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# Traffic & Transport Assessment

Project:

Proposed Strategic Housing Development, Kenelm, Deer Park, Howth, Co. Dublin

# Document History

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# Contact Information

**Barrett Mahony Consulting Engineers Ltd**
52-54 Lower Sandwith Street, Dublin 2
D02 WR26

Telephone: 01 677 3200
Email: bmce@bmce.ie

www.bmce.ie

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CIVIL & STRUCTURAL

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# 1.0 INTRODUCTION

## 1.1 GENERAL DESCRIPTION

Barrett Mahony Consulting Engineers have been commissioned to provide a Traffic and Transport Assessment (TTA) for the proposed residential development at Kenelm, Deer Park, Howth, Co. Dublin. This TTA is to be read in conjunction with the Residential Travel Plan, document 19.196-IR-03, prepared by BMCE which accompanies this SHD application.

The proposed development will consist of 162 No. apartments, with 132 No. car parking spaces (including 6 No. disabled, 4 no. car sharing & 13 EV parking ) and 355 No. cycle parking spaces (with 325 no. at basement level for long stay parking and 30 no. at ground floor level for short stay visitors).

The above provisions equate to 0.81 No. car parking spaces per unit and 2.19 No. cycle parking spaces per unit.

## 1.2 INITIAL CONSULTATION WITH FINGAL COUNTY COUNCIL

In order to determine the scope of the required TTA, Dr Martin Rogers contacted Mr Niall Thornton, Senior Executive Engineer, Fingal County Council (FCC) in early October 2019.

Dr Rogers suggested that, in line with previous applications in the Howth area, the following junctions should be analysed:

- Sutton Cross Signalised junction
- Howth Road / Church Road priority junction
- Howth Road / Offington Park priority junction
- Harbour Road / Church Street priority junction

On 7th October 2019, Mr Thornton replied stating that the junctions identified were in order. Specifically, in relation to the critical junction at Sutton Cross; he stated that the report should reference it, identifying its impact relative to the proposed adjacent developments at Techcrete and Balscadden.

Therefore, in order to facilitate compliance with this request, traffic surveys at the above 4 No. junctions were carried out on Tuesday 22nd October 2019.

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

## 1.3 PURPOSE OF TRAFFIC AND TRANSPORT ASSESSMENT

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

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

This assessment will also take account of the permitted adjacent SHD development at the former Techrete site and will consider the potential flows associated with the former permitted but now quashed Balscadden Road

site. We deem that taking account of traffic flows from both these sites in addition to the subject site will result in a very robust analysis.

The Claremont site (TA06F.306102), former Techcrete site, has permission for a mixed-use development including 512 no. units, 439 car parking spaces of which 80 are designated to serve the commercial development. The Balscadden development (TA06F.301722), former Bailey Court, received permission for a mixed-use development including 164 no. units and 120 car parking spaces. The decision was subsequently quashed by the High Court. It is noted that this Traffic and Transport Assessment takes account of this development as a conservative approach to the assessment. The site is zoned for development and it is assumed that a similar development would be progressed in the future.

The analysis within this report is undertaken on the basis of 1.4% annual growth in network traffic over the period 2019 to 2030 period, decreasing to 0.4% in the 2030 to 2037 period, consistent with the 'medium growth' assumption for the four planning authorities within the Dublin city area as detailed within the 2016 Transport Infrastructure Ireland document 'Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections', PE-PAG-02017 October 2016.

## 1.4 METHODOLOGY UTILISED WITHIN TRAFFIC AND TRANSPORT ASSESSMENT

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

- 'Traffic and Transport Assessment Guidelines' (May 2014) National Road Authority;
- 'Traffic Management Guidelines' Dublin Transportation Office & Department of the Environment and Local Government (May 2003);
- 'Guidelines for Traffic Impact Assessments' The Institution of Highways and Transportation; and
- Fingal County Council Development Plan 2017-2023.

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

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

Completion of Traffic Counts
The report details junction traffic counts undertaken at the locations agreed with FCC and analysed in order to assess existing operating efficiencies in the vicinity of the proposed development.

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

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

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

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

- Introduction / Existing conditions
- Extent of proposed development (including existing and future public transport and walking / cycling facilities)

- Vehicular Trip Generation
- Vehicular Trip Distribution / Assignment to network
- Impact on road network of trips generated by proposed development

## 1.5 SITE ACCESS TO ROAD NETWORK

The site is located on Howth Road, adjacent to the entrance to Howth Castle and DeerPark Golf Club.

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

Appendix 1 contains a ground floor plan of the proposed development, including details of the vehicular access onto Howth Road.


Figure 1-1: Site location map (indicative location in blue)


Figure 1-2: Site layout

Sightlines are good in both directions for exiting drivers, complying with the requirements of DMURS i.e. both forward visibility stopping sight distances (SSD) of 59m for standard roads and 65m for bus routes are available at a 2.4m set-back at the site access for Howth Road which is a 60 km/h speed zone.

A site location map, indicating the location of the 4 No. traffic surveys is contained within Figure 1-3.


Figure 1-3: Location of 4 No. surveys with site shown in Blue and Techcrete and Balscadden Sites shown in Red.

## 1.6 SCOPE OF THE REPORT

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

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

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

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

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

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

# 2.0 RECEIVING ENVIRONMENT

## 2.1 LOCATION OF PROPOSED DEVELOPMENT

The general location of the subject site in relation to the surrounding road network is illustrated in Figure 1.1 above which details the extent of the subject site boundary and neighbouring lands.

The site is located on the southern side of Howth Road, immediately adjacent to the Howth Castle entrance, approximately 1 km east of Howth village.

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

Accordingly, traffic surveys were carried out on Tuesday 22nd October 2019 at the 4 No. junctions.

The raw data from these surveys is contained within Appendix 2.

The surveys were carried out over a 12-hour period between 0700 and 1900 in order to ascertain the peak hour flows for all traffic movements at the 4 No. junctions.

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

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

The survey data is detailed for the morning and evening peak hours in Diagrams 1 and 2 within Appendix 3.

Table 2-1 indicates the total flows incident on all 4 No. junctions during the morning and evening peaks, and compares the values obtained with the results from January 2019 surveys completed for an adjacent permitted development at the Claremont site:

| | | JANUARY 2019 | | OCTOBER 2019 | | |
|---|---|---|---|---|---|---|
| | | 8 to 9 | 5 to 6 | 8 to 9 | 5 to 6 | |
| | | AM | PM | AM | PM | AVERAGE +/- |
| **Sutton Crossroads** | site 1 | 1949 | 1694 | 1944 | 1602 | **-2.8** |
| **Church Road / Howth Road** | site 2 | 983 | 824 | 1055 | 972 | **+12.6** |
| **Offington Park / Howth Road** | site 3 | 898 | 797 | 945 | 917 | **+10.1** |
| **Harbour Road / Church Street** | site 4 | 658 | 712 | 730 | 719 | **+6.0** |

Table 2-1: Comparison of January 2019 and October 2019 surveys at 4 No. critical junctions

Thus, the two surveys are virtually identical at the Sutton Crossroads location, with average increases within the three internal junctions of 9%.

## 2.2 CYCLING AND PUBLIC TRANSPORT INFRASTRUCTURE

EXISTING CYCLE NETWORK

The "Cycle Network Plan for the Greater Dublin" area has produced an overall plan for providing safe cycle routes both within the city and in the suburbs.

Figure 2-1 contains the map of existing cycle facilities for the area close to the subject site as detailed within the GDA Cycle Plan.

Legend:

- B1 - Bus Lane (no cycle lane)
- C1 - Cycle Track - separated from road
- C2 - Cycle Track - immediately adjacent
- C3 - Cycle Lane (even within Bus Lane)
- G1 - Cycle Trail or Greenway
- S2 - Shared Walking & Cycling
- Study Area
- County Council Boundaries
- Greenline Tram Stops
- Redline Tram Stops
- Stations

Figure 2-1: Existing cycle facilities close to the proposed development (GDA cycle plan)

It can be seen that, at present, the major cycle lane is along the bus corridor on the Howth Road, linking the site to Sutton Cross and onwards towards the city centre.

PROPOSED CYCLE NETWORK

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


Figure 2-2: Proposed cycle facilities close to the proposed development (GDA cycle plan)

A secondary cycle route is planned along Howth Road and Carrickbrack Road, which will connect the subject site to all parts of Howth, southwards towards the city centre and north-westwards towards Portmarnock, Malahide and Swords.

In addition, the proposed East Coast Greenway will run on the northern edge of the site, connecting Howth to the greenway network in the Greater Dublin area.

Figure 3-3 contains a drawing of the Dublin Greenway network map, indicating the extent of the east Coast Greenway.

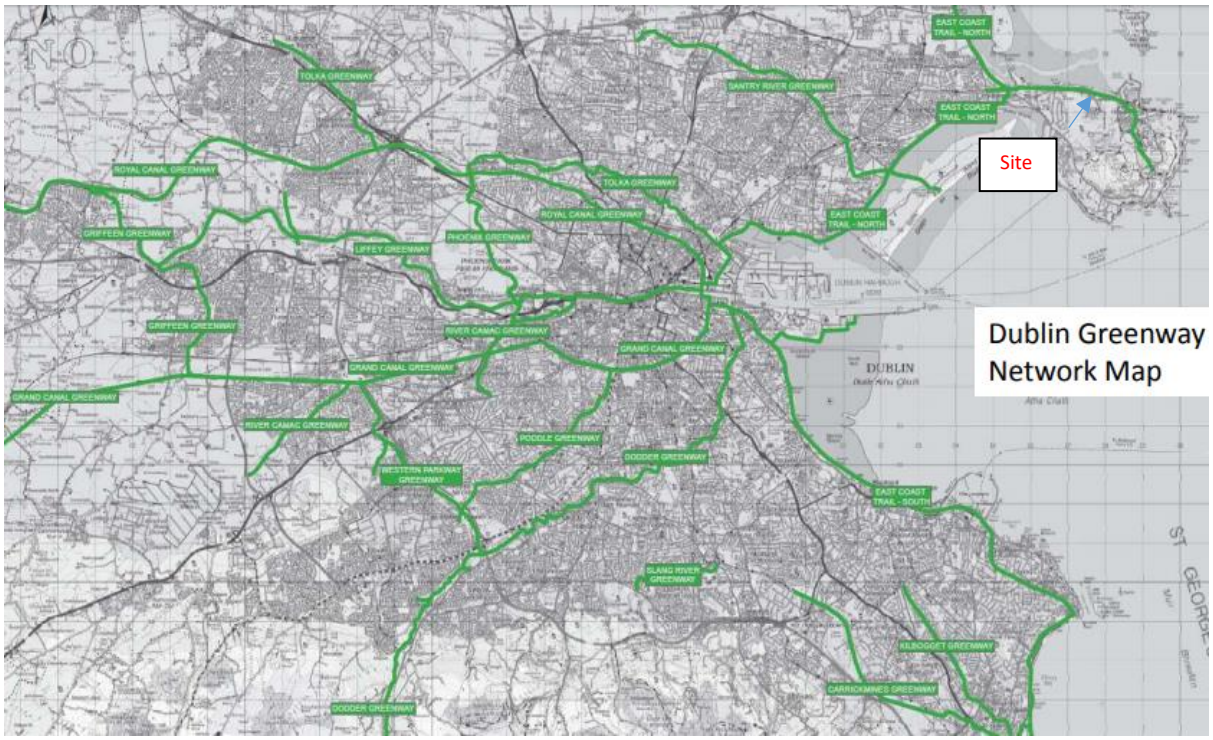



Figure 2-3: Dublin Greenway Map, including route of East Coast Greenway

PUBLIC TRANSPORT - BUS

The Dublin Bus services in the area provide direct linkage to the city, the Route 31/a along Howth Road towards the city centre, and the 31b Route along Carrickbrack Road towards the city centre.

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

| Route | Origin | Destination | Frequency (08:00 – 09:00) |
|---|---|---|---|
| Route 31/a | Howth Road / Carrickbrack Road | Talbot Street | 2 per hour |
| Route 31b | Carrickbrack Road | Talbot Street | 1 per hour |

Table 2-2: Dublin Bus Route Frequencies

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

Figures 2-4 provides an overview of the provision of services which will upgrade the current Dublin bus service.

Figure 2-5 details the existing bus routes serving the subject site, emphasising the proximity of the routes 31 and 31a to the proposed development.

Given the existence of the DART service, Bus Connects proposes the N6 orbital route across the north side of Howth, opening up a new service to DCU while maintaining a good connection to the rail or the D spine for travel to the city centre.

On the southern and western sides of Howth, where demand is relatively low, local routes 290 and 291 will operate an hourly service, providing direct service to Sutton and Clongriffin DART Stations.

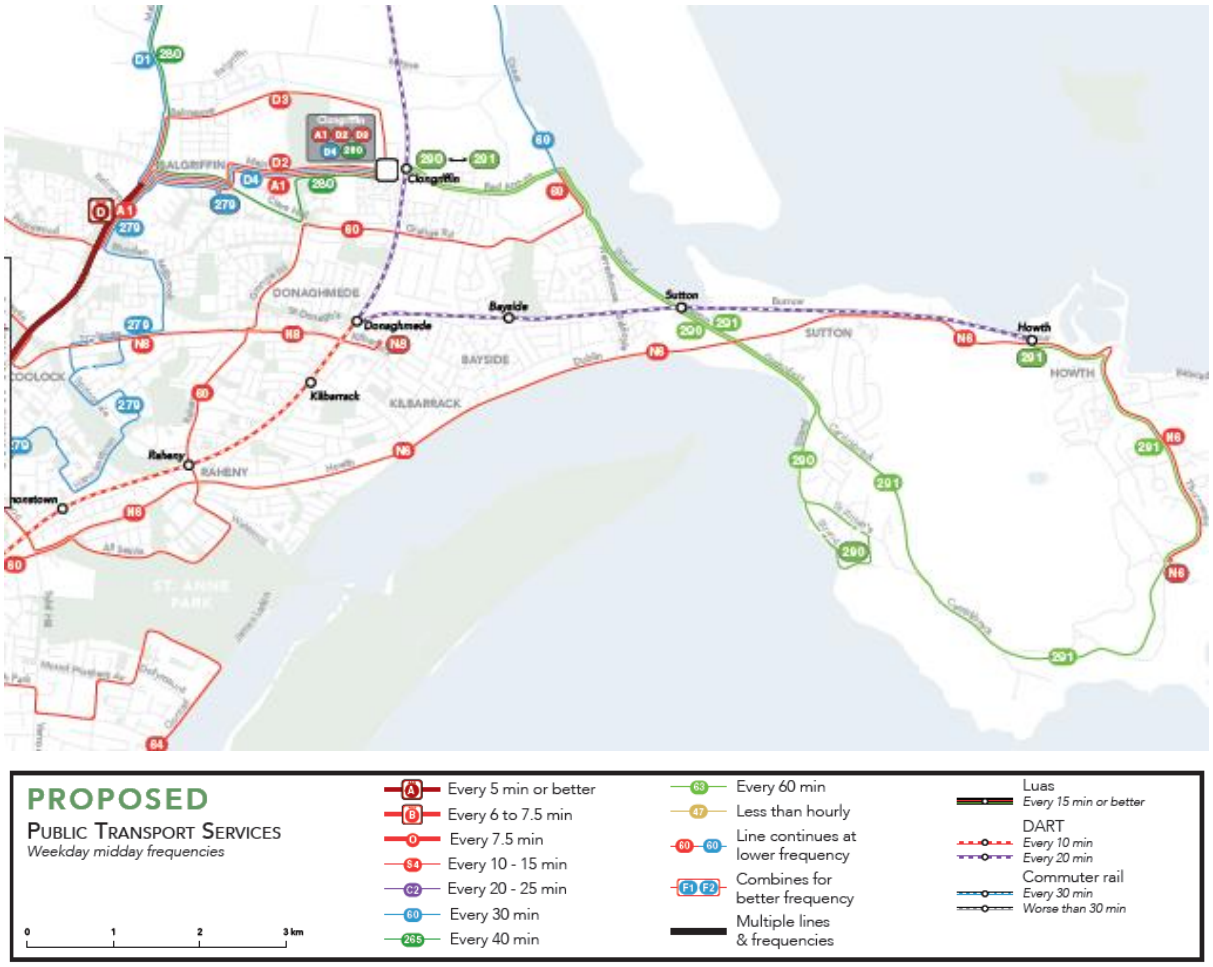



Figure 2-4: Bus Connects Extract – proposed network

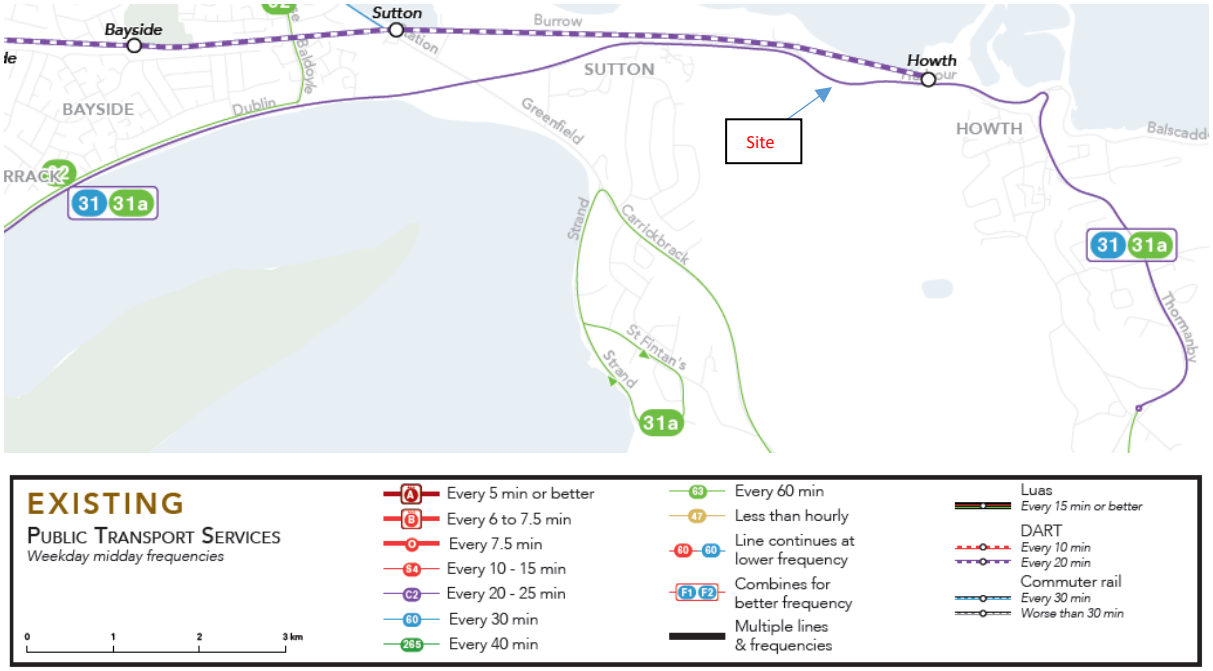



Figure 2-5: Existing bus services (31 31a) close to subject site

## DART SERVICE

The DART extends along the coastline of the South Dublin area, extending from the centre of town to Ballsbridge, Sandymount, Merrion, Booterstown, Blackrock, Monkstown, Dun Laoghaire, Dalkey, Ballybrack, Shankhill, Bray and Greystones, and along the coastline of the north Dublin area extending from the town centre to Clontarf, Sutton, Howth and Malahide.

The Howth DART Station is within 450 metres (5 minutes' walk) of the subject site.

The DART operates a service to the city centre every 10 to 15 minutes during the morning peak time.

Figure 2-6 contains diagrammatic representations of the DART system serving the site and its connectivity to the regional / national rail network.

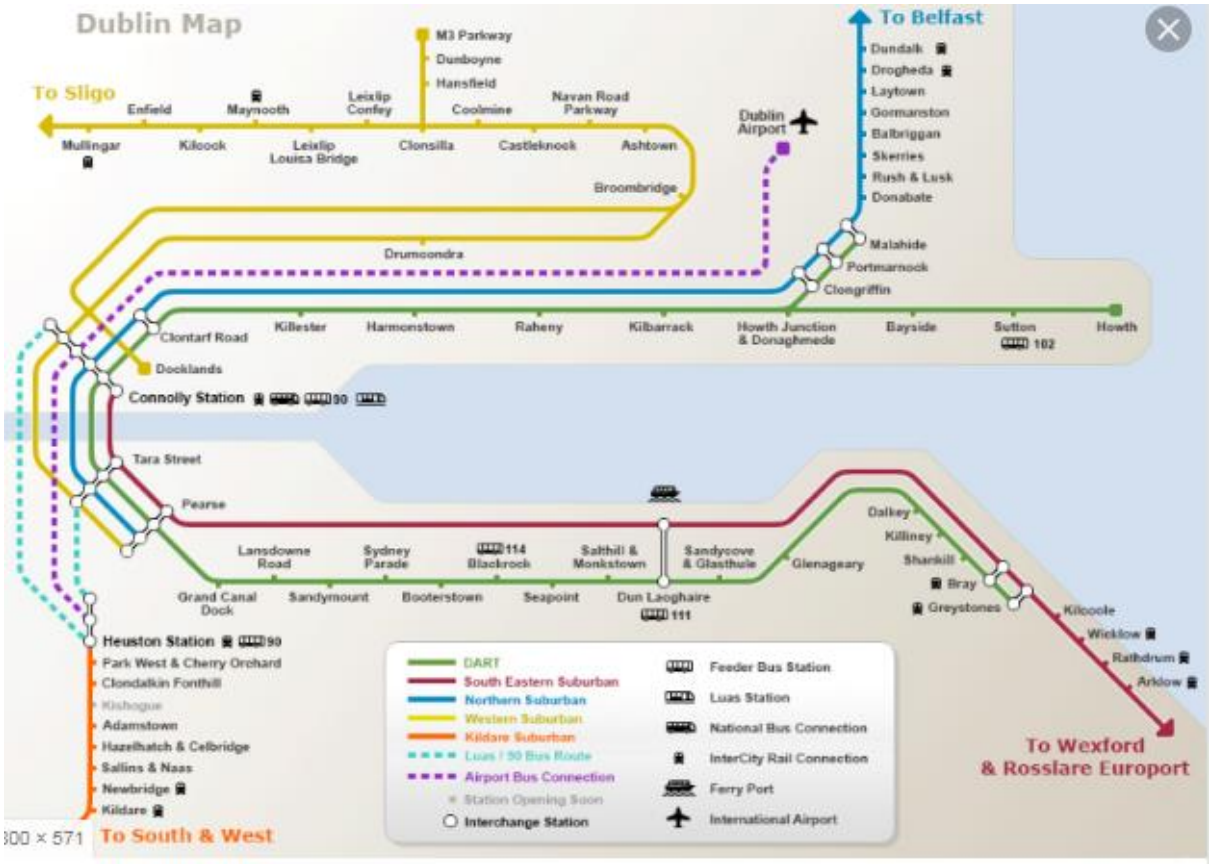



Figure 2-6: Diagrammatic representation of DART line and its connectivity to regional / national rail network

## 2.3 OVERALL COMMENT ON RECEIVING ENVIRONMENT

In conclusion, it must be stated that the receiving environment fits very positively with the proposed residential development. The existence of significant public transport facilities – the DART Line within 450 metres of the subject site, in addition to the Route 31a and 31b buses running along the Howth Road, excellent pedestrian facilities, linking the site to nearby suburbs, plus the prospect of planned upgrades to the cycling and bus network will result in a development which will be served by significant sustainable transport modes both for local trips and trips to nearby urban / suburban centres.

# 3.0 PLANNING DEVELOPMENT AND CONTROL FRAMEWORK

## 3.1 FINGAL COUNTY DEVELOPMENT PLAN 2017 – 2023

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

- Promote and facilitate movement to, from, and within the County of Fingal, by integrating land use with a high quality, sustainable transport system that prioritises walking, cycling and public transport.
- Provide an appropriate level of safe road infrastructure and traffic management, in particular to support commercial and industrial activity and new development.
- Work with all relevant stakeholders to seek a reduction in greenhouse gas emissions from transport.

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

## 3.2 CAR AND CYCLE PARKING REQUIREMENTS AS PER FINGAL COUNTY DEVELOPMENT PLAN 2017 - 2023

### 3.2.1 INTRODUCTION

This section of the report will detail the car and cycle parking requirements for the proposed development based on the Fingal Development Plan 2017-2023 and the Sustainable Urban Housing: Design Standards for New Apartments (Guidelines for Planning Authorities) was published by the Department of Housing, Planning and Local Government in March 2018.

The proposed car and cycle parking provision on site will then be detailed, highlighting, in particular, the intended low level of provision in relation to car parking for the residential component of the proposed development.

It will be justified that the proposed residential parking provision is entirely sustainable given the current car ownership and modal splits for the journey to work / college for existing residents living close to the subject site.

This reduced level of provision is also seen as being completely consistent with the mobility targets for Dublin city as detailed within the Dublin City Transport Plan and also consistent both with minimising the traffic impact of nearby already congested junctions, particularly Sutton Cross, (as detailed within the accompanying traffic impact assessment) and with maximising patronage of the extensive public transport and soft mode options (as detailed within this mobility plan).

### 3.2.2 CAR AND CYCLE PARKING: PERMITTED VS MAXIMUM REQUIREMENTS OF FCC

Table 3-1 below details the maximum car and bicycle parking standards for Fingal County Council based on the rates contained within their 2017 - 2023 Development Plan Written Statement for the proposed residential development:

| Development type | Area / units | Maximum car parking standards | Parking required |
|---|---|---|---|
| Apartments 1-bed | 29 No. | 1.0 per unit plus 0.2 per unit visitor spaces | 35 |
| Apartments 2-bed | 104 No. | 1.5 per unit plus 0.2 per unit visitor spaces | 177 |
| Apartments 3-bed | 29 No. | 2.0 per unit plus 0.2 per unit visitor spaces | 64 |
| TOTAL | 162 No. | | 276 |
| | | Bike parking standards | Parking required |
| Apartments | 162 No. | 1.0 per unit plus 0.2 per unit visitor spaces | 195 |

Table 3-1: Parking required under Fingal County Council Development Plan Standards for residential component

It is proposed to provide 132 No. car parking spaces for the residential component, equating to 0.81 spaces per residential unit. This ratio is similar to the recently approved Techrete site 306102 (0.7 spaces per residential unit) located across the road from the proposed development. There will be a 10% provision of electrical vehicle charging points which equates to 13 EV parking spaces.

This level of provision is 48% of the quantum required under the Fingal County Development Plan standards. However, this provision must also be viewed in relation to the New Apartment Guidelines, the level of compliance with which is detailed within the section immediately below.

In terms of cycle parking provision, it is intended to provide 355 No. cycle parking spaces, 182% of the requirement under the Fingal Development Plan (195 No. spaces), but 87% of the quantum required under the National Cycle Manual (405 No.), which is widely regarded as constituting a very generous provision (1 No. per bed + 0.5 No. per unit).

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

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

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

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

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

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

*Peripheral and/or Less Accessible Urban Locations*
An Bord Pleanála have recently confirmed in their decision to approve the development on the former Techrete site (306102), that the location of the subject site comes within the first category – a central/accessible urban location, within the Greater Dublin area, located within 200 metres of the Howth DART Station.

On the basis of this classification, it was concluded that a provision of between 0 and 1.0 parking spaces in total would be more than appropriate for the proposed development.

In relation to cycle parking provision, the New Apartment Guidelines refers to the National Cycle Manual, which requires 1 No. space per bedroom plus 0.5 spaces per unit for visitors. This equates to 406 No. spaces.

The proposed development provides 87% of the cycle parking required by the National Cycle Manual, which is seen as a very generous requirement. The proposed provision, 182% of the Fingal Development Plan requirement is seen as more than adequate to cater for the anticipated modal split.

### 3.3 COMMENT ON PARKING PROVISION

Given the centrality of the location for the proposed development under the guidance within the New Apartment Guidelines, the car parking provision is seen as totally consistent with its designation and is sustainable given the excellent public transport and soft mode links to the site.

# 4.0 TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT FOR PROPOSED DEVELOPMENT

## 4.1 INTRODUCTION

The traffic impact of the proposed development is derived by assessing the trips generated by the proposal, taking the existing, day of opening and design year flows on the network, gauging the extent to which the superimposed flows from the proposed and adjacent committed developments will affect the efficiency of future network flows.

## 4.2 TRIPS GENERATED BY CANDIDATE SITE

The proposed development consists of 162 No. apartments

TRICS typically gives the following weekday morning and evening peak trip rates for apartments using Irish sites only where parking provision is not greater than 1.2 spaces per dwelling unit:
(These trip rates were used for the Claremont site at the former Techcrete factory:

| | | Weekday AM | | Weekday PM | |
|---|---|---|---|---|---|
| | | IN | OUT | IN | OUT |
| Apartments | Trips/Unit | 0.04 | 0.19 | 0.16 | 0.06 |

Table 4-1: Peak hour trip rates for apartment development

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

| | | Weekday AM | | Weekday PM | |
|---|---|---|---|---|---|
| | Units (No.) | IN | OUT | IN | OUT |
| Apartments | 162 | 7 | 31 | 26 | 10 |

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

Thus, the proposal will result in a 2-way flow of 38 vehicles per hour in the morning peak, decreasing to 36 vehicles per hour in the evening peak (0.63 vehicles entering or exiting every minute during the morning peak, rising to 0.6 vehicles entering or exiting per minute during the evening peak).

## 4.3 TRIPS GENERATED BY NEARBY PLANNED DEVELOPMENTS (TECHCRETE PLUS BALSCADDEN)

For the permitted Claremont development, former Techcrete site, the permitted development was predicted to generate 124 No. outbound trips and 64 No. inbound trips during the morning peak hour between 0800 and 0900, with 135 No. inbound trips and 101 No. outbound trips generated during the evening peak between 1700 and 1800.

Thus, the proposal will result in a 2-way flow of 188 vehicles per hour in the morning peak, increasing to 236 vehicles per hour in the evening peak (3 vehicles entering or exiting every minute during the morning peak, rising to 3.9 vehicles entering or exiting per minute during the evening peak

For the annulled Balscadden proposed development, this development was predicted to generate 41 No. outbound trips and 7 No. inbound trips during the morning peak hour between 0800 and 0900, with 27 No. inbound trips and 9 No. outbound trips generated during the evening peak between 1700 and 1800.

Thus, the proposal would have resulted in a 2-way flow of 48 vehicles per hour in the morning peak, decreasing to 36 vehicles per hour in the evening peak.

Combined, the permitted Claremont development and the now annulled Balscadden development, will generate a 2-way morning peak flow of 236 vehicles per hour and a 2-way evening peak flow of 272 vehicles per hour.

## 4.4 RELATIVE IMPACT OF PROPOSED DEVELOPMENT RELATIVE TO PROPOSED ADJACENT SCHEMES

The proposed development constitutes only 16% of the combined flows from the two adjacent developments at the Claremont site and now annulled Balscadden development during the morning peak hour, decreasing to 13% for the evening peak hour.

In relative terms, therefore, the impact of the proposed apartment development is low.

## 4.5 DISTRIBUTION OF GENERATED FLOWS FROM PROPOSED AND PLANNED DEVELOPMENTS

### 4.5.1 PROPOSED DEVELOPMENT

The same distribution assumptions are made as for the Claremont site assessment.

The incident flows along the R105 / Howth Road are relatively well balanced during both the morning and evening peaks.

In the morning peak in the interests of robustness of the analysis within this report, however, for exiting traffic (peak direction of flow), a 2:1 ratio will be assumed in favour of traffic exiting towards Sutton Cross. Of the one-third exiting towards Howth Village, 50% of trips are assumed to terminate in the local area, with the remaining 50% accessing Sutton Cross via Greenfield Road.

For traffic entering the development (non-peak direction of flow), 50% is assumed to enter from the Howth Village direction, with 50% from Sutton Cross via Howth Road.

At Sutton Cross, for exiting traffic (peak direction of flow) from Howth Road / Greenfield Road, 60% is assumed to exit to the Dublin Road, with 40% exiting to Station Road, while for traffic entering (non-peak direction of flow) from Sutton Cross, 50% will enter form Dublin Road and 50% from Station Road. 50% of this entering traffic will exit onto Howth Road, with 50% exiting onto Greenfield Road.

Diagram 3 within Appendix 3 details the assumed distributions for the AM peak hour generated flows for the proposed development.

In the evening peak, for exiting traffic (non-peak direction of flow), a 50:50 split will be assumed between traffic exiting towards Sutton Cross and Howth Village. Of the 50% exiting towards Howth Village, again 50% of trips are assumed to terminate in the local area, with the remaining 50% accessing Sutton Cross via Greenfield Road.

For traffic entering the development (peak direction of flow), one-third are assumed to enter from the Howth Village direction, with two-thirds from Sutton Cross via Howth Road.

At Sutton Cross, for exiting traffic (non-peak direction of flow) from Howth Road / Greenfield Road, 60% is assumed to exit to the Dublin Road, with 40% exiting to Station Road, while for traffic entering (peak direction of flow) from Sutton Cross, 60% will enter form Dublin Road and 40% from Station Road. 60% of this entering traffic will exit onto Howth Road, with 40% exiting onto Greenfield Road.

Diagram 4 within Appendix 3 details the assumed distributions for the PM peak hour generated flows for the proposed development.

### 4.5.2 PERMITTED DEVELOPMENT CLAREMONT (FORMER TECHCRETE SITE) & BALSCADDEN DEVELOPMENT (NOW ANNULLED)

The same assumptions as above will be made for the flows generated by the permitted Claremont development and the now annulled Balscadden development.

These assumed distributions are detailed for the morning and evening peak hours within Diagrams 5 and 6 respectively within Appendix 3.

## 4.6 TRIP ASSIGNMENT

The 2014 Traffic and Transport Assessment Guidelines published by the NRA requires that the relevant junctions be analysed for the existing situation, the year of opening (2023) with the proposed and adjacent developments in place, the design year 1 (year of opening plus 5) with the proposed and adjacent developments in place, and the design year 2 (year of opening plus 15) with the proposed and adjacent developments in place. In order to bring focus to the analysis, design year 1 has been omitted from those junctions fully analysed.

An annual growth rate of 1.4% has been assumed for the period 2019 to 2030, decreasing to 0.5% for 2031 to 2037, based on the medium growth estimate for Fingal County Council published by TII in 2017 (PE-PAG-02017).

The 2023 Do-Nothing ('without development') scenario is derived by factoring the survey results in Diagrams 1 and 2 up by 4.2% ($(1.014)^3 - 1 = 0.042$). The 2023 Do-Nothing ('with adjacent development') scenario is derived by adding the development flows detailed within Diagrams 3 and 4 to these factored network flows. The 2023 Do-Something ('with proposed and adjacent development') scenario is derived by adding the development flows detailed within Diagrams 3, 4, 5 and 6 to these factored network flows.

The 2038 Do-Nothing ('without development') scenario is derived by factoring the survey results in Diagrams 1 and 2 up by 20.7% ($((1.014)^{11} – 1))((1.005)^7 – 1) = 0.207$). The 2038 Do-Nothing ('with adjacent development') scenario is derived by adding the development flows detailed within Diagrams 3 and 4 to these factored network flows. The 2038 Do-Something ('with proposed and adjacent development') scenario is derived by adding the development flows detailed within Diagrams 3, 4, 5 and 6 to these factored network flows.

The 2038 analysis constitutes a significantly conservative analysis, as given current transport policy in the Greater Dublin Area, where use of the private car for the trip to work is being actively discouraged, and use of public transport and soft modes actively encouraged, it is highly unlikely that an increase in traffic volumes of 21% from now until 2038 will take place.

In reality, it could reasonably be assumed going forward that traffic volume increases during the morning and evening peaks will be marginal over the coming years. The working from home trend, post covid, may reduce the volume of this increase however.

## 4.7 IMPACT OF GENERATED FLOWS ON CRITICAL JUNCTIONS

Table 4-3 details the increases in traffic at the 4 No. existing junctions, plus the proposed development entrance:

| | | Network Flows | | Committed Flows (as % of network) | | Generated Flows (as % of network) | |
|---|---|---|---|---|---|---|---|
| | | AM | PM | AM | PM | AM | PM |
| Sutton Crossroads | site 1 | 1944 | 1602 | 184 (9.4%) | 227 (14.2%) | 32 (1.6%) | 30 (1.9%) |
| Church Road / Howth Road | site 2 | 1055 | 972 | 146 (13.8%) | 164 (16.8%) | 25 (2.4%) | 22 (2.3%) |
| Offington Park / Howth Road | site 3 | 945 | 917 | 146 (15.4%) | 164 (17.9%) | 25 (2.6%) | 22 (2.4%) |
| Harbour Road / Church Street | site 4 | 730 | 719 | 96 (13.2%) | 126 (17.5%) | 14 (1.9%) | 16 (2.2%) |
| Development entrance | | 730 | 719 | 146 (20%) | 164 (23%) | 38 (5.2%) | 36 (5%) |

Table 4-3: October 2019 surveys at 4 No. critical junctions, flows from committed developments incident each junction and flows from subject site incident on each junction.

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

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

It can be seen that the adjacent developments are in excess of the threshold of 5% and 10% thresholds at all five junctions. However, the proposed development is significantly below any thresholds where a TTA would be required.

In the interests of robustness, however, the overall impact of the permitted Claremont scheme, the annulled Balscadden scheme and the proposed development will be analysed within this analysis.

(It should be noted that two other junctions were initially analysed within the Claremont TTA and were not analysed in any further detail as the generated flows were significantly below the stated thresholds for requiring further analysis.)

# 5.0 TRAFFIC IMPACT ASSESSMENT OF 5 NO. CRITICAL JUNCTIONS IN PROXIMITY TO THE SUBJECT SITE

## 5.1 INTRODUCTION

The traffic analysis will analyse the performance of the following 1 No. signalised and 4 No. priority intersections for the following scenarios:

Sutton Cross

- Existing flows (AM and PM peak)
- 2023 flows without development in place (AM and PM peak)
- 2023 flows with adjacent development but without proposed development in place (AM and PM peak)
- 2023 flows with proposed and adjacent development in place (AM and PM peak)
- 2038 flows without development in place (AM and PM peak)
- 2038 flows with adjacent development but without proposed development in place (AM and PM peak)
- 2038 flows with proposed and adjacent development in place (AM and PM peak)

Development Entrance

- 2023 flows with proposed and adjacent development in place (AM and PM peak)
- 2038 flows with proposed and adjacent development in place (AM and PM peak)

Offington Park / Howth Road

- 2023 flows with and without proposed and adjacent development in place (AM and PM peak)
- 2038 flows with proposed and adjacent development in place (AM and PM peak)

Church Road / Howth Road

- 2023 flows with and without proposed and adjacent development in place (AM and PM peak)
- 2038 flows with proposed and adjacent development in place (AM and PM peak)

Harbour Road / Church Street

- 2023 flows with and without proposed and adjacent development in place (AM and PM peak)
- 2038 flows with proposed and adjacent development in place (AM and PM peak)

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

## 5.2 ANALYSIS JUNCTION OF SUTTON CROSSROADS SIGNALISED JUNCTION

### 5.2.1 GEOMETRIC PARAMETERS

For the junction in question, the following geometric characteristics have been used for the purposes of this assessment:
Howth Road approach (Arm A)
2 No. lanes, inside lane for straight-ahead and left-turning traffic (4 metres wide), outside lane for right-turning only (3 metres wide).
Greenfield Road South (Arm B)
1 No. lanes for all directions of traffic (3 metres wide).
Dublin Road (Arm C)
2 No. lanes, inside lane for left-turning and straight-ahead traffic (3 metres wide), outside lane for right-turning traffic only (3 metres wide).
Station Road North (Arm D)
2 No. lanes, inside lane for left-turning traffic only (3 metres wide), outside lane for straight-ahead and right-turning only (3 metres wide).

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

Table 5-1 immediately below summarises the critical flows, capacities, RFC's and queue lengths for the morning and evening peaks for each of the 2 No. scenarios:

| Scenario No.1 | EXISTING AM PEAK FLOWS | | | | EXISTING PM PEAK FLOWS | | | |
|---|---|---|---|---|---|---|---|---|
| | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) |
| Howth Rd (Arm A) | 63 | 79.58 | 0.79 | 25 | 64 | 104.23 | 0.61 | 17 |
| Carrickrock Rd (Arm B) | 118 | 167.41 | 0.71 | 14 | 119 | 147.25 | 0.81 | 17 |
| Dublin Rd (Arm C) | 90 | 95.02 | 0.95 | 24 | 50 | 87.42 | 0.57 | 16 |
| Station Road (Arm D) | 83 | 184.21 | 0.45 | 15 | 67 | 229.76 | 0.29 | 10 |
| **Scenario No.2** | **2023 AM PEAK FLOWS (Do-Nothing)** | | | | **2023 PM PEAK FLOWS (Do-Nothing)** | | | |
| | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) |
| Howth Rd (Arm A) | 66 | 79.58 | 0.83 | 17 | 67 | 104.23 | 0.64 | 18 |
| Carrickrock Rd (Arm B) | 122 | 167.44 | 0.73 | 15 | 124 | 147.29 | 0.84 | 18 |
| Dublin Rd (Arm C) | 94 | 95.02 | 0.99 | 27 | 52 | 87.42 | 0.59 | 16 |
| Station Road (Arm D) | 86 | 184.44 | 0.47 | 15 | 70 | 229.76 | 0.30 | 10 |
| **Scenario No.3** | **2023 AM PEAK FLOWS (Do-Adjacent)** | | | | **2023 PM PEAK FLOWS (Do-Adjacent)** | | | |
| | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) |
| Howth Rd (Arm A) | 129 | 149.03 | 0.87 | 31 | 72 | 101.99 | 0.71 | 20 |
| Carrickrock Rd (Arm B) | 129 | 161.87 | 0.80 | 17 | 132 | 147.06 | 0.90 | 20 |
| Dublin Rd (Arm C) | 96 | 92.49 | 1.04 | 30 | 94 | 141.33 | 0.67 | 19 |
| Station Road (Arm D) | 89 | 179.01 | 0.50 | 16 | 80 | 227.52 | 0.35 | 11 |
| **Scenario No.4** | **2023 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | | **2023 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | |
| | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) |
| Howth Rd (Arm A) | 132 | 149.06 | 0.89 | 32 | 73 | 99.75 | 0.73 | 20 |
| Carrickrock Rd (Arm B) | 128 | 160.21 | 0.80 | 17 | 133 | 144.18 | 0.92 | 21 |
| Dublin Rd (Arm C) | 97 | 92.49 | 1.05 | 31 | 96 | 147.16 | 0.65 | 19 |
| Station Road (Arm D) | 89 | 179.01 | 0.50 | 16 | 82 | 223.04 | 0.37 | 12 |
| **Scenario No.5** | **2038 AM PEAK FLOWS (Do-Nothing)** | | | | **2038 PM PEAK FLOWS (Do-Nothing)** | | | |
| | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) |
| Howth Rd (Arm A) | 76 | 79.58 | 0.96 | 36 | 77 | 101.99 | 0.75 | 21 |
| Carrickrock Rd (Arm B) | 141 | 164.72 | 0.86 | 19 | 144 | 150.08 | 0.96 | 24 |
| Dublin Rd (Arm C) | 109 | 97.56 | 1.12 | 37 | 60 | 87.42 | 0.69 | 19 |
| Station Road (Arm D) | 100 | 181.43 | 0.55 | 18 | 81 | 229.76 | 0.35 | 12 |
| **Scenario No.6** | **2038 AM PEAK FLOWS (Do-Adjacent)** | | | | **2038 PM PEAK FLOWS (Do-Adjacent)** | | | |
| | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) |
| Howth Rd (Arm A) | 147 | 143.08 | 1.03 | 48 | 83 | 99.75 | 0.83 | 24 |
| Carrickrock Rd (Arm B) | 145 | 160.29 | 0.91 | 22 | 152 | 149.88 | 1.01 | 28 |
| Dublin Rd (Arm C) | 111 | 97.56 | 1.14 | 39 | 106 | 141.33 | 0.75 | 22 |
| Station Road (Arm D) | 103 | 178.79 | 0.58 | 19 | 91 | 227.52 | 0.40 | 13 |
| **Scenario No.7** | **2038 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | | **2038 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | |
| | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) | Flow (veh/TS) | Cap. (veh/TS) | RFC (-) | Avg. queue (vehicles) |
| Howth Rd (Arm A) | 151 | 143.11 | 1.06 | 53 | 83 | 99.75 | 0.83 | 24 |
| Carrickrock Rd (Arm B) | 147 | 163.06 | 0.91 | 21 | 152 | 147.08 | 1.03 | 30 |
| Dublin Rd (Arm C) | 111 | 95.02 | 1.17 | 41 | 108 | 144.25 | 0.75 | 23 |
| Station Road (Arm D) | 103 | 181.61 | 0.57 | 19 | 93 | 225.28 | 0.41 | 13 |

Table 5-1: Critical flows, capacities, ratios of flow to capacity and queue lengths for each 15-minute interval during the morning and evening peak hours for each scenario

The above analysis indicates that the junction is at present heavily loaded and operating at capacity on major approaches, with between 20 and 25 vehicles queuing on major approaches during both peak hours. Queuing and delays are thus significant during both peak hours (Scenario No. 1).

By 2023, assuming network flow increases of 4.2%, until the projected day of opening of the proposed development, without any development in place, maximum queuing will increase by up to 3 No. vehicles during both peaks relative to the existing situation (Scenario No. 2).

By 2023, assuming network flow increases of 4.2%, until the projected day of opening of the proposed development, with adjacent planned development in place but without the proposed development in place, maximum queuing will increase to a maximum of 31 No. vehicles over both peaks, with one arm at 104% capacity (Scenario No. 3).

By 2023, assuming network flow increases of 4.2%, until the projected day of opening of the proposed development, with both adjacent planned development and the proposed development in place, maximum queuing will increase marginally on Scenario No. 3 to a maximum of 32 No. vehicles over both peaks, with one arm at 105% capacity, up only 1% on Scenario 3 (Scenario No. 4).

By 2038, assuming network flow increases of 21%, 15 years after the projected day of opening of the proposed development, without any development in place, maximum queuing will increase to a maximum of 37 No. vehicles over both peaks, with one arm at 112% capacity (Scenario No. 5).

By 2038, assuming network flow increases of 21%, 15 years after the projected day of opening of the proposed development, with adjacent planned development in place but without the proposed development in place, maximum queuing will increase to a maximum of 48 No. vehicles over both peaks, with one arm at 114% capacity and one at 103% capacity (Scenario No. 6).

By 2038, assuming network flow increases of 21%, 15 years after the projected day of opening of the proposed development, with both adjacent planned development and the proposed development in place, maximum queuing will increase marginally by 9.4% to a maximum of 53 No. vehicles over both peaks, with one arm at 117% capacity and one at 106% capacity, up only 3% on Scenario 6 (Scenario No. 7).

Thus, in overall terms, Sutton Crossroads at present operates at capacity with significant queuing and delays. The permitted adjacent development at Claremont and the now annulled Balscadden development, will significantly increase queuing and delays at this location, with the proposed development only adding marginally to these impacts.

