Waterman Moylan
Engineering Consultants

Traffic & Transport Assessment

Residential Development at Knockrabo (Phase 2), Mount Anville Road, Dublin 14.

October 2021

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

Waterman Moylan
Engineering Consultants

Client Name:	Knockrabo Investments DAC
Document Reference:	20-086.r003 Traffic and Transport Assessment
Project Number:	20-086

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015 and BS EN ISO 14001: 2015)

Issue	Date	Prepared by	Checked by	Approved by
Issue 1	April 2021	Luke Byrne	Fernando Silva Richard Miles	Mark Duignan
Issue 2	October 2021	Luke Byrne	Fernando Silva Richard Miles	Mark Duignan

Comments

Waterman Moylan
Engineering Consultants

Disclaimer

This report has been prepared by Waterman Moylan, with all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the Client.

We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

This report is confidential to the Client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Content

Figures

Tables

Appendix

1. Introduction

1.1 Introduction

This Traffic and Transport Assessment (TTA) has been prepared by Waterman Moylan Engineering Consultants as part of the documentation for a proposed Strategic Housing Development (SHD) on lands located at Knockrabo, Mount Anville Road, Dublin 14.

The proposed development includes:

- 224 No. Apartments in four blocks.
- 3 No. Duplexes.
- Tenant Amenity (537.2sqm).

The detailed breakdown of the proposed residential scheme is as follows:

Block	2 – Bedroom Duplex	Apartment 1-Bed	Apartment 2-Bed	Apartment 3-Bed	Total
Block E	-	1	7	-	8
Block F	3	31	50	-	84
Block G	-	37	40	5	82
Block H	-	7	45	1	53
Total	3	76	142	6	227

Table 1: Proposed Residential Development.

1.2 Background

The subject proposed development is the phase 2 of an overall residential development in Knockrabo lands.

Phase 1 plot of Knockrabo lands currently benefits having previously being granted planning permission by Dun Laoghaire Rathdown County Council (Ref. D13A/0689) in August 2014, and then in January 2015 by An Bord Pleanala (Ref. PL06D.243799) following a third-party appeal. Phase 1 includes the provision of 88 no. residential units (47 no. Houses and 3 blocks of 41 no. Apartments).

In January 2017 Dún Laoghaire Rathdown approved planning permission (Ref. D16A/0821) for amendments to the Blocks A, B, C as originally approved under Ref. D13A.0689. This amendment resulted in an increase in the total number of apartments in Blocks A, B & C from 41 to 51 apartments.

The neighbouring Phase 1A plot of the Knockrabo lands was approved planning permission by Dun Laoghaire Rathdown County Council (Ref. D16A/0960) in February 2017. This application consisted of the provision of 21 number residential units (incorporating 3 houses and 18 apartments within Block 'D').

Accordingly, the neighbouring Knockrabo lands (Phase 1 and Phase 1A) received planning permission for the total provision of a total of 50 houses (including Gate Lodge East) and 69 apartments in Blocks A, B, C & D.

At the time of writing in 2021, Phases 1 and 1A are completely constructed with all 50 houses and 10 of the 69 apartments occupied.

A planning application for phase 2 has been previously submitted and approved (Ref. D17A/1124) for 93 no. residential units and a childcare facility. This new application is for an increase to 227 no. residential units.

This report has been produced to address any potential concerns that the local planning authority may have pertaining to the accumulative level of influence that the subject Phase 2 – 227 no. residential units, in parallel to the permitted Phase 1 (98 units) and Phase 1A (21 units) may have upon the local transportation system.

1.3 Scope

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

The TTA is accompanied by a Travel Plan to implement the mobility management policies for the development and achieve the sustainable travel targets.

1.4 Standards

This Traffic and Transport Assessment has been prepared in accordance with the requirements of Section 8.2.4.2 of the Dun Laoghaire-Rathdown County Development Plan 2016-2022 and in accordance with Transport Infrastructure Ireland (TII) 'Traffic and Transport Assessment Guidelines' (2014).

1.5 Threshold for Transport Assessment

Section 8.2.4.2 of Appendix 10 of the Dun Laoghaire-Rathdown County Development Plan 2016-2022 requires the submission of a Transport Assessment where a proposed development meets one or more of the following criteria: -

- Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road or 100 trips in the peak hours
- Residential development of 200 residential units or more.
- Retail development in excess of 1,000m²
- Leisure facilities including hotels, conference centres and cinemas in excess of 1,000m²
- Community facilities (including places of worship) and community centres in excess of 1,000m²
- Office, Education and Hospital development in excess of 2,500m²
- Industrial development in excess of 5,000m²
- Distribution and warehousing development in excess of 10,000m²

In the case of the subject proposed development, threshold No. 2 is exceeded.

1.6 Methodology

The methodology for the preparations of this Transport & Transport Assessment included: -

- Description of the approved, proposed and overall future developments.
- Description of the receiving environment including roads and junctions, public transport, cycle facilities and pedestrian facilities.
- Description of the existing travel characteristics including a traffic survey.
- Descriptions of proposed transportation improvements to roads, junction, public transport, cycle, and pedestrian facilities.
- Calculation of the trip generation and distribution for the proposed and approved developments.
- Determination of future traffic movements in:
    - 2024 (Opening Year of the Proposed Development)
    - 2029 (Opening Year + 5 Years)
    - 2039 (Opening Year + 15 Years)
- Determination of transportation impact on junctions.
- Description of proposed car and bicycle parking.

1.7 Contents of the Traffic and Transport Assessment

In compliance with the Transport Infrastructure Ireland (TII) 'Traffic and Transport Assessment Guidelines' (2014) Section 3.3, the contents of the Traffic and Transport Assessment: -

- A description of the existing development and traffic/transport conditions including information on the existing and proposed public transport facilities.
- A description of the proposed development.
- The traffic / transportation implication of the development including consideration of:
    1. Trip Generation
    2. Trip Distribution
- The time periods applicable to the TTA.
- The traffic effects of the proposed development on the local and surrounding road network.
- Road and traffic safety considerations.

1.8 Programme

It is expected that construction of the proposed development will commence in 2022 for completion in 2024.

1.9 Assessment Years

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

Base Year	:	2021
Opening Year (With / Without Development)	:	2024
Opening Year + 5 Years Forecast (With / Without Development)	:	2029
Opening Year + 15 Years Forecast (With / Without Development):		2039

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

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

2. Policy Framework

2.1 Dun Laoghaire-Rathdown County Development Plan (2016 – 2022)

The Dun Laoghaire-Rathdown County Council Development Plan (2016-2022) sets out the authority's policies and objectives for the development of the County for the period 2016 to 2022. The Plan seeks to develop and improve in a sustainable manner the social, economic, cultural and environmental assets of the county. In the context of the subject development site and the proposed residential scheme a number of the most relevant policies are included below.

2.1.1 Development of Sustainable Travel and Transportation polices

*"**Policy ST3**: It is Council policy to promote, facilitate and cooperate with other transport agencies in securing the implementation of the transportation strategy for the County and the wider Dublin Region as set out Department of Transport's 'Smarter Travel, A Sustainable Transport Future 2009-2020' and the NTA's 'Greater Dublin Area Draft Transport Strategy 2016-2035"*

2.1.2 Accessibility

*"**Policy ST4:** It is Council policy to support suitable access for people with disabilities, including improvements to buildings, streets and public spaces."*

2.1.3 Walking and Cycling

*"**Policy ST5:** It is Council policy to secure the development of high-quality walking and cycling network across the County in accordance with the relevant Council and National policy guidelines."*

2.1.4 Footways and Pedestrian routes

*"**Policy ST6:** The Council will continue to maintain and expand the footway and pedestrian route network to provide for accessible pedestrian routes with the County in accordance with best accessibility practice."*

2.1.5 County Cycle Network

*"**Policy ST7:** It is Council policy to secure improvements to the County Council Network in accordance with the Dun Laoghaire-Rathdown Cycle Network Review whilst supporting the NTA on the development and implementation of the Cycle Network Plan for the Greater Dublin Area."*

2.1.6 Public Transport Improvements

*"**Policy ST11:** It is Council Policy to secure improvements to the public transport system as set out in 'Smarter Travel, A Sustainable Transport Future 2009-22202' and the NTA's Greater Dublin Area Draft Transport Strategy 2016-2035' and by developing new Park and Ride and taxi rank facilities at appropriate locations."*

2.1.7 Quality Bus Network

*"**Policy ST12:** It is Council policy to co-operate with the NTA and other relevant agencies to facilitate the implementation of the Bus Network measures as set out in the NTA's Greater Dublin Area Draft Transport 2016-2035"*

2.1.8 Roads

*"**Policy ST25:** It is Council Policy, in conjunction and co-operation with other transport bodies such as TII and the NTA, to secure improvements to the County road network – including improved pedestrian and cycling facilities."*

2.1.9 Greenways Network

*"**Policy ORS8:** It is Council policy to develop a comprehensive network of County Greenways linking parks and public open spaces and to liaise with adjoining local authorities and other stakeholders to achieve and improve wider external linkages and corridors."*

3. Receiving Environment

3.1 Roads and Junctions

The proposed development site is located adjacent (to the north) of the Mount Anville (R112) Road corridor which is subject to 50 Kmph speed limit. Travelling in a north-easterly direction from the site, Mount Anville Road terminates at a four-arm signal-controlled junction with Roebuck Road, Fosters Avenue and Callary Road. Continuing north east from this signal-controlled junction, Fosters Avenue meets the strategic N11 Stillorgan Road corridor at a 3-arm signal-controlled junction.

The N11 Stillorgan Road runs in a predominantly north south direction providing access to Dublin city, Donnybrook, Mount Merrion, Blackrock to the north and Stillorgan, Foxrock, Conrnelscourt, Cabinteely, Shankhilll and the M50 motorway to the south.

To the west of the subject site, Mount Anville Road terminates at a four-arm signal-controlled junction with Taney Road, Kilmacud Road and Goatstown Road. Westbound on Taney Road from this junction, direct access can be gained to Dundrum Town Centre and the Luas Green Line. Goatstown Road and Kilmacud Road provide alternative routes to Dublin City Centre and the M50 motorway, respectively.

3.2 Existing Public Transport

An assessment of the existing public transport service provision in the area has been carried out. This includes detailed analysis of the modes of transport available, ease of access and frequency of service currently available.

3.2.1 Bus Network

The proposed development is well served in terms of public transport provision. The number 11 Dublin route travels along Kilmacud Road/Goatstown to the east of the proposed development. Furthermore, route number 17 travels along Fosters Avenue and Roebuck Road linking to Blackrock Station. Dublin Bus route 75 travels along Killmacud Rd Upper and is accessible within approximately 1200m (c. 12-minute) walking distance to the southwest of the subject site. Dublin bus route numbers 116, 118, 145, 17, 46A, 46E, 7B, and 7D also operate along Stillorgan Road (N11) corridor as located to the east of the subject site.

The closest bus route to the proposed development is route number 11 operating along Kilmacud Road/Goatstown Road. It is approximately 500m walking distance (6-minute) from the site. Figure 1 below provides the nearest bus stop and walking distance in minutes. Route number 17 operating along Fosters Avenue is within 670m (7-minute) walking distance of the subject site. The remaining bus services introduced above are accessible within 1500m (15-minute) walking distance of the subject site.

Figure 2 shows all bus operations within the vicinity of the proposed site. The majority of the Dublin Bus services operate daily and offer relatively frequent services summarised in Table 2. The locations of each bus stop and the approximate walking distance from the proposed development is also shown in Figure 2.

Figure 1: Location of nearest Bus Stop

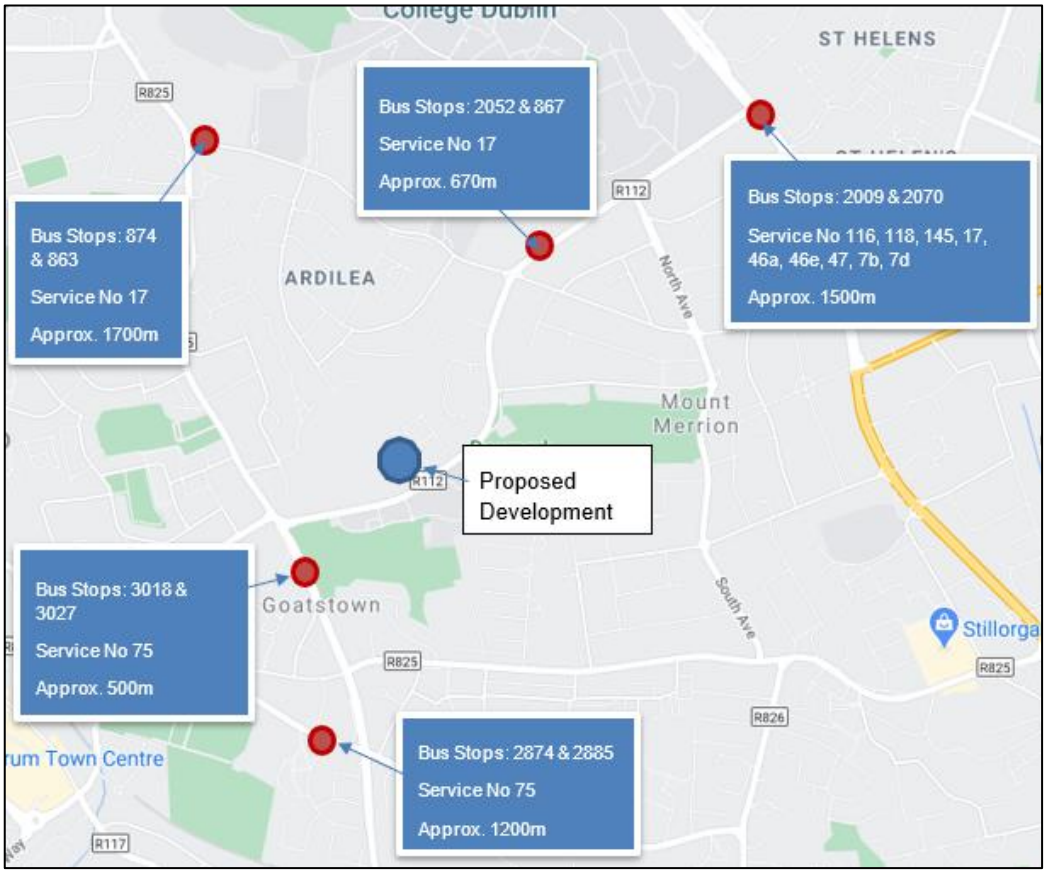


Figure 2: Location of Closest Bus Stops.

No.	Route	Frequency (in each direction, minutes)		
		Mon – Fri	Sat	Sun
7b	Mountjoy Sq. (Mountjoy Sq. North) – Donnybrook – Monkstown Rd. (Annaville Ave.) – Shankill	4 services AM & PM	-	-
7d	Mountjoy Sq. (Mountjoy Sq. North) – Donnybrook – Monkstown Rd. (Annaville Ave.) – Dalkey	2 services AM, 1 service PM	-	-
11	Wadelai Park – O'Connell St. – Ranelagh – Conskeagh – Sandyford Business District (Blackthorn Rd)	30	30	30
17	Rialto – Kimmage Rd. – Churchtown Rd. – UCD Belfield – Blackrock Rail Station	15 - 30	25 – 30	60
46a	Phoenix Park – Phisboro (Doyle's Corner) - City Centre – Donnybrook – Foxrock Church – Dun Laoghaire	9-10	10 -15	10 -15
46e	Blackrock Rail Station – Stillorgan bypass – Donnybrook – City Centre – Mountjoy Sq.	2 services AM	-	-
47	Poolbeg St. – Ringsend – UCD Belfield – Sandyford – Belarmine	30	60	60
75	Tallaght (The Square) – Firhouse – Nutgrove – Stillorgan – Dun Laoghaire	30	30	30
116	Sussex Road. (Burlington Road) – Stillorgan – Sandyford – Dundrum – Whitechurch	1 service per day	-	-
118	Kilternan – Stillorgan – D'Olier St.	1 service AM	-	-
145	Heuston Rail Station – City Centre – Donnybrook – Cabintelly – Bray – Ballywaltrim	10	15	20

Table 2: Bus Route Frequency.

In addition to the Dublin Bus routes outlined above, the proposed development is also directly served by Go-ahead Bus Route 175. It operates from/to UCD to/from Kingswood Avenue through Mount Anville Road with a weekday frequency of 30 to 45 minutes in both directions.

3.2.2 Rail

The Dundrum and Balally LUAS Stops are located within approximately 1.6km to the west and southwest, respectively, of the subject site. The LUAS Greenline provides access to Sandyford, and the City Centre in addition to other destinations along its route. Figures 3 and 4 show the walking and cycling times from the proposed development to the nearest LUAS stop. This LUAS stop is part of the Green line and gives easy access to the city centre. Figure 5, Table 3, Table 4 and Table 5 below lists the stops and frequency (Average waiting time) with which the service operates. The Dundrum LUAS Stop offers 10 bike lockers and 25 bike racks.

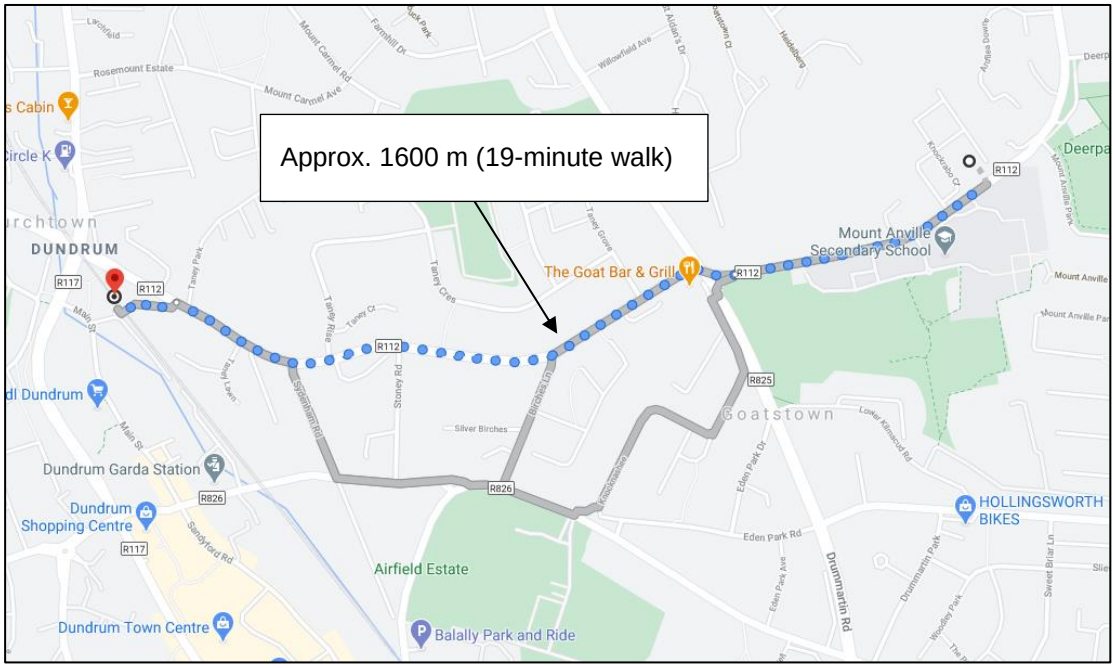


Figure 3: Distance to Nearest Luas Station (Walking).

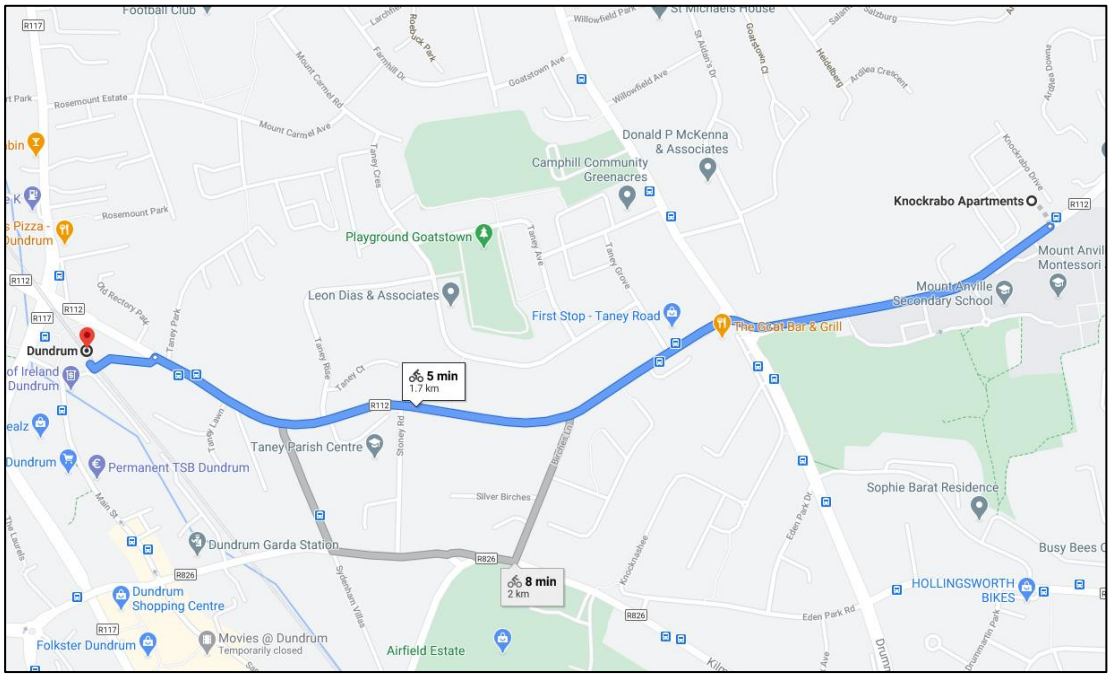


Figure 4: Distance to Nearest Luas Station (Cycling).

Figure 5: Luas Green Line Stations

Time	Monday – Friday (Avg. frequency – minutes)	
	Northbound	Southbound
05:37 – 07:00	9	-
06:10 – 07:00	-	12
07:00 – 10:00	4	4
10:00 – 16:00	6	6
16:00 – 19:00	5	4
19:00 – 00:56	8	8

Table 3: Luas Station Frequency Table – Monday to Friday (Avg. frequency)

Time	Saturday (Avg. frequency – minutes)	
	Northbound	Southbound
06:43 – 10:00	12	16
10:00 – 16:00	7	7
16:00 – 19:00	7	7
19:00 – 00:56	8	8

Table 4: Luas Station Frequency Table – Saturday (Avg. frequency)

Time	Sunday & Bank Holiday (Avg. frequency – minutes)	
	Northbound	Southbound
07:40 – 12:00	15	15
12:00 – 19:00	12	12
19:00 – 26:56	13	13

Table 5: Luas Station Frequency Table – Sunday & Bank Holiday (Avg. frequency)

3.3 Existing Cycle Infrastructure

Cyclists must share the road carriageway with vehicular traffic in the vicinity of the subject site on Mount Anville Road, however to the west, north and south there are dedicated cycle facilities provided along Goatstown Road and Roebuck Road. Figure 6 below shows the existing GDA Existing Cycle Network.

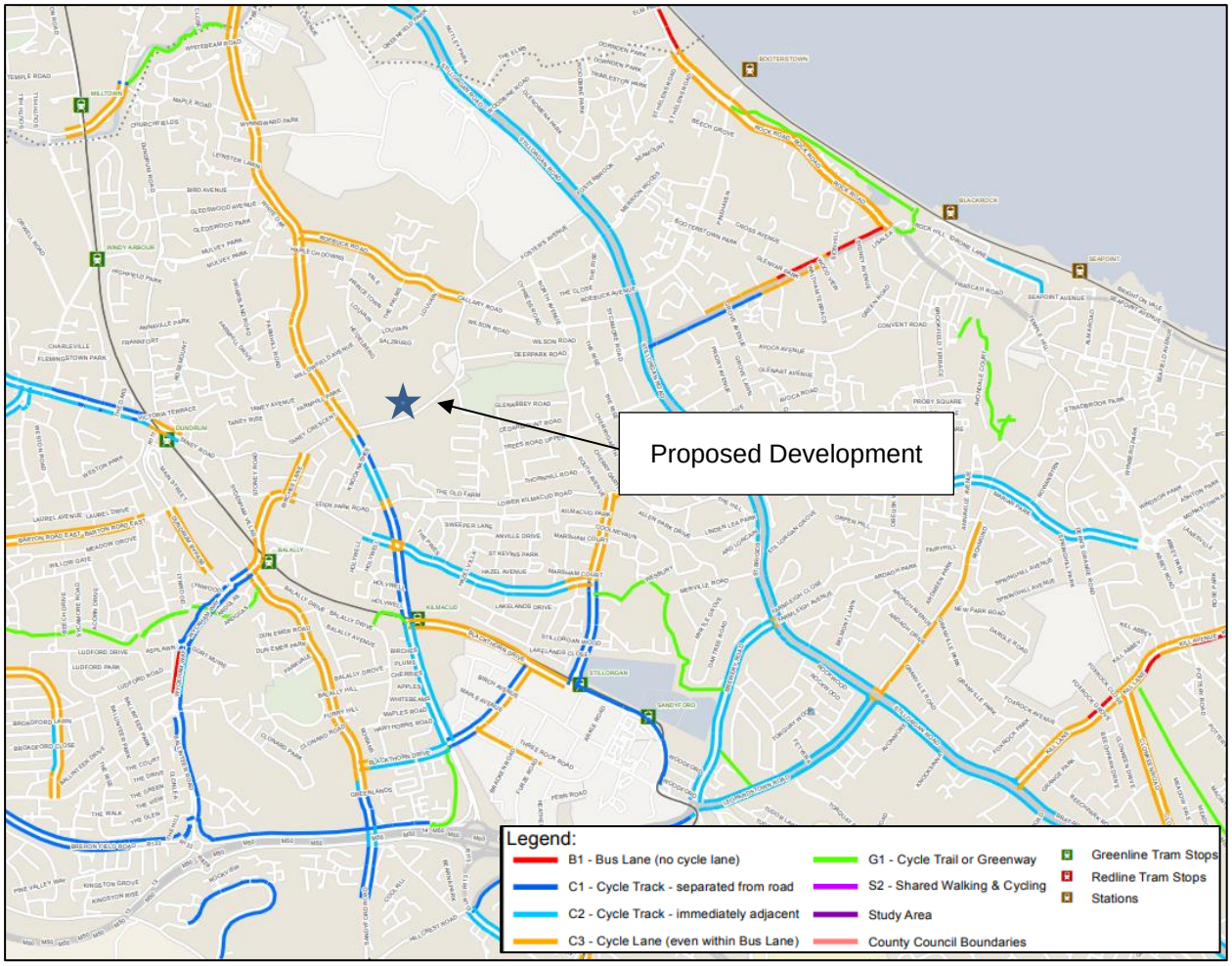


Figure 6: The Existing GDA Cycle Network

3.4 Existing Pedestrian Facilities

In the vicinity of the proposed development, Mount Anville Road incorporates good quality pedestrian facilities with street lighting and footpaths which are separated from the carriageway by grass verges available on both sides of the carriageway. There is also a signal-controlled pedestrian crossing available near the access to Mount Anville School. To the west at the Mount Anville/Taney Road, Kilmacud Road/Goatstown Road junction, there are pedestrian crossings available across all arms of the junction.

The internal pedestrian facilities will provide walkways adjacent to the site access road. These pedestrian pathways will include zebra crossings between internal roads and connect all apartment blocks together.

3.5 Car Sharing (Go Car)

The closest Go Car station is located in Dundrum Shopping Centre, approximately 1.8km walk (22-minute walk) west of the proposed development. There are two additional Go Car stations in the Dundrum Shopping Centre area.

Figure 7: Distance to nearest Go Car Station.

4. Transportation Improvements

4.1 Public Transport

4.1.1 Bus Priority Routes – Mount Anville Rd. & Goatstown Rd.

The Dun Laoghaire Rathdown County Council County Development Plan (2016 - 2022) outlines the Council's policies with respect to the provision of a Quality Bus Network for the administrative area. Policy ST12: Quality Bus Network states: -

- *"It is Council policy to co-operate with the NTA and other relevant agencies to facilitate the implementation of the Bus Network measures as set out in the NTA's 'Greater Dublin Area Draft Transport 2016-2035' and to extend the bus network to other areas where appropriate subject to design, public consultation, approval, finance and resources."*

The Development Plan indicated the provision of the following Bus Priority Schemes which will travel along Mount Anville Road and Goatstown Road (Figure 8), which are both accessible within approximately 50-350m walking distance of the subject residential site: -

- *"Lower Kilmacud Road – Drummartin Road – Goatstown Road – Clonskeagh Road.*
- *Taney Road – Mount Anville Road – Foster's Avenue."*

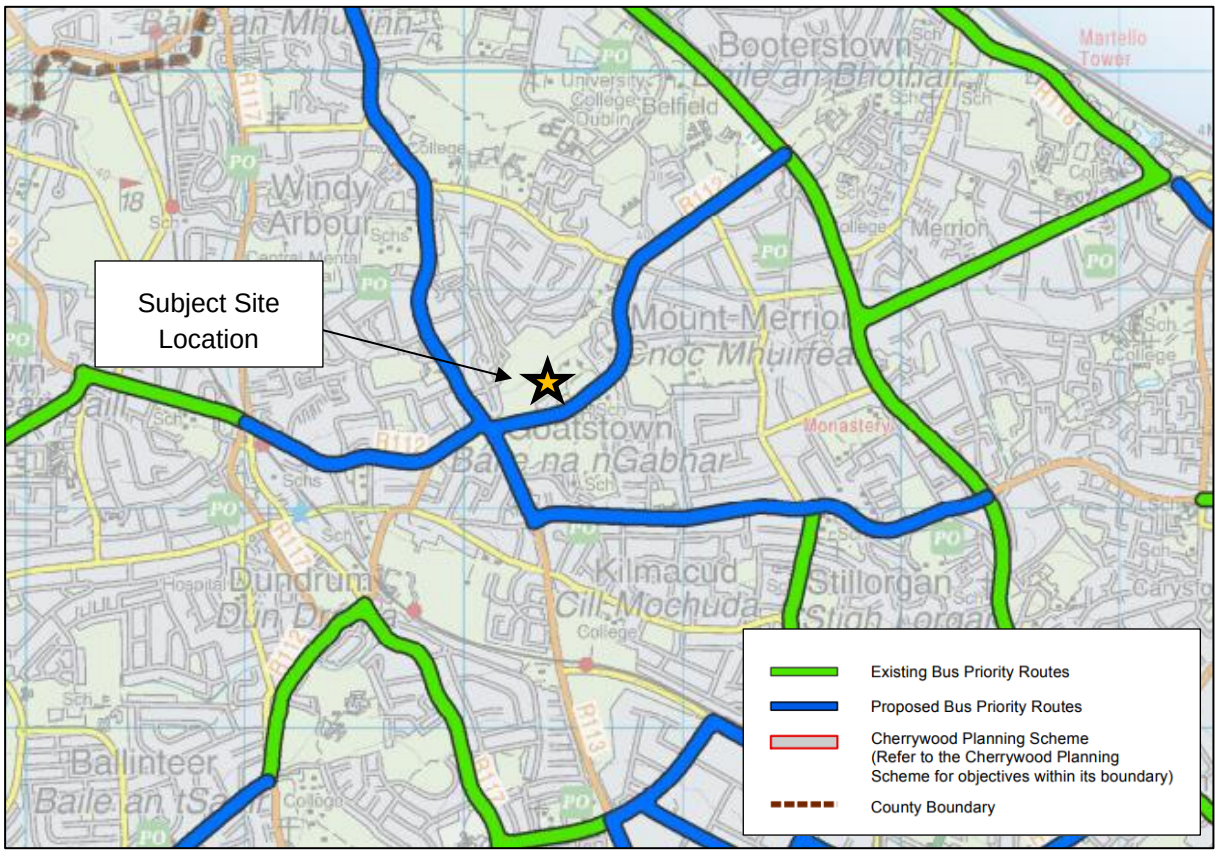


Figure 8: Bus Priority Scheme (extract from Map T2 DLRCC Development Plan)

4.1.2 Extension of Luas Green Line

Current proposals (Greater Dublin Area Transport Strategy 2016-2035) include the extension of the Luas Green Line from Cherrywood to Bray. While a decision on the final alignment has yet to be made, it is likely to run to Bray DART station via Shankill and the former golf club lands. It will provide a high frequency, high-capacity link between Bray and the City Centre and providing a rail link to Bray accessible within 1.5km walking distance of the subject site. The timetable for delivery of Luas extension to Bray is yet to be confirmed by TII and the NTA.

The Dun Laoghaire Rathdown County Council County Development Plan (2016-2022) makes reference to the provision of the *'Proposed Blue Line BRT route linking the Dart line at Sydney Parade Avenue to Sandyford Dundrum Town Centre via UCD utilizing, where possible, parts of the Eastern Bypass Reservation corridor'* which was included within the Greater Dublin Area Draft Transport Strategy 2016 - 2035.

The provision of the Blue Line BRT is not included within the final version of the Transport Strategy for the Greater Dublin Area 2016 – 2035.

4.2 Additional GoCar Station

It is expected that GoCar will provide 2 shared car club vehicles in the proposed development when fully developed and occupied. A letter to confirm GoCar intentions to provide these new car club vehicles within the site is included in Appendix C.

4.3 Pedestrian / Cycle Infrastructure

4.3.1 Greater Dublin Area Cycle Network Plan

The subject site lies within the *"Dublin South Central Sector"* as outlined within the Greater Dublin Area Cycle Network Plan (2013). The sector *"extends outward from the city centre through Ranelagh and fans out to include the areas of Clonskeagh, Milltown, Goatstown, Dundrum, Ballinteer, Sandyford and Stepaside. The western edge coincides roughly with the boundary between Dun Laoghaire – Rathdown and South Dublin County Councils. The eastern edge lies along a line through the UCD campus at Belfield, Mount Merrion and the Sandyford Business Estate to where the M50 motorway turns southeast and effectively creates a boundary between the foothills of the Dublin Mountains and the coastal strip in the Dublin South East Sector."*

In the vicinity of the subject site the flowing route is proposed in addition to those indicated in Figure 9:

- Primary Orbital Roue SO4 – Taney Road / Mount Anville Road / Foster Avenue (Primary Orbital Route SO4)

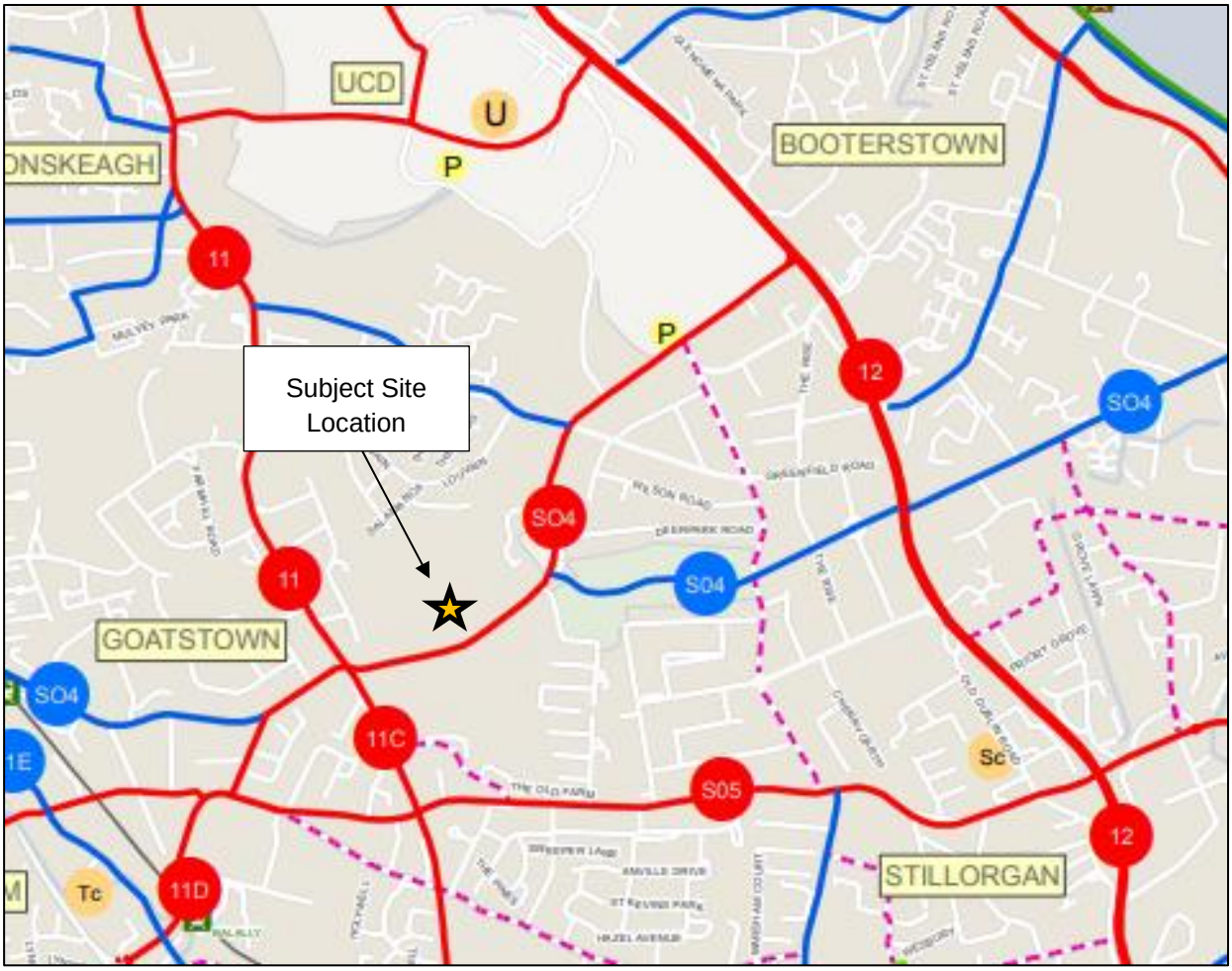


Figure 9: Proposed Cycling Network (extracted from sheet N7 GDA Cycle Network Plan)

The implementation of the above cycle infrastructure schemes by the local authority will be subject to further design, public consultation approval, and importantly availability of funding and resources.

4.3.2 Pedestrian / Cyclists Site Connectivity

The masterplan of the subject site (Phase 1 through to 2) will provide sufficient flexibility to accommodate a potential future pedestrian / cycle connection running in a north / south alignment through the subject (southern) Knockrabo site, across the reservation of the Eastern Bypass corridor and via separate development lands to the north. Furthermore, this linkage to/from the reservation of the Eastern Bypass corridor could also function as a convenient access to/from the Blueline BRT objective. This potential future linkage would be subject to DLRCC and TII observations. Whilst the full delivery of this potential pedestrian/cycle connection is outside of the applicant's control, the subject residential proposals do not preclude its future implementation.

4.4 Roads and Junctions

4.4.1 Dublin Eastern Bypass

The Eastern Bypass scheme involves the construction of a new motorway route linking the Dublin Port Tunnel to the M50 at Sandyford. Part of the area reserved for this proposed route runs to the south of the subject site as indicated in Figure 10 below.

