Traffic and Transport Assessment

Proposed Residential Development at Grange Road, Baldoyle, Dublin 13

December 2023

Waterman Moylan Consulting Engineers Limited
Block S, Eastpoint Business Park, Alfie Byrne Road, Dublin D03 H3F4
www.waterman-moylan.ie

Client Name:	Rondesere Ltd.
Document Reference:	22-109r.003 Traffic and Transport Assessment
Project Number:	22-109

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
1	4 December 2023	Fernando Silva	Brian McCann	I Worrell

Comments

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

1. Introduction 1

1.1 Introduction 1

1.2 Site Location and Description 1

1.3 Scope 2

1.4 Standards 2

1.5 Threshold for Transport Assessment 2

1.6 Contents of the Transport Assessment 2

1.7 Programme 2

1.8 Documents Consulted 3

2. Proposed Development 4

2.1 Development Description 4

2.2 Proposed Site Access 4

2.3 Proposed Car Parking 4

2.4 Proposed Cycle Parking 4

2.5 Internal Road Network 4

2.6 Internal Pedestrian Infrastructure 4

3. Receiving Environment 7

3.1 Location 7

3.2 Local Road Network 7

3.3 Local Main Junction 8

3.4 Existing Bus Services 9

3.5 Existing Rail Services 10

3.6 Existing Cycle Facilities 12

3.7 Existing Pedestrian Facilities 13

3.8 Existing GoCar Station 13

4. Future Public Transport Improvements 14

4.1 BusConnects 14

4.2 DART+ Coastal North 16

4.3 Cycle Network Improvements 17

4.3.1 GDA Cycle Network Plan – NTA, 2022 17

5. County Development Plan 18

5.1 Fingal Development Plan 2023 – 2029 18

5.2 Site Zoning 18

5.3 Car Parking 19

5.4 Cycle Parking 19

6. Sustainable Urban Housing: Design Standards for New Apartments 20

6.1 Car Parking 20
6.2 Cycle Parking 21
7. Parking 22
7.1 Proposed Car Parking 22
7.2 Proposed Cycle Parking 22
7.2.1 Fingal County Development Plan 22
7.2.2 Design Standard for New Apartments 23
7.2.3 Proposed Cycle Parking 23
8. Contiguous Development 24
9. Existing Traffic at R809/Longfield Road junction 25
10. Trip Generation and Traffic Impact 28
10.1 Trip Rates 28
10.2 Trip Generation 28
10.3 Contiguous Development 28
10.4 Trip Distribution 29
11. Road Impact 31
11.1 Network Review 31
11.2 Junction Assessment 32
11.2.1 Assessment Years 32
11.2.2 Results of Assessment 35
12. Conclusion 38

Figures

Figure 1 Location Map 1
Figure 2 Proposed Site Layout 5
Figure 3 Proposed Basement Layout 6
Figure 4 Site Location 7
Figure 5 Map of Local Road Network and Main Junction (Source: Google Maps) 8
Figure 6 Existing Layout of Local Main Junction. 9
Figure 7 Location of Closest Bus Stops and Routes from the Site (Source: OpenStreetMap). 10
Figure 8 Location of Clongriffin Rail Station and Walk/Cycle Route from the Site 11
Figure 9 Existing Local Cycle Facilities. 12
Figure 10 Location of Nearest GoCar Stations. 13
Figure 11 BusConnects Route Map 14
Figure 12 DART+ Coastal North 16
Figure 13 Proposed Cycle Network – from GDA Cycle Network Plan, 2022 17

Figure 14 Site Zoning – Extract from Fingal Development Plan Sheet No. 10. 18
Figure 15 Location Map for School 24
Figure 16 Surveyed Junction Approach Movements 2019 (AM and PM Peak Hours). 25
Figure 17 Baseline Flows 2024 (AM and PM Peak Hours) 26
Figure 18 Baseline Flows 2029 (AM and PM Peak Hours) 27
Figure 19 Baseline Flows 2039 (AM and PM Peak Hours) 27
Figure 20 AM Trip Distribution 29
Figure 21 PM Trip Distribution 30
Figure 22 Opening Year 2024 Baseline Flows 32
Figure 23 Opening Year 2024 Baseline + Development Flows 33
Figure 24 Design Year 2029 (Opening + 5) Baseline + Development Flows 33
Figure 25 Future Year 2039 (Opening + 15) Baseline 34
Figure 26 Future Year 2039 (Opening + 15) Baseline + Development Flows 34

Tables

Table 1 BusConnects Routes Frequencies (Source: BusConnects Timetables). 15
Table 2 Car Parking Standards – Fingal Development Plan (2023 – 2029). 19
Table 3 Bicycle Parking Standards – Fingal Development Plan (2023 – 2029). 19
Table 4 Bicycle Parking Requirement – Fingal Development Plan (2023 – 2029). 22
Table 5 Bicycle Parking Requirement – Design Standard for New Apartments. 23
Table 6 Junction Approach Movements 2019 and 2024– AM and PM Peak Hours 26
Table 7 TRICS Trip Rates – AM and PM Peak Hours. 28
Table 8 Trip Generation – AM and PM Peak Hours. 28
Table 9 Junction Approach Flows and Expected Traffic Increase. 31
Table 10: Existing Layout – TRANSYT Analysis Results – DO-NOTHING 35
Table 10: Existing Layout – TRANSYT Analysis Results – DO-SOMETHING 36

Appendices

A. Traffic Survey

B. TRICS Output Report

C. TRANSYT Results

1. Introduction

1.1 Introduction

This Traffic and Transport Assessment (TTA) has been prepared by Waterman Moylan on behalf of Rondesere Ltd. in support of a planning application for a proposed residential development located off Grange Road, Baldoyle, Dublin 13.

1.2 Site Location and Description

The site for the proposed development site is located in the administrative area of Fingal County Council on the R809 Grange Road in Baldoyle between the junction with Longfield Road and the bridge over the DART railway line to the west. See Figure 1.

The site is approximately 0.4 hectares in area and is currently used as a storage area for Grange Builders Providers.

Figure 1 Location Map

1.3 Scope

This TTA is a comprehensive review of the potential traffic impact of the proposed development, including a detailed assessment of the transportation systems provided and the impact of the proposed development on a local key junction.

1.4 Standards

This Traffic and Transport Assessment has been prepared in accordance with the requirements of Section 14.17.4 Traffic and Transport Assessment of the Fingal Development Plan 2023 – 2029 and the Traffic and Transport Assessment Guidelines published by Transport for Ireland (TII) / National Roads Authority (NRA) in May 2014.

1.5 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.

The proposed development will consist of 120 apartments and 49 car parking spaces. This TTA assessment will demonstrate that in the case of the proposed development, none of the thresholds are met.

1.6 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, local key junction, pedestrians, cycle and public transport facilities.
- Description of the proposed development.
- The traffic and transportation implications of the development including consideration of trip generation.
- The potential impact of the proposed development on a local key junction.
- Description of car and cycle parking requirements and proposals.

1.7 Programme

It is intended that construction of the proposed development, subject to planning approval, will commence in 2024.

1.8 Documents Consulted

The following documents inter alia were consulted during the preparation of this Traffic and Transport Assessment:

(a) Traffic and Transport Assessment Guidelines, TII/NRA, May 2014.

(b) Project Appraisal Guidelines for National Road Unit 5.3 – Travel Demand Projections, TII, May 2019.

(c) Fingal Development Plan 2023 – 2029.

(d) Greater Dublin Area Transport Strategy 2022 – 2042.

(e) GDA Cycle Network Plan, NTA, 2022.

(f) Sustainable Urban Housing: Design Standards for New Apartments, December 2022.

(g) Traffic and Transport Assessment, Proposed Primary School , Myrtle Road, Baldoyle, Dublin 13 (FCC Reg. Ref.: F19A/0461).

2. Proposed Development

2.1 Development Description

The proposed development on the subject site will comprise 120 no. apartments units in one 12-storey residential apartment block with 49 car parking spaces, 47 spaces at basement level and 2 spaces at ground level. The layout for the proposed development is shown in Figures 2 and 3.

The residential units will comprise 15 x studios, 18 x 1-bed, 78 x 2-bed, 7 x 3-bed and 2 x 4-bed penthouses. The development will also include a Gym (280.0 sqm), Creche (156.6 sqm), and Café (70.0 sqm).

A total of 420 bicycle parking spaces are proposed for the subject development, 360 long-stay for residents to be provided at basement level and 60 short-stay to be provided on the ground floor for visitors and for the Crèche.

Vehicular access is proposed from the northern boundary of the site via a new access off Myrtle Road.

The proposed application includes all site landscaping works, green roofs, substations, boundary treatments, lighting, servicing, signage, and associated and ancillary works, including development works and services above and below the ground.

2.2 Proposed Site Access

Vehicular access is proposed from the northern boundary of the site via a new access off Myrtle Road. The development will also benefit from two pedestrian/cyclist accesses leading to R809 Grange Road to the south and to Myrtle Road to the north. These are connected by a footpath through the site.

2.3 Proposed Car Parking

A total of 47 car parking spaces are proposed at basement level with 2 spaces at ground level.

2.4 Proposed Cycle Parking

A total of 420 bicycle parking spaces are proposed for the subject development, 360 long-stay for residents at basement level and 60 short-stay for visitors and for the crèche provided at ground floor.

2.5 Internal Road Network

The only road proposed within the development boundaries is the access road to the basement parking. Parallel to this basement access road, the proposal also includes a bicycle lane into the basement.

2.6 Internal Pedestrian Infrastructure

The proposed development has been designed with a greenway facility running north-south along the centre of the site providing permeability throughout the site and routes to the pedestrian/cyclist's links onto Myrtle Road and onto R809 Grange Road.

Figure 2 Proposed Site Layout

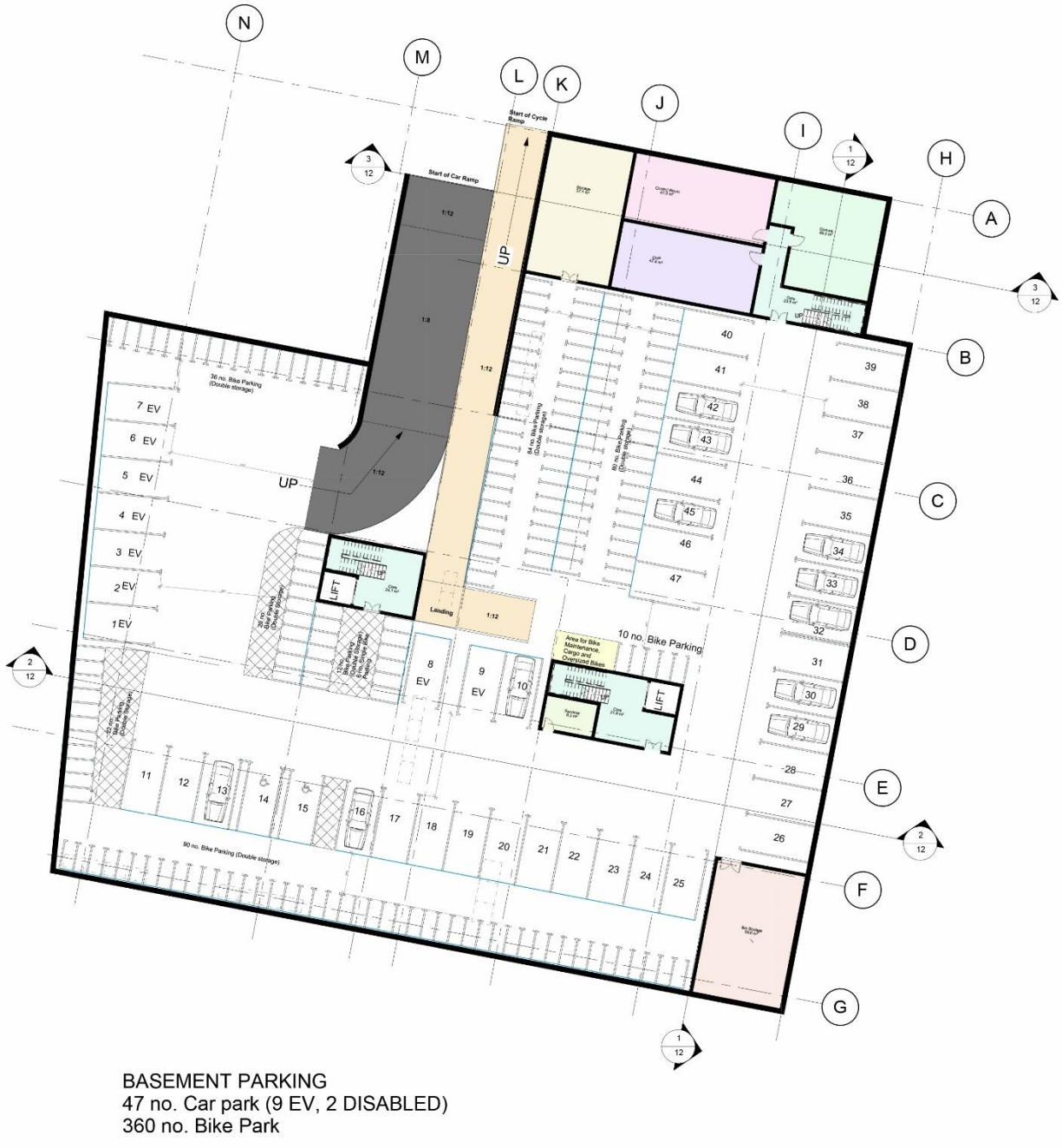

Figure 3 Proposed Basement Layout

3. Receiving Environment

3.1 Location

The site for the proposed development is located adjacent to Myrtle Road to the north, Longfield Road to the east with the R809 Grange Road and Baldoyle Industrial Estate to the south – refer to Figure 4.

The site is located to the east of the railway line between Clongriffin Station (c. 500m north from the site) and Howth Junction (c. 900m southwest from the site). To the southeast, Bayside Station is c. 1.0km from the site.

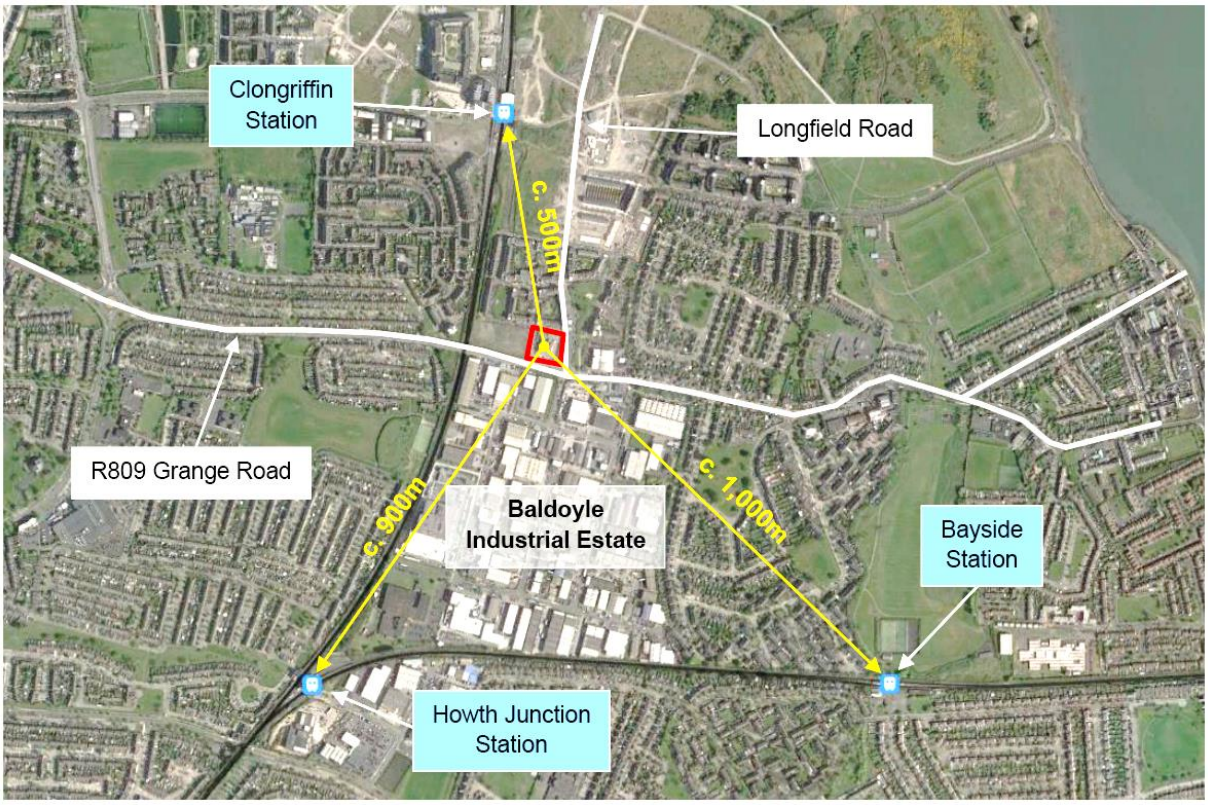

Figure 4 Site Location

3.2 Local Road Network

The subject site is bounded by Myrtle Road to the north, Longfield Road to the east and the R809 Grange Road to the south. See Figure 5.

Myrtle Road is a 5.5m wide single carriageway road with a speed limit of 30kph that runs east-west for approximately 190m from its junction with Longfield Road up until its intersection with Myrtle Square. Footpaths and parallel car parking are provided along the northern side of the carriageway.

Longfield Road is a single carriageway road running north-south for approximately 270m from its intersection with Myrtle Avenue up until its junction with the R809 Grange Road. At the junction with R809 Grange Road, Longfield Road (southbound) comprises of a dedicated bus lane, a straight-ahead/left turning

lane and a dedicated right turning lane. In the northbound direction, between R809 Grange Road and Myrtle Road, Longfield Road comprises of a straight-ahead and a dedicated left turning lane. A network of footpaths is provided along Longfield Road length in the form of footpaths and off-road green ways. Parallel car parking is also provided.

Grange Road is part of the R809 which runs for approximately 3.5km from R105 Dublin Road in Sutton, through Baldoyle up until the roundabout at Donaghmede. From that roundabout, the R809 continues south towards Raheny. At the section adjacent to the subject site, the R809 Grange Road is 10.5m wide with dedicated cycle lanes and footpaths running along both sides of the road. At the junction with Longfield Road, the R809 Grange Road has a speed limit of 50kph and comprises dedicated right turning lanes and advanced areas for cyclists.

Figure 5 Map of Local Road Network and Main Junction (Source: Google Maps).

3.3 Local Main Junction

There is one existing main junction located to the southeast of the site that is considered relevant to the subject assessment. These is:

- **Signalised Crossroads:** R809 Grange Road / Longfield Road / Grange Rise (access road to Baldoyle Industrial Estate).

The junction's existing layout is shown in Figure 6. Currently, there are no upgrades or redesigns proposed for this junction.

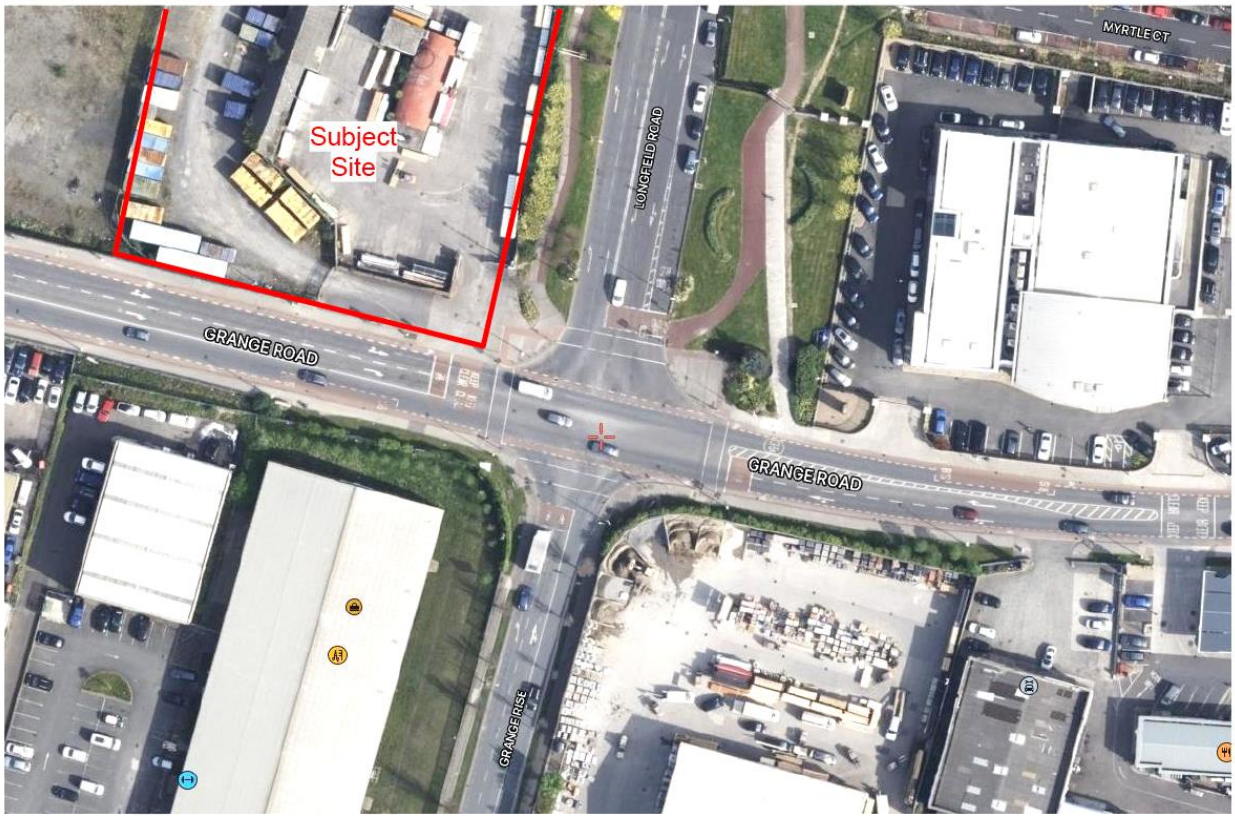

Figure 6 Existing Layout of Local Main Junction.

3.4 Existing Bus Services

The closes bus stops serving the area and the proposed development site are located on R809 Grange Road to the south of the site – See Figure 7. These bus stops are served by the following Dublin Bus routes:

- **Route H1**: from Baldoyle to Abbey Street Lower. It serves Baldoyle, Donaghmede Shopping Centre, Raheny (Saint Anne's Park), Fairview and Abbey Street Lower. It operates every day with a 15-minute frequency during the peak hours and mostly of the outside peak hours.
- **Route 29n**: night only service from D'Olier Street to Baldoyle Road. Pick-up points are in Fairview (Marino College) and at the Raheny Church. It operates on Fridays and Saturdays only, with an hourly frequency from 00h00 to 04h00.

Access from the proposed development site to the closest bus stops will be facilitate via the pedestrian link proposed onto R809 Grange Road.

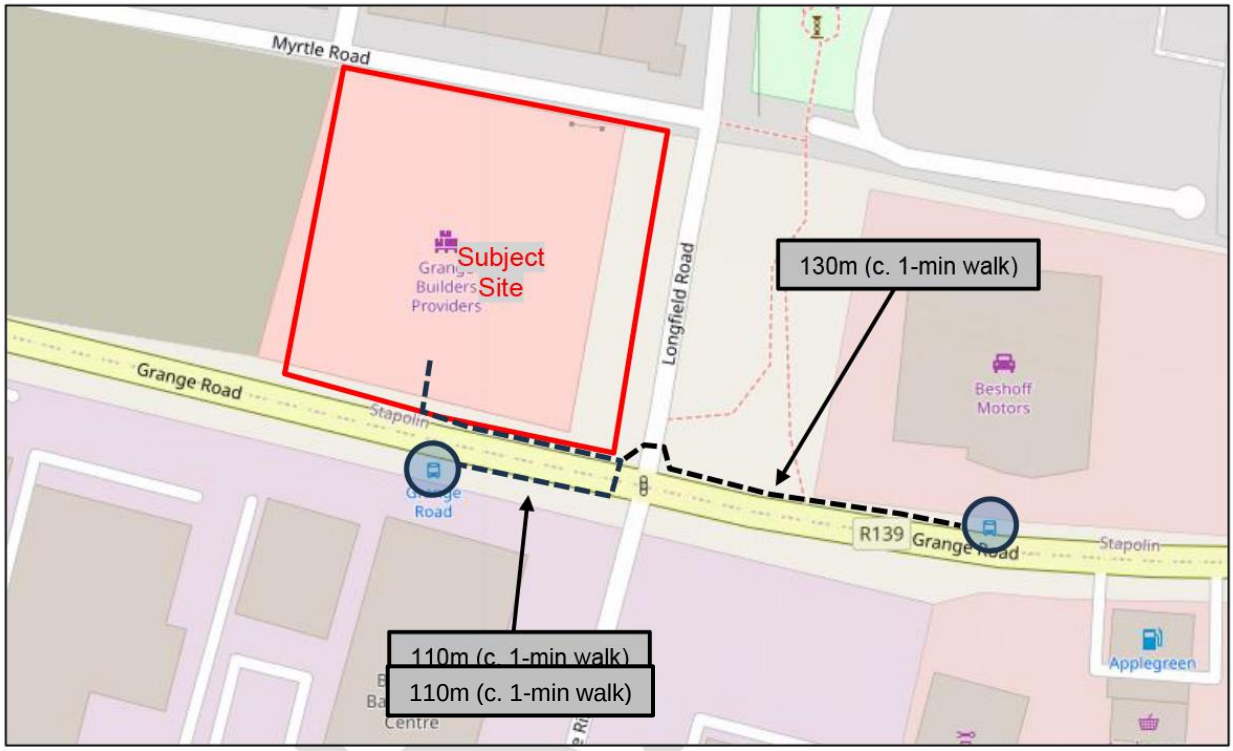

Figure 7 Location of Closest Bus Stops and Routes from the Site (Source: OpenStreetMap).

3.5 Existing Rail Services

The nearest train station is the Clongriffin station located c.8-minute walk or c.4-minute cycle to the north of the site. See Figure 7.

The Clongriffin station is served by the DART and the Commuter Rail services.

The DART service through Clongriffin Station serves all stations from Malahide through Dublin City Centre to Bray and Greystones. On weekdays, this service operates at approximately 20-minute frequency in both directions.

The Commuter Rail service through Clongriffin station serves all stations from Dundalk / Newry to Dublin City Centre. The frequency of the Commuter Rail service is outlined below:

Dublin to Dundalk:

A total of 15 services each way each day Monday – Saturday reducing to 9 services each way on Sunday, primarily accessed via Howth Junction or interconnecting DART services.

Dundalk to Dublin:

A total of 15 services each way each day Monday – Saturday reducing to 9 services each way on Sunday, primarily accessed via Howth Junction or interconnecting DART services.

The DART and Commuter Rail services provide interchange opportunities to the Green and Red Lines of the LUAS and to several bus services.

For those wishing to commute on a combined cycle-rail basis, covered cycle parking with 112 stands is provided in Clongriffin at Station Square. According to the Transport Assessment prepared by Waterman Moylan for a mixed-use development approved by Dublin City Council in March 2020 (Reg. Ref. 3894/19), 28 additional cycle parking stands will be provided at Station Square as part of the approved development to meet DCC requirements.

Figure 8 below shows the location of the Clongriffin rail station and the walking/cycling routes from the proposed development site.