We note the comments of An Bord Pleanála's Inspector in the assessment of the Claremont development; The traffic congestion that occurs in the town centre and at Sutton Cross is not a result of a growing population in Howth because no such growth has occurred. Rather it is a result of a more dispersed pattern of settlement in and around Howth and the city that depends more on the use private car to access services, employment and, especially in the case of Howth, places of recreation. Refusing permission for the proposed development or significantly reducing its scale would do nothing to alleviate traffic congestion in Howth or at Sutton Cross.

## 5.3 ANALYSIS OF DEVELOPMENT ENTRANCE PRIORITY JUNCTION

### 5.3.1 GEOMETRIC PARAMETERS

For the junction in question, the analysis assumes that the Howth Road major carriageway is 7.3 metres wide in the vicinity of the entrance (2.2 metre wide right-turning lane assumed for westbound traffic), with the Development Entrance minor approach assumed to consist of 1 No. 3.0 metre wide lane.

### 5.3.2 ANALYSIS OF AM AND PM PEAK HOUR FLOWS FOR THE 2 NO. SCENARIOS

Table 5-2 immediately below summarises the critical flows, capacities, RFC's and queue lengths for the morning and evening peaks for each of the 2 No. scenarios:

| Scenario No.1 | 2023 AM PEAK FLOWS (Do-Proposed + Adjacent) | | | | 2023 AM PEAK FLOWS (Do-Proposed + Adjacent) | | | |
|---|---|---|---|---|---|---|---|---|
| | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) |
| Development exit onto Howth Road (B-AC) | 8 | 98.62 | 0.08 | 0.1 | 2 | 99.35 | 0.02 | 0.0 |
| Right turn into site from Howth Road (C-B) | 1 | 115.47 | 0.01 | 0.0 | 4 | 121.64 | 0.03 | 0.0 |
| **Scenario No.2** | **2038 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | | **2038 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | |
| | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) |
| Development exit onto Howth Road (B-AC) | 8 | 91.23 | 0.09 | 0.1 | 2 | 92.78 | 0.02 | 0.0 |
| Right turn into site from Howth Road (C-B) | 1 | 110.84 | 0.01 | 0.0 | 4 | 117.45 | 0.03 | 0.0 |

Table 5-2: Critical flows, capacities, ratios of flow to capacity and queue lengths for each 15-minute interval during the morning and evening peak hours for each scenario

All approaches will be within capacity at all times during both peaks on both the day of opening and fifteen years thereafter in 2038.

A minimum of 91% spare capacity exists on all opposed movement over all peak times.

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

## 5.4 ANALYSIS OF HOWTH ROAD / CHURCH ROAD PRIORITY JUNCTION

### 5.4.1 GEOMETRIC PARAMETERS

For the junction in question, the analysis assumes that the Howth Road major carriageway is 7.3 metres wide in the vicinity of the entrance (2.2 metre wide right-turning lane assumed for westbound traffic), with the Church Road minor approach assumed to consist of 1 No. 3.0 metre wide lane.

### 5.4.2 ANALYSIS OF AM AND PM PEAK HOUR FLOWS FOR THE 2 NO. SCENARIOS

Table 5-3 immediately below summarises the critical flows, capacities, RFC's and queue lengths for the morning and evening peaks for each of the 2 No. scenarios:

| Scenario No.1 | 2023 AM PEAK FLOWS (Do-Proposed + Adjacent) | | | | 2023 AM PEAK FLOWS (Do-Proposed + Adjacent) | | | |
|---|---|---|---|---|---|---|---|---|
| | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) |
| Church Road exit onto Howth Road (B-AC) | 63 | 116.19 | 0.54 | 1.1 | 17 | 124.52 | 0.14 | 0.2 |
| Right turn into Church Rd from Howth Rd (C-B) | 35 | 122.52 | 0.29 | 0.4 | 26 | 126.05 | 0.21 | 0.3 |
| **Scenario No.2** | **2038 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | | **2038 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | |
| | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) |
| Church Road exit onto Howth Road (B-AC) | 74 | 109.43 | 0.68 | 1.9 | 19 | 120.57 | 0.16 | 0.2 |
| Right turn into Church Rd from Howth Rd (C-B) | 41 | 119.21 | 0.34 | 0.5 | 30 | 122.74 | 0.24 | 0.3 |

Table 5-3: Critical flows, capacities, ratios of flow to capacity and queue lengths for each 15-minute interval during the morning and evening peak hours for each scenario

All approaches will be within capacity at all times during both peaks on both the day of opening and fifteen years thereafter in 2038.
A minimum of 32% spare capacity exists on all opposed movement over all peak times.

Queuing at present is at very low levels for turning movements at the junctions during the morning and evening peaks, with queuing on any opposed movement never exceeding 2 vehicles.

## 5.5 ANALYSIS OF HOWTH ROAD / OFFINGTON PARK PRIORITY JUNCTION

### 5.5.1 GEOMETRIC PARAMETERS

For the junction in question, the analysis assumes that the Howth Road major carriageway is 7.3 metres wide in the vicinity of the entrance (2.2 metre wide right-turning lane assumed for westbound traffic), with the Offington Park minor approach assumed to consist of 1 No. 3.0 metre wide lane.

### 5.5.2 ANALYSIS OF AM AND PM PEAK HOUR FLOWS FOR THE 2 NO. SCENARIOS

Table 5-4 immediately below summarises the critical flows, capacities, RFC's and queue lengths for the morning and evening peaks for each of the 2 No. scenarios:

| **Scenario No.1** | **2023 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | | **2023 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | |
|---|---|---|---|---|---|---|---|---|
| | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) |
| Offington Pk exit onto Howth Road (B-AC) | 54 | 89.78 | 0.60 | 1.4 | 30 | 90.56 | 0.33 | 0.5 |
| Right turn into Offington Pk from Howth Rd (C-B) | 26 | 114.59 | 0.23 | 0.3 | 20 | 121.64 | 0.16 | 0.2 |
| **Scenario No.2** | **2038 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | | **2038 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | |
| | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) |
| Offington Pk exit onto Howth Road (B-AC) | 63 | 82.06 | 0.77 | 2.8 | 35 | 84.60 | 0.41 | 0.7 |
| Right turn into Church Rd from Howth Rd (C-B) | 30 | 110.18 | 0.27 | 0.4 | 23 | 117.67 | 0.20 | 0.2 |

Table 5-4: Critical flows, capacities, ratios of flow to capacity and queue lengths for each 15-minute interval during the morning and evening peak hours for each scenario

All approaches will be within capacity at all times during both peaks on both the day of opening and fifteen years thereafter in 2038.

A minimum of 23% spare capacity exists on all opposed movement over all peak times.

Queuing at present is at very low levels for turning movements at the junctions during the morning and evening peaks, with queuing on any opposed movement never exceeding 3 vehicles.

## 5.6 ANALYSIS OF HARBOUR ROAD / CHURCH STREET PRIORITY JUNCTION

### 5.6.1 GEOMETRIC PARAMETERS

For the junction in question, the analysis assumes that the Harbour Road major carriageway is 7.3 metres wide in the vicinity of the entrance (2.2 metre wide right-turning lane assumed for westbound traffic), with the Church Street minor approach assumed to consist of 1 No. 3.0 metre wide lane.

### 5.6.2 ANALYSIS OF AM AND PM PEAK HOUR FLOWS FOR THE 2 NO. SCENARIOS

Table 5-5 immediately below summarises the critical flows, capacities, RFC's and queue lengths for the morning and evening peaks for each of the 2 No. scenarios:

| Scenario No.1 | 2023 AM PEAK FLOWS (Do-Proposed + Adjacent) | | | | 2023 AM PEAK FLOWS (Do-Proposed + Adjacent) | | | |
|---|---|---|---|---|---|---|---|---|
| | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) |
| Church St exit onto Harbour Rd (B-AC) | 41 | 134.88 | 0.30 | 0.4 | 28 | 139.29 | 0.20 | 0.2 |
| Right turn into Church St from Harbour Rd (C-B) | 55 | 124.06 | 0.44 | 0.8 | 42 | 133.98 | 0.31 | 0.4 |
| **Scenario No.2** | **2038 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | | **2038 AM PEAK FLOWS (Do-Proposed + Adjacent)** | | | |
| | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) | **Flow** (veh/TS) | **Cap.** (veh/TS) | **RFC (-)** | **Avg. queue** (vehicles) |
| Church St exit onto Harbour Rd (B-AC) | 47 | 131.78 | 0.36 | 0.5 | 32 | 136.77 | 0.23 | 0.3 |
| Right turn into Church St from Harbour Rd (C-B) | 63 | 120.98 | 0.52 | 1.1 | 48 | 132.00 | 0.36 | 0.6 |

Table 5-5: Critical flows, capacities, ratios of flow to capacity and queue lengths for each 15-minute interval during the morning and evening peak hours for each scenario

All approaches will be within capacity at all times during both peaks on both the day of opening and fifteen years thereafter in 2038.

A minimum of 48% spare capacity exists on all opposed movement over all peak times.

Queuing at present is at very low levels for turning movements at the junctions during the morning and evening peaks, with queuing on any opposed movement never exceeding 2 vehicles.

# 6.0 SUMMARY COMMENTS ON TRAFFIC IMPACT OF PROPOSED DEVELOPMENT

## 6.1 SUMMARY OF ANALYSIS

This document contains a Traffic and Transport Assessment for a proposed development located at Deer Park, Howth, Co. Dublin, comprising 162 No. apartments and providing 132 No. car parking spaces.

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

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

## 6.2 CONCLUSIONS FROM ANALYSIS

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

1. The network analysis within the TTA indicates that 3 of the 4 No. existing critical junctions in the vicinity of the proposed development plus the proposed development entrance presently work well within capacity and will continue to do so in 2023 the projected year of opening and in 2038, 15 years thereafter.
2. Sutton crossroads is at present at capacity and other adjacent permitted developments will result in it being over capacity in future years. The proposed development will add relatively little to further congestion at this location. The volumes generated by the proposed development constitute a very low proportion of these committed flows from adjacent developments.
3. The subject site is highly accessible to pedestrians and cyclists in the vicinity of Howth Road and its environs, with excellent pedestrian connectivity from the proposed development eastwards towards Howth Village and access to the DART.

4. Future proposals as stated within the GDA Cycle Network Plan include a secondary cycle route is planned along Howth Road and Carrickbrack Road, which will connect the subject site to all parts of Howth, southwards towards the city centre and north-westwards towards Portmarnock, Malahide and Swords. In addition, the proposed East Coast Greenway will run on the northern edge of the site, connecting Howth to the greenway network in the Greater Dublin area.
5. The site is well served by public transport, with the bus route 31/a along Howth Road towards the city centre, and the 31b Route along Carrickbrack Road towards the city centre, and the DART within 400 metres of the proposed development.
6. This document is a robust assessment that includes the permitted Claremont development to the north of Howth Road and the formerly permitted Balscadden SHD development. The latter is included as it is reasonably anticipated having regard to the sites zoning and planning history that a similar scheme will be progressed on the site in the future.

### 6.3 MITIGATION

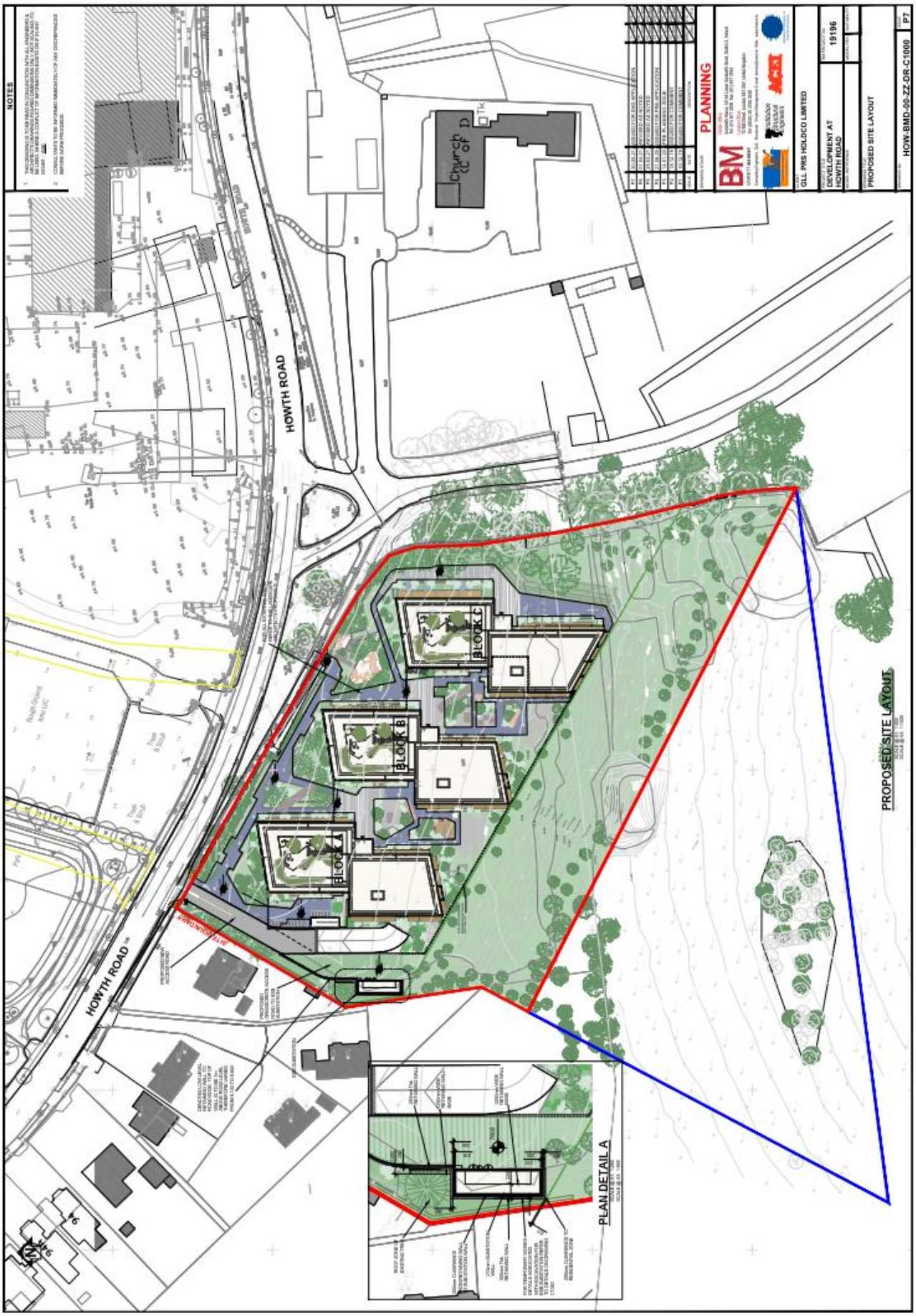
In the context of the overall volume of flows generated by all proposed development in the area, the importance of implementing a coherent parking and mobility policy for the area becomes of significant importance, as such policies will minimise the impact of private car traffic and will also be in keeping with the sustainable transport policy presently advocated for the Greater Dublin Area – please also refer to BMCE Mobility Management Plan (MMP) document 19.196-IR-03 which accompanies this SHD application.

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

BARRETT MAHONY
CONSULTING ENGINEERS
CIVIL & STRUCTURAL

# APPENDIX 1

# SITE LAYOUT PLAN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PLANNING
GLL PRS HOLDCO LIMITED
DEVELOPMENT AT HOWTH ROAD
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PROPOSED SITE LAYOUT
HOW-BMD-00-ZZ-DR-C1000
P7
HOWTH ROAD
Church of
BLOCK C
BLOCK B
BLOCK A
PROPOSED SITE LAYOUT
PLAN DETAIL A

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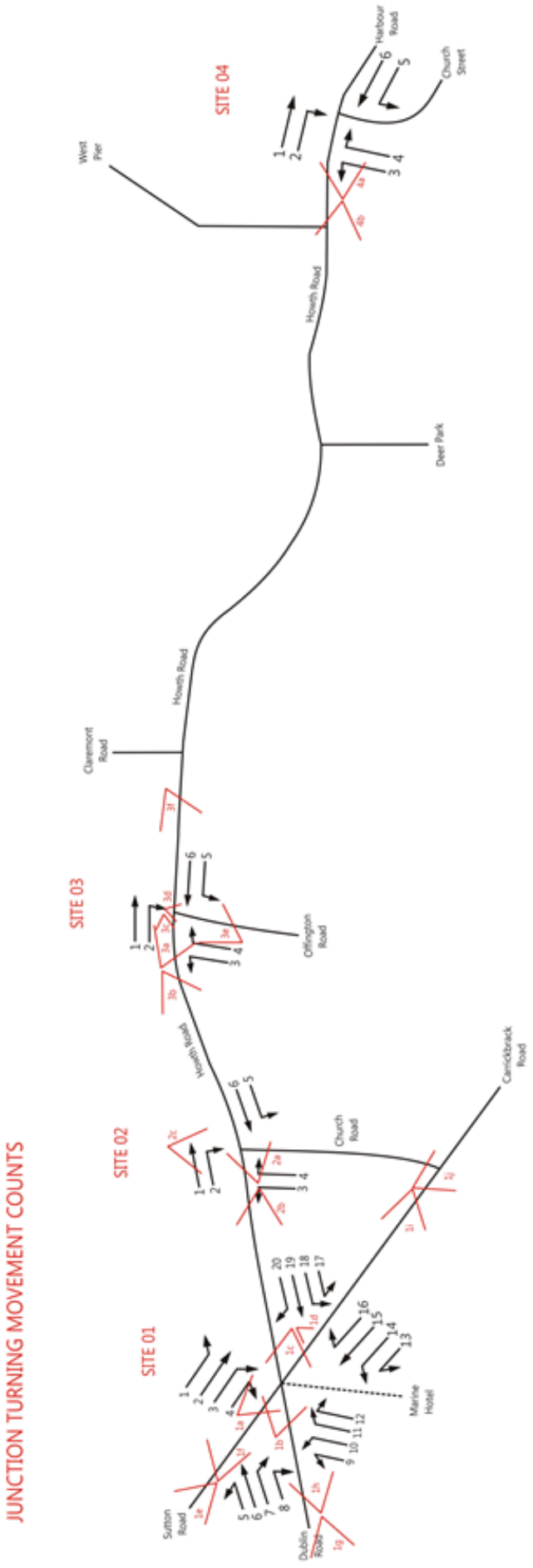
APPENDIX

# 2

## TRAFFIC SURVEYS OCTOBER 2019


JUNCTION TURNING MOVEMENT COUNTS
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SITE 02
SITE 03
SITE 04
Howth Road
Howth Road
Howth Road
Harbour Road
Church Street
West Pier
Deer Park
Clanmoor Road
Offington Road
Church Road
Carrickbrack Road
Marine Hotel
Sutton Road
Dublin Road

| SITE: | 01 | DATE: | 22nd October 2019 | SITE: | 01 | DAT |
|---|---|---|---|---|---|---|
| LOCATION: | Sutton Cross | DAY: | Tuesday | LOCATION: | Sutton Cross | DAY |

| | MOVEMENT 1 | | | | | | | MOVEMENT 2 | | | | | | | MOVEMENT 3 | | | | | | | MOVEMENT 4 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU |
| 07:00 | 13 | 4 | 0 | 0 | 0 | 17 | 17 | 7 | 4 | 1 | 2 | 0 | 14 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 3 |
| 07:15 | 25 | 10 | 0 | 0 | 0 | 35 | 35 | 17 | 1 | 0 | 0 | 0 | 18 | 18 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 0 | 0 | 0 | 4 | 4 |
| 07:30 | 24 | 4 | 2 | 0 | 0 | 30 | 31 | 24 | 7 | 1 | 1 | 0 | 33 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 4 | 4 |
| 07:45 | 33 | 8 | 3 | 1 | 0 | 45 | 48 | 43 | 9 | 1 | 0 | 0 | 53 | 54 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| H/TOT | 95 | 26 | 5 | 1 | 0 | 127 | 131 | 91 | 21 | 3 | 3 | 0 | 118 | 123 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 10 | 2 | 0 | 0 | 0 | 12 | 12 |
| 08:00 | 35 | 11 | 1 | 0 | 0 | 47 | 48 | 53 | 3 | 0 | 0 | 1 | 57 | 58 | 0 | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 |
| 08:15 | 37 | 6 | 0 | 0 | 0 | 43 | 43 | 56 | 7 | 0 | 0 | 5 | 68 | 73 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 7 | 0 | 0 | 0 | 0 | 7 | 7 |
| 08:30 | 75 | 15 | 3 | 0 | 0 | 93 | 95 | 63 | 2 | 0 | 1 | 0 | 66 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 6 | 6 |
| 08:45 | 38 | 6 | 3 | 0 | 0 | 47 | 49 | 23 | 5 | 0 | 0 | 0 | 28 | 28 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 1 | 0 | 0 | 0 | 4 | 4 |
| H/TOT | 185 | 38 | 7 | 0 | 0 | 230 | 234 | 195 | 17 | 0 | 1 | 6 | 219 | 226 | 5 | 2 | 0 | 0 | 0 | 7 | 7 | 18 | 1 | 0 | 0 | 0 | 19 | 19 |
| 09:00 | 50 | 2 | 0 | 0 | 0 | 52 | 52 | 25 | 2 | 0 | 0 | 0 | 27 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 09:15 | 33 | 12 | 3 | 0 | 0 | 48 | 50 | 20 | 1 | 1 | 3 | 1 | 26 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 7 |
| 09:30 | 18 | 5 | 3 | 0 | 0 | 26 | 28 | 7 | 3 | 0 | 0 | 0 | 10 | 10 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 0 | 0 | 0 | 4 | 4 |
| 09:45 | 40 | 13 | 1 | 0 | 1 | 55 | 57 | 25 | 2 | 0 | 0 | 0 | 27 | 27 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 2 | 2 |
| H/TOT | 141 | 32 | 7 | 0 | 1 | 181 | 186 | 77 | 8 | 1 | 3 | 1 | 90 | 95 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 14 | 0 | 0 | 0 | 0 | 14 | 14 |
| 10:00 | 43 | 7 | 4 | 1 | 0 | 55 | 58 | 16 | 5 | 0 | 0 | 0 | 21 | 21 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 5 | 1 | 0 | 0 | 1 | 7 | 8 |
| 10:15 | 25 | 8 | 2 | 0 | 0 | 35 | 36 | 17 | 3 | 0 | 1 | 0 | 21 | 22 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 |
| 10:30 | 34 | 4 | 2 | 1 | 0 | 41 | 43 | 12 | 4 | 4 | 0 | 0 | 20 | 22 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 0 | 0 | 0 | 3 | 3 |
| 10:45 | 53 | 8 | 1 | 0 | 0 | 62 | 63 | 23 | 3 | 1 | 0 | 0 | 27 | 28 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H/TOT | 155 | 27 | 9 | 2 | 0 | 193 | 200 | 68 | 15 | 5 | 1 | 0 | 89 | 93 | 8 | 2 | 0 | 0 | 0 | 10 | 10 | 9 | 2 | 0 | 0 | 1 | 12 | 13 |
| 11:00 | 36 | 4 | 0 | 1 | 0 | 41 | 42 | 16 | 2 | 1 | 2 | 0 | 21 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 2 |
| 11:15 | 36 | 6 | 3 | 0 | 0 | 45 | 47 | 12 | 3 | 0 | 0 | 0 | 15 | 15 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 7 | 0 | 0 | 0 | 0 | 7 | 7 |
| 11:30 | 25 | 9 | 1 | 2 | 0 | 37 | 40 | 16 | 4 | 0 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 |
| 11:45 | 51 | 7 | 0 | 0 | 0 | 58 | 58 | 16 | 1 | 0 | 1 | 1 | 19 | 21 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| H/TOT | 148 | 26 | 4 | 3 | 0 | 181 | 187 | 60 | 10 | 1 | 3 | 1 | 75 | 80 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 11 | 1 | 0 | 0 | 0 | 12 | 12 |
| 12:00 | 39 | 3 | 0 | 1 | 0 | 43 | 44 | 17 | 1 | 1 | 0 | 0 | 19 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 |
| 12:15 | 26 | 2 | 1 | 0 | 1 | 30 | 32 | 7 | 1 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 4 | 4 |
| 12:30 | 62 | 6 | 3 | 0 | 0 | 71 | 73 | 13 | 3 | 3 | 0 | 0 | 19 | 21 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 7 | 0 | 0 | 0 | 0 | 7 | 7 |
| 12:45 | 55 | 7 | 2 | 0 | 0 | 64 | 65 | 25 | 4 | 4 | 0 | 0 | 33 | 35 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 6 | 0 | 0 | 0 | 0 | 6 | 6 |
| H/TOT | 182 | 18 | 6 | 1 | 1 | 208 | 213 | 62 | 9 | 8 | 0 | 0 | 79 | 83 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 19 | 0 | 0 | 0 | 0 | 19 | 19 |

| | MOVEMENT 5 | | | | | | | MOVEMENT 6 | | | | | | | MOVEMENT 7 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU |
| 07:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 18 | 2 | 0 | 0 | 0 | 20 | 20 | 5 | 0 | 0 | 0 | 1 | 6 | 7 |
| 07:15 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 21 | 2 | 1 | 0 | 1 | 25 | 27 | 7 | 4 | 1 | 0 | 1 | 13 | 15 |
| 07:30 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 23 | 3 | 2 | 0 | 2 | 30 | 33 | 21 | 3 | 0 | 0 | 0 | 24 | 24 |
| 07:45 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 25 | 3 | 1 | 1 | 1 | 31 | 34 | 31 | 6 | 0 | 0 | 0 | 37 | 37 |
| H/TOT | 10 | 1 | 0 | 0 | 0 | 11 | 11 | 87 | 10 | 4 | 1 | 4 | 106 | 113 | 64 | 13 | 1 | 0 | 2 | 80 | 83 |
| 08:00 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | 38 | 3 | 1 | 1 | 2 | 45 | 49 | 44 | 2 | 1 | 0 | 0 | 47 | 48 |
| 08:15 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | 50 | 2 | 1 | 0 | 0 | 53 | 54 | 82 | 1 | 1 | 0 | 2 | 86 | 89 |
| 08:30 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 70 | 5 | 0 | 0 | 1 | 76 | 77 | 55 | 1 | 0 | 0 | 0 | 56 | 56 |
| 08:45 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 51 | 3 | 2 | 0 | 1 | 57 | 59 | 44 | 4 | 1 | 0 | 1 | 50 | 52 |
| H/TOT | 27 | 2 | 0 | 0 | 0 | 29 | 29 | 209 | 13 | 4 | 1 | 4 | 231 | 238 | 225 | 8 | 3 | 0 | 3 | 239 | 244 |
| 09:00 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 37 | 4 | 0 | 0 | 1 | 42 | 43 | 19 | 1 | 3 | 0 | 0 | 23 | 25 |
| 09:15 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 46 | 6 | 1 | 0 | 1 | 54 | 56 | 22 | 3 | 0 | 0 | 0 | 25 | 25 |
| 09:30 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 45 | 7 | 2 | 0 | 0 | 54 | 55 | 18 | 1 | 1 | 0 | 2 | 22 | 25 |
| 09:45 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 51 | 9 | 1 | 0 | 2 | 63 | 66 | 23 | 1 | 1 | 1 | 0 | 26 | 28 |
| H/TOT | 20 | 1 | 0 | 0 | 0 | 21 | 21 | 179 | 26 | 4 | 0 | 4 | 213 | 219 | 82 | 6 | 5 | 1 | 2 | 96 | 102 |
| 10:00 | 5 | 1 | 0 | 0 | 0 | 6 | 6 | 46 | 4 | 5 | 0 | 1 | 56 | 60 | 14 | 4 | 1 | 0 | 0 | 19 | 20 |
| 10:15 | 6 | 1 | 0 | 0 | 1 | 8 | 9 | 50 | 4 | 1 | 0 | 1 | 56 | 58 | 21 | 1 | 1 | 0 | 0 | 23 | 24 |
| 10:30 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 58 | 6 | 1 | 0 | 0 | 65 | 66 | 25 | 3 | 0 | 0 | 1 | 29 | 30 |
| 10:45 | 4 | 1 | 0 | 0 | 0 | 5 | 5 | 62 | 6 | 1 | 0 | 2 | 71 | 74 | 23 | 1 | 0 | 0 | 0 | 24 | 24 |
| H/TOT | 17 | 4 | 0 | 0 | 1 | 22 | 23 | 216 | 20 | 8 | 0 | 4 | 248 | 256 | 83 | 9 | 2 | 0 | 1 | 95 | 97 |
| 11:00 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 50 | 10 | 1 | 0 | 0 | 61 | 62 | 16 | 1 | 0 | 0 | 0 | 17 | 17 |
| 11:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 66 | 5 | 0 | 0 | 1 | 72 | 73 | 21 | 2 | 2 | 1 | 1 | 27 | 30 |
| 11:30 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 62 | 8 | 1 | 0 | 0 | 71 | 72 | 26 | 3 | 1 | 0 | 0 | 30 | 31 |
| 11:45 | 5 | 2 | 0 | 0 | 0 | 7 | 7 | 59 | 3 | 1 | 0 | 1 | 64 | 66 | 33 | 1 | 0 | 0 | 0 | 34 | 34 |
| H/TOT | 14 | 3 | 0 | 0 | 0 | 17 | 17 | 237 | 26 | 3 | 0 | 2 | 268 | 272 | 96 | 7 | 3 | 1 | 1 | 108 | 112 |
| 12:00 | 4 | 1 | 0 | 0 | 0 | 5 | 5 | 63 | 0 | 5 | 0 | 1 | 69 | 73 | 20 | 2 | 2 | 0 | 0 | 24 | 25 |
| 12:15 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 38 | 6 | 2 | 0 | 1 | 47 | 49 | 33 | 3 | 0 | 0 | 1 | 37 | 38 |
| 12:30 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 60 | 6 | 0 | 1 | 0 | 67 | 68 | 20 | 3 | 1 | 0 | 0 | 24 | 25 |
| 12:45 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 64 | 6 | 1 | 0 | 1 | 72 | 74 | 30 | 3 | 1 | 0 | 1 | 35 | 37 |
| H/TOT | 19 | 1 | 0 | 0 | 0 | 20 | 20 | 225 | 18 | 8 | 1 | 3 | 255 | 263 | 103 | 11 | 4 | 0 | 2 | 120 | 124 |

| DATE: | 22nd October 2019 | SITE: | 01 |
|---|---|---|---|
| DAY: | Tuesday | LOCATION: | Sutton Cross |

| | MOVEMENT 8 | | | | | | | | MOVEMENT 9 | | | | | | | | MOVEMENT 10 | | | | | | | | MOVEMENT 11 | | | | | | | | MOVEMENT 12 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME |
| 7 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:00 |
| 15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 07:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:15 |
| 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 07:30 |
| 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 07:45 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:45 | 2 | 0 | 0 | 0 | 1 | 3 | 4 | 07:45 |
| 83 | 2 | 0 | 0 | 0 | 1 | 3 | 4 | H/TOT | 2 | 0 | 0 | 0 | 0 | 2 | 2 | H/TOT | 2 | 1 | 0 | 0 | 0 | 3 | 3 | H/TOT | 1 | 0 | 0 | 0 | 0 | 1 | 1 | H/TOT | 4 | 0 | 0 | 0 | 1 | 5 | 6 | H/TOT |
| 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 08:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 08:00 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 08:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 08:00 | 1 | 0 | 0 | 0 | 1 | 2 | 3 | 08:00 |
| 89 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 08:15 | 0 | 0 | 1 | 0 | 1 | 2 | 4 | 08:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 08:15 |
| 56 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 08:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 08:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 08:30 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 08:30 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 08:30 |
| 52 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 08:45 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 08:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 08:45 |
| 244 | 3 | 0 | 1 | 0 | 0 | 4 | 5 | H/TOT | 6 | 0 | 0 | 0 | 0 | 6 | 6 | H/TOT | 2 | 1 | 0 | 0 | 0 | 3 | 3 | H/TOT | 1 | 0 | 1 | 0 | 2 | 4 | 7 | H/TOT | 2 | 0 | 0 | 0 | 1 | 3 | 4 | H/TOT |
| 25 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:00 |
| 25 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 09:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 09:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 09:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 09:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:15 |
| 25 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 09:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:30 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 09:30 |
| 28 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 09:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 09:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:45 |
| 102 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | H/TOT | 2 | 0 | 0 | 0 | 0 | 2 | 2 | H/TOT | 2 | 0 | 0 | 0 | 0 | 2 | 2 | H/TOT | 1 | 0 | 0 | 0 | 0 | 1 | 1 | H/TOT | 0 | 0 | 0 | 0 | 1 | 1 | 2 | H/TOT |
| 20 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 10:00 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:00 |
| 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:15 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 10:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 10:15 |
| 30 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 10:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 10:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 10:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:30 |
| 24 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 10:45 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 10:45 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 10:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:45 |
| 97 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | H/TOT | 11 | 0 | 0 | 0 | 0 | 11 | 11 | H/TOT | 2 | 1 | 0 | 0 | 0 | 3 | 3 | H/TOT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | H/TOT | 2 | 0 | 0 | 0 | 0 | 2 | 2 | H/TOT |
| 17 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 11:00 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 11:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:00 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 11:00 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 11:00 |
| 30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 11:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:15 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 11:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 11:15 |
| 31 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 11:30 | 4 | 1 | 0 | 0 | 0 | 5 | 5 | 11:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:30 |
| 34 | 5 | 2 | 0 | 0 | 0 | 7 | 7 | 11:45 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 11:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11:45 |
| 112 | 12 | 4 | 0 | 0 | 0 | 16 | 16 | H/TOT | 18 | 1 | 0 | 0 | 0 | 19 | 19 | H/TOT | 4 | 0 | 0 | 0 | 0 | 4 | 4 | H/TOT | 2 | 1 | 0 | 0 | 1 | 4 | 5 | H/TOT | 6 | 0 | 0 | 0 | 0 | 6 | 6 | H/TOT |
| 25 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 12:00 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 12:00 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 12:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 12:00 |
| 38 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 12:15 | 7 | 1 | 0 | 0 | 0 | 8 | 8 | 12:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 12:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 12:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 12:15 |
| 25 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 12:30 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | 12:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 12:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 12:30 |
| 37 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 12:45 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 12:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 12:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12:45 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 12:45 |
| 124 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | H/TOT | 20 | 3 | 0 | 0 | 0 | 23 | 23 | H/TOT | 3 | 1 | 0 | 0 | 0 | 4 | 4 | H/TOT | 1 | 0 | 0 | 0 | 0 | 1 | 1 | H/TOT | 9 | 0 | 0 | 0 | 0 | 9 | 9 | H/TOT |

DATE: 22nd October 2019 SITE: 01 1
DAY: Tuesday LOCATION: Sutton Cross

| | MOVEMENT 13 | | | | | | | | MOVEMENT 14 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU |
| 7 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 07:00 | 25 | 0 | 2 | 0 | 0 | 27 | 28 |
| 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:15 | 32 | 2 | 0 | 0 | 2 | 36 | 38 |
| 24 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 07:30 | 43 | 1 | 0 | 0 | 0 | 44 | 44 |
| 37 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 07:45 | 38 | 1 | 0 | 0 | 1 | 40 | 41 |
| 83 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | H/TOT | 138 | 4 | 2 | 0 | 3 | 147 | 151 |
| 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 08:00 | 49 | 0 | 0 | 0 | 0 | 49 | 49 |
| 89 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 08:15 | 64 | 0 | 2 | 0 | 1 | 67 | 69 |
| 56 | 2 | 0 | 0 | 0 | 1 | 3 | 4 | 08:30 | 51 | 2 | 0 | 0 | 5 | 58 | 63 |
| 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 08:45 | 57 | 0 | 1 | 0 | 2 | 60 | 63 |
| 244 | 2 | 0 | 0 | 0 | 1 | 3 | 4 | H/TOT | 221 | 2 | 3 | 0 | 8 | 234 | 244 |
| 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:00 | 65 | 1 | 0 | 0 | 1 | 67 | 68 |
| 25 | 3 | 0 | 0 | 0 | 1 | 4 | 5 | 09:15 | 38 | 1 | 0 | 0 | 0 | 39 | 39 |
| 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:30 | 27 | 0 | 0 | 0 | 0 | 27 | 27 |
| 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 09:45 | 23 | 3 | 0 | 0 | 1 | 27 | 28 |
| 102 | 3 | 0 | 0 | 0 | 1 | 4 | 5 | H/TOT | 153 | 5 | 0 | 0 | 2 | 160 | 162 |
| 20 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 10:00 | 32 | 1 | 3 | 1 | 0 | 37 | 40 |
| 24 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 10:15 | 29 | 1 | 0 | 0 | 0 | 30 | 30 |
| 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:30 | 35 | 1 | 0 | 0 | 0 | 36 | 36 |
| 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10:45 | 45 | 0 | 1 | 0 | 0 | 46 | 47 |
| 97 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | H/TOT | 141 | 3 | 4 | 1 | 0 | 149 | 152 |
| 17 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 11:00 | 36 | 5 | 0 | 0 | 1 | 42 | 43 |
| 30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:15 | 44 | 6 | 0 | 0 | 0 | 50 | 50 |
| 31 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:30 | 20 | 2 | 0 | 0 | 0 | 22 | 22 |
| 34 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 11:45 | 29 | 3 | 2 | 1 | 1 | 36 | 39 |
| 112 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | H/TOT | 129 | 16 | 2 | 1 | 2 | 150 | 154 |
| 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12:00 | 30 | 4 | 0 | 0 | 0 | 34 | 34 |
| 38 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 12:15 | 28 | 2 | 0 | 0 | 0 | 30 | 30 |
| 25 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 12:30 | 31 | 3 | 0 | 0 | 0 | 34 | 34 |
| 37 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 12:45 | 31 | 3 | 1 | 0 | 0 | 35 | 36 |
| 124 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | H/TOT | 120 | 12 | 1 | 0 | 0 | 133 | 134 |

| 1 | | | | | | | DATE: | 22nd October 2019 | | | | | | | SITE: | | | 01 | | | | | | | | | | | | DATE: | 22nd October 2019 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | DAY: | Tuesday | | | | | | | LOCATION: | Sutton Cross | | | | | | | | | | | | | | DAY: | Tuesday | | | | | | | |
| | MOVEMENT 15 | | | | | | | MOVEMENT 16 | | | | | | | | MOVEMENT 17 | | | | | | | MOVEMENT 18 | | | | | | | MOVEMENT 19 | | | | | | | MOVEMENT 20 | | | | | | | PCU's Through Junction |
| PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | |
| 28 | 13 | 1 | 0 | 1 | 0 | 15 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:00 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 2 | 0 | 0 | 1 | 47 | 48 | 21 | 1 | 0 | 0 | 0 | 22 | 22 | 186 |
| 38 | 13 | 1 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 7 | 0 | 1 | 0 | 53 | 54 | 29 | 1 | 0 | 0 | 0 | 30 | 30 | 245 |
| 44 | 33 | 0 | 0 | 0 | 0 | 33 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:30 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 1 | 0 | 0 | 1 | 40 | 41 | 29 | 2 | 1 | 1 | 0 | 33 | 35 | 292 |
| 41 | 34 | 2 | 1 | 2 | 0 | 39 | 42 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 34 | 2 | 1 | 0 | 0 | 37 | 38 | 28 | 1 | 2 | 0 | 0 | 31 | 32 | 340 |
| 151 | 93 | 4 | 1 | 3 | 0 | 101 | 105 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | H/TOT | 5 | 0 | 1 | 0 | 0 | 6 | 7 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 161 | 12 | 1 | 1 | 2 | 177 | 181 | 107 | 5 | 3 | 1 | 0 | 116 | 119 | 1063 |
| 49 | 51 | 1 | 3 | 1 | 0 | 56 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 3 | 5 | 47 | 4 | 1 | 0 | 1 | 53 | 55 | 32 | 2 | 2 | 0 | 0 | 36 | 37 | 424 |
| 69 | 44 | 0 | 0 | 0 | 0 | 44 | 44 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 5 | 0 | 0 | 0 | 68 | 68 | 40 | 3 | 0 | 1 | 0 | 44 | 45 | 509 |
| 63 | 36 | 1 | 0 | 0 | 2 | 39 | 41 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 08:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 95 | 6 | 1 | 0 | 1 | 103 | 105 | 57 | 3 | 2 | 0 | 0 | 62 | 63 | 598 |
| 63 | 48 | 4 | 1 | 0 | 0 | 53 | 54 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 2 | 3 | 0 | 0 | 90 | 92 | 42 | 6 | 0 | 1 | 0 | 49 | 50 | 461 |
| 244 | 179 | 6 | 4 | 1 | 2 | 192 | 197 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | H/TOT | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 2 | 5 | 7 | 290 | 17 | 5 | 0 | 2 | 314 | 319 | 171 | 14 | 4 | 2 | 0 | 191 | 196 | 1993 |
| 68 | 51 | 3 | 1 | 1 | 0 | 56 | 58 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 09:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 74 | 5 | 1 | 1 | 1 | 82 | 85 | 62 | 9 | 2 | 0 | 0 | 73 | 74 | 448 |
| 39 | 38 | 2 | 1 | 0 | 0 | 41 | 42 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 09:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 5 | 0 | 0 | 0 | 86 | 86 | 49 | 3 | 0 | 0 | 0 | 52 | 52 | 406 |
| 27 | 19 | 1 | 0 | 0 | 1 | 21 | 22 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 09:30 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 2 | 0 | 0 | 0 | 1 | 3 | 4 | 55 | 6 | 1 | 0 | 1 | 63 | 65 | 44 | 9 | 1 | 0 | 0 | 54 | 55 | 305 |
| 28 | 22 | 0 | 1 | 2 | 0 | 25 | 28 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 09:45 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 58 | 7 | 1 | 0 | 2 | 68 | 71 | 19 | 3 | 0 | 0 | 1 | 23 | 24 | 348 |
| 162 | 130 | 6 | 3 | 3 | 1 | 143 | 149 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | H/TOT | 10 | 1 | 0 | 0 | 0 | 11 | 11 | 6 | 0 | 0 | 0 | 1 | 7 | 8 | 268 | 23 | 3 | 1 | 4 | 299 | 306 | 174 | 24 | 3 | 0 | 1 | 202 | 205 | 1507 |
| 40 | 21 | 5 | 2 | 0 | 0 | 28 | 29 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 10:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 46 | 7 | 0 | 0 | 2 | 55 | 57 | 40 | 9 | 2 | 0 | 0 | 51 | 52 | 371 |
| 30 | 24 | 2 | 2 | 0 | 0 | 28 | 29 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 10:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 60 | 6 | 2 | 0 | 1 | 69 | 71 | 35 | 5 | 2 | 0 | 0 | 42 | 43 | 334 |
| 36 | 27 | 3 | 1 | 1 | 0 | 32 | 34 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 10:30 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 56 | 5 | 2 | 0 | 1 | 64 | 66 | 34 | 5 | 6 | 0 | 0 | 45 | 48 | 368 |
| 47 | 34 | 0 | 0 | 0 | 0 | 34 | 34 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 10:45 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 67 | 4 | 2 | 2 | 2 | 77 | 83 | 47 | 4 | 4 | 1 | 0 | 56 | 59 | 428 |
| 152 | 106 | 10 | 5 | 1 | 0 | 122 | 126 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | H/TOT | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 229 | 22 | 6 | 2 | 6 | 265 | 277 | 156 | 23 | 14 | 1 | 0 | 194 | 202 | 1501 |
| 43 | 25 | 3 | 0 | 0 | 0 | 28 | 28 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 11:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 47 | 4 | 0 | 0 | 0 | 51 | 51 | 50 | 8 | 2 | 0 | 1 | 61 | 63 | 358 |
| 50 | 22 | 1 | 0 | 0 | 0 | 23 | 23 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:15 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 58 | 6 | 2 | 0 | 1 | 67 | 69 | 42 | 3 | 0 | 0 | 0 | 45 | 45 | 379 |
| 22 | 15 | 4 | 2 | 1 | 0 | 22 | 24 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:30 | 0 | 2 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 7 | 0 | 0 | 1 | 70 | 71 | 38 | 11 | 3 | 1 | 0 | 53 | 56 | 355 |
| 39 | 30 | 4 | 2 | 1 | 0 | 37 | 39 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11:45 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 62 | 9 | 0 | 0 | 0 | 71 | 71 | 43 | 11 | 4 | 1 | 0 | 59 | 62 | 430 |
| 154 | 92 | 12 | 4 | 2 | 0 | 110 | 115 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | H/TOT | 6 | 2 | 0 | 0 | 0 | 8 | 8 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | 229 | 26 | 2 | 0 | 2 | 259 | 262 | 173 | 33 | 9 | 2 | 1 | 218 | 226 | 1522 |
| 34 | 19 | 4 | 0 | 0 | 0 | 23 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12:00 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 64 | 2 | 2 | 0 | 1 | 69 | 71 | 27 | 9 | 2 | 1 | 0 | 39 | 41 | 347 |
| 30 | 21 | 1 | 1 | 0 | 0 | 23 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12:15 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 4 | 3 | 1 | 1 | 62 | 66 | 47 | 10 | 0 | 0 | 0 | 57 | 57 | 328 |
| 34 | 19 | 2 | 0 | 0 | 0 | 21 | 21 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 12:30 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 6 | 1 | 0 | 1 | 74 | 76 | 55 | 7 | 1 | 0 | 0 | 63 | 64 | 419 |
| 36 | 19 | 3 | 2 | 0 | 0 | 24 | 25 | 2 | 2 | 0 | 0 | 0 | 4 | 4 | 12:45 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 7 | 1 | 0 | 1 | 87 | 89 | 38 | 1 | 1 | 0 | 0 | 40 | 41 | 442 |
| 134 | 78 | 10 | 3 | 0 | 0 | 91 | 93 | 6 | 2 | 0 | 0 | 0 | 8 | 8 | H/TOT | 8 | 2 | 0 | 0 | 0 | 10 | 10 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 261 | 19 | 7 | 1 | 4 | 292 | 301 | 167 | 27 | 4 | 1 | 0 | 199 | 202 | 1535 |

| SITE: | 01 | DATE: | 22nd October 2019 | SITE: | 01 | DAT |
|---|---|---|---|---|---|---|
| LOCATION: | Sutton Cross | DAY: | Tuesday | LOCATION: | Sutton Cross | DAY |