With respect to a timeline for delivery of the scheme, the Transport Strategy for the Greater Dublin Area (2016 – 2035) states the flowing with respect to the delivery of the National Roads Schemes: -

"During the period of the Strategy it is intended to further develop and enhance the national road network including the delivery of the following project:

- *Development of a road link connecting from the southern end of the Dublin Port Tunnel to the South area, which will serve the South Port and adjoining area"*

The Strategy goes on further to say: *"in the case of the Eastern Bypass, while the section of the route from the Dublin Port Tunnel to the South Port area is included for the delivery in this Strategy, the remainder of the route is not proposed for development during the Strategy period. However, the retention of a route corridor is recommended, to facilitate the possible future use of the corridor for the transport provision."*

The Dun Laoghaire Rathdown County Development Plan (2016-2022) includes the Dublin Eastern Bypass within its 'Long Term Roads Objectives' and states the following objective: -

"To promote the potential additional future uses of the Dublin Eastern Bypass reservation corridor, including a greenway/cycleway, a pedestrian walkway, biodiversity projects, recreational opportunities – inclusive of playing pitches – and public transport provision such as Bus Rapid Transit services pending a decision from Transport Infrastructure Ireland/Central Government in relation to the future status of the Bypass. Any potential additional future short-term uses of the reservation corridor will be subject to a joint feasibility study to be undertaken by TII and the NTA

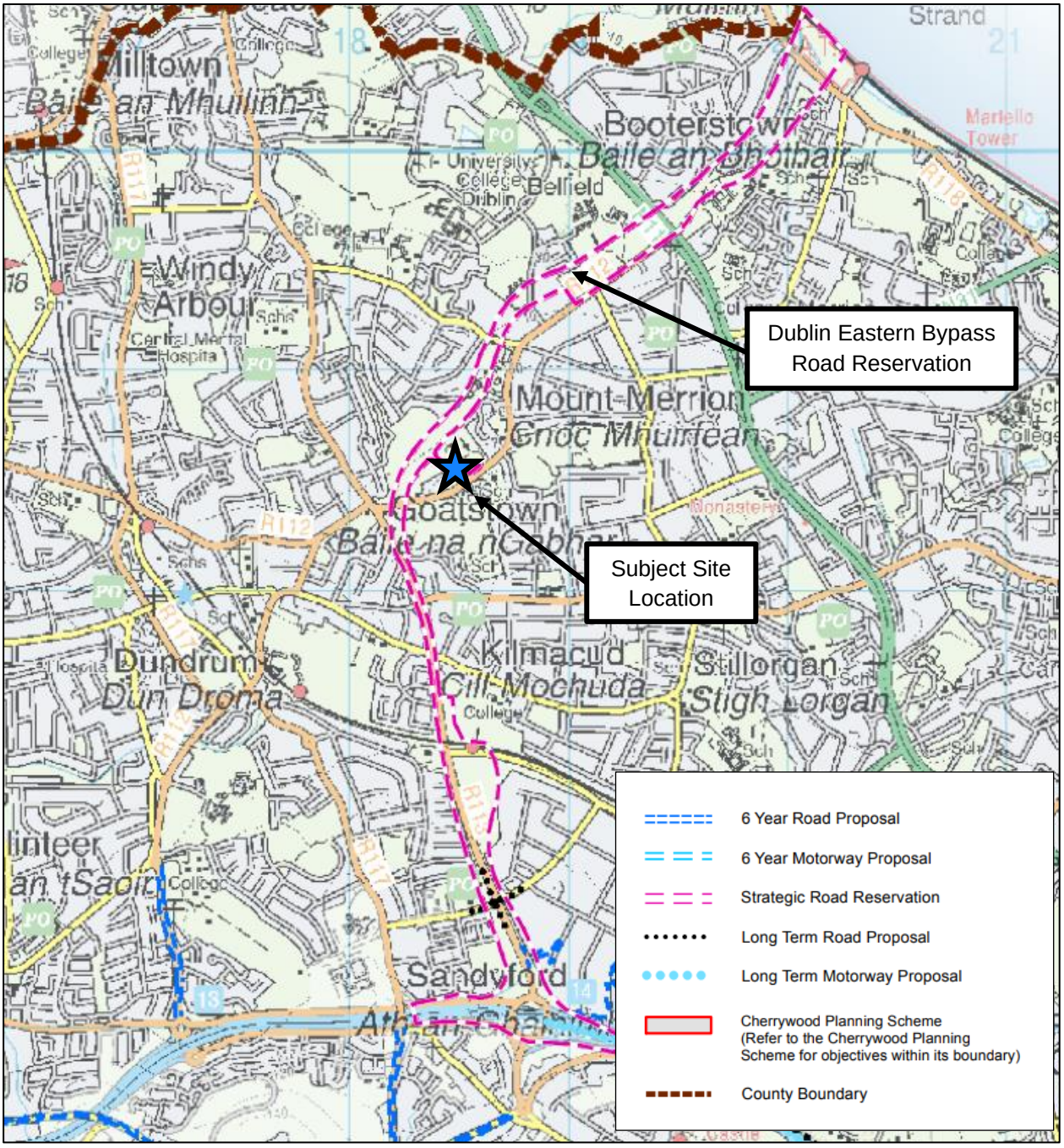


Figure 10: Dublin Eastern Bypass (extract from Map No. T3 DLRCC Development Plan)

4.5 Site Access Road

The proposed development will have a single main access point. The main access point is Knockrabo Way, connecting to Mount Anville Road at a priority T-Junction. Knockrabo Way is the access point for both Phase 1, 1A and also the apartment blocks of Phase 2.

5. Proposed Development

5.1 Site Description

The total site area is approximately 1.78 hectares and is predominantly greenfield. The subject site is accessed from a circa 100m section of constructed entrance road, Knockrabo Way, that also facilitates access to the adjacent Phases 1 and 1A development to the east.

The subject lands are under control of the Applicant to the west of the proposed entrance road. These abutting lands include 'Cedar Mount' (a protected structure) and 'Knockrabo Gate Lodge (West) (a protected structure), including entrance gates and piers. There are also a number of well-established trees and foliage on site.

The site forms part of a broader site on which Phases 1 and 1A have already been constructed. Phases 1 and 1A to the east of the subject lands comprise a mix of houses and apartments. The subject lands, which will form Phase 2 of the overall development, occupy the western side of this broader Knockrabo site, and has an existing grant of planning (Ref. D17A/1124) for the development of 93 No. Residential Units and Childcare Facility along with community/leisure facilities and all associated infrastructures. The Knockrabo Way entrance road previously permitted under Reg. Ref. D17A/1124 is proposed to remain as previously granted.

5.2 Background – Approved Developments

5.2.1 Knockrabo Phase 1 Development (Ref. D13A/0689)

The Phase 1 proposals of the overall Knockrabo masterplan lands were granted planning permission (Ref. D13A/0689) by Dun Laoghaire-Rathdown County Council subject to 45 conditions in August 2014. This permitted Phase 1 scheme considered the construction of 88 number units (incorporating 47 houses including Gate Lodge and 41 apartments spread over three Blocks 'A, B and C'), including a new site access junction on Mount Anville Road and all associated site and infrastructural works. Following a third party appeal An Bord Pleanála (PL06D.243799) granted planning permission (subject to 38 conditions) in January 2015.

In January 2017 Dun Laoghaire Rathdown approved planning permission (D16A/0821) for amendments to the Blocks A, B, C approved under Ref. D13A/0689. This amendment resulted in an increase in the total number of apartments in Blocks A, B & C from 41 to 51 apartments.

At the time of writing this report, Phase 1 is completely constructed.

5.2.2 Knockrabo Phase 1A (Ref. D16A/0960)

The neighbouring Phase 1A plot of the Knockrabo lands was approved planning permission by Dun Laoghaire Rathdown County Council (Ref. D16A/0960) in February 2017. This application consisted of the provision of 21 number residential units (incorporating 3 houses and 18 apartments within Block 'D').

At the time of writing this report, Phase 1A is completely constructed.

5.2.3 Knockrabo Phase 2 – 2017 (Ref. D17A/1124)

The Knockrabo Phase 2 received grant planning permission (Ref. D17A/1124) for the development of 93 No. residential units and childcare facility along with community/leisure facilities and all associated infrastructures. The development proposed under the subject application, proposes to amend the existing permission to comprise of a greater density residential development which will consist of 227 No. residential units.

5.3 Proposed Development Description (Phase 2)

It is proposed to construct 227 No. residential units (224 no. apartments and 3 no. duplexes) within four separate blocks (Blocks E, F, G & H) with associated communal open space and residential on street and podium parking. The developer will construct all associated infrastructure to service the development including a network of foul water and surface water drains, watermain, access road and footpaths. The surface water, foul water, watermain and local access road strategies are to remain as previously granted. The design of the entrance road, Knockrabo Way shall remain as previously granted and does not form part of this revised planning application.

The proposed apartment units will provide a higher density of residential units to that supplied under the adjacent Phase 1 and also to that previously granted for the subject lands, supplying an overall gross density on the Knockrabo Lands (Phase 1 and 2) of 65.3 Units/ha.

The ground floor of the proposed buildings is proposed to match the existing levels on site as much as reasonably practicable.

The site's vehicular access will be provided from Mount Anville Road. The existing access from Mount Anville Road will be extended into the Phase 2 site, as previously permitted under D17A/1124. The majority of the carparking onsite will be provided at podium level of the proposed apartment blocks. Pedestrian access will be provided along the eastern side of development entrance road from Mount Anville Road with suitable pedestrian crossings points supplied to facilitate access to each block. Pedestrian permeability is supplied via a good network of footpaths through the proposed open spaces adjacent the apartment blocks along with access through the communal spaces between the apartment blocks.

5.4 Site Access Points

The proposed development will have a single access point off Mount Anville Road via Knockrabo Way. Knockrabo Way is partially constructed and currently provides access to the recently constructed Phases 1 and 1A. This road will be extended further north to provide access to the subject development of Phase 2. This extension of Knockrabo Way was previously permitted under Ref. D17A/1124 and there is no proposal to amend it.

Figure 11 below shows the site access point off Mount Anville Road as well as the road layout for the overall Knockrabo site.

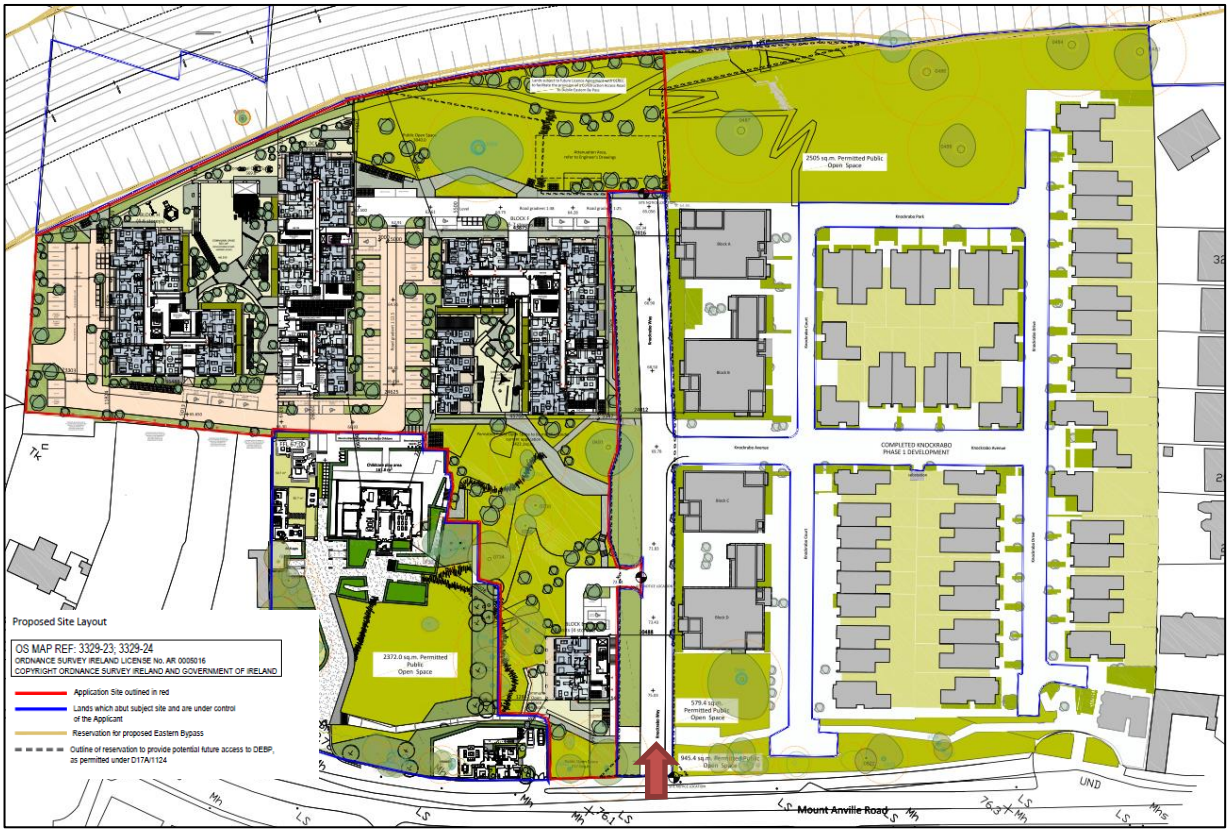


Figure 11: Site Access Point

5.5 Pedestrian and Cyclist Infrastructure

As previously introduced, the proposed development will be highly accessible to pedestrians and cyclists from Mount Anville Road. Pedestrians will be given priority within the internal site layout to ensure desire lines within the site are accommodated providing a good level of service and ensures the risk of vehicle/pedestrian conflict with vehicles is minimised.

6. Site Accessibility

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

6.1 Pedestrian Accessibility

The "Guidelines for Providing for Journeys on Foot" published by the Institution of Highways & Transportation in 2000 indicates that acceptable walking distances will vary between individuals and circumstances, such as an individual's fitness, physical ability and personal motivation; the size of the city itself and the quality of the surrounding footpath network. This document also suggests walking distances and times based on an average walking speed of 1.4m/sec (approximately 400m in five minutes). Table 6 below summarises these suggestions.

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

Table 6: Suggested Walking Distances (Source: Guidelines for Providing for Journeys on Foot)

Figure 12 below details the 10-minute, 15-minute and 25-minute catchments through the form of isochrones to summarise the accessibility of the subject site on foot (Preferred Maximum) to Town Centres, Elsewhere and Commuting/School/Sight-seeing, respectively as per Table 4.

As can be seen in Figure 12 below, there are some amenities and services within walking distance from the site.

To the west of the proposed development is Dundrum Town Centre within a 25-minute walking distance. It has a range of facilities including numerous types of retail shops, supermarkets, pharmacy, restaurants, gyms, and a cinema.

There are several schools in the area also. The secondary school, Mount Anville Secondary School is within the 10-minute walking catchment. The other four primary schools are within the 15-minute and 25-minute catchment.

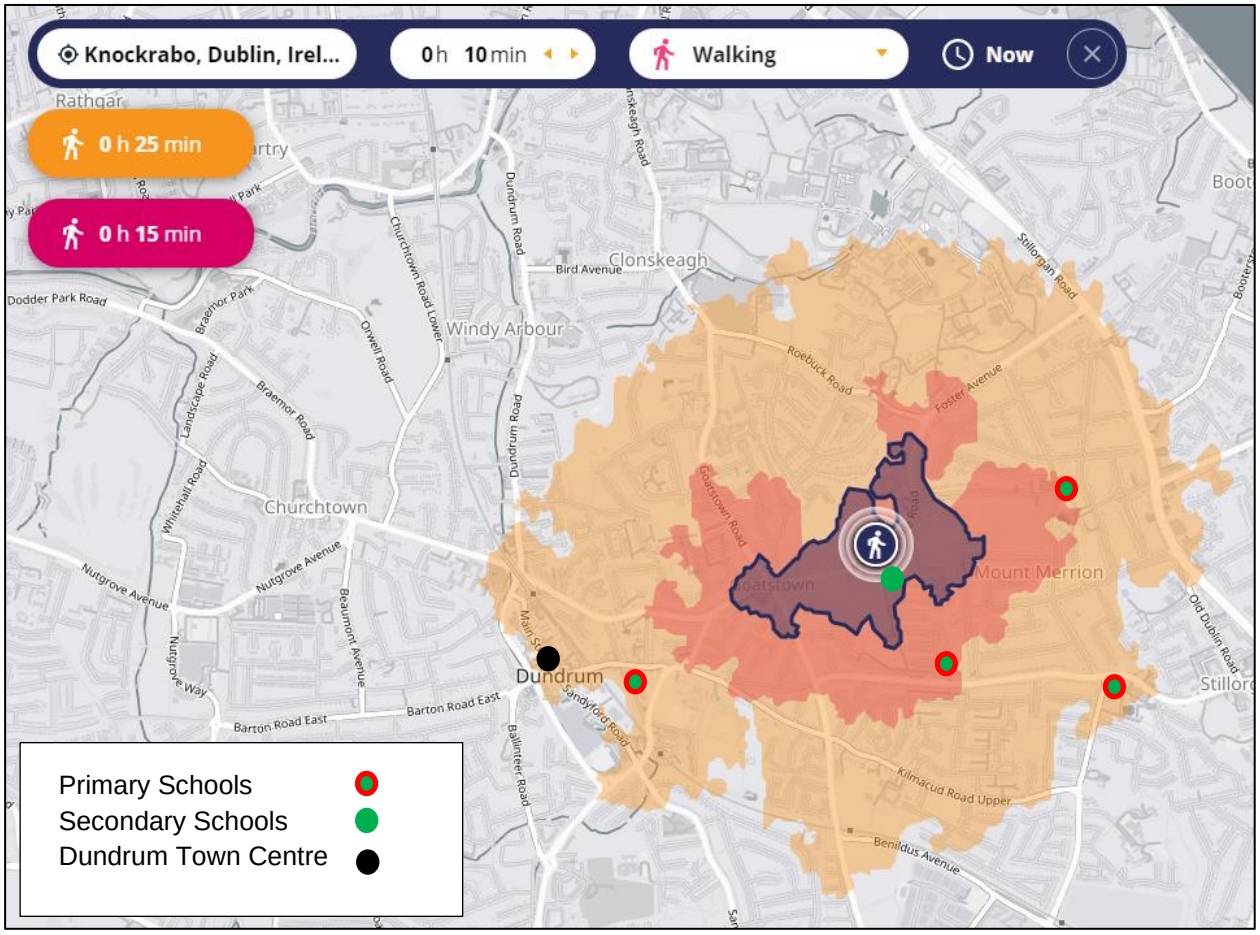


Figure 12: Walking Catchments from the Subject Site

6.2 Cyclist Accessibility

As presented for walking, a similar catchment exercise has also been undertaken for the cycling mode of transport. Based on an average cycling speed of 3.3m/sec (i.e. 15km/h), Figure 13 below illustrates a 15-minute cycling isochrone to summarise the accessibility of the site by bicycle. A 15-minute cycling time equates to a distance of approximately 3.0km.

As seen in Figure 13 below, there are several amenities within the15-minute cycle catchment. There are four town centres/shopping centres within the area. To the west of the proposed development there is Nutgrove Shopping Centre, which is furthest west, also to the west is Dundrum Town Centre. To the east of the proposed development there is Stillorgan Village and further east is Blackrock Village. All four of these amenities offer various retails, supermarkets and leisure activities. Furthermore, there are three dart stations within the 15-minute catchment, all with bicycle parking facilities. To the south of the proposed development there is the Beacon Hospital and Sandyford Business Park.

Within the 15-minute catchment there are several more schools. There are three secondary schools to the south of the proposed development and seven primary schools in all directions from the proposed development. Furthermore, to the north of the proposed development there is University College Dublin which offers third level education.

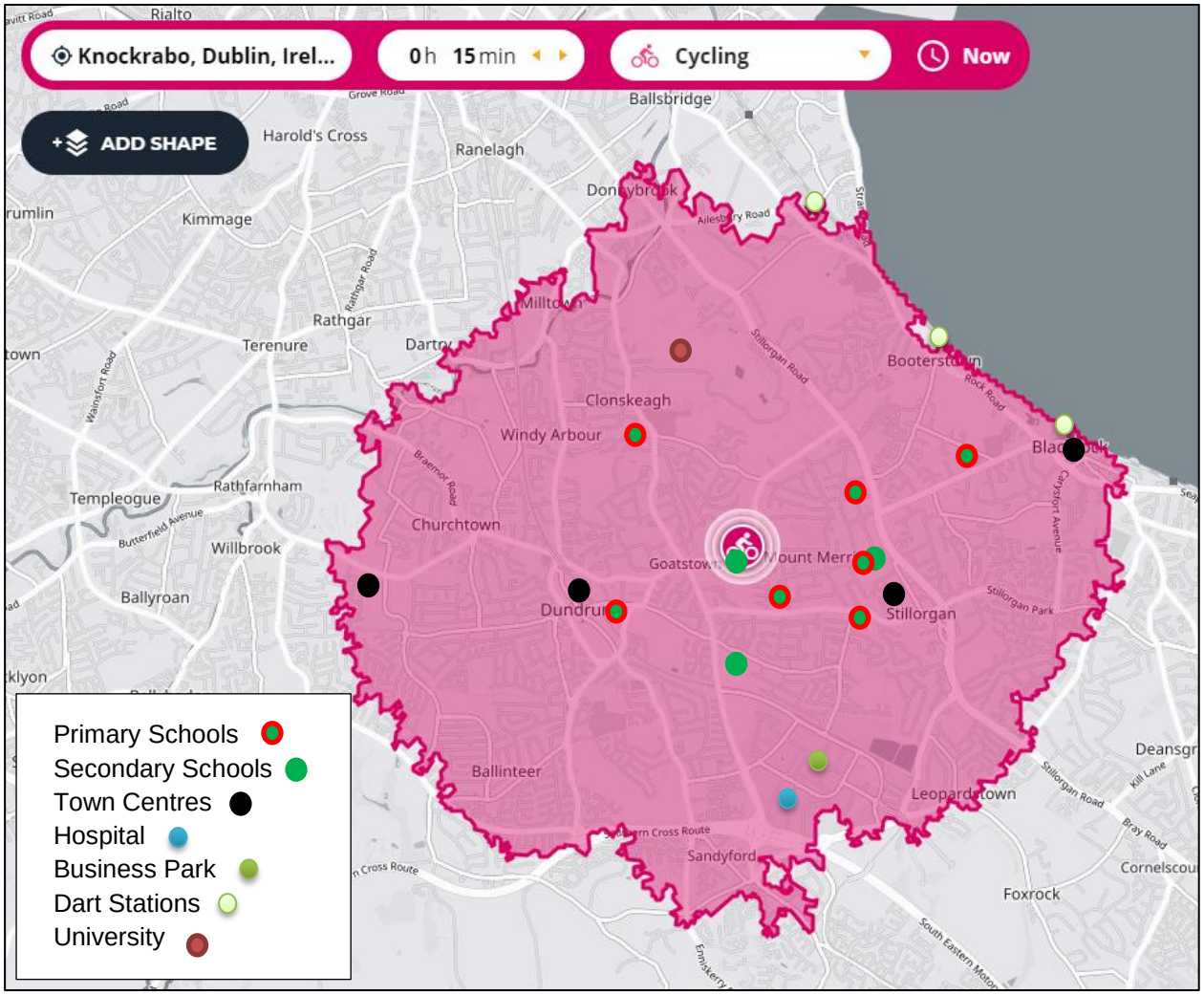


Figure 13: Cycling Catchments from the Subject Site

7. Travel Characteristics

7.1 Road Traffic Survey

In order to determine the volume of traffic movements at key points on the road network surrounding the subject site, traffic count data has been assessed for the single access junction to the proposed development. This is:

- **Junction 1:** Knockrabo Site Access/Mount Anville Road Junction

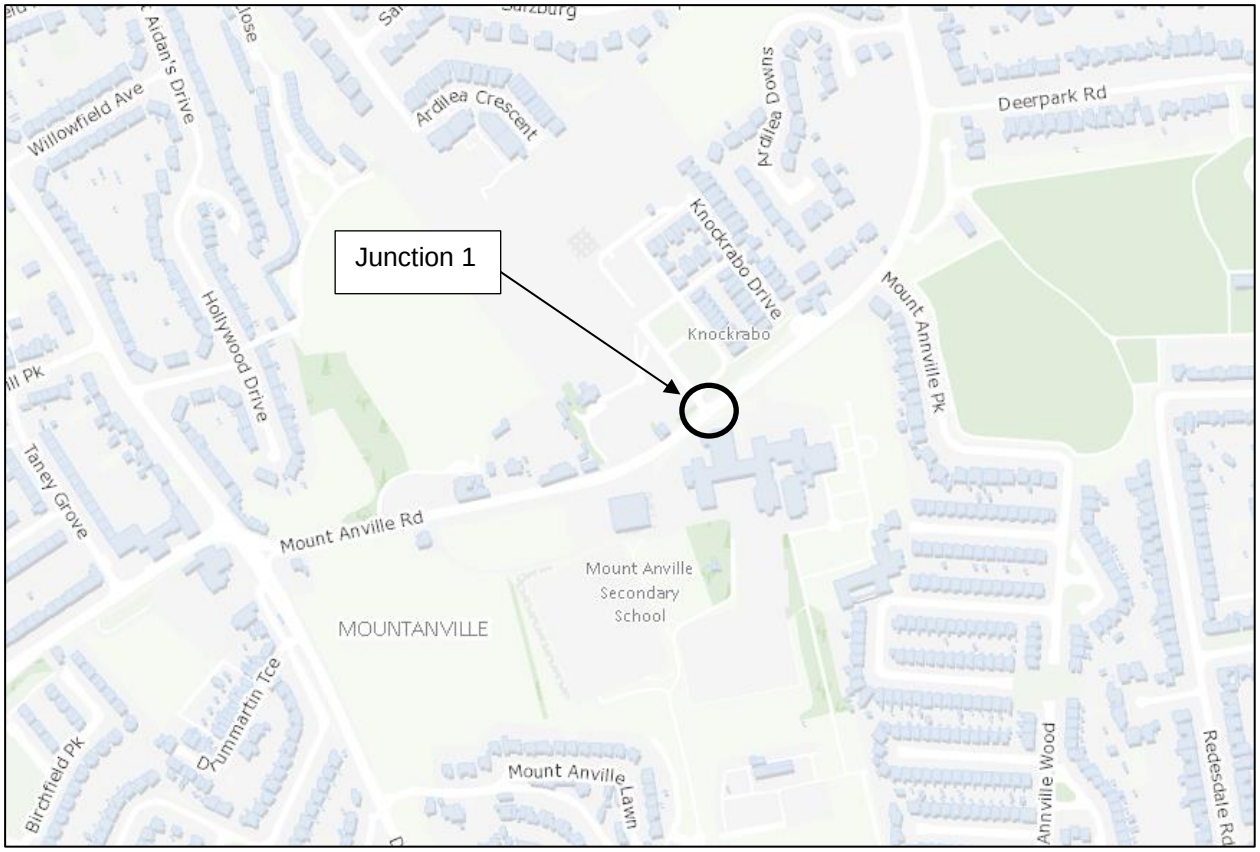


Figure 14: Location of Surveyed Junction.

Due to ongoing travel restrictions that have been implemented to curb the spread of COVID-19, carrying out traffic count surveys is not possible at this time, and in any case would not yield useful data. Instead, historic traffic count data from 2017 has been used to extrapolate current and anticipated volumes.

The 2017 traffic counts were extracted from the approved Traffic and Transport Assessment prepared by DBFL Consulting for the previous Phase 2 planning application (Ref: D17A/1124).

The AM and PM peak hour flows through the subject surveyed junction have been identified as occurring between 08:00- 09:00 and 16:00-17:00, respectively.

For the purpose of establishing the baseline year of 2021, the 2017 peak hour flows have been factored up. The background traffic growth used to factor up the 2017 surveyed traffic movements is in accordance with the *'Table 6.1: Link-Based Growth Rates: Metropolitan Area Annual Growth Rates'* within the TII

Publications – Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (May 2019). This is: **1.006** (Central Growth) growth factor from 2017 to 2021.

Figure 15 below illustrates the 2017 traffic surveyed whilst Figure 16 shows the 2021 factored up surveyed flows.

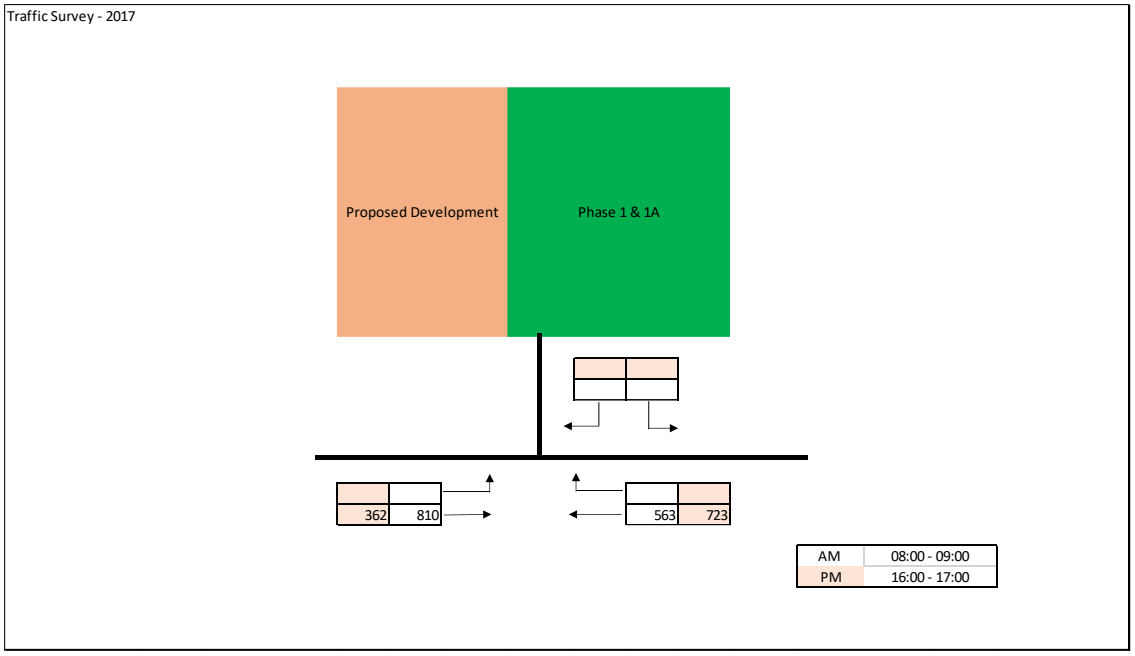


Figure 15: Traffic Count Survey - 2017

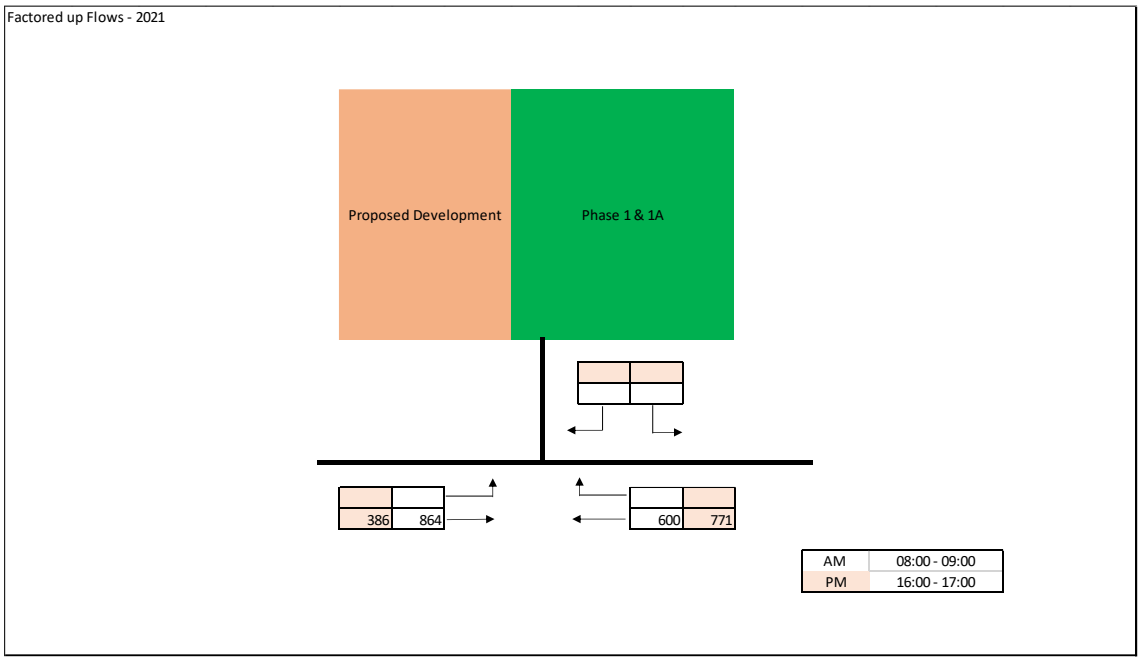


Figure 16: Factored up Traffic Survey - 2021

8. Trip Generation

8.1.1 TRICS Car Trip Rates

In order to assess the likely impact of the trips arising from the proposed development, TRICS car trip rates extracted from the approved Transport Assessment prepared by DBFL for the previous Phase 2 planning application (Ref. D17A/1124) has been used. As introduced previously this planning application is for the same Phase 2 site but with a smaller residential unit density. These TRICS car trip rates are presented in Table 7.

Land Use	Unit	AM Peak Hour		PM Peak Hour	
		Arrival	Departure	Arrival	Departure
Apartments	Per Unit	0.047	0.225	0.115	0.052
Houses	Per Unit	0.146	0.397	0.327	0.170
Childcare Facility	Per 100sqm	4.367	4.171	2.502	2.846

Table 7: Car Trip Rates – extracted from approved TTA for previous Phase 2 (Ref. D17A/11724).

8.1.2 Trip Generation - Proposed Phase 2 + Approved Childcare Facility

The potential peak hour traffic generation for the proposed Phase 2 development is presented in Table 8. It has been calculated based on the proposed 227 no. residential units (224 no. apartments and 3 no. duplexes which, for the purpose of calculation, have been treated as houses) and a 400sqm childcare facility, which was previously approved as part of the previous Phase 2 planning application (Ref. D17A/1124).

Whilst the planning regulations envision that the childcare facility will solely serve the residents of the subject development, in reality this may not always be the case. As such, in order to provide a robust assessment, as per the previously approved TTA (Ref. D17A/1124) it has been assumed that 60% of the traffic generation to/from the childcare facility element - approved as part of the previous Phase 2 application, will originate from the local road network external to the subject site. The traffic generation in Table 8 below has been discounted to reflect this. Note that the approved childcare facility is not proposed to be amended as part of the subject application.

Phase	Land Use	Quantity	AM Peak Hour		PM Peak Hour	
			Arrival	Departure	Arrival	Departure
Proposed Phase 2 + Approved Childcare Facility	Apartments	224	11	50	26	12
	Duplexes	3	0	1	1	1
	Childcare Facility	400 sqm	10	10	6	7
	Phase 2 Total		21	61	33	20

Table 8: Car Trip Generation - Proposed Phase 2 Development + Approved Childcare Facility.

As can be seen from the calculations above, it is estimated that the proposed Phase 2 development + the approved childcare facility, will generate a total of 82 car trips in the AM peak hour (21 arrivals and 61 departures) and 53 in the PM peak hour (33 arrivals and 20 departures).

For the purpose of comparison, the calculated trip generation for the previously approved Phase 2 planning application (Ref. D17A/1124) carried out by DBFL is shown in Table 9. The previous Phase 2 received grant permission for the construction of 93 no. residential units together with a 400 sqm childcare facility.

Phase	Land Use	Quantity	AM Peak Hour		PM Peak Hour	
			Arrival	Departure	Arrival	Departure
Previous Phase 2 (Approved)	Apartments	71	3	16	8	4
	Houses	22	3	9	7	4
	Childcare Facility	400sqm	10	10	6	7
	Previous Phase 2 Total		16	35	21	15

Table 9: Car Trip Generation – Previous Phase 2 Planning Application (D17A/1124).

As can be seen from Table 9 above in comparison with the calculated car trips in Table 8, the proposed/amended Phase 2 development will generate a total of 31 additional two-way car trips in the AM peak hour and 17 additional two-way car trips in the PM peak hour.

8.1.3 Trip Generation – Recently Constructed Phase 1 and Phase 1A

As previously mentioned, the Knockrabo lands have obtained planning permission for the provision of 50 no. houses and 69 no. apartments under Phase 1 – Ref D13A/0689 and Phase 1A – Ref. D16A/090). As of October 2021, Phase 1 and Phase 1A are fully constructed.

Even though Phases 1 and 1A are currently constructed, the traffic survey used in this report was carried out prior to the opening of these developments, and therefore does not account for their trips. In that case, Table 10 below summarises the AM and PM peak hour weekday traffic that is predicted to be generated by the recently constructed Phase 1 and Phase 1A development. The calculation in Table 10 below was based on the trip rates presented in Table 7.

Phase	Land Use	Quantity	AM Peak Hour		PM Peak Hour	
			Arrival	Departure	Arrival	Departure
Recently Constructed Phase 1	Houses	47	7	19	15	8
	Apartments	51	2	11	6	3
	Phase 1 Total		9	30	21	11
Recently Constructed Phase 1A	Houses	3	0	1	1	1
	Apartments	18	1	4	2	1
	Phase 1A Total		1	5	3	1
Phase 1 & 1A Total			11	35	24	12

Table 10: Phase 1 and Phase 1A Car Trip Generation.

As can be seen from the above, it is estimated that the recently constructed development (Phase 1 and Phase 1A), when fully occupied, will generate a total of 46 car trips in the AM peak hour (11 inbound and 35 outbound) and a total of 36 car trips in the PM peak hour (24 inbound and 12 outbound).

As these developments are already in place, for modelling purposes, the above trips have been included in the 2021 Baseline and DO NOTHING scenarios. Refer to Section 11.3.

The small onsite Community Facility element of the recently constructed development (as located in the ground floor of Cedarmount House) will primarily serve residents of the Knockrabo Phases 1 and 1A, in addition to residents of the local area via 'walk-in' trips. Accordingly, there is no dedicated parking provision for this element. As such we have not assigned any vehicle trip rates to this facility.

9. Trip Distribution

9.1 Proposed Phase 2 (Current Application)

The trip distribution for the AM and PM generated traffic for the proposed Phase 2 development is detailed in Figure 17 and the corresponding peak flows, based on the assumed distribution, are shown in Figure 18. For the purpose of this assessment, it is assumed 60% will travel east along Mount Anville Road in AM peak period and 40% in the PM peak period. The remain 40% in the AM period will travel West along Mount Anville Road and 60% in the PM peak period. These have been based on the surveyed traffic movements passing the site on Mount Anville Road.

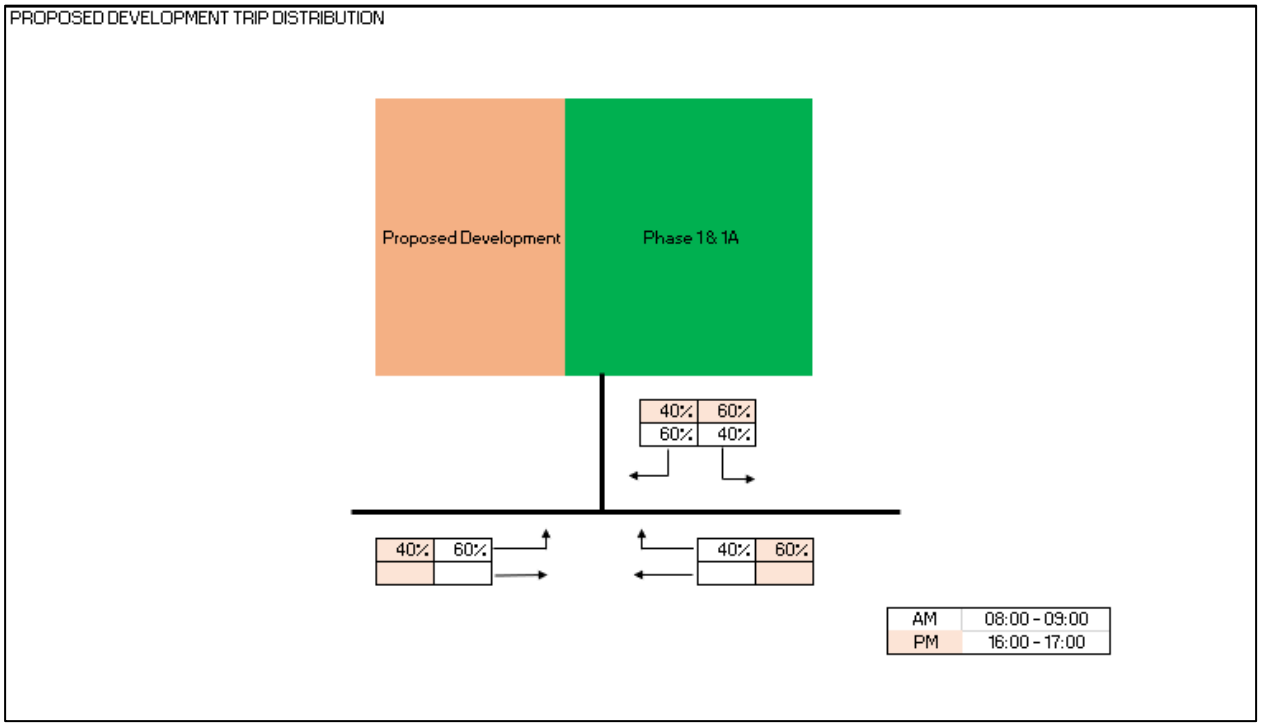


Figure 17: Trip Distribution - Proposed Phase 2 Development (Current Application).