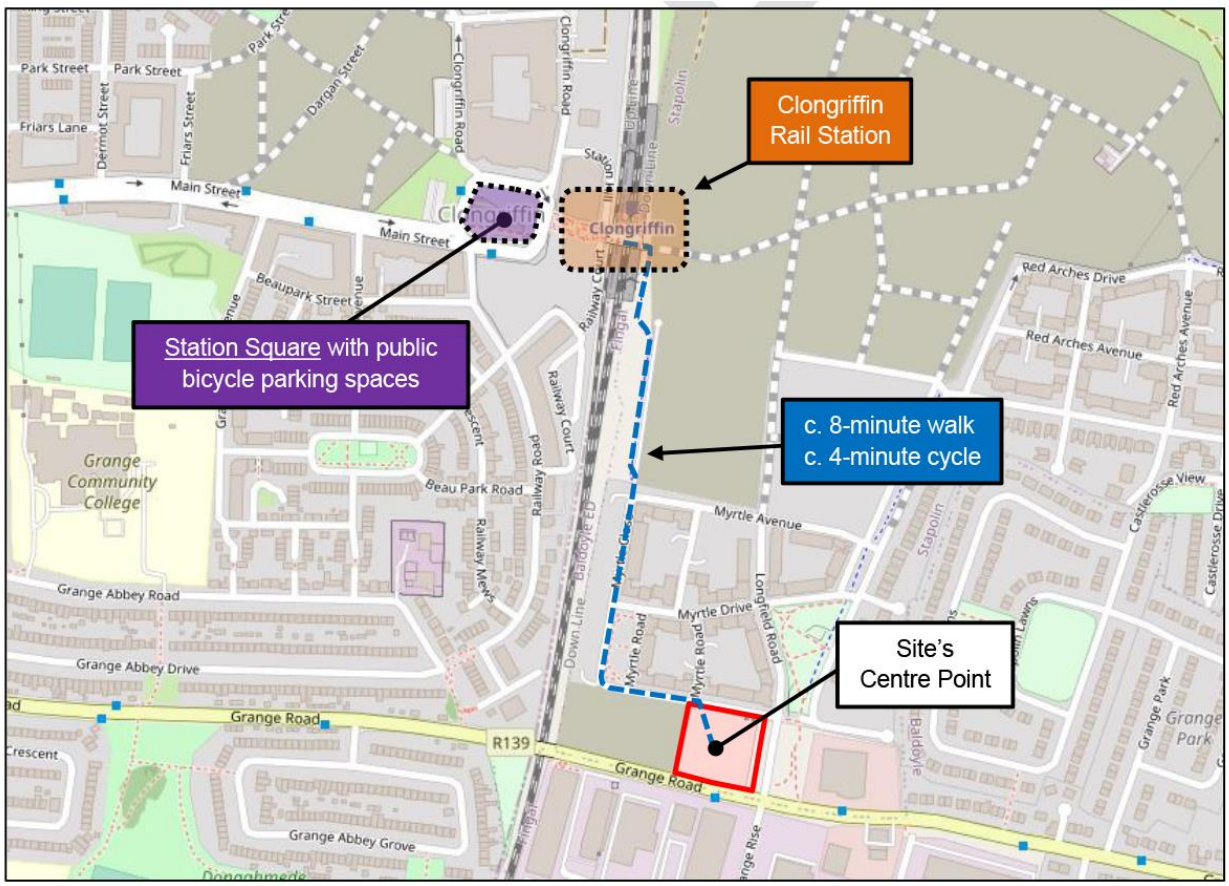

Figure 8 Location of Clongriffin Rail Station and Walk/Cycle Route from the Site

3.6 Existing Cycle Facilities

On-road cycle lanes are provided along both sides of the R809 Grange Road to the south of the site. To the northwest and northeast of the site, off-road cycle tracks are also proposed parallel to Myrtle Close (facilitating access to Clongriffin Station) and parallel to Parker House Myrtle Court. See Figure 9 below.

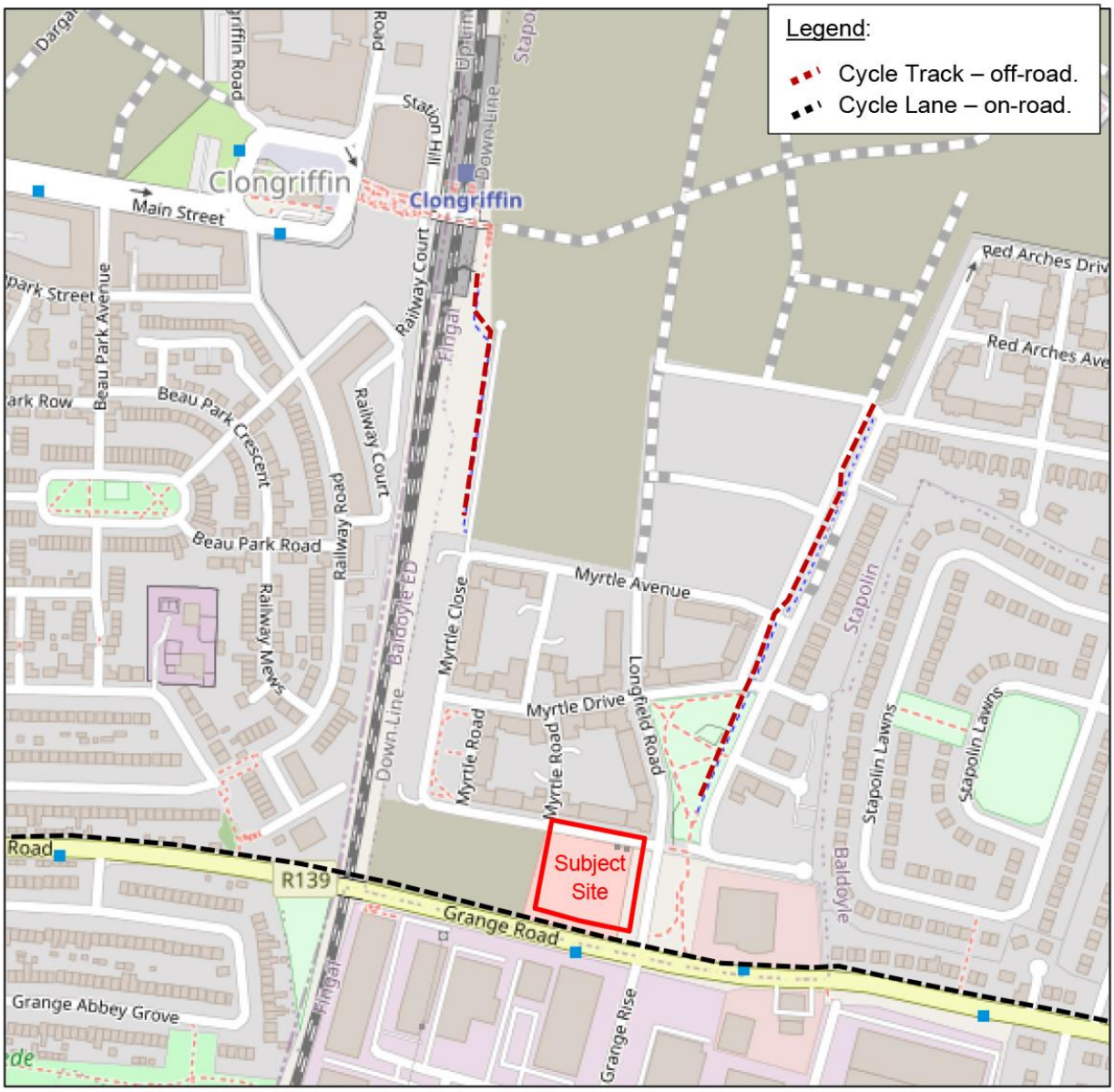

Figure 9 Existing Local Cycle Facilities.

3.7 Existing Pedestrian Facilities

Pedestrian facilities in the area surrounding the subject site are of a reasonable standard. There are well established footpaths on the roads surrounding the site and street lighting is provided. Signalised pedestrian crossing facilities are provided on all approaches of the signalised crossroads between R809 Grange Road, Longfield Road and Grange Rise, which already provide local residents with safe crossing points towards existing bus facilities on R809 Grange Road. The residents of the proposed development will also benefit from these pedestrian crossings to access the bus stops.

3.8 Existing GoCar Station

The closest GoCar stations to the subject site are located in Clongriffin near the Father Collins Park and at Clongriffin Station Square. See Figure 10.

At the time of writing in November 2023, a total of seven vehicles are provided at these GoCar stations, three at the Clongriffin Station Square and two at the other three locations surrounding the park. Clongriffin Station Square is located c.10 minutes walking from the site.

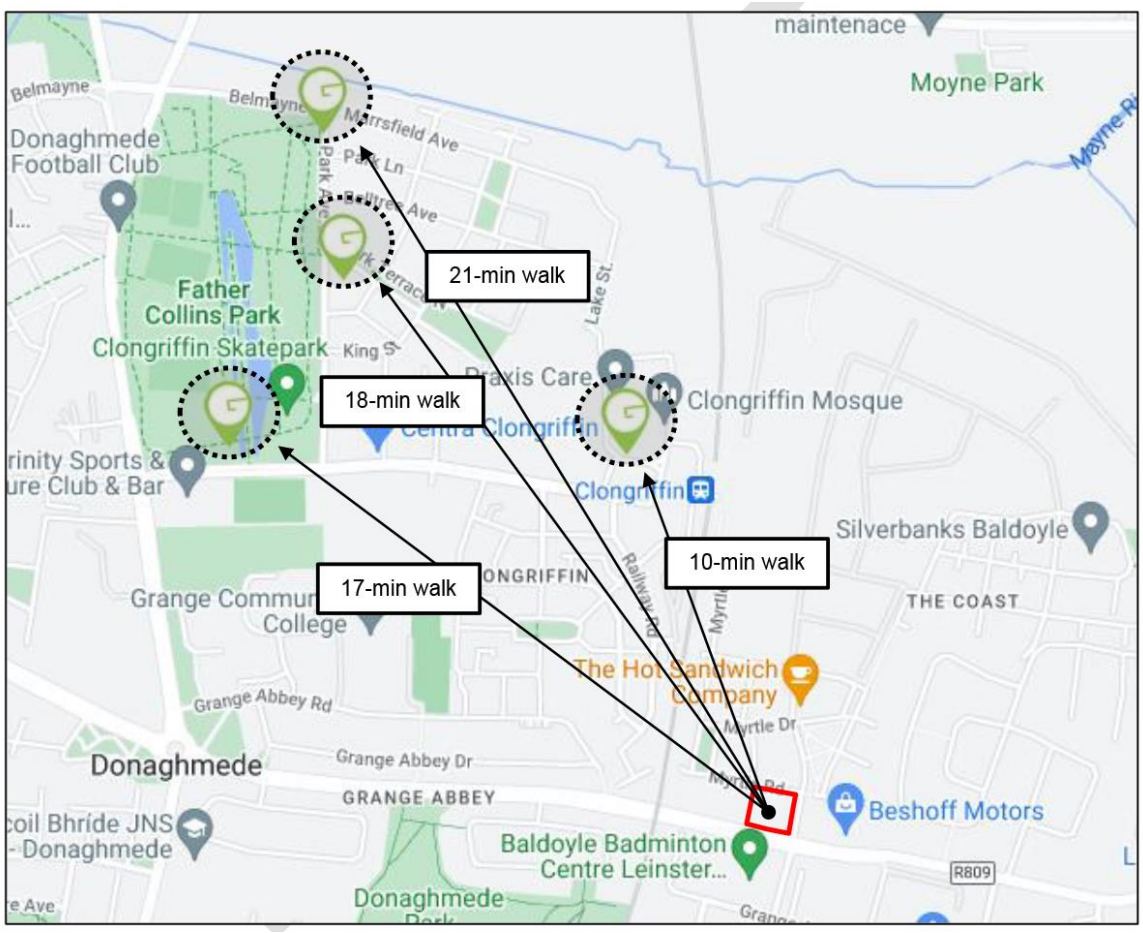

Figure 10 Location of Nearest GoCar Stations.

4. Future Public Transport Improvements

4.1 BusConnects

The BusConnects project currently being promoted by the National Transport Authority (NTA) aims to deliver a much-enhanced bus service to the Greater Dublin Area (GDA). Some route improvements set out under the BusConnects plan are already in place or being implemented. See Figure 11.

Route H1 which serves the subject has already been brought into service and operates at 15-minute intervals in both directions serving Clongriffin Rail Station – Donaghmede – City Centre.

To the north of the site, also starting at the Clongriffin Rail Station, there are other four proposed BusConnects routes:

- Branch Route D1 from D Spine: Clongriffin – City Centre – Grange Castle.
- Branch Route D3 from D Spine: Clongriffin – City Centre – Clondalkin.
- Orbital Route N8: Clongriffin – Dublin Airport – Blanchardstown Shopping Centre.
- Local Route L80: Clongriffin – Beaumont Hospital – DCU.

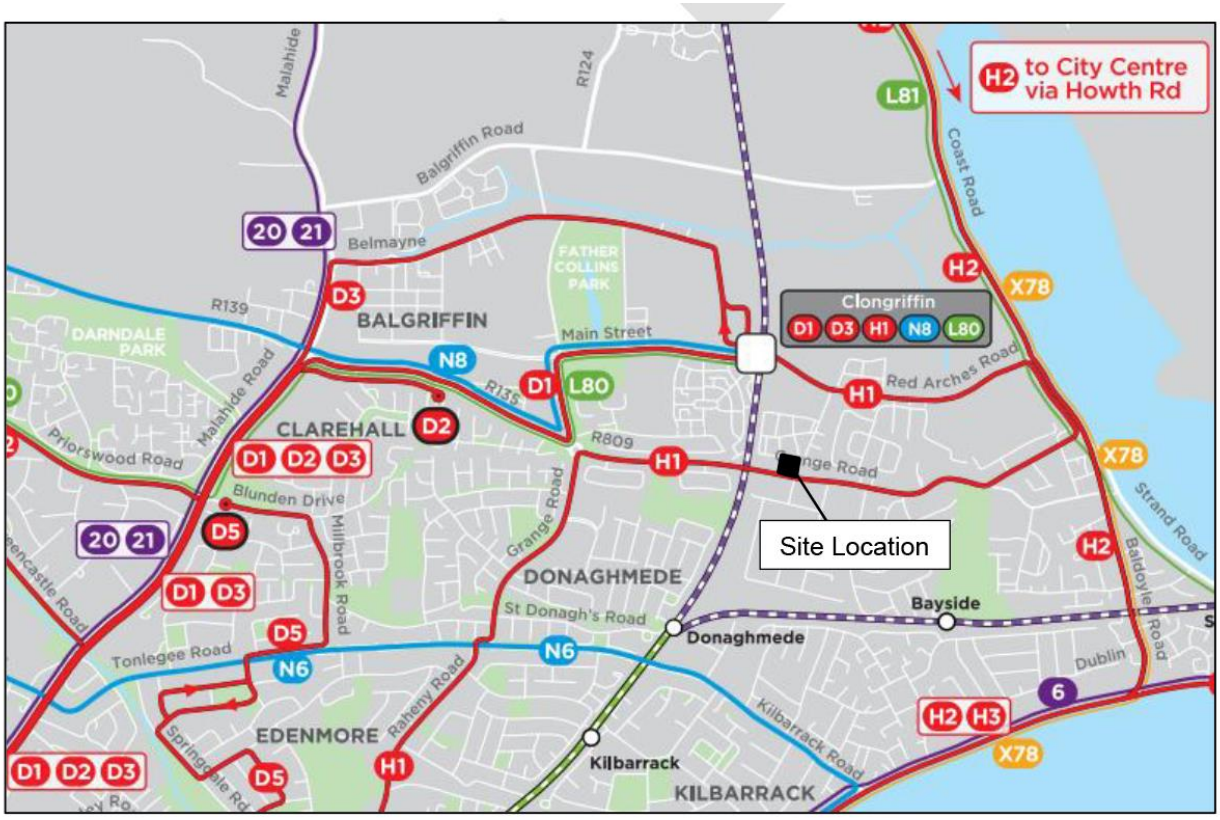

Figure 11 BusConnects Route Map

(Extracted from Revised Network Map)

The classification of routes adopted by Bus Connects for the new routes is summarised below.

- *"Orbital Routes – services operating around the city. They provide connections between suburbs and town centres, without having to travel into the City Centre. They also provide connections to rail, Luas and other bus routes."*
- *"Local Routes – services providing important connections within local areas, linking to local retail centres and to onward transport connections."*
- *"Spine Routes – frequent routes made up of individual bus services timetabled to work together along a corridor. At the end of the corridor, the individual services branch off to serve different areas."*

A summary of the Weekday and Weekend frequency of which the above-mentioned BusConnects routes are proposed to operate is presented in Table 1.

Table 1 BusConnects Routes Frequencies (Source: BusConnects Timetables).

Weekday Frequency					
Route No.	Before 07:00	07:00 to 09:00	09:00 to 15:00	15:00 to 18:00	After 18:00
N8	30 to 60 min	30 min	30 min	30 min	30 to 60 min
D1	15 to 30 min	15 min	15 min	15 min	15 to 30 min
D3	15 to 30 min	15 min	15 min	15 min	15 to 30 min
L80	40 min	20 min	40 min	20 min	40 to 60 min
Saturday Frequency					
Route No.	Before 07:00	07:00 to 09:00	09:00 to 15:00	15:00 to 18:00	After 18:00
N8	60 min	60 min	30 min	30 min	30 to 60 min
D1	20 min	20 min	15 min	15 min	15 to 30 min
D3	20 min	20 min	15 min	15 min	15 to 30 min
L80	60 min	60 min	60 min	60 min	60 min
Sunday Frequency					
Route No.	Before 08:00	08:00 to 10:00	10:00 to 15:00	15:00 to 18:00	After 18:00
N8	-	60 min	30 min	30 min	30 to 60 min
D1	-	30 min	20 min	20 min	20 to 30 min
D3	-	30 min	20 min	20 min	20 to 30 min
L80	60 min	60 min	60 min	60 min	60 min

4.2 DART+ Coastal North

Clongriffin Rail Station, located to the north of the proposed development site, is part of the coastal north route of the DART railway network. See Figure 12. The DART+ Programme aims to improve current rail services across Dublin City and Greater Dublin, by modernising and providing an electrified and more frequent and reliable rail service, enhancing capacity on the rail corridors. The following improvements – extracted from the DART+ website, are included as part of the DART+ Coastal North programme:

- *"Increase peak passenger capacity and increase train frequency between Dublin City Centre and Drogheda MacBride Station – inclusive of Howth Branch – facilitating frequent and reliable transport to the surrounding communities.*
- *Facilitate the development and future growth of existing and new communities that will greatly benefit from the connectivity that the DART+ Coastal North project will deliver.*
- *Help alleviate road congestion.*
- *Build a sustainable and connected city region, supporting the transition to a low carbon and climate resilient society.*
- *Facilitate people to make sustainable travel choices by encouraging a move away from private cars to a reliable, efficient and safer public transport network.*
- *Improve multi-modal transport connectivity through the development of the wider DART+ Programme.*
- *Improve journey time reliability."*

Public Consultation No. 1 on the Emerging Preferred Option was completed in spring 2022. The DART+ Coastal North Programme is currently at Public Consultation No. 2 on the Preferred Option. Complete design appraisal and statutory documents are planned to be completed by summer 2023, subject to government approval. The submission of the Railway Order is planned for autumn/winter 2023.

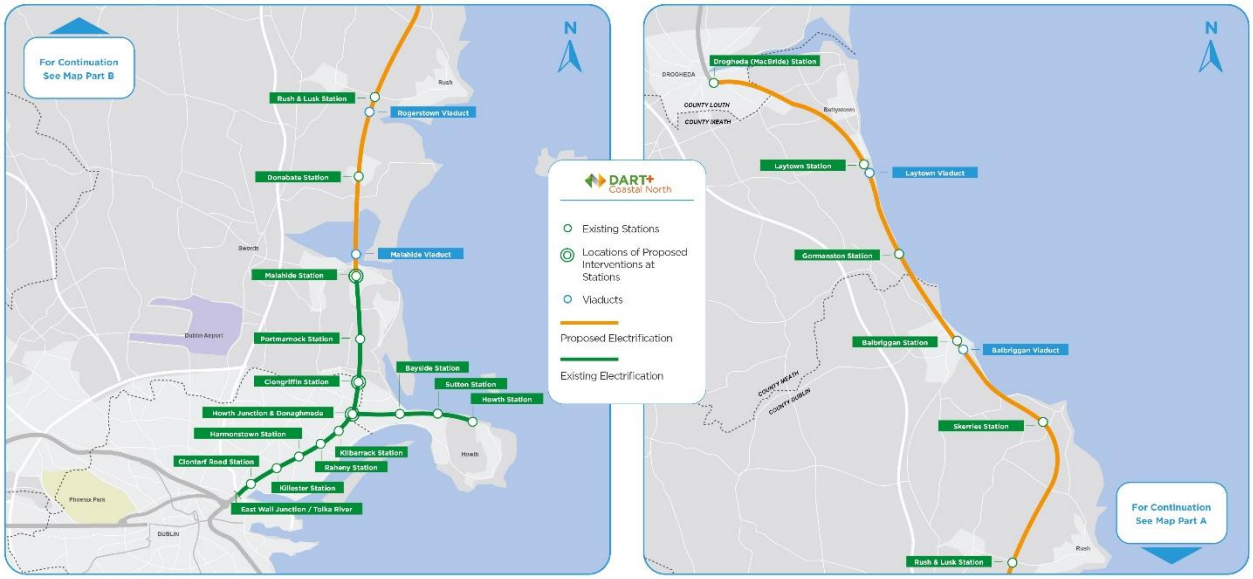

Figure 12 DART+ Coastal North

4.3 Cycle Network Improvements

4.3.1 GDA Cycle Network Plan – NTA, 2022

The National Transport Authority (NTA) published a 2022 version of the updated GDA Cycle Network Plan which supersedes the 2013 version. The proposed development site lies within the Dublin North East area as outlined in the 2022 Plan. An extract of the updated cycle network is reproduced in Figure 13 below.

The future local cycle network includes a west-east secondary route along R809 Grange Road that connects with a secondary north-south route along Hole In The Wall Road and becomes a primary radial north-south route towards Raheny Road.

The secondary route along Hole In The Wall Road continued north towards Kinsealy and Portmarnock and forms part of a cycle route loop in Clongriffin.

Further east, the secondary west-east route along R809 Grange Road terminates at a secondary route that runs north-south along the coast road connecting Portmarnock to the north, with Sutton and Howth to the south.

In addition to the above, the local area will also benefit from a north-south and an east-west feeder routes starting at the Clongriffin Rail station and connecting with the secondary routes along the R809 Grange Road and the Coast Road.

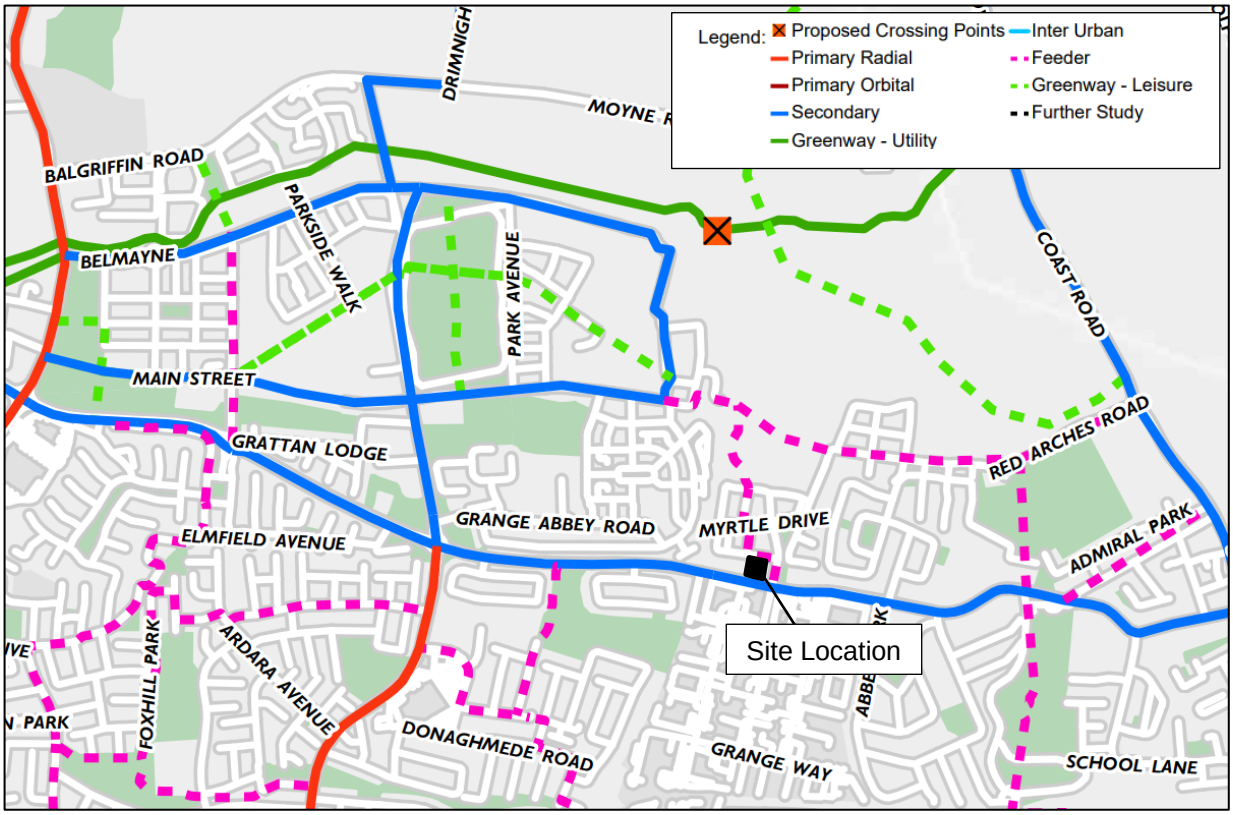

Figure 13 Proposed Cycle Network – from GDA Cycle Network Plan, 2022

5. County Development Plan

5.1 Fingal Development Plan 2023 – 2029

The Fingal Development Plan 2023 – 2029 sets out the authority's policies and objectives for the development of the County for the period of 2023 to 2029. The Plan seeks to develop and improve in a sustainable manner the social, economic, cultural and environments assets of the county.

5.2 Site Zoning

On Zoning Objectives Map (Sheet No. 10 – Baldoyle / Howth), the subject site is zoned as *"Residential Area (RA) – Provide for new residential communities subject to the provision of the necessary social and physical infrastructure"*. ***See Figure 14.***

Figure 14 Site Zoning – Extract from Fingal Development Plan Sheet No. 10.

5.3 Car Parking

To ensure adequate residential parking provision, the Fingal Development Plan (2023 – 2029) created the following two distinct car parking zones:

- "*Zone 1: relates to developments within 800m of Bus Connects spine route, or 1,600m of an existing or planned Luas/Dart/Metro Rail station or within an area covered by a Section 49 scheme, or in lands zoned Major Town Centre.*
- *Zone 2: Relates to all other areas within the County*."

The proposed development is located within the 1,600m criteria from a rail station (c. 500m from Clongriffin station) and therefore is located in Zone 1.

Car parking standards for new developments are set out in Table 14.19 of the Fingal Development Plan (2023 – 2029). Those relevant to the proposed scheme are shown in Table 2 below.

Table 2 Car Parking Standards – Fingal Development Plan (2023 – 2029).

Land Use Category	Standards (Zone 1)
Residential (1-2 Bedroom)	0.5 space per unit (Max)
Residential (3-3+ Bedroom)	1 space per unit (Max)

In addition to the above, the FDP also sets out the following with regards to car parking (relevant to the proposed development):

"*Electric Vehicle Parking: All multi-unit residential developments shall incorporate EV charging points at 20% of the proposed parking spaces and appropriate infrastructure (e.g. ducting) to allow for future fit out of a charging point at all parking spaces*."

5.4 Cycle Parking

Bicycle parking standards for new developments are set out in Table 14.17 of the Fingal Development Plan (2023 – 2029). Those relevant to the proposed development are summarised in Table 3 below.

Table 3 Bicycle Parking Standards – Fingal Development Plan (2023 – 2029).

Land Use Category	Bicycle Parking Standards	
	Long-Stay	**Short-Stay**
Residential (1-2 Bedroom)	1, plus 1 per bedroom	0.5 per unit (for apartment blocks only)
Residential (3+ Bedroom)	2, plus 1 per bedroom	0.5 per unit (for apartment blocks only)

6. Sustainable Urban Housing: Design Standards for New Apartments

6.1 Car Parking

In December 2022, a revised version of the document "Sustainable Urban Housing: Design Standards for New Apartments" (DSNA) was released. Chapter 2 of the Design Standard for New Apartments sets out the following "types of location" which are defined by site's accessibility and proximity to public transport and town/city centres:

1) Central and/or Accessible Urban Locations

- Sites within walking distance (i.e., up to 15 minutes or 1,000-1,500m), of principal city centres, or significant employment locations, that may include hospitals and third level institutions.
- Sites within reasonable walking distance (i.e., up to 10 minutes or 800-1,000m) to/from high-capacity urban public transport stops (such as DART or Luas) and
- Sites within easy walking distance (i.e., up to 5 minutes or 400-500m) to/from high frequency (i.e., min 10-minute peak hour frequency) urban bus service.