| | MOVEMENT 1 | | | | | | | MOVEMENT 2 | | | | | | | MOVEMENT 3 | | | | | | | MOVEMENT 4 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU |
| 13:00 | 41 | 10 | 2 | 0 | 0 | 53 | 54 | 25 | 1 | 0 | 0 | 1 | 27 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 6 | 6 |
| 13:15 | 26 | 5 | 1 | 0 | 0 | 32 | 33 | 25 | 4 | 1 | 1 | 0 | 31 | 33 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 0 | 0 | 0 | 4 | 4 |
| 13:30 | 55 | 7 | 0 | 0 | 1 | 63 | 64 | 16 | 2 | 0 | 1 | 0 | 19 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 8 | 8 |
| 13:45 | 66 | 3 | 1 | 0 | 0 | 70 | 71 | 18 | 3 | 0 | 0 | 0 | 21 | 21 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 0 | 0 | 0 | 3 | 3 |
| H/TOT | 188 | 25 | 4 | 0 | 1 | 218 | 221 | 84 | 10 | 1 | 2 | 1 | 98 | 102 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 17 | 4 | 0 | 0 | 0 | 21 | 21 |
| 14:00 | 41 | 8 | 0 | 0 | 0 | 49 | 49 | 13 | 2 | 0 | 0 | 0 | 15 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 4 | 4 |
| 14:15 | 24 | 0 | 2 | 0 | 1 | 27 | 29 | 32 | 3 | 1 | 0 | 0 | 36 | 37 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 1 | 0 | 0 | 0 | 7 | 7 |
| 14:30 | 57 | 6 | 2 | 2 | 0 | 67 | 71 | 22 | 4 | 1 | 0 | 0 | 27 | 28 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 2 | 2 |
| 14:45 | 52 | 6 | 2 | 0 | 0 | 60 | 61 | 16 | 3 | 0 | 0 | 1 | 20 | 21 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 6 | 1 | 0 | 0 | 0 | 7 | 7 |
| H/TOT | 174 | 20 | 6 | 2 | 1 | 203 | 210 | 83 | 12 | 2 | 0 | 1 | 98 | 100 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 18 | 2 | 0 | 0 | 0 | 20 | 20 |
| 15:00 | 42 | 4 | 2 | 0 | 0 | 48 | 49 | 31 | 1 | 0 | 1 | 1 | 34 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 3 |
| 15:15 | 42 | 2 | 0 | 0 | 0 | 44 | 44 | 26 | 0 | 0 | 0 | 0 | 26 | 26 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 |
| 15:30 | 47 | 5 | 1 | 0 | 1 | 54 | 56 | 57 | 3 | 0 | 0 | 0 | 60 | 60 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 0 | 0 | 0 | 4 | 4 |
| 15:45 | 54 | 3 | 2 | 0 | 0 | 59 | 60 | 26 | 1 | 2 | 0 | 0 | 29 | 30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 |
| H/TOT | 185 | 14 | 5 | 0 | 1 | 205 | 209 | 140 | 5 | 2 | 1 | 1 | 149 | 152 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 10 | 1 | 0 | 0 | 0 | 11 | 11 |
| 16:00 | 37 | 7 | 0 | 0 | 0 | 44 | 44 | 22 | 0 | 2 | 0 | 0 | 24 | 25 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 16:15 | 48 | 7 | 1 | 0 | 0 | 56 | 57 | 17 | 0 | 0 | 0 | 0 | 17 | 17 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 3 |
| 16:30 | 38 | 4 | 0 | 0 | 0 | 42 | 42 | 29 | 1 | 0 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:45 | 60 | 5 | 0 | 0 | 1 | 66 | 67 | 38 | 1 | 0 | 0 | 0 | 39 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 5 | 5 |
| H/TOT | 183 | 23 | 1 | 0 | 1 | 208 | 210 | 106 | 2 | 2 | 0 | 0 | 110 | 111 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 9 | 0 | 0 | 0 | 0 | 9 | 9 |
| 17:00 | 41 | 8 | 0 | 0 | 0 | 49 | 49 | 27 | 0 | 0 | 0 | 0 | 27 | 27 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 4 | 0 | 0 | 0 | 0 | 4 | 4 |
| 17:15 | 37 | 4 | 0 | 0 | 0 | 41 | 41 | 28 | 0 | 0 | 0 | 0 | 28 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 5 | 5 |
| 17:30 | 53 | 5 | 1 | 0 | 0 | 59 | 60 | 23 | 0 | 0 | 0 | 0 | 23 | 23 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 2 | 3 |
| 17:45 | 55 | 1 | 0 | 0 | 0 | 56 | 56 | 25 | 1 | 0 | 0 | 0 | 26 | 26 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 3 |
| H/TOT | 186 | 18 | 1 | 0 | 0 | 205 | 206 | 103 | 1 | 0 | 0 | 0 | 104 | 104 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 13 | 0 | 1 | 0 | 0 | 14 | 15 |
| 18:00 | 46 | 4 | 0 | 0 | 0 | 50 | 50 | 19 | 2 | 0 | 0 | 0 | 21 | 21 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 2 | 0 | 0 | 0 | 8 | 8 |
| 18:15 | 66 | 5 | 1 | 0 | 0 | 72 | 73 | 36 | 0 | 0 | 0 | 0 | 36 | 36 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 3 | 3 |
| 18:30 | 54 | 2 | 0 | 0 | 0 | 56 | 56 | 23 | 0 | 0 | 0 | 0 | 23 | 23 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18:45 | 56 | 4 | 0 | 0 | 0 | 60 | 60 | 36 | 1 | 0 | 0 | 0 | 37 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 |
| H/TOT | 222 | 15 | 1 | 0 | 0 | 238 | 239 | 114 | 3 | 0 | 0 | 0 | 117 | 117 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 10 | 3 | 0 | 0 | 0 | 13 | 13 |
| P/TOT | 2044 | 282 | 56 | 9 | 6 | 2397 | 2443 | 1183 | 113 | 25 | 14 | 11 | 1346 | 1388 | 58 | 5 | 0 | 0 | 0 | 63 | 63 | 158 | 16 | 1 | 0 | 1 | 176 | 178 |

| | MOVEMENT 5 | | | | | | | MOVEMENT 6 | | | | | | | MOVEMENT 7 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU |
| 13:00 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 69 | 5 | 0 | 0 | 2 | 76 | 78 | 23 | 2 | 1 | 0 | 0 | 26 | 27 |
| 13:15 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 68 | 5 | 1 | 0 | 1 | 75 | 77 | 29 | 1 | 2 | 0 | 1 | 33 | 35 |
| 13:30 | 6 | 2 | 0 | 0 | 0 | 8 | 8 | 44 | 6 | 1 | 0 | 0 | 51 | 52 | 24 | 4 | 1 | 0 | 0 | 29 | 30 |
| 13:45 | 4 | 1 | 0 | 0 | 0 | 5 | 5 | 58 | 4 | 1 | 0 | 1 | 64 | 66 | 31 | 3 | 0 | 0 | 0 | 34 | 34 |
| H/TOT | 15 | 4 | 0 | 0 | 0 | 19 | 19 | 239 | 20 | 3 | 0 | 4 | 266 | 272 | 107 | 10 | 4 | 0 | 1 | 122 | 125 |
| 14:00 | 3 | 2 | 0 | 0 | 0 | 5 | 5 | 60 | 2 | 0 | 0 | 1 | 63 | 64 | 29 | 4 | 1 | 1 | 0 | 35 | 37 |
| 14:15 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 58 | 3 | 0 | 0 | 1 | 62 | 63 | 42 | 2 | 2 | 0 | 0 | 46 | 47 |
| 14:30 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 69 | 4 | 0 | 0 | 1 | 74 | 75 | 20 | 1 | 1 | 0 | 1 | 23 | 25 |
| 14:45 | 2 | 0 | 0 | 0 | 1 | 3 | 4 | 64 | 3 | 2 | 0 | 1 | 70 | 72 | 28 | 0 | 0 | 0 | 0 | 28 | 28 |
| H/TOT | 13 | 3 | 0 | 0 | 1 | 17 | 18 | 251 | 12 | 2 | 0 | 4 | 269 | 274 | 119 | 7 | 4 | 1 | 1 | 132 | 136 |
| 15:00 | 4 | 1 | 0 | 0 | 0 | 5 | 5 | 63 | 4 | 1 | 0 | 1 | 69 | 71 | 33 | 3 | 0 | 0 | 2 | 38 | 40 |
| 15:15 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 70 | 4 | 3 | 0 | 1 | 78 | 81 | 44 | 1 | 0 | 0 | 2 | 47 | 49 |
| 15:30 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 61 | 2 | 0 | 0 | 1 | 64 | 65 | 48 | 3 | 1 | 0 | 1 | 53 | 55 |
| 15:45 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 45 | 4 | 2 | 0 | 1 | 52 | 54 | 24 | 0 | 0 | 0 | 0 | 24 | 24 |
| H/TOT | 22 | 2 | 0 | 0 | 0 | 24 | 24 | 239 | 14 | 6 | 0 | 4 | 263 | 270 | 149 | 7 | 1 | 0 | 5 | 162 | 168 |
| 16:00 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 57 | 4 | 1 | 0 | 1 | 63 | 65 | 32 | 3 | 0 | 0 | 0 | 35 | 35 |
| 16:15 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 68 | 6 | 0 | 0 | 0 | 74 | 74 | 33 | 1 | 1 | 0 | 1 | 36 | 38 |
| 16:30 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 54 | 4 | 0 | 0 | 1 | 59 | 60 | 48 | 0 | 0 | 0 | 0 | 48 | 48 |
| 16:45 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 66 | 4 | 0 | 0 | 0 | 70 | 70 | 33 | 0 | 0 | 0 | 1 | 34 | 35 |
| H/TOT | 18 | 0 | 0 | 0 | 0 | 18 | 18 | 245 | 18 | 1 | 0 | 2 | 266 | 269 | 146 | 4 | 1 | 0 | 2 | 153 | 156 |
| 17:00 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 44 | 3 | 0 | 0 | 0 | 47 | 47 | 29 | 0 | 1 | 0 | 0 | 30 | 31 |
| 17:15 | 4 | 2 | 0 | 0 | 0 | 6 | 6 | 53 | 4 | 1 | 0 | 1 | 59 | 61 | 43 | 4 | 1 | 0 | 0 | 48 | 49 |
| 17:30 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 68 | 1 | 0 | 0 | 2 | 71 | 73 | 44 | 0 | 0 | 0 | 0 | 44 | 44 |
| 17:45 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 74 | 3 | 0 | 0 | 1 | 78 | 79 | 38 | 2 | 0 | 0 | 0 | 40 | 40 |
| H/TOT | 21 | 2 | 0 | 0 | 0 | 23 | 23 | 239 | 11 | 1 | 0 | 4 | 255 | 260 | 154 | 6 | 2 | 0 | 0 | 162 | 163 |
| 18:00 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 56 | 0 | 0 | 0 | 1 | 57 | 58 | 37 | 1 | 0 | 0 | 2 | 40 | 42 |
| 18:15 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 78 | 3 | 1 | 0 | 0 | 82 | 83 | 40 | 2 | 1 | 0 | 0 | 43 | 44 |
| 18:30 | 5 | 1 | 0 | 0 | 0 | 6 | 6 | 74 | 1 | 1 | 0 | 1 | 77 | 79 | 27 | 0 | 2 | 0 | 0 | 29 | 30 |
| 18:45 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 67 | 1 | 1 | 0 | 0 | 69 | 70 | 25 | 1 | 0 | 0 | 1 | 27 | 28 |
| H/TOT | 26 | 2 | 0 | 0 | 0 | 28 | 28 | 275 | 5 | 3 | 0 | 2 | 285 | 289 | 129 | 4 | 3 | 0 | 3 | 139 | 144 |
| P/TOT | 222 | 25 | 0 | 0 | 2 | 249 | 251 | 2641 | 193 | 47 | 3 | 41 | 2925 | 2993 | 1457 | 92 | 33 | 3 | 23 | 1608 | 1651 |

| DATE: | 22nd October 2019 | SITE: | 01 |
|---|---|---|---|
| DAY: | Tuesday | LOCATION: | Sutton Cross |

| | MOVEMENT 8 | | | | | | | | MOVEMENT 9 | | | | | | | | MOVEMENT 10 | | | | | | | | MOVEMENT 11 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME |
| 27 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 13:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 13:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 13:00 |
| 35 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 13:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 13:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 13:15 |
| 30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 13:30 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 13:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13:30 |
| 34 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 13:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13:45 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 13:45 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 13:45 |
| 125 | 8 | 1 | 0 | 0 | 0 | 9 | 9 | H/TOT | 4 | 1 | 0 | 0 | 0 | 5 | 5 | H/TOT | 2 | 0 | 0 | 0 | 0 | 2 | 2 | H/TOT | 2 | 1 | 0 | 0 | 0 | 3 | 3 | H/TOT |
| 37 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 14:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 14:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 14:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 14:00 |
| 47 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 14:15 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 14:15 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 14:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14:15 |
| 25 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 14:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 14:30 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 14:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 14:30 |
| 28 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 14:45 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 14:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 14:45 | 1 | 0 | 0 | 0 | 1 | 2 | 3 | 14:45 |
| 136 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | H/TOT | 10 | 0 | 0 | 0 | 0 | 10 | 10 | H/TOT | 2 | 2 | 0 | 0 | 0 | 4 | 4 | H/TOT | 4 | 0 | 0 | 0 | 1 | 5 | 6 | H/TOT |
| 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15:00 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 15:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 15:00 |
| 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15:15 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 15:15 | 7 | 1 | 0 | 0 | 0 | 8 | 8 | 15:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15:15 |
| 55 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 15:30 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 15:30 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 15:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 15:30 |
| 24 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 15:45 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15:45 |
| 168 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | H/TOT | 15 | 0 | 0 | 0 | 0 | 15 | 15 | H/TOT | 8 | 2 | 0 | 0 | 0 | 10 | 10 | H/TOT | 4 | 0 | 0 | 0 | 0 | 4 | 4 | H/TOT |
| 35 | 1 | 0 | 1 | 0 | 0 | 2 | 3 | 16:00 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 16:00 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16:00 |
| 38 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 16:15 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 16:15 |
| 48 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 16:30 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16:30 |
| 35 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 16:45 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16:45 | 2 | 0 | 0 | 0 | 1 | 3 | 4 | 16:45 |
| 156 | 9 | 0 | 1 | 0 | 0 | 10 | 11 | H/TOT | 12 | 0 | 0 | 0 | 0 | 12 | 12 | H/TOT | 0 | 1 | 0 | 0 | 0 | 1 | 1 | H/TOT | 3 | 0 | 0 | 0 | 1 | 4 | 5 | H/TOT |
| 31 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 17:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17:00 |
| 49 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 17:15 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 17:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17:15 |
| 44 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 17:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 17:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 17:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 17:30 |
| 40 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 17:45 |
| 163 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | H/TOT | 7 | 0 | 0 | 0 | 0 | 7 | 7 | H/TOT | 3 | 0 | 0 | 0 | 0 | 3 | 3 | H/TOT | 2 | 0 | 0 | 0 | 0 | 2 | 2 | H/TOT |
| 42 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 18:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 18:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18:00 |
| 44 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 18:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 18:15 |
| 30 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18:30 |
| 28 | 4 | 1 | 0 | 0 | 0 | 5 | 5 | 18:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18:45 |
| 144 | 12 | 2 | 0 | 0 | 0 | 14 | 14 | H/TOT | 3 | 0 | 0 | 0 | 0 | 3 | 3 | H/TOT | 3 | 0 | 0 | 0 | 0 | 3 | 3 | H/TOT | 1 | 0 | 0 | 0 | 0 | 1 | 1 | H/TOT |
| 1651 | 100 | 7 | 2 | 0 | 1 | 110 | 112 | P/TOT | 110 | 5 | 0 | 0 | 0 | 115 | 115 | P/TOT | 33 | 9 | 0 | 0 | 0 | 42 | 42 | P/TOT | 22 | 2 | 1 | 0 | 5 | 30 | 36 | P/TOT |

| DATE: | 22nd October 2019 | SITE: | 01 | 1 |
|---|---|---|---|---|
| DAY: | Tuesday | LOCATION: | Sutton Cross | |

| | MOVEMENT 12 | | | | | | | | MOVEMENT 13 | | | | | | | | MOVEMENT 14 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU |
| 27 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 13:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 29 | 4 | 1 | 0 | 2 | 36 | 39 |
| 35 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 13:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 1 | 0 | 0 | 0 | 23 | 23 |
| 30 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 13:30 | 4 | 0 | 0 | 0 | 1 | 5 | 6 | 49 | 8 | 1 | 0 | 2 | 60 | 63 |
| 34 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 13:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 39 | 2 | 1 | 0 | 0 | 42 | 43 |
| 125 | 8 | 1 | 0 | 0 | 0 | 9 | 9 | H/TOT | 7 | 0 | 0 | 0 | 1 | 8 | 9 | 139 | 15 | 3 | 0 | 4 | 161 | 167 |
| 37 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 14:00 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 34 | 1 | 1 | 0 | 0 | 36 | 37 |
| 47 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 14:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 28 | 5 | 2 | 0 | 1 | 36 | 38 |
| 25 | 1 | 0 | 0 | 0 | 1 | 2 | 3 | 14:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 40 | 0 | 1 | 0 | 0 | 41 | 42 |
| 28 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 14:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 52 | 3 | 0 | 0 | 0 | 55 | 55 |
| 136 | 8 | 0 | 0 | 0 | 1 | 9 | 10 | H/TOT | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 154 | 9 | 4 | 0 | 1 | 168 | 171 |
| 40 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 15:00 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 33 | 3 | 3 | 0 | 1 | 40 | 43 |
| 49 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 15:15 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 33 | 4 | 1 | 0 | 0 | 38 | 39 |
| 55 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 15:30 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 53 | 2 | 0 | 0 | 0 | 55 | 55 |
| 24 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 15:45 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 51 | 4 | 0 | 0 | 1 | 56 | 57 |
| 168 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | H/TOT | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 170 | 13 | 4 | 0 | 2 | 189 | 193 |
| 35 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 16:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 44 | 7 | 0 | 0 | 0 | 51 | 51 |
| 38 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 3 | 2 | 0 | 0 | 33 | 34 |
| 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16:30 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 27 | 1 | 0 | 0 | 0 | 28 | 28 |
| 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 43 | 43 |
| 156 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | H/TOT | 2 | 0 | 0 | 0 | 1 | 3 | 4 | 142 | 11 | 2 | 0 | 0 | 155 | 156 |
| 31 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 17:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 42 | 6 | 0 | 0 | 1 | 49 | 50 |
| 49 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 17:15 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 33 | 2 | 0 | 0 | 0 | 35 | 35 |
| 44 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 1 | 29 | 30 |
| 40 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 17:45 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 38 | 1 | 0 | 0 | 0 | 39 | 39 |
| 163 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | H/TOT | 4 | 1 | 0 | 0 | 0 | 5 | 5 | 141 | 9 | 0 | 0 | 2 | 152 | 154 |
| 42 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 6 | 0 | 0 | 1 | 38 | 39 |
| 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18:15 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 22 | 2 | 0 | 0 | 0 | 24 | 24 |
| 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 30 | 30 |
| 28 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 18:45 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 18 | 1 | 0 | 0 | 0 | 19 | 19 |
| 144 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | H/TOT | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 101 | 9 | 0 | 0 | 1 | 111 | 112 |
| 1651 | 65 | 1 | 0 | 0 | 4 | 70 | 74 | P/TOT | 69 | 3 | 0 | 0 | 4 | 76 | 80 | 1749 | 108 | 25 | 2 | 25 | 1909 | 1949 |

| 1 | | | | | | | DATE: | 22nd October 2019 | | | | | | | SITE: | | | 01 | | | | | | | | | | | | DATE: | 22nd October 2019 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | DAY: | Tuesday | | | | | | | LOCATION: | Sutton Cross | | | | | | | | | | | | | | DAY: | Tuesday | | | | | | | |
| | MOVEMENT 15 | | | | | | | MOVEMENT 16 | | | | | | | | MOVEMENT 17 | | | | | | | MOVEMENT 18 | | | | | | | MOVEMENT 19 | | | | | | | MOVEMENT 20 | | | | | | | PCU's Through Junction |
| PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | |
| 39 | 25 | 2 | 0 | 0 | 0 | 27 | 27 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 13:00 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 53 | 3 | 1 | 0 | 1 | 58 | 60 | 49 | 9 | 1 | 1 | 0 | 60 | 62 | 400 |
| 23 | 19 | 2 | 1 | 0 | 0 | 22 | 23 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 13:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 68 | 5 | 0 | 1 | 1 | 75 | 77 | 47 | 3 | 4 | 0 | 1 | 55 | 58 | 380 |
| 63 | 26 | 2 | 1 | 0 | 0 | 29 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13:30 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 57 | 4 | 3 | 0 | 1 | 65 | 68 | 36 | 7 | 2 | 0 | 0 | 45 | 46 | 405 |
| 43 | 30 | 7 | 3 | 1 | 0 | 41 | 44 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 13:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 2 | 2 | 0 | 0 | 56 | 57 | 40 | 3 | 2 | 0 | 0 | 45 | 46 | 399 |
| 167 | 100 | 13 | 5 | 1 | 0 | 119 | 123 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | H/TOT | 6 | 2 | 0 | 0 | 0 | 8 | 8 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 230 | 14 | 6 | 1 | 3 | 254 | 261 | 172 | 22 | 9 | 1 | 1 | 205 | 212 | 1584 |
| 37 | 27 | 4 | 2 | 0 | 0 | 33 | 34 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 14:00 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 59 | 6 | 0 | 0 | 1 | 66 | 67 | 46 | 9 | 0 | 0 | 0 | 55 | 55 | 382 |
| 38 | 31 | 4 | 0 | 0 | 0 | 35 | 35 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 14:15 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 57 | 6 | 0 | 0 | 1 | 64 | 65 | 42 | 5 | 1 | 0 | 0 | 48 | 49 | 388 |
| 42 | 33 | 4 | 0 | 0 | 0 | 37 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14:30 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 3 | 1 | 0 | 1 | 73 | 75 | 51 | 8 | 1 | 0 | 0 | 60 | 61 | 435 |
| 55 | 28 | 4 | 0 | 1 | 0 | 33 | 34 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 14:45 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 77 | 2 | 0 | 0 | 0 | 79 | 79 | 48 | 4 | 1 | 0 | 0 | 53 | 54 | 440 |
| 171 | 119 | 16 | 2 | 1 | 0 | 138 | 140 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | H/TOT | 12 | 1 | 0 | 0 | 0 | 13 | 13 | 2 | 1 | 0 | 0 | 1 | 4 | 5 | 261 | 17 | 1 | 0 | 3 | 282 | 286 | 187 | 26 | 3 | 0 | 0 | 216 | 218 | 1645 |
| 43 | 24 | 3 | 2 | 0 | 0 | 29 | 30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 15:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 6 | 0 | 0 | 1 | 69 | 70 | 59 | 9 | 3 | 2 | 0 | 73 | 77 | 442 |
| 39 | 16 | 5 | 1 | 0 | 1 | 23 | 25 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 15:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 60 | 1 | 3 | 0 | 1 | 65 | 68 | 40 | 6 | 3 | 1 | 0 | 50 | 53 | 411 |
| 55 | 35 | 2 | 0 | 1 | 0 | 38 | 39 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 15:30 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 84 | 1 | 0 | 0 | 1 | 86 | 87 | 39 | 6 | 3 | 0 | 0 | 48 | 50 | 499 |
| 57 | 42 | 3 | 1 | 0 | 0 | 46 | 47 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 15:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 79 | 7 | 1 | 0 | 1 | 88 | 90 | 60 | 10 | 0 | 0 | 2 | 72 | 74 | 467 |
| 193 | 117 | 13 | 4 | 1 | 1 | 136 | 140 | 5 | 1 | 0 | 0 | 0 | 6 | 6 | H/TOT | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 285 | 15 | 4 | 0 | 4 | 308 | 314 | 198 | 31 | 9 | 3 | 2 | 243 | 253 | 1819 |
| 51 | 53 | 8 | 2 | 0 | 1 | 64 | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 8 | 2 | 0 | 3 | 72 | 76 | 47 | 6 | 1 | 0 | 0 | 54 | 55 | 431 |
| 34 | 22 | 4 | 1 | 0 | 0 | 27 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16:15 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 52 | 11 | 0 | 0 | 1 | 64 | 65 | 53 | 11 | 0 | 0 | 0 | 64 | 64 | 397 |
| 28 | 29 | 8 | 0 | 0 | 0 | 37 | 37 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 | 6 | 1 | 0 | 1 | 64 | 66 | 37 | 8 | 2 | 0 | 0 | 47 | 48 | 371 |
| 43 | 45 | 3 | 0 | 0 | 0 | 48 | 48 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 16:45 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 7 | 0 | 0 | 0 | 66 | 66 | 41 | 5 | 0 | 0 | 0 | 46 | 46 | 442 |
| 156 | 149 | 23 | 3 | 0 | 1 | 176 | 179 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | H/TOT | 5 | 1 | 0 | 0 | 0 | 6 | 6 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 226 | 32 | 3 | 0 | 5 | 266 | 273 | 178 | 30 | 3 | 0 | 0 | 211 | 213 | 1640 |
| 50 | 25 | 7 | 2 | 0 | 3 | 37 | 41 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 17:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 50 | 4 | 0 | 0 | 1 | 55 | 56 | 47 | 5 | 0 | 0 | 0 | 52 | 52 | 374 |
| 35 | 28 | 8 | 1 | 0 | 0 | 37 | 38 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 17:15 | 4 | 1 | 0 | 0 | 0 | 5 | 5 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 47 | 4 | 2 | 0 | 1 | 54 | 56 | 44 | 4 | 0 | 0 | 0 | 48 | 48 | 383 |
| 30 | 19 | 2 | 1 | 0 | 0 | 22 | 23 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 3 | 0 | 0 | 0 | 47 | 47 | 49 | 5 | 1 | 0 | 0 | 55 | 56 | 371 |
| 39 | 30 | 2 | 0 | 0 | 0 | 32 | 32 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 1 | 50 | 51 | 52 | 10 | 0 | 0 | 1 | 63 | 64 | 410 |
| 154 | 102 | 19 | 4 | 0 | 3 | 128 | 133 | 5 | 1 | 0 | 0 | 0 | 6 | 6 | H/TOT | 5 | 1 | 0 | 0 | 0 | 6 | 6 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 190 | 11 | 2 | 0 | 3 | 206 | 210 | 192 | 24 | 1 | 0 | 1 | 218 | 220 | 1537 |
| 39 | 29 | 0 | 1 | 0 | 0 | 30 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 | 3 | 0 | 0 | 1 | 65 | 66 | 49 | 3 | 0 | 0 | 0 | 52 | 52 | 385 |
| 24 | 22 | 3 | 0 | 0 | 0 | 25 | 25 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 18:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 44 | 2 | 0 | 0 | 1 | 47 | 48 | 35 | 2 | 0 | 0 | 1 | 38 | 39 | 394 |
| 30 | 11 | 4 | 1 | 0 | 0 | 16 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18:30 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 61 | 3 | 0 | 0 | 0 | 64 | 64 | 40 | 2 | 0 | 0 | 0 | 42 | 42 | 358 |
| 19 | 15 | 0 | 0 | 0 | 0 | 15 | 15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 18:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 48 | 1 | 0 | 0 | 1 | 50 | 51 | 34 | 3 | 0 | 0 | 0 | 37 | 37 | 361 |
| 112 | 77 | 7 | 2 | 0 | 0 | 86 | 87 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | H/TOT | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 17 | 0 | 0 | 0 | 0 | 17 | 17 | 214 | 9 | 0 | 0 | 3 | 226 | 229 | 158 | 10 | 0 | 0 | 1 | 169 | 170 | 1497 |
| 1949 | 1342 | 139 | 40 | 13 | 8 | 1542 | 1587 | 64 | 4 | 0 | 0 | 0 | 68 | 68 | P/TOT | 82 | 10 | 1 | 0 | 0 | 93 | 94 | 56 | 3 | 0 | 0 | 4 | 63 | 67 | 2844 | 217 | 40 | 6 | 41 | 3148 | 3217 | 2033 | 269 | 62 | 11 | 7 | 2382 | 2434 | 18841 |

| SITE: | | 02 | DATE: | 22nd October 2019 | SITE: | 02 | DATE: | 22nd October 2019 |
|---|---|---|---|---|---|---|---|---|
| LOCATION: | | Howth Road/Church Road | DAY: | Tuesday | LOCATION: | Howth Road/Church Road | DAY: | Tuesday |

| | MOVEMENT 1 | | | | | | | MOVEMENT 2 | | | | | | | MOVEMENT 3 | | | | | | | MOVEMENT 4 | | | | | | | MOVEMENT 5 | | | | | | | MOVEMENT 6 | | | | | | | PCU's Through Junction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | |
| 07:00 | 29 | 6 | 0 | 0 | 0 | 35 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 2 | 0 | 0 | 0 | 67 | 67 | 106 |
| 07:15 | 35 | 14 | 1 | 0 | 1 | 51 | 53 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 7 | 1 | 0 | 0 | 0 | 8 | 8 | 07:15 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 61 | 7 | 0 | 1 | 0 | 69 | 70 | 136 |
| 07:30 | 37 | 7 | 3 | 0 | 2 | 49 | 53 | 4 | 1 | 0 | 0 | 0 | 5 | 5 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 07:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 69 | 2 | 1 | 1 | 1 | 74 | 77 | 137 |
| 07:45 | 54 | 11 | 2 | 2 | 0 | 69 | 73 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 58 | 6 | 1 | 0 | 0 | 65 | 66 | 146 |
| H/TOT | 155 | 38 | 6 | 2 | 3 | 204 | 213 | 12 | 1 | 0 | 0 | 0 | 13 | 13 | 11 | 2 | 0 | 0 | 0 | 13 | 13 | H/TOT | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 253 | 17 | 2 | 2 | 1 | 275 | 280 | 525 |
| 08:00 | 38 | 17 | 2 | 1 | 2 | 60 | 64 | 21 | 1 | 0 | 0 | 0 | 22 | 22 | 16 | 0 | 0 | 0 | 0 | 16 | 16 | 08:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 72 | 3 | 3 | 0 | 3 | 81 | 86 | 193 |
| 08:15 | 56 | 9 | 1 | 0 | 2 | 68 | 71 | 34 | 0 | 0 | 0 | 0 | 34 | 34 | 46 | 0 | 0 | 0 | 0 | 46 | 46 | 08:15 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 73 | 11 | 0 | 1 | 0 | 85 | 86 | 245 |
| 08:30 | 118 | 14 | 4 | 0 | 1 | 137 | 140 | 23 | 2 | 0 | 0 | 0 | 25 | 25 | 56 | 0 | 0 | 0 | 0 | 56 | 56 | 08:30 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 109 | 6 | 2 | 0 | 1 | 118 | 120 | 353 |
| 08:45 | 78 | 9 | 4 | 0 | 1 | 92 | 95 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 29 | 1 | 0 | 0 | 0 | 30 | 30 | 08:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 12 | 0 | 0 | 1 | 0 | 13 | 14 | 98 | 8 | 1 | 1 | 0 | 108 | 110 | 264 |
| H/TOT | 290 | 49 | 11 | 1 | 6 | 357 | 370 | 92 | 3 | 0 | 0 | 0 | 95 | 95 | 147 | 1 | 0 | 0 | 0 | 148 | 148 | H/TOT | 11 | 0 | 0 | 0 | 0 | 11 | 11 | 27 | 0 | 0 | 1 | 0 | 28 | 29 | 352 | 28 | 6 | 2 | 4 | 392 | 402 | 1055 |
| 09:00 | 74 | 3 | 0 | 0 | 1 | 78 | 79 | 11 | 1 | 0 | 0 | 0 | 12 | 12 | 25 | 0 | 0 | 1 | 0 | 26 | 27 | 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 140 | 14 | 2 | 0 | 1 | 157 | 159 | 281 |
| 09:15 | 56 | 14 | 3 | 0 | 1 | 74 | 77 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 18 | 1 | 0 | 0 | 0 | 19 | 19 | 09:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 106 | 7 | 0 | 0 | 0 | 113 | 113 | 225 |
| 09:30 | 45 | 11 | 3 | 0 | 0 | 59 | 61 | 15 | 3 | 2 | 0 | 0 | 20 | 21 | 17 | 0 | 0 | 0 | 0 | 17 | 17 | 09:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 79 | 12 | 2 | 0 | 2 | 95 | 98 | 202 |
| 09:45 | 75 | 13 | 2 | 0 | 2 | 92 | 95 | 14 | 2 | 0 | 0 | 0 | 16 | 16 | 14 | 1 | 0 | 0 | 0 | 15 | 15 | 09:45 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 77 | 10 | 2 | 0 | 2 | 91 | 94 | 225 |
| H/TOT | 250 | 41 | 8 | 0 | 4 | 303 | 311 | 50 | 6 | 2 | 0 | 0 | 58 | 59 | 74 | 2 | 0 | 1 | 0 | 77 | 78 | H/TOT | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 402 | 43 | 6 | 0 | 5 | 456 | 464 | 932 |
| 10:00 | 77 | 9 | 8 | 0 | 1 | 95 | 100 | 15 | 3 | 1 | 0 | 0 | 19 | 20 | 10 | 1 | 0 | 0 | 0 | 11 | 11 | 10:00 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 66 | 11 | 1 | 0 | 1 | 79 | 81 | 217 |
| 10:15 | 64 | 9 | 2 | 0 | 1 | 76 | 78 | 16 | 3 | 0 | 0 | 0 | 19 | 19 | 24 | 1 | 0 | 0 | 0 | 25 | 25 | 10:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 73 | 10 | 6 | 0 | 1 | 90 | 94 | 220 |
| 10:30 | 78 | 7 | 6 | 1 | 0 | 92 | 96 | 16 | 3 | 0 | 0 | 0 | 19 | 19 | 22 | 2 | 0 | 0 | 0 | 24 | 24 | 10:30 | 3 | 0 | 1 | 0 | 0 | 4 | 5 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 85 | 6 | 6 | 0 | 1 | 98 | 102 | 250 |
| 10:45 | 96 | 18 | 2 | 0 | 2 | 118 | 121 | 12 | 1 | 0 | 0 | 0 | 13 | 13 | 19 | 1 | 0 | 0 | 0 | 20 | 20 | 10:45 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 87 | 8 | 5 | 1 | 2 | 103 | 109 | 269 |
| H/TOT | 315 | 43 | 18 | 1 | 4 | 381 | 395 | 59 | 10 | 1 | 0 | 0 | 70 | 71 | 75 | 5 | 0 | 0 | 0 | 80 | 80 | H/TOT | 12 | 0 | 1 | 0 | 0 | 13 | 14 | 11 | 0 | 0 | 0 | 0 | 11 | 11 | 311 | 35 | 18 | 1 | 5 | 370 | 385 | 956 |
| 11:00 | 81 | 12 | 1 | 1 | 0 | 95 | 97 | 10 | 1 | 0 | 0 | 0 | 11 | 11 | 11 | 1 | 0 | 0 | 0 | 12 | 12 | 11:00 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83 | 7 | 2 | 0 | 1 | 93 | 95 | 218 |
| 11:15 | 75 | 11 | 3 | 0 | 2 | 91 | 95 | 16 | 0 | 0 | 0 | 0 | 16 | 16 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 11:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 87 | 11 | 2 | 0 | 1 | 101 | 103 | 226 |
| 11:30 | 74 | 13 | 2 | 2 | 0 | 91 | 95 | 15 | 2 | 0 | 0 | 0 | 17 | 17 | 14 | 3 | 0 | 0 | 0 | 17 | 17 | 11:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 82 | 16 | 4 | 1 | 1 | 104 | 108 | 238 |
| 11:45 | 103 | 11 | 1 | 0 | 1 | 116 | 118 | 13 | 2 | 0 | 0 | 0 | 15 | 15 | 8 | 2 | 0 | 0 | 0 | 10 | 10 | 11:45 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 15 | 4 | 1 | 0 | 90 | 93 | 239 |
| H/TOT | 333 | 47 | 7 | 3 | 3 | 393 | 403 | 54 | 5 | 0 | 0 | 0 | 59 | 59 | 43 | 6 | 0 | 0 | 0 | 49 | 49 | H/TOT | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 322 | 49 | 12 | 2 | 3 | 388 | 400 | 920 |
| 12:00 | 101 | 1 | 4 | 1 | 1 | 108 | 112 | 13 | 1 | 0 | 0 | 0 | 14 | 14 | 9 | 0 | 0 | 0 | 1 | 10 | 11 | 12:00 | 5 | 1 | 0 | 0 | 0 | 6 | 6 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 76 | 12 | 6 | 0 | 1 | 95 | 99 | 244 |
| 12:15 | 66 | 8 | 4 | 0 | 2 | 80 | 84 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 12:15 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 93 | 10 | 3 | 0 | 1 | 107 | 110 | 222 |
| 12:30 | 104 | 6 | 3 | 1 | 0 | 114 | 117 | 19 | 0 | 0 | 0 | 1 | 20 | 21 | 11 | 1 | 0 | 0 | 0 | 12 | 12 | 12:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 87 | 7 | 2 | 0 | 1 | 97 | 99 | 252 |
| 12:45 | 100 | 9 | 2 | 0 | 1 | 112 | 114 | 20 | 0 | 0 | 0 | 0 | 20 | 20 | 8 | 4 | 0 | 0 | 1 | 13 | 14 | 12:45 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 73 | 9 | 1 | 1 | 0 | 84 | 86 | 239 |
| H/TOT | 371 | 24 | 13 | 2 | 4 | 414 | 427 | 65 | 1 | 0 | 0 | 1 | 67 | 68 | 40 | 5 | 0 | 0 | 2 | 47 | 49 | H/TOT | 8 | 2 | 0 | 0 | 0 | 10 | 10 | 8 | 1 | 0 | 0 | 0 | 9 | 9 | 329 | 38 | 12 | 1 | 3 | 383 | 393 | 956 |

| SITE: | 02 | DATE: | 22nd October 2019 | SITE: | 02 | DATE: | 22nd October 2019 |
|---|---|---|---|---|---|---|---|
| LOCATION: | Howth Road/Church Road | DAY: | Tuesday | LOCATION: | Howth Road/Church Road | DAY: | Tuesday |

| | MOVEMENT 1 | | | | | | | MOVEMENT 2 | | | | | | | MOVEMENT 3 | | | | | | | MOVEMENT 4 | | | | | | | MOVEMENT 5 | | | | | | | MOVEMENT 6 | | | | | | | PCU's Through Junction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | |
| 13:00 | 103 | 12 | 2 | 0 | 1 | 118 | 120 | 16 | 4 | 0 | 0 | 0 | 20 | 20 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 13:00 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 102 | 9 | 2 | 0 | 1 | 114 | 116 | 268 |
| 13:15 | 85 | 8 | 1 | 0 | 1 | 95 | 97 | 15 | 1 | 0 | 0 | 0 | 16 | 16 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 13:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 77 | 5 | 2 | 1 | 2 | 87 | 91 | 214 |
| 13:30 | 93 | 8 | 1 | 0 | 1 | 103 | 105 | 13 | 2 | 0 | 0 | 0 | 15 | 15 | 7 | 1 | 0 | 0 | 0 | 8 | 8 | 13:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 80 | 10 | 4 | 0 | 1 | 95 | 98 | 231 |
| 13:45 | 108 | 7 | 1 | 0 | 1 | 117 | 119 | 12 | 0 | 1 | 0 | 0 | 13 | 14 | 12 | 1 | 0 | 0 | 0 | 13 | 13 | 13:45 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 85 | 4 | 3 | 1 | 0 | 93 | 96 | 247 |
| H/TOT | 389 | 35 | 5 | 0 | 4 | 433 | 440 | 56 | 7 | 1 | 0 | 0 | 64 | 65 | 35 | 2 | 0 | 0 | 0 | 37 | 37 | H/TOT | 8 | 1 | 0 | 0 | 0 | 9 | 9 | 7 | 1 | 0 | 0 | 0 | 8 | 8 | 344 | 28 | 11 | 2 | 4 | 389 | 401 | 959 |
| 14:00 | 103 | 10 | 0 | 0 | 1 | 114 | 115 | 16 | 0 | 0 | 0 | 1 | 17 | 18 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | 14:00 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 90 | 15 | 0 | 0 | 1 | 106 | 107 | 253 |
| 14:15 | 83 | 2 | 2 | 0 | 2 | 89 | 92 | 17 | 0 | 0 | 0 | 0 | 17 | 17 | 15 | 2 | 0 | 0 | 0 | 17 | 17 | 14:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 15 | 0 | 0 | 0 | 0 | 15 | 15 | 100 | 8 | 2 | 0 | 1 | 111 | 113 | 256 |
| 14:30 | 79 | 7 | 2 | 2 | 1 | 91 | 96 | 23 | 2 | 0 | 0 | 0 | 25 | 25 | 22 | 2 | 0 | 0 | 0 | 24 | 24 | 14:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 110 | 10 | 1 | 0 | 1 | 122 | 124 | 275 |
| 14:45 | 112 | 7 | 4 | 0 | 2 | 125 | 129 | 14 | 1 | 0 | 0 | 0 | 15 | 15 | 21 | 1 | 0 | 0 | 0 | 22 | 22 | 14:45 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 101 | 4 | 2 | 0 | 2 | 109 | 112 | 282 |
| H/TOT | 377 | 26 | 8 | 2 | 6 | 419 | 432 | 70 | 3 | 0 | 0 | 1 | 74 | 75 | 64 | 6 | 0 | 0 | 0 | 70 | 70 | H/TOT | 11 | 0 | 0 | 0 | 0 | 11 | 11 | 23 | 0 | 0 | 0 | 0 | 23 | 23 | 401 | 37 | 5 | 0 | 5 | 448 | 456 | 1066 |
| 15:00 | 90 | 7 | 3 | 0 | 1 | 101 | 104 | 26 | 0 | 0 | 0 | 0 | 26 | 26 | 7 | 1 | 0 | 0 | 0 | 8 | 8 | 15:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 85 | 9 | 2 | 2 | 1 | 99 | 104 | 245 |
| 15:15 | 89 | 7 | 2 | 0 | 1 | 99 | 101 | 34 | 0 | 0 | 0 | 0 | 34 | 34 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 15:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 99 | 6 | 4 | 1 | 0 | 110 | 113 | 264 |
| 15:30 | 86 | 4 | 0 | 0 | 2 | 92 | 94 | 35 | 1 | 0 | 0 | 0 | 36 | 36 | 46 | 0 | 0 | 0 | 1 | 47 | 48 | 15:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 86 | 9 | 3 | 0 | 2 | 100 | 104 | 285 |
| 15:45 | 78 | 9 | 2 | 0 | 0 | 89 | 90 | 19 | 0 | 0 | 0 | 0 | 19 | 19 | 34 | 0 | 0 | 0 | 1 | 35 | 36 | 15:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 100 | 16 | 0 | 0 | 1 | 117 | 118 | 267 |
| H/TOT | 343 | 27 | 7 | 0 | 4 | 381 | 389 | 114 | 1 | 0 | 0 | 0 | 115 | 115 | 99 | 1 | 0 | 0 | 2 | 102 | 104 | H/TOT | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 9 | 1 | 0 | 0 | 0 | 10 | 10 | 370 | 40 | 9 | 3 | 4 | 426 | 438 | 1061 |
| 16:00 | 107 | 9 | 0 | 0 | 2 | 118 | 120 | 21 | 1 | 0 | 0 | 0 | 22 | 22 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 3 | 4 | 87 | 15 | 2 | 0 | 3 | 107 | 111 | 270 |
| 16:15 | 98 | 10 | 1 | 0 | 0 | 109 | 110 | 25 | 0 | 0 | 0 | 0 | 25 | 25 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 16 | 0 | 0 | 1 | 92 | 93 | 241 |
| 16:30 | 94 | 7 | 0 | 0 | 1 | 102 | 103 | 20 | 0 | 0 | 0 | 0 | 20 | 20 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 16:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 70 | 12 | 2 | 0 | 1 | 85 | 87 | 224 |
| 16:45 | 91 | 6 | 0 | 0 | 2 | 99 | 101 | 21 | 1 | 0 | 0 | 0 | 22 | 22 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 16:45 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 86 | 11 | 0 | 0 | 0 | 97 | 97 | 238 |
| H/TOT | 390 | 32 | 1 | 0 | 5 | 428 | 434 | 87 | 2 | 0 | 0 | 0 | 89 | 89 | 52 | 0 | 0 | 0 | 0 | 52 | 52 | H/TOT | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 4 | 1 | 1 | 0 | 0 | 6 | 7 | 318 | 54 | 4 | 0 | 5 | 381 | 388 | 972 |
| 17:00 | 91 | 11 | 0 | 0 | 0 | 102 | 102 | 23 | 1 | 0 | 0 | 0 | 24 | 24 | 10 | 1 | 0 | 0 | 0 | 11 | 11 | 17:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 74 | 6 | 0 | 0 | 1 | 81 | 82 | 221 |
| 17:15 | 86 | 6 | 2 | 0 | 1 | 95 | 97 | 21 | 0 | 0 | 0 | 0 | 21 | 21 | 13 | 1 | 0 | 0 | 0 | 14 | 14 | 17:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 71 | 6 | 2 | 0 | 2 | 81 | 84 | 220 |
| 17:30 | 102 | 4 | 1 | 0 | 1 | 108 | 110 | 28 | 0 | 0 | 0 | 0 | 28 | 28 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 17:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 65 | 5 | 1 | 0 | 0 | 71 | 72 | 220 |
| 17:45 | 101 | 6 | 0 | 0 | 1 | 108 | 109 | 28 | 0 | 0 | 0 | 0 | 28 | 28 | 19 | 0 | 0 | 0 | 0 | 19 | 19 | 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 87 | 7 | 0 | 0 | 1 | 95 | 96 | 254 |
| H/TOT | 380 | 27 | 3 | 0 | 3 | 413 | 418 | 100 | 1 | 0 | 0 | 0 | 101 | 101 | 51 | 2 | 0 | 0 | 0 | 53 | 53 | H/TOT | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 297 | 24 | 3 | 0 | 4 | 328 | 334 | 915 |
| 18:00 | 91 | 5 | 0 | 0 | 0 | 96 | 96 | 24 | 0 | 0 | 0 | 0 | 24 | 24 | 16 | 0 | 0 | 0 | 0 | 16 | 16 | 18:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 4 | 0 | 0 | 1 | 86 | 87 | 224 |
| 18:15 | 139 | 1 | 1 | 0 | 0 | 141 | 142 | 17 | 0 | 0 | 0 | 0 | 17 | 17 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 18:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 71 | 3 | 0 | 0 | 2 | 76 | 78 | 251 |
| 18:30 | 124 | 6 | 1 | 0 | 1 | 132 | 134 | 17 | 0 | 0 | 0 | 0 | 17 | 17 | 15 | 1 | 0 | 0 | 0 | 16 | 16 | 18:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 4 | 0 | 0 | 0 | 82 | 82 | 249 |
| 18:45 | 108 | 3 | 1 | 0 | 0 | 112 | 113 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 18:45 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 87 | 1 | 0 | 0 | 1 | 89 | 90 | 234 |
| H/TOT | 462 | 15 | 3 | 0 | 1 | 481 | 484 | 70 | 0 | 0 | 0 | 0 | 70 | 70 | 55 | 1 | 0 | 0 | 0 | 56 | 56 | H/TOT | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 317 | 12 | 0 | 0 | 4 | 333 | 337 | 957 |
| P/TOT | 4055 | 404 | 90 | 11 | 47 | 4607 | 4713 | 829 | 40 | 4 | 0 | 2 | 875 | 879 | 746 | 33 | 0 | 1 | 4 | 784 | 789 | P/TOT | 79 | 4 | 1 | 0 | 0 | 84 | 85 | 123 | 4 | 1 | 1 | 0 | 129 | 131 | 4016 | 405 | 88 | 13 | 47 | 4569 | 4677 | 11274 |

| SITE: | | 03 | | | | | | | | | | | | DATE: | 22nd October 2019 | SITE: | | 03 | | | | | | | | | | | | DATE: | 22nd October 2019 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOCATION: | | Howth Road/Offington Park | | | | | | | | | | | | DAY: | Tuesday | LOCATION: | | Howth Road/Offington Park | | | | | | | | | | | | DAY: | Tuesday | | |