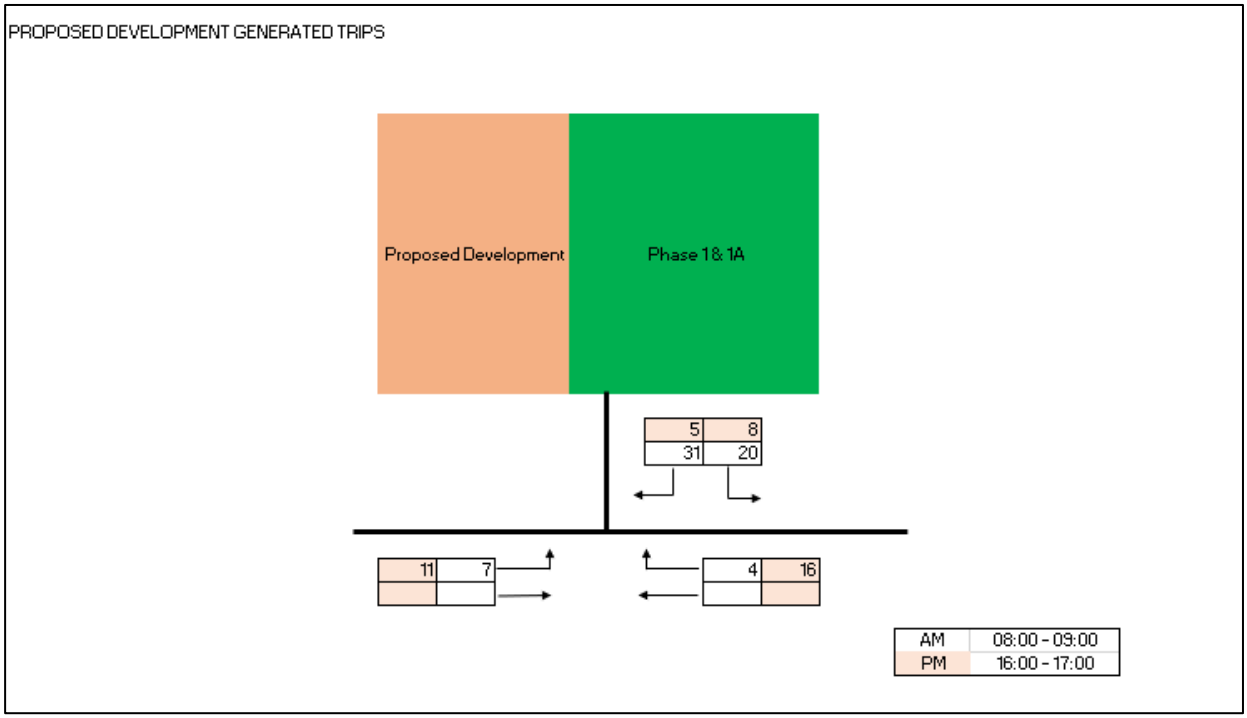


Figure 18: Trip Assignment - Proposed Phase 2 Development (Current Application).

9.2 Recently Constructed Phases 1 and 1A

Phases 1 and 1A use the same access road as the proposed Phase 2 development and for the purposes of this assessment it was assumed that Phases 1 and 1A will also use the same distribution as presented in Figure 17 above.

Based on that, Figure 19 illustrates the trip assignment for the recently constructed Phases 1 and 1A.

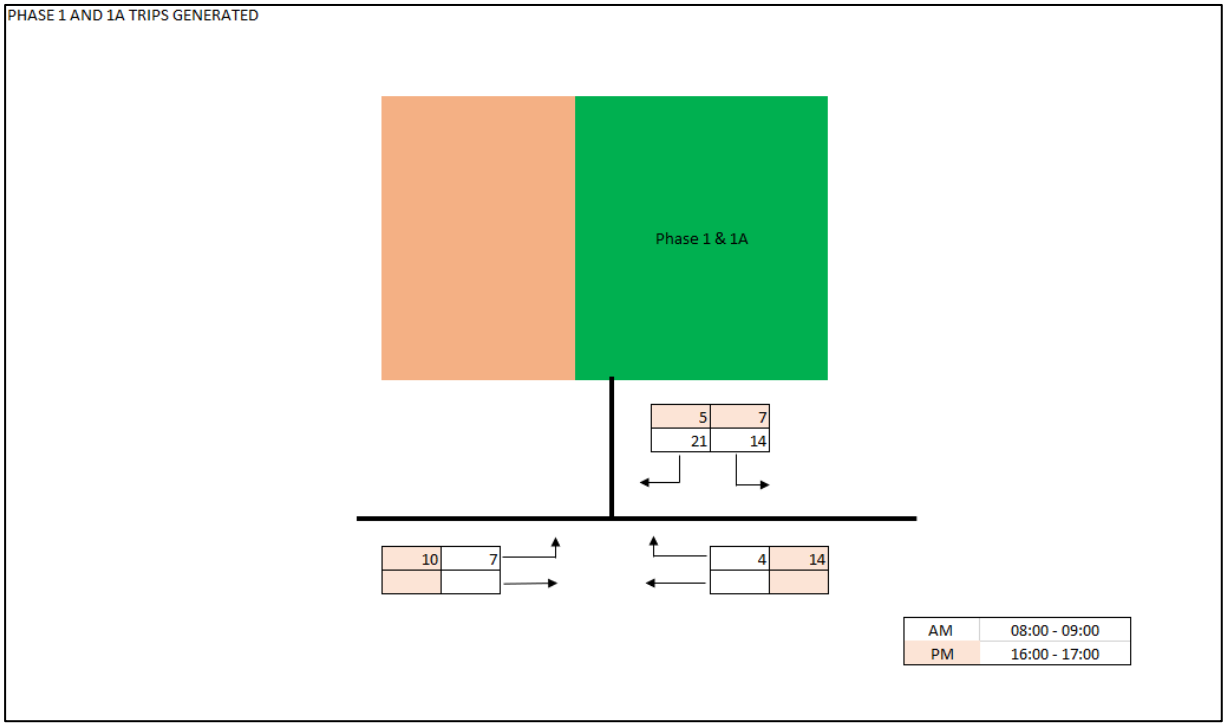


Figure 19: Trip Assignment – Recently Constructed Phases 1 and 1A.

10. Forecast Traffic

10.1 Future Traffic 2024 (Opening Year of Proposed Phase 2)

The future traffic on the surrounding road network in 2024 (Opening Year of the proposed Phase 2 development) is presented in Figure 20 below. It has been assumed within this TTA that the proposed Phase 2 development will be constructed over a period of approximately 2 years. Therefore, the assumed year of opening for the proposed Phase 2 is 2024. Phase 1 and 1A, which are currently constructed, will also be fully operational by 2024.

The movements illustrated in Figure 20 were obtained by factoring up the 2021 baseline traffic illustrated in Figure 16 and adding the movements to/from the proposed Phase 2 development (Figure 18) and the movements to/from the recently constructed Phases 1 and 1A developments (Figure 19).

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

- 1.049 (Central Growth) growth factor from 2021 to 2024.

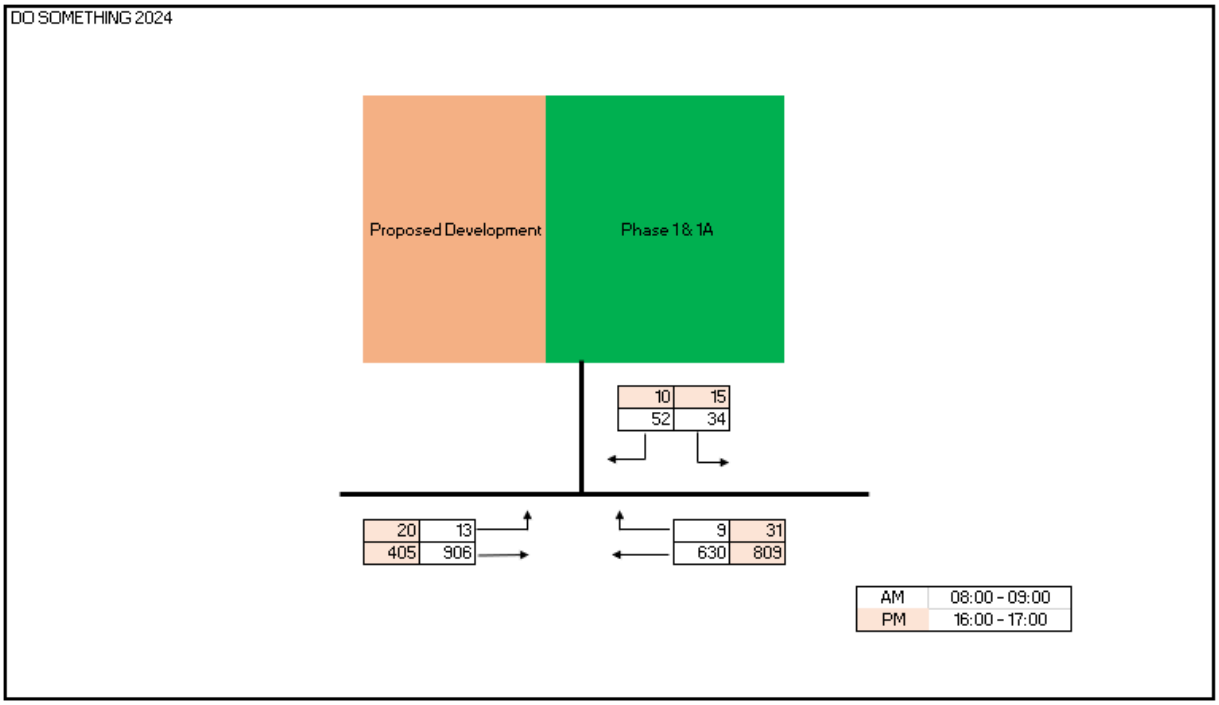


Figure 20: Future Traffic 2024 (Opening Year).

10.2 Future Traffic 2029 (Opening Year + 5 Years)

The future traffic on the surrounding road network in 2029 (+5 years after the Opening Year of the proposed Phase 2 development) is presented in Figure 21.

The movements illustrated in Figure 21 were obtained by factoring up the 2021 baseline traffic illustrated in Figure 16 and adding the movements to/from the proposed Phase 2 development (Figure 18), the movements to/from the recently constructed Phase 1 &1A (Figure 19).

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

- 1.137 (Central Growth) growth factor from 2021 to 2029.

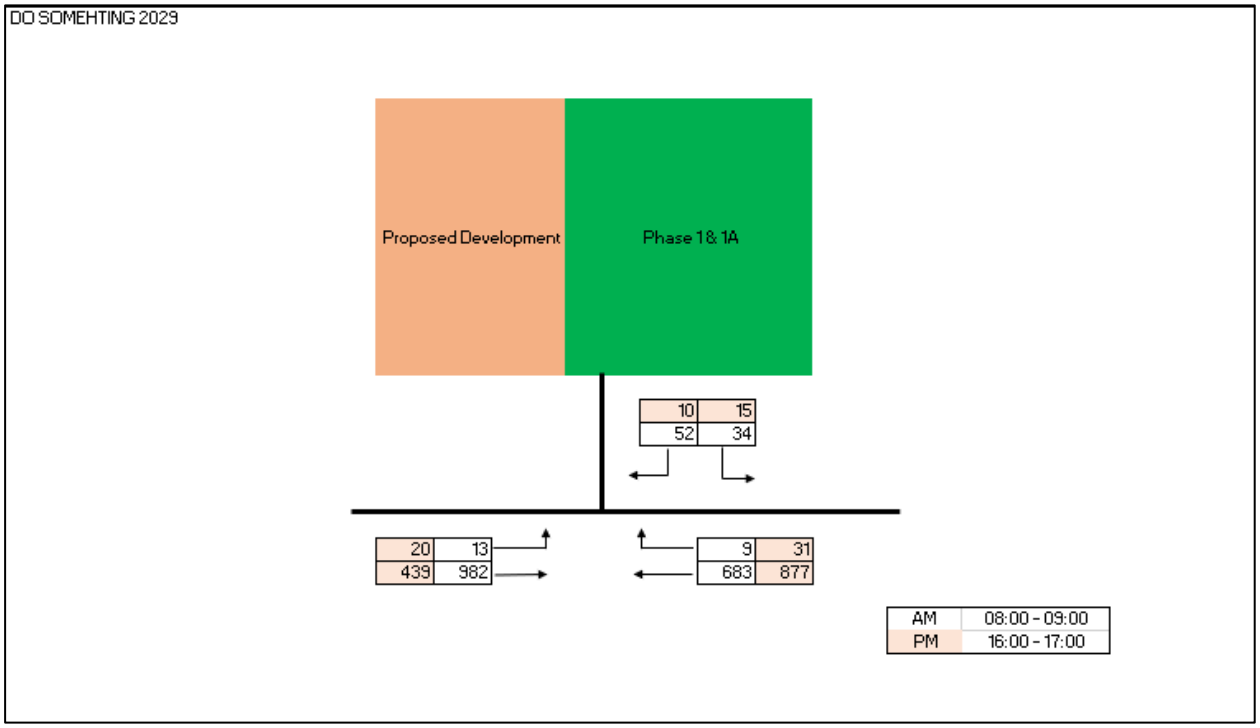


Figure 21: Future Traffic 2029 (Opening Year + 5 Years)

10.3 Future Traffic 2039 (Opening Year + 15 Years)

The future traffic on the surrounding road network in 2029 (Opening Year of Proposed Phase 2 Development + 15 Years) is presented in Figure 22 below.

The movements illustrated in Figure 22 were obtained by factoring up the 2021 baseline traffic illustrated in Figure 16 and adding the movements to/from the proposed Phase 2 development (Figure 18) and the movements to/from the recently constructed Phase 1 &1A (Figure 19).

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

- 1.204 (Central Growth) growth factor from 2021 to 2039.

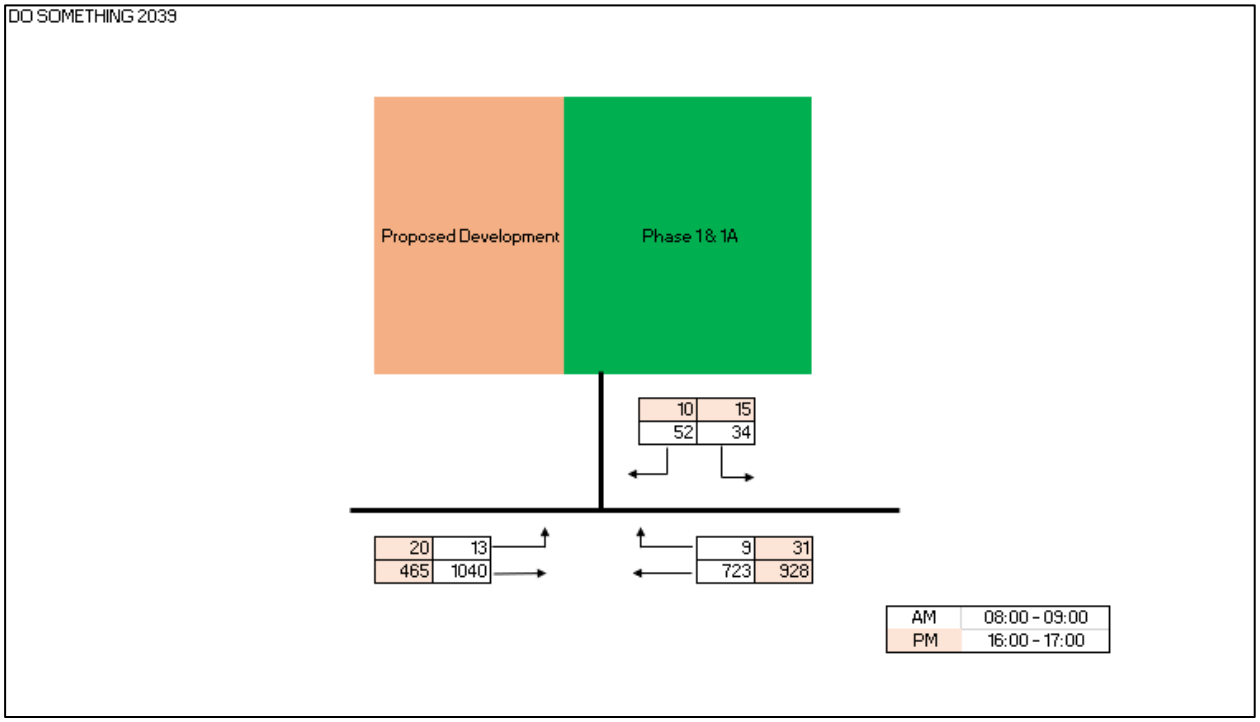


Figure 22: Future Traffic 2039 (Opening Year + 15 Years)

11. Junction Assessment

11.1 Junctions Assessed

The assessment was based on the existing junction layout of the following junction: -

- **Junction 1:** Knockrabo Site Access/Mount Anville Road Junction

11.2 Methodology

11.2.1 Cumulative Impact

The extent of the traffic impact from the new developments (proposed development of Phase 2 and recently constructed developments of Phase 1 and Phase 1A) has been determined by initially checking where generated traffic would exceed 10% of flow on adjoining road or 5% on the road where congestion exists, or the location is considered sensitive.

Analysis determined that there will be an additional 108 two-way vehicles trips to/from the overall Knockrabo development in the AM peak hour and an additional 76 two-way vehicles trips in the PM peak hour.

The resulting percentage increase in traffic flows at the Knockrabo Site Access/Mount Anville Rd junction as a result of the traffic generated by the proposed/recently constructed developments (Phase 2, Phase 1 and Phase 1A) is 7.37% in the AM period and 6.57% in the PM period. These values are above the 5% threshold set out under TII 'Traffic and Transport Assessment Guidelines (May 2014), therefore further assessment is warranted.

11.2.2 Modelling Background

There are various modelling software packages available to assess every type of junction. Waterman Moylan uses PICADY to analyse priority junctions.

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

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

11.3 Assessment Scenarios

The performance of the assessed junction has been analysed for the critical AM Peak Hour and PM Peak Hour (08:00 – 09:00 and 16:00 – 17:00) for the following scenarios:

- **2021 Baseline:** Existing road network with 2017 surveyed flows factored up + traffic to/from the recently constructed development of Phase 1 & Phase 1A.

As previously indicated, 2017 surveyed flows were extracted from the approved TTA prepared by DBFL for previous Phase 2 planning application (Ref: D17A/1124).

- **2024 DO NOTHING:** Existing road network with baseline traffic flows factored up + traffic to/from the recently constructed development of Phase 1 & Phase 1A.

- **2029 DO NOTHING**: Existing road network with baseline traffic flows factored up + traffic to/from the recently constructed development of Phase 1 & Phase 1A.
- **2039 DO NOTHING:** Existing road network with baseline traffic flows factored up + traffic to/from the recently constructed development of Phase 1 & Phase 1A.
- **2024 DO SOMETHING:** 2024 DO NOTHING + traffic to/from the proposed Phase 2 development.
- **2029 DO SOMETHING:** 2029 DO NOTHING + traffic to/from the proposed Phase 2 development.
- **2039 DO SOMETHING:** 2039 DO NOTHING + traffic to/from the proposed Phase 2 development.

11.4 Junction Assessment Results

11.4.1 Junction 1: Knockrabo Site Access/Mount Anville Road Junction

Junction 1 is an existing priority T-junction which currently provide the main access to the overall Knockrabo development. This junction has been modelled based on its current configuration and the PICADY analysis results are summarised below. The arms of the junction were labelled as follows within PICADY model:

- Arm A: Mount Anville Road (E)
- Arm B: Knockrabo Site Access (N)
- Arm C: Mount Anville Road (W)

2021 Baseline Flows				
Stream	AM		PM	
	Queue (veh)	RFC	Queue (veh)	RFC
B-AC	0.2	0.15	0	0.04
C-AB	0	0.02	0.1	0.05

Table 11: Junction 1 - PICDAY Analysis Results (2021 Baseline Flows)

2024 DO NOTHING				
Stream	AM		PM	
	Queue (veh)	RFC	Queue (veh)	RFC
B-AC	0.2	0.16	0	0.04
C-AB	0	0.02	0.1	0.06

Table 12: Junction 1 - PICDAY Analysis Results (2024 DO NOTHING Scenario)

2029 DO NOTHING				
Stream	AM		PM	
	Queue (veh)	RFC	Queue (veh)	RFC
B-AC	0.2	0.18	0	0.04
C-AB	0	0.02	0.1	0.06

Table 13: Junction 1 - PICDAY Analysis Results (2029 DO NOTHING Scenario)

2039 DO NOTHING				
Stream	AM		PM	
B-AC	0.2	0.19	0.1	0.13
C-AB	0.0	0.02	0.1	0.07

Table 14: Junction 1 - PICDAY Analysis Results (2039 DO NOTHING Scenario)

The analysis results in Table 14 indicate that the Junction 1 is currently operating well within capacity during both peak hours and will continue to do so for the future assessment year of 2039 DO NOTHING with the highest RFC at 0.19 and a corresponding queue of 0.2 vehicles during the AM peak hour and the highest RFC at 0.13 and a corresponding queue of 0.1 vehicles recorded for the PM peak hour. The highest RFC were recorded on Knockrabo Site Access (N) for both the AM and PM peak hours.

2024 DO SOMETHING				
Stream	AM		PM	
B-AC	0.7	0.40	0.1	0.08
C-AB	0.1	0.04	0.3	0.13

Table 15: Junction 1 - PICDAY Analysis Results (2024 DO SOMETHING Scenario)

2029 DO SOMETHING				
Stream	AM		PM	
B-AC	0.8	0.45	0.1	0.08
C-AB	0.9	0.49	0.1	0.08

Table 16: Junction 1 - PICDAY Analysis Results (2029 DO SOMETHING Scenario)

2039 DO SOMETHING				
Stream	AM		PM	
B-AC	0.9	0.49	0.1	0.08
C-AB	0.1	0.05	0.5	0.15

Table 17: Junction 1 - PICDAY Analysis Results (2039 DO SOMETHING Scenario).

With the inclusion of the trips generated from the proposed development, as presented in Table 17, Junction 1 will continue to operate well within capacity for the worst-case scenario (future assessment year of 2039 DO SOMETHING) during both peak hours, with the highest RFC at 0.49 and a corresponding queue of 0.9 vehicles for the AM peak hour and the highest RFC of 0.15 and a corresponding queue of 0.5 vehicles for the PM peak hour. The highest RFC for the AM peak hour was recorded on Knockrabo Site Access (N) and for the PM peak hour was recorded on Mount Anville (W).

The full report of junction analysis, including 2024 and 2029, DO NOTHING and DO SOMETHING scenarios is included in Appendix B.

12. Construction Traffic

It is anticipated that the generation of HGV during the construction period of Phase 2 development will be evenly spread throughout the day and as such will not impact significantly during the peak traffic periods. An appropriate routing strategy for HGVs can also be implemented for the duration of site works if found necessary. Furthermore, during the various phases of construction, sufficient parking will be sought to be provided on site to accommodate the aforementioned construction generated vehicle movements, thereby ensuring that there is not an overspill of parked vehicles onto the surrounding local road network.

For the above reasons, we do not believe that construction traffic will generate any traffic concerns or impede upon the operational performance of the local road network and its surrounding junctions.

All construction traffic and transport will be managed strictly according to the proposed development management plan.

13. Car parking

13.1 Dun Laoighre-Rathdown Development Plan 2016-2022 Standards

Standards for car parking in a new development are set out in Table 8.2.3 of the Dun Laoighre-Rathdown Development Plan 2016 - 2022.

The relevant minimum parking standards for the proposed Phase 2 development are shown in Table 18 below.

Land Use	Units No.	Standard
Apartments/Duplexes	1 – bedroom	1 space per unit
	2 – bedroom	1.5 spaces per unit
	3 – bedroom	2 spaces per unit

Table 18: DLRCC Development Plan (2016-2022) Standards

13.2 Car Parking Required

Based on Dun Laoghaire-Rathdown County Council car parking requirements as represented above, the subject Phase 2 development would require 306 No. car parking spaces.

Unit Type	No. of Units	DLRCC Req.	Spaces Required
1 – Bed	76	1 space/unit	76
2 – Bed	145	1.5 spaces/unit	218
3 – Bed	6	2 spaces/unit	12
Total	227	-	306

Table 19: Car Parking Required.

13.3 Design Standards for New Apartments – December 2020

In December 2020, a revised version of the document “Sustainable Urban Housing: Design Standard for New Apartments” was released. The parking standards set out in this document are considerably lower than those contained in the Dun Laoghaire-Rathdown Development Plan 2016 – 2022 in respect to apartment developments.

Chapter 2 of the Design Standard for New Apartments sets out the following “types of location” which are defined by site`s accessibility and proximity to public transport and town/city centres:

“Central and/or Accessible Urban Locations

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

Intermediate Urban Locations

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

Peripheral and/or Less Accessible Urban Locations

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

The document also states that the range of locations is not exhaustive and will require further local assessment.

The proposed development is located within a 25-minute walk of the bustling Dundrum Town Centre - a centre for various amenities and services, and 30 minutes of Sandyford - a large employment centre in Ireland with over 22,000 people currently employed. The proposed development is also located within a 15-minute walk of the UCD university campus, Ireland largest university.

As previously shown in Section 3.2 of this TTA, the subject site is 1.5km (c. 15 mins walk) from a Quality Bus Corridor (QBC) with services to the city centre running every 6 minutes and c. 19 mins walk to the Dundrum LUAS stop with services running every 7 minutes to the city centre. Bus stops served by Routes 11 and 17 are located within 6 and 7-minute walking from the site, respectively, with frequencies of 15 – 30 minutes. Go-ahead Bus Route 175 operates along Mount Anville Road (just outside the proposed development site) with a frequency of 30 to 45 minutes in both directions during the whole day. The proposed development is located approximately 30 minutes outside of the city centre by cycle.

As per the Design Standards for New Apartments – Guidelines for Planning Authorities – December 2020 standards set out above and the statement that range of locations is not exhaustive, it is understanding that the subject development meets criteria for reasonable grounds to minimise car parking provisions.

In addition, the Luas Green Line Capacity Enhancement and the BusConnects projects currently being promoted by the National Transport Authority (NTA) will improve the public transport service in Dublin City by increasing capacity and frequency for all customers.

The Luas Green Line Capacity Enhancement project will provide extra capacity on the Luas Green Line and will cater for the growing demand on the line in the short to medium term, by purchasing and introducing 26 new trams with 55m in length. According to the NTA, an extended tram increases passenger capacity by 30%. The first extended tram was introduced on Luas Green Line in October 2019, with the other 25 new trams to become operational in the following months.

According to BusConnects, *"the benefits of the Network Redesign include an overall increase in bus services of 25%, increased peak hour capacity, increased evening and weekend services, 24-hour operations on some routes, a 16% increase in the number of residents located within 400m of a frequent bus service to the city centre, new connections to schools, hospitals and other essential services and increased access to jobs and education."*

13.4 Car Parking Proposed

The number of car parking spaces projected to serve the proposed Phase 2 development is presented in Table 20 below.

It is proposed to provide a total of 178 no. parking spaces to serve the subject development, 160 no. spaces for the residents (which equates to a ratio of 0.7 spaces per unit), 16 no. spaces for visitors and 2 no. GoCar parking spaces. A letter to confirm GoCar intentions to provide these car club vehicles is provided in Appendix C. According to GoCar as set out in their Letter of Intention, *"carsharing is a sustainable service. By allowing multiple people to use the same vehicle at different times, car sharing reduces car ownership, car dependency, congestion, noise and air pollution. It frees up land which would otherwise be used for additional parking spaces. Most GoCar users only use a car when necessary, and walk and use public transport more often than car owners."*

Car Parking	No. of Residential Units	Visitor/Drop off Parking (On Street)	Go-Car Parking (On Street)	Residential Parking (On-Street)	Residential Parking (Podium)	Total Residential Parking per Block	Residential Parking Ratio	Total Car Parking Provision
Block E	8	1	0	1	7	8	1.00	-
Block F	84	3	2	12	48	60	0.71	-
Blocks G + H	135	12	0	22	70	92	0.68	-
Totals	227	16	2	35	125	160	0.70	178

Table 20: Car Parking Proposed

13.4.1 Electrically Operated Vehicles

We note the requirement for the provision of facilities for electrically operated vehicles as stated in Section 8.2.4.12 of the current Development Plan:

"Residential developments (with private car spaces including visitor car parking spaces) – A minimum of one car parking space per ten residential units should be equipped with one fully functional Electric Vehicle Charging Point".

Accordingly, a number of car parking spaces will be constructed to meet this specific objective.

13.4.2 Motorcycle Parking

Section 8.2.4.8 pf the current Development Plan states the following with regards to motorcycle parking:

"To provide motorcycle parking spaces at a minimum of four or more spaces per 100 car parking spaces."

Accordingly, 12 no. motorcycle parking spaces will be provided to meet this specific objective.

13.4.3 Disabled Parking

The current Development Plan in Section 8.2.4.5 requires that *"4% of the car parking spaces provided shall be suitable for use by disabled persons. All disable parking should be clearly marked and suitably sign posted for convenient access."*

Accordingly, disabled parking spaces will be provided to meet this specific objective.

For specific location of spaces for disabled parking, motorcycle parking and electrically operated vehicles parking, please refer to architect drawings accompanying the documentation package.

14. Cycle Parking

14.1 Dun Laoighre-Rathdown Council Cycling Policy Guidelines and Standards

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

The relevant minimum parking standards for the proposed Phase 2 development are shown in Table 21.

Land Use	Units No.	Standard	Visitor Spaces
Apartments/Duplexes	1 – bedroom	1 space per unit	1 space per 5 units
	2 – bedroom	1.5 spaces per unit	1 space per 5 units
	3 – bedroom	2 spaces per unit	1 space per 5 units

Table 21: DLRCC Cycling Policy Guidelines and Standards.

14.2 Cycle Parking Required

Based on the above standards, Dun Laoghaire-Rathdown County Council requires a minimum of 272 cycle parking spaces for this development.

Parking Type	No. of Units	DLRCC Req.	Spaces Required
Residential (Long Stay)	227	1 Space per unit	227
Visitor (Short Stay)		1 Space per 5 units	45
Total		-	272

Table 22: Cycle Parking Required – DLRCC

14.3 Design Standards for New Apartments 2020 (Cycle Parking)

The national Design Standards for New Apartments, who set out a requirement of 1 long stay space per bedroom and 1 visitor space for every two residential units, have also been reviewed with regards to cycle parking requirements and are set out in Table 23 below.

Parking Type	No. of Bedrooms / No. of Residential Units	Standards	Spaced Required
Residential (Long Stay)	384 bedrooms	1 Space per unit	384
Visitor (Short Stay)	227 units	1 Space per 2 units	114
Total		-	498

Table 23: Cycle Parking Required - National Design Standards for New Apartments

14.4 Cycle Parking Proposed

A total of 519 no. bicycle parking spaces are proposed, split into 389 no. spaces for residents and 130 no. spaces for visitors. This provision equates to a ratio of 1.01 no. space per bedroom and 1 visitor space for every 1.75 residential unit, and exceeds the requirements set out under both the national and the Dun Laoghaire-Rathdown County Council documents.

Bike Parking	No. of Residential Units	No. of bedspaces	Residential Bicycle Parking Required	Residential Bicycle Parking Proposed	Visitor Bicycle Parking Required	Visitor Bicycle Parking Proposed	Total Residential and Visitor Bicycle Parking	Total Bicycle Parking Required (Apartment Guidelines)	Total Bicycle Parking Provision
Block E	8	15	8	15	1.6	10	9.6	-	25
Block F	84	137	84	138	16.8	44	100.8	-	182
Block G + H	135	232	135	236	27.0	76	162	-	312
Totals	227	384	227	389	45	130	272	498	519

Table 24: Cycle Parking Provided

15. Road Safety

15.1 Accidents

The Road Safety Authority's website (www.rsa.ie) shows that there were a number of minor injury vehicular collisions recorded along Mount Anville Road. There are more minor collisions recorded near the four-arm signal-controlled junction with Mount Anville Road Taney Road, Kilmacud Road and Goatstown Road, including one serious collision just west of the proposed development.

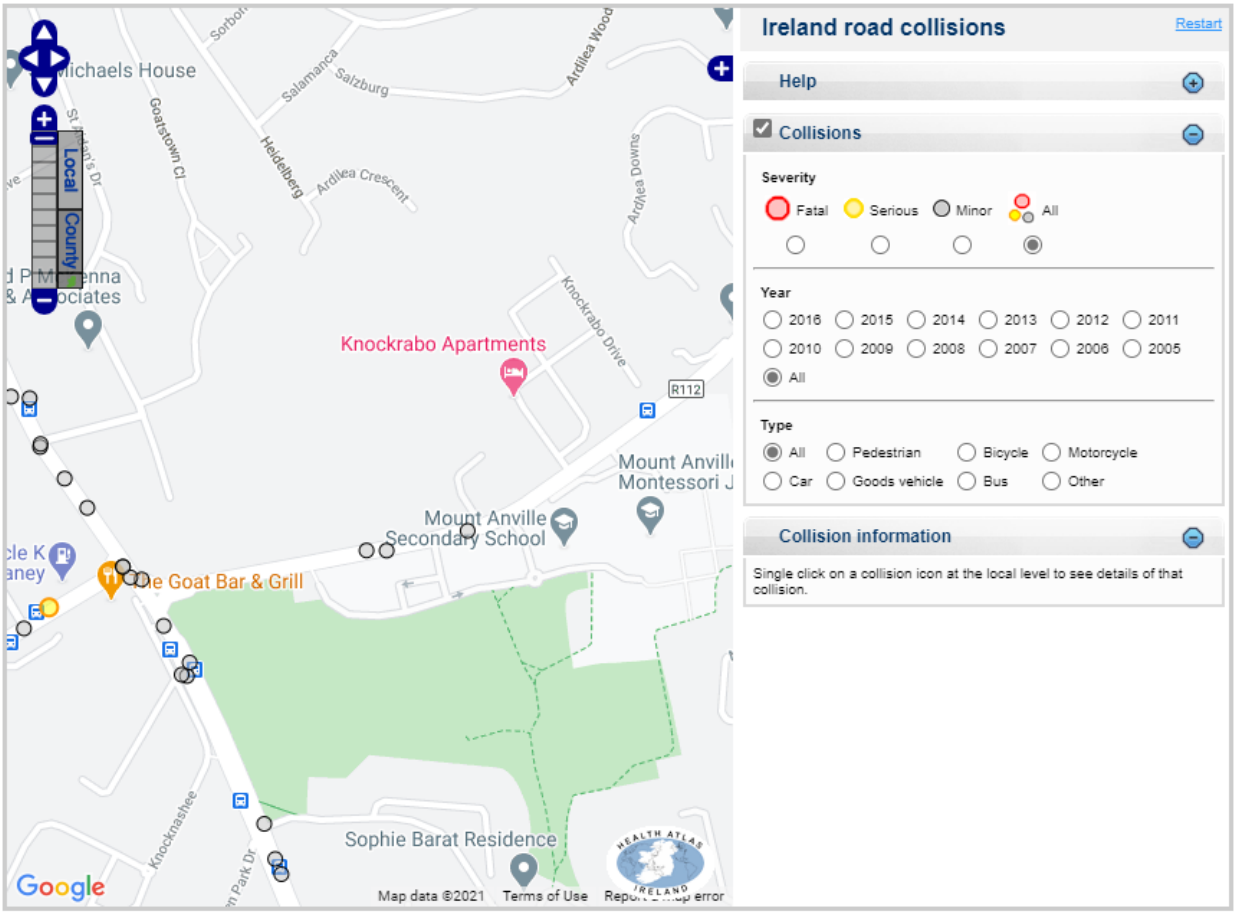


Figure 23: Traffic Accidents from 2005 - 2016 (Source: www.rsa.ie)

16. Conclusion

Waterman Moylan has been appointed by Knockrabo Investments DAC to prepare this Traffic and Transport Assessment for a proposed strategic housing development on lands of Knockrabo, Mount Anville, Co. Dublin.

The Knockrabo Phase 2 site, which is the subject of this application, received grant planning permission (Ref. D17A/1124) for the development of 93 No. residential units and childcare facility along with community/leisure facilities and all associated infrastructures. The development proposed under the subject application, proposes to amend the existing permission to comprise of a greater density residential development which consists of 227 No. residential units (224 apartments and 3 duplexes over 4 blocks).

Vehicular access to the proposed development will be provided from the south via Mount Anville Road, which is currently a priority T-Junction.

It is estimated that the proposed Phase 2 development will generate a total of 62 peak hour car trips during the AM (11 inbound and 51 outbound) and 40 during the PM (27 inbound and 13 outbound).

With the inclusion of the trips generated by the recently constructed Phase 1 & 1A developments, it is estimated that the overall development will be producing a total of 108 peak hour car trips during the AM (22 inbound and 86 outbound) and 76 during the PM (51 inbound and 25 outbound).

Junction 1 (Priority T-junction): Mount Anville Road / Knockrabo Way (Site Access Road) has been modelled based on its current configuration of a priority-controlled T-junction and the results indicate that it is currently operating well within capacity during both peak hour periods, with the highest RFC at 0.15 and a corresponding queue of 0.2 vehicles during the AM peak hour and a maximum RFC at 0.05 with a corresponding queue of 0.1 vehicles recorded for the PM.

For the future assessed year of 2039 DO NOTHING, only with the baseline flows factored up, Junction 1 would continue to operate well within capacity during both peak hours, with the highest RFC at 0.19 and a corresponding queue of 0.2 vehicles during the AM and with the highest RFC at 0.13 and a corresponding queue of 0.1 vehicles recorded for the PM.

For the future assessed year of 2039 DO SOMETHING, with the baseline flows factored up and the proposed development (Phase 2) trips included, Junction 1 would continue to operate well within capacity during both peak hours, with the highest RFC at 0.49 and a corresponding queue of 0.9 vehicles during the AM and with the highest RFC at 0.15 and a corresponding queue of 0.5 vehicles recorded for the PM.

Based on the junction assessment, we conclude that there is sufficient capacity in the surrounding road network to facilitate the proposed Phase 2 development.

Appendices

A. DBFL TTA for Planning Application (D17A/1124)

Project

Phase 2, Residential Development,
Knockrabo, Mount Anville Road,
Dublin 14.