2) Intermediate Urban Locations

- Sites within or close to i.e., within reasonable walking distance (i.e., up to 10 minutes or 800-1,000m), of principal town or suburban centres or employment locations, that may include hospitals and third level institutions.
- Sites within walking distance (i.e., between 10-15 minutes or 1,000-1,500m) of high-capacity urban public transport stops (such as DART, commuter rail or Luas) or within reasonable walking distance (i.e., between 5-10 minutes or up to 1,000m) of high frequency (i.e., min 10 minutes peak hour frequency) urban bus services or where such services can be provided.
- Sites within easy walking distance (i.e., up to 5 minutes or 400-500m) of reasonably frequent (min 15-minute peak hour frequency) urban bus services.

3) Peripheral and/or Less Accessible Urban Locations

- Sites in suburban development areas that do not meet proximity or accessibility criteria.
- Sites in small towns or villages.

Chapter 4 of the Design Standard for New Apartments sets out the quantum of car parking or the requirement for any such provision for apartment developments.

1) Central and/or Accessible Urban Locations

In larger scale and higher density developments, comprising wholly of apartments in more central locations that are well served by public transport, the default policy is for car parking provision to be minimised, substantially reduced or wholly eliminated in certain circumstances. The policies above would be particularly applicable in highly accessible areas such as in or adjoining city cores or at a confluence of public transport systems such rail and bus stations located in close proximity.

2) Intermediate Urban Locations

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), planning authorities must consider a reduced overall car parking standard and apply an appropriate maximum car parking standard.

3) Peripheral and/or Less Accessible Urban Locations

As a benchmark guideline for apartments in relatively peripheral or less accessible urban locations, one car parking space per unit, together with an element of visitor parking, such as one space for every 3-4 apartments, should generally be required.

Based on the above, in the case of the subject site, which is located in an urban area within 500m of a major public transport corridor, it is recommended that car parking '***be minimised, substantially reduced or wholly eliminated."***

6.2 Cycle Parking

Section 4.17 of the Design Standards recommends in relation to the quantity of cycle parking

- 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 spaces per 2 residential units.

7. Parking

7.1 Proposed Car Parking

The proposed development will consist of 120 apartments with 47 residential car parking spaces at basement level. Two additional spaces are provided at surface level as drop-off for the Creche and visitors.

The residential parking provision equates to a ratio of 0.4 parking spaces per unit and is in line with the Fingal Development Plan (2023 – 2029) and the Design Standards for New Apartments (2022). This provision is considered appropriate for the proposed development.

The parking provision of 47 residential spaces includes 2 no disabled spaces (5%) and 9 spaces fitted for electric charging (20%). All of the other parking spaces will have ducting infrastructure to allow for future installation of electric vehicle charging points should the demand for this facility require same.

The breakdown of the residential car parking spaces is outlined below:

- 15 no. Studios: 5 car parking spaces proposed.
- 18 no. 1-bed: 6 car parking spaces proposed.
- 78 no. 2-bed: 32 car parking spaces proposed.
- 9 no. 3+-bed: 4 car parking spaces proposed.

7.2 Proposed Cycle Parking

7.2.1 Fingal County Development Plan

Based on the standards set out in the County Development Plan, the bicycle parking spaces required to serve the subject development are set out in Table 4.

Table 4 Bicycle Parking Requirement – Fingal Development Plan (2023 – 2029).

Proposed Development		Bicycle Parking Spaces Required	
Type	**No. Units**	**Long-Stay**	**Short-Stay**
Studio	15	30	7.5
1-Bed Apartments	18	36	9
2-Bed Apartments	78	234	39
3-Bed Apartments	7	35	3.5
4-Bed Penthouses	2	12	1
Total	**120**	**347**	**60**

7.2.2 Design Standard for New Apartments

However, if the standards set out in Design Standard for New Apartments were to be applied, the quantum would reduce to spaces as per Table 5.

Table 5 Bicycle Parking Requirement – Design Standard for New Apartments

Proposed Development		Bicycle Parking Spaces Required	
Type	**No. Units**	**Long-Stay**	**Short-Stay**
Studio	15	15	7.5
1-Bed Apartments	18	18	9
2-Bed Apartments	78	156	39
3-Bed Apartments	7	21	3.5
4-Bed Penthouses	2	8	1
Total	**120**	**218**	**60**

7.2.3 Proposed Cycle Parking

The total cycle parking requirement based on the Fingal County Development Plan is 407 spaces for 120 apartments as calculated in Table 3.

The total cycle parking requirement based on the Design Standards for Apartments is 278 spaces for 120 apartments as calculated in Table 4.

A total of 420 bicycle parking spaces are proposed for the subject development, 360 long-stay for residents provided in the basement level and 60 short-stay for visitors and for the Crèche provided on the ground floor.

8. Contiguous Development

On 20th November 2019, Fingal County Council granted planning permission to the Department of Education and Skills for a 3-storey 16-classroom primary school at Myrtle Road, Baldoyle, Dublin 13 (Reg Ref: F19A/0461). See Figure 15.

The site for the school is located on Grange Road immediately to the west of the subject site.

The proposed access to the school is from Myrtle Road via Longfield Road and Grange Road.

The TTA prepared for the development assumed that the school when fully operational would generate a total of 154 trips during the morning peak, 77 inbound and 77 outbound.

These trips have been included in the post development traffic movements for the subject site.

Figure 15 Location Map for School

9. Existing Traffic at R809/Longfield Road junction

In order to quantify the volumes of traffic movements at the local key junction of R809 Grange Road, Longfield Road and Grange Rise (access road to Baldoyle Industrial Estate), a traffic survey carried out by Irish Traffic Surveys Ltd. on 21st May 2019 as part of the Traffic and Transport Assessment prepared for a granted planning application for the adjacent school has been consulted (Planning Ref. F19A/0461).

The survey identified that the AM and PM peak hours occurred between 08h00 to 09h00 in the morning and from 15h00 to 16h00 in the evening. The surveyed AM and PM junction approach movements can be seen in Figure 16.

The full traffic survey has been provided in Appendix A.

The AM and PM peak hour junction approach movements for the Survey Year 2019 and the Opening Year 2024 are presented in Table 6.

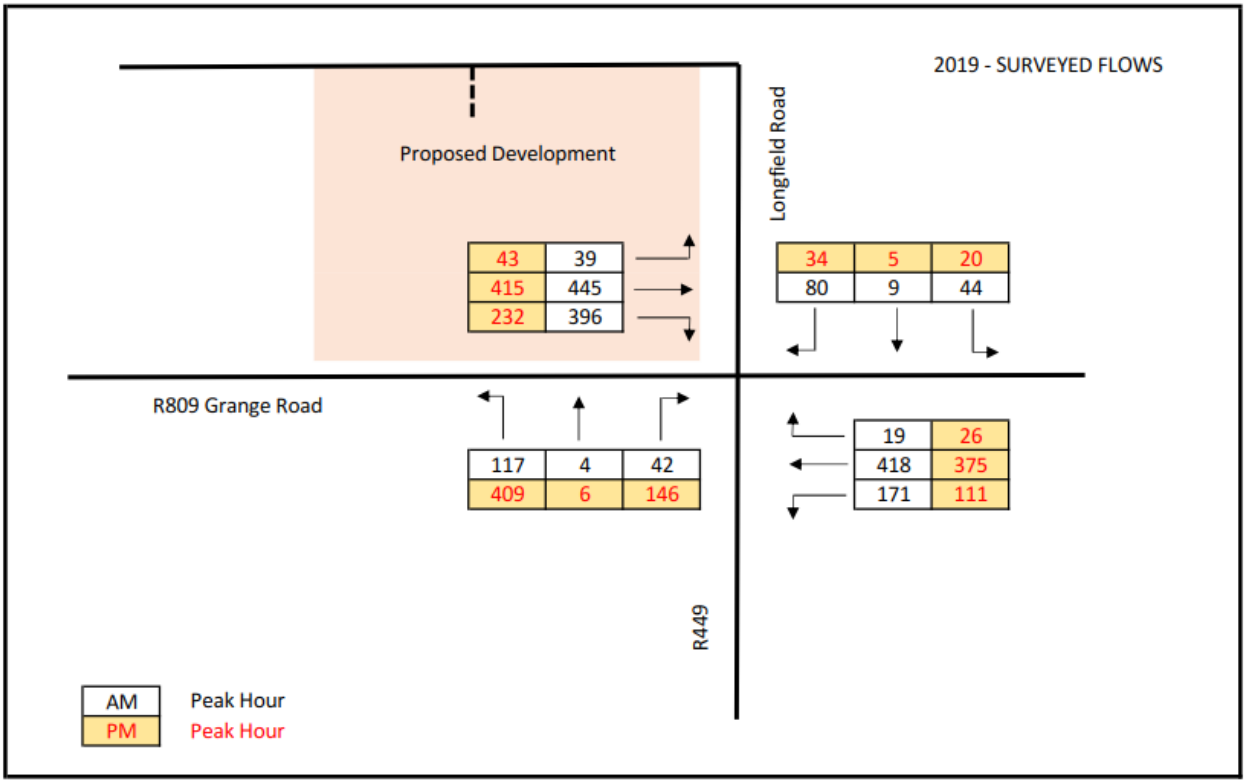

Figure 16 Surveyed Junction Approach Movements 2019 (AM and PM Peak Hours).

Table 6 Junction Approach Movements 2019 and 2024– AM and PM Peak Hours

Year	AM Peak Hour (08h00 to 09h00)	PM Peak Hour (15h00 to 16h00)
Survey Year 2019	1,784 vehicles	1,822 vehicles
Opening Year 2024	1,951 vehicles	1,992 vehicles

It has been assumed within this TTA that the development will be fully developed over a period of approximately 1 year. Therefore, the assumed year of opening is 2024.

In order to expand the existing traffic flows (2019) to the assumed year of opening (2024), design year of 2029 (Opening + 5years) and the future year of 2039 (opening year + 15 years), the National Traffic Growth Forecasts; Annual Growth Factors within the NRA Project Appraisal Guidelines for National Roads – Unit 5.3 Travel Demand Projections Link-Based Growth Rate; Annual Growth Factor has been consulted.

The factored baseline flows for the opening year of 2024, design year of 2029 and the future year of 2039 are presented in Figures 17, 18 and 19 respectively.

Figure 17 Baseline Flows 2024 (AM and PM Peak Hours)

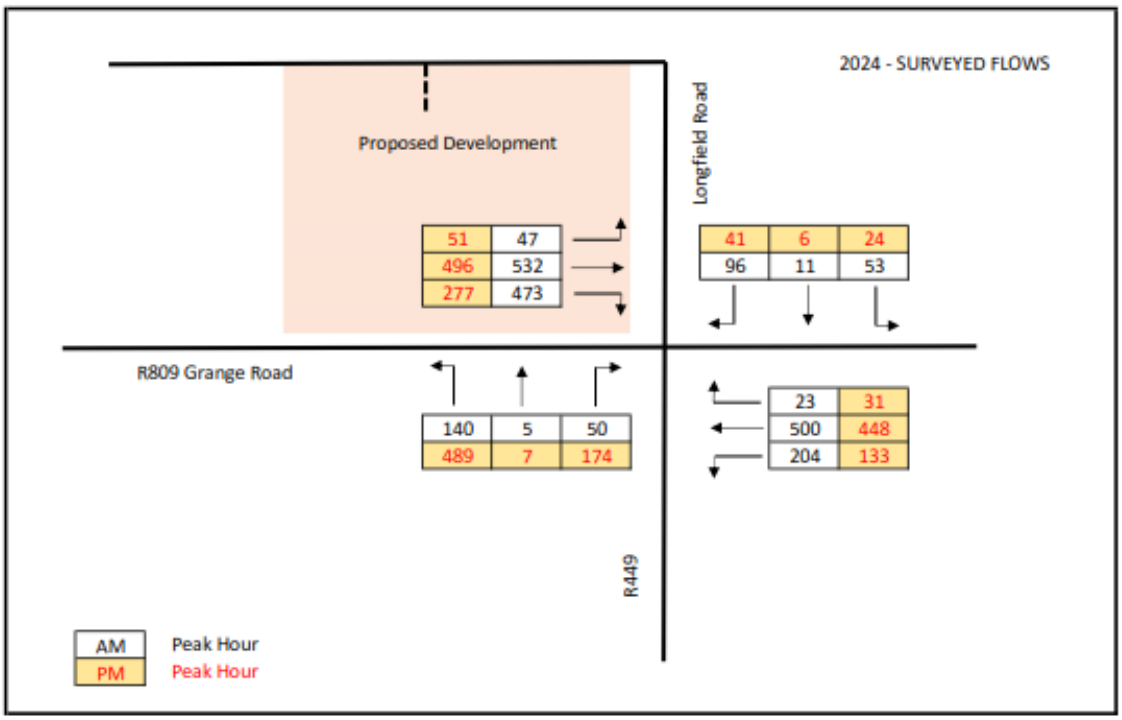

Figure 18 Baseline Flows 2029 (AM and PM Peak Hours)

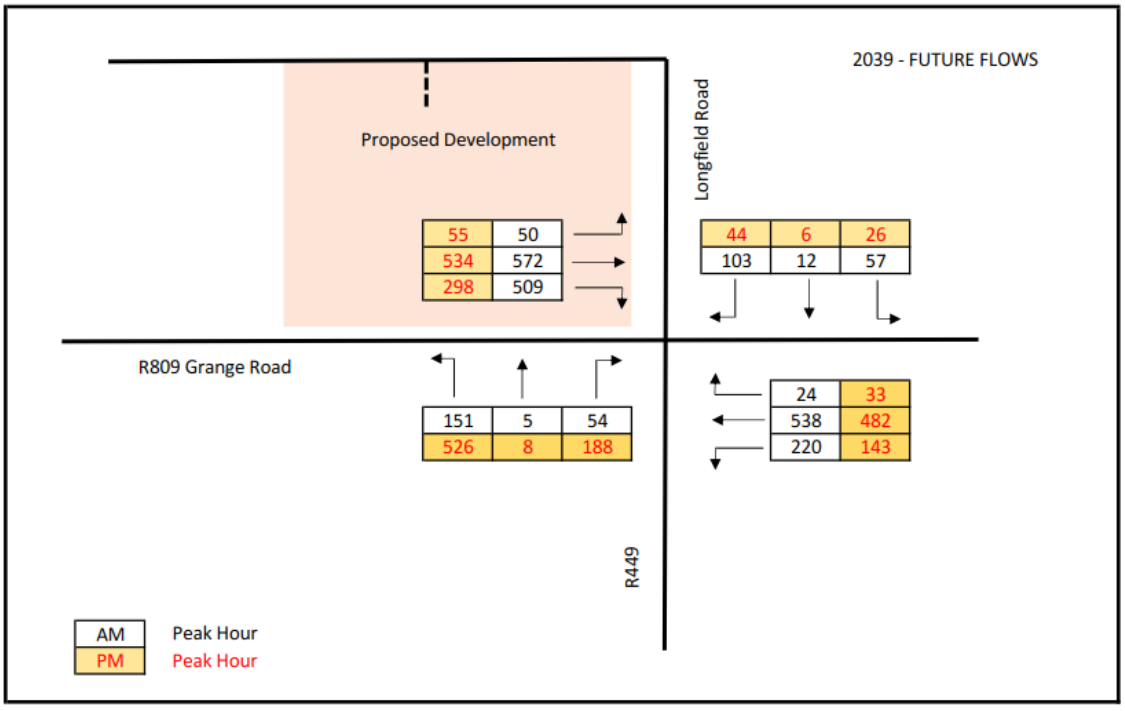

Figure 19 Baseline Flows 2039 (AM and PM Peak Hours)

10. Trip Generation and Traffic Impact

10.1 Trip Rates

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

Full trips rates are included in Appendix B. A summary of the peak hour trip rates is presented in Table 7 below.

Table 7 TRICS Trip Rates – AM and PM Peak Hours.

Period	TRICS Trip Rates – Privately Owned Flats (Per unit)	
	Arrivals	Departures
AM Peak Hour (08h00 – 09h00)	0.082	0.223
PM Peak Hour (17h00 – 18h00)	0.169	0.106

10.2 Trip Generation

Based on the TRICS trip rates above, the trip generation for the proposed development is calculated in Table 8.

Table 8 Trip Generation – AM and PM Peak Hours.

Period	Trip Generation – 120 apartment units	
	Arrivals	Departures
AM Peak Hour (08h00 – 09h00)	10	27
PM Peak Hour (17h00 – 18h00)	20	13

It is estimated that the proposed development will generate a total of 37 car trips in the AM peak hours (10 arrivals and 27 departures) and a total of 33 car trips in the PM peak hours (20 arrivals and 13 departures). Based on the location of the proposed development site – within 500m of a major public transport corridor (Clongriffin rail station) and adjacent to a high-frequency bus route (every 15 minutes) to city centre, and the number of car parking spaces proposed (in line with the local and national requirements), it is considered that the generated trips are reasonably representative for the proposed development.

10.3 Contiguous Development

A total of 154 trips during the morning peak, 77 inbound and 77 outbound, are predicted to occur during the AM Peak Hour once the primary new school on Myrtle Road becomes fully operational.

These trips have been assigned as per the Traffic and Transportation Assessment submitted as part of that approved planning application, Plg. Reg. Ref. No. F19A/0461.

10.4 Trip Distribution

The distribution for the AM peak hour generated traffic (critical traffic hour) is detailed in the TRICS report and the corresponding AM peak hour traffic flows, based on the assumed distribution, are shown in Fig. 20.

The figures in Figure 20 indicate the trips generated by the 120 no. apartments, split into the number of arriving and departing trips, occurring between the morning peak hours of 08h00 – 09h00.

They also include trips from the adjoining primary school on Myrtle Road.

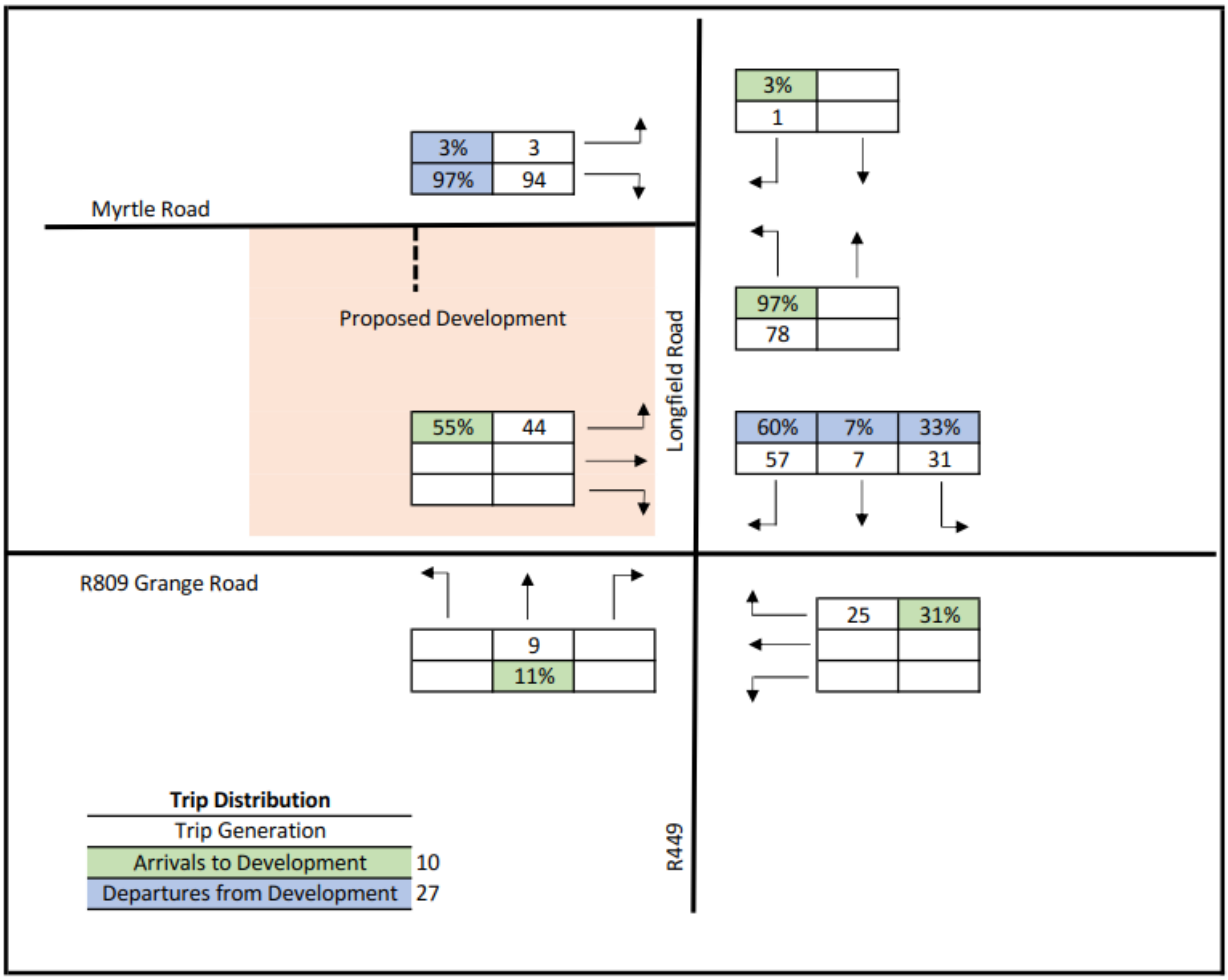

Figure 20 AM Trip Distribution

The PM peak hour traffic flows, based on the assumed distribution, are shown in Figure 21.

The figures in Figure 21 indicate the trips generated by the 120 no. apartments, split into the number of arriving and departing trips, occurring between the morning peak hours of 15h00 – 16h00.

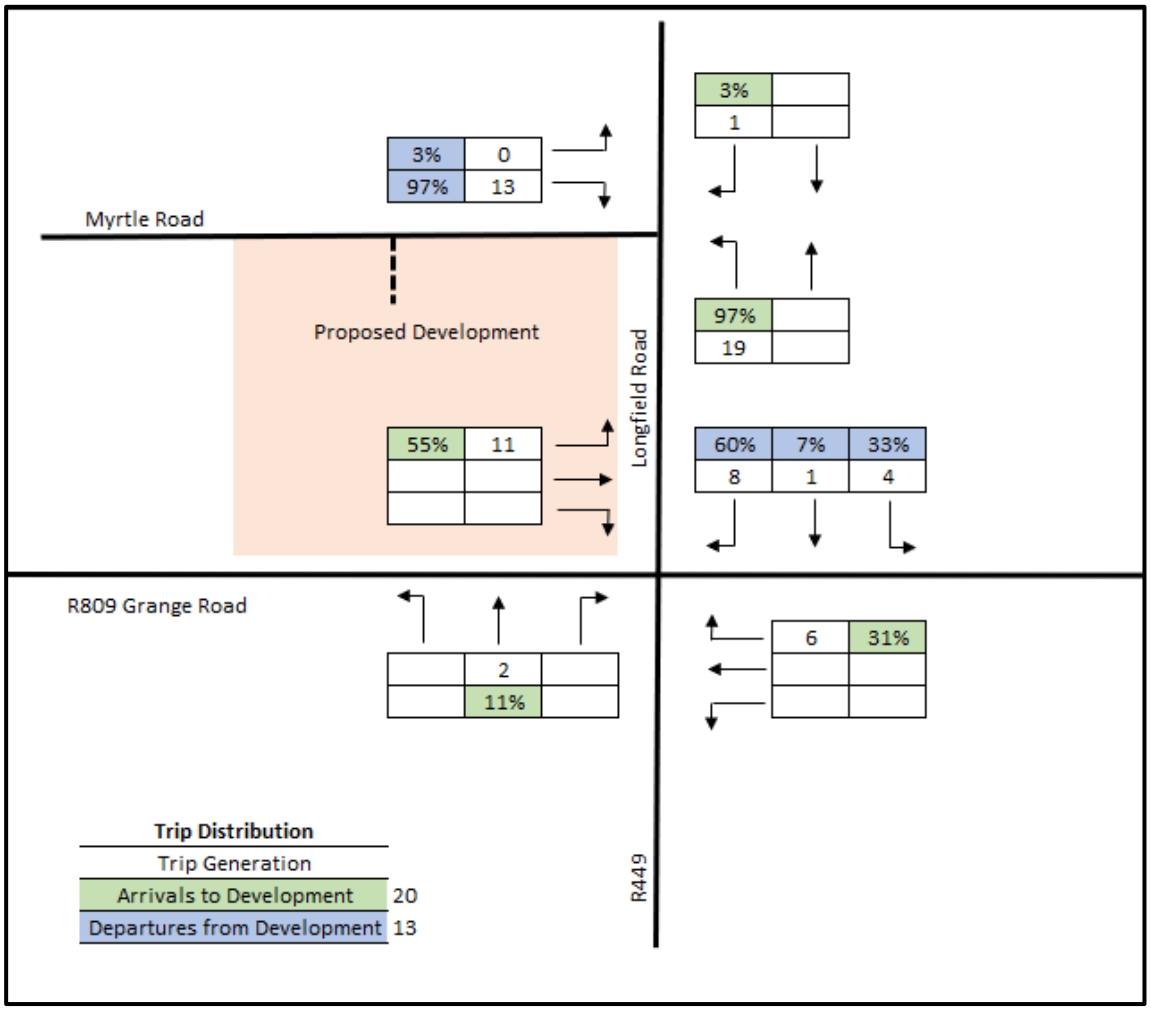

Figure 21 PM Trip Distribution

11. Road Impact

11.1 Network Review

The extent of traffic impact arising from the proposed development on the key local junction 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 'Traffic and Transport Assessment Guidelines (May 2014)'.

The surveyed junction approach flows for the Survey Year 2019 and the Opening Year 2024 are set out in Table 6 with the expected traffic increases shown in Table 9.

The traffic predictions for the junction were based on the conservative assumption that all of the traffic generated by the proposed development will make their way via the key assessed junction (to and from the development).

Table 9 Junction Approach Flows and Expected Traffic Increase.

Junction Approach Flows 2024		Additional Junction Approach Flows (Development + School)		% Expected Traffic Increase	
AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1,951	1,992	37 + 154	33 + 15	9.7%	2.4%

The proposed development trips are not predicted to generate a traffic increase greater than 10% on the local assessed key junction, as can be seen in the last two columns of Table 9, and therefore the increase does not require any further assessment or traffic modelling.

However, in order to ensure a robust assessment and following advice received from the Local Authority at the Stage 2 LRD meeting held in September 2023, post development traffic modelling has been carried out at the R809/Longfield Road junction.

As can be seen, the expected traffic increase on the development is a maximum of 1.89%, experienced in the AM peak period. To analyse the main junction (Grange Road/Longfield Road) and the potential impact there upon, TRANSYT software has been used.

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 120 second cycle. The outputs of a TRANSYT assessment include a Degree of Saturation percentage (DOS%) figure and queue length for each link on the road network.

Typically, a junction is said to be working satisfactorily when the DOS% of each link does not exceed 90%. Acceptable DOS% values are considered to be in the range of 80% to 100% with higher values indicating restrained movements.