| | MOVEMENT 1 | | | | | | | MOVEMENT 2 | | | | | | | MOVEMENT 3 | | | | | | | MOVEMENT 4 | | | | | | | MOVEMENT 5 | | | | | | | MOVEMENT 6 | | | | | | | PCU's Through Junction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | |
| 07:00 | 27 | 8 | 0 | 0 | 0 | 35 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 07:00 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 50 | 2 | 1 | 0 | 0 | 53 | 54 | 108 |
| 07:15 | 41 | 12 | 1 | 0 | 1 | 55 | 57 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 07:15 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 59 | 7 | 0 | 1 | 0 | 67 | 68 | 141 |
| 07:30 | 37 | 6 | 1 | 0 | 2 | 46 | 49 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 07:30 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 58 | 5 | 1 | 1 | 1 | 66 | 69 | 143 |
| 07:45 | 47 | 8 | 2 | 2 | 0 | 59 | 63 | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 8 | 1 | 0 | 0 | 0 | 9 | 9 | 07:45 | 15 | 0 | 0 | 0 | 0 | 15 | 15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 46 | 4 | 2 | 0 | 0 | 52 | 53 | 146 |
| H/TOT | 152 | 34 | 4 | 2 | 3 | 195 | 203 | 7 | 3 | 0 | 0 | 0 | 10 | 10 | 30 | 1 | 0 | 0 | 0 | 31 | 31 | H/TOT | 37 | 0 | 0 | 0 | 0 | 37 | 37 | 12 | 1 | 0 | 0 | 0 | 13 | 13 | 213 | 18 | 4 | 2 | 1 | 238 | 244 | 537 |
| 08:00 | 30 | 11 | 1 | 1 | 2 | 45 | 49 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 12 | 0 | 1 | 0 | 2 | 15 | 18 | 08:00 | 21 | 2 | 0 | 0 | 1 | 24 | 25 | 13 | 1 | 0 | 0 | 0 | 14 | 14 | 62 | 5 | 2 | 0 | 1 | 70 | 72 | 180 |
| 08:15 | 46 | 12 | 1 | 0 | 1 | 60 | 62 | 4 | 1 | 0 | 0 | 1 | 6 | 7 | 12 | 1 | 0 | 0 | 0 | 13 | 13 | 08:15 | 12 | 1 | 0 | 0 | 0 | 13 | 13 | 15 | 0 | 0 | 0 | 0 | 15 | 15 | 70 | 8 | 0 | 1 | 0 | 79 | 80 | 190 |
| 08:30 | 88 | 10 | 4 | 0 | 0 | 102 | 104 | 20 | 3 | 0 | 0 | 1 | 24 | 25 | 24 | 0 | 0 | 0 | 0 | 24 | 24 | 08:30 | 27 | 1 | 0 | 0 | 0 | 28 | 28 | 26 | 0 | 0 | 0 | 0 | 26 | 26 | 89 | 6 | 2 | 0 | 1 | 98 | 100 | 307 |
| 08:45 | 76 | 13 | 3 | 0 | 1 | 93 | 96 | 22 | 1 | 1 | 0 | 0 | 24 | 25 | 17 | 0 | 0 | 0 | 0 | 17 | 17 | 08:45 | 27 | 0 | 0 | 0 | 0 | 27 | 27 | 12 | 1 | 0 | 0 | 0 | 13 | 13 | 78 | 8 | 2 | 1 | 0 | 89 | 91 | 268 |
| H/TOT | 240 | 46 | 9 | 1 | 4 | 300 | 310 | 48 | 6 | 1 | 0 | 2 | 57 | 60 | 65 | 1 | 1 | 0 | 2 | 69 | 72 | H/TOT | 87 | 4 | 0 | 0 | 1 | 92 | 93 | 66 | 2 | 0 | 0 | 0 | 68 | 68 | 299 | 27 | 6 | 2 | 2 | 336 | 344 | 945 |
| 09:00 | 68 | 4 | 1 | 0 | 1 | 74 | 76 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 24 | 2 | 0 | 0 | 0 | 26 | 26 | 09:00 | 27 | 1 | 0 | 0 | 0 | 28 | 28 | 16 | 0 | 0 | 0 | 0 | 16 | 16 | 117 | 9 | 1 | 0 | 1 | 128 | 130 | 278 |
| 09:15 | 57 | 12 | 3 | 0 | 1 | 73 | 76 | 7 | 1 | 0 | 0 | 0 | 8 | 8 | 15 | 0 | 0 | 0 | 0 | 15 | 15 | 09:15 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 88 | 7 | 1 | 0 | 0 | 96 | 97 | 214 |
| 09:30 | 36 | 11 | 1 | 0 | 0 | 48 | 49 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 12 | 1 | 0 | 0 | 1 | 14 | 15 | 09:30 | 6 | 0 | 1 | 0 | 0 | 7 | 8 | 5 | 1 | 0 | 0 | 0 | 6 | 6 | 67 | 9 | 3 | 0 | 1 | 80 | 83 | 165 |
| 09:45 | 75 | 12 | 2 | 0 | 2 | 91 | 94 | 5 | 2 | 0 | 0 | 0 | 7 | 7 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 09:45 | 8 | 1 | 0 | 0 | 0 | 9 | 9 | 10 | 1 | 0 | 0 | 0 | 11 | 11 | 70 | 11 | 2 | 0 | 2 | 85 | 88 | 214 |
| H/TOT | 236 | 39 | 7 | 0 | 4 | 286 | 294 | 20 | 3 | 0 | 0 | 0 | 23 | 23 | 56 | 3 | 0 | 0 | 1 | 60 | 61 | H/TOT | 51 | 2 | 1 | 0 | 0 | 54 | 55 | 40 | 2 | 0 | 0 | 0 | 42 | 42 | 342 | 36 | 7 | 0 | 4 | 389 | 397 | 871 |
| 10:00 | 70 | 9 | 6 | 0 | 1 | 86 | 90 | 6 | 0 | 1 | 0 | 0 | 7 | 8 | 10 | 2 | 0 | 0 | 0 | 12 | 12 | 10:00 | 10 | 1 | 1 | 0 | 0 | 12 | 13 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 56 | 6 | 2 | 0 | 2 | 66 | 69 | 196 |
| 10:15 | 54 | 10 | 1 | 0 | 1 | 66 | 68 | 8 | 0 | 1 | 0 | 0 | 9 | 10 | 11 | 0 | 0 | 0 | 0 | 11 | 11 | 10:15 | 11 | 0 | 0 | 0 | 0 | 11 | 11 | 5 | 1 | 1 | 0 | 0 | 7 | 8 | 67 | 7 | 4 | 0 | 1 | 79 | 82 | 189 |
| 10:30 | 77 | 7 | 6 | 1 | 0 | 91 | 95 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 4 | 1 | 1 | 0 | 0 | 6 | 7 | 10:30 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 4 | 0 | 1 | 0 | 0 | 5 | 6 | 81 | 5 | 4 | 0 | 1 | 91 | 94 | 213 |
| 10:45 | 89 | 14 | 1 | 0 | 0 | 104 | 105 | 5 | 1 | 0 | 0 | 0 | 6 | 6 | 15 | 1 | 1 | 0 | 0 | 17 | 18 | 10:45 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 8 | 1 | 0 | 0 | 0 | 9 | 9 | 71 | 6 | 3 | 1 | 2 | 83 | 88 | 237 |
| H/TOT | 290 | 40 | 14 | 1 | 2 | 347 | 357 | 25 | 1 | 2 | 0 | 0 | 28 | 29 | 40 | 4 | 2 | 0 | 0 | 46 | 47 | H/TOT | 39 | 1 | 1 | 0 | 0 | 41 | 42 | 22 | 2 | 2 | 0 | 0 | 26 | 27 | 275 | 24 | 13 | 1 | 6 | 319 | 333 | 835 |
| 11:00 | 76 | 13 | 2 | 1 | 2 | 94 | 98 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 9 | 1 | 0 | 0 | 0 | 10 | 10 | 11:00 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 74 | 7 | 2 | 0 | 1 | 84 | 86 | 212 |
| 11:15 | 66 | 12 | 2 | 0 | 1 | 81 | 83 | 4 | 1 | 0 | 0 | 1 | 6 | 7 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 11:15 | 8 | 3 | 0 | 0 | 0 | 11 | 11 | 5 | 4 | 0 | 0 | 0 | 9 | 9 | 75 | 9 | 2 | 0 | 1 | 87 | 89 | 206 |
| 11:30 | 69 | 14 | 3 | 2 | 0 | 88 | 92 | 11 | 0 | 0 | 0 | 0 | 11 | 11 | 8 | 2 | 0 | 0 | 0 | 10 | 10 | 11:30 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | 5 | 1 | 0 | 0 | 0 | 6 | 6 | 69 | 13 | 3 | 1 | 1 | 87 | 91 | 217 |
| 11:45 | 92 | 8 | 1 | 0 | 1 | 102 | 104 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 13 | 1 | 0 | 0 | 0 | 14 | 14 | 11:45 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 8 | 1 | 0 | 0 | 0 | 9 | 9 | 64 | 14 | 4 | 1 | 0 | 83 | 86 | 236 |
| H/TOT | 303 | 47 | 8 | 3 | 4 | 365 | 377 | 36 | 1 | 0 | 0 | 1 | 38 | 39 | 37 | 4 | 0 | 0 | 0 | 41 | 41 | H/TOT | 32 | 4 | 0 | 0 | 0 | 36 | 36 | 20 | 6 | 0 | 0 | 0 | 26 | 26 | 282 | 43 | 11 | 2 | 3 | 341 | 352 | 871 |
| 12:00 | 96 | 6 | 3 | 1 | 1 | 107 | 111 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 4 | 2 | 0 | 0 | 0 | 6 | 6 | 12:00 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 67 | 9 | 4 | 1 | 1 | 82 | 86 | 235 |
| 12:15 | 60 | 11 | 3 | 0 | 2 | 76 | 80 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 12:15 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 9 | 0 | 1 | 0 | 0 | 10 | 11 | 86 | 9 | 2 | 1 | 1 | 99 | 102 | 213 |
| 12:30 | 92 | 7 | 3 | 1 | 0 | 103 | 106 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | 12:30 | 12 | 0 | 1 | 0 | 0 | 13 | 14 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 82 | 6 | 2 | 0 | 1 | 91 | 93 | 238 |
| 12:45 | 86 | 8 | 2 | 0 | 1 | 97 | 99 | 11 | 1 | 0 | 0 | 0 | 12 | 12 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 12:45 | 20 | 1 | 0 | 0 | 0 | 21 | 21 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 72 | 7 | 2 | 1 | 1 | 83 | 86 | 235 |
| H/TOT | 334 | 32 | 11 | 2 | 4 | 383 | 395 | 33 | 1 | 0 | 0 | 0 | 34 | 34 | 26 | 3 | 0 | 0 | 0 | 29 | 29 | H/TOT | 54 | 1 | 1 | 0 | 0 | 56 | 57 | 38 | 0 | 1 | 0 | 0 | 39 | 40 | 307 | 31 | 10 | 3 | 4 | 355 | 368 | 922 |

| SITE: | 03 | DATE: | 22nd October 2019 | SITE: | 03 | DATE: | 22nd October 2019 |
|---|---|---|---|---|---|---|---|
| LOCATION: | Howth Road/Offington Park | DAY: | Tuesday | LOCATION: | Howth Road/Offington Park | DAY: | Tuesday |

| | MOVEMENT 1 | | | | | | | MOVEMENT 2 | | | | | | | MOVEMENT 3 | | | | | | | MOVEMENT 4 | | | | | | | MOVEMENT 5 | | | | | | | MOVEMENT 6 | | | | | | | PCU's Through Junction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | |
| 13:00 | 75 | 11 | 2 | 0 | 1 | 89 | 91 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 13:00 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | 11 | 0 | 0 | 0 | 0 | 11 | 11 | 90 | 10 | 2 | 0 | 0 | 102 | 103 | 225 |
| 13:15 | 85 | 10 | 1 | 0 | 1 | 97 | 99 | 15 | 1 | 1 | 0 | 0 | 17 | 18 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 13:15 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 17 | 0 | 1 | 0 | 0 | 18 | 19 | 66 | 4 | 3 | 1 | 2 | 76 | 81 | 224 |
| 13:30 | 87 | 7 | 1 | 0 | 1 | 96 | 98 | 9 | 2 | 0 | 0 | 0 | 11 | 11 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 13:30 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 79 | 10 | 3 | 0 | 1 | 93 | 96 | 233 |
| 13:45 | 85 | 9 | 0 | 0 | 0 | 94 | 94 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 13:45 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 8 | 1 | 0 | 0 | 0 | 9 | 9 | 77 | 4 | 3 | 1 | 0 | 85 | 88 | 221 |
| H/TOT | 332 | 37 | 4 | 0 | 3 | 376 | 381 | 41 | 3 | 1 | 0 | 0 | 45 | 46 | 29 | 0 | 0 | 0 | 0 | 29 | 29 | H/TOT | 33 | 1 | 0 | 0 | 0 | 34 | 34 | 44 | 1 | 1 | 0 | 0 | 46 | 47 | 312 | 28 | 11 | 2 | 3 | 356 | 367 | 903 |
| 14:00 | 77 | 9 | 1 | 0 | 2 | 89 | 92 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 8 | 3 | 0 | 0 | 0 | 11 | 11 | 14:00 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | 95 | 9 | 0 | 0 | 1 | 105 | 106 | 240 |
| 14:15 | 77 | 1 | 1 | 0 | 0 | 79 | 80 | 25 | 1 | 0 | 0 | 1 | 27 | 28 | 9 | 1 | 0 | 0 | 0 | 10 | 10 | 14:15 | 15 | 0 | 0 | 0 | 0 | 15 | 15 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 70 | 5 | 2 | 0 | 1 | 78 | 80 | 227 |
| 14:30 | 65 | 6 | 3 | 2 | 2 | 78 | 84 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 15 | 0 | 0 | 0 | 0 | 15 | 15 | 14:30 | 20 | 1 | 1 | 0 | 1 | 23 | 25 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 85 | 7 | 1 | 0 | 1 | 94 | 96 | 238 |
| 14:45 | 101 | 6 | 4 | 0 | 1 | 112 | 115 | 18 | 2 | 0 | 0 | 1 | 21 | 22 | 7 | 1 | 1 | 0 | 1 | 10 | 12 | 14:45 | 15 | 2 | 0 | 0 | 0 | 17 | 17 | 9 | 1 | 0 | 0 | 1 | 11 | 12 | 97 | 4 | 1 | 0 | 1 | 103 | 105 | 282 |
| H/TOT | 320 | 22 | 9 | 2 | 5 | 358 | 370 | 67 | 3 | 0 | 0 | 2 | 72 | 74 | 39 | 5 | 1 | 0 | 1 | 46 | 48 | H/TOT | 60 | 3 | 1 | 0 | 1 | 65 | 67 | 38 | 2 | 0 | 0 | 1 | 41 | 42 | 347 | 25 | 4 | 0 | 4 | 380 | 386 | 986 |
| 15:00 | 72 | 7 | 3 | 0 | 1 | 83 | 86 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 5 | 1 | 0 | 0 | 0 | 6 | 6 | 15:00 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 77 | 8 | 2 | 2 | 1 | 90 | 95 | 221 |
| 15:15 | 79 | 6 | 3 | 0 | 0 | 88 | 90 | 12 | 1 | 0 | 0 | 0 | 13 | 13 | 15 | 0 | 0 | 0 | 0 | 15 | 15 | 15:15 | 8 | 1 | 0 | 0 | 0 | 9 | 9 | 18 | 0 | 0 | 0 | 0 | 18 | 18 | 80 | 5 | 5 | 0 | 0 | 90 | 93 | 237 |
| 15:30 | 80 | 5 | 0 | 0 | 1 | 86 | 87 | 13 | 2 | 0 | 0 | 0 | 15 | 15 | 20 | 1 | 0 | 0 | 0 | 21 | 21 | 15:30 | 28 | 1 | 0 | 0 | 0 | 29 | 29 | 18 | 0 | 0 | 0 | 1 | 19 | 20 | 78 | 8 | 3 | 0 | 3 | 92 | 97 | 269 |
| 15:45 | 72 | 8 | 2 | 0 | 0 | 82 | 83 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | 15 | 4 | 1 | 0 | 0 | 20 | 21 | 15:45 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 11 | 0 | 0 | 0 | 0 | 11 | 11 | 78 | 9 | 0 | 0 | 1 | 88 | 89 | 224 |
| H/TOT | 303 | 26 | 8 | 0 | 2 | 339 | 345 | 45 | 4 | 0 | 0 | 0 | 49 | 49 | 55 | 6 | 1 | 0 | 0 | 62 | 63 | H/TOT | 56 | 2 | 0 | 0 | 0 | 58 | 58 | 61 | 0 | 0 | 0 | 1 | 62 | 63 | 313 | 30 | 10 | 2 | 5 | 360 | 373 | 950 |
| 16:00 | 82 | 13 | 0 | 0 | 2 | 97 | 99 | 16 | 0 | 0 | 0 | 0 | 16 | 16 | 5 | 3 | 0 | 0 | 0 | 8 | 8 | 16:00 | 12 | 1 | 0 | 0 | 0 | 13 | 13 | 7 | 1 | 0 | 0 | 1 | 9 | 10 | 78 | 10 | 2 | 0 | 2 | 92 | 95 | 241 |
| 16:15 | 81 | 7 | 1 | 0 | 0 | 89 | 90 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 10 | 1 | 0 | 0 | 0 | 11 | 11 | 16:15 | 11 | 1 | 1 | 0 | 0 | 13 | 14 | 8 | 1 | 0 | 0 | 0 | 9 | 9 | 67 | 15 | 0 | 0 | 1 | 83 | 84 | 216 |
| 16:30 | 84 | 8 | 0 | 0 | 1 | 93 | 94 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 16:30 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 64 | 13 | 2 | 0 | 1 | 80 | 82 | 215 |
| 16:45 | 76 | 6 | 1 | 0 | 1 | 84 | 86 | 17 | 0 | 0 | 0 | 1 | 18 | 19 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 16:45 | 20 | 0 | 0 | 0 | 0 | 20 | 20 | 19 | 1 | 0 | 0 | 0 | 20 | 20 | 82 | 8 | 1 | 0 | 0 | 91 | 92 | 245 |
| H/TOT | 323 | 34 | 2 | 0 | 4 | 363 | 368 | 54 | 0 | 0 | 0 | 1 | 55 | 56 | 30 | 4 | 0 | 0 | 0 | 34 | 34 | H/TOT | 50 | 2 | 1 | 0 | 0 | 53 | 54 | 48 | 3 | 0 | 0 | 1 | 52 | 53 | 291 | 46 | 5 | 0 | 4 | 346 | 353 | 917 |
| 17:00 | 80 | 13 | 0 | 0 | 0 | 93 | 93 | 15 | 0 | 0 | 0 | 0 | 15 | 15 | 6 | 1 | 0 | 0 | 0 | 7 | 7 | 17:00 | 11 | 1 | 0 | 0 | 0 | 12 | 12 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 64 | 4 | 0 | 0 | 1 | 69 | 70 | 207 |
| 17:15 | 68 | 5 | 1 | 0 | 1 | 75 | 77 | 14 | 1 | 0 | 0 | 0 | 15 | 15 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 17:15 | 13 | 1 | 0 | 0 | 0 | 14 | 14 | 6 | 1 | 1 | 0 | 0 | 8 | 9 | 65 | 7 | 3 | 0 | 1 | 76 | 79 | 202 |
| 17:30 | 92 | 3 | 1 | 0 | 1 | 97 | 99 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 4 | 1 | 0 | 0 | 0 | 5 | 5 | 17:30 | 7 | 1 | 0 | 0 | 0 | 8 | 8 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 60 | 4 | 1 | 0 | 0 | 65 | 66 | 199 |
| 17:45 | 89 | 6 | 0 | 0 | 1 | 96 | 97 | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 17:45 | 11 | 1 | 0 | 0 | 0 | 12 | 12 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 79 | 8 | 1 | 0 | 1 | 89 | 91 | 235 |
| H/TOT | 329 | 27 | 2 | 0 | 3 | 361 | 365 | 53 | 1 | 0 | 0 | 0 | 54 | 54 | 29 | 2 | 0 | 0 | 0 | 31 | 31 | H/TOT | 42 | 4 | 0 | 0 | 0 | 46 | 46 | 39 | 1 | 1 | 0 | 0 | 41 | 42 | 268 | 23 | 5 | 0 | 3 | 299 | 305 | 842 |
| 18:00 | 80 | 5 | 0 | 0 | 0 | 85 | 85 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 18:00 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 10 | 1 | 0 | 0 | 0 | 11 | 11 | 60 | 3 | 1 | 0 | 2 | 66 | 69 | 194 |
| 18:15 | 103 | 2 | 0 | 0 | 0 | 105 | 105 | 21 | 0 | 1 | 0 | 0 | 22 | 23 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 18:15 | 16 | 0 | 0 | 0 | 0 | 16 | 16 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 61 | 4 | 0 | 0 | 2 | 67 | 69 | 226 |
| 18:30 | 124 | 8 | 1 | 0 | 1 | 134 | 136 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 11 | 0 | 0 | 0 | 0 | 11 | 11 | 18:30 | 10 | 1 | 0 | 0 | 0 | 11 | 11 | 22 | 0 | 0 | 0 | 0 | 22 | 22 | 61 | 3 | 0 | 0 | 0 | 64 | 64 | 254 |
| 18:45 | 97 | 4 | 1 | 0 | 0 | 102 | 103 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 18:45 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 17 | 0 | 1 | 0 | 0 | 18 | 19 | 85 | 1 | 0 | 0 | 1 | 87 | 88 | 233 |
| H/TOT | 404 | 19 | 2 | 0 | 1 | 426 | 428 | 50 | 0 | 1 | 0 | 0 | 51 | 52 | 30 | 0 | 0 | 0 | 0 | 30 | 30 | H/TOT | 47 | 1 | 0 | 0 | 0 | 48 | 48 | 56 | 1 | 1 | 0 | 0 | 58 | 59 | 267 | 11 | 1 | 0 | 5 | 284 | 290 | 906 |
| P/TOT | 3566 | 403 | 80 | 11 | 39 | 4099 | 4192 | 479 | 26 | 5 | 0 | 6 | 516 | 525 | 466 | 33 | 5 | 0 | 4 | 508 | 515 | P/TOT | 588 | 25 | 5 | 0 | 2 | 620 | 625 | 484 | 21 | 6 | 0 | 3 | 514 | 520 | 3516 | 342 | 87 | 14 | 44 | 4003 | 4109 | 10485 |

| SITE: | | 04 | | | | | | | | | | | | DATE: | 22nd October 2019 | SITE: | | 04 | | | | | | | | | | | | DATE: | 22nd October 2019 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOCATION: | | Harbour Road/Church Street | | | | | | | | | | | | DAY: | Tuesday | LOCATION: | | Harbour Road/Church Street | | | | | | | | | | | | DAY: | Tuesday | | |

| | MOVEMENT 1 | | | | | | | MOVEMENT 2 | | | | | | | MOVEMENT 3 | | | | | | | MOVEMENT 4 | | | | | | | MOVEMENT 5 | | | | | | | MOVEMENT 6 | | | | | | | PCU's Through Junction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | |
| 07:00 | 7 | 1 | 0 | 0 | 1 | 9 | 10 | 10 | 2 | 0 | 0 | 0 | 12 | 12 | 14 | 2 | 1 | 0 | 0 | 17 | 18 | 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 2 | 0 | 0 | 0 | 47 | 47 | 87 |
| 07:15 | 17 | 9 | 0 | 0 | 0 | 26 | 26 | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 24 | 1 | 0 | 0 | 0 | 25 | 25 | 07:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 37 | 1 | 0 | 0 | 0 | 38 | 38 | 100 |
| 07:30 | 31 | 7 | 1 | 0 | 1 | 40 | 42 | 17 | 1 | 0 | 0 | 0 | 18 | 18 | 36 | 0 | 0 | 0 | 0 | 36 | 36 | 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55 | 2 | 1 | 0 | 1 | 59 | 61 | 156 |
| 07:45 | 36 | 10 | 1 | 0 | 1 | 48 | 50 | 15 | 3 | 2 | 0 | 0 | 20 | 21 | 29 | 0 | 1 | 0 | 0 | 30 | 31 | 07:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 4 | 0 | 0 | 0 | 56 | 56 | 158 |
| H/TOT | 91 | 27 | 2 | 0 | 3 | 123 | 127 | 51 | 6 | 2 | 0 | 0 | 59 | 60 | 103 | 3 | 2 | 0 | 0 | 108 | 109 | H/TOT | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 189 | 9 | 1 | 0 | 1 | 200 | 202 | 501 |
| 08:00 | 16 | 6 | 0 | 0 | 3 | 25 | 28 | 18 | 0 | 2 | 1 | 0 | 21 | 23 | 26 | 3 | 0 | 0 | 0 | 29 | 29 | 08:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 3 | 3 | 0 | 1 | 60 | 63 | 144 |
| 08:15 | 19 | 4 | 1 | 0 | 2 | 26 | 29 | 23 | 4 | 0 | 0 | 0 | 27 | 27 | 26 | 0 | 1 | 0 | 0 | 27 | 28 | 08:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 52 | 5 | 0 | 0 | 0 | 57 | 57 | 143 |
| 08:30 | 42 | 1 | 1 | 0 | 0 | 44 | 45 | 47 | 4 | 0 | 0 | 0 | 51 | 51 | 34 | 2 | 0 | 1 | 0 | 37 | 38 | 08:30 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 73 | 3 | 0 | 0 | 1 | 77 | 78 | 215 |
| 08:45 | 45 | 4 | 0 | 0 | 1 | 50 | 51 | 47 | 1 | 3 | 0 | 0 | 51 | 53 | 33 | 3 | 0 | 0 | 0 | 36 | 36 | 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 78 | 5 | 1 | 0 | 1 | 85 | 87 | 228 |
| H/TOT | 122 | 15 | 2 | 0 | 6 | 145 | 152 | 135 | 9 | 5 | 1 | 0 | 150 | 154 | 119 | 8 | 1 | 1 | 0 | 129 | 131 | H/TOT | 3 | 1 | 0 | 0 | 0 | 4 | 4 | 4 | 1 | 0 | 0 | 0 | 5 | 5 | 256 | 16 | 4 | 0 | 3 | 279 | 284 | 730 |
| 09:00 | 46 | 7 | 2 | 0 | 1 | 56 | 58 | 24 | 0 | 0 | 0 | 0 | 24 | 24 | 54 | 2 | 0 | 0 | 0 | 56 | 56 | 09:00 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 | 7 | 0 | 0 | 0 | 78 | 78 | 219 |
| 09:15 | 37 | 7 | 0 | 0 | 1 | 45 | 46 | 16 | 0 | 1 | 0 | 0 | 17 | 18 | 21 | 2 | 0 | 0 | 0 | 23 | 23 | 09:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 61 | 2 | 1 | 0 | 0 | 64 | 65 | 152 |
| 09:30 | 24 | 5 | 0 | 0 | 0 | 29 | 29 | 11 | 2 | 0 | 0 | 0 | 13 | 13 | 13 | 1 | 1 | 0 | 0 | 15 | 16 | 09:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 3 | 2 | 0 | 3 | 55 | 59 | 117 |
| 09:45 | 33 | 4 | 1 | 0 | 1 | 39 | 41 | 16 | 3 | 0 | 0 | 1 | 20 | 21 | 20 | 2 | 0 | 0 | 0 | 22 | 22 | 09:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 39 | 7 | 1 | 0 | 1 | 48 | 50 | 135 |
| H/TOT | 140 | 23 | 3 | 0 | 3 | 169 | 174 | 67 | 5 | 1 | 0 | 1 | 74 | 76 | 108 | 7 | 1 | 0 | 0 | 116 | 117 | H/TOT | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 2 | 0 | 0 | 0 | 2 | 2 | 218 | 19 | 4 | 0 | 4 | 245 | 251 | 623 |
| 10:00 | 45 | 3 | 1 | 0 | 2 | 51 | 54 | 15 | 1 | 0 | 0 | 0 | 16 | 16 | 19 | 0 | 0 | 0 | 1 | 20 | 21 | 10:00 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 47 | 5 | 0 | 0 | 1 | 53 | 54 | 149 |
| 10:15 | 29 | 4 | 2 | 0 | 1 | 36 | 38 | 18 | 3 | 2 | 0 | 0 | 23 | 24 | 22 | 1 | 1 | 0 | 0 | 24 | 25 | 10:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 2 | 40 | 5 | 2 | 0 | 1 | 48 | 50 | 139 |
| 10:30 | 45 | 5 | 4 | 0 | 0 | 54 | 56 | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 21 | 2 | 1 | 0 | 0 | 24 | 25 | 10:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 53 | 2 | 1 | 0 | 2 | 58 | 61 | 157 |
| 10:45 | 60 | 3 | 1 | 0 | 0 | 64 | 65 | 23 | 6 | 1 | 0 | 0 | 30 | 31 | 22 | 0 | 0 | 0 | 0 | 22 | 22 | 10:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 53 | 4 | 1 | 0 | 2 | 60 | 63 | 181 |
| H/TOT | 179 | 15 | 8 | 0 | 3 | 205 | 212 | 70 | 10 | 3 | 0 | 0 | 83 | 85 | 84 | 3 | 2 | 0 | 1 | 90 | 92 | H/TOT | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 3 | 0 | 0 | 0 | 7 | 7 | 193 | 16 | 4 | 0 | 6 | 219 | 227 | 625 |
| 11:00 | 34 | 4 | 2 | 0 | 2 | 42 | 45 | 19 | 1 | 0 | 0 | 0 | 20 | 20 | 21 | 2 | 0 | 0 | 0 | 23 | 23 | 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 50 | 4 | 3 | 0 | 0 | 57 | 59 | 148 |
| 11:15 | 40 | 5 | 1 | 0 | 0 | 46 | 47 | 11 | 0 | 1 | 0 | 0 | 12 | 13 | 14 | 2 | 0 | 0 | 0 | 16 | 16 | 11:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 2 | 46 | 6 | 2 | 0 | 0 | 54 | 55 | 132 |
| 11:30 | 60 | 6 | 3 | 0 | 1 | 70 | 73 | 14 | 3 | 1 | 0 | 0 | 18 | 19 | 18 | 1 | 0 | 0 | 0 | 19 | 19 | 11:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 51 | 7 | 1 | 0 | 1 | 60 | 62 | 173 |
| 11:45 | 51 | 1 | 0 | 0 | 1 | 53 | 54 | 26 | 3 | 0 | 0 | 0 | 29 | 29 | 14 | 0 | 1 | 0 | 0 | 15 | 16 | 11:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 4 | 5 | 52 | 7 | 1 | 0 | 1 | 61 | 63 | 166 |
| H/TOT | 185 | 16 | 6 | 0 | 4 | 211 | 218 | 70 | 7 | 2 | 0 | 0 | 79 | 80 | 67 | 5 | 1 | 0 | 0 | 73 | 74 | H/TOT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 1 | 0 | 0 | 8 | 9 | 199 | 24 | 7 | 0 | 2 | 232 | 238 | 618 |
| 12:00 | 48 | 4 | 1 | 0 | 1 | 54 | 56 | 27 | 2 | 0 | 0 | 0 | 29 | 29 | 12 | 1 | 2 | 0 | 0 | 15 | 16 | 12:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 6 | 2 | 1 | 0 | 58 | 60 | 162 |
| 12:15 | 42 | 6 | 1 | 0 | 2 | 51 | 54 | 21 | 3 | 1 | 0 | 0 | 25 | 26 | 22 | 1 | 0 | 0 | 0 | 23 | 23 | 12:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 55 | 3 | 4 | 0 | 1 | 63 | 66 | 169 |
| 12:30 | 51 | 0 | 2 | 0 | 0 | 53 | 54 | 26 | 2 | 1 | 0 | 0 | 29 | 30 | 17 | 1 | 0 | 0 | 0 | 18 | 18 | 12:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 6 | 1 | 0 | 1 | 60 | 62 | 164 |
| 12:45 | 57 | 3 | 0 | 0 | 0 | 60 | 60 | 31 | 3 | 0 | 0 | 0 | 34 | 34 | 17 | 2 | 0 | 0 | 0 | 19 | 19 | 12:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 44 | 0 | 3 | 0 | 1 | 48 | 51 | 167 |
| H/TOT | 198 | 13 | 4 | 0 | 3 | 218 | 223 | 105 | 10 | 2 | 0 | 0 | 117 | 118 | 68 | 5 | 2 | 0 | 0 | 75 | 76 | H/TOT | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 200 | 15 | 10 | 1 | 3 | 229 | 238 | 661 |

| SITE: | 04 | DATE: | 22nd October 2019 | SITE: | 04 | DATE: | 22nd October 2019 |
|---|---|---|---|---|---|---|---|
| LOCATION: | Harbour Road/Church Street | DAY: | Tuesday | LOCATION: | Harbour Road/Church Street | DAY: | Tuesday |

| | MOVEMENT 1 | | | | | | | MOVEMENT 2 | | | | | | | MOVEMENT 3 | | | | | | | MOVEMENT 4 | | | | | | | MOVEMENT 5 | | | | | | | MOVEMENT 6 | | | | | | | PCU's Through Junction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | TIME | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | CAR | LGV | OGV1 | OGV2 | BUS | TOT | PCU | |
| 13:00 | 38 | 8 | 2 | 0 | 2 | 50 | 53 | 38 | 3 | 1 | 0 | 0 | 42 | 43 | 18 | 2 | 0 | 0 | 0 | 20 | 20 | 13:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 45 | 3 | 1 | 0 | 1 | 50 | 52 | 169 |
| 13:15 | 52 | 6 | 0 | 0 | 1 | 59 | 60 | 32 | 1 | 1 | 0 | 0 | 34 | 35 | 16 | 2 | 2 | 0 | 0 | 20 | 21 | 13:15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 42 | 3 | 1 | 0 | 1 | 47 | 49 | 168 |
| 13:30 | 59 | 3 | 1 | 0 | 1 | 64 | 66 | 20 | 3 | 1 | 0 | 0 | 24 | 25 | 19 | 1 | 0 | 0 | 0 | 20 | 20 | 13:30 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 51 | 6 | 2 | 0 | 1 | 60 | 62 | 175 |
| 13:45 | 54 | 5 | 0 | 0 | 0 | 59 | 59 | 26 | 1 | 0 | 0 | 0 | 27 | 27 | 16 | 1 | 2 | 0 | 0 | 19 | 20 | 13:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 53 | 5 | 0 | 0 | 1 | 59 | 60 | 168 |
| H/TOT | 203 | 22 | 3 | 0 | 4 | 232 | 238 | 116 | 8 | 3 | 0 | 0 | 127 | 129 | 69 | 6 | 4 | 0 | 0 | 79 | 81 | H/TOT | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 191 | 17 | 4 | 0 | 4 | 216 | 222 | 680 |
| 14:00 | 45 | 3 | 1 | 0 | 2 | 51 | 54 | 30 | 3 | 0 | 0 | 0 | 33 | 33 | 33 | 3 | 0 | 0 | 0 | 36 | 36 | 14:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 4 | 0 | 0 | 0 | 66 | 66 | 190 |
| 14:15 | 35 | 1 | 1 | 0 | 0 | 37 | 38 | 35 | 4 | 0 | 0 | 0 | 39 | 39 | 10 | 1 | 1 | 0 | 0 | 12 | 13 | 14:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 50 | 7 | 0 | 0 | 1 | 58 | 59 | 152 |
| 14:30 | 50 | 3 | 1 | 0 | 1 | 55 | 57 | 26 | 1 | 0 | 0 | 1 | 28 | 29 | 31 | 2 | 0 | 0 | 0 | 33 | 33 | 14:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 64 | 4 | 1 | 0 | 1 | 70 | 72 | 192 |
| 14:45 | 58 | 5 | 3 | 0 | 0 | 66 | 68 | 33 | 3 | 2 | 0 | 0 | 38 | 39 | 16 | 1 | 1 | 0 | 0 | 18 | 19 | 14:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 3 | 1 | 0 | 2 | 51 | 54 | 180 |
| H/TOT | 188 | 12 | 6 | 0 | 3 | 209 | 215 | 124 | 11 | 2 | 0 | 1 | 138 | 140 | 90 | 7 | 2 | 0 | 0 | 99 | 100 | H/TOT | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 221 | 18 | 2 | 0 | 4 | 245 | 250 | 713 |
| 15:00 | 45 | 1 | 1 | 0 | 2 | 49 | 52 | 24 | 2 | 2 | 0 | 0 | 28 | 29 | 16 | 2 | 0 | 0 | 0 | 18 | 18 | 15:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 55 | 7 | 1 | 0 | 1 | 64 | 66 | 165 |
| 15:15 | 55 | 4 | 2 | 0 | 2 | 63 | 66 | 23 | 1 | 1 | 0 | 0 | 25 | 26 | 18 | 0 | 1 | 0 | 0 | 19 | 20 | 15:15 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 3 | 2 | 1 | 0 | 45 | 47 | 160 |
| 15:30 | 63 | 3 | 0 | 0 | 1 | 67 | 68 | 31 | 2 | 0 | 0 | 0 | 33 | 33 | 30 | 0 | 2 | 0 | 1 | 33 | 35 | 15:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 49 | 6 | 0 | 0 | 2 | 57 | 59 | 198 |
| 15:45 | 62 | 1 | 0 | 0 | 0 | 63 | 63 | 28 | 3 | 1 | 0 | 0 | 32 | 33 | 20 | 1 | 0 | 0 | 0 | 21 | 21 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 47 | 4 | 0 | 0 | 2 | 53 | 55 | 175 |
| H/TOT | 225 | 9 | 3 | 0 | 5 | 242 | 249 | 106 | 8 | 4 | 0 | 0 | 118 | 120 | 84 | 3 | 3 | 0 | 1 | 91 | 94 | H/TOT | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 190 | 20 | 3 | 1 | 5 | 219 | 227 | 698 |
| 16:00 | 43 | 6 | 0 | 0 | 1 | 50 | 51 | 25 | 5 | 0 | 0 | 0 | 30 | 30 | 18 | 2 | 1 | 0 | 0 | 21 | 22 | 16:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 45 | 7 | 1 | 0 | 1 | 54 | 56 | 162 |
| 16:15 | 54 | 3 | 0 | 0 | 1 | 58 | 59 | 31 | 3 | 0 | 0 | 0 | 34 | 34 | 15 | 1 | 0 | 0 | 0 | 16 | 16 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 8 | 0 | 0 | 1 | 72 | 73 | 182 |
| 16:30 | 58 | 5 | 1 | 0 | 1 | 65 | 67 | 37 | 3 | 0 | 0 | 0 | 40 | 40 | 16 | 1 | 0 | 0 | 0 | 17 | 17 | 16:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 42 | 7 | 2 | 0 | 1 | 52 | 54 | 182 |
| 16:45 | 54 | 6 | 2 | 0 | 0 | 62 | 63 | 30 | 2 | 1 | 0 | 0 | 33 | 34 | 24 | 2 | 0 | 0 | 0 | 26 | 26 | 16:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 60 | 7 | 1 | 0 | 0 | 68 | 69 | 193 |
| H/TOT | 209 | 20 | 3 | 0 | 3 | 235 | 240 | 123 | 13 | 1 | 0 | 0 | 137 | 138 | 73 | 6 | 1 | 0 | 0 | 80 | 81 | H/TOT | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 210 | 29 | 4 | 0 | 3 | 246 | 251 | 719 |
| 17:00 | 55 | 5 | 0 | 0 | 0 | 60 | 60 | 38 | 3 | 0 | 0 | 0 | 41 | 41 | 16 | 1 | 0 | 0 | 0 | 17 | 17 | 17:00 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 40 | 4 | 0 | 0 | 1 | 45 | 46 | 167 |
| 17:15 | 43 | 3 | 1 | 0 | 1 | 48 | 50 | 24 | 5 | 1 | 0 | 0 | 30 | 31 | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 2 | 2 | 0 | 2 | 51 | 54 | 144 |
| 17:30 | 54 | 7 | 0 | 0 | 1 | 62 | 63 | 54 | 1 | 0 | 0 | 0 | 55 | 55 | 16 | 0 | 0 | 0 | 0 | 16 | 16 | 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 42 | 2 | 0 | 0 | 0 | 44 | 44 | 180 |
| 17:45 | 53 | 6 | 0 | 0 | 1 | 60 | 61 | 48 | 2 | 0 | 0 | 0 | 50 | 50 | 18 | 2 | 0 | 0 | 0 | 20 | 20 | 17:45 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 59 | 6 | 0 | 0 | 1 | 66 | 67 | 203 |
| H/TOT | 205 | 21 | 1 | 0 | 3 | 230 | 234 | 164 | 11 | 1 | 0 | 0 | 176 | 177 | 60 | 3 | 0 | 0 | 0 | 63 | 63 | H/TOT | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 186 | 14 | 2 | 0 | 4 | 206 | 211 | 694 |
| 18:00 | 53 | 3 | 0 | 0 | 1 | 57 | 58 | 41 | 2 | 0 | 0 | 1 | 44 | 45 | 15 | 2 | 0 | 0 | 0 | 17 | 17 | 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 48 | 2 | 0 | 0 | 1 | 51 | 52 | 175 |
| 18:15 | 60 | 2 | 0 | 0 | 0 | 62 | 62 | 44 | 0 | 0 | 0 | 0 | 44 | 44 | 19 | 0 | 0 | 0 | 1 | 20 | 21 | 18:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 33 | 1 | 0 | 0 | 2 | 36 | 38 | 168 |
| 18:30 | 75 | 4 | 0 | 0 | 0 | 79 | 79 | 49 | 1 | 0 | 0 | 0 | 50 | 50 | 21 | 0 | 0 | 0 | 0 | 21 | 21 | 18:30 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 67 | 2 | 0 | 0 | 0 | 69 | 69 | 222 |
| 18:45 | 66 | 2 | 1 | 0 | 1 | 70 | 72 | 38 | 6 | 0 | 0 | 0 | 44 | 44 | 24 | 1 | 0 | 0 | 0 | 25 | 25 | 18:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 62 | 0 | 0 | 0 | 1 | 63 | 64 | 210 |
| H/TOT | 254 | 11 | 1 | 0 | 2 | 268 | 271 | 172 | 9 | 0 | 0 | 1 | 182 | 183 | 79 | 3 | 0 | 0 | 1 | 83 | 84 | H/TOT | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 13 | 0 | 0 | 0 | 0 | 13 | 13 | 210 | 5 | 0 | 0 | 4 | 219 | 223 | 775 |
| P/TOT | 2199 | 204 | 42 | 0 | 42 | 2487 | 2550 | 1303 | 107 | 26 | 1 | 3 | 1440 | 1457 | 1004 | 59 | 19 | 1 | 3 | 1086 | 1100 | P/TOT | 28 | 1 | 0 | 0 | 0 | 29 | 29 | 65 | 8 | 1 | 0 | 0 | 74 | 75 | 2463 | 202 | 45 | 2 | 43 | 2755 | 2823 | 8034 |

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# APPENDIX 3

# FLOW DIAGRAMS


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


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


DIAGRAM 3: ADJACENT DEVELOPMENT FLOWS AM PEAK


DIAGRAM 4: ADJACENT DEVELOPMENT FLOWS PM PEAK


DIAGRAM 5: PROPOSED DEVELOPMENT FLOWS AM PEAK


DIAGRAM 6: PROPOSED DEVELOPMENT FLOWS PM PEAK

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# 4

# DETAILED JUNCTION ANALYSIS

# APPENDIX 4A

# SUTTON CROSS SIGNALISED JUNCTION

# Junctions 9

## OSCADY 9 - Signalised Intersection Module



**Filename:** Sutton Cross 2020 exist latest.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 12/04/2020 17:09:04



## Summary of junction performance

| | AM exist | | | | PM exist | | | |
|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | DOS | LOS | Queue (PCU) | Delay (s) | DOS | LOS |
| | 2020 | | | | | | | |
| Arm A | 24.7 | 67.69 | 0.79 | E | 16.5 | 47.79 | 0.61 | D |
| Arm B | 14.0 | 49.68 | 0.70 | D | 16.1 | 62.13 | 0.81 | E |
| Arm C | 23.7 | 76.87 | 0.95 | E | 15.3 | 55.52 | 0.57 | E |
| Arm D | 14.4 | 28.74 | 0.45 | C | 9.1 | 22.57 | 0.29 | C |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Sutton Cross |
| **Location** | Howth |
| **Site number** | |
| **Date** | 10/04/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

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

## Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | DOS Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|---|---|---|---|---|
| | | 0.85 | 36.00 | 20.00 |

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2020 | AM exist | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2020 | PM exist | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2020, AM exist

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 56.05 | E |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Arms

### Arms

| Arm | Name | Description |
|---|---|---|
| A | Howth Road | |
| B | Carrickrock Road | |
| C | Dublin Road | |
| D | Station Road | |

### OSCADY Traffic Streams

| Arm | Traffic Stream | Phase | Notional EEG (s) | Signals EEG (s) | Destination arms | Straight move |
|---|---|---|---|---|---|---|
| A | 1 | E | 0.00 | 0.00 | B, C | C |
| | 2 | D | 0.00 | 0.00 | D | C |
| B | 1 | F | 0.00 | 0.00 | A, C, D | D |
| C | 1 | B | 0.00 | 1.00 | A | A |
| | 2 | A | 0.00 | 0.00 | B | A |
| D | 1 | G | 0.00 | 0.00 | A | B |
| | 2 | C | 0.00 | 5.00 | B, C | B |

### OSCADY Lanes

| Arm | Traffic Stream | Destination arms | Gradient (%) | Width (m) | Turning radius (m) | Nearside lane | Has bay |
|---|---|---|---|---|---|---|---|
| A | 1 | B, C | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | D | 0 | 2.50 | 5.00 | ✓ | |
| B | 1 | A, C, D | 0 | 3.00 | 10.00 | ✓ | |
| C | 1 | A | 0 | 2.50 | | ✓ | |
| | 2 | B | 0 | 2.50 | 10.00 | ✓ | |
| D | 1 | A | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | B, C | 0 | 2.50 | 5.00 | ✓ | |

# Signal Timings

## Junction 1

| Junction | Sequence to use | Cycle time (s) | Maximum cycle time (s) | Start displacement (s) | End displacement (s) |
|---|---|---|---|---|---|
| 1 | 1 | 160 | 300 | 1.40 | 2.90 |

## Optimisation options

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

## Phases

| Junction | Phase | Name | Minimum green (s) |
|---|---|---|---|
| 1 | A | | 15 |
| | B | | 15 |
| | C | | 15 |
| | D | | 15 |
| | E | | 15 |
| | F | | 15 |
| | G | | 15 |

## Library Stages

| Junction | Library Stage | Phases in stage | User stage minimum (s) | Run every N cycles | Probability of running (%) |
|---|---|---|---|---|---|
| 1 | 1 | B, E | 7 | | |
| | 2 | D, E, G | 7 | | |
| | 3 | C, G, F | 7 | | |
| | 4 | | 7 | | |
| | 5 | A, B | 7 | | |

## Losing / Gaining Phase Delays

| Junction | Delay | Type | Phase | From stage | To stage | Relative delay (s) |
|---|---|---|---|---|---|---|
| 1 | 1 | Losing | B | 1 | 2 | 1 |