Report Title

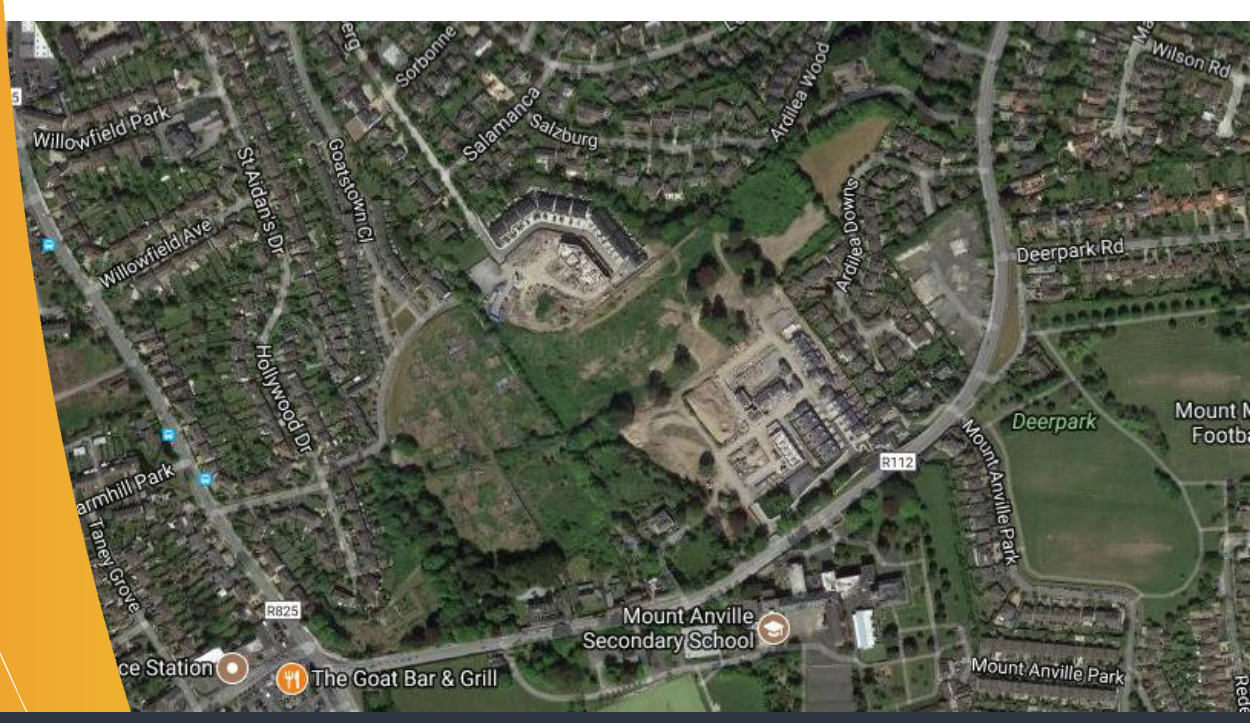
TRAFFIC AND ASSESSMENT

Date

December 2017

Client

Knockrabo Investments DAC



DBFL Consulting Engineers and Transportation Planners

Document Control

Job Title:	Phase 2 Residential Development at Knockrabo, Mount Anville Road, Dublin 14.
Job Number:	p132059
Report Ref:	p132059-rep-026 Final
Author:	Sarah Heung
Reviewed by:	Robert Kelly
Date:	December 2017
Distribution:	Planning Authority Client Design Team DBFL Consulting Engineers (File Copy)

Revision	Issue Date	Description	Prepared	Reviewed	Approved
1st Draft	4/12/2017	Design Team Review	SH	RK	RK
Final	15/12/2017	Design Team Review	SH	RK	RK

DBFL Consulting Engineers

Dublin Office
Ormond House
Upper Ormond Quay
Dublin 7

Tel 01 4004000
Fax 01 4004050
Email info@dbfl.ie
Web www.dbfl.ie

Waterford Office
Unit 2
The Chandlery
1-2 O'Connell Street, Waterford

Tel 051 309500
Email info@dbfl.ie
Web www.dbfl.ie

CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 BACKGROUND

1.1.1 DBFL Consulting Engineers (DBFL) have been commissioned by Knockrabo Investments DAC to prepare a Traffic and Transport Assessment for Phase 2 of a proposed residential development on lands located at Knockrabo, Mount Anville, Dublin 14.

1.1.2 The subject proposals constitute Phase 2 of the overall proposed masterplan for the entire Knockrabo lands and seek permission for the development of the following:-

- 22 houses (including the Coachhouse and Gatelodge West)
- 71 apartments (69 apartments in Blocks 'E, F, G & H', and 2 at Cedarmount House)
- Childcare Facility (400sqm)
- Community Facility (223sqm).

1.1.3 The neighbouring Phase 1 plot of the Knockrabo lands currently benefits from having previously being granted planning permission by Dun Laoghaire Rathdown County Council (Ref. D13A/0689) in August 2014, and then in January 2015 by An Bord Pleanala (ref. PL06D.243799) following a third party appeal. This Phase 1 permitted scheme consisted of the provision of 88 number residential units (incorporating 47 houses including the Gate Lodge East and 41 apartments spread over three Blocks 'A, B and C').

1.1.4 In January 2017 Dun Laoghaire Rathdown approved planning permission (D16A/0821) for amendments to the Blocks A, B, C as originally approved under Ref. D13A/0689. This amendment resulted in an increase in the total number of apartments in Blocks A, B & C from 41 to 51 apartments.

1.1.5 The neighbouring Phase 1A plot of the Knockrabo lands was approved planning permission by Dun Laoghaire Rathdown County Council (Ref. D16A/0960) in February 2017. This application consisted of the provision of 21 number residential units (incorporating 3 houses and 18 apartments within Block 'D').

1.1.6 Accordingly, the neighbouring Knockrabo lands (Phase 1 and Phase 1A) now benefit from planning permission for the total provision of a total of 50 houses (including Gate Lodge East) and 69 apartments in Blocks A, B, C & D.

1.1.7 Works have now commenced on site with significant on-going progress being made regarding the construction of Phase 1 of the Knockrabo scheme.

1.1.8 This report has been produced to address any potential concerns that the local planning authority may have pertaining to the accumulative level of influence that the subject Phase 2 - 93 residential units, in parallel to the permitted Phase 1 (98 units) and Phase 1A (21 units) may have upon the local transportation system.

1.2 SCOPE

1.2.1 The purpose of this TTA is to quantify the existing transport environment and to detail the results of assessment work undertaken to identify the potential level of any transport impact generated as a result of the proposed residential development. The scope of the assessment covers 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.

1.3 METHODOLOGY

1.3.1 Our approach to the study accords with policy and guidance both at a national and local level. Accordingly, the adopted methodology responds to best practices, current and emerging guidance, exemplified by a series of publications, all of which advocate this method of analysis. Key publications consulted include: -

- '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); and
- 'Guidelines for Traffic Impact Assessments' The Institution of Highways and Transportation.

1.3.2 Our methodology incorporated a number of key inter-related stages, including;

- Site Audit: A site audit was undertaken to quantify existing road network issues and identify local infrastructure characteristics, in addition to

establishing the level of accessibility to the site in terms of walking, cycling and public transport. An inventory of the local road network was also developed during this stage of the assessment.

- Traffic Counts: Traffic counts were undertaken and analysed with the objective of establishing local traffic characteristics in the immediate area of the proposed development.
- Trip Generation: A trip generation exercise has been carried out to establish the potential level of vehicle trips generated by the proposed residential development.
- Trip Distribution: Based upon both the existing traffic characteristics and the network layout in addition to the spatial / land use configuration and density of the urban structure across the catchment area of the development, a distribution exercise has been undertaken to assign site generated vehicle trips across the local road network.
- Network Impact: in accordance with the Institute of Highways and Transportation; Traffic Impact Assessment guidelines, the specific level of influence generated by the proposed residential development upon the local road network was ascertained.
- Network Assessment: Drawing upon the findings of the previous stages, an operational assessment of the local road network has been undertaken to evaluate the performance of key junctions both prior to and following the implementation and occupation of the proposed development.

1.4 REPORT STRUCTURE

1.4.1 As introduced above, this TTA seeks to clarify the potential level of influence generated by the proposed development upon the local road network and subsequently ascertain the existing and future operational performance of the local transport system. The structure of the report responds to the various stages of this exercise including the key tasks summarised below.

1.4.2 Chapter Two of this report describes the existing conditions at the proposed development location and surrounding area whilst the relevant transportation policies that influence the design and appraisal of the subject development proposals are highlighted within Chapter Three.

1.4.3 Chapter Four provides a summary of the proposed development itself.

1.4.4 In Chapter Five a summary of the vehicle trip generation, vehicle distribution, and network assignment exercise is detailed, in addition to quantifying the potential level of impact, as generated by the subject proposals, upon key junctions across the local road network.

1.4.5 The operational performance of the site access junction with Mount Anville Road was assessed for a range of different development / traffic scenarios both prior to and following the commissioning of the Phase 2 development are investigated and reported within Chapter Six.

1.4.6 Finally, a summary of our appraisal together with the main conclusions of the assessment are provided in Chapter Seven.

2.0 RECEIVING ENVIRONMENT

2.1 LAND USE

2.1.1 The surrounding areas predominantly consist of residential settlements along Mount Anville Road, Goatstown Road and Kilmacud Road. Mount Anville School (Montessori, Junior and Secondary School) is located directly opposite the subject site on Mount Anville Road.

2.2 LOCATION

2.2.1 The development site is located in the Goatstown area of South Dublin and is bounded to the south by Mount Anville Road corridor and to the east by Phase 1 & 1A of the Knockrabo residential development. The northern boundary is formed by the lands reserved for the future Dublin Eastern Bypass (DEBP) reserved corridor.

2.2.2 The subject site is located approximately 8.4 kilometres south of the city centre and only 2.6 kilometres east of Dundrum Town Centre.

2.2.3 The general location of the subject site in relation to the surrounding road network is illustrated in Figure 2.1 below whilst Figure 2.2 shows the extent of the subject development plot within the Knockrabo lands.

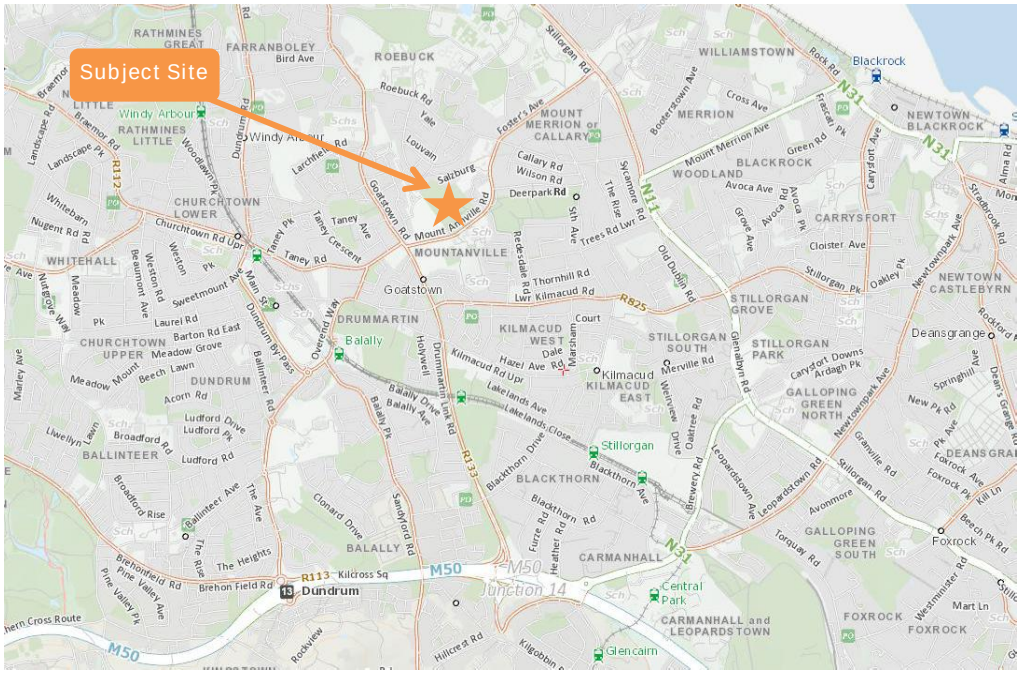


Figure 2.1: Knockrabo Masterplan Lands General Location (Reference: http://maps.osi.ie)

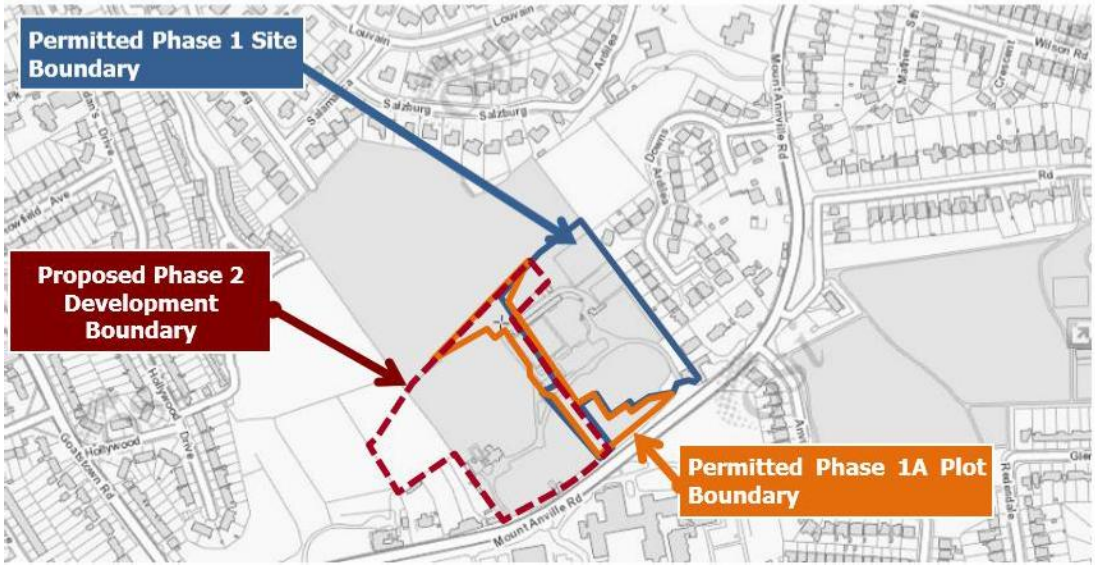


Figure 2.2: Knockrabo Masterplan - Phase 2 Plot Boundary (Source: Osi.ie)

2.3 EXISTING TRANSPORTATION INFRASTRUCTURE

Background

2.3.1 An important stage in the development of a Transport Assessment is the identification and appreciation of the local road network's existing transport conditions and vehicle movement characteristics.

2.3.2 An audit of the local road network was undertaken in November 2017 to establish the existing transport conditions and vehicle movement patterns across the existing network.

Road Network

2.3.3 The subject development site is located adjacent (to the north) of the Mount Anville (R112) Road corridor which is subject to 50kph regulations. Travelling in a north-easterly direction from the site, Mount Anville Road terminates at a four-arm signal controlled junction with Roebuck Road, Fosters Avenue and Callary Road. Continuing north east from this signal controlled junction, Fosters Avenue meets the strategic N11 Stillorgan Road corridor at a 3-arm signal controlled junction.

2.3.4 The N11 Stillorgan Road runs in a predominantly north south direction providing access to Dublin city, Donnybrook, Mount Merrion, and Blackrock to the north and

Stillorgan, Foxrock, Cornelscourt, Cabinteely, Shankhill and the M50 motorway to the south.

2.3.5 To the west of the subject site, Mount Anville Road terminates at a four-arm signal controlled junction with Taney Road, Kilmacud Road and Goatstown Road. Westbound on Taney Road from this junction, direct access can be gained to Dundrum Town Centre and the Luas Green Line. Goatstown Road and Kilmacud Road provide alternative routes to Dublin City Centre and the M50 motorway, respectively.

Existing Cycling and Pedestrian Facilities

2.3.6 In the vicinity of the subject site, Mount Anville Road (Figure 2.3) incorporates good quality pedestrian facilities with street lighting and footpaths which are separated from the carriageway by grass verges available on both sides of the carriageway. There is also a signal controlled pedestrian crossing available near the access to Mount Anville School. To the west at the Mount Anville Road/Taney Road, Kilmacud Road/Goatstown Road junction, there are pedestrian crossings available across all arms of the junction.

2.3.7 Cyclists must share the road carriageway with vehicular traffic in the vicinity of the subject site on Mount Anville Road, however to the west, north and south there are dedicated cycle facilities provided along Goatstown Road and Roebuck Road as illustrated in Figure 2.4 below.

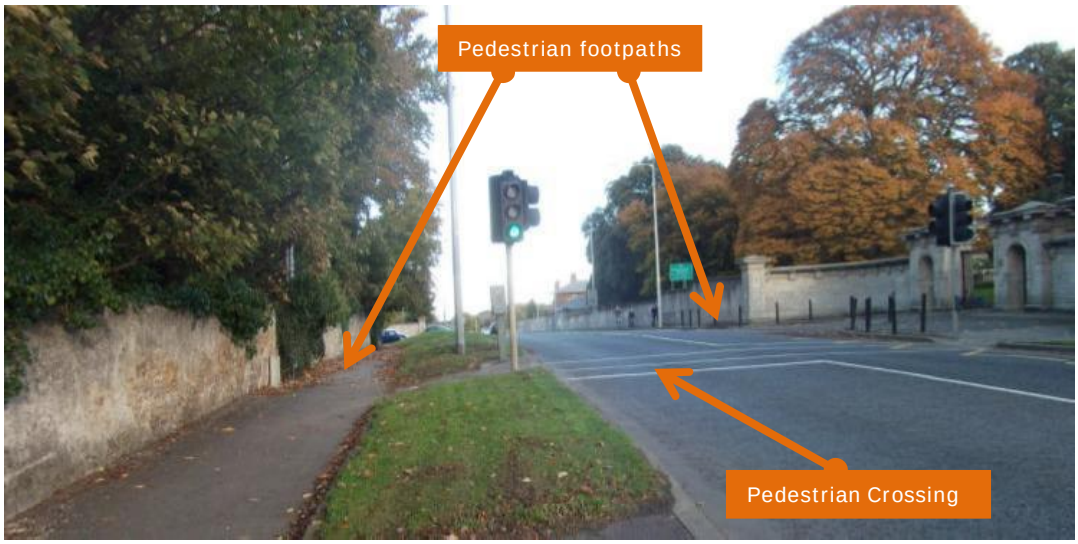


Figure 2.3: Pedestrian Facilities on Mount Anville Road

(Adjacent to the subject site)

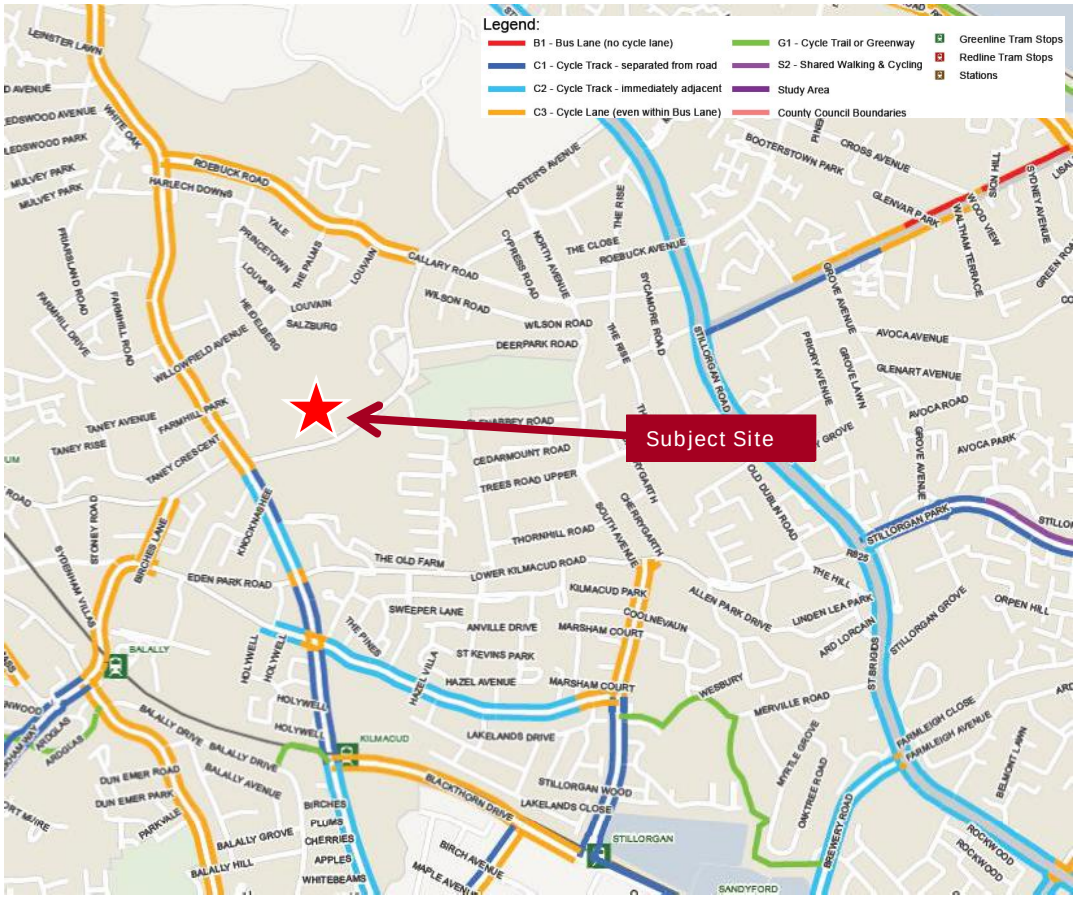


Figure 2.4: Existing Cycle Network (extract from Sheet E7 GDA Cycle Network Plan)

Public Transport

2.3.8 The subject site is well served in terms of public transport provision. The number 11 Dublin Bus route travels along Kilmacud Road/Goatstown Road to the east of the subject site. Furthermore, route number 17 travels along Fosters Avenue and Roebuck Road linking to Blackrock Station. Dublin Bus route 75 travels along Killmacud Rd Upper and is accessible within approximately 1200m walking distance to the southwest of the subject site. Dublin Bus route numbers 116, 118, 145, 17, 46A, 46E, 47, 7B and 7D travel also operate along Stillorgan Road (N11) corridor as located to the east of the subject site. Figure 2.5 below provides details of the above-named bus routes and the closest interchange opportunities available to the subject site.

2.3.9 It can be seen (Figure 2.5) that route number 11 operating along Kilmacud Road /Goatstown Road is highly accessible to the subject development site being within approximately 480m walking distance from the subject site, whilst route number 17

operating along Fosters Avenue is within 670m walking distance of the subject site. The remaining bus services introduced above are accessible within 1500m walking distance of the subject site.

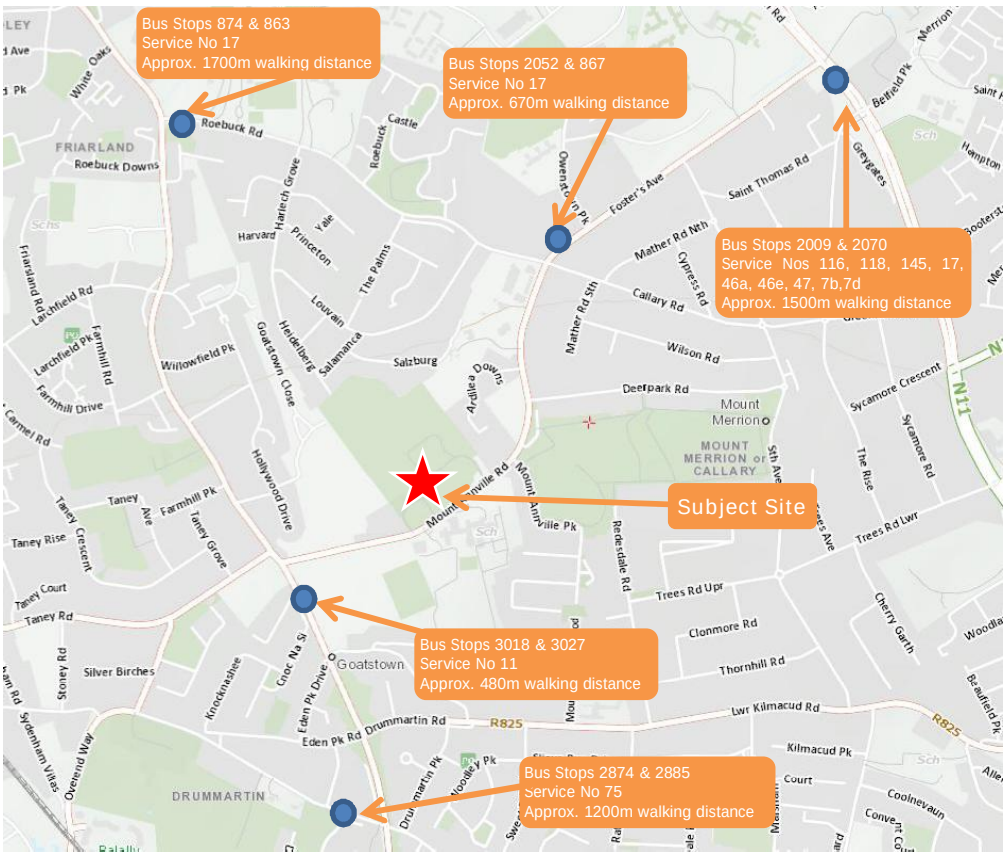


Figure 2.5: Existing Local Bus Service Interchange Locations (source: www.dublinbus.ie)

2.3.10 The vast majority of the previously introduced Dublin Bus services operate daily and offer relatively frequent services as summarised in Table 2.1. Detailed route maps for each of these bus services are presented within Appendix A.

T

No	Route	Frequency (in each direction minutes)		
		Mon-Fri	Sat	Sun
7b	Mountjoy Sq. (Mountjoy Sq. North) – Donnybrook – Monkstown Rd. (Annaville Ave.) – Shankill	4 services AM & PM	-	-
7d	Mountjoy Sq. (Mountjoy Sq. North) - Donnybrook - Monkstown Rd. (Annaville Ave.) - Dalkey	2 services AM, 1 service PM	-	-
11	Wadelai Park - O'Connell St. - Ranelagh - Clonskeagh - Sandyford Business District (Blackthorn Rd)	30	30	30
17	Rialto - Kimmage Rd. - Churchtown Rd. - UCD Belfield - Blackrock Rail Station	15-30	25-30	60
46a	Phoenix Park - Phibsboro (Doyle's Corner) - City Centre - Donnybrook - Foxrock Church -Dun Laoghaire	9-10	10-15	10-15
46e	Blackrock Rail Station - Stillorgan bypass - Donnybrook - City Centre - Mountjoy Sq.	2 services AM	-	-
47	Poolbeg St. - Ringsend - UCD Belfield - Sandyford - Belarmine	30	60	60
75	Tallaght (The Square) - Firhouse - Nutgrove - Stillorgan - Dun Laoghaire	30	30	30
116	Sussex Road. (Burlington Road) - Stillorgan - Sandyford - Dundrum - Whitechurch	1 service per day	-	-
118	Kilternan - Stillorgan - D'Olier St.	1 service AM	-	-
145	Heuston Rail Station - City Centre - Donnybrook - Cabinteely - Bray - Ballywaltrim	10	15	20

I

able 2.1: Dublin Bus Routes

Public Transport - LUAS

2.3.11 The Dundrum and Balally LUAS Stops are located within approximately 1.5km to the west and southwest, respectively, of the subject site. The LUAS greenline provides access to Sandyford, and the City Centre in addition to other destinations along its route (Figure 2.6). Table 2.2 below lists the frequency with which the service operates.

Figure 2.6: Luas Greenline Destinations (source www.luas.ie)

Time	Monday – Friday	Saturday	Sunday
Peak	3-6	7-8	11-12
Off Peak	6-15	10-15	12-15

Table 2.2: LUAS Service Frequency – Sandyford- St Stephen's Green (minutes)

2.4 LOCAL AMENITIES

2.4.1 The proposed development site is well placed in terms of the availability of local amenities. There are a number of schools within 3km of the subject site including Our Lady's Grove Garran Mhuire Primary School, Taney School, the Muslim National School, Mount Anville Montessori, Primary and Secondary Schools, St Killian's Primary School, Jesus and Mary College, St Benildus College, Lycee Français d'Irlande Secondary School and St Kilian's German School. Furthermore, the subject site benefits from good access to leisure facilities such as public parks, leisure centres and golf clubs. The subject site has good access to Dundrum Town Centre which is only approximately 2.6km to the west of the subject site. Figure 2.7 below shows indicatively the subject site's location in relation to the aforementioned local amenities.

Figure 2.7 Subject Site Local Amenities

2.5 EMERGING TRANSPORT DEVELOPMENTS

Dublin Eastern Bypass

2.5.1 The Eastern Bypass scheme involves the construction of a new motorway route linking the Dublin Port Tunnel to the M50 at Sandyford. Part of the area reserved for this proposed route runs to the south of the subject site as indicated in Figure 2.8.

2.5.2 With respect to a timeline for delivery of the scheme, the Transport Strategy for the Greater Dublin Area (2016-2035) states the following with respect to the delivery of National Roads Schemes: -

"During the period of the Strategy it is intended to further develop and enhance the national road network including the delivery of the following projects:

- *Development of a road link connecting from the southern end of the Dublin Port Tunnel to the South Port area, which will serve the South Port and adjoining areas"*

2.5.3 The Strategy goes on further to say: *"in the case of the Eastern Bypass, while the section of the route from the Dublin Port Tunnel to the South Port area is included for delivery in this Strategy, the remainder of the route is not proposed for development during the Strategy period. However the retention of a route corridor is recommended, to facilitate the possible future use of the corridor for transport provision."*

2.5.4 The Dun Laoghaire Rathdown County Development Plan (2016-2022) includes the Dublin Eastern Bypass within its 'Long Term Roads Objectives' and also states the following objective: -

"To promote the potential additional future uses of the Dublin Eastern Bypass reservation corridor, including a greenway/cycleway, a pedestrian walkway, biodiversity projects, recreational opportunities – inclusive of playing pitches – and public transport provision such as Bus Rapid Transit services pending a decision from Transport Infrastructure Ireland/Central Government in relation to the future status of the Bypass. Any potential additional future short-term uses of the reservation corridor will be subject to a joint feasibility study to be undertaken by TII and the NTA."

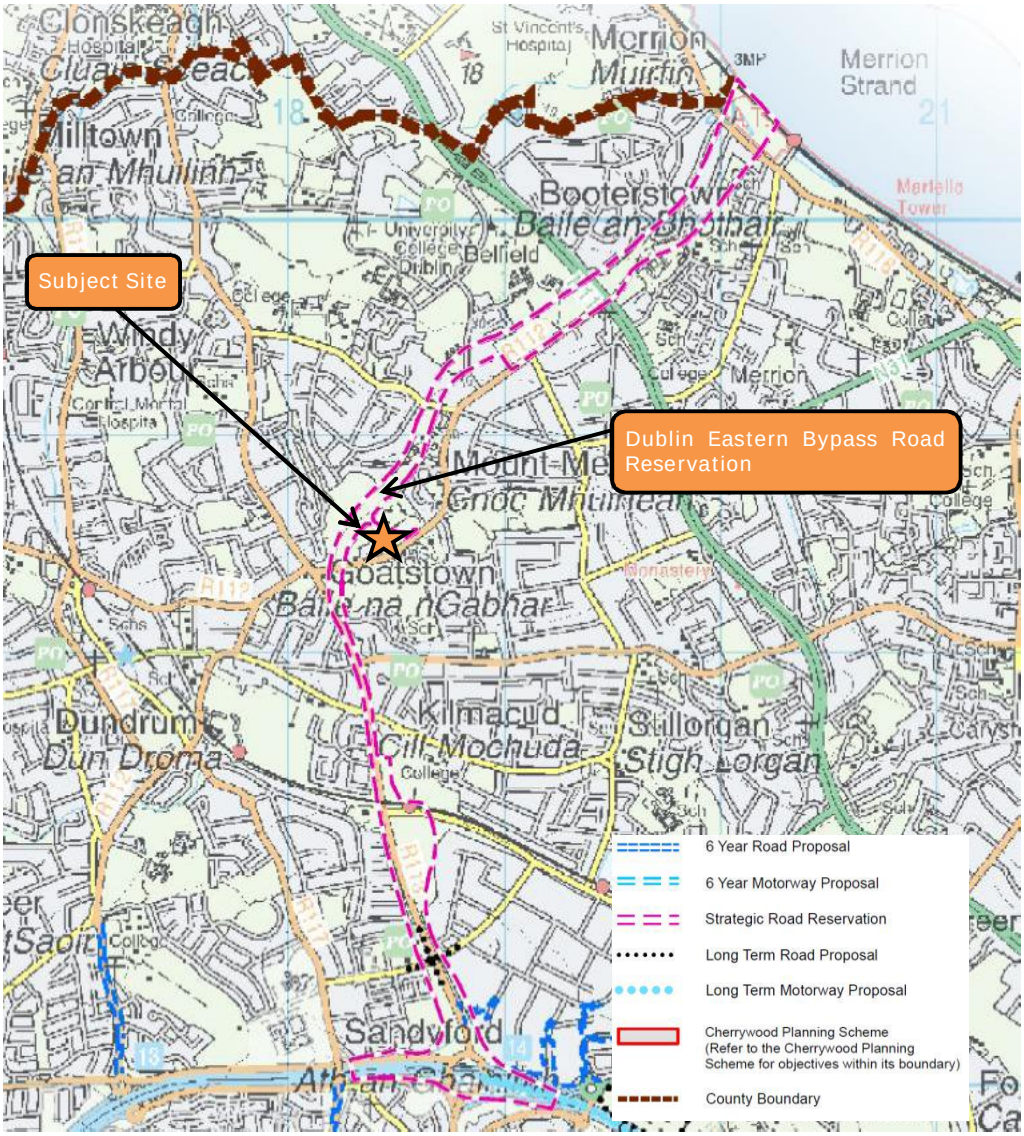


Figure 2.8: Dublin Eastern Bypass

(extract from Map No T3 DLRCC Development Plan)

Bus Priority Routes – Mount Anville Rd & Goatstown Rd

2.5.5 The Dun Laoghaire Rathdown County Council County Development Plan (2016-2022) outlines the Council's policies with respect to the provision of a Quality Bus Network for the administrative area. Policy ST12: Quality Bus Network states: -

- *"It is Council policy to co-operate with the NTA and other relevant agencies to facilitate the implementation of the Bus Network measures as set out in the NTA's 'Greater Dublin Area Draft Transport 2016-2035' and to extend the bus network to other areas where appropriate subject to design, public consultation, approval, finance and resources."*

2.5.6 The Development Plan indicated the provision of the following Bus Priority Schemes which will travel along Mount Anville Road and Goatstown Road (Figure 2.9), which are both accessible within approximately 50-350m walking distance of the subject residential site: -

- *"Lower Kilmacud Road – Drummartin Road – Goatstown Road – Clonskeagh Road.*
- *Taney Road – Mount Anville Road – Foster's Avenue."*

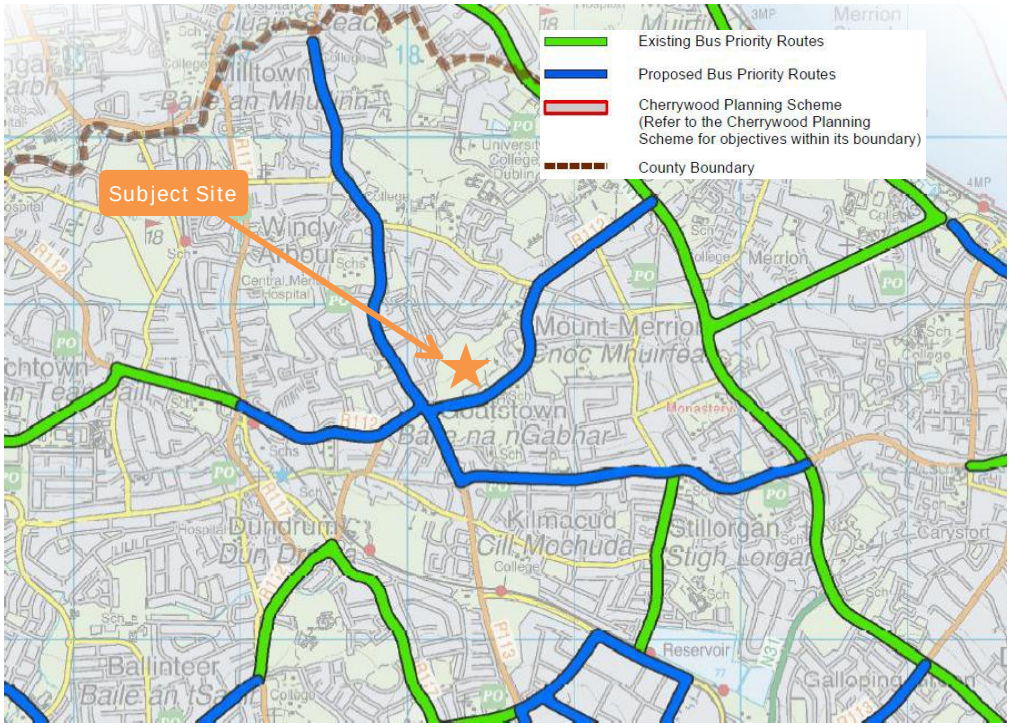


Figure 2.9: Bus Priority Schemes

(extract from Map T2 DLRCC Development Plan)

Extension of LUAS Green Line

2.5.7 Current proposals (Greater Dublin Area Transport Strategy 2016-2035) include the extension of the Luas Green Line from Cherrywood to Bray. While a decision on the final alignment has yet to be made, it is likely to run to Bray DART station via Shankill and the former golf club lands. It will provide a high frequency, high capacity link between Bray and the City Centre, and providing a rail link to Bray accessible within 1.5km walking distance of the subject site.

2.5.8 The timetable for delivery of Luas extension to Bray is yet to be confirmed by TII and the NTA.

2.5.9 The Dun Laoghaire Rathdown County Council County Development Plan (2016-2022) makes reference to the provision of the *'Proposed Blue Line BRT route linking the DART line at Sydney Parade Avenue to Sandyford/Dundrum Town Centre via UCD utilizing, where possible, parts of the Eastern Bypass reservation corridor'* which was included within the Greater Dublin Area Draft Transport Strategy 2016-2035.

2.5.10 DBFL note the provision of the Blue Line BRT is not included within the final version of the Transport Strategy for the Greater Dublin Area 2016-2035.

Cycle Network Proposals

2.5.11 The subject site lies within the *"Dublin South Central Sector"* as outlined within the Greater Dublin Area Cycle Network Plan (2013). The sector *"extends outward from the city centre through Ranelagh and fans out to include the areas of Clonskeagh, Milltown, Goatstown, Dundrum, Ballinteer, Sandyford and Stepaside. The western edge coincides roughly with the boundary between Dun Laoghaire-Rathdown and South Dublin County Councils. The eastern edge lies along a line through the UCD campus at Belfield, Mount Merrion and the Sandyford Business Estate to where the M50 motorway turns southeast and effectively creates a boundary between the foothills of the Dublin Mountains and the coastal strip in the Dublin South East Sector."*

2.5.12 In the vicinity of the subject site the following route addition is proposed in addition to those indicated on Figure 2.10:-

- Primary Orbital Route SO4 - Taney Road / Mount Anville Road / Foster Avenue (Primary Orbital Route SO4).

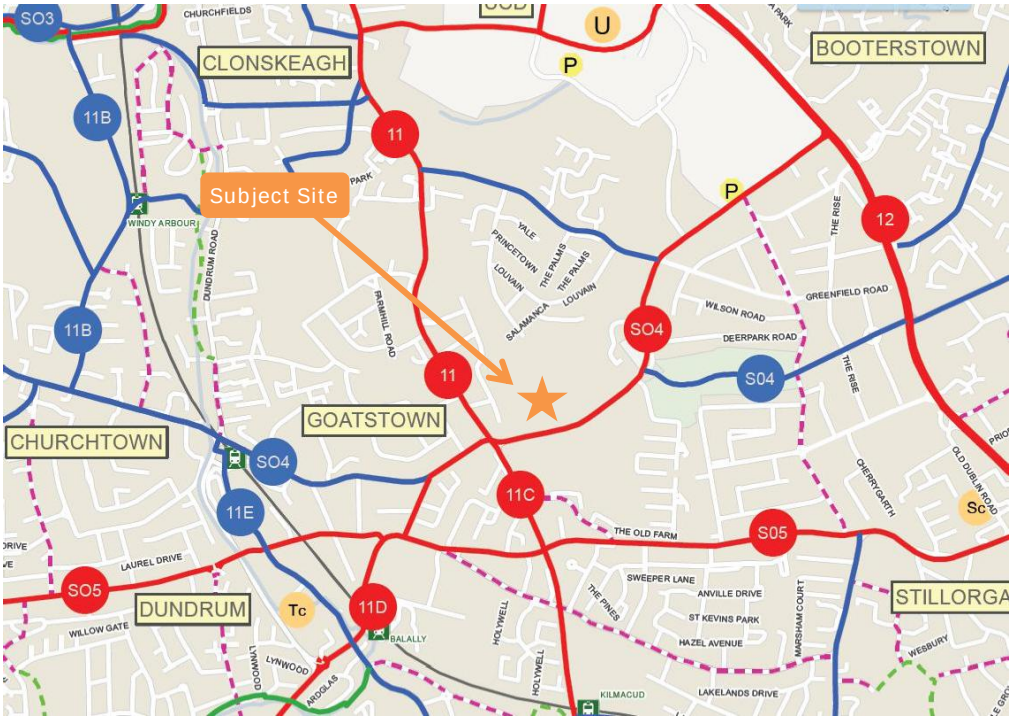


Figure 2.10: Proposed Cycle Network (extract from Sheet N7 GDA Cycle Network Plan)

2.5.13 The implementation of the above cycle infrastructure schemes by the local authority will be subject to further design, public consultation, approval, and importantly availability of funding and resources.

