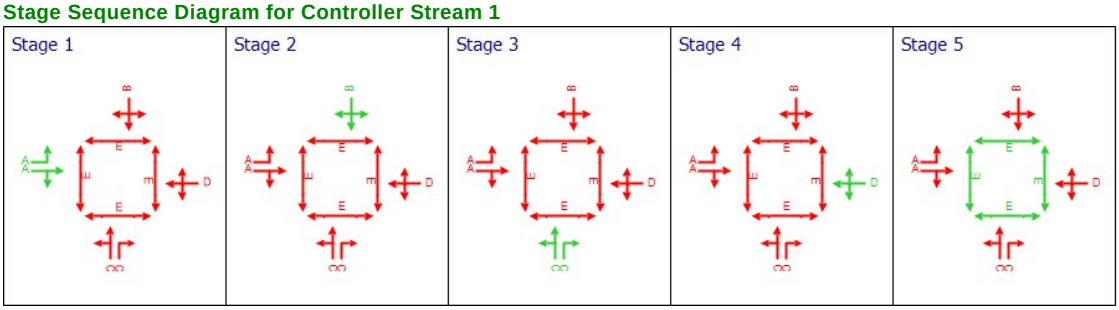
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	79	108	29
B	1	1	1	C	41	74	33
B	2	1	1	C	41	74	33
C	1	1	1	A	124	9	15
C	2	1	1	A	124	9	15
D	1	1	1	B	14	36	22

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	67	34	349	2252	29	52.49	12.12	139.33	72.26	4.15	76.41
	Ax	1	0	Unrestricted	237	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	94	-4	563	2300	33	80.12	25.05	288.08	177.92	8.47	186.39
		2	36	153	182	1955	33	41.03	5.41	62.17	29.45	1.86	31.31
	Bx	1	0	Unrestricted	725	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	11	738	26	1968	15	51.62	1.46	18.81	5.29	0.29	5.58
		2	83	8	202	1975	15	87.95	8.88	114.76	70.08	3.02	73.10
	Cx	1	0	Unrestricted	218	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	93	-4	364	2204	22	98.20	17.54	201.68	140.99	5.90	146.88
	Dx	1	0	Unrestricted	506	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	349	349	0		2252	520	67		34	0.00	29
	Ax	1	237	237	0		Unrestricted	Unrestricted	0		Unrestricted	1.05	130
	B	1	563	563	0		2300	602	94	✓	-4	0.00	33
		2	182	182	0		1955	511	36		153	0.00	33
	Bx	1	725	725	0		Unrestricted	Unrestricted	0		Unrestricted	0.80	130
	C	1	26	26	0		1968	242	11		738	0.00	15
		2	202	202	0		1975	243	83		8	0.00	15
	Cx	1	218	218	0		Unrestricted	Unrestricted	0		Unrestricted	0.86	130
	D	1	364	364	0		2204	390	93	✓	-4	0.00	22
	Dx	1	506	506	0		Unrestricted	Unrestricted	0		Unrestricted	1.07	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	52.49	4.41	0.68	72.26	94.90	312.73	18.47	4.15
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	80.12	7.34	5.19	177.92	119.98	540.60	134.91	8.47
		2	6.00	41.03	1.98	0.10	29.45	81.34	145.34	2.71	1.86
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	51.62	0.37	0.01	5.29	88.38	22.80	0.18	0.29
		2	5.34	87.95	3.12	1.81	70.08	119.36	193.94	47.16	3.02
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	98.20	5.33	4.60	140.99	129.18	353.47	116.75	5.90
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	12.12	8.70	139.33	0.48	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	49.00	0.00	49.00	
	B	1	0.00	25.05	8.70	288.08	6.64	0.00	0.00	0.00	0.00	0.00	
		2	0.00	5.41	8.70	62.17	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	32.00	0.00	32.00	
	C	1	0.00	1.46	7.74	18.81	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	8.88	7.74	114.76	0.09	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	58.00	0.00	58.00	
	D	1	0.00	17.54	8.70	201.68	3.01	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	47.00	0.00	47.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	17.45	5.67	3.08	58.49
	Ax	1	32.60	1.09	30.00	16.50
	B	1	28.15	13.47	2.09	86.12
		2	9.10	2.38	3.83	47.03
	Bx	1	102.19	3.41	30.00	16.91
	C	1	1.16	0.41	2.81	56.96
		2	8.99	5.23	1.72	93.29
	Cx	1	31.27	1.04	30.00	17.21
	D	1	18.20	10.54	1.73	104.20
	Dx	1	69.83	2.33	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	12.12	0.68	10.38	1.00	0.00	76.41
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	25.68	5.82	20.83	1.00	0.00	186.39
		2	0.00	0.00	✓	5.41	0.10	4.95	1.00	0.00	31.31
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.46	0.01	0.83	1.00	0.00	5.58
		2	0.00	0.00	✓	8.99	1.92	8.31	1.00	0.00	73.10
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	18.23	5.28	16.10	1.00	0.00	146.88
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	13	300	50000	6	59.62	10.33	0.00	0.00
		2	13	300	50000	6	59.62	10.33	0.00	0.00
	2	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	3	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	4	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	1	1	300	300	0		50000	2308	13		592	0.00	6
		2	300	300	0		50000	2308	13		592	0.00	6
	2	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	3	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	4	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	59.62	4.97	0.00	0.00
		2	5.67	59.62	4.97	0.00	0.00
	2	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	3	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	4	1	5.67	60.83	5.07	0.00	71.98
		2	5.67	60.83	5.07	0.00	71.98

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.33	10.00	103.33	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.44	0.44	65.28
		2	2.40	5.44	0.44	65.28
	2	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	3	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	4	1	2.40	5.54	0.43	66.50
		2	2.40	5.54	0.43	66.50

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	0.00	0.00	10.33	1.00	0.00	0.00
		2	0.00	0.00	10.33	1.00	0.00	0.00
	2	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	3	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	4	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
4	01/04/2022 18:28:03	01/04/2022 18:28:04	08:00	130	951.58	65.34	93.59	B/1	2	11	B/1	Dx/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	94	-4	3372	667	37.29	496.00	23.69	519.68

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	59	1800	36	60.83	431.90	431.90

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	5172	5172	0		94	✓	-4	703

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.53	45.48	52.97	12.38	927.89	36.52	1568.88	320.18	23.69

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	288.08	0.00	186.00	0.00	186.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	334.53	79.03	4.23

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	951.58

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	73.5	109.8	110.2	0.0	0.0	0.0	0.0
	2	121.4	0.0	120.7	121.1	0.0	0.0	0.0	0.0
	3	75.7	75.1	0.0	75.4	0.0	0.0	0.0	0.0
	4	103.3	102.7	63.5	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	65.3	67.2	0.0
	6	0.0	0.0	0.0	0.0	65.3	0.0	0.0	67.2
	7	0.0	0.0	0.0	0.0	67.2	0.0	0.0	66.5
	8	0.0	0.0	0.0	0.0	0.0	67.2	66.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	26		73.52		26	73.52
5	2	3	11		120.70		11	120.70
6	2	4	343		121.11		343	121.11
7	2	1	10		121.41		10	121.41
8	3	2	42		75.05		42	75.05
9	3	4	224		75.41		224	75.41
10	3	1	83		75.70		83	75.70
11	4	2	438		102.68		438	102.68
13	4	1	125		103.33		125	103.33
17	8	7		300		66.50	300	66.50
18	8	6		300		67.16	300	67.16
19	1	3	44		109.80		44	109.80
20	4	3	182		63.53		182	63.53
22	5	7		300		67.16	300	67.16
23	5	6		300		65.28	300	65.28
34	6	8		300		67.16	300	67.16
35	6	5		300		65.28	300	65.28
41	7	8		300		66.50	300	66.50
42	7	5		300		67.16	300	67.16
43	1	4	158		110.21		158	110.21

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)	
A	1	(untitled)	1	1	D	349 <	2252	29	0.00	67	34	58.49	52.49	94.90	12.12 +	
Ax	1	(untitled)				237	Unrestricted	130	49.00	0	Unrestricted	16.50	0.00	0.00	0.00	
B	1	(untitled)	1	1	C	563 <	2300	33	0.00	94	-4	86.12	80.12	119.98	25.05 +	
	2	(untitled)	1	1	C	182	1955	33	0.00	36	153	47.03	41.03	81.34	5.41	
Bx	1	(untitled)				725	Unrestricted	130	32.00	0	Unrestricted	16.91	0.00	0.00	0.00	
C	1	(untitled)	1	1	A	26	1968	15	0.00	11	738	56.96	51.62	88.38	1.46	
	2	(untitled)	1	1	A	202 <	1975	15	0.00	83	8	93.29	87.95	119.36	8.88 +	
Cx	1	(untitled)				218	Unrestricted	130	58.00	0	Unrestricted	17.21	0.00	0.00	0.00	
D	1	(untitled)	1	1	B	364 <	2204	22	0.00	93	-4	104.20	98.20	129.18	17.54 +	
Dx	1	(untitled)				506	Unrestricted	130	47.00	0	Unrestricted	16.56	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
	2	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
2	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	318.93	45.56	7.00	22.55	12.38	496.00	23.69	0.00	519.68
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	15.60	33.47	0.47	30.42	0.00	431.90	0.00	0.00	431.90
TOTAL	334.53	79.03	4.23	52.97	12.38	927.89	23.69	0.00	951.58

< = adjusted flow warning (upstream links/traffic streams are over-saturated)

** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*

^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%

+ = average link/traffic stream excess queue is greater than 0

P.I. = PERFORMANCE INDEX

A5 - Baseline 2026 with Dev.
D5 - Baseline 2026 with Dev.*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
5	01/04/2022 18:28:04	01/04/2022 18:28:05	08:00	130	909.78	62.45	87.44	A/1	0	0	A/1	Dx/1	A/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2026 with Dev.		D5	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2026 with Dev.				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2254			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1978			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2202			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	74	40.00		2254
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	71	57.46	✓	1978
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	9	40.00		2202
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	470	470
Ax	1	269	269
B	1	500	500
	2	193	193
Bx	1	730	730
C	1	23	23
	2	196	196
Cx	1	240	240
D	1	334	334
Dx	1	477	477

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
1	1	50000
	2	50000
2	1	11000
	2	11000
3	1	11000
	2	11000
4	1	11000
	2	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
1	1	0	100	✓	0.00		
	2	0	100	✓	0.00		
2	1	100	100		0.00		
	2	100	100		0.00		
3	1	100	100		0.00		
	2	100	100		0.00		
4	1	100	100		0.00		
	2	100	100		0.00		

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	15	300	0	0	Unknown	
	B	(untitled)	5	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	29	300	0	0	Unknown	
	E	(untitled)	6	6	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	9, 36, 73, 108, 119
	2	(untitled)	Single	1, 2, 3, 5, 4	21, 47, 75, 100, 125
	3	(untitled)	Single	1, 2, 4, 3, 5	21, 47, 73, 101, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	21, 47, 73, 98, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	21, 47, 72, 100, 125
	6	(untitled)	Single	1, 2, 5, 4, 3	21, 47, 72, 98, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	21, 49, 75, 101, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	21, 49, 75, 100, 125
	9	(untitled)	Single	1, 3, 4, 2, 5	21, 49, 75, 101, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	21, 49, 75, 100, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	124	9	15	1	15
	2	✓	2	B	14	36	22	1	5
	3	✓	3	C	41	73	32	1	7
	4	✓	4	D	78	108	30	1	29
	5	✓	5	E	113	119	6	1	6

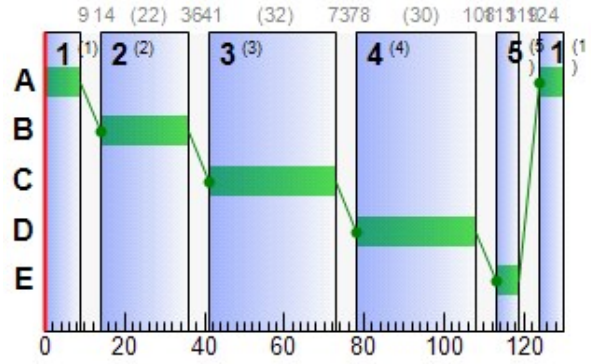
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	124	9	15
	B	1	✓	14	36	22
	C	1	✓	41	73	32
	D	1	✓	78	108	30
	E	1	✓	113	119	6

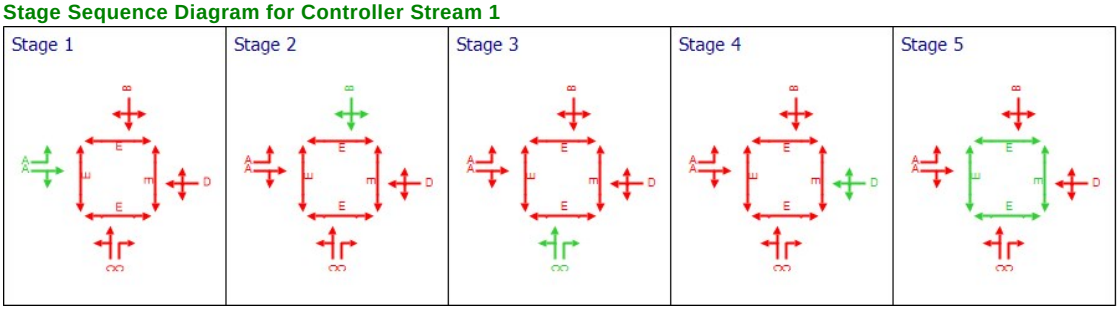
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	78	108	30
B	1	1	1	C	41	73	32
B	2	1	1	C	41	73	32
C	1	1	1	A	124	9	15
C	2	1	1	A	124	9	15
D	1	1	1	B	14	36	22

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	87	3	470	2254	30	68.69	19.07	219.30	127.34	6.49	133.83
	Ax	1	0	Unrestricted	269	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	86	5	500	2300	32	63.31	19.45	223.73	124.87	6.66	131.53
		2	39	131	193	1955	32	42.46	5.86	67.39	32.32	2.01	34.34
	Bx	1	0	Unrestricted	730	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	9	848	23	1968	15	51.43	1.45	18.79	4.67	0.25	4.92
		2	81	12	196	1978	15	83.32	8.38	108.22	64.42	2.86	67.27
	Cx	1	0	Unrestricted	240	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	86	5	334	2202	22	76.84	14.00	161.03	101.23	4.77	105.99
	Dx	1	0	Unrestricted	477	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	470	470	0		2254	537	87		3	0.00	30
	Ax	1	269	269	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	130
	B	1	500	500	0		2300	584	86		5	0.00	32
		2	193	193	0		1955	496	39		131	0.00	32
	Bx	1	730	730	0		Unrestricted	Unrestricted	0		Unrestricted	0.75	130
	C	1	23	23	0		1968	242	9		848	0.00	15
		2	196	196	0		1978	243	81		12	0.00	15
	Cx	1	240	240	0		Unrestricted	Unrestricted	0		Unrestricted	0.83	130
	D	1	334	334	0		2202	390	86		5	0.00	22
	Dx	1	477	477	0		Unrestricted	Unrestricted	0		Unrestricted	1.02	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	68.69	6.22	2.75	127.34	110.08	444.21	73.14	6.49
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	63.31	6.42	2.37	124.87	106.28	467.84	63.55	6.66
		2	6.00	42.46	2.15	0.12	32.32	83.12	157.03	3.40	2.01
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	51.43	0.32	0.00	4.67	88.29	20.17	0.14	0.25
		2	5.34	83.32	3.02	1.52	64.42	116.26	188.07	39.79	2.86
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	76.84	4.82	2.31	101.23	113.81	319.07	61.06	4.77
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	19.07	8.70	219.30	3.21	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	48.00	0.00	48.00	
	B	1	0.00	19.45	8.70	223.73	3.25	0.00	0.00	0.00	0.00	0.00	
		2	0.00	5.86	8.70	67.39	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	29.00	0.00	29.00	
	C	1	0.00	1.45	7.74	18.79	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	8.38	7.74	108.22	0.03	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	54.00	0.00	54.00	
	D	1	0.00	14.00	8.70	161.03	1.19	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	43.00	0.00	43.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	23.50	9.75	2.41	74.69
	Ax	1	37.00	1.23	30.00	16.50
	B	1	25.00	9.63	2.60	69.31
		2	9.65	2.60	3.71	48.46
	Bx	1	102.90	3.43	30.00	16.91
	C	1	1.02	0.36	2.82	56.77
		2	8.72	4.83	1.81	88.66
	Cx	1	34.42	1.15	30.00	17.21
	D	1	16.70	7.69	2.17	82.84
	Dx	1	65.83	2.19	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	19.20	2.88	15.81	1.00	0.00	133.83
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	19.54	2.46	15.93	1.00	0.00	131.53
		2	0.00	0.00	✓	5.86	0.12	5.32	1.00	0.00	34.34
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.00	0.73	1.00	0.00	4.92
		2	0.00	0.00	✓	8.44	1.58	7.79	1.00	0.00	67.27
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	14.12	2.43	12.36	1.00	0.00	105.99
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	13	300	50000	6	59.62	10.33	0.00	0.00
		2	13	300	50000	6	59.62	10.33	0.00	0.00
	2	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	3	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	4	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	1	1	300	300	0		50000	2308	13		592	0.00	6
		2	300	300	0		50000	2308	13		592	0.00	6
	2	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	3	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	4	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	59.62	4.97	0.00	0.00
		2	5.67	59.62	4.97	0.00	0.00
	2	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	3	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	4	1	5.67	60.83	5.07	0.00	71.98
		2	5.67	60.83	5.07	0.00	71.98

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.33	10.00	103.33	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.44	0.44	65.28
		2	2.40	5.44	0.44	65.28
	2	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	3	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	4	1	2.40	5.54	0.43	66.50
		2	2.40	5.54	0.43	66.50

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	0.00	0.00	10.33	1.00	0.00	0.00
		2	0.00	0.00	10.33	1.00	0.00	0.00
	2	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	3	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	4	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
5	01/04/2022 18:28:04	01/04/2022 18:28:05	08:00	130	909.78	62.45	87.44	A/1	0	0	A/1	Dx/1	A/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	87	0	3432	666	33.60	454.85	23.04	477.89

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	59	1800	36	60.83	431.90	431.90

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	5232	5232	0		87		3	702

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.55	42.97	53.37	9.08	886.74	35.12	1596.39	241.09	23.04

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	223.73	0.00	174.00	0.00	174.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	340.34	76.33	4.46

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	909.78

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	73.3	105.2	105.6	0.0	0.0	0.0	0.0
	2	100.0	0.0	99.3	99.8	0.0	0.0	0.0	0.0
	3	91.9	91.3	0.0	91.6	0.0	0.0	0.0	0.0
	4	86.5	85.9	65.0	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	65.3	67.2	0.0
	6	0.0	0.0	0.0	0.0	65.3	0.0	0.0	67.2
	7	0.0	0.0	0.0	0.0	67.2	0.0	0.0	66.5
	8	0.0	0.0	0.0	0.0	0.0	67.2	66.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	23		73.33		23	73.33
5	2	3	20		99.34		20	99.34
6	2	4	305		99.75		305	99.75
7	2	1	9		100.05		9	100.05
8	3	2	65		91.25		65	91.25
9	3	4	285		91.60		285	91.60
10	3	1	120		91.90		120	91.90
11	4	2	389		85.87		389	85.87
13	4	1	111		86.53		111	86.53
17	8	7		300		66.50	300	66.50
18	8	6		300		67.16	300	67.16
19	1	3	56		105.16		56	105.16
20	4	3	193		64.97		193	64.97
22	5	7		300		67.16	300	67.16
23	5	6		300		65.28	300	65.28
34	6	8		300		67.16	300	67.16
35	6	5		300		65.28	300	65.28
41	7	8		300		66.50	300	66.50
42	7	5		300		67.16	300	67.16
43	1	4	140		105.57		140	105.57

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)	
A	1	(untitled)	1	1	D	470 <	2254	30	0.00	87	3	74.69	68.69	110.08	19.07 +	
Ax	1	(untitled)				269	Unrestricted	130	48.00	0	Unrestricted	16.50	0.00	0.00	0.00	
B	1	(untitled)	1	1	C	500 <	2300	32	0.00	86	5	69.31	63.31	106.28	19.45 +	
	2	(untitled)	1	1	C	193	1955	32	0.00	39	131	48.46	42.46	83.12	5.86	
Bx	1	(untitled)				730	Unrestricted	130	29.00	0	Unrestricted	16.91	0.00	0.00	0.00	
C	1	(untitled)	1	1	A	23	1968	15	0.00	9	848	56.77	51.43	88.29	1.45	
	2	(untitled)	1	1	A	196 <	1978	15	0.00	81	12	88.66	83.32	116.26	8.38 +	
Cx	1	(untitled)				240	Unrestricted	130	54.00	0	Unrestricted	17.21	0.00	0.00	0.00	
D	1	(untitled)	1	1	B	334 <	2202	22	0.00	86	5	82.84	76.84	113.81	14.00 +	
Dx	1	(untitled)				477	Unrestricted	130	43.00	0	Unrestricted	16.56	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
	2	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
2	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	324.74	42.86	7.58	22.95	9.08	454.85	23.04	0.00	477.89
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	15.60	33.47	0.47	30.42	0.00	431.90	0.00	0.00	431.90
TOTAL	340.34	76.33	4.46	53.37	9.08	886.74	23.04	0.00	909.78

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A6 - Baseline 2031 with Dev.
D6 - Baseline 2031 with Dev. *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
6	01/04/2022 18:28:05	01/04/2022 18:28:06	08:00	130	1001.30	68.69	91.63	B/1	3	17	B/1	Dx/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2031 with Dev.		D6	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2031 with Dev.				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2254			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1978			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2203			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	74	40.00		2254
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	72	57.46	✓	1978
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	8	40.00		2203
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	486	486
Ax	1	281	281
B	1	535	535
	2	203	203
Bx	1	771	771
C	1	24	24
	2	208	208
Cx	1	251	251
D	1	355	355
Dx	1	508	508

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
1	1	50000
	2	50000
2	1	11000
	2	11000
3	1	11000
	2	11000
4	1	11000
	2	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
1	1	0	100	✓	0.00		
	2	0	100	✓	0.00		
2	1	100	100		0.00		
	2	100	100		0.00		
3	1	100	100		0.00		
	2	100	100		0.00		
4	1	100	100		0.00		
	2	100	100		0.00		

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	15	300	0	0	Unknown	
	B	(untitled)	5	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	29	300	0	0	Unknown	
	E	(untitled)	6	6	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	9, 36, 73, 108, 119
	2	(untitled)	Single	1, 2, 3, 5, 4	21, 47, 75, 100, 125
	3	(untitled)	Single	1, 2, 4, 3, 5	21, 47, 73, 101, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	21, 47, 73, 98, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	21, 47, 72, 100, 125
	6	(untitled)	Single	1, 2, 5, 4, 3	21, 47, 72, 98, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	21, 49, 75, 101, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	21, 49, 75, 100, 125
	9	(untitled)	Single	1, 3, 4, 2, 5	21, 49, 75, 101, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	21, 49, 75, 100, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	124	9	15	1	15
	2	✓	2	B	14	36	22	1	5
	3	✓	3	C	41	73	32	1	7
	4	✓	4	D	78	108	30	1	29
	5	✓	5	E	113	119	6	1	6

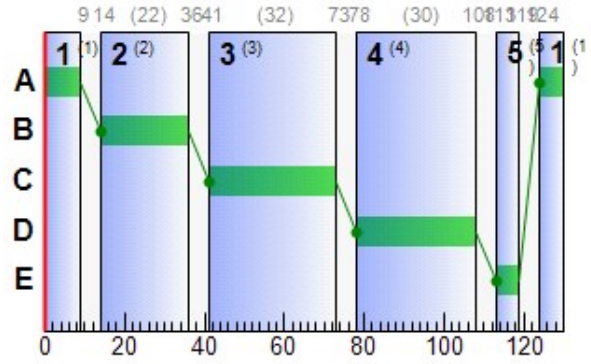
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	124	9	15
	B	1	✓	14	36	22
	C	1	✓	41	73	32
	D	1	✓	78	108	30
	E	1	✓	113	119	6

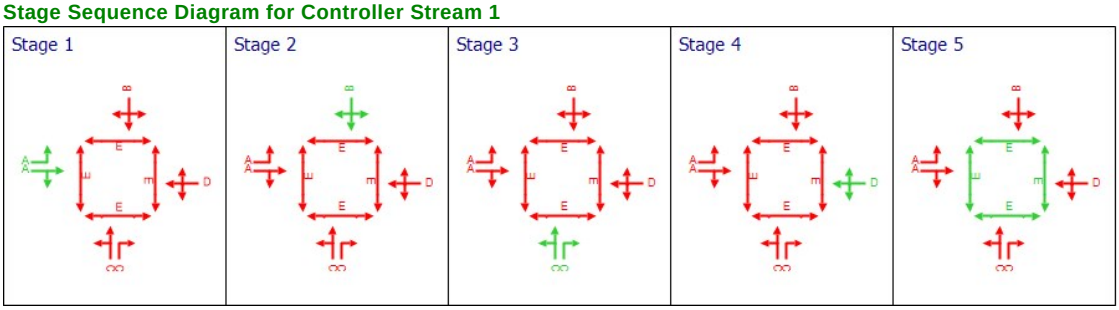
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	78	108	30
B	1	1	1	C	41	73	32
B	2	1	1	C	41	73	32
C	1	1	1	A	124	9	15
C	2	1	1	A	124	9	15
D	1	1	1	B	14	36	22

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	90	0	486	2254	30	74.94	20.64	237.35	143.66	7.02	150.68
	Ax	1	0	Unrestricted	281	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	92	-2	535	2300	32	75.13	22.88	263.13	158.54	7.78	166.32
		2	41	120	203	1955	32	42.89	6.23	71.66	34.34	2.13	36.48
	Bx	1	0	Unrestricted	771	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	10	808	24	1968	15	51.49	1.45	18.80	4.87	0.27	5.14
		2	85	5	208	1978	15	92.99	9.48	122.54	76.29	3.21	79.51
	Cx	1	0	Unrestricted	251	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	91	-1	355	2203	22	89.82	16.20	186.35	125.78	5.49	131.27
	Dx	1	0	Unrestricted	508	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	486	486	0		2254	537	90	✓	0	0.00	30
	Ax	1	281	281	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	130
	B	1	535	535	0		2300	584	92	✓	-2	0.00	32
		2	203	203	0		1955	496	41		120	0.00	32
	Bx	1	771	771	0		Unrestricted	Unrestricted	0		Unrestricted	0.73	130
	C	1	24	24	0		1968	242	10		808	0.00	15
		2	208	208	0		1978	243	85		5	0.00	15
	Cx	1	251	251	0		Unrestricted	Unrestricted	0		Unrestricted	0.82	130
	D	1	355	355	0		2203	390	91	✓	-1	0.00	22
	Dx	1	508	508	0		Unrestricted	Unrestricted	0		Unrestricted	1.01	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	74.94	6.49	3.63	143.66	115.14	464.09	95.48	7.02
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	75.13	7.01	4.16	158.54	116.03	511.63	109.12	7.78
		2	6.00	42.89	2.28	0.14	34.34	83.87	166.36	3.89	2.13
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	51.49	0.34	0.01	4.87	88.32	21.05	0.15	0.27
		2	5.34	92.99	3.23	2.14	76.29	123.27	201.05	55.35	3.21
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	89.82	5.18	3.68	125.78	123.37	343.02	94.95	5.49
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	20.64	8.70	237.35	4.11	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	47.00	0.00	47.00	
	B	1	0.00	22.88	8.70	263.13	5.26	0.00	0.00	0.00	0.00	0.00	
		2	0.00	6.23	8.70	71.66	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	27.00	0.00	27.00	
	C	1	0.00	1.45	7.74	18.80	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	9.48	7.74	122.54	0.21	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	53.00	0.00	53.00	
	D	1	0.00	16.20	8.70	186.35	2.23	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	43.00	0.00	43.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	24.30	10.93	2.22	80.94
	Ax	1	38.65	1.29	30.00	16.50
	B	1	26.75	12.06	2.22	81.13
		2	10.15	2.76	3.68	48.89
	Bx	1	108.67	3.62	30.00	16.91
	C	1	1.07	0.38	2.82	56.83
		2	9.26	5.68	1.63	98.33
	Cx	1	36.00	1.20	30.00	17.21
	D	1	17.75	9.45	1.88	95.82
	Dx	1	70.11	2.34	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	20.91	3.90	17.27	1.00	0.00	150.68
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	23.24	4.52	18.93	1.00	0.00	166.32
		2	0.00	0.00	✓	6.23	0.14	5.61	1.00	0.00	36.48
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.01	0.77	1.00	0.00	5.14
		2	0.00	0.00	✓	9.64	2.30	8.89	1.00	0.00	79.51
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	16.59	4.07	14.62	1.00	0.00	131.27
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	13	300	50000	6	59.62	10.33	0.00	0.00
		2	13	300	50000	6	59.62	10.33	0.00	0.00
	2	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	3	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	4	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	1	1	300	300	0		50000	2308	13		592	0.00	6
		2	300	300	0		50000	2308	13		592	0.00	6
	2	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	3	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	4	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	59.62	4.97	0.00	0.00
		2	5.67	59.62	4.97	0.00	0.00
	2	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	3	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	4	1	5.67	60.83	5.07	0.00	71.98
		2	5.67	60.83	5.07	0.00	71.98

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.33	10.00	103.33	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.44	0.44	65.28
		2	2.40	5.44	0.44	65.28
	2	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	3	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	4	1	2.40	5.54	0.43	66.50
		2	2.40	5.54	0.43	66.50

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	0.00	0.00	10.33	1.00	0.00	0.00
		2	0.00	0.00	10.33	1.00	0.00	0.00
	2	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	3	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	4	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
6	01/04/2022 18:28:05	01/04/2022 18:28:06	08:00	130	1001.30	68.69	91.63	B/1	3	17	B/1	Dx/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	92	-2	3622	666	38.04	543.49	25.91	569.40

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	59	1800	36	60.83	431.90	431.90

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	5422	5422	0		92	✓	-2	702

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.61	45.61	54.93	13.76	975.39	38.11	1707.20	358.93	25.91

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	263.13	0.00	170.00	0.00	170.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	358.31	83.17	4.31

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	1001.30

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	73.4	114.8	115.2	0.0	0.0	0.0	0.0
	2	113.0	0.0	112.3	112.7	0.0	0.0	0.0	0.0
	3	98.2	97.5	0.0	97.9	0.0	0.0	0.0	0.0
	4	98.3	97.7	65.4	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	65.3	67.2	0.0
	6	0.0	0.0	0.0	0.0	65.3	0.0	0.0	67.2
	7	0.0	0.0	0.0	0.0	67.2	0.0	0.0	66.5
	8	0.0	0.0	0.0	0.0	0.0	67.2	66.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	24		73.39		24	73.39
5	2	3	20		112.33		20	112.33
6	2	4	326		112.74		326	112.74
7	2	1	9		113.03		9	113.03
8	3	2	67		97.50		67	97.50
9	3	4	295		97.86		295	97.86
10	3	1	124		98.15		124	98.15
11	4	2	417		97.69		417	97.69
13	4	1	118		98.34		118	98.34
17	8	7		300		66.50	300	66.50
18	8	6		300		67.16	300	67.16
19	1	3	58		114.83		58	114.83
20	4	3	203		65.39		203	65.39
22	5	7		300		67.16	300	67.16
23	5	6		300		65.28	300	65.28
34	6	8		300		67.16	300	67.16
35	6	5		300		65.28	300	65.28
41	7	8		300		66.50	300	66.50
42	7	5		300		67.16	300	67.16
43	1	4	150		115.24		150	115.24

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)	
A	1	(untitled)	1	1	D	486 <	2254	30	0.00	90	0	80.94	74.94	115.14	20.64 +	
Ax	1	(untitled)				281	Unrestricted	130	47.00	0	Unrestricted	16.50	0.00	0.00	0.00	
B	1	(untitled)	1	1	C	535 <	2300	32	0.00	92	-2	81.13	75.13	116.03	22.88 +	
	2	(untitled)	1	1	C	203	1955	32	0.00	41	120	48.89	42.89	83.87	6.23	
Bx	1	(untitled)				771	Unrestricted	130	27.00	0	Unrestricted	16.91	0.00	0.00	0.00	
C	1	(untitled)	1	1	A	24	1968	15	0.00	10	808	56.83	51.49	88.32	1.45	
	2	(untitled)	1	1	A	208 <	1978	15	0.00	85	5	98.33	92.99	123.27	9.48 +	
Cx	1	(untitled)				251	Unrestricted	130	53.00	0	Unrestricted	17.21	0.00	0.00	0.00	
D	1	(untitled)	1	1	B	355 <	2203	22	0.00	91	-1	95.82	89.82	123.37	16.20 +	
Dx	1	(untitled)				508	Unrestricted	130	43.00	0	Unrestricted	16.56	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
	2	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
2	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	342.71	49.70	6.90	24.52	13.76	543.49	25.91	0.00	569.40
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	15.60	33.47	0.47	30.42	0.00	431.90	0.00	0.00	431.90
TOTAL	358.31	83.17	4.31	54.93	13.76	975.39	25.91	0.00	1001.30

< = adjusted flow warning (upstream links/traffic streams are over-saturated)

** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*

^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%

+ = average link/traffic stream excess queue is greater than 0

P.I. = PERFORMANCE INDEX

A7 - Baseline 2041 with Dev.
D7 - Baseline 2041 with Dev. *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
7	01/04/2022 18:28:07	01/04/2022 18:28:08	08:00	130	1117.08	76.63	95.70	D/1	3	17	D/1	Dx/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2041 with Dev.		D7	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2041 with Dev.				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2254			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1978			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2203			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	74	40.00		2254
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	72	57.46	✓	1978
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	8	40.00		2203
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	497	497
Ax	1	291	291
B	1	563	563
	2	211	211
Bx	1	803	803
C	1	26	26
	2	218	218
Cx	1	262	262
D	1	373	373
Dx	1	532	532

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
1	1	50000
	2	50000
2	1	11000
	2	11000
3	1	11000
	2	11000
4	1	11000
	2	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
1	1	0	100	✓	0.00		
	2	0	100	✓	0.00		
2	1	100	100		0.00		
	2	100	100		0.00		
3	1	100	100		0.00		
	2	100	100		0.00		
4	1	100	100		0.00		
	2	100	100		0.00		

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	15	300	0	0	Unknown	
	B	(untitled)	5	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	29	300	0	0	Unknown	
	E	(untitled)	6	6	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	9, 36, 74, 108, 119
	2	(untitled)	Single	1, 2, 3, 5, 4	23, 51, 79, 107, 0
	3	(untitled)	Single	1, 2, 4, 3, 5	23, 51, 74, 97, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	23, 51, 74, 97, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	23, 51, 79, 107, 0
	6	(untitled)	Single	1, 2, 5, 4, 3	23, 51, 79, 102, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	23, 51, 79, 102, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	23, 51, 79, 107, 0
	9	(untitled)	Single	1, 3, 4, 2, 5	23, 51, 74, 97, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	23, 51, 74, 97, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	124	9	15	1	15
	2	✓	2	B	14	36	22	1	5
	3	✓	3	C	41	74	33	1	7
	4	✓	4	D	79	108	29	1	29
	5	✓	5	E	113	119	6	1	6

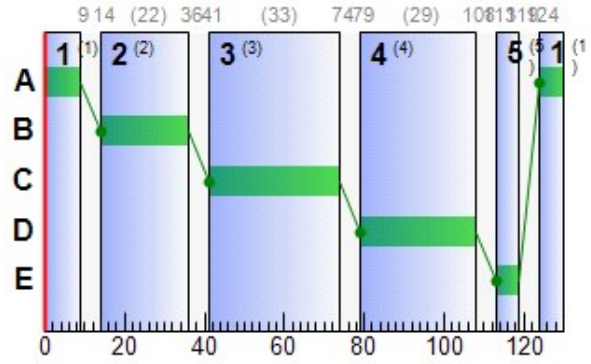
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	124	9	15
	B	1	✓	14	36	22
	C	1	✓	41	74	33
	D	1	✓	79	108	29
	E	1	✓	113	119	6

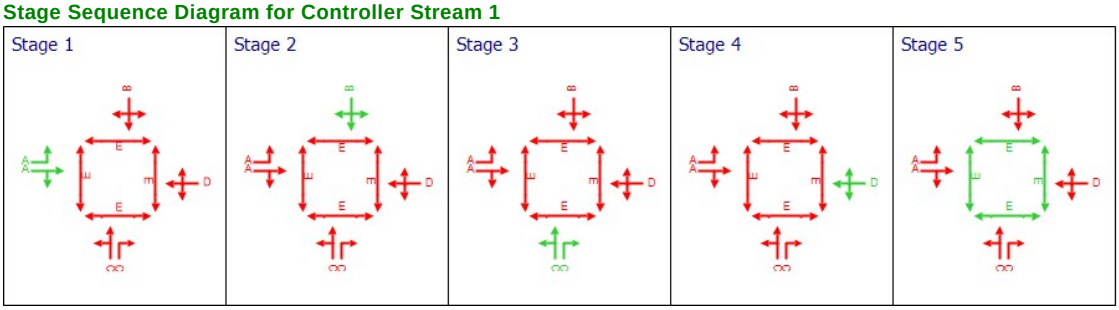
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	79	108	29
B	1	1	1	C	41	74	33
B	2	1	1	C	41	74	33
C	1	1	1	A	124	9	15
C	2	1	1	A	124	9	15
D	1	1	1	B	14	36	22