## Stage Sequences

| Junction | Sequence | Name | Stage IDs | Stage ends |
|---|---|---|---|---|
| 1 | 1 | | 1, 2, 3, 4, 5 | 12, 52, 116, 124, 0 |

## Intergreen Matrix for Junction 1

| | | To | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| From | A | | | 5 | 5 | 5 | 5 | 5 |
| | B | | | 5 | 5 | | 5 | 5 |
| | C | 0 | 0 | | 0 | 5 | | |
| | D | 0 | 0 | 0 | | | 5 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **E** | 0 | | 0 | | | 0 | |
| | **F** | 0 | 0 | | 0 | 5 | | |
| | **G** | 0 | 0 | | | | | |

## Interstage Matrix for Junction 1

| | | To | | | | |
|---|---|---|---|---|---|---|
| | | **1** | **2** | **3** | **4** | **5** |
| **From** | **1** | 0 | 6 | 5 | 0 | 0 |
| | **2** | 0 | 0 | 5 | 0 | 0 |
| | **3** | 5 | 5 | 0 | 0 | 0 |
| | **4** | 0 | 0 | 0 | 0 | 0 |
| | **5** | 5 | 5 | 5 | 0 | 0 |

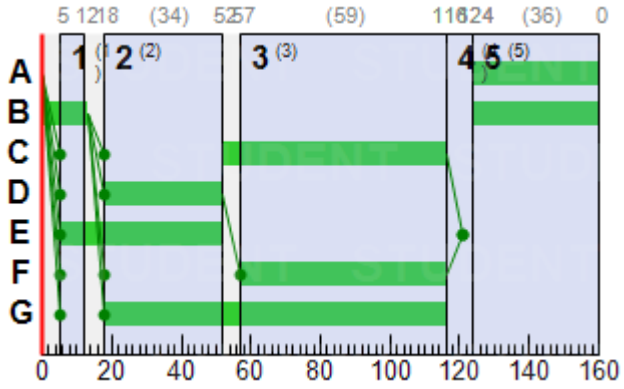
## Resultant Stages

| Junction | Resultant Stage | Library Stage ID | Phases in this stage | Stage start (s) | Stage end (s) | Stage duration (s) | User stage minimum (s) | Stage minimum (s) |
|---|---|---|---|---|---|---|---|---|
| 1 | **1** | 1 | B,E | 5 | 12 | 7 | 7 | 7 |
| | **2** | 2 | D,E,G | 18 | 52 | 34 | 7 | 15 |
| | **3** | 3 | C,G,F | 57 | 116 | 59 | 7 | 15 |
| | **4** | 4 | | 116 | 124 | 8 | 7 | 7 |
| | **5** | 5 | A,B | 124 | 0 | 36 | 7 | 15 |

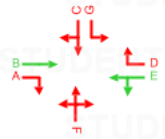
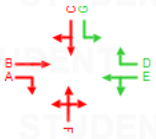
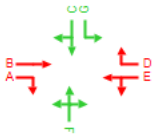
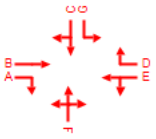
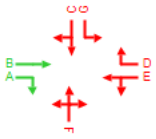
## Resultant Phase Green Periods

| Junction | Phase | Green period | Start time (s) | End time (s) | Duration (s) |
|---|---|---|---|---|---|
| 1 | **A** | **1** | 124 | 0 | 36 |
| | **B** | **1** | 124 | 13 | 49 |
| | **C** | **1** | 52 | 116 | 64 |
| | **D** | **1** | 18 | 52 | 34 |
| | **E** | **1** | 5 | 52 | 47 |
| | **F** | **1** | 57 | 116 | 59 |
| | **G** | **1** | 18 | 116 | 98 |

### Phase Timings Diagram for Junction 1




### Stage Sequence Diagram for Junction 1

| Stage 1 | Stage 2 | Stage 3 | Stage 4 | Stage 5 |
|---|---|---|---|---|
|  |  |  |  |  |

# Traffic Demand

## Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2020 | AM exist | DIRECT | 08:00 | 09:00 | 60 | 15 |

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

## Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

# Origin-Destination Data

### Demand (PCU/TS)

**08:00 - 08:15**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 55.00 | 37.00 |
| | B | 0.00 | 0.00 | 49.00 | 59.00 |
| | C | 49.00 | 48.00 | 0.00 | 0.00 |
| | D | 48.00 | 58.00 | 4.00 | 0.00 |

### Demand (PCU/TS)

**08:15 - 08:30**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 68.00 | 45.00 |
| | B | 2.00 | 0.00 | 69.00 | 44.00 |
| | C | 54.00 | 90.00 | 0.00 | 0.00 |
| | D | 43.00 | 73.00 | 10.00 | 0.00 |

**Demand (PCU/TS)**

**08:30 - 08:45**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 1.00 | 105.00 | 63.00 |
| | B | 2.00 | 0.00 | 67.00 | 41.00 |
| | C | 77.00 | 58.00 | 0.00 | 0.00 |
| | D | 95.00 | 67.00 | 6.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 92.00 | 50.00 |
| | B | 1.00 | 0.00 | 63.00 | 54.00 |
| | C | 59.00 | 53.00 | 0.00 | 0.00 |
| | D | 49.00 | 28.00 | 6.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 08:00-08:15 | A | 92.00 | 92.00 |
| | B | 108.00 | 108.00 |
| | C | 97.00 | 97.00 |
| | D | 110.00 | 110.00 |
| 08:15-08:30 | A | 113.00 | 113.00 |
| | B | 115.00 | 115.00 |
| | C | 144.00 | 144.00 |
| | D | 126.00 | 126.00 |
| 08:30-08:45 | A | 169.00 | 169.00 |
| | B | 110.00 | 110.00 |
| | C | 135.00 | 135.00 |
| | D | 168.00 | 168.00 |
| 08:45-09:00 | A | 142.00 | 142.00 |
| | B | 118.00 | 118.00 |
| | C | 112.00 | 112.00 |
| | D | 83.00 | 83.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.79 | 67.69 | 24.7 | E |
| B | 0.70 | 49.68 | 14.0 | D |
| C | 0.95 | 76.87 | 23.7 | E |
| D | 0.45 | 28.74 | 14.4 | C |

## Main Results for each time segment

### 08:00 - 08:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 55.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.389 | 48.04 | 7.0 | 46.447 | D |
| | 2 | 37.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.465 | 31.64 | 5.4 | 59.697 | E |
| B | 1 | 108.00 | 448.24 | 60.50 | 0.00 | 169.49 | 0.637 | 95.40 | 12.6 | 46.110 | D |
| C | 1 | 49.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.333 | 42.94 | 6.1 | 43.683 | D |
| | 2 | 48.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.505 | 41.16 | 6.8 | 58.779 | E |
| D | 1 | 48.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.215 | 44.74 | 3.3 | 13.867 | B |
| | 2 | 62.00 | 457.40 | 65.50 | 0.00 | 187.25 | 0.331 | 55.39 | 6.6 | 33.699 | C |

### 08:15 - 08:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 68.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.481 | 66.27 | 8.7 | 48.972 | D |
| | 2 | 45.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.565 | 43.70 | 6.7 | 63.850 | E |
| B | 1 | 115.00 | 438.17 | 60.50 | 0.00 | 165.68 | 0.694 | 113.97 | 13.6 | 49.085 | D |
| C | 1 | 54.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.367 | 53.36 | 6.7 | 44.494 | D |
| | 2 | 90.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.947 | 79.86 | 17.0 | 96.294 | F |
| D | 1 | 43.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.193 | 43.34 | 2.9 | 13.576 | B |
| | 2 | 83.00 | 449.99 | 65.50 | 0.00 | 184.21 | 0.451 | 80.67 | 8.9 | 36.595 | D |

### 08:30 - 08:45

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 106.00 | 464.93 | 48.50 | 0.00 | 140.93 | 0.752 | 100.27 | 14.4 | 60.764 | E |
| | 2 | 63.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.792 | 59.37 | 10.3 | 79.343 | E |
| B | 1 | 110.00 | 437.58 | 60.50 | 0.00 | 165.46 | 0.665 | 110.66 | 13.0 | 47.910 | D |
| C | 1 | 77.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.523 | 73.99 | 9.7 | 48.818 | D |
| | 2 | 58.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.610 | 66.49 | 8.5 | 67.736 | E |
| D | 1 | 95.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.426 | 91.34 | 6.6 | 17.338 | B |
| | 2 | 73.00 | 455.03 | 65.50 | 0.00 | 186.28 | 0.392 | 74.12 | 7.8 | 35.122 | D |

### 08:45 - 09:00

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 92.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.651 | 94.27 | 12.1 | 55.896 | E |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 50.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.628 | 52.70 | 7.6 | 68.845 | E |
| B | 1 | 118.00 | 442.73 | 60.50 | 0.00 | 167.41 | 0.705 | 116.95 | 14.0 | 49.682 | D |
| C | 1 | 59.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.401 | 61.37 | 7.3 | 45.389 | D |
| | 2 | 53.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.558 | 53.84 | 7.6 | 61.343 | E |
| D | 1 | 49.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.220 | 52.24 | 3.3 | 13.933 | B |
| | 2 | 34.00 | 442.81 | 65.50 | 0.00 | 181.27 | 0.188 | 38.22 | 3.6 | 30.919 | C |

# 2020, PM exist

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 47.80 | D |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2020 | PM exist | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

## Origin-Destination Data

**16:00 - 16:15**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 76.00 | 55.00 |
| | B | 0.00 | 0.00 | 53.00 | 66.00 |
| | C | 65.00 | 38.00 | 0.00 | 0.00 |
| | D | 44.00 | 25.00 | 2.00 | 0.00 |

**16:15 - 16:30**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 4.00 | 65.00 | 64.00 |
| | B | 0.00 | 0.00 | 34.00 | 28.00 |
| | C | 74.00 | 39.00 | 0.00 | 0.00 |
| | D | 57.00 | 17.00 | 4.00 | 0.00 |

**16:30 - 16:45**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 66.00 | 48.00 |
| | B | 1.00 | 0.00 | 30.00 | 37.00 |
| | C | 60.00 | 50.00 | 0.00 | 0.00 |
| | D | 42.00 | 30.00 | 0.00 | 0.00 |

**16:45 - 17:00**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 3.00 | 66.00 | 46.00 |
| | B | 4.00 | 0.00 | 43.00 | 48.00 |
| | C | 70.00 | 40.00 | 0.00 | 0.00 |
| | D | 67.00 | 39.00 | 2.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 16:00-16:15 | A | 131.00 | 131.00 |
| | B | 119.00 | 119.00 |
| | C | 103.00 | 103.00 |

| | | | |
|---|---|---|---|
| | D | 71.00 | 71.00 |
| 16:15-16:30 | A | 133.00 | 133.00 |
| | B | 62.00 | 62.00 |
| | C | 113.00 | 113.00 |
| | D | 78.00 | 78.00 |
| 16:30-16:45 | A | 114.00 | 114.00 |
| | B | 68.00 | 68.00 |
| | C | 110.00 | 110.00 |
| | D | 72.00 | 72.00 |
| 16:45-17:00 | A | 115.00 | 115.00 |
| | B | 95.00 | 95.00 |
| | C | 110.00 | 110.00 |
| | D | 108.00 | 108.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.61 | 47.79 | 16.5 | D |
| B | 0.81 | 62.13 | 16.1 | E |
| C | 0.57 | 55.52 | 15.3 | E |
| D | 0.29 | 22.57 | 9.1 | C |

## Main Results for each time segment

### 16:00 - 16:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 76.00 | 466.25 | 59.50 | 0.00 | 173.39 | 0.438 | 67.31 | 8.7 | 40.105 | D |
| | 2 | 55.00 | 358.65 | 46.50 | 0.00 | 104.23 | 0.528 | 47.72 | 7.3 | 53.117 | D |
| B | 1 | 119.00 | 448.77 | 52.50 | 0.00 | 147.25 | 0.808 | 102.93 | 16.1 | 62.133 | E |
| C | 1 | 65.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.470 | 56.63 | 8.4 | 49.338 | D |
| | 2 | 38.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.435 | 32.50 | 5.5 | 58.926 | E |
| D | 1 | 44.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.192 | 41.16 | 2.8 | 12.332 | B |
| | 2 | 27.00 | 456.11 | 57.50 | 0.00 | 163.92 | 0.165 | 23.91 | 3.1 | 35.545 | D |

### 16:15 - 16:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 69.00 | 458.28 | 59.50 | 0.00 | 170.42 | 0.405 | 69.82 | 7.9 | 39.326 | D |
| | 2 | 64.00 | 358.65 | 46.50 | 0.00 | 104.23 | 0.614 | 62.64 | 8.6 | 56.916 | E |
| B | 1 | 62.00 | 442.36 | 52.50 | 0.00 | 145.15 | 0.427 | 70.47 | 7.6 | 45.059 | D |
| C | 1 | 74.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.535 | 72.76 | 9.6 | 51.416 | D |
| | 2 | 39.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.446 | 38.85 | 5.7 | 59.407 | E |
| D | 1 | 57.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.248 | 56.15 | 3.7 | 13.058 | B |
| | 2 | 21.00 | 441.05 | 57.50 | 0.00 | 158.50 | 0.132 | 21.69 | 2.4 | 34.995 | C |

**16:30 - 16:45**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 66.00 | 466.25 | 59.50 | 0.00 | 173.39 | 0.381 | 66.36 | 7.5 | 38.690 | D |
| | 2 | 48.00 | 358.65 | 46.50 | 0.00 | 104.23 | 0.461 | 50.35 | 6.3 | 51.028 | D |
| B | 1 | 68.00 | 448.11 | 52.50 | 0.00 | 147.04 | 0.462 | 67.24 | 8.4 | 45.710 | D |
| C | 1 | 60.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.433 | 61.91 | 7.7 | 48.427 | D |
| | 2 | 50.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.572 | 48.23 | 7.4 | 64.038 | E |
| D | 1 | 42.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.183 | 42.98 | 2.7 | 12.230 | B |
| | 2 | 30.00 | 466.25 | 57.50 | 0.00 | 167.56 | 0.179 | 28.96 | 3.4 | 35.791 | D |

**16:45 - 17:00**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 69.00 | 460.25 | 59.50 | 0.00 | 171.15 | 0.403 | 68.64 | 7.9 | 39.253 | D |
| | 2 | 46.00 | 358.65 | 46.50 | 0.00 | 104.23 | 0.441 | 46.28 | 6.0 | 50.302 | D |
| B | 1 | 95.00 | 445.68 | 52.50 | 0.00 | 146.24 | 0.650 | 91.31 | 12.0 | 52.420 | D |
| C | 1 | 70.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.506 | 68.64 | 9.1 | 50.467 | D |
| | 2 | 40.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.458 | 41.60 | 5.8 | 59.978 | E |
| D | 1 | 67.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.292 | 65.36 | 4.4 | 13.669 | B |
| | 2 | 41.00 | 459.53 | 57.50 | 0.00 | 165.14 | 0.248 | 39.72 | 4.7 | 37.124 | D |

# Junctions 9

## OSCADY 9 - Signalised Intersection Module



**Filename:** Sutton Cross 2023 WOD.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 13/04/2020 16:43:36



## Summary of junction performance

| | AM WOD | | | | PM WOD | | | |
|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | DOS | LOS | Queue (PCU) | Delay (s) | DOS | LOS |
| | 2023 | | | | | | | |
| Arm A | 26.7 | 71.46 | 0.83 | E | 17.3 | 48.74 | 0.64 | D |
| Arm B | 14.6 | 51.14 | 0.73 | D | 17.2 | 65.30 | 0.84 | E |
| Arm C | 26.2 | 82.45 | 0.99 | F | 15.9 | 56.29 | 0.59 | E |
| Arm D | 15.0 | 29.00 | 0.47 | C | 9.9 | 23.38 | 0.30 | C |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Sutton Cross |
| **Location** | Howth |
| **Site number** | |
| **Date** | 10/04/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

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

## Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | DOS Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|---|---|---|---|---|
| | | 0.85 | 36.00 | 20.00 |

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2023 | AM WOD | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2023 | PM WOD | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2023, AM WOD

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 58.88 | E |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Arms

### Arms

| Arm | Name | Description |
|---|---|---|
| A | Howth Road | |
| B | Carrickrock Road | |
| C | Dublin Road | |
| D | Station Road | |

### OSCADY Traffic Streams

| Arm | Traffic Stream | Phase | Notional EEG (s) | Signals EEG (s) | Destination arms | Straight move |
|---|---|---|---|---|---|---|
| A | 1 | E | 0.00 | 0.00 | B, C | C |
| | 2 | D | 0.00 | 0.00 | D | C |
| B | 1 | F | 0.00 | 0.00 | A, C, D | D |
| C | 1 | B | 0.00 | 1.00 | A | A |
| | 2 | A | 0.00 | 0.00 | B | A |
| D | 1 | G | 0.00 | 0.00 | A | B |
| | 2 | C | 0.00 | 5.00 | B, C | B |

### OSCADY Lanes

| Arm | Traffic Stream | Destination arms | Gradient (%) | Width (m) | Turning radius (m) | Nearside lane | Has bay |
|---|---|---|---|---|---|---|---|
| A | 1 | B, C | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | D | 0 | 2.50 | 5.00 | ✓ | |
| B | 1 | A, C, D | 0 | 3.00 | 10.00 | ✓ | |
| C | 1 | A | 0 | 2.50 | | ✓ | |
| | 2 | B | 0 | 2.50 | 10.00 | ✓ | |
| D | 1 | A | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | B, C | 0 | 2.50 | 5.00 | ✓ | |

# Signal Timings

## Junction 1

| Junction | Sequence to use | Cycle time (s) | Maximum cycle time (s) | Start displacement (s) | End displacement (s) |
|---|---|---|---|---|---|
| 1 | 1 | 160 | 300 | 1.40 | 2.90 |

## Optimisation options

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

## Phases

| Junction | Phase | Name | Minimum green (s) |
|---|---|---|---|
| 1 | A | | 15 |
| | B | | 15 |
| | C | | 15 |
| | D | | 15 |
| | E | | 15 |
| | F | | 15 |
| | G | | 15 |

## Library Stages

| Junction | Library Stage | Phases in stage | User stage minimum (s) | Run every N cycles | Probability of running (%) |
|---|---|---|---|---|---|
| 1 | 1 | B, E | 7 | | |
| | 2 | D, E, G | 7 | | |
| | 3 | C, G, F | 7 | | |
| | 4 | | 7 | | |
| | 5 | A, B | 7 | | |

## Losing / Gaining Phase Delays

| Junction | Delay | Type | Phase | From stage | To stage | Relative delay (s) |
|---|---|---|---|---|---|---|
| 1 | 1 | Losing | B | 1 | 2 | 1 |

## Stage Sequences

| Junction | Sequence | Name | Stage IDs | Stage ends |
|---|---|---|---|---|
| 1 | 1 | | 1, 2, 3, 4, 5 | 12, 52, 116, 124, 0 |

## Intergreen Matrix for Junction 1

| | | To | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| From | A | | | 5 | 5 | 5 | 5 | 5 |
| | B | | | 5 | 5 | | 5 | 5 |
| | C | 0 | 0 | | 0 | 5 | | |
| | D | 0 | 0 | 0 | | | 5 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **E** | 0 | | 0 | | | 0 | |
| | **F** | 0 | 0 | | 0 | 5 | | |
| | **G** | 0 | 0 | | | | | |

## Interstage Matrix for Junction 1

| | | To | | | | |
|---|---|---|---|---|---|---|
| | | **1** | **2** | **3** | **4** | **5** |
| **From** | **1** | 0 | 6 | 5 | 0 | 0 |
| | **2** | 0 | 0 | 5 | 0 | 0 |
| | **3** | 5 | 5 | 0 | 0 | 0 |
| | **4** | 0 | 0 | 0 | 0 | 0 |
| | **5** | 5 | 5 | 5 | 0 | 0 |

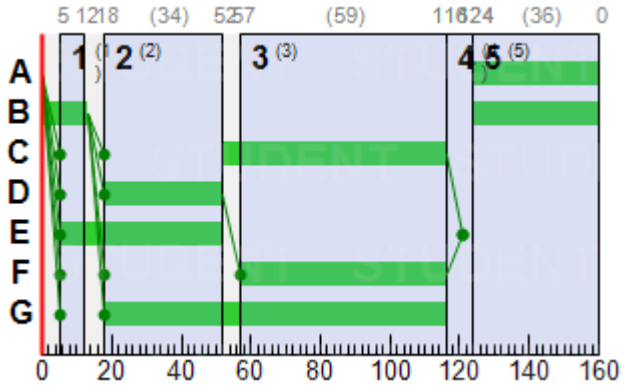
## Resultant Stages

| Junction | Resultant Stage | Library Stage ID | Phases in this stage | Stage start (s) | Stage end (s) | Stage duration (s) | User stage minimum (s) | Stage minimum (s) |
|---|---|---|---|---|---|---|---|---|
| 1 | **1** | 1 | B,E | 5 | 12 | 7 | 7 | 7 |
| | **2** | 2 | D,E,G | 18 | 52 | 34 | 7 | 15 |
| | **3** | 3 | C,G,F | 57 | 116 | 59 | 7 | 15 |
| | **4** | 4 | | 116 | 124 | 8 | 7 | 7 |
| | **5** | 5 | A,B | 124 | 0 | 36 | 7 | 15 |

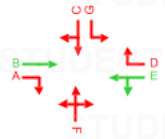
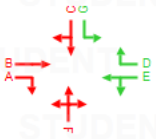
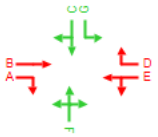
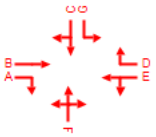
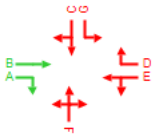
## Resultant Phase Green Periods

| Junction | Phase | Green period | Start time (s) | End time (s) | Duration (s) |
|---|---|---|---|---|---|
| 1 | **A** | **1** | 124 | 0 | 36 |
| | **B** | **1** | 124 | 13 | 49 |
| | **C** | **1** | 52 | 116 | 64 |
| | **D** | **1** | 18 | 52 | 34 |
| | **E** | **1** | 5 | 52 | 47 |
| | **F** | **1** | 57 | 116 | 59 |
| | **G** | **1** | 18 | 116 | 98 |

### Phase Timings Diagram for Junction 1




### Stage Sequence Diagram for Junction 1

| Stage 1 | Stage 2 | Stage 3 | Stage 4 | Stage 5 |
|---|---|---|---|---|
|  |  |  |  |  |

# Traffic Demand

## Demand Set Details

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

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

## Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

# Origin-Destination Data

### Demand (PCU/TS)

**08:00 - 08:15**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 57.00 | 39.00 |
| | B | 0.00 | 0.00 | 51.00 | 61.00 |
| | C | 51.00 | 50.00 | 0.00 | 0.00 |
| | D | 50.00 | 60.00 | 4.00 | 0.00 |

### Demand (PCU/TS)

**08:15 - 08:30**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 71.00 | 47.00 |
| | B | 2.00 | 0.00 | 72.00 | 46.00 |
| | C | 56.00 | 94.00 | 0.00 | 0.00 |
| | D | 45.00 | 76.00 | 10.00 | 0.00 |

**Demand (PCU/TS)**

**08:30 - 08:45**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 3.00 | 109.00 | 66.00 |
| | B | 2.00 | 0.00 | 70.00 | 43.00 |
| | C | 80.00 | 60.00 | 0.00 | 0.00 |
| | D | 99.00 | 70.00 | 6.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 95.00 | 52.00 |
| | B | 1.00 | 0.00 | 65.00 | 56.00 |
| | C | 62.00 | 55.00 | 0.00 | 0.00 |
| | D | 51.00 | 29.00 | 6.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | To | | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 08:00-08:15 | A | 96.00 | 96.00 |
| | B | 112.00 | 112.00 |
| | C | 101.00 | 101.00 |
| | D | 114.00 | 114.00 |
| 08:15-08:30 | A | 118.00 | 118.00 |
| | B | 120.00 | 120.00 |
| | C | 150.00 | 150.00 |
| | D | 131.00 | 131.00 |
| 08:30-08:45 | A | 178.00 | 178.00 |
| | B | 115.00 | 115.00 |
| | C | 140.00 | 140.00 |
| | D | 175.00 | 175.00 |
| 08:45-09:00 | A | 147.00 | 147.00 |
| | B | 122.00 | 122.00 |
| | C | 117.00 | 117.00 |
| | D | 86.00 | 86.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.83 | 71.46 | 26.7 | E |
| B | 0.73 | 51.14 | 14.6 | D |
| C | 0.99 | 82.45 | 26.2 | F |
| D | 0.47 | 29.00 | 15.0 | C |

## Main Results for each time segment

### 08:00 - 08:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 57.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.403 | 49.78 | 7.2 | 46.806 | D |
| | 2 | 39.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.490 | 33.33 | 5.7 | 60.607 | E |
| B | 1 | 112.00 | 448.14 | 60.50 | 0.00 | 169.45 | 0.661 | 98.86 | 13.1 | 47.146 | D |
| C | 1 | 51.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.347 | 44.69 | 6.3 | 43.997 | D |
| | 2 | 50.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.526 | 42.85 | 7.1 | 59.543 | E |
| D | 1 | 50.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.224 | 46.60 | 3.4 | 13.988 | B |
| | 2 | 64.00 | 457.67 | 65.50 | 0.00 | 187.36 | 0.342 | 57.17 | 6.8 | 33.927 | C |

### 08:15 - 08:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 71.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.502 | 69.13 | 9.1 | 49.618 | D |
| | 2 | 47.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.591 | 45.68 | 7.0 | 65.068 | E |
| B | 1 | 120.00 | 438.22 | 60.50 | 0.00 | 165.70 | 0.724 | 118.77 | 14.4 | 50.770 | D |
| C | 1 | 56.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.381 | 55.36 | 7.0 | 44.826 | D |
| | 2 | 94.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.989 | 81.87 | 19.3 | 104.863 | F |
| D | 1 | 45.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.202 | 45.34 | 3.1 | 13.692 | B |
| | 2 | 86.00 | 450.53 | 65.50 | 0.00 | 184.44 | 0.466 | 83.55 | 9.3 | 37.016 | D |

### 08:30 - 08:45

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 112.00 | 462.53 | 48.50 | 0.00 | 140.21 | 0.799 | 105.48 | 15.6 | 64.306 | E |
| | 2 | 66.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.829 | 61.87 | 11.1 | 83.595 | F |
| B | 1 | 115.00 | 437.65 | 60.50 | 0.00 | 165.49 | 0.695 | 115.67 | 13.7 | 49.547 | D |
| C | 1 | 80.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.544 | 76.84 | 10.1 | 49.491 | D |
| | 2 | 60.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.631 | 70.44 | 8.8 | 72.671 | E |
| D | 1 | 99.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.444 | 95.19 | 6.9 | 17.710 | B |
| | 2 | 76.00 | 455.46 | 65.50 | 0.00 | 186.46 | 0.408 | 77.12 | 8.1 | 35.505 | D |

### 08:45 - 09:00

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 95.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.672 | 97.99 | 12.6 | 57.140 | E |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 52.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.653 | 55.15 | 8.0 | 70.979 | E |
| B | 1 | 122.00 | 442.82 | 60.50 | 0.00 | 167.44 | 0.729 | 121.07 | 14.6 | 51.136 | D |
| C | 1 | 62.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.421 | 64.39 | 7.7 | 45.931 | D |
| | 2 | 55.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.579 | 55.87 | 8.0 | 62.348 | E |
| D | 1 | 51.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.229 | 54.40 | 3.5 | 14.056 | B |
| | 2 | 35.00 | 443.44 | 65.50 | 0.00 | 181.54 | 0.193 | 39.45 | 3.7 | 31.013 | C |

# 2023, PM WOD

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 49.08 | D |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2023 | PM WOD | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

## Origin-Destination Data

**16:00 - 16:15**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 79.00 | 57.00 |
| | B | 0.00 | 0.00 | 55.00 | 69.00 |
| | C | 67.00 | 39.00 | 0.00 | 0.00 |
| | D | 46.00 | 26.00 | 2.00 | 0.00 |

**16:15 - 16:30**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 4.00 | 68.00 | 67.00 |
| | B | 0.00 | 0.00 | 35.00 | 29.00 |
| | C | 77.00 | 40.00 | 0.00 | 0.00 |
| | D | 59.00 | 18.00 | 4.00 | 0.00 |

**16:30 - 16:45**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 68.00 | 50.00 |
| | B | 1.00 | 0.00 | 31.00 | 39.00 |
| | C | 63.00 | 52.00 | 0.00 | 0.00 |
| | D | 44.00 | 31.00 | 0.00 | 0.00 |

**16:45 - 17:00**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 3.00 | 69.00 | 48.00 |
| | B | 4.00 | 0.00 | 45.00 | 50.00 |
| | C | 73.00 | 42.00 | 0.00 | 0.00 |
| | D | 70.00 | 41.00 | 5.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 16:00-16:15 | A | 136.00 | 136.00 |
| | B | 124.00 | 124.00 |
| | C | 106.00 | 106.00 |

| | | | |
|---|---|---|---|
| | D | 74.00 | 74.00 |
| 16:15-16:30 | A | 139.00 | 139.00 |
| | B | 64.00 | 64.00 |
| | C | 117.00 | 117.00 |
| | D | 81.00 | 81.00 |
| 16:30-16:45 | A | 118.00 | 118.00 |
| | B | 71.00 | 71.00 |
| | C | 115.00 | 115.00 |
| | D | 75.00 | 75.00 |
| 16:45-17:00 | A | 120.00 | 120.00 |
| | B | 99.00 | 99.00 |
| | C | 115.00 | 115.00 |
| | D | 116.00 | 116.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.64 | 48.74 | 17.3 | D |
| B | 0.84 | 65.30 | 17.2 | E |
| C | 0.59 | 56.29 | 15.9 | E |
| D | 0.30 | 23.38 | 9.9 | C |

## Main Results for each time segment

### 16:00 - 16:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 79.00 | 466.25 | 59.50 | 0.00 | 173.39 | 0.456 | 69.95 | 9.0 | 40.567 | D |
| | 2 | 57.00 | 358.65 | 46.50 | 0.00 | 104.23 | 0.547 | 49.42 | 7.6 | 53.854 | D |
| B | 1 | 124.00 | 448.88 | 52.50 | 0.00 | 147.29 | 0.842 | 106.84 | 17.2 | 65.297 | E |
| C | 1 | 67.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.484 | 58.36 | 8.6 | 49.763 | D |
| | 2 | 39.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.446 | 33.35 | 5.7 | 59.285 | E |
| D | 1 | 46.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.200 | 43.03 | 3.0 | 12.439 | B |
| | 2 | 28.00 | 456.47 | 57.50 | 0.00 | 164.04 | 0.171 | 24.79 | 3.2 | 35.653 | D |

### 16:15 - 16:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 72.00 | 458.61 | 59.50 | 0.00 | 170.54 | 0.422 | 72.82 | 8.2 | 39.769 | D |
| | 2 | 67.00 | 358.65 | 46.50 | 0.00 | 104.23 | 0.643 | 65.46 | 9.1 | 58.372 | E |
| B | 1 | 64.00 | 442.45 | 52.50 | 0.00 | 145.18 | 0.441 | 73.31 | 7.9 | 45.598 | D |
| C | 1 | 77.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.556 | 75.61 | 10.0 | 52.165 | D |
| | 2 | 40.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.458 | 39.84 | 5.8 | 59.789 | E |
| D | 1 | 59.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.257 | 58.15 | 3.8 | 13.176 | B |
| | 2 | 22.00 | 442.13 | 57.50 | 0.00 | 158.89 | 0.138 | 22.69 | 2.5 | 35.099 | D |

**16:30 - 16:45**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 68.00 | 466.25 | 59.50 | 0.00 | 173.39 | 0.392 | 68.48 | 7.7 | 38.972 | D |
| | 2 | 50.00 | 358.65 | 46.50 | 0.00 | 104.23 | 0.480 | 52.54 | 6.6 | 51.712 | D |
| B | 1 | 71.00 | 448.43 | 52.50 | 0.00 | 147.14 | 0.483 | 70.11 | 8.7 | 46.297 | D |
| C | 1 | 63.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.455 | 64.93 | 8.1 | 49.049 | D |
| | 2 | 52.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.595 | 50.05 | 7.8 | 65.072 | E |
| D | 1 | 44.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.192 | 44.98 | 2.8 | 12.335 | B |
| | 2 | 31.00 | 466.25 | 57.50 | 0.00 | 167.56 | 0.185 | 29.96 | 3.6 | 35.900 | D |

**16:45 - 17:00**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 72.00 | 460.49 | 59.50 | 0.00 | 171.25 | 0.420 | 71.52 | 8.2 | 39.690 | D |
| | 2 | 48.00 | 358.65 | 46.50 | 0.00 | 104.23 | 0.461 | 48.28 | 6.3 | 50.935 | D |
| B | 1 | 99.00 | 445.66 | 52.50 | 0.00 | 146.23 | 0.677 | 95.10 | 12.6 | 53.731 | D |
| C | 1 | 73.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.527 | 71.63 | 9.5 | 51.171 | D |
| | 2 | 42.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.480 | 43.63 | 6.1 | 60.815 | E |
| D | 1 | 70.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.305 | 68.29 | 4.6 | 13.863 | B |
| | 2 | 46.00 | 451.53 | 57.50 | 0.00 | 162.27 | 0.283 | 44.25 | 5.3 | 37.865 | D |

# Junctions 9

## OSCADY 9 - Signalised Intersection Module



**Filename:** Sutton Cross 2023 WITH COMMITTED.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 13/04/2020 17:16:20



## Summary of junction performance

| | AM with committed | | | | PM with committed | | | |
|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | DOS | LOS | Queue (PCU) | Delay (s) | DOS | LOS |
| | 2023 | | | | | | | |
| Arm A | 30.8 | 74.20 | 0.87 | E | 19.4 | 51.93 | 0.71 | D |
| Arm B | 16.3 | 57.93 | 0.80 | E | 19.4 | 72.01 | 0.90 | E |
| Arm C | 29.3 | 88.25 | 1.04 | F | 18.9 | 57.79 | 0.67 | E |
| Arm D | 15.7 | 30.06 | 0.50 | C | 11.0 | 23.86 | 0.35 | C |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Sutton Cross |
| **Location** | Howth |
| **Site number** | |
| **Date** | 10/04/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

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

## Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | DOS Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|---|---|---|---|---|
| | | 0.85 | 36.00 | 20.00 |

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2023 | AM with committed | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2023 | PM with committed | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2023, AM with committed

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 63.23 | E |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Arms

### Arms

| Arm | Name | Description |
|---|---|---|
| A | Howth Road | |
| B | Carrickrock Road | |
| C | Dublin Road | |
| D | Station Road | |

### OSCADY Traffic Streams

| Arm | Traffic Stream | Phase | Notional EEG (s) | Signals EEG (s) | Destination arms | Straight move |
|---|---|---|---|---|---|---|
| A | 1 | E | 0.00 | 0.00 | B, C | C |
| | 2 | D | 0.00 | 0.00 | D | C |
| B | 1 | F | 0.00 | 0.00 | A, C, D | D |
| C | 1 | B | 0.00 | 1.00 | A | A |
| | 2 | A | 0.00 | 0.00 | B | A |
| D | 1 | G | 0.00 | 0.00 | A | B |
| | 2 | C | 0.00 | 5.00 | B, C | B |

### OSCADY Lanes

| Arm | Traffic Stream | Destination arms | Gradient (%) | Width (m) | Turning radius (m) | Nearside lane | Has bay |
|---|---|---|---|---|---|---|---|
| A | 1 | B, C | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | D | 0 | 2.50 | 5.00 | ✓ | |
| B | 1 | A, C, D | 0 | 3.00 | 10.00 | ✓ | |
| C | 1 | A | 0 | 2.50 | | ✓ | |
| | 2 | B | 0 | 2.50 | 10.00 | ✓ | |
| D | 1 | A | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | B, C | 0 | 2.50 | 5.00 | ✓ | |

## Signal Timings

### Junction 1

| Junction | Sequence to use | Cycle time (s) | Maximum cycle time (s) | Start displacement (s) | End displacement (s) |
|---|---|---|---|---|---|
| 1 | 1 | 160 | 300 | 1.40 | 2.90 |

### Optimisation options

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

### Phases

| Junction | Phase | Name | Minimum green (s) |
|---|---|---|---|
| 1 | A | | 15 |
| | B | | 15 |
| | C | | 15 |
| | D | | 15 |
| | E | | 15 |
| | F | | 15 |
| | G | | 15 |

### Library Stages

| Junction | Library Stage | Phases in stage | User stage minimum (s) | Run every N cycles | Probability of running (%) |
|---|---|---|---|---|---|
| 1 | 1 | B, E | 7 | | |
| | 2 | D, E, G | 7 | | |
| | 3 | C, G, F | 7 | | |
| | 4 | | 7 | | |
| | 5 | A, B | 7 | | |

### Losing / Gaining Phase Delays

| Junction | Delay | Type | Phase | From stage | To stage | Relative delay (s) |
|---|---|---|---|---|---|---|
| 1 | 1 | Losing | B | 1 | 2 | 1 |

### Stage Sequences

| Junction | Sequence | Name | Stage IDs | Stage ends |
|---|---|---|---|---|
| 1 | 1 | | 1, 2, 3, 4, 5 | 12, 55, 117, 125, 0 |

### Intergreen Matrix for Junction 1

| | | To | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| From | A | | | 5 | 5 | 5 | 5 | 5 |
| | B | | | 5 | 5 | | 5 | 5 |
| | C | 0 | 0 | | 0 | 5 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | D | 0 | 0 | 0 | | | 5 | |
| | E | 0 | | 0 | | | 0 | |
| | F | 0 | 0 | | 0 | 5 | | |
| | G | 0 | 0 | | | | | |

## Interstage Matrix for Junction 1

| | | To | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| From | 1 | 0 | 6 | 5 | 0 | 0 |
| | 2 | 0 | 0 | 5 | 0 | 0 |
| | 3 | 5 | 5 | 0 | 0 | 0 |
| | 4 | 0 | 0 | 0 | 0 | 0 |
| | 5 | 5 | 5 | 5 | 0 | 0 |

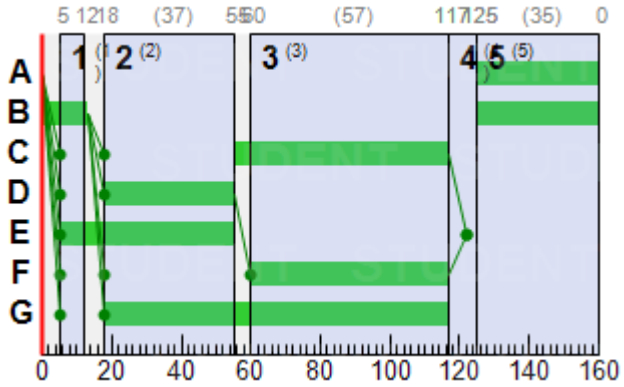
## Resultant Stages

| Junction | Resultant Stage | Library Stage ID | Phases in this stage | Stage start (s) | Stage end (s) | Stage duration (s) | User stage minimum (s) | Stage minimum (s) |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | B,E | 5 | 12 | 7 | 7 | 7 |
| | 2 | 2 | D,E,G | 18 | 55 | 37 | 7 | 15 |
| | 3 | 3 | C,G,F | 60 | 117 | 57 | 7 | 15 |
| | 4 | 4 | | 117 | 125 | 8 | 7 | 7 |
| | 5 | 5 | A,B | 125 | 0 | 35 | 7 | 15 |

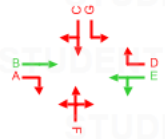
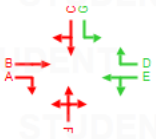
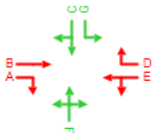
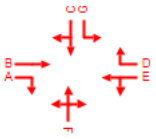
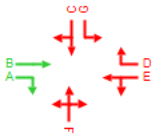
## Resultant Phase Green Periods

| Junction | Phase | Green period | Start time (s) | End time (s) | Duration (s) |
|---|---|---|---|---|---|
| 1 | A | 1 | 125 | 0 | 35 |
| | B | 1 | 125 | 13 | 48 |
| | C | 1 | 55 | 117 | 62 |
| | D | 1 | 18 | 55 | 37 |
| | E | 1 | 5 | 55 | 50 |
| | F | 1 | 60 | 117 | 57 |
| | G | 1 | 18 | 117 | 99 |

### Phase Timings Diagram for Junction 1




### Stage Sequence Diagram for Junction 1

| Stage 1 | Stage 2 | Stage 3 | Stage 4 | Stage 5 |
|---|---|---|---|---|
|  |  |  |  |  |

# Traffic Demand

## Demand Set Details

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

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

## Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**08:00 - 08:15**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 74.00 | 47.00 |
| | B | 0.00 | 0.00 | 55.00 | 64.00 |
| | C | 55.00 | 52.00 | 0.00 | 0.00 |
| | D | 54.00 | 64.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**08:15 - 08:30**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 88.00 | 55.00 |
| | B | 2.00 | 0.00 | 76.00 | 49.00 |
| | C | 60.00 | 96.00 | 0.00 | 0.00 |
| | D | 49.00 | 79.00 | 10.00 | 0.00 |

**Demand (PCU/TS)**

**08:30 - 08:45**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 3.00 | 126.00 | 74.00 |
| | B | 2.00 | 0.00 | 74.00 | 46.00 |
| | C | 85.00 | 63.00 | 0.00 | 0.00 |
| | D | 103.00 | 73.00 | 6.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 112.00 | 60.00 |
| | B | 1.00 | 0.00 | 69.00 | 59.00 |
| | C | 66.00 | 57.00 | 0.00 | 0.00 |
| | D | 55.00 | 32.00 | 6.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | To | | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 08:00-08:15 | A | 121.00 | 121.00 |
| | B | 119.00 | 119.00 |
| | C | 107.00 | 107.00 |
| | D | 122.00 | 122.00 |
| 08:15-08:30 | A | 143.00 | 143.00 |
| | B | 127.00 | 127.00 |
| | C | 156.00 | 156.00 |
| | D | 138.00 | 138.00 |
| 08:30-08:45 | A | 203.00 | 203.00 |
| | B | 122.00 | 122.00 |
| | C | 148.00 | 148.00 |
| | D | 182.00 | 182.00 |
| 08:45-09:00 | A | 172.00 | 172.00 |
| | B | 129.00 | 129.00 |
| | C | 123.00 | 123.00 |
| | D | 93.00 | 93.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.87 | 74.20 | 30.8 | E |
| B | 0.80 | 57.93 | 16.3 | E |
| C | 1.04 | 88.25 | 29.3 | F |
| D | 0.50 | 30.06 | 15.7 | C |

## Main Results for each time segment

### 08:00 - 08:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 74.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.493 | 64.79 | 9.2 | 47.150 | D |
| | 2 | 47.00 | 358.65 | 38.50 | 0.00 | 86.30 | 0.545 | 40.27 | 6.7 | 60.203 | E |
| B | 1 | 119.00 | 447.71 | 58.50 | 0.00 | 163.69 | 0.727 | 104.47 | 14.5 | 51.933 | D |
| C | 1 | 55.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.381 | 48.11 | 6.9 | 45.537 | D |
| | 2 | 52.00 | 405.43 | 36.50 | 0.00 | 92.49 | 0.562 | 44.44 | 7.6 | 61.794 | E |
| D | 1 | 54.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.240 | 50.38 | 3.6 | 13.777 | B |
| | 2 | 68.00 | 458.16 | 63.50 | 0.00 | 181.83 | 0.374 | 60.58 | 7.4 | 35.929 | D |

### 08:15 - 08:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 88.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.586 | 86.11 | 11.1 | 50.319 | D |
| | 2 | 55.00 | 358.65 | 38.50 | 0.00 | 86.30 | 0.637 | 53.66 | 8.1 | 64.878 | E |
| B | 1 | 127.00 | 438.37 | 58.50 | 0.00 | 160.28 | 0.792 | 125.52 | 16.0 | 57.111 | E |
| C | 1 | 60.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.416 | 59.35 | 7.5 | 46.441 | D |
| | 2 | 96.00 | 405.43 | 36.50 | 0.00 | 92.49 | 1.038 | 81.83 | 21.7 | 114.380 | F |
| D | 1 | 49.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.218 | 49.34 | 3.3 | 13.481 | B |
| | 2 | 89.00 | 451.05 | 63.50 | 0.00 | 179.01 | 0.497 | 86.59 | 9.8 | 39.192 | D |

### 08:30 - 08:45

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 129.00 | 463.02 | 51.50 | 0.00 | 149.03 | 0.866 | 121.74 | 18.4 | 68.509 | E |
| | 2 | 74.00 | 358.65 | 38.50 | 0.00 | 86.30 | 0.857 | 69.64 | 12.4 | 84.126 | F |
| B | 1 | 122.00 | 437.84 | 58.50 | 0.00 | 160.08 | 0.762 | 122.73 | 15.3 | 55.769 | E |
| C | 1 | 85.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.589 | 81.61 | 10.9 | 51.856 | D |
| | 2 | 63.00 | 405.43 | 36.50 | 0.00 | 92.49 | 0.681 | 74.03 | 10.7 | 95.494 | F |
| D | 1 | 103.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.457 | 99.24 | 7.0 | 17.516 | B |
| | 2 | 79.00 | 455.86 | 63.50 | 0.00 | 180.92 | 0.437 | 80.16 | 8.7 | 37.537 | D |

### 08:45 - 09:00

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 112.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.746 | 115.47 | 14.9 | 60.096 | E |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 60.00 | 358.65 | 38.50 | 0.00 | 86.30 | 0.695 | 63.31 | 9.1 | 71.644 | E |
| B | 1 | 129.00 | 442.72 | 58.50 | 0.00 | 161.87 | 0.797 | 127.97 | 16.3 | 57.930 | E |
| C | 1 | 66.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.458 | 68.60 | 8.3 | 47.669 | D |
| | 2 | 57.00 | 405.43 | 36.50 | 0.00 | 92.49 | 0.616 | 59.27 | 8.4 | 65.349 | E |
| D | 1 | 55.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.244 | 58.36 | 3.7 | 13.846 | B |
| | 2 | 38.00 | 445.16 | 63.50 | 0.00 | 176.67 | 0.215 | 42.57 | 4.1 | 32.660 | C |

# 2023, PM with committed

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 51.81 | D |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2023 | PM with committed | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

## Origin-Destination Data

**16:00 - 16:15**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 88.00 | 62.00 |
| | B | 0.00 | 0.00 | 60.00 | 72.00 |
| | C | 84.00 | 44.00 | 0.00 | 0.00 |
| | D | 56.00 | 29.00 | 2.00 | 0.00 |

**16:15 - 16:30**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 4.00 | 76.00 | 72.00 |
| | B | 0.00 | 0.00 | 40.00 | 32.00 |
| | C | 94.00 | 45.00 | 0.00 | 0.00 |
| | D | 69.00 | 21.00 | 4.00 | 0.00 |

**16:30 - 16:45**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 77.00 | 56.00 |
| | B | 1.00 | 0.00 | 36.00 | 42.00 |
| | C | 79.00 | 57.00 | 0.00 | 0.00 |
| | D | 54.00 | 35.00 | 0.00 | 0.00 |