Pedestrian/Cyclists Site Connectivity

2.5.14 The masterplan of the subject site (Phases 1 through to 2) more than provide sufficient flexibility to accommodate a potential future pedestrian / cycle connection running in a north / south alignment through the subject (southern) Knockrabo site, across the reservation of the Eastern Bypass corridor and via separate development lands to the north. Furthermore, this linkage to/from the reservation of the Eastern Bypass corridor could also function as a convenient access to/from the Blueline BRT objective. This potential future linkage would be subject to DLRCC and TII observations. Whilst the full delivery of this potential pedestrian/cycle connection is outside of the applicant's control, the subject residential proposals do not preclude its future implementation.

3.0 POLICY FRAMEWORK

3.1 DÚN LAOGHAIRE-RATHDOWN COUNTY DEVELOPMENT PLAN

3.1.1 The Dún Laoghaire-Rathdown County Council Development Plan (2016-2022) sets out the authority's policies and objectives for the development of the County for the period 2016 to 2022. The Plan seeks to develop and improve in a sustainable manner the social, economic, cultural and environmental assets of the county. In the context of the subject development site and the proposed residential scheme a number of the most relevant policies are included below.

Sustainable Travel & Transportation

*"**Policy ST3: Development of Sustainable Travel and Transportation Policies** – It is Council policy to promote, facilitate and cooperate with other transport agencies in securing the implementation of the transportation strategy for the County and the wider Dublin Region as set out in Department of Transport's 'Smarter Travel, A Sustainable Transport Future 2009-2020' and the NTA's 'Greater Dublin Area Draft Transport Strategy 2016-2035."*

*"**Policy ST4: Accessibility**– It is Council policy to support suitable access for people with disabilities, including improvements to buildings, streets and public spaces."*

*"**Policy ST5: Walking and Cycling**– It is Council policy to secure the development of high quality walking and cycling network across the County in accordance with the relevant Council and National policy guidelines."*

*"**Policy ST6: Footways and Pedestrian Routes** – The Council will continue to maintain and expand the footway and pedestrian route network to provide for accessible pedestrian routes within the County in accordance with best accessibility practice."*

*"**Policy ST7: County Cycle Network**– It is Council policy to secure improvements to the County Council Network in accordance with the Dun Laoghaire-Rathdown Cycle Network Review whilst supporting the NTA on the development and implementation of the Cycle Network Plan for the Greater Dublin Area."*

*"**Policy ST11: Public Transport Improvements** – It is Council policy to secure improvements to the public transport system as set out in 'Smarter Travel, A Sustainable Transport Future 2009-2020' and the NTA's 'Greater Dublin Area Draft Transport Strategy 2016-2035' by optimising existing or proposed transport corridors and interchanges and by developing new Park and Ride and taxi rank facilities at appropriate locations."*

*"**Policy ST12: Quality Bus Network** – It is Council policy to co-operate with the NTA and other relevant agencies to facilitate the implementation of the Bus Network measures as set out in the NTA's 'Greater Dublin Area Draft Transport 2016-2035' and to extend the bus network to other areas where appropriate subject to design, public consultation, approval, finance and resources."*

*"**Policy ST25: Roads** – It is Council policy, in conjunction and co-operation with other transport bodies and authorities such as TII and the NTA, to secure improvements to the County road network – including improved pedestrian and cycle facilities."*

*"**Policy OSR8: Greenways Network** – It is Council policy to develop a comprehensive network of County Greenways linking parks and public open spaces and to liaise with adjoining local authorities and other stakeholders to achieve and improve wider external linkages and corridors."*

4.0 CHARACTERISTICS OF PROPOSALS

4.1 KNOCKRABO PHASE 1 DEVELOPMENT (REF. D13A/0689)

4.1.1 The Phase 1 proposals of the overall Knockrabo masterplan lands were granted planning permission (Ref. D13A/0689) by Dún Laoghaire-Rathdown County Council subject to 45 conditions in August 2014. This permitted Phase 1 scheme considered the construction of 88 number units (incorporating 47 houses including Gate Lodge and 41 apartments spread over three Blocks 'A, B and C'), including a new site access junction on Mount Anville Road and all associated site and infrastructural works. Following a third party appeal An Bord Pleanála (PL06D.243799) granted planning permission (subject to 38 conditions) in January 2015.

4.1.2 In January 2017 Dun Laoghaire Rathdown approved planning permission (D16A/0821) for amendments to the Blocks A, B, C approved under Ref. D13A/0689. This amendment resulted in an increase in the total number of apartments in Blocks A, B & C from 41 to 51 apartments.

4.2 KNOCKRABO PHASE 1A (REF. D16A/0960)

4.2.1 The neighbouring Phase 1A plot of the Knockrabo lands was approved planning permission by Dun Laoghaire Rathdown County Council (Ref. D16A/0960) in February 2017. This application consisted of the provision of 21 number residential units (incorporating 3 houses and 18 apartments within Block 'D').

4.2.2 To date the Knockrabo lands now benefit from planning permission for the total provision of a total of 50 houses (including Gate Lodge) and 69 apartments in Blocks A,B,C & D. Works have now commenced on site with significant on-going progress being made regarding the construction of Phase 1 of the Knockrabo scheme.

4.3 KNOCKRABO PHASE 2 – 2017 APPLICATION PROPOSALS

4.3.1 The subject proposals constitute Phase 2 of the overall proposed masterplan for the entire Knockrabo lands and seek permission for the development of the following:-

- 22 houses (including the Coachhouse and Gatelodge West)

- 71 apartments (69 apartments in Blocks 'E, F, G & H', and 2 at Cedarmount House)
- Childcare Facility within Cedarmount House (400sqm)
- Community Facility within Cedarmount House (223sqm).

4.3.2 Further details of the development proposals including the site layout and transport network arrangements are illustrated in the architects' scheme drawings as submitted with this planning application.

Site Access Arrangements

4.3.3 The Phase 2 proposals will benefit from three site access points for vehicles (Figure 4.1) however a through route between these three access points is not proposed. Vehicle access to the Apartment Blocks, houses (19no.) and the childcare facility set down area will be provided via Knockrabo Way and the existing Knockrabo Way junction on Mount Anville Road. Vehicle access to Cedarmount House (2 no. apartments), the Coachhouse (2 bed house) and 1 no house will be provided via its existing access (which is being upgraded) as provided directly onto Mount Anville Road. Vehicle access to the Gate Lodge West (3 bed house) will be provided via the existing Gate Lodge West access on Mount Anville Road.

Figure 4.1 Site Access Locations

Vehicle Parking – Phase 2

4.3.4 The appropriate level of parking provision for the proposed development will be provided in reference to the development standards contained within *"Dún Laoghaire-Rathdown County Council County Development Plan 2016-2022"*. Table 8.2.3 within Section 8 of the development plan provides guidance for residential developments (Table 8.2.4 for non-residential, i.e. childcare facility), stating the following "standard" (maximum for non-residential) parking provision requirements:

- Apartments - 1 space per 1-bed unit;
  - 1.5 spaces per 2-bed unit;
  - 2 spaces per 3-bed+ unit;
- Residential Dwelling - 1 space per 1-bed unit;
  - 1 space per 2-bed+ unit;
  - 2 spaces per 3-bed+ unit; and
- Creche - 1 space per 1 staff member including set down.

4.3.5 Table 4.1 below outlines the subject development site parking provision in relation to the development plan parking requirements.

Development Use		DLRCC Standards	No. Spaces Required	No. Spaces Provided	
				Semi-basement	On-Street
Block E (12 units)	1 bed apartment (1 unit)	1 space/unit	1	11	6
	2 bed apartment (8 units)	1.5 space/unit	12		
	3 bed apartment (3 units)	2 spaces/unit	6		
		Sub -Total	19	17	
Block F (9 units)	1 bed apartment (5 units)	1 space/unit	5	-	11
	2 bed apartment (3 units)	1.5 space/unit	4.5		
	3 bed apartment (1 unit)	2 spaces/unit	2		
		Sub -Total	11.5	11	
Block G&H (9 units)	1 bed apartment (6 units)	1 space/unit	6	67	7
	2 bed apartment (21 units)	1.5 space/unit	31.5		
	3 bed apartment (14 units)	2 spaces/unit	28		
	2/3 bed duplex (7 units)	1.5 space/unit	10.5		
		Sub -Total	76	74	
Existing Structures	Coach House 2 bed house (1 unit)	1 space/unit	1	-	2
	Gate Lodge 3 bed House (1 unit)	2 spaces/unit	2	-	2
	Cedarmount House 2 bed apartment (2 units)	1.5 space/unit	3	-	3
	Childcare Facility (10 staff, 42 children)	1 space per staff member	10	-	10
		Sub -Total	16	17	
New-Build Houses	3 bed house (2 unit)	2 spaces/unit	4	-	4
	4 bed house (8 unit)	2 spaces/unit	16	-	16
	5 bed house (10 unit)	2 spaces/unit	20	-	20
		Sub -Total	40	40	
		Total	162.5	159	

Table 4.1: Phase 2 Development Vehicle Parking Requirements & Development Provision

4.3.6 In reference to the above and in the context of the following parameters it is considered that an appropriate number of car parking spaces are provided (159) onsite to meet the actual demand that is likely to be generated at this specific site.

- The subject site is within walking distance of both the local bus and LUAS interchanges which offer a high level of public transport accessibility;
- A Mobility Management Plan accompanies the planning application with the objective of encouraging sustainable travel habits from the outset of residents first taking up residency within the proposed development
- The applicant has made formal arrangement with the operator to provide 2 number dedicated 'Go Car' parking spaces onsite thereby minimising the need for residents to own a car.

Electrically Operated Vehicles

4.3.7 We note the requirement for the provision of facilities for electrically operated vehicles as stated in section 8.2.4.12 of the Development Plan:

> *"Residential developments (with private car spaces including visitor car parking spaces) - A minimum of one car parking space per ten residential units should be equipped with one fully functional Electric Vehicle Charging Point."*

4.3.8 Accordingly, a number of car parking spaces will be constructed to meet this specific objective.

Bicycle Parking – Phase 2

4.3.9 The appropriate level of cycle parking provision for the proposed development will also be provided in reference to Dún Laoghaire Rathdown Council's guidance document *'Standards for Cycle Parking and associated Cycling Facilities for New Developments'.* Table 4.2 below outlines the subject development site cycle parking provision in relation to the development plan parking requirements.

Development Use		DLRCC Standards		No. Spaces Required		No. Spaces Provided	
		Long Term	Short Term (Visitor)	Long Term	Short Term	Long Term	Short Term
Block E (12 units)	1 bed apartment (1 unit)	1 per unit	1 per 5 units	1	2	1	4
	2 bed apartment (8 units)			8		8	
	3 bed apartment (3 units)			3		3	
	Sub-Total			12	2	12	4
Block F (9 units)	1 bed apartment (5 units)	1 per unit	1 per 5 units	5	2	5	2
	2 bed apartment (3 units)			3		3	
	3 bed apartment (1 unit)			1		2	
	Sub-Total			9	2	10	2
Block G&H (9 units)	1 bed apartment (6 units)	1 per unit	1 per 5 units	6	10	6	12
	2 bed apartment (21 units)			21		21	
	3 bed apartment (14 units)			14		14	
	2/3 bed duplex (7 units)			7		7	
	Sub-Total			48	10	48	12
Existing Structures	Coach House 2 bed house (1 unit)	1 per unit	1 per 5 units	Within curtilage	-	Within curtilage	1
	Gate Lodge 3 bed House (1 unit)	1 per unit	1 per 5 units	Within curtilage	-	Within curtilage	1
	Cedarmount House 2 bed apartment (2 units)	1 per unit	1 per 5 units	2	-	2	-
	Childcare Facility (10 staff, 42 children)	1 per 5 staff	1 per 10 children	2	4	2	5
	Community Facility	-	-			1	1
	Sub-Total			4	4	5	8
New-Build Houses	20 units	1 per unit	1 per 5 units	Within curtilage	4	Within curtilage	4
	Sub-Total			-	4	-	4
	Total			73	22	75	30

Table 4.2: Phase 2 Bicycle Parking Requirements & Development Provision

4.3.10 It is noted that each of the proposed 'housing' units benefit from being designed with a dedicated 'side access' to their rear gardens. Accordingly, the opportunity is available for residents of these three houses to store (long term parking) their bicycles in their own secure back garden. As a result, the subject proposals do not specify any additional 'long term bicycle' parking facilities for these specific housing units. Nevertheless 'short-term' bicycle parking facilities are being proposed for the houses as per development plan requirements.

4.3.11 The provision of a total of 75 'long term' and 30 'short term' dedicated bicycle spaces (in addition to the houses being able to utilise their rear garden for long term storage) exceeds the minimum requirements outlined within the DLRCC development standards.

4.3.12 It is an objective of the Council to require developments to provide motorcycle parking spaces at a minimum of four or more spaces per 100 car parking spaces. The scheme design provides for a total of 6 no. motorcycle parking spaces, which meets the standard requirements of 6 no. spaces (e.g. [159/100]*4 = 6).

Pedestrians and Cyclists Improvements

4.3.13 As previously introduced the subject site will be highly accessible to pedestrians and cyclists from Mount Anville Road. Pedestrians will be given priority within the internal site layout to ensure desire lines within the site are accommodated providing a good level of service and ensures the risk of vehicle/pedestrian conflict with vehicles is minimised.

Public Transport

4.3.14 Existing bus services operating along Kilmacud Road /Goatstown Road are highly accessible to the subject development site being within approximately 480m walking distance, whilst an additional bus service (no. 17) operating along Fosters Avenue is within 670m walking distance of the subject site. Various additional bus services introduced are accessible within 1500m walking distance of the subject site.

5.0 TRIP GENERATION & DISTRIBUTION

5.1 INTRODUCTION

5.1.1 The following paragraphs present the process by which the potential level of vehicle trips, associated with the future residential development have been generated and subsequently assigned across the local road network.

5.1.2 In order to assess the operation of the proposed road network and its future capacity, a traffic model of the existing network was created. Existing traffic levels were obtained from counts carried out at the subject site access junction with Mount Anville Road to enable peak hour flows to be established i.e. base flows.

5.1.3 The traffic survey established that the local Weekday AM and PM peak hours occur between 08:00 – 09:00 and 16:00 - 17:00.

5.2 TRIP GENERATION

5.2.1 To estimate the potential level of vehicle trips that could be generated by the proposed residential development once fully occupied we have made reference to the TRICS database. A summary of the adopted trip rates is provided in Table 5.1 below. The TRICS output data has been appended in Appendix B.

5.2.2 The small onsite Community Facility element of the development (as located in the ground floor of Cedarmount House) will primarily serve residents of the Knockrabo Masterplan lands (Phase 1, 1A & 2), in addition to residents of the local area via 'walk-in' trips. Accordingly there is no dedicated parking provision for this element. As such we have not assigned any vehicle trip rates to the facility.

Land Use	Unit	AM Peak Hour		PM Peak Hour	
		Arr	Dep	Arr	Dep
Apartments	Per Unit	0.047	0.225	0.112	0.052
Houses	Per Unit	0.146	0.397	0.327	0.170
Childcare Facility	Per 100sqm	4.367	4.171	2.502	2.846

Table 5.1: Proposed Residential Development Vehicle Trip Rates

5.2.3 As previously mentioned in Section 4, the Knockrabo lands now benefit from planning permission (Phase 1 - Ref D13A/0689, Phase 1A - Ref. D16A/090) for the total provision of a total of 50 houses (including Gate Lodge) and 69 apartments in Blocks A, B, C & D. Works have now commenced on site with significant on-going progress being made regarding the construction of Phase 1 of the Knockrabo scheme.

5.2.4 Table 5.2 below summarises the AM and PM peak hour weekday traffic that is predicted to be generated for the permitted Phase 1 and Phase 1A development (once fully occupied) based on the above trip rates.

Phase	Land Use	Quantity	AM Peak Hour		PM Peak Hour	
			Arr	Dep	Arr	Dep
Permitted Phase 1	Houses	47	7	19	15	8
	Apartments	51	2	11	6	3
	Phase 1 Total		9	30	21	11
Permitted Phase 1A	Houses	3	0	1	1	1
	Apartments	18	1	4	2	1
	Phase 1A Total		1	5	3	1
Phase 1 & 1A Total			11	35	24	12

Table 5.2: Predicted Phase 1 and Phase 1A Traffic Generation (Vehicles) – Permitted Development

Phase 2 Proposed Development

5.2.5 Table 5.3 below summarises the AM and PM peak hour weekday traffic that is predicted to be generated for the proposed Phase 2 development (once fully occupied) based on the above trip rates.

5.2.6 Based on the above trip rates (Table 5.1), potential peak hour traffic generation is calculated for the Phase 2 development based on 22 houses, 71 apartments, and a 400sqm childcare facility. Whist the planning regulations envision that the childcare facility will solely serve the residents of the subject development, in reality this may not always be the case. As such, in order to provide a robust assessment, it has been assumed that 60% of the traffic generation to/from the childcare facility element of the subject development will originate from the local road network

external to the subject site. The traffic generation in Table 5.3 below has been discounted to reflect this.

Phase	Land Use	Quantity	AM Peak Hour		PM Peak Hour	
			Arr	Dep	Arr	Dep
Proposed Phase 2	Houses	22	3	9	7	4
	Apartments	71	3	16	8	4
	Childcare Facility	400sqm	10	10	6	7
	Phase 2 Total		16	35	21	15

Table 5.3: Proposed Phase 2 Traffic Generation (Vehicles) – Proposed Development

5.2.7 As previously mentioned in Section 4, vehicle access to the Apartment Blocks, houses (19no.) and the childcare facility staff parking & set down area will be provided via Knockrabo Way and the existing Knockrabo Way junction on Mount Anville Road. Vehicle access to Cedarmount House (2 no. apartments), the Coachhouse (2 bed house) and 1 no house will be provided via its existing access (which is being upgraded) as provided directly onto Mount Anville Road. Vehicle access to the Gate Lodge West (3 bed house) will be provided via the existing Gate Lodge West access on Mount Anville Road.

5.2.8 Table 5.4 below indicates the total permitted (Phase 1 & 1A) and proposed (Phase 2) vehicle trips that will travel through the Knockrabo site access junction once the development is fully occupied.

Development Phase	AM Peak Hour		PM Peak Hour	
	Arr	Dep	Arr	Dep
1	9	30	21	11
1A	1	5	3	1
2	13	33	20	14
Total	27	69	44	26

Table 5.4: Traffic Generation Through the Knockrabo Junction at full occupation

5.3 COMMITTED DEVELOPMENT

5.3.1 There are no significant committed developments located within the immediate area of influence of the subject Knockrabo site.

5.4 TRIP DISTRIBUTION & ASSIGNMENT

5.4.1 The associated residential vehicle trips have been assigned to the network based on the surveyed traffic movements passing the site on Mount Anville Road.

5.5 TRAFFIC GROWTH

5.5.1 The TTA adopts an Opening Design Year of 2019. In accordance with TII (NRA) Guidance, Future Design years (+5 and +15 years) of 2024 and 2034 have therefore been adopted.

5.5.2 The TII Project Appraisal Guidelines (PAG) have been utilised to determine the traffic growth forecast rates. The traffic growth forecast rates within the PAG ensures local and regional variations and demographic patterns are accounted for.

5.5.3 Table 5.3.2 within the PAG provides Annual National Traffic Growth Factors for the different regions within Ireland. The subject Knockrabo site lies within 'Region 1 Dublin' therefore the following growth rates have been adopted to establish corresponding 2019, 2024 and 2034 baseline network flows: -

- 2017 to 2019 – 1.027 (or 2.7%);
- 2017 to 2024 – 1.098 (or 9.8%); and
- 2017 to 2034 – 1.196 (or 19.6%).

5.6 CONSTRUCTION TRAFFIC

5.6.1 It is anticipated that the generation of HGV during this same construction period will be evenly spread throughout the day and as such will not impact significantly during the peak traffic periods. An appropriate routing strategy for HGVs can also be implemented for the duration of site works if found necessary. Furthermore, during the various phases of construction, sufficient parking will be sought to be provided on site to accommodate the aforementioned construction generated vehicle movements, thereby ensuring that there is not an overspill of parked vehicles onto the surrounding local road network.

5.6.2 For the above reasons, we do not believe that construction traffic will generate any traffic concerns or impede upon the operational performance of the local road network and its surrounding junctions.

5.7 ASSESSMENT SCOPE

Assessment Scenarios

5.7.1 Two different traffic scenarios have been assessed, namely (a) the 'Base' (Do-Minimum) traffic characteristics and (b) the 'Post Development' (Do-Something) traffic characteristics.

5.7.2 The 'Base' traffic scenario takes into account the potential level of traffic that could be generated by the permitted/consented Phase 1 and Phase 1A Knockrabo development once fully occupied in addition to the existing flows travelling across the network.

5.7.3 The proposed Phase 2 development traffic flows are then added to the network's 'Base' (Base + Consented Development) traffic flows to establish the new 'Post Development' traffic flows.

5.7.4 In summary, the following scenarios are considered: -

Do Nothing:

- A1 – 2019 Base Flows + Phase 1 & 1A Knockrabo development;
- A2 – 2024 Base Flows + Phase 1 & 1A Knockrabo development; and
- A3 – 2034 Base Flows + Phase 1 & 1A Knockrabo development.

Do Something:

- B1 - 2019 Do Nothing (A1) + Proposed Phase 2 Development Flows;
- B2 - 2024 Do Nothing (A2) + Proposed Phase 2 Development Flows; and
- B3 – 2034 Do Nothing (A3) + Proposed Phase 2 Development Flows.

Assessment Periods

5.7.5 The AM and PM peak hour flows have been identified as occurring between 08:00-09:00 and 16:00-17:00 respectively.

Network Vehicle Flows

5.7.6 5.8.6 The following Figures as included in Appendix C present the vehicle flows across the local road network for each of the adopted development scenarios:-

- Figure 10 – 2019 Do Minimum (Scenario A1)
- Figure 11 – 2024 Do Minimum (Scenario A2)
- Figure 13 – 2034 Do Minimum (Scenario A3)
- Figure 14 – 2019 Do Something (Scenario B1)
- Figure 15 – 2024 Do Something (Scenario B2)
- Figure 17 – 2034 Do Something (Scenario B3).

5.8 NETWORK IMPACT

5.8.1 The analysis has determined that there will be an additional 50 two-way vehicle trips to/from the proposed development site in the AM peak period (34 two-way vehicle trips in the PM Peak) that will travel through the Knockrabo site access junction in the 2034 design year as result of the proposed Phase 2 development.

5.8.2 The resulting percentage increase in traffic flows at the Knockrabo Site Access/Mount Anville Rd junction as a result of the traffic generated by the proposed Phase 2 development is established as being 3.25% in the AM peak period (2.80% in the PM peak period). These values are well below the 5% threshold for congested networks as outlined with best practice. Nevertheless in Section 6 of this report, the findings of detailed analysis of the operational performance of the main site access junction on Mount Anville Road is outlined. .

6.0 NETWORK ANALYSIS

6.1 INTRODUCTION

6.1.1 The following paragraphs present the process by which the potential level of vehicle trips, associated with the future residential development have been generated and subsequently assigned across the local road network.

6.1.2 The operational assessment of the local road network has been undertaken using the Transport Research Laboratory (TRL) computer package PICADY (JUNCTIONS 9) for priority controlled junctions.

6.1.3 When considering priority controlled junctions, a Ratio of Flow to Capacity (RFC) of greater than 85% (0.85) would indicate a junction to be approaching capacity, as operation above this RFC value is poor and deteriorates quickly.

6.1.4 A 90-minute AM and PM period has been simulated, from 07:45 to 09:15 and 15:45 to 17:15. Traffic flows were entered using an Origin-Destination table for the peak hours.

6.1.5 In order to determine if the permitted Knockrabo site access junction on Mount Anville Road will cater adequately for the predicted level of traffic generation, a traffic model of this junction was analysed for the schemes 2019 adopted Opening Year and subsequent 2034 Future Design Year.

6.2 KNOCKRABO SITE ACCESS/MOUNT ANVILLE RD JUNCTION

6.2.1 The results of the operational assessment of this three-arm priority controlled junction during the weekday morning and evening peaks are summarised in Tables 6.1 to 6.6 below. The arms were labelled as follows within the PICADY model:

Arm A – Mount Anville Road (West)

Arm B – Site Access

Arm C – Mount Anville Road (East)

2019 Opening Year

6.2.2 The PICADY results (Table 6.1) indicate that the junction will operate well within capacity for the 2019 “Do Minimum” AM peak hour with a maximum Ratio of Flow

to Capacity (RFC) value of 0.12 and a corresponding queue of 0.1 vehicles recorded on the Knockrabo Site Access arm of the junction.

6.2.3 During the PM peak hour for the same scenario the PICADY results again (Table 6.1) indicate that the junction will operate well within capacity with a maximum Ratio of Flow to Capacity (RFC) value of 0.03 with no corresponding queue being recorded on the Knockrabo Site Access arm of the junction.

Scenario	Movement	Max RFC	Max Delay (s)	Max Queue (pcu)
2019 AM	B-AC	0.12	12.52	0.1
	C-AB	0.01	7.55	0.0
2019 PM	B-AC	0.03	7.92	0.0
	C-AB	0.03	6.35	0.0

Table 6.1: PICADY ANALYSIS – Do Minimum (Phase 1 & 1A)

6.2.4 During the 2019 "Do Something" AM peak hour, with the inclusion of the subject development traffic, the junction simulation model (Table 6.2) records an increase to the maximum ratio of demand to capacity (RFC) of 0.10 and a corresponding increase in queue of 0.2 vehicles.

6.2.5 For the 2019 "Do Something" PM peak hour, with the inclusion of the subject development traffic, the junction simulation model (Table 6.2) records an increase to the maximum ratio of demand to capacity (RFC) of 0.03 and a corresponding increase in queue of 0.1 vehicles. The full output data is included in Appendix D.

Scenario	Movement	Max RFC	Max Delay (s)	Max Queue (pcu)
2019 AM	B-AC	0.22	14.35	0.3
	C-AB	0.02	7.67	0.0
2019 PM	B-AC	0.06	8.22	0.1
	C-AB	0.05	6.53	0.1

Table 6.2: PICADY ANALYSIS – Do Something (Phase 1, 1A & 2)

6.2.6 The PICADY results (Table 6.3) indicate that the junction will operate well within capacity for the 2024 “Do Minimum” AM peak hour with a maximum Ratio of Flow to Capacity (RFC) value of 0.13 and a corresponding queue of 0.1 vehicles recorded on the Knockrabo Site Access arm of the junction.

6.2.7 During the PM peak hour for the same scenario the PICADY results again (Table 6.3) indicate that the junction will operate well within capacity with a maximum Ratio of Flow to Capacity (RFC) value of 0.03 with no corresponding queue being recorded on the Knockrabo Site Access arm of the junction.

Scenario	Movement	Max RFC	Max Delay (s)	Max Queue (pcu)
2019 AM	B-AC	0.13	13.33	0.1
	C-AB	0.01	7.76	0.0
2019 PM	B-AC	0.03	8.10	0.0
	C-AB	0.03	6.41	0.0

Table 6.3: PICADY ANALYSIS – Do Minimum (Phase 1 & 1A)

6.2.8 During the 2024 “Do Something” AM peak hour, with the inclusion of the subject development traffic, the junction simulation model (Table 6.4) records an increase to the maximum ratio of demand to capacity (RFC) of 0.11 and a corresponding increase in queue of 0.2 vehicles.

6.2.9 For the 2024 “Do Something” PM peak hour, with the inclusion of the subject development traffic, the junction simulation model (Table 6.4) records an increase to the maximum ratio of demand to capacity (RFC) of 0.03 and a corresponding increase in queue of 0.1 vehicles. The full output data is included in Appendix D.

Scenario	Movement	Max RFC	Max Delay (s)	Max Queue (pcu)
2024 AM	B-AC	0.22	14.35	0.3
	C-AB	0.02	7.67	0.0
2024 PM	B-AC	0.06	8.22	0.1
	C-AB	0.05	6.53	0.1

Table 6.4: PICADY ANALYSIS – Do Something (Phase 1, 1A & 2)

2034 Future Year

6.2.10 The PICADY results (Table 6.5) indicate that the junction will operate well within capacity for the 2034 "Do Minimum" AM peak hour with a maximum Ratio of Flow to Capacity (RFC) value of 0.14 and a corresponding queue of 0.2 vehicles recorded on the Knockrabo Site Access arm of the junction.

6.2.11 During the PM peak hour for the same scenario the PICADY results again (Table 6.5) indicate that the junction will operate well within capacity with a maximum Ratio of Flow to Capacity (RFC) value of 0.03 with no corresponding queue being recorded on the Knockrabo Site Access arm of the junction.

Scenario	Movement	Max RFC	Max Delay (s)	Max Queue (pcu)
2019 AM	B-AC	0.14	14.66	0.2
	C-AB	0.01	8.07	0.0
2019 PM	B-AC	0.03	8.37	0.0
	C-AB	0.03	6.51	0.0

Table 6.5: PICADY ANALYSIS – Do Minimum (Phase 1 & 1A)

6.2.12 During the 2034 "Do Something" AM peak hour, with the inclusion of the subject development traffic, the junction simulation model (Table 6.6) records an increase to the maximum ratio of demand to capacity (RFC) of 0.12 and a corresponding increase in queue of 0.12 vehicles.

6.2.13 For the 2034 "Do Something" PM peak hour, with the inclusion of the subject development traffic, the junction simulation model (Table 6.6) records an increase to the maximum ratio of demand to capacity (RFC) of 0.03 and a corresponding increase in queue of 0.1 vehicles. The full output data is included in Appendix D.

Scenario	Movement	Max RFC	Max Delay (s)	Max Queue (pcu)
2034 AM	B-AC	0.26	17.23	0.3
	C-AB	0.02	8.21	0.0
2034 PM	B-AC	0.06	8.71	0.1
	C-AB	0.06	6.70	0.1

Table 6.6: PICADY ANALYSIS – Do Something (Phase 1, 1A & 2)

7.0 SUMMARY & CONCLUSION

7.1 SUMMARY

7.1.1 DBFL Consulting Engineers (DBFL) have been commissioned by Knockrabo Investments DAC to prepare a Traffic and Transport Assessment for Phase 2 of a proposed residential development on lands located at Knockrabo, Mount Anville, Dublin 14.

7.1.2 The subject proposals constitute Phase 2 of the overall proposed masterplan for the entire Knockrabo lands and seek permission for the development of the following:-

- 22 houses (including the Coachhouse and Gatelodge West)
- 71 apartments (69 apartments in Blocks 'E, F, G & H', and 2 at Cedarmount House)
- Childcare Facility (400sqm)
- Community Facility (223sqm).

7.1.3 This Traffic and Transport Assessment has been undertaken to quantify the potential influence of the proposed development on lands at Knockrabo upon the operational performance of the local area road network. Our methodology incorporated a number of key inter-related stages, including: -

- Site Audit;
- Planning File Review;
- Policy Review;
- Traffic Surveys;
- Trip Generation, Distribution and Assignment;
- Network Impact; and
- Network Assessment.

7.1.4 The principal findings that can be drawn from this TTA are as follows:

- The analysis has determined that there will be an additional 50 two-way vehicle trips to/from the proposed development site in the AM peak period (34 two-way vehicle trips in the PM Peak) that will travel through the

Knockrabo site access junction in the 2034 design year as result of the proposed Phase 2 development.

- The resulting percentage increase in traffic flows at the Knockrabo Site Access/Mount Anville Rd junction as a result of the traffic generated by the proposed Phase 2 development is established as being 3.25% in the AM peak period (2.80% in the PM peak period). This is below 5% threshold for congested networks.
- The junction analysis of the permitted Knockrabo Site Access/Mount Anville Rd junction reveals that this junction will operate with reserve capacity in the 2019 Opening Year in addition to the 2034 Design Year (Opening Year +15 years) Post Development traffic scenarios. A maximum ratio of demand to capacity (RFC) of 0.26 was recorded during the 2034 Do-Something AM Peak scenario. This represents an RFC increase of 0.12 from the Do-Minimum scenario. This demonstrates the minimal impact that the proposed development will have upon the operational performance of this junction.

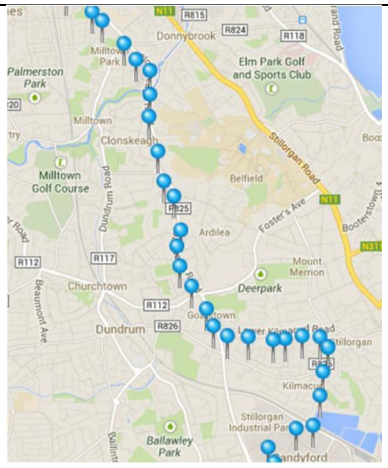
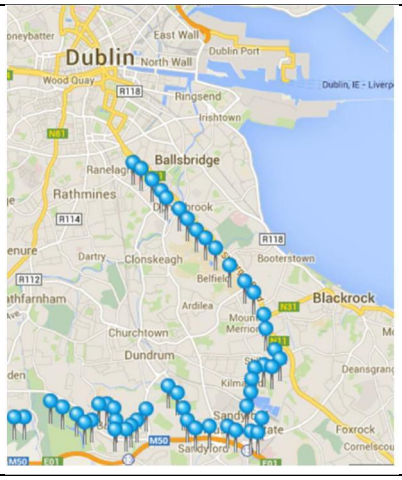
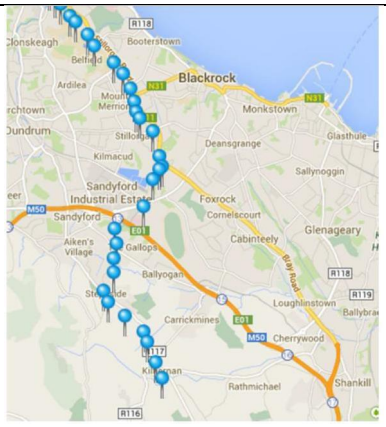
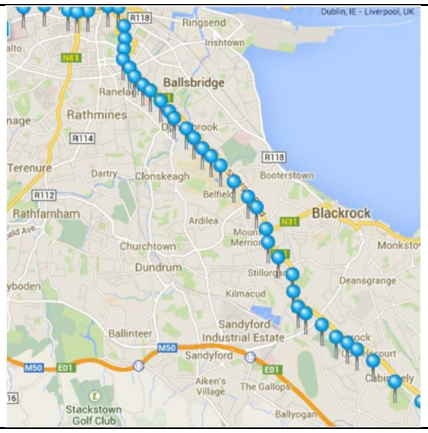
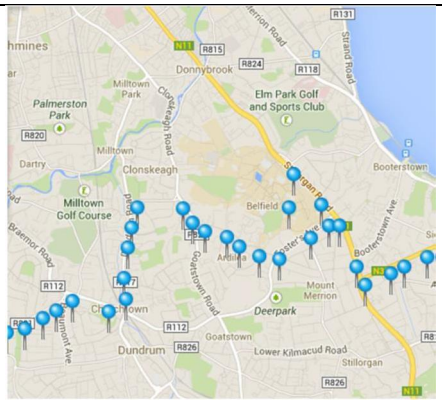
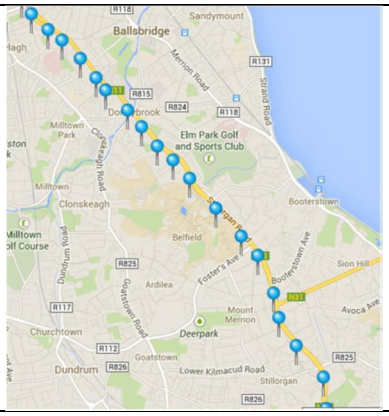
7.2 CONCLUSION

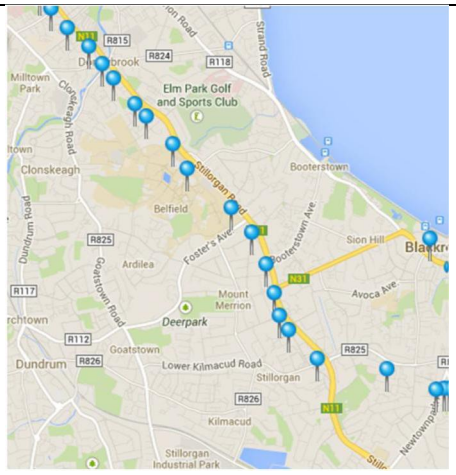
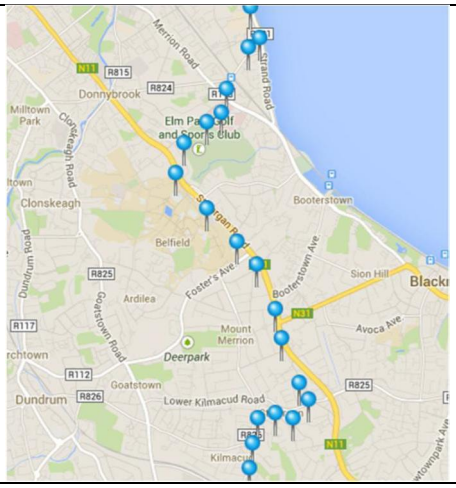
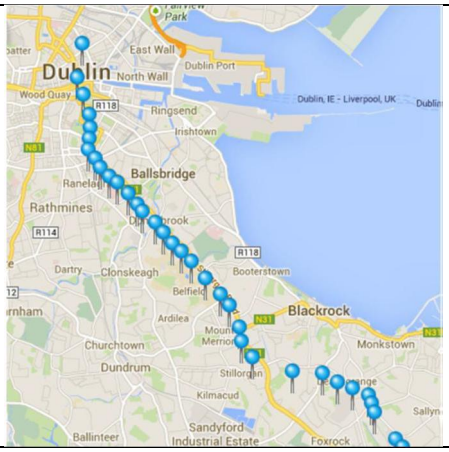
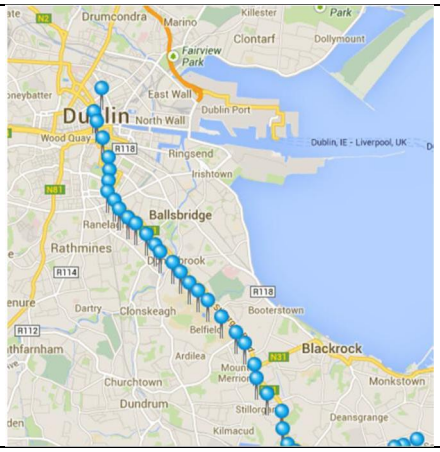
7.2.1 In conclusion, it is considered that the impact on the surrounding road network, as a result of the proposed Knockrabo Phase 2 development Lusk will be minimal. This is based on the anticipated levels of traffic generated by the proposed development, the existing and future road infrastructure and the information and analysis summarised in the above report. It is concluded that there are no traffic or transportation related reasons that should prevent the granting of planning permission for the proposed development.