11.2 Junction Assessment

11.2.1 Assessment Years

The performance of the analysed junction has been assessed for the critical AM peak hour (08:00 – 09:00), and the PM Peak Hour (17.00 – 18.00).for the following years

- Opening Year 2024 (with and without development) – Figures 22 & 23
- Design Year 2029 (Opening + 5) – Figure 24
- Future Year 2039 (Opening + 15) (with and without development) – Figure 25 & 26

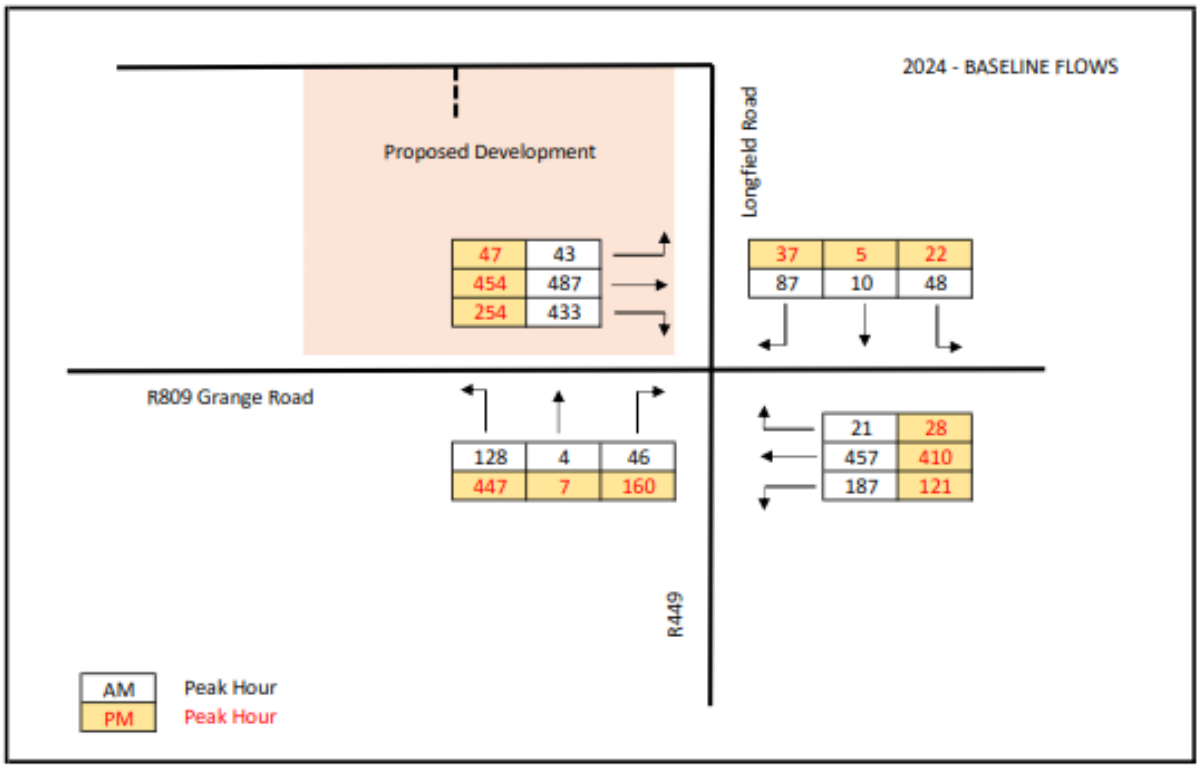

Figure 22 Opening Year 2024 Baseline Flows

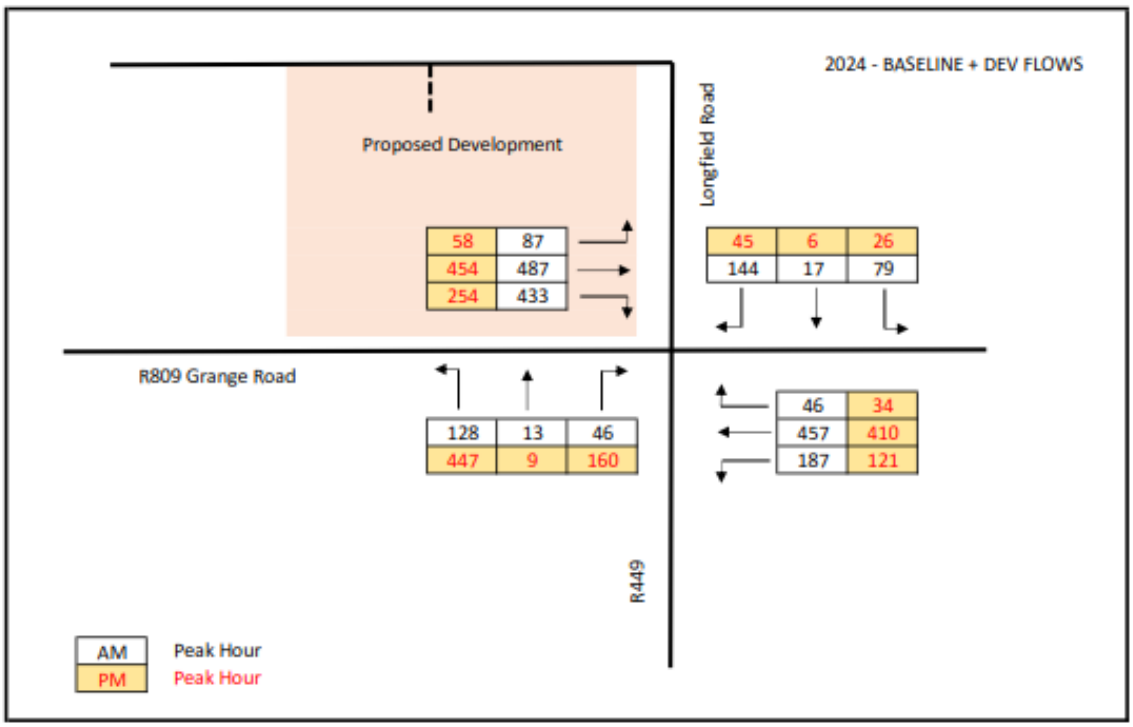

Figure 23 Opening Year 2024 Baseline + Development Flows

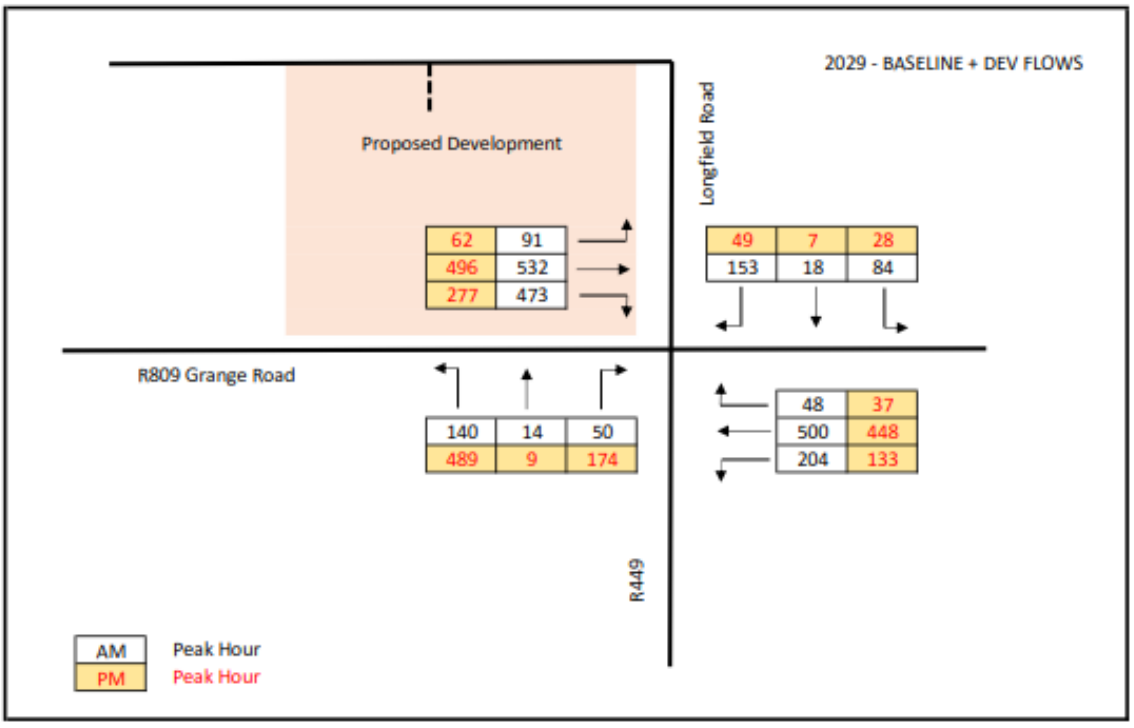

Figure 24 Design Year 2029 (Opening + 5) Baseline + Development Flows

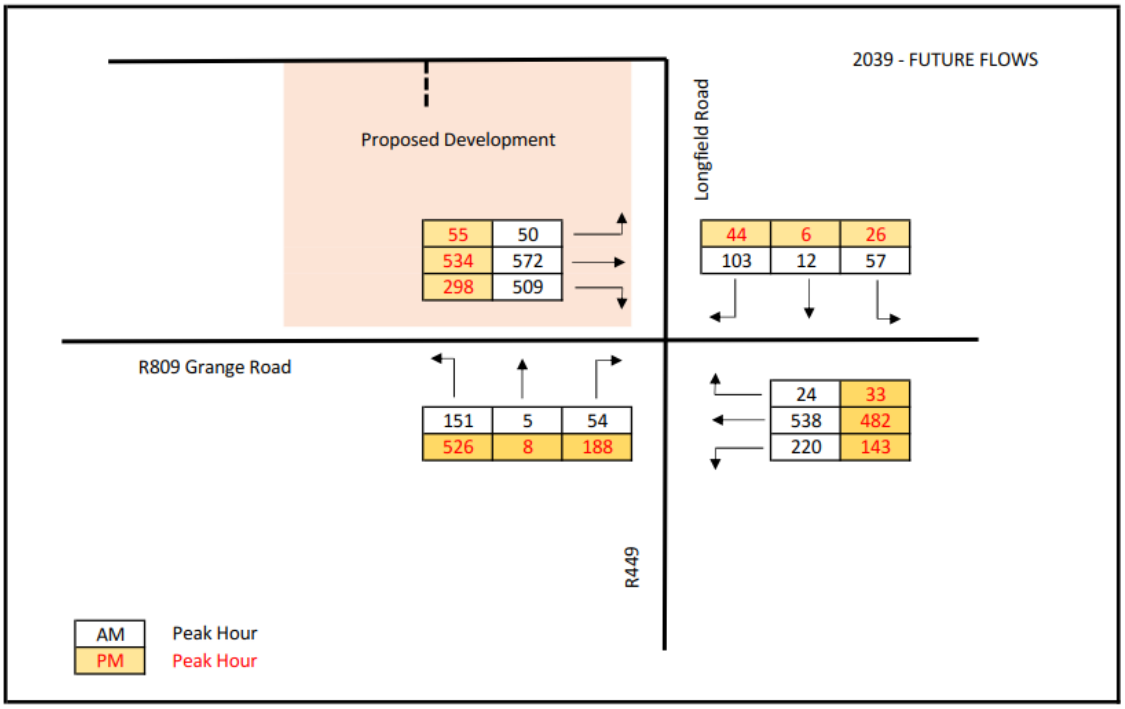

Figure 25 Future Year 2039 (Opening + 15) Baseline

Figure 26 Future Year 2039 (Opening + 15) Baseline + Development Flows

11.2.2 Results of Assessment

AM Peak Analysis

The results of TRANSYT analysis for the AM peak hour traffic scenario reveal that without the trips generated/attracted by the development, the junction will operate slightly above capacity for the 2039 scenario with the highest Degree of Saturation (DOS%) at 103% and a corresponding queue of 44.48 vehicles, recorded for the AM peak period.

With the inclusion of the proposed development (2039 DESIGN YEAR + DEVELOPMENT), the results indicate that the Junction will continue to operate at the same DOS% of 103% on the main traffic flow arm A, as the additional trips produced by the proposed development have a negligible impact on the junction capacity as the capacity remains the same during the AM peak hour as they occur on the non-critical junction arms.

PM Peak Analysis

The results of TRANSYT analysis for the PM peak hour traffic scenario reveal that without the trips generated/attracted by the development, the Junction will operate well within capacity for the 2039 scenario with the highest Degree of Saturation (DOS%) at 91% and a corresponding queue of 23.42 vehicles, recorded for the PM peak period.

With the inclusion of the proposed development (2039 DESIGN YEAR + DEVELOPMENT), the results indicate that the Junction will continue to operate at the same DOS% of 91%, as the additional trips produced by the proposed development have a negligible impact on the junction capacity as the capacity remains the same during the PM peak hour as they occur on the non-critical junction arms.

Summary Results

As the AM peak hour represents the critical DOS% and vehicle queue outputs, Table 10 & 11 below summarises the TRANSYT analysis details for the AM & PM peak hours for the baseline and do something scenarios.

Table 10: Existing Layout – TRANSYT Analysis Results – DO-NOTHING

Arm	AM Peak Hour			PM Peak Hour		
	Queue (pcu)	Delay (sec.)	DOS (%)	Queue (pcu)	Delay (sec.)	DOS (%)
DO-NOTHING 2024						
A1	22.54	49	88	16.59	41	77
A2	0.51	32	4	0.77	40	8
B1	2.63	22	22	11.41	32	71
B2	1.96	80	56	5.56	56	59
C1	15.64	36	72	15.14	38	73
C2	16.45	64	87	8.89	60	74
D1	0.37	15	4	0.16	17	2

D2	1.09	55	23	0.50	52	11
D3	3.17	69	58	1.19	55	25
DO-NOTHING 2039						
A1	44.48	130	103	23.42	57	91
A2	0.59	32	5	1.08	41	10
B1	3.15	23	26	15.01	43	83
B2	2.50	91	66	6.98	62	69
C1	20.87	45	85	21.02	50	85
C2	31.19	147	103	12.01	76	86
D1	0.44	15	4	0.22	17	3
D2	1.33	56	27	0.60	53	13
D3	4.03	78	69	1.43	57	29

Table 11: Existing Layout – TRANSYT Analysis Results – DO-SOMETHING

Arm	AM Peak Hour			PM Peak Hour		
	Queue (pcu)	Delay (sec.)	DOS (%)	Queue (pcu)	Delay (sec.)	DOS (%)
DO-SOMETHING 2024						
A1	22.54	49	88	16.59	41	77
A2	1.14	33	9	0.93	41	10
B1	2.63	23	22	11.41	32	71
B2	2.50	91	66	5.64	56	59
C1	4.95	25	30	15.58	39	74
C2	24.84	108	98	8.89	60	74
D1	0.62	15	6	0.19	17	3
D2	1.90	59	38	0.60	53	13
D3	8.99	160	96	1.46	57	30
DO-SOMETHING 2029						
A1	29.83	71	96	19.72	47	84
A2	1.19	32	10	1.02	41	11

B1	2.88	23	24	13.12	37	78
B2	2.88	100	71	6.26	58	64
C1	20.92	45	85	18.23	44	81
C2	21.59	90	96	10.30	66	80
D1	0.66	15	7	0.20	17	3
D2	2.02	60	40	0.66	53	14
D3	11.47	207	102	1.62	58	33
DO-SOMETHING 2039						
A1	44.48	130	103	23.42	57	91
A2	1.22	33	10	1.08	41	11
B1	3.15	23	26	15.01	43	83
B2	3.24	110	76	6.98	62	69
C1	24.56	54	91	21.02	50	87
C2	31.19	147	103	12.01	76	86
D1	0.69	15	7	0.22	17	3
D2	2.13	61	42	0.69	53	15
D3	13.78	250	107	1.72	58	35

12. Conclusion

This Traffic and Transport Assessment (TTA) has been prepared by Waterman Moylan on behalf of Rondesere Ltd. in in support of a planning application for a proposed residential development at Grange Road, Baldoyle, Dublin 13.

The proposed development on the subject site will comprise 120 no. apartments units in one 12-storey residential apartment block over a basement housing 47 car parking spaces .

The residential units will comprise 15 no. studios, 18 no. 1-bed, 78 no. 2-bed, 7 no. 3-bed and 2 no. 4-bed penthouses. The development will also include a Gym (280.0 sqm), Creche (156.6 sqm), and Café (70.0 sqm).

A total of 360 bicycle parking spaces are proposed for the subject development, 300 long-stay for residents provided in the basement level and 60 short-stay for visitors and for the crèche provided on the ground floor.

Vehicular access is proposed from the northern boundary of the site via a new access off Myrtle Road. The development will also benefit from two pedestrian/cyclist accesses leading to R809 Grange Road to the south and to Myrtle Road to the north. These are connected by a footpath through the site.

The proposed application includes all site landscaping works, green roofs, substations, boundary treatments, lighting, servicing, signage, and associated and ancillary works, including development works and services above and below the ground.

Currently there are good levels of public transport in the local area, provided in the form of a high-frequency bus route along R809 Grange Road and rail services through Clongriffin rail station. These are located within walking and cycling distances from the proposed development site and already facilitates the connection between the proposed development site to Dublin City Centre and other key towns and work/educational destinations.

The volume of traffic estimated to be generated by the proposed development is 37 car trips in the AM peak hours (10 arrivals and 27 departures) and 33 car trips in the PM peak hours (20 arrivals and 13 departures).

The local key junction between R809 Grange Road, Longfield Road and Grange Rise (access road to Baldoyle Industrial Estate) was assessed in this report.

A traffic survey carried out as part of the TTA prepared for the adjacent school planning application (granted under Planning Ref. F19A/0461) was used to quantify the volumes of traffic at the local key junction.

It was calculated that the proposed development trips are not expected to generate a traffic increase greater than 5% on the local assessed key junction and therefore, does not require further assessment. However, as requested by Fingal County Council during an LRD Meeting held in September 2023, modelling has been completed for the subject site.

The results of the traffic modelling on the Grange Road access junction in the AM peak hours indicte that the maximum degree of saturation and queue length remain unchanged on the major arms in both the AM and PM peak hour scenarios as the permitted school and proposed development traffic utilise the available space capacity on the non-critical lanes.

APPENDICES

A. Traffic Survey

Irish Traffic Surveys Ltd

Survey Name : *ITS J313 Waterman-Moylan Schools*
Site: Grange Road Baldoyle
Date: 21/05/2019
Location: https://goo.gl/maps/Y2rccN4mn6vUJfcQ9

	A => A							
TIME	**P/C**	**M/C**	**CAR**	**LGV**	**OGV1**	**OGV2**	**PSV**	**TOT**
07:00	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0

15:15	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0
12 TOT	0	0	0	0	0	0	0	0

A => B								
P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	P/C
0	0	4	0	0	0	0	4	0
0	0	3	0	0	0	0	3	3
0	0	9	1	0	0	0	10	0
1	0	5	0	0	0	0	6	0
1	0	21	1	0	0	0	23	3
0	0	11	0	0	0	0	11	0
1	0	10	0	0	0	0	11	0
0	0	13	0	0	0	0	13	1
1	0	6	2	0	0	0	9	1
2	0	40	2	0	0	0	44	2
0	0	9	0	0	0	0	9	0
1	0	5	0	0	0	0	6	0
0	0	5	0	0	0	0	5	0
0	0	4	0	0	0	0	4	0
1	0	23	0	0	0	0	24	0
2	0	2	2	0	0	0	6	0
0	0	1	0	0	0	0	1	0
0	0	2	0	0	0	0	2	0
0	0	3	0	0	0	0	3	0
2	0	8	2	0	0	0	12	0
0	0	3	2	0	0	0	5	0
0	0	4	0	0	0	0	4	0
0	0	0	1	0	0	0	1	0
0	0	3	0	1	0	0	4	0
0	0	10	3	1	0	0	14	0
0	0	8	0	0	0	0	8	0
0	0	0	0	0	0	0	0	0
0	0	2	0	0	0	0	2	0
0	0	3	0	0	0	0	3	0
0	0	13	0	0	0	0	13	0
0	0	4	0	0	0	0	4	0
0	0	5	0	0	0	0	5	0
0	0	2	0	0	0	0	2	0
0	0	7	0	0	0	0	7	0
0	0	18	0	0	0	0	18	0
0	0	8	0	0	0	0	8	1
0	0	7	0	0	0	0	7	0
0	0	11	1	0	0	0	12	0
0	0	3	1	0	0	0	4	0
0	0	29	2	0	0	0	31	1
0	0	4	0	0	0	0	4	0

0	0	7	1	0	0	0	8	0
0	0	4	0	0	0	0	4	0
0	0	4	0	0	0	0	4	0
0	0	19	1	0	0	0	20	0
0	0	4	1	0	0	0	5	0
0	0	9	0	0	0	0	9	0
0	0	2	0	0	0	0	2	0
0	0	9	0	0	0	0	9	0
0	0	24	1	0	0	0	25	0
1	0	3	0	0	0	0	4	0
0	0	7	0	0	0	0	7	0
0	0	6	1	0	0	0	7	0
0	0	13	0	0	0	0	13	0
1	0	29	1	0	0	0	31	0
0	1	7	2	0	0	0	10	0
0	0	6	0	0	0	0	6	0
0	0	6	1	0	0	0	7	0
0	0	6	1	0	0	0	7	0
0	1	25	4	0	0	0	30	0
7	1	259	17	1	0	0	285	6

		A => C						
M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	P/C	M/C
0	0	0	0	0	0	0	1	0
0	1	0	0	0	0	4	0	0
0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	1	0	0
0	2	0	0	0	0	5	1	0
0	1	2	0	0	0	3	0	2
0	0	0	0	0	0	0	2	2
0	0	0	0	0	0	1	1	0
0	4	0	0	0	0	5	0	0
0	5	2	0	0	0	9	3	4
0	4	2	0	0	0	6	0	0
0	0	0	0	0	0	0	0	0
0	2	0	0	0	0	2	0	0
0	1	0	0	0	0	1	1	0
0	7	2	0	0	0	9	1	0
0	1	0	0	0	0	1	0	0
0	1	1	0	0	0	2	0	0
0	3	0	0	0	0	3	0	0
0	1	0	0	0	0	1	0	0
0	6	1	0	0	0	7	0	0
0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0
0	2	0	0	0	0	2	0	0
0	3	0	0	0	0	3	0	0
0	0	0	0	0	0	0	0	0
0	1	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	1	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	1	1	0
0	2	0	0	0	0	2	1	0
0	0	0	0	0	0	1	0	0
0	1	0	0	0	0	1	1	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	2	1	0
0	3	0	0	0	0	3	0	0

0	1	0	0	0	0	1	0	0
0	1	0	0	0	0	1	1	0
0	0	0	0	0	0	0	1	0
0	5	0	0	0	0	5	2	0
0	1	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0
0	2	0	0	0	0	2	1	0
0	0	0	0	0	0	0	0	2
0	3	0	0	0	0	3	1	2
0	1	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0
0	2	0	0	0	0	2	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	1	0	0
0	0	0	0	0	0	0	1	0
0	1	0	0	0	0	1	1	0
0	38	5	0	0	0	49	11	6

	A => D							
CAR	LGV	OGV1	OGV2	PSV	TOT	P/C	M/C	CAR
13	4	0	0	0	18	0	0	0
15	0	0	0	0	15	0	0	3
19	0	0	0	0	19	0	0	5
12	2	0	0	0	14	0	0	6
59	6	0	0	0	66	0	0	14
20	1	0	0	0	23	0	0	5
21	0	0	0	0	25	0	0	3
18	1	0	0	0	20	0	0	4
11	1	0	0	0	12	0	0	7
70	3	0	0	0	80	0	0	19
13	1	0	0	0	14	0	0	5
4	1	0	0	0	5	1	0	5
8	3	0	0	0	11	0	0	2
10	0	0	0	0	11	0	0	2
35	5	0	0	0	41	1	0	14
8	0	0	0	0	8	0	0	0
3	0	0	0	0	3	0	0	2
6	1	1	0	0	8	0	0	1
5	1	0	0	0	6	0	0	1
22	2	1	0	0	25	0	0	4
5	0	0	0	0	5	0	0	2
8	0	0	0	0	8	0	0	3
4	0	0	0	0	4	0	0	5
7	0	0	0	0	7	0	0	2
24	0	0	0	0	24	0	0	12
6	0	0	0	0	6	0	0	4
13	0	1	1	0	15	1	0	2
4	0	0	0	0	4	0	0	2
5	2	1	1	0	9	0	0	1
28	2	2	2	0	34	1	0	9
6	0	0	0	0	6	0	0	4
6	2	0	0	0	8	0	0	4
2	1	0	0	0	3	0	0	4
9	1	0	0	0	11	0	0	7
23	4	0	0	0	28	0	0	19
12	1	0	0	0	13	0	0	5
2	0	0	0	0	3	0	0	7
7	0	0	0	0	7	0	0	5
5	0	0	0	0	5	1	0	10
26	1	0	0	0	28	1	0	27
8	1	0	0	0	9	2	0	6

6	2	0	0	0	8	0	0	6
7	2	0	0	0	10	0	0	6
6	0	0	0	0	7	0	0	3
27	5	0	0	0	34	2	0	21
7	0	0	0	0	7	0	0	10
12	0	0	0	0	12	1	0	3
10	0	0	0	0	11	0	0	9
7	0	1	0	0	10	0	0	5
36	0	1	0	0	40	1	0	27
8	1	0	0	0	9	0	0	6
7	0	0	0	0	7	0	0	5
12	1	0	0	0	13	0	0	11
9	2	0	0	0	11	0	0	3
36	4	0	0	0	40	0	0	25
7	0	0	0	0	7	0	0	9
6	0	0	0	0	6	0	0	8
6	0	0	0	0	6	0	0	11
10	1	0	0	0	12	0	0	2
29	1	0	0	0	31	0	0	30
415	33	4	2	0	471	6	0	221

B => A								B => B
LGV	OGV1	OGV2	PSV	TOT	P/C	M/C	CAR	LGV
0	0	0	0	0	0	0	0	0
1	0	0	0	4	0	0	0	0
0	0	0	0	5	0	0	0	0
2	0	0	0	8	0	0	0	0
3	0	0	0	17	0	0	0	0
0	0	0	0	5	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	7	0	0	0	0
0	0	0	0	19	0	0	0	0
0	0	0	0	5	0	0	0	0
1	0	0	0	7	0	0	0	0
1	0	0	0	3	0	0	0	0
1	0	0	0	3	0	0	0	0
3	0	0	0	18	0	0	0	0
0	0	0	0	0	0	0	0	0
0	1	0	0	3	0	0	0	0
0	0	0	0	1	0	0	0	0
1	0	0	0	2	0	0	0	0
1	1	0	0	6	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	5	0	0	0	0
0	0	0	0	2	0	0	0	0
0	0	0	0	12	0	0	0	0
0	1	0	0	5	0	0	0	0
2	0	0	0	5	0	0	0	0
0	0	0	0	2	0	0	0	0
0	0	0	0	1	0	0	0	0
2	1	0	0	13	0	0	0	0
1	0	0	0	5	0	0	0	0
0	0	0	0	4	0	0	0	0
1	0	0	0	5	0	0	0	0
0	0	0	0	7	0	0	0	0
2	0	0	0	21	0	0	0	0
0	0	0	0	5	0	0	0	0
0	0	0	0	7	0	0	0	0
0	0	0	0	5	0	0	0	0
0	0	0	0	11	0	0	0	0
0	0	0	0	28	0	0	0	0
1	0	0	0	9	0	0	0	0

2	0	0	0	8	0	0	0	0
0	0	0	0	6	0	0	0	0
0	0	0	0	3	0	0	0	0
3	0	0	0	26	0	0	0	0
0	0	0	0	10	0	0	0	0
0	0	0	0	4	0	0	0	0
0	0	0	0	9	0	0	0	0
1	1	0	0	7	0	0	0	0
1	1	0	0	30	0	0	0	0
0	0	0	0	6	0	0	0	0
0	0	0	0	5	0	0	0	0
0	0	0	0	11	0	0	0	0
0	0	0	0	3	0	0	0	0
0	0	0	0	25	0	0	0	0
0	0	0	0	9	0	0	0	0
2	0	0	0	10	0	0	0	0
0	0	0	0	11	0	0	0	0
1	0	0	0	3	0	0	0	0
3	0	0	0	33	0	0	0	0
18	3	0	0	248	0	0	0	0

							B => C	
OGV1	OGV2	PSV	TOT	P/C	M/C	CAR	LGV	OGV1
0	0	0	0	0	0	4	2	0
0	0	0	0	0	0	17	2	3
0	0	0	0	0	0	17	3	0
0	0	0	0	1	0	30	5	1
0	0	0	0	1	0	68	12	4
0	0	0	0	0	0	34	5	0
0	0	0	0	1	0	39	8	0
0	0	0	0	0	0	31	5	0
0	0	0	0	0	0	41	7	0
0	0	0	0	1	0	145	25	0
0	0	0	0	1	0	26	4	1
0	0	0	0	0	0	29	7	2
0	0	0	0	0	1	18	6	2
0	0	0	0	0	0	14	3	1
0	0	0	0	1	1	87	20	6
0	0	0	0	0	0	28	7	1
0	0	0	0	0	0	21	7	0
0	0	0	0	0	0	26	5	2
0	0	0	0	0	0	24	7	1
0	0	0	0	0	0	99	26	4
0	0	0	0	0	0	15	4	0
0	0	0	0	0	0	24	7	3
0	0	0	0	0	0	17	4	2
0	0	0	0	0	0	13	7	2
0	0	0	0	0	0	69	22	7
0	0	0	0	0	0	21	4	0
0	0	0	0	1	0	23	10	2
0	0	0	0	2	0	26	6	0
0	0	0	0	0	0	16	5	2
0	0	0	0	3	0	86	25	4
0	0	0	0	0	0	10	3	0
0	0	0	0	0	1	25	5	1
0	0	0	0	0	0	33	2	1
0	0	0	0	0	0	34	5	1
0	0	0	0	0	1	102	15	3
0	0	0	0	0	0	22	7	0
0	0	0	0	0	0	32	3	0
0	0	0	0	0	0	33	5	0
0	0	0	0	0	0	21	5	0
0	0	0	0	0	0	108	20	0
0	0	0	0	0	0	26	4	1