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	96	-6	497	2254	29	95.02	23.98	275.74	186.28	8.06	194.34
	Ax	1	0	Unrestricted	291	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	94	-4	563	2300	33	80.12	25.05	288.08	177.92	8.47	186.39
		2	41	118	211	1955	33	42.21	6.42	73.78	35.13	2.20	37.33
	Bx	1	0	Unrestricted	803	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	11	738	26	1968	15	51.62	1.46	18.81	5.29	0.29	5.58
		2	90	1	218	1978	15	104.86	10.70	138.26	90.17	3.59	93.76
	Cx	1	0	Unrestricted	262	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	96	-6	373	2203	22	109.69	19.14	220.05	161.39	6.39	167.78
	Dx	1	0	Unrestricted	532	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	497	497	0		2254	520	96	✓	-6	0.00	29
	Ax	1	291	291	0		Unrestricted	Unrestricted	0		Unrestricted	0.99	130
	B	1	563	563	0		2300	602	94	✓	-4	0.00	33
		2	211	211	0		1955	511	41		118	0.00	33
	Bx	1	803	803	0		Unrestricted	Unrestricted	0		Unrestricted	0.71	130
	C	1	26	26	0		1968	242	11		738	0.00	15
		2	218	218	0		1978	243	90		1	0.00	15
	Cx	1	262	262	0		Unrestricted	Unrestricted	0		Unrestricted	0.79	130
	D	1	373	373	0		2203	390	96	✓	-6	0.00	22
	Dx	1	532	532	0		Unrestricted	Unrestricted	0		Unrestricted	0.99	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	95.02	6.81	6.31	186.28	129.35	482.74	160.15	8.06
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	80.12	7.34	5.19	177.92	119.98	540.60	134.91	8.47
		2	6.00	42.21	2.33	0.14	35.13	83.23	171.64	3.98	2.20
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	51.62	0.37	0.01	5.29	88.38	22.80	0.18	0.29
		2	5.34	104.86	3.40	2.95	90.17	131.34	211.88	74.45	3.59
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	109.69	5.49	5.87	161.39	136.63	363.52	146.12	6.39
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	23.98	8.70	275.74	6.56	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	45.00	0.00	45.00	
	B	1	0.00	25.05	8.70	288.08	6.64	0.00	0.00	0.00	0.00	0.00	
		2	0.00	6.42	8.70	73.78	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	25.00	0.00	25.00	
	C	1	0.00	1.46	7.74	18.81	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	10.70	7.74	138.26	0.57	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	52.00	0.00	52.00	
	D	1	0.00	19.14	8.70	220.05	4.09	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	40.00	0.00	40.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	24.85	13.95	1.78	101.02
	Ax	1	40.02	1.33	30.00	16.50
	B	1	28.15	13.47	2.09	86.12
		2	10.55	2.83	3.73	48.21
	Bx	1	113.18	3.77	30.00	16.91
	C	1	1.16	0.41	2.81	56.96
		2	9.70	6.67	1.45	110.20
	Cx	1	37.58	1.25	30.00	17.21
	D	1	18.65	11.99	1.56	115.69
	Dx	1	73.42	2.45	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	25.18	7.51	21.32	1.00	0.00	194.34
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	25.68	5.82	20.83	1.00	0.00	186.39
		2	0.00	0.00	✓	6.42	0.14	5.77	1.00	0.00	37.33
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.46	0.01	0.83	1.00	0.00	5.58
		2	0.00	0.00	✓	11.05	3.29	10.20	1.00	0.00	93.76
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	20.44	7.17	18.26	1.00	0.00	167.78
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	13	300	50000	6	59.62	10.33	0.00	0.00
		2	13	300	50000	6	59.62	10.33	0.00	0.00
	2	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	3	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98
	4	1	59	300	11000	6	60.83	10.33	71.98	71.98
		2	59	300	11000	6	60.83	10.33	71.98	71.98

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	1	1	300	300	0		50000	2308	13		592	0.00	6
		2	300	300	0		50000	2308	13		592	0.00	6
	2	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	3	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6
	4	1	300	300	0		11000	508	59		52	0.00	6
		2	300	300	0		11000	508	59		52	0.00	6

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	59.62	4.97	0.00	0.00
		2	5.67	59.62	4.97	0.00	0.00
	2	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	3	1	6.33	60.83	5.07	0.00	71.98
		2	6.33	60.83	5.07	0.00	71.98
	4	1	5.67	60.83	5.07	0.00	71.98
		2	5.67	60.83	5.07	0.00	71.98

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.33	10.00	103.33	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.44	0.44	65.28
		2	2.40	5.44	0.44	65.28
	2	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	3	1	2.70	5.60	0.48	67.16
		2	2.70	5.60	0.48	67.16
	4	1	2.40	5.54	0.43	66.50
		2	2.40	5.54	0.43	66.50

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	1	1	0.00	0.00	10.33	1.00	0.00	0.00
		2	0.00	0.00	10.33	1.00	0.00	0.00
	2	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	3	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98
	4	1	0.00	0.00	10.33	1.00	0.00	71.98
		2	0.00	0.00	10.33	1.00	0.00	71.98

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
7	01/04/2022 18:28:07	01/04/2022 18:28:08	08:00	130	1117.08	76.63	95.70	D/1	3	17	D/1	Dx/1	D/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	96	-6	3776	667	44.06	656.18	29.00	685.18

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	59	1800	36	60.83	431.90	431.90

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	5576	5576	0		96	✓	-6	703

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.66	49.47	56.16	20.47	1088.08	41.48	1793.17	519.79	29.00

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	288.08	0.00	162.00	0.00	162.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	372.87	91.59	4.07

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	1117.08

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	73.5	126.7	127.1	0.0	0.0	0.0	0.0
	2	132.9	0.0	132.2	132.6	0.0	0.0	0.0	0.0
	3	118.2	117.6	0.0	117.9	0.0	0.0	0.0	0.0
	4	103.3	102.7	64.7	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	65.3	67.2	0.0
	6	0.0	0.0	0.0	0.0	65.3	0.0	0.0	67.2
	7	0.0	0.0	0.0	0.0	67.2	0.0	0.0	66.5
	8	0.0	0.0	0.0	0.0	0.0	67.2	66.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	26		73.52		26	73.52
5	2	3	20		132.20		20	132.20
6	2	4	343		132.61		343	132.61
7	2	1	10		132.91		10	132.91
8	3	2	68		117.58		68	117.58
9	3	4	302		117.94		302	117.94
10	3	1	127		118.23		127	118.23
11	4	2	438		102.68		438	102.68
13	4	1	125		103.33		125	103.33
17	8	7		300		66.50	300	66.50
18	8	6		300		67.16	300	67.16
19	1	3	60		126.71		60	126.71
20	4	3	211		64.71		211	64.71
22	5	7		300		67.16	300	67.16
23	5	6		300		65.28	300	65.28
34	6	8		300		67.16	300	67.16
35	6	5		300		65.28	300	65.28
41	7	8		300		66.50	300	66.50
42	7	5		300		67.16	300	67.16
43	1	4	158		127.12		158	127.12

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	D	497 <	2254	29	0.00	96	-6	101.02	95.02	129.35	23.98 +
Ax	1	(untitled)				291	Unrestricted	130	45.00	0	Unrestricted	16.50	0.00	0.00	0.00
B	1	(untitled)	1	1	C	563 <	2300	33	0.00	94	-4	86.12	80.12	119.98	25.05 +
	2	(untitled)	1	1	C	211	1955	33	0.00	41	118	48.21	42.21	83.23	6.42
Bx	1	(untitled)				803	Unrestricted	130	25.00	0	Unrestricted	16.91	0.00	0.00	0.00
C	1	(untitled)	1	1	A	26	1968	15	0.00	11	738	56.96	51.62	88.38	1.46
	2	(untitled)	1	1	A	218 <	1978	15	0.00	90	1	110.20	104.86	131.34	10.70 +
Cx	1	(untitled)				262	Unrestricted	130	52.00	0	Unrestricted	17.21	0.00	0.00	0.00
D	1	(untitled)	1	1	B	373 <	2203	22	0.00	96	-6	115.69	109.69	136.63	19.14 +
Dx	1	(untitled)				532	Unrestricted	130	40.00	0	Unrestricted	16.56	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
	2	(untitled)	1	1	E	300 <	50000	6	13	592	65.28	59.62	10.33 +	0	0
2	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	67.16	60.83	10.33 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0
	2	(untitled)	1	1	E	300 <	11000	6	59	52	66.50	60.83	10.33 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	357.27	58.12	6.15	25.74	20.47	656.18	29.00	0.00	685.18
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	15.60	33.47	0.47	30.42	0.00	431.90	0.00	0.00	431.90
TOTAL	372.87	91.59	4.07	56.16	20.47	1088.08	29.00	0.00	1117.08

< = adjusted flow warning (upstream links/traffic streams are over-saturated)

** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*

^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%

+ = average link/traffic stream excess queue is greater than 0

P.I. = PERFORMANCE INDEX

TRANSYT 15

Version: 15.5.2.7994

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

Filename: Junction 1 - PM.t16
Path: M:\Projects\20\20-040 - Brennanstown Road\Design\Civil\Traffic\2021\Junction Analysis\Junction 1
Report generation date: 01/04/2022 18:06:29

»A1 - Baseline 2021 : D1 - Baseline 2021, * :
»A2 - Baseline 2026 : D2 - Baseline 2026, * :
»A3 - Baseline 2031 : D3 - Baseline 2031, * :
»A4 - Baseline 2041 : D4 - Baseline 2041, * :
»A5 - Baseline 2026 with Dev. : D5 - Baseline 2026 with Dev.* :
»A6 - Baseline 2031 with Dev. : D6 - Baseline 2031 with Dev. * :
»A7 - Baseline 2041 with Dev. : D7 - Baseline 2041 with Dev. * :

File summary

File description

File title	(untitled)
Location	
Site number	
UTCRegion	
Driving side	Left
Date	06/12/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAIN\l.byrne
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓		✓	✓					

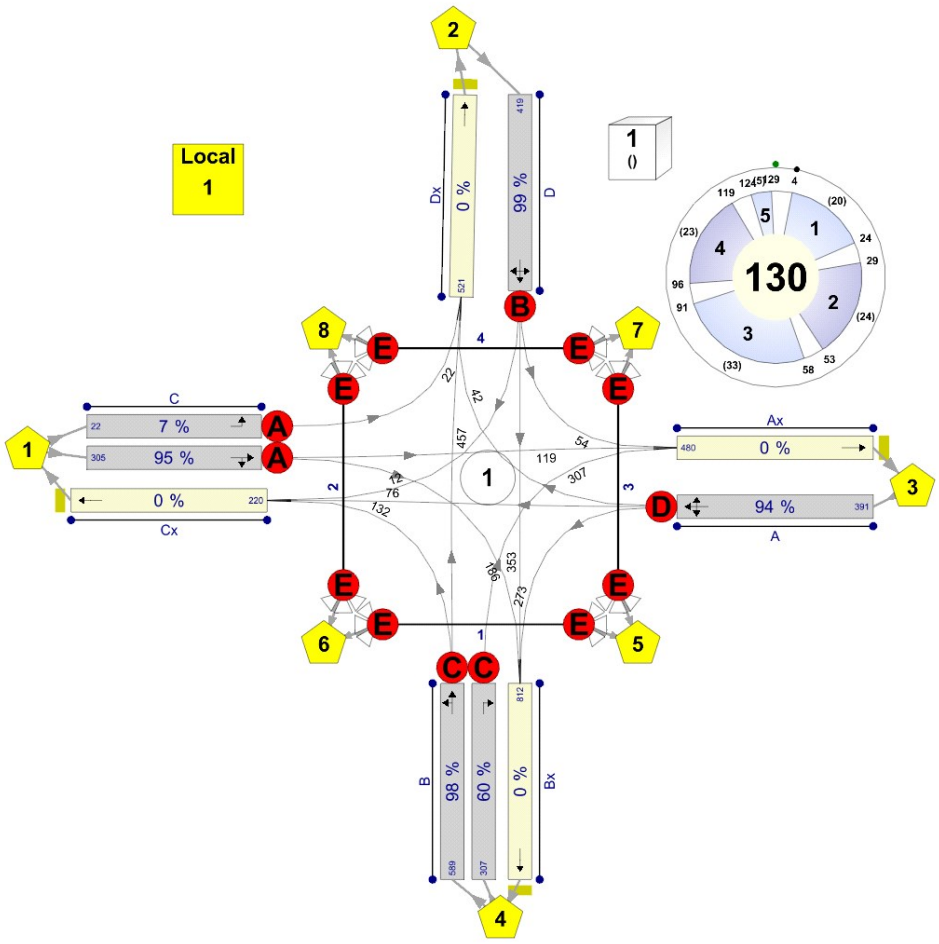
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	Veh	Veh	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



(untitled)
Diagram produced using TRANSYT 15.5.2.7994

A1 - Baseline 2021
D1 - Baseline 2021, *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	01/04/2022 18:06:12	01/04/2022 18:06:13	08:00	130	913.28	63.11	80.13	B/1	0	0	B/1	Dx/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2021		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2021,				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2246			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1977			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2201			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	84	40.00		2246
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	73	57.46	✓	1977
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	10	40.00		2201
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	221	221
Ax	1	236	236
B	1	482	482
	2	159	159
Bx	1	608	608
C	1	18	18
	2	208	208
Cx	1	153	153
D	1	320	320
Dx	1	411	411

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	18	56	152	0	0	0	0
	2	10	0	21	289	0	0	0	0
	3	35	19	0	167	0	0	0	0
	4	108	374	159	0	0	0	0	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	300	300	0
	6	0	0	0	0	300	0	0	300
	7	0	0	0	0	300	0	0	300
	8	0	0	0	0	0	300	300	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1	Dx/1	#FF0000
	3	(untitled)	A/1	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (Veh/hr)
1	1		1	2	C/1, Dx/1	Normal	18
	5		2	3	D/1, Ax/1	Normal	21
	6		2	4	D/1, Bx/1	Normal	289
	7		2	1	D/1, Cx/1	Normal	10
	8		3	2	A/1, Dx/1	Normal	19
	9		3	4	A/1, Bx/1	Normal	167
	10		3	1	A/1, Cx/1	Normal	35
	11		4	2	B/1, Dx/1	Normal	374
	13		4	1	B/1, Cx/1	Normal	108
	19		1	3	C/2, Ax/1	Normal	56
	20		4	3	B/2, Ax/1	Normal	159
	43		1	4	C/2, Bx/1	Normal	152

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	300
	18		8	6	2:2E, 2:1X	Normal	300
	22		5	7	3:2E, 3:1X	Normal	300
	23		5	6	1:1E, 1:2X	Normal	300
	34		6	8	2:1E, 2:2X	Normal	300
	35		6	5	1:2E, 1:1X	Normal	300
	41		7	8	4:2E, 4:1X	Normal	300
	42		7	5	3:1E, 3:2X	Normal	300

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	20	300	0	0	Unknown	
	B	(untitled)	24	300	0	0	Unknown	
	C	(untitled)	32	300	0	0	Unknown	
	D	(untitled)	23	300	0	0	Unknown	
	E	(untitled)	5	5	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	24, 53, 91, 119, 129
	2	(untitled)	Single	1, 2, 3, 5, 4	21, 47, 75, 100, 125
	3	(untitled)	Single	1, 2, 4, 3, 5	21, 47, 73, 101, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	21, 47, 73, 98, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	21, 47, 72, 100, 125
	6	(untitled)	Single	1, 2, 5, 4, 3	21, 47, 72, 98, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	21, 49, 75, 101, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	21, 49, 75, 100, 125
	9	(untitled)	Single	1, 3, 4, 2, 5	21, 49, 75, 101, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	21, 49, 75, 100, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	4	24	20	1	20
	2	✓	2	B	29	53	24	1	24
	3	✓	3	C	58	91	33	1	32
	4	✓	4	D	96	119	23	1	23
	5	✓	5	E	124	129	5	1	5

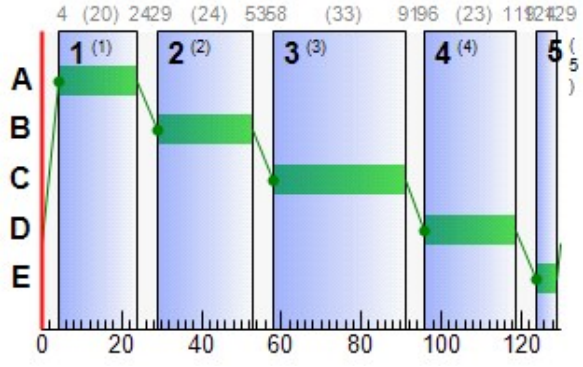
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	4	24	20
	B	1	✓	29	53	24
	C	1	✓	58	91	33
	D	1	✓	96	119	23
	E	1	✓	124	129	5

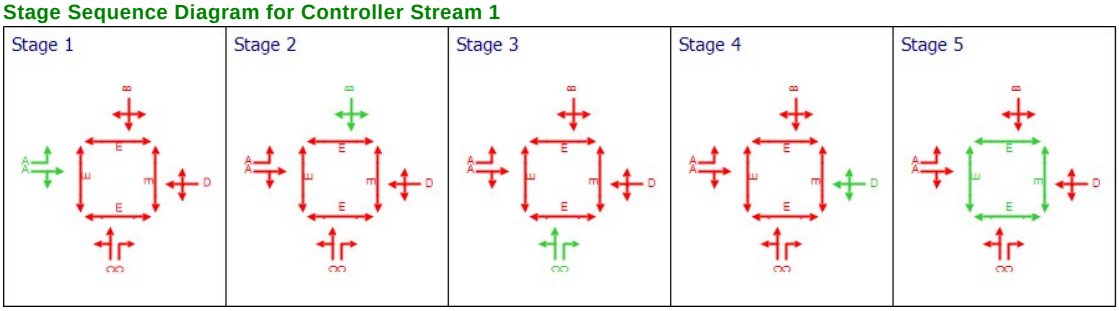
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	96	119	23
B	1	1	1	C	58	91	33
B	2	1	1	C	58	91	33
C	1	1	1	A	4	24	20
C	2	1	1	A	4	24	20
D	1	1	1	B	29	53	24

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	53	69	221	2246	23	52.85	7.48	86.07	46.07	2.57	48.64
	Ax	1	0	Unrestricted	236	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	80	12	482	2300	33	56.46	17.75	204.18	107.34	6.08	113.42
		2	31	189	159	1955	33	40.18	4.66	53.63	25.20	1.60	26.80
	Bx	1	0	Unrestricted	608	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	6	1490	18	1968	20	46.46	1.45	18.75	3.30	0.19	3.49
		2	65	38	208	1977	20	61.37	7.59	98.03	50.35	2.61	52.96
	Cx	1	0	Unrestricted	153	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	76	19	320	2201	24	62.33	11.97	137.71	78.68	4.11	82.79
	Dx	1	0	Unrestricted	411	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	221	221	0		2246	415	53		69	0.00	23
	Ax	1	236	236	0		Unrestricted	Unrestricted	0		Unrestricted	0.95	130
	B	1	482	482	0		2300	602	80		12	0.00	33
		2	159	159	0		1955	511	31		189	0.00	33
	Bx	1	608	608	0		Unrestricted	Unrestricted	0		Unrestricted	0.85	130
	C	1	18	18	0		1968	318	6		1490	0.00	20
		2	208	208	0		1977	319	65		38	0.00	20
	Cx	1	153	153	0		Unrestricted	Unrestricted	0		Unrestricted	0.96	130
	D	1	320	320	0		2201	423	76		19	0.00	24
	Dx	1	411	411	0		Unrestricted	Unrestricted	0		Unrestricted	1.19	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	52.85	2.94	0.30	46.07	92.78	196.78	8.27	2.57
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	56.46	6.00	1.55	107.34	100.60	442.79	42.09	6.08
		2	6.00	40.18	1.70	0.07	25.20	80.27	125.69	1.93	1.60
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	46.46	0.23	0.00	3.30	84.11	15.09	0.05	0.19
		2	5.34	61.37	2.95	0.59	50.35	99.92	191.68	16.15	2.61
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	62.33	4.41	1.13	78.68	102.43	297.23	30.54	4.11
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	7.48	8.70	86.07	0.00	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	43.00	0.00	43.00	
	B	1	0.00	17.75	8.70	204.18	2.39	0.00	0.00	0.00	0.00	0.00	
		2	0.00	4.66	8.70	53.63	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	36.00	0.00	36.00	
	C	1	0.00	1.45	7.74	18.75	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	7.59	7.74	98.03	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	60.00	0.00	60.00	
	D	1	0.00	11.97	8.70	137.71	0.48	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	62.00	0.00	62.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	11.05	3.61	3.06	58.85
	Ax	1	32.46	1.08	30.00	16.50
	B	1	24.10	8.36	2.88	62.46
		2	7.95	2.04	3.90	46.18
	Bx	1	85.70	2.86	30.00	16.91
	C	1	0.80	0.26	3.09	51.80
		2	9.26	3.85	2.40	66.71
	Cx	1	21.95	0.73	30.00	17.21
	D	1	16.00	6.07	2.63	68.33
	Dx	1	56.72	1.89	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	7.49	0.30	6.81	1.00	0.00	48.64
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	17.78	1.58	14.44	1.00	0.00	113.42
		2	0.00	0.00	✓	4.66	0.07	4.31	1.00	0.00	26.80
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.00	0.55	1.00	0.00	3.49
		2	0.00	0.00	✓	7.59	0.60	6.90	1.00	0.00	52.96
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	11.99	1.15	10.48	1.00	0.00	82.79
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	71	300	11000	5	61.82	10.42	73.15	73.15

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	(ALL)	(ALL)	300	300	0		11000	423	71		27	0.00	5

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15
	2	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	3	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	4	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.42	10.00	104.17	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48
	2	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	3	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	4	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	10.42	1.00	0.00	73.15

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	01/04/2022 18:06:12	01/04/2022 18:06:13	08:00	130	913.28	63.11	80.13	B/1	0	0	B/1	Dx/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	80	0	2816	673	27.99	310.94	17.16	328.09

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	71	2400	40	61.82	585.19	585.19

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	5216	5216	0		80		12	713

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	8.88	43.56	59.45	3.65	896.12	26.23	1269.25	99.04	17.16

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	204.18	0.00	201.00	0.00	201.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	286.38	75.97	3.77

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	913.28

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	68.4	83.2	83.6	0.0	0.0	0.0	0.0
	2	85.5	0.0	84.8	85.2	0.0	0.0	0.0	0.0
	3	76.1	75.4	0.0	75.8	0.0	0.0	0.0	0.0
	4	79.7	79.0	62.7	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	67.5	68.1	0.0
	6	0.0	0.0	0.0	0.0	67.5	0.0	0.0	68.1
	7	0.0	0.0	0.0	0.0	68.1	0.0	0.0	67.5
	8	0.0	0.0	0.0	0.0	0.0	68.1	67.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	18		68.36		18	68.36
5	2	3	21		84.84		21	84.84
6	2	4	289		85.25		289	85.25
7	2	1	10		85.55		10	85.55
8	3	2	19		75.41		19	75.41
9	3	4	167		75.77		167	75.77
10	3	1	35		76.06		35	76.06
11	4	2	374		79.02		374	79.02
13	4	1	108		79.67		108	79.67
17	8	7		300		67.48	300	67.48
18	8	6		300		68.15	300	68.15
19	1	3	56		83.22		56	83.22
20	4	3	159		62.68		159	62.68
22	5	7		300		68.15	300	68.15
23	5	6		300		67.48	300	67.48
34	6	8		300		68.15	300	68.15
35	6	5		300		67.48	300	67.48
41	7	8		300		67.48	300	67.48
42	7	5		300		68.15	300	68.15
43	1	4	152		83.63		152	83.63

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	D	221	2246	23	0.00	53	69	58.85	52.85	92.78	7.48
Ax	1	(untitled)				236	Unrestricted	130	43.00	0	Unrestricted	16.50	0.00	0.00	0.00
B	1	(untitled)	1	1	C	482 <	2300	33	0.00	80	12	62.46	56.46	100.60	17.75 +
	2	(untitled)	1	1	C	159	1955	33	0.00	31	189	46.18	40.18	80.27	4.66
Bx	1	(untitled)				608	Unrestricted	130	36.00	0	Unrestricted	16.91	0.00	0.00	0.00
C	1	(untitled)	1	1	A	18	1968	20	0.00	6	1490	51.80	46.46	84.11	1.45
	2	(untitled)	1	1	A	208	1977	20	0.00	65	38	66.71	61.37	99.92	7.59
Cx	1	(untitled)				153	Unrestricted	130	60.00	0	Unrestricted	17.21	0.00	0.00	0.00
D	1	(untitled)	1	1	B	320 <	2201	24	0.00	76	19	68.33	62.33	102.43	11.97 +
Dx	1	(untitled)				411	Unrestricted	130	62.00	0	Unrestricted	16.56	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
2	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	265.98	30.76	8.65	18.24	3.65	310.94	17.16	0.00	328.09
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	20.40	45.21	0.45	41.21	0.00	585.19	0.00	0.00	585.19
TOTAL	286.38	75.97	3.77	59.45	3.65	896.12	17.16	0.00	913.28

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A2 - Baseline 2026
D2 - Baseline 2026, *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	01/04/2022 18:06:13	01/04/2022 18:06:14	08:00	130	1011.68	69.74	86.78	B/1	0	0	B/1	Dx/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2026		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2026,				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2247			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1979			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2201			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	83	40.00		2247
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	69	57.46	✓	1979
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	11	40.00		2201
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	292	292
Ax	1	332	332
B	1	522	522
	2	228	228
Bx	1	692	692
C	1	20	20
	2	240	240
Cx	1	179	179
D	1	353	353
Dx	1	452	452

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	20	75	165	0	0	0	0
	2	11	0	29	313	0	0	0	0
	3	51	27	0	214	0	0	0	0
	4	117	405	228	0	0	0	0	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	300	300	0
	6	0	0	0	0	300	0	0	300
	7	0	0	0	0	300	0	0	300
	8	0	0	0	0	0	300	300	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1	Dx/1	#FF0000
	3	(untitled)	A/1	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (Veh/hr)
1	1		1	2	C/1, Dx/1	Normal	20
	5		2	3	D/1, Ax/1	Normal	29
	6		2	4	D/1, Bx/1	Normal	313
	7		2	1	D/1, Cx/1	Normal	11
	8		3	2	A/1, Dx/1	Normal	27
	9		3	4	A/1, Bx/1	Normal	214
	10		3	1	A/1, Cx/1	Normal	51
	11		4	2	B/1, Dx/1	Normal	405
	13		4	1	B/1, Cx/1	Normal	117
	19		1	3	C/2, Ax/1	Normal	75
	20		4	3	B/2, Ax/1	Normal	228
	43		1	4	C/2, Bx/1	Normal	165

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	300
	18		8	6	2:2E, 2:1X	Normal	300
	22		5	7	3:2E, 3:1X	Normal	300
	23		5	6	1:1E, 1:2X	Normal	300
	34		6	8	2:1E, 2:2X	Normal	300
	35		6	5	1:2E, 1:1X	Normal	300
	41		7	8	4:2E, 4:1X	Normal	300
	42		7	5	3:1E, 3:2X	Normal	300

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	20	300	0	0	Unknown	
	B	(untitled)	24	300	0	0	Unknown	
	C	(untitled)	32	300	0	0	Unknown	
	D	(untitled)	23	300	0	0	Unknown	
	E	(untitled)	5	5	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	24, 53, 91, 119, 129
	2	(untitled)	Single	1, 2, 3, 5, 4	21, 47, 75, 100, 125
	3	(untitled)	Single	1, 2, 4, 3, 5	21, 47, 73, 101, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	21, 47, 73, 98, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	21, 47, 72, 100, 125
	6	(untitled)	Single	1, 2, 5, 4, 3	21, 47, 72, 98, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	21, 49, 75, 101, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	21, 49, 75, 100, 125
	9	(untitled)	Single	1, 3, 4, 2, 5	21, 49, 75, 101, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	21, 49, 75, 100, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	4	24	20	1	20
	2	✓	2	B	29	53	24	1	24
	3	✓	3	C	58	91	33	1	32
	4	✓	4	D	96	119	23	1	23
	5	✓	5	E	124	129	5	1	5

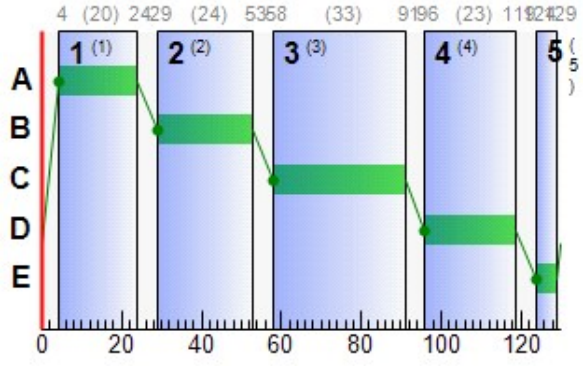
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	4	24	20
	B	1	✓	29	53	24
	C	1	✓	58	91	33
	D	1	✓	96	119	23
	E	1	✓	124	129	5

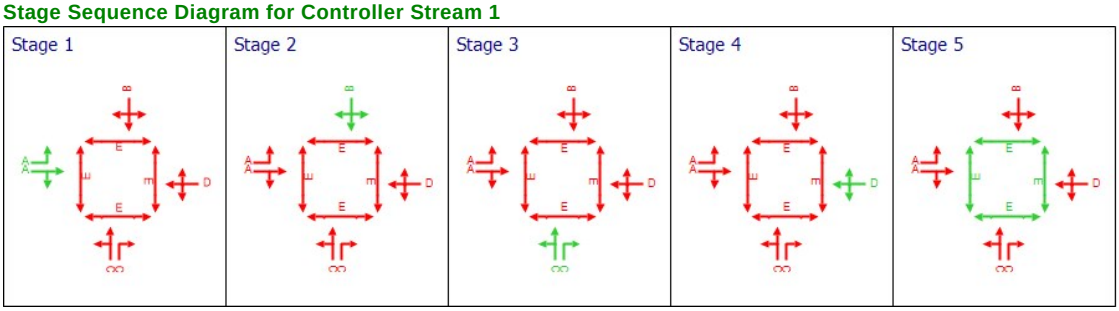
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	96	119	23
B	1	1	1	C	58	91	33
B	2	1	1	C	58	91	33
C	1	1	1	A	4	24	20
C	2	1	1	A	4	24	20
D	1	1	1	B	29	53	24

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	70	28	292	2247	23	59.74	10.63	122.26	68.81	3.65	72.46
	Ax	1	0	Unrestricted	332	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	87	4	522	2300	33	63.91	20.60	236.88	131.59	7.02	138.62
		2	45	102	228	1955	33	42.95	7.02	80.71	38.63	2.41	41.04
	Bx	1	0	Unrestricted	692	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	6	1331	20	1968	20	46.58	1.45	18.76	3.68	0.21	3.89
		2	75	20	240	1979	20	68.22	9.35	120.79	64.58	3.19	67.77
	Cx	1	0	Unrestricted	179	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	83	8	353	2201	24	70.31	14.20	163.28	97.89	4.83	102.73
	Dx	1	0	Unrestricted	452	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	292	292	0		2247	415	70		28	0.00	23
	Ax	1	332	332	0		Unrestricted	Unrestricted	0		Unrestricted	0.93	130
	B	1	522	522	0		2300	602	87		4	0.00	33
		2	228	228	0		1955	511	45		102	0.00	33
	Bx	1	692	692	0		Unrestricted	Unrestricted	0		Unrestricted	0.80	130
	C	1	20	20	0		1968	318	6		1331	0.00	20
		2	240	240	0		1979	320	75		20	0.00	20
	Cx	1	179	179	0		Unrestricted	Unrestricted	0		Unrestricted	0.91	130
	D	1	353	353	0		2201	423	83		8	0.00	24
	Dx	1	452	452	0		Unrestricted	Unrestricted	0		Unrestricted	1.15	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	59.74	4.03	0.82	68.81	99.72	269.01	22.18	3.65
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	63.91	6.65	2.62	131.59	107.29	490.00	70.05	7.02
		2	6.00	42.95	2.54	0.18	38.63	84.27	187.22	4.92	2.41
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	46.58	0.26	0.00	3.68	84.14	16.77	0.06	0.21
		2	5.34	68.22	3.47	1.08	64.58	105.92	225.19	29.02	3.19
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	70.31	4.95	1.94	97.89	109.22	333.79	51.77	4.83
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	10.63	8.70	122.26	0.19	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	38.00	0.00	38.00	
	B	1	0.00	20.60	8.70	236.88	3.80	0.00	0.00	0.00	0.00	0.00	
		2	0.00	7.02	8.70	80.71	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	31.00	0.00	31.00	
	C	1	0.00	1.45	7.74	18.76	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	9.35	7.74	120.79	0.16	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	56.00	0.00	56.00	
	D	1	0.00	14.20	8.70	163.28	1.21	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	56.00	0.00	56.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	14.60	5.33	2.74	65.74
	Ax	1	45.66	1.52	30.00	16.50
	B	1	26.10	10.14	2.57	69.91
		2	11.40	3.10	3.68	48.95
	Bx	1	97.54	3.25	30.00	16.91
	C	1	0.89	0.29	3.09	51.92
		2	10.68	4.90	2.18	73.56
	Cx	1	25.67	0.86	30.00	17.21
	D	1	17.65	7.48	2.36	76.31
	Dx	1	62.38	2.08	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	10.64	0.83	9.42	1.00	0.00	72.46
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	20.70	2.72	16.64	1.00	0.00	138.62
		2	0.00	0.00	✓	7.02	0.18	6.26	1.00	0.00	41.04
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.00	0.61	1.00	0.00	3.89
		2	0.00	0.00	✓	9.37	1.10	8.37	1.00	0.00	67.77
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	14.27	2.01	12.31	1.00	0.00	102.73
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	71	300	11000	5	61.82	10.42	73.15	73.15

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	(ALL)	(ALL)	300	300	0		11000	423	71		27	0.00	5

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15
	2	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	3	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	4	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.42	10.00	104.17	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48
	2	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	3	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	4	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	10.42	1.00	0.00	73.15

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	01/04/2022 18:06:13	01/04/2022 18:06:14	08:00	130	1011.68	69.74	86.78	B/1	0	0	B/1	Dx/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	87	0	3310	673	31.03	405.18	21.32	426.49

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	71	2400	40	61.82	585.19	585.19

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	5710	5710	0		87		4	713

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.09	43.97	63.11	6.64	990.37	29.77	1521.98	178.00	21.32

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	236.88	0.00	181.00	0.00	181.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	332.98	84.16	3.96

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	1011.68

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	68.5	90.1	90.5	0.0	0.0	0.0	0.0
	2	93.5	0.0	92.8	93.2	0.0	0.0	0.0	0.0
	3	83.0	82.3	0.0	82.7	0.0	0.0	0.0	0.0
	4	87.1	86.5	65.5	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	67.5	68.1	0.0
	6	0.0	0.0	0.0	0.0	67.5	0.0	0.0	68.1
	7	0.0	0.0	0.0	0.0	68.1	0.0	0.0	67.5
	8	0.0	0.0	0.0	0.0	0.0	68.1	67.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	20		68.49		20	68.49
5	2	3	29		92.81		29	92.81
6	2	4	313		93.22		313	93.22
7	2	1	11		93.52		11	93.52
8	3	2	27		82.30		27	82.30
9	3	4	214		82.65		214	82.65
10	3	1	51		82.95		51	82.95
11	4	2	405		86.47		405	86.47
13	4	1	117		87.12		117	87.12
17	8	7		300		67.48	300	67.48
18	8	6		300		68.15	300	68.15
19	1	3	75		90.06		75	90.06
20	4	3	228		65.46		228	65.46
22	5	7		300		68.15	300	68.15
23	5	6		300		67.48	300	67.48
34	6	8		300		68.15	300	68.15
35	6	5		300		67.48	300	67.48
41	7	8		300		67.48	300	67.48
42	7	5		300		68.15	300	68.15
43	1	4	165		90.47		165	90.47

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	D	292 <	2247	23	0.00	70	28	65.74	59.74	99.72	10.63 +
Ax	1	(untitled)				332	Unrestricted	130	38.00	0	Unrestricted	16.50	0.00	0.00	0.00
B	1	(untitled)	1	1	C	522 <	2300	33	0.00	87	4	69.91	63.91	107.29	20.60 +
	2	(untitled)	1	1	C	228	1955	33	0.00	45	102	48.95	42.95	84.27	7.02
Bx	1	(untitled)				692	Unrestricted	130	31.00	0	Unrestricted	16.91	0.00	0.00	0.00
C	1	(untitled)	1	1	A	20	1968	20	0.00	6	1331	51.92	46.58	84.14	1.45
	2	(untitled)	1	1	A	240 <	1979	20	0.00	75	20	73.56	68.22	105.92	9.35 +
Cx	1	(untitled)				179	Unrestricted	130	56.00	0	Unrestricted	17.21	0.00	0.00	0.00
D	1	(untitled)	1	1	B	353 <	2201	24	0.00	83	8	76.31	70.31	109.22	14.20 +
Dx	1	(untitled)				452	Unrestricted	130	56.00	0	Unrestricted	16.56	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
2	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	312.58	38.95	8.02	21.90	6.64	405.18	21.32	0.00	426.49
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	20.40	45.21	0.45	41.21	0.00	585.19	0.00	0.00	585.19
TOTAL	332.98	84.16	3.96	63.11	6.64	990.37	21.32	0.00	1011.68

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A3 - Baseline 2031
D3 - Baseline 2031, *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	01/04/2022 18:06:15	01/04/2022 18:06:15	08:00	130	1099.26	75.71	92.93	B/1	1	6	B/1	Dx/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2031		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2031,				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2247			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1979			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2201			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	83	40.00		2247
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	69	57.46	✓	1979
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	11	40.00		2201
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	310	310
Ax	1	350	350
B	1	559	559
	2	240	240
Bx	1	740	740
C	1	21	21
	2	256	256
Cx	1	191	191
D	1	379	379
Dx	1	484	484

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	21	79	177	0	0	0	0
	2	12	0	31	336	0	0	0	0
	3	54	29	0	227	0	0	0	0
	4	125	434	240	0	0	0	0	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	300	300	0
	6	0	0	0	0	300	0	0	300
	7	0	0	0	0	300	0	0	300
	8	0	0	0	0	0	300	300	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1	Dx/1	#FF0000
	3	(untitled)	A/1	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (Veh/hr)
1	1		1	2	C/1, Dx/1	Normal	21
	5		2	3	D/1, Ax/1	Normal	31
	6		2	4	D/1, Bx/1	Normal	336
	7		2	1	D/1, Cx/1	Normal	12
	8		3	2	A/1, Dx/1	Normal	29
	9		3	4	A/1, Bx/1	Normal	227
	10		3	1	A/1, Cx/1	Normal	54
	11		4	2	B/1, Dx/1	Normal	434
	13		4	1	B/1, Cx/1	Normal	125
	19		1	3	C/2, Ax/1	Normal	79
	20		4	3	B/2, Ax/1	Normal	240
	43		1	4	C/2, Bx/1	Normal	177

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	300
	18		8	6	2:2E, 2:1X	Normal	300
	22		5	7	3:2E, 3:1X	Normal	300
	23		5	6	1:1E, 1:2X	Normal	300
	34		6	8	2:1E, 2:2X	Normal	300
	35		6	5	1:2E, 1:1X	Normal	300
	41		7	8	4:2E, 4:1X	Normal	300
	42		7	5	3:1E, 3:2X	Normal	300