APPENDICES

APPENDIX A

Public Transport Bus Routes

	
Dublin Bus Route 11 (Source www.Dublinbus.ie)	Dublin Bus Route 116 (Source www.Dublinbus.ie)
	
Dublin Bus Route 118 (Source www.Dublinbus.ie)	Dublin Bus Route 145 (Source www.Dublinbus.ie)
	
Dublin Bus Route 17 (Source www.Dublinbus.ie)	Dublin Bus Route 46A (Source www.Dublinbus.ie)

	
Dublin Bus Route 46E (Source www.Dublinbus.ie)	Dublin Bus Route 47 (Source www.Dublinbus.ie)
	
Dublin Bus Route 7B (Source www.Dublinbus.ie)	Dublin Bus Route 7D (Source www.Dublinbus.ie)

APPENDIX B

TRICS OUTPUT DATA

Calculation Reference: AUDIT-638801-171114-1112

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

15	GREATER DUBLIN	
	DL DUBLIN	9 days

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

Secondary Filtering selection:

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

Parameter:	Number of dwellings
Actual Range:	20 to 372 (units:)
Range Selected by User:	18 to 372 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 22/11/16

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

Selected survey days:

Tuesday	6 days
Wednesday	1 days
Thursday	1 days
Friday	1 days

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

Selected survey types:

Manual count	9 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	6
Edge of Town	1
Neighbourhood Centre (PPS6 Local Centre)	2

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

Selected Location Sub Categories:

Residential Zone	6
Built-Up Zone	1
No Sub Category	2

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

Secondary Filtering selection:

Use Class:

C3	9 days

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

Secondary Filtering selection (Cont.):

Population within 1 mile:

10,001 to 15,000	1 days
20,001 to 25,000	2 days
25,001 to 50,000	6 days

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

Population within 5 miles:

250,001 to 500,000	1 days
500,001 or More	8 days

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

Car ownership within 5 miles:

0.6 to 1.0	4 days
1.1 to 1.5	5 days

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

Travel Plan:

Yes	1 days
No	8 days

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

PTAL Rating:

No PTAL Present	9 days

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

LIST OF SITES relevant to selection parameters

1 DL-03-C-07 BLOCKS OF FLATS DUBLIN
SANDYFORD ROAD
DUNDRUM
DUBLIN
Edge of Town
No Sub Category
Total Number of dwellings: 372
Survey date: TUESDAY *11/05/10* *Survey Type: MANUAL*

2 DL-03-C-08 FLATS DUBLIN
FINGLAS ROAD
FINGLAS
DUBLIN
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 340
Survey date: FRIDAY *30/09/11* *Survey Type: MANUAL*

3 DL-03-C-09 FLATS DUBLIN
OLD FINGLAS ROAD
GLASNEVIN
DUBLIN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 201
Survey date: THURSDAY *29/09/11* *Survey Type: MANUAL*

4 DL-03-C-11 BLOCK OF FLATS DUBLIN
WYCKHAM WAY
DUNDRUM
DUBLIN
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Number of dwellings: 96
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

5 DL-03-C-12 BLOCK OF FLATS DUBLIN
BOOTERSTOWN AVENUE

DUBLIN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 47
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

6 DL-03-C-13 BLOCK OF FLATS DUBLIN
SANDYFORD ROAD

DUBLIN
Neighbourhood Centre (PPS6 Local Centre)
Built-Up Zone
Total Number of dwellings: 52
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

7 DL-03-C-14 BLOCKS OF FLATS DUBLIN
BALLINTEER ROAD
DUNDRUM
DUBLIN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 140
Survey date: TUESDAY *10/09/13* *Survey Type: MANUAL*

8 DL-03-C-15 BLOCKS OF FLATS DUBLIN
MONKSTOWN ROAD
MONKSTOWN
DUBLIN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 20
Survey date: WEDNESDAY *01/10/14* *Survey Type: MANUAL*

9 DL-03-C-16 BLOCKS OF FLATS DUBLIN
BOTANIC AVENUE
DRUMCONDRA
DUBLIN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 31
Survey date: TUESDAY *22/11/16* *Survey Type: MANUAL*

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	9	144	0.044	9	144	0.216	9	144	0.260
08:00 - 09:00	9	144	0.047	9	144	0.225	9	144	0.272
09:00 - 10:00	9	144	0.051	9	144	0.092	9	144	0.143
10:00 - 11:00	9	144	0.029	9	144	0.051	9	144	0.080
11:00 - 12:00	9	144	0.042	9	144	0.040	9	144	0.082
12:00 - 13:00	9	144	0.059	9	144	0.067	9	144	0.126
13:00 - 14:00	9	144	0.074	9	144	0.069	9	144	0.143
14:00 - 15:00	9	144	0.066	9	144	0.057	9	144	0.123
15:00 - 16:00	9	144	0.093	9	144	0.059	9	144	0.152
16:00 - 17:00	9	144	0.112	9	144	0.052	9	144	0.164
17:00 - 18:00	9	144	0.185	9	144	0.042	9	144	0.227
18:00 - 19:00	9	144	0.171	9	144	0.070	9	144	0.241
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.973			1.040			2.013

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

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

Parameter summary

Trip rate parameter range selected:	20 - 372 (units:)
Survey date date range:	01/01/09 - 22/11/16
Number of weekdays (Monday-Friday):	9
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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

Calculation Reference: AUDIT-638801-171114-1103

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
VEHICLES

Selected regions and areas:

15	GREATER DUBLIN	
	DL DUBLIN	5 days

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

Secondary Filtering selection:

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

Parameter:	Number of dwellings
Actual Range:	8 to 206 (units:)
Range Selected by User:	8 to 437 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 07/09/12

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

Selected survey days:

Monday	2 days
Tuesday	1 days
Friday	2 days

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

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	1
Edge of Town	1
Neighbourhood Centre (PPS6 Local Centre)	2

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

Selected Location Sub Categories:

Residential Zone	4
No Sub Category	1

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

Secondary Filtering selection:

Use Class:

C3	5 days

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

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	1 days
10,001 to 15,000	1 days
15,001 to 20,000	1 days
25,001 to 50,000	2 days

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

Population within 5 miles:

125,001 to 250,000	1 days
500,001 or More	4 days

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

Car ownership within 5 miles:

1.1 to 1.5	3 days
1.6 to 2.0	2 days

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

Travel Plan:

No	5 days

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

PTAL Rating:

No PTAL Present	5 days

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

LIST OF SITES relevant to selection parameters

1 DL-03-A-03 TERRACED/SEMI-DET. DUBLIN
RAHENY ROAD
RAHENY
DUBLIN
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Number of dwellings: 206
Survey date: TUESDAY *20/04/10* *Survey Type: MANUAL*

2 DL-03-A-06 DETACHED DUBLIN
UPPER KILMACUD ROAD
DUNDRUM
DUBLIN
Edge of Town
Residential Zone
Total Number of dwellings: 147
Survey date: FRIDAY *30/04/10* *Survey Type: MANUAL*

3 DL-03-A-07 SEMI DET./TERRACED DUBLIN
CASTLE DAWSON
BLACKROCK
DUBLIN
Edge of Town Centre
Residential Zone
Total Number of dwellings: 56
Survey date: MONDAY *26/09/11* *Survey Type: MANUAL*

4 DL-03-A-08 VARIOUS HOUSES DUBLIN
CASTLE PARK ROAD
DALKEY
DUBLIN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 36
Survey date: MONDAY *26/09/11* *Survey Type: MANUAL*

5 DL-03-A-09 TERRACED DUBLIN
RATHFARNHAM ROAD
RATHFARNHAM
DUBLIN
Neighbourhood Centre (PPS6 Local Centre)
No Sub Category
Total Number of dwellings: 8
Survey date: FRIDAY *07/09/12* *Survey Type: MANUAL*

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	91	0.062	5	91	0.214	5	91	0.276
08:00 - 09:00	5	91	0.146	5	91	0.397	5	91	0.543
09:00 - 10:00	5	91	0.121	5	91	0.219	5	91	0.340
10:00 - 11:00	5	91	0.150	5	91	0.161	5	91	0.311
11:00 - 12:00	5	91	0.177	5	91	0.190	5	91	0.367
12:00 - 13:00	5	91	0.216	5	91	0.181	5	91	0.397
13:00 - 14:00	5	91	0.205	5	91	0.152	5	91	0.357
14:00 - 15:00	5	91	0.181	5	91	0.190	5	91	0.371
15:00 - 16:00	5	91	0.221	5	91	0.210	5	91	0.431
16:00 - 17:00	5	91	0.327	5	91	0.170	5	91	0.497
17:00 - 18:00	5	91	0.362	5	91	0.192	5	91	0.554
18:00 - 19:00	5	91	0.232	5	91	0.216	5	91	0.448
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.400			2.492			4.892

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

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

Parameter summary

Trip rate parameter range selected:	8 - 206 (units:)
Survey date date range:	01/01/09 - 07/09/12
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Calculation Reference: AUDIT-638801-171116-1115

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
Category : D - NURSERY
VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	WL	WILTSHIRE	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
05	EAST MIDLANDS		
	NR	NORTHAMPTONSHIRE	1 days
08	NORTH WEST		
	GM	GREATER MANCHESTER	1 days
09	NORTH		
	TW	TYNE & WEAR	1 days
15	GREATER DUBLIN		
	DL	DUBLIN	1 days

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

Secondary Filtering selection:

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

Parameter: Gross floor area
Actual Range: 182 to 500 (units: sqm)
Range Selected by User: 150 to 2350 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 19/05/17

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

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	3 days
Thursday	1 days

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

Selected survey types:

Manual count	6 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	6

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

Selected Location Sub Categories:

Residential Zone	6

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

Secondary Filtering selection:

Use Class:

D1	6 days

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

Population within 1 mile:

25,001 to 50,000	5 days
100,001 or More	1 days

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

Population within 5 miles:

75,001 to 100,000	1 days
125,001 to 250,000	2 days
250,001 to 500,000	1 days
500,001 or More	2 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	4 days

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

Travel Plan:

No	6 days

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

PTAL Rating:

No PTAL Present	6 days

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

LIST OF SITES relevant to selection parameters

1	CA-04-D-02 EASTFIELD ROAD PETERBOROUGH Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: *Survey date: TUESDAY*	NURSERY	400 sqm *18/10/16*	CAMBRIDGESHIRE *Survey Type: MANUAL*
2	DL-04-D-01 78 THE PARK BEAUMONT WOODS DUBLIN Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: *Survey date: WEDNESDAY*	NURSERY	256 sqm *26/09/12*	DUBLIN *Survey Type: MANUAL*
3	GM-04-D-01 RUFFORD ROAD WHALLEY RANGE MANCHESTER Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: *Survey date: MONDAY*	NURSERY	200 sqm *16/11/09*	GREATER MANCHESTER *Survey Type: MANUAL*
4	NR-04-D-02 PARK AVENUE KETTERING Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: *Survey date: WEDNESDAY*	NURSERY	182 sqm *26/09/12*	NORTHAMPTONSHIRE *Survey Type: MANUAL*
5	TW-04-D-02 ETTRICK GROVE HIGH BARNES SUNDERLAND Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: *Survey date: WEDNESDAY*	NURSERY	500 sqm *28/11/12*	TYNE & WEAR *Survey Type: MANUAL*
6	WL-04-D-01 SHREWSBURY ROAD WALCOT SWINDON Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: *Survey date: THURSDAY*	NURSERY	500 sqm *22/09/16*	WILTSHIRE *Survey Type: MANUAL*

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

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	2	328	0.152	2	328	0.000	2	328	0.152
07:00 - 08:00	6	340	2.502	6	340	1.570	6	340	4.072
08:00 - 09:00	6	340	4.367	6	340	4.171	6	340	8.538
09:00 - 10:00	6	340	1.914	6	340	1.570	6	340	3.484
10:00 - 11:00	6	340	0.491	6	340	0.196	6	340	0.687
11:00 - 12:00	6	340	0.589	6	340	0.736	6	340	1.325
12:00 - 13:00	6	340	0.932	6	340	0.932	6	340	1.864
13:00 - 14:00	6	340	1.030	6	340	1.276	6	340	2.306
14:00 - 15:00	6	340	0.589	6	340	0.687	6	340	1.276
15:00 - 16:00	6	340	1.865	6	340	1.521	6	340	3.386
16:00 - 17:00	6	340	2.502	6	340	2.846	6	340	5.348
17:00 - 18:00	6	340	3.337	6	340	3.729	6	340	7.066
18:00 - 19:00	6	340	0.589	6	340	1.079	6	340	1.668
19:00 - 20:00	1	400	0.000	1	400	0.000	1	400	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			20.859			20.313			41.172

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

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

Parameter summary

Trip rate parameter range selected:	182 - 500 (units: sqm)
Survey date date range:	01/01/09 - 19/05/17
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY
TAXIS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	2	328	0.000	2	328	0.000	2	328	0.000
07:00 - 08:00	6	340	0.196	6	340	0.147	6	340	0.343
08:00 - 09:00	6	340	0.049	6	340	0.098	6	340	0.147
09:00 - 10:00	6	340	0.000	6	340	0.000	6	340	0.000
10:00 - 11:00	6	340	0.049	6	340	0.049	6	340	0.098
11:00 - 12:00	6	340	0.000	6	340	0.000	6	340	0.000
12:00 - 13:00	6	340	0.098	6	340	0.098	6	340	0.196
13:00 - 14:00	6	340	0.000	6	340	0.000	6	340	0.000
14:00 - 15:00	6	340	0.000	6	340	0.000	6	340	0.000
15:00 - 16:00	6	340	0.000	6	340	0.000	6	340	0.000
16:00 - 17:00	6	340	0.000	6	340	0.000	6	340	0.000
17:00 - 18:00	6	340	0.049	6	340	0.049	6	340	0.098
18:00 - 19:00	6	340	0.049	6	340	0.049	6	340	0.098
19:00 - 20:00	1	400	0.000	1	400	0.000	1	400	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.490			0.490			0.980

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

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

Parameter summary

Trip rate parameter range selected:	182 - 500 (units: sqm)
Survey date date range:	01/01/09 - 19/05/17
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY
OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	2	328	0.000	2	328	0.000	2	328	0.000
07:00 - 08:00	6	340	0.049	6	340	0.049	6	340	0.098
08:00 - 09:00	6	340	0.000	6	340	0.000	6	340	0.000
09:00 - 10:00	6	340	0.049	6	340	0.049	6	340	0.098
10:00 - 11:00	6	340	0.098	6	340	0.049	6	340	0.147
11:00 - 12:00	6	340	0.049	6	340	0.098	6	340	0.147
12:00 - 13:00	6	340	0.000	6	340	0.000	6	340	0.000
13:00 - 14:00	6	340	0.000	6	340	0.000	6	340	0.000
14:00 - 15:00	6	340	0.000	6	340	0.000	6	340	0.000
15:00 - 16:00	6	340	0.000	6	340	0.000	6	340	0.000
16:00 - 17:00	6	340	0.000	6	340	0.000	6	340	0.000
17:00 - 18:00	6	340	0.049	6	340	0.049	6	340	0.098
18:00 - 19:00	6	340	0.000	6	340	0.000	6	340	0.000
19:00 - 20:00	1	400	0.000	1	400	0.000	1	400	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.294			0.294			0.588

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

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

Parameter summary

Trip rate parameter range selected:	182 - 500 (units: sqm)
Survey date date range:	01/01/09 - 19/05/17
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY
PSVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	2	328	0.000	2	328	0.000	2	328	0.000
07:00 - 08:00	6	340	0.000	6	340	0.000	6	340	0.000
08:00 - 09:00	6	340	0.049	6	340	0.049	6	340	0.098
09:00 - 10:00	6	340	0.000	6	340	0.000	6	340	0.000
10:00 - 11:00	6	340	0.000	6	340	0.000	6	340	0.000
11:00 - 12:00	6	340	0.000	6	340	0.000	6	340	0.000
12:00 - 13:00	6	340	0.000	6	340	0.000	6	340	0.000
13:00 - 14:00	6	340	0.000	6	340	0.000	6	340	0.000
14:00 - 15:00	6	340	0.000	6	340	0.000	6	340	0.000
15:00 - 16:00	6	340	0.000	6	340	0.000	6	340	0.000
16:00 - 17:00	6	340	0.000	6	340	0.000	6	340	0.000
17:00 - 18:00	6	340	0.000	6	340	0.000	6	340	0.000
18:00 - 19:00	6	340	0.000	6	340	0.000	6	340	0.000
19:00 - 20:00	1	400	0.000	1	400	0.000	1	400	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.049			0.049			0.098

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

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

Parameter summary

Trip rate parameter range selected:	182 - 500 (units: sqm)
Survey date date range:	01/01/09 - 19/05/17
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY
CYCLISTS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	2	328	0.000	2	328	0.000	2	328	0.000
07:00 - 08:00	6	340	0.049	6	340	0.000	6	340	0.049
08:00 - 09:00	6	340	0.294	6	340	0.196	6	340	0.490
09:00 - 10:00	6	340	0.000	6	340	0.000	6	340	0.000
10:00 - 11:00	6	340	0.000	6	340	0.000	6	340	0.000
11:00 - 12:00	6	340	0.000	6	340	0.000	6	340	0.000
12:00 - 13:00	6	340	0.000	6	340	0.000	6	340	0.000
13:00 - 14:00	6	340	0.049	6	340	0.049	6	340	0.098
14:00 - 15:00	6	340	0.000	6	340	0.000	6	340	0.000
15:00 - 16:00	6	340	0.000	6	340	0.000	6	340	0.000
16:00 - 17:00	6	340	0.000	6	340	0.049	6	340	0.049
17:00 - 18:00	6	340	0.098	6	340	0.196	6	340	0.294
18:00 - 19:00	6	340	0.000	6	340	0.000	6	340	0.000
19:00 - 20:00	1	400	0.000	1	400	0.000	1	400	0.000
20:00 - 21:00	1	400	0.000	1	400	0.000	1	400	0.000
21:00 - 22:00	1	400	0.000	1	400	0.000	1	400	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.490			0.490			0.980

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

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

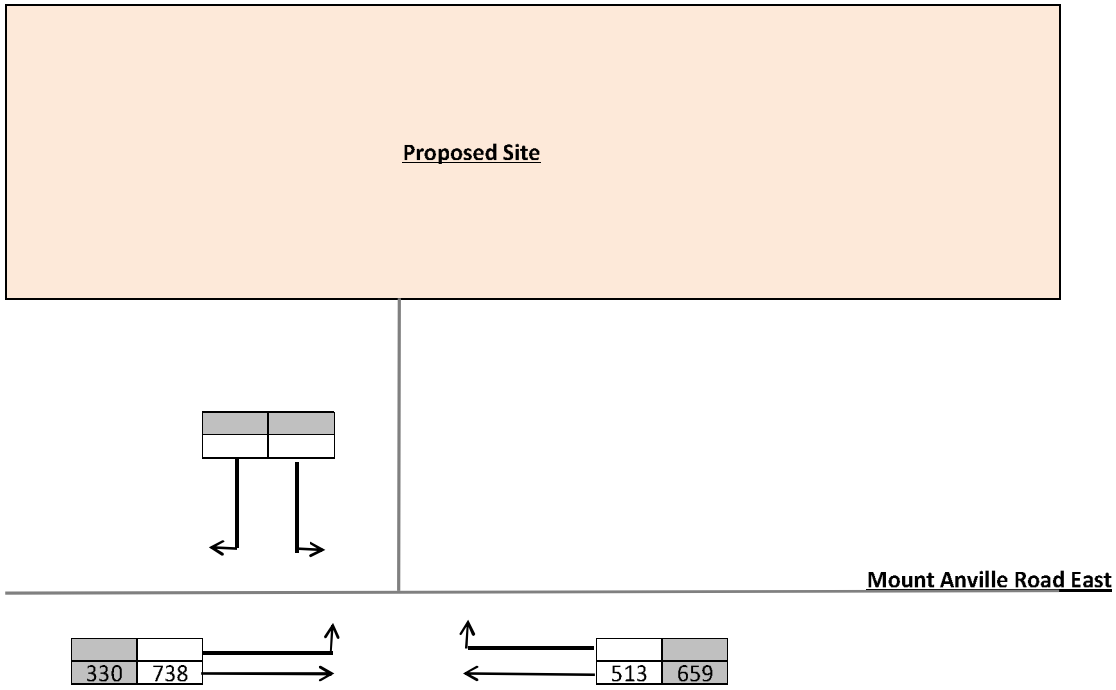
Parameter summary

Trip rate parameter range selected:	182 - 500 (units: sqm)
Survey date date range:	01/01/09 - 19/05/17
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

APPENDIX C

TRAFFIC FLOW DIAGRAMS



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

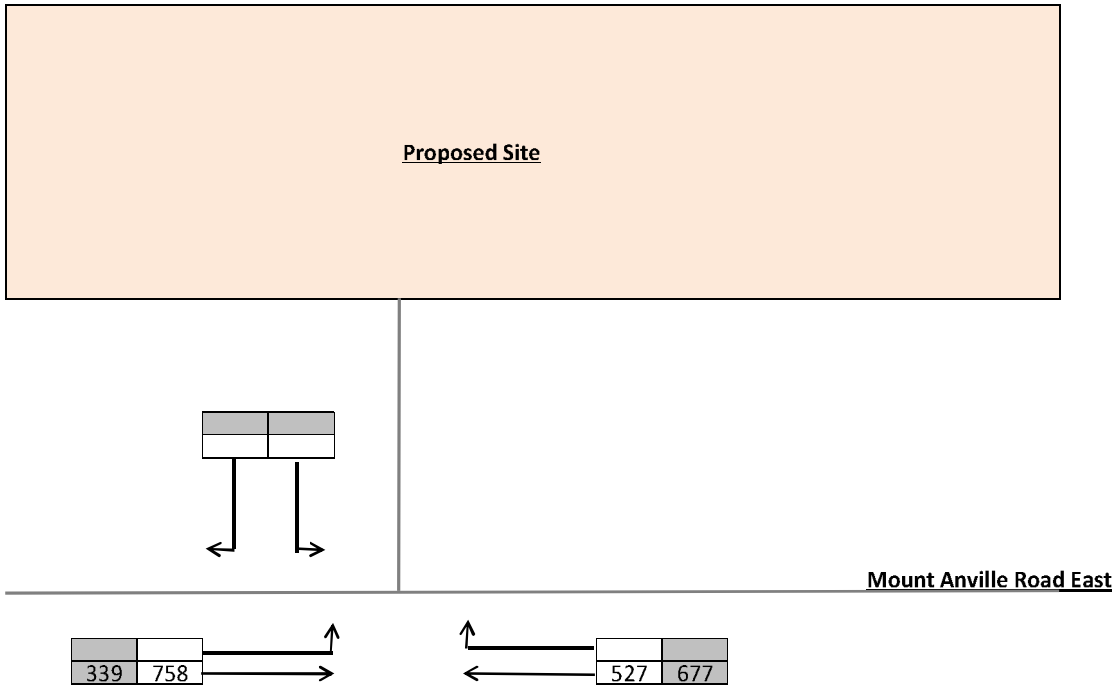
Base Flows 2017

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	1
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Growth Factor = 1.03

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

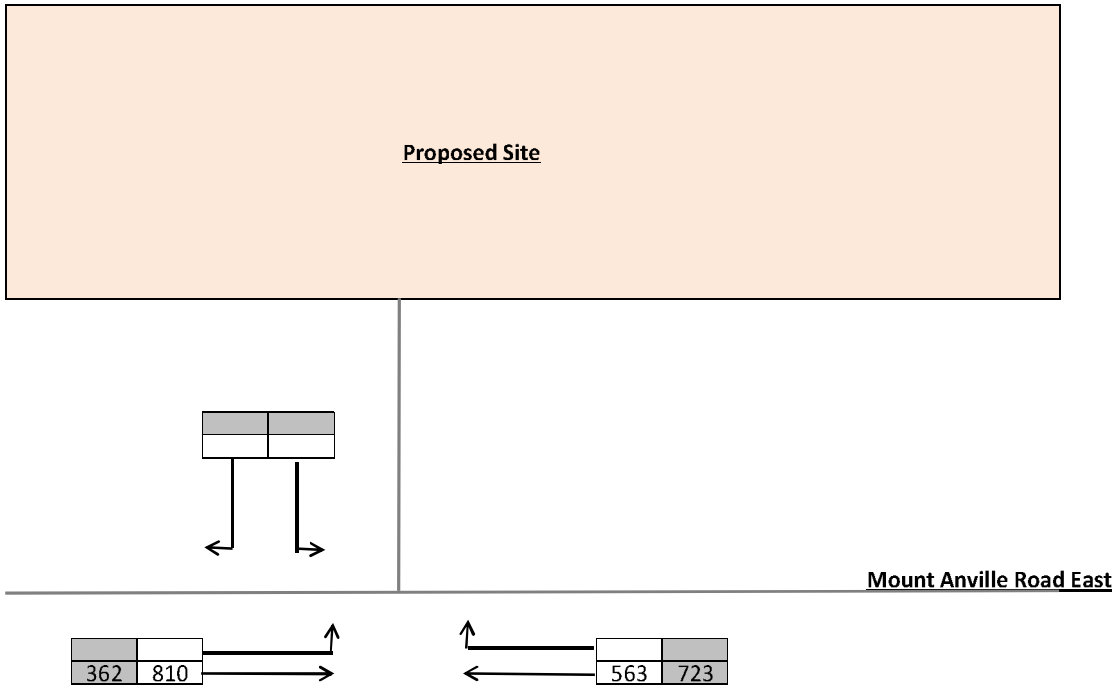
Base Flows 2019

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	2
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Growth Factor = 1.10

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

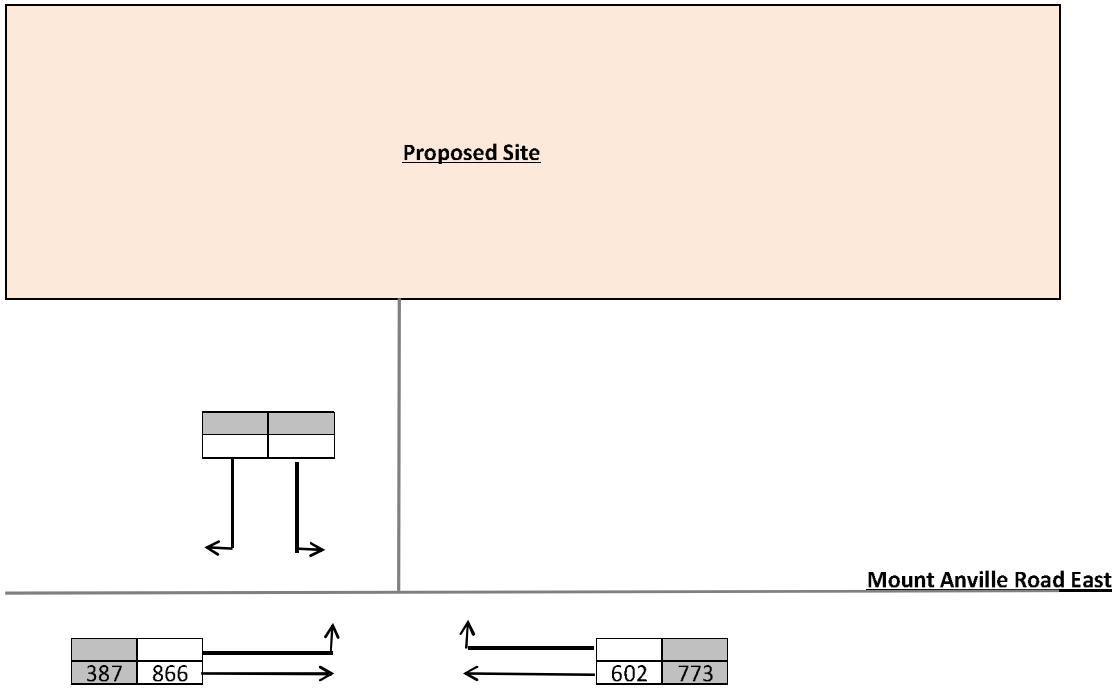
Base Flows 2024

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	3
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Growth Factor = 1.17

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

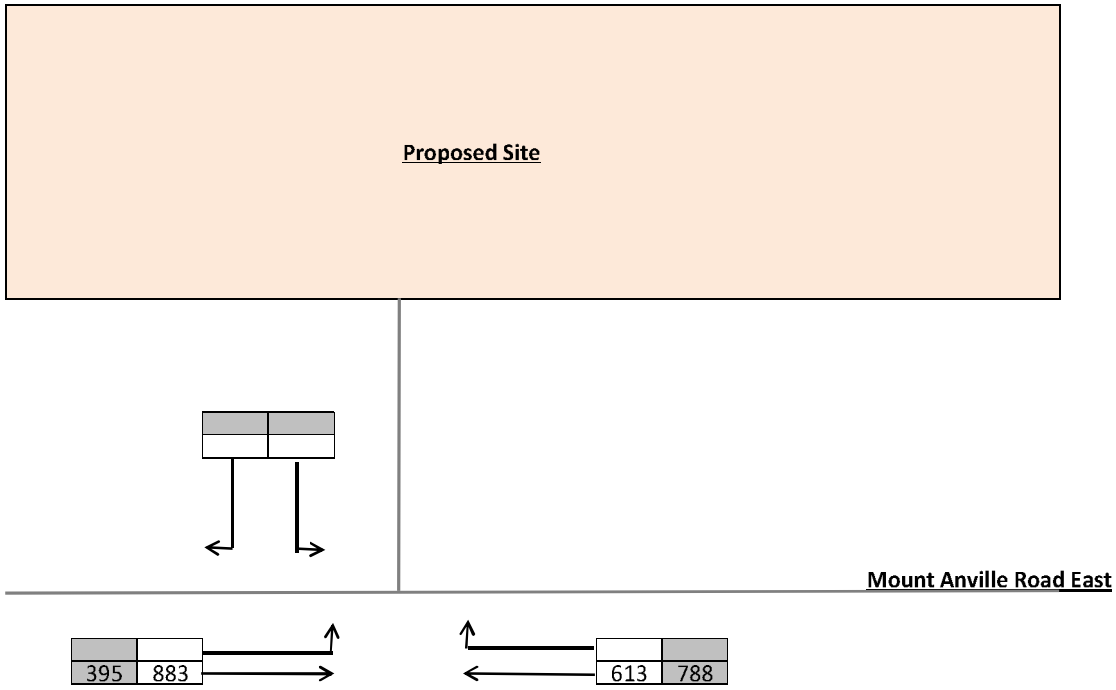
Base Flows 2029

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	4
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Growth Factor = 1.20

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

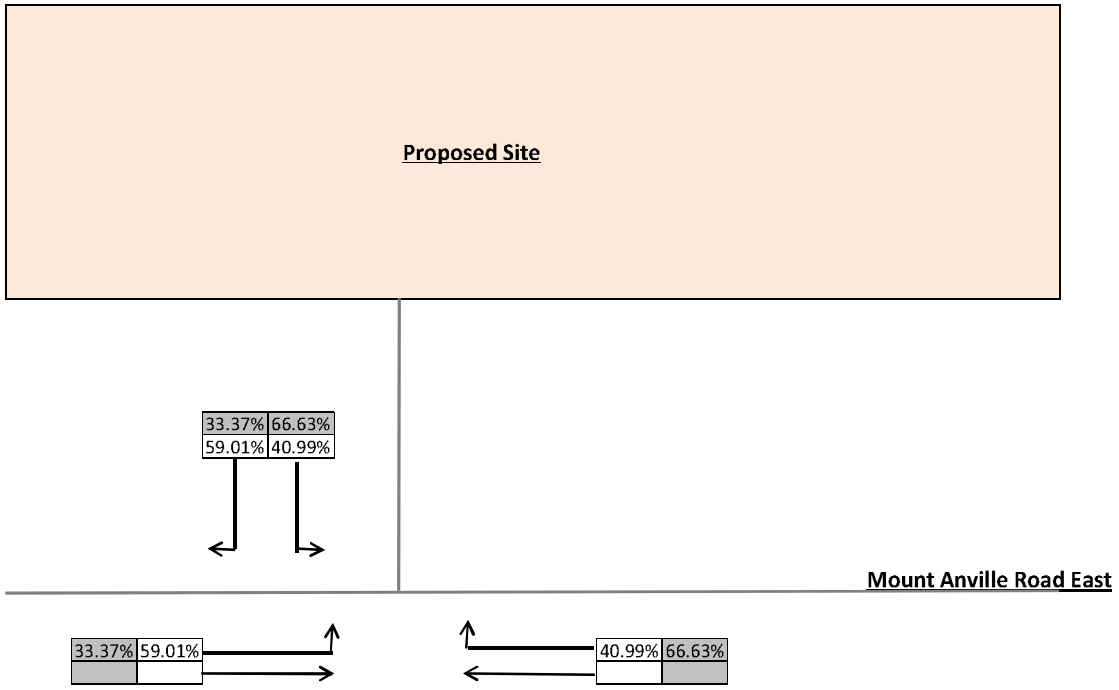
Base Flows 2034

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	5
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

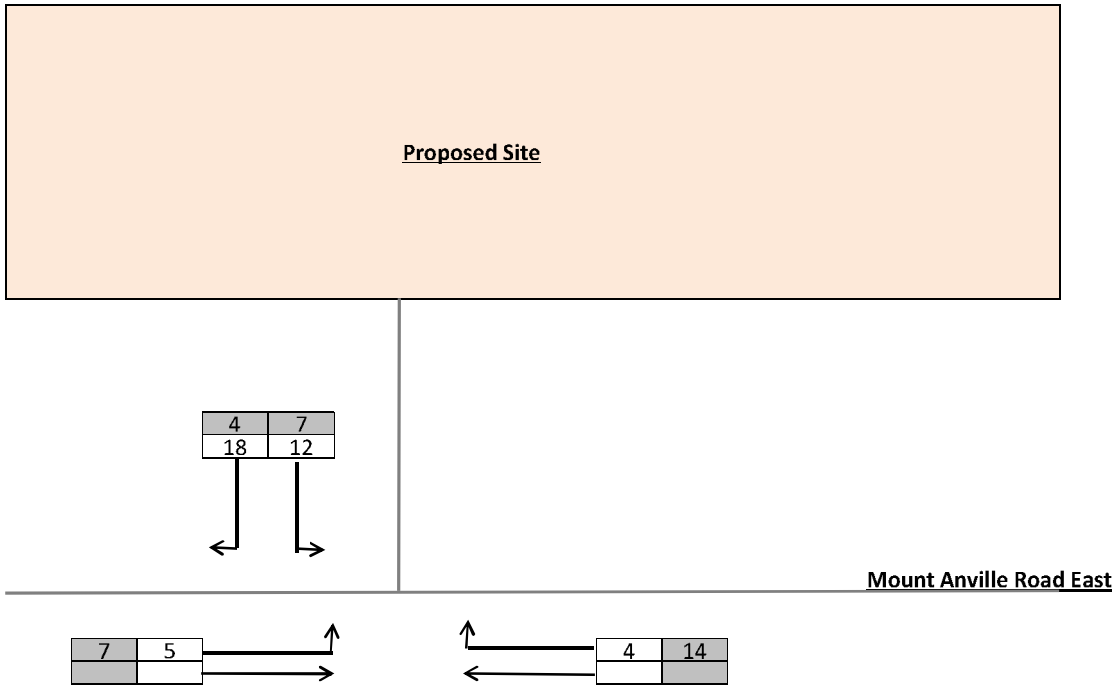
Percentage Distribution of New Trips

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	6
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

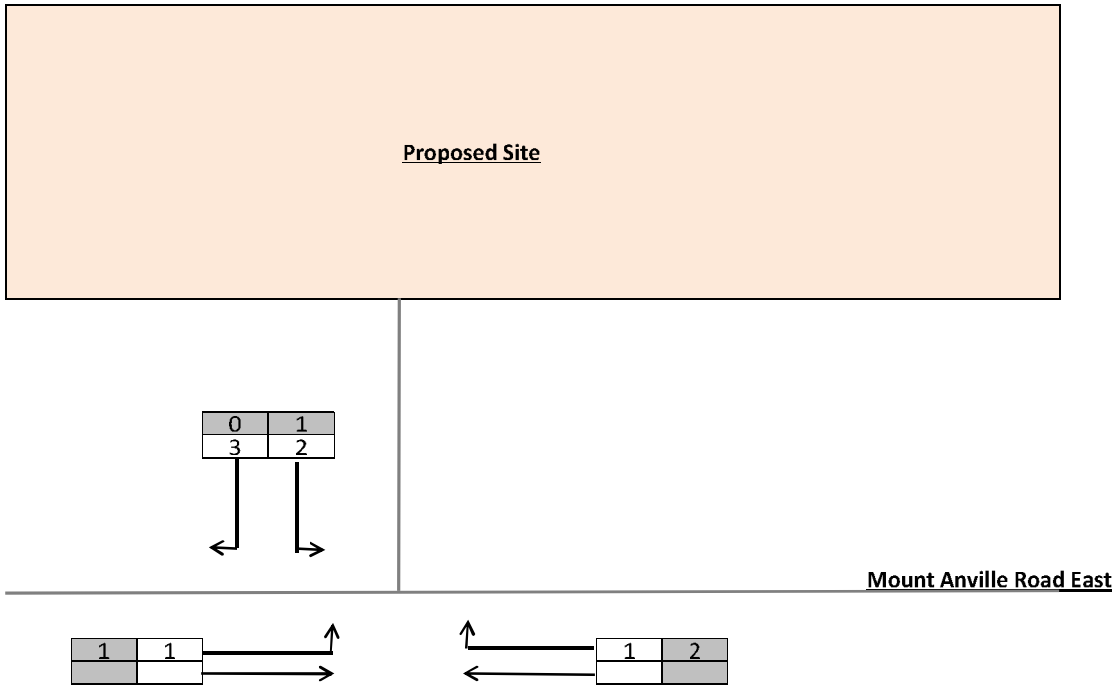
Phase 1 Trips

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	7
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

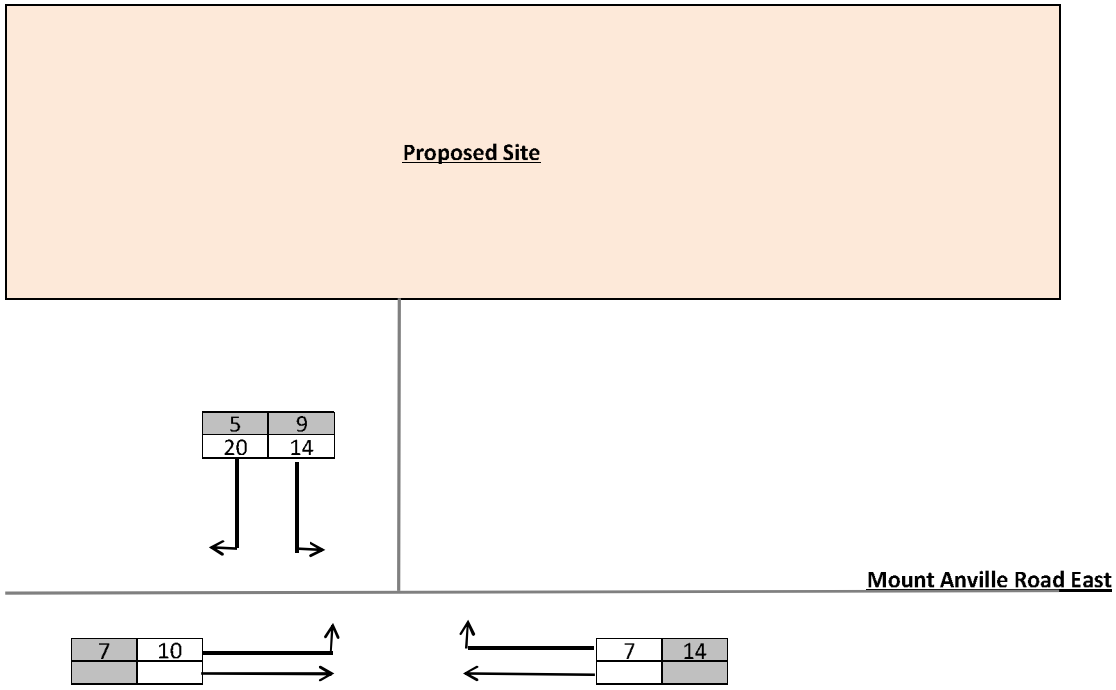
Phase 1A Trips

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	8
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