0	0	0	0	0	0	20	6	1
0	0	0	0	1	0	28	5	1
0	0	0	0	0	0	12	6	0
0	0	0	0	1	0	86	21	3
0	0	0	0	0	0	13	7	0
0	0	0	0	0	0	19	5	0
0	0	0	0	0	1	22	3	1
0	0	0	0	0	0	23	1	0
0	0	0	0	0	1	77	16	1
0	0	0	0	0	0	17	2	1
0	0	0	0	0	0	10	2	1
0	0	0	0	0	0	7	1	0
0	0	0	0	0	0	12	2	0
0	0	0	0	0	0	46	7	2
0	0	0	0	0	0	5	4	0
0	0	0	0	0	0	5	1	0
0	0	0	0	0	0	9	0	0
0	0	0	0	0	0	13	1	0
0	0	0	0	0	0	32	6	0
0	0	0	0	7	3	1005	215	34

			B => D					
OGV2	PSV	TOT	P/C	M/C	CAR	LGV	OGV1	OGV2
0	0	6	3	0	52	11	2	0
0	0	22	2	1	72	6	0	0
0	0	20	4	0	70	9	0	1
0	0	37	1	0	77	13	0	0
0	0	85	10	1	271	39	2	1
0	0	39	1	1	75	7	0	0
0	0	48	3	1	93	9	0	0
0	0	36	2	0	116	10	2	0
0	0	48	0	1	80	4	3	2
0	0	171	6	3	364	30	5	2
0	0	32	2	0	74	4	0	0
0	0	38	1	1	86	12	1	0
1	0	28	1	0	89	9	1	0
0	0	18	1	0	64	8	1	0
1	0	116	5	1	313	33	3	0
0	0	36	1	0	71	9	2	0
0	0	28	0	0	64	10	0	1
0	0	33	0	0	89	5	3	1
0	0	32	1	1	65	10	4	0
0	0	129	2	1	289	34	9	2
0	0	19	0	1	64	5	6	0
0	0	34	1	0	74	9	2	1
0	0	23	0	0	78	7	3	2
0	0	22	3	1	70	10	4	0
0	0	98	4	2	286	31	15	3
0	0	25	0	1	69	10	5	0
0	0	36	1	0	77	6	1	0
0	0	34	4	0	81	10	2	0
0	0	23	0	1	70	10	4	0
0	0	118	5	2	297	36	12	0
0	0	13	2	2	87	6	4	1
0	0	32	4	1	104	8	5	1
1	0	37	2	0	84	12	3	1
0	0	40	1	1	65	8	1	0
1	0	122	9	4	340	34	13	3
0	0	29	1	0	67	14	5	0
1	0	36	3	0	65	8	1	0
0	0	38	3	0	62	11	0	0
0	0	26	6	2	75	7	2	0
1	0	129	13	2	269	40	8	0
0	0	31	4	0	82	12	1	0

0	0	27	4	0	93	13	1	0
0	0	35	4	0	73	6	2	2
0	0	18	7	0	60	5	0	2
0	0	111	19	0	308	36	4	4
0	0	20	31	0	90	8	0	0
0	0	24	4	0	70	19	0	0
0	0	27	5	0	80	12	0	0
0	0	24	6	0	57	8	1	1
0	0	95	46	0	297	47	1	1
0	0	20	4	0	80	6	1	1
0	0	13	1	1	55	14	2	1
0	0	8	5	0	79	6	1	0
0	0	14	2	0	62	8	1	0
0	0	55	12	1	276	34	5	2
0	0	9	2	1	79	9	0	0
0	0	6	4	0	79	11	1	0
0	0	9	3	1	99	5	0	0
0	0	14	3	0	89	7	0	0
0	0	38	12	2	346	32	1	0
3	0	1267	143	19	3656	426	78	18

		C => A						
PSV	TOT	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV
0	68	0	0	1	0	0	0	0
2	83	0	0	0	0	0	0	0
1	85	0	0	0	0	0	0	0
1	92	0	0	0	0	0	0	0
4	328	0	0	1	0	0	0	0
2	86	0	0	0	1	0	0	0
1	107	0	0	2	0	0	0	0
2	132	0	0	0	0	0	0	0
3	93	0	0	0	1	0	0	0
8	418	0	0	2	2	0	0	0
4	84	0	0	0	0	0	0	0
4	105	0	0	0	0	0	0	0
0	100	0	0	0	1	0	0	0
1	75	0	0	1	0	0	0	0
9	364	0	0	1	1	0	0	0
1	84	0	0	0	1	0	0	0
1	76	0	0	0	0	0	0	0
0	98	0	0	0	0	0	0	0
1	82	0	0	1	0	0	0	0
3	340	0	0	1	1	0	0	0
1	77	0	0	1	1	1	0	0
1	88	0	0	2	0	0	0	0
2	92	0	0	0	0	0	0	0
0	88	0	0	0	0	0	0	0
4	345	0	0	3	1	1	0	0
1	86	0	0	0	0	0	0	0
1	86	0	0	1	0	0	0	0
0	97	0	0	0	0	0	0	0
1	86	0	0	0	0	0	0	0
3	355	0	0	1	0	0	0	0
1	103	0	0	0	0	0	0	0
1	124	0	0	1	0	0	0	0
1	103	0	0	0	0	0	0	0
0	76	0	0	0	0	0	0	0
3	406	0	0	1	0	0	0	0
1	88	0	0	1	0	0	0	0
1	78	0	0	1	0	0	0	0
0	76	0	0	2	0	0	0	0
3	95	0	0	1	0	0	0	0
5	337	0	0	5	0	0	0	0
1	100	0	0	2	0	0	0	0

2	113	0	0	2	0	0	0	0
0	87	0	0	2	0	0	0	0
1	75	0	0	0	0	0	0	0
4	375	0	0	6	0	0	0	0
2	131	0	0	1	0	0	0	0
1	94	0	0	0	0	0	0	0
0	97	0	0	0	0	0	0	0
1	74	0	1	2	0	0	0	0
4	396	0	1	3	0	0	0	0
1	93	2	0	2	0	0	0	0
1	75	1	0	2	0	0	0	0
0	91	0	0	2	1	0	0	0
2	75	0	1	0	0	0	0	0
4	334	3	1	6	1	0	0	0
2	93	0	0	1	0	0	0	0
2	97	0	0	0	0	0	0	0
0	108	0	0	0	1	0	0	0
2	101	0	0	0	0	0	0	0
6	399	0	0	1	1	0	0	0
57	4397	3	2	31	7	1	0	0

TOT	C => B							TOT
	P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	
1	0	0	3	1	0	0	0	4
0	1	0	4	0	0	0	0	5
0	0	0	5	5	0	0	0	10
0	0	0	6	4	3	0	0	13
1	1	0	18	10	3	0	0	32
1	0	0	5	5	0	0	0	10
2	0	0	6	3	0	0	0	9
0	1	0	5	5	0	0	0	11
1	0	0	6	4	1	1	0	12
4	1	0	22	17	1	1	0	42
0	0	0	10	7	1	0	0	18
0	0	0	7	7	0	0	0	14
1	1	0	11	7	1	0	0	20
1	0	1	13	5	0	0	0	19
2	1	1	41	26	2	0	0	71
1	0	0	18	7	2	0	0	27
0	0	0	17	4	1	0	0	22
0	0	0	24	7	1	0	0	32
1	1	0	18	8	0	0	0	27
2	1	0	77	26	4	0	0	108
3	0	0	16	7	2	0	0	25
2	0	0	20	6	0	0	0	26
0	0	1	18	5	2	0	0	26
0	0	0	12	5	5	0	0	22
5	0	1	66	23	9	0	0	99
0	0	0	18	3	0	0	0	21
1	0	0	18	8	2	0	0	28
0	0	0	31	9	0	0	0	40
0	0	0	22	5	3	0	0	30
1	0	0	89	25	5	0	0	119
0	1	1	42	4	1	0	0	49
1	0	1	19	4	2	0	0	26
0	0	0	15	2	0	0	0	17
0	0	0	5	3	0	0	0	8
1	1	2	81	13	3	0	0	100
1	0	0	16	6	1	0	0	23
1	0	0	25	4	1	0	0	30
2	0	0	26	1	1	1	0	29
1	0	0	33	6	0	0	0	39
5	0	0	100	17	3	1	0	121
2	0	0	26	4	0	0	0	30

2	0	0	27	2	0	0	0	29
2	1	0	34	4	2	0	0	41
0	0	0	39	6	1	0	0	46
6	1	0	126	16	3	0	0	146
1	0	0	28	7	0	0	0	35
0	0	0	16	5	0	0	0	21
0	0	0	38	3	2	0	0	43
3	0	0	50	4	3	0	0	57
4	0	0	132	19	5	0	0	156
4	0	0	50	3	1	0	0	54
3	0	0	31	6	0	0	0	37
3	1	0	32	2	0	0	0	35
1	0	0	30	3	0	0	0	33
11	1	0	143	14	1	0	0	159
1	0	0	27	0	0	0	0	27
0	0	0	13	1	0	0	0	14
1	0	0	9	0	0	0	1	10
0	0	0	18	1	0	0	0	19
2	0	0	67	2	0	0	1	70
44	7	4	962	208	39	2	1	1223

C => C								
P/C	M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	P/C
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	1
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0
0	0	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	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	1
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	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	1
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	3
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	4
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	3
0	0	0	0	0	0	0	0	4
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	1
0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	3
0	0	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	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	2
0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	3
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	1
0	0	0	0	0	0	0	0	22

		C => D						
M/C	CAR	LGV	OGV1	OGV2	PSV	TOT	P/C	M/C
0	46	4	1	1	1	54	0	0
0	11	4	1	0	0	16	0	0
0	14	6	4	0	0	25	0	0
1	10	8	5	0	0	24	2	0
1	81	22	11	1	1	119	2	0
0	12	7	5	4	0	28	0	0
0	12	8	6	1	0	27	1	0
1	15	8	2	1	0	27	0	0
0	15	9	8	2	0	35	0	0
1	54	32	21	8	0	117	1	0
0	15	14	4	2	0	35	0	0
0	21	13	7	3	0	44	0	0
0	27	17	5	6	0	56	0	0
0	31	14	7	1	0	53	0	0
0	94	58	23	12	0	188	0	0
0	20	19	8	1	0	48	0	0
0	29	17	4	3	0	53	0	0
0	26	10	7	3	0	46	0	0
0	38	16	4	3	0	61	0	0
0	113	62	23	10	0	208	0	0
0	23	16	3	5	0	48	1	0
0	37	17	6	1	0	61	0	0
1	39	15	3	1	0	59	0	0
0	43	16	10	3	0	73	0	0
1	142	64	22	10	0	241	1	0
1	26	13	4	3	0	47	0	0
1	41	18	2	3	0	68	0	0
1	39	15	5	0	1	61	0	0
0	48	12	4	3	0	68	0	0
3	154	58	15	9	1	244	0	0
0	53	13	6	3	0	75	0	0
0	37	4	3	3	0	48	0	0
1	26	9	2	2	0	40	0	0
0	18	7	4	0	0	32	0	0
1	134	33	15	8	0	195	0	0
0	47	11	6	2	0	67	0	0
0	43	8	9	0	0	60	0	0
0	49	10	6	3	0	69	0	0
1	44	22	1	3	0	72	0	0
1	183	51	22	8	0	268	0	0
2	54	13	3	2	0	74	0	0

0	89	7	4	2	0	102	1	0
1	88	20	5	4	0	119	0	0
1	94	14	4	1	0	114	0	0
4	325	54	16	9	0	409	1	0
0	70	10	2	2	0	84	1	0
1	60	13	3	1	0	78	2	0
1	81	16	3	1	0	102	0	1
1	86	10	0	2	0	99	0	1
3	297	49	8	6	0	363	3	2
1	130	15	3	0	0	149	0	0
0	70	3	0	0	0	73	0	0
0	91	10	0	0	0	103	2	0
0	46	4	2	0	0	53	2	0
1	337	32	5	0	0	378	4	0
0	39	1	0	0	0	40	1	0
0	30	5	0	0	0	36	1	1
0	18	4	0	0	0	22	0	0
0	30	4	0	0	0	34	0	0
0	117	14	0	0	0	132	2	1
16	2031	529	181	81	2	2862	14	3

	D => A							
CAR	LGV	OGV1	OGV2	PSV	TOT	P/C	M/C	CAR
4	0	0	0	0	4	0	0	26
2	1	0	0	0	3	1	0	35
6	0	0	0	0	6	4	0	55
7	0	0	1	0	10	8	0	54
19	1	0	1	0	23	13	0	170
5	1	0	0	0	6	15	2	74
7	0	1	0	0	9	15	0	101
8	2	0	0	0	10	20	0	79
13	1	0	0	0	14	9	1	76
33	4	1	0	0	39	59	3	330
10	3	1	0	0	14	3	0	58
10	1	0	0	0	11	2	0	87
4	0	0	0	0	4	1	0	68
7	0	0	0	0	7	0	0	67
31	4	1	0	0	36	6	0	280
4	0	0	0	0	4	1	0	65
5	0	0	0	0	5	1	2	63
4	0	0	0	0	4	5	0	75
1	0	0	0	0	1	3	1	72
14	0	0	0	0	14	10	3	275
4	1	0	0	0	6	1	1	74
5	0	0	0	0	5	2	0	57
2	0	0	0	0	2	1	0	78
3	1	0	0	0	4	1	0	75
14	2	0	0	0	17	5	1	284
4	0	0	0	0	4	0	0	58
6	0	0	0	0	6	2	0	78
4	0	0	0	0	4	0	0	74
7	0	0	0	0	7	0	0	82
21	0	0	0	0	21	2	0	292
5	2	0	0	0	7	1	0	74
9	0	0	0	0	9	6	1	65
5	0	0	0	0	5	3	0	74
10	1	0	0	0	11	0	0	92
29	3	0	0	0	32	10	1	305
2	1	0	0	0	3	2	3	78
8	0	0	0	0	8	1	0	74
11	0	0	0	0	11	2	0	88
6	1	0	0	0	7	0	0	93
27	2	0	0	0	29	5	3	333
9	2	0	0	0	11	1	1	78

7	1	0	0	0	9	0	0	101
11	0	0	0	0	11	5	0	83
12	0	0	0	0	12	2	0	100
39	3	0	0	0	43	8	1	362
8	0	0	0	0	9	1	0	85
16	0	0	0	0	18	2	1	90
8	1	0	0	0	10	2	0	72
13	0	0	0	0	14	5	0	99
45	1	0	0	0	51	10	1	346
15	2	0	0	0	17	2	0	92
11	0	0	0	0	11	2	0	111
10	2	0	0	0	14	5	1	101
16	0	0	0	0	18	7	2	124
52	4	0	0	0	60	16	3	428
11	0	0	0	0	12	3	1	107
12	1	0	0	0	15	6	5	106
12	1	0	0	0	13	2	2	102
9	1	0	0	0	10	6	0	108
44	3	0	0	0	50	17	8	423
368	27	2	1	0	415	161	24	3828

D => B								D => C
LGV	OGV1	OGV2	PSV	TOT	P/C	M/C	CAR	LGV
8	2	1	2	39	1	0	35	8
17	3	2	1	59	1	0	68	10
10	2	2	2	75	3	1	74	25
17	3	0	1	83	3	0	84	13
52	10	5	6	256	8	1	261	56
11	0	1	2	105	0	1	84	16
9	2	0	3	130	4	4	80	17
6	2	2	1	110	0	1	57	20
11	2	0	1	100	1	0	78	14
37	6	3	7	445	5	6	299	67
5	2	0	1	69	1	0	78	17
9	1	1	1	101	1	0	51	11
6	2	0	1	78	0	1	47	16
11	3	0	1	82	1	0	33	16
31	8	1	4	330	3	1	209	60
8	2	1	1	78	0	1	34	10
12	6	1	0	85	1	1	43	17
7	3	0	1	91	0	0	30	18
7	0	0	1	84	0	0	31	7
34	11	2	3	338	1	2	138	52
5	1	0	1	83	1	0	26	18
8	1	1	1	70	0	1	37	12
10	1	1	0	91	0	0	26	14
9	4	0	0	89	0	1	34	17
32	7	2	2	333	1	2	123	61
8	1	0	1	68	1	1	37	16
9	3	1	1	94	0	0	38	20
15	3	0	1	93	0	0	27	6
8	1	0	0	91	0	1	18	6
40	8	1	3	346	1	2	120	48
10	1	0	3	89	0	0	24	13
6	2	0	1	81	0	0	18	14
1	0	1	1	80	0	1	24	8
2	0	0	2	96	1	0	45	4
19	3	1	7	346	1	1	111	39
6	0	0	3	92	1	0	39	4
10	1	0	2	88	0	0	67	15
4	2	0	1	97	1	2	67	15
3	1	1	1	99	0	0	50	11
23	4	1	7	376	2	2	223	45
4	2	3	1	90	0	0	32	13

8	0	0	1	110	0	0	45	14
9	1	0	3	101	0	0	36	10
10	1	0	1	114	0	0	35	20
31	4	3	6	415	0	0	148	57
8	0	1	3	98	0	0	17	10
8	0	0	1	102	0	2	20	11
10	0	0	1	85	0	0	22	8
14	1	0	0	119	0	0	31	2
40	1	1	5	404	0	2	90	31
4	0	0	0	98	0	0	17	5
5	2	0	1	121	1	0	16	3
6	0	0	0	113	0	0	10	2
5	0	0	2	140	0	0	24	1
20	2	0	3	472	1	0	67	11
7	0	1	1	120	0	0	15	1
8	1	0	1	127	0	0	14	0
8	0	0	2	116	1	0	19	0
14	1	0	1	130	0	0	34	2
37	2	1	5	493	1	0	82	3
396	66	21	58	4554	24	19	1871	530

							D => D	
OGV1	OGV2	PSV	TOT	P/C	M/C	CAR	LGV	OGV1
1	2	0	47	0	0	0	0	0
4	2	0	85	0	0	0	0	0
3	4	0	110	0	0	0	0	0
0	3	0	103	0	0	0	0	0
8	11	0	345	0	0	0	0	0
2	2	0	105	0	0	0	0	0
4	1	0	110	0	0	0	0	0
5	2	0	85	0	0	0	0	0
1	2	0	96	0	0	0	0	0
12	7	0	396	0	0	0	0	0
6	0	0	102	0	0	0	0	0
6	3	0	72	0	0	0	0	0
10	1	0	75	0	0	0	0	0
3	3	0	56	0	0	0	0	0
25	7	0	305	0	0	0	0	0
3	1	0	49	0	0	0	0	0
6	3	0	71	0	0	0	0	0
1	6	0	55	0	0	0	0	0
1	0	0	39	0	0	0	0	0
11	10	0	214	0	0	0	0	0
7	1	0	53	0	0	0	0	0
5	4	0	59	0	0	0	0	0
7	3	0	50	0	0	0	0	0
4	3	0	59	0	0	0	0	0
23	11	0	221	0	0	0	0	0
5	3	0	63	0	0	0	0	0
9	2	0	69	0	0	0	0	0
6	1	0	40	0	0	0	0	0
2	3	0	30	0	0	0	0	0
22	9	0	202	0	0	0	0	0
2	1	1	41	0	0	0	0	0
5	3	0	40	0	0	0	0	0
3	0	0	36	0	0	0	0	0
4	2	0	56	0	0	0	0	0
14	6	1	173	0	0	0	0	0
10	2	0	56	0	0	0	0	0
3	0	0	85	0	0	0	0	0
3	5	0	93	0	0	0	0	0
1	1	0	63	0	0	0	0	0
17	8	0	297	0	0	0	0	0
6	4	0	55	0	0	0	0	0

3	1	0	63	0	0	0	0	0
7	1	0	54	0	0	0	0	0
4	1	0	60	0	0	0	0	0
20	7	0	232	0	0	0	0	0
7	0	0	34	0	0	0	0	0
3	0	0	36	0	0	0	0	0
6	0	1	37	0	0	0	0	0
7	2	0	42	0	0	0	0	0
23	2	1	149	0	0	0	0	0
3	0	0	25	0	0	0	0	0
1	0	0	21	0	0	0	0	0
1	0	0	13	0	0	0	0	0
0	0	0	25	0	0	0	0	0
5	0	0	84	0	0	0	0	0
0	0	0	16	0	0	0	0	0
0	0	0	14	0	0	0	0	0
0	0	0	20	0	0	0	0	0
0	0	0	36	0	0	0	0	0
0	0	0	86	0	0	0	0	0
180	78	2	2704	0	0	0	0	0

OGV2	PSV	TOT	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	422
0	0	0	481
0	0	0	449
0	0	0	432
0	0	0	1784
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	342
0	0	0	349
0	0	0	373
0	0	0	339
0	0	0	1403
0	0	0	326
0	0	0	361
0	0	0	353
0	0	0	372
0	0	0	1412
0	0	0	333
0	0	0	409
0	0	0	377
0	0	0	348
0	0	0	1467
0	0	0	392
0	0	0	379
0	0	0	328
0	0	0	345
0	0	0	1444
0	0	0	386
0	0	0	404
0	0	0	439
0	0	0	422
0	0	0	1651
0	0	0	418

0	0	0	480
0	0	0	471
0	0	0	453
0	0	0	1822
0	0	0	435
0	0	0	398
0	0	0	425
0	0	0	458
0	0	0	1716
0	0	0	480
0	0	0	373
0	0	0	412
0	0	0	386
0	0	0	1651
0	0	0	344
0	0	0	331
0	0	0	324
0	0	0	366
0	0	0	1365
0	0	0	18519

B. TRICS Output Report

Calculation Reference: AUDIT-561501-230620-0652

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

13	**MUNSTER**		
	WA	WATERFORD	1 days
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: 51 to 332 (units:)
Range Selected by User: 50 to 400 (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: 01/01/15 to 19/05/21

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

Selected survey days:

Tuesday	1 days
Wednesday	1 days
Friday	1 days

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

Selected survey types:

Manual count	3 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) 3

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

Selected Location Sub Categories:
Residential Zone 3

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

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	X days - Selected
Servicing vehicles Excluded	3 days - Selected

Secondary Filtering selection:

Use Class:
C3 3 days

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

Population within 500m Range:
All Surveys Included
Population within 1 mile:
5,001 to 10,000 1 days
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:
50,001 to 75,000 1 days
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 3 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 3 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 3 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-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*
2	**DL-03-C-18**	**BLOCKS OF FLATS**		**DUBLIN**
	HAROLD'S CROSS ROAD			
	DUBLIN			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:		102	
	Survey date: WEDNESDAY		*19/05/21*	*Survey Type: MANUAL*
3	**WA-03-C-01**	**BLOCKS OF FLATS**		**WATERFORD**
	UPPER YELLOW ROAD			
	WATERFORD			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:		51	
	Survey date: TUESDAY		*12/05/15*	*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	3	162	0.037	3	162	0.128	3	162	0.165
08:00 - 09:00	3	162	0.082	**3**	**162**	**0.223**	**3**	**162**	**0.305**
09:00 - 10:00	3	162	0.091	3	162	0.049	3	162	0.140
10:00 - 11:00	3	162	0.054	3	162	0.056	3	162	0.110
11:00 - 12:00	3	162	0.054	3	162	0.080	3	162	0.134
12:00 - 13:00	3	162	0.066	3	162	0.076	3	162	0.142
13:00 - 14:00	3	162	0.103	3	162	0.101	3	162	0.204
14:00 - 15:00	3	162	0.126	3	162	0.099	3	162	0.225
15:00 - 16:00	3	162	0.105	3	162	0.095	3	162	0.200
16:00 - 17:00	3	162	0.132	3	162	0.072	3	162	0.204
17:00 - 18:00	**3**	**162**	**0.169**	3	162	0.109	3	162	0.278
18:00 - 19:00	3	162	0.109	3	162	0.118	3	162	0.227
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.128			1.206			2.334

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:	51 - 332 (units:)
Survey date date range:	01/01/15 - 19/05/21
Number of weekdays (Monday-Friday):	3
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.

C. TRANSYT Results

TRANSYT 16

Filename: Site 22-109_AM Analysis.t15
Path: M:\Projects\22\22-109 Grange Rd\Design\Civil\Traffic
Report generation date: 12/12/2023 14:06:04

»A1 - GRANGE ROAD : D1 - 2019 - SURVEYED FLOWS, :
»A1 - GRANGE ROAD : D2 - 2024 BASELINE FLOWS, :
»A1 - GRANGE ROAD : D3 - 2024 BASELINE + DEVELOPMENT FLOWS, :
»A1 - GRANGE ROAD : D4 - 2029 BASELINE + DEVELOPMENT FLOWS, :
»A1 - GRANGE ROAD : D5 - 2039 BASELINE + DEVELOPMENT FLOWS, :
»A1 - GRANGE ROAD : D6 - 2039 BASELINE FLOWS , :

Summary of network performance

	Set ID	PI (£ per hr)	Total delay (Veh-hr/hr)	Highest DOS	Number oversaturated
	GRANGE ROAD - 2019 - SURVEYED FLOWS				
Network	D1	570.52	38.49	88% (TS A/1)	0 (0%)
	GRANGE ROAD - 2024 BASELINE FLOWS				
Network	D2	570.52	38.49	88% (TS A/1)	0 (0%)
	GRANGE ROAD - 2024 BASELINE + DEVELOPMENT FLOWS				
Network	D3	699.17	47.44	98% (TS C/2)	0 (0%)
	GRANGE ROAD - 2029 BASELINE + DEVELOPMENT FLOWS				
Network	D4	871.40	58.98	102% (TS D/3)	1 (5%)
	GRANGE ROAD - 2039 BASELINE + DEVELOPMENT FLOWS				
Network	D5	1271.35	86.47	107% (TS D/3)	3 (14%)
	GRANGE ROAD - 2039 BASELINE FLOWS				
Network	D6	1089.91	74.04	103% (TS A/1)	2 (10%)

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\f.silva
Description	

Model and Results

Enable controller offsets	Enable fuel consumption	Enable quick flares	Display journey time results	Display OD matrix distances	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	Display controller phase minimums
			✓			✓		✓	✓						

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	✓

Simulation options

Criteria type	Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Average animation capture interval (s)	Use quick response	Do flow sampling	Uniform vehicle generation	Last run random seed	Last run number of trials	Last run time taken (s)
Delay	3.00	999	200	-1	3	60	✓			0	0	0.00

Network Diagrams

A1 - GRANGE ROAD
D1 - 2019 - SURVEYED FLOWS,

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:25:06	07/12/2023 16:25:07	1.57	08:00	120	570.52	38.49	87.62	A/1	0	0	A/1	Dx/1	A/1	✓

Analysis Set Details

Name	Use Simulation	Description	Use specific Demand Set(s)	Optimise specific Demand Set(s)	Include in report	Locked
GRANGE ROAD					✓	

Demand Set Details

Scenario name	Time Period name	Description	Composite	Demand sets	Start time (HH:mm)	Locked	Run automatically
2019 - SURVEYED FLOWS					08:00		✓

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	120	120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.50		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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	644	644
	2	21	21
Ax	1	581	581
B	1	128	128
	2	50	50
Bx	1	630	630
C	1	530	530
	2	433	433
Cx	1	672	672
D	1	24	24
	2	34	34
	3	87	87
Dx	1	68	68

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	43	487	433	0	0	0	0
	2	87	0	48	10	0	0	0	0
	3	457	21	0	187	0	0	0	0
	4	128	4	46	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	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	128
	10		4	2	B/2, Dx/1	Normal	4
	11		4	3	B/2, Ax/1	Normal	46
	12		1	3	C/1, Ax/1	Normal	487
	13		1	2	C/1, Dx/1	Normal	43
	14		1	4	C/2, Bx/1	Normal	433
	15		2	1	D/3, Cx/1	Normal	87
	16		2	4	D/2, Bx/1	Normal	10
	19		3	2	A/2, Dx/1	Normal	21
	20		3	4	A/1, Bx/1	Normal	187
	21		3	1	A/1, Cx/1	Normal	457
	43		2	3	D/2, Ax/1	Normal	24
	44		2	3	D/1, Ax/1	Normal	24