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	20	300	0	0	Unknown	
	B	(untitled)	24	300	0	0	Unknown	
	C	(untitled)	32	300	0	0	Unknown	
	D	(untitled)	23	300	0	0	Unknown	
	E	(untitled)	5	5	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	24, 53, 91, 119, 129
	2	(untitled)	Single	1, 2, 3, 5, 4	21, 47, 75, 100, 125
	3	(untitled)	Single	1, 2, 4, 3, 5	21, 47, 73, 101, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	21, 47, 73, 98, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	21, 47, 72, 100, 125
	6	(untitled)	Single	1, 2, 5, 4, 3	21, 47, 72, 98, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	21, 49, 75, 101, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	21, 49, 75, 100, 125
	9	(untitled)	Single	1, 3, 4, 2, 5	21, 49, 75, 101, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	21, 49, 75, 100, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	4	24	20	1	20
	2	✓	2	B	29	53	24	1	24
	3	✓	3	C	58	91	33	1	32
	4	✓	4	D	96	119	23	1	23
	5	✓	5	E	124	129	5	1	5

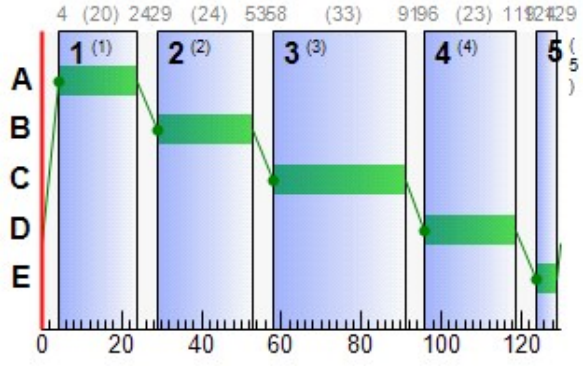
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	4	24	20
	B	1	✓	29	53	24
	C	1	✓	58	91	33
	D	1	✓	96	119	23
	E	1	✓	124	129	5

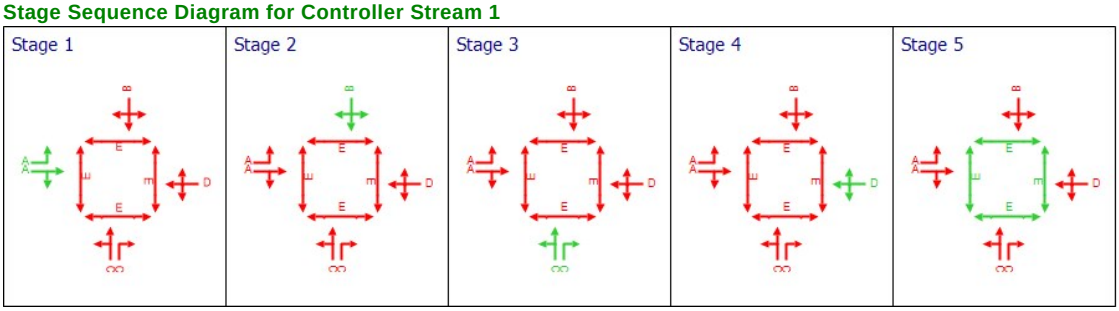
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	96	119	23
B	1	1	1	C	58	91	33
B	2	1	1	C	58	91	33
C	1	1	1	A	4	24	20
C	2	1	1	A	4	24	20
D	1	1	1	B	29	53	24

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	75	20	310	2247	23	62.53	11.57	133.10	76.47	3.97	80.44
	Ax	1	0	Unrestricted	350	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	93	-3	559	2300	33	77.80	24.37	280.31	171.55	8.29	179.84
		2	47	92	240	1955	33	43.51	7.47	85.94	41.19	2.56	43.75
	Bx	1	0	Unrestricted	740	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	7	1262	21	1968	20	46.64	1.45	18.76	3.86	0.22	4.09
		2	80	12	256	1979	20	73.60	10.39	134.26	74.32	3.55	77.87
	Cx	1	0	Unrestricted	191	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	90	1	379	2201	24	81.92	16.50	189.71	122.47	5.62	128.09
	Dx	1	0	Unrestricted	484	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	310	310	0		2247	415	75		20	0.00	23
	Ax	1	350	350	0		Unrestricted	Unrestricted	0		Unrestricted	0.92	130
	B	1	559	559	0		2300	602	93	✓	-3	0.00	33
		2	240	240	0		1955	511	47		92	0.00	33
	Bx	1	740	740	0		Unrestricted	Unrestricted	0		Unrestricted	0.77	130
	C	1	21	21	0		1968	318	7		1262	0.00	20
		2	256	256	0		1979	320	80		12	0.00	20
	Cx	1	191	191	0		Unrestricted	Unrestricted	0		Unrestricted	0.89	130
	D	1	379	379	0		2201	423	90		1	0.00	24
	Dx	1	484	484	0		Unrestricted	Unrestricted	0		Unrestricted	1.14	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	62.53	4.32	1.07	76.47	102.22	288.01	28.88	3.97
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	77.80	7.27	4.81	171.55	118.26	535.50	125.57	8.29
		2	6.00	43.51	2.69	0.21	41.19	85.17	198.71	5.69	2.56
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	46.64	0.27	0.00	3.86	84.15	17.61	0.06	0.22
		2	5.34	73.60	3.73	1.50	74.32	110.53	243.02	39.93	3.55
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	81.92	5.39	3.23	122.47	118.19	363.55	84.41	5.62
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	11.57	8.70	133.10	0.38	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	36.00	0.00	36.00	
	B	1	0.00	24.37	8.70	280.31	6.15	0.00	0.00	0.00	0.00	0.00	
		2	0.00	7.47	8.70	85.94	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	30.00	0.00	30.00	
	C	1	0.00	1.45	7.74	18.76	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	10.39	7.74	134.26	0.39	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	52.00	0.00	52.00	
	D	1	0.00	16.50	8.70	189.71	2.25	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	55.00	0.00	55.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	15.50	5.90	2.63	68.53
	Ax	1	48.14	1.60	30.00	16.50
	B	1	27.95	13.01	2.15	83.80
		2	12.00	3.30	3.64	49.51
	Bx	1	104.30	3.48	30.00	16.91
	C	1	0.93	0.30	3.08	51.98
		2	11.39	5.61	2.03	78.94
	Cx	1	27.40	0.91	30.00	17.21
	D	1	18.95	9.26	2.05	87.92
	Dx	1	66.80	2.23	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	11.59	1.09	10.21	1.00	0.00	80.44
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	24.89	5.32	20.23	1.00	0.00	179.84
		2	0.00	0.00	✓	7.47	0.21	6.61	1.00	0.00	43.75
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.00	0.64	1.00	0.00	4.09
		2	0.00	0.00	✓	10.44	1.55	9.30	1.00	0.00	77.87
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	16.75	3.49	14.54	1.00	0.00	128.09
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	71	300	11000	5	61.82	10.42	73.15	73.15

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	(ALL)	(ALL)	300	300	0		11000	423	71		27	0.00	5

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15
	2	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	3	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	4	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.42	10.00	104.17	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48
	2	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	3	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	4	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	10.42	1.00	0.00	73.15

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	01/04/2022 18:06:15	01/04/2022 18:06:15	08:00	130	1099.26	75.71	92.93	B/1	1	6	B/1	Dx/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	93	-3	3530	673	35.18	489.87	24.21	514.08

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	71	2400	40	61.82	585.19	585.19

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	5930	5930	0		93	✓	-3	713

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.17	45.96	64.89	10.82	1075.05	32.56	1646.40	284.54	24.21

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	280.31	0.00	173.00	0.00	173.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	353.76	90.82	3.90

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	1099.26

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	68.5	95.4	95.9	0.0	0.0	0.0	0.0
	2	105.1	0.0	104.4	104.8	0.0	0.0	0.0	0.0
	3	85.7	85.1	0.0	85.4	0.0	0.0	0.0	0.0
	4	101.0	100.4	66.0	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	67.5	68.1	0.0
	6	0.0	0.0	0.0	0.0	67.5	0.0	0.0	68.1
	7	0.0	0.0	0.0	0.0	68.1	0.0	0.0	67.5
	8	0.0	0.0	0.0	0.0	0.0	68.1	67.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	21		68.54		21	68.54
5	2	3	31		104.43		31	104.43
6	2	4	336		104.84		336	104.84
7	2	1	12		105.13		12	105.13
8	3	2	29		85.10		29	85.10
9	3	4	227		85.45		227	85.45
10	3	1	54		85.75		54	85.75
11	4	2	434		100.37		434	100.37
13	4	1	125		101.02		125	101.02
17	8	7		300		67.48	300	67.48
18	8	6		300		68.15	300	68.15
19	1	3	79		95.44		79	95.44
20	4	3	240		66.02		240	66.02
22	5	7		300		68.15	300	68.15
23	5	6		300		67.48	300	67.48
34	6	8		300		68.15	300	68.15
35	6	5		300		67.48	300	67.48
41	7	8		300		67.48	300	67.48
42	7	5		300		68.15	300	68.15
43	1	4	177		95.85		177	95.85

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	D	310 <	2247	23	0.00	75	20	68.53	62.53	102.22	11.57 +
Ax	1	(untitled)				350	Unrestricted	130	36.00	0	Unrestricted	16.50	0.00	0.00	0.00
B	1	(untitled)	1	1	C	559 <	2300	33	0.00	93	-3	83.80	77.80	118.26	24.37 +
	2	(untitled)	1	1	C	240	1955	33	0.00	47	92	49.51	43.51	85.17	7.47
Bx	1	(untitled)				740	Unrestricted	130	30.00	0	Unrestricted	16.91	0.00	0.00	0.00
C	1	(untitled)	1	1	A	21	1968	20	0.00	7	1262	51.98	46.64	84.15	1.45
	2	(untitled)	1	1	A	256 <	1979	20	0.00	80	12	78.94	73.60	110.53	10.39 +
Cx	1	(untitled)				191	Unrestricted	130	52.00	0	Unrestricted	17.21	0.00	0.00	0.00
D	1	(untitled)	1	1	B	379 <	2201	24	0.00	90	1	87.92	81.92	118.19	16.50 +
Dx	1	(untitled)				484	Unrestricted	130	55.00	0	Unrestricted	16.56	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
2	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	333.36	45.61	7.31	23.68	10.82	489.87	24.21	0.00	514.08
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	20.40	45.21	0.45	41.21	0.00	585.19	0.00	0.00	585.19
TOTAL	353.76	90.82	3.90	64.89	10.82	1075.05	24.21	0.00	1099.26

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A4 - Baseline 2041
D4 - Baseline 2041, *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
4	01/04/2022 18:06:16	01/04/2022 18:06:16	08:00	130	1215.70	83.68	97.92	B/1	2	11	B/1	Dx/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2041		D4	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2041,				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2247			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1979			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2201			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	83	40.00		2247
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	69	57.46	✓	1979
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	11	40.00		2201
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	323	323
Ax	1	365	365
B	1	589	589
	2	250	250
Bx	1	776	776
C	1	22	22
	2	269	269
Cx	1	200	200
D	1	397	397
Dx	1	509	509

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	22	83	186	0	0	0	0
	2	12	0	32	353	0	0	0	0
	3	56	30	0	237	0	0	0	0
	4	132	457	250	0	0	0	0	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	300	300	0
	6	0	0	0	0	300	0	0	300
	7	0	0	0	0	300	0	0	300
	8	0	0	0	0	0	300	300	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1	Dx/1	#FF0000
	3	(untitled)	A/1	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (Veh/hr)
1	1		1	2	C/1, Dx/1	Normal	22
	5		2	3	D/1, Ax/1	Normal	32
	6		2	4	D/1, Bx/1	Normal	353
	7		2	1	D/1, Cx/1	Normal	12
	8		3	2	A/1, Dx/1	Normal	30
	9		3	4	A/1, Bx/1	Normal	237
	10		3	1	A/1, Cx/1	Normal	56
	11		4	2	B/1, Dx/1	Normal	457
	13		4	1	B/1, Cx/1	Normal	132
	19		1	3	C/2, Ax/1	Normal	83
	20		4	3	B/2, Ax/1	Normal	250
	43		1	4	C/2, Bx/1	Normal	186

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	300
	18		8	6	2:2E, 2:1X	Normal	300
	22		5	7	3:2E, 3:1X	Normal	300
	23		5	6	1:1E, 1:2X	Normal	300
	34		6	8	2:1E, 2:2X	Normal	300
	35		6	5	1:2E, 1:1X	Normal	300
	41		7	8	4:2E, 4:1X	Normal	300
	42		7	5	3:1E, 3:2X	Normal	300

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	20	300	0	0	Unknown	
	B	(untitled)	24	300	0	0	Unknown	
	C	(untitled)	32	300	0	0	Unknown	
	D	(untitled)	23	300	0	0	Unknown	
	E	(untitled)	5	5	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	24, 53, 91, 119, 129
	2	(untitled)	Single	1, 2, 3, 5, 4	23, 51, 79, 107, 0
	3	(untitled)	Single	1, 2, 4, 3, 5	23, 51, 74, 97, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	23, 51, 74, 97, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	23, 51, 79, 107, 0
	6	(untitled)	Single	1, 2, 5, 4, 3	23, 51, 79, 102, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	23, 51, 79, 102, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	23, 51, 79, 107, 0
	9	(untitled)	Single	1, 3, 4, 2, 5	23, 51, 74, 97, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	23, 51, 74, 97, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	4	24	20	1	20
	2	✓	2	B	29	53	24	1	24
	3	✓	3	C	58	91	33	1	32
	4	✓	4	D	96	119	23	1	23
	5	✓	5	E	124	129	5	1	5

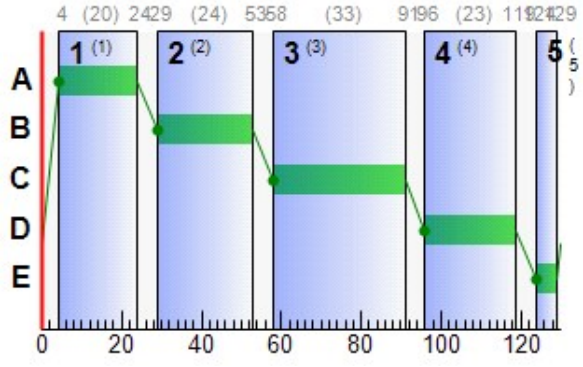
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	4	24	20
	B	1	✓	29	53	24
	C	1	✓	58	91	33
	D	1	✓	96	119	23
	E	1	✓	124	129	5

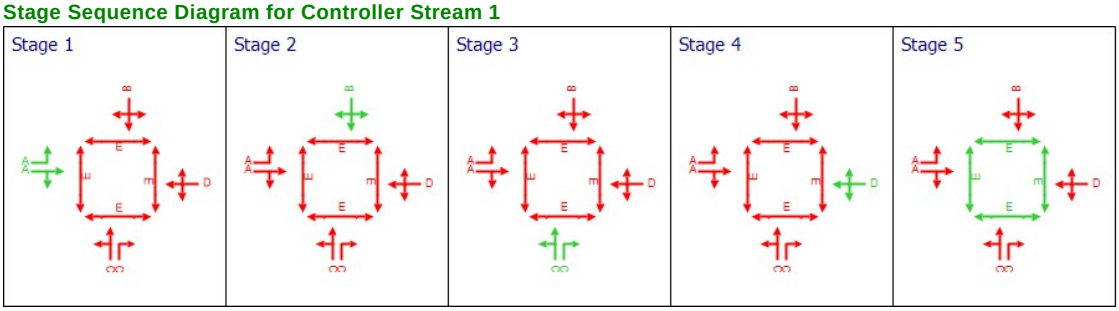
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	96	119	23
B	1	1	1	C	58	91	33
B	2	1	1	C	58	91	33
C	1	1	1	A	4	24	20
C	2	1	1	A	4	24	20
D	1	1	1	B	29	53	24

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	78	16	323	2247	23	65.07	12.35	141.98	82.91	4.23	87.14
	Ax	1	0	Unrestricted	365	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	98	-8	589	2300	33	102.19	30.03	345.34	237.42	9.99	247.41
		2	49	84	250	1955	33	43.99	7.87	90.52	43.38	2.69	46.07
	Bx	1	0	Unrestricted	776	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	7	1201	22	1968	20	46.69	1.45	18.76	4.05	0.23	4.28
		2	84	7	269	1979	20	79.76	11.42	147.61	84.63	3.89	88.51
	Cx	1	0	Unrestricted	200	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	94	-4	397	2201	24	96.24	19.02	218.77	150.71	6.39	157.10
	Dx	1	0	Unrestricted	509	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	323	323	0		2247	415	78		16	0.00	23
	Ax	1	365	365	0		Unrestricted	Unrestricted	0		Unrestricted	0.91	130
	B	1	589	589	0		2300	602	98	✓	-8	0.00	33
		2	250	250	0		1955	511	49		84	0.00	33
	Bx	1	776	776	0		Unrestricted	Unrestricted	0		Unrestricted	0.75	130
	C	1	22	22	0		1968	318	7		1201	0.00	20
		2	269	269	0		1979	320	84		7	0.00	20
	Cx	1	200	200	0		Unrestricted	Unrestricted	0		Unrestricted	0.89	130
	D	1	397	397	0		2201	423	94	✓	-4	0.00	24
	Dx	1	509	509	0		Unrestricted	Unrestricted	0		Unrestricted	1.12	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	65.07	4.53	1.31	82.91	104.56	302.46	35.27	4.23
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	102.19	7.80	8.92	237.42	135.28	573.89	222.92	9.99
		2	6.00	43.99	2.82	0.23	43.38	85.70	207.86	6.40	2.69
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	46.69	0.28	0.00	4.05	84.17	18.45	0.07	0.23
		2	5.34	79.76	3.95	2.01	84.63	115.26	257.23	52.82	3.89
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	96.24	5.71	4.91	150.71	128.40	384.82	124.91	6.39
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	12.35	8.70	141.98	0.59	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	35.00	0.00	35.00	
	B	1	0.00	30.03	8.70	345.34	10.78	0.00	0.00	0.00	0.00	0.00	
		2	0.00	7.87	8.70	90.52	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	28.00	0.00	28.00	
	C	1	0.00	1.45	7.74	18.76	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	11.42	7.74	147.61	0.71	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	52.00	0.00	52.00	
	D	1	0.00	19.02	8.70	218.77	3.76	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	54.00	0.00	54.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	16.15	6.38	2.53	71.07
	Ax	1	50.20	1.67	30.00	16.50
	B	1	29.45	17.70	1.66	108.19
		2	12.50	3.47	3.60	49.99
	Bx	1	109.38	3.65	30.00	16.91
	C	1	0.98	0.32	3.08	52.03
		2	11.97	6.36	1.88	85.10
	Cx	1	28.69	0.96	30.00	17.21
	D	1	19.85	11.27	1.76	102.24
	Dx	1	70.25	2.34	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	12.37	1.34	10.85	1.00	0.00	87.14
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	32.63	11.52	27.23	1.00	0.00	247.41
		2	0.00	0.00	✓	7.87	0.23	6.90	1.00	0.00	46.07
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.00	0.67	1.00	0.00	4.28
		2	0.00	0.00	✓	11.53	2.11	10.25	1.00	0.00	88.51
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	19.78	5.66	17.24	1.00	0.00	157.10
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	71	300	11000	5	61.82	10.42	73.15	73.15

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	(ALL)	(ALL)	300	300	0		11000	423	71		27	0.00	5

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15
	2	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	3	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	4	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.42	10.00	104.17	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48
	2	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	3	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	4	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	10.42	1.00	0.00	73.15

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
4	01/04/2022 18:06:16	01/04/2022 18:06:16	08:00	130	1215.70	83.68	97.92	B/1	2	11	B/1	Dx/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	98	-8	3700	673	41.32	603.09	27.42	630.51

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	71	2400	40	61.82	585.19	585.19

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	6100	6100	0		98	✓	-8	713

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.23	49.39	66.30	17.38	1188.28	35.85	1744.72	442.39	27.42

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	345.34	0.00	169.00	0.00	169.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	369.81	99.33	3.72

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	1215.70

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	68.6	101.6	102.0	0.0	0.0	0.0	0.0
	2	119.5	0.0	118.7	119.2	0.0	0.0	0.0	0.0
	3	88.3	87.6	0.0	88.0	0.0	0.0	0.0	0.0
	4	125.4	124.8	66.5	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	67.5	68.1	0.0
	6	0.0	0.0	0.0	0.0	67.5	0.0	0.0	68.1
	7	0.0	0.0	0.0	0.0	68.1	0.0	0.0	67.5
	8	0.0	0.0	0.0	0.0	0.0	68.1	67.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	22		68.59		22	68.59
5	2	3	32		118.74		32	118.74
6	2	4	353		119.15		353	119.15
7	2	1	12		119.45		12	119.45
8	3	2	30		87.63		30	87.63
9	3	4	237		87.99		237	87.99
10	3	1	56		88.29		56	88.29
11	4	2	457		124.75		457	124.75
13	4	1	132		125.40		132	125.40
17	8	7		300		67.48	300	67.48
18	8	6		300		68.15	300	68.15
19	1	3	83		101.60		83	101.60
20	4	3	250		66.50		250	66.50
22	5	7		300		68.15	300	68.15
23	5	6		300		67.48	300	67.48
34	6	8		300		68.15	300	68.15
35	6	5		300		67.48	300	67.48
41	7	8		300		67.48	300	67.48
42	7	5		300		68.15	300	68.15
43	1	4	186		102.01		186	102.01

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	D	323 <	2247	23	0.00	78	16	71.07	65.07	104.56	12.35 +
Ax	1	(untitled)				365	Unrestricted	130	35.00	0	Unrestricted	16.50	0.00	0.00	0.00
B	1	(untitled)	1	1	C	589 <	2300	33	0.00	98	-8	108.19	102.19	135.28	30.03 +
	2	(untitled)	1	1	C	250	1955	33	0.00	49	84	49.99	43.99	85.70	7.87
Bx	1	(untitled)				776	Unrestricted	130	28.00	0	Unrestricted	16.91	0.00	0.00	0.00
C	1	(untitled)	1	1	A	22	1968	20	0.00	7	1201	52.03	46.69	84.17	1.45
	2	(untitled)	1	1	A	269 <	1979	20	0.00	84	7	85.10	79.76	115.26	11.42 +
Cx	1	(untitled)				200	Unrestricted	130	52.00	0	Unrestricted	17.21	0.00	0.00	0.00
D	1	(untitled)	1	1	B	397 <	2201	24	0.00	94	-4	102.24	96.24	128.40	19.02 +
Dx	1	(untitled)				509	Unrestricted	130	54.00	0	Unrestricted	16.56	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
2	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	349.41	54.12	6.46	25.09	17.38	603.09	27.42	0.00	630.51
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	20.40	45.21	0.45	41.21	0.00	585.19	0.00	0.00	585.19
TOTAL	369.81	99.33	3.72	66.30	17.38	1188.28	27.42	0.00	1215.70

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A5 - Baseline 2026 with Dev.
D5 - Baseline 2026 with Dev.*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
5	01/04/2022 18:06:16	01/04/2022 18:06:17	08:00	130	1115.69	76.80	88.84	D/1	0	0	D/1	Dx/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2026 with Dev.		D5	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2026 with Dev.				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2249			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1984			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2195			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	80	40.00		2249
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	60	57.46	✓	1984
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	17	40.00		2195
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	360	360
Ax	1	447	447
B	1	522	522
	2	285	285
Bx	1	728	728
C	1	20	20
	2	276	276
Cx	1	199	199
D	1	375	375
Dx	1	464	464

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	20	111	165	0	0	0	0
	2	11	0	51	313	0	0	0	0
	3	71	39	0	250	0	0	0	0
	4	117	405	285	0	0	0	0	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	300	300	0
	6	0	0	0	0	300	0	0	300
	7	0	0	0	0	300	0	0	300
	8	0	0	0	0	0	300	300	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1	Dx/1	#FF0000
	3	(untitled)	A/1	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (Veh/hr)
1	1		1	2	C/1, Dx/1	Normal	20
	5		2	3	D/1, Ax/1	Normal	51
	6		2	4	D/1, Bx/1	Normal	313
	7		2	1	D/1, Cx/1	Normal	11
	8		3	2	A/1, Dx/1	Normal	39
	9		3	4	A/1, Bx/1	Normal	250
	10		3	1	A/1, Cx/1	Normal	71
	11		4	2	B/1, Dx/1	Normal	405
	13		4	1	B/1, Cx/1	Normal	117
	19		1	3	C/2, Ax/1	Normal	111
	20		4	3	B/2, Ax/1	Normal	285
	43		1	4	C/2, Bx/1	Normal	165

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	300
	18		8	6	2:2E, 2:1X	Normal	300
	22		5	7	3:2E, 3:1X	Normal	300
	23		5	6	1:1E, 1:2X	Normal	300
	34		6	8	2:1E, 2:2X	Normal	300
	35		6	5	1:2E, 1:1X	Normal	300
	41		7	8	4:2E, 4:1X	Normal	300
	42		7	5	3:1E, 3:2X	Normal	300

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	20	300	0	0	Unknown	
	B	(untitled)	24	300	0	0	Unknown	
	C	(untitled)	32	300	0	0	Unknown	
	D	(untitled)	23	300	0	0	Unknown	
	E	(untitled)	5	5	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	24, 53, 91, 119, 129
	2	(untitled)	Single	1, 2, 3, 5, 4	21, 47, 75, 100, 125
	3	(untitled)	Single	1, 2, 4, 3, 5	21, 47, 73, 101, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	21, 47, 73, 98, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	21, 47, 72, 100, 125
	6	(untitled)	Single	1, 2, 5, 4, 3	21, 47, 72, 98, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	21, 49, 75, 101, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	21, 49, 75, 100, 125
	9	(untitled)	Single	1, 3, 4, 2, 5	21, 49, 75, 101, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	21, 49, 75, 100, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	4	24	20	1	20
	2	✓	2	B	29	53	24	1	24
	3	✓	3	C	58	91	33	1	32
	4	✓	4	D	96	119	23	1	23
	5	✓	5	E	124	129	5	1	5

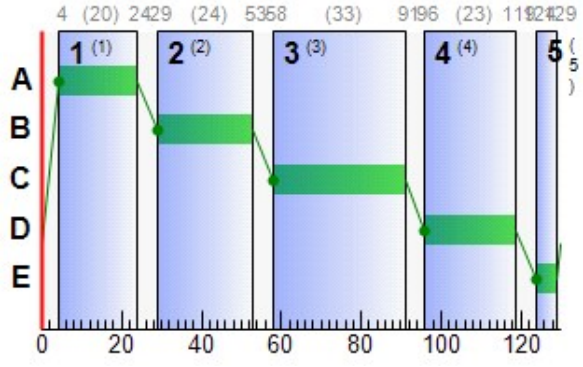
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	4	24	20
	B	1	✓	29	53	24
	C	1	✓	58	91	33
	D	1	✓	96	119	23
	E	1	✓	124	129	5

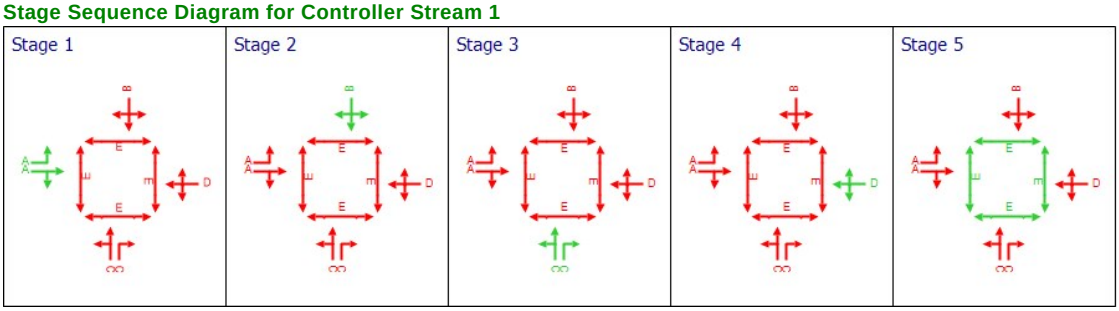
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	96	119	23
B	1	1	1	C	58	91	33
B	2	1	1	C	58	91	33
C	1	1	1	A	4	24	20
C	2	1	1	A	4	24	20
D	1	1	1	B	29	53	24

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	87	4	360	2249	23	76.64	15.12	173.87	108.83	5.15	113.98
	Ax	1	0	Unrestricted	447	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	87	4	522	2300	33	63.91	20.60	236.88	131.59	7.02	138.62
		2	56	61	285	1955	33	45.90	9.21	105.97	51.60	3.16	54.76
	Bx	1	0	Unrestricted	728	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	6	1331	20	1968	20	46.58	1.45	18.76	3.68	0.21	3.89
		2	86	5	276	1984	20	83.56	12.00	155.02	90.97	4.08	95.05
	Cx	1	0	Unrestricted	199	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	89	1	375	2195	24	80.25	16.16	185.80	118.70	5.50	124.21
	Dx	1	0	Unrestricted	464	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	360	360	0		2249	415	87		4	0.00	23
	Ax	1	447	447	0		Unrestricted	Unrestricted	0		Unrestricted	0.85	130
	B	1	522	522	0		2300	602	87		4	0.00	33
		2	285	285	0		1955	511	56		61	0.00	33
	Bx	1	728	728	0		Unrestricted	Unrestricted	0		Unrestricted	0.74	130
	C	1	20	20	0		1968	318	6		1331	0.00	20
		2	276	276	0		1984	320	86		5	0.00	20
	Cx	1	199	199	0		Unrestricted	Unrestricted	0		Unrestricted	0.87	130
	D	1	375	375	0		2195	422	89		1	0.00	24
	Dx	1	464	464	0		Unrestricted	Unrestricted	0		Unrestricted	1.11	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	76.64	5.15	2.52	108.83	114.11	344.33	66.48	5.15
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	63.91	6.65	2.62	131.59	107.29	490.00	70.05	7.02
		2	6.00	45.90	3.29	0.35	51.60	88.39	242.36	9.56	3.16
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	46.58	0.26	0.00	3.68	84.14	16.77	0.06	0.21
		2	5.34	83.56	4.07	2.34	90.97	118.03	264.71	61.04	4.08
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	80.25	5.33	3.03	118.70	117.05	359.51	79.43	5.50
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	15.12	8.70	173.87	1.61	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	34.00	0.00	34.00	
	B	1	0.00	20.60	8.70	236.88	3.80	0.00	0.00	0.00	0.00	0.00	
		2	0.00	9.21	8.70	105.97	0.02	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	28.00	0.00	28.00	
	C	1	0.00	1.45	7.74	18.76	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	12.00	7.74	155.02	0.93	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	53.00	0.00	53.00	
	D	1	0.00	16.16	8.70	185.80	2.08	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	52.00	0.00	52.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	18.00	8.26	2.18	82.64
	Ax	1	61.48	2.05	30.00	16.50
	B	1	26.10	10.14	2.57	69.91
		2	14.25	4.11	3.47	51.90
	Bx	1	102.61	3.42	30.00	16.91
	C	1	0.89	0.29	3.09	51.92
		2	12.28	6.82	1.80	88.90
	Cx	1	28.54	0.95	30.00	17.21
	D	1	18.75	8.98	2.09	86.25
	Dx	1	64.04	2.13	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	15.26	2.66	13.26	1.00	0.00	113.98
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	20.70	2.72	16.64	1.00	0.00	138.62
		2	0.00	0.00	✓	9.22	0.35	7.95	1.00	0.00	54.76
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.00	0.61	1.00	0.00	3.89
		2	0.00	0.00	✓	12.14	2.48	10.84	1.00	0.00	95.05
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	16.38	3.25	14.19	1.00	0.00	124.21
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	71	300	11000	5	61.82	10.42	73.15	73.15

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	(ALL)	(ALL)	300	300	0		11000	423	71		27	0.00	5

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15
	2	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	3	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	4	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.42	10.00	104.17	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48
	2	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	3	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	4	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	10.42	1.00	0.00	73.15

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
5	01/04/2022 18:06:16	01/04/2022 18:06:17	08:00	130	1115.69	76.80	88.84	D/1	0	0	D/1	Dx/1	D/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	89	0	3676	673	34.85	505.37	25.13	530.50

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	71	2400	40	61.82	585.19	585.19

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	6076	6076	0		89		1	713

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.22	45.50	65.94	10.86	1090.56	32.99	1717.68	286.62	25.13

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	236.88	0.00	167.00	0.00	167.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	367.34	92.36	3.98

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	1115.69

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	68.5	105.4	105.8	0.0	0.0	0.0	0.0
	2	103.5	0.0	102.8	103.2	0.0	0.0	0.0	0.0
	3	99.9	99.2	0.0	99.6	0.0	0.0	0.0	0.0
	4	87.1	86.5	68.4	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	67.5	68.1	0.0
	6	0.0	0.0	0.0	0.0	67.5	0.0	0.0	68.1
	7	0.0	0.0	0.0	0.0	68.1	0.0	0.0	67.5
	8	0.0	0.0	0.0	0.0	0.0	68.1	67.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	20		68.49		20	68.49
5	2	3	51		102.75		51	102.75
6	2	4	313		103.16		313	103.16
7	2	1	11		103.46		11	103.46
8	3	2	39		99.20		39	99.20
9	3	4	250		99.56		250	99.56
10	3	1	71		99.86		71	99.86
11	4	2	405		86.47		405	86.47
13	4	1	117		87.12		117	87.12
17	8	7		300		67.48	300	67.48
18	8	6		300		68.15	300	68.15
19	1	3	111		105.40		111	105.40
20	4	3	285		68.40		285	68.40
22	5	7		300		68.15	300	68.15
23	5	6		300		67.48	300	67.48
34	6	8		300		68.15	300	68.15
35	6	5		300		67.48	300	67.48
41	7	8		300		67.48	300	67.48
42	7	5		300		68.15	300	68.15
43	1	4	165		105.81		165	105.81

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	D	360 <	2249	23	0.00	87	4	82.64	76.64	114.11	15.12 +
Ax	1	(untitled)				447	Unrestricted	130	34.00	0	Unrestricted	16.50	0.00	0.00	0.00
B	1	(untitled)	1	1	C	522 <	2300	33	0.00	87	4	69.91	63.91	107.29	20.60 +
	2	(untitled)	1	1	C	285 <	1955	33	0.00	56	61	51.90	45.90	88.39	9.21 +
Bx	1	(untitled)				728	Unrestricted	130	28.00	0	Unrestricted	16.91	0.00	0.00	0.00
C	1	(untitled)	1	1	A	20	1968	20	0.00	6	1331	51.92	46.58	84.14	1.45
	2	(untitled)	1	1	A	276 <	1984	20	0.00	86	5	88.90	83.56	118.03	12.00 +
Cx	1	(untitled)				199	Unrestricted	130	53.00	0	Unrestricted	17.21	0.00	0.00	0.00
D	1	(untitled)	1	1	B	375 <	2195	24	0.00	89	1	86.25	80.25	117.05	16.16 +
Dx	1	(untitled)				464	Unrestricted	130	52.00	0	Unrestricted	16.56	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
2	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	346.94	47.15	7.36	24.73	10.86	505.37	25.13	0.00	530.50
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	20.40	45.21	0.45	41.21	0.00	585.19	0.00	0.00	585.19
TOTAL	367.34	92.36	3.98	65.94	10.86	1090.56	25.13	0.00	1115.69

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A6 - Baseline 2031 with Dev.
D6 - Baseline 2031 with Dev. *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
6	01/04/2022 18:06:17	01/04/2022 18:06:17	08:00	130	1244.89	85.64	94.95	D/1	4	22	D/1	Dx/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2031 with Dev.		D6	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2031 with Dev.				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2248			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1983			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2196			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	81	40.00		2248
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	61	57.46	✓	1983
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	16	40.00		2196
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	376	376
Ax	1	465	465
B	1	559	559
	2	297	297
Bx	1	776	776
C	1	21	21
	2	292	292
Cx	1	210	210
D	1	401	401
Dx	1	495	495

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	21	115	177	0	0	0	0
	2	12	0	53	336	0	0	0	0
	3	73	40	0	263	0	0	0	0
	4	125	434	297	0	0	0	0	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	300	300	0
	6	0	0	0	0	300	0	0	300
	7	0	0	0	0	300	0	0	300
	8	0	0	0	0	0	300	300	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1	Dx/1	#FF0000
	3	(untitled)	A/1	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (Veh/hr)
1	1		1	2	C/1, Dx/1	Normal	21
	5		2	3	D/1, Ax/1	Normal	53
	6		2	4	D/1, Bx/1	Normal	336
	7		2	1	D/1, Cx/1	Normal	12
	8		3	2	A/1, Dx/1	Normal	40
	9		3	4	A/1, Bx/1	Normal	263
	10		3	1	A/1, Cx/1	Normal	73
	11		4	2	B/1, Dx/1	Normal	434
	13		4	1	B/1, Cx/1	Normal	125
	19		1	3	C/2, Ax/1	Normal	115
	20		4	3	B/2, Ax/1	Normal	297
	43		1	4	C/2, Bx/1	Normal	177

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	300
	18		8	6	2:2E, 2:1X	Normal	300
	22		5	7	3:2E, 3:1X	Normal	300
	23		5	6	1:1E, 1:2X	Normal	300
	34		6	8	2:1E, 2:2X	Normal	300
	35		6	5	1:2E, 1:1X	Normal	300
	41		7	8	4:2E, 4:1X	Normal	300
	42		7	5	3:1E, 3:2X	Normal	300

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	20	300	0	0	Unknown	
	B	(untitled)	24	300	0	0	Unknown	
	C	(untitled)	32	300	0	0	Unknown	
	D	(untitled)	23	300	0	0	Unknown	
	E	(untitled)	5	5	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	24, 53, 91, 119, 129
	2	(untitled)	Single	1, 2, 3, 5, 4	21, 47, 75, 100, 125
	3	(untitled)	Single	1, 2, 4, 3, 5	21, 47, 73, 101, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	21, 47, 73, 98, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	21, 47, 72, 100, 125
	6	(untitled)	Single	1, 2, 5, 4, 3	21, 47, 72, 98, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	21, 49, 75, 101, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	21, 49, 75, 100, 125
	9	(untitled)	Single	1, 3, 4, 2, 5	21, 49, 75, 101, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	21, 49, 75, 100, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	4	24	20	1	20
	2	✓	2	B	29	53	24	1	24
	3	✓	3	C	58	91	33	1	32
	4	✓	4	D	96	119	23	1	23
	5	✓	5	E	124	129	5	1	5

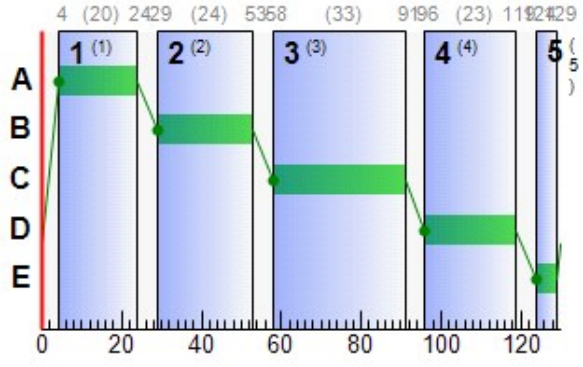
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	4	24	20
	B	1	✓	29	53	24
	C	1	✓	58	91	33
	D	1	✓	96	119	23
	E	1	✓	124	129	5