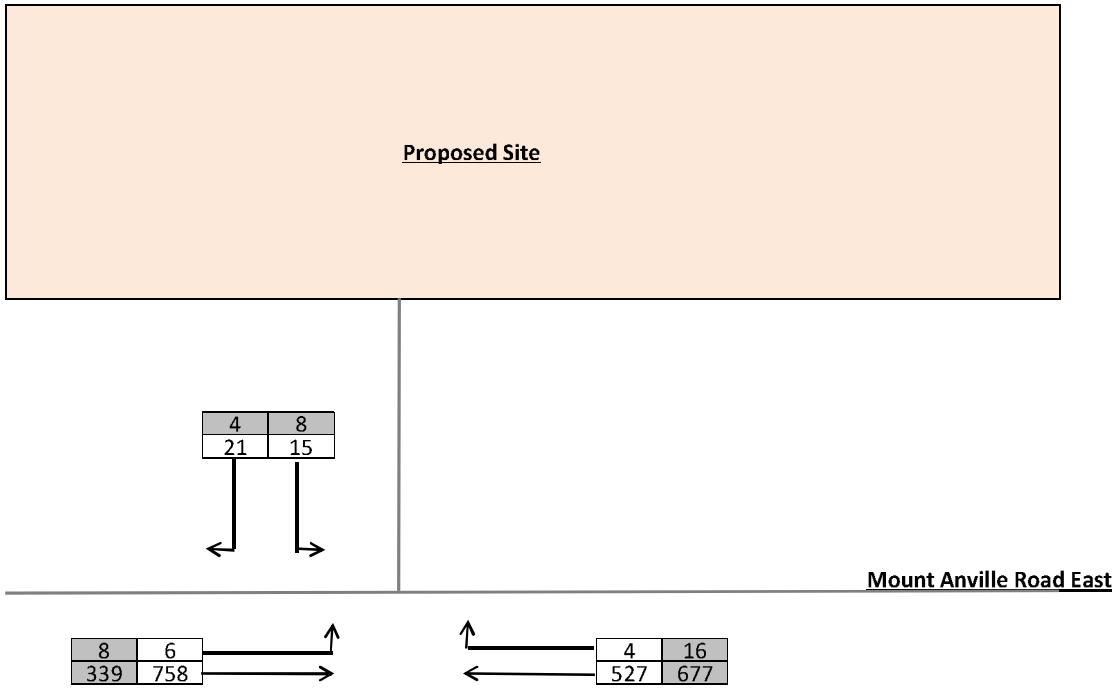
Phase 2

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	9
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

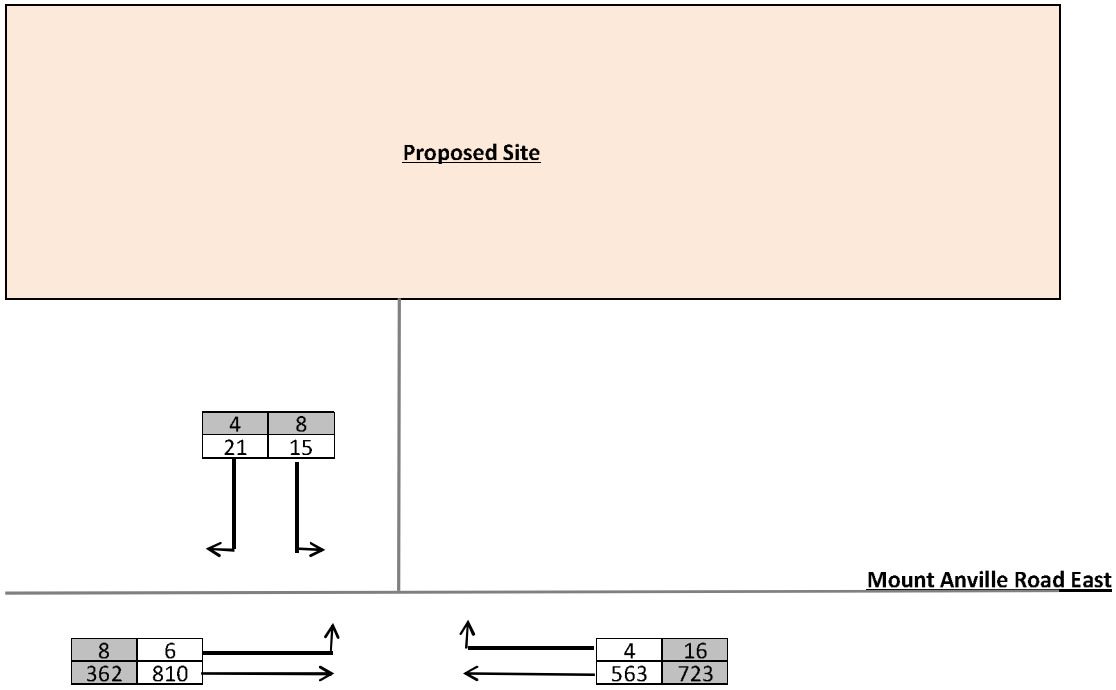
2018 Do Minimum (Phase 1 & Phase 1A included)

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	10
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

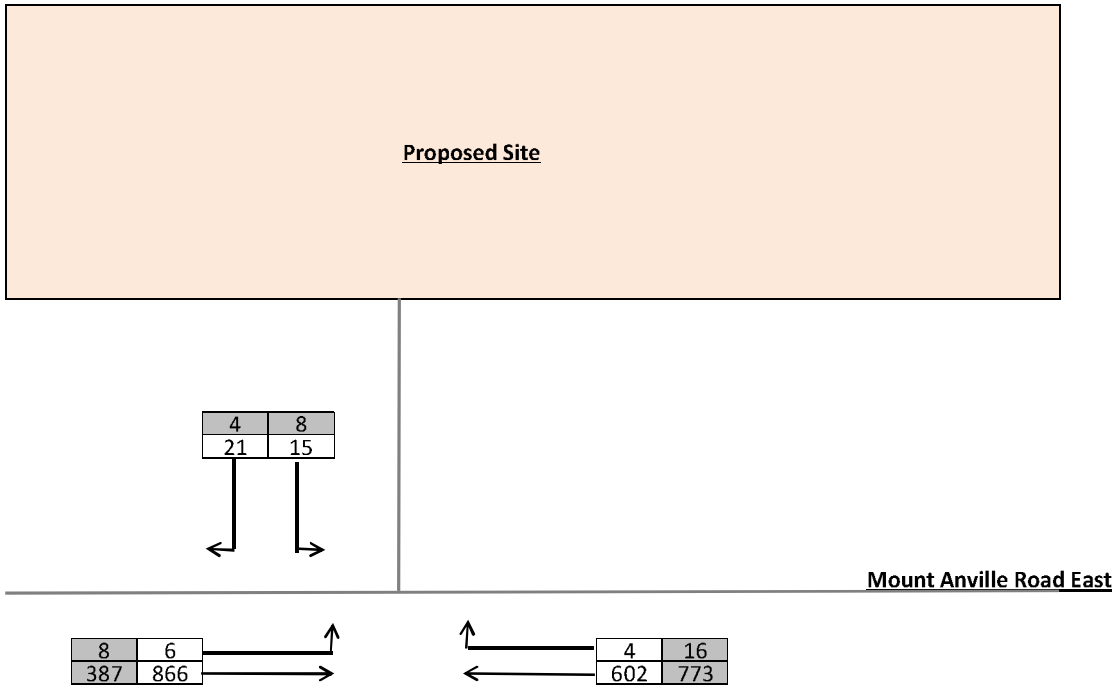
2024 Do Minimum (Phase 1 & Phase 1A included)

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	11
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

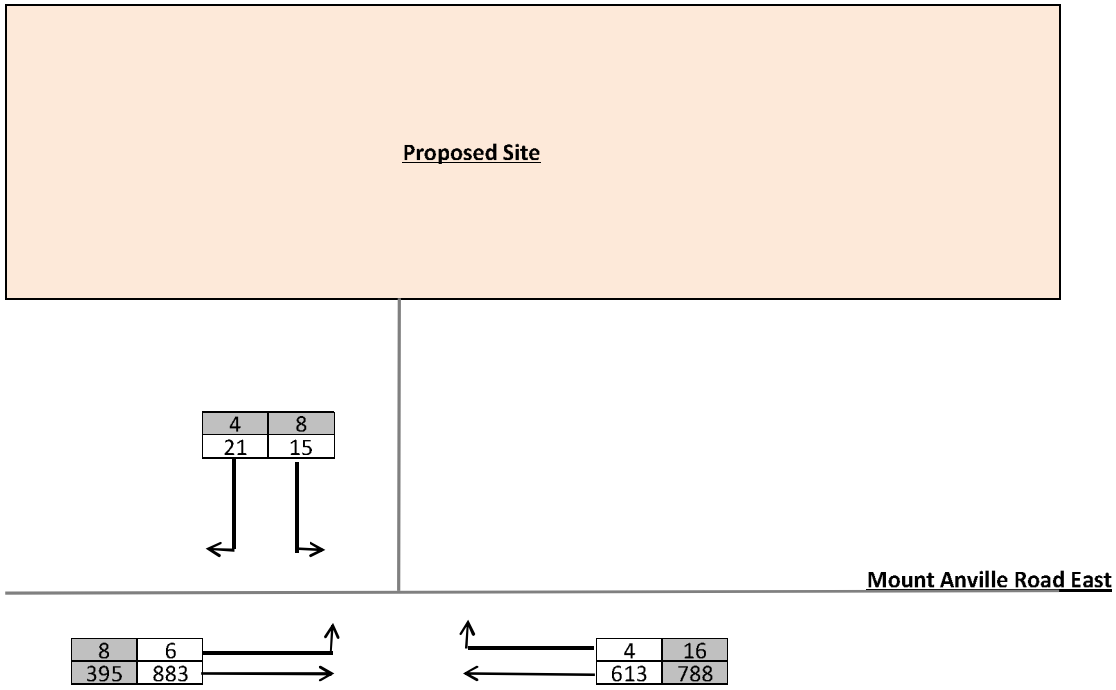
2029 Do Minimum (Phase 1 & Phase 1A included)

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	12
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

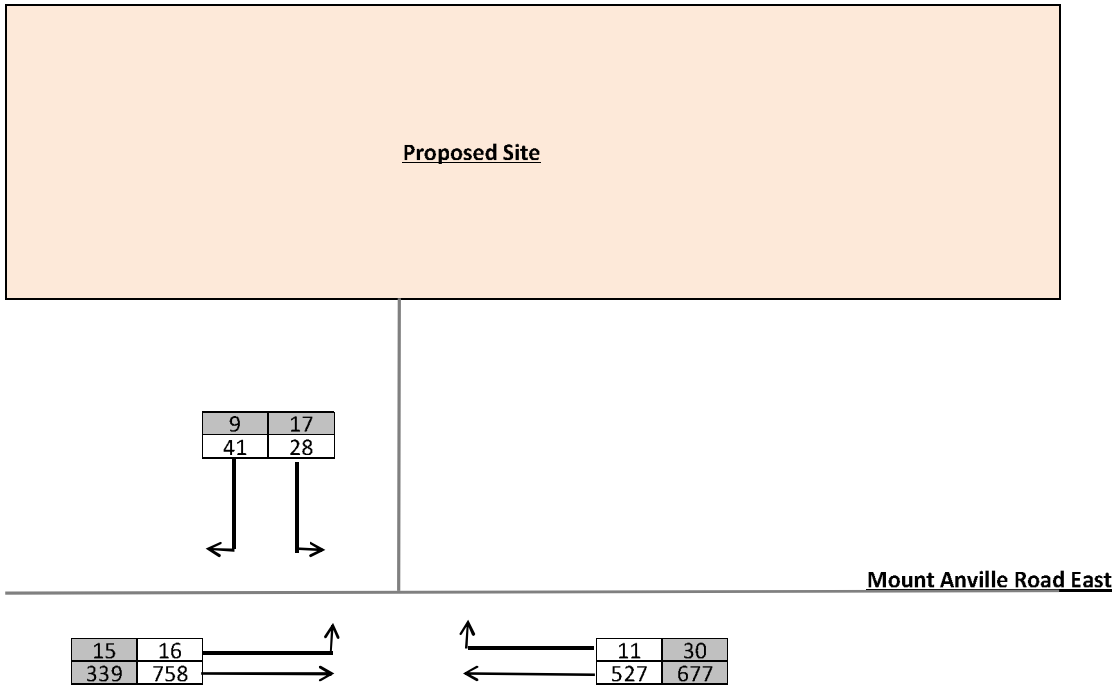
2034 Do Minimum (Phase 1 & Phase 1A included)

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	13
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

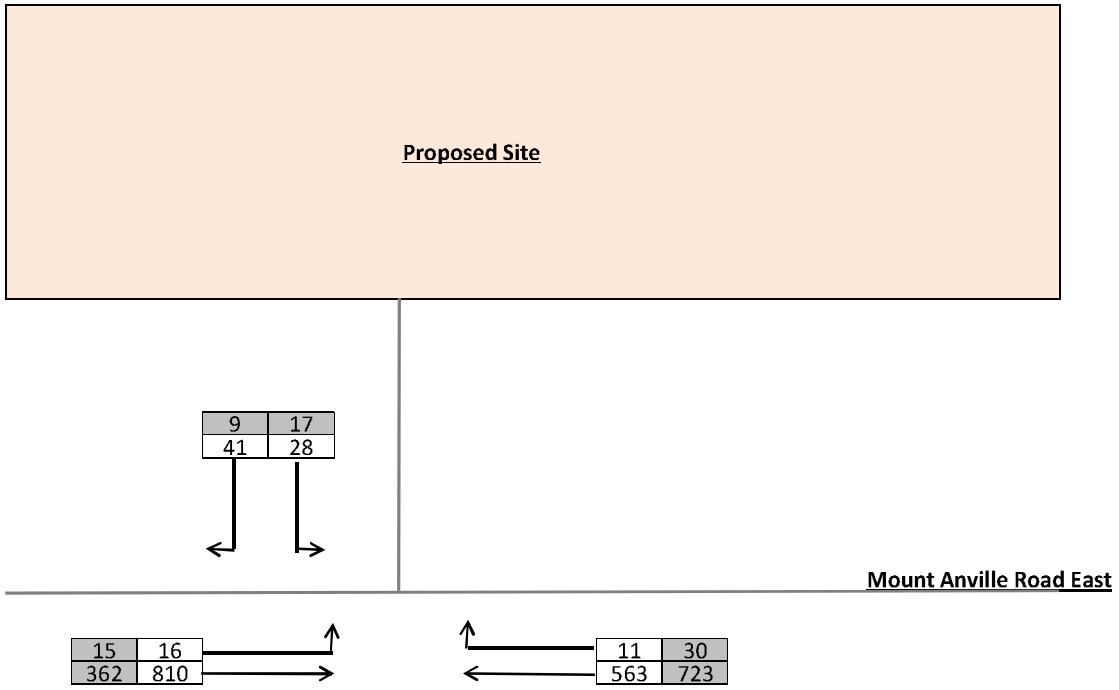
2019 Do Something (Phase 1, 1A & 2)

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	14
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

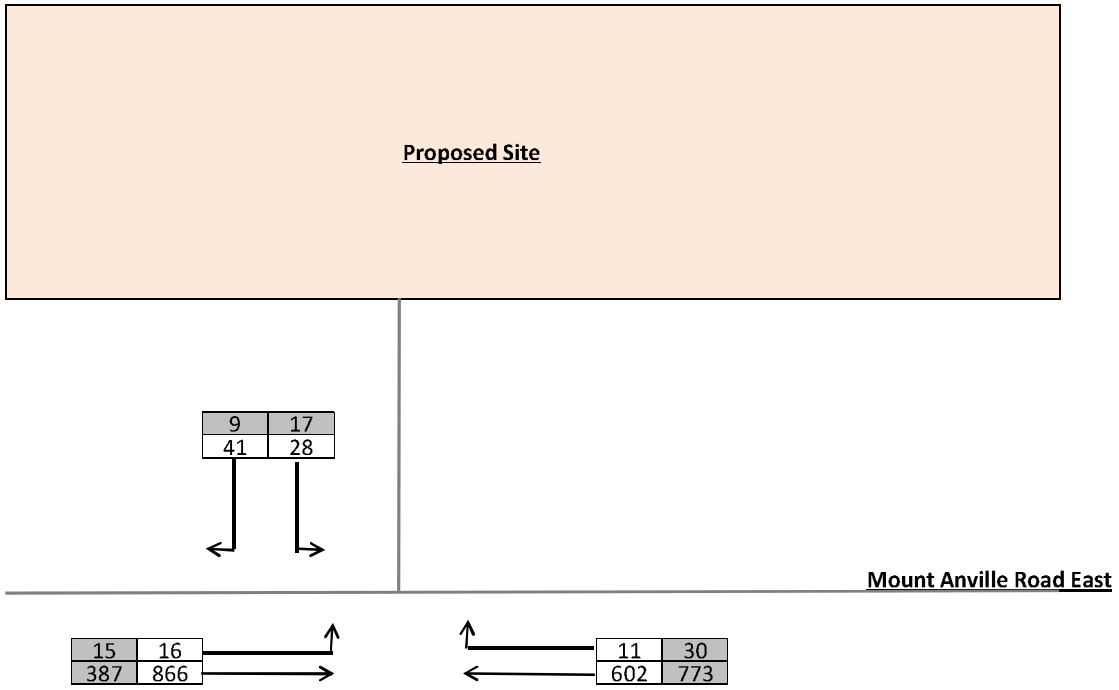
2024 Do Something (Phase 1, 1A & 2)

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	15
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

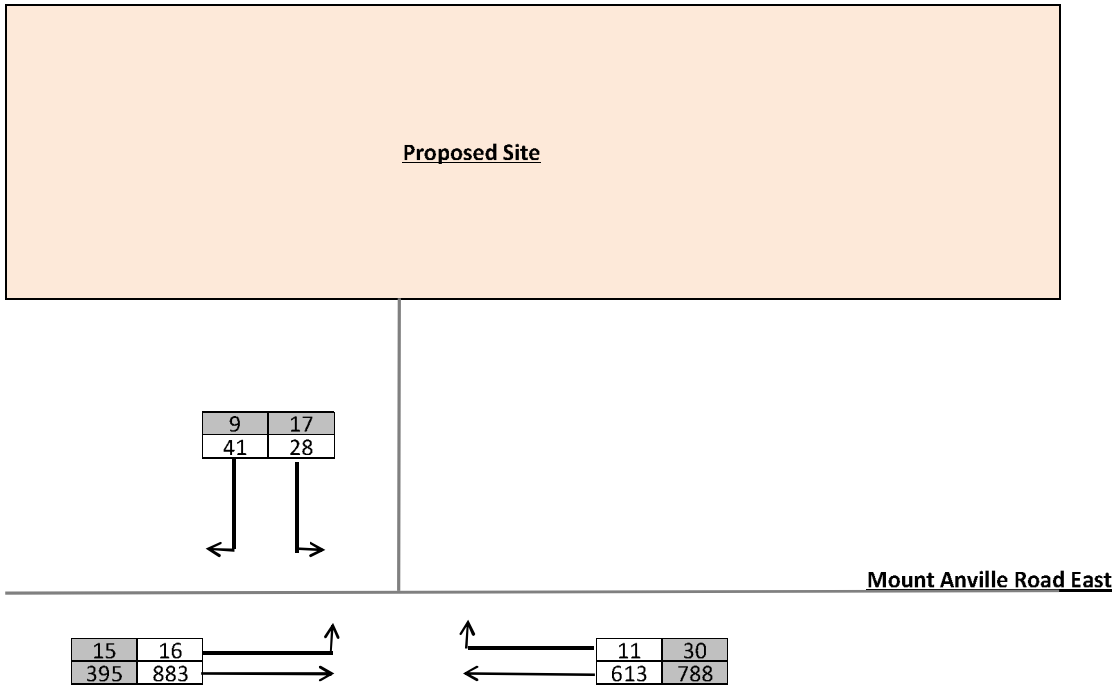
2029 Do Something (Phase 1, 1A & 2)

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	16
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie



AM Peak Hour 08:00-09:00

PM Peak Hour 16:00-17:00

Project :

Residential Development, Knockrabo

Mount Anville Rd, Dublin

DRG. Title :

Network Traffic Flows

2034 Do Something (Phase 1, 1A & 2)

Client:	Knockraboo Developments Ltd
Date:	Nov-17
Scale:	NTS
Project No	132059
File Ref:	132059 Traffic Model
Designed I	SH
Drawn By:	SH
Checked B	RK
Figure:	17
REV.	

Dublin Office:
Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7
phone: +353 1 400 40(fax: +353 1 400 4050

Waterford Office:
Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.
phone: +353 51 309 5(fax: +353 51 844 913

email: info@dbfl.ie website: www.dbfl.ie

APPENDIX D

PICADY RESULTS

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.0.4211 []

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: Do Minimum.j9
Path: G:\2013\p132059\calcs\picady
Report generation date: 17/11/2017 11:22:27

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
Do Minimum - 2019										
Stream B-AC	0.1	12.52	0.12	B	60 %	0.0	7.92	0.03	A	157 %
Stream C-AB	0.0	7.55	0.01	A	[Stream B-AC]	0.0	6.35	0.03	A	[Stream B-AC]
Do Minimum - 2024										
Stream B-AC	0.1	13.33	0.13	B	51 %	0.0	8.10	0.03	A	141 %
Stream C-AB	0.0	7.76	0.01	A	[Stream B-AC]	0.0	6.41	0.03	A	[Stream B-AC]
Do Minimum - 2034										
Stream B-AC	0.2	14.66	0.14	B	40 %	0.0	8.37	0.03	A	122 %
Stream C-AB	0.0	8.07	0.01	A	[Stream B-AC]	0.0	6.51	0.03	A	[Stream B-AC]

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.

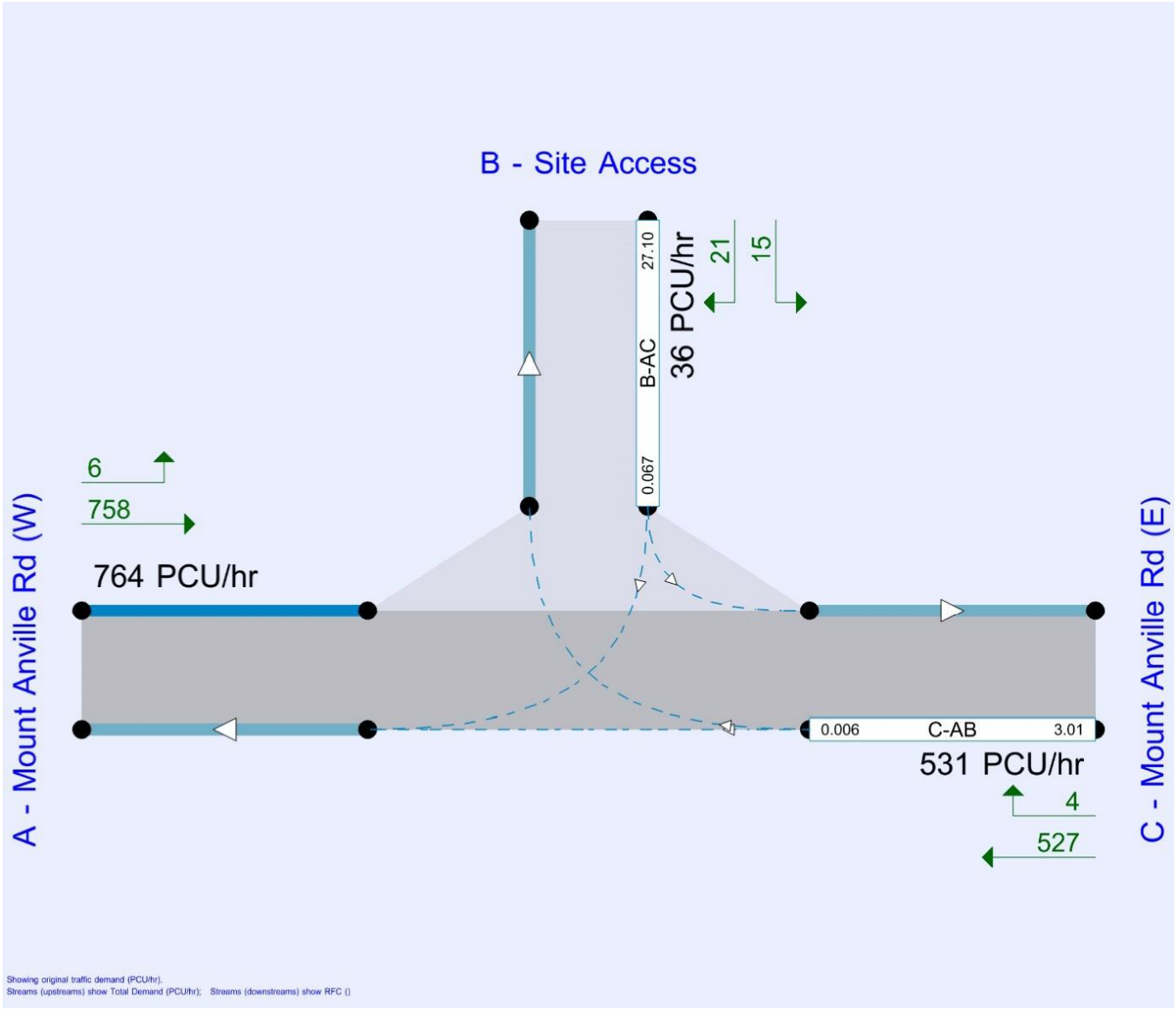
File summary

File Description

Title	Residential Development Phase 2
Location	Knockrabo, Mount Anville Rd, Dublin
Site number	1
Date	17/11/2017
Version	
Status	Planning
Identifier	
Client	
Jobnumber	132059
Enumerator	HEADOFFICE"mckennam
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
2019	AM	ONE HOUR	07:45	09:15	15
2019	PM	ONE HOUR	15:45	17:15	15
2024	AM	ONE HOUR	07:45	09:15	15
2024	PM	ONE HOUR	15:45	17:15	15
2034	AM	ONE HOUR	07:45	09:15	15
2034	PM	ONE HOUR	15:45	17:15	15

Do Minimum - 2019, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Minimum	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.36	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	60	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Mount Anville Rd (W)		Major
B	Site Access		Minor
C	Mount Anville Rd (E)		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 - Mount Anville Rd (E)	9.10		✓	2.50	130.0	✓	4.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane	3.50	11	17

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	514.081	0.081	0.205	0.129	0.293
1	B-C	666.408	0.088	0.223	-	-
1	C-B	670.446	0.225	0.225	-	-

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	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D1	2019	AM	ONE HOUR	07:45	09:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	764.00	100.000
B - Site Access		✓	36.00	100.000
C - Mount Anville Rd (E)		✓	531.00	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
From		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
	A - Mount Anville Rd (W)	0.000	6.000	758.000
	B - Site Access	21.000	0.000	15.000
	C - Mount Anville Rd (E)	527.000	4.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.12	12.52	0.1	B
C-AB	0.01	7.55	0.0	A

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	27.10	405.67	0.067	26.82	0.1	9.496	A
C-AB	3.01	541.18	0.006	2.99	0.0	6.688	A
C-A	396.75			396.75			
A-B	4.52			4.52			
A-C	570.66			570.66			

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	32.36	373.06	0.087	32.27	0.1	10.561	B
C-AB	3.60	516.10	0.007	3.59	0.0	7.023	A
C-A	473.76			473.76			
A-B	5.39			5.39			
A-C	681.43			681.43			

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	39.64	327.12	0.121	39.47	0.1	12.505	B
C-AB	4.40	481.41	0.009	4.40	0.0	7.546	A
C-A	580.24			580.24			
A-B	6.61			6.61			
A-C	834.57			834.57			

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	39.64	327.12	0.121	39.63	0.1	12.521	B
C-AB	4.40	481.41	0.009	4.40	0.0	7.546	A
C-A	580.24			580.24			
A-B	6.61			6.61			
A-C	834.57			834.57			

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	32.36	373.06	0.087	32.53	0.1	10.576	B
C-AB	3.60	516.10	0.007	3.60	0.0	7.026	A
C-A	473.76			473.76			
A-B	5.39			5.39			
A-C	681.43			681.43			

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	27.10	405.66	0.067	27.20	0.1	9.514	A
C-AB	3.01	541.18	0.006	3.02	0.0	6.691	A
C-A	396.75			396.75			
A-B	4.52			4.52			
A-C	570.66			570.66			

Do Minimum - 2019, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Minimum	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.19	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D2	2019	PM	ONE HOUR	15:45	17:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	347.00	100.000
B - Site Access		✓	12.00	100.000
C - Mount Anville Rd (E)		✓	693.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0.000	8.000	339.000
	B - Site Access	4.000	0.000	8.000
	C - Mount Anville Rd (E)	677.000	16.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	7.92	0.0	A
C-AB	0.03	6.35	0.0	A

Main Results for each time segment

Main results: (15:45-16:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	9.03	514.16	0.018	8.96	0.0	7.126	A
C-AB	12.05	611.74	0.020	11.97	0.0	6.002	A
C-A	509.68			509.68			
A-B	6.02			6.02			
A-C	255.22			255.22			

Main results: (16:00-16:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	10.79	495.04	0.022	10.77	0.0	7.433	A
C-AB	14.38	600.34	0.024	14.37	0.0	6.143	A
C-A	608.61			608.61			
A-B	7.19			7.19			
A-C	304.75			304.75			

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	13.21	467.78	0.028	13.19	0.0	7.919	A
C-AB	17.62	584.59	0.030	17.59	0.0	6.348	A
C-A	745.39			745.39			
A-B	8.81			8.81			
A-C	373.25			373.25			

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	13.21	467.77	0.028	13.21	0.0	7.919	A
C-AB	17.62	584.59	0.030	17.62	0.0	6.348	A
C-A	745.39			745.39			
A-B	8.81			8.81			
A-C	373.25			373.25			

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	10.79	495.04	0.022	10.81	0.0	7.436	A
C-AB	14.38	600.34	0.024	14.41	0.0	6.146	A
C-A	608.61			608.61			
A-B	7.19			7.19			
A-C	304.75			304.75			

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	9.03	514.14	0.018	9.05	0.0	7.129	A
C-AB	12.05	611.74	0.020	12.06	0.0	6.005	A
C-A	509.68			509.68			
A-B	6.02			6.02			
A-C	255.22			255.22			

Do Minimum - 2024, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Minimum	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.36	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D3	2024	AM	ONE HOUR	07:45	09:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	816.00	100.000
B - Site Access		✓	36.00	100.000
C - Mount Anville Rd (E)		✓	567.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0.000	6.000	810.000
	B - Site Access	21.000	0.000	15.000
	C - Mount Anville Rd (E)	563.000	4.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.13	13.33	0.1	B
C-AB	0.01	7.76	0.0	A

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	27.10	394.28	0.069	26.81	0.1	9.781	A
C-AB	3.01	532.39	0.006	2.99	0.0	6.799	A
C-A	423.86			423.86			
A-B	4.52			4.52			
A-C	609.81			609.81			

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	32.36	359.27	0.090	32.26	0.1	11.005	B
C-AB	3.60	505.59	0.007	3.59	0.0	7.170	A
C-A	506.13			506.13			
A-B	5.39			5.39			
A-C	728.17			728.17			

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	39.64	309.77	0.128	39.45	0.1	13.307	B
C-AB	4.40	468.54	0.009	4.39	0.0	7.756	A
C-A	619.87			619.87			
A-B	6.61			6.61			
A-C	891.83			891.83			

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	39.64	309.77	0.128	39.63	0.1	13.325	B
C-AB	4.40	468.54	0.009	4.40	0.0	7.756	A
C-A	619.87			619.87			
A-B	6.61			6.61			
A-C	891.83			891.83			

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	32.36	359.26	0.090	32.54	0.1	11.026	B
C-AB	3.60	505.59	0.007	3.60	0.0	7.173	A
C-A	506.13			506.13			
A-B	5.39			5.39			
A-C	728.17			728.17			

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	27.10	394.28	0.069	27.21	0.1	9.811	A
C-AB	3.01	532.39	0.006	3.02	0.0	6.802	A
C-A	423.86			423.86			
A-B	4.52			4.52			
A-C	609.81			609.81			

Do Minimum - 2024, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Minimum	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.18	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D4	2024	PM	ONE HOUR	15:45	17:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	370.00	100.000
B - Site Access		✓	12.00	100.000
C - Mount Anville Rd (E)		✓	739.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0.000	8.000	362.000
	B - Site Access	4.000	0.000	8.000
	C - Mount Anville Rd (E)	723.000	16.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	8.10	0.0	A
C-AB	0.03	6.41	0.0	A

Main Results for each time segment

Main results: (15:45-16:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	9.03	507.71	0.018	8.96	0.0	7.218	A
C-AB	12.05	607.85	0.020	11.97	0.0	6.041	A
C-A	544.31			544.31			
A-B	6.02			6.02			
A-C	272.53			272.53			

Main results: (16:00-16:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	10.79	487.14	0.022	10.77	0.0	7.556	A
C-AB	14.38	595.70	0.024	14.37	0.0	6.192	A
C-A	649.96			649.96			
A-B	7.19			7.19			
A-C	325.43			325.43			

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	13.21	457.69	0.029	13.18	0.0	8.099	A
C-AB	17.62	578.90	0.030	17.59	0.0	6.413	A
C-A	796.04			796.04			
A-B	8.81			8.81			
A-C	398.57			398.57			

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	13.21	457.68	0.029	13.21	0.0	8.099	A
C-AB	17.62	578.90	0.030	17.62	0.0	6.413	A
C-A	796.04			796.04			
A-B	8.81			8.81			
A-C	398.57			398.57			

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	10.79	487.13	0.022	10.81	0.0	7.557	A
C-AB	14.38	595.70	0.024	14.41	0.0	6.195	A
C-A	649.96			649.96			
A-B	7.19			7.19			
A-C	325.43			325.43			

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	9.03	507.69	0.018	9.05	0.0	7.221	A
C-AB	12.05	607.85	0.020	12.06	0.0	6.041	A
C-A	544.31			544.31			
A-B	6.02			6.02			
A-C	272.53			272.53			

Do Minimum - 2034, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Minimum	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.36	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D5	2034	AM	ONE HOUR	07:45	09:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	889.00	100.000
B - Site Access		✓	36.00	100.000
C - Mount Anville Rd (E)		✓	617.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0.000	6.000	883.000
	B - Site Access	21.000	0.000	15.000
	C - Mount Anville Rd (E)	613.000	4.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	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	14.66	0.2	B
C-AB	0.01	8.07	0.0	A

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	27.10	378.26	0.072	26.80	0.1	10.235	B
C-AB	3.01	520.04	0.006	2.99	0.0	6.962	A
C-A	461.50			461.50			
A-B	4.52			4.52			
A-C	664.77			664.77			

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	32.36	339.79	0.095	32.25	0.1	11.702	B
C-AB	3.60	490.84	0.007	3.59	0.0	7.387	A
C-A	551.07			551.07			
A-B	5.39			5.39			
A-C	793.80			793.80			

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	39.64	285.15	0.139	39.42	0.2	14.636	B
C-AB	4.40	450.48	0.010	4.39	0.0	8.070	A
C-A	674.93			674.93			
A-B	6.61			6.61			
A-C	972.20			972.20			

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	39.64	285.15	0.139	39.63	0.2	14.662	B
C-AB	4.40	450.48	0.010	4.40	0.0	8.070	A
C-A	674.93			674.93			
A-B	6.61			6.61			
A-C	972.20			972.20			

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	32.36	339.78	0.095	32.58	0.1	11.725	B
C-AB	3.60	490.84	0.007	3.61	0.0	7.387	A
C-A	551.07			551.07			
A-B	5.39			5.39			
A-C	793.80			793.80			

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	27.10	378.25	0.072	27.22	0.1	10.260	B
C-AB	3.01	520.04	0.006	3.02	0.0	6.964	A
C-A	461.50			461.50			
A-B	4.52			4.52			
A-C	664.77			664.77			

Do Minimum - 2034, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Minimum	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.17	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D6	2034	PM	ONE HOUR	15:45	17:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	403.00	100.000
B - Site Access		✓	12.00	100.000
C - Mount Anville Rd (E)		✓	804.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0.000	8.000	395.000
	B - Site Access	4.000	0.000	8.000
	C - Mount Anville Rd (E)	788.000	16.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	8.37	0.0	A
C-AB	0.03	6.51	0.0	A

Main Results for each time segment

Main results: (15:45-16:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	9.03	498.42	0.018	8.96	0.0	7.355	A
C-AB	12.05	602.26	0.020	11.96	0.0	6.098	A
C-A	593.25			593.25			
A-B	6.02			6.02			
A-C	297.38			297.38			

Main results: (16:00-16:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	10.79	475.72	0.023	10.77	0.0	7.742	A
C-AB	14.38	589.03	0.024	14.37	0.0	6.264	A
C-A	708.40			708.40			
A-B	7.19			7.19			
A-C	355.10			355.10			

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	13.21	443.04	0.030	13.18	0.0	8.375	A
C-AB	17.62	570.73	0.031	17.59	0.0	6.507	A
C-A	867.60			867.60			
A-B	8.81			8.81			
A-C	434.90			434.90			

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	13.21	443.03	0.030	13.21	0.0	8.375	A
C-AB	17.62	570.73	0.031	17.62	0.0	6.507	A
C-A	867.60			867.60			
A-B	8.81			8.81			
A-C	434.90			434.90			

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	10.79	475.71	0.023	10.82	0.0	7.743	A
C-AB	14.38	589.03	0.024	14.41	0.0	6.267	A
C-A	708.40			708.40			
A-B	7.19			7.19			
A-C	355.10			355.10			

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	9.03	498.40	0.018	9.05	0.0	7.358	A
C-AB	12.05	602.26	0.020	12.06	0.0	6.099	A
C-A	593.25			593.25			
A-B	6.02			6.02			
A-C	297.38			297.38			

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.0.4211 []

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: Do Something.j9
Path: G:\2013\p132059\calcs\picady
Report generation date: 17/11/2017 11:26:38

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	Do Something - 2019									
Stream B-AC	0.3	14.35	0.22	B	44 %	0.1	8.22	0.06	A	141 %
Stream C-AB	0.0	7.67	0.02	A	[Stream B-AC]	0.1	6.53	0.05	A	[Stream B-AC]
	Do Something - 2024									
Stream B-AC	0.3	15.41	0.24	C	37 %	0.1	8.41	0.06	A	128 %
Stream C-AB	0.0	7.88	0.02	A	[Stream B-AC]	0.1	6.60	0.06	A	[Stream B-AC]
	Do Something - 2034									
Stream B-AC	0.3	17.23	0.26	C	27 %	0.1	8.71	0.06	A	111 %
Stream C-AB	0.0	8.21	0.02	A	[Stream B-AC]	0.1	6.70	0.06	A	[Stream B-AC]

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.