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

Collections

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	64.0	63.4	92.7	0.0	0.0	0.0	0.0
	2	96.2	0.0	58.8	82.1	0.0	0.0	0.0	0.0
	3	77.1	54.1	0.0	77.2	0.0	0.0	0.0	0.0
	4	50.7	107.7	107.1	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	61.3	62.0	0.0
	6	0.0	0.0	0.0	0.0	61.3	0.0	0.0	62.0
	7	0.0	0.0	0.0	0.0	62.0	0.0	0.0	61.3
	8	0.0	0.0	0.0	0.0	0.0	62.0	61.3	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)	Normal journey dist (m)	Bus journeydist (m)	Tram journey dist (m)	Pedestrian journey dist (m)	Calculated Total Flow (Veh/hr)	Avg journey time (s)	Avg journey dist (m)
9	4	1	128		50.71		236.21	0.00	0.00	0.00	128	50.71	236.21
10	4	2	4		107.70		233.66	0.00	0.00	0.00	4	107.70	233.66
11	4	3	46		107.10		228.60	0.00	0.00	0.00	46	107.10	228.60
12	1	3	487		63.44		228.60	0.00	0.00	0.00	487	63.44	228.60
13	1	2	43		64.04		233.66	0.00	0.00	0.00	43	64.04	233.66
14	1	4	433		92.72		236.97	0.00	0.00	0.00	433	92.72	236.97
15	2	1	87		96.22		226.21	0.00	0.00	0.00	87	96.22	226.21
16	2	4	10		82.15		226.97	0.00	0.00	0.00	10	82.15	226.97
17	8	7		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
18	8	6		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
19	3	2	21		54.12		183.66	0.00	0.00	0.00	21	54.12	183.66
20	3	4	187		77.16		236.97	0.00	0.00	0.00	187	77.16	236.97
21	3	1	457		77.07		236.21	0.00	0.00	0.00	457	77.07	236.21
22	5	7		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
23	5	6		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
34	6	8		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
35	6	5		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
41	7	8		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
42	7	5		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
43	2	3	24		81.14		218.60	0.00	0.00	0.00	24	81.14	218.60
44	2	3	24		36.48		178.60	0.00	0.00	0.00	24	36.48	178.60

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weightin multiplie (%)
A	1	(untitled)	1	1	B		644 <	1800	47	0.00	88	14	60.72	48.72	102.93	22.54 +	100	100
	2		1	1	A		21	1800	31	31.00	4	2257	38.08	32.08	72.27	0.51	100	100
Ax	1	(untitled)					581	Unrestricted	120	33.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100
B	1	(untitled)	1	1	A	D	128	1800	35	0.00	22	357	34.37	22.37	70.94	2.63	100	100
	2		1	1	D		50	1800	4	2.00	56	80	91.67	79.67	115.50	1.96	100	100
Bx	1	(untitled)					630	Unrestricted	120	22.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100
C	1	(untitled)	1	1	B		530	1800	47	0.00	72	39	48.00	36.00	87.03	15.64	100	100
	2		1	1	A		433	1800	31	0.00	87	14	76.28	64.28	111.76	16.45	100	100
Cx	1	(untitled)					672	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100
D	1	(untitled)	1	1	A	C	24	1800	39	41.00	4	2588	21.05	15.05	62.38	0.37	100	100
	2		1	1	C		34	1800	8	7.00	23	341	65.71	54.91	95.21	1.09	100	100
	3		1	1	C		87	1800	8	0.00	58	72	79.88	69.08	107.81	3.17	100	100
Dx	1	(untitled)					68	Unrestricted	120	71.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	100

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	453.27	41.23	10.99	18.82	7.31	370.98	23.99	0.00	394.97
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	460.07	54.93	8.38	31.18	7.31	546.53	23.99	0.00	570.52

- *< = 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***

A1 - GRANGE ROAD
D2 - 2024 BASELINE FLOWS,

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:25:07	07/12/2023 16:25:08	1.60	08:00	120	570.52	38.49	87.62	A/1	0	0	A/1	Dx/1	A/1	✓

Analysis Set Details

Name	Use Simulation	Description	Use specific Demand Set(s)	Optimise specific Demand Set(s)	Include in report	Locked
GRANGE ROAD					✓	

Demand Set Details

Scenario name	Time Period name	Description	Composite	Demand sets	Start time (HH:mm)	Locked	Run automatically
2024 BASELINE FLOWS					08:00		✓

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	120	120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.50		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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	644	644
	2	21	21
Ax	1	581	581
B	1	128	128
	2	50	50
Bx	1	630	630
C	1	530	530
	2	433	433
Cx	1	672	672
D	1	24	24
	2	34	34
	3	87	87
Dx	1	68	68

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	43	487	433	0	0	0	0
	2	87	0	48	10	0	0	0	0
	3	457	21	0	187	0	0	0	0
	4	128	4	46	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	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	128
	10		4	2	B/2, Dx/1	Normal	4
	11		4	3	B/2, Ax/1	Normal	46
	12		1	3	C/1, Ax/1	Normal	487
	13		1	2	C/1, Dx/1	Normal	43
	14		1	4	C/2, Bx/1	Normal	433
	15		2	1	D/3, Cx/1	Normal	87
	16		2	4	D/2, Bx/1	Normal	10
	19		3	2	A/2, Dx/1	Normal	21
	20		3	4	A/1, Bx/1	Normal	187
	21		3	1	A/1, Cx/1	Normal	457
	43		2	3	D/2, Ax/1	Normal	24
	44		2	3	D/1, Ax/1	Normal	24

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

Collections

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	64.0	63.4	92.7	0.0	0.0	0.0	0.0
	2	96.2	0.0	58.8	82.1	0.0	0.0	0.0	0.0
	3	77.1	54.1	0.0	77.2	0.0	0.0	0.0	0.0
	4	50.7	107.7	107.1	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	61.3	62.0	0.0
	6	0.0	0.0	0.0	0.0	61.3	0.0	0.0	62.0
	7	0.0	0.0	0.0	0.0	62.0	0.0	0.0	61.3
	8	0.0	0.0	0.0	0.0	0.0	62.0	61.3	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)	Normal journey dist (m)	Bus journeydist (m)	Tram journey dist (m)	Pedestrian journey dist (m)	Calculated Total Flow (Veh/hr)	Avg journey time (s)	Avg journey dist (m)
9	4	1	128		50.71		236.21	0.00	0.00	0.00	128	50.71	236.21
10	4	2	4		107.70		233.66	0.00	0.00	0.00	4	107.70	233.66
11	4	3	46		107.10		228.60	0.00	0.00	0.00	46	107.10	228.60
12	1	3	487		63.44		228.60	0.00	0.00	0.00	487	63.44	228.60
13	1	2	43		64.04		233.66	0.00	0.00	0.00	43	64.04	233.66
14	1	4	433		92.72		236.97	0.00	0.00	0.00	433	92.72	236.97
15	2	1	87		96.22		226.21	0.00	0.00	0.00	87	96.22	226.21
16	2	4	10		82.15		226.97	0.00	0.00	0.00	10	82.15	226.97
17	8	7		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
18	8	6		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
19	3	2	21		54.12		183.66	0.00	0.00	0.00	21	54.12	183.66
20	3	4	187		77.16		236.97	0.00	0.00	0.00	187	77.16	236.97
21	3	1	457		77.07		236.21	0.00	0.00	0.00	457	77.07	236.21
22	5	7		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
23	5	6		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
34	6	8		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
35	6	5		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
41	7	8		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
42	7	5		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
43	2	3	24		81.14		218.60	0.00	0.00	0.00	24	81.14	218.60
44	2	3	24		36.48		178.60	0.00	0.00	0.00	24	36.48	178.60

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weightin multiplie (%)
A	1	(untitled)	1	1	B		644 <	1800	47	0.00	88	14	60.72	48.72	102.93	22.54 +	100	100
	2		1	1	A		21	1800	31	31.00	4	2257	38.08	32.08	72.27	0.51	100	100
Ax	1	(untitled)					581	Unrestricted	120	33.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100
B	1	(untitled)	1	1	A	D	128	1800	35	0.00	22	357	34.37	22.37	70.94	2.63	100	100
	2		1	1	D		50	1800	4	2.00	56	80	91.67	79.67	115.50	1.96	100	100
Bx	1	(untitled)					630	Unrestricted	120	22.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100
C	1	(untitled)	1	1	B		530	1800	47	0.00	72	39	48.00	36.00	87.03	15.64	100	100
	2		1	1	A		433	1800	31	0.00	87	14	76.28	64.28	111.76	16.45	100	100
Cx	1	(untitled)					672	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100
D	1	(untitled)	1	1	A	C	24	1800	39	41.00	4	2588	21.05	15.05	62.38	0.37	100	100
	2		1	1	C		34	1800	8	7.00	23	341	65.71	54.91	95.21	1.09	100	100
	3		1	1	C		87	1800	8	0.00	58	72	79.88	69.08	107.81	3.17	100	100
Dx	1	(untitled)					68	Unrestricted	120	71.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	100

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	453.27	41.23	10.99	18.82	7.31	370.98	23.99	0.00	394.97
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	460.07	54.93	8.38	31.18	7.31	546.53	23.99	0.00	570.52

- *< = 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***

A1 - GRANGE ROAD
D3 - 2024 BASELINE + DEVELOPMENT FLOWS,

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:25:08	07/12/2023 16:25:09	1.54	08:00	120	699.17	47.44	98.38	C/2	0	0	C/2	Dx/1	C/2	✓

Analysis Set Details

Name	Use Simulation	Description	Use specific Demand Set(s)	Optimise specific Demand Set(s)	Include in report	Locked
GRANGE ROAD					✓	

Demand Set Details

Scenario name	Time Period name	Description	Composite	Demand sets	Start time (HH:mm)	Locked	Run automatically
2024 BASELINE + DEVELOPMENT FLOWS					08:00		✓

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	120	120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.50		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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	644	644
	2	46	46
Ax	1	258	258
B	1	128	128
	2	59	59
Bx	1	691	691
C	1	220	220
	2	487	487
Cx	1	729	729
D	1	40	40
	2	57	57
	3	144	144
Dx	1	146	146

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	87	133	487	0	0	0	0
	2	144	0	79	17	0	0	0	0
	3	457	46	0	187	0	0	0	0
	4	128	13	46	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	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	128
	10		4	2	B/2, Dx/1	Normal	13
	11		4	3	B/2, Ax/1	Normal	46
	12		1	3	C/1, Ax/1	Normal	133
	13		1	2	C/1, Dx/1	Normal	87
	14		1	4	C/2, Bx/1	Normal	487
	15		2	1	D/3, Cx/1	Normal	144
	16		2	4	D/2, Bx/1	Normal	17
	19		3	2	A/2, Dx/1	Normal	46
	20		3	4	A/1, Bx/1	Normal	187
	21		3	1	A/1, Cx/1	Normal	457
	43		2	3	D/2, Ax/1	Normal	40
	44		2	3	D/1, Ax/1	Normal	40

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

Collections

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	53.0	52.4	136.3	0.0	0.0	0.0	0.0
	2	187.8	0.0	61.1	86.6	0.0	0.0	0.0	0.0
	3	77.1	54.8	0.0	77.2	0.0	0.0	0.0	0.0
	4	50.7	119.3	118.7	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	61.3	62.0	0.0
	6	0.0	0.0	0.0	0.0	61.3	0.0	0.0	62.0
	7	0.0	0.0	0.0	0.0	62.0	0.0	0.0	61.3
	8	0.0	0.0	0.0	0.0	0.0	62.0	61.3	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)	Normal journey dist (m)	Bus journeydist (m)	Tram journey dist (m)	Pedestrian journey dist (m)	Calculated Total Flow (Veh/hr)	Avg journey time (s)	Avg journey dist (m)
9	4	1	128		50.71		236.21	0.00	0.00	0.00	128	50.71	236.21
10	4	2	13		119.31		233.66	0.00	0.00	0.00	13	119.31	233.66
11	4	3	46		118.70		228.60	0.00	0.00	0.00	46	118.70	228.60
12	1	3	133		52.41		228.60	0.00	0.00	0.00	133	52.41	228.60
13	1	2	87		53.02		233.66	0.00	0.00	0.00	87	53.02	233.66
14	1	4	487		136.28		236.97	0.00	0.00	0.00	487	136.28	236.97
15	2	1	144		187.78		226.21	0.00	0.00	0.00	144	187.78	226.21
16	2	4	17		86.61		226.97	0.00	0.00	0.00	17	86.61	226.97
17	8	7		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
18	8	6		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
19	3	2	46		54.81		183.66	0.00	0.00	0.00	46	54.81	183.66
20	3	4	187		77.16		236.97	0.00	0.00	0.00	187	77.16	236.97
21	3	1	457		77.07		236.21	0.00	0.00	0.00	457	77.07	236.21
22	5	7		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
23	5	6		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
34	6	8		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
35	6	5		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
41	7	8		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
42	7	5		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
43	2	3	40		85.61		218.60	0.00	0.00	0.00	40	85.61	218.60
44	2	3	40		36.65		178.60	0.00	0.00	0.00	40	36.65	178.60

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weighti multipli (%)
A	1	(untitled)	1	1	B		644 <	1800	47	0.00	88	14	60.72	48.72	102.93	22.54 +	100	100
	2		1	1	A		46	1800	31	30.00	9	976	38.77	32.77	73.49	1.14	100	100
Ax	1	(untitled)					259	Unrestricted	120	28.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100
B	1	(untitled)	1	1	A	D	128	1800	35	0.00	22	357	34.37	22.37	70.94	2.63	100	100
	2		1	1	D		59	1800	4	2.00	66	53	103.27	91.27	123.85	2.50	100	100
Bx	1	(untitled)					691	Unrestricted	120	19.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100
C	1	(untitled)	1	1	B		220	1800	47	0.00	30	234	36.98	24.98	66.52	4.95	100	100
	2		1	1	A		487 <	1800	31	0.00	98	2	119.84	107.84	144.71	24.84 +	100	100
Cx	1	(untitled)					729	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100
D	1	(untitled)	1	1	A	C	40	1800	39	40.00	6	1513	21.22	15.22	63.34	0.62	100	100
	2		1	1	C		57	1800	8	6.00	38	163	70.17	59.37	99.15	1.90	100	100
	3		1	1	C		144	1800	8	0.00	96	4	171.43	160.63	169.47	8.99	100	100
Dx	1	(untitled)					146	Unrestricted	120	39.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	100

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	422.95	49.17	8.60	18.44	16.63	498.07	25.55	0.00	523.62
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	429.75	62.87	6.84	30.81	16.63	673.62	25.55	0.00	699.17

- *< = 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***

A1 - GRANGE ROAD
D4 - 2029 BASELINE + DEVELOPMENT FLOWS,

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:25:09	07/12/2023 16:25:10	1.94	08:00	120	871.40	58.98	102.00	D/3	1	5	D/3	Dx/1	D/3	

Analysis Set Details

Name	Use Simulation	Description	Use specific Demand Set(s)	Optimise specific Demand Set(s)	Include in report	Locked
GRANGE ROAD					✓	

Demand Set Details

Scenario name	Time Period name	Description	Composite	Demand sets	Start time (HH:mm)	Locked	Run automatically
2029 BASELINE + DEVELOPMENT FLOWS					08:00		✓

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	120	120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.50		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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	704	704
	2	48	48
Ax	1	666	666
B	1	140	140
	2	64	64
Bx	1	695	695
C	1	623	623
	2	473	473
Cx	1	793	793
D	1	42	42
	2	60	60
	3	153	153
Dx	1	153	153

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	91	532	473	0	0	0	0
	2	153	0	84	18	0	0	0	0
	3	500	48	0	204	0	0	0	0
	4	140	14	50	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	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	140
	10		4	2	B/2, Dx/1	Normal	14
	11		4	3	B/2, Ax/1	Normal	50
	12		1	3	C/1, Ax/1	Normal	532
	13		1	2	C/1, Dx/1	Normal	91
	14		1	4	C/2, Bx/1	Normal	473
	15		2	1	D/3, Cx/1	Normal	153
	16		2	4	D/2, Bx/1	Normal	18
	19		3	2	A/2, Dx/1	Normal	48
	20		3	4	A/1, Bx/1	Normal	204
	21		3	1	A/1, Cx/1	Normal	500
	43		2	3	D/2, Ax/1	Normal	42
	44		2	3	D/1, Ax/1	Normal	42

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

Collections

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	73.1	72.5	118.6	0.0	0.0	0.0	0.0
	2	234.3	0.0	61.5	87.3	0.0	0.0	0.0	0.0
	3	99.4	54.9	0.0	99.5	0.0	0.0	0.0	0.0
	4	51.0	128.4	127.8	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	61.3	62.0	0.0
	6	0.0	0.0	0.0	0.0	61.3	0.0	0.0	62.0
	7	0.0	0.0	0.0	0.0	62.0	0.0	0.0	61.3
	8	0.0	0.0	0.0	0.0	0.0	62.0	61.3	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)	Normal journey dist (m)	Bus journeydist (m)	Tram journey dist (m)	Pedestrian journey dist (m)	Calculated Total Flow (Veh/hr)	Avg journey time (s)	Avg journey dist (m)
9	4	1	140		50.98		236.21	0.00	0.00	0.00	140	50.98	236.21
10	4	2	14		128.38		233.66	0.00	0.00	0.00	14	128.38	233.66
11	4	3	50		127.77		228.60	0.00	0.00	0.00	50	127.77	228.60
12	1	3	532		72.47		228.60	0.00	0.00	0.00	532	72.47	228.60
13	1	2	91		73.07		233.66	0.00	0.00	0.00	91	73.07	233.66
14	1	4	473		118.56		236.97	0.00	0.00	0.00	473	118.56	236.97
15	2	1	153		234.32		226.21	0.00	0.00	0.00	153	234.32	226.21
16	2	4	18		87.32		226.97	0.00	0.00	0.00	18	87.32	226.97
17	8	7		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
18	8	6		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
19	3	2	48		54.87		183.66	0.00	0.00	0.00	48	54.87	183.66
20	3	4	204		99.47		236.97	0.00	0.00	0.00	204	99.47	236.97
21	3	1	500		99.38		236.21	0.00	0.00	0.00	500	99.38	236.21
22	5	7		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
23	5	6		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
34	6	8		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
35	6	5		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
41	7	8		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
42	7	5		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
43	2	3	42		86.31		218.60	0.00	0.00	0.00	42	86.31	218.60
44	2	3	42		36.68		178.60	0.00	0.00	0.00	42	36.68	178.60

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weighti multipli (%)
A	1	(untitled)	1	1	B		704 <	1800	47	0.00	96	4	83.04	71.04	123.17	29.83 +	100	100
	2		1	1	A		48	1800	31	30.00	10	931	38.83	32.83	73.51	1.19	100	100
Ax	1	(untitled)					666	Unrestricted	120	27.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100
B	1	(untitled)	1	1	A	D	140	1800	35	0.00	24	318	34.64	22.64	71.77	2.88	100	100
	2		1	1	D		64	1800	4	0.00	71	41	112.34	100.34	130.92	2.88	100	100
Bx	1	(untitled)					695	Unrestricted	120	19.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100
C	1	(untitled)	1	1	B		623 <	1800	47	0.00	85	18	57.04	45.04	98.88	20.92 +	100	100
	2		1	1	A		473 <	1800	31	0.00	96	5	102.13	90.13	132.12	21.59 +	100	100
Cx	1	(untitled)					790	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100
D	1	(untitled)	1	1	A	C	42	1800	39	40.00	7	1436	21.25	15.25	63.35	0.66	100	100
	2		1	1	C		60	1800	8	0.00	40	150	70.88	60.08	99.66	2.02	100	100
	3		1	1	C		153	1800	8	0.00	102	-2	217.98	207.18	195.74	11.47	100	100
Dx	1	(untitled)					153	Unrestricted	120	37.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	100

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	532.96	64.38	8.28	23.54	23.08	661.90	33.95	0.00	695.85
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	539.76	78.07	6.91	35.90	23.08	837.45	33.95	0.00	871.40

- *< = 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***

A1 - GRANGE ROAD
D5 - 2039 BASELINE + DEVELOPMENT FLOWS,

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:25:12	07/12/2023 16:25:13	1.47	08:00	120	1271.35	86.47	106.67	D/3	3	14	D/3	Dx/1	D/3	

Analysis Set Details

Name	Use Simulation	Description	Use specific Demand Set(s)	Optimise specific Demand Set(s)	Include in report	Locked
GRANGE ROAD					✓	

Demand Set Details

Scenario name	Time Period name	Description	Composite	Demand sets	Start time (HH:mm)	Locked	Run automatically
2039 BASELINE + DEVELOPMENT FLOWS					08:00		✓

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	120	120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.50		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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	758	758
	2	49	49
Ax	1	714	714
B	1	151	151
	2	68	68
Bx	1	748	748
C	1	666	666
	2	509	509
Cx	1	849	849
D	1	44	44
	2	63	63
	3	160	160
Dx	1	157	157

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	94	572	509	0	0	0	0
	2	160	0	88	19	0	0	0	0
	3	538	49	0	220	0	0	0	0
	4	151	14	54	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	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	151
	10		4	2	B/2, Dx/1	Normal	14
	11		4	3	B/2, Ax/1	Normal	54
	12		1	3	C/1, Ax/1	Normal	572
	13		1	2	C/1, Dx/1	Normal	94
	14		1	4	C/2, Bx/1	Normal	509
	15		2	1	D/3, Cx/1	Normal	160
	16		2	4	D/2, Bx/1	Normal	19
	19		3	2	A/2, Dx/1	Normal	49
	20		3	4	A/1, Bx/1	Normal	220
	21		3	1	A/1, Cx/1	Normal	538
	43		2	3	D/2, Ax/1	Normal	44
	44		2	3	D/1, Ax/1	Normal	44

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

Collections

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	82.2	81.6	175.6	0.0	0.0	0.0	0.0
	2	277.3	0.0	61.9	88.1	0.0	0.0	0.0	0.0
	3	158.6	54.9	0.0	158.7	0.0	0.0	0.0	0.0
	4	51.5	137.7	137.1	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	61.3	62.0	0.0
	6	0.0	0.0	0.0	0.0	61.3	0.0	0.0	62.0
	7	0.0	0.0	0.0	0.0	62.0	0.0	0.0	61.3
	8	0.0	0.0	0.0	0.0	0.0	62.0	61.3	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)	Normal journey dist (m)	Bus journeydist (m)	Tram journey dist (m)	Pedestrian journey dist (m)	Calculated Total Flow (Veh/hr)	Avg journey time (s)	Avg journey dist (m)
9	4	1	151		51.52		236.21	0.00	0.00	0.00	151	51.52	236.21
10	4	2	14		137.67		233.66	0.00	0.00	0.00	14	137.67	233.66
11	4	3	54		137.06		228.60	0.00	0.00	0.00	54	137.06	228.60
12	1	3	572		81.55		228.60	0.00	0.00	0.00	572	81.55	228.60
13	1	2	94		82.16		233.66	0.00	0.00	0.00	94	82.16	233.66
14	1	4	509		175.61		236.97	0.00	0.00	0.00	509	175.61	236.97
15	2	1	160		277.30		226.21	0.00	0.00	0.00	160	277.30	226.21
16	2	4	19		88.06		226.97	0.00	0.00	0.00	19	88.06	226.97
17	8	7		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
18	8	6		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
19	3	2	49		54.89		183.66	0.00	0.00	0.00	49	54.89	183.66
20	3	4	220		158.70		236.97	0.00	0.00	0.00	220	158.70	236.97
21	3	1	538		158.61		236.21	0.00	0.00	0.00	538	158.61	236.21
22	5	7		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
23	5	6		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
34	6	8		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
35	6	5		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
41	7	8		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
42	7	5		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
43	2	3	44		87.06		218.60	0.00	0.00	0.00	44	87.06	218.60
44	2	3	44		36.70		178.60	0.00	0.00	0.00	44	36.70	178.60

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weighti multipli (%)
A	1	(untitled)	1	1	B		758 <	1800	47	0.00	103	-3	142.27	130.27	167.54	44.48 +	100	100
	2		1	1	A		49	1800	31	30.00	10	910	38.86	32.86	73.51	1.22	100	100
Ax	1	(untitled)					714	Unrestricted	120	26.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100
B	1	(untitled)	1	1	A	D	151	1800	35	0.00	26	287	35.17	23.17	72.67	3.15	100	100
	2		1	1	D		68	1800	4	0.00	76	32	121.63	109.63	137.20	3.24	100	100
Bx	1	(untitled)					727	Unrestricted	120	18.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100
C	1	(untitled)	1	1	B		666 <	1800	47	0.00	91	10	66.12	54.12	108.31	24.56 +	100	100
	2		1	1	A		509 <	1800	31	0.00	103	-3	159.17	147.17	172.43	31.19 +	100	100
Cx	1	(untitled)					823	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100
D	1	(untitled)	1	1	A	C	44	1800	39	40.00	7	1366	21.27	15.27	63.37	0.69	100	100
	2		1	1	C		63	1800	8	0.00	42	138	71.62	60.82	100.20	2.13	100	100
	3		1	1	C		160	1800	8	0.00	107	-6	260.95	250.15	220.06	13.78	100	100
Dx	1	(untitled)					157	Unrestricted	120	35.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	100

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	564.40	92.92	6.07	25.22	48.89	1052.33	43.46	0.00	1095.79
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	571.20	106.62	5.36	37.58	48.89	1227.88	43.46	0.00	1271.35

- *< = 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***

A1 - GRANGE ROAD
D6 - 2039 BASELINE FLOWS ,

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:25:13	07/12/2023 16:25:14	1.56	08:00	120	1089.91	74.04	103.13	A/1	2	10	A/1	Dx/1	A/1	

Analysis Set Details

Name	Use Simulation	Description	Use specific Demand Set(s)	Optimise specific Demand Set(s)	Include in report	Locked
GRANGE ROAD					✓	

Demand Set Details

Scenario name	Time Period name	Description	Composite	Demand sets	Start time (HH:mm)	Locked	Run automatically
2039 BASELINE FLOWS					08:00		✓

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	120	120		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.50		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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	758	758
	2	24	24
Ax	1	683	683
B	1	151	151
	2	59	59
Bx	1	741	741
C	1	622	622
	2	509	509
Cx	1	792	792
D	1	29	29
	2	41	41
	3	103	103
Dx	1	79	79

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	50	572	509	0	0	0	0
	2	103	0	57	12	0	0	0	0
	3	538	24	0	220	0	0	0	0
	4	151	5	54	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	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	151
	10		4	2	B/2, Dx/1	Normal	5
	11		4	3	B/2, Ax/1	Normal	54
	12		1	3	C/1, Ax/1	Normal	572
	13		1	2	C/1, Dx/1	Normal	50
	14		1	4	C/2, Bx/1	Normal	509
	15		2	1	D/3, Cx/1	Normal	103
	16		2	4	D/2, Bx/1	Normal	12
	19		3	2	A/2, Dx/1	Normal	24
	20		3	4	A/1, Bx/1	Normal	220
	21		3	1	A/1, Cx/1	Normal	538
	43		2	3	D/2, Ax/1	Normal	29
	44		2	3	D/1, Ax/1	Normal	29

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

Collections

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	72.9	72.3	175.6	0.0	0.0	0.0	0.0
	2	105.5	0.0	59.4	83.4	0.0	0.0	0.0	0.0
	3	158.6	54.2	0.0	158.7	0.0	0.0	0.0	0.0
	4	51.5	119.3	118.7	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	61.3	62.0	0.0
	6	0.0	0.0	0.0	0.0	61.3	0.0	0.0	62.0
	7	0.0	0.0	0.0	0.0	62.0	0.0	0.0	61.3
	8	0.0	0.0	0.0	0.0	0.0	62.0	61.3	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)	Normal journey dist (m)	Bus journeydist (m)	Tram journey dist (m)	Pedestrian journey dist (m)	Calculated Total Flow (Veh/hr)	Avg journey time (s)	Avg journey dist (m)
9	4	1	151		51.52		236.21	0.00	0.00	0.00	151	51.52	236.21
10	4	2	5		119.31		233.66	0.00	0.00	0.00	5	119.31	233.66
11	4	3	54		118.70		228.60	0.00	0.00	0.00	54	118.70	228.60
12	1	3	572		72.32		228.60	0.00	0.00	0.00	572	72.32	228.60
13	1	2	50		72.92		233.66	0.00	0.00	0.00	50	72.92	233.66
14	1	4	509		175.61		236.97	0.00	0.00	0.00	509	175.61	236.97
15	2	1	103		105.46		226.21	0.00	0.00	0.00	103	105.46	226.21
16	2	4	12		83.36		226.97	0.00	0.00	0.00	12	83.36	226.97
17	8	7		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
18	8	6		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
19	3	2	24		54.23		183.66	0.00	0.00	0.00	24	54.23	183.66
20	3	4	220		158.70		236.97	0.00	0.00	0.00	220	158.70	236.97
21	3	1	538		158.61		236.21	0.00	0.00	0.00	538	158.61	236.21
22	5	7		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
23	5	6		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
34	6	8		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
35	6	5		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
41	7	8		100		61.30	8.00	8.00	8.00	8.00	100	61.30	8.00
42	7	5		100		61.97	9.00	9.00	9.00	9.00	100	61.97	9.00
43	2	3	29		82.35		218.60	0.00	0.00	0.00	29	82.35	218.60
44	2	3	29		36.50		178.60	0.00	0.00	0.00	29	36.50	178.60