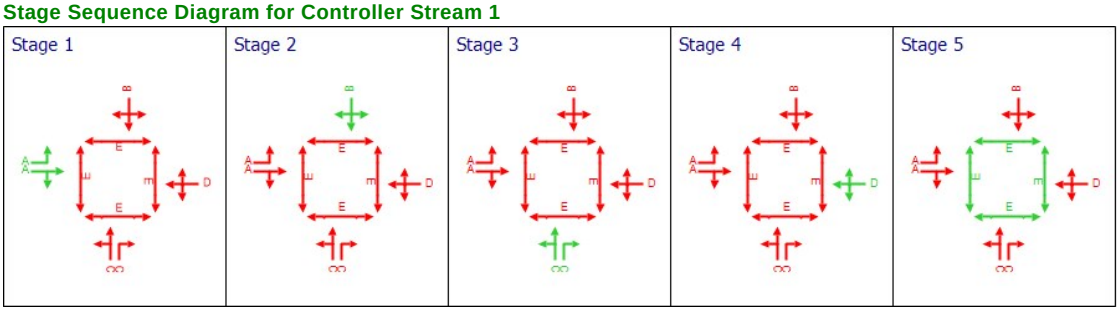
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	96	119	23
B	1	1	1	C	58	91	33
B	2	1	1	C	58	91	33
C	1	1	1	A	4	24	20
C	2	1	1	A	4	24	20
D	1	1	1	B	29	53	24

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

			Degree of (%)	Practical capacity (%)	Calculated (Veh/hr)	Calculated (Veh/hr)	Actual (s (per cycle))	Mean per Veh (s)	Mean (Veh)	Utilised (%)	Weighted per hr)	Weighted per hr)	Performance hr)
08:00-09:00	A	1	91	-1	376	2248	23	85.93	16.82	193.42	127.45	5.70	133.15
	Ax	1	0	Unrestricted	465	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	93	-3	559	2300	33	77.80	24.37	280.31	171.55	8.29	179.84
		2	58	55	297	1955	33	46.63	9.72	111.80	54.63	3.33	57.96
	Bx	1	0	Unrestricted	776	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	7	1262	21	1968	20	46.64	1.45	18.76	3.86	0.22	4.09
		2	91	-1	292	1983	20	97.61	13.87	179.25	112.43	4.68	117.11
	Cx	1	0	Unrestricted	210	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	95	-5	401	2196	24	101.73	19.81	227.82	160.91	6.65	167.56
	Dx	1	0	Unrestricted	495	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	376	376	0		2248	415	91	✓	-1	0.00	23
	Ax	1	465	465	0		Unrestricted	Unrestricted	0		Unrestricted	0.84	130
	B	1	559	559	0		2300	602	93	✓	-3	0.00	33
		2	297	297	0		1955	511	58		55	0.00	33
	Bx	1	776	776	0		Unrestricted	Unrestricted	0		Unrestricted	0.71	130
	C	1	21	21	0		1968	318	7		1262	0.00	20
		2	292	292	0		1983	320	91	✓	-1	0.00	20
	Cx	1	210	210	0		Unrestricted	Unrestricted	0		Unrestricted	0.86	130
	D	1	401	401	0		2196	422	95	✓	-5	0.00	24
	Dx	1	495	495	0		Unrestricted	Unrestricted	0		Unrestricted	1.10	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	85.93	5.42	3.55	127.45	121.01	362.72	92.26	5.70
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	77.80	7.27	4.81	171.55	118.26	535.50	125.57	8.29
		2	6.00	46.63	3.45	0.40	54.63	89.34	254.41	10.94	3.33
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	46.64	0.27	0.00	3.86	84.15	17.61	0.06	0.22
		2	5.34	97.61	4.35	3.57	112.43	127.87	282.42	90.96	4.68
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	101.73	5.78	5.55	160.91	132.21	390.22	139.93	6.65
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	16.82	8.70	193.42	2.46	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	33.00	0.00	33.00	
	B	1	0.00	24.37	8.70	280.31	6.15	0.00	0.00	0.00	0.00	0.00	
		2	0.00	9.72	8.70	111.80	0.05	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	26.00	0.00	26.00	
	C	1	0.00	1.45	7.74	18.76	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	13.87	7.74	179.25	1.81	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	49.00	0.00	49.00	
	D	1	0.00	19.81	8.70	227.82	4.31	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	50.00	0.00	50.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	18.80	9.60	1.96	91.93
	Ax	1	63.95	2.13	30.00	16.50
	B	1	27.95	13.01	2.15	83.80
		2	14.85	4.34	3.42	52.63
	Bx	1	109.38	3.65	30.00	16.91
	C	1	0.93	0.30	3.08	51.98
		2	12.99	8.35	1.56	102.95
	Cx	1	30.12	1.00	30.00	17.21
	D	1	20.05	12.00	1.67	107.73
	Dx	1	68.31	2.28	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	17.15	3.89	14.96	1.00	0.00	133.15
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	24.89	5.32	20.23	1.00	0.00	179.84
		2	0.00	0.00	✓	9.72	0.40	8.32	1.00	0.00	57.96
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.00	0.64	1.00	0.00	4.09
		2	0.00	0.00	✓	14.30	4.00	12.84	1.00	0.00	117.11
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	20.86	6.60	18.30	1.00	0.00	167.56
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	71	300	11000	5	61.82	10.42	73.15	73.15

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	(ALL)	(ALL)	300	300	0		11000	423	71		27	0.00	5

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15
	2	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	3	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	4	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.42	10.00	104.17	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48
	2	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	3	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	4	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	10.42	1.00	0.00	73.15

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
6	01/04/2022 18:06:17	01/04/2022 18:06:17	08:00	130	1244.89	85.64	94.95	D/1	4	22	D/1	Dx/1	D/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	95	-5	3892	673	41.09	630.83	28.87	659.70

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	71	2400	40	61.82	585.19	585.19

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	6292	6292	0		95	✓	-5	713

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.29	49.00	67.75	17.89	1216.02	36.60	1842.87	459.72	28.87

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	280.31	0.00	158.00	0.00	158.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	387.75	101.88	3.81

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	1244.89

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	68.5	119.5	119.9	0.0	0.0	0.0	0.0
	2	124.9	0.0	124.2	124.6	0.0	0.0	0.0	0.0
	3	109.1	108.5	0.0	108.8	0.0	0.0	0.0	0.0
	4	101.0	100.4	69.1	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	67.5	68.1	0.0
	6	0.0	0.0	0.0	0.0	67.5	0.0	0.0	68.1
	7	0.0	0.0	0.0	0.0	68.1	0.0	0.0	67.5
	8	0.0	0.0	0.0	0.0	0.0	68.1	67.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	21		68.54		21	68.54
5	2	3	53		124.24		53	124.24
6	2	4	336		124.65		336	124.65
7	2	1	12		124.94		12	124.94
8	3	2	40		108.49		40	108.49
9	3	4	263		108.85		263	108.85
10	3	1	73		109.14		73	109.14
11	4	2	434		100.37		434	100.37
13	4	1	125		101.02		125	101.02
17	8	7		300		67.48	300	67.48
18	8	6		300		68.15	300	68.15
19	1	3	115		119.46		115	119.46
20	4	3	297		69.14		297	69.14
22	5	7		300		68.15	300	68.15
23	5	6		300		67.48	300	67.48
34	6	8		300		68.15	300	68.15
35	6	5		300		67.48	300	67.48
41	7	8		300		67.48	300	67.48
42	7	5		300		68.15	300	68.15
43	1	4	177		119.87		177	119.87

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	D	376 <	2248	23	0.00	91	-1	91.93	85.93	121.01	16.82 +
Ax	1	(untitled)				465	Unrestricted	130	33.00	0	Unrestricted	16.50	0.00	0.00	0.00
B	1	(untitled)	1	1	C	559 <	2300	33	0.00	93	-3	83.80	77.80	118.26	24.37 +
	2	(untitled)	1	1	C	297 <	1955	33	0.00	58	55	52.63	46.63	89.34	9.72 +
Bx	1	(untitled)				776	Unrestricted	130	26.00	0	Unrestricted	16.91	0.00	0.00	0.00
C	1	(untitled)	1	1	A	21	1968	20	0.00	7	1262	51.98	46.64	84.15	1.45
	2	(untitled)	1	1	A	292 <	1983	20	0.00	91	-1	102.95	97.61	127.87	13.87 +
Cx	1	(untitled)				210	Unrestricted	130	49.00	0	Unrestricted	17.21	0.00	0.00	0.00
D	1	(untitled)	1	1	B	401 <	2196	24	0.00	95	-5	107.73	101.73	132.21	19.81 +
Dx	1	(untitled)				495	Unrestricted	130	50.00	0	Unrestricted	16.56	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
2	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	367.35	56.67	6.48	26.54	17.89	630.83	28.87	0.00	659.70
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	20.40	45.21	0.45	41.21	0.00	585.19	0.00	0.00	585.19
TOTAL	387.75	101.88	3.81	67.75	17.89	1216.02	28.87	0.00	1244.89

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A7 - Baseline 2041 with Dev.
D7 - Baseline 2041 with Dev. *

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
7	01/04/2022 18:06:18	01/04/2022 18:06:18	08:00	130	1423.73	97.92	99.22	D/1	4	22	D/1	Dx/1	D/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
Baseline 2041 with Dev.		D7	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
Baseline 2041 with Dev.				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		
D	(untitled)		1
Dx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Auto-calculate cell saturation flow	Cell saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)		✓	50.00	✓	Sum of lanes	2248			✓		Normal	
Ax	1	(untitled)		✓	137.54								Normal	
B	1	(untitled)		✓	50.00	✓	Sum of lanes	2300			✓		Normal	
	2	(untitled)		✓	50.00	✓	Sum of lanes	1955			✓		Normal	
Bx	1	(untitled)		✓	140.95								Normal	
C	1	(untitled)		✓	44.50	✓	Sum of lanes	1968	✓	1800	✓		Normal	
	2	(untitled)		✓	44.50	✓	Sum of lanes	1983			✓		Normal	
Cx	1	(untitled)		✓	143.43								Normal	
D	1	(untitled)		✓	50.00	✓	Sum of lanes	2196			✓		Normal	
Dx	1	(untitled)		✓	138.01								Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
A	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	81	40.00		2248
Ax	1	1	(untitled)											
B	1	1	(untitled)		✓	N/A	Clearly Good	0	4.00	✓	22	46.58		2300
	2	2	(untitled)		✓	N/A	N/A	0	4.00	✓	100	49.28	✓	1955
Bx	1	1	(untitled)											
C	1	2	(untitled)		✓	N/A	N/A	0	3.00	✓	100	33.93		1968
	2	1	(untitled)		✓	N/A	N/A	0	4.00	✓	61	57.46	✓	1983
Cx	1	1	(untitled)											
D	1	1	(untitled)		✓	N/A	Clearly Good	0	3.00	✓	16	40.00		2196
Dx	1	1	(untitled)											

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
A	1	NetworkDefault	100	100	100		0.00		
Ax	1	NetworkDefault	100	100	100		0.00		
B	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Bx	1	NetworkDefault	100	100	100		0.00		
C	1	Flare	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
Cx	1	NetworkDefault	100	100	100		0.00		
D	1	NetworkDefault	100	100	100		0.00		
Dx	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	130

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	(ALL)	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	(ALL)	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (Veh/hr)	Normal Flow (Veh/hr)
A	1	391	391
Ax	1	480	480
B	1	589	589
	2	307	307
Bx	1	812	812
C	1	22	22
	2	305	305
Cx	1	220	220
D	1	419	419
Dx	1	521	521

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	D	
B	1	1	C	
	2	1	C	
C	1	1	A	
	2	1	A	
D	1	1	B	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	6.00	30.00
B	1	6.00	30.00
	2	6.00	30.00
C	1	5.34	30.00
	2	5.34	30.00
D	1	6.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	D/1	Ax/1	16.50	30.00	✓	Nearside	40.00
Bx	1	1	A/1	Bx/1	16.91	30.00	✓	Nearside	40.00
Cx	1	1	A/1	Cx/1	17.21	30.00	✓	Straight	Straight Movement
Dx	1	1	C/1	Dx/1	16.56	30.00	✓	Nearside	33.93
Ax	1	2	B/2	Ax/1	16.50	30.00	✓	Offside	49.28
Bx	1	2	D/1	Bx/1	16.91	30.00	✓	Straight	Straight Movement
Cx	1	2	B/1	Cx/1	17.21	30.00	✓	Nearside	46.58
Dx	1	2	A/1	Dx/1	16.56	30.00	✓	Offside	52.33
Ax	1	3	C/2	Ax/1	16.50	30.00	✓	Straight	Straight Movement
Bx	1	3	C/2	Bx/1	16.91	30.00	✓	Offside	57.46
Cx	1	3	D/1	Cx/1	17.21	30.00	✓	Offside	53.42
Dx	1	3	B/1	Dx/1	16.56	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)		1		Farside	7.00	4.67	5.40
2	(untitled)		1		Farside	8.00	5.33	5.40
3	(untitled)		1		Farside	8.00	5.33	5.40
4	(untitled)		1		Farside	7.00	4.67	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	E	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Local OD Matrix - Local Matrix: 1

Local Matrix Options

OD Matrix	Name	Use for point to point table	Auto calculate	Allocation mode	Allow paths past exit locations	Allow looped paths on arms	Allow looped paths on traffic nodes	Copy flows	Matrix to copy flows from	Limit paths by length	Path length limit multiplier	Limit paths by number	Path number limit
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25		

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	22	119	186	0	0	0	0
	2	12	0	54	353	0	0	0	0
	3	76	42	0	273	0	0	0	0
	4	132	457	307	0	0	0	0	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	300	300	0
	6	0	0	0	0	300	0	0	300
	7	0	0	0	0	300	0	0	300
	8	0	0	0	0	0	300	300	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1	Dx/1	#FF0000
	3	(untitled)	A/1	Ax/1	#00FF00
	4	(untitled)	B/1, B/2	Bx/1	#FFFF00
	5	(untitled)	3:2E, 1:1E	3:2X, 1:1X	#FF00FF
	6	(untitled)	2:1E, 1:2E	2:1X, 1:2X	#008000
	7	(untitled)	4:2E, 3:1E	4:2X, 3:1X	#FFA500
	8	(untitled)	4:1E, 2:2E	4:1X, 2:2X	#00FFFF

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (Veh/hr)
1	1		1	2	C/1, Dx/1	Normal	22
	5		2	3	D/1, Ax/1	Normal	54
	6		2	4	D/1, Bx/1	Normal	353
	7		2	1	D/1, Cx/1	Normal	12
	8		3	2	A/1, Dx/1	Normal	42
	9		3	4	A/1, Bx/1	Normal	273
	10		3	1	A/1, Cx/1	Normal	76
	11		4	2	B/1, Dx/1	Normal	457
	13		4	1	B/1, Cx/1	Normal	132
	19		1	3	C/2, Ax/1	Normal	119
	20		4	3	B/2, Ax/1	Normal	307
	43		1	4	C/2, Bx/1	Normal	186

Pedestrian Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Pedestrian calculated flow (Ped/hr)
1	17		8	7	4:1E, 4:2X	Normal	300
	18		8	6	2:2E, 2:1X	Normal	300
	22		5	7	3:2E, 3:1X	Normal	300
	23		5	6	1:1E, 1:2X	Normal	300
	34		6	8	2:1E, 2:2X	Normal	300
	35		6	5	1:2E, 1:1X	Normal	300
	41		7	8	4:2E, 4:1X	Normal	300
	42		7	5	3:1E, 3:2X	Normal	300

Signal Timings

Network Default: 130s cycle time; 130 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	130

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Relative

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	20	300	0	0	Unknown	
	B	(untitled)	24	300	0	0	Unknown	
	C	(untitled)	32	300	0	0	Unknown	
	D	(untitled)	23	300	0	0	Unknown	
	E	(untitled)	5	5	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1
	5	E	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4, 5	24, 53, 91, 119, 129
	2	(untitled)	Single	1, 2, 3, 5, 4	23, 51, 79, 107, 0
	3	(untitled)	Single	1, 2, 4, 3, 5	23, 51, 74, 97, 125
	4	(untitled)	Single	1, 2, 4, 5, 3	23, 51, 74, 97, 125
	5	(untitled)	Single	1, 2, 5, 3, 4	23, 51, 79, 107, 0
	6	(untitled)	Single	1, 2, 5, 4, 3	23, 51, 79, 102, 125
	7	(untitled)	Single	1, 3, 2, 4, 5	23, 51, 79, 102, 125
	8	(untitled)	Single	1, 3, 2, 5, 4	23, 51, 79, 107, 0
	9	(untitled)	Single	1, 3, 4, 2, 5	23, 51, 74, 97, 125
	10	(untitled)	Single	1, 3, 4, 5, 2	23, 51, 74, 97, 125

Intergreen Matrix for Controller Stream 1

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

Banned Stage transitions for Controller Stream 1

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

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	4	24	20	1	20
	2	✓	2	B	29	53	24	1	24
	3	✓	3	C	58	91	33	1	32
	4	✓	4	D	96	119	23	1	23
	5	✓	5	E	124	129	5	1	5

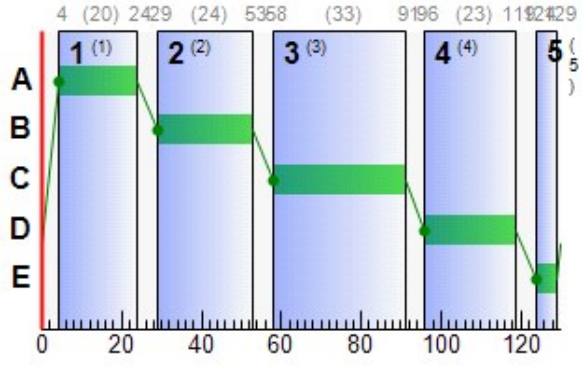
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	4	24	20
	B	1	✓	29	53	24
	C	1	✓	58	91	33
	D	1	✓	96	119	23
	E	1	✓	124	129	5

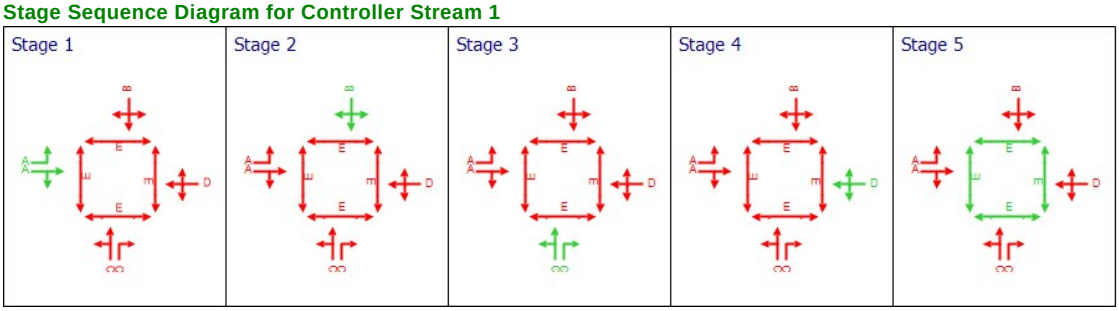
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	D	96	119	23
B	1	1	1	C	58	91	33
B	2	1	1	C	58	91	33
C	1	1	1	A	4	24	20
C	2	1	1	A	4	24	20
D	1	1	1	B	29	53	24

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (Veh)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	94	-4	391	2248	23	99.32	19.01	218.58	153.17	6.39	159.56
	Ax	1	0	Unrestricted	480	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	98	-8	589	2300	33	102.19	30.03	345.34	237.42	9.99	247.41
		2	60	50	307	1955	33	47.29	10.08	115.95	57.26	3.46	60.72
	Bx	1	0	Unrestricted	812	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	7	1201	22	1968	20	46.69	1.45	18.76	4.05	0.23	4.28
		2	95	-5	305	1983	20	115.90	16.09	207.89	139.43	5.35	144.78
	Cx	1	0	Unrestricted	220	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	99	-9	419	2196	24	129.44	23.98	275.78	213.93	7.85	221.79
	Dx	1	0	Unrestricted	521	Unrestricted	130	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Calculated sat flow (Veh/hr)	Calculated capacity (Veh/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	A	1	391	391	0		2248	415	94	✓	-4	0.00	23
	Ax	1	480	480	0		Unrestricted	Unrestricted	0		Unrestricted	0.84	130
	B	1	589	589	0		2300	602	98	✓	-8	0.00	33
		2	307	307	0		1955	511	60		50	0.00	33
	Bx	1	812	812	0		Unrestricted	Unrestricted	0		Unrestricted	0.69	130
	C	1	22	22	0		1968	318	7		1201	0.00	20
		2	305	305	0		1983	320	95	✓	-5	0.00	20
	Cx	1	220	220	0		Unrestricted	Unrestricted	0		Unrestricted	0.85	130
	D	1	419	419	0		2196	422	99	✓	-9	0.00	24
	Dx	1	521	521	0		Unrestricted	Unrestricted	0		Unrestricted	1.08	130

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	6.00	99.32	5.68	5.10	153.17	130.32	380.22	129.31	6.39
	Ax	1	16.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	6.00	102.19	7.80	8.92	237.42	135.28	573.89	222.92	9.99
		2	6.00	47.29	3.59	0.45	57.26	89.94	263.86	12.24	3.46
	Bx	1	16.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	5.34	46.69	0.28	0.00	4.05	84.17	18.45	0.07	0.23
		2	5.34	115.90	4.58	5.24	139.43	139.85	297.31	129.22	5.35
	Cx	1	17.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	129.44	6.10	8.97	213.93	149.47	411.37	214.89	7.85
	Dx	1	16.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (Veh)	Mean max queue (Veh)	Max queue storage (Veh)	Utilised storage (%)	Average storage excess queue (Veh)	Average limit excess queue (Veh)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	19.01	8.70	218.58	3.80	0.00	0.00	0.00	0.00	0.00	
	Ax	1	0.00	0.00	23.92	0.00	0.00	0.00	0.00	33.00	0.00	33.00	
	B	1	0.00	30.03	8.70	345.34	10.78	0.00	0.00	0.00	0.00	0.00	
		2	0.00	10.08	8.70	115.95	0.09	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	24.51	0.00	0.00	0.00	0.00	25.00	0.00	25.00	
	C	1	0.00	1.45	7.74	18.76	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	16.09	7.74	207.89	3.20	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	24.95	0.00	0.00	0.00	0.00	50.00	0.00	50.00	
	D	1	0.00	23.98	8.70	275.78	7.78	0.00	0.00	0.00	0.00	0.00	
	Dx	1	0.00	0.00	24.00	0.00	0.00	0.00	0.00	50.00	0.00	50.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	19.55	11.44	1.71	105.32
	Ax	1	66.02	2.20	30.00	16.50
	B	1	29.45	17.70	1.66	108.19
		2	15.35	4.54	3.38	53.29
	Bx	1	114.45	3.82	30.00	16.91
	C	1	0.98	0.32	3.08	52.03
		2	13.57	10.27	1.32	121.24
	Cx	1	31.56	1.05	30.00	17.21
	D	1	20.95	15.76	1.33	135.44
	Dx	1	71.90	2.40	30.00	16.56

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (Veh)	Max End of Green Queue EoTS (Veh)	Max End of Red Queue EoTS (Veh)	PCU Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	19.86	5.96	17.47	1.00	0.00	159.56
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	32.63	11.52	27.23	1.00	0.00	247.41
		2	0.00	0.00	✓	10.09	0.45	8.64	1.00	0.00	60.72
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	1.45	0.00	0.67	1.00	0.00	4.28
		2	0.00	0.00	✓	17.25	6.40	15.64	1.00	0.00	144.78
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	27.45	12.43	24.65	1.00	0.00	221.79
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	71	300	11000	5	61.82	10.42	73.15	73.15

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	(ALL)	(ALL)	300	300	0		11000	423	71		27	0.00	5

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Weighted cost of delay (£ per hr)
08:00-09:00	1	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15
	2	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	3	1	6.33	61.82	5.15	0.00	73.15
		2	6.33	61.82	5.15	0.00	73.15
	4	1	5.67	61.82	5.15	0.00	73.15
		2	5.67	61.82	5.15	0.00	73.15

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	10.42	10.00	104.17	0.01	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	1	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48
	2	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	3	1	2.70	5.68	0.48	68.15
		2	2.70	5.68	0.48	68.15
	4	1	2.40	5.62	0.43	67.48
		2	2.40	5.62	0.43	67.48

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	10.42	1.00	0.00	73.15

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (Veh-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
7	01/04/2022 18:06:18	01/04/2022 18:06:18	08:00	130	1423.73	97.92	99.22	D/1	4	22	D/1	Dx/1	D/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (Veh/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	99	-9	4066	673	50.21	805.27	33.27	838.55

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	71	2400	40	61.82	585.19	585.19

Network Results: Flows and signals

Time Segment	Calculated flow entering (Veh/hr)	Calculated flow out (Veh/hr)	Flow discrepancy (Veh/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	6466	6466	0		99	✓	-9	713

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	9.35	54.52	69.23	28.69	1390.46	41.04	1945.09	708.66	33.27

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	345.34	0.00	158.00	0.00	158.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	404.18	114.71	3.52

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	1423.73

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To							
		1	2	3	4	5	6	7	8
From	1	0.0	68.6	137.7	138.2	0.0	0.0	0.0	0.0
	2	152.7	0.0	151.9	152.4	0.0	0.0	0.0	0.0
	3	122.5	121.9	0.0	122.2	0.0	0.0	0.0	0.0
	4	125.4	124.8	69.8	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	67.5	68.1	0.0
	6	0.0	0.0	0.0	0.0	67.5	0.0	0.0	68.1
	7	0.0	0.0	0.0	0.0	68.1	0.0	0.0	67.5
	8	0.0	0.0	0.0	0.0	0.0	68.1	67.5	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (Veh/hr)	Pedestrian calculated flow (Ped/hr)	Normal journey time (s)	Pedestrian journey time (s)	Calculated Total Flow (Veh/hr)	Avg journey time (s)
1	1	2	22		68.59		22	68.59
5	2	3	54		151.95		54	151.95
6	2	4	353		152.36		353	152.36
7	2	1	12		152.65		12	152.65
8	3	2	42		121.88		42	121.88
9	3	4	273		122.23		273	122.23
10	3	1	76		122.53		76	122.53
11	4	2	457		124.75		457	124.75
13	4	1	132		125.40		132	125.40
17	8	7		300		67.48	300	67.48
18	8	6		300		68.15	300	68.15
19	1	3	119		137.74		119	137.74
20	4	3	307		69.79		307	69.79
22	5	7		300		68.15	300	68.15
23	5	6		300		67.48	300	67.48
34	6	8		300		68.15	300	68.15
35	6	5		300		67.48	300	67.48
41	7	8		300		67.48	300	67.48
42	7	5		300		68.15	300	68.15
43	1	4	186		138.15		186	138.15

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (Veh/hr)	Calculated sat flow (Veh/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (Veh)
A	1	(untitled)	1	1	D	391 <	2248	23	0.00	94	-4	105.32	99.32	130.32	19.01 +
Ax	1	(untitled)				480	Unrestricted	130	33.00	0	Unrestricted	16.50	0.00	0.00	0.00
B	1	(untitled)	1	1	C	589 <	2300	33	0.00	98	-8	108.19	102.19	135.28	30.03 +
	2	(untitled)	1	1	C	307 <	1955	33	0.00	60	50	53.29	47.29	89.94	10.08 +
Bx	1	(untitled)				812	Unrestricted	130	25.00	0	Unrestricted	16.91	0.00	0.00	0.00
C	1	(untitled)	1	1	A	22	1968	20	0.00	7	1201	52.03	46.69	84.17	1.45
	2	(untitled)	1	1	A	305 <	1983	20	0.00	95	-5	121.24	115.90	139.85	16.09 +
Cx	1	(untitled)				220	Unrestricted	130	50.00	0	Unrestricted	17.21	0.00	0.00	0.00
D	1	(untitled)	1	1	B	419 <	2196	24	0.00	99	-9	135.44	129.44	149.47	23.98 +
Dx	1	(untitled)				521	Unrestricted	130	50.00	0	Unrestricted	16.56	0.00	0.00	0.00

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	Co tra pen (£ p
1	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
2	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
3	1	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	68.15	61.82	10.42 +	100	0
4	1	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0
	2	(untitled)	1	1	E	300 <	11000	5	71	27	67.48	61.82	10.42 +	100	0

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (Veh-hr/hr)	Random plus oversat delay (Veh-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	383.78	69.50	5.52	28.02	28.69	805.27	33.27	0.00	838.55
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	20.40	45.21	0.45	41.21	0.00	585.19	0.00	0.00	585.19
TOTAL	404.18	114.71	3.52	69.23	28.69	1390.46	33.27	0.00	1423.73

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

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

Filename: Junction 2.j9
Path: M:\Projects\20\20-040 - Brennanstown Road\Design\Civil\Traffic\2021\Junction Analysis\Junction 2
Report generation date: 01/04/2022 18:37:16

Summary of junction performance

	AM			PM		
	Set ID	Queue (PCU)	RFC	Set ID	Queue (PCU)	RFC
	Junction Analysis - Baseline 2021					
Stream B-AC	D1	0.1	0.10	D2	0.1	0.09
Stream C-AB		0.0	0.00		0.0	0.02
	Junction Analysis - Baseline 2026					
Stream B-AC	D3	0.1	0.11	D4	0.1	0.11
Stream C-AB		0.0	0.00		0.0	0.02
	Junction Analysis - Baseline 2031					
Stream B-AC	D5	0.1	0.12	D6	0.1	0.11
Stream C-AB		0.0	0.00		0.0	0.02
	Junction Analysis - Baseline 2041					
Stream B-AC	D7	0.1	0.13	D8	0.1	0.12
Stream C-AB		0.0	0.00		0.0	0.03
	Junction Analysis - 2026 + Development					
Stream B-AC	D9	0.1	0.12	D10	0.1	0.12
Stream C-AB		0.0	0.01		0.0	0.03
	Junction Analysis - 2031 + Development					
Stream B-AC	D11	0.2	0.13	D12	0.1	0.13
Stream C-AB		0.0	0.01		0.0	0.03
	Junction Analysis - 2041 + Development					
Stream B-AC	D13	0.2	0.14	D14	0.2	0.14
Stream C-AB		0.0	0.01		0.0	0.03

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

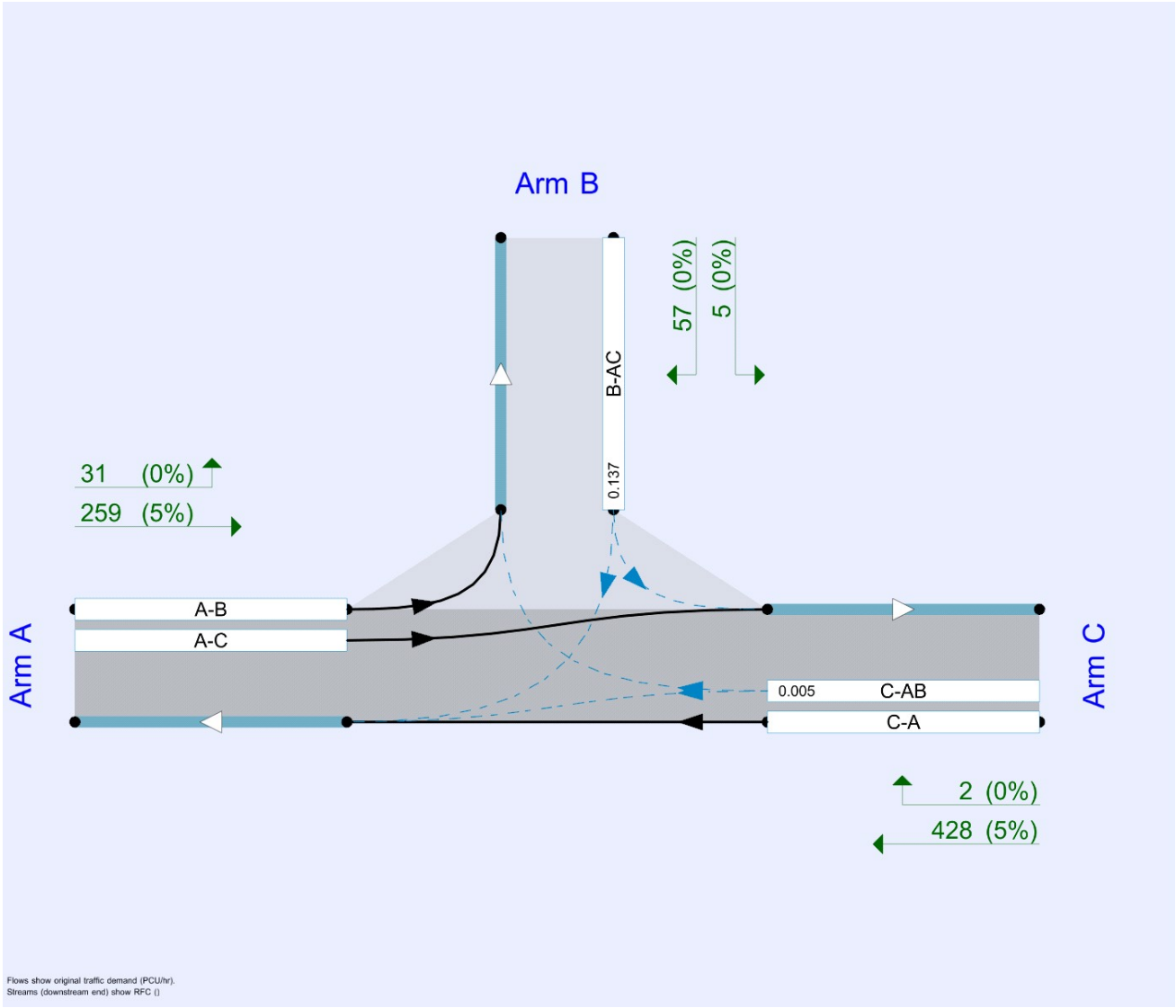
File summary

File Description

Title	
Location	
Site number	
Date	25/06/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAIN\I.byrne
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	Baseline 2021	AM	FLAT	08:00	09:00	60	15
D2	Baseline 2021	PM	FLAT	17:00	18:00	60	15
D3	Baseline 2026	AM	FLAT	08:00	09:00	60	15
D4	Baseline 2026	PM	FLAT	17:00	18:00	60	15
D5	Baseline 2031	AM	FLAT	08:00	09:00	60	15
D6	Baseline 2031	PM	FLAT	17:00	18:00	60	15
D7	Baseline 2041	AM	FLAT	08:00	09:00	60	15
D8	Baseline 2041	PM	FLAT	17:00	18:00	60	15
D9	2026 + Development	AM	FLAT	08:00	09:00	60	15
D10	2026 + Development	PM	FLAT	17:00	18:00	60	15
D11	2031 + Development	AM	FLAT	08:00	09:00	60	15
D12	2031 + Development	PM	FLAT	17:00	18:00	60	15
D13	2041 + Development	AM	FLAT	08:00	09:00	60	15
D14	2041 + Development	PM	FLAT	17:00	18:00	60	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Junction Analysis	100.000

Junction Analysis - Baseline 2021, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.10	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

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

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.90	110	50

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	587	0.107	0.270	0.170	0.386
B-C	714	0.110	0.277	-	-
C-B	574	0.222	0.222	-	-

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

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

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

Traffic Demand

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	Baseline 2021	AM	FLAT	08:00	09:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	167	100.000
B		✓	51	100.000
C		✓	143	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	25	142
	B	47	0	4
	C	141	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.10	7.51	0.1	A
C-AB	0.00	5.75	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	530	0.096	51	0.1	7.495	A
C-AB	3	636	0.004	3	0.0	5.745	A
C-A	140			140			
A-B	25			25			
A-C	142			142			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	530	0.096	51	0.1	7.507	A
C-AB	3	636	0.004	3	0.0	5.745	A
C-A	140			140			
A-B	25			25			
A-C	142			142			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	530	0.096	51	0.1	7.507	A
C-AB	3	636	0.004	3	0.0	5.745	A
C-A	140			140			
A-B	25			25			
A-C	142			142			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	530	0.096	51	0.1	7.507	A
C-AB	3	636	0.004	3	0.0	5.745	A
C-A	140			140			
A-B	25			25			
A-C	142			142			

Junction Analysis - Baseline 2021, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	Baseline 2021	PM	FLAT	17:00	18:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	238	100.000
B		✓	48	100.000
C		✓	183	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	49	189
	B	39	0	9
	C	174	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.09	7.61	0.1	A
C-AB	0.02	5.77	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	48	521	0.092	48	0.1	7.594	A
C-AB	12	645	0.019	12	0.0	5.766	A
C-A	171			171			
A-B	49			49			
A-C	189			189			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	48	521	0.092	48	0.1	7.606	A
C-AB	12	645	0.019	12	0.0	5.769	A
C-A	171			171			
A-B	49			49			
A-C	189			189			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	48	521	0.092	48	0.1	7.606	A
C-AB	12	645	0.019	12	0.0	5.769	A
C-A	171			171			
A-B	49			49			
A-C	189			189			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	48	521	0.092	48	0.1	7.606	A
C-AB	12	645	0.019	12	0.0	5.769	A
C-A	171			171			
A-B	49			49			
A-C	189			189			

Junction Analysis - Baseline 2026, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.88	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D3	Baseline 2026	AM	FLAT	08:00	09:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	211	100.000
B		✓	55	100.000
C		✓	261	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	27	184
	B	51	0	4
	C	259	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.11	8.11	0.1	A
C-AB	0.00	5.18	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	499	0.110	55	0.1	8.092	A
C-AB	3	710	0.004	3	0.0	5.181	A
C-A	258			258			
A-B	27			27			
A-C	184			184			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	499	0.110	55	0.1	8.110	A
C-AB	3	710	0.004	3	0.0	5.181	A
C-A	258			258			
A-B	27			27			
A-C	184			184			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	499	0.110	55	0.1	8.110	A
C-AB	3	710	0.004	3	0.0	5.181	A
C-A	258			258			
A-B	27			27			
A-C	184			184			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	499	0.110	55	0.1	8.110	A
C-AB	3	710	0.004	3	0.0	5.181	A
C-A	258			258			
A-B	27			27			
A-C	184			184			