**16:45 - 17:00**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 3.00 | 77.00 | 53.00 |
| | B | 4.00 | 0.00 | 50.00 | 53.00 |
| | C | 89.00 | 46.00 | 0.00 | 0.00 |
| | D | 80.00 | 44.00 | 5.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 16:00-16:15 | A | 150.00 | 150.00 |
| | B | 132.00 | 132.00 |
| | C | 128.00 | 128.00 |

| | | | |
|---|---|---|---|
| | D | 87.00 | 87.00 |
| 16:15-16:30 | A | 152.00 | 152.00 |
| | B | 72.00 | 72.00 |
| | C | 139.00 | 139.00 |
| | D | 94.00 | 94.00 |
| 16:30-16:45 | A | 133.00 | 133.00 |
| | B | 79.00 | 79.00 |
| | C | 136.00 | 136.00 |
| | D | 89.00 | 89.00 |
| 16:45-17:00 | A | 133.00 | 133.00 |
| | B | 107.00 | 107.00 |
| | C | 135.00 | 135.00 |
| | D | 129.00 | 129.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.71 | 51.93 | 19.4 | D |
| B | 0.90 | 72.01 | 19.4 | E |
| C | 0.67 | 57.79 | 18.9 | E |
| D | 0.35 | 23.86 | 11.0 | C |

## Main Results for each time segment

### 16:00 - 16:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 88.00 | 466.25 | 58.50 | 0.00 | 170.47 | 0.516 | 77.75 | 10.3 | 42.989 | D |
| | 2 | 62.00 | 358.65 | 45.50 | 0.00 | 101.99 | 0.608 | 53.56 | 8.4 | 57.255 | E |
| B | 1 | 132.00 | 448.19 | 52.50 | 0.00 | 147.06 | 0.898 | 112.63 | 19.4 | 72.013 | E |
| C | 1 | 84.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.594 | 73.08 | 10.9 | 52.760 | D |
| | 2 | 44.00 | 405.43 | 35.50 | 0.00 | 89.96 | 0.489 | 37.64 | 6.4 | 59.876 | E |
| D | 1 | 56.00 | 358.65 | 101.50 | 0.00 | 227.52 | 0.246 | 52.31 | 3.7 | 13.445 | B |
| | 2 | 31.00 | 457.40 | 57.50 | 0.00 | 164.38 | 0.189 | 27.44 | 3.6 | 35.980 | D |

### 16:15 - 16:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 80.00 | 459.36 | 58.50 | 0.00 | 167.95 | 0.476 | 80.97 | 9.3 | 41.934 | D |
| | 2 | 72.00 | 358.65 | 45.50 | 0.00 | 101.99 | 0.706 | 70.31 | 10.1 | 63.029 | E |
| B | 1 | 72.00 | 441.92 | 52.50 | 0.00 | 145.01 | 0.497 | 82.47 | 8.9 | 47.831 | D |
| C | 1 | 94.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.665 | 92.50 | 12.4 | 55.968 | E |
| | 2 | 45.00 | 405.43 | 35.50 | 0.00 | 89.96 | 0.500 | 44.84 | 6.5 | 60.456 | E |
| D | 1 | 69.00 | 358.65 | 101.50 | 0.00 | 227.52 | 0.303 | 68.12 | 4.6 | 14.272 | B |
| | 2 | 25.00 | 444.90 | 57.50 | 0.00 | 159.88 | 0.156 | 25.69 | 2.9 | 35.414 | D |

**16:30 - 16:45**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 77.00 | 466.25 | 58.50 | 0.00 | 170.47 | 0.452 | 77.38 | 8.9 | 41.188 | D |
| | 2 | 56.00 | 358.65 | 45.50 | 0.00 | 101.99 | 0.549 | 58.59 | 7.5 | 55.302 | E |
| B | 1 | 79.00 | 447.32 | 52.50 | 0.00 | 146.78 | 0.538 | 78.09 | 9.8 | 48.096 | D |
| C | 1 | 79.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.559 | 81.19 | 10.2 | 51.771 | D |
| | 2 | 57.00 | 405.43 | 35.50 | 0.00 | 89.96 | 0.634 | 55.00 | 8.5 | 66.122 | E |
| D | 1 | 54.00 | 358.65 | 101.50 | 0.00 | 227.52 | 0.237 | 55.01 | 3.6 | 13.331 | B |
| | 2 | 35.00 | 466.25 | 57.50 | 0.00 | 167.56 | 0.209 | 33.85 | 4.0 | 36.345 | D |

**16:45 - 17:00**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 80.00 | 461.06 | 58.50 | 0.00 | 168.58 | 0.475 | 79.63 | 9.3 | 41.832 | D |
| | 2 | 53.00 | 358.65 | 45.50 | 0.00 | 101.99 | 0.520 | 53.45 | 7.1 | 53.890 | D |
| B | 1 | 107.00 | 445.06 | 52.50 | 0.00 | 146.03 | 0.733 | 102.88 | 13.9 | 56.855 | E |
| C | 1 | 89.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.630 | 87.57 | 11.7 | 54.329 | D |
| | 2 | 46.00 | 405.43 | 35.50 | 0.00 | 89.96 | 0.511 | 47.83 | 6.7 | 61.169 | E |
| D | 1 | 80.00 | 358.65 | 101.50 | 0.00 | 227.52 | 0.352 | 78.24 | 5.3 | 15.044 | B |
| | 2 | 49.00 | 452.40 | 57.50 | 0.00 | 162.58 | 0.301 | 47.36 | 5.7 | 38.244 | D |

# Junctions 9

## OSCADY 9 - Signalised Intersection Module



**Filename:** Sutton Cross 2023 WITH COMMITTED PLUS DEV.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 10/05/2020 15:02:52

---



## Summary of junction performance

| | AM with committed and dev | | | | PM with committed and dev | | | |
|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | DOS | LOS | Queue (PCU) | Delay (s) | DOS | LOS |
| | 2023 | | | | | | | |
| Arm A | 32.0 | 76.42 | 0.89 | E | 20.0 | 53.82 | 0.73 | D |
| Arm B | 16.5 | 58.58 | 0.80 | E | 20.4 | 76.61 | 0.92 | E |
| Arm C | 30.1 | 89.35 | 1.05 | F | 18.9 | 55.59 | 0.65 | E |
| Arm D | 15.8 | 29.96 | 0.50 | C | 11.4 | 24.76 | 0.37 | C |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Sutton Cross |
| **Location** | Howth |
| **Site number** | |
| **Date** | 10/04/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

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

## Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | DOS Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|---|---|---|---|---|
| | | 0.85 | 36.00 | 20.00 |

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2023 | AM with committed and dev | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2023 | PM with committed and dev | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2023, AM with committed and dev

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 64.33 | E |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Arms

### Arms

| Arm | Name | Description |
|---|---|---|
| A | Howth Road | |
| B | Carrickrock Road | |
| C | Dublin Road | |
| D | Station Road | |

### OSCADY Traffic Streams

| Arm | Traffic Stream | Phase | Notional EEG (s) | Signals EEG (s) | Destination arms | Straight move |
|---|---|---|---|---|---|---|
| A | 1 | E | 0.00 | 0.00 | B, C | C |
| | 2 | D | 0.00 | 0.00 | D | C |
| B | 1 | F | 0.00 | 0.00 | A, C, D | D |
| C | 1 | B | 0.00 | 1.00 | A | A |
| | 2 | A | 0.00 | 0.00 | B | A |
| D | 1 | G | 0.00 | 0.00 | A | B |
| | 2 | C | 0.00 | 5.00 | B, C | B |

### OSCADY Lanes

| Arm | Traffic Stream | Destination arms | Gradient (%) | Width (m) | Turning radius (m) | Nearside lane | Has bay |
|---|---|---|---|---|---|---|---|
| A | 1 | B, C | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | D | 0 | 2.50 | 5.00 | ✓ | |
| B | 1 | A, C, D | 0 | 3.00 | 10.00 | ✓ | |
| C | 1 | A | 0 | 2.50 | | ✓ | |
| | 2 | B | 0 | 2.50 | 10.00 | ✓ | |
| D | 1 | A | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | B, C | 0 | 2.50 | 5.00 | ✓ | |

## Signal Timings

### Junction 1

| Junction | Sequence to use | Cycle time (s) | Maximum cycle time (s) | Start displacement (s) | End displacement (s) |
|---|---|---|---|---|---|
| 1 | 1 | 160 | 300 | 1.40 | 2.90 |

### Optimisation options

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

### Phases

| Junction | Phase | Name | Minimum green (s) |
|---|---|---|---|
| 1 | A | | 15 |
| | B | | 15 |
| | C | | 15 |
| | D | | 15 |
| | E | | 15 |
| | F | | 15 |
| | G | | 15 |

### Library Stages

| Junction | Library Stage | Phases in stage | User stage minimum (s) | Run every N cycles | Probability of running (%) |
|---|---|---|---|---|---|
| 1 | 1 | B, E | 7 | | |
| | 2 | D, E, G | 7 | | |
| | 3 | C, G, F | 7 | | |
| | 4 | | 7 | | |
| | 5 | A, B | 7 | | |

### Losing / Gaining Phase Delays

| Junction | Delay | Type | Phase | From stage | To stage | Relative delay (s) |
|---|---|---|---|---|---|---|
| 1 | 1 | Losing | B | 1 | 2 | 1 |

### Stage Sequences

| Junction | Sequence | Name | Stage IDs | Stage ends |
|---|---|---|---|---|
| 1 | 1 | | 1, 2, 3, 4, 5 | 12, 55, 117, 125, 0 |

### Intergreen Matrix for Junction 1

| | | To | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| From | A | | | 5 | 5 | 5 | 5 | 5 |
| | B | | | 5 | 5 | | 5 | 5 |
| | C | 0 | 0 | | 0 | 5 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **D** | 0 | 0 | 0 | | | 5 | |
| | **E** | 0 | | 0 | | | 0 | |
| | **F** | 0 | 0 | | 0 | 5 | | |
| | **G** | 0 | 0 | | | | | |

## Interstage Matrix for Junction 1

| | | To | | | | |
|---|---|---|---|---|---|---|
| | | **1** | **2** | **3** | **4** | **5** |
| **From** | **1** | 0 | 6 | 5 | 0 | 0 |
| | **2** | 0 | 0 | 5 | 0 | 0 |
| | **3** | 5 | 5 | 0 | 0 | 0 |
| | **4** | 0 | 0 | 0 | 0 | 0 |
| | **5** | 5 | 5 | 5 | 0 | 0 |

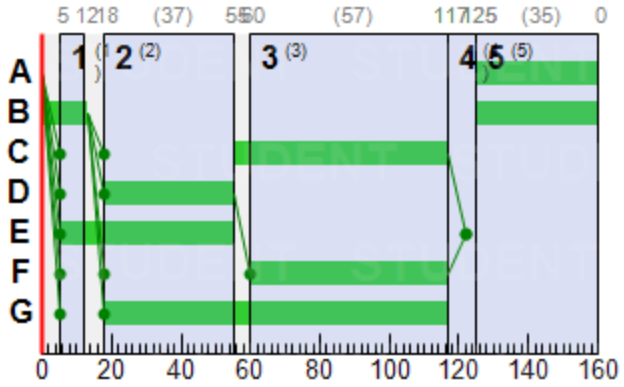
## Resultant Stages

| Junction | Resultant Stage | Library Stage ID | Phases in this stage | Stage start (s) | Stage end (s) | Stage duration (s) | User stage minimum (s) | Stage minimum (s) |
|---|---|---|---|---|---|---|---|---|
| 1 | **1** | 1 | B,E | 5 | 12 | 7 | 7 | 7 |
| | **2** | 2 | D,E,G | 18 | 55 | 37 | 7 | 15 |
| | **3** | 3 | C,G,F | 60 | 117 | 57 | 7 | 15 |
| | **4** | 4 | | 117 | 125 | 8 | 7 | 7 |
| | **5** | 5 | A,B | 125 | 0 | 35 | 7 | 15 |

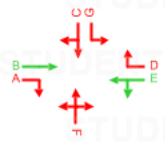
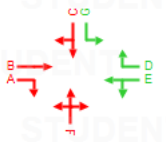
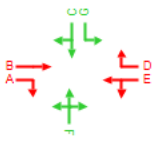
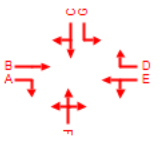
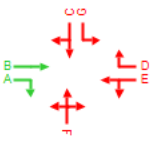
## Resultant Phase Green Periods

| Junction | Phase | Green period | Start time (s) | End time (s) | Duration (s) |
|---|---|---|---|---|---|
| 1 | **A** | **1** | 125 | 0 | 35 |
| | **B** | **1** | 125 | 13 | 48 |
| | **C** | **1** | 55 | 117 | 62 |
| | **D** | **1** | 18 | 55 | 37 |
| | **E** | **1** | 5 | 55 | 50 |
| | **F** | **1** | 60 | 117 | 57 |
| | **G** | **1** | 18 | 117 | 99 |

### Phase Timings Diagram for Junction 1




### Stage Sequence Diagram for Junction 1

| Stage 1 | Stage 2 | Stage 3 | Stage 4 | Stage 5 |
|---|---|---|---|---|
|  |  |  |  |  |

# Traffic Demand

## Demand Set Details

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

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

## Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**08:00 - 08:15**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 77.00 | 48.00 |
| | B | 0.00 | 0.00 | 56.00 | 65.00 |
| | C | 56.00 | 52.00 | 0.00 | 0.00 |
| | D | 55.00 | 64.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**08:15 - 08:30**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 91.00 | 57.00 |
| | B | 2.00 | 0.00 | 77.00 | 49.00 |
| | C | 61.00 | 97.00 | 0.00 | 0.00 |
| | D | 50.00 | 79.00 | 10.00 | 0.00 |

**Demand (PCU/TS)**

**08:30 - 08:45**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 3.00 | 129.00 | 75.00 |
| | B | 2.00 | 0.00 | 75.00 | 46.00 |
| | C | 85.00 | 63.00 | 0.00 | 0.00 |
| | D | 104.00 | 73.00 | 6.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 116.00 | 62.00 |
| | B | 1.00 | 0.00 | 70.00 | 59.00 |
| | C | 67.00 | 57.00 | 0.00 | 0.00 |
| | D | 56.00 | 32.00 | 6.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | To | | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 08:00-08:15 | A | 125.00 | 125.00 |
| | B | 121.00 | 121.00 |
| | C | 108.00 | 108.00 |
| | D | 123.00 | 123.00 |
| 08:15-08:30 | A | 148.00 | 148.00 |
| | B | 128.00 | 128.00 |
| | C | 158.00 | 158.00 |
| | D | 139.00 | 139.00 |
| 08:30-08:45 | A | 207.00 | 207.00 |
| | B | 123.00 | 123.00 |
| | C | 148.00 | 148.00 |
| | D | 183.00 | 183.00 |
| 08:45-09:00 | A | 178.00 | 178.00 |
| | B | 130.00 | 130.00 |
| | C | 124.00 | 124.00 |
| | D | 94.00 | 94.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.89 | 76.42 | 32.0 | E |
| B | 0.80 | 58.58 | 16.5 | E |
| C | 1.05 | 89.35 | 30.1 | F |
| D | 0.50 | 29.96 | 15.8 | C |

## Main Results for each time segment

### 08:00 - 08:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 77.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.513 | 67.40 | 9.6 | 47.763 | D |
| | 2 | 48.00 | 358.65 | 38.50 | 0.00 | 86.30 | 0.556 | 41.11 | 6.9 | 60.691 | E |
| B | 1 | 121.00 | 447.67 | 58.50 | 0.00 | 163.68 | 0.739 | 106.15 | 14.8 | 52.661 | D |
| C | 1 | 56.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.388 | 48.98 | 7.0 | 45.709 | D |
| | 2 | 52.00 | 405.43 | 36.50 | 0.00 | 92.49 | 0.562 | 44.44 | 7.6 | 61.794 | E |
| D | 1 | 55.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.244 | 51.32 | 3.7 | 13.838 | B |
| | 2 | 68.00 | 458.16 | 63.50 | 0.00 | 181.83 | 0.374 | 60.58 | 7.4 | 35.929 | D |

### 08:15 - 08:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 91.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.606 | 89.08 | 11.5 | 51.096 | D |
| | 2 | 57.00 | 358.65 | 38.50 | 0.00 | 86.30 | 0.660 | 55.46 | 8.4 | 66.218 | E |
| B | 1 | 128.00 | 438.18 | 58.50 | 0.00 | 160.21 | 0.799 | 126.64 | 16.2 | 57.735 | E |
| C | 1 | 61.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.423 | 60.35 | 7.7 | 46.625 | D |
| | 2 | 97.00 | 405.43 | 36.50 | 0.00 | 92.49 | 1.049 | 82.16 | 22.4 | 116.216 | F |
| D | 1 | 50.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.222 | 50.34 | 3.3 | 13.540 | B |
| | 2 | 89.00 | 451.05 | 63.50 | 0.00 | 179.01 | 0.497 | 86.59 | 9.8 | 39.192 | D |

### 08:30 - 08:45

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 132.00 | 463.09 | 51.50 | 0.00 | 149.06 | 0.886 | 124.32 | 19.2 | 71.025 | E |
| | 2 | 75.00 | 358.65 | 38.50 | 0.00 | 86.30 | 0.869 | 70.67 | 12.8 | 85.905 | F |
| B | 1 | 123.00 | 437.65 | 58.50 | 0.00 | 160.02 | 0.769 | 123.73 | 15.5 | 56.352 | E |
| C | 1 | 85.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.589 | 81.74 | 10.9 | 51.858 | D |
| | 2 | 63.00 | 405.43 | 36.50 | 0.00 | 92.49 | 0.681 | 74.60 | 10.8 | 99.015 | F |
| D | 1 | 104.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.462 | 100.23 | 7.1 | 17.612 | B |
| | 2 | 79.00 | 455.86 | 63.50 | 0.00 | 180.92 | 0.437 | 80.16 | 8.7 | 37.537 | D |

### 08:45 - 09:00

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 116.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.773 | 119.53 | 15.7 | 62.730 | E |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 62.00 | 358.65 | 38.50 | 0.00 | 86.30 | 0.718 | 65.21 | 9.6 | 74.142 | E |
| B | 1 | 130.00 | 442.50 | 58.50 | 0.00 | 161.79 | 0.804 | 128.96 | 16.5 | 58.581 | E |
| C | 1 | 67.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.464 | 69.46 | 8.5 | 47.873 | D |
| | 2 | 57.00 | 405.43 | 36.50 | 0.00 | 92.49 | 0.616 | 59.36 | 8.4 | 65.351 | E |
| D | 1 | 56.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.249 | 59.36 | 3.8 | 13.908 | B |
| | 2 | 38.00 | 445.16 | 63.50 | 0.00 | 176.67 | 0.215 | 42.57 | 4.1 | 32.660 | C |

# 2023, PM with committed and dev

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 52.82 | D |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2023 | PM with committed and dev | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

## Origin-Destination Data

**16:00 - 16:15**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 88.00 | 63.00 |
| | B | 0.00 | 0.00 | 61.00 | 72.00 |
| | C | 86.00 | 45.00 | 0.00 | 0.00 |
| | D | 58.00 | 30.00 | 2.00 | 0.00 |

**16:15 - 16:30**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 4.00 | 77.00 | 73.00 |
| | B | 0.00 | 0.00 | 41.00 | 32.00 |
| | C | 96.00 | 46.00 | 0.00 | 0.00 |
| | D | 71.00 | 21.00 | 4.00 | 0.00 |

**16:30 - 16:45**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 78.00 | 56.00 |
| | B | 1.00 | 0.00 | 37.00 | 42.00 |
| | C | 82.00 | 58.00 | 0.00 | 0.00 |
| | D | 56.00 | 35.00 | 0.00 | 0.00 |

**16:45 - 17:00**

**Demand (PCU/TS)**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 3.00 | 78.00 | 54.00 |
| | B | 4.00 | 0.00 | 50.00 | 53.00 |
| | C | 92.00 | 47.00 | 0.00 | 0.00 |
| | D | 82.00 | 44.00 | 5.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 16:00-16:15 | A | 151.00 | 151.00 |
| | B | 133.00 | 133.00 |
| | C | 131.00 | 131.00 |

| | | | |
|---|---|---|---|
| | D | 90.00 | 90.00 |
| 16:15-16:30 | A | 154.00 | 154.00 |
| | B | 73.00 | 73.00 |
| | C | 142.00 | 142.00 |
| | D | 96.00 | 96.00 |
| 16:30-16:45 | A | 134.00 | 134.00 |
| | B | 80.00 | 80.00 |
| | C | 140.00 | 140.00 |
| | D | 91.00 | 91.00 |
| 16:45-17:00 | A | 135.00 | 135.00 |
| | B | 107.00 | 107.00 |
| | C | 139.00 | 139.00 |
| | D | 131.00 | 131.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.73 | 53.82 | 20.0 | D |
| B | 0.92 | 76.61 | 20.4 | E |
| C | 0.65 | 55.59 | 18.9 | E |
| D | 0.37 | 24.76 | 11.4 | C |

## Main Results for each time segment

### 16:00 - 16:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 88.00 | 466.25 | 57.50 | 0.00 | 167.56 | 0.525 | 77.63 | 10.4 | 43.950 | D |
| | 2 | 63.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.632 | 54.29 | 8.7 | 59.214 | E |
| B | 1 | 133.00 | 447.93 | 51.50 | 0.00 | 144.18 | 0.922 | 112.55 | 20.4 | 76.611 | E |
| C | 1 | 86.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.584 | 75.05 | 10.9 | 50.913 | D |
| | 2 | 45.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.474 | 38.62 | 6.4 | 57.700 | E |
| D | 1 | 58.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.260 | 54.05 | 4.0 | 14.492 | B |
| | 2 | 32.00 | 457.67 | 56.50 | 0.00 | 161.61 | 0.198 | 28.29 | 3.7 | 36.814 | D |

### 16:15 - 16:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 81.00 | 459.44 | 57.50 | 0.00 | 165.11 | 0.491 | 81.86 | 9.5 | 43.036 | D |
| | 2 | 73.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.732 | 71.22 | 10.5 | 65.780 | E |
| B | 1 | 73.00 | 441.55 | 51.50 | 0.00 | 142.12 | 0.514 | 84.32 | 9.1 | 49.673 | D |
| C | 1 | 96.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.652 | 94.55 | 12.4 | 53.847 | D |
| | 2 | 46.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.484 | 45.85 | 6.5 | 58.200 | E |
| D | 1 | 71.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.318 | 70.09 | 4.9 | 15.388 | B |
| | 2 | 25.00 | 444.90 | 56.50 | 0.00 | 157.10 | 0.159 | 25.82 | 2.9 | 36.121 | D |

**16:30 - 16:45**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 78.00 | 466.25 | 57.50 | 0.00 | 167.56 | 0.466 | 78.38 | 9.1 | 42.253 | D |
| | 2 | 56.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.561 | 58.86 | 7.6 | 56.710 | E |
| B | 1 | 80.00 | 446.91 | 51.50 | 0.00 | 143.85 | 0.556 | 79.07 | 10.1 | 49.450 | D |
| C | 1 | 82.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.557 | 83.99 | 10.4 | 50.214 | D |
| | 2 | 58.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.610 | 56.08 | 8.4 | 63.186 | E |
| D | 1 | 56.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.251 | 57.05 | 3.8 | 14.369 | B |
| | 2 | 35.00 | 466.25 | 56.50 | 0.00 | 164.64 | 0.213 | 33.83 | 4.1 | 37.075 | D |

**16:45 - 17:00**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 81.00 | 461.13 | 57.50 | 0.00 | 165.72 | 0.489 | 80.63 | 9.5 | 42.927 | D |
| | 2 | 54.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.541 | 54.31 | 7.3 | 55.551 | E |
| B | 1 | 107.00 | 445.06 | 51.50 | 0.00 | 143.25 | 0.747 | 102.91 | 14.1 | 58.544 | E |
| C | 1 | 92.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.625 | 90.60 | 11.8 | 52.640 | D |
| | 2 | 47.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.495 | 48.76 | 6.7 | 58.795 | E |
| D | 1 | 82.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.368 | 80.18 | 5.6 | 16.227 | B |
| | 2 | 49.00 | 452.40 | 56.50 | 0.00 | 159.75 | 0.307 | 47.34 | 5.7 | 39.028 | D |

# Junctions 9

## OSCADY 9 - Signalised Intersection Module



**Filename:** Sutton Cross 2038 WOD.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 10/05/2020 15:24:25



## Summary of junction performance

| | AM WOD | | | | PM WOD | | | |
|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | DOS | LOS | Queue (PCU) | Delay (s) | DOS | LOS |
| | 2038 | | | | | | | |
| Arm A | 36.0 | 88.96 | 0.96 | F | 20.7 | 54.17 | 0.75 | D |
| Arm B | 18.5 | 63.87 | 0.86 | E | 23.2 | 81.49 | 0.96 | F |
| Arm C | 36.4 | 96.72 | 1.12 | F | 18.6 | 59.74 | 0.69 | E |
| Arm D | 17.7 | 31.45 | 0.55 | C | 11.4 | 23.88 | 0.35 | C |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Sutton Cross |
| **Location** | Howth |
| **Site number** | |
| **Date** | 10/04/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

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

### Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | DOS Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|---|---|---|---|---|
| | | 0.85 | 36.00 | 20.00 |

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2038 | AM WOD | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2038 | PM WOD | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2038, AM WOD

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 70.74 | E |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Arms

### Arms

| Arm | Name | Description |
|---|---|---|
| A | Howth Road | |
| B | Carrickrock Road | |
| C | Dublin Road | |
| D | Station Road | |

### OSCADY Traffic Streams

| Arm | Traffic Stream | Phase | Notional EEG (s) | Signals EEG (s) | Destination arms | Straight move |
|---|---|---|---|---|---|---|
| A | 1 | E | 0.00 | 0.00 | B, C | C |
| | 2 | D | 0.00 | 0.00 | D | C |
| B | 1 | F | 0.00 | 0.00 | A, C, D | D |
| C | 1 | B | 0.00 | 1.00 | A | A |
| | 2 | A | 0.00 | 0.00 | B | A |
| D | 1 | G | 0.00 | 0.00 | A | B |
| | 2 | C | 0.00 | 5.00 | B, C | B |

### OSCADY Lanes

| Arm | Traffic Stream | Destination arms | Gradient (%) | Width (m) | Turning radius (m) | Nearside lane | Has bay |
|---|---|---|---|---|---|---|---|
| A | 1 | B, C | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | D | 0 | 2.50 | 5.00 | ✓ | |
| B | 1 | A, C, D | 0 | 3.00 | 10.00 | ✓ | |
| C | 1 | A | 0 | 2.50 | | ✓ | |
| | 2 | B | 0 | 2.50 | 10.00 | ✓ | |
| D | 1 | A | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | B, C | 0 | 2.50 | 5.00 | ✓ | |

## Signal Timings

### Junction 1

| Junction | Sequence to use | Cycle time (s) | Maximum cycle time (s) | Start displacement (s) | End displacement (s) |
|---|---|---|---|---|---|
| 1 | 1 | 160 | 300 | 1.40 | 2.90 |

### Optimisation options

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

### Phases

| Junction | Phase | Name | Minimum green (s) |
|---|---|---|---|
| 1 | A | | 15 |
| | B | | 15 |
| | C | | 15 |
| | D | | 15 |
| | E | | 15 |
| | F | | 15 |
| | G | | 15 |

### Library Stages

| Junction | Library Stage | Phases in stage | User stage minimum (s) | Run every N cycles | Probability of running (%) |
|---|---|---|---|---|---|
| 1 | 1 | B, E | 7 | | |
| | 2 | D, E, G | 7 | | |
| | 3 | C, G, F | 7 | | |
| | 4 | | 7 | | |
| | 5 | A, B | 7 | | |

### Losing / Gaining Phase Delays

| Junction | Delay | Type | Phase | From stage | To stage | Relative delay (s) |
|---|---|---|---|---|---|---|
| 1 | 1 | Losing | B | 1 | 2 | 1 |

### Stage Sequences

| Junction | Sequence | Name | Stage IDs | Stage ends |
|---|---|---|---|---|
| 1 | 1 | | 1, 2, 3, 4, 5 | 12, 52, 115, 123, 0 |

### Intergreen Matrix for Junction 1

| | | To | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| From | A | | | 5 | 5 | 5 | 5 | 5 |
| | B | | | 5 | 5 | | 5 | 5 |
| | C | 0 | 0 | | 0 | 5 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **D** | 0 | 0 | 0 | | | 5 | |
| | **E** | 0 | | 0 | | | 0 | |
| | **F** | 0 | 0 | | 0 | 5 | | |
| | **G** | 0 | 0 | | | | | |

## Interstage Matrix for Junction 1

| | | To | | | | |
|---|---|---|---|---|---|---|
| | | **1** | **2** | **3** | **4** | **5** |
| **From** | **1** | 0 | 6 | 5 | 0 | 0 |
| | **2** | 0 | 0 | 5 | 0 | 0 |
| | **3** | 5 | 5 | 0 | 0 | 0 |
| | **4** | 0 | 0 | 0 | 0 | 0 |
| | **5** | 5 | 5 | 5 | 0 | 0 |

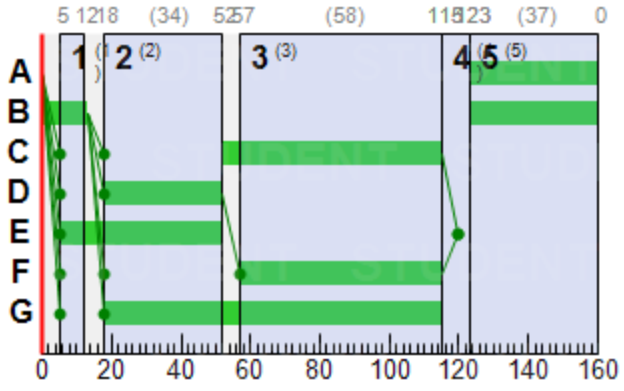
## Resultant Stages

| Junction | Resultant Stage | Library Stage ID | Phases in this stage | Stage start (s) | Stage end (s) | Stage duration (s) | User stage minimum (s) | Stage minimum (s) |
|---|---|---|---|---|---|---|---|---|
| **1** | **1** | 1 | B,E | 5 | 12 | 7 | 7 | 7 |
| | **2** | 2 | D,E,G | 18 | 52 | 34 | 7 | 15 |
| | **3** | 3 | C,G,F | 57 | 115 | 58 | 7 | 15 |
| | **4** | 4 | | 115 | 123 | 8 | 7 | 7 |
| | **5** | 5 | A,B | 123 | 0 | 37 | 7 | 15 |

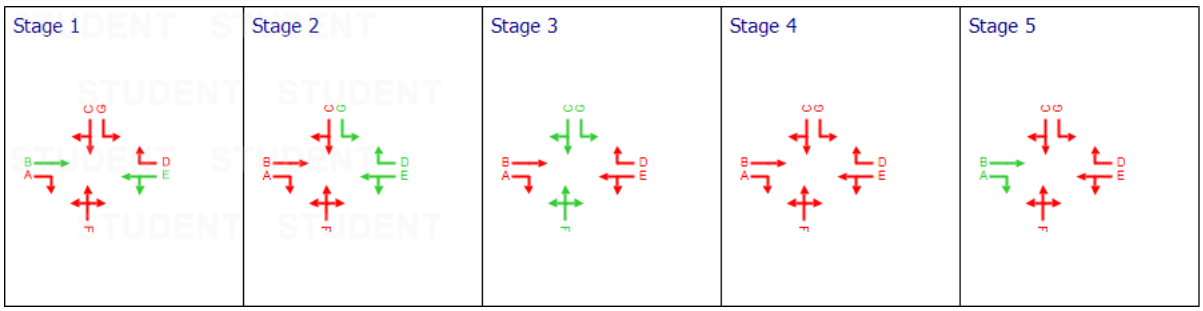
## Resultant Phase Green Periods

| Junction | Phase | Green period | Start time (s) | End time (s) | Duration (s) |
|---|---|---|---|---|---|
| **1** | **A** | **1** | 123 | 0 | 37 |
| | **B** | **1** | 123 | 13 | 50 |
| | **C** | **1** | 52 | 115 | 63 |
| | **D** | **1** | 18 | 52 | 34 |
| | **E** | **1** | 5 | 52 | 47 |
| | **F** | **1** | 57 | 115 | 58 |
| | **G** | **1** | 18 | 115 | 97 |

### Phase Timings Diagram for Junction 1




### Stage Sequence Diagram for Junction 1




# Traffic Demand

## Demand Set Details

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

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

## Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**08:00 - 08:15**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 6.00 | 66.00 | 45.00 |
| | B | 0.00 | 0.00 | 59.00 | 71.00 |
| | C | 59.00 | 57.00 | 0.00 | 0.00 |
| | D | 57.00 | 70.00 | 5.00 | 0.00 |

**Demand (PCU/TS)**

**08:15 - 08:30**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 82.00 | 55.00 |
| | B | 2.00 | 0.00 | 83.00 | 53.00 |
| | C | 65.00 | 109.00 | 0.00 | 0.00 |
| | D | 52.00 | 88.00 | 12.00 | 0.00 |

**Demand (PCU/TS)**

**08:30 - 08:45**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 4.00 | 126.00 | 76.00 |
| | B | 2.00 | 0.00 | 81.00 | 49.00 |
| | C | 93.00 | 70.00 | 0.00 | 0.00 |
| | D | 114.00 | 81.00 | 7.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 110.00 | 61.00 |
| | B | 1.00 | 0.00 | 75.00 | 65.00 |
| | C | 71.00 | 63.00 | 0.00 | 0.00 |
| | D | 59.00 | 34.00 | 7.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 08:00-08:15 | A | 117.00 | 117.00 |
| | B | 130.00 | 130.00 |
| | C | 116.00 | 116.00 |
| | D | 132.00 | 132.00 |
| 08:15-08:30 | A | 137.00 | 137.00 |
| | B | 138.00 | 138.00 |
| | C | 174.00 | 174.00 |
| | D | 152.00 | 152.00 |
| 08:30-08:45 | A | 206.00 | 206.00 |
| | B | 132.00 | 132.00 |
| | C | 163.00 | 163.00 |
| | D | 202.00 | 202.00 |
| 08:45-09:00 | A | 171.00 | 171.00 |
| | B | 141.00 | 141.00 |
| | C | 134.00 | 134.00 |
| | D | 100.00 | 100.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.96 | 88.96 | 36.0 | F |
| B | 0.86 | 63.87 | 18.5 | E |
| C | 1.12 | 96.72 | 36.4 | F |
| D | 0.55 | 31.45 | 17.7 | C |

## Main Results for each time segment

### 08:00 - 08:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 72.00 | 454.88 | 48.50 | 0.00 | 137.88 | 0.522 | 62.74 | 9.3 | 50.316 | D |
| | 2 | 45.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.565 | 38.35 | 6.7 | 63.697 | E |
| B | 1 | 130.00 | 448.24 | 59.50 | 0.00 | 166.69 | 0.780 | 113.93 | 16.1 | 54.612 | D |
| C | 1 | 59.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.393 | 51.74 | 7.3 | 44.418 | D |
| | 2 | 57.00 | 405.43 | 38.50 | 0.00 | 97.56 | 0.584 | 48.83 | 8.2 | 61.036 | E |
| D | 1 | 57.00 | 358.65 | 98.50 | 0.00 | 220.80 | 0.258 | 53.05 | 3.9 | 14.900 | B |
| | 2 | 75.00 | 457.11 | 64.50 | 0.00 | 184.27 | 0.407 | 66.88 | 8.1 | 36.083 | D |

### 08:15 - 08:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 82.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.580 | 80.63 | 10.6 | 52.315 | D |
| | 2 | 55.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.691 | 53.17 | 8.5 | 71.019 | E |
| B | 1 | 138.00 | 438.26 | 59.50 | 0.00 | 162.98 | 0.847 | 136.16 | 17.9 | 61.803 | E |
| C | 1 | 65.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.433 | 64.23 | 8.0 | 45.476 | D |
| | 2 | 109.00 | 405.43 | 38.50 | 0.00 | 97.56 | 1.117 | 88.84 | 28.3 | 127.274 | F |
| D | 1 | 52.00 | 358.65 | 98.50 | 0.00 | 220.80 | 0.236 | 52.35 | 3.6 | 14.579 | B |
| | 2 | 100.00 | 450.05 | 64.50 | 0.00 | 181.43 | 0.551 | 97.11 | 11.0 | 40.222 | D |

### 08:30 - 08:45

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 130.00 | 461.99 | 48.50 | 0.00 | 140.04 | 0.928 | 119.91 | 20.7 | 79.960 | E |
| | 2 | 76.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.955 | 69.23 | 15.2 | 104.364 | F |
| B | 1 | 132.00 | 437.49 | 59.50 | 0.00 | 162.69 | 0.811 | 132.94 | 17.0 | 60.218 | E |
| C | 1 | 93.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.620 | 89.23 | 11.8 | 51.591 | D |
| | 2 | 70.00 | 405.43 | 38.50 | 0.00 | 97.56 | 0.718 | 85.75 | 12.6 | 131.889 | F |
| D | 1 | 114.00 | 358.65 | 98.50 | 0.00 | 220.80 | 0.516 | 109.48 | 8.1 | 19.894 | B |
| | 2 | 88.00 | 455.38 | 64.50 | 0.00 | 183.58 | 0.479 | 89.41 | 9.6 | 38.071 | D |

### 08:45 - 09:00

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 110.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.778 | 115.32 | 15.4 | 66.798 | E |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 61.00 | 358.65 | 35.50 | 0.00 | 79.58 | 0.767 | 66.11 | 10.1 | 87.917 | F |
| B | 1 | 141.00 | 442.94 | 59.50 | 0.00 | 164.72 | 0.856 | 139.49 | 18.5 | 63.869 | E |
| C | 1 | 71.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.473 | 73.99 | 8.8 | 46.697 | D |
| | 2 | 63.00 | 405.43 | 38.50 | 0.00 | 97.56 | 0.646 | 66.34 | 9.2 | 65.407 | E |
| D | 1 | 59.00 | 358.65 | 98.50 | 0.00 | 220.80 | 0.267 | 63.03 | 4.1 | 15.046 | B |
| | 2 | 41.00 | 443.53 | 64.50 | 0.00 | 178.80 | 0.229 | 46.21 | 4.4 | 32.310 | C |

# 2038, PM WOD

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 55.29 | E |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2038 | PM WOD | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

## Origin-Destination Data

**Demand (PCU/TS)**

**16:00 - 16:15**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 92.00 | 66.00 |
| | B | 0.00 | 0.00 | 64.00 | 80.00 |
| | C | 78.00 | 45.00 | 0.00 | 0.00 |
| | D | 53.00 | 30.00 | 2.00 | 0.00 |

**Demand (PCU/TS)**

**16:15 - 16:30**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 5.00 | 78.00 | 77.00 |
| | B | 0.00 | 0.00 | 41.00 | 33.00 |
| | C | 89.00 | 46.00 | 0.00 | 0.00 |
| | D | 68.00 | 21.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**16:30 - 16:45**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 79.00 | 58.00 |
| | B | 1.00 | 0.00 | 36.00 | 45.00 |
| | C | 72.00 | 60.00 | 0.00 | 0.00 |
| | D | 51.00 | 36.00 | 0.00 | 0.00 |

**Demand (PCU/TS)**

**16:45 - 17:00**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 4.00 | 80.00 | 56.00 |
| | B | 5.00 | 0.00 | 52.00 | 58.00 |
| | C | 84.00 | 48.00 | 0.00 | 0.00 |
| | D | 81.00 | 47.00 | 6.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 16:00-16:15 | A | 158.00 | 158.00 |
| | B | 144.00 | 144.00 |
| | C | 123.00 | 123.00 |

| | | | |
|---|---|---|---|
| | D | 85.00 | 85.00 |
| 16:15-16:30 | A | 160.00 | 160.00 |
| | B | 74.00 | 74.00 |
| | C | 135.00 | 135.00 |
| | D | 93.00 | 93.00 |
| 16:30-16:45 | A | 137.00 | 137.00 |
| | B | 82.00 | 82.00 |
| | C | 132.00 | 132.00 |
| | D | 87.00 | 87.00 |
| 16:45-17:00 | A | 140.00 | 140.00 |
| | B | 115.00 | 115.00 |
| | C | 132.00 | 132.00 |
| | D | 134.00 | 134.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.75 | 54.17 | 20.7 | D |
| B | 0.96 | 81.49 | 23.2 | F |
| C | 0.69 | 59.74 | 18.6 | E |
| D | 0.35 | 23.88 | 11.4 | C |

## Main Results for each time segment

### 16:00 - 16:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 92.00 | 466.25 | 58.50 | 0.00 | 170.47 | 0.540 | 81.25 | 10.8 | 43.729 | D |
| | 2 | 66.00 | 358.65 | 45.50 | 0.00 | 101.99 | 0.647 | 56.92 | 9.1 | 59.204 | E |
| B | 1 | 144.00 | 448.83 | 53.50 | 0.00 | 150.08 | 0.960 | 120.77 | 23.2 | 81.492 | F |
| C | 1 | 78.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.564 | 67.82 | 10.2 | 52.357 | D |
| | 2 | 45.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.515 | 38.40 | 6.6 | 61.642 | E |
| D | 1 | 53.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.231 | 49.57 | 3.4 | 12.826 | B |
| | 2 | 32.00 | 457.67 | 58.50 | 0.00 | 167.34 | 0.191 | 28.36 | 3.6 | 35.375 | D |

### 16:15 - 16:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 83.00 | 457.97 | 58.50 | 0.00 | 167.45 | 0.496 | 84.09 | 9.7 | 42.524 | D |
| | 2 | 77.00 | 358.65 | 45.50 | 0.00 | 101.99 | 0.755 | 75.00 | 11.1 | 66.732 | E |
| B | 1 | 74.00 | 442.01 | 53.50 | 0.00 | 147.80 | 0.501 | 88.17 | 9.1 | 49.171 | D |
| C | 1 | 89.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.643 | 87.38 | 11.8 | 55.662 | E |
| | 2 | 46.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.526 | 45.84 | 6.8 | 62.326 | E |
| D | 1 | 68.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.296 | 67.01 | 4.4 | 13.734 | B |
| | 2 | 25.00 | 444.90 | 58.50 | 0.00 | 162.66 | 0.154 | 25.80 | 2.8 | 34.716 | C |

**16:30 - 16:45**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 79.00 | 466.25 | 58.50 | 0.00 | 170.47 | 0.463 | 79.50 | 9.2 | 41.519 | D |
| | 2 | 58.00 | 358.65 | 45.50 | 0.00 | 101.99 | 0.569 | 61.24 | 7.8 | 56.276 | E |
| B | 1 | 82.00 | 448.40 | 53.50 | 0.00 | 149.93 | 0.547 | 80.97 | 10.1 | 47.667 | D |
| C | 1 | 72.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.520 | 74.46 | 9.3 | 51.120 | D |
| | 2 | 60.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.686 | 57.54 | 9.2 | 70.092 | E |
| D | 1 | 51.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.222 | 52.12 | 3.3 | 12.718 | B |
| | 2 | 36.00 | 466.25 | 58.50 | 0.00 | 170.47 | 0.211 | 34.74 | 4.1 | 35.734 | D |

**16:45 - 17:00**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 84.00 | 459.68 | 58.50 | 0.00 | 168.07 | 0.500 | 83.38 | 9.8 | 42.577 | D |
| | 2 | 56.00 | 358.65 | 45.50 | 0.00 | 101.99 | 0.549 | 56.31 | 7.5 | 55.081 | E |
| B | 1 | 115.00 | 445.62 | 53.50 | 0.00 | 149.00 | 0.772 | 110.02 | 15.1 | 58.687 | E |
| C | 1 | 84.00 | 466.25 | 47.50 | 0.00 | 138.42 | 0.607 | 82.29 | 11.0 | 54.091 | D |
| | 2 | 48.00 | 405.43 | 34.50 | 0.00 | 87.42 | 0.549 | 50.11 | 7.1 | 63.735 | E |
| D | 1 | 81.00 | 358.65 | 102.50 | 0.00 | 229.76 | 0.353 | 79.01 | 5.3 | 14.618 | B |
| | 2 | 53.00 | 450.94 | 58.50 | 0.00 | 164.87 | 0.321 | 51.03 | 6.1 | 38.023 | D |

# Junctions 9

## OSCADY 9 - Signalised Intersection Module



**Filename:** Sutton Cross 2038 WITH COMMITTED.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 10/05/2020 16:13:54

»2038, AM with committed
»2038, PM with committed

## Summary of junction performance

| | AM with committed | | | | PM with committed | | | |
|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | DOS | LOS | Queue (PCU) | Delay (s) | DOS | LOS |
| | 2038 | | | | | | | |
| Arm A | 47.9 | 106.98 | 1.03 | F | 23.7 | 59.64 | 0.83 | E |
| Arm B | 21.3 | 76.68 | 0.91 | E | 27.8 | 92.47 | 1.01 | F |
| Arm C | 38.6 | 98.93 | 1.14 | F | 21.9 | 61.93 | 0.75 | E |
| Arm D | 18.6 | 32.26 | 0.58 | C | 12.5 | 24.48 | 0.40 | C |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Sutton Cross |
| **Location** | Howth |
| **Site number** | |
| **Date** | 10/04/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

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

### Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | DOS Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|---|---|---|---|---|
| | | 0.85 | 36.00 | 20.00 |

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2038 | AM with committed | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2038 | PM with committed | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2038, AM with committed

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 80.07 | F |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Arms

### Arms

| Arm | Name | Description |
|---|---|---|
| A | Howth Road | |
| B | Carrickrock Road | |
| C | Dublin Road | |
| D | Station Road | |

### OSCADY Traffic Streams

| Arm | Traffic Stream | Phase | Notional EEG (s) | Signals EEG (s) | Destination arms | Straight move |
|---|---|---|---|---|---|---|
| A | 1 | E | 0.00 | 0.00 | B, C | C |
| | 2 | D | 0.00 | 0.00 | D | C |
| B | 1 | F | 0.00 | 0.00 | A, C, D | D |
| C | 1 | B | 0.00 | 1.00 | A | A |
| | 2 | A | 0.00 | 0.00 | B | A |
| D | 1 | G | 0.00 | 0.00 | A | B |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 2 | C | 0.00 | 5.00 | B, C | B |

### OSCADY Lanes

| Arm | Traffic Stream | Destination arms | Gradient (%) | Width (m) | Turning radius (m) | Nearside lane | Has bay |
|---|---|---|---|---|---|---|---|
| A | 1 | B, C | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | D | 0 | 2.50 | 5.00 | ✓ | |
| B | 1 | A, C, D | 0 | 3.00 | 10.00 | ✓ | |
| C | 1 | A | 0 | 2.50 | | ✓ | |
| | 2 | B | 0 | 2.50 | 10.00 | ✓ | |
| D | 1 | A | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | B, C | 0 | 2.50 | 5.00 | ✓ | |

## Signal Timings

### Junction 1

| Junction | Sequence to use | Cycle time (s) | Maximum cycle time (s) | Start displacement (s) | End displacement (s) |
|---|---|---|---|---|---|
| 1 | 1 | 160 | 300 | 1.40 | 2.90 |

### Optimisation options

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

### Phases

| Junction | Phase | Name | Minimum green (s) |
|---|---|---|---|
| 1 | A | | 15 |
| | B | | 15 |
| | C | | 15 |
| | D | | 15 |
| | E | | 15 |
| | F | | 15 |
| | G | | 15 |