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weighti multipli (%)
A	1	(untitled)	1	1	B		758 <	1800	47	0.00	103	-3	142.27	130.27	167.54	44.48 +	100	100
	2		1	1	A		24	1800	31	31.00	5	1963	38.19	32.19	72.50	0.59	100	100
Ax	1	(untitled)					684	Unrestricted	120	31.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100
B	1	(untitled)	1	1	A	D	151	1800	35	0.00	26	287	35.17	23.17	72.67	3.15	100	100
	2		1	1	D		59	1800	4	2.00	66	53	103.27	91.27	123.85	2.50	100	100
Bx	1	(untitled)					720	Unrestricted	120	20.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100
C	1	(untitled)	1	1	B		622 <	1800	47	0.00	85	18	56.89	44.89	98.72	20.87 +	100	100
	2		1	1	A		509 <	1800	31	0.00	103	-3	159.17	147.17	172.43	31.19 +	100	100
Cx	1	(untitled)					776	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100
D	1	(untitled)	1	1	A	C	29	1800	39	41.00	4	2124	21.07	15.07	62.41	0.44	100	100
	2		1	1	C		41	1800	8	7.00	27	266	66.92	56.12	96.05	1.33	100	100
	3		1	1	C		103	1800	8	0.00	69	46	89.12	78.32	115.34	4.03	100	100
Dx	1	(untitled)					79	Unrestricted	120	59.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	100

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	528.34	79.29	6.66	23.07	38.60	875.79	38.56	0.00	914.35
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	535.14	92.98	5.76	35.43	38.60	1051.34	38.56	0.00	1089.91

- *< = 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 16

Version: 16.0.1.8473

Filename: Site 22-109_PM Analysis.t15
Path: M:\Projects\22\22-109 Grange Rd\Design\Civil\Traffic
Report generation date: 12/12/2023 14:09:24

»A1 - GRANGE ROAD : D1 - 2019 - SURVEYED FLOWS, :
»A1 - GRANGE ROAD : D2 - 2024 BASELINE FLOWS, :
»A1 - GRANGE ROAD : D3 - 2024 BASELINE FLOWS + DEVELOPMENT, :
»A1 - GRANGE ROAD : D4 - 2029 BASELINE FLOWS + DEVELOPMENT, :
»A1 - GRANGE ROAD : D5 - 2039 BASELINE FLOWS + DEVELOPMENT, :
»A1 - GRANGE ROAD : D6 - 2039 BASELINE FLOWS , :

Summary of network performance

	Set ID	PI (£ per hr)	Total delay (Veh-hr/hr)	Highest DOS	Number oversaturated
	GRANGE ROAD - 2019 - SURVEYED FLOWS				
Network	D1	476.83	32.15	70% (TS A/1)	0 (0%)
	GRANGE ROAD - 2024 BASELINE FLOWS				
Network	D2	530.21	35.71	77% (TS A/1)	0 (0%)
	GRANGE ROAD - 2024 BASELINE FLOWS + DEVELOPMENT				
Network	D3	537.42	36.19	77% (TS A/1)	0 (0%)
	GRANGE ROAD - 2029 BASELINE FLOWS + DEVELOPMENT				
Network	D4	614.47	41.35	84% (TS A/1)	0 (0%)
	GRANGE ROAD - 2039 BASELINE FLOWS + DEVELOPMENT				
Network	D5	715.87	48.20	91% (TS A/1)	0 (0%)
	GRANGE ROAD - 2039 BASELINE FLOWS				
Network	D6	703.41	47.36	91% (TS A/1)	0 (0%)

Network Diagrams

A1 - GRANGE ROAD
D1 - 2019 - SURVEYED FLOWS,

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	67	67		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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
	2	26	26
Ax	1	581	581
B	1	409	409
	2	152	152
Bx	1	348	348
C	1	458	458
	2	232	232
Cx	1	818	818
D	1	10	10
	2	15	15
	3	34	34
Dx	1	75	75

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	43	415	232	0	0	0	0
	2	34	0	20	5	0	0	0	0
	3	375	26	0	111	0	0	0	0
	4	409	6	146	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
	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0

From	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	409
	10		4	2	B/2, Dx/1	Normal	6
	11		4	3	B/2, Ax/1	Normal	146
	12		1	3	C/1, Ax/1	Normal	415
	13		1	2	C/1, Dx/1	Normal	43
	14		1	4	C/2, Bx/1	Normal	232
	15		2	1	D/3, Cx/1	Normal	34
	16		2	4	D/2, Bx/1	Normal	5
	19		3	2	A/2, Dx/1	Normal	26
	20		3	4	A/1, Bx/1	Normal	111
	21		3	1	A/1, Cx/1	Normal	375
	43		2	3	D/2, Ax/1	Normal	10
	44		2	3	D/1, Ax/1	Normal	10

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

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	42	486	1800	44	37.38	14.46	83.15	71.66	5.34	77.00
		2	8	1227	26	1800	21	40.27	0.71	8.17	4.13	0.26	4.39
	Ax	1	0	Unrestricted	581	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	65	54	409	1800	38	28.97	10.14	58.29	46.74	4.35	51.10
		2	53	88	152	1800	17	53.56	4.95	28.44	32.11	1.84	33.95
	Bx	1	0	Unrestricted	348	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	66	51	458	1800	44	35.70	13.24	76.15	64.49	4.89	69.38
		2	67	49	232	1800	21	55.47	7.83	45.01	50.76	2.90	53.67
	Cx	1	0	Unrestricted	818	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	2	4850	10	1800	29	16.81	0.14	1.66	0.66	0.09	0.75
		2	10	900	15	1800	8	52.21	0.46	2.96	3.09	0.17	3.26
		3	23	341	34	1800	8	54.91	1.09	6.97	7.36	0.41	7.77
	Dx	1	0	Unrestricted	75	Unrestricted	120	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		1800	690	70		42	0.00	44
		2	26	26	0		1800	345	8		1227	0.00	21
	Ax	1	581	581	0		Unrestricted	Unrestricted	0		Unrestricted	0.83	120
	B	1	409	409	0		1800	630	65		54	0.00	38
		2	152	152	0		1800	285	53		88	0.00	17
	Bx	1	348	348	0		Unrestricted	Unrestricted	0		Unrestricted	0.90	120
	C	1	458	458	0		1800	690	66		51	0.00	44
		2	232	232	0		1800	345	67		49	0.00	21
	Cx	1	818	818	0		Unrestricted	Unrestricted	0		Unrestricted	0.51	120
	D	1	10	10	0		1800	495	2		4850	0.00	29
		2	15	15	0		1800	150	10		900	0.00	8
		3	34	34	0		1800	150	23		341	0.00	8
	Dx	1	75	75	0		Unrestricted	Unrestricted	0		Unrestricted	0.78	120

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	12.00	37.38	4.22	0.83	71.66	87.70	401.74	24.48	5.34
		2	6.00	40.27	0.29	0.00	4.13	81.03	20.98	0.09	0.26
	Ax	1	15.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	28.97	2.70	0.59	46.74	84.86	329.46	17.63	4.35
		2	12.00	53.56	1.96	0.30	32.11	96.40	137.63	8.90	1.84
	Bx	1	16.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	35.70	3.89	0.65	64.49	85.08	370.44	19.23	4.89
		2	12.00	55.47	2.90	0.67	50.76	99.84	211.83	19.79	2.90
	Cx	1	16.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	16.81	0.05	0.00	0.66	70.65	7.05	0.01	0.09
		2	10.80	52.21	0.21	0.01	3.09	91.79	13.60	0.17	0.17
		3	10.80	54.91	0.49	0.03	7.36	95.21	31.39	0.98	0.41
	Dx	1	16.04	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	14.46	17.39	83.15	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	0.71	8.70	8.17	0.00	0.00	0.00	21.00	0.00	21.00	
	Ax	1	0.00	0.00	22.36	0.00	0.00	0.00	0.00	30.00	0.00	30.00	
	B	1	0.00	10.14	17.39	58.29	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	4.95	17.39	28.44	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.82	0.00	0.00	0.00	0.00	39.00	0.00	39.00	
	C	1	0.00	13.24	17.39	76.15	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	7.83	17.39	45.01	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	23.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	D	1	0.00	0.14	8.70	1.66	0.00	0.00	0.00	31.00	0.00	31.00	
		2	0.00	0.46	15.65	2.96	0.00	0.00	0.00	9.00	0.00	9.00	
		3	0.00	1.09	15.65	6.97	0.00	0.00	0.00	7.00	0.00	7.00	
	Dx	1	0.00	0.00	46.49	0.00	0.00	0.00	0.00	72.00	0.00	72.00	

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 (Veh)	Mean End of Green Queue EoTS (Veh)	Mean 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	✓	14.47	0.83	10.82	1.00	0.00	77.00
		2	0.00	0.00	✓	0.71	0.00	0.70	1.00	0.00	4.39
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	10.14	0.64	7.98	1.00	0.00	51.10
		2	0.00	0.00	✓	4.95	0.30	4.57	1.00	0.00	33.95
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	13.25	0.65	10.07	1.00	0.00	69.38
		2	0.00	0.00	✓	7.84	0.68	6.93	1.00	0.00	53.67
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	0.14	0.00	0.14	1.00	0.00	0.75
		2	0.00	0.00	✓	0.46	0.01	0.46	1.00	0.00	3.26
		3	0.00	0.00	✓	1.09	0.03	1.07	1.00	0.00	7.77
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:27:53	07/12/2023 16:27:54	1.27	08:00	120	476.83	32.15	70.43	A/1	0	0	A/1	Dx/1	A/1	✓

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	70	42	3644	710	19.55	281.02	20.25	301.28

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	4444	4444	0		70		42	750

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	12.52	26.05	29.07	3.09	456.57	36.35	1524.12	91.29	20.25

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	83.15	0.00	209.00	0.00	209.00

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	476.83

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PEN
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Co tr pena pe
A	1	(untitled)	1	1	B		486	1800	44	0.00	70	42	49.38	37.38	87.70	14.46	100	100	0
	2		1	1	A		26	1800	21	21.00	8	1227	46.27	40.27	81.03	0.71	100	100	0
Ax	1	(untitled)					581	Unrestricted	120	30.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100	0
B	1	(untitled)	1	1	A	D	409	1800	38	0.00	65	54	40.97	28.97	84.86	10.14	100	100	0
	2		1	1	D		152	1800	17	0.00	53	88	65.56	53.56	96.40	4.95	100	100	0
Bx	1	(untitled)					348	Unrestricted	120	39.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100	0
C	1	(untitled)	1	1	B		458	1800	44	0.00	66	51	47.70	35.70	85.08	13.24	100	100	0
	2		1	1	A		232	1800	21	0.00	67	49	67.47	55.47	99.84	7.83	100	100	0
Cx	1	(untitled)					818	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100	0
D	1	(untitled)	1	1	A	C	10	1800	29	31.00	2	4850	22.81	16.81	70.65	0.14	100	100	0
	2		1	1	C		15	1800	8	9.00	10	900	63.01	52.21	91.79	0.46	100	100	0
	3		1	1	C		34	1800	8	7.00	23	341	65.71	54.91	95.21	1.09	100	100	0
Dx	1	(untitled)					75	Unrestricted	120	72.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	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	423.73	33.91	12.49	16.70	3.09	281.02	20.26	0.00	301.28
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	430.53	47.61	9.04	29.07	3.09	456.57	20.25	0.00	476.83

- *< = 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***

A1 - GRANGE ROAD
D2 - 2024 BASELINE FLOWS,

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	67	67		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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	531	531
	2	28	28
Ax	1	636	636
B	1	447	447
	2	167	167
Bx	1	380	380
C	1	501	501
	2	254	254
Cx	1	894	894
D	1	11	11
	2	16	16
	3	37	37
Dx	1	82	82

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	47	454	254	0	0	0	0
	2	37	0	22	5	0	0	0	0
	3	410	28	0	121	0	0	0	0
	4	447	7	160	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
	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0

From	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	447
	10		4	2	B/2, Dx/1	Normal	7
	11		4	3	B/2, Ax/1	Normal	160
	12		1	3	C/1, Ax/1	Normal	454
	13		1	2	C/1, Dx/1	Normal	47
	14		1	4	C/2, Bx/1	Normal	254
	15		2	1	D/3, Cx/1	Normal	37
	16		2	4	D/2, Bx/1	Normal	5
	19		3	2	A/2, Dx/1	Normal	28
	20		3	4	A/1, Bx/1	Normal	121
	21		3	1	A/1, Cx/1	Normal	410
	43		2	3	D/2, Ax/1	Normal	11
	44		2	3	D/1, Ax/1	Normal	11

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

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	77	30	531	1800	44	40.86	16.59	95.41	85.58	6.15	91.73
		2	8	1132	28	1800	21	40.35	0.77	8.81	4.46	0.28	4.74
	Ax	1	0	Unrestricted	636	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	71	41	447	1800	38	32.30	11.41	65.59	56.95	5.06	62.01
		2	59	71	167	1800	17	55.65	5.56	31.95	36.66	2.06	38.72
	Bx	1	0	Unrestricted	380	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	73	38	501	1800	44	38.41	15.14	87.06	75.91	5.60	81.51
		2	74	36	254	1800	21	59.68	8.89	51.13	59.79	3.30	63.09
	Cx	1	0	Unrestricted	894	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	2	4400	11	1800	29	16.82	0.16	1.83	0.73	0.10	0.83
		2	11	838	16	1800	8	52.31	0.50	3.16	3.30	0.18	3.49
		3	25	305	37	1800	8	55.43	1.19	7.61	8.09	0.44	8.53
	Dx	1	0	Unrestricted	82	Unrestricted	120	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	531	531	0		1800	690	77		30	0.00	44
		2	28	28	0		1800	345	8		1132	0.00	21
	Ax	1	636	636	0		Unrestricted	Unrestricted	0		Unrestricted	0.81	120
	B	1	447	447	0		1800	630	71		41	0.00	38
		2	167	167	0		1800	285	59		71	0.00	17
	Bx	1	380	380	0		Unrestricted	Unrestricted	0		Unrestricted	0.87	120
	C	1	501	501	0		1800	690	73		38	0.00	44
		2	254	254	0		1800	345	74		36	0.00	21
	Cx	1	894	894	0		Unrestricted	Unrestricted	0		Unrestricted	0.46	120
	D	1	11	11	0		1800	495	2		4400	0.00	29
		2	16	16	0		1800	150	11		838	0.00	8
		3	37	37	0		1800	150	25		305	0.00	8
	Dx	1	82	82	0		Unrestricted	Unrestricted	0		Unrestricted	0.76	120

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	12.00	40.86	4.77	1.25	85.58	92.34	453.37	36.94	6.15
		2	6.00	40.35	0.31	0.00	4.46	81.06	22.59	0.11	0.28
	Ax	1	15.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	32.30	3.16	0.85	56.95	90.21	378.03	25.20	5.06
		2	12.00	55.65	2.17	0.41	36.66	98.56	152.59	12.01	2.06
	Bx	1	16.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	38.41	4.40	0.95	75.91	89.15	418.69	27.97	5.60
		2	12.00	59.68	3.22	0.99	59.79	103.66	234.46	28.85	3.30
	Cx	1	16.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	16.82	0.05	0.00	0.73	70.67	7.76	0.02	0.10
		2	10.80	52.31	0.23	0.01	3.30	91.87	14.51	0.19	0.18
		3	10.80	55.43	0.53	0.04	8.09	95.58	34.17	1.20	0.44
	Dx	1	16.04	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	16.59	17.39	95.41	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	0.77	8.70	8.81	0.00	0.00	0.00	21.00	0.00	21.00	
	Ax	1	0.00	0.00	22.36	0.00	0.00	0.00	0.00	29.00	0.00	29.00	
	B	1	0.00	11.41	17.39	65.59	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	5.56	17.39	31.95	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.82	0.00	0.00	0.00	0.00	39.00	0.00	39.00	
	C	1	0.00	15.14	17.39	87.06	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	8.89	17.39	51.13	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	23.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	D	1	0.00	0.16	8.70	1.83	0.00	0.00	0.00	31.00	0.00	31.00	
		2	0.00	0.50	15.65	3.16	0.00	0.00	0.00	9.00	0.00	9.00	
		3	0.00	1.19	15.65	7.61	0.00	0.00	0.00	7.00	0.00	7.00	
	Dx	1	0.00	0.00	46.49	0.00	0.00	0.00	0.00	65.00	0.00	65.00	

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 (Veh)	Mean End of Green Queue EoTS (Veh)	Mean 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	✓	16.61	1.27	12.18	1.00	0.00	91.73
		2	0.00	0.00	✓	0.77	0.00	0.76	1.00	0.00	4.74
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	11.41	1.79	8.93	1.00	0.00	62.01
		2	0.00	0.00	✓	5.56	0.41	5.10	1.00	0.00	38.72
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	15.15	0.95	11.25	1.00	0.00	81.51
		2	0.00	0.00	✓	8.91	1.01	7.85	1.00	0.00	63.09
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	0.16	0.00	0.16	1.00	0.00	0.83
		2	0.00	0.00	✓	0.50	0.01	0.50	1.00	0.00	3.49
		3	0.00	0.00	✓	1.19	0.04	1.17	1.00	0.00	8.53
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:27:57	07/12/2023 16:27:58	1.33	08:00	120	530.21	35.71	76.96	A/1	0	0	A/1	Dx/1	A/1	✓

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	30	3984	710	21.09	331.47	23.18	354.65

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	4784	4784	0		77		30	750

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	12.62	26.87	31.21	4.50	507.03	38.64	1716.15	132.48	23.18

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	95.41	0.00	201.00	0.00	201.00

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	530.21

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PEN
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	C t pen p
A	1	(untitled)	1	1	B		531	1800	44	0.00	77	30	52.86	40.86	92.34	16.59	100	100	
	2		1	1	A		28	1800	21	21.00	8	1132	46.35	40.35	81.06	0.77	100	100	
Ax	1	(untitled)					636	Unrestricted	120	29.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100	
B	1	(untitled)	1	1	A	D	447	1800	38	0.00	71	41	44.30	32.30	90.21	11.41	100	100	
	2		1	1	D		167	1800	17	0.00	59	71	67.65	55.65	98.56	5.56	100	100	
Bx	1	(untitled)					380	Unrestricted	120	39.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100	
C	1	(untitled)	1	1	B		501	1800	44	0.00	73	38	50.41	38.41	89.15	15.14	100	100	
	2		1	1	A		254	1800	21	0.00	74	36	71.68	59.68	103.66	8.89	100	100	
Cx	1	(untitled)					894	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100	
D	1	(untitled)	1	1	A	C	11	1800	29	31.00	2	4400	22.82	16.82	70.67	0.16	100	100	
	2		1	1	C		16	1800	8	9.00	11	838	63.11	52.31	91.87	0.50	100	100	
	3		1	1	C		37	1800	8	7.00	25	305	66.23	55.43	95.58	1.19	100	100	
Dx	1	(untitled)					82	Unrestricted	120	65.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	100	

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	463.29	38.79	11.94	18.84	4.50	331.47	23.18	0.00	354.65
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	470.09	52.48	8.96	31.21	4.50	507.03	23.18	0.00	530.21

- *< = 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***

A1 - GRANGE ROAD
D3 - 2024 BASELINE FLOWS + DEVELOPMENT,

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	67	67		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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	531	531
	2	34	34
Ax	1	640	640
B	1	447	447
	2	169	169
Bx	1	381	381
C	1	509	509
	2	254	254
Cx	1	902	902
D	1	13	13
	2	19	19
	3	45	45
Dx	1	98	98

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	55	454	254	0	0	0	0
	2	45	0	26	6	0	0	0	0
	3	410	34	0	121	0	0	0	0
	4	447	9	160	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
	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0

From	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	447
	10		4	2	B/2, Dx/1	Normal	9
	11		4	3	B/2, Ax/1	Normal	160
	12		1	3	C/1, Ax/1	Normal	454
	13		1	2	C/1, Dx/1	Normal	55
	14		1	4	C/2, Bx/1	Normal	254
	15		2	1	D/3, Cx/1	Normal	45
	16		2	4	D/2, Bx/1	Normal	6
	19		3	2	A/2, Dx/1	Normal	34
	20		3	4	A/1, Bx/1	Normal	121
	21		3	1	A/1, Cx/1	Normal	410
	43		2	3	D/2, Ax/1	Normal	13
	44		2	3	D/1, Ax/1	Normal	13

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

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	77	30	531	1800	44	40.86	16.59	95.41	85.58	6.15	91.73
		2	10	915	34	1800	21	40.55	0.93	10.71	5.44	0.35	5.78
	Ax	1	0	Unrestricted	640	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	71	41	447	1800	38	32.30	11.41	65.59	56.95	5.06	62.01
		2	59	69	169	1800	17	55.96	5.64	32.40	37.30	2.09	39.40
	Bx	1	0	Unrestricted	381	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	74	36	509	1800	44	39.01	15.58	89.59	78.32	5.74	84.06
		2	74	36	254	1800	21	59.68	8.89	51.13	59.79	3.30	63.09
	Cx	1	0	Unrestricted	902	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	3	3708	13	1800	29	16.83	0.19	2.16	0.86	0.12	0.98
		2	13	689	19	1800	8	52.75	0.60	3.80	3.95	0.22	4.17
		3	30	233	45	1800	8	56.84	1.46	9.35	10.09	0.54	10.63
	Dx	1	0	Unrestricted	98	Unrestricted	120	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	531	531	0		1800	690	77		30	0.00	44
		2	34	34	0		1800	345	10		915	0.00	21
	Ax	1	640	640	0		Unrestricted	Unrestricted	0		Unrestricted	0.80	120
	B	1	447	447	0		1800	630	71		41	0.00	38
		2	169	169	0		1800	285	59		69	0.00	17
	Bx	1	381	381	0		Unrestricted	Unrestricted	0		Unrestricted	0.86	120
	C	1	509	509	0		1800	690	74		36	0.00	44
		2	254	254	0		1800	345	74		36	0.00	21
	Cx	1	902	902	0		Unrestricted	Unrestricted	0		Unrestricted	0.45	120
	D	1	13	13	0		1800	495	3		3708	0.00	29
		2	19	19	0		1800	150	13		689	0.00	8
		3	45	45	0		1800	150	30		233	0.00	8
	Dx	1	98	98	0		Unrestricted	Unrestricted	0		Unrestricted	0.74	120

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	12.00	40.86	4.77	1.25	85.58	92.34	453.37	36.94	6.15
		2	6.00	40.55	0.38	0.01	5.44	81.16	27.43	0.16	0.35
	Ax	1	15.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	32.30	3.16	0.85	56.95	90.21	378.03	25.20	5.06
		2	12.00	55.96	2.20	0.42	37.30	98.83	154.52	12.50	2.09
	Bx	1	16.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	39.01	4.50	1.02	78.32	89.92	427.61	30.07	5.74
		2	12.00	59.68	3.22	0.99	59.79	103.66	234.46	28.85	3.30
	Cx	1	16.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	16.83	0.06	0.00	0.86	70.69	9.17	0.02	0.12
		2	10.80	52.75	0.27	0.01	3.95	92.96	17.39	0.27	0.22
		3	10.80	56.84	0.65	0.06	10.09	96.56	41.56	1.90	0.54
	Dx	1	16.04	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	16.59	17.39	95.41	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	0.93	8.70	10.71	0.00	0.00	0.00	21.00	0.00	21.00	
	Ax	1	0.00	0.00	22.36	0.00	0.00	0.00	0.00	26.00	0.00	26.00	
	B	1	0.00	11.41	17.39	65.59	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	5.64	17.39	32.40	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.82	0.00	0.00	0.00	0.00	38.00	0.00	38.00	
	C	1	0.00	15.58	17.39	89.59	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	8.89	17.39	51.13	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	23.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	D	1	0.00	0.19	8.70	2.16	0.00	0.00	0.00	31.00	0.00	31.00	
		2	0.00	0.60	15.65	3.80	0.00	0.00	0.00	8.00	0.00	8.00	
		3	0.00	1.46	15.65	9.35	0.00	0.00	0.00	7.00	0.00	7.00	
	Dx	1	0.00	0.00	46.49	0.00	0.00	0.00	0.00	52.00	0.00	52.00	

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 (Veh)	Mean End of Green Queue EoTS (Veh)	Mean 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	✓	16.61	1.27	12.18	1.00	0.00	91.73
		2	0.00	0.00	✓	0.93	0.01	0.92	1.00	0.00	5.78
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	11.41	1.79	8.93	1.00	0.00	62.01
		2	0.00	0.00	✓	5.64	0.43	5.17	1.00	0.00	39.40
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	15.59	1.03	11.49	1.00	0.00	84.06
		2	0.00	0.00	✓	8.91	1.01	7.85	1.00	0.00	63.09
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	0.19	0.00	0.19	1.00	0.00	0.98
		2	0.00	0.00	✓	0.60	0.01	0.59	1.00	0.00	4.17
		3	0.00	0.00	✓	1.46	0.06	1.44	1.00	0.00	10.63
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:28:02	07/12/2023 16:28:02	0.39	08:00	120	537.42	36.19	76.96	A/1	0	0	A/1	Dx/1	A/1	✓

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	30	4042	710	21.22	338.30	23.57	361.86

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	4842	4842	0		77		30	750

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	12.63	26.90	31.57	4.62	513.85	38.82	1743.53	135.91	23.57

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	95.41	0.00	183.00	0.00	183.00

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	537.42

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PEN
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	C t pen p
A	1	(untitled)	1	1	B		531	1800	44	0.00	77	30	52.86	40.86	92.34	16.59	100	100	
	2		1	1	A		34	1800	21	21.00	10	915	46.55	40.55	81.16	0.93	100	100	
Ax	1	(untitled)					640	Unrestricted	120	26.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100	
B	1	(untitled)	1	1	A	D	447	1800	38	0.00	71	41	44.30	32.30	90.21	11.41	100	100	
	2		1	1	D		169	1800	17	0.00	59	69	67.96	55.96	98.83	5.64	100	100	
Bx	1	(untitled)					381	Unrestricted	120	38.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100	
C	1	(untitled)	1	1	B		509	1800	44	0.00	74	36	51.01	39.01	89.92	15.58	100	100	
	2		1	1	A		254	1800	21	0.00	74	36	71.68	59.68	103.66	8.89	100	100	
Cx	1	(untitled)					902	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100	
D	1	(untitled)	1	1	A	C	13	1800	29	31.00	3	3708	22.83	16.83	70.69	0.19	100	100	
	2		1	1	C		19	1800	8	8.00	13	689	63.55	52.75	92.96	0.60	100	100	
	3		1	1	C		45	1800	8	7.00	30	233	67.64	56.84	96.56	1.46	100	100	
Dx	1	(untitled)					98	Unrestricted	120	52.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	100	

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	469.55	39.48	11.89	19.21	4.62	338.30	23.57	0.00	361.86
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	476.35	53.17	8.96	31.57	4.62	513.85	23.57	0.00	537.42

- *< = 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***

A1 - GRANGE ROAD
D4 - 2029 BASELINE FLOWS + DEVELOPMENT,

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	67	67		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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	581	581
	2	37	37
Ax	1	698	698
B	1	489	489
	2	183	183
Bx	1	417	417
C	1	558	558
	2	277	277
Cx	1	986	986
D	1	14	14
	2	21	21
	3	49	49
Dx	1	108	108

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	62	496	277	0	0	0	0
	2	49	0	28	7	0	0	0	0
	3	448	37	0	133	0	0	0	0
	4	489	9	174	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
	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0

From	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	489
	10		4	2	B/2, Dx/1	Normal	9
	11		4	3	B/2, Ax/1	Normal	174
	12		1	3	C/1, Ax/1	Normal	496
	13		1	2	C/1, Dx/1	Normal	62
	14		1	4	C/2, Bx/1	Normal	277
	15		2	1	D/3, Cx/1	Normal	49
	16		2	4	D/2, Bx/1	Normal	7
	19		3	2	A/2, Dx/1	Normal	37
	20		3	4	A/1, Bx/1	Normal	133
	21		3	1	A/1, Cx/1	Normal	448
	43		2	3	D/2, Ax/1	Normal	14
	44		2	3	D/1, Ax/1	Normal	14