Junction Analysis - Baseline 2026, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D4	Baseline 2026	PM	FLAT	17:00	18:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	342	100.000
B		✓	52	100.000
C		✓	252	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	53	289
	B	42	0	10
	C	242	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.11	8.35	0.1	A
C-AB	0.02	5.57	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	483	0.108	52	0.1	8.327	A
C-AB	16	673	0.023	15	0.0	5.571	A
C-A	236			236			
A-B	53			53			
A-C	289			289			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	483	0.108	52	0.1	8.346	A
C-AB	16	673	0.023	16	0.0	5.571	A
C-A	236			236			
A-B	53			53			
A-C	289			289			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	483	0.108	52	0.1	8.346	A
C-AB	16	673	0.023	16	0.0	5.574	A
C-A	236			236			
A-B	53			53			
A-C	289			289			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	483	0.108	52	0.1	8.346	A
C-AB	16	673	0.023	16	0.0	5.574	A
C-A	236			236			
A-B	53			53			
A-C	289			289			

Junction Analysis - Baseline 2031, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.92	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D5	Baseline 2031	AM	FLAT	08:00	09:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	224	100.000
B		✓	60	100.000
C		✓	272	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	29	195
	B	55	0	5
	C	270	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.12	8.27	0.1	A
C-AB	0.00	5.15	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	60	495	0.121	59	0.1	8.250	A
C-AB	3	716	0.004	3	0.0	5.145	A
C-A	269			269			
A-B	29			29			
A-C	195			195			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	60	495	0.121	60	0.1	8.270	A
C-AB	3	716	0.005	3	0.0	5.148	A
C-A	269			269			
A-B	29			29			
A-C	195			195			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	60	495	0.121	60	0.1	8.270	A
C-AB	3	716	0.005	3	0.0	5.148	A
C-A	269			269			
A-B	29			29			
A-C	195			195			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	60	495	0.121	60	0.1	8.270	A
C-AB	3	716	0.005	3	0.0	5.146	A
C-A	269			269			
A-B	29			29			
A-C	195			195			

Junction Analysis - Baseline 2031, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.85	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D6	Baseline 2031	PM	FLAT	17:00	18:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	361	100.000
B		✓	55	100.000
C		✓	235	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	57	304
	B	45	0	10
	C	225	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.11	8.47	0.1	A
C-AB	0.02	5.70	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	480	0.115	54	0.1	8.451	A
C-AB	15	657	0.023	15	0.0	5.701	A
C-A	220			220			
A-B	57			57			
A-C	304			304			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	480	0.115	55	0.1	8.471	A
C-AB	15	657	0.023	15	0.0	5.702	A
C-A	220			220			
A-B	57			57			
A-C	304			304			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	480	0.115	55	0.1	8.471	A
C-AB	15	657	0.023	15	0.0	5.705	A
C-A	220			220			
A-B	57			57			
A-C	304			304			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	480	0.115	55	0.1	8.471	A
C-AB	15	657	0.023	15	0.0	5.705	A
C-A	220			220			
A-B	57			57			
A-C	304			304			

Junction Analysis - Baseline 2041, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D7	Baseline 2041	AM	FLAT	08:00	09:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	234	100.000
B		✓	62	100.000
C		✓	281	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	31	203
	B	57	0	5
	C	279	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.13	8.39	0.1	A
C-AB	0.00	5.12	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	491	0.126	61	0.1	8.368	A
C-AB	3	720	0.005	3	0.0	5.116	A
C-A	278			278			
A-B	31			31			
A-C	203			203			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	491	0.126	62	0.1	8.390	A
C-AB	3	720	0.005	3	0.0	5.116	A
C-A	278			278			
A-B	31			31			
A-C	203			203			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	491	0.126	62	0.1	8.390	A
C-AB	3	720	0.005	3	0.0	5.118	A
C-A	278			278			
A-B	31			31			
A-C	203			203			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	491	0.126	62	0.1	8.390	A
C-AB	3	720	0.005	3	0.0	5.118	A
C-A	278			278			
A-B	31			31			
A-C	203			203			

Junction Analysis - Baseline 2041, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.90	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D8	Baseline 2041	PM	FLAT	17:00	18:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	375	100.000
B		✓	59	100.000
C		✓	237	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	60	315
	B	48	0	11
	C	226	11	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.12	8.62	0.1	A
C-AB	0.03	5.74	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	477	0.124	58	0.1	8.595	A
C-AB	17	655	0.026	17	0.0	5.734	A
C-A	220			220			
A-B	60			60			
A-C	315			315			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	477	0.124	59	0.1	8.617	A
C-AB	17	655	0.026	17	0.0	5.737	A
C-A	220			220			
A-B	60			60			
A-C	315			315			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	477	0.124	59	0.1	8.617	A
C-AB	17	655	0.026	17	0.0	5.737	A
C-A	220			220			
A-B	60			60			
A-C	315			315			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	477	0.124	59	0.1	8.617	A
C-AB	17	655	0.026	17	0.0	5.737	A
C-A	220			220			
A-B	60			60			
A-C	315			315			

Junction Analysis - 2026 + Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.70	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D9	2026 + Development	AM	FLAT	08:00	09:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	266	100.000
B		✓	55	100.000
C		✓	410	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	27	239
	B	51	0	4
	C	408	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.12	8.90	0.1	A
C-AB	0.01	4.60	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	459	0.120	54	0.1	8.878	A
C-AB	4	806	0.005	4	0.0	4.598	A
C-A	406			406			
A-B	27			27			
A-C	239			239			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	459	0.120	55	0.1	8.900	A
C-AB	4	806	0.005	4	0.0	4.600	A
C-A	406			406			
A-B	27			27			
A-C	239			239			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	459	0.120	55	0.1	8.900	A
C-AB	4	806	0.005	4	0.0	4.600	A
C-A	406			406			
A-B	27			27			
A-C	239			239			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	459	0.120	55	0.1	8.900	A
C-AB	4	806	0.005	4	0.0	4.600	A
C-A	406			406			
A-B	27			27			
A-C	239			239			

Junction Analysis - 2026 + Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.70	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D10	2026 + Development	PM	FLAT	17:00	18:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	449	100.000
B		✓	52	100.000
C		✓	319	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	53	396
	B	42	0	10
	C	309	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.12	9.19	0.1	A
C-AB	0.03	5.38	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	444	0.117	51	0.1	9.168	A
C-AB	18	702	0.025	18	0.0	5.376	A
C-A	301			301			
A-B	53			53			
A-C	396			396			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	444	0.117	52	0.1	9.192	A
C-AB	18	702	0.026	18	0.0	5.379	A
C-A	301			301			
A-B	53			53			
A-C	396			396			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	444	0.117	52	0.1	9.192	A
C-AB	18	702	0.026	18	0.0	5.379	A
C-A	301			301			
A-B	53			53			
A-C	396			396			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	444	0.117	52	0.1	9.192	A
C-AB	18	702	0.026	18	0.0	5.377	A
C-A	301			301			
A-B	53			53			
A-C	396			396			

Junction Analysis - 2031 + Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.74	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D11	2031 + Development	AM	FLAT	08:00	09:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	279	100.000
B		✓	60	100.000
C		✓	421	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	29	250
	B	55	0	5
	C	419	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.13	9.09	0.2	A
C-AB	0.01	4.57	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	60	456	0.132	59	0.1	9.065	A
C-AB	4	812	0.005	4	0.0	4.569	A
C-A	417			417			
A-B	29			29			
A-C	250			250			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	60	456	0.132	60	0.2	9.091	A
C-AB	4	812	0.005	4	0.0	4.571	A
C-A	417			417			
A-B	29			29			
A-C	250			250			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	60	456	0.132	60	0.2	9.091	A
C-AB	4	812	0.005	4	0.0	4.569	A
C-A	417			417			
A-B	29			29			
A-C	250			250			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	60	456	0.132	60	0.2	9.091	A
C-AB	4	812	0.005	4	0.0	4.571	A
C-A	417			417			
A-B	29			29			
A-C	250			250			

Junction Analysis - 2031 + Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.72	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D12	2031 + Development	PM	FLAT	17:00	18:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	468	100.000
B		✓	55	100.000
C		✓	332	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	57	411
	B	45	0	10
	C	322	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.13	9.46	0.1	A
C-AB	0.03	5.34	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	436	0.126	54	0.1	9.431	A
C-AB	18	708	0.026	18	0.0	5.336	A
C-A	314			314			
A-B	57			57			
A-C	411			411			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	436	0.126	55	0.1	9.460	A
C-AB	18	708	0.026	18	0.0	5.339	A
C-A	314			314			
A-B	57			57			
A-C	411			411			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	436	0.126	55	0.1	9.460	A
C-AB	18	708	0.026	18	0.0	5.339	A
C-A	314			314			
A-B	57			57			
A-C	411			411			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	55	436	0.126	55	0.1	9.460	A
C-AB	18	708	0.026	18	0.0	5.339	A
C-A	314			314			
A-B	57			57			
A-C	411			411			

Junction Analysis - 2041 + Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.76	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D13	2041 + Development	AM	FLAT	08:00	09:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	290	100.000
B		✓	62	100.000
C		✓	430	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	31	259
	B	57	0	5
	C	428	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.14	9.24	0.2	A
C-AB	0.01	4.55	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	451	0.137	61	0.2	9.215	A
C-AB	4	816	0.005	4	0.0	4.545	A
C-A	426			426			
A-B	31			31			
A-C	259			259			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	451	0.137	62	0.2	9.244	A
C-AB	4	816	0.005	4	0.0	4.546	A
C-A	426			426			
A-B	31			31			
A-C	259			259			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	451	0.137	62	0.2	9.244	A
C-AB	4	816	0.005	4	0.0	4.546	A
C-A	426			426			
A-B	31			31			
A-C	259			259			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	451	0.137	62	0.2	9.244	A
C-AB	4	816	0.005	4	0.0	4.546	A
C-A	426			426			
A-B	31			31			
A-C	259			259			

Junction Analysis - 2041 + Development , PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.77	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D14	2041 + Development	PM	FLAT	17:00	18:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	482	100.000
B		✓	59	100.000
C		✓	344	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	60	422
	B	48	0	11
	C	333	11	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.14	9.68	0.2	A
C-AB	0.03	5.32	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	431	0.137	58	0.2	9.649	A
C-AB	21	713	0.029	20	0.0	5.313	A
C-A	323			323			
A-B	60			60			
A-C	422			422			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	431	0.137	59	0.2	9.683	A
C-AB	21	713	0.029	21	0.0	5.316	A
C-A	323			323			
A-B	60			60			
A-C	422			422			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	431	0.137	59	0.2	9.683	A
C-AB	21	713	0.029	21	0.0	5.317	A
C-A	323			323			
A-B	60			60			
A-C	422			422			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	431	0.137	59	0.2	9.683	A
C-AB	21	713	0.029	21	0.0	5.317	A
C-A	323			323			
A-B	60			60			
A-C	422			422			

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

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

Filename: Junction 3.j9
Path: M:\Projects\20\20-040 - Brennanstown Road\Design\Civil\Traffic\2021\Junction Analysis\Junction 3
Report generation date: 10/02/2022 09:06:39

Summary of junction performance

	AM			PM		
	Set ID	Queue (PCU)	RFC	Set ID	Queue (PCU)	RFC
	Junction Analysis - Baseline 2021					
Stream B-AC	D1	0.0	0.02	D2	0.0	0.02
Stream C-AB		0.0	0.03		0.0	0.03
	Junction Analysis - Baseline 2026					
Stream B-AC	D3	0.0	0.03	D4	0.0	0.03
Stream C-AB		0.0	0.03		0.0	0.02
	Junction Analysis - Baseline 2031					
Stream B-AC	D5	0.0	0.03	D6	0.0	0.04
Stream C-AB		0.1	0.04		0.0	0.02
	Junction Analysis - Baseline 2041					
Stream B-AC	D7	0.0	0.03	D8	0.0	0.04
Stream C-AB		0.1	0.04		0.0	0.02
	Junction Analysis - 2026 + Development					
Stream B-AC	D9	0.0	0.03	D10	0.0	0.03
Stream C-AB		0.1	0.04		0.0	0.02
	Junction Analysis - 2031 + Development					
Stream B-AC	D11	0.0	0.03	D12	0.0	0.04
Stream C-AB		0.1	0.04		0.0	0.02
	Junction Analysis - 2041 + Development					
Stream B-AC	D13	0.0	0.03	D14	0.0	0.04
Stream C-AB		0.1	0.05		0.0	0.03
	Junction Analysis - Sensitivity Analysis 2041					
Stream B-AC	D15	0.0	0.03	D16	0.0	0.04
Stream C-AB		0.1	0.05		0.0	0.03

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

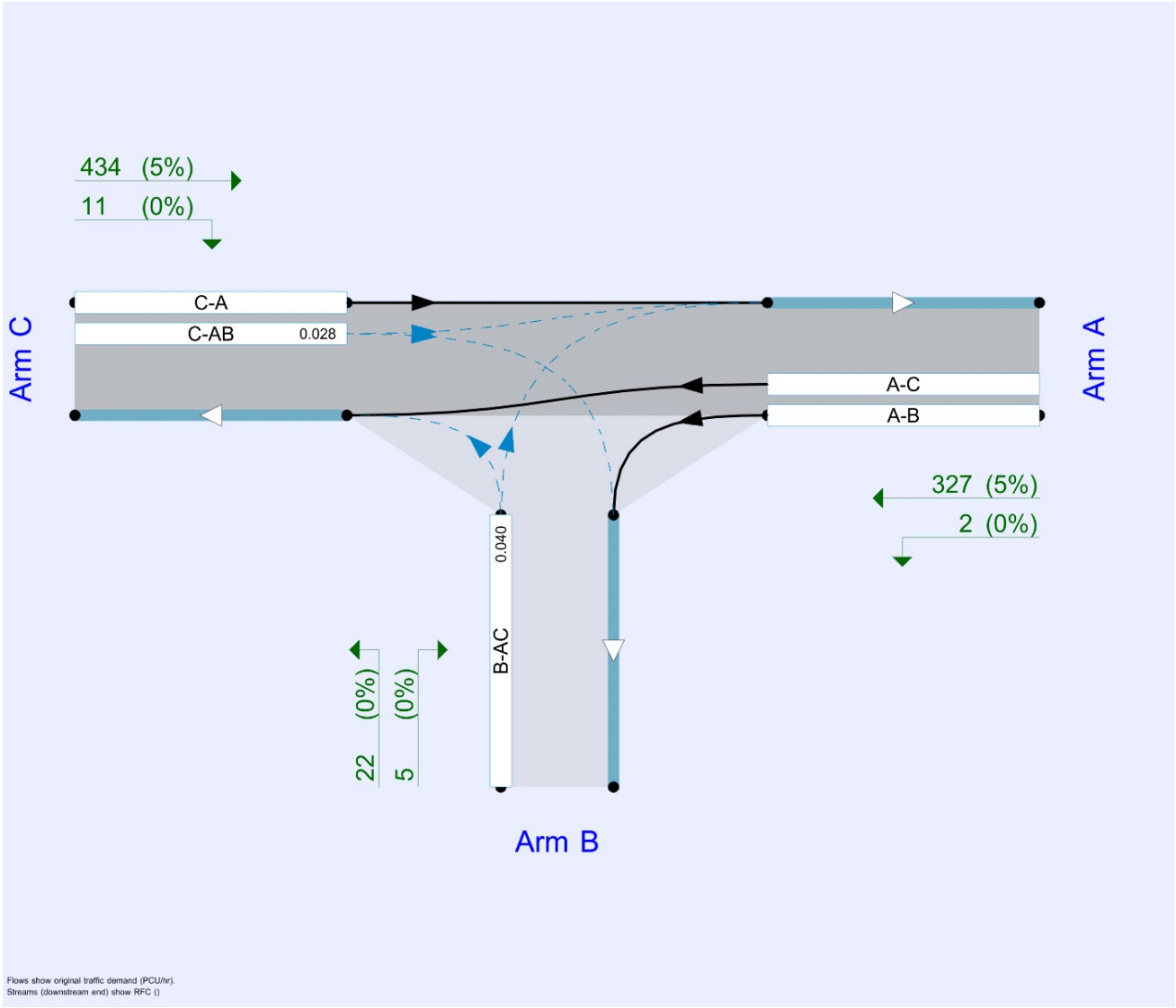
File summary

File Description

Title	
Location	
Site number	
Date	25/06/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAIN\l.byrne
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	Baseline 2021	AM	FLAT	00:00	01:00	60	15
D2	Baseline 2021	PM	FLAT	00:00	01:00	60	15
D3	Baseline 2026	AM	FLAT	00:00	01:00	60	15
D4	Baseline 2026	PM	FLAT	00:00	01:00	60	15
D5	Baseline 2031	AM	FLAT	00:00	01:00	60	15
D6	Baseline 2031	PM	FLAT	00:00	01:00	60	15
D7	Baseline 2041	AM	FLAT	00:00	01:00	60	15
D8	Baseline 2041	PM	FLAT	00:00	01:00	60	15
D9	2026 + Development	AM	FLAT	00:00	01:00	60	15
D10	2026 + Development	PM	FLAT	00:00	01:00	60	15
D11	2031 + Development	AM	FLAT	00:00	01:00	60	15
D12	2031 + Development	PM	FLAT	00:00	01:00	60	15
D13	2041 + Development	AM	FLAT	00:00	01:00	60	15
D14	2041 + Development	PM	FLAT	00:00	01:00	60	15
D15	Sensitivity Analysis 2041	AM	FLAT	00:00	01:00	60	15
D16	Sensitivity Analysis 2041	PM	FLAT	00:00	01:00	60	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Junction Analysis	100.000

Junction Analysis - Baseline 2021, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.66	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			50.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.90	50	250

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	674	0.123	0.310	0.195	0.443
B-C	852	0.131	0.330	-	-
C-B	603	0.234	0.234	-	-

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	Baseline 2021	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	134	100.000
B		✓	17	100.000
C		✓	145	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	3	131
	B	3	0	14
	C	129	16	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.02	4.83	0.0	A
C-AB	0.03	5.68	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	762	0.022	17	0.0	4.834	A
C-AB	20	660	0.030	20	0.0	5.679	A
C-A	125			125			
A-B	3			3			
A-C	131			131			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	762	0.022	17	0.0	4.834	A
C-AB	20	660	0.030	20	0.0	5.682	A
C-A	125			125			
A-B	3			3			
A-C	131			131			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	762	0.022	17	0.0	4.834	A
C-AB	20	660	0.030	20	0.0	5.680	A
C-A	125			125			
A-B	3			3			
A-C	131			131			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	762	0.022	17	0.0	4.834	A
C-AB	20	660	0.030	20	0.0	5.682	A
C-A	125			125			
A-B	3			3			
A-C	131			131			

Junction Analysis - Baseline 2021, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.66	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	Baseline 2021	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	165	100.000
B		✓	22	100.000
C		✓	195	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	2	163
	B	4	0	18
	C	186	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.02	4.83	0.0	A
C-AB	0.03	5.68	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	762	0.022	17	0.0	4.834	A
C-AB	20	660	0.030	20	0.0	5.679	A
C-A	125			125			
A-B	3			3			
A-C	131			131			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	762	0.022	17	0.0	4.834	A
C-AB	20	660	0.030	20	0.0	5.682	A
C-A	125			125			
A-B	3			3			
A-C	131			131			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	762	0.022	17	0.0	4.834	A
C-AB	20	660	0.030	20	0.0	5.680	A
C-A	125			125			
A-B	3			3			
A-C	131			131			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	762	0.022	17	0.0	4.834	A
C-AB	20	660	0.030	20	0.0	5.682	A
C-A	125			125			
A-B	3			3			
A-C	131			131			

Junction Analysis - Baseline 2026, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.54	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D3	Baseline 2026	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	252	100.000
B		✓	18	100.000
C		✓	187	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	3	249
	B	15	0	3
	C	170	17	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	6.38	0.0	A
C-AB	0.03	5.70	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	18	582	0.031	18	0.0	6.374	A
C-AB	23	663	0.035	23	0.0	5.693	A
C-A	164			164			
A-B	3			3			
A-C	249			249			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	18	582	0.031	18	0.0	6.377	A
C-AB	23	663	0.035	23	0.0	5.696	A
C-A	164			164			
A-B	3			3			
A-C	249			249			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	18	582	0.031	18	0.0	6.377	A
C-AB	23	663	0.035	23	0.0	5.699	A
C-A	164			164			
A-B	3			3			
A-C	249			249			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	18	582	0.031	18	0.0	6.377	A
C-AB	23	663	0.035	23	0.0	5.699	A
C-A	164			164			
A-B	3			3			
A-C	249			249			

Junction Analysis - Baseline 2026, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.37	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D4	Baseline 2026	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	232	100.000
B		✓	24	100.000
C		✓	296	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	2	230
	B	4	0	20
	C	286	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	5.15	0.0	A
C-AB	0.02	5.02	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	24	724	0.033	24	0.0	5.145	A
C-AB	16	748	0.022	16	0.0	5.013	A
C-A	280			280			
A-B	2			2			
A-C	230			230			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	24	724	0.033	24	0.0	5.145	A
C-AB	16	748	0.022	16	0.0	5.013	A
C-A	280			280			
A-B	2			2			
A-C	230			230			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	24	724	0.033	24	0.0	5.145	A
C-AB	16	748	0.022	16	0.0	5.015	A
C-A	280			280			
A-B	2			2			
A-C	230			230			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	24	724	0.033	24	0.0	5.145	A
C-AB	16	748	0.022	16	0.0	5.015	A
C-A	280			280			
A-B	2			2			
A-C	230			230			

Junction Analysis - Baseline 2031, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.51	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D5	Baseline 2031	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	262	100.000
B		✓	19	100.000
C		✓	199	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	3	259
	B	3	0	16
	C	180	19	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	5.13	0.0	A
C-AB	0.04	5.69	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	721	0.026	19	0.0	5.127	A
C-AB	26	668	0.039	26	0.1	5.681	A
C-A	173			173			
A-B	3			3			
A-C	259			259			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	721	0.026	19	0.0	5.127	A
C-AB	26	668	0.039	26	0.1	5.687	A
C-A	173			173			
A-B	3			3			
A-C	259			259			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	721	0.026	19	0.0	5.127	A
C-AB	26	668	0.039	26	0.1	5.685	A
C-A	173			173			
A-B	3			3			
A-C	259			259			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	721	0.026	19	0.0	5.127	A
C-AB	26	668	0.039	26	0.1	5.687	A
C-A	173			173			
A-B	3			3			
A-C	259			259			

Junction Analysis - Baseline 2031, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.38	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D6	Baseline 2031	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	244	100.000
B		✓	26	100.000
C		✓	310	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	2	242
	B	5	0	21
	C	300	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	5.25	0.0	A
C-AB	0.02	4.97	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	711	0.037	26	0.0	5.250	A
C-AB	17	755	0.022	16	0.0	4.969	A
C-A	293			293			
A-B	2			2			
A-C	242			242			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	711	0.037	26	0.0	5.252	A
C-AB	17	755	0.022	17	0.0	4.971	A
C-A	293			293			
A-B	2			2			
A-C	242			242			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	711	0.037	26	0.0	5.252	A
C-AB	17	755	0.022	17	0.0	4.970	A
C-A	293			293			
A-B	2			2			
A-C	242			242			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	711	0.037	26	0.0	5.252	A
C-AB	17	755	0.022	17	0.0	4.970	A
C-A	293			293			
A-B	2			2			
A-C	242			242			

Junction Analysis - Baseline 2041, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.54	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D7	Baseline 2041	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	271	100.000
B		✓	21	100.000
C		✓	208	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	4	267
	B	4	0	17
	C	188	20	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	5.23	0.0	A
C-AB	0.04	5.67	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	709	0.030	21	0.0	5.231	A
C-AB	28	671	0.041	28	0.1	5.667	A
C-A	180			180			
A-B	4			4			
A-C	267			267			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	709	0.030	21	0.0	5.232	A
C-AB	28	671	0.041	28	0.1	5.671	A
C-A	180			180			
A-B	4			4			
A-C	267			267			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	709	0.030	21	0.0	5.232	A
C-AB	28	671	0.041	28	0.1	5.671	A
C-A	180			180			
A-B	4			4			
A-C	267			267			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	709	0.030	21	0.0	5.232	A
C-AB	28	671	0.041	28	0.1	5.671	A
C-A	180			180			
A-B	4			4			
A-C	267			267			

Junction Analysis - Baseline 2041, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.39	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D8	Baseline 2041	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	254	100.000
B		✓	27	100.000
C		✓	322	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	2	252
	B	5	0	22
	C	311	11	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	5.28	0.0	A
C-AB	0.02	4.95	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	709	0.038	27	0.0	5.274	A
C-AB	19	761	0.024	18	0.0	4.947	A
C-A	303			303			
A-B	2			2			
A-C	252			252			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	709	0.038	27	0.0	5.276	A
C-AB	19	761	0.025	19	0.0	4.947	A
C-A	303			303			
A-B	2			2			
A-C	252			252			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	709	0.038	27	0.0	5.276	A
C-AB	19	761	0.025	19	0.0	4.949	A
C-A	303			303			
A-B	2			2			
A-C	252			252			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	709	0.038	27	0.0	5.276	A
C-AB	19	761	0.025	19	0.0	4.949	A
C-A	303			303			
A-B	2			2			
A-C	252			252			

Junction Analysis - 2026 + Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.37	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D9	2026 + Development	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	400	100.000
B		✓	18	100.000
C		✓	242	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	3	397
	B	3	0	15
	C	225	17	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	5.51	0.0	A
C-AB	0.04	5.67	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	18	671	0.027	18	0.0	5.515	A
C-AB	26	671	0.038	25	0.1	5.667	A
C-A	216			216			
A-B	3			3			
A-C	397			397			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	18	671	0.027	18	0.0	5.515	A
C-AB	26	671	0.038	26	0.1	5.670	A
C-A	216			216			
A-B	3			3			
A-C	397			397			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	18	671	0.027	18	0.0	5.515	A
C-AB	26	671	0.038	26	0.1	5.671	A
C-A	216			216			
A-B	3			3			
A-C	397			397			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	18	671	0.027	18	0.0	5.515	A
C-AB	26	671	0.038	26	0.1	5.673	A
C-A	216			216			
A-B	3			3			
A-C	397			397			

Junction Analysis - 2026 + Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.30	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D10	2026 + Development	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	299	100.000
B		✓	24	100.000
C		✓	403	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	2	297
	B	4	0	20
	C	393	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	5.37	0.0	A
C-AB	0.02	4.66	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	24	695	0.035	24	0.0	5.363	A
C-AB	19	810	0.024	19	0.0	4.662	A
C-A	384			384			
A-B	2			2			
A-C	297			297			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	24	695	0.035	24	0.0	5.365	A
C-AB	19	810	0.024	19	0.0	4.663	A
C-A	384			384			
A-B	2			2			
A-C	297			297			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	24	695	0.035	24	0.0	5.365	A
C-AB	19	810	0.024	19	0.0	4.663	A
C-A	384			384			
A-B	2			2			
A-C	297			297			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	24	695	0.035	24	0.0	5.365	A
C-AB	19	810	0.024	19	0.0	4.663	A
C-A	384			384			
A-B	2			2			
A-C	297			297			

Junction Analysis - 2031 + Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D11	2031 + Development	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	411	100.000
B		✓	19	100.000
C		✓	254	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	3	408
	B	3	0	16
	C	235	19	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	5.54	0.0	A
C-AB	0.04	5.66	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	669	0.028	19	0.0	5.540	A
C-AB	29	676	0.043	29	0.1	5.658	A
C-A	225			225			
A-B	3			3			
A-C	408			408			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	669	0.028	19	0.0	5.541	A
C-AB	29	676	0.043	29	0.1	5.662	A
C-A	225			225			
A-B	3			3			
A-C	408			408			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	669	0.028	19	0.0	5.541	A
C-AB	29	676	0.043	29	0.1	5.662	A
C-A	225			225			
A-B	3			3			
A-C	408			408			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	669	0.028	19	0.0	5.541	A
C-AB	29	676	0.043	29	0.1	5.662	A
C-A	225			225			
A-B	3			3			
A-C	408			408			

Junction Analysis - 2031 + Development , PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.31	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D12	2031 + Development	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	311	100.000
B		✓	26	100.000
C		✓	417	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	2	309
	B	5	0	21
	C	407	10	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	5.49	0.0	A
C-AB	0.02	4.63	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	682	0.038	26	0.0	5.488	A
C-AB	20	817	0.024	20	0.0	4.623	A
C-A	397			397			
A-B	2			2			
A-C	309			309			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	682	0.038	26	0.0	5.490	A
C-AB	20	817	0.024	20	0.0	4.625	A
C-A	397			397			
A-B	2			2			
A-C	309			309			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	682	0.038	26	0.0	5.490	A
C-AB	20	817	0.024	20	0.0	4.624	A
C-A	397			397			
A-B	2			2			
A-C	309			309			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	682	0.038	26	0.0	5.490	A
C-AB	20	817	0.024	20	0.0	4.626	A
C-A	397			397			
A-B	2			2			
A-C	309			309			

Junction Analysis - 2041 + Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D13	2041 + Development	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	419	100.000
B		✓	21	100.000
C		✓	263	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	4	415
	B	4	0	17
	C	243	20	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	5.66	0.0	A
C-AB	0.05	5.65	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	656	0.032	21	0.0	5.662	A
C-AB	31	680	0.046	31	0.1	5.642	A
C-A	232			232			
A-B	4			4			
A-C	415			415			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	656	0.032	21	0.0	5.665	A
C-AB	31	680	0.046	31	0.1	5.648	A
C-A	232			232			
A-B	4			4			
A-C	415			415			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	656	0.032	21	0.0	5.665	A
C-AB	31	680	0.046	31	0.1	5.646	A
C-A	232			232			
A-B	4			4			
A-C	415			415			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	656	0.032	21	0.0	5.665	A
C-AB	31	680	0.046	31	0.1	5.649	A
C-A	232			232			
A-B	4			4			
A-C	415			415			

Junction Analysis - 2041 + Development , PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.32	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D14	2041 + Development	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	321	100.000
B		✓	27	100.000
C		✓	429	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	2	319
	B	5	0	22
	C	418	11	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	5.51	0.0	A
C-AB	0.03	4.61	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	680	0.040	27	0.0	5.513	A
C-AB	22	823	0.027	22	0.0	4.605	A
C-A	407			407			
A-B	2			2			
A-C	319			319			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	680	0.040	27	0.0	5.515	A
C-AB	22	823	0.027	22	0.0	4.605	A
C-A	407			407			
A-B	2			2			
A-C	319			319			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	680	0.040	27	0.0	5.515	A
C-AB	22	823	0.027	22	0.0	4.606	A
C-A	407			407			
A-B	2			2			
A-C	319			319			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	680	0.040	27	0.0	5.515	A
C-AB	22	823	0.027	22	0.0	4.606	A
C-A	407			407			
A-B	2			2			
A-C	319			319			

Junction Analysis - Sensitivity Analysis 2041, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.41	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D15	Sensitivity Analysis 2041	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	445	100.000
B		✓	21	100.000
C		✓	270	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	4	441
	B	4	0	17
	C	250	20	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	5.75	0.0	A
C-AB	0.05	5.66	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	647	0.032	21	0.0	5.745	A
C-AB	32	680	0.047	31	0.1	5.651	A
C-A	238			238			
A-B	4			4			
A-C	441			441			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	647	0.032	21	0.0	5.747	A
C-AB	32	680	0.047	32	0.1	5.657	A
C-A	238			238			
A-B	4			4			
A-C	441			441			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	647	0.032	21	0.0	5.747	A
C-AB	32	680	0.047	32	0.1	5.658	A
C-A	238			238			
A-B	4			4			
A-C	441			441			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	647	0.032	21	0.0	5.747	A
C-AB	32	680	0.047	32	0.1	5.658	A
C-A	238			238			
A-B	4			4			
A-C	441			441			

Junction Analysis - Sensitivity Analysis 2041, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.32	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D16	Sensitivity Analysis 2041	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	329	100.000
B		✓	27	100.000
C		✓	445	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	2	327
	B	5	0	22
	C	434	11	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	5.55	0.0	A
C-AB	0.03	4.56	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	676	0.040	27	0.0	5.545	A
C-AB	23	833	0.028	23	0.0	4.555	A
C-A	422			422			
A-B	2			2			
A-C	327			327			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	676	0.040	27	0.0	5.547	A
C-AB	23	833	0.028	23	0.0	4.556	A
C-A	422			422			
A-B	2			2			
A-C	327			327			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	676	0.040	27	0.0	5.547	A
C-AB	23	833	0.028	23	0.0	4.556	A
C-A	422			422			
A-B	2			2			
A-C	327			327			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	676	0.040	27	0.0	5.547	A
C-AB	23	833	0.028	23	0.0	4.558	A
C-A	422			422			
A-B	2			2			
A-C	327			327			

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

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

Filename: Junction 4.j9
Path: M:\Projects\20\20-040 - Brennanstown Road\Design\Civil\Traffic\2021\Junction Analysis\Junction 4
Report generation date: 10/02/2022 09:15:43

Summary of junction performance

	AM		PM	
	Queue (PCU)	RFC	Queue (PCU)	RFC
	Junction Analysis - Baseline 2021			
Arm 1	0.2	0.13	0.2	0.16
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.2	0.14	0.3	0.19
Arm 4	0.0	0.01	0.0	0.01
	Junction Analysis - Baseline 2026			
Arm 1	0.2	0.15	0.2	0.18
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.2	0.16	0.4	0.26
Arm 4	0.1	0.08	0.1	0.06
	Junction Analysis - Baseline 2031			
Arm 1	0.2	0.16	0.2	0.19
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.2	0.17	0.4	0.27
Arm 4	0.1	0.08	0.1	0.06
	Junction Analysis - Baseline 2041			
Arm 1	0.2	0.16	0.2	0.20
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.2	0.18	0.4	0.28
Arm 4	0.1	0.09	0.1	0.06
	Junction Analysis - Baseline + Development 2026			
Arm 1	0.5	0.30	0.3	0.25
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.3	0.22	0.6	0.37
Arm 4	0.1	0.09	0.1	0.07
	Junction Analysis - Baseline + Development 2031			
Arm 1	0.5	0.31	0.4	0.26
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.3	0.23	0.6	0.38
Arm 4	0.1	0.09	0.1	0.07
	Junction Analysis - Baseline + Development 2041			
Arm 1	0.5	0.32	0.4	0.27
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.3	0.24	0.7	0.39
Arm 4	0.1	0.09	0.1	0.07
	Junction Analysis - Sensitivity Analysis 2041			
Arm 1	0.5	0.35	0.4	0.28
Arm 2	0.0	0.00	0.0	0.00
Arm 3	0.3	0.24	0.7	0.41
Arm 4	0.1	0.09	0.1	0.07

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.