### Library Stages

| Junction | Library Stage | Phases in stage | User stage minimum (s) | Run every N cycles | Probability of running (%) |
|---|---|---|---|---|---|
| 1 | 1 | B, E | 7 | | |
| | 2 | D, E, G | 7 | | |
| | 3 | C, G, F | 7 | | |
| | 4 | | 7 | | |
| | 5 | A, B | 7 | | |

### Losing / Gaining Phase Delays

| Junction | Delay | Type | Phase | From stage | To stage | Relative delay (s) |
|---|---|---|---|---|---|---|
| 1 | 1 | Losing | B | 1 | 2 | 1 |

### Stage Sequences

| Junction | Sequence | Name | Stage IDs | Stage ends |
|---|---|---|---|---|
| 1 | 1 | | 1, 2, 3, 4, 5 | 12, 53, 115, 123, 0 |

### Intergreen Matrix for Junction 1

| | | To | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| From | A | | | 5 | 5 | 5 | 5 | 5 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **B** | | | 5 | 5 | | 5 | 5 |
| | **C** | 0 | 0 | | 0 | 5 | | |
| | **D** | 0 | 0 | 0 | | | 5 | |
| | **E** | 0 | | 0 | | | 0 | |
| | **F** | 0 | 0 | | 0 | 5 | | |
| | **G** | 0 | 0 | | | | | |

## Interstage Matrix for Junction 1

| | | To | | | | |
|---|---|---|---|---|---|---|
| | | **1** | **2** | **3** | **4** | **5** |
| **From** | **1** | 0 | 6 | 5 | 0 | 0 |
| | **2** | 0 | 0 | 5 | 0 | 0 |
| | **3** | 5 | 5 | 0 | 0 | 0 |
| | **4** | 0 | 0 | 0 | 0 | 0 |
| | **5** | 5 | 5 | 5 | 0 | 0 |

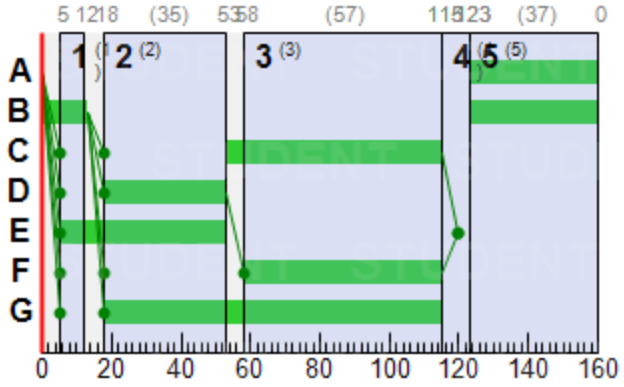
## Resultant Stages

| Junction | Resultant Stage | Library Stage ID | Phases in this stage | Stage start (s) | Stage end (s) | Stage duration (s) | User stage minimum (s) | Stage minimum (s) |
|---|---|---|---|---|---|---|---|---|
| **1** | **1** | 1 | B,E | 5 | 12 | 7 | 7 | 7 |
| | **2** | 2 | D,E,G | 18 | 53 | 35 | 7 | 15 |
| | **3** | 3 | C,G,F | 58 | 115 | 57 | 7 | 15 |
| | **4** | 4 | | 115 | 123 | 8 | 7 | 7 |
| | **5** | 5 | A,B | 123 | 0 | 37 | 7 | 15 |

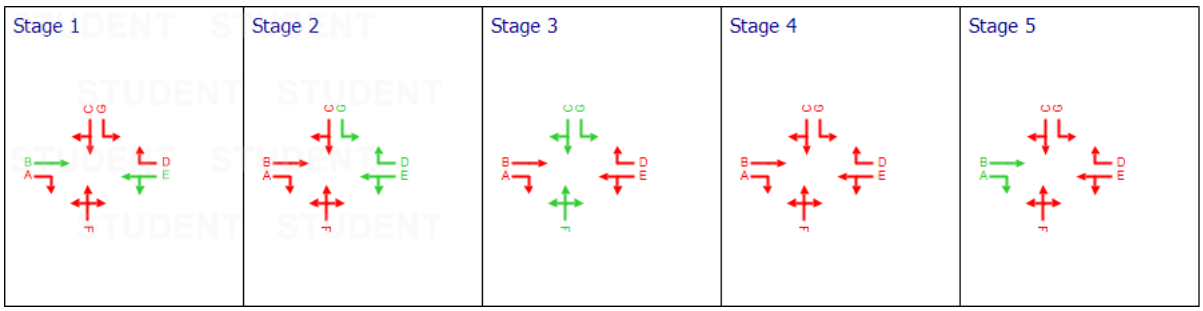
## Resultant Phase Green Periods

| Junction | Phase | Green period | Start time (s) | End time (s) | Duration (s) |
|---|---|---|---|---|---|
| **1** | **A** | **1** | 123 | 0 | 37 |
| | **B** | **1** | 123 | 13 | 50 |
| | **C** | **1** | 53 | 115 | 62 |
| | **D** | **1** | 18 | 53 | 35 |
| | **E** | **1** | 5 | 53 | 48 |
| | **F** | **1** | 58 | 115 | 57 |
| | **G** | **1** | 18 | 115 | 97 |

### Phase Timings Diagram for Junction 1




### Stage Sequence Diagram for Junction 1




# Traffic Demand

## Demand Set Details

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

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

## Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**08:00 - 08:15**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 6.00 | 83.00 | 53.00 |
| | B | 0.00 | 0.00 | 63.00 | 74.00 |
| | C | 63.00 | 60.00 | 0.00 | 0.00 |
| | D | 62.00 | 72.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**08:15 - 08:30**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 99.00 | 63.00 |
| | B | 2.00 | 0.00 | 87.00 | 56.00 |
| | C | 69.00 | 111.00 | 0.00 | 0.00 |
| | D | 56.00 | 91.00 | 12.00 | 0.00 |

**Demand (PCU/TS)**

**08:30 - 08:45**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 4.00 | 143.00 | 84.00 |
| | B | 2.00 | 0.00 | 85.00 | 52.00 |
| | C | 97.00 | 72.00 | 0.00 | 0.00 |
| | D | 119.00 | 84.00 | 7.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 127.00 | 69.00 |
| | B | 1.00 | 0.00 | 79.00 | 68.00 |
| | C | 76.00 | 66.00 | 0.00 | 0.00 |
| | D | 63.00 | 36.00 | 7.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 08:00-08:15 | A | 142.00 | 142.00 |
| | B | 137.00 | 137.00 |
| | C | 123.00 | 123.00 |
| | D | 138.00 | 138.00 |
| 08:15-08:30 | A | 162.00 | 162.00 |
| | B | 145.00 | 145.00 |
| | C | 180.00 | 180.00 |
| | D | 159.00 | 159.00 |
| 08:30-08:45 | A | 231.00 | 231.00 |
| | B | 139.00 | 139.00 |
| | C | 169.00 | 169.00 |
| | D | 210.00 | 210.00 |
| 08:45-09:00 | A | 196.00 | 196.00 |
| | B | 148.00 | 148.00 |
| | C | 142.00 | 142.00 |
| | D | 106.00 | 106.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 1.03 | 106.98 | 47.9 | F |
| B | 0.91 | 76.68 | 21.3 | E |
| C | 1.14 | 98.93 | 38.6 | F |
| D | 0.58 | 32.26 | 18.6 | C |

## Main Results for each time segment

### 08:00 - 08:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 89.00 | 457.01 | 49.50 | 0.00 | 141.39 | 0.629 | 77.45 | 11.6 | 53.553 | D |
| | 2 | 53.00 | 358.65 | 36.50 | 0.00 | 81.82 | 0.648 | 45.05 | 8.0 | 66.978 | E |
| B | 1 | 137.00 | 447.86 | 58.50 | 0.00 | 163.75 | 0.837 | 119.26 | 17.7 | 60.113 | E |
| C | 1 | 63.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.420 | 55.22 | 7.8 | 45.099 | D |
| | 2 | 60.00 | 405.43 | 38.50 | 0.00 | 97.56 | 0.615 | 51.33 | 8.7 | 62.422 | E |
| D | 1 | 62.00 | 358.65 | 98.50 | 0.00 | 220.80 | 0.281 | 57.70 | 4.3 | 15.240 | B |
| | 2 | 76.00 | 459.00 | 63.50 | 0.00 | 182.17 | 0.417 | 67.67 | 8.3 | 36.971 | D |

### 08:15 - 08:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 99.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.686 | 97.53 | 13.0 | 56.328 | E |
| | 2 | 63.00 | 358.65 | 36.50 | 0.00 | 81.82 | 0.770 | 60.92 | 10.0 | 76.680 | E |
| B | 1 | 145.00 | 438.39 | 58.50 | 0.00 | 160.29 | 0.905 | 142.38 | 20.4 | 71.276 | E |
| C | 1 | 69.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.460 | 68.22 | 8.6 | 46.215 | D |
| | 2 | 111.00 | 405.43 | 38.50 | 0.00 | 97.56 | 1.138 | 89.63 | 30.0 | 131.694 | F |
| D | 1 | 56.00 | 358.65 | 98.50 | 0.00 | 220.80 | 0.254 | 56.42 | 3.9 | 14.839 | B |
| | 2 | 103.00 | 450.50 | 63.50 | 0.00 | 178.79 | 0.576 | 99.82 | 11.5 | 41.729 | D |

### 08:30 - 08:45

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 147.00 | 462.47 | 49.50 | 0.00 | 143.08 | 1.027 | 131.35 | 28.7 | 98.657 | F |
| | 2 | 84.00 | 358.65 | 36.50 | 0.00 | 81.82 | 1.027 | 74.80 | 19.2 | 119.218 | F |
| B | 1 | 139.00 | 437.66 | 58.50 | 0.00 | 160.02 | 0.869 | 139.92 | 19.4 | 70.915 | E |
| C | 1 | 97.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.646 | 93.17 | 12.4 | 52.732 | D |
| | 2 | 72.00 | 405.43 | 38.50 | 0.00 | 97.56 | 0.738 | 88.75 | 13.3 | 148.678 | F |
| D | 1 | 119.00 | 358.65 | 98.50 | 0.00 | 220.80 | 0.539 | 114.37 | 8.5 | 20.494 | C |
| | 2 | 91.00 | 455.73 | 63.50 | 0.00 | 180.87 | 0.503 | 92.44 | 10.1 | 39.430 | D |

### 08:45 - 09:00

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 127.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.880 | 134.32 | 21.4 | 99.491 | F |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 69.00 | 358.65 | 36.50 | 0.00 | 81.82 | 0.843 | 74.60 | 13.6 | 120.751 | F |
| B | 1 | 148.00 | 442.84 | 58.50 | 0.00 | 161.91 | 0.914 | 146.09 | 21.3 | 76.680 | E |
| C | 1 | 76.00 | 466.25 | 51.50 | 0.00 | 150.07 | 0.506 | 78.91 | 9.5 | 47.737 | D |
| | 2 | 66.00 | 405.43 | 38.50 | 0.00 | 97.56 | 0.677 | 69.49 | 9.8 | 67.625 | E |
| D | 1 | 63.00 | 358.65 | 98.50 | 0.00 | 220.80 | 0.285 | 67.13 | 4.4 | 15.324 | B |
| | 2 | 43.00 | 444.54 | 63.50 | 0.00 | 176.43 | 0.244 | 48.41 | 4.7 | 33.214 | C |

# 2038, PM with committed

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 59.69 | E |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2038 | PM with committed | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

## Origin-Destination Data

**Demand (PCU/TS)**

**16:00 - 16:15**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 100.00 | 71.00 |
| | B | 0.00 | 0.00 | 69.00 | 83.00 |
| | C | 94.00 | 50.00 | 0.00 | 0.00 |
| | D | 64.00 | 33.00 | 2.00 | 0.00 |

**Demand (PCU/TS)**

**16:15 - 16:30**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 5.00 | 87.00 | 83.00 |
| | B | 0.00 | 0.00 | 46.00 | 36.00 |
| | C | 106.00 | 51.00 | 0.00 | 0.00 |
| | D | 79.00 | 24.00 | 5.00 | 0.00 |

**Demand (PCU/TS)**

**16:30 - 16:45**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 88.00 | 63.00 |
| | B | 1.00 | 0.00 | 41.00 | 48.00 |
| | C | 89.00 | 65.00 | 0.00 | 0.00 |
| | D | 61.00 | 39.00 | 0.00 | 0.00 |

**Demand (PCU/TS)**

**16:45 - 17:00**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 4.00 | 88.00 | 61.00 |
| | B | 5.00 | 0.00 | 57.00 | 61.00 |
| | C | 101.00 | 53.00 | 0.00 | 0.00 |
| | D | 91.00 | 50.00 | 6.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 16:00-16:15 | A | 171.00 | 171.00 |
| | B | 152.00 | 152.00 |
| | C | 144.00 | 144.00 |

| | | | |
|---|---|---|---|
| | D | 99.00 | 99.00 |
| 16:15-16:30 | A | 175.00 | 175.00 |
| | B | 82.00 | 82.00 |
| | C | 157.00 | 157.00 |
| | D | 108.00 | 108.00 |
| 16:30-16:45 | A | 151.00 | 151.00 |
| | B | 90.00 | 90.00 |
| | C | 154.00 | 154.00 |
| | D | 100.00 | 100.00 |
| 16:45-17:00 | A | 153.00 | 153.00 |
| | B | 123.00 | 123.00 |
| | C | 154.00 | 154.00 |
| | D | 147.00 | 147.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.83 | 59.64 | 23.7 | E |
| B | 1.01 | 92.47 | 27.8 | F |
| C | 0.75 | 61.93 | 21.9 | E |
| D | 0.40 | 24.48 | 12.5 | C |

## Main Results for each time segment

### 16:00 - 16:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 100.00 | 466.25 | 57.50 | 0.00 | 167.56 | 0.597 | 88.09 | 11.9 | 46.400 | D |
| | 2 | 71.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.712 | 60.90 | 10.1 | 63.873 | E |
| B | 1 | 152.00 | 448.23 | 53.50 | 0.00 | 149.88 | 1.014 | 124.16 | 27.8 | 92.473 | F |
| C | 1 | 94.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.665 | 81.59 | 12.4 | 55.787 | E |
| | 2 | 50.00 | 405.43 | 35.50 | 0.00 | 89.96 | 0.556 | 42.68 | 7.3 | 62.386 | E |
| D | 1 | 64.00 | 358.65 | 101.50 | 0.00 | 227.52 | 0.281 | 59.77 | 4.2 | 13.942 | B |
| | 2 | 35.00 | 458.39 | 58.50 | 0.00 | 167.60 | 0.209 | 31.02 | 4.0 | 35.703 | D |

### 16:15 - 16:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 92.00 | 458.77 | 57.50 | 0.00 | 164.87 | 0.558 | 93.00 | 10.9 | 45.256 | D |
| | 2 | 83.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.832 | 80.34 | 12.8 | 75.580 | E |
| B | 1 | 82.00 | 441.59 | 53.50 | 0.00 | 147.66 | 0.555 | 98.56 | 11.3 | 63.789 | E |
| C | 1 | 106.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.750 | 104.00 | 14.4 | 60.909 | E |
| | 2 | 51.00 | 405.43 | 35.50 | 0.00 | 89.96 | 0.567 | 50.83 | 7.5 | 63.195 | E |
| D | 1 | 79.00 | 358.65 | 101.50 | 0.00 | 227.52 | 0.347 | 77.98 | 5.2 | 14.972 | B |
| | 2 | 29.00 | 443.32 | 58.50 | 0.00 | 162.09 | 0.179 | 29.69 | 3.3 | 35.176 | D |

**16:30 - 16:45**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 88.00 | 466.25 | 57.50 | 0.00 | 167.56 | 0.525 | 88.53 | 10.4 | 44.073 | D |
| | 2 | 63.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.632 | 67.00 | 8.8 | 60.821 | E |
| B | 1 | 90.00 | 447.43 | 53.50 | 0.00 | 149.61 | 0.602 | 90.09 | 11.2 | 49.724 | D |
| C | 1 | 89.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.630 | 91.72 | 11.7 | 54.835 | D |
| | 2 | 65.00 | 405.43 | 35.50 | 0.00 | 89.96 | 0.723 | 62.45 | 10.0 | 71.651 | E |
| D | 1 | 61.00 | 358.65 | 101.50 | 0.00 | 227.52 | 0.268 | 62.22 | 4.0 | 13.759 | B |
| | 2 | 39.00 | 466.25 | 58.50 | 0.00 | 170.47 | 0.229 | 37.86 | 4.4 | 36.070 | D |

**16:45 - 17:00**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 92.00 | 460.25 | 57.50 | 0.00 | 165.40 | 0.556 | 91.48 | 10.9 | 45.088 | D |
| | 2 | 61.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.612 | 61.34 | 8.4 | 58.926 | E |
| B | 1 | 123.00 | 445.10 | 53.50 | 0.00 | 148.83 | 0.826 | 117.52 | 16.7 | 63.304 | E |
| C | 1 | 101.00 | 466.25 | 48.50 | 0.00 | 141.33 | 0.715 | 99.14 | 13.5 | 58.650 | E |
| | 2 | 53.00 | 405.43 | 35.50 | 0.00 | 89.96 | 0.589 | 55.19 | 7.9 | 64.856 | E |
| D | 1 | 91.00 | 358.65 | 101.50 | 0.00 | 227.52 | 0.400 | 88.95 | 6.1 | 15.900 | B |
| | 2 | 56.00 | 451.73 | 58.50 | 0.00 | 165.16 | 0.339 | 54.02 | 6.4 | 38.415 | D |

# Junctions 9

## OSCADY 9 - Signalised Intersection Module

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



**Filename:** Sutton Cross 2038 WITH COMMITTED PLUS DEV.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 10/05/2020 16:32:30

»2038, AM with committed and dev
»2038, PM with committed and dev

## Summary of junction performance

| | AM with committed and dev | | | | PM with committed and dev | | | |
|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | DOS | LOS | Queue (PCU) | Delay (s) | DOS | LOS |
| | 2038 | | | | | | | |
| Arm A | 52.1 | 123.90 | 1.06 | F | 23.8 | 59.73 | 0.83 | E |
| Arm B | 21.0 | 74.04 | 0.91 | E | 29.3 | 96.63 | 1.03 | F |
| Arm C | 40.7 | 108.40 | 1.17 | F | 22.1 | 60.82 | 0.75 | E |
| Arm D | 18.3 | 31.38 | 0.57 | C | 12.9 | 25.25 | 0.41 | C |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Sutton Cross |
| **Location** | Howth |
| **Site number** | |
| **Date** | 10/04/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

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

### Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | DOS Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|---|---|---|---|---|
| | | 0.85 | 36.00 | 20.00 |

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2038 | AM with committed and dev | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2038 | PM with committed and dev | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2038, AM with committed and dev

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 86.68 | F |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Arms

### Arms

| Arm | Name | Description |
|---|---|---|
| A | Howth Road | |
| B | Carrickrock Road | |
| C | Dublin Road | |
| D | Station Road | |

### OSCADY Traffic Streams

| Arm | Traffic Stream | Phase | Notional EEG (s) | Signals EEG (s) | Destination arms | Straight move |
|---|---|---|---|---|---|---|
| A | 1 | E | 0.00 | 0.00 | B, C | C |
| | 2 | D | 0.00 | 0.00 | D | C |
| B | 1 | F | 0.00 | 0.00 | A, C, D | D |
| C | 1 | B | 0.00 | 1.00 | A | A |
| | 2 | A | 0.00 | 0.00 | B | A |
| D | 1 | G | 0.00 | 0.00 | A | B |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 2 | C | 0.00 | 5.00 | B, C | B |

### OSCADY Lanes

| Arm | Traffic Stream | Destination arms | Gradient (%) | Width (m) | Turning radius (m) | Nearside lane | Has bay |
|---|---|---|---|---|---|---|---|
| A | 1 | B, C | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | D | 0 | 2.50 | 5.00 | ✓ | |
| B | 1 | A, C, D | 0 | 3.00 | 10.00 | ✓ | |
| C | 1 | A | 0 | 2.50 | | ✓ | |
| | 2 | B | 0 | 2.50 | 10.00 | ✓ | |
| D | 1 | A | 0 | 2.50 | 5.00 | ✓ | |
| | 2 | B, C | 0 | 2.50 | 5.00 | ✓ | |

## Signal Timings

### Junction 1

| Junction | Sequence to use | Cycle time (s) | Maximum cycle time (s) | Start displacement (s) | End displacement (s) |
|---|---|---|---|---|---|
| 1 | 1 | 160 | 300 | 1.40 | 2.90 |

### Optimisation options

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

### Phases

| Junction | Phase | Name | Minimum green (s) |
|---|---|---|---|
| 1 | A | | 15 |
| | B | | 15 |
| | C | | 15 |
| | D | | 15 |
| | E | | 15 |
| | F | | 15 |
| | G | | 15 |

### Library Stages

| Junction | Library Stage | Phases in stage | User stage minimum (s) | Run every N cycles | Probability of running (%) |
|---|---|---|---|---|---|
| 1 | 1 | B, E | 7 | | |
| | 2 | D, E, G | 7 | | |
| | 3 | C, G, F | 7 | | |
| | 4 | | 7 | | |
| | 5 | A, B | 7 | | |

### Losing / Gaining Phase Delays

| Junction | Delay | Type | Phase | From stage | To stage | Relative delay (s) |
|---|---|---|---|---|---|---|
| 1 | 1 | Losing | B | 1 | 2 | 1 |

### Stage Sequences

| Junction | Sequence | Name | Stage IDs | Stage ends |
|---|---|---|---|---|
| 1 | 1 | | 1, 2, 3, 4, 5 | 12, 53, 116, 124, 0 |

### Intergreen Matrix for Junction 1

| | | To | | | | | | |
|---|---|---|---|---|---|---|---|---|
| From | | A | B | C | D | E | F | G |
| | A | | | 5 | 5 | 5 | 5 | 5 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **B** | | | 5 | 5 | | 5 | 5 |
| | **C** | 0 | 0 | | 0 | 5 | | |
| | **D** | 0 | 0 | 0 | | | 5 | |
| | **E** | 0 | | 0 | | | 0 | |
| | **F** | 0 | 0 | | 0 | 5 | | |
| | **G** | 0 | 0 | | | | | |

## Interstage Matrix for Junction 1

| | | To | | | | |
|---|---|---|---|---|---|---|
| | | **1** | **2** | **3** | **4** | **5** |
| **From** | **1** | 0 | 6 | 5 | 0 | 0 |
| | **2** | 0 | 0 | 5 | 0 | 0 |
| | **3** | 5 | 5 | 0 | 0 | 0 |
| | **4** | 0 | 0 | 0 | 0 | 0 |
| | **5** | 5 | 5 | 5 | 0 | 0 |

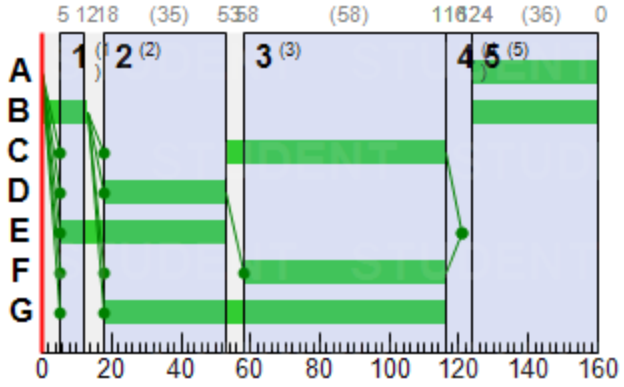
## Resultant Stages

| Junction | Resultant Stage | Library Stage ID | Phases in this stage | Stage start (s) | Stage end (s) | Stage duration (s) | User stage minimum (s) | Stage minimum (s) |
|---|---|---|---|---|---|---|---|---|
| **1** | **1** | 1 | B,E | 5 | 12 | 7 | 7 | 7 |
| | **2** | 2 | D,E,G | 18 | 53 | 35 | 7 | 15 |
| | **3** | 3 | C,G,F | 58 | 116 | 58 | 7 | 15 |
| | **4** | 4 | | 116 | 124 | 8 | 7 | 7 |
| | **5** | 5 | A,B | 124 | 0 | 36 | 7 | 15 |

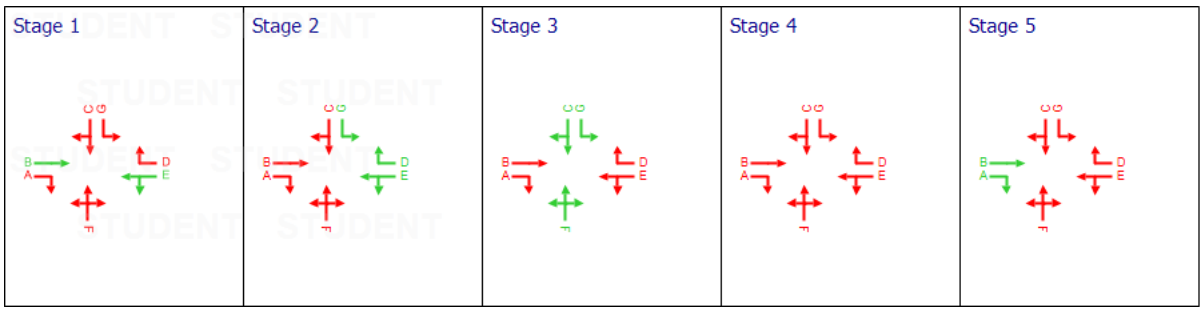
## Resultant Phase Green Periods

| Junction | Phase | Green period | Start time (s) | End time (s) | Duration (s) |
|---|---|---|---|---|---|
| **1** | **A** | **1** | 124 | 0 | 36 |
| | **B** | **1** | 124 | 13 | 49 |
| | **C** | **1** | 53 | 116 | 63 |
| | **D** | **1** | 18 | 53 | 35 |
| | **E** | **1** | 5 | 53 | 48 |
| | **F** | **1** | 58 | 116 | 58 |
| | **G** | **1** | 18 | 116 | 98 |

### Phase Timings Diagram for Junction 1




### Stage Sequence Diagram for Junction 1




# Traffic Demand

## Demand Set Details

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

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

## Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**08:00 - 08:15**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 6.00 | 86.00 | 54.00 |
| | B | 0.00 | 0.00 | 64.00 | 74.00 |
| | C | 64.00 | 60.00 | 0.00 | 0.00 |
| | D | 62.00 | 73.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**08:15 - 08:30**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 103.00 | 64.00 |
| | B | 2.00 | 0.00 | 88.00 | 57.00 |
| | C | 70.00 | 111.00 | 0.00 | 0.00 |
| | D | 57.00 | 91.00 | 12.00 | 0.00 |

**Demand (PCU/TS)**

**08:30 - 08:45**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 4.00 | 147.00 | 86.00 |
| | B | 2.00 | 0.00 | 86.00 | 53.00 |
| | C | 98.00 | 73.00 | 0.00 | 0.00 |
| | D | 119.00 | 84.00 | 7.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 131.00 | 70.00 |
| | B | 1.00 | 0.00 | 80.00 | 68.00 |
| | C | 76.00 | 66.00 | 0.00 | 0.00 |
| | D | 64.00 | 37.00 | 7.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 08:00-08:15 | A | 146.00 | 146.00 |
| | B | 138.00 | 138.00 |
| | C | 124.00 | 124.00 |
| | D | 139.00 | 139.00 |
| 08:15-08:30 | A | 167.00 | 167.00 |
| | B | 147.00 | 147.00 |
| | C | 181.00 | 181.00 |
| | D | 160.00 | 160.00 |
| 08:30-08:45 | A | 237.00 | 237.00 |
| | B | 141.00 | 141.00 |
| | C | 171.00 | 171.00 |
| | D | 210.00 | 210.00 |
| 08:45-09:00 | A | 201.00 | 201.00 |
| | B | 149.00 | 149.00 |
| | C | 142.00 | 142.00 |
| | D | 108.00 | 108.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 1.06 | 123.90 | 52.1 | F |
| B | 0.91 | 74.04 | 21.0 | E |
| C | 1.17 | 108.40 | 40.7 | F |
| D | 0.57 | 31.38 | 18.3 | C |

## Main Results for each time segment

### 08:00 - 08:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 92.00 | 457.30 | 49.50 | 0.00 | 141.48 | 0.650 | 80.00 | 12.0 | 54.468 | D |
| | 2 | 54.00 | 358.65 | 36.50 | 0.00 | 81.82 | 0.660 | 45.86 | 8.1 | 67.694 | E |
| B | 1 | 138.00 | 447.61 | 59.50 | 0.00 | 166.46 | 0.829 | 120.42 | 17.6 | 58.643 | E |
| C | 1 | 64.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.435 | 56.01 | 8.0 | 46.207 | D |
| | 2 | 60.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.631 | 51.21 | 8.8 | 64.077 | E |
| D | 1 | 62.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.278 | 57.77 | 4.2 | 14.756 | B |
| | 2 | 77.00 | 459.10 | 64.50 | 0.00 | 185.07 | 0.416 | 68.65 | 8.3 | 36.298 | D |

### 08:15 - 08:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 103.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.714 | 101.33 | 13.7 | 57.875 | E |
| | 2 | 64.00 | 358.65 | 36.50 | 0.00 | 81.82 | 0.782 | 61.86 | 10.3 | 77.940 | E |
| B | 1 | 147.00 | 438.48 | 59.50 | 0.00 | 163.06 | 0.902 | 144.26 | 20.3 | 69.691 | E |
| C | 1 | 70.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.476 | 69.21 | 8.8 | 47.387 | D |
| | 2 | 111.00 | 405.43 | 37.50 | 0.00 | 95.02 | 1.168 | 87.83 | 32.0 | 138.951 | F |
| D | 1 | 57.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.256 | 57.35 | 3.9 | 14.432 | B |
| | 2 | 103.00 | 450.50 | 64.50 | 0.00 | 181.61 | 0.567 | 99.98 | 11.4 | 40.755 | D |

### 08:30 - 08:45

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 151.00 | 462.57 | 49.50 | 0.00 | 143.11 | 1.055 | 133.23 | 31.4 | 104.248 | F |
| | 2 | 86.00 | 358.65 | 36.50 | 0.00 | 81.82 | 1.051 | 75.66 | 20.6 | 124.024 | F |
| B | 1 | 141.00 | 437.77 | 59.50 | 0.00 | 162.79 | 0.866 | 141.91 | 19.4 | 69.329 | E |
| C | 1 | 98.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.666 | 94.08 | 12.7 | 54.376 | D |
| | 2 | 73.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.768 | 90.60 | 14.4 | 180.922 | F |
| D | 1 | 119.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.534 | 114.52 | 8.4 | 19.837 | B |
| | 2 | 91.00 | 455.73 | 64.50 | 0.00 | 183.72 | 0.495 | 92.42 | 10.0 | 38.537 | D |

### 08:45 - 09:00

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 131.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.908 | 137.96 | 24.5 | 118.813 | F |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 70.00 | 358.65 | 36.50 | 0.00 | 81.82 | 0.856 | 76.12 | 14.5 | 133.427 | F |
| B | 1 | 149.00 | 442.65 | 59.50 | 0.00 | 164.61 | 0.905 | 147.45 | 21.0 | 74.044 | E |
| C | 1 | 76.00 | 466.25 | 50.50 | 0.00 | 147.16 | 0.516 | 79.11 | 9.6 | 48.794 | D |
| | 2 | 66.00 | 405.43 | 37.50 | 0.00 | 95.02 | 0.695 | 70.38 | 10.0 | 70.341 | E |
| D | 1 | 64.00 | 358.65 | 99.50 | 0.00 | 223.04 | 0.287 | 67.99 | 4.4 | 14.906 | B |
| | 2 | 44.00 | 445.01 | 64.50 | 0.00 | 179.40 | 0.245 | 49.23 | 4.7 | 32.616 | C |

# 2038, PM with committed and dev

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|
| 1 | untitled | Signalised | | 60.28 | E |

### Junction Network Options

| Driving side | Lighting |
|---|---|
| Left | Normal/unknown |

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2038 | PM with committed and dev | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |
| D | | ✓ | 100.000 |

## Origin-Destination Data

**Demand (PCU/TS)**

**16:00 - 16:15**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 101.00 | 72.00 |
| | B | 0.00 | 0.00 | 69.00 | 83.00 |
| | C | 97.00 | 51.00 | 0.00 | 0.00 |
| | D | 65.00 | 34.00 | 2.00 | 0.00 |

**Demand (PCU/TS)**

**16:15 - 16:30**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 5.00 | 88.00 | 83.00 |
| | B | 0.00 | 0.00 | 46.00 | 36.00 |
| | C | 108.00 | 52.00 | 0.00 | 0.00 |
| | D | 80.00 | 24.00 | 5.00 | 0.00 |

**Demand (PCU/TS)**

**16:30 - 16:45**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 0.00 | 88.00 | 64.00 |
| | B | 1.00 | 0.00 | 41.00 | 48.00 |
| | C | 91.00 | 66.00 | 0.00 | 0.00 |
| | D | 63.00 | 40.00 | 0.00 | 0.00 |

**Demand (PCU/TS)**

**16:45 - 17:00**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0.00 | 4.00 | 89.00 | 62.00 |
| | B | 5.00 | 0.00 | 57.00 | 61.00 |
| | C | 103.00 | 54.00 | 0.00 | 0.00 |
| | D | 93.00 | 51.00 | 6.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

| | | To | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| From | A | 0 | 0 | 0 | 0 |
| | B | 0 | 0 | 0 | 0 |
| | C | 0 | 0 | 0 | 0 |
| | D | 0 | 0 | 0 | 0 |

# Detailed Demand Data

## Demand for each time segment

| Time Segment | Arm | Demand (PCU/TS) | Demand in PCU (PCU/TS) |
|---|---|---|---|
| 16:00-16:15 | A | 173.00 | 173.00 |
| | B | 152.00 | 152.00 |
| | C | 148.00 | 148.00 |

| | | | |
|---|---|---|---|
| | D | 101.00 | 101.00 |
| 16:15-16:30 | A | 176.00 | 176.00 |
| | B | 82.00 | 82.00 |
| | C | 160.00 | 160.00 |
| | D | 109.00 | 109.00 |
| 16:30-16:45 | A | 152.00 | 152.00 |
| | B | 90.00 | 90.00 |
| | C | 157.00 | 157.00 |
| | D | 103.00 | 103.00 |
| 16:45-17:00 | A | 155.00 | 155.00 |
| | B | 123.00 | 123.00 |
| | C | 157.00 | 157.00 |
| | D | 150.00 | 150.00 |

# Results

## Results Summary for whole modelled period

| Arm | Max DOS | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| A | 0.83 | 59.73 | 23.8 | E |
| B | 1.03 | 96.63 | 29.3 | F |
| C | 0.75 | 60.82 | 22.1 | E |
| D | 0.41 | 25.25 | 12.9 | C |

## Main Results for each time segment

### 16:00 - 16:15

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 101.00 | 466.25 | 57.50 | 0.00 | 167.56 | 0.603 | 88.96 | 12.0 | 46.624 | D |
| | 2 | 72.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.722 | 61.71 | 10.3 | 64.556 | E |
| B | 1 | 152.00 | 448.23 | 52.50 | 0.00 | 147.08 | 1.033 | 122.68 | 29.3 | 96.634 | F |
| C | 1 | 97.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.672 | 84.29 | 12.7 | 55.386 | E |
| | 2 | 51.00 | 405.43 | 36.50 | 0.00 | 92.49 | 0.551 | 43.61 | 7.4 | 61.355 | E |
| D | 1 | 65.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.289 | 60.63 | 4.4 | 14.479 | B |
| | 2 | 36.00 | 458.61 | 57.50 | 0.00 | 164.81 | 0.218 | 31.86 | 4.1 | 36.540 | D |

### 16:15 - 16:30

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 93.00 | 458.85 | 57.50 | 0.00 | 164.90 | 0.564 | 94.01 | 11.0 | 45.470 | D |
| | 2 | 83.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.832 | 80.53 | 12.8 | 75.717 | E |
| B | 1 | 82.00 | 441.59 | 52.50 | 0.00 | 144.90 | 0.566 | 99.72 | 11.6 | 69.617 | E |
| C | 1 | 108.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.749 | 106.18 | 14.5 | 60.059 | E |
| | 2 | 52.00 | 405.43 | 36.50 | 0.00 | 92.49 | 0.562 | 51.84 | 7.6 | 62.110 | E |
| D | 1 | 80.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.355 | 78.96 | 5.4 | 15.553 | B |
| | 2 | 29.00 | 443.32 | 57.50 | 0.00 | 159.32 | 0.182 | 29.81 | 3.3 | 35.886 | D |

**16:30 - 16:45**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 88.00 | 466.25 | 57.50 | 0.00 | 167.56 | 0.525 | 88.66 | 10.4 | 44.078 | D |
| | 2 | 64.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.642 | 67.84 | 8.9 | 61.443 | E |
| B | 1 | 90.00 | 447.43 | 52.50 | 0.00 | 146.81 | 0.613 | 90.28 | 11.3 | 50.923 | D |
| C | 1 | 91.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.631 | 93.69 | 11.8 | 54.118 | D |
| | 2 | 66.00 | 405.43 | 36.50 | 0.00 | 92.49 | 0.714 | 63.50 | 10.1 | 70.053 | E |
| D | 1 | 63.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.280 | 64.18 | 4.2 | 14.356 | B |
| | 2 | 40.00 | 466.25 | 57.50 | 0.00 | 167.56 | 0.239 | 38.73 | 4.6 | 36.920 | D |

**16:45 - 17:00**

| Arm | Traffic Stream | Total Demand (PCU/TS) | Calculated saturation flow (PCU/TS) | Effective green time (s) | NEEG (s) | Capacity (PCU/TS) | DOS | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Signalised level of service |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 93.00 | 460.31 | 57.50 | 0.00 | 165.42 | 0.562 | 92.36 | 11.0 | 45.290 | D |
| | 2 | 62.00 | 358.65 | 44.50 | 0.00 | 99.75 | 0.622 | 62.34 | 8.6 | 59.484 | E |
| B | 1 | 123.00 | 445.10 | 52.50 | 0.00 | 146.05 | 0.842 | 117.27 | 17.1 | 65.700 | E |
| C | 1 | 103.00 | 466.25 | 49.50 | 0.00 | 144.25 | 0.714 | 101.16 | 13.7 | 57.840 | E |
| | 2 | 54.00 | 405.43 | 36.50 | 0.00 | 92.49 | 0.584 | 56.14 | 7.9 | 63.647 | E |
| D | 1 | 93.00 | 358.65 | 100.50 | 0.00 | 225.28 | 0.413 | 90.91 | 6.3 | 16.607 | B |
| | 2 | 57.00 | 451.98 | 57.50 | 0.00 | 162.43 | 0.351 | 55.00 | 6.6 | 39.353 | D |

# APPENDIX 4B

# Development Entrance Priority junction

# Junctions 9

## PICADY 9 - Priority Intersection Module



**Filename:** Howth Dev Entrance 2023.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 11/05/2020 14:23:47

»2023 , AM
»2023, PM

## Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity |
| | 2023 | | | | | | | | | |
| Stream B-AC | 0.1 | 9.93 | 0.08 | A | 91 % | 0.0 | 9.24 | 0.02 | A | 123 % |
| Stream C-B | 0.0 | 7.86 | 0.01 | A | [Stream B-AC] | 0.0 | 7.65 | 0.03 | A | [Stream B-AC] |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Howth SHD |
| **Location** | Howth Road Dublin 13 |
| **Site number** | |
| **Date** | 11/05/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perTimeSegment | s | -Hour | perMin |

## Analysis Options

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

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2023 | AM | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2023 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2023 , AM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 0.34 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 91 | Stream B-AC |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | Howth Road East | | Major |
| B | Development Entrance | | Minor |
| C | Howth Road West | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right turn bay | Width for right turn (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 7.30 | | ✓ | 2.20 | 50.0 | | - |

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

### Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|
| B | One lane | 3.00 | 50 | 50 |

### Slope / Intercept / Capacity

### Priority Intersection Slopes and Intercepts

| Junction | Stream | Intercept (PCU/TS) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|---|
| 1 | B-A | 129.627 | 0.089 | 0.225 | 0.142 | 0.322 |
| 1 | B-C | 163.853 | 0.095 | 0.240 | - | - |
| 1 | C-B | 150.730 | 0.220 | 0.220 | - | - |

*The slopes and intercepts shown above do NOT include any corrections or adjustments.*
*Streams may be combined, in which case capacity will be adjusted.*
*Values are shown for the first time segment only; they may differ for subsequent time segments.*

# Traffic Demand

## Demand Set Details

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

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

## Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

### Demand (PCU/TS)

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 117.00 |
| | B | 3.00 | 0.00 | 5.00 |
| | C | 86.00 | 1.00 | 0.00 |

### Demand (PCU/TS)

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 127.00 |
| | B | 3.00 | 0.00 | 5.00 |
| | C | 86.00 | 1.00 | 0.00 |

### Demand (PCU/TS)

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 159.00 |
| | B | 3.00 | 0.00 | 5.00 |
| | C | 147.00 | 1.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 136.00 |
| | B | 3.00 | 0.00 | 5.00 |
| | C | 137.00 | 1.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.08 | 9.93 | 0.1 | A |
| C-A | | | | |
| C-B | 0.01 | 7.86 | 0.0 | A |
| A-B | | | | |
| A-C | | | | |

### Main Results for each time segment

**08:00 - 08:15**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 8.00 | 114.41 | 0.070 | 7.93 | 0.1 | 8.445 | A |
| C-A | 86.00 | | | 86.00 | | | |
| C-B | 1.00 | 124.72 | 0.008 | 0.99 | 0.0 | 7.273 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 117.00 | | | 117.00 | | | |

**08:15 - 08:30**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 8.00 | 112.00 | 0.071 | 8.00 | 0.1 | 8.653 | A |
| C-A | 86.00 | | | 86.00 | | | |
| C-B | 1.00 | 122.52 | 0.008 | 1.00 | 0.0 | 7.405 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 127.00 | | | 127.00 | | | |

**08:30 - 08:45**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 8.00 | 98.62 | 0.081 | 7.99 | 0.1 | 9.929 | A |
| C-A | 147.00 | | | 147.00 | | | |
| C-B | 1.00 | 115.47 | 0.009 | 1.00 | 0.0 | 7.862 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 159.00 | | | 159.00 | | | |

**08:45 - 09:00**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 8.00 | 105.25 | 0.076 | 8.00 | 0.1 | 9.256 | A |
| C-A | 137.00 | | | 137.00 | | | |
| C-B | 1.00 | 120.54 | 0.008 | 1.00 | 0.0 | 7.528 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 136.00 | | | 136.00 | | | |

# 2023, PM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 0.19 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 123 | Stream B-AC |

# Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2023 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**16:00 - 16:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 123.00 |
| | B | 1.00 | 0.00 | 1.00 |
| | C | 144.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**16:15 - 16:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 111.00 |
| | B | 1.00 | 0.00 | 1.00 |
| | C | 134.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**16:30 - 16:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 114.00 |
| | B | 1.00 | 0.00 | 1.00 |
| | C | 132.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**16:45 - 17:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 130.00 |
| | B | 1.00 | 0.00 | 1.00 |
| | C | 137.00 | 4.00 | 0.00 |

# Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.02 | 9.24 | 0.0 | A |
| C-A | | | | |
| C-B | 0.03 | 7.65 | 0.0 | A |
| A-B | | | | |
| A-C | | | | |

## Main Results for each time segment

### 16:00 - 16:15

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 2.00 | 100.29 | 0.020 | 1.98 | 0.0 | 9.151 | A |
| C-A | 144.00 | | | 144.00 | | | |
| C-B | 4.00 | 123.18 | 0.032 | 3.97 | 0.0 | 7.547 | A |
| A-B | 2.00 | | | 2.00 | | | |
| A-C | 123.00 | | | 123.00 | | | |

### 16:15 - 16:30

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 2.00 | 104.29 | 0.019 | 2.00 | 0.0 | 8.797 | A |
| C-A | 134.00 | | | 134.00 | | | |
| C-B | 4.00 | 125.83 | 0.032 | 4.00 | 0.0 | 7.389 | A |
| A-B | 2.00 | | | 2.00 | | | |
| A-C | 111.00 | | | 111.00 | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 2.00 | 103.79 | 0.019 | 2.00 | 0.0 | 8.843 | A |
| C-A | 132.00 | | | 132.00 | | | |
| C-B | 4.00 | 125.16 | 0.032 | 4.00 | 0.0 | 7.426 | A |
| A-B | 2.00 | | | 2.00 | | | |
| A-C | 114.00 | | | 114.00 | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| **B-AC** | 2.00 | 99.35 | 0.020 | 2.00 | 0.0 | 9.244 | A |
| **C-A** | 137.00 | | | 137.00 | | | |
| **C-B** | 4.00 | 121.64 | 0.033 | 4.00 | 0.0 | 7.649 | A |
| **A-B** | 2.00 | | | 2.00 | | | |
| **A-C** | 130.00 | | | 130.00 | | | |

# Junctions 9

## PICADY 9 - Priority Intersection Module



**Filename:** Howth Dev Entrance 2038.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 11/05/2020 14:59:46

»2038 , AM
»2038, PM

## Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity |
| | 2038 | | | | | | | | | |
| **Stream B-AC** | 0.1 | 10.81 | 0.09 | B | 70 % | 0.0 | 9.91 | 0.02 | A | 97 % |
| **Stream C-B** | 0.0 | 8.19 | 0.01 | A | [Stream B-AC] | 0.0 | 7.93 | 0.03 | A | [Stream B-AC] |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Howth SHD |
| **Location** | Howth Road Dublin 13 |
| **Site number** | |
| **Date** | 11/05/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perTimeSegment | s | -Hour | perMin |

### Analysis Options

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

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2038 | AM | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2038 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2038 , AM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 0.32 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 70 | Stream B-AC |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | Howth Road East | | Major |
| B | Development Entrance | | Minor |
| C | Howth Road West | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right turn bay | Width for right turn (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 7.30 | | ✓ | 2.20 | 50.0 | | - |

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

### Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|
| B | One lane | 3.00 | 50 | 50 |

### Slope / Intercept / Capacity

#### Priority Intersection Slopes and Intercepts

| Junction | Stream | Intercept (PCU/TS) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|---|
| 1 | B-A | 129.627 | 0.089 | 0.225 | 0.142 | 0.322 |
| 1 | B-C | 163.853 | 0.095 | 0.240 | - | - |
| 1 | C-B | 150.730 | 0.220 | 0.220 | - | - |

*The slopes and intercepts shown above do NOT include any corrections or adjustments.*
*Streams may be combined, in which case capacity will be adjusted.*
*Values are shown for the first time segment only; they may differ for subsequent time segments.*

## Traffic Demand

### Demand Set Details

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

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

## Origin-Destination Data

#### Demand (PCU/TS)

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 131.00 |
| | B | 3.00 | 0.00 | 5.00 |
| | C | 98.00 | 1.00 | 0.00 |

#### Demand (PCU/TS)

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 142.00 |
| | B | 3.00 | 0.00 | 5.00 |
| | C | 99.00 | 1.00 | 0.00 |