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

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	84	19	581	1800	44	46.88	19.72	113.39	107.44	7.26	114.70
		2	11	832	37	1800	21	40.66	1.02	11.78	5.93	0.38	6.31
	Ax	1	0	Unrestricted	698	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	78	29	489	1800	38	36.85	13.12	75.47	71.09	5.83	76.92
		2	64	56	183	1800	17	58.39	6.26	35.97	42.15	2.32	44.47
	Bx	1	0	Unrestricted	417	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	81	24	558	1800	44	43.70	18.23	104.84	96.19	6.72	102.91
		2	80	25	277	1800	21	66.23	10.30	59.24	72.36	3.81	76.18
	Cx	1	0	Unrestricted	986	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	3	3436	14	1800	29	16.84	0.20	2.33	0.93	0.12	1.05
		2	14	614	21	1800	8	53.03	0.66	4.21	4.39	0.25	4.64
		3	33	206	49	1800	8	57.61	1.62	10.33	11.14	0.60	11.74
	Dx	1	0	Unrestricted	108	Unrestricted	120	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	581	581	0		1800	690	84		19	0.00	44
		2	37	37	0		1800	345	11		832	0.00	21
	Ax	1	698	698	0		Unrestricted	Unrestricted	0		Unrestricted	0.78	120
	B	1	489	489	0		1800	630	78		29	0.00	38
		2	183	183	0		1800	285	64		56	0.00	17
	Bx	1	417	417	0		Unrestricted	Unrestricted	0		Unrestricted	0.82	120
	C	1	558	558	0		1800	690	81		24	0.00	44
		2	277	277	0		1800	345	80		25	0.00	21
	Cx	1	986	986	0		Unrestricted	Unrestricted	0		Unrestricted	0.40	120
	D	1	14	14	0		1800	495	3		3436	0.00	29
		2	21	21	0		1800	150	14		614	0.00	8
		3	49	49	0		1800	150	33		206	0.00	8
	Dx	1	108	108	0		Unrestricted	Unrestricted	0		Unrestricted	0.73	120

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	12.00	46.88	5.44	2.13	107.44	99.69	517.10	62.13	7.26
		2	6.00	40.66	0.41	0.01	5.93	81.75	30.06	0.19	0.38
	Ax	1	15.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	36.85	3.70	1.31	71.09	95.12	426.67	38.44	5.83
		2	12.00	58.39	2.41	0.56	42.15	101.25	168.79	16.50	2.32
	Bx	1	16.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	43.70	5.13	1.65	96.19	96.02	487.41	48.36	6.72
		2	12.00	66.23	3.57	1.53	72.36	109.80	260.07	44.06	3.81
	Cx	1	16.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	16.84	0.07	0.00	0.93	70.71	9.87	0.02	0.12
		2	10.80	53.03	0.30	0.01	4.39	93.13	19.22	0.34	0.25
		3	10.80	57.61	0.71	0.08	11.14	97.76	45.57	2.33	0.60
	Dx	1	16.04	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	19.72	17.39	113.39	0.15	0.00	0.00	0.00	0.00	0.00	
		2	0.00	1.02	8.70	11.78	0.00	0.00	0.00	20.00	0.00	20.00	
	Ax	1	0.00	0.00	22.36	0.00	0.00	0.00	0.00	25.00	0.00	25.00	
	B	1	0.00	13.12	17.39	75.47	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	6.26	17.39	35.97	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.82	0.00	0.00	0.00	0.00	37.00	0.00	37.00	
	C	1	0.00	18.23	17.39	104.84	0.02	0.00	0.00	0.00	0.00	0.00	
		2	0.00	10.30	17.39	59.24	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	23.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	D	1	0.00	0.20	8.70	2.33	0.00	0.00	0.00	31.00	0.00	31.00	
		2	0.00	0.66	15.65	4.21	0.00	0.00	0.00	8.00	0.00	8.00	
		3	0.00	1.62	15.65	10.33	0.00	0.00	0.00	6.00	0.00	6.00	
	Dx	1	0.00	0.00	46.49	0.00	0.00	0.00	0.00	49.00	0.00	49.00	

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 (Veh)	Mean End of Green Queue EoTS (Veh)	Mean 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	✓	19.77	2.18	14.13	1.00	0.00	114.70
		2	0.00	0.00	✓	1.02	0.01	1.00	1.00	0.00	6.31
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	13.14	3.24	10.16	1.00	0.00	76.92
		2	0.00	0.00	✓	6.26	0.57	5.70	1.00	0.00	44.47
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	18.26	1.68	13.15	1.00	0.00	102.91
		2	0.00	0.00	✓	10.35	1.58	9.04	1.00	0.00	76.18
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	0.20	0.00	0.20	1.00	0.00	1.05
		2	0.00	0.00	✓	0.66	0.01	0.65	1.00	0.00	4.64
		3	0.00	0.00	✓	1.62	0.08	1.58	1.00	0.00	11.74
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:28:05	07/12/2023 16:28:05	0.84	08:00	120	614.47	41.35	84.20	A/1	0	0	A/1	Dx/1	A/1	✓

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	84	19	4418	710	23.62	411.62	27.30	438.92

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	5218	5218	0		84		19	750

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	12.72	28.53	34.08	7.27	587.17	41.72	1964.77	212.38	27.30

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	113.39	0.00	176.00	0.00	176.00

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	614.47

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PEN
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	C t pen p
A	1	(untitled)	1	1	B		581 <	1800	44	0.00	84	19	58.88	46.88	99.69	19.72 +	100	100	
	2		1	1	A		37	1800	21	20.00	11	832	46.66	40.66	81.75	1.02	100	100	
Ax	1	(untitled)					698	Unrestricted	120	25.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100	
B	1	(untitled)	1	1	A	D	489	1800	38	0.00	78	29	48.85	36.85	95.12	13.12	100	100	
	2		1	1	D		183	1800	17	0.00	64	56	70.39	58.39	101.25	6.26	100	100	
Bx	1	(untitled)					417	Unrestricted	120	37.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100	
C	1	(untitled)	1	1	B		558 <	1800	44	0.00	81	24	55.70	43.70	96.02	18.23 +	100	100	
	2		1	1	A		277	1800	21	0.00	80	25	78.23	66.23	109.80	10.30	100	100	
Cx	1	(untitled)					986	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100	
D	1	(untitled)	1	1	A	C	14	1800	29	31.00	3	3436	22.84	16.84	70.71	0.20	100	100	
	2		1	1	C		21	1800	8	8.00	14	614	63.83	53.03	93.13	0.66	100	100	
	3		1	1	C		49	1800	8	6.00	33	206	68.41	57.61	97.76	1.62	100	100	
Dx	1	(untitled)					108	Unrestricted	120	49.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	100	

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	513.26	46.10	11.13	21.71	7.27	411.62	27.30	0.00	438.92
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	520.06	59.79	8.70	34.08	7.27	587.17	27.30	0.00	614.47

- *< = 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***

A1 - GRANGE ROAD
D5 - 2039 BASELINE FLOWS + DEVELOPMENT,

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	67	67		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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	625	625
	2	39	39
Ax	1	752	752
B	1	526	526
	2	198	198
Bx	1	448	448
C	1	600	600
	2	298	298
Cx	1	1060	1060
D	1	15	15
	2	22	22
	3	52	52
Dx	1	115	115

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	66	534	298	0	0	0	0
	2	52	0	30	7	0	0	0	0
	3	482	39	0	143	0	0	0	0
	4	526	10	188	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
	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0

From	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	526
	10		4	2	B/2, Dx/1	Normal	10
	11		4	3	B/2, Ax/1	Normal	188
	12		1	3	C/1, Ax/1	Normal	534
	13		1	2	C/1, Dx/1	Normal	66
	14		1	4	C/2, Bx/1	Normal	298
	15		2	1	D/3, Cx/1	Normal	52
	16		2	4	D/2, Bx/1	Normal	7
	19		3	2	A/2, Dx/1	Normal	39
	20		3	4	A/1, Bx/1	Normal	143
	21		3	1	A/1, Cx/1	Normal	482
	43		2	3	D/2, Ax/1	Normal	15
	44		2	3	D/1, Ax/1	Normal	15

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

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	91	10	625	1800	44	56.87	23.42	134.68	140.19	8.60	148.80
		2	11	785	39	1800	21	40.76	1.08	12.42	6.27	0.40	6.67
	Ax	1	0	Unrestricted	752	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	83	20	526	1800	38	42.48	15.01	86.29	88.13	6.66	94.79
		2	69	44	198	1800	17	61.67	6.98	40.13	48.17	2.59	50.76
	Bx	1	0	Unrestricted	448	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	87	15	600	1800	44	50.34	21.02	120.86	119.15	7.77	126.92
		2	86	16	298	1800	21	76.04	12.01	69.04	89.38	4.41	93.79
	Cx	1	0	Unrestricted	1060	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	3	3200	15	1800	29	16.85	0.22	2.50	1.00	0.13	1.13
		2	15	582	22	1800	8	53.18	0.69	4.41	4.61	0.26	4.87
		3	35	188	52	1800	8	58.26	1.72	11.01	11.95	0.64	12.59
	Dx	1	0	Unrestricted	115	Unrestricted	120	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	625	625	0		1800	690	91		10	0.00	44
		2	39	39	0		1800	345	11		785	0.00	21
	Ax	1	752	752	0		Unrestricted	Unrestricted	0		Unrestricted	0.76	120
	B	1	526	526	0		1800	630	83		20	0.00	38
		2	198	198	0		1800	285	69		44	0.00	17
	Bx	1	448	448	0		Unrestricted	Unrestricted	0		Unrestricted	0.82	120
	C	1	600	600	0		1800	690	87		15	0.00	44
		2	298	298	0		1800	345	86		16	0.00	21
	Cx	1	1060	1060	0		Unrestricted	Unrestricted	0		Unrestricted	0.36	120
	D	1	15	15	0		1800	495	3		3200	0.00	29
		2	22	22	0		1800	150	15		582	0.00	8
		3	52	52	0		1800	150	35		188	0.00	8
	Dx	1	115	115	0		Unrestricted	Unrestricted	0		Unrestricted	0.71	120

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	12.00	56.87	6.07	3.80	140.19	109.80	577.20	109.07	8.60
		2	6.00	40.76	0.43	0.01	6.27	82.05	31.78	0.22	0.40
	Ax	1	15.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	42.48	4.20	2.00	88.13	100.95	472.62	58.39	6.66
		2	12.00	61.67	2.63	0.76	48.17	104.34	184.29	22.30	2.59
	Bx	1	16.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	50.34	5.70	2.69	119.15	103.30	541.82	77.95	7.77
		2	12.00	76.04	3.89	2.40	89.38	118.11	284.02	67.94	4.41
	Cx	1	16.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	16.85	0.07	0.00	1.00	70.72	10.58	0.03	0.13
		2	10.80	53.18	0.31	0.01	4.61	93.22	20.13	0.38	0.26
		3	10.80	58.26	0.75	0.09	11.95	98.37	48.45	2.70	0.64
	Dx	1	16.04	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	23.42	17.39	134.68	0.90	0.00	0.00	0.00	0.00	0.00	
		2	0.00	1.08	8.70	12.42	0.00	0.00	0.00	20.00	0.00	20.00	
	Ax	1	0.00	0.00	22.36	0.00	0.00	0.00	0.00	24.00	0.00	24.00	
	B	1	0.00	15.01	17.39	86.29	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	6.98	17.39	40.13	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.82	0.00	0.00	0.00	0.00	37.00	0.00	37.00	
	C	1	0.00	21.02	17.39	120.86	0.34	0.00	0.00	0.00	0.00	0.00	
		2	0.00	12.01	17.39	69.04	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	23.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	D	1	0.00	0.22	8.70	2.50	0.00	0.00	0.00	31.00	0.00	31.00	
		2	0.00	0.69	15.65	4.41	0.00	0.00	0.00	8.00	0.00	8.00	
		3	0.00	1.72	15.65	11.01	0.00	0.00	0.00	6.00	0.00	6.00	
	Dx	1	0.00	0.00	46.49	0.00	0.00	0.00	0.00	47.00	0.00	47.00	

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 (Veh)	Mean End of Green Queue EoTS (Veh)	Mean 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	✓	23.66	4.05	16.89	1.00	0.00	148.80
		2	0.00	0.00	✓	1.08	0.01	1.06	1.00	0.00	6.67
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	15.06	4.83	11.55	1.00	0.00	94.79
		2	0.00	0.00	✓	6.99	0.78	6.33	1.00	0.00	50.76
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	21.12	2.79	15.12	1.00	0.00	126.92
		2	0.00	0.00	✓	12.16	2.55	10.58	1.00	0.00	93.79
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	0.22	0.00	0.22	1.00	0.00	1.13
		2	0.00	0.00	✓	0.69	0.01	0.68	1.00	0.00	4.87
		3	0.00	0.00	✓	1.72	0.09	1.68	1.00	0.00	12.59
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:27:37	07/12/2023 16:27:40	3.13	08:00	120	715.87	48.20	90.58	A/1	0	0	A/1	Dx/1	A/1	✓

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	91	10	4750	710	27.16	508.85	31.47	540.32

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	5550	5550	0		91		10	750

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	12.80	31.26	36.42	11.77	684.40	45.22	2170.91	338.96	31.47

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	134.68	0.00	173.00	0.00	173.00

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	715.87

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PEN
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	C t pen p
A	1	(untitled)	1	1	B		625 <	1800	44	0.00	91	10	68.87	56.87	109.80	23.42 +	100	100	
	2		1	1	A		39	1800	21	20.00	11	785	46.76	40.76	82.05	1.08	100	100	
Ax	1	(untitled)					752	Unrestricted	120	24.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100	
B	1	(untitled)	1	1	A	D	526	1800	38	0.00	83	20	54.48	42.48	100.95	15.01	100	100	
	2		1	1	D		198	1800	17	0.00	69	44	73.67	61.67	104.34	6.98	100	100	
Bx	1	(untitled)					448	Unrestricted	120	37.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100	
C	1	(untitled)	1	1	B		600 <	1800	44	0.00	87	15	62.34	50.34	103.30	21.02 +	100	100	
	2		1	1	A		298	1800	21	0.00	86	16	88.04	76.04	118.11	12.01	100	100	
Cx	1	(untitled)					1060	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100	
D	1	(untitled)	1	1	A	C	15	1800	29	31.00	3	3200	22.85	16.85	70.72	0.22	100	100	
	2		1	1	C		22	1800	8	8.00	15	582	63.98	53.18	93.22	0.69	100	100	
	3		1	1	C		52	1800	8	6.00	35	188	69.06	58.26	98.37	1.72	100	100	
Dx	1	(untitled)					115	Unrestricted	120	47.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	100	

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	551.88	54.23	10.18	24.06	11.77	508.85	31.47	0.00	540.32
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	558.68	67.93	8.22	36.42	11.77	684.40	31.47	0.00	715.87

- *< = 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***

A1 - GRANGE ROAD
D6 - 2039 BASELINE FLOWS ,

Network Options

Network timings

Network cycle time (s)	Minimum possible cycle time (s)	Absolute minimum possible cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
120	67	67		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)	Missing stage transition options
10000.00	10000.00	10000.00	2	Assume banned

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from traffic model	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	100	100	✓	✓			Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy (%)	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Standard accuracy Hill Climb	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Traffic Nodes

Traffic Nodes

Traffic node	Name	Description
1	(untitled)	

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)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
A	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				50.00	✓	Sum of lanes	1800	✓		Normal	
Ax	1	(untitled)		✓	128.60						Normal	
B	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Bx	1	(untitled)		✓	136.97						Normal	
C	1	(untitled)			100.00	✓	Sum of lanes	1800	✓		Normal	
	2				100.00	✓	Sum of lanes	1800	✓		Normal	
Cx	1	(untitled)		✓	136.21						Normal	
D	1	(untitled)			50.00	✓	Sum of lanes	1800	✓		Normal	
	2				90.00	✓	Sum of lanes	1800	✓		Normal	
	3				90.00	✓	Sum of lanes	1800	✓		Normal	
Dx	1	(untitled)		✓	133.66						Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
A	1	1	(untitled)			1800
	2	1	(untitled)			1800
Ax	1	1	(untitled)			
B	1	1	(untitled)			1800
	2	1	(untitled)			1800
Bx	1	1	(untitled)			
C	1	1	(untitled)			1800
	2	1	(untitled)			1800
Cx	1	1	(untitled)			
D	1	1	(untitled)			1800
	2	1	(untitled)			1800
	3	1	(untitled)			1800
Dx	1	1	(untitled)			
		2	(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)	(ALL)	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	✓	120

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	625	625
	2	33	33
Ax	1	748	748
B	1	526	526
	2	196	196
Bx	1	447	447
C	1	589	589
	2	298	298
Cx	1	1052	1052
D	1	13	13
	2	19	19
	3	44	44
Dx	1	96	96

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled	Second phase
A	1	1	B		
	2	1	A		
B	1	1	A	✓	D
	2	1	D		
C	1	1	B		
	2	1	A		
D	1	1	A	✓	C
	2	1	C		
	3	1	C		

Entry Sources

Arm	Traffic Stream	Cruise time for Normal Traffic (s)	Cruise speed for Normal Traffic (kph)
A	1	12.00	30.00
	2	6.00	30.00
B	1	12.00	30.00
	2	12.00	30.00
C	1	12.00	30.00
	2	12.00	30.00
D	1	6.00	30.00
	2	10.80	30.00
	3	10.80	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/2	Ax/1	15.43	30.00	✓	Offside	49.36
Bx	1	1	C/2	Bx/1	16.44	30.00	✓	Offside	53.96
Cx	1	1	B/1	Cx/1	16.34	30.00	✓	Nearside	42.64
Dx	1	1	B/2	Dx/1	16.04	30.00	✓	Straight	Straight Movement
Ax	1	2	C/1	Ax/1	15.43	30.00	✓	Straight	Straight Movement
Bx	1	2	D/2	Bx/1	16.44	30.00	✓	Straight	Straight Movement
Cx	1	2	D/3	Cx/1	16.34	30.00	✓	Offside	51.46
Dx	1	2	C/1	Dx/1	16.04	30.00	✓	Nearside	36.47
Ax	1	3	D/2	Ax/1	15.43	30.00	✓	Nearside	38.82
Bx	1	3	A/1	Bx/1	16.44	30.00	✓	Nearside	40.00
Cx	1	3	A/1	Cx/1	16.34	30.00	✓	Straight	Straight Movement
Dx	1	3	A/2	Dx/1	16.04	30.00	✓	Offside	47.00
Ax	1	4	D/1	Ax/1	15.43	30.00	✓	Nearside	32.54

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	Limit paths by flow	Low path flow threshold
1	(untitled)	✓	✓	Path Equalisation	✓		✓			✓	1.25				

Normal Input Flows (Veh/hr)

		To							
		1	2	3	4	5	6	7	8
From	1	0	55	534	298	0	0	0	0
	2	44	0	26	6	0	0	0	0
	3	482	33	0	143	0	0	0	0
	4	526	8	188	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
	1	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0

From	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	100	100	0
	6	0	0	0	0	100	0	0	100
	7	0	0	0	0	100	0	0	100
	8	0	0	0	0	0	100	100	0

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	C/1, C/2	Cx/1	#0000FF
	2	(untitled)	D/1, D/2, D/3	Dx/1	#FF0000
	3	(untitled)	A/1, A/2	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	9		4	1	B/1, Cx/1	Normal	526
	10		4	2	B/2, Dx/1	Normal	8
	11		4	3	B/2, Ax/1	Normal	188
	12		1	3	C/1, Ax/1	Normal	534
	13		1	2	C/1, Dx/1	Normal	55
	14		1	4	C/2, Bx/1	Normal	298
	15		2	1	D/3, Cx/1	Normal	44
	16		2	4	D/2, Bx/1	Normal	6
	19		3	2	A/2, Dx/1	Normal	33
	20		3	4	A/1, Bx/1	Normal	143
	21		3	1	A/1, Cx/1	Normal	482
	43		2	3	D/2, Ax/1	Normal	13
	44		2	3	D/1, Ax/1	Normal	13

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	100
	18		8	6	2:2E, 2:1X	Normal	100
	22		5	7	3:2E, 3:1X	Normal	100
	23		5	6	1:1E, 1:2X	Normal	100
	34		6	8	2:1E, 2:2X	Normal	100
	35		6	5	1:2E, 1:1X	Normal	100
	41		7	8	4:2E, 4:1X	Normal	100
	42		7	5	3:1E, 3:2X	Normal	100

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	91	10	625	1800	44	56.87	23.42	134.68	140.19	8.60	148.80
		2	10	945	33	1800	21	40.52	0.90	10.39	5.27	0.34	5.61
	Ax	1	0	Unrestricted	748	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	83	20	526	1800	38	42.48	15.01	86.29	88.13	6.66	94.79
		2	69	45	196	1800	17	61.18	6.89	39.59	47.30	2.55	49.86
	Bx	1	0	Unrestricted	447	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	85	17	589	1800	44	48.22	20.17	116.00	112.04	7.46	119.50
		2	86	16	298	1800	21	76.04	12.01	69.04	89.38	4.41	93.79
	Cx	1	0	Unrestricted	1052	Unrestricted	120	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	3	3708	13	1800	29	16.83	0.19	2.16	0.86	0.12	0.98
		2	13	689	19	1800	8	52.75	0.60	3.80	3.95	0.22	4.17
		3	29	241	44	1800	8	56.66	1.43	9.13	9.83	0.53	10.37
	Dx	1	0	Unrestricted	96	Unrestricted	120	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	625	625	0		1800	690	91		10	0.00	44
		2	33	33	0		1800	345	10		945	0.00	21
	Ax	1	748	748	0		Unrestricted	Unrestricted	0		Unrestricted	0.77	120
	B	1	526	526	0		1800	630	83		20	0.00	38
		2	196	196	0		1800	285	69		45	0.00	17
	Bx	1	447	447	0		Unrestricted	Unrestricted	0		Unrestricted	0.82	120
	C	1	589	589	0		1800	690	85		17	0.00	44
		2	298	298	0		1800	345	86		16	0.00	21
	Cx	1	1052	1052	0		Unrestricted	Unrestricted	0		Unrestricted	0.37	120
	D	1	13	13	0		1800	495	3		3708	0.00	29
		2	19	19	0		1800	150	13		689	0.00	8
		3	44	44	0		1800	150	29		241	0.00	8
	Dx	1	96	96	0		Unrestricted	Unrestricted	0		Unrestricted	0.72	120

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	12.00	56.87	6.07	3.80	140.19	109.80	577.20	109.07	8.60
		2	6.00	40.52	0.37	0.01	5.27	81.14	26.62	0.15	0.34
	Ax	1	15.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	12.00	42.48	4.20	2.00	88.13	100.95	472.62	58.39	6.66
		2	12.00	61.18	2.60	0.73	47.30	103.93	182.30	21.41	2.55
	Bx	1	16.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	12.00	48.22	5.55	2.34	112.04	101.06	527.04	68.18	7.46
		2	12.00	76.04	3.89	2.40	89.38	118.11	284.02	67.94	4.41
	Cx	1	16.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	6.00	16.83	0.06	0.00	0.86	70.69	9.17	0.02	0.12
		2	10.80	52.75	0.27	0.01	3.95	92.96	17.39	0.27	0.22
		3	10.80	56.66	0.63	0.06	9.83	96.43	40.63	1.80	0.53
	Dx	1	16.04	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	23.42	17.39	134.68	0.90	0.00	0.00	0.00	0.00	0.00	
		2	0.00	0.90	8.70	10.39	0.00	0.00	0.00	21.00	0.00	21.00	
	Ax	1	0.00	0.00	22.36	0.00	0.00	0.00	0.00	25.00	0.00	25.00	
	B	1	0.00	15.01	17.39	86.29	0.00	0.00	0.00	0.00	0.00	0.00	
		2	0.00	6.89	17.39	39.59	0.00	0.00	0.00	0.00	0.00	0.00	
	Bx	1	0.00	0.00	23.82	0.00	0.00	0.00	0.00	37.00	0.00	37.00	
	C	1	0.00	20.17	17.39	116.00	0.21	0.00	0.00	0.00	0.00	0.00	
		2	0.00	12.01	17.39	69.04	0.00	0.00	0.00	0.00	0.00	0.00	
	Cx	1	0.00	0.00	23.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	D	1	0.00	0.19	8.70	2.16	0.00	0.00	0.00	31.00	0.00	31.00	
		2	0.00	0.60	15.65	3.80	0.00	0.00	0.00	8.00	0.00	8.00	
		3	0.00	1.43	15.65	9.13	0.00	0.00	0.00	7.00	0.00	7.00	
	Dx	1	0.00	0.00	46.49	0.00	0.00	0.00	0.00	54.00	0.00	54.00	

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 (Veh)	Mean End of Green Queue EoTS (Veh)	Mean 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	✓	23.66	4.05	16.89	1.00	0.00	148.80
		2	0.00	0.00	✓	0.90	0.01	0.89	1.00	0.00	5.61
	Ax	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	B	1	0.00	0.00	✓	15.06	4.83	11.55	1.00	0.00	94.79
		2	0.00	0.00	✓	6.90	0.75	6.24	1.00	0.00	49.86
	Bx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	C	1	0.00	0.00	✓	20.24	2.41	14.52	1.00	0.00	119.50
		2	0.00	0.00	✓	12.16	2.55	10.58	1.00	0.00	93.79
	Cx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00
	D	1	0.00	0.00	✓	0.19	0.00	0.19	1.00	0.00	0.98
		2	0.00	0.00	✓	0.60	0.01	0.59	1.00	0.00	4.17
		3	0.00	0.00	✓	1.43	0.06	1.41	1.00	0.00	10.37
	Dx	1	0.00	0.00	✓	0.00			1.00	0.00	0.00

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Run duration (s)	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	Item with worst overall PRC	Network within capacity
1	07/12/2023 16:27:40	07/12/2023 16:27:43	3.73	08:00	120	703.41	47.36	90.58	A/1	0	0	A/1	Dx/1	A/1	✓

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	91	10	4686	710	26.89	496.96	30.90	527.86

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	5486	5486	0		91		10	750

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	12.79	31.08	36.00	11.36	672.52	44.92	2136.99	327.23	30.90

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	134.68	0.00	183.00	0.00	183.00

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	703.41

Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PEN
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second 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)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	C t pen p
A	1	(untitled)	1	1	B		625 <	1800	44	0.00	91	10	68.87	56.87	109.80	23.42 +	100	100	
	2		1	1	A		33	1800	21	21.00	10	945	46.52	40.52	81.14	0.90	100	100	
Ax	1	(untitled)					748	Unrestricted	120	25.00	0	Unrestricted	15.43	0.00	0.00	0.00	100	100	
B	1	(untitled)	1	1	A	D	526	1800	38	0.00	83	20	54.48	42.48	100.95	15.01	100	100	
	2		1	1	D		196	1800	17	0.00	69	45	73.18	61.18	103.93	6.89	100	100	
Bx	1	(untitled)					447	Unrestricted	120	37.00	0	Unrestricted	16.44	0.00	0.00	0.00	100	100	
C	1	(untitled)	1	1	B		589 <	1800	44	0.00	85	17	60.22	48.22	101.06	20.17 +	100	100	
	2		1	1	A		298	1800	21	0.00	86	16	88.04	76.04	118.11	12.01	100	100	
Cx	1	(untitled)					1052	Unrestricted	120	0.00	0	Unrestricted	16.34	0.00	0.00	0.00	100	100	
D	1	(untitled)	1	1	A	C	13	1800	29	31.00	3	3708	22.83	16.83	70.69	0.19	100	100	
	2		1	1	C		19	1800	8	8.00	13	689	63.55	52.75	92.96	0.60	100	100	
	3		1	1	C		44	1800	8	7.00	29	241	67.46	56.66	96.43	1.43	100	100	
Dx	1	(untitled)					96	Unrestricted	120	54.00	0	Unrestricted	16.04	0.00	0.00	0.00	100	100	

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	544.91	53.16	10.25	23.64	11.36	496.96	30.90	0.00	527.86
Bus									
Tram									
Pedestrians	6.80	13.70	0.50	12.36	0.00	175.55	0.00	0.00	175.55
TOTAL	551.71	66.86	8.25	36.00	11.36	672.52	30.90	0.00	703.41

- *< = 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***

UK and Ireland Office Locations