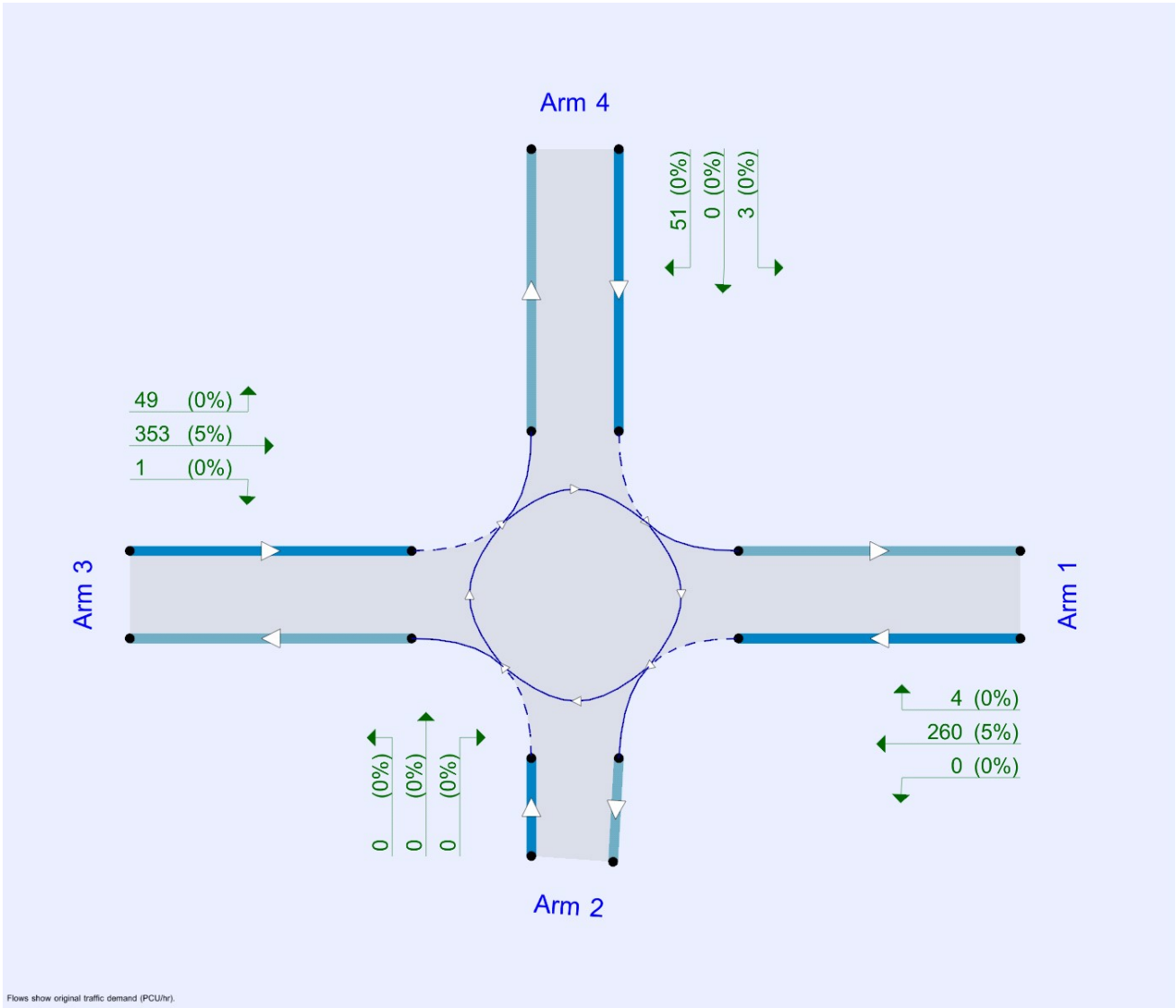
File summary

File Description

Title	
Location	
Site number	
Date	25/06/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAIN\l.byrne
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Mini-roundabout model	Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9			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	Baseline 2021	AM	FLAT	00:00	01:00	60	15
D2	Baseline 2021	PM	FLAT	00:00	01:00	60	15
D3	Baseline 2026	AM	FLAT	00:00	01:00	60	15
D4	Baseline 2026	PM	FLAT	00:00	01:00	60	15
D5	Baseline 2031	AM	FLAT	00:00	01:00	60	15
D6	Baseline 2031	PM	FLAT	00:00	01:00	60	15
D7	Baseline 2041	AM	FLAT	00:00	01:00	60	15
D8	Baseline 2041	PM	FLAT	00:00	01:00	60	15
D9	Baseline + Development 2026	AM	FLAT	00:00	01:00	60	15
D10	Baseline + Development 2026	PM	FLAT	00:00	01:00	60	15
D11	Baseline + Development 2031	AM	FLAT	00:00	01:00	60	15
D12	Baseline + Development 2031	PM	FLAT	00:00	01:00	60	15
D13	Baseline + Development 2041	AM	FLAT	00:00	01:00	60	15
D14	Baseline + Development 2041	PM	FLAT	00:00	01:00	60	15
D15	Sensitivity Analysis 2041	AM	FLAT	00:00	01:00	60	15
D16	Sensitivity Analysis 2041	PM	FLAT	00:00	01:00	60	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Junction Analysis	100.000

Junction Analysis - Baseline 2021, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 97% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	4.41	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Name	Description
1	untitled	
2	untitled	
3	untitled	
4	untitled	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.00	3.00	3.00	0.0	5.00	2.00	0.0	
2	3.00	3.00	3.00	0.0	5.00	2.00	0.0	
3	3.00	3.00	3.00	0.0	5.00	2.00	0.0	
4	3.00	3.00	3.00	0.0	5.00	2.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.590	985
2	0.590	985
3	0.590	985
4	0.590	985

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D1	Baseline 2021	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	126	100.000
2		✓	0	100.000
3		✓	134	100.000
4		✓	6	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	126	0
	2	0	0	0	0
	3	127	0	0	7
	4	0	0	6	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.13	4.42	0.2	A
2	0.00	0.00	0.0	A
3	0.14	4.43	0.2	A
4	0.01	3.98	0.0	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	126	6	981	0.128	125	0.2	4.413	A
2	0	131	907	0.000	0	0.0	0.000	A
3	134	0	985	0.136	133	0.2	4.425	A
4	6	126	910	0.007	6	0.0	3.980	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	126	6	981	0.128	126	0.2	4.419	A
2	0	132	907	0.000	0	0.0	0.000	A
3	134	0	985	0.136	134	0.2	4.430	A
4	6	127	910	0.007	6	0.0	3.982	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	126	6	981	0.128	126	0.2	4.419	A
2	0	132	907	0.000	0	0.0	0.000	A
3	134	0	985	0.136	134	0.2	4.430	A
4	6	127	910	0.007	6	0.0	3.982	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	126	6	981	0.128	126	0.2	4.419	A
2	0	132	907	0.000	0	0.0	0.000	A
3	134	0	985	0.136	134	0.2	4.430	A
4	6	127	910	0.007	6	0.0	3.982	A

Junction Analysis - Baseline 2021, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 96% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	4.66	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	Baseline 2021	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	152	100.000
2		✓	0	100.000
3		✓	191	100.000
4		✓	12	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	152	0
	2	0	0	0	0
	3	188	2	0	1
	4	0	0	12	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.16	4.58	0.2	A
2	0.00	0.00	0.0	A
3	0.19	4.76	0.3	A
4	0.01	4.18	0.0	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	152	14	977	0.156	151	0.2	4.576	A
2	0	163	889	0.000	0	0.0	0.000	A
3	191	0	985	0.194	190	0.3	4.746	A
4	12	189	873	0.014	12	0.0	4.179	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	152	14	977	0.156	152	0.2	4.583	A
2	0	164	888	0.000	0	0.0	0.000	A
3	191	0	985	0.194	191	0.3	4.757	A
4	12	190	873	0.014	12	0.0	4.182	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	152	14	977	0.156	152	0.2	4.583	A
2	0	164	888	0.000	0	0.0	0.000	A
3	191	0	985	0.194	191	0.3	4.757	A
4	12	190	873	0.014	12	0.0	4.182	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	152	14	977	0.156	152	0.2	4.583	A
2	0	164	888	0.000	0	0.0	0.000	A
3	191	0	985	0.194	191	0.3	4.757	A
4	12	190	873	0.014	12	0.0	4.182	A

Junction Analysis - Baseline 2026, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 79% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	4.56	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D3	Baseline 2026	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	138	100.000
2		✓	0	100.000
3		✓	159	100.000
4		✓	76	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	137	1
	2	0	0	0	0
	3	138	0	0	21
	4	6	0	70	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.15	4.69	0.2	A
2	0.00	0.00	0.0	A
3	0.16	4.55	0.2	A
4	0.08	4.35	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	138	70	944	0.146	137	0.2	4.681	A
2	0	207	863	0.000	0	0.0	0.000	A
3	159	0.99	984	0.162	158	0.2	4.542	A
4	76	137	904	0.084	76	0.1	4.344	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	138	70	944	0.146	138	0.2	4.690	A
2	0	208	862	0.000	0	0.0	0.000	A
3	159	1.00	984	0.162	159	0.2	4.549	A
4	76	138	903	0.084	76	0.1	4.350	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	138	70	944	0.146	138	0.2	4.690	A
2	0	208	862	0.000	0	0.0	0.000	A
3	159	1.00	984	0.162	159	0.2	4.549	A
4	76	138	903	0.084	76	0.1	4.350	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	138	70	944	0.146	138	0.2	4.690	A
2	0	208	862	0.000	0	0.0	0.000	A
3	159	1	984	0.162	159	0.2	4.549	A
4	76	138	903	0.084	76	0.1	4.350	A

Junction Analysis - Baseline 2026, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 88% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	4.94	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D4	Baseline 2026	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	169	100.000
2		✓	0	100.000
3		✓	254	100.000
4		✓	53	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	165	4
	2	0	0	0	0
	3	204	1	0	49
	4	3	0	50	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.18	4.80	0.2	A
2	0.00	0.00	0.0	A
3	0.26	5.14	0.4	A
4	0.06	4.44	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	169	51	955	0.177	168	0.2	4.794	A
2	0	218	856	0.000	0	0.0	0.000	A
3	254	4	983	0.259	253	0.4	5.120	A
4	53	204	865	0.061	53	0.1	4.433	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	169	51	955	0.177	169	0.2	4.804	A
2	0	219	856	0.000	0	0.0	0.000	A
3	254	4	983	0.259	254	0.4	5.137	A
4	53	205	864	0.061	53	0.1	4.439	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	169	51	955	0.177	169	0.2	4.804	A
2	0	219	856	0.000	0	0.0	0.000	A
3	254	4	983	0.259	254	0.4	5.137	A
4	53	205	864	0.061	53	0.1	4.439	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	169	51	955	0.177	169	0.2	4.804	A
2	0	219	856	0.000	0	0.0	0.000	A
3	254	4	983	0.259	254	0.4	5.137	A
4	53	205	864	0.061	53	0.1	4.439	A

Junction Analysis - Baseline 2031, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 80% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	4.62	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D5	Baseline 2031	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	147	100.000
2		✓	0	100.000
3		✓	170	100.000
4		✓	76	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	146	1
	2	0	0	0	0
	3	148	0	0	22
	4	6	0	70	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.16	4.74	0.2	A
2	0.00	0.00	0.0	A
3	0.17	4.61	0.2	A
4	0.08	4.38	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	147	70	944	0.156	146	0.2	4.734	A
2	0	216	857	0.000	0	0.0	0.000	A
3	170	0.99	984	0.173	169	0.2	4.602	A
4	76	147	898	0.085	76	0.1	4.375	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	147	70	944	0.156	147	0.2	4.743	A
2	0	217	857	0.000	0	0.0	0.000	A
3	170	1.00	984	0.173	170	0.2	4.611	A
4	76	148	898	0.085	76	0.1	4.381	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	147	70	944	0.156	147	0.2	4.743	A
2	0	217	857	0.000	0	0.0	0.000	A
3	170	1.00	984	0.173	170	0.2	4.611	A
4	76	148	898	0.085	76	0.1	4.381	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	147	70	944	0.156	147	0.2	4.743	A
2	0	217	857	0.000	0	0.0	0.000	A
3	170	1	984	0.173	170	0.2	4.611	A
4	76	148	898	0.085	76	0.1	4.381	A

Junction Analysis - Baseline 2031, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 89% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	5.03	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D6	Baseline 2031	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	181	100.000
2		✓	0	100.000
3		✓	268	100.000
4		✓	54	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	177	4
	2	0	0	0	0
	3	218	1	0	49
	4	3	0	51	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.19	4.88	0.2	A
2	0.00	0.00	0.0	A
3	0.27	5.24	0.4	A
4	0.06	4.49	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	181	52	954	0.190	180	0.2	4.870	A
2	0	231	849	0.000	0	0.0	0.000	A
3	268	4	983	0.273	266	0.4	5.220	A
4	54	218	856	0.063	54	0.1	4.484	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	181	52	954	0.190	181	0.2	4.883	A
2	0	232	848	0.000	0	0.0	0.000	A
3	268	4	983	0.273	268	0.4	5.240	A
4	54	219	856	0.063	54	0.1	4.490	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	181	52	954	0.190	181	0.2	4.883	A
2	0	232	848	0.000	0	0.0	0.000	A
3	268	4	983	0.273	268	0.4	5.240	A
4	54	219	856	0.063	54	0.1	4.490	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	181	52	954	0.190	181	0.2	4.883	A
2	0	232	848	0.000	0	0.0	0.000	A
3	268	4	983	0.273	268	0.4	5.240	A
4	54	219	856	0.063	54	0.1	4.490	A

Junction Analysis - Baseline 2041, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 81% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	4.66	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D7	Baseline 2041	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	155	100.000
2		✓	0	100.000
3		✓	177	100.000
4		✓	77	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	154	1
	2	0	0	0	0
	3	155	0	0	22
	4	6	0	71	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.16	4.79	0.2	A
2	0.00	0.00	0.0	A
3	0.18	4.65	0.2	A
4	0.09	4.41	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	155	71	943	0.164	154	0.2	4.784	A
2	0	225	852	0.000	0	0.0	0.000	A
3	177	0.99	984	0.180	176	0.2	4.643	A
4	77	154	894	0.086	77	0.1	4.403	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	155	71	943	0.164	155	0.2	4.795	A
2	0	226	852	0.000	0	0.0	0.000	A
3	177	1.00	984	0.180	177	0.2	4.653	A
4	77	155	893	0.086	77	0.1	4.409	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	155	71	943	0.164	155	0.2	4.795	A
2	0	226	852	0.000	0	0.0	0.000	A
3	177	1.00	984	0.180	177	0.2	4.653	A
4	77	155	893	0.086	77	0.1	4.409	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	155	71	943	0.164	155	0.2	4.795	A
2	0	226	852	0.000	0	0.0	0.000	A
3	177	1	984	0.180	177	0.2	4.653	A
4	77	155	893	0.086	77	0.1	4.409	A

Junction Analysis - Baseline 2041, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 89% of the total flow for the roundabout for one or more time segments]
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	4.91	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D8	Baseline 2041	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	190	100.000
2		✓	0	100.000
3		✓	280	100.000
4		✓	54	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	186	4
	2	0	0	0	0
	3	230	1	0	49
	4	3	0	51	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.20	4.71	0.2	A
2	0.00	0.00	0.0	A
3	0.28	5.12	0.4	A
4	0.06	4.53	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	190	52	954	0.199	189	0.2	4.698	A
2	0	240	843	0.000	0	0.0	0.000	A
3	280	4	983	0.285	278	0.4	5.101	A
4	54	230	849	0.064	54	0.1	4.524	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	190	52	954	0.199	190	0.2	4.710	A
2	0	241	843	0.000	0	0.0	0.000	A
3	280	4	983	0.285	280	0.4	5.124	A
4	54	231	849	0.064	54	0.1	4.530	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	190	52	954	0.199	190	0.2	4.710	A
2	0	241	843	0.000	0	0.0	0.000	A
3	280	4	983	0.285	280	0.4	5.124	A
4	54	231	849	0.064	54	0.1	4.530	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	190	52	954	0.199	190	0.2	4.710	A
2	0	241	843	0.000	0	0.0	0.000	A
3	280	4	983	0.285	280	0.4	5.124	A
4	54	231	849	0.064	54	0.1	4.530	A

Junction Analysis - Baseline + Development 2026, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 86% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	5.26	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D9	Baseline + Development 2026	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	286	100.000
2		✓	0	100.000
3		✓	214	100.000
4		✓	76	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	285	1
	2	0	0	0	0
	3	193	0	0	21
	4	6	0	70	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.30	5.75	0.5	A
2	0.00	0.00	0.0	A
3	0.22	4.88	0.3	A
4	0.09	4.53	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	286	70	944	0.303	284	0.5	5.715	A
2	0	354	776	0.000	0	0.0	0.000	A
3	214	0.99	984	0.217	213	0.3	4.869	A
4	76	192	872	0.087	76	0.1	4.520	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	286	70	944	0.303	286	0.5	5.746	A
2	0	356	775	0.000	0	0.0	0.000	A
3	214	1.00	984	0.217	214	0.3	4.882	A
4	76	193	871	0.087	76	0.1	4.527	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	286	70	944	0.303	286	0.5	5.746	A
2	0	356	775	0.000	0	0.0	0.000	A
3	214	1.00	984	0.217	214	0.3	4.882	A
4	76	193	871	0.087	76	0.1	4.527	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	286	70	944	0.303	286	0.5	5.746	A
2	0	356	775	0.000	0	0.0	0.000	A
3	214	1	984	0.217	214	0.3	4.882	A
4	76	193	871	0.087	76	0.1	4.527	A

Junction Analysis - Baseline + Development 2026, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 91% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	5.65	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D10	Baseline + Development 2026	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	236	100.000
2		✓	0	100.000
3		✓	361	100.000
4		✓	53	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	232	4
	2	0	0	0	0
	3	311	1	0	49
	4	3	0	50	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.25	5.25	0.3	A
2	0.00	0.00	0.0	A
3	0.37	6.04	0.6	A
4	0.07	4.81	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	236	51	955	0.247	235	0.3	5.234	A
2	0	284	817	0.000	0	0.0	0.000	A
3	361	4	983	0.367	359	0.6	5.994	A
4	53	310	802	0.066	53	0.1	4.804	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	236	51	955	0.247	236	0.3	5.253	A
2	0	286	816	0.000	0	0.0	0.000	A
3	361	4	983	0.367	361	0.6	6.039	A
4	53	312	801	0.066	53	0.1	4.813	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	236	51	955	0.247	236	0.3	5.253	A
2	0	286	816	0.000	0	0.0	0.000	A
3	361	4	983	0.367	361	0.6	6.039	A
4	53	312	801	0.066	53	0.1	4.813	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	236	51	955	0.247	236	0.3	5.253	A
2	0	286	816	0.000	0	0.0	0.000	A
3	361	4	983	0.367	361	0.6	6.039	A
4	53	312	801	0.066	53	0.1	4.813	A

Junction Analysis - Baseline + Development 2031, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 87% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	5.34	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D11	Baseline + Development 2031	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	296	100.000
2		✓	0	100.000
3		✓	225	100.000
4		✓	76	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	295	1
	2	0	0	0	0
	3	203	0	0	22
	4	6	0	70	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.31	5.84	0.5	A
2	0.00	0.00	0.0	A
3	0.23	4.95	0.3	A
4	0.09	4.56	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	296	70	944	0.314	294	0.5	5.801	A
2	0	364	770	0.000	0	0.0	0.000	A
3	225	0.99	984	0.229	224	0.3	4.938	A
4	76	202	866	0.088	76	0.1	4.554	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	296	70	944	0.314	296	0.5	5.835	A
2	0	366	769	0.000	0	0.0	0.000	A
3	225	1.00	984	0.229	225	0.3	4.953	A
4	76	203	865	0.088	76	0.1	4.561	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	296	70	944	0.314	296	0.5	5.835	A
2	0	366	769	0.000	0	0.0	0.000	A
3	225	1.00	984	0.229	225	0.3	4.953	A
4	76	203	865	0.088	76	0.1	4.561	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	296	70	944	0.314	296	0.5	5.835	A
2	0	366	769	0.000	0	0.0	0.000	A
3	225	1.00	984	0.229	225	0.3	4.953	A
4	76	203	865	0.088	76	0.1	4.561	A

Junction Analysis - Baseline + Development 2031, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 92% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	5.77	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D12	Baseline + Development 2031	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	248	100.000
2		✓	0	100.000
3		✓	375	100.000
4		✓	54	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	244	4
	2	0	0	0	0
	3	325	1	0	49
	4	3	0	51	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.26	5.35	0.4	A
2	0.00	0.00	0.0	A
3	0.38	6.18	0.6	A
4	0.07	4.87	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	248	52	954	0.260	247	0.4	5.325	A
2	0	297	809	0.000	0	0.0	0.000	A
3	375	4	983	0.382	372	0.6	6.129	A
4	54	324	794	0.068	54	0.1	4.864	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	248	52	954	0.260	248	0.4	5.347	A
2	0	299	808	0.000	0	0.0	0.000	A
3	375	4	983	0.382	375	0.6	6.180	A
4	54	326	793	0.068	54	0.1	4.874	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	248	52	954	0.260	248	0.4	5.347	A
2	0	299	808	0.000	0	0.0	0.000	A
3	375	4	983	0.382	375	0.6	6.180	A
4	54	326	793	0.068	54	0.1	4.874	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	248	52	954	0.260	248	0.4	5.347	A
2	0	299	808	0.000	0	0.0	0.000	A
3	375	4	983	0.382	375	0.6	6.180	A
4	54	326	793	0.068	54	0.1	4.874	A

Junction Analysis - Baseline + Development 2041, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 87% of the total flow for the roundabout for one or more time segments]
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	5.18	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D13	Baseline + Development 2041	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	304	100.000
2		✓	0	100.000
3		✓	232	100.000
4		✓	77	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	303	1
	2	0	0	0	0
	3	210	0	0	22
	4	6	0	71	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.32	5.63	0.5	A
2	0.00	0.00	0.0	A
3	0.24	4.78	0.3	A
4	0.09	4.59	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	304	71	943	0.322	302	0.5	5.600	A
2	0	373	765	0.000	0	0.0	0.000	A
3	232	0.99	984	0.236	231	0.3	4.770	A
4	77	209	862	0.089	77	0.1	4.584	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	304	71	943	0.322	304	0.5	5.633	A
2	0	375	764	0.000	0	0.0	0.000	A
3	232	1.00	984	0.236	232	0.3	4.785	A
4	77	210	861	0.089	77	0.1	4.591	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	304	71	943	0.322	304	0.5	5.633	A
2	0	375	764	0.000	0	0.0	0.000	A
3	232	1.00	984	0.236	232	0.3	4.785	A
4	77	210	861	0.089	77	0.1	4.591	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	304	71	943	0.322	304	0.5	5.633	A
2	0	375	764	0.000	0	0.0	0.000	A
3	232	1	984	0.236	232	0.3	4.785	A
4	77	210	861	0.089	77	0.1	4.591	A

Junction Analysis - Baseline + Development 2041, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 92% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	5.87	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D14	Baseline + Development 2041	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	257	100.000
2		✓	0	100.000
3		✓	387	100.000
4		✓	54	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	253	4
	2	0	0	0	0
	3	337	1	0	49
	4	3	0	51	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.27	5.42	0.4	A
2	0.00	0.00	0.0	A
3	0.39	6.31	0.7	A
4	0.07	4.92	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	257	52	954	0.269	255	0.4	5.392	A
2	0	306	804	0.000	0	0.0	0.000	A
3	387	4	983	0.394	384	0.7	6.251	A
4	54	336	787	0.069	54	0.1	4.907	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	257	52	954	0.269	257	0.4	5.417	A
2	0	308	803	0.000	0	0.0	0.000	A
3	387	4	983	0.394	387	0.7	6.306	A
4	54	338	785	0.069	54	0.1	4.921	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	257	52	954	0.269	257	0.4	5.417	A
2	0	308	803	0.000	0	0.0	0.000	A
3	387	4	983	0.394	387	0.7	6.306	A
4	54	338	785	0.069	54	0.1	4.921	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	257	52	954	0.269	257	0.4	5.417	A
2	0	308	803	0.000	0	0.0	0.000	A
3	387	4	983	0.394	387	0.7	6.306	A
4	54	338	785	0.069	54	0.1	4.921	A

Junction Analysis - Sensitivity Analysis 2041, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 88% of the total flow for the roundabout for one or more time segments]
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	5.33	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D15	Sensitivity Analysis 2041	AM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	329	100.000
2		✓	0	100.000
3		✓	239	100.000
4		✓	77	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	328	1
	2	0	0	0	0
	3	217	0	0	22
	4	6	0	71	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.35	5.86	0.5	A
2	0.00	0.00	0.0	A
3	0.24	4.83	0.3	A
4	0.09	4.62	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	329	71	943	0.349	327	0.5	5.821	A
2	0	398	750	0.000	0	0.0	0.000	A
3	239	0.99	984	0.243	238	0.3	4.814	A
4	77	216	858	0.090	77	0.1	4.608	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	329	71	943	0.349	329	0.5	5.862	A
2	0	400	749	0.000	0	0.0	0.000	A
3	239	1.00	984	0.243	239	0.3	4.829	A
4	77	217	857	0.090	77	0.1	4.616	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	329	71	943	0.349	329	0.5	5.862	A
2	0	400	749	0.000	0	0.0	0.000	A
3	239	1.00	984	0.243	239	0.3	4.829	A
4	77	217	857	0.090	77	0.1	4.616	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	329	71	943	0.349	329	0.5	5.862	A
2	0	400	749	0.000	0	0.0	0.000	A
3	239	1.00	984	0.243	239	0.3	4.829	A
4	77	217	857	0.090	77	0.1	4.616	A

Junction Analysis - Sensitivity Analysis 2041, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 92% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3, 4	6.00	A

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D16	Sensitivity Analysis 2041	PM	FLAT	00:00	01:00	60	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	264	100.000
2		✓	0	100.000
3		✓	403	100.000
4		✓	54	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	260	4
	2	0	0	0	0
	3	353	1	0	49
	4	3	0	51	0

Vehicle Mix

Heavy Vehicle Percentages

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

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.28	5.47	0.4	A
2	0.00	0.00	0.0	A
3	0.41	6.48	0.7	A
4	0.07	4.99	0.1	A

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	264	52	954	0.277	262	0.4	5.447	A
2	0	313	800	0.000	0	0.0	0.000	A
3	403	4	983	0.410	400	0.7	6.420	A
4	54	351	777	0.069	54	0.1	4.971	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	264	52	954	0.277	264	0.4	5.472	A
2	0	315	799	0.000	0	0.0	0.000	A
3	403	4	983	0.410	403	0.7	6.481	A
4	54	354	776	0.070	54	0.1	4.985	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	264	52	954	0.277	264	0.4	5.472	A
2	0	315	799	0.000	0	0.0	0.000	A
3	403	4	983	0.410	403	0.7	6.481	A
4	54	354	776	0.070	54	0.1	4.985	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	264	52	954	0.277	264	0.4	5.472	A
2	0	315	799	0.000	0	0.0	0.000	A
3	403	4	983	0.410	403	0.7	6.481	A
4	54	354	776	0.070	54	0.1	4.985	A

TRANSYT 15

Filename: Junction 5 - AM.t15
Path: M:\Projects\20\20-040 - Brennanstown Road\Design\Civil\Traffic\2021\Junction Analysis\Junction 5\Signalised T-Junction
Report generation date: 10/02/2022 09:21:19

»A1 - 2026 + Developments : D1 - 2026 + Developments* :
»A2 - 2031 + Developments : D2 - 2031 + Developments* :
»A3 - 2041 + Developments : D3 - 2041+ Developments* :

File summary

File description

File title	(untitled)
Location	
Site number	
UTCRegion	
Driving side	Left
Date	06/12/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAIN\I.byrne
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓	✓	✓	✓	✓	✓	✓		

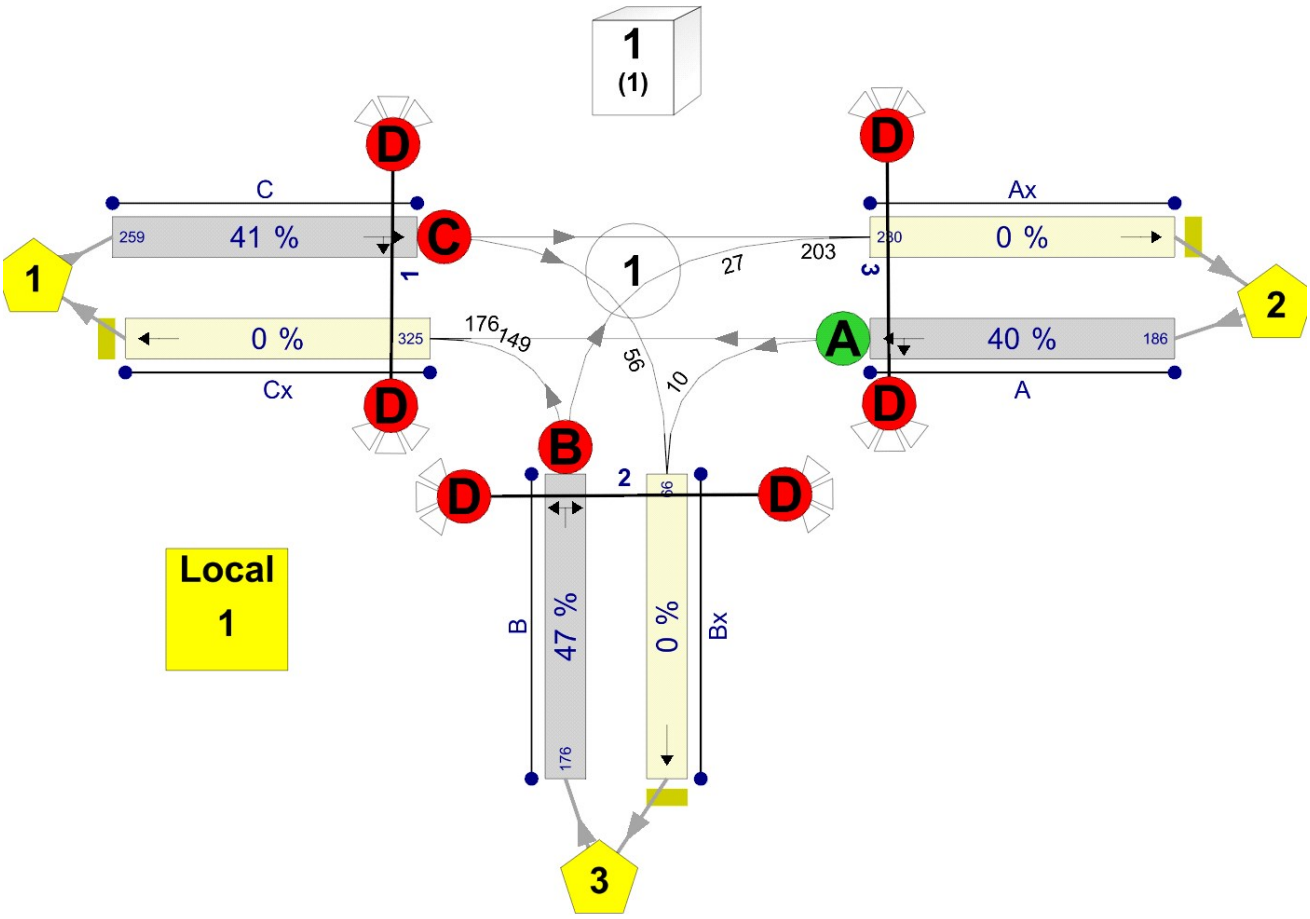
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	PCU	PCU	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



(untitled)
Cycletime 0s / 100s , Timesteps 99 / 100
3, 3
Diagram produced using TRANSYT 15.5.2.7994

A1 - 2026 + Developments
D1 - 2026 + Developments*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	10/02/2022 09:18:47	10/02/2022 09:18:47	08:00	100	78.63	5.12	42.42	A/1	0	0	1:1	Bx/1	1:

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2026 + Developments		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2026 + Developments				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)			100.00						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
Cx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	168	168
Ax	1	212	212
B	1	176	176
Bx	1	66	66
C	1	241	241
Cx	1	307	307

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
B	1	1	B	
C	1	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	1	12.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	B/1	Ax/1	12.00	30.00	✓	Offside	87.50
Bx	1	1	A/1	Bx/1	12.00	30.00	✓	Nearside	50.00
Cx	1	1	B/1	Cx/1	12.00	30.00	✓	Nearside	50.00
Ax	1	2	C/1	Ax/1	12.00	30.00	✓	Straight	Straight Movement
Bx	1	2	C/1	Bx/1	12.00	30.00	✓	Offside	87.50
Cx	1	2	A/1	Cx/1	12.00	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
(ALL)	(untitled)				Farside	3.00	2.00	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	D	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Signal Timings

Network Default: 100s cycle time; 100 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	100

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	34, 64, 6
	2	(untitled)	Single	1, 3, 2	0, 33, 66

Intergreen Matrix for Controller Stream 1

		To			
		A	B	C	D
From	A		7	7	
	B	7		7	
	C	7	7		
	D				

Banned Stage transitions for Controller Stream 1

		To		
		1	2	3
From	1			
	2			
	3			

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	13	34	21	1	7
	2	✓	2	B	41	64	23	1	7
	3	✓	3	C	71	6	35	1	7

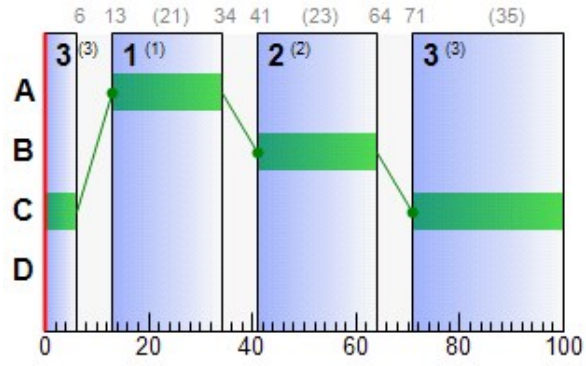
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	13	34	21
	B	1	✓	41	64	23
	C	1	✓	71	6	35

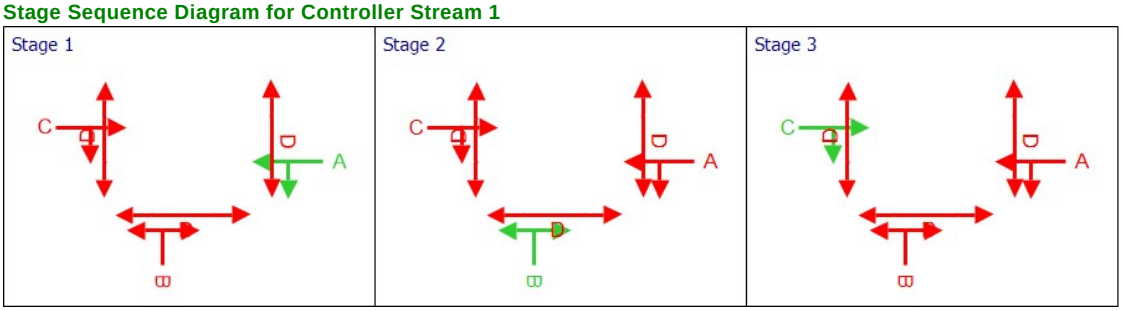
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	13	34	21
B	1	1	1	B	41	64	23
C	1	1	1	C	71	6	35

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	42	112	168	1800	21	36.89	4.17	23.97	24.44	1.84	26.28
	Ax	1	0	Unrestricted	212	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	41	121	176	1800	23	34.87	4.25	24.42	24.21	1.88	26.09
	Bx	1	0	Unrestricted	66	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	37	142	241	1800	35	25.29	5.00	28.73	24.04	2.22	26.26
	Cx	1	0	Unrestricted	307	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:00-09:00	A	1	168	168	0		1800	396	42		112	0.00	21	22
	Ax	1	212	212	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	100	10
	B	1	176	176	0		1800	432	41		121	0.00	23	24
	Bx	1	66	66	0		Unrestricted	Unrestricted	0		Unrestricted	0.98	100	10
	C	1	241	241	0		1800	648	37		142	0.00	35	36
	Cx	1	307	307	0		Unrestricted	Unrestricted	0		Unrestricted	1.09	100	10

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	12.00	36.89	1.57	0.16	24.44	24.44	87.28	141.08	5.55	1.84	1.84
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	34.87	1.57	0.14	24.21	24.21	85.38	145.28	4.98	1.88	1.88
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	25.29	1.58	0.11	24.04	24.04	73.41	172.97	3.94	2.22	2.22
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	4.17	17.39	23.97	0.00	0.00	0.00	0.16	3.80	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			45.00	0.00	45.00	
	B	1	0.00	4.25	17.39	24.42	0.00	0.00	0.00	0.14	3.86	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			66.00	0.00	66.00	
	C	1	0.00	5.00	17.39	28.73	0.00	0.00	0.00	0.11	4.39	0.00	0.00	0.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			47.00	0.00	47.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	16.80	2.28	7.36	48.89
	Ax	1	21.20	0.71	30.00	12.00
	B	1	17.60	2.29	7.68	46.87
	Bx	1	6.60	0.22	30.00	12.00
	C	1	24.10	2.50	9.65	37.29
	Cx	1	30.70	1.02	30.00	12.00

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	4.17	0.16	3.80	1.00	0.00	26.28	26.28
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	B	1	0.00	0.00	✓	4.25	0.14	3.86	1.00	0.00	26.09	26.09
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	C	1	0.00	0.00	✓	5.00	0.11	4.39	1.00	0.00	26.26	26.26
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0	0	0	0	0.00	0.00	0.00	0.00

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:00-09:00	(ALL)	(ALL)	0	0	0		0	0	0		-100	0.00	0	0

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)
08:00-09:00	(ALL)	(ALL)	1.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	10.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	0.00	0.00

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	0.00	1.00	0.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	10/02/2022 09:18:47	10/02/2022 09:18:47	08:00	100	78.63	5.12	42.42	A/1	0	0	1:1	Bx/1	1:

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	42	0	1170	379	15.75	72.69	5.94	78.63

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0	0	0	0.00	0.00	0.00

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))	Effective green (s (per cycle))
08:00-09:00	1170	1170	0		42		-100	379	382

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	12.00	15.75	4.71	0.40	72.69	72.69	40.50	459.33	14.48	5.94	5.94

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	28.73	0.00	158.00	0.00	158.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	117.00	9.02	12.97

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	78.63	78.63

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To		
		1	2	3
From	1	0.0	49.3	49.3
	2	60.9	0.0	60.9
	3	58.9	58.9	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	3	56	49.29	56	49.29
2	1	2	185	49.29	185	49.29
3	2	3	10	60.89	10	60.89
4	2	1	158	60.89	158	60.89
5	3	2	27	58.87	27	58.87
6	3	1	149	58.87	149	58.87

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M en of r que (PC
A	1	(untitled)	1	1	A	168	1800	21	0.00	42	112	48.89	36.89	87.28	4.17	3.
Ax	1	(untitled)				212	Unrestricted	100	45.00	0	Unrestricted	12.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	B	176	1800	23	0.00	41	121	46.87	34.87	85.38	4.25	3.
Bx	1	(untitled)				66	Unrestricted	100	66.00	0	Unrestricted	12.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	C	241	1800	35	0.00	37	142	37.29	25.29	73.41	5.00	4.
Cx	1	(untitled)				307	Unrestricted	100	47.00	0	Unrestricted	12.00	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	C tr pe (£
(ALL)	(ALL)	(untitled)		1	D	0	0	0	0	-100	0.00	0.00	0.00	100	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	117.00	9.02	12.97	4.71	0.40	72.69	5.94	0.00	78.63
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	117.00	9.02	12.97	4.71	0.40	72.69	5.94	0.00	78.63

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A2 - 2031 + Developments
D2 - 2031 + Developments*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	10/02/2022 09:18:48	10/02/2022 09:18:48	08:00	100	81.93	5.33	43.00	A/1	0	0	1:1	Bx/1	1:

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2031 + Developments		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2031 + Developments				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)			100.00						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
Cx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	178	178
Ax	1	222	222
B	1	176	176
Bx	1	66	66
C	1	251	251
Cx	1	317	317

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
B	1	1	B	
C	1	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	1	12.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	B/1	Ax/1	12.00	30.00	✓	Offside	87.50
Bx	1	1	A/1	Bx/1	12.00	30.00	✓	Nearside	50.00
Cx	1	1	B/1	Cx/1	12.00	30.00	✓	Nearside	50.00
Ax	1	2	C/1	Ax/1	12.00	30.00	✓	Straight	Straight Movement
Bx	1	2	C/1	Bx/1	12.00	30.00	✓	Offside	87.50
Cx	1	2	A/1	Cx/1	12.00	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
(ALL)	(untitled)				Farside	3.00	2.00	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	D	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Signal Timings

Network Default: 100s cycle time; 100 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	100

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	36, 65, 7
	2	(untitled)	Single	1, 3, 2	0, 33, 66

Intergreen Matrix for Controller Stream 1

		To			
		A	B	C	D
From	A		7	7	
	B	7		7	
	C	7	7		
	D				

Banned Stage transitions for Controller Stream 1

		To		
		1	2	3
From	1			
	2			
	3			

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	14	36	22	1	7
	2	✓	2	B	43	65	22	1	7
	3	✓	3	C	72	7	35	1	7

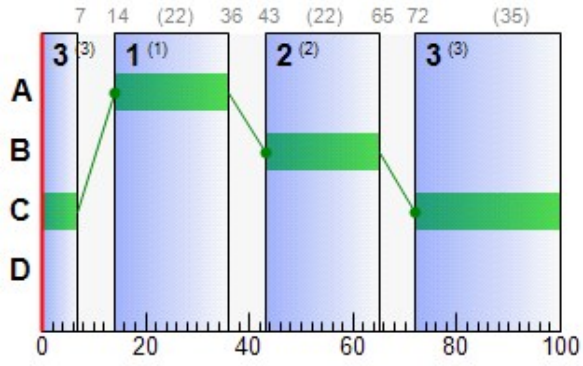
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	14	36	22
	B	1	✓	43	65	22
	C	1	✓	72	7	35