#### Demand (PCU/TS)

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 180.00 |
| | B | 3.00 | 0.00 | 5.00 |
| | C | 168.00 | 1.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 153.00 |
| | B | 3.00 | 0.00 | 5.00 |
| | C | 157.00 | 1.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.09 | 10.81 | 0.1 | B |
| C-A | | | | |
| C-B | 0.01 | 8.19 | 0.0 | A |
| A-B | | | | |
| A-C | | | | |

### Main Results for each time segment

**08:00 - 08:15**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 8.00 | 110.00 | 0.073 | 7.92 | 0.1 | 8.810 | A |
| C-A | 98.00 | | | 98.00 | | | |
| C-B | 1.00 | 121.64 | 0.008 | 0.99 | 0.0 | 7.459 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 131.00 | | | 131.00 | | | |

**08:15 - 08:30**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 8.00 | 107.25 | 0.075 | 8.00 | 0.1 | 9.067 | A |
| C-A | 99.00 | | | 99.00 | | | |
| C-B | 1.00 | 119.21 | 0.008 | 1.00 | 0.0 | 7.612 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 142.00 | | | 142.00 | | | |

**08:30 - 08:45**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 8.00 | 91.23 | 0.088 | 7.98 | 0.1 | 10.811 | B |
| C-A | 168.00 | | | 168.00 | | | |
| C-B | 1.00 | 110.84 | 0.009 | 1.00 | 0.0 | 8.193 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 180.00 | | | 180.00 | | | |

**08:45 - 09:00**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 8.00 | 99.12 | 0.081 | 8.01 | 0.1 | 9.878 | A |
| C-A | 157.00 | | | 157.00 | | | |
| C-B | 1.00 | 116.79 | 0.009 | 1.00 | 0.0 | 7.772 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 153.00 | | | 153.00 | | | |

# 2038, PM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 0.17 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 97 | Stream B-AC |

# Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2038 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**16:00 - 16:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 141.00 |
| | B | 1.00 | 0.00 | 1.00 |
| | C | 162.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**16:15 - 16:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 126.00 |
| | B | 1.00 | 0.00 | 1.00 |
| | C | 151.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**16:30 - 16:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 130.00 |
| | B | 1.00 | 0.00 | 1.00 |
| | C | 149.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**16:45 - 17:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 149.00 |
| | B | 1.00 | 0.00 | 1.00 |
| | C | 154.00 | 4.00 | 0.00 |

# Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.02 | 9.91 | 0.0 | A |
| C-A | | | | |
| C-B | 0.03 | 7.93 | 0.0 | A |
| A-B | | | | |
| A-C | | | | |

## Main Results for each time segment

### 16:00 - 16:15

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 2.00 | 93.84 | 0.021 | 1.98 | 0.0 | 9.795 | A |
| C-A | 162.00 | | | 162.00 | | | |
| C-B | 4.00 | 119.21 | 0.034 | 3.97 | 0.0 | 7.806 | A |
| A-B | 2.00 | | | 2.00 | | | |
| A-C | 141.00 | | | 141.00 | | | |

### 16:15 - 16:30

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 2.00 | 98.76 | 0.020 | 2.00 | 0.0 | 9.302 | A |
| C-A | 151.00 | | | 151.00 | | | |
| C-B | 4.00 | 122.52 | 0.033 | 4.00 | 0.0 | 7.595 | A |
| A-B | 2.00 | | | 2.00 | | | |
| A-C | 126.00 | | | 126.00 | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 2.00 | 98.01 | 0.020 | 2.00 | 0.0 | 9.373 | A |
| C-A | 149.00 | | | 149.00 | | | |
| C-B | 4.00 | 121.64 | 0.033 | 4.00 | 0.0 | 7.649 | A |
| A-B | 2.00 | | | 2.00 | | | |
| A-C | 130.00 | | | 130.00 | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| **B-AC** | 2.00 | 92.78 | 0.022 | 2.00 | 0.0 | 9.913 | A |
| **C-A** | 154.00 | | | 154.00 | | | |
| **C-B** | 4.00 | 117.45 | 0.034 | 4.00 | 0.0 | 7.932 | A |
| **A-B** | 2.00 | | | 2.00 | | | |
| **A-C** | 149.00 | | | 149.00 | | | |

# APPENDIX 4C

# HOWTH ROAD / CHURCH ROAD PRIORITY JUNCTION

# Junctions 9

## PICADY 9 - Priority Intersection Module



**Filename:** Howth Rd Church Rd 2023.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 11/05/2020 20:00:29

»2023 , AM
»2023, PM

## Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity |
| | 2023 | | | | | | | | | |
| Stream B-AC | 1.1 | 16.61 | 0.54 | C | 27 % | 0.2 | 8.37 | 0.14 | A | 116 % |
| Stream C-B | 0.4 | 10.24 | 0.29 | B | [Stream B-AC] | 0.3 | 9.14 | 0.21 | A | [Stream B-AC] |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Howth SHD |
| **Location** | Howth Road Dublin 13 |
| **Site number** | |
| **Date** | 11/05/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perTimeSegment | s | -Hour | perMin |

## Analysis Options

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

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2023 | AM | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2023 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2023 , AM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 2.96 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 27 | Stream B-AC |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | Howth Road East | | Major |
| B | Church Road | | Minor |
| C | Howth Road West | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right turn bay | Width for right turn (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 7.30 | | ✓ | 2.20 | 50.0 | | - |

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

### Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|
| B | One lane | 3.00 | 50 | 50 |

### Slope / Intercept / Capacity

### Priority Intersection Slopes and Intercepts

| Junction | Stream | Intercept (PCU/TS) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|---|
| 1 | B-A | 129.627 | 0.089 | 0.225 | 0.142 | 0.322 |
| 1 | B-C | 163.853 | 0.095 | 0.240 | - | - |
| 1 | C-B | 150.730 | 0.220 | 0.220 | - | - |

*The slopes and intercepts shown above do NOT include any corrections or adjustments.*
*Streams may be combined, in which case capacity will be adjusted.*
*Values are shown for the first time segment only; they may differ for subsequent time segments.*

# Traffic Demand

## Demand Set Details

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

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

## Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

### Demand (PCU/TS)

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 3.00 | 122.00 |
| | B | 2.00 | 0.00 | 17.00 |
| | C | 77.00 | 23.00 | 0.00 |

### Demand (PCU/TS)

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 5.00 | 123.00 |
| | B | 3.00 | 0.00 | 48.00 |
| | C | 84.00 | 35.00 | 0.00 |

### Demand (PCU/TS)

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 7.00 | 158.00 |
| | B | 5.00 | 0.00 | 58.00 |
| | C | 156.00 | 26.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 15.00 | 147.00 |
| | B | 1.00 | 0.00 | 31.00 |
| | C | 109.00 | 15.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.54 | 16.61 | 1.1 | C |
| C-A | | | | |
| C-B | 0.29 | 10.24 | 0.4 | B |
| A-B | | | | |
| A-C | | | | |

### Main Results for each time segment

**08:00 - 08:15**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 19.00 | 126.27 | 0.150 | 18.82 | 0.2 | 8.363 | A |
| C-A | 77.00 | | | 77.00 | | | |
| C-B | 23.00 | 123.18 | 0.187 | 22.77 | 0.2 | 8.944 | A |
| A-B | 3.00 | | | 3.00 | | | |
| A-C | 122.00 | | | 122.00 | | | |

**08:15 - 08:30**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 51.00 | 128.52 | 0.397 | 50.53 | 0.6 | 11.473 | B |
| C-A | 84.00 | | | 84.00 | | | |
| C-B | 35.00 | 122.52 | 0.286 | 34.83 | 0.4 | 10.244 | B |
| A-B | 5.00 | | | 5.00 | | | |
| A-C | 123.00 | | | 123.00 | | | |

**08:30 - 08:45**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 63.00 | 116.19 | 0.542 | 62.50 | 1.1 | 16.610 | C |
| C-A | 156.00 | | | 156.00 | | | |
| C-B | 26.00 | 114.37 | 0.227 | 26.10 | 0.3 | 10.206 | B |
| A-B | 7.00 | | | 7.00 | | | |
| A-C | 158.00 | | | 158.00 | | | |

**08:45 - 09:00**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 32.00 | 124.35 | 0.257 | 32.79 | 0.4 | 9.912 | A |
| C-A | 109.00 | | | 109.00 | | | |
| C-B | 15.00 | 115.03 | 0.130 | 15.15 | 0.2 | 9.025 | A |
| A-B | 15.00 | | | 15.00 | | | |
| A-C | 147.00 | | | 147.00 | | | |

# 2023, PM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 1.12 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 116 | Stream B-AC |

# Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2023 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**16:00 - 16:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 4.00 | 131.00 |
| | B | 0.00 | 0.00 | 14.00 |
| | C | 156.00 | 23.00 | 0.00 |

**Demand (PCU/TS)**

**16:15 - 16:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 0.00 | 112.00 |
| | B | 0.00 | 0.00 | 14.00 |
| | C | 145.00 | 26.00 | 0.00 |

**Demand (PCU/TS)**

**16:30 - 16:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 106.00 |
| | B | 1.00 | 0.00 | 13.00 |
| | C | 139.00 | 21.00 | 0.00 |

**Demand (PCU/TS)**

**16:45 - 17:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 116.00 |
| | B | 2.00 | 0.00 | 15.00 |
| | C | 137.00 | 23.00 | 0.00 |

# Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.14 | 8.37 | 0.2 | A |
| C-A | | | | |
| C-B | 0.21 | 9.14 | 0.3 | A |
| A-B | | | | |
| A-C | | | | |

## Main Results for each time segment

### 16:00 - 16:15

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 14.00 | 132.09 | 0.106 | 13.88 | 0.1 | 7.605 | A |
| C-A | 156.00 | | | 156.00 | | | |
| C-B | 23.00 | 120.98 | 0.190 | 22.77 | 0.2 | 9.144 | A |
| A-B | 4.00 | | | 4.00 | | | |
| A-C | 131.00 | | | 131.00 | | | |

### 16:15 - 16:30

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 14.00 | 137.02 | 0.102 | 14.00 | 0.1 | 7.315 | A |
| C-A | 145.00 | | | 145.00 | | | |
| C-B | 26.00 | 126.05 | 0.206 | 25.97 | 0.3 | 8.991 | A |
| A-B | 0.00 | | | 0.00 | | | |
| A-C | 112.00 | | | 112.00 | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 14.00 | 131.40 | 0.107 | 14.00 | 0.1 | 7.665 | A |
| C-A | 139.00 | | | 139.00 | | | |
| C-B | 21.00 | 127.15 | 0.165 | 21.06 | 0.2 | 8.487 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 106.00 | | | 106.00 | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| **B-AC** | 17.00 | 124.52 | 0.137 | 16.96 | 0.2 | 8.365 | A |
| **C-A** | 137.00 | | | 137.00 | | | |
| **C-B** | 23.00 | 124.72 | 0.184 | 22.98 | 0.2 | 8.843 | A |
| **A-B** | 2.00 | | | 2.00 | | | |
| **A-C** | 116.00 | | | 116.00 | | | |

# Junctions 9

## PICADY 9 - Priority Intersection Module



**Filename:** Howth Rd Church Rd 2038.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 11/05/2020 20:03:06

»2038 , AM
»2038, PM

## Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity |
| | 2038 | | | | | | | | | |
| Stream B-AC | 1.9 | 24.04 | 0.68 | C | 10 % | 0.2 | 8.85 | 0.16 | A | 92 % |
| Stream C-B | 0.5 | 11.44 | 0.34 | B | [Stream B-AC] | 0.3 | 9.94 | 0.24 | A | [Stream B-AC] |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Howth SHD |
| **Location** | Howth Road Dublin 13 |
| **Site number** | |
| **Date** | 11/05/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perTimeSegment | s | -Hour | perMin |

### Analysis Options

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

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2038 | AM | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2038 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2038 , AM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 4.10 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 10 | Stream B-AC |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | Howth Road East | | Major |
| B | Church Road | | Minor |
| C | Howth Road West | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right turn bay | Width for right turn (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 7.30 | | ✓ | 2.20 | 50.0 | | - |

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

### Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|
| B | One lane | 3.00 | 50 | 50 |

### Slope / Intercept / Capacity

#### Priority Intersection Slopes and Intercepts

| Junction | Stream | Intercept (PCU/TS) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|---|
| 1 | B-A | 129.627 | 0.089 | 0.225 | 0.142 | 0.322 |
| 1 | B-C | 163.853 | 0.095 | 0.240 | - | - |
| 1 | C-B | 150.730 | 0.220 | 0.220 | - | - |

*The slopes and intercepts shown above do NOT include any corrections or adjustments.*
*Streams may be combined, in which case capacity will be adjusted.*
*Values are shown for the first time segment only; they may differ for subsequent time segments.*

## Traffic Demand

### Demand Set Details

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

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

## Origin-Destination Data

**Demand (PCU/TS)**

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 4.00 | 136.00 |
| | B | 2.00 | 0.00 | 19.00 |
| | C | 88.00 | 27.00 | 0.00 |

**Demand (PCU/TS)**

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 6.00 | 137.00 |
| | B | 4.00 | 0.00 | 56.00 |
| | C | 95.00 | 41.00 | 0.00 |

**Demand (PCU/TS)**

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 8.00 | 178.00 |
| | B | 6.00 | 0.00 | 68.00 |
| | C | 179.00 | 30.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 17.00 | 165.00 |
| | B | 1.00 | 0.00 | 36.00 |
| | C | 125.00 | 17.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.68 | 24.04 | 1.9 | C |
| C-A | | | | |
| C-B | 0.34 | 11.44 | 0.5 | B |
| A-B | | | | |
| A-C | | | | |

### Main Results for each time segment

**08:00 - 08:15**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 21.00 | 122.83 | 0.171 | 20.80 | 0.2 | 8.803 | A |
| C-A | 88.00 | | | 88.00 | | | |
| C-B | 27.00 | 119.88 | 0.225 | 26.71 | 0.3 | 9.631 | A |
| A-B | 4.00 | | | 4.00 | | | |
| A-C | 136.00 | | | 136.00 | | | |

**08:15 - 08:30**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 60.00 | 123.65 | 0.485 | 59.29 | 0.9 | 13.837 | B |
| C-A | 95.00 | | | 95.00 | | | |
| C-B | 41.00 | 119.21 | 0.344 | 40.77 | 0.5 | 11.441 | B |
| A-B | 6.00 | | | 6.00 | | | |
| A-C | 137.00 | | | 137.00 | | | |

**08:30 - 08:45**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 74.00 | 109.43 | 0.676 | 72.98 | 1.9 | 24.036 | C |
| C-A | 179.00 | | | 179.00 | | | |
| C-B | 30.00 | 109.74 | 0.273 | 30.13 | 0.4 | 11.326 | B |
| A-B | 8.00 | | | 8.00 | | | |
| A-C | 178.00 | | | 178.00 | | | |

**08:45 - 09:00**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 37.00 | 119.81 | 0.309 | 38.48 | 0.5 | 11.257 | B |
| C-A | 125.00 | | | 125.00 | | | |
| C-B | 17.00 | 110.62 | 0.154 | 17.20 | 0.2 | 9.653 | A |
| A-B | 17.00 | | | 17.00 | | | |
| A-C | 165.00 | | | 165.00 | | | |

# 2038, PM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 1.22 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 92 | Stream B-AC |

# Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2038 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**16:00 - 16:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 4.00 | 149.00 |
| | B | 0.00 | 0.00 | 16.00 |
| | C | 176.00 | 27.00 | 0.00 |

**Demand (PCU/TS)**

**16:15 - 16:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 0.00 | 127.00 |
| | B | 0.00 | 0.00 | 16.00 |
| | C | 163.00 | 30.00 | 0.00 |

**Demand (PCU/TS)**

**16:30 - 16:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 120.00 |
| | B | 1.00 | 0.00 | 14.00 |
| | C | 156.00 | 24.00 | 0.00 |

**Demand (PCU/TS)**

**16:45 - 17:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 132.00 |
| | B | 2.00 | 0.00 | 17.00 |
| | C | 153.00 | 27.00 | 0.00 |

# Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.16 | 8.85 | 0.2 | A |
| C-A | | | | |
| C-B | 0.24 | 9.94 | 0.3 | A |
| A-B | | | | |
| A-C | | | | |

## Main Results for each time segment

### 16:00 - 16:15

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 16.00 | 127.78 | 0.125 | 15.86 | 0.1 | 8.032 | A |
| C-A | 176.00 | | | 176.00 | | | |
| C-B | 27.00 | 117.01 | 0.231 | 26.70 | 0.3 | 9.935 | A |
| A-B | 4.00 | | | 4.00 | | | |
| A-C | 149.00 | | | 149.00 | | | |

### 16:15 - 16:30

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 16.00 | 133.43 | 0.120 | 16.00 | 0.1 | 7.664 | A |
| C-A | 163.00 | | | 163.00 | | | |
| C-B | 30.00 | 122.74 | 0.244 | 29.98 | 0.3 | 9.700 | A |
| A-B | 0.00 | | | 0.00 | | | |
| A-C | 127.00 | | | 127.00 | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 15.00 | 127.75 | 0.117 | 15.00 | 0.1 | 7.984 | A |
| C-A | 156.00 | | | 156.00 | | | |
| C-B | 24.00 | 124.06 | 0.193 | 24.08 | 0.2 | 9.008 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 120.00 | | | 120.00 | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| **B-AC** | 19.00 | 120.57 | 0.158 | 18.95 | 0.2 | 8.851 | A |
| **C-A** | 153.00 | | | 153.00 | | | |
| **C-B** | 27.00 | 121.20 | 0.223 | 26.96 | 0.3 | 9.546 | A |
| **A-B** | 2.00 | | | 2.00 | | | |
| **A-C** | 132.00 | | | 132.00 | | | |

# APPENDIX 4D

# HOWTH ROAD / OFFINGTON PARK PRIORITY JUNCTION

# Junctions 9

## PICADY 9 - Priority Intersection Module



**Filename:** Howth Rd Offington Pk 2023.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 11/05/2020 20:23:41



## Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity |
| | 2023 | | | | | | | | | |
| Stream B-AC | 1.4 | 23.80 | 0.60 | C | 12 % | 0.5 | 14.70 | 0.33 | B | 47 % |
| Stream C-B | 0.3 | 10.11 | 0.23 | B | [Stream B-AC] | 0.2 | 8.83 | 0.16 | A | [Stream B-AC] |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Howth SHD |
| **Location** | Howth Road Dublin 13 |
| **Site number** | |
| **Date** | 11/05/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perTimeSegment | s | -Hour | perMin |

### Analysis Options

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

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2023 | AM | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2023 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2023 , AM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 4.08 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 12 | Stream B-AC |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | Howth Road East | | Major |
| B | Offington Park | | Minor |
| C | Howth Road West | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right turn bay | Width for right turn (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 7.30 | | ✓ | 2.20 | 50.0 | | - |

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

### Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|
| B | One lane | 3.00 | 50 | 50 |

### Slope / Intercept / Capacity

#### Priority Intersection Slopes and Intercepts

| Junction | Stream | Intercept (PCU/TS) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|---|
| 1 | B-A | 129.627 | 0.089 | 0.225 | 0.142 | 0.322 |
| 1 | B-C | 163.853 | 0.095 | 0.240 | - | - |
| 1 | C-B | 150.730 | 0.220 | 0.220 | - | - |

*The slopes and intercepts shown above do NOT include any corrections or adjustments.*
*Streams may be combined, in which case capacity will be adjusted.*
*Values are shown for the first time segment only; they may differ for subsequent time segments.*

# Traffic Demand

### Demand Set Details

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

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

#### Demand (PCU/TS)

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 15.00 | 108.00 |
| | B | 26.00 | 0.00 | 18.00 |
| | C | 61.00 | 3.00 | 0.00 |

#### Demand (PCU/TS)

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 16.00 | 116.00 |
| | B | 14.00 | 0.00 | 14.00 |
| | C | 74.00 | 7.00 | 0.00 |

#### Demand (PCU/TS)

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 27.00 | 137.00 |
| | B | 29.00 | 0.00 | 25.00 |
| | C | 118.00 | 26.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 14.00 | 128.00 |
| | B | 28.00 | 0.00 | 18.00 |
| | C | 110.00 | 26.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.60 | 23.80 | 1.4 | C |
| C-A | | | | |
| C-B | 0.23 | 10.11 | 0.3 | B |
| A-B | | | | |
| A-C | | | | |

### Main Results for each time segment

**08:00 - 08:15**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 44.00 | 108.01 | 0.407 | 43.33 | 0.7 | 13.778 | B |
| C-A | 61.00 | | | 61.00 | | | |
| C-B | 3.00 | 123.62 | 0.024 | 2.98 | 0.0 | 7.457 | A |
| A-B | 15.00 | | | 15.00 | | | |
| A-C | 108.00 | | | 108.00 | | | |

**08:15 - 08:30**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 28.00 | 107.28 | 0.261 | 28.31 | 0.4 | 11.439 | B |
| C-A | 74.00 | | | 74.00 | | | |
| C-B | 7.00 | 121.64 | 0.058 | 6.96 | 0.1 | 7.845 | A |
| A-B | 16.00 | | | 16.00 | | | |
| A-C | 116.00 | | | 116.00 | | | |

**08:30 - 08:45**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 54.00 | 89.78 | 0.601 | 52.94 | 1.4 | 23.801 | C |
| C-A | 118.00 | | | 118.00 | | | |
| C-B | 26.00 | 114.59 | 0.227 | 25.77 | 0.3 | 10.106 | B |
| A-B | 27.00 | | | 27.00 | | | |
| A-C | 137.00 | | | 137.00 | | | |

**08:45 - 09:00**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 46.00 | 90.77 | 0.507 | 46.35 | 1.1 | 20.426 | C |
| C-A | 110.00 | | | 110.00 | | | |
| C-B | 26.00 | 119.43 | 0.218 | 26.01 | 0.3 | 9.636 | A |
| A-B | 14.00 | | | 14.00 | | | |
| A-C | 128.00 | | | 128.00 | | | |

# 2023, PM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 1.62 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 47 | Stream B-AC |

# Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2023 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**16:00 - 16:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 10.00 | 114.00 |
| | B | 14.00 | 0.00 | 8.00 |
| | C | 134.00 | 17.00 | 0.00 |

**Demand (PCU/TS)**

**16:15 - 16:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 9.00 | 103.00 |
| | B | 14.00 | 0.00 | 11.00 |
| | C | 125.00 | 9.00 | 0.00 |

**Demand (PCU/TS)**

**16:30 - 16:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 15.00 | 101.00 |
| | B | 7.00 | 0.00 | 6.00 |
| | C | 129.00 | 13.00 | 0.00 |

**Demand (PCU/TS)**

**16:45 - 17:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 21.00 | 111.00 |
| | B | 21.00 | 0.00 | 9.00 |
| | C | 120.00 | 20.00 | 0.00 |

# Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.33 | 14.70 | 0.5 | B |
| C-A | | | | |
| C-B | 0.16 | 8.83 | 0.2 | A |
| A-B | | | | |
| A-C | | | | |

## Main Results for each time segment

### 16:00 - 16:15

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 22.00 | 92.79 | 0.237 | 21.69 | 0.3 | 12.606 | B |
| C-A | 134.00 | | | 134.00 | | | |
| C-B | 17.00 | 123.40 | 0.138 | 16.84 | 0.2 | 8.433 | A |
| A-B | 10.00 | | | 10.00 | | | |
| A-C | 114.00 | | | 114.00 | | | |

### 16:15 - 16:30

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 25.00 | 102.30 | 0.244 | 24.99 | 0.3 | 11.638 | B |
| C-A | 125.00 | | | 125.00 | | | |
| C-B | 9.00 | 126.05 | 0.071 | 9.08 | 0.1 | 7.699 | A |
| A-B | 9.00 | | | 9.00 | | | |
| A-C | 103.00 | | | 103.00 | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 13.00 | 101.79 | 0.128 | 13.17 | 0.1 | 10.174 | B |
| C-A | 129.00 | | | 129.00 | | | |
| C-B | 13.00 | 125.16 | 0.104 | 12.96 | 0.1 | 8.018 | A |
| A-B | 15.00 | | | 15.00 | | | |
| A-C | 101.00 | | | 101.00 | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| **B-AC** | 30.00 | 90.56 | 0.331 | 29.66 | 0.5 | 14.701 | B |
| **C-A** | 120.00 | | | 120.00 | | | |
| **C-B** | 20.00 | 121.64 | 0.164 | 19.92 | 0.2 | 8.834 | A |
| **A-B** | 21.00 | | | 21.00 | | | |
| **A-C** | 111.00 | | | 111.00 | | | |

# Junctions 9

## PICADY 9 - Priority Intersection Module



**Filename:** Howth Rd Offington Pk 2038.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 11/05/2020 20:16:44



## Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity |
| | 2038 | | | | | | | | | |
| Stream B-AC | 2.8 | 38.79 | 0.77 | E | -2 % | 0.7 | 17.80 | 0.41 | C | 29 % |
| Stream C-B | 0.4 | 11.14 | 0.27 | B | [Stream B-AC] | 0.2 | 9.48 | 0.20 | A | [Stream B-AC] |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Howth SHD |
| **Location** | Howth Road Dublin 13 |
| **Site number** | |
| **Date** | 11/05/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perTimeSegment | s | -Hour | perMin |

### Analysis Options

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

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2038 | AM | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2038 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2038 , AM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 6.52 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | -2 | Stream B-AC |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | Howth Road East | | Major |
| B | Offington Park | | Minor |
| C | Howth Road West | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right turn bay | Width for right turn (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 7.30 | | ✓ | 2.20 | 50.0 | | - |

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

### Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|
| B | One lane | 3.00 | 50 | 50 |

### Slope / Intercept / Capacity

**Priority Intersection Slopes and Intercepts**

| Junction | Stream | Intercept (PCU/TS) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|---|
| 1 | B-A | 129.627 | 0.089 | 0.225 | 0.142 | 0.322 |
| 1 | B-C | 163.853 | 0.095 | 0.240 | - | - |
| 1 | C-B | 150.730 | 0.220 | 0.220 | - | - |

*The slopes and intercepts shown above do NOT include any corrections or adjustments.*
*Streams may be combined, in which case capacity will be adjusted.*
*Values are shown for the first time segment only; they may differ for subsequent time segments.*

# Traffic Demand

### Demand Set Details

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

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 17.00 | 120.00 |
| | B | 30.00 | 0.00 | 21.00 |
| | C | 69.00 | 4.00 | 0.00 |

**Demand (PCU/TS)**

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 18.00 | 130.00 |
| | B | 16.00 | 0.00 | 16.00 |
| | C | 84.00 | 8.00 | 0.00 |

**Demand (PCU/TS)**

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 31.00 | 153.00 |
| | B | 34.00 | 0.00 | 29.00 |
| | C | 135.00 | 30.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 16.00 | 143.00 |
| | B | 33.00 | 0.00 | 21.00 |
| | C | 125.00 | 30.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.77 | 38.79 | 2.8 | E |
| C-A | | | | |
| C-B | 0.27 | 11.14 | 0.4 | B |
| A-B | | | | |
| A-C | | | | |

### Main Results for each time segment

**08:00 - 08:15**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 51.00 | 103.96 | 0.491 | 50.07 | 0.9 | 16.422 | C |
| C-A | 69.00 | | | 69.00 | | | |
| C-B | 4.00 | 120.54 | 0.033 | 3.97 | 0.0 | 7.719 | A |
| A-B | 17.00 | | | 17.00 | | | |
| A-C | 120.00 | | | 120.00 | | | |

**08:15 - 08:30**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 32.00 | 102.45 | 0.312 | 32.47 | 0.5 | 12.945 | B |
| C-A | 84.00 | | | 84.00 | | | |
| C-B | 8.00 | 118.11 | 0.068 | 7.96 | 0.1 | 8.168 | A |
| A-B | 18.00 | | | 18.00 | | | |
| A-C | 130.00 | | | 130.00 | | | |

**08:30 - 08:45**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 63.00 | 82.06 | 0.768 | 60.70 | 2.8 | 38.786 | E |
| C-A | 135.00 | | | 135.00 | | | |
| C-B | 30.00 | 110.18 | 0.272 | 29.70 | 0.4 | 11.143 | B |
| A-B | 31.00 | | | 31.00 | | | |
| A-C | 153.00 | | | 153.00 | | | |

**08:45 - 09:00**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 54.00 | 83.81 | 0.644 | 54.81 | 2.0 | 31.895 | D |
| C-A | 125.00 | | | 125.00 | | | |
| C-B | 30.00 | 115.69 | 0.259 | 30.01 | 0.4 | 10.506 | B |
| A-B | 16.00 | | | 16.00 | | | |
| A-C | 143.00 | | | 143.00 | | | |

# 2038, PM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 1.94 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 29 | Stream B-AC |

# Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2038 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**16:00 - 16:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 12.00 | 130.00 |
| | B | 16.00 | 0.00 | 10.00 |
| | C | 151.00 | 19.00 | 0.00 |

**Demand (PCU/TS)**

**16:15 - 16:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 11.00 | 117.00 |
| | B | 16.00 | 0.00 | 13.00 |
| | C | 139.00 | 11.00 | 0.00 |

**Demand (PCU/TS)**

**16:30 - 16:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 17.00 | 114.00 |
| | B | 8.00 | 0.00 | 7.00 |
| | C | 145.00 | 14.00 | 0.00 |

**Demand (PCU/TS)**

**16:45 - 17:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 24.00 | 126.00 |
| | B | 24.00 | 0.00 | 11.00 |
| | C | 134.00 | 23.00 | 0.00 |

# Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.41 | 17.80 | 0.7 | C |
| C-A | | | | |
| C-B | 0.20 | 9.48 | 0.2 | A |
| A-B | | | | |
| A-C | | | | |

## Main Results for each time segment

### 16:00 - 16:15

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 26.00 | 86.98 | 0.299 | 25.58 | 0.4 | 14.565 | B |
| C-A | 151.00 | | | 151.00 | | | |
| C-B | 19.00 | 119.43 | 0.159 | 18.81 | 0.2 | 8.929 | A |
| A-B | 12.00 | | | 12.00 | | | |
| A-C | 130.00 | | | 130.00 | | | |

### 16:15 - 16:30

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 29.00 | 96.95 | 0.299 | 28.99 | 0.4 | 13.240 | B |
| C-A | 139.00 | | | 139.00 | | | |
| C-B | 11.00 | 122.52 | 0.090 | 11.09 | 0.1 | 8.084 | A |
| A-B | 11.00 | | | 11.00 | | | |
| A-C | 117.00 | | | 117.00 | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 15.00 | 96.57 | 0.155 | 15.24 | 0.2 | 11.098 | B |
| C-A | 145.00 | | | 145.00 | | | |
| C-B | 14.00 | 121.86 | 0.115 | 13.97 | 0.1 | 8.340 | A |
| A-B | 17.00 | | | 17.00 | | | |
| A-C | 114.00 | | | 114.00 | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 35.00 | 84.60 | 0.414 | 34.50 | 0.7 | 17.798 | C |
| C-A | 134.00 | | | 134.00 | | | |
| C-B | 23.00 | 117.67 | 0.195 | 22.89 | 0.2 | 9.481 | A |
| A-B | 24.00 | | | 24.00 | | | |
| A-C | 126.00 | | | 126.00 | | | |

# APPENDIX 4E

# HARBOUR ROAD / CHURCH STREET PRIORITY JUNCTION

# Junctions 9

## PICADY 9 - Priority Intersection Module



**Filename:** Harbour Rd Church St 2023.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 11/05/2020 20:38:17



## Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity |
| | 2023 | | | | | | | | | |
| Stream B-AC | 0.4 | 9.56 | 0.30 | A | 56 % [Stream C-B] | 0.2 | 8.07 | 0.20 | A | 118 % [Stream C-B] |
| Stream C-B | 0.8 | 13.00 | 0.44 | B | | 0.4 | 9.76 | 0.31 | A | |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Howth SHD |
| **Location** | Howth Road Dublin 13 |
| **Site number** | |
| **Date** | 11/05/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perTimeSegment | s | -Hour | perMin |

### Analysis Options

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

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2023 | AM | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2023 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2023 , AM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 3.72 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 56 | Stream C-B |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | Harbour Road East | | Major |
| B | Church Street | | Minor |
| C | Harbour Road West | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right turn bay | Width for right turn (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 7.30 | | ✓ | 2.20 | 50.0 | | - |

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

### Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|
| B | One lane | 3.00 | 50 | 50 |

### Slope / Intercept / Capacity

#### Priority Intersection Slopes and Intercepts

| Junction | Stream | Intercept (PCU/TS) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|---|
| 1 | B-A | 129.627 | 0.089 | 0.225 | 0.142 | 0.322 |
| 1 | B-C | 163.853 | 0.095 | 0.240 | - | - |
| 1 | C-B | 150.730 | 0.220 | 0.220 | - | - |

*The slopes and intercepts shown above do NOT include any corrections or adjustments.*
*Streams may be combined, in which case capacity will be adjusted.*
*Values are shown for the first time segment only; they may differ for subsequent time segments.*

## Traffic Demand

### Demand Set Details

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

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

## Origin-Destination Data

#### Demand (PCU/TS)

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 0.00 | 94.00 |
| | B | 1.00 | 0.00 | 30.00 |
| | C | 41.00 | 24.00 | 0.00 |

#### Demand (PCU/TS)

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 88.00 |
| | B | 2.00 | 0.00 | 29.00 |
| | C | 41.00 | 28.00 | 0.00 |

#### Demand (PCU/TS)

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 110.00 |
| | B | 1.00 | 0.00 | 40.00 |
| | C | 58.00 | 53.00 | 0.00 |

**Demand (PCU/TS)**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 119.00 |
| | B | 0.00 | 0.00 | 38.00 |
| | C | 65.00 | 55.00 | 0.00 |

# Vehicle Mix

**Heavy Vehicle Percentages**

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

**Heavy Vehicle Percentages**

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.30 | 9.56 | 0.4 | A |
| C-A | | | | |
| C-B | 0.44 | 13.00 | 0.8 | B |
| A-B | | | | |
| A-C | | | | |

### Main Results for each time segment

**08:00 - 08:15**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 31.00 | 139.14 | 0.223 | 30.72 | 0.3 | 8.280 | A |
| C-A | 41.00 | | | 41.00 | | | |
| C-B | 24.00 | 130.01 | 0.185 | 23.78 | 0.2 | 8.454 | A |
| A-B | 0.00 | | | 0.00 | | | |
| A-C | 94.00 | | | 94.00 | | | |

**08:15 - 08:30**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 31.00 | 138.20 | 0.224 | 31.00 | 0.3 | 8.395 | A |
| C-A | 41.00 | | | 41.00 | | | |
| C-B | 28.00 | 131.11 | 0.214 | 27.96 | 0.3 | 8.720 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 88.00 | | | 88.00 | | | |

**08:30 - 08:45**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 41.00 | 134.88 | 0.304 | 40.86 | 0.4 | 9.558 | A |
| C-A | 58.00 | | | 58.00 | | | |
| C-B | 53.00 | 126.05 | 0.420 | 52.56 | 0.7 | 12.175 | B |
| A-B | 2.00 | | | 2.00 | | | |
| A-C | 110.00 | | | 110.00 | | | |

**08:45 - 09:00**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 38.00 | 135.12 | 0.281 | 38.03 | 0.4 | 9.275 | A |
| C-A | 65.00 | | | 65.00 | | | |
| C-B | 55.00 | 124.06 | 0.443 | 54.93 | 0.8 | 13.000 | B |
| A-B | 2.00 | | | 2.00 | | | |
| A-C | 119.00 | | | 119.00 | | | |

# 2023, PM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 2.26 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 118 | Stream C-B |

# Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2023 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**16:00 - 16:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 3.00 | 74.00 |
| | B | 1.00 | 0.00 | 22.00 |
| | C | 81.00 | 31.00 | 0.00 |

**Demand (PCU/TS)**

**16:15 - 16:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 0.00 | 92.00 |
| | B | 0.00 | 0.00 | 17.00 |
| | C | 90.00 | 35.00 | 0.00 |

**Demand (PCU/TS)**

**16:30 - 16:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 3.00 | 73.00 |
| | B | 1.00 | 0.00 | 18.00 |
| | C | 98.00 | 42.00 | 0.00 |

**Demand (PCU/TS)**

**16:45 - 17:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 88.00 |
| | B | 1.00 | 0.00 | 27.00 |
| | C | 94.00 | 35.00 | 0.00 |

# Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.20 | 8.07 | 0.2 | A |
| C-A | | | | |
| C-B | 0.31 | 9.76 | 0.4 | A |
| A-B | | | | |
| A-C | | | | |

## Main Results for each time segment

### 16:00 - 16:15

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 23.00 | 142.14 | 0.162 | 22.81 | 0.2 | 7.529 | A |
| C-A | 81.00 | | | 81.00 | | | |
| C-B | 31.00 | 133.76 | 0.232 | 30.70 | 0.3 | 8.708 | A |
| A-B | 3.00 | | | 3.00 | | | |
| A-C | 74.00 | | | 74.00 | | | |

### 16:15 - 16:30

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 17.00 | 141.77 | 0.120 | 17.05 | 0.1 | 7.218 | A |
| C-A | 90.00 | | | 90.00 | | | |
| C-B | 35.00 | 130.45 | 0.268 | 34.94 | 0.4 | 9.415 | A |
| A-B | 0.00 | | | 0.00 | | | |
| A-C | 92.00 | | | 92.00 | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 19.00 | 140.85 | 0.135 | 18.98 | 0.2 | 7.385 | A |
| C-A | 98.00 | | | 98.00 | | | |
| C-B | 42.00 | 133.98 | 0.313 | 41.91 | 0.4 | 9.765 | A |
| A-B | 3.00 | | | 3.00 | | | |
| A-C | 73.00 | | | 73.00 | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| **B-AC** | 28.00 | 139.29 | 0.201 | 27.91 | 0.2 | 8.073 | A |
| **C-A** | 94.00 | | | 94.00 | | | |
| **C-B** | 35.00 | 131.11 | 0.267 | 35.08 | 0.4 | 9.379 | A |
| **A-B** | 1.00 | | | 1.00 | | | |
| **A-C** | 88.00 | | | 88.00 | | | |

# Junctions 9

## PICADY 9 - Priority Intersection Module

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



**Filename:** Harbour Rd Church St 2038.j9
**Path:** C:\Users\Martin.Rogers\Documents\howth road
**Report generation date:** 11/05/2020 20:47:28



## Summary of junction performance

| | AM | | | | | PM | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity | Queue (PCU) | Delay (s) | RFC | LOS | Network Residual Capacity |
| | 2023 | | | | | | | | | |
| **Stream B-AC** | 0.5 | 10.57 | 0.36 | B | 37 % | 0.3 | 8.57 | 0.23 | A | 92 % |
| **Stream C-B** | 1.1 | 15.47 | 0.52 | C | [Stream C-B] | 0.6 | 10.68 | 0.36 | B | [Stream C-B] |

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

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

## File summary

### File Description

| | |
|---|---|
| **Title** | Howth SHD |
| **Location** | Howth Road Dublin 13 |
| **Site number** | |
| **Date** | 11/05/2020 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ICTDOMAIN\martin.rogers |
| **Description** | |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|---|---|---|---|---|---|---|---|
| m | kph | PCU | PCU | perTimeSegment | s | -Hour | perMin |

### Analysis Options

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

### Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D1 | 2023 | AM | DIRECT | 08:00 | 09:00 | 60 | 15 |
| D2 | 2023 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

### Analysis Set Details

| ID | Network flow scaling factor (%) |
|---|---|
| A1 | 100.000 |

# 2023 , AM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 4.41 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 37 | Stream C-B |

## Arms

### Arms

| Arm | Name | Description | Arm type |
|---|---|---|---|
| A | Harbour Road East | | Major |
| B | Church Street | | Minor |
| C | Harbour Road West | | Major |

### Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right turn bay | Width for right turn (m) | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|---|---|---|---|---|---|---|---|
| C | 7.30 | | ✓ | 2.20 | 50.0 | | - |

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

### Minor Arm Geometry

| Arm | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|---|---|---|---|---|
| B | One lane | 3.00 | 50 | 50 |

### Slope / Intercept / Capacity

**Priority Intersection Slopes and Intercepts**

| Junction | Stream | Intercept (PCU/TS) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|---|---|---|---|---|---|---|
| 1 | B-A | 129.627 | 0.089 | 0.225 | 0.142 | 0.322 |
| 1 | B-C | 163.853 | 0.095 | 0.240 | - | - |
| 1 | C-B | 150.730 | 0.220 | 0.220 | - | - |

*The slopes and intercepts shown above do NOT include any corrections or adjustments.*
*Streams may be combined, in which case capacity will be adjusted.*
*Values are shown for the first time segment only; they may differ for subsequent time segments.*

## Traffic Demand

### Demand Set Details

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

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

## Origin-Destination Data

**Demand (PCU/TS)**

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 0.00 | 104.00 |
| | B | 1.00 | 0.00 | 35.00 |
| | C | 45.00 | 28.00 | 0.00 |

**Demand (PCU/TS)**

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 97.00 |
| | B | 2.00 | 0.00 | 33.00 |
| | C | 46.00 | 33.00 | 0.00 |

**Demand (PCU/TS)**

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 123.00 |
| | B | 1.00 | 0.00 | 46.00 |
| | C | 65.00 | 62.00 | 0.00 |

### Demand (PCU/TS)

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 2.00 | 133.00 |
| | B | 0.00 | 0.00 | 43.00 |
| | C | 73.00 | 63.00 | 0.00 |

## Vehicle Mix

### Heavy Vehicle Percentages

**08:00 - 08:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

### Heavy Vehicle Percentages

**08:15 - 08:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

### Heavy Vehicle Percentages

**08:30 - 08:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

### Heavy Vehicle Percentages

**08:45 - 09:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

## Results

### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.36 | 10.57 | 0.5 | B |
| C-A | | | | |
| C-B | 0.52 | 15.47 | 1.1 | C |
| A-B | | | | |
| A-C | | | | |

### Main Results for each time segment

**08:00 - 08:15**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 36.00 | 136.92 | 0.263 | 35.65 | 0.4 | 8.856 | A |
| C-A | 45.00 | | | 45.00 | | | |
| C-B | 28.00 | 127.81 | 0.219 | 27.72 | 0.3 | 8.969 | A |
| A-B | 0.00 | | | 0.00 | | | |
| A-C | 104.00 | | | 104.00 | | | |

**08:15 - 08:30**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 35.00 | 136.23 | 0.257 | 35.00 | 0.3 | 8.890 | A |
| C-A | 46.00 | | | 46.00 | | | |
| C-B | 33.00 | 129.13 | 0.256 | 32.94 | 0.3 | 9.350 | A |
| A-B | 1.00 | | | 1.00 | | | |
| A-C | 97.00 | | | 97.00 | | | |

**08:30 - 08:45**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 47.00 | 131.78 | 0.357 | 46.80 | 0.5 | 10.567 | B |
| C-A | 65.00 | | | 65.00 | | | |
| C-B | 62.00 | 123.18 | 0.503 | 61.36 | 1.0 | 14.413 | B |
| A-B | 2.00 | | | 2.00 | | | |
| A-C | 123.00 | | | 123.00 | | | |

**08:45 - 09:00**

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 43.00 | 131.77 | 0.326 | 43.05 | 0.5 | 10.151 | B |
| C-A | 73.00 | | | 73.00 | | | |
| C-B | 63.00 | 120.98 | 0.521 | 62.92 | 1.1 | 15.471 | C |
| A-B | 2.00 | | | 2.00 | | | |
| A-C | 133.00 | | | 133.00 | | | |

# 2023, PM

### Data Errors and Warnings

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

## Junction Network

### Junctions

| Junction | Name | Junction type | Major road direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|
| 1 | Site 2 | T-Junction | Two-way | | 2.54 | A |

### Junction Network Options

| Driving side | Lighting | Network residual capacity (%) | First arm reaching threshold |
|---|---|---|---|
| Left | Normal/unknown | 92 | Stream C-B |

# Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time period length (min) | Time segment length (min) |
|---|---|---|---|---|---|---|---|
| D2 | 2023 | PM | DIRECT | 16:00 | 17:00 | 60 | 15 |

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

### Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Scaling Factor (%) |
|---|---|---|---|
| A | | ✓ | 100.000 |
| B | | ✓ | 100.000 |
| C | | ✓ | 100.000 |

# Origin-Destination Data

**Demand (PCU/TS)**

**16:00 - 16:15**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 4.00 | 83.00 |
| | B | 1.00 | 0.00 | 22.00 |
| | C | 81.00 | 31.00 | 0.00 |

**Demand (PCU/TS)**

**16:15 - 16:30**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 0.00 | 92.00 |
| | B | 0.00 | 0.00 | 26.00 |
| | C | 99.00 | 41.00 | 0.00 |

**Demand (PCU/TS)**

**16:30 - 16:45**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 4.00 | 81.00 |
| | B | 1.00 | 0.00 | 21.00 |
| | C | 108.00 | 48.00 | 0.00 |

**Demand (PCU/TS)**

**16:45 - 17:00**

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0.00 | 1.00 | 99.00 |
| | B | 1.00 | 0.00 | 31.00 |
| | C | 104.00 | 40.00 | 0.00 |

# Vehicle Mix

### Heavy Vehicle Percentages

| | | To | | |
|---|---|---|---|---|
| | | A | B | C |
| From | A | 0 | 0 | 0 |
| | B | 0 | 0 | 0 |
| | C | 0 | 0 | 0 |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|---|---|---|---|---|
| B-AC | 0.23 | 8.57 | 0.3 | A |
| C-A | | | | |
| C-B | 0.36 | 10.68 | 0.6 | B |
| A-B | | | | |
| A-C | | | | |

## Main Results for each time segment

### 16:00 - 16:15

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 23.00 | 139.87 | 0.164 | 22.81 | 0.2 | 7.676 | A |
| C-A | 81.00 | | | 81.00 | | | |
| C-B | 31.00 | 131.56 | 0.236 | 30.70 | 0.3 | 8.897 | A |
| A-B | 4.00 | | | 4.00 | | | |
| A-C | 83.00 | | | 83.00 | | | |

### 16:15 - 16:30

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 26.00 | 141.78 | 0.183 | 25.97 | 0.2 | 7.770 | A |
| C-A | 99.00 | | | 99.00 | | | |
| C-B | 41.00 | 130.45 | 0.314 | 40.85 | 0.5 | 10.027 | B |
| A-B | 0.00 | | | 0.00 | | | |
| A-C | 92.00 | | | 92.00 | | | |

### 16:30 - 16:45

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| B-AC | 22.00 | 139.08 | 0.158 | 22.03 | 0.2 | 7.691 | A |
| C-A | 108.00 | | | 108.00 | | | |
| C-B | 48.00 | 132.00 | 0.364 | 47.89 | 0.6 | 10.684 | B |
| A-B | 4.00 | | | 4.00 | | | |
| A-C | 81.00 | | | 81.00 | | | |

### 16:45 - 17:00

| Stream | Total Demand (PCU/TS) | Capacity (PCU/TS) | RFC | Throughput (PCU/TS) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|---|---|---|---|---|---|---|---|
| **B-AC** | 32.00 | 136.77 | 0.234 | 31.89 | 0.3 | 8.571 | A |
| **C-A** | 104.00 | | | 104.00 | | | |
| **C-B** | 40.00 | 128.69 | 0.311 | 40.10 | 0.5 | 10.173 | B |
| **A-B** | 1.00 | | | 1.00 | | | |
| **A-C** | 99.00 | | | 99.00 | | | |