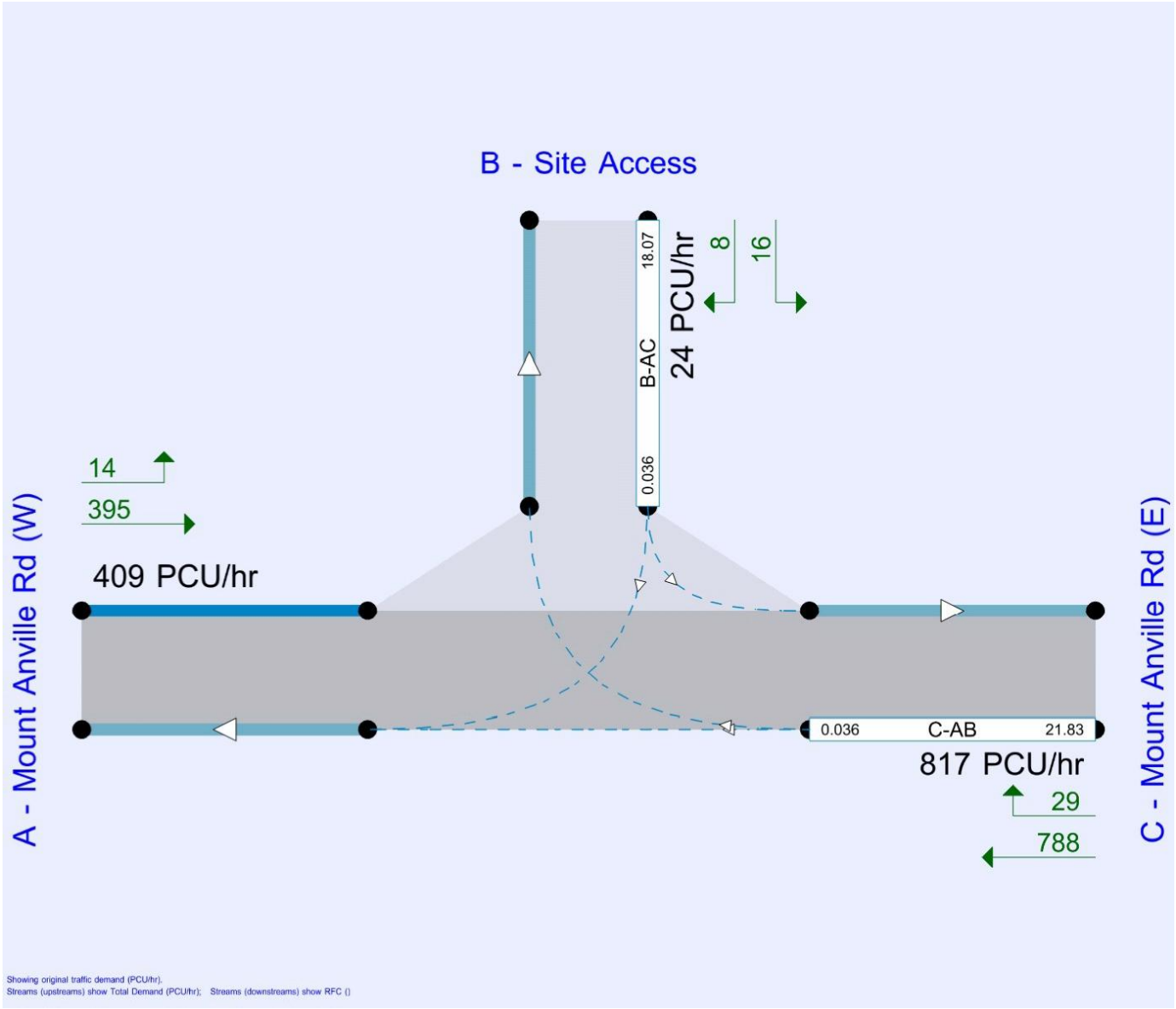
File summary

File Description

Title	Residential Development Phase 2
Location	Knockrabo, Mount Anville Rd, Dublin
Site number	1
Date	17/11/2017
Version	
Status	Planning
Identifier	
Client	
Jobnumber	132059
Enumerator	HEADOFFICE"mckennam
Description	Do Something

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
2019	AM	ONE HOUR	07:45	09:15	15
2019	PM	ONE HOUR	15:45	17:15	15
2024	AM	ONE HOUR	07:45	09:15	15
2024	PM	ONE HOUR	15:45	17:15	15
2034	AM	ONE HOUR	07:45	09:15	15
2034	PM	ONE HOUR	15:45	17:15	15

Do Something - 2019, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Something	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.74	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	44	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Mount Anville Rd (W)		Major
B	Site Access		Minor
C	Mount Anville Rd (E)		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 - Mount Anville Rd (E)	9.10		✓	2.50	130.0	✓	4.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane	3.50	11	17

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	514.081	0.081	0.205	0.129	0.293
1	B-C	666.408	0.088	0.223	-	-
1	C-B	670.446	0.225	0.225	-	-

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	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D1	2019	AM	ONE HOUR	07:45	09:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	772.00	100.000
B - Site Access		✓	66.00	100.000
C - Mount Anville Rd (E)		✓	536.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
From		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
	A - Mount Anville Rd (W)	0.000	14.000	758.000
	B - Site Access	39.000	0.000	27.000
	C - Mount Anville Rd (E)	527.000	9.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.22	14.35	0.3	B
C-AB	0.02	7.67	0.0	A

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	49.69	402.95	0.123	49.13	0.1	10.160	B
C-AB	6.78	539.83	0.013	6.73	0.0	6.752	A
C-A	396.75			396.75			
A-B	10.54			10.54			
A-C	570.66			570.66			

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	59.33	370.00	0.160	59.14	0.2	11.573	B
C-AB	8.09	514.48	0.016	8.08	0.0	7.108	A
C-A	473.76			473.76			
A-B	12.59			12.59			
A-C	681.43			681.43			

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	72.67	323.57	0.225	72.28	0.3	14.305	B
C-AB	9.91	479.43	0.021	9.89	0.0	7.666	A
C-A	580.24			580.24			
A-B	15.41			15.41			
A-C	834.57			834.57			

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	72.67	323.57	0.225	72.66	0.3	14.347	B
C-AB	9.91	479.43	0.021	9.91	0.0	7.666	A
C-A	580.24			580.24			
A-B	15.41			15.41			
A-C	834.57			834.57			

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	59.33	370.00	0.160	59.70	0.2	11.615	B
C-AB	8.09	514.48	0.016	8.11	0.0	7.111	A
C-A	473.76			473.76			
A-B	12.59			12.59			
A-C	681.43			681.43			

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	49.69	402.94	0.123	49.89	0.1	10.204	B
C-AB	6.78	539.83	0.013	6.79	0.0	6.753	A
C-A	396.75			396.75			
A-B	10.54			10.54			
A-C	570.66			570.66			

Do Something - 2019, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Something	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.36	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D2	2019	PM	ONE HOUR	15:45	17:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	353.00	100.000
B - Site Access		✓	24.00	100.000
C - Mount Anville Rd (E)		✓	706.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0.000	14.000	339.000
	B - Site Access	8.000	0.000	16.000
	C - Mount Anville Rd (E)	677.000	29.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.06	8.22	0.1	A
C-AB	0.05	6.53	0.1	A

Main Results for each time segment

Main results: (15:45-16:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	18.07	512.11	0.035	17.92	0.0	7.283	A
C-AB	21.83	610.72	0.036	21.69	0.0	6.110	A
C-A	509.68			509.68			
A-B	10.54			10.54			
A-C	255.22			255.22			

Main results: (16:00-16:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	21.58	492.48	0.044	21.54	0.0	7.643	A
C-AB	26.07	599.13	0.044	26.04	0.0	6.281	A
C-A	608.61			608.61			
A-B	12.59			12.59			
A-C	304.75			304.75			

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	26.42	464.43	0.057	26.37	0.1	8.217	A
C-AB	31.93	583.11	0.055	31.88	0.1	6.530	A
C-A	745.39			745.39			
A-B	15.41			15.41			
A-C	373.25			373.25			

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	26.42	464.42	0.057	26.42	0.1	8.218	A
C-AB	31.93	583.11	0.055	31.93	0.1	6.530	A
C-A	745.39			745.39			
A-B	15.41			15.41			
A-C	373.25			373.25			

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	21.58	492.47	0.044	21.63	0.0	7.648	A
C-AB	26.07	599.13	0.044	26.12	0.0	6.282	A
C-A	608.61			608.61			
A-B	12.59			12.59			
A-C	304.75			304.75			

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	18.07	512.08	0.035	18.11	0.0	7.290	A
C-AB	21.83	610.72	0.036	21.87	0.0	6.113	A
C-A	509.68			509.68			
A-B	10.54			10.54			
A-C	255.22			255.22			

Do Something - 2024, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Something	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.74	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D3	2024	AM	ONE HOUR	07:45	09:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	824.00	100.000
B - Site Access		✓	66.00	100.000
C - Mount Anville Rd (E)		✓	572.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0.000	14.000	810.000
	B - Site Access	39.000	0.000	27.000
	C - Mount Anville Rd (E)	563.000	9.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.24	15.41	0.3	C
C-AB	0.02	7.88	0.0	A

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	49.69	391.55	0.127	49.11	0.1	10.497	B
C-AB	6.78	531.03	0.013	6.72	0.0	6.866	A
C-A	423.86			423.86			
A-B	10.54			10.54			
A-C	609.81			609.81			

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	59.33	356.18	0.167	59.12	0.2	12.110	B
C-AB	8.09	503.97	0.016	8.08	0.0	7.258	A
C-A	506.13			506.13			
A-B	12.59			12.59			
A-C	728.17			728.17			

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	72.67	306.18	0.237	72.24	0.3	15.359	C
C-AB	9.91	466.56	0.021	9.89	0.0	7.883	A
C-A	619.87			619.87			
A-B	15.41			15.41			
A-C	891.83			891.83			

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	72.67	306.18	0.237	72.65	0.3	15.413	C
C-AB	9.91	466.56	0.021	9.91	0.0	7.883	A
C-A	619.87			619.87			
A-B	15.41			15.41			
A-C	891.83			891.83			

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	59.33	356.17	0.167	59.75	0.2	12.163	B
C-AB	8.09	503.97	0.016	8.11	0.0	7.262	A
C-A	506.13			506.13			
A-B	12.59			12.59			
A-C	728.17			728.17			

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	49.69	391.54	0.127	49.91	0.1	10.546	B
C-AB	6.78	531.03	0.013	6.79	0.0	6.869	A
C-A	423.86			423.86			
A-B	10.54			10.54			
A-C	609.81			609.81			

Do Something - 2024, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Something	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.34	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D4	2024	PM	ONE HOUR	15:45	17:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	376.00	100.000
B - Site Access		✓	24.00	100.000
C - Mount Anville Rd (E)		✓	752.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0.000	14.000	362.000
	B - Site Access	8.000	0.000	16.000
	C - Mount Anville Rd (E)	723.000	29.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.06	8.41	0.1	A
C-AB	0.06	6.60	0.1	A

Main Results for each time segment

Main results: (15:45-16:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	18.07	505.63	0.036	17.92	0.0	7.379	A
C-AB	21.83	606.83	0.036	21.68	0.0	6.150	A
C-A	544.31			544.31			
A-B	10.54			10.54			
A-C	272.53			272.53			

Main results: (16:00-16:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	21.58	484.53	0.045	21.54	0.0	7.775	A
C-AB	26.07	594.49	0.044	26.04	0.0	6.332	A
C-A	649.96			649.96			
A-B	12.59			12.59			
A-C	325.43			325.43			

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	26.42	454.27	0.058	26.36	0.1	8.412	A
C-AB	31.93	577.42	0.055	31.88	0.1	6.598	A
C-A	796.04			796.04			
A-B	15.41			15.41			
A-C	398.57			398.57			

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	26.42	454.26	0.058	26.42	0.1	8.414	A
C-AB	31.93	577.42	0.055	31.93	0.1	6.598	A
C-A	796.04			796.04			
A-B	15.41			15.41			
A-C	398.57			398.57			

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	21.58	484.52	0.045	21.63	0.0	7.779	A
C-AB	26.07	594.49	0.044	26.12	0.0	6.333	A
C-A	649.96			649.96			
A-B	12.59			12.59			
A-C	325.43			325.43			

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	18.07	505.60	0.036	18.11	0.0	7.387	A
C-AB	21.83	606.83	0.036	21.87	0.0	6.153	A
C-A	544.31			544.31			
A-B	10.54			10.54			
A-C	272.53			272.53			

Do Something - 2034, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Something	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.76	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D5	2034	AM	ONE HOUR	07:45	09:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	897.00	100.000
B - Site Access		✓	66.00	100.000
C - Mount Anville Rd (E)		✓	622.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0.000	14.000	883.000
	B - Site Access	39.000	0.000	27.000
	C - Mount Anville Rd (E)	613.000	9.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.26	17.23	0.3	C
C-AB	0.02	8.21	0.0	A

Main Results for each time segment

Main results: (07:45-08:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	49.69	375.50	0.132	49.09	0.2	11.009	B
C-AB	6.78	518.68	0.013	6.72	0.0	7.031	A
C-A	461.50			461.50			
A-B	10.54			10.54			
A-C	664.77			664.77			

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	59.33	336.66	0.176	59.09	0.2	12.957	B
C-AB	8.09	489.23	0.017	8.08	0.0	7.481	A
C-A	551.07			551.07			
A-B	12.59			12.59			
A-C	793.80			793.80			

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	72.67	281.50	0.258	72.15	0.3	17.152	C
C-AB	9.91	448.50	0.022	9.89	0.0	8.207	A
C-A	674.93			674.93			
A-B	15.41			15.41			
A-C	972.20			972.20			

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	72.67	281.50	0.258	72.65	0.3	17.233	C
C-AB	9.91	448.50	0.022	9.91	0.0	8.207	A
C-A	674.93			674.93			
A-B	15.41			15.41			
A-C	972.20			972.20			

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	59.33	336.66	0.176	59.84	0.2	13.027	B
C-AB	8.09	489.23	0.017	8.11	0.0	7.482	A
C-A	551.07			551.07			
A-B	12.59			12.59			
A-C	793.80			793.80			

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	49.69	375.48	0.132	49.94	0.2	11.068	B
C-AB	6.78	518.68	0.013	6.79	0.0	7.034	A
C-A	461.50			461.50			
A-B	10.54			10.54			
A-C	664.77			664.77			

Do Something - 2034, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Something	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1 - untitled	untitled	T-Junction	Two-way	0.32	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)
D6	2034	PM	ONE HOUR	15:45	17:15	15

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Mount Anville Rd (W)		✓	409.00	100.000
B - Site Access		✓	24.00	100.000
C - Mount Anville Rd (E)		✓	817.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0.000	14.000	395.000
	B - Site Access	8.000	0.000	16.000
	C - Mount Anville Rd (E)	788.000	29.000	0.000

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - Mount Anville Rd (W)	B - Site Access	C - Mount Anville Rd (E)
From	A - Mount Anville Rd (W)	0	0	0
	B - Site Access	0	0	0
	C - Mount Anville Rd (E)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.06	8.71	0.1	A
C-AB	0.06	6.70	0.1	A

Main Results for each time segment

Main results: (15:45-16:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	18.07	496.30	0.036	17.92	0.0	7.523	A
C-AB	21.83	601.25	0.036	21.68	0.0	6.210	A
C-A	593.25			593.25			
A-B	10.54			10.54			
A-C	297.38			297.38			

Main results: (16:00-16:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	21.58	473.04	0.046	21.54	0.0	7.973	A
C-AB	26.07	587.82	0.044	26.04	0.0	6.407	A
C-A	708.40			708.40			
A-B	12.59			12.59			
A-C	355.10			355.10			

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	26.42	439.49	0.060	26.36	0.1	8.713	A
C-AB	31.93	569.25	0.056	31.88	0.1	6.699	A
C-A	867.60			867.60			
A-B	15.41			15.41			
A-C	434.90			434.90			

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	26.42	439.48	0.060	26.42	0.1	8.715	A
C-AB	31.93	569.25	0.056	31.93	0.1	6.699	A
C-A	867.60			867.60			
A-B	15.41			15.41			
A-C	434.90			434.90			

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	21.58	473.03	0.046	21.64	0.0	7.976	A
C-AB	26.07	587.82	0.044	26.12	0.0	6.411	A
C-A	708.40			708.40			
A-B	12.59			12.59			
A-C	355.10			355.10			

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	18.07	496.27	0.036	18.11	0.0	7.528	A
C-AB	21.83	601.25	0.036	21.87	0.0	6.213	A
C-A	593.25			593.25			
A-B	10.54			10.54			
A-C	297.38			297.38			

B. Junction Modelling – PICADY Output Report

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

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

Filename: Junction 1_DO NOTHING.j9
Path: M:\Projects\20\20-086 - Knockrabo\Design\Traffic\Junction Modelling_Jan2021\Junction 1\Junction 1_DO NOTHING
Report generation date: 01/02/2021 10:39:35

Summary of junction performance

	AM			PM		
	Set ID	Queue (PCU)	RFC	Set ID	Queue (PCU)	RFC
	Junction 1 - BASELINE 2021					
Stream B-AC	D1	0.2	0.15	D2	0.0	0.04
Stream C-AB		0.0	0.02		0.1	0.05
	Junction 1 - DO NOTHING 2023					
Stream B-AC	D3	0.2	0.16	D4	0.0	0.04
Stream C-AB		0.0	0.02		0.1	0.06
	Junction 1 - DO NOTHING 2028					
Stream B-AC	D5	0.2	0.18	D6	0.0	0.04
Stream C-AB		0.0	0.02		0.1	0.06
	Junction 1 - DO NOTHING 2038					
Stream B-AC	D7	0.2	0.19	D8	0.1	0.13
Stream C-AB		0.0	0.02		0.1	0.07

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

File summary

File Description

Title	
Location	
Site number	
Date	11/01/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAIN\l.byrne
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	BASELINE 2021	AM	ONE HOUR	08:00	09:30	15
D2	BASELINE 2021	PM	ONE HOUR	16:00	17:30	15
D3	DO NOTHING 2023	AM	ONE HOUR	08:00	09:30	15
D4	DO NOTHING 2023	PM	ONE HOUR	16:00	17:30	15
D5	DO NOTHING 2028	AM	ONE HOUR	08:00	09:30	15
D6	DO NOTHING 2028	PM	ONE HOUR	16:00	17:30	15
D7	DO NOTHING 2038	AM	ONE HOUR	08:00	09:30	15
D8	DO NOTHING 2038	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Junction 1	100.000

Junction 1 - BASELINE 2021 , AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.43	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.30			90.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.20	0	0

Zebra Crossings

Arm	Space between crossing and junction entry (Left) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (m)	Crossing time (s)
B	1.00	1.00		Distance	9.60	6.86

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	440	0.069	0.173	0.109	0.248
B-C	574	0.075	0.190	-	-
C-B	626	0.208	0.208	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	BASELINE 2021	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	871	100.000
B		✓	35	100.000
C		✓	604	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	7	864
	B	21	0	14
	C	600	4	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.15	17.05	0.2	C
C-AB	0.02	4.56	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	37.64	327	0.081	26	0.1	11.957	B
C-AB	7		819	0.008	7	0.0	4.553	A
C-A	448				448			
A-B	5				5			
A-C	650				650			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	44.95	295	0.107	31	0.1	13.657	B
C-AB	10		864	0.011	10	0.0	4.336	A
C-A	533				533			
A-B	6				6			
A-C	777				777			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	39	55.05	250	0.154	38	0.2	17.005	C
C-AB	15		931	0.016	15	0.0	4.062	A
C-A	650				650			
A-B	8				8			
A-C	951				951			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	39	55.05	250	0.154	39	0.2	17.050	C
C-AB	15		931	0.016	15	0.0	4.070	A
C-A	650				650			
A-B	8				8			
A-C	951				951			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	44.95	295	0.107	32	0.1	13.695	B
C-AB	10		864	0.011	10	0.0	4.356	A
C-A	533				533			
A-B	6				6			
A-C	777				777			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	37.64	327	0.081	26	0.1	11.996	B
C-AB	7		819	0.008	7	0.0	4.563	A
C-A	448				448			
A-B	5				5			
A-C	650				650			

Junction 1 - BASELINE 2021 , PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.26	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	BASELINE 2021	PM	ONE HOUR	16:00	17:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	396	100.000
B		✓	12	100.000
C		✓	785	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	10	386
	B	5	0	7
	C	771	14	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	10.22	0.0	B
C-AB	0.05	3.97	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	9	37.64	414	0.022	9	0.0	8.894	A
C-AB	27		963	0.028	26	0.0	3.959	A
C-A	564				564			
A-B	8				8			
A-C	291				291			

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	11	44.95	394	0.027	11	0.0	9.400	A
C-AB	38		1033	0.037	38	0.1	3.734	A
C-A	667				667			
A-B	9				9			
A-C	347				347			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13	55.05	365	0.036	13	0.0	10.221	B
C-AB	62		1132	0.055	62	0.1	3.482	A
C-A	802				802			
A-B	11				11			
A-C	425				425			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13	55.05	365	0.036	13	0.0	10.224	B
C-AB	62		1132	0.055	62	0.1	3.488	A
C-A	802				802			
A-B	11				11			
A-C	425				425			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	11	44.95	394	0.027	11	0.0	9.402	A
C-AB	38		1033	0.037	39	0.1	3.750	A
C-A	667				667			
A-B	9				9			
A-C	347				347			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	9	37.64	414	0.022	9	0.0	8.901	A
C-AB	27		963	0.028	27	0.0	3.968	A
C-A	564				564			
A-B	8				8			
A-C	291				291			

Junction 1 - DO NOTHING 2023, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.44	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	DO NOTHING 2023	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	913	100.000
B		✓	35	100.000
C		✓	634	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	7	906
	B	21	0	14
	C	630	4	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.16	18.10	0.2	C
C-AB	0.02	4.50	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	37.64	319	0.083	26	0.1	12.279	B
C-AB	7		830	0.008	7	0.0	4.495	A
C-A	470				470			
A-B	5				5			
A-C	682				682			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	44.95	285	0.110	31	0.1	14.174	B
C-AB	10		879	0.012	10	0.0	4.270	A
C-A	560				560			
A-B	6				6			
A-C	814				814			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	39	55.05	237	0.162	38	0.2	18.048	C
C-AB	16		950	0.017	16	0.0	3.987	A
C-A	682				682			
A-B	8				8			
A-C	998				998			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	39	55.05	237	0.162	39	0.2	18.098	C
C-AB	16		950	0.017	16	0.0	3.994	A
C-A	682				682			
A-B	8				8			
A-C	998				998			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	44.95	285	0.110	32	0.1	14.220	B
C-AB	10		879	0.012	10	0.0	4.287	A
C-A	560				560			
A-B	6				6			
A-C	814				814			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	37.64	319	0.083	26	0.1	12.323	B
C-AB	7		830	0.008	7	0.0	4.505	A
C-A	470				470			
A-B	5				5			
A-C	682				682			

Junction 1 - DO NOTHING 2023, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.25	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	DO NOTHING 2023	PM	ONE HOUR	16:00	17:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	415	100.000
B		✓	12	100.000
C		✓	823	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	10	405
	B	5	0	7
	C	809	14	0

Vehicle Mix

Heavy Vehicle Percentages

From \ To	A	B	C
A	0	0	5
B	0	0	0
C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	10.45	0.0	B
C-AB	0.06	3.90	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	9	37.64	409	0.022	9	0.0	9.002	A
C-AB	28		980	0.028	28	0.0	3.894	A
C-A	592				592			
A-B	8				8			
A-C	305				305			

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	11	44.95	388	0.028	11	0.0	9.549	A
C-AB	41		1054	0.039	41	0.1	3.666	A
C-A	699				699			
A-B	9				9			
A-C	364				364			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13	55.05	358	0.037	13	0.0	10.448	B
C-AB	67		1159	0.058	67	0.1	3.414	A
C-A	839				839			
A-B	11				11			
A-C	446				446			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13	55.05	358	0.037	13	0.0	10.450	B
C-AB	67		1159	0.058	67	0.1	3.420	A
C-A	839				839			
A-B	11				11			
A-C	446				446			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	11	44.95	388	0.028	11	0.0	9.553	A
C-AB	41		1054	0.039	41	0.1	3.685	A
C-A	699				699			
A-B	9				9			
A-C	364				364			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	9	37.64	409	0.022	9	0.0	9.009	A
C-AB	28		980	0.029	28	0.0	3.905	A
C-A	592				592			
A-B	8				8			
A-C	305				305			

Junction 1 - DO NOTHING 2028, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	DO NOTHING 2028	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	989	100.000
B		✓	35	100.000
C		✓	687	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	7	982
	B	21	0	14
	C	683	4	0

Vehicle Mix

Heavy Vehicle Percentages

From \ To	A	B	C
A	0	0	5
B	0	0	0
C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.18	20.39	0.2	C
C-AB	0.02	4.40	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	37.64	304	0.087	26	0.1	12.911	B
C-AB	8		851	0.009	8	0.0	4.394	A
C-A	510				510			
A-B	5				5			
A-C	739				739			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	44.95	268	0.118	31	0.1	15.223	C
C-AB	11		905	0.012	11	0.0	4.156	A
C-A	606				606			
A-B	6				6			
A-C	883				883			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	39	55.05	215	0.179	38	0.2	20.313	C
C-AB	19		985	0.019	19	0.0	3.860	A
C-A	738				738			
A-B	8				8			
A-C	1081				1081			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	39	55.05	215	0.179	39	0.2	20.385	C
C-AB	19		985	0.019	19	0.0	3.866	A
C-A	738				738			
A-B	8				8			
A-C	1081				1081			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	44.95	268	0.118	32	0.1	15.285	C
C-AB	11		905	0.012	11	0.0	4.174	A
C-A	606				606			
A-B	6				6			
A-C	883				883			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	37.64	304	0.087	27	0.1	12.959	B
C-AB	8		851	0.009	8	0.0	4.405	A
C-A	510				510			
A-B	5				5			
A-C	739				739			

Junction 1 - DO NOTHING 2028, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.25	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	DO NOTHING 2028	PM	ONE HOUR	16:00	17:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	449	100.000
B		✓	12	100.000
C		✓	891	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	10	439
	B	5	0	7
	C	877	14	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	10.89	0.0	B
C-AB	0.06	3.79	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	9	37.64	400	0.023	9	0.0	9.204	A
C-AB	30		1012	0.030	30	0.0	3.782	A
C-A	640				640			
A-B	8				8			
A-C	331				331			

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	11	44.95	377	0.029	11	0.0	9.830	A
C-AB	45		1093	0.041	45	0.1	3.551	A
C-A	756				756			
A-B	9				9			
A-C	395				395			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13	55.05	344	0.038	13	0.0	10.886	B
C-AB	77		1208	0.064	77	0.1	3.302	A
C-A	904				904			
A-B	11				11			
A-C	483				483			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	13	55.05	344	0.038	13	0.0	10.889	B
C-AB	77		1208	0.064	77	0.1	3.308	A
C-A	904				904			
A-B	11				11			
A-C	483				483			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	11	44.95	377	0.029	11	0.0	9.833	A
C-AB	45		1093	0.042	46	0.1	3.570	A
C-A	756				756			
A-B	9				9			
A-C	395				395			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	9	37.64	400	0.023	9	0.0	9.211	A
C-AB	30		1012	0.030	31	0.0	3.792	A
C-A	640				640			
A-B	8				8			
A-C	331				331			

Junction 1 - DO NOTHING 2038, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.47	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	DO NOTHING 2038	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1047	100.000
B		✓	35	100.000
C		✓	727	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	7	1040
	B	21	0	14
	C	723	4	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.19	22.60	0.2	C
C-AB	0.02	4.33	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	37.64	293	0.090	26	0.1	13.441	B
C-AB	8		867	0.009	8	0.0	4.321	A
C-A	539				539			
A-B	5				5			
A-C	783				783			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	44.95	254	0.124	31	0.1	16.141	C
C-AB	12		925	0.013	12	0.0	4.073	A
C-A	641				641			
A-B	6				6			
A-C	935				935			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	39	55.05	198	0.195	38	0.2	22.499	C
C-AB	21		1012	0.020	21	0.0	3.767	A
C-A	780				780			
A-B	8				8			
A-C	1145				1145			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	39	55.05	198	0.195	39	0.2	22.600	C
C-AB	21		1012	0.021	21	0.0	3.773	A
C-A	780				780			
A-B	8				8			
A-C	1145				1145			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	44.95	254	0.124	32	0.1	16.219	C
C-AB	12		925	0.013	12	0.0	4.092	A
C-A	641				641			
A-B	6				6			
A-C	935				935			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	37.64	293	0.090	27	0.1	13.496	B
C-AB	8		867	0.009	8	0.0	4.332	A
C-A	539				539			
A-B	5				5			
A-C	783				783			

Junction 1 - DO NOTHING 2038, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.50	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	DO NOTHING 2038	PM	ONE HOUR	16:00	17:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	475	100.000
B		✓	35	100.000
C		✓	942	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	10	465
	B	21	0	14
	C	928	14	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.13	14.07	0.1	B
C-AB	0.07	3.72	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	37.64	358	0.074	26	0.1	10.833	B
C-AB	32		1036	0.031	32	0.0	3.703	A
C-A	677				677			
A-B	8				8			
A-C	350				350			

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	44.95	332	0.095	31	0.1	11.979	B
C-AB	49		1123	0.044	49	0.1	3.470	A
C-A	798				798			
A-B	9				9			
A-C	418				418			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	39	55.05	294	0.131	38	0.1	14.053	B
C-AB	86		1246	0.069	86	0.1	3.225	A
C-A	951				951			
A-B	11				11			
A-C	512				512			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	39	55.05	294	0.131	39	0.1	14.074	B
C-AB	86		1246	0.069	86	0.1	3.233	A
C-A	951				951			
A-B	11				11			
A-C	512				512			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	44.95	332	0.095	32	0.1	12.004	B
C-AB	49		1123	0.044	50	0.1	3.486	A
C-A	798				798			
A-B	9				9			
A-C	418				418			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	37.64	358	0.074	26	0.1	10.862	B
C-AB	32		1036	0.031	33	0.0	3.715	A
C-A	677				677			
A-B	8				8			
A-C	350				350			

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

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

Filename: Junction 1_DO SOMETHING.j9
Path: M:\Projects\20\20-086 - Knockrabo\Design\Traffic\Junction Modelling_Jan2021\Junction 1\Junction 1_DO SOMETHING
Report generation date: 01/02/2021 11:07:42

Summary of junction performance

	AM			PM		
	Set ID	Queue (PCU)	RFC	Set ID	Queue (PCU)	RFC
	Junction 1 - DO SOMETHING 2023					
Stream B-AC	D1	0.7	0.40	D2	0.1	0.08
Stream C-AB		0.1	0.04		0.3	0.13
	Junction 1 - DO SOMETHING 2028					
Stream B-AC	D3	0.8	0.45	D4	0.1	0.08
Stream C-AB		0.1	0.04		0.4	0.14
	Junction 1 - DO SOMETHING 2038					
Stream B-AC	D5	0.9	0.49	D6	0.1	0.08
Stream C-AB		0.1	0.05		0.5	0.15

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

File summary

File Description

Title	
Location	
Site number	
Date	11/01/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DOMAIN\l.byrne
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	DO SOMETHING 2023	AM	ONE HOUR	08:00	09:30	15
D2	DO SOMETHING 2023	PM	ONE HOUR	16:00	17:30	15
D3	DO SOMETHING 2028	AM	ONE HOUR	08:00	09:30	15
D4	DO SOMETHING 2028	PM	ONE HOUR	16:00	17:30	15
D5	DO SOMETHING 2038	AM	ONE HOUR	08:00	09:30	15
D6	DO SOMETHING 2038	PM	ONE HOUR	16:00	17:30	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Junction 1	100.000

Junction 1 - DO SOMETHING 2023, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	untitled		Minor
C	untitled		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.30			90.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.20	0	0

Zebra Crossings

Arm	Space between crossing and junction entry (Left) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (m)	Crossing time (s)
B	1.00	1.00		Distance	9.60	6.86

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	440	0.069	0.173	0.109	0.248
B-C	574	0.075	0.190	-	-
C-B	626	0.208	0.208	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	DO SOMETHING 2023	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	919	100.000
B		✓	86	100.000
C		✓	639	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	13	906
	B	52	0	34
	C	630	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.40	25.63	0.7	D
C-AB	0.04	4.56	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	65	37.64	317	0.204	64	0.3	14.162	B
C-AB	16		830	0.019	16	0.0	4.547	A
C-A	465				465			
A-B	10				10			
A-C	682				682			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	77	44.95	283	0.273	77	0.4	17.416	C
C-AB	23		878	0.026	23	0.0	4.337	A
C-A	552				552			
A-B	12				12			
A-C	814				814			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	95	55.05	235	0.403	94	0.6	25.264	D
C-AB	37		949	0.039	37	0.1	4.080	A
C-A	667				667			
A-B	14				14			
A-C	998				998			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	95	55.05	235	0.403	95	0.7	25.634	D
C-AB	37		949	0.039	37	0.1	4.089	A
C-A	667				667			
A-B	14				14			
A-C	998				998			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	77	44.95	283	0.273	78	0.4	17.683	C
C-AB	23		878	0.026	23	0.0	4.356	A
C-A	552				552			
A-B	12				12			
A-C	814				814			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	65	37.64	317	0.204	65	0.3	14.328	B
C-AB	16		830	0.019	16	0.0	4.558	A
C-A	465				465			
A-B	10				10			
A-C	682				682			

Junction 1 - DO SOMETHING 2023, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	DO SOMETHING 2023	PM	ONE HOUR	16:00	17:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	425	100.000
B		✓	25	100.000
C		✓	840	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	20	405
	B	10	0	15
	C	809	31	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.08	10.93	0.1	B
C-AB	0.13	4.06	0.3	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	37.64	409	0.046	19	0.0	9.208	A
C-AB	62		979	0.063	61	0.1	4.041	A
C-A	571				571			
A-B	15				15			
A-C	305				305			

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	44.95	388	0.058	22	0.1	9.848	A
C-AB	90		1053	0.086	90	0.2	3.860	A
C-A	665				665			
A-B	18				18			
A-C	364				364			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	28	55.05	357	0.077	27	0.1	10.920	B
C-AB	149		1158	0.128	148	0.3	3.698	A
C-A	776				776			
A-B	22				22			
A-C	446				446			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	28	55.05	357	0.077	28	0.1	10.926	B
C-AB	149		1159	0.129	149	0.3	3.705	A
C-A	776				776			
A-B	22				22			
A-C	446				446			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	44.95	388	0.058	23	0.1	9.858	A
C-AB	91		1054	0.086	91	0.2	3.883	A
C-A	664				664			
A-B	18				18			
A-C	364				364			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	37.64	409	0.046	19	0.0	9.220	A
C-AB	62		980	0.063	62	0.1	4.057	A
C-A	570				570			
A-B	15				15			
A-C	305				305			

Junction 1 - DO SOMETHING 2028, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	DO SOMETHING 2028	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	995	100.000
B		✓	86	100.000
C		✓	692	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	13	982
	B	52	0	34
	C	683	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.45	30.47	0.8	D
C-AB	0.04	4.46	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	65	37.64	303	0.214	64	0.3	15.003	C
C-AB	17		850	0.020	17	0.0	4.448	A
C-A	504				504			
A-B	10				10			
A-C	739				739			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	77	44.95	266	0.291	77	0.4	19.018	C
C-AB	25		904	0.028	25	0.0	4.226	A
C-A	597				597			
A-B	12				12			
A-C	883				883			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	95	55.05	213	0.445	93	0.8	29.815	D
C-AB	42		984	0.043	42	0.1	3.959	A
C-A	720				720			
A-B	14				14			
A-C	1081				1081			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	95	55.05	213	0.446	95	0.8	30.469	D
C-AB	42		984	0.043	42	0.1	3.966	A
C-A	720				720			
A-B	14				14			
A-C	1081				1081			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	77	44.95	266	0.291	79	0.4	19.417	C
C-AB	25		904	0.028	25	0.0	4.247	A
C-A	597				597			
A-B	12				12			
A-C	883				883			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	65	37.64	303	0.214	65	0.3	15.211	C
C-AB	17		850	0.020	17	0.0	4.459	A
C-A	504				504			
A-B	10				10			
A-C	739				739			

Junction 1 - DO SOMETHING 2028, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	DO SOMETHING 2028	PM	ONE HOUR	16:00	17:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	459	100.000
B		✓	25	100.000
C		✓	908	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	20	439
	B	10	0	15
	C	877	31	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.08	11.41	0.1	B
C-AB	0.14	3.95	0.4	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	37.64	401	0.047	19	0.0	9.417	A
C-AB	67		1011	0.067	67	0.1	3.934	A
C-A	616				616			
A-B	15				15			
A-C	331				331			

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	44.95	377	0.060	22	0.1	10.147	B
C-AB	101		1092	0.092	100	0.2	3.756	A
C-A	716				716			
A-B	18				18			
A-C	395				395			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	28	55.05	343	0.080	27	0.1	11.400	B
C-AB	171		1208	0.142	171	0.4	3.608	A
C-A	828				828			
A-B	22				22			
A-C	483				483			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	28	55.05	343	0.080	28	0.1	11.410	B
C-AB	172		1208	0.142	172	0.4	3.617	A
C-A	828				828			
A-B	22				22			
A-C	483				483			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	44.95	377	0.060	23	0.1	10.159	B
C-AB	101		1093	0.093	102	0.2	3.779	A
C-A	715				715			
A-B	18				18			
A-C	395				395			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	37.64	401	0.047	19	0.0	9.433	A
C-AB	68		1012	0.067	68	0.1	3.950	A
C-A	616				616			
A-B	15				15			
A-C	331				331			

Junction 1 - DO SOMETHING 2038, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.72	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	DO SOMETHING 2038	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1053	100.000
B		✓	86	100.000
C		✓	732	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	13	1040
	B	52	0	34
	C	723	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.49	35.67	0.9	E
C-AB	0.05	4.39	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	65	37.64	292	0.222	64	0.3	15.720	C
C-AB	18		866	0.021	18	0.0	4.376	A
C-A	533				533			
A-B	10				10			
A-C	783				783			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	77	44.95	252	0.307	77	0.4	20.462	C
C-AB	27		924	0.030	27	0.0	4.145	A
C-A	631				631			
A-B	12				12			
A-C	935				935			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	95	55.05	195	0.485	93	0.9	34.590	D
C-AB	47		1011	0.046	47	0.1	3.872	A
C-A	759				759			
A-B	14				14			
A-C	1145				1145			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	95	55.05	195	0.485	95	0.9	35.670	E
C-AB	47		1011	0.046	47	0.1	3.881	A
C-A	759				759			
A-B	14				14			
A-C	1145				1145			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	77	44.95	252	0.307	79	0.5	21.029	C
C-AB	27		924	0.030	28	0.0	4.164	A
C-A	631				631			
A-B	12				12			
A-C	935				935			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	65	37.64	292	0.222	65	0.3	15.965	C
C-AB	18		866	0.021	18	0.0	4.388	A
C-A	533				533			
A-B	10				10			
A-C	783				783			

Junction 1 - DO SOMETHING 2038, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	DO SOMETHING 2038	PM	ONE HOUR	16:00	17:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	485	100.000
B		✓	25	100.000
C		✓	959	100.000

Demand overview (Pedestrians)

Arm	Average pedestrian flow (Ped/hr)
A	
B	50.00
C	

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	20	465
	B	10	0	15
	C	928	31	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	5
	B	0	0	0
	C	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.08	11.81	0.1	B
C-AB	0.15	3.87	0.5	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	37.64	394	0.048	19	0.0	9.585	A
C-AB	72		1035	0.069	71	0.1	3.858	A
C-A	650				650			
A-B	15				15			
A-C	350				350			

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	44.95	369	0.061	22	0.1	10.390	B
C-AB	109		1122	0.097	109	0.2	3.682	A
C-A	753				753			
A-B	18				18			
A-C	418				418			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	28	55.05	332	0.083	27	0.1	11.804	B
C-AB	192		1245	0.154	191	0.4	3.554	A
C-A	864				864			
A-B	22				22			
A-C	512				512			

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	28	55.05	332	0.083	28	0.1	11.815	B
C-AB	192		1246	0.155	192	0.5	3.563	A
C-A	863				863			
A-B	22				22			
A-C	512				512			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	44.95	369	0.061	23	0.1	10.402	B
C-AB	110		1123	0.098	111	0.2	3.707	A
C-A	752				752			
A-B	18				18			
A-C	418				418			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	19	37.64	394	0.048	19	0.1	9.602	A
C-AB	72		1036	0.070	73	0.1	3.873	A
C-A	650				650			
A-B	15				15			
A-C	350				350			

C. GoCar Letter

Knockrabo Investments
DAC
32 Molesworth Street,
Dublin 2,Dublin
D02 Y512

12/10/2021

To Whom It May Concern,

This is a letter to confirm that GoCar intends to provide a service of up to 2 (Two) shared car club vehicles in the proposed Knockrabo development in Goatstown. GoCar representatives have discussed the project with representatives of Waterman Moylan, who are the Transport Planners for the development, and are excited to provide a car sharing service at this location.

It is understood that the vehicles at this development will be positioned in a small 'hub' to allow for ease of access for all residents. While it is the intention for most of these vehicles to be used exclusively by the residents of the development, GoCar may agree with the eventual managers of the site to allow some vehicles to be open for access to other GoCar members nearby. This will depend on usership levels, and will be reviewed at various periods to ensure adequate supply for the residents of the development.

GoCar is Ireland's leading car sharing service with over 60,000 members and over 800 cars and vans on fleet. Each GoCar which is placed in a community has the potential to replace the journeys of up to 15 private cars. The Department of Housing's Design Standards for New Apartments - Guidelines for Planning Authorities 2018 outline: "For all types of location, where it is sought to eliminate or reduce car parking provision, it is necessary to ensure... provision is also to be made for alternative mobility solutions including facilities for car sharing club vehicles."

Carsharing is a sustainable service. By allowing multiple people to use the same vehicle at different times, car sharing reduces car ownership, car dependency, congestion, noise and air pollution. It frees up land which would otherwise be used for additional parking spaces. Most GoCar users only use a car when necessary, and walk and use public transport more often than car owners.

By having GoCar car sharing vehicles in a development such as this, the staff therein will have access to pay-as-you-go driving, in close proximity to their offices, which will increase usership of the service.

I trust that this information is satisfactory. For any queries, please do not hesitate to contact me.

Jonathan Roche
Head of
Carsharing
GoCar Carsharing Ltd
E:jonathan.roche@gocar.

UK and Ireland Office Locations