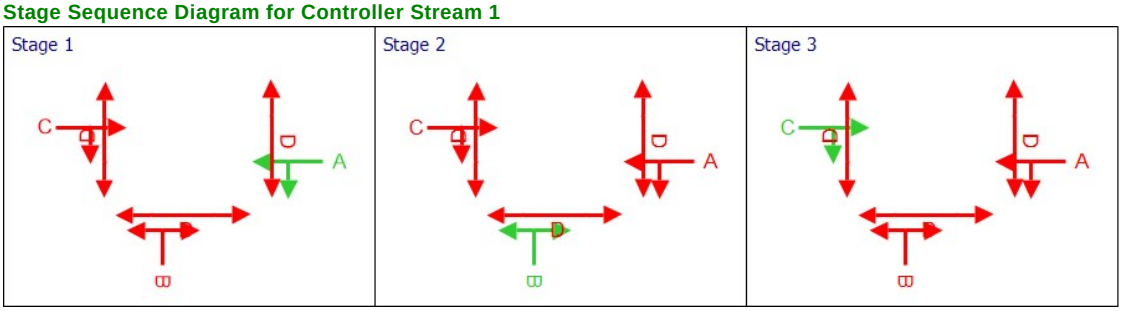
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	14	36	22
B	1	1	1	B	43	65	22
C	1	1	1	C	72	7	35

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	43	109	178	1800	22	36.17	4.36	25.09	25.40	1.94	27.34
	Ax	1	0	Unrestricted	222	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	43	112	176	1800	22	36.07	4.31	24.79	25.04	1.92	26.95
	Bx	1	0	Unrestricted	66	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	39	132	251	1800	35	25.56	5.28	30.37	25.30	2.34	27.64
	Cx	1	0	Unrestricted	317	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:00-09:00	A	1	178	178	0		1800	414	43		109	0.00	22	23
	Ax	1	222	222	0		Unrestricted	Unrestricted	0		Unrestricted	1.00	100	10
	B	1	176	176	0		1800	414	43		112	0.00	22	23
	Bx	1	66	66	0		Unrestricted	Unrestricted	0		Unrestricted	0.97	100	10
	C	1	251	251	0		1800	648	39		132	0.00	35	36
	Cx	1	317	317	0		Unrestricted	Unrestricted	0		Unrestricted	1.09	100	10

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	12.00	36.17	1.63	0.16	25.40	25.40	86.94	148.99	5.76	1.94	1.94
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	36.07	1.61	0.16	25.04	25.04	86.82	147.21	5.59	1.92	1.92
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	25.56	1.66	0.12	25.30	25.30	74.30	182.11	4.38	2.34	2.34
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	4.36	17.39	25.09	0.00	0.00	0.00	0.16	3.97	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			45.00	0.00	45.00	
	B	1	0.00	4.31	17.39	24.79	0.00	0.00	0.00	0.16	3.92	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			65.00	0.00	65.00	
	C	1	0.00	5.28	17.39	30.37	0.00	0.00	0.00	0.12	4.58	0.00	0.00	0.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			46.00	0.00	46.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	17.80	2.38	7.47	48.17
	Ax	1	22.20	0.74	30.00	12.00
	B	1	17.60	2.35	7.49	48.07
	Bx	1	6.60	0.22	30.00	12.00
	C	1	25.10	2.62	9.59	37.56
	Cx	1	31.70	1.06	30.00	12.00

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	4.36	0.16	3.97	1.00	0.00	27.34	27.34
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	B	1	0.00	0.00	✓	4.31	0.16	3.92	1.00	0.00	26.95	26.95
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	C	1	0.00	0.00	✓	5.28	0.12	4.58	1.00	0.00	27.64	27.64
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0	0	0	0	0.00	0.00	0.00	0.00

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:00-09:00	(ALL)	(ALL)	0	0	0		0	0	0		-100	0.00	0	0

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)
08:00-09:00	(ALL)	(ALL)	1.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	10.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	0.00	0.00

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	0.00	1.00	0.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	10/02/2022 09:18:48	10/02/2022 09:18:48	08:00	100	81.93	5.33	43.00	A/1	0	0	1:1	Bx/1	1:

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	43	0	1210	379	15.87	75.74	6.19	81.93

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0	0	0	0.00	0.00	0.00

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))	Effective green (s (per cycle))
08:00-09:00	1210	1210	0		43		-100	379	382

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	12.00	15.87	4.89	0.44	75.74	75.74	40.83	478.31	15.73	6.19	6.19

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	30.37	0.00	156.00	0.00	156.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	121.00	9.37	12.92

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	81.93	81.93

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To		
		1	2	3
From	1	0.0	49.6	49.6
	2	60.2	0.0	60.2
	3	60.1	60.1	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	3	56	49.56	56	49.56
2	1	2	195	49.56	195	49.56
3	2	3	10	60.17	10	60.17
4	2	1	168	60.17	168	60.17
5	3	2	27	60.07	27	60.07
6	3	1	149	60.07	149	60.07

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M en of r que (PC
A	1	(untitled)	1	1	A	178	1800	22	0.00	43	109	48.17	36.17	86.94	4.36	3.
Ax	1	(untitled)				222	Unrestricted	100	45.00	0	Unrestricted	12.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	B	176	1800	22	0.00	43	112	48.07	36.07	86.82	4.31	3.
Bx	1	(untitled)				66	Unrestricted	100	65.00	0	Unrestricted	12.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	C	251	1800	35	0.00	39	132	37.56	25.56	74.30	5.28	4.
Cx	1	(untitled)				317	Unrestricted	100	46.00	0	Unrestricted	12.00	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	C tr pe (£
(ALL)	(ALL)	(untitled)		1	D	0	0	0	0	-100	0.00	0.00	0.00	100	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	121.00	9.37	12.92	4.89	0.44	75.74	6.19	0.00	81.93
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	121.00	9.37	12.92	4.89	0.44	75.74	6.19	0.00	81.93

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A3 - 2041 + Developments
D3 - 2041+ Developments*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	10/02/2022 09:18:48	10/02/2022 09:18:48	08:00	100	84.77	5.52	46.56	B/1	0	0	B/1	Bx/1	B/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2041 + Developments		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2041+ Developments				08:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)			100.00						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
Cx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	186	186
Ax	1	230	230
B	1	176	176
Bx	1	66	66
C	1	259	259
Cx	1	325	325

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
B	1	1	B	
C	1	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	1	12.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	B/1	Ax/1	12.00	30.00	✓	Offside	87.50
Bx	1	1	A/1	Bx/1	12.00	30.00	✓	Nearside	50.00
Cx	1	1	B/1	Cx/1	12.00	30.00	✓	Nearside	50.00
Ax	1	2	C/1	Ax/1	12.00	30.00	✓	Straight	Straight Movement
Bx	1	2	C/1	Bx/1	12.00	30.00	✓	Offside	87.50
Cx	1	2	A/1	Cx/1	12.00	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
(ALL)	(untitled)				Farside	3.00	2.00	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	D	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Signal Timings

Network Default: 100s cycle time; 100 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	100

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4	9, 36, 77, 84
	2	(untitled)	Single	1, 2, 4, 3	22, 51, 72, 93
	3	(untitled)	Single	1, 3, 2, 4	22, 51, 79, 0
	4	(untitled)	Single	1, 3, 4, 2	22, 51, 72, 93
	5	(untitled)	Single	1, 4, 2, 3	22, 44, 65, 93
	6	(untitled)	Single	1, 4, 3, 2	22, 44, 65, 93

Intergreen Matrix for Controller Stream 1

		To			
		A	B	C	D
From	A		7	7	
	B	7		7	
	C	7	7		
	D				

Banned Stage transitions for Controller Stream 1

		To			
		1	2	3	4
From	1				
	2				
	3				
	4				

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	84	9	25	1	7
	2	✓	2	B	16	36	20	1	7
	3	✓	3	C	43	77	34	1	7
	4	✓	4	D	77	84	7	1	7

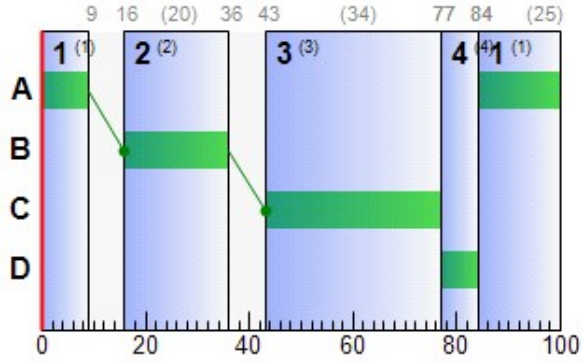
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	84	9	25
	B	1	✓	16	36	20
	C	1	✓	43	77	34
	D	1	✓	77	84	7

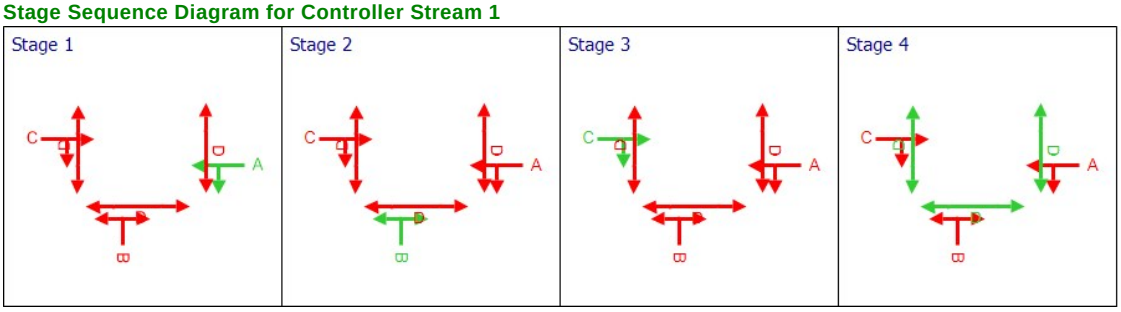
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	84	9	25
B	1	1	1	B	16	36	20
C	1	1	1	C	43	77	34

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
08:00-09:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	40	126	186	1800	25	33.07	4.37	25.11	24.26	1.94	26.21
	Ax	1	0	Unrestricted	230	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	47	93	176	1800	20	38.72	4.45	25.62	26.88	1.98	28.86
	Bx	1	0	Unrestricted	66	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	41	119	259	1800	34	26.67	5.54	31.85	27.24	2.46	29.70
	Cx	1	0	Unrestricted	325	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:00-09:00	A	1	186	186	0		1800	468	40		126	0.00	25	26
	Ax	1	230	230	0		Unrestricted	Unrestricted	0		Unrestricted	1.02	100	10
	B	1	176	176	0		1800	378	47		93	0.00	20	21
	Bx	1	66	66	0		Unrestricted	Unrestricted	0		Unrestricted	0.98	100	10
	C	1	259	259	0		1800	630	41		119	0.00	34	35
	Cx	1	325	325	0		Unrestricted	Unrestricted	0		Unrestricted	1.07	100	10

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	A	1	12.00	33.07	1.58	0.13	24.26	24.26	83.24	150.15	4.67	1.94	1.94
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	38.72	1.69	0.20	26.88	26.88	89.83	150.92	7.18	1.98	1.98
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	26.67	1.78	0.14	27.24	27.24	75.74	191.04	5.13	2.46	2.46
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:00-09:00	A	1	0.00	4.37	17.39	25.11	0.00	0.00	0.00	0.13	3.95	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			46.00	0.00	46.00	
	B	1	0.00	4.45	17.39	25.62	0.00	0.00	0.00	0.20	4.06	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			66.00	0.00	66.00	
	C	1	0.00	5.54	17.39	31.85	0.00	0.00	0.00	0.14	4.82	0.00	0.00	0.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			45.00	0.00	45.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	A	1	18.60	2.33	7.99	45.07
	Ax	1	23.00	0.77	30.00	12.00
	B	1	17.60	2.48	7.10	50.72
	Bx	1	6.60	0.22	30.00	12.00
	C	1	25.90	2.78	9.31	38.67
	Cx	1	32.50	1.08	30.00	12.00

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
08:00-09:00	A	1	0.00	0.00	✓	4.37	0.13	3.95	1.00	0.00	26.21	26.21
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	B	1	0.00	0.00	✓	4.46	0.20	4.06	1.00	0.00	28.86	28.86
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	C	1	0.00	0.00	✓	5.54	0.14	4.82	1.00	0.00	29.70	29.70
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0	0	11000	7	0.00	0.00	0.00	0.00

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))	Eff gr (c
08:00-09:00	(ALL)	(ALL)	0	0	0		11000	770	0		Unrestricted	0.00	7	

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)
08:00-09:00	(ALL)	(ALL)	1.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	10.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	0.00	0.00

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
08:00-09:00	(ALL)	(ALL)	0.00	0.00	0.00	1.00	0.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	10/02/2022 09:18:48	10/02/2022 09:18:48	08:00	100	84.77	5.52	46.56	B/1	0	0	B/1	Bx/1	B/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	47	0	1242	379	16.00	78.39	6.38	84.77

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0	0	42	0.00	0.00	0.00

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))	Effective green (s (per cycle))
08:00-09:00	1242	1242	0		47		93	421	424

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
08:00-09:00	12.00	16.00	5.05	0.48	78.39	78.39	40.99	492.12	16.98	6.38	6.38

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
08:00-09:00	31.85	0.00	157.00	0.00	157.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
08:00-09:00	124.20	9.66	12.86

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
08:00-09:00	0.00	0.00	✓	1.00	0.00	0.00	84.77	84.77

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To		
		1	2	3
From	1	0.0	50.7	50.7
	2	57.1	0.0	57.1
	3	62.7	62.7	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	3	56	50.67	56	50.67
2	1	2	203	50.67	203	50.67
3	2	3	10	57.07	10	57.07
4	2	1	176	57.07	176	57.07
5	3	2	27	62.72	27	62.72
6	3	1	149	62.72	149	62.72

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M en of r que (PC
A	1	(untitled)	1	1	A	186	1800	25	0.00	40	126	45.07	33.07	83.24	4.37	3.
Ax	1	(untitled)				230	Unrestricted	100	46.00	0	Unrestricted	12.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	B	176	1800	20	0.00	47	93	50.72	38.72	89.83	4.45	4.
Bx	1	(untitled)				66	Unrestricted	100	66.00	0	Unrestricted	12.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	C	259	1800	34	0.00	41	119	38.67	26.67	75.74	5.54	4.
Cx	1	(untitled)				325	Unrestricted	100	45.00	0	Unrestricted	12.00	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	P
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	(
(ALL)	(ALL)	(untitled)		1	D	0	11000	7	0	Unrestricted	0.00	0.00	0.00	100	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	124.20	9.66	12.86	5.05	0.48	78.39	6.38	0.00	84.77
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	124.20	9.66	12.86	5.05	0.48	78.39	6.38	0.00	84.77

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

TRANSYT 15

Filename: Junction 5 - PM.t15
Path: M:\Projects\20\20-040 - Brennanstown Road\Design\Civil\Traffic\2021\Junction Analysis\Junction 5\Signalised T-Junction
Report generation date: 10/02/2022 09:24:09

»A1 - 2026 + Developments : D1 - 2026 + Developments* :
»A2 - 2031 + Developments : D2 - 2031 + Developments* :
»A3 - 2041 + Developments : D3 - 2041 + Developments* :

File summary

File description

File title	(untitled)
Location	
Site number	
UTCRegion	
Driving side	Left
Date	06/12/2011
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAIN\l.byrne
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display level of service results	Display blocking and starvation results	Display end of red and green queue results	Display excess queue results	Display separate uniform and random results	Display unweighted results	Display TRANSYT 12 style timings	Display effective greens in results	Display Red-With-Amber	Display End-Of-Green Amber
			✓		✓	✓	✓	✓	✓	✓	✓		

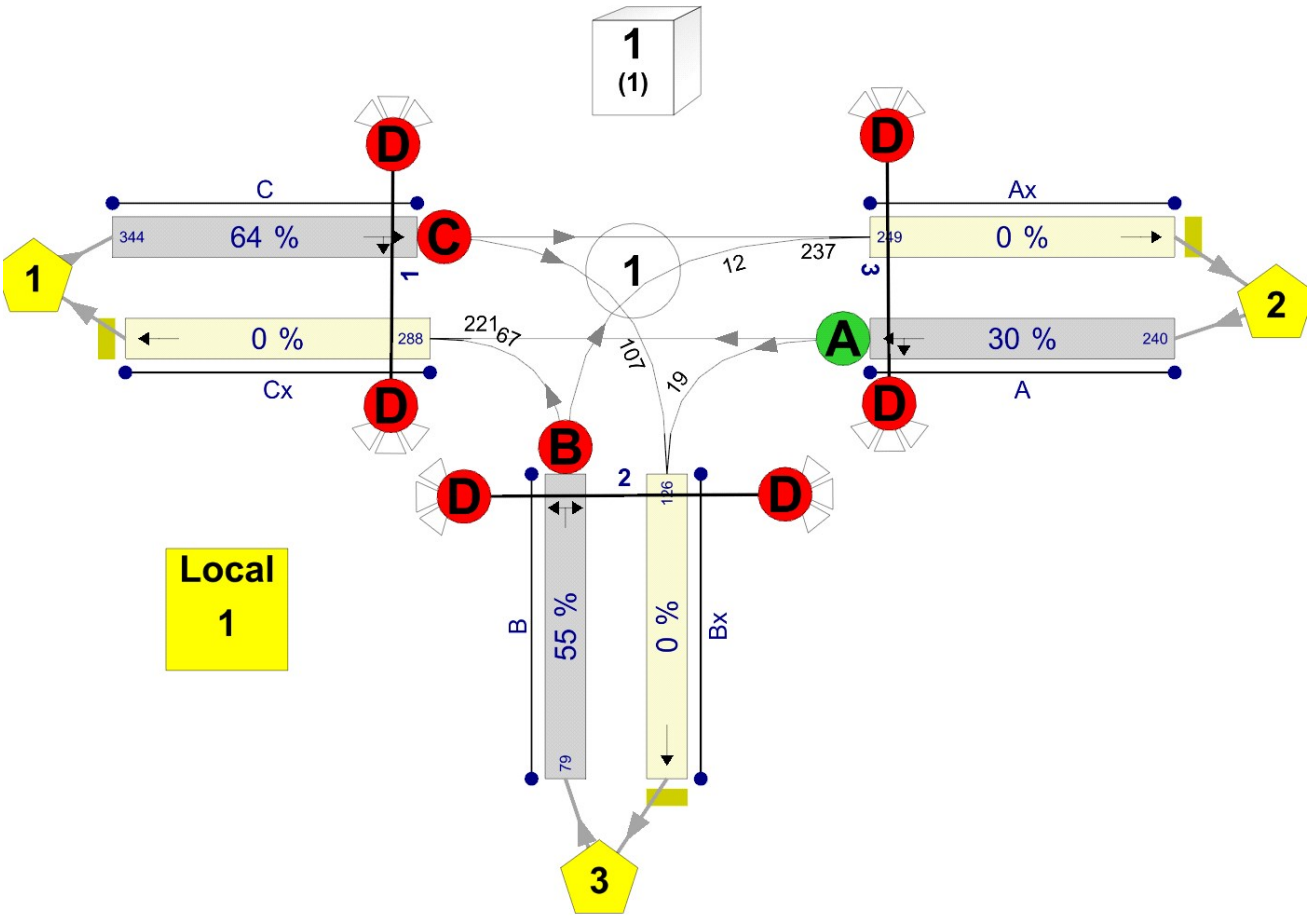
Units

Cost units	Speed units	Distance units	Fuel economy units	Fuel rate units	Mass units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
£	kph	m	mpg	l/h	kg	PCU	PCU	perHour	s	-Hour	perHour

Sorting

Show names instead of IDs	Sorting direction	Sorting type	Ignore prefixes when sorting	Analysis/demand set sorting	Link grouping	Source grouping	Colour Analysis/Demand Sets
	Ascending	Numerical		ID	Normal	Normal	✓

Network Diagrams



(untitled)
Cycletime 0s / 100s , Timesteps 99 / 100
3, 3
Diagram produced using TRANSYT 15.5.2.7994

A1 - 2026 + Developments
D1 - 2026 + Developments*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	10/02/2022 09:23:51	10/02/2022 09:23:52	17:00	100	75.52	4.90	45.27	A/1	0	0	1:1	Bx/1	1:

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2026 + Developments		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2026 + Developments				17:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)			100.00						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
Cx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	220	220
Ax	1	224	224
B	1	79	79
Bx	1	126	126
C	1	319	319
Cx	1	268	268

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
B	1	1	B	
C	1	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	1	12.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	B/1	Ax/1	12.00	30.00	✓	Offside	87.50
Bx	1	1	A/1	Bx/1	12.00	30.00	✓	Nearside	50.00
Cx	1	1	B/1	Cx/1	12.00	30.00	✓	Nearside	50.00
Ax	1	2	C/1	Ax/1	12.00	30.00	✓	Straight	Straight Movement
Bx	1	2	C/1	Bx/1	12.00	30.00	✓	Offside	87.50
Cx	1	2	A/1	Cx/1	12.00	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
(ALL)	(untitled)				Farside	3.00	2.00	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	D	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Signal Timings

Network Default: 100s cycle time; 100 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	100

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	48, 64, 15
	2	(untitled)	Single	1, 3, 2	0, 33, 66

Intergreen Matrix for Controller Stream 1

		To			
		A	B	C	D
From	A		7	7	
	B	7		7	
	C	7	7		
	D				

Banned Stage transitions for Controller Stream 1

		To		
		1	2	3
From	1			
	2			
	3			

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	22	48	26	1	7
	2	✓	2	B	55	64	9	1	7
	3	✓	3	C	71	15	44	1	7

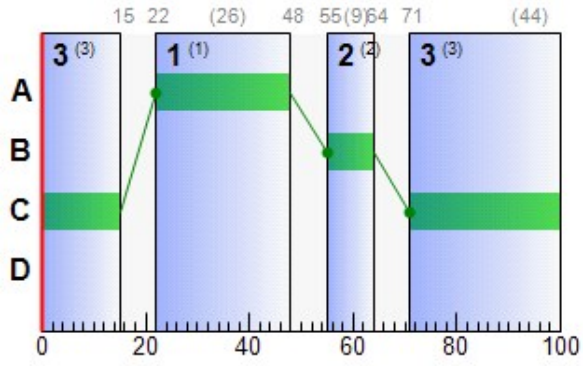
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	22	48	26
	B	1	✓	55	64	9
	C	1	✓	71	15	44

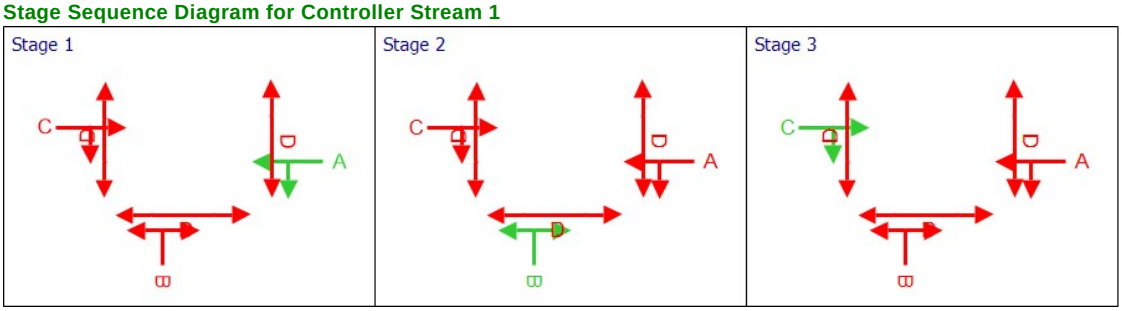
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	22	48	26
B	1	1	1	B	55	64	9
C	1	1	1	C	71	15	44

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:00-18:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	45	99	220	1800	26	33.41	5.26	30.24	28.99	2.33	31.32
	Ax	1	0	Unrestricted	224	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	44	105	79	1800	9	50.10	2.23	12.84	15.61	0.99	16.60
	Bx	1	0	Unrestricted	126	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	39	129	319	1800	44	19.83	5.98	34.36	24.95	2.64	27.59
	Cx	1	0	Unrestricted	268	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:00-18:00	A	1	220	220	0		1800	486	45		99	0.00	26	27
	Ax	1	224	224	0		Unrestricted	Unrestricted	0		Unrestricted	0.95	100	10
	B	1	79	79	0		1800	180	44		105	0.00	9	10
	Bx	1	126	126	0		Unrestricted	Unrestricted	0		Unrestricted	0.80	100	10
	C	1	319	319	0		1800	810	39		129	0.00	44	45
	Cx	1	268	268	0		Unrestricted	Unrestricted	0		Unrestricted	1.16	100	10

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	A	1	12.00	33.41	1.86	0.19	28.99	28.99	84.42	179.06	6.66	2.33	2.33
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	50.10	0.93	0.17	15.61	15.61	100.20	73.17	5.99	0.99	0.99
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	19.83	1.63	0.13	24.95	24.95	66.13	206.36	4.58	2.64	2.64
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:00-18:00	A	1	0.00	5.26	17.39	30.24	0.00	0.00	0.00	0.19	4.65	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			43.00	0.00	43.00	
	B	1	0.00	2.23	17.39	12.84	0.00	0.00	0.00	0.17	2.14	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			40.00	0.00	40.00	
	C	1	0.00	5.98	17.39	34.36	0.00	0.00	0.00	0.13	5.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			54.00	0.00	54.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	A	1	22.00	2.77	7.93	45.41
	Ax	1	22.40	0.75	30.00	12.00
	B	1	7.90	1.36	5.80	62.10
	Bx	1	12.60	0.42	30.00	12.00
	C	1	31.90	2.82	11.31	31.83
	Cx	1	26.80	0.89	30.00	12.00

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	0.00	0.00	✓	5.26	0.19	4.65	1.00	0.00	31.32	31.32
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	B	1	0.00	0.00	✓	2.23	0.17	2.15	1.00	0.00	16.60	16.60
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	C	1	0.00	0.00	✓	5.98	0.13	5.00	1.00	0.00	27.59	27.59
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	0	0	0	0	0.00	0.00	0.00	0.00

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:00-18:00	(ALL)	(ALL)	0	0	0		0	0	0		-100	0.00	0	0

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)
17:00-18:00	(ALL)	(ALL)	1.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
17:00-18:00	(ALL)	(ALL)	0.00	10.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	(ALL)	(ALL)	0.00	0.00	0.00	0.00

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	0.00	0.00	0.00	1.00	0.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	10/02/2022 09:23:51	10/02/2022 09:23:52	17:00	100	75.52	4.90	45.27	A/1	0	0	1:1	Bx/1	1:

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	45	0	1236	379	14.27	69.55	5.97	75.52

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0	0	0	0.00	0.00	0.00

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))	Effective green (s (per cycle))
17:00-18:00	1236	1236	0		45		-100	379	382

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	12.00	14.27	4.41	0.48	69.55	69.55	38.50	458.59	17.22	5.97	5.97

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
17:00-18:00	34.36	0.00	137.00	0.00	137.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
17:00-18:00	123.60	9.02	13.71

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0.00	0.00	✓	1.00	0.00	0.00	75.52	75.52

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To		
		1	2	3
From	1	0.0	43.8	43.8
	2	57.4	0.0	57.4
	3	74.1	74.1	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	3	107	43.83	107	43.83
2	1	2	212	43.83	212	43.83
3	2	3	19	57.41	19	57.41
4	2	1	201	57.41	201	57.41
5	3	2	12	74.10	12	74.10
6	3	1	67	74.10	67	74.10

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	A	220	1800	26	0.00	45	99	45.41	33.41	84.42	5.26	4.
Ax	1	(untitled)				224	Unrestricted	100	43.00	0	Unrestricted	12.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	B	79	1800	9	0.00	44	105	62.10	50.10	100.20	2.23	2.
Bx	1	(untitled)				126	Unrestricted	100	40.00	0	Unrestricted	12.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	C	319	1800	44	0.00	39	129	31.83	19.83	66.13	5.98	5.
Cx	1	(untitled)				268	Unrestricted	100	54.00	0	Unrestricted	12.00	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	C tr pe (£
(ALL)	(ALL)	(untitled)		1	D	0	0	0	0	-100	0.00	0.00	0.00	100	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	123.60	9.02	13.71	4.41	0.48	69.55	5.97	0.00	75.52
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	123.60	9.02	13.71	4.41	0.48	69.55	5.97	0.00	75.52

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A2 - 2031 + Developments
D2 - 2031 + Developments*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	10/02/2022 09:23:52	10/02/2022 09:23:52	17:00	100	79.18	5.14	47.53	A/1	0	0	1:1	Bx/1	1:

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2031 + Developments		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2031 + Developments				17:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)			100.00						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
Cx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	231	231
Ax	1	238	238
B	1	79	79
Bx	1	126	126
C	1	333	333
Cx	1	279	279

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
B	1	1	B	
C	1	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	1	12.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	B/1	Ax/1	12.00	30.00	✓	Offside	87.50
Bx	1	1	A/1	Bx/1	12.00	30.00	✓	Nearside	50.00
Cx	1	1	B/1	Cx/1	12.00	30.00	✓	Nearside	50.00
Ax	1	2	C/1	Ax/1	12.00	30.00	✓	Straight	Straight Movement
Bx	1	2	C/1	Bx/1	12.00	30.00	✓	Offside	87.50
Cx	1	2	A/1	Cx/1	12.00	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
(ALL)	(untitled)				Farside	3.00	2.00	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	D	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Signal Timings

Network Default: 100s cycle time; 100 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	100

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	48, 64, 15
	2	(untitled)	Single	1, 3, 2	0, 33, 66

Intergreen Matrix for Controller Stream 1

		To			
		A	B	C	D
From	A		7	7	
	B	7		7	
	C	7	7		
	D				

Banned Stage transitions for Controller Stream 1

		To		
		1	2	3
From	1			
	2			
	3			

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	22	48	26	1	7
	2	✓	2	B	55	64	9	1	7
	3	✓	3	C	71	15	44	1	7

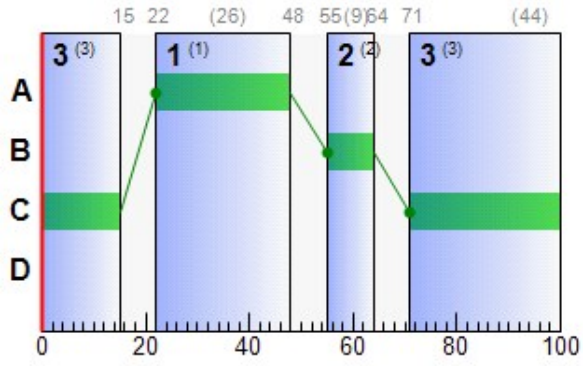
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	22	48	26
	B	1	✓	55	64	9
	C	1	✓	71	15	44

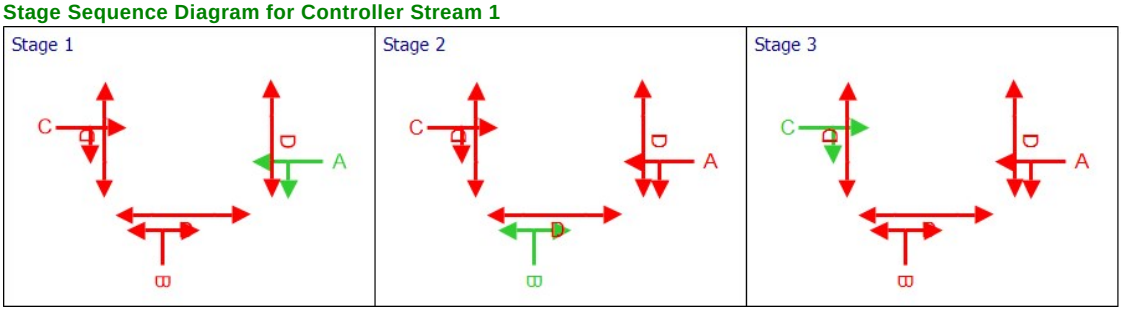
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	22	48	26
B	1	1	1	B	55	64	9
C	1	1	1	C	71	15	44

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:00-18:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	48	89	231	1800	26	33.91	5.54	31.85	30.90	2.46	33.36
	Ax	1	0	Unrestricted	238	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	44	105	79	1800	9	50.10	2.23	12.84	15.61	0.99	16.60
	Bx	1	0	Unrestricted	126	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	41	119	333	1800	44	20.11	6.34	36.46	26.42	2.80	29.22
	Cx	1	0	Unrestricted	279	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:00-18:00	A	1	231	231	0		1800	486	48		89	0.00	26	27
	Ax	1	238	238	0		Unrestricted	Unrestricted	0		Unrestricted	0.95	100	10
	B	1	79	79	0		1800	180	44		105	0.00	9	10
	Bx	1	126	126	0		Unrestricted	Unrestricted	0		Unrestricted	0.80	100	10
	C	1	333	333	0		1800	810	41		119	0.00	44	45
	Cx	1	279	279	0		Unrestricted	Unrestricted	0		Unrestricted	1.16	100	10

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	A	1	12.00	33.91	1.96	0.21	30.90	30.90	85.06	188.84	7.64	2.46	2.46
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	50.10	0.93	0.17	15.61	15.61	100.20	73.17	5.99	0.99	0.99
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	20.11	1.72	0.14	26.42	26.42	67.06	218.16	5.13	2.80	2.80
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:00-18:00	A	1	0.00	5.54	17.39	31.85	0.00	0.00	0.00	0.21	4.90	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			42.00	0.00	42.00	
	B	1	0.00	2.23	17.39	12.84	0.00	0.00	0.00	0.17	2.14	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			40.00	0.00	40.00	
	C	1	0.00	6.34	17.39	36.46	0.00	0.00	0.00	0.14	5.23	0.00	0.00	0.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			53.00	0.00	53.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	A	1	23.10	2.95	7.84	45.91
	Ax	1	23.80	0.79	30.00	12.00
	B	1	7.90	1.36	5.80	62.10
	Bx	1	12.60	0.42	30.00	12.00
	C	1	33.30	2.97	11.21	32.11
	Cx	1	27.90	0.93	30.00	12.00

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	0.00	0.00	✓	5.54	0.21	4.90	1.00	0.00	33.36	33.36
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	B	1	0.00	0.00	✓	2.23	0.17	2.15	1.00	0.00	16.60	16.60
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	C	1	0.00	0.00	✓	6.34	0.14	5.23	1.00	0.00	29.22	29.22
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	0	0	0	0	0.00	0.00	0.00	0.00

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:00-18:00	(ALL)	(ALL)	0	0	0		0	0	0		-100	0.00	0	0

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)
17:00-18:00	(ALL)	(ALL)	1.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
17:00-18:00	(ALL)	(ALL)	0.00	10.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	(ALL)	(ALL)	0.00	0.00	0.00	0.00

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	0.00	0.00	0.00	1.00	0.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	10/02/2022 09:23:52	10/02/2022 09:23:52	17:00	100	79.18	5.14	47.53	A/1	0	0	1:1	Bx/1	1:

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	48	0	1286	379	14.38	72.93	6.26	79.18

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0	0	0	0.00	0.00	0.00

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))	Effective green (s (per cycle))
17:00-18:00	1286	1286	0		48		-100	379	382

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	12.00	14.38	4.61	0.53	72.93	72.93	38.80	480.17	18.77	6.26	6.26

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
17:00-18:00	36.46	0.00	135.00	0.00	135.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
17:00-18:00	128.60	9.42	13.65

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0.00	0.00	✓	1.00	0.00	0.00	79.18	79.18

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To		
		1	2	3
From	1	0.0	44.1	44.1
	2	57.9	0.0	57.9
	3	74.1	74.1	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	3	107	44.11	107	44.11
2	1	2	226	44.11	226	44.11
3	2	3	19	57.91	19	57.91
4	2	1	212	57.91	212	57.91
5	3	2	12	74.10	12	74.10
6	3	1	67	74.10	67	74.10

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	A	231	1800	26	0.00	48	89	45.91	33.91	85.06	5.54	4.
Ax	1	(untitled)				238	Unrestricted	100	42.00	0	Unrestricted	12.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	B	79	1800	9	0.00	44	105	62.10	50.10	100.20	2.23	2.
Bx	1	(untitled)				126	Unrestricted	100	40.00	0	Unrestricted	12.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	C	333	1800	44	0.00	41	119	32.11	20.11	67.06	6.34	5.
Cx	1	(untitled)				279	Unrestricted	100	53.00	0	Unrestricted	12.00	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	PEN
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	C tr pe (£
(ALL)	(ALL)	(untitled)		1	D	0	0	0	0	-100	0.00	0.00	0.00	100	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	128.60	9.42	13.65	4.61	0.53	72.93	6.26	0.00	79.18
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	128.60	9.42	13.65	4.61	0.53	72.93	6.26	0.00	79.18

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A3 - 2041 + Developments
D3 - 2041 + Developments*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	10/02/2022 09:23:52	10/02/2022 09:23:53	17:00	100	92.31	6.02	63.70	C/1	0	0	C/1	Bx/1	C/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
2041 + Developments		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
2041 + Developments				17:00	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
A	(untitled)		1
Ax	(untitled)		
B	(untitled)		1
Bx	(untitled)		
C	(untitled)		1
Cx	(untitled)		

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)			100.00						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)			100.00						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)			100.00						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
Cx	1	1	(untitled)			

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
(ALL)	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	240	240
Ax	1	249	249
B	1	79	79
Bx	1	126	126
C	1	344	344
Cx	1	288	288

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A	1	1	A	
B	1	1	B	
C	1	1	C	

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
(ALL)	1	12.00	30.00

Sources

Arm	Traffic Stream	Source	Source traffic stream	Destination traffic stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)	Auto turning radius	Traffic turn style	Turning radius (m)
Ax	1	1	B/1	Ax/1	12.00	30.00	✓	Offside	87.50
Bx	1	1	A/1	Bx/1	12.00	30.00	✓	Nearside	50.00
Cx	1	1	B/1	Cx/1	12.00	30.00	✓	Nearside	50.00
Ax	1	2	C/1	Ax/1	12.00	30.00	✓	Straight	Straight Movement
Bx	1	2	C/1	Bx/1	12.00	30.00	✓	Offside	87.50
Cx	1	2	A/1	Cx/1	12.00	30.00	✓	Straight	Straight Movement

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
(ALL)	(untitled)				Farside	3.00	2.00	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
(ALL)	1	D	

Pedestrian Crossings - Sides

Crossing	Side	Saturation flow (Ped/hr)
(ALL)	(ALL)	11000

Pedestrian Crossings - Modelling

Crossing	Side	Delay weighting (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (Ped)	Has queue limit	Has degree of saturation limit
(ALL)	(ALL)	100	100		0.00		

Signal Timings

Network Default: 100s cycle time; 100 steps

Controller Stream 1

Controller Stream	Name	Description	Use sequence	Cycle time source	Cycle time (s)
1	(untitled)		1	NetworkDefault	100

Controller Stream 1 - Properties

Controller Stream	Manufacturer name	Type	Model number	(Telephone) Line Number	Site number	Grid reference	Gaining delay type
1	Unspecified						Absolute

Controller Stream 1 - Optimisation

Controller Stream	Allow offset optimisation	Allow green split optimisation	Optimisation level	Auto redistribute	Enable stage constraint
1	✓	✓	Offsets And Green Splits	✓	

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	7	300	0	0	Unknown	
	B	(untitled)	7	300	0	0	Unknown	
	C	(untitled)	7	300	0	0	Unknown	
	D	(untitled)	7	300	0	0	Pedestrian	0

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	A	1
	2	B	1
	3	C	1
	4	D	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3, 4	27, 41, 77, 84
	2	(untitled)	Single	1, 2, 4, 3	22, 51, 72, 93
	3	(untitled)	Single	1, 3, 2, 4	22, 51, 79, 0
	4	(untitled)	Single	1, 3, 4, 2	22, 51, 72, 93
	5	(untitled)	Single	1, 4, 2, 3	22, 44, 65, 93
	6	(untitled)	Single	1, 4, 3, 2	22, 44, 65, 93

Intergreen Matrix for Controller Stream 1

		To			
		A	B	C	D
From	A		7	7	
	B	7		7	
	C	7	7		
	D				

Banned Stage transitions for Controller Stream 1

		To			
		1	2	3	4
From	1				
	2				
	3				
	4				

Interstage Matrix for Controller Stream 1

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

Resultant Stages

Controller Stream	Resultant Stage	Is base 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	84	27	43	1	7
	2	✓	2	B	34	41	7	1	7
	3	✓	3	C	48	77	29	1	7
	4	✓	4	D	77	84	7	1	7

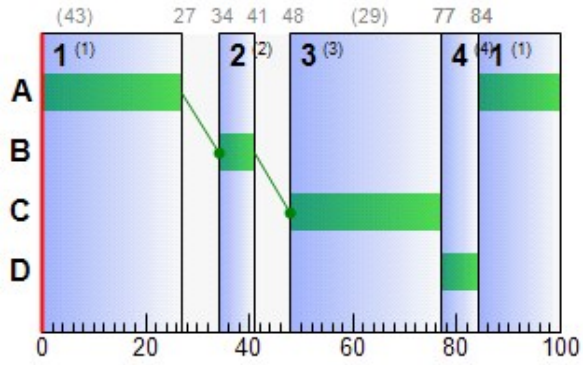
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	84	27	43
	B	1	✓	34	41	7
	C	1	✓	48	77	29
	D	1	✓	77	84	7

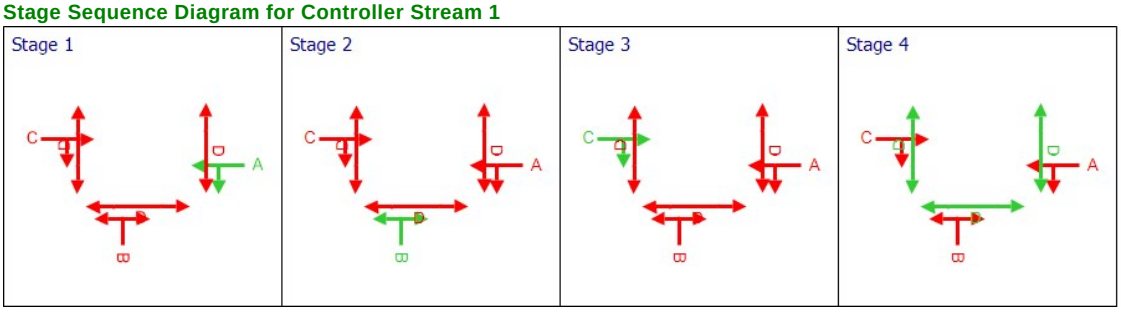
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	84	27	43
B	1	1	1	B	34	41	7
C	1	1	1	C	48	77	29

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:00-18:00	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	30	197	240	1800	43	19.09	4.33	24.91	18.07	1.92	19.99
	Ax	1	0	Unrestricted	249	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	55	64	79	1800	7	59.08	2.43	13.98	18.41	1.08	19.49
	Bx	1	0	Unrestricted	126	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	64	41	344	1800	29	36.07	8.77	50.43	48.95	3.89	52.84
	Cx	1	0	Unrestricted	288	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
17:00-18:00	A	1	240	240	0		1800	792	30		197	0.00	43	44
	Ax	1	249	249	0		Unrestricted	Unrestricted	0		Unrestricted	1.24	100	10
	B	1	79	79	0		1800	144	55		64	0.00	7	8
	Bx	1	126	126	0		Unrestricted	Unrestricted	0		Unrestricted	1.04	100	10
	C	1	344	344	0		1800	540	64		41	0.00	29	30
	Cx	1	288	288	0		Unrestricted	Unrestricted	0		Unrestricted	0.92	100	10

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	A	1	12.00	19.09	1.21	0.07	18.07	18.07	63.68	150.48	2.36	1.92	1.92
	Ax	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	59.08	0.97	0.32	18.41	18.41	109.00	74.84	11.27	1.08	1.08
	Bx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	36.07	2.89	0.55	48.95	48.95	90.23	290.78	19.60	3.89	3.89
	Cx	1	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
17:00-18:00	A	1	0.00	4.33	17.39	24.91	0.00	0.00	0.00	0.07	3.80	0.00	0.00	0.00	
	Ax	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			57.00	0.00	57.00	
	B	1	0.00	2.43	17.39	13.98	0.00	0.00	0.00	0.32	2.34	0.00	0.00	0.00	
	Bx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			57.00	0.00	57.00	
	C	1	0.00	8.77	17.39	50.43	0.00	0.00	0.00	0.55	7.24	0.00	0.00	0.00	
	Cx	1	0.00	0.00	17.39	0.00	0.00	0.00	0.00			36.00	0.00	36.00	

Traffic Stream Results: Journey times

Time Segment	Arm	Traffic Stream	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	A	1	24.00	2.07	11.58	31.09
	Ax	1	24.90	0.83	30.00	12.00
	B	1	7.90	1.56	5.06	71.08
	Bx	1	12.60	0.42	30.00	12.00
	C	1	34.40	4.59	7.49	48.07
	Cx	1	28.80	0.96	30.00	12.00

Traffic Stream Results: Advanced

Time Segment	Arm	Traffic Stream	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	Mean Max Queue EoTS (PCU)	Max End of Green Queue EoTS (PCU)	Max End of Red Queue EoTS (PCU)	PCU Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
17:00-18:00	A	1	0.00	0.00	✓	4.33	0.07	3.80	1.00	0.00	19.99	19.99
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	B	1	0.00	0.00	✓	2.44	0.33	2.35	1.00	0.00	19.49	19.49
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00
	C	1	0.00	0.00	✓	8.77	0.56	7.24	1.00	0.00	52.84	52.84
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00	0.00

Pedestrian Crossing Results

Pedestrian Crossings: Pedestrian summary

Time Segment	Crossing	Side	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Mean max queue (Ped)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	0	0	11000	7	0.00	0.00	0.00	0.00

Pedestrian Crossings: Flows and signals

Time Segment	Crossing	Side	Calculated flow entering (Ped/hr)	Calculated flow out (Ped/hr)	Flow discrepancy (Ped/hr)	Adjusted flow warning	Calculated sat flow (Ped/hr)	Calculated capacity (Ped/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))	Eff gr (c
17:00-18:00	(ALL)	(ALL)	0	0	0		11000	770	0		Unrestricted	0.00	7	

Pedestrian Crossings: Stops and delays

Time Segment	Crossing	Side	Mean Cruise Time per Ped (s)	Mean Delay per Ped (s)	Uniform delay (Ped-hr/hr)	Random plus oversat delay (Ped-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)
17:00-18:00	(ALL)	(ALL)	1.00	0.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Queues and blocking

Time Segment	Crossing	Side	Mean max queue (Ped)	Max queue storage (Ped)	Utilised storage (%)	Average storage excess queue (Ped)	Average limit excess queue (Ped)	Excess queue penalty (£ per hr)
17:00-18:00	(ALL)	(ALL)	0.00	10.00	0.00	0.00	0.00	0.00

Pedestrian Crossings: Journey times

Time Segment	Crossing	Side	Distance travelled (Ped-km/hr)	Time spent (Ped-hr/hr)	Mean journey speed (kph)	JourneyTime (s)
17:00-18:00	(ALL)	(ALL)	0.00	0.00	0.00	0.00

Pedestrian Crossings: Advanced

Time Segment	Crossing	Side	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Mean Max Queue EoTS (Ped)	Ped Factor	Cost of traffic penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
17:00-18:00	(ALL)	(ALL)	0.00	0.00	0.00	1.00	0.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	10/02/2022 09:23:52	10/02/2022 09:23:53	17:00	100	92.31	6.02	63.70	C/1	0	0	C/1	Bx/1	C/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:00-18:00	64	0	1326	379	16.33	85.43	6.89	92.31

Network Results: Pedestrian summary

Time Segment	Degree of saturation (%)	Calculated Flow Entering (Ped/hr)	Actual green (s (per cycle))	Mean Delay Per Ped (s)	Weighted cost of delay (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0	0	42	0.00	0.00	0.00

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))	Effective green (s (per cycle))
17:00-18:00	1326	1326	0		64		41	421	424

Network Results: Stops and delays

Time Segment	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Unweighted cost of delay (£ per hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Uniform stops (Stops per hr)	Random stops (Stops per hr)	Unweighted cost of stops (£ per hr)	Weighted cost of stops (£ per hr)
17:00-18:00	12.00	16.33	5.07	0.94	85.43	85.43	41.43	516.10	33.23	6.89	6.89

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))
17:00-18:00	50.43	0.00	150.00	0.00	150.00

Network Results: Journey times

Time Segment	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)
17:00-18:00	132.60	10.44	12.71

Network Results: Advanced

Time Segment	Degree of saturation penalty (£ per hr)	Ped gap accepting penalty (£ per hr)	Warmed up	PCU Factor	Cost of traffic penalties (£ per hr)	Controller stream penalties (£ per hr)	Unweighted performance index (£ per hr)	Performance Index (£ per hr)
17:00-18:00	0.00	0.00	✓	1.00	0.00	0.00	92.31	92.31

Point to Point Journey Time

Average Journey Time (s) for Local Matrix: 1

		To		
		1	2	3
From	1	0.0	60.1	60.1
	2	43.1	0.0	43.1
	3	83.1	83.1	0.0

Path Journey Time

Path	From Location	To Location	Normal Calculated Flow (PCU/hr)	Normal journey time (s)	Calculated Total Flow (PCU/hr)	Avg journey time (s)
1	1	3	107	60.07	107	60.07
2	1	2	237	60.07	237	60.07
3	2	3	19	43.09	19	43.09
4	2	1	221	43.09	221	43.09
5	3	2	12	83.08	12	83.08
6	3	1	67	83.08	67	83.08

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	A	240	1800	43	0.00	30	197	31.09	19.09	63.68	4.33	3.
Ax	1	(untitled)				249	Unrestricted	100	57.00	0	Unrestricted	12.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	B	79	1800	7	0.00	55	64	71.08	59.08	109.00	2.43	2.
Bx	1	(untitled)				126	Unrestricted	100	57.00	0	Unrestricted	12.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	C	344	1800	29	0.00	64	41	48.07	36.07	90.23	8.77	7.
Cx	1	(untitled)				288	Unrestricted	100	36.00	0	Unrestricted	12.00	0.00	0.00	0.00	

Pedestrian Crossing Results

				SIGNALS		FLOWS		PERFORMANCE			PER PED		QUEUES	WEIGHTS	P
Pedestrian	Side	Name	Traffic node	Controller stream	Phase	Calculated Flow Entering (Ped/hr)	Calculated sat flow (Ped/hr)	Actual green (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Ped (s)	Mean max queue (Ped)	Delay weighting (%)	(
(ALL)	(ALL)	(untitled)		1	D	0	11000	7	0	Unrestricted	0.00	0.00	0.00	100	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	132.60	10.44	12.71	5.07	0.94	85.43	6.89	0.00	92.31
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	132.60	10.44	12.71	5.07	0.94	85.43	6.89	0.00	92.31

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

D. Appendix D – Luas Capacity Assessment

Waterman Moylan
Engineering Consultants

Capacity of Luas Green Line Report

Barrington Tower SHD, Brennanstown Road, Dublin 18.

April 2022

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Waterman Moylan
Engineering Consultants

Client Name: Cairn Homes Properties Ltd
Document Reference: 20-040r.012
Project Number: 20-040

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015)

Issue	Date	Prepared by	Checked by	Approved by
Draft 8	4 April 2022	B McCann	J Gibbons	J Gibbons

Comments

Waterman Moylan
Engineering Consultants

Disclaimer

This report has been prepared by Waterman Moylan, with all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the Client.

We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

This report is confidential to the Client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Content

Figures

Tables

1. Introduction

1.1 Introduction

This report on the capacity of the Luas Green Line at Brennanstown Stop, Dublin 18 has been prepared by Waterman Moylan on behalf of Cairn plc.

The purpose of the report is to review the capacity of the Luas Green line to accommodate passenger trips generated by the proposed development and to confirm that the Luas Green line will remain within capacity once all of the committed and proposed developments contributing to the service have been completed.

1.2 Background

Services on the Luas Green Line between St Stephens Green and Sandyford commenced in 2004. Subsequently, the line was extended south to Cherrywood in 2010 (Line B1) and north to Broombridge in 2017 (Line BX). Brennanstown Stop although completed in 2010 was not operational at the time of writing in February 2022 as it is located in an area which has not been populated to date.

The reason for not opening this stop given by the Railway Procurement Agency (RPA) in the year of opening 2010 was that there is *"currently no road infrastructure in the vicinity of the stop"* and the area is not populated as expected when the Luas extension from Sandyford to Cherrywood was planned. The road infrastructure to serve the Brennanstown Stop is included in the subject planning application.

1.3 Location of Proposed Development

The proposed development will be located at Brennanstown Road, Dublin 18 on lands at Barrington Tower between Brennanstown and the Luas Green Line. See Figure 1.

Figure 1 Location Map

1.4 References

The figures and illustrations in this report have been based or reproduced from a number of sources including:

- Luas Website operated by Transdev (luas.ie).
- Luas Green Line Capacity Enhancement, Luas News, July 2021
- Luas Green Line, Peak Hour Capacity Requirements South of Charlemont, Transport Infrastructure Ireland (TII), March 2019
- Luas Annual Census Results 2019, Tracsis plc.
- Updated Detailed Business Case, Luas Broombridge, Railway Procurement Agency (RPA), November 2012
- Dublin Light Rail, Environmental Impact Statement, Line B1, Sandyford Industrial estate to Cherrywood, Railway Procurement Agency (RPA)
- Bus & Rail Statistics, National Transport Authority (NTA)
- Census 2016 Reports, Central Statistics Office (CSO), 2017

A statement from Anne Graham, Chief Executive Officer, National Transport Authority to the Joint Committee on Transport and Communications Networks, Dail Eireann, March 2019 was also consulted.

2. Green Line - Frequency

2.1 Background

The Luas Green Line in south Dublin operates in two sections north and south of Sandyford. These are:

- Sandyford - City Centre and Broombridge
- Sandyford – Brides Glen

2.2 Sandyford Depot – City Centre

There are some 200 services per day in each direction between Sandyford and the City Centre. See Tables 1 and 2.

[Source: Luas Website operated by Transdev (luas.ie)]

Table 1 Green Line Service Frequency – Sandyford to City Centre - Northbound

Time	Average No of Trams per Hour	Total Number of Trams
05:30-07:00	6	9
07:00-08:00	13	13
08.00-0900	20	20
09.00-10.00	12	12
10:00-16:00	10	60
16:00-19:00	12	36
19:00-00.25	8	41
	Total	192

Table 2 Green Line Service Frequency - City Centre to Sandyford - Southbound

Time	Average No of Trams per Hour	Total Number of Trams
06.00-07:00	5	5
07:00-10:00	15	45
10:00-16:00	10	60
16:00-19:00	15	45
19:00-01.00	7.5	45
	Total	200

2.3 Sandyford – Brides Glen

The frequency of 200 services per day in each direction on the Sandyford – City Centre section described above reduces to 100 services per day per direction between Sandyford and Brides Glen. See Tables 3 and 4.

[Source: Luas Website operated by Transdev (luas.ie)]

Table 3 Green Line Service Frequency – Brides Glen to Sandyford – Northbound

Time	Total No of Trams per Hour	Total Number of Trams
05:30-07:00	3	4
07:00-08:00	5	5
08.00-09.00	10	10
09.00-10.00	6	6
10:00-16:00	5	30
16:00-19:00	6	18
19:00-00:00	5	25
	Total	98

Table 4 Green Line Service Frequency – Sandyford to Brides Glen – Southbound

Time	Average No of Trams per Hour	Total Number of Trams
05:30-07:00	5	7
07:00-10:00	6.66	20
10:00-16:00	4.6	28
16:00-19:00	6	18
19:00-01:18	4.6	29
	Total	102

2.4 Peak Frequency – AM Peak Hour - Inbound

From Table 1, the peak frequency on the Luas Green Line northbound (inbound) between Sandyford and the City Centre is 20 trams per hour equivalent to an average frequency of 3 minutes.

From Table 3, the peak frequency on the Luas Green Line northbound (inbound) between Brides Glen and Sandyford Depot is 10 trams per hour equivalent to an average frequency of 6 minutes.

3. Passenger Capacity

3.1 Historic Overcrowding 2010 – 2017

Surveys by the NTA of passenger demand and conditions on the Luas Green Line some years after opening indicated that the line was operating at capacity or above during peak periods, with crowding experienced between the Balally and Ranelagh Stops. This crowding resulted in passengers being unable or unwilling to board at these stops.

3.2 Green Line Capacity Enhancement Scheme 2017 - 2021

The Green Line Capacity Enhancement Scheme was launched in 2017 and completed by Transport Infrastructure Ireland (TII) in 2021 at a cost of €100m.

The Capacity Enhancement Scheme provided for the replacement of the original 44 metre long trams with 55 metre long trams.

[Source: Luas Green Line Capacity Enhancement, Luas News, July 2021]

3.3 Tram Capacity 2022

Figures provided by Luas Operations in 2022 advise that while the extended 55 metre long trams have a nominal carrying capacity of 408 passengers per tram, the operational capacity used is 315 passengers per tram allowing for what Luas call a *'comfort factor'*.

3.4 Line Capacity 2022

Based on the frequency of 20 trams per hour and the tram capacity of 315 passengers per tram, the capacity of the Green Line between Sandyford and the City Centre is 6,300 passengers per hour in each direction during the AM Peak Hour 8 – 9.

Between Sandyford and Brides Glen, this capacity reduces to 3,150 passengers per direction per hour during the AM Peak Hour 8 – 9 based on 10 trams per hour x 315 passengers per tram.

3.5 Future Capacity 2022- 2040

In March 2019, Ann Graham, Chief Executive Officer, National Transport Authority, advised an Oireachtas Committee that "*It is projected that the number of people seeking to travel on the Green Line in future years will exceed the carrying capacity of the Luas system, requiring an upgrade. However, that upgrade is not expected to be needed for some time – perhaps twenty years or so."*

4. Forecast Passenger Demand

4.1 Forecast Passenger Demand – Northbound

The pattern of passenger demand travelling northbound on the Green Line between Brides Glen and Broombridge during the AM Peak is illustrated in Figure 2. This demand is significantly higher than the corresponding southbound demand throughout the day. See Figure 3.

This figure is reproduced from the '*Updated Detailed Business Case'* for the Luas Green Line extension from St Stephens Green to Broombridge published by the Railway Procurement Agency in November 2012.

the projected peak of 5,270 passengers per hour at the Ranelagh Stop during the AM Peak has not been achieved to date. See Section 5.2 of this report.

[Source: Luas Annual Census Results 2019, Tracsis plc]

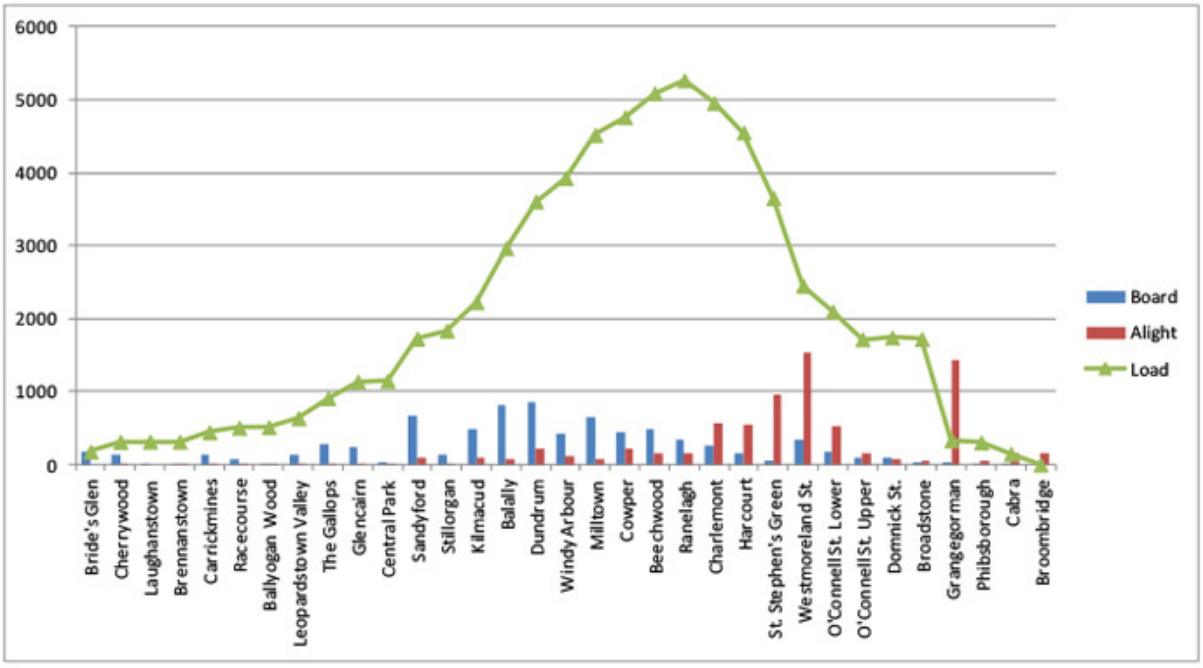


Figure 2 Total AM Peak Load Northbound

(Reproduced from RPA Figure 4.3)

4.2 Forecast Passenger Demand – Southbound

The pattern of passenger demand travelling southbound on the Green Line between Broombridge and Brides Glen during the AM Peak is illustrated in Figure 2. This figure was also reproduced from the '*Updated Detailed Business Case'* for the Luas Green Line. This demand is significantly lower than the corresponding northbound demand throughout the day. See Figure 2.

The projected peak of 2,330 passengers per hour at the Cowper Stop during the AM Peak has not been achieved to date. See Section 5.2 of this report.

[Source: Luas Annual Census Results 2019, Tracsis plc]

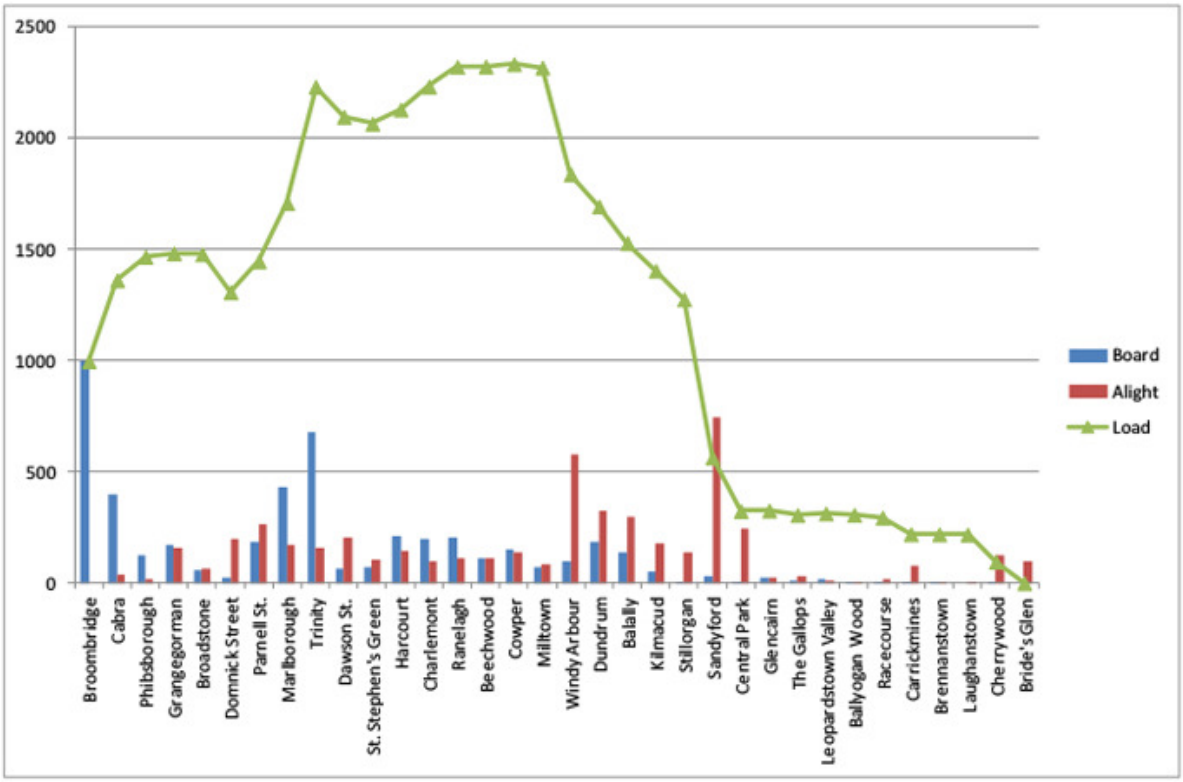


Figure 4-4 Total AM Peak Broombridge to Brides Glen Load

Figure 3 Total AM Peak Load Southbound

(Reproduced from RPA Figure 4-4)

5. Recorded Passenger Demand

5.1 Impact of Covid-19

The existing passenger figures are based on surveys taken in 2019. Since then, passenger numbers have fallen due to the impact of Covid-19.

At the time of writing in February 2022, there has not been a full return to work and as a result, passenger demand remains below pre-Covid levels.

5.2 Recorded Passenger Demand

The pre-Covid peak passenger numbers recorded by Luas on the Green Line during the AM Peak Hour 8 - 9 are presented in Table 5. The passenger numbers recorded have not yet reached the predicted figures presented in Figures 2 and 3.

This table does not include any boardings or alightings at the Brennanstown Stop which is not operational to date.

Table 5 Recorded Passenger Numbers – Green Line – 2019

	Brides Glen - Sandyford	Sandyford - City Centre
Inbound	1,618 passengers per hour (Glencairn – Central Park)	4,648 passengers per hour (Milltown - Cowper)
Outbound	896 passengers per hour (Sandyford – Central Park)	2,100 passengers per hour (Milltown – Windy Arbour)

5.3 Location and Time of Peak Demand

From the projected demand in Figure 2 / 3 and the recorded demand in Table 5, it is clear that the location and time of the peak passenger demand on the Luas Green Line is the inbound service between Sandyford and City Centre during the AM Peak Hour between 08h00 and 09h00 on a weekday.

By inspection, the demand at other times at other locations and in the other direction can be seen to be less than the peak demand summarised below:

- Location : Sandyford – City Centre
- Direction : Northbound
- Time : 08h00 – 09h00
- Demand : 4,648 passengers per hour excluding boardings at Brennanstown.

6. Future Passenger Demand – Brennanstown Stop

6.1 Resident Population

The proposed development at Brennanstown is expected to comprise some 534 residential apartments on the south side of Brennanstown Road (Barrington Tower).

Table 6 Development Population

Unit Size	Number of Units	Total
Studio (1 person)	30	30
1-Bed (2 person)	135	270
2-Bed (3 persons)	318	954
3-Bed (4 persons)	51	204
Total	534	1,458 persons

By way of comparison based the Irish Water standard of 2.7 persons per unit, the projected population of the development would be some 1,442 persons (534 units x 2.7 persons per unit).

For the purpose of this report and based on the figures in Table 6, the projected population of the proposed development has been assumed to be 1,442 persons.

6.2 Modal Split

The projected modal split for residents for the journey to work / education at the proposed development during the AM Peak 07h00 – 10h00 is set out in Table 7.

Table 7 was based on travel statistics extracted from CSO Reports on Census 2016.

In the absence of appropriate travel and employment surveys and based on Waterman Moylan experience having regard to uncertainties in return to work at the time of writing in March 2022, a rate of 10.0% has been assumed in this report for the proportion of residents working from home.

Based on data from TRICS adjusted for the proposed quantum of car parking and the proximity of the high-capacity Green Line, some 50% of residents are expected to travel during the AM Peak Hour 07h00 – 10h00.

Table 7 Projected Modal Split for Residents

Mode	Modal Split	Number of Residents	Person Trips 08h00-09h00
Walk	22.0%	317	159
Cycle	6.0%	87	43
Bus	5.0%	72	36
Luas	28.0%	404	202
Motorcycle	0.0%	0	0
Car Driver	22.0%	317	159
Car Passenger	6.0%	87	43
Car Share	1.0%	14	8
Work at Home	10.0%	144	0
Total	100%	1,442	648

6.3 Development Generated Trips

Based on Table 7, some 202 residents are predicted to use the Luas for the journey to work or education during the AM Peak Hour between 08h00 and 09h00 each workday.

6.4 External Trips from Surrounding Area

In the absence of any specific information, a demand of up to 100 passengers per hour for local residents travelling to work or education from outside the proposed development has been assumed for the AM Peak Hour between 08h00 and 09h00.

6.5 Direction of Travel

Based on the *Luas Annual Census Results 2019* from Tracsis plc and for the purpose of this report, it has been assumed during the AM Peak Hour between 08h00 and 09h00 that some 80% of passengers boarding at the Brennanstown Stop will travel northbound towards the City Centre and 20% southbound towards Cherrywood.

6.6 Projected Boardings

On the basis of the figures above, the projected boardings at the Brennanstown Stop during the AM Peak Hour 08h00 – 09h00 on a weekday are presented in Table 8.

Table 8 Projected Boardings at Brennanstown Stop - AM Peak Hour 08h00 – 09h00

Origin	Northbound	Southbound	Total
Development	162	40	202
External	80	20	100
Total	242	60	302

7. Demand v Capacity

7.1 Brides Glen to Sandyford

On this section, the peak inbound demand during the AM Peak Hour 08h00 – 09h00 occurs between the Glencairn and Central Park Stops.

The peak outbound demand occurs on the adjoining section between the Sandyford and Central Park Stops but is significantly lower than the peak inbound demand.

The relevant demand v capacity data is summarised below.

- Peak Inbound Demand (2019) : 1,618 passengers per hour
- Future Boardings at Brennanstown Stop : 250 passengers per hour
- Total Inbound Demand : 1,868 persons per hour
- Inbound Capacity : 3,150 passengers per hour
- Spare Capacity: : : 1,282 passengers per hour
- % Spare capacity : 40% of 3,150 passengers per hour

7.2 Sandyford to City Centre

On this section, the peak inbound demand during the AM Peak occurs between the Milltown and Cowper Stops.

The peak outbound demand occurs on the adjoining section between the Milltown and Windy Arbour Stops but is significantly lower than the inbound demand.

The relevant demand v capacity data is summarised below.

- Peak Inbound Demand (2019) : 4,648 passengers per hour
- Future Boardings at Brennanstown Stop : 250 passengers per hour
- Total Inbound Demand : 4,998 persons per hour
- Inbound Capacity : 6,300 passengers per hour
- Spare Capacity: : : 1,402 passengers per hour
- % Spare Capacity : 22% of 6,300 passengers per hour

8. Summary and Conclusions

Proposed Development

The proposed residential development will be located adjacent to the Brennanstown Stop on the Luas Green Line. Road, cycle and pedestrian access for non-residents to the Brennanstown Stop will be included in the development.

This Stop was completed in 2010 but never opened to traffic due to the fact that there is currently no road infrastructure in the vicinity of the stop and the area has not been populated to date.

The road infrastructure to serve the Brennanstown Stop is included in the subject planning application.

Green Line Passenger Services

Passenger services on the Green Line through the Brennanstown Stop to the City Centre and Brides Glen comprise 100 services per day in each direction with an AM Peak Hour service of 10 trams per hour in each direction.

From Sandyford to the City Centre, this service doubles to 200 trams per day and 20 trams per hour in each direction.

Luas Capacity

The capacity of the Green Line through the Brennanstown Stop during the AM Peak is 3,150 passengers per hour in each direction.

From Sandyford to the City Centre, this service doubles to 6,300 passengers per hour in each direction.

Passenger Demand - Existing

The peak passenger demand on northbound services between the Brides Glen Stop and the Sandyford Stop is 1,618 passengers per hour and occurs between the Glencairn and Central Park Stops.

The peak passenger demand on northbound services between Sandyford the City Centre is 4,648 passengers per hour and occurs between the Milltown and Cowper Stops.

Impact of Covid-19

The existing passenger figures are based on surveys taken in 2019. Since then, passenger numbers have fallen due to the impact of Covid-19.

At the time of writing in March 2022, there has not been a full return to work and as a result, passenger demand remains below pre-Covid levels.

Location and Time of Peak Demand

The location and time of the peak passenger demand on the Luas Green Line is the weekday inbound service between Sandyford and City Centre during the AM Peak Hour between 08h00 and 09h00.

Passenger demand at other locations and in the other direction continues to be consistently less at all times.

Future Boardings and Alightings at the Brennanstown Stop

A total of 242 boardings for northbound travel and 60 boardings for southbound travel are predicted at the Brennanstown Stop during the AM Peak Hour 08h00 and 09h00

Demand v Capacity Brennanstown Stop - Sandyford

When the predicted boardings at Brennanstown are taken into account, the predicted spare capacity available on northbound services at the location of peak occupancy between the Brennanstown Stop and Sandyford during the AM Peak Hour 08h00 – 09h00 is 1,282 passengers per hour equivalent to 40% of capacity.

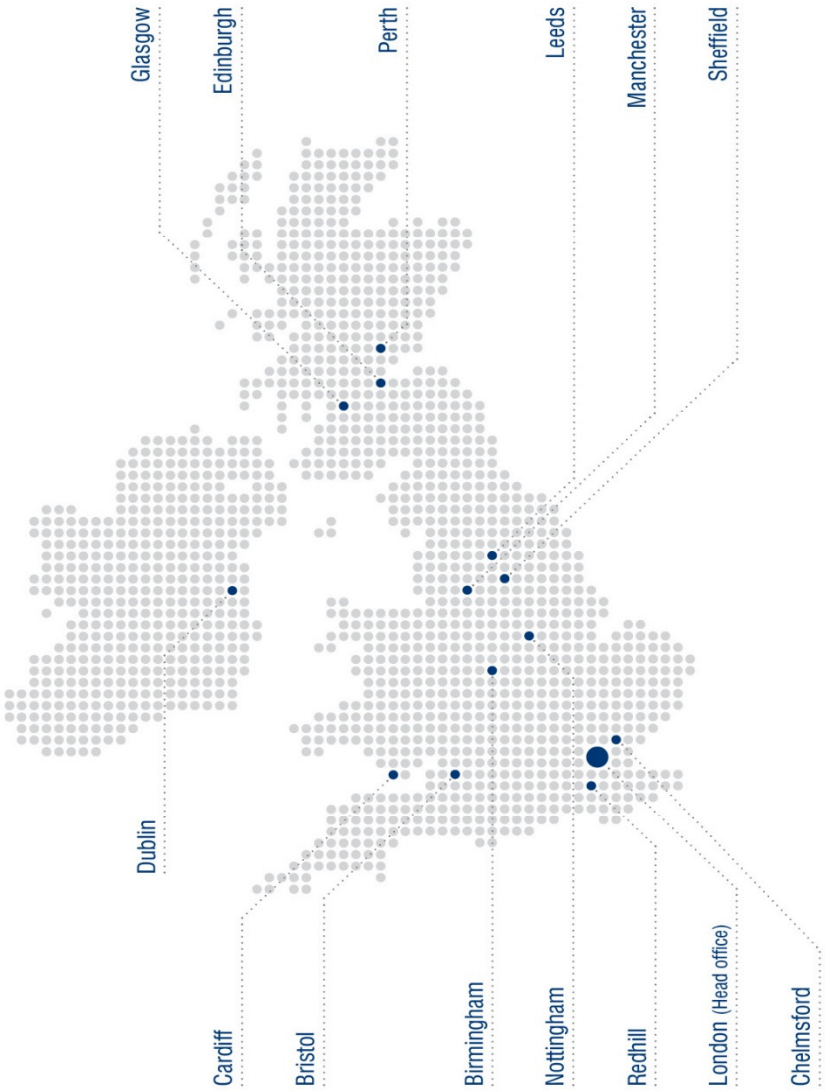
Demand v Capacity Sandyford – City Centre.

When the predicted boardings at the Brennanstown Stop are taken into account, the spare capacity available on northbound services between Sandyford and City Centre at the location of peak occupancy between the Milltown and Cowper Stops is 1,402 passengers per hour equivalent to 22% of capacity.

Conclusion

Post development, the Luas Green line will remain within capacity both at the Brennanstown Stop and at the locations of peak loading between the Brennanstown Stop and the City Centre.

UK and Ireland Office Locations



E. Appendix E – GoCar Letter

Cairn Homes
7 Grand Canal
Grand Canal Street Lower
Dublin 2

28/03/2022

To Whom It May Concern,

This is a letter to confirm that GoCar intends to provide a car sharing service in the "Barrington" residential development located just off the Brennanstown Road, Brenanstown, Cabinteely, Dublin. GoCar representatives have discussed the project with representatives of Cairn Homes and are excited to provide a car sharing service at this location. The development consists of approximately 534 dwellings within the Cabinteely area of Dublin. The developer proposes to have available 1 vehicle for public service at surface level within the development.

GoCar is Ireland's leading car sharing service with over 60,000 members and over 850 cars and vans on fleet. Each GoCar which is placed in a community has the potential to replace the journeys of up to 15 private cars. The Department of Housing's Design Standards for New Apartments - Guidelines for Planning Authorities 2018 outline: "For all types of location, where it is sought to eliminate or reduce car parking provision, it is necessary to ensure... provision is also to be made for alternative mobility solutions including facilities for car sharing club vehicles."

Carsharing is a sustainable service. By allowing multiple people to use the same vehicle at different times, car sharing reduces car ownership, car dependency, congestion, noise, and air pollution. It frees up land which would otherwise be used for additional parking spaces. Most GoCar users only use a car when necessary and walk and use public transport more often than car owners.

By having GoCar car sharing vehicles in a development such as this, the residents therein will have access to pay-as-you-go driving, in close proximity to their homes, which will increase usership of the service.

I trust that this information is satisfactory. For any queries, please do not hesitate to contact me.

D Ralston

Daniel Ralston
Business Manager
GoCar Carsharing Ltd
Mobile: 086 0414 991
E: daniel.ralston@gocar.ie

UK and Ireland Office